FEASIBILITY STUDY REPORT
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

by

Haley & Aldrich, Inc.
Tucson, Arizona

for

The West Van Buren WQARF Site Working Group

File No. 37503-204
July 2014

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14 July 2014
File No. 37503-204

Ms. Danielle Taber, Project Manager
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Arizona Department of Environmental Quality
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Subject: Feasibility Study Report - West Van Buren WQARF Site

Dear Ms. Taber:

On behalf of the West Van Buren WQARF Site Working Group, Haley & Aldrich, Inc. prepared the enclosed Feasibility Study Report for the West Van Buren Water Quality Assurance Revolving Fund site in Phoenix, Arizona. The Feasibility Study was prepared consistent with the Feasibility Study Work Plan - Final dated 1 July 2013 and approved by the ADEQ on 5 August 2013.

Please contact the undersigned if you have any questions regarding this report.

Sincerely yours,
HALEY & ALDRICH, INC.

Eric Pigati

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1. INTRODUCTION

Haley & Aldrich, Inc., (Haley & Aldrich) prepared this Feasibility Study Report for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Registry Site on behalf of the West Van Buren WQARF Site Working Group (Working Group), pursuant to Arizona Administrative Code, Title 18 – Environmental Quality, Chapter 16 – Department of Environmental Quality Water Quality Assurance Revolving Fund Program, Section R18-16-407, Feasibility Study. The West Van Buren WQARF Site Feasibility Study Work Plan, prepared by Haley & Aldrich on behalf of the Working Group and dated 1 July 2013 (Haley & Aldrich, 2013), was approved by the Arizona Department of Environmental Quality (ADEQ) in a letter dated 5 August 2013 (ADEQ, 2013).

The Working Group is an unincorporated association of parties that either had or have operating facilities within the West Van Buren Area (WVBA; the Site) or other key regional stakeholders. The Working Group includes: Air Liquide America Specialty Gases, LP; Arizona Public Service Company (APS); the City of Phoenix (COP); Dolphin, Incorporated; Freescale Semiconductor, Inc.; Holsum Bakery, Inc.; Honeywell International Inc.; ITT Corporation; Laundry & Cleaners Supply, Inc.; Maricopa Land and Cattle Co.; Milum Textile Services Co.; Prudential Overall Supply, Inc.; Salt River Project Agricultural Improvement and Power District; Schuff Steel Company; and Univar USA Inc. – formerly Van Waters & Rogers. Penn Racket Sports (HTM Sport GmbH/HEAD USA/HEAD Penn Racquet Sports) also participated in the early stages of the Working Group's effort.

The WVBA is located in the western portion of the COP, approximately bounded by W. McDowell Road to the north, 7th Avenue to the east, W. Buckeye Road to the south, and 75th Avenue to the west. The approximate boundary of the WVBA is presented on Figures 1 and 2. The approximate boundaries of the Motorola 52nd Street Superfund site (M52 Site) and the West Central Phoenix, West Osborn Complex (WOC) WQARF site are also shown on Figures 1 and 2.

1.1 Feasibility Study Purpose

This Feasibility Study (FS) addresses the WVBA regional groundwater plume contaminated by chlorinated volatile organic compounds (VOCs). The FS focuses on selection of a remedial alternative that satisfies WQARF remedial action criteria, addresses impaired wells, and ensures that water supplies are available when needed to meet foreseeable needs. Evaluating any vapor intrusion risk posed by a groundwater-to-indoor air pathway is outside the scope of this FS. Facility-specific source control, actions to address soil contamination, and actions to address ongoing contributions of contaminants from within or outside of the WVBA are also outside the scope of this FS. ADEQ will undertake or oversee additional actions designed to address those issues.

The purpose of the FS is to identify remedial alternatives that are capable of achieving the remedial objectives (ROs) established by ADEQ (ADEQ, 2012a) and are consistent with the Groundwater Management Act (Arizona Revised Statutes [A.R.S.] Title 49, Section §49-282-06 (F)) and the water management plans of local water providers. A proposed remedy was then selected that satisfies the following requirements of A.R.S. Title 49, Section §49-282-06, Remedial Action criteria:

- Assure the protection of public health and welfare and the environment;
- To the extent practicable, provide for the control, management or cleanup of the hazardous substances in order to allow the maximum beneficial use of the waters of the state;

- Be reasonable, necessary, cost-effective and technically feasible; and
- For remediation of waters of the state, the selected remedial action shall address, at a minimum, any well that at the time of selection of the remedial action either supplies water for municipal, domestic, industrial, irrigation or agricultural uses or is part of a public water supply system if the well would now or in the reasonably foreseeable future produce water that would not be fit for its current or reasonably foreseeable end uses without treatment due to the release of hazardous substances. The specific measures to address any such well shall not reduce the supply of water available to the owner of the well.

This FS identifies a reference remedy and two alternative remedies [R18-16-407(E) and (F)] that satisfy the remedial action criteria and are capable of achieving the ROs, considering the needs of well owners and water providers affected by the release or threatened release of hazardous substances [R18-16-407(G)]. The reference remedy and each alternative remedy consist of a package of remedial strategies, remedial measures, and contingencies to address impaired or potentially threatened wells.

Following development of these remedial alternatives, a comparative analysis of the reference remedy and the alternate remedies was performed to select the best alternative according to the prescribed comparison criteria [R18-16-407(H)]. The extent to which the amount of water available for beneficial use was preserved by a particular type of remedial action was given special consideration (A.R.S. §49-282.06 (C)(5)). A proposed remedy was then developed based on the evaluation and comparison of the remedial alternatives [R18-16-407(I)].

1.2 Feasibility Study Objective

The objective of this FS was to develop a reference remedy and at least two alternative remedies [R18-16-407(E) and (F)] capable of achieving the ROs and that consider the needs of well owners and water providers affected by the release or threatened release of a hazardous substance [R18-16-407(G)]. The FS Report describes the process and reason for selecting the proposed remedy and describes how the comparison criteria were applied, how the selected alternative meets the ROs, and how the proposed remedy is consistent with the applicable water management plans and general land use plans.

1.3 Overall Feasibility Study Technical Approach

The Remedial Investigation Report (RI Report) prepared by ADEQ (Terranext, 2012a) provides the underlying plume characterization data and source information used for this FS. The following additional work was also completed to prepare the FS.

- A Site Conceptual Model (SCM) was prepared based on a review of the geology and hydrogeology, the nature and extent of VOC-impacted groundwater, VOC concentration trends in groundwater, and potential impacts from adjacent Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") and WQARF sites;
- Groundwater quality trends were evaluated to identify areas of relatively elevated, persistent VOC concentrations in regional groundwater that may be indicative of potential continuing VOC source(s) to WVBA groundwater, from either within or outside of the WVBA;
- Chromium in soil and groundwater originating from the source at the ChemResearch Co., Inc., facility, and possibly from other area sources, was evaluated and the potential impacts that could result from other source(s) on a regional groundwater remedy were assessed; and

- A groundwater flow model was constructed to better understand current groundwater flow conditions within the WVBA, groundwater flow conditions under reasonably foreseeable future groundwater use scenarios, and to simulate groundwater remedial alternatives that involve groundwater extraction.

The overall FS technical approach was to:

- Assess the influence of regional irrigation pumping on the plume under current conditions;
- Evaluate the influence of facility-specific source area remedial actions on VOC concentration trends in the vicinity of WVBA facilities and in regional WVBA groundwater;
- Identify locations within the regional plume that contain relatively elevated, persistent VOC concentrations that may indicate continuing VOC sources not yet identified;
- Evaluate areas within the regional WVBA plume that contain elevated dissolved-phase VOC concentrations in groundwater for potential focused remedial actions;
- Evaluate the VOC mass flux into the WVBA from adjacent sites such as the M52 Operable Unit 3 (OU3) area and the WOC WQARF site and the effect that remedial actions within these adjacent sites have had or will have on VOC mass flux into the WVBA over time;
- Assess the influence of regional pumping for remedial alternatives that include groundwater extraction;
- Evaluate and screen appropriate technologies that could be applied to remediate contaminants of concern (COCs) in groundwater[1]; and
- Evaluate remedial measures necessary to address any well that either supplies water or is part of a public supply system if the well would now or in the reasonably foreseeable future produce water that would be unfit for its end use without treatment due to its impairment by the COCs in groundwater.

This FS is focused on the regional groundwater plume and does not address ongoing contributions of contaminants to the regional groundwater plume. This FS is therefore not designed to address facility-specific sources. ADEQ has confirmed its intention to continue working to address any facility sources or other ongoing contributions to the regional plume. Some of those sources have already been addressed by the U.S. Environmental Protection Agency (EPA) or ADEQ via facility-specific consent orders or working agreements. Any on-going facility-specific sources should be addressed by the agencies.

The WVBA 2008 Draft RI Report (Terranext, 2008) identified 1,647 facilities that could have contributed to the plume. As of the date of that draft report, ADEQ had conducted some additional assessment of 136 of those facilities. ADEQ's search for Potentially Responsible Parties (PRPs), including orphan sites, is ongoing, and PRPs will be identified in the Proposed Remedial Action Plan (PRAP). Several WVBA facilities have either completed or are in the process of completing facility-specific remedial actions under the guidance of ADEQ[2].

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[1] The primary COCs in WVBA groundwater are tetrachloroethylene (PCE), trichloroethylene (TCE), and to a lesser extent 1,1-dichloroethylene (1,1-DCE). A localized plume of dissolved chromium is also present within the southeast portion of the WVBA.

[2] Terranext, 2012a.

1.4 Feasibility Study Report Organization

This FS report is organized into the following sections:

Section 1: Introduction: WVBA Working Group description; location of the WVBA; and the FS purpose, objective, and technical approach.

Section 2: Background: WVBA history and location; facilities within the WVBA and adjacent sites; water providers within and adjacent to the WVBA; and a brief description of the SCM, which is included as Appendix A.

Section 3: Remedial Objectives: Current and future land uses; current and reasonably foreseeable uses of groundwater within and adjacent to the WVBA; and final ROs for land and groundwater use.

Section 4: Current Conditions and Feasibility Study Assumptions: Current conditions and assumptions that were incorporated into the development of the remedial alternatives and proposed remedy.

Section 5: Identification and Screening of Remedial Strategies and Remedial Measures: Types of remedial strategies and remedial measures applicable to the WVBA and those retained for development of the remedial alternatives; evaluation and screening of remedial strategies and technologies such as groundwater monitoring, in-situ technologies such as soil vapor extraction/air sparging, dual-phase extraction, and reactive wall technologies, and groundwater extraction and treatment, and those retained for remedial alternatives development; discussion of potential end uses of extracted groundwater; description of the retained remedial strategies and measures, advantages/disadvantages, and unit costing assumptions.

Section 6: Remedial Alternatives Development: Remedial strategies, remedial measures, and contingencies used to develop the Reference Remedy, Less Aggressive Remedy, and More Aggressive Remedy; discussion of the groundwater model and modeling results used during remedial alternatives development; triggers for contingent remedial measures; permit requirements, advantages and disadvantages; and uncertainties.

Section 7: Comparative Evaluation of Remedial Alternatives: Evaluation of the ability to meet the ROs and consistency with water provider plans; practicability, cost, risk, benefit/value of the remedial alternatives; comparison of remedial alternatives; and the proposed remedy.

References: Provides the references used and relied upon during preparation of this FS Report.

2. BACKGROUND

VOCs were first detected in groundwater within the WVBA in 1985, during a groundwater investigation conducted by Chevron USA Inc. at its facility located south of Van Buren Street between 51st Avenue and 55th Avenue (Dames & Moore, 1985). This discovery was the inception of the WVBA WQARF site. ADEQ's November 1987 Decision Record created the Van Buren Tank Farm WQARF Area and a December 1987 amended Decision Record changed the name to the West Van Buren Area WQARF Site (ADEQ, 2010a).

Beginning in 1988, several facilities within the WVBA conducted site investigations and remedial actions under the guidance of ADEQ (Terranext, 2012a). The WVBA was placed on the State of Arizona WQARF registry in 1998 (ADEQ, 1998) and a community advisory board was formed in 1999 (ADEQ, 2010a). The RI Report, which includes the Land and Water Use report, was prepared in August 2012 by Terranext on behalf of the ADEQ (Terranext, 2012a). The RI Report also includes the Remedial Objectives report prepared by ADEQ (ADEQ, 2012a).

2.1 Location

The WVBA is located in the western portion of the COP and is approximately bounded by W. McDowell Road to the north, 7th Avenue to the east, W. Buckeye Road to the south, and 75th Avenue to the west. The approximate boundary of the WVBA is presented on Figures 1 and 2.

2.2 West Van Buren Area Facilities

The RI Report discusses numerous WVBA facilities that may have contributed to the groundwater plume. WVBA facilities identified in the RI Report as having conducted site investigations and, in most cases, remedial activities are shown in Figure 2 and listed in Table 1, and include the following:

- Air Liquide America Specialty Gases, LP;
- American Linen Supply Company;
- ChemResearch Co, Inc.;
- Department of Energy;
- Dolphin, Incorporated;
- Maricopa County Materials Management;
- Prudential Overall Supply;
- Reynolds Metals Co.; and
- Van Waters & Rogers (now Univar USA, Inc.).

Many more WVBA facilities identified in the RI Report and other potential sources have not yet conducted site investigations. ADEQ's PRP search for the WVBA, including orphan sites, is ongoing and PRPs will be identified in ADEQ's PRAP[2a].

[2a] To assist ADEQ in its search efforts, the Working Group sent a letter dated July 15, 2014 to ADEQ (Appendix F), that submits new information about orphan facilities and other PRPs to supplement ADEQ's PRP search for the WVBA.

2.3 Adjacent Sites and Water Providers

The western portion of the M52 OU3 is located adjacent to the eastern WVBA boundary at 7th Avenue. The WOC WQARF Site is located to the north of the central portion of the WVBA (**Figure 2**). Further discussion of the WVBA facilities identified in the RI Report and adjacent CERCLA and WQARF sites is provided in the SCM (Appendix A).

Primary water providers for potable or agricultural use within and adjacent to the WVBA are the COP, the City of Tolleson (COT), the Salt River Project Valley Water Users Association (SRP), and the Roosevelt Irrigation District (RID). Figure 3 shows the location of production wells, including those associated with the water providers listed above, within and adjacent to the WVBA that were either active during the last five years of the WVBA groundwater flow model (2004 through 2009), and/or those COP and SRP wells with anticipated production during the next 30 years. Water providers within or adjacent to the WVBA are further discussed in Section 3.

2.4 Site Conceptual Model

A SCM report is provided in Appendix A. Much of the SCM was prepared using data and information from the RI Report, with updates using post-2008 data and information. The RI Report and the updated SCM form the basis of the remedial alternatives developed for this FS.

The SCM provides an overview of the geology and hydrogeology of the WVBA; surface waters and canals within the project area; a brief description of the facilities within the WVBA identified in the RI Report as having performed site investigations and, in most cases, facility-specific remedial activities; a summary of the nature and extent of groundwater contamination within and adjacent to the WVBA, including impacts to groundwater from inorganic constituents resulting from historical agricultural land use; and an evaluation of the overall WVBA plume stability and COC concentration trends in groundwater.

The main concepts of the WVBA SCM presented in Appendix A are provided below.

- The Upper Alluvial Unit 1 (UAU1) is the uppermost aquifer, consisting primarily of coarse grained sand and gravel with some silt and clay, including occasional thin interbedded silt and clay layers. UAU1 hydraulic conductivities used in the WVBA groundwater flow model ranged from 100 to 1,000 feet per day in the upper, more permeable UAU1 to 75 to 500 feet per day in the lower UAU1 (Brown and Caldwell, 2014).
- The underlying Upper Alluvial Unit 2 (UAU2) consists of sand and gravel with a higher percentage of silt and clay and interbedded fine-grained layers compared to the UAU1. UAU2 hydraulic conductivities used in the WVBA groundwater flow model ranged from 1 to 100 feet per day (Brown and Caldwell, 2014).
- The UAU saturated thickness is approximately 200 feet.
- The UAU aquifer is generally unconfined. The current depth to the water table is on the order of 100 to 150 feet below ground surface (bgs).
- Groundwater extracted from production wells within the WVBA is likely primarily derived from the UAU1, due to its prolific water-producing nature relative to the other alluvial units.

- Groundwater contamination within the WVBA is generally constrained to the UAU1 and the UAU2.
- UAU groundwater is also impacted by inorganic constituents, primarily total dissolved solids (TDS), resulting from extensive historical agricultural land use within the WVBA.
- Overall groundwater flow direction within the WVBA is from east to west at hydraulic gradients ranging from approximately 0.002 feet per foot (ft/ft) to 0.004 ft/ft in the eastern WVBA, generally flattening to 0.0005 ft/ft in the central and western WVBA. Should RID irrigation pumping within the WVBA cease, the overall groundwater flow direction would likely shift to the northwest, towards the regional pumping depression known as the Luke Sink, near the Luke Air Force Base.
- RID pumps approximately 75,000 acre-feet per year (AFY) for irrigation use on a seasonal basis, primarily March through September, from approximately 32 production wells located within and adjacent to the WVBA. The aggregate pumping of these irrigation wells creates a regional hydraulic trough or sink within the WVBA.
- Historical operations at some facilities within the WVBA have impacted groundwater. The primary COCs in WVBA groundwater are PCE, TCE, and to a lesser extent 1,1-DCE. A localized plume of dissolved chromium is also present within the southeast portion of the WVBA.
- Facility-specific source remediation at select WVBA facilities has reduced the VOC source input at these WVBA facilities to the regional WVBA plume. At several facilities, COC concentrations within facility-specific monitoring wells have declined significantly following source remediation work, in some cases by orders of magnitude.
- Some areas of persistent, relatively elevated VOC concentrations near and/or downgradient of other WVBA facilities indicate the potential for ongoing source inputs to the regional WVBA plume in these areas.
- According to the WVBA RI Report, "Groundwater contamination enters the WVBA from the east from the Motorola 52nd Street Federal Superfund Site OU3 area." TCE and 1,1-DCE, and to a lesser extent, PCE are the primary COCs in the M52 OU3 plume.
- While the M52 OU3 RI/FS is currently being completed, it is assumed that the M52 Site plume has commingled with the regional plume of groundwater contamination originating from historical WVBA facility operations. Although not fully defined, the downgradient extent of the WOC WQARF site plume, with TCE as the primary COC, also appears to have merged with the north-central portion of the WVBA.
- Operation of the M52 Operable Unit 2 (OU2) groundwater extraction system since 2001 has effectively cut off the dissolved-phase plume at the OU2/OU3 boundary, resulting in overall COC concentration declines in M52 OU3 monitoring wells and in UAU1 monitoring wells in the eastern and central portion of the WVBA.
- As a result of the WVBA facility-specific remedial work, the M52 OU2 groundwater extraction system, and irrigation pumping, the WVBA plume appears to be stable with generally declining concentration trends in the UAU1. Within the more fine-grained UAU2, VOC concentrations in UAU2 monitoring wells located along the axis of the WVBA plume have remained generally consistent over time.

3. REMEDIAL OBJECTIVES

In 2012, ADEQ established WVBA ROs for impacted or threatened land and water in terms of current and reasonably foreseeable land use and current and reasonably foreseeable beneficial uses of the waters of the state [(R18-16-406(D) and (I)]. Reasonably foreseeable land uses are those uses of land likely to occur at the Site. Reasonably foreseeable water uses are those likely to occur within 100 years unless a longer time period is shown to be reasonable based on site-specific information.

ADEQ's ROs for the WBVA were based on the 2012 Land and Water Use Report that contains descriptions of current and reasonably foreseeable land use for the COP and COT, and current and reasonably foreseeable use of water for the COP, COT, SRP, RID, and private wells within the WVBA (Terranext, 2012b).

Sections 3.1 and 3.2 include a summary of current and reasonably foreseeable land and water use in the WVBA, referenced from the Land and Water Use Report (Terranext, 2012b), the COP's General Plan (COP, 2004), the 2011 update to the COP's Water Resources Plan (COP, 2011), information from the 2 October 2013 water provider meeting described below, and subsequent meetings. The ROs for land, groundwater, and surface water are provided in Section 3.3.

The Working Group consulted with the area water providers to obtain additional information to develop remedial measures. As part of a 2 October 2013 meeting between Haley & Aldrich and local water providers, COP, SRP, and RID provided additional information regarding their current and reasonably foreseeable future use of groundwater within and adjacent to the WVBA. Completed water provider meeting questionnaires and backup information provided by the COP, SRP, and RID are included in Appendix B. Information on the proposed, future COT production wells was provided by COT's Supervisor of Water Utilities (COT, 2014).

3.1 Current and Future Land Use

The WVBA is located within the COP and abuts the COT's eastern boundary at 75th Avenue. Current and future land use is provided in the COP's General Plan, which includes the goals, policies, and recommendations for land use development during the next 10 to 20+ years.

The COP is made up of 15 "urban villages"; the Central City and Estrella urban villages are located within the WVBA. While overall land use, employment, and population within Central City are not expected to change significantly over time, the COP has identified Estrella as a targeted growth area because of the amount of agricultural land available for residential and/or commercial development. Estrella is therefore expected to have significant increases in both employment and residential growth. The projected residential growth within Estrella is primarily outside of the WVBA, south of Lower Buckeye Road and west of 75th Avenue. Based on the COP General Plan, land use within the WVBA is projected to continue to be predominantly industrial.

The following table provides the actual 2002 and projected General Plan land uses in Central City and Estrella.

	Central City		Estrella	
Land Use Category	**2002 Land Use (% of total)**	**General Plan (% of total)**	**2002 Land Use (% of total)**	**General Plan (% of total)**
Large Lot Residential	11%	16%	4%	10%
Small Lot Residential			4%	27%
Medium Density Residential	3%	5%	1%	4%
High Density Residential	2%	1%	1%	0.2%
Commercial	9%	14%	1%	3%
Industrial	16%	23%	18%	35%
Commerce Park	6%	0.10%	0.3%	4%
Public/Quasi Public	8%	7%	8%	8%
Transportation/Airport	28%	21%	1%	1%
Parks -Open Space	6%	13%	6%	8%
Agriculture	0.01%	---	49%	---
Vacant	9%	---	7%	---

Source: COP General Plan

By 2030, Central City and Estrella are projected to grow to the following numbers (the increase shown is from actual 2000 to projected 2030 numbers):

- Central City: Employment (116,000; 1.07X increase); population (164,000; 1.2X increase); and households (66,000; 1.11X increase).
- Estrella: Employment (148,000; 3.13X increase); population (146,000; 3.36X increase); and households (40,000; 4.2X increase).

In 2000, the highest percentages of land use for the COT were agriculture (46 percent); industrial/warehouse (24 percent); and residential (14 percent). Land use in eastern Tolleson, adjacent to the WVBA, is primarily agriculture and industrial (Terranext, 2012b).

3.2 Current and Reasonably Foreseeable Water Use

The following information on current and reasonably foreseeable water use within the WVBA is based on the Land and Water Use Report and completed questionnaires, the 2011 update to the COP's Water Resources Plan, information from the 2 October 2013 water providers meeting, and subsequent meetings.

3.2.1 Current Water Use

Groundwater within the WVBA is used for agricultural purposes and some industrial use, but not as a municipal drinking water supply. The COP and SRP do not currently have production wells located within the WVBA (COP, 2005; SRP, 2011; Figure 3). RID extracts the largest amount of groundwater from within and adjacent to the WVBA under agreements with SRP as noted below. RID produces approximately 75,000 AFY of groundwater from 32 irrigation wells located within or adjacent to the WVBA (Figure 3), primarily during the irrigation season from approximately March to September. There were also some private water wells identified within the WVBA during the Land and Water Use study.

City of Phoenix

The 2011 update to the COP's Water Resources Plan provides information on water acquisition, water management, and infrastructure needed to ensure a sustainable water supply for current customers and anticipated growth over the next 50 years. In a normal supply year, the COP water demand of approximately 302,000 AFY is currently met with the following sources:

- SRP (50 percent);
- Central Arizona Project ([CAP]; 44 percent);
- Reclaimed Water (3 percent); and
- Groundwater (3 percent).

In years with surface water shortfalls, a portion of the COP supply may consist of groundwater pumped from SRP wells. The COP also maintains a number of groundwater production wells for operational flexibility and use when CAP and/or SRP supplies are reduced (COP, 2011). As noted above, currently there are no COP or SRP production wells within the WVBA (Figure 3).

Historically, the COP developed or acquired more than 200 production wells, although the COP has removed a majority of these wells from service due to age, decreased efficiency, and/or degraded groundwater quality[3]. From 1981 to 2000, the total loss of COP well production due to degraded groundwater quality exceeded 90,000 AFY. While some COP production wells have been impacted by VOCs, many COP wells have been closed due to groundwater degradation from inorganic constituents such as chromium, arsenic, and nitrate (COP, 2011).

The COP currently has access to 25 groundwater production wells that can generate 28 million gallons of water per day, or 31,350 AFY. These wells are located one mile or more from the WVBA, mostly in the north-central portion of the COP, and are used for operational flexibility and during times of reduced CAP and/or SRP surface water supplies. The actual number of available production wells varies at any given time due to maintenance issues. Based on the current COP production well capacity and a 65 percent duty cycle, the COP can produce approximately 20,000 AFY from these wells (COP, 2011).

The current projected groundwater use for normal supply years and General Plan-based growth is 15,000 AFY, although withdrawals in recent years have been lower, averaging approximately 9,000 AFY. The COP is evaluating the expansion of their groundwater production well network to increase operational flexibility, manage water quality, and reduce the impacts of potential future surface water shortages.

Salt River Project

The SRP manages surface water and groundwater rights within the Salt River Reservoir District (SRRD) geographic region. The WVBA is within SRP "Member" lands and groundwater within the WVBA underlies the SRRD.

SRP has several groundwater production wells located in the vicinity of the WVBA that feed the SRP lateral system. There are no SRP wells currently located within the WVBA (**Figure 3**). Since SRP wells are used to supplement surface water supply on an as-needed basis, their annual groundwater use fluctuates depending upon the availability of surface water (SRP, 1996). From 2003 through 2013, total SRP pumping within five miles of the WVBA ranged from 13,500 AFY in 2008 to 72,300 AFY in 2003. The total depth of these wells range on the order of 500 to 1,500 feet deep, in most cases constructed with 16- to 20-inch casing, and are generally completed within the UAU and Middle Alluvial Unit (MAU), although some are completed in the MAU and Lower Alluvial Unit (LAU).

[3] COP Well #179, the only COP production well located within the WVBA, has been abandoned.

During 2012, approximately 64 percent of water delivered by SRP was for municipal/industrial use within the totality of the SRP service area, with 36 percent for agricultural use, turf irrigation, and recreational use. These percentages have been relatively consistent since 2007 (SRP, 2013).

To date, no SRP wells have been impaired by the WVBA plume (SRP, 2011).

Roosevelt Irrigation District

RID pumps the largest amount of groundwater within the WVBA under contracts with the SRP, all of it used to provide irrigation water to members in RID's service area west of the Agua Fria River, outside of the WVBA.

In the late 1910s, waterlogged land resulting from regional hydrogeologic conditions and irrigation return flows threatened local farming operations within the WVBA. In 1920, the SRP entered into an agreement with the Carrick and Mangham Agua Fria Lands and Irrigation Company (RID's predecessors) to withdraw a certain amount of groundwater to help alleviate the waterlogged conditions. According to the SRP, the 1920 agreement and subsequent supplemental agreements for water production with Carrick-Mangham and RID will expire no later than 2026 (SRP, 2009).

RID operates approximately 50 wells within the SRRD during the peak irrigation season, generally from March to September (Terranext, 2012a) and 32 of these wells are located within or adjacent to the WVBA (Figure 3). Total annual RID pumping within the SRRD is approximately 135,000 AFY (SRP, 2009), which is conveyed to the RID irrigation service area west of the Agua Fria River via a conveyance system of canals and pipelines. About 75,000 AFY is pumped from 32 RID wells within and adjacent to the WVBA and 60,000 AFY are pumped from the remaining 18 RID wells.

During 2008 and 2009, the average pumping rate of RID wells within the WVBA ranged from approximately 1,500 to 4,800 gallons per minute ([gpm]; Montgomery & Associates, 2009a). Total depths of RID wells located within and adjacent to the WVBA range from 284 to 1,800 feet deep. Most of the RID wells are screened across the UAU1, UAU2, and into the upper MAU, with some of the deeper wells screened across the UAU1, UAU2, MAU, and into the LAU.

The COP 23rd Avenue wastewater treatment plant (WWTP) discharges approximately 30,000 AFY to the RID Main Canal on a year-round basis as part of a "3-way exchange" between the COP, RID, and SRP in which: (1) the COP delivers up to 30,000 AFY of reclaimed water to RID for irrigation use within RID's service area; (2) RID leases SRP wells to provide a like amount of water to the SRP canal system; and (3) the SRP then delivers up to 20,000 AFY of surface water to the COP water treatment plants and up to 10,000 AFY of surface water to the Salt River Pima-Maricopa Indian Community (COP, 2005).

City of Tolleson

The COP supplies the COT with municipal water through an Inter-Governmental Agreement. The COT also has four production wells located west of the WVBA that are mainly used in the summer months as a backup supply (COT, 2005). During 2009, the total production from COT wells was approximately 750 AFY.

APS Industrial Wells

The APS West Phoenix Power Plant has several production wells used to supply cooling water during operations (see the 55-613*XXX* wells shown in Figure 3). Well #8 is the deepest APS production well at 1,809 feet deep, screened from approximately 1,100 feet to total depth, and completed in the LAU. During 2009, production from these wells ranged from approximately 200 AFY (125 gpm) to 725 AFY (450 gpm).

Private Water Wells

ADEQ sent outreach letters to 48 possible domestic well owners within the WVBA in 1995. Of the 18 responses received, three reported operational private domestic wells, 12 reported a municipal water supply, and three reported private wells not used for consumptive purposes. ADEQ followed up with a telephone call to the 18 respondents; 17 were contacted and nine allowed access to sample their well (Terranext, 2012b).

On 31 March 1995, ADEQ collected groundwater samples from each of the 10 domestic wells on the nine properties. Groundwater samples from two of the wells contained detectable TCE and PCE concentrations. A well registered to Southwest Trail Boss (345 S. 83rd Avenue) contained TCE and PCE at concentrations below the Aquifer Water Quality Standards (AWQS); according to the completed questionnaire, this well was not used for drinking water. A well registered to Greenwood Memory Lawn (2300 West Van Buren) contained TCE (6.9 micrograms per liter [μg/L]) and PCE (below the AWQS of 5 μg/L). The remainder of the domestic wells sampled did not contain TCE or PCE above their respective AWQS. Completed ADEQ Land and Water Use questionnaires also indicated the following private wells are located in the WVBA (Terranext, 2012b):

- Straight Arrow Enterprises (one well for domestic and landscaping use);
- 7300 W. Van Buren (domestic and livestock watering uses);
- 5727 W. Van Buren (domestic use for two residences);
- 6510 W. Buckeye (unidentified use); and
- U.S. Department of Energy (one irrigation well).

No private well owners responded to the solicitation for ROs (ADEQ, 2012a).

3.2.2 Reasonably Foreseeable Water Use

Reasonably foreseeable water use is that water use that is likely to occur within 100 years, unless a longer time period is shown to be reasonable based on site-specific information. As discussed above, groundwater within the WVBA is currently used for agricultural purposes and some industrial use but not as a municipal drinking water supply.

Land use within a portion of the WVBA and adjacent areas has been transitioning from irrigated agricultural lands to more urbanized municipal uses, and the associated groundwater uses will also likely transition from agricultural to municipal in the reasonably foreseeable future. Residential growth slowed temporarily during the recent economic downturn. As growth resumes, groundwater uses will continue to transition from agricultural to municipal. At some point in the next 100 years, these groundwater uses may include use of SRP groundwater production wells in the vicinity of the WVBA

for municipal drinking water supply and use of RID production wells in the vicinity of the WVBA for municipal drinking water supply, assuming the infrastructure is available to deliver drinking water and that RID or some other entity has the legal authorization to provide a municipal drinking water supply from one or more of these production wells.

Because there is considerable uncertainty regarding the exact timing of groundwater needs within the WVBA in the reasonably foreseeable future, groundwater end use, regional pumping, and the effects of ongoing drought conditions, contingency strategies and measures will be included in the FS to address reasonably foreseeable uses of groundwater with uncertain time frames. Such measures maximize the amount of water preserved within the aquifer and available for beneficial use in the future. These contingencies may include triggers resulting in implementing a pre-selected strategy or measure, or possibly a focused remedy selection process in which the water provider and stakeholders select the strategy or measure when the timing of water needs becomes certain.

City of Phoenix

While the COP does not have specific plans for groundwater wells within the WVBA today, the COP states in its 2011 Groundwater Management Plan, *"With regard to remediation of contaminated groundwater within Phoenix's service area, it has been the City's stated intent to preserve that water for future service area use."* In correspondence and discussions with ADEQ, EPA, and the Working Group, the City has emphasized that the central Phoenix aquifer is an important future water supply that the City will need to be able to access. The COP currently holds more than two million acre-feet of groundwater allowance credits for use over a 100-year period. Additional credits are accrued by the COP each year to reflect the incidental recharge of local aquifers which results from service area usage. These credits are mostly intended to provide drought relief, and will be recovered for that purpose from the COP's future groundwater wells.

The COP has evaluated approaches for using its additional water supplies for which it has legal rights but currently lacks physical access, such as treatment or delivery infrastructure, including: (1) expanded local groundwater and recharged water supplies; and (2) reclaimed water from the COP's three wastewater treatment plants. Except for existing groundwater capacity, these sources will require significant capital investments (COP, 2011).

The COP's local production well network could be expanded to reduce drought impacts, meet peaking needs, and provide operational flexibility. The projected groundwater use for normal supply years and General Plan-based growth is 15,000 AFY, about one-half of the full-time groundwater capacity of 28 million gallons of water per day.

Expansion of the COP well capacity by rehabilitating older wells and developing new service area wells is described in the COP's Groundwater Management Plan, including the development of 15 new service area wells. Developing all identified well opportunities would yield approximately 70,000 AFY (COP, 2011). Four of these 15 new service area wells will be located along the Salt River between 35th Avenue and 68th Avenue (outside of the WVBA boundary) as part of the Western Canal Well Field. These new production wells will be screened in the LAU only and are anticipated to provide a total of 12,000 AFY[4] of production once they go on-line in approximately 2020.

[4] Equivalent to approximately 1,800 gpm per well assuming year-round pumping.

The COP provided Haley & Aldrich a list of COP production wells (completed within the UAU and located within the WVBA groundwater model boundary) and anticipated per-well pumping rates over the next 30 years, with aggregate pumping of a constant 7,500 AFY over this time period. None of these COP wells are located within the WVBA boundary (Figure 3).

Salt River Project

The SRP has several groundwater production wells near the WVBA, although none of them are located within the WVBA boundaries. To date, SRP's use of these wells has not been impacted by the WVBA groundwater plume. As a result of changing land use in the area, SRP anticipates that some SRP wells will eventually transition to a drinking water use in the reasonably foreseeable future, either by directly connecting the wells to municipal distribution systems within the SRRD, or piping to municipal water treatment plants located on the SRP canal system as a drought supply (SRP, 2011).

While SRP does not have plans to drill new wells or replace existing wells within the next five years, they consider all land within the SRRD boundary potentially available for future well locations (SRP, 2013). The SRP provided Haley & Aldrich a list of SRP wells within the groundwater model boundary along with anticipated per-well pumping rates over the next 30 years (Figure 3). In aggregate, SRP pumping from these wells is anticipated to increase at a linear rate from 25,000 AFY in 2012 to 35,000 AFY in 2035 and then remain constant at 35,000 AFY from 2036 through 2041.

Roosevelt Irrigation District

As discussed above, under agreements with the SRP, today RID operates approximately 50 wells within the SRRD, generally during the peak irrigation season from March to September (Terranext, 2012b); 32 of these wells are located within or adjacent to the WVBA. Approximately 135,000 AFY are extracted during RID operations within the SRRD and conveyed to the RID irrigation service area outside the WVBA, west of the Agua Fria River, via a system of canals and pipelines. According to the SRP, the 1920 agreement and subsequent supplemental agreements with Carrick-Mangham and RID will expire no later than 2026 (SRP, 2009). RID's groundwater pumping within or adjacent to the WVBA (for delivery of irrigation water to their service area located outside of the WVBA) is therefore anticipated to continue at approximately the same rates until no later than 2026.

Regarding reasonably foreseeable water uses, the 12 November 2007 Land and Water Use Report questionnaire completed by RID (RID, 2007) stated that RID's current water use is *"for non-potable purposes within the District's boundaries*" and RID's future water use of wells, canals, and laterals for the foreseeable future *"will continue to be used much as they are today."* The RID questionnaire also stated the future use (up to 100 years) for any RID well impacted by the WVBA plume would be *"Same as today."* RID submitted a revised questionnaire to ADEQ dated 12 January 2010 (RID, 2010a) which stated that *"Currently, the wells in the WVB site provide water supply for irrigation but the wells will transition to drinking water supply as residential and commercial development continues in the District."* The revised questionnaire did not explain the legal mechanism or timing of this proposed transition. RID clarified in its response to the water provider questionnaire that it does not intend to itself become a potable water provider or provide direct delivery of potable water to its own customers.

RID has proposed sale of its water supply to water providers outside the WVBA. RID proposed that the water would serve as a raw water supply for drinking water end uses by the purchasers' customers (RID, 2010a). Arizona Department of Water Resources (ADWR) has expressed concern about RID's authority to move groundwater from within the boundaries of a water provider that has obtained a

Designation of Assured Water Supply (in this case the COP) and the potential to negatively affect that Designation (ADWR, 2010). Others have raised additional concerns regarding RID's authority to move groundwater from within the WVBA in the future (SRP, 2011; West Van Buren Working Group, 2011). These legal issues have not yet been resolved.

The COP 23rd Avenue WWTP discharges approximately 30,000 AFY to the RID Main Canal on a year-round basis as part of a COP/RID/SRP "3-way exchange" described above. However, the 2005 update to the COP Water Resources Plan states, with regard to reclaimed water use, *"An additional factor to consider involves the diminishment of the "three way" exchange and the RID GSF* [groundwater storage facility] *over time due to urbanization of agricultural lands."* and that, in the future, excess reclaimed water from the COP 23rd Avenue WWTP may be stored at the Agua Fria Linear Recharge Project (COP, 2005). The water supply and demand modeling assumptions in the 2011 update to the COP's Water Resources Plan assumes that the COP/RID/SRP "3-way exchange" will phase out in 2031.

City of Tolleson

While the Land and Water Use report (Terranext, 2012b) does not include information on reasonably foreseeable use of groundwater for the COT, the Inter-Governmental Agreement with the COP will likely continue into the future. The COT also intends to drill and construct five new production wells over the next three to 10 years (see COT-1 through COT-4 on Figure 3; COT-5 is located west of the figure boundary); three wells near I-10 and N. 83rd Avenue, one at 104th Avenue and Cowden, and one near 75th Avenue and W. Buckeye Rd. Each well is anticipated to be drilled to a total depth of 700 feet bgs, screened from 525 to 700 feet bgs, and are expected to each produce a minimum of one million gallons per day (approximately 700 gpm) (COT, 2014).

APS Industrial Wells

There are no anticipated future changes to current groundwater use at the APS West Phoenix Power Plant (Terranext, 2012b).

Private Water Wells

Based on the completed ADEQ Land and Water Use questionnaires, there are no known planned changes to the limited number of private water wells within the WVBA (Terranext, 2012b). Those uses include irrigation, industrial, livestock watering, and household domestic uses.

3.3 Remedial Objectives

Pursuant to R18-16-406(I), ADEQ established ROs for current and reasonably foreseeable land and water use based on the Land and Water Use Report (Terranext, 2012b) and public comments (ADEQ, 2012a). The FS evaluates remedial alternatives capable of achieving the final ROs, which are established for each listed use to:

- Protect against loss or impairment of each listed use that is threatened to be lost or impaired as a result of a release of a hazardous substance;
- Restore, replace, or otherwise provide for each listed use to the extent that it has been or will be lost or impacted as a result of a release of a hazardous substance;

- Provide time frames when action is needed to protect against or provide for the impairment or loss of the use; and
- Provide the projected duration of the action needed to protect or provide for the use.

As stated in the Arizona Administrative Register's March 2002 Notice of Exempt Rulemaking, Title 18 (Environmental Quality), Chapter 16 (WQARF Program), "*Remedial objectives described in this rule* [R18-16-406] *are based on uses determined by the community and are defined by the Department with significant community involvement. The objectives are designed to protect and provide for uses of land and water. This does not mean that the aquifer will always be cleaned up to drinking water standards or to a level suitable for the use. Instead, the rule requires different uses to be identified and a remedy is selected which will protect and provide for the uses.*"

The following sections discuss the specific WVBA RO categories included in the FS.

3.3.1 Remedial Objectives for Land Use

The ROs for land use in the WVBA are:

- "Protect against possible exposure to hazardous substances in surface and subsurface soils that could occur during development of property based upon applicable zoning regulations";
- "Protect against possible leaching of hazardous substances in surface and subsurface soils to the groundwater"; and
- "Protect against the loss or impairment of current and all reasonably foreseeable future uses of land as provided in zoning regulations and the Land and Water Use report as a result of hazardous substances in surface and subsurface soils. Appropriate remedial actions will be implemented as an Early Response Action (ERA) or after the record of decision (ROD) is finalized, whichever is warranted and continued until hazardous substances causing the impairment or restriction to the land use are remediated."

3.3.2 Remedial Objectives for Groundwater Use

ADEQ's RO report included ROs for municipal, agricultural, and private uses of groundwater.

Municipal Groundwater Use: The ROs for current and reasonably foreseeable future municipal groundwater use in and near the WVBA are:

- "To protect, restore, replace or otherwise provide a water supply for municipal use by currently and reasonably foreseeable future municipal well owners within the WVBA WQARF site if the current and reasonably foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."
- "To protect, restore, replace or otherwise provide a water supply for municipal groundwater use by currently and reasonably foreseeable future municipal well owners outside the current plume boundaries of the WVBA WQARF site if the current and reasonably foreseeable future

uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

Agricultural Groundwater Use: The ROs for current and reasonably foreseeable future agricultural groundwater use in and near the WVBA are:

- "To protect, restore, replace or otherwise provide for the current and reasonably foreseeable future supply of groundwater for agricultural/irrigation use and for the associated recharge capacity that is threatened by or lost due to contamination associated with the WVBA WQARF site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

Private Groundwater Use: The ROs for current and reasonably foreseeable future private groundwater use in and near the WVBA are:

- "To protect, restore, replace or otherwise provide a water supply for potable or non-potable use by currently impacted commercial, industrial, and domestic well owners within the WVBA WQARF site if the current and reasonably foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."
- "To protect, restore, replace or otherwise provide a water supply for potable or non-potable use by commercial, industrial, and domestic well owners outside the current plume boundaries of the WVBA WQARF site if the current and reasonably foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

3.3.3 Remedial Objectives for Canal Water Use

The ROs for RID's current and reasonably foreseeable future canal water use in and near the WVBA are:

- "To protect, restore, replace or otherwise provide a water supply for potable or non-potable use by currently impacted RID wells within the WVBA WQARF site if the current and reasonably foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available

and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

- "To protect, restore, replace or otherwise provide a water supply for potable or non-potable use by RID wells outside the current plume boundaries of the WVBA WQARF site if the current and reasonably foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

3.3.4 Remedial Objectives for Surface Water Use

The ROs for the SRP's current and reasonably foreseeable future surface water use in and near the WVBA are:

- "To protect, restore, replace or otherwise provide a water supply for potable or non-potable use by SRP wells outside the current plume boundaries of the WVBA WQARF site if the current and foreseeable future uses are impaired or lost due to contamination from the site. Remedial actions will be in place for as long as need for the water exists, the resource remains available and the contamination associated with the WVBA WQARF site prohibits or limits groundwater use. Remedial actions to meet ROs will be implemented upon issuance of the ROD. If there is an imminent risk to human health or the environment, then an ERA may be initiated prior to implementation of the ROD."

4. CURRENT CONDITIONS AND FEASIBILITY STUDY ASSUMPTIONS

The remedial alternatives were developed within the framework of the current conditions within the WVBA, assuming continued pumping for irrigation use and considering the water quality improvements and source reductions resulting from facility-specific work performed to date, operating the M52 OU2 extraction system, and the COC concentration trends in WVBA groundwater. The aspects of the SCM described in Appendix A have been incorporated into the development of the FS alternatives, along with certain assumptions. This section provides an overview of the current conditions and assumptions that helped guide the development and formed the basis of the remedial alternatives.

4.1 Current Conditions

While a more detailed discussion is provided in the SCM in Appendix A, the primary current conditions that formed the basis of the development of the FS remedial alternatives include the following.

Regional irrigation pumping has a significant influence on overall water levels, hydraulic gradients, and groundwater flow directions within the WVBA. Factoring this regional pumping and potential future changes to regional pumping into the FS remedial alternatives is necessary and critical. The aggregate effects of irrigation pumping is the formation of a regional hydraulic trough or sink within the WVBA, with capture zones of the regional irrigation wells extending over the WVBA plume footprint, resulting in hydraulic control of the overall WVBA plume under current conditions. Additional hydraulic control wells as part of a remedial alternative would therefore only serve to remove additional groundwater from storage beneath the WVBA.

Potential future changes in regional pumping would also need to be addressed with contingencies. For example, should RID irrigation pumping within the SRRD cease in the future, groundwater modeling indicates that static water levels in the central portion of WVBA may rise up to 80+ feet over a period of 15 to 20 years, and the overall flow direction within the WVBA would likely shift from east to west to a more northwesterly direction over time. Production wells in this new downgradient direction may need to be addressed via remedial measures should they become impaired.

Facility-specific remedial work within the WVBA has resulted in declining source inputs to the WVBA regional plume. Critical to addressing any regional VOC plume is mitigating or eliminating facility-specific source areas that contribute to the regional plume. Without addressing ongoing sources, the regional plume will likely persist. Some facilities within the WVBA have performed remedial work and as a result, VOC concentrations have declined in facility-specific monitoring wells, in some cases by orders of magnitude. The effect of this work is reduced VOC source inputs to the WVBA regional plume resulting, in part, in overall declining VOC concentration trends. Many other facilities within the WVBA have not yet performed the necessary source control measures and as a result, facility-specific sources continue to contribute to the regional plume. ADEQ is continuing to identify these facilities and for purposes of this FS, it is assumed that ADEQ will require the necessary source control measures to be implemented.

The M52 OU2 groundwater extraction system has contained the VOC mass flux at the OU2/OU3 boundary. The result is significant declines in VOC concentrations in downgradient OU3 monitoring wells. Attenuation within OU3 has further reduced the ongoing VOC mass flux across the WVBA border, resulting in significant declines in VOC concentrations in UAU1 monitoring wells in the eastern

and central WVBA, along with an overall narrowing of the plume width in the eastern portion of the WVBA. Ongoing monitoring within OU3 and at the OU3/WVBA boundary will help determine whether concentrations continue to decline until the AWQS are met. The OU3 RI/FS is also being completed under EPA oversight and should be issued in the spring of 2015.

VOC concentrations in UAU1 regional groundwater have generally been on the decline. As a result of the aggregate effect of facility-specific remedial work performed to date, the M52 OU2 extraction system, and groundwater extraction from regional irrigation pumping, VOC concentrations in the regional WVBA plume within UAU1 have generally been declining over time, in some cases by an order of magnitude or more.

VOC concentrations in UAU2 groundwater along the plume axis have generally been stable. This may be the result of silt and clay layers within the UAU2 and the generally higher percentage of fine grained materials and lower large-scale hydraulic conductivity compared to UAU1. Less groundwater flux and less flushing of dissolved-phase VOC mass, along with possible sorption and desorption on fine grained materials may help explain the stable UAU2 VOC concentration trends. The possibility of unidentified ongoing sources also exists. UAU2 monitoring wells located off of the main axis of the plume, however, exhibit declining VOC concentration trends.

The overall lateral extent of the WVBA plume has either decreased or remained stable, depending on the area. VOC concentrations over time in UAU1 monitoring wells along the perimeter of the current WVBA plume have been either non-detect or stable at concentrations below the AWQS, indicating that the lateral extent of the WVBA plume is currently stable. In some areas the lateral extent of the plume has diminished over time, particularly in the western and east-central WVBA. UAU2 monitoring wells along the perimeter of the UAU2 VOC plume have remained either non-detect or below AWQS over the last seven to 10 years or so, suggesting that the UAU2 plume extent is relatively stable.

4.2 FS Assumptions

Along with the current conditions described above, the following assumptions were also made during development of the remedial alternatives.

Facility-specific source work will be completed under ADEQ guidance separate from this FS. Mitigating or eliminating ongoing facility-specific VOC source areas is critical to the success of any effort to address the regional WVBA plume and provide for reasonably foreseeable water uses. If sources are not addressed, they will continue to provide source input to the regional plume, causing COCs to persist for a long period of time. One FS assumption is that source control within the WVBA will be addressed by ADEQ independent of this FS.

The M52 OU2 extraction system will continue to operate. The operation of this system since 2001 has reduced the VOC mass flux across the OU2/OU3 boundary as well as the downgradient OU3/WVBA boundary. As the mass flux has diminished, VOC concentrations in OU3 monitoring wells and within the eastern and central WVBA in UAU1 have declined over time. The development of the WVBA FS remedial alternatives assumes that the mass flux at the OU3/WVBA boundary will further decline as the OU2 extraction system continues to operate until VOC sources upgradient of the OU2/OU3 border have been mitigated to the extent practicable and operation of the OU2 system is no longer deemed necessary.

The WOC implements its WQARF remedy that addresses continuing migration of VOCs into the north-central portion of the WVBA. The downgradient extent of the WOC WQARF site plume appears to have merged with the north-central portion of the WVBA (Terranext, 2012a). This FS assumes that ADEQ will ensure that the VOC mass flux across the WOC/WVBA boundary is addressed by the WOC remedy.

RID irrigation pumping will continue at its current rates until at least 2026. The FS assumes that RID will continue seasonal pumping at its current rates[5]. The FS remedial alternatives, however, will provide for contingent remedial strategies and/or remedial measures to be triggered by a significant change in regional irrigation pumping. For example, according to the SRP, the 1920 agreement and subsequent supplemental agreements with Carrick-Mangham and RID will expire no later than 2026 (SRP, 2009) and RID may be required to cease pumping within the SRRD at this time. The remedial alternatives will need to include contingent remedial strategies and/or measures to address this potential scenario if levels of contaminants in the WVBA regional plume are still above AWQS at that time at concentrations that could impact then-current or reasonably foreseeable uses of groundwater.

[5] While RID's "Early Response Action Work Plan" dated 03 February 2010 includes proposed year-round pumping at select RID wells, during a 11 March 2014 meeting, an ADEQ representative said the agency had requested RID to continue pumping these wells on a seasonal basis.

5. IDENTIFICATION AND SCREENING OF REMEDIAL STRATEGIES AND REMEDIAL MEASURES

5.1 General Background of Remedial Strategies and Measures

The Reference Remedy and each alternative remedy consist of a package, or combination, of remedial strategies and measures. There are six listed remedial strategies and a wide variety of specific measures that can be used to build a complete remedy.

WQARF requires that one of the alternative remedies employ a strategy or combination of strategies that is more aggressive than the Reference Remedy, and one employ a strategy or combination of strategies that is less aggressive than the Reference Remedy. An alternative may be more aggressive if it requires fewer remedial measures to achieve ROs, achieves ROs permanently rather than temporarily, achieves ROs in a shorter time frame, or is more certain in the long-term.

Each remedy addresses impaired wells that either supply water for municipal, domestic, industrial, irrigation, or agricultural use, or are part of a public water system. A well is impaired if it is unfit for its intended use without treatment for COCs. If a well is likely to be impaired within the reasonably foreseeable future, the remedial alternative either provides for action to protect the well from impairment or provides for future measures to address the potential impairment. The remedies address the possibility of future impairment that could result from either plume migration or changes to water use.

The Reference Remedy and alternative remedies also include contingent strategies and measures to address:

- Uncertainties regarding the time frames in which future water uses might occur;
- Possible but uncertain future changes in regional pumping conditions that could affect plume migration, resulting in potential impairment of additional wells;
- Uncertainties regarding the development of future technologies or future opportunities for replacing water supplies that would serve as the most effective well measures for impairments that occur in the more distant future; and
- Other reasonable uncertainties regarding the achievement of ROs.

If future impairment is uncertain, a remedy might provide for a contingent strategy or contingent measure to address the well. For example, if future plume migration is uncertain, a contingent containment strategy might be provided to protect a well in the event that plume migration does become a threat. If a future change in water use is uncertain, an alternative may provide for a contingent measure to address the need when the change in use becomes more certain but before the change in use occurs.

In the case of future or contingent strategies or measures, consideration is given to the advance time needed to ensure that steps may be taken to address the threat or impact to a well before the intended use of the well is lost. Action must begin soon enough to allow time for all the steps necessary to ensure that water use is uninterrupted or that water is available at the quality and volume for the new uses at the time it is needed. Sentinel well monitoring is included where necessary to provide advance warning that action may be needed and trigger consultation with the water provider or well owner.

Significant changes in regional pumping or indications that water use changes are certain and upcoming may also trigger consultation with the water provider or well owner. That consultation may result in employing one of the remedial measures described below, specifically modified for the impaired well. The water provider may also suggest other measures specifically designed for the well at that time. Impairments that occur in the distant future will employ tools available at that time. Selecting the measures in consultation with the affected water provider or well owner ensures that the measure selected meets the needs of the water providers, well owners, and customers.

Not all of the identified contingent measures may necessarily need to be implemented. The specific contingent measures that are necessary would be identified based on monitoring future conditions.

5.2 Remedial Strategies

Remedial strategies are general remediation approaches designed to address contamination. In WQARF, unlike CERCLA, strategies are employed to achieve ROs. Instead of focusing on setting cleanup goals in the aquifer, strategies are used to protect or restore water supplies for current and future use or to protect existing wells from impairment. There are six listed WQARF strategies: (1) no action; (2) monitoring; (3) source control; (4) controlled migration; (5) physical containment; and (6) plume remediation.

No Action

Because ADEQ has identified reasonably foreseeable future changes in water use and drinking water wells could be impaired in the future by plume migration that results from changes in pumping regimens, no action is inappropriate as a stand-alone strategy in the WVBA.

Monitoring

Monitoring involves observing and evaluating contamination through data collection. Monitoring has been deployed for some time in the WVBA along with some facility-specific source control, with generally favorable COC concentration trends. It is an essential part of every package of strategies and measures. Monitoring could be appropriate as a stand-alone strategy in the WVBA under current pumping conditions and water use, provided contingencies are in place to protect current and future water provider uses.

Source Control

Source control is generally defined as eliminating or mitigating a continuing source of contamination. Facility-specific source control is being separately overseen by ADEQ and is not being included as part of a remedy's package of remedial strategies and measures in this FS. Regional source control is not necessary in the WVBA, as water quality data does not indicate the presence of dense non-aqueous phase liquid or other ongoing regional sources. Continuing sources are only present in the WVBA on a facility- or location-specific scale.

Controlled Migration

Controlled migration is generally defined as controlling the direction or rate of migration that stops short of containing migration. Controlled migration may be feasible in the WVBA to reduce the need for well measures by protecting select production wells. It is not necessary or feasible under the current

regional pumping regimens, as it would require very high pumping rates to overcome the influence of current irrigation well pumping. Controlled migration could be used as a contingent strategy to address specific impaired or threatened wells within the WVBA. It could also be effective as a contingent strategy for possible future changes in pumping regimens.

Physical Containment

Physical containment is generally defined as containing COCs within definite boundaries. Containment is not necessary today, or for as long as current pumping regimens continue. Containing portions of the plume (or focused containment) may be effective in the WVBA as a contingent strategy triggered by reduced RID irrigation pumping to prevent downgradient wells or receptors from becoming impacted, thus eliminating the need for additional well measures. Focused containment could also mitigate any short-term impact of facility-specific contamination while ADEQ works with responsible parties to implement facility-specific source control. Containment may not be needed if ROs can be met using well measures and contingent well measures.

Plume Remediation

Plume remediation is generally defined as achieving water quality standards for COCs in site-wide groundwater. The WVBA regional plume is too large, however, for full plume remediation within a reasonable time period, nor would it be technically practicable or cost-effective, though smaller scale plume remediation may be feasible in localized areas of the regional plume with relatively high concentrations to protect wells and reduce the need for well measures and contingent well measures. Site-wide plume remediation is not required in the WVBA to achieve ROs (i.e., provide for reasonably foreseeable water use). Contaminant concentrations are relatively low and there has been a general overall decline in VOC concentrations over time, in some cases by orders of magnitude. Irrigation ROs can be met today without measures, given current concentration levels. Future drinking water use for the SRP, COP, and COT, and RID should they become legally authorized to become a drinking water provider, can be provided for with a combination of other strategies and measures.

5.3 Screening of Remedial Strategies and Technologies

This section discusses the identification and screening of remedial strategies and provides detail on those technologies retained to develop the remedial alternatives. A summary of the screening process and technologies considered for this FS is provided in Table 2. Because of the regional scale of the WVBA, its densely populated and industrialized nature, current depth to groundwater of 100 to 150 feet bgs, and the regional approach of this FS (i.e., individual source areas will be addressed directly by ADEQ) the in-situ technologies such as soil vapor extraction/air sparging, chemical oxidation, enhanced biodegradation, and in-situ wall technologies such as permeable reactive barriers are considered infeasible and were not retained for further consideration.

Remedial strategies that were retained for detailed evaluation were:

- Groundwater monitoring/monitored natural attenuation (MNA); and
- Plume remediation on a localized basis.

Feasible remedial technologies that passed the screening process and were retained for further consideration include: (1) groundwater extraction for dissolved-phase VOC mass removal within targeted areas of the plume core; (2) treating extracted groundwater via liquid-phase granular activated

carbon (LGAC) due to the end use requirements as described below; and (3) groundwater monitoring (including long-term monitoring/MNA).

5.3.1 Groundwater Extraction

Groundwater extraction and treatment via one or more pumping wells is considered a feasible technology within the WVBA. Extraction wells placed within the core of the plume would remove dissolved-phase mass in higher VOC concentration areas and help expedite declining VOC concentration trends. Because of the high permeability of the UAU aquifer, extraction wells would need to be large diameter (16 to 20 inches) and equipped with either a vertical turbine or submersible pump of sufficient size and horsepower to pump on the order of 500 gpm to 1,000 gpm to induce a sufficient capture zone to affect an adequate area of interest within the plume.

New UAU extraction wells would be drilled by an Arizona-licensed drilling contractor using conventional drilling techniques. For costing purposes, a 28-inch diameter borehole would be advanced to 500 feet bgs and the well would be constructed using 20-inch diameter, high-strength, low alloy (HSLA) steel casing with HSLA steel louvered well screen from approximately 150 to 500 feet bgs. Annular materials consisting of a gravel filter pack placed around the well screen, a bentonite seal above the top of the screen, and a neat cement or cement grout seal to surface would be emplaced using a tremie pipe. During implementation, the extraction well(s) would be designed by an Arizona-Registered Geologist or Professional Engineer based on site-specific conditions.

For each end use scenario, extracted groundwater would need to be treated to meet AWQS for WVBA COCs prior to reinjection or discharge to an end user, as discussed in Section 5.3.3. Table 2 includes a listing and screening of potentially feasible groundwater treatment technologies for removing VOCs. Based on this water treatment technology screening, LGAC is the most feasible treatment technology and was selected as the presumptive remedy for well-head treatment. Each groundwater extraction well requiring LGAC well-head treatment would require the acquisition or leasing of land measuring approximately 200 feet by 200 feet to house the well, pump, associated piping, and well-head treatment system.

5.3.2 Liquid-Phase Granular Activated Carbon Treatment

LGAC is the selected water treatment technology for the WVBA VOCs based on the water treatment technology screening process from Table 2[6]. LGAC was also selected due to its proven performance, relative low-cost and low-maintenance, and treatment reliability. EPA considers LGAC the Best Available, Demonstrated Control Technology for treating groundwater containing VOCs (EPA, 2009). Further, the American Water Works Association recognizes LGAC as a primary VOC treatment technology for potable water systems when coupled with the appropriate post-treatment disinfection (American Water Works Association, 2003).

As groundwater influent containing VOCs moves through a LGAC system, the VOCs adsorb onto the carbon and are removed from the influent stream. Pre-engineered, industry standard, modular skid mounted systems are available through several vendors and have a relatively small footprint with high

[6] As discussed in Section 3.4 and 3.5 of Appendix A, for costing purposes, it was assumed that total and dissolved chromium and 1,4-dioxane treatment will not be required for those remedial alternatives that include groundwater extraction and treatment.

throughput capacity. A lead-lag configuration would allow for a level of redundancy and minimize contaminant breakthrough of the discharged effluent. A lead-lag configuration uses at least two vessels on line, in series, at all times. The lead vessel does most of the work by removing the majority of the VOCs in the influent. The second vessel polishes the influent from the first vessel and acts as a safeguard when VOC breakthrough occurs in the first vessel and it requires changeout. Following changeout, the flows are adjusted so that the lag vessel becomes the lead vessel, and the vessel with the newly replaced LGAC becomes the lag vessel.

The carbon bed life is a function of influent VOC concentrations, flow rate, and the adsorption capacity of each VOC within the influent. For example, 1,1-DCE does not adsorb as readily as TCE or PCE and usually has an earlier breakthrough time; in this case, 1,1-DCE would be the limiting VOC regarding carbon bed life. For costing purposes, LGAC changeout estimates were derived based on the proposed well location within the plume, using the 2013 data set.

Operation and maintenance (O&M) of LGAC systems generally include periodic replacement of carbon beds when the adsorption capacity is reached and breakthrough occurs, or when the carbon requires changeout due to entrapped sediment or scale within the carbon vessel. This can be mitigated by pre-treating for hardness if deemed necessary and filtering sediment out of the influent stream prior to the lead LGAC vessel.

Extracted groundwater would be pumped through filter bags to remove particulate matter and reduce turbidity. Following filtration, groundwater would be pumped through LGAC-vessels in series (lag-lead configuration). The conceptual design for this flow rate would include one skid consisting of two Siemens HP 1220 vessels (or equivalent) in a lag-lead configuration. Either coconut shell-based carbon such as Siemens AquaCarb 830C, or reactivated carbon consisting of an 80/20 mix of coconut shell- and coal-based carbon would likely be used.

Other design elements would include civil/site, mechanical, and electrical work such as grading, constructing reinforced concrete pads and containment structures, piping between vessels, pipe supports, valves to control and balance flow including standby mode, sampling ports, flow meters, low voltage power and signal controls, and high voltage power as needed.

Performance and/or compliance sampling would be conducted on a regular basis to evaluate the efficacy of the LGAC treatment and the need for carbon changeout, and would include sampling for WVBA COC analysis in the groundwater influent, between the lead and lag vessels, and the treated effluent prior to discharge to end use.

5.3.3 End Use of Extracted and Treated Groundwater

A critical component of groundwater extraction is finding a beneficial end use for the treated groundwater that allows for the maximum beneficial use of the waters of the state and is consistent with end user policies in the ADWR remediated groundwater use policy (ADWR, 1999). Consistent with the Management Plan for the Phoenix Active Management Area, the extracted and treated groundwater would be accounted for in a manner consistent with the accounting of surface water until 2025. As noted above, all end use scenarios would require treatment of WVBA COC AWQS prior to discharge.

COP Storm/Sanitary Sewer

Discharging extracted, treated groundwater to the COP storm or sanitary sewer system was not retained for further evaluation for a number of reasons. First, this option would be the least preferred by ADWR, since it would reduce groundwater in storage and not put that groundwater to beneficial use (ADWR, 1999). Second, the SRP requires that any groundwater extracted within SRP Member lands be put to beneficial use within the SRRD. And third, the relatively large amount of treated groundwater requiring end use would result in challenges to the COP infrastructure, discharge logistics, and wastewater treatment. Discharge to the storm sewer would require an Arizona Pollutant Discharge Elimination System (AZPDES) permit with the required permit monitoring and reporting. The COP would also need to regulate the discharge to ensure compliance with its AZPDES Municipal Separate Storm System (MS4) permit.

But for these public policy and legal impediments to this option, it would have certain advantages, including the relatively short distances needed for conveyance piping from the extraction well to the discharge point, which would reduce capital and O&M costs and minimize the need for installing conveyance piping within heavily urbanized areas.

COP Municipal Supply Distribution System

The COP currently does not allow direct discharge of treated groundwater into its municipal drinking water distribution system because of the potential for introducing contaminated groundwater into their municipal supply, should there be a well-head treatment system failure. This end use was therefore not retained for further evaluation.

COP 35th Avenue Municipal Water Treatment Plant

Up to approximately 5,000 gpm of extracted and treated groundwater could be conveyed south to the COP's 35th Avenue treatment plant (located south of the Salt River at Broadway) anticipated to go online in 2021 (COP, personal communication, 2014). The extracted groundwater would need to be treated to meet AWQS for WVBA COCs prior to discharge to the plant. The COP would use the water from the treatment plant to meet potable water uses on Member lands within the SRRD under an agreement between the SRP and COP. This approach would also be in accordance with ADWR policy, since the extracted groundwater would replace groundwater that COP would have otherwise pumped within the area. While the conveyance piping would need to cross the Salt River, the pipe could be attached to the 35th Avenue bridge to avoid the need for jack-and-bore or micro-tunneling methods beneath the river bed.

SRP Grand Canal and/or SRP Lateral

Groundwater extracted and treated within the WVBA could be conveyed north via high pressure piping to the SRP Grand Canal, where it would then be distributed by the SRP to its final beneficial end use. This option would be in accordance with ADWR policy, since treated groundwater discharged to the Grand Canal would replace groundwater that the SRP would otherwise have pumped.

Significant lengths of conveyance piping from proposed WVBA extraction wells to the Grand Canal would be required, including the need to install conveyance piping beneath Interstate-10. Extracted groundwater would also need to be pumped uphill from the WVBA to the Grand Canal, which has an elevation difference on the order of 45 feet.

Coordinating SRP operations with dry-up periods would be critical to maximize the potential for continuous, year-round pumping of WVBA extraction wells. SRP indicated that the anticipated discharge to the Grand Canal could be beneficially used on a near year-round basis (except for the short dry-up periods, canal operational emergencies, water quality conditions, and when there is very low or no demand on the canal), which would allow for nearly continuous pumping of WVBA extraction wells. The short dry-up periods would allow for preventative maintenance to be performed on the treatment system.

Extracted groundwater would need to be treated to AWQS for WVBA COCs before delivery to the canal. Discharge of treated groundwater to the SRP Grand Canal and/or laterals would also require:

- A license to access the canal right-of-way;
- A discharge agreement;
- SRP Board approval; and
- An AZPDES permit.

In addition to the AZPDES permit monitoring requirements, the SRP would require annual sampling of the discharge for inorganic constituents and monthly in-stream monitoring for WVBA COCs.

RID Canal

Another potential temporary end use option is discharge to the RID irrigation system, which could significantly reduce the need for new conveyance piping, at least in the short-term. Year-round groundwater pumping of WVBA extraction wells may be limited due to seasonal operations, the timing and schedule of water delivery to RID end users, and RID's plan to reduce pumping from its wells east of the Agua Fria River in order to utilize more reclaimed water from the COP 23rd Avenue WWTP through its operation of a Groundwater Savings Facility. Once the contracts between the SRP and RID expire, any extracted and treated groundwater from WVBA extraction wells would need to be used on Member lands within the SRRD.

The end use option of providing RID remediated groundwater could replace groundwater that RID would otherwise have pumped and, under this scenario, would be in accordance with the ADWR policy. Based on RID's policy for accepting remediated groundwater, extracted groundwater would need to be treated to AWQS for WVBA COCs prior to discharge to the RID system (RID, 2010b).

Discharge to RID Salt Canal: The east to west Salt Canal runs from 23th Avenue along Van Buren Street until it connects with the RID Main Canal at 83rd Avenue. The Salt Canal has been converted to an underground gravity pipeline, except for two segments (300 feet and 1,100 feet long) between 75th Avenue and 83rd Avenue.

The maximum capacity of the Salt Canal is approximately 20,000 gpm (Synergy Environmental, LLC. [Synergy], 2012). Since the current RID production along the Salt Canal from RID-105 through RID-114 totals approximately 20,000 gpm, there is no available capacity for discharge from an additional WVBA extraction well(s) under current RID operations.

Discharge to RID Main Canal: The Main Canal is open, lined, and oriented towards the northwest beginning at 19th Avenue and extending beyond the WVBA boundary in western Phoenix. The Main

Canal presumably does not have the same capacity restrictions as the Salt Canal, and discharge of extracted groundwater could be feasible even under current RID operational conditions.

One end use option is to tie new WVBA extraction wells into the 35th Avenue and/or 47th Avenue SRP laterals, then south under gravity flow to the RID Main Canal under an agreement between the SRP and RID. The extracted groundwater could offset groundwater that RID would otherwise have pumped, and under this scenario would be neutral to aquifer storage.

Reinjection of Treated Groundwater

Another end use option is to reinject the treated groundwater back into either the UAU or LAU. This option would conserve groundwater storage within the aquifer and comply with ADWR's Substantive Policy Statement on remediated groundwater end use, which states a preference for reinjection or recharge where practicable and cost effective (ADWR, 1999).

Some advantages to this approach include:

- Reinjecting into the LAU would minimize the amount of conveyance piping needed from the treatment system, as the LAU injection well could be located within the extraction well/treatment system compound;
- WVBA extraction wells could operate on a continuous, year-round basis; and
- Reinjection would not have the uncertainties associated with future SRP, COP, or RID operations that may influence the timing and amount of extracted groundwater they could accept in the future.

Other considerations include.

- Significant lengths of conveyance piping from the extraction wells to UAU reinjection wells would likely be necessary.
- Reinjection in the upgradient portion of the plume could potentially expand the lateral and/or vertical extent of the plume in the vicinity of the injection wells.
- If the well injection system is not properly designed and constructed, considerable maintenance of the reinjection wells will likely be needed if persistent clogging of both chemical and physical clogging agents occurs. Typical maintenance would include mechanical brushing of the well screen, disinfection, and air-lift well development as needed to maintain injection capacity.
- If the reinjection well(s) are along the downgradient extent of the plume, there is the possibility of forming a new downgradient plume. This circumstance could occur if an MCL is significantly reduced and the new MCL concentration has not been met in the treatment system effluent during historical operations, or if an as-yet-unknown emerging compound is discovered in WVBA groundwater that was not removed by LGAC and was reinjected back into the aquifer downgradient of the current WVBA footprint.

5.3.4 Groundwater Monitoring and Monitored Natural Attenuation

Groundwater monitoring and MNA were retained as a remedial technology and are components of all of the remedial alternatives. Long-term water level and water quality monitoring at existing WVBA monitoring wells would allow for the continued evaluation of hydraulic gradients and groundwater flow

directions within the WVBA, long-term water level trends, and changes in gradients and flow directions from potential changes in regional pumping. The groundwater sampling data at these wells would provide information on plume migration, plume expansion or reduction over time, COC concentration trends, the influence of remedial work over time, and the influence of natural attenuation processes.

The proposed monitoring program would be consistent with the current ADEQ semiannual monitoring program of existing WVBA monitoring wells, based on the well and analyte list from the 2013 monitoring event. The well network would consist of approximately 68 UAU1, 27 UAU2, and 6 MAU monitoring wells. The monitoring program is summarized in Table 3. The wells would be sampled using the no-purge Hydrasleeve™ method in order to reduce the need for purge water handling and disposal. Samples would be analyzed for VOCs using EPA Test Method 8260B, with 1,4-dioxane added to the 8260B list. Select monitoring wells would also be analyzed for total chromium and dissolved total chromium using EPA Test Method 6010B. Temperature, pH, and conductivity would also be measured in the field. For costing purposes, it was assumed that 25 monitoring wells would also be analyzed for select MNA parameters once per year. A full round of water levels from approximately 120 monitoring wells would also be included in each semiannual monitoring event.

Ongoing, facility-specific monitoring within the WVBA would also continue in accordance with their respective consent orders or working agreements.

5.4 Remedial Measures

Remedial measures are specific actions taken to address water uses to achieve ROs. Measures must be employed where necessary to address impaired wells and may include various actions to modify a well to render it fit for its intended use without treating for COCs. It may include replacing an impaired well or provisions for a replacement water supply equivalent to that lost due to COC contamination. It may also include installing treatment systems. The protection or restoration of any particular well or water source may be achieved through remedial measures alone.

5.4.1 Well Impairment

Irrigation Wells

RID operates 32 groundwater production wells within or adjacent to the WVBA (Figure 3). These wells are not impaired today, as they are currently fit for their current irrigation use without treating for COCs. Future impairment of RID wells is possible. The ROs establish future drinking water use as reasonably foreseeable. If changes of use occur before declining contaminant levels render the water fit for drinking water use without treating for COCs, and RID has legal authorization to deliver water to third party drinking water providers for potable use, strategies or measures will be needed to provide for the new use.

City of Phoenix Wells

The COP has no wells within the WVBA that are either supplying water or are part of the COP's water system (Figure 3), and no existing COP production wells with anticipated production within the next 30 years are located northwest of the WVBA, should regional irrigation pumping cease and the overall groundwater flow direction shift to a more northwest flow direction.

SRP Wells

The SRP has no wells within the WVBA plume boundary. However, there are numerous SRP wells northwest of the WVBA (Figure 3). Should regional pumping within and adjacent to the WVBA be significantly reduced or cease altogether, a rise in the water table and associated shift in groundwater flow direction from westerly to a more northwesterly direction is anticipated based on historical groundwater flow directions and modeling results.

City of Tolleson

The COT currently has no wells within the WVBA (Figure 3); however, the COT plans to construct five new wells west of 75th Avenue during the next 3 to 10 years. Three new wells are currently planned to be located in an east to west line along the southwest corner of 83rd Avenue and Interstate 10; the fourth and fifth new wells are currently planned to be located on the northwest corner of 75th Avenue and W. Buckeye Road and at 104th Avenue and Cowden Road, respectively. The anticipated total depth of each new well will be 700 feet bgs, and screened from 525 to 700 feet bgs, which is generally below the current contamination zone within the WVBA. Anticipated individual well production rates are a minimum of one million gallons per day (approximately 700 gpm) (COT, 2014).

Private Water Wells

Private wells identified within the WVBA during the Land and Water Use study (Terranext, 2012b) are discussed in Section 3.2.1. Should it become impaired, a private well would be replaced with potable water by connecting the property to the COP municipal distribution system.

5.4.2 Base Remedial Measures

This section provides a discussion of base remedial measures created for costing purposes and to provide a starting point for consultation with an affected water provider. These base measures will be modified as needed to address an affected well or provide a water source. Measures adopted in the short-term may require little modification. Measures adopted in the more distant future may be modified based on technologies and approaches available at that time.

For costing purposes only, a unit scope of work was assumed for remedial measures such as well deepening, well replacement, and well modification. For example, remedial measures may include:

- Replacing a UAU production well to outside the WVBA boundary;
- Replacing a UAU production well with a new, collocated LAU well;
- Deepening a UAU production well and completing it in the LAU; and
- Modifying an existing production well completed across the UAU, MAU, and LAU, and completing it in the LAU only.

For each scenario, one unit scope of work and cost was developed for use in the remedial alternatives. For simplicity, existing wells were assumed to be completed with 20-inch diameter casing, which is typical for irrigation wells in the area. The actual scope of work would be modified on a well-by-well basis, as needed, during implementation, and the wells would be designed and constructed to the water provider's specifications. The table below provides the assumptions used for each of these well measure scenarios for costing purposes only.

Well Measures Scenario	Total Depth of Original UAU Well (feet bgs)	Casing Diameter of Original UAU Well (inches)	Total Depth (feet bgs)(1)	Screen/Perforated Interval (feet bgs)	Sealed Interval (feet bgs)	Casing Information	Screen or Perforation Method
New replacement well in UAU	N/A	N/A	500	150 - 500	0 - 150	20-inch diameter HSLA steel casing	HSLA louvered screen
New replacement well in LAU	N/A	N/A	1500	1000 - 1500	0 - 1000	20-inch diameter HSLA steel casing	HSLA louvered screen
Deepen existing UAU well and convert to a LAU well	500	20	1500	1000 - 1500	0 - 1000	14-inch diameter HSLA steel casing	HSLA louvered screen
Modify existing UAU/LAU well and convert to LAU well	1500	20	1500	1000 - 1500	0 - 1000	14-inch diameter LCS steel casing	Mill slot perforated casing

Notes:
(1): The assumed UAU well total depth of 500 feet is generally consistent with other UAU production wells in the vicinity of WVBA. The LAU total depth of 1,500 feet is consistent with APS production wells in the LAU and the proposed COP LAU production wells in the Western Canal Well Field.
N/A = Not applicable.
bgs = Below ground surface.
HSLA = High strength low alloy steel.
LSC = Low carbon steel.

Production capacity must be maintained for wells that are replaced, deepened, or modified. While the production capacity of a replacement LAU well can only be determined during drilling and subsequent testing of the completed well, for reference, the four proposed COP LAU production wells within the Western Canal Well Field, with a screened interval of 1,000 to 1,500 feet bgs, are anticipated to produce 3,000 AFY per well, or approximately 1,800 gpm per well assuming continuous year-round pumping.

While the conceptual well designs described below are anticipated to yield reasonable production, the actual well yields of new, deepened, or modified well(s) can only be determined by testing the completed well. Many of the existing irrigation wells in the vicinity of the WVBA are also relatively old and have not been upgraded. Potential excessive well casing corrosion, offset casing joints, or generally poor well conditions may not allow for well deepening or modification.

The following considerations apply to each of the remedial well measures described below:

- The water provider needs to be kept whole regarding both quantity and quality of water; and
- The scope of work, well design, and well construction details were prepared for costing purposes only. During implementation, the well will be designed and constructed in accordance with the water provider's specifications.

New Replacement Well In UAU

An impaired UAU production well could be replaced with a new UAU well located outside of the WVBA plume boundary if acceptable to the water provider and assuming land is available. The new

replacement well would need to be properly located adjacent to the water provider's existing conveyance system to minimize both the need for additional pipeline and operational disruptions, and would need to conform to ADWR well spacing requirements.

The impaired well would be properly abandoned using conventional techniques in accordance with ADWR regulations. Prior to abandonment, the existing pump and associated downhole piping would be removed and a video log of the well would be performed to assess the condition of the well casing and perforations prior to abandonment. Mechanical brushing to remove corrosion from well perforations would be performed, followed by pressure grouting from the bottom of the well to surface using a tremie pipe.

If the existing well lacks an annular seal, the original well casing will need to be perforated and pressure grouted to the surface. If the video-logging indicates that the original well casing is sufficiently sound, a mills-knife technique will be used to perforate the original casing and a rig-mounted tremie pipe used to emplace cement grout under pressure to form a seal between the casing and the formation from total depth to the surface. The top 10 feet of the casing would be removed and the remaining casing and borehole filled with a cement grout plug.

The new replacement well would be drilled by an Arizona-licensed drilling contractor using conventional drilling methods. A 28-inch diameter borehole would be advanced to approximately 500 feet bgs and the well constructed using 20-inch diameter HSLA steel casing with a HSLA louvered well screen from 150 to 500 feet bgs. Annular materials would be emplaced using a tremie pipe, and would consist of a gravel filter pack placed around the well screen, a bentonite seal above the top of the screen, and a neat cement or cement grout seal to surface.

New Replacement Well In LAU

An impaired UAU production well could be replaced with a new, collocated well completed in the LAU if acceptable to the water provider. The impaired well would be properly abandoned as described above. The new replacement well would be drilled by an Arizona-licensed drilling contractor using conventional drilling methods.

If the LAU replacement well is located within the WVBA, to eliminate the potential for cross-contamination during drilling, a minimum 36-inch diameter borehole would be drilled to a depth of 500 feet bgs and a minimum 30-inch diameter steel isolation casing grouted into place from the bottom of the borehole to surface. For costing purposes, a 28-inch diameter borehole would then be advanced from 500 feet to 1,500 feet bgs and the well built with 20-inch diameter, HSLA steel casing with a louvered well screen from 1,000 to 1,500 feet bgs. Annular materials would be emplaced using a tremie pipe, and would consist of a gravel filter pack placed around the well screen, a bentonite seal above the top of the screen, and a neat cement or cement grout seal to surface. The UAU isolation casing would not need to be installed for a UAU production well located outside of the WVBA and not yet impaired.

Vertical migration of impacted UAU groundwater resulting from operating a LAU production well is not anticipated, as the UAU and LAU aquifers appear to be isolated by the relatively thick, fine-grained MAU. The results of the Phase I groundwater modeling work[7] indicated that simulated pumping within

[7] Described "West Van Buren Study Area: Univar Groundwater Flow Model Update" prepared by Brown and Caldwell on behalf of Univar USA Inc. and dated June 2014.

the LAU had little to no impact on heads within the UAU. Particle tracking was also used to further evaluate the effects of LAU pumping on the UAU. The Phase I model results showed that particles placed in the UAU showed no vertical migration over a period of 30 years for a simulation that included pumping only in the LAU. The lack of detected VOC concentrations in the APS Central Phoenix Power Plant LAU production wells following many years of operation also indicate the lack of vertical contaminant migration from the UAU to the LAU under these pumping conditions.

Deepen Existing UAU Well and Convert to a LAU Well

An impaired UAU production well could be deepened and converted into a well screened solely within the LAU, in consultation with the water provider. Prior to the well deepening, the existing vertical turbine pump and associated downhole piping would be removed and a video log of the well performed to assess the condition of the well casing and perforations. If the existing well lacks an annular seal, the original well casing would need to be perforated and pressure grouted to form a seal between the casing and the formation. If the video-logging indicates that the original well casing is sufficiently sound, a mills-knife technique would be used to perforate the original casing and tremie pipe used to emplace a minimum 50 foot grout plug which would then be drilled through during the well deepening.

The existing UAU well would be deepened by an Arizona-licensed drilling contractor using conventional drilling methods. A nominal 18-inch diameter drill bit would be lowered into the existing well casing and a borehole advanced from the bottom of the well to 1,500 feet bgs. A 14-inch diameter, HSLA steel casing would be installed within the existing 20-inch well casing and borehole.

The bottom 500 feet of the casing would be louvered for a well screen interval of 1,000 to 1,500 feet bgs. Annular materials would be emplaced using a tremie pipe, and would consist of a gravel filter pack placed around the well perforations, a bentonite seal above the top of the perforations, and a neat cement or cement grout seal to surface.

Modify an Existing Well Completed Across the UAU, MAU, and LAU and Covert to a LAU Well

An impaired production well with a long perforated interval completed across the UAU, MAU, and LAU could be modified and converted into a well completed solely within the LAU in consultation with the water provider. Prior to modifying the well, the existing vertical turbine pump and associated downhole piping would be removed and a video log of the well performed to assess the condition of the well casing and perforations.

The existing well would be modified by installing a 14-inch diameter, low carbon steel casing with mill slotted perforations within the existing 20-inch well casing. The screened interval would be 1,000 to 1,500 feet bgs. Annular materials would be emplaced between the 14- and 20-inch casings using a tremie pipe, and would consist of a gravel filter pack placed around the well perforations, a bentonite seal above the top of the perforations, and neat cement or cement grout seal to surface. If the existing well lacks an annular seal, the original well casing would need to be perforated and pressure grouted from 1,000 feet to the surface to form a seal between the casing and the formation, as necessary based on the original well construction and to isolate the modified well in the LAU.

Well-Head Treatment

An impaired production well could be addressed with a well-head treatment system as described in Section 5.3.2 above, assuming sufficient land is available to house the treatment system. The system

would be designed around the anticipated production volumes and VOC concentrations in the extracted groundwater. Additional pump bowls or pump horsepower may also be required to off-set head losses through the treatment system and associated reduction in production capacity.

Measures for RID Potable Water Deliveries

If RID is authorized in the reasonably foreseeable future to deliver water to third party drinking water providers for potable use, measures may be needed to provide for that use. To determine whether measures may be needed, a mass balance approach was used to estimate TCE and PCE concentrations at the end of the Salt Canal, the end of the Main Canal, and the confluence of the two canals. To the extent reclaimed wastewater from the COP's 23rd Avenue WWTP is conveyed via the Main Canal, the Main Canal cannot be used for delivering drinking water. Any use of the Main Canal for deliveries of water to drinking water providers could only begin after effluent discharges cease.

Salt Canal: The Salt Canal is an enclosed, underground gravity pipeline for nearly its entire length, except for two segments (300 feet and 1,100 feet long) between 75th Avenue and 83rd Avenue. Groundwater from production wells RID-105 through RID-114 discharge to the Salt Canal. Using the proposed pumping rates in the RID Modified Early Response Action (MERA) Work Plan (Synergy, 2012) along with 2013 groundwater samples available from each well (or most recent if not sampled in 2013), an estimate of the TCE and PCE concentration at the end of the Salt Canal was calculated assuming no loss of mass through volatilization; see Table 4. Based on the mass balance, the TCE and PCE concentrations at the end of the Salt Canal were calculated at 9.5 μg/L and 5.1 μg/L, respectively. The 2011 Salt Canal sample[8] contained similar concentrations (TCE and PCE concentrations at 11.8 μg/L and 4.6 μg/L, respectively).

Water in the Salt Canal may meet AWQS and be suitable for delivery to third party drinking water providers at the time RID begins any such deliveries. If it does not, well RID-114 could be replaced as a contingent well measure as part of this FS should RID employ only wells on the Salt Canal for drinking water supply end use. The highest VOC concentrations in RID wells along the Salt Canal are observed in well RID-114. If this well were addressed with a remedial measure such as well replacement, and the VOC concentrations assumed to be non-detect in the replacement well, the blended TCE and PCE concentrations at the end of the Salt Canal would calculate to 3.9 μg/L and 4.9 μg/L, respectively (Table 5). Both of these concentrations are less than their respective AWQS.

The groundwater modeling results, and the water quality data at well RID-111R[9], indicate that a new well located between wells RID-110 and RID-111R would derive its groundwater primarily from an area north of the WVBA. A new replacement well could also potentially be located on the Salt Canal outside of the WVBA, east of well RID-105.

Main Canal: A similar evaluation was performed for the Main Canal, which is an open, lined canal beginning at 19th Avenue and extending beyond the WVBA boundary in western Phoenix. Groundwater from production wells RID-83 through RID-104 discharge to the Main Canal. Based on the mass balance, and conservatively assuming no VOC mass loss through volatilization, the TCE and PCE concentrations at the end of the Main Canal were calculated at 5.5 μg/L and 2.5 μg/L,

[8] This sample represents the most recent available surface water sample collected prior to RID well head treatment conditions.

[9] The 2013 sample from RID-111R contained trace concentrations of TCE and PCE (0.5 μg/L and 0.63 μg/L, respectively).

respectively (Table 4). The 2011 Main Canal sample contained similar concentrations (TCE and PCE at 2.3 μg/L and 1.19 μg/L).

Downstream of the Salt Canal and Main Canal confluence: The calculated TCE and PCE concentrations downstream of the confluence of the Salt Canal and the Main Canal were 6.5 μg/L and 3.2 μg/L, respectively (Table 4). The 2011 Main Canal sample at 83rd Avenue (downstream of the confluence) contained TCE and PCE concentrations of 5.57 μg/L and 2.6 μg/L[10].

The results of this analysis indicate that water quality downstream of the confluence of the Salt Canal and Main Canal would be either slightly above or below the AWQS for TCE and PCE, respectively, without well head treatment or other well modifications, based on the most recent concentration data. The additional 60,000 AFY of discharge to the Main Canal from the 18 other RID wells within the SRRD would further reduce TCE and PCE concentrations within the Main Canal prior to delivery west of Phoenix. Continued VOC concentration declines over time within the WVBA would also result in lower blended VOC concentrations in the future. As stated above, any use of the Main Canal for deliveries of water to drinking water providers could only begin after effluent discharges from the COP's 23rd Avenue WWTP cease.

Replacement of Water Supplies

Replacement water supplies are currently difficult to secure. Water supplied by the Central Arizona Project (CAP) is fully allocated and excess CAP water is no longer available. In fact, shortages are currently being predicted for CAP. Although some Arizona Indian communities have CAP water available for lease, most of that water is only available for short duration. So for the near term, replacing impaired water supplies with these sources was not considered further as a potential remedial measure.

Treated wastewater supplies are also currently fully allocated. But if new wastewater treatment plants are constructed in this area, or current arrangements for reclaimed water expire, new reclaimed water supplies may become available. If impairments of water uses occur in the future, the availability of reclaimed water as a replacement water supply may be considered. Improved treatment technologies and changing legal restrictions may make use of reclaimed water viable for additional uses in the future.

Ongoing remediation projects in the Phoenix region require pumping of groundwater and treatment of that water to AWQS. It is uncertain whether any of those treated water supplies might serve as a replacement supply for impaired uses in the WVBA. In addition, it is uncertain whether there may be additional remediation projects in the future that would produce suitable treated water supplies.

Future impairments would employ tools available at that time. Because the availability of replacement water supplies will likely vary over time, the availability of suitable supplies will be considered as part of the consultation with each water provider at the time measures are selected.

The only water supply replacement measure retained for this FS was replacing a private water well supply by connecting the property to the COP municipal distribution system

[10] Although the 2011 sample data suggests it was not, it is unknown whether the COP 23rd Avenue WWTP was discharging to the Main Canal during the time of sample collection.

Recommended Remedial Measures

Because many of the existing production wells in the vicinity of the WVBA are relatively old, have not been upgraded, and may be in poor downhole condition, deepening or modifying an existing UAU production well as a remedial measure is not recommended. Replacing water supplies, except for impaired private water wells, was also not considered further as a potential remedial measure due to the reasons described above. Well-head treatment as a remedial measure for impaired, existing production wells is not recommended due to the need for costly long-term O&M of the treatment systems.

Remedial measures retained for developing the remedial alternatives include: (1) replacing an impaired UAU well with a UAU production well located outside of the plume boundary; (2) replacing an impaired UAU well with a collocated well screened in the LAU only; (3) a groundwater blending approach to meet AWQS at the point of use; and (4) for an impaired private water well, connecting the property to the COP municipal distribution system.

6. REMEDIAL ALTERNATIVES DEVELOPMENT

Using the RI Report, the SCM, and the current conditions and assumptions described in Section 4, three remedial alternatives were developed. As provided under WQARF, these alternatives are identified as a Less Aggressive Remedy, a Reference Remedy, and a More Aggressive Remedy. Each remedial alternative is capable of achieving the ROs developed by ADEQ. Each alternative is also consistent with information submitted by drinking water and irrigation water providers regarding their current and reasonably foreseeable water uses. Given the planning horizon of the remedial alternatives, potential contingent remedial measures were developed for each remedial alternative to accommodate potential future changes in base conditions (for instance, changes in end use of impacted groundwater or alteration of local groundwater gradients). This section describes the overall remedial strategies, remedial measures, and contingencies used to develop the remedial alternatives. A summary of the remedial alternatives is provided in Table 6. The modeling work used to develop the three remedial alternatives is detailed in Appendix C.

6.1 Baseline Site Conditions, Including Pumping, Relevant to All Remedial Alternatives

As discussed in Section 3.2.1, groundwater within the WVBA is used primarily for agricultural purposes, with some industrial use. RID has approximately 32 irrigation wells located within or adjacent to the WVBA. Although those wells are presently used exclusively for irrigation, RID's water provider plan states that RID may seek to pump those wells to supply drinking water (assuming satisfaction of a variety of legal requirements that are outside the scope of this alternatives analysis). The SRP and COP also have wells adjacent to the WVBA. The COP's water plan envisions groundwater within the WVBA will someday be a necessary component of the COP's drought supply, and that the SRP is likely to serve a role in delivering the groundwater. To date, the COP has declined to pump the impacted aquifer, deferring its use until necessary treatment costs are mitigated or eliminated through natural attenuation of COCs.

The Land and Water Use study (Terranext, 2012b) also identified a number of private wells within the plume area. Most of these private wells are used for irrigation or livestock; two of the ten private wells sampled contained COCs above the AWQS. Although the private wells sampled have water quality suitable for the current uses according to ADEQ, for costing purposes, it was assumed that up to five private water wells could become impaired in the future and require well measures consisting of connecting the well(s) owners' property to the COP municipal water distribution system. The ROs also require the remedy to address any impaired private wells outside the WVBA. Although there are no currently impaired private wells outside the WVBA, for costing purposes it was assumed that up to five private wells outside the plume area could become impaired and require well measures. Again, those measures would consist of connecting the well(s) owners' property to the COP municipal water distribution system.

The current regional irrigation pumping conditions represent the primary hydraulic influence (base conditions) on groundwater within the WVBA, and accordingly, must be factored into the FS alternatives development. As discussed further below, it is appropriate to identify potential contingent remedial measures for future evaluation in the event that hydraulic conditions change. This section provides a discussion of these base conditions and a prediction of the potential change to those conditions based on the assumptions that: (1) RID will continue pumping at current rates through the year 2025; and (2) certain SRP production wells will increase in total aggregate production from 25,000 AFY in 2012 to 35,000 AFY in 2041.

Both groundwater elevation and water quality monitoring data plus the groundwater modeling results demonstrate that the existing pumping conditions result in overall hydraulic containment of the current WVBA plume. To evaluate whether hydraulic containment of the WVBA plume will continue to be the case in the future, the WVB 30-Year Future groundwater model described in Appendix C was used to evaluate the efficacy of hydraulic containment under base pumping conditions from model years 2012 through 2025. The model output shown in Figures 4 through 6 provides the following information:

- Modeled head contours for model layer 1 for September of model years 2015, 2020, and 2025 (i.e., just before the end of the irrigation season at each year); and
- Reverse particle tracks for particles placed 10 percent of the model layer thickness off the bottoms of model layers 2 and 3, representing 14 years of particle movement from model year 2012 through 2025.

The simulated heads indicate that the effect of simultaneously pumping regional irrigation wells within and adjacent to the WVBA creates a hydraulic trough, or sink. The hydraulic gradient depicted in the model output is relatively steep in the eastern WVBA, with an overall flattening of the gradient in the central WVBA. This is consistent with historical groundwater monitoring observations. The overall groundwater flow direction is primarily from east to west along the central axis of the WVBA plume. The effects of recharge along the Salt River and irrigation pumping result in northwesterly groundwater flow in the south-central and southeast WVBA. The southwesterly flow component along the north-central WVBA is the result of the hydraulic trough that forms across the WVBA during irrigation pumping. In general, the overall shape, location, and orientation of the WVBA plume are consistent with both the observed and simulated hydraulic gradients and groundwater flow directions.

The results indicate that under these model conditions, the capture zones of the RID irrigation wells encompass the current plume footprint. Although some gaps in interior capture zones exist within the model output, the groundwater monitoring data indicate that actual plume containment under current conditions is sufficient to control plume migration at concentrations above the AWQS, based on the historical data from UAU1 perimeter monitoring wells to the west-northwest of the WVBA. The modeling results also suggest that many of the southern row of RID wells[11] derive their water production primarily from the aquifer south of the WVBA, consistent with the historically trace or non-detect COC concentrations observed in these wells.

The ADEQ and facility-specific monitoring data support the results of the model simulations. Time-series graphs of COC concentrations for UAU1 perimeter monitoring wells demonstrate that the overall lateral extent of the plume is stable, and in some areas declining under current conditions. The stability of the plume footprint is likely primarily the result of hydraulic control from regional irrigation pumping, as the retardation capacity of the UAU1 is likely limited. Because the plume is already contained under current pumping conditions, remedial extraction wells were considered for the Reference Remedy and More Aggressive Remedy to provide for additional COC mass removal within the plume core, with the objective of reducing the potential future need to implement contingent remedial measures.

With ADEQ-directed source control measures and continued RID extraction, contaminant concentrations will continue to decrease over time and could potentially fall below the AWQS before future potable water uses become viable. Any extraction wells included in remedial alternatives should be evaluated to ensure that the remedial benefit of extraction is balanced with the value of the resource

[11] RID-85 through RID-88, RID-90, RID-91, RID-93, RID-94, RID-97, RID-98, RID-101, and RID-103.

(i.e., groundwater will be removed from storage only as necessary to achieve the ROs and the value of leaving groundwater in storage within the aquifer for potential future use will be considered).

As noted above, it was assumed that ADEQ will require the timely elimination or control of continuing sources of contamination to groundwater. COC source control, along with current base pumping conditions and other potential remedial pumping as part of this FS, will be determining factors for the size and concentration of the plume over time.

6.2 Less Aggressive Remedy

One remedial alternative evaluated in the FS, the Less Aggressive Remedy, proposes less aggressive initial groundwater remediation, relying on a groundwater monitoring program, MNA, and more contingent remedial measures in the event that wells (public or private) located within or outside of the WVBA are threatened to be rendered unfit for their current and reasonably foreseeable end uses as a result of migration of groundwater contamination within or from the WVBA. While the Less Aggressive Remedy appears capable of meeting ROs, it would do so over a longer period of time and may require more contingent measures.

6.2.1 Base Components of the Less Aggressive Remedy

Groundwater Monitoring/MNA

The major base component of the Less Aggressive Remedy would be groundwater monitoring within the WVBA, including MNA parameters. The monitoring program would take over the semiannual ADEQ sampling program for the existing network of 68 UAU1, 27 UAU2, and 6 MAU monitoring wells for COC analysis, and the total chromium and filtered total chromium analyses at select wells, using EPA Methods 8260B and 6010B, respectively. Table 3 provides details on the groundwater monitoring program. 1,4-Dioxane would also be included in the EPA Method 8260B list. A select subset of monitoring wells within the interior of the plume would also be analyzed for MNA parameters once per year. Groundwater would be sampled using the no-purge Hydrasleeve™ method to minimize the need to containerize and dispose of purged groundwater. Consistent with the current ADEQ monitoring program, water level measurements would be taken from approximately 120 monitoring wells semiannually.

The monitoring program would provide data on: (1) the nature and extent of the WVBA plume; (2) the overall stability of the plume's lateral and vertical extent; (3) COC concentration trends over time; and (4) intrinsic MNA processes within the UAU aquifer. Water level data would also be used to evaluate seasonal hydraulic gradients, long-term water level trends, and aquifer response to changes in regional pumping conditions. The overall stability of the UAU2 plume extent over time would also be further evaluated using data from UAU2 monitoring wells.

Remedial Measures for Currently Impaired Private Wells, If Any

A second component of the Less Aggressive Remedy would be replacement of the water supply to any impaired private wells that become unfit for their end use as a result of WVBA contamination. Such well properties would be connected to the COP municipal water distribution system at the appropriate time.

6.2.2 Contingencies Associated With the Less Aggressive Remedy

Summary of Potential Contingent Measures

The Less Aggressive Remedy would also establish timely contingent remedial measures, as necessary and appropriate based upon evolving site conditions. These potential contingent measures and the triggers for evaluating and/or implementing these potential contingent measures are described further below.

- **COP**: The impacted WVBA aquifer is identified by the COP as a potential future source of drinking water, although the COP does not pump the aquifer for such purposes at present. If the COP is required to pump the UAU aquifer in the WVBA in the future prior to the time COCs have been reduced to AWQS, then a contingent measure such as well-head treatment, well relocation, or special well design and construction features may be appropriate.
- **SRP:** The SRP maintains a number of wells near the WVBA, none of them presently impacted above AWQS. In the event that the SRP wells become impaired for their intended use as a result of WVBA contamination, then a contingent measure such as well replacement, or special well design and construction features may be appropriate.
- **RID:** To the extent RID constructs the necessary infrastructure and obtains the legal authority[12] to sell groundwater to other drinking water providers, contingent measures may be necessary to ensure that impacted groundwater meets AWQS at the point of delivery to third party potable water providers. One contingent measure would be use of a groundwater blending approach, as described in Section 5.4.2, assuming effluent is not conveyed in the Main Canal. If RID should only use wells along the Salt Canal for potable use, a second possible contingent measure would be the replacement of well RID-114, which contains relatively higher COC concentrations, prior to initiating a blending approach. These contingent well measures may be used if RID is permitted to deliver water to potable water providers before contaminant concentrations have declined below AWQS, and as a result RID wells are unsuitable for potable use without measures. While the ROs do not clarify that RID will not directly deliver potable water to lands currently served by them, RID explained in its response to the Water Provider Questionnaire that it has no plans to itself become a potable water provider. For that reason, it is not necessary to provide a contingency for that future use scenario.
- **Other Downgradient Wells**: Should any private wells become unfit for their end use in the future as a result of WVBA contamination, then a contingent measure such as connecting the property to the COP municipal water distribution system might be necessary and appropriate. Should other downgradient COP, SRP, or COT drinking water supply wells become unfit for use without treatment in the future, then a contingent measure such as well replacement might be necessary.
- **Modification of Existing Monitor Well Network:** If routine groundwater monitoring indicates a significant change in hydraulic and/or water quality conditions, as further described below, then the existing monitor well network may be modified.

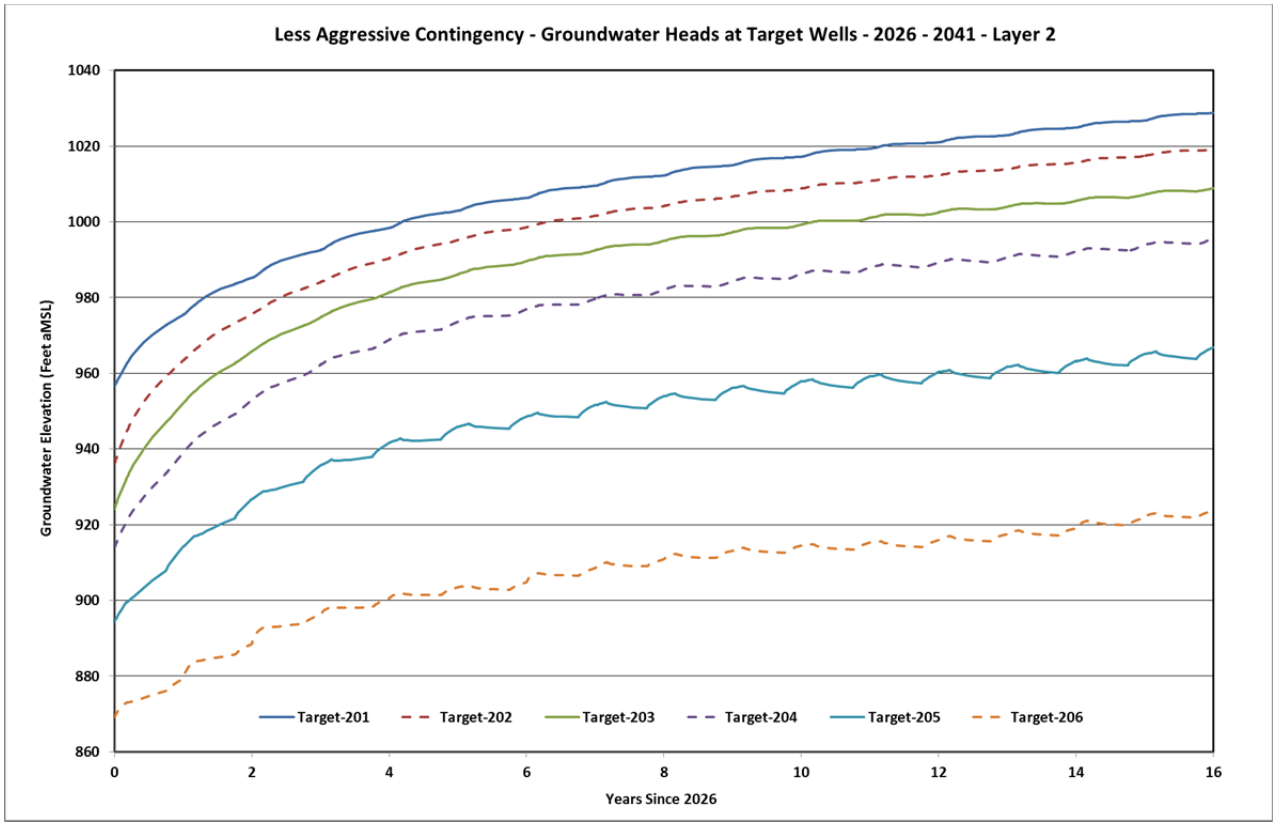
Because the Less Aggressive Remedy involves less active treatment of currently impaired groundwater, a conservative approach, taking into account the trend analysis discussed in Section 3.7.4 of Appendix

[12] A.R.S. Title 48, Chapter 17 or 19; A.R.S. § 45-497, § 45-492 (C), § 45-497 (B), and § 45-1001.

A, was used to predict the WVBA plume footprint in 2026 (when RID is assumed to cease pumping within the SRRD). This approach was then followed by groundwater flow modeling to develop specific potential contingent measures, and which contingent measures would be more fully evaluated when trigger conditions (described below) are met.

The groundwater flow model was used to help determine where groundwater originating within the estimated 2026 plume boundary might migrate over time should RID cease pumping within the SRRD. It was also used to help identify which downgradient production wells could potentially become impaired and require remedial measures in the future.

Figures 7 through 9 show the changes in simulated water levels and hydraulic gradients over time post-2025. The modeling results indicate that should RID stop pumping within the SRRD, groundwater levels within the central portion of the WVBA (i.e., model target wells 202 and 203)[13] may rise on the order of 85 feet over a 16-year time period (see graph below). As water levels rise, the overall groundwater flow direction within the WVBA is predicted to shift more towards the west-northwest. These figures also show reverse particle tracks[14] with 16 years of particle movement (2026 through 2041) for select SRP and COT production wells.



[13] See Figure 1 of "West Van Buren Area Feasibility Study Alternatives Modeling" memo (**Appendix C**) for target well locations within the WVBA.
[14] Particles were placed 10 percent of the model layer thickness off the bottoms of model layers 2 and 3.

A groundwater tracer approach was also used to track groundwater that originates within the greater than 10 μg/L contours for the estimated combined PCE/TCE 2026 plume within the WVBA boundary. Within the model, the groundwater tracer, with a uniform, starting normalized value of one (1) within areas greater than 10 μg/L of the estimated 2026 plume footprint[15] was simulated as a solute using the modeling program MT3D. The model used the total variation diminishing scheme to simulate future groundwater movement by advection with dilution, but effectively no dispersion, sorption, or degradation; in essence, this modeling approach simulates as close as practical the movement of groundwater. The groundwater tracer is dissolved-phase only with no ongoing sources of tracer included in the simulations. Figures 7 through 9 show the post-2025 groundwater tracer distribution within the UAU1 from 2026 through the end of the model in 2041. The tracer distribution shown in the figures in light blue represents groundwater considered above an effective value of 5 μg/L. The tracer distribution over time indicates that SRP production wells 55-608388 and 55-608384, located northwest of the WVBA, have the potential to become impaired under this contingency scenario. The contingent sentinel well monitoring network described below would be used to evaluate the post-2025 plume extent over time to determine if or when contingent well measures may be needed.

Figures 10 through 12 show the post-2025 groundwater tracer distribution over time within the UAU2[16]. The results suggest that the groundwater tracer within the UAU2 plume footprint would not move a significant distance over time under these model conditions, even considering the conservative nature of the tracer, primarily due to the relatively low hydraulic conductivities within the UAU2 (compared to the UAU1 hydraulic conductivities). These results are consistent with observed data from the existing UAU2 monitoring well network, as the UAU2 plume does not appear to have moved a significant distance between 2008 and 2013, and UAU2 COC concentrations, at least along the main axis of the UAU plume, have been relatively stable over time despite regional irrigation pumping (see Figures A-18 and A-23 in Appendix A).

Potential Remedial Measures for Impaired or Threatened Wells

RID Production Wells

The results of the Human Health Risk Assessment (HHRA; Appendix D) indicate that water from RID production wells is currently safe for its current use without remedial measures. The trigger for a contingency to address groundwater pumped by RID would be the imminent delivery of water by RID to third party potable water providers.

To the extent reclaimed wastewater from the COP's 23rd Avenue WWTP is conveyed via the Main Canal, the Main Canal cannot be used for delivering drinking water. As described in Section 5, assuming there is no effluent being conveyed in the Main Canal, a blending approach could be employed, consisting of blending extracted groundwater from RID wells at current rates within and adjacent to the WVBA. Mass balance calculations indicate that, under current RID pumping conditions, and using the most recent available water quality data from RID wells, blended water at the confluence of the Salt Canal and Main Canal would be below the AWQS for PCE and slightly above the AWQS for TCE. Blending additional water from other RID wells located within the SRRD and RID wells west of the Aqua Fria River would serve to reduce concentrations to below regulatory thresholds in the

[15] Greater than 10 μg/L was used to only include those areas with starting concentrations high enough to potentially impair a downgradient production well. The small area above 10 μg/L PCE in the western portion of WVBA was also excluded, since this area is limited to only one well (AVB75-01).

[16] Because of the overall stable concentration trends within the UAU2 monitoring wells, the 2013 UAU2 plume footprint was used as the starting 2026 tracer distribution for illustrative purposes.

blended water prior to delivery in the west valley. Continued COC concentration declines over time within the WVBA would also result in lower concentrations in the future.

Mass balance calculations also show that the AWQS would be met at the end of the Salt Canal if well RID-114 is replaced outside of the plume boundary (Table 5). Hence, if RID uses only the Salt Canal wells for delivery to potable water providers, as an additional remedial measure, well RID-114 could be replaced at another location along the Salt Canal, outside of the plume boundary. Modeling results and the water quality data set suggest that a replacement well located between wells RID-110 and RID-111R, or west of well RID-105, would likely produce suitable groundwater quality.

SRP Production Wells

As noted above, the groundwater modeling results indicate that two SRP wells (55-608384 and 55-608388) may become at risk should RID cease pumping within the SRRD. To account for uncertainties within the model and in actual future hydrogeologic conditions, remedial measures at two additional SRP wells (for a total of four wells) were included for costing purposes under the Less Aggressive alternative.

Based on the discussion of remedial measures in Section 5, the most cost-effective and reliable contingent measure for these SRP wells is to replace them with a collocated production well of equivalent capacity completed solely in the LAU. This would eliminate the need for operating a long-term well-head treatment system at each well and avoid potential problems related to: (1) deepening or modifying the existing SRP wells due to their age and condition; and (2) operational and land access issues associated with relocating wells in some other area within the SRRD. Well-head treatment may not be feasible for another reason. The SRP has stated that some SRP production wells may be connected directly to a municipal distribution system within the SRRD in the reasonably foreseeable future (SRP, 2013) and COP does not allow treated groundwater to discharge directly to COP's distribution system.

If the SRP needs to install a production well within the WVBA in the reasonably foreseeable future and the water quality due to COC contamination is not fit for its intended use at that time, contingent remedial measures, evaluated in consultation with the SRP, would be assessed. Future planned production wells should be located and constructed to mitigate any possible future impact.

COP Production Wells

The groundwater modeling results indicate that no existing COP production wells with anticipated production within the next 30 years would be impaired under the Less Aggressive contingency.

If the COP needs to install a production well within the WVBA in the reasonably foreseeable future and the water quality due to COC contamination is not fit for its intended use at that time, contingent remedial measures, evaluated in consultation with the COP would be assessed. Future planned production wells should be located and constructed to mitigate any possible future impact.

COT Production Wells

Based on the groundwater modeling results, none of the existing or proposed future COT production wells would likely become impaired under the Less Aggressive contingency. However, to reduce uncertainty, consultation with the COT is proposed regarding the proposed location of future wells.

Future planned production wells COT-2, COT-3, and COT-4 should be located and constructed to mitigate any possible future impact, and locating these future wells further south-southwest to prevent potential future impairment should be considered.

Private Water Wells

For a private water well outside of the WVBA, the recommended contingent remedial measure is to connect the well owner's property to the COP municipal distribution system should the well become impaired. A private well inventory has been completed within the WVBA (Terranext, 2012b). This inventory would need to be expanded to the area west-northwest of the WVBA under the Less Aggressive contingency. For costing purposes, it was assumed that up to five private wells could become impaired and need remedial measures, consistent with the costing assumption for private wells within the WVBA.

Triggers for Contingent Remedial Measures

The need to replace downgradient current or future production wells, including SRP wells 55-608384 and 55-608388 (or other SRP wells as necessary), with LAU production wells would be triggered if an increasing COC concentration trend above the AWQS is observed in the upgradient sentinel wells or if COC concentrations in the SRP well are at levels unsuitable for use at the time. Determining an increasing COC concentration trend would be based upon a statistically significant hydrogeologic evaluation that would estimate the COC concentration in a sentinel well (constructed to monitor the entire UAU1 saturated interval) that would result in an exceedance of an AWQS in a downgradient production well sometime in the future. This evaluation would be conducted using a minimum of four consecutive monitoring events, and would calculate COC travel times from the sentinel well to the downgradient production well and the anticipated reduction in COC concentration that would occur as a result of dispersion, dilution, and degradation. The well construction of the downgradient production well will also be considered, including the screened intervals and the hydrologic units that supply water to the well. Mann-Kendall statistical tests would be conducted on the monitoring data set and professional judgment used to trigger contingent remedial measures in a timely manner to protect downgradient production wells.

Contingent Sentinel Well Monitoring

Under the Less Aggressive contingency, if the existing monitoring program was determined to be inadequate in the event that RID stops pumping in 2026 and groundwater flow direction in the WVBA system changes, the following seven existing UAU1 monitoring wells located along the northern and western perimeter of the WVBA, along with five new sentinel wells located to the west-northwest of the WVBA (drilled and constructed in 2026), would be monitored for COCs quarterly starting in 2026 for the first year and then an appropriate frequency thereafter. For costing purposes, quarterly monitoring is assumed for the sentinel wells; however, monitoring frequencies and duration may be adjusted based on observed results.

- AVB29-01;
- AVB74-01;
- AVB91-01;
- AVB96-01;

- AVB112-01;
- AVB129-01; and
- AVB138-01.

If operating, the following eleven SRP wells located west and northwest of the WVBA, would also be sampled for COCs during the sentinel monitoring events.

- 55-607727;
- 55-607728;
- 55-607735;
- 55-608358;
- 55-608384;
- 55-608388;
- 55-608389;
- 55-608393;
- 55-608407;
- 55-617100; and
- 55-617112.

The sentinel well locations are shown on Figures 7 through 9. The sentinel well network would be used to monitor COC concentration trends in the area west-northwest of the WVBA, between approximately 51st Avenue and 91st Avenue, to determine if SRP production wells might require remedial measures. The sentinel well locations were chosen to provide a balanced monitoring network that: (1) targets individual SRP production wells to the extent possible; (2) provides sufficient areal coverage west-northwest of the WVBA; and (3) are located within the right-of-way (ROW) of city streets.

Trigger for Potential Modification of Monitoring Well Network

If routine groundwater monitoring indicates a significant change to hydraulic and/or water quality conditions (i.e., COC concentrations increase significantly, groundwater flow directions change, and/or plume migration is more rapid than predicted), a hydrogeologic evaluation and cost benefit analysis would be conducted to assess the need for changes to the existing monitoring well network. The hydrogeologic evaluation would include additional model simulations to determine if the changes in hydraulic and/or water quality conditions would have negative impacts on planned remedial actions and downgradient users, and if additional, unplanned remedial activities are warranted. Remedial activities that may be considered in this analysis include more frequent monitoring and installing an enhanced monitoring network. The cost-benefit analysis would consider whether the proposed actions are reasonable, necessary, cost effective, and technically feasible.

6.2.3 Permits

Permits required for the Less Aggressive Remedy are primarily related to drilling and constructing LAU production wells and new sentinel monitoring wells.

ADWR

Each new well would require submittal of an ADWR Notice of Intent form prior to the initiation of drilling and driller's report following well completion. An Arizona-licensed driller would perform the monitoring well and production well installation work, and the new wells would comply with ADWR well construction standards found in A.R.S. §45-594, 45-595, 45-596, and 45-600 of the Groundwater Code.

COP

The COP Development Services Department (DSD) would require a Right-of-Way Building Permit for any new sentinel wells located within the COP ROW. This permit requires submittal of an application form, the well design specifications, and applicable fee payment. If drilling operations are sustained continuously for 24 hours a day, the drilling contractor must obtain a 30-day "After Hours Construction" permit through DSD.

6.2.4 Advantages and Disadvantages of the Less Aggressive Remedy

The main advantages of the Less Aggressive Remedy include the following:

- No new extraction wells are included in the remedial alternative, therefore the Less Aggressive Remedy would not remove and/or export additional groundwater from the WVBA (exportation would be inconsistent with the COP's long-term water management plan). Groundwater would remain in storage within the aquifer for potential future use. With ADEQ-directed source control measures and continued irrigation pumping, contaminant concentrations will continue to decrease over time and could potentially fall below the AWQS before future potable water uses are needed under the COP's long-term groundwater management plan.
- High, long-term power consumption, associated carbon footprint, and costs from new extraction wells, well maintenance, well-head treatment, and conveying extracted groundwater to end users would be avoided.
- There would be no need to construct long lengths of conveyance piping through busy urban streets with heavy traffic and significant underground utilities, and no disruption to traffic, commerce, or pedestrians during implementation.
- There would be no need for well-head treatment systems and long-term well-head treatment O&M.

The main disadvantage of the Less Aggressive Remedy is higher uncertainty regarding the scope of the contingent strategies and measures should RID cease pumping within the SRRD in 2026.

6.2.5 Uncertainties Associated With the Less Aggressive Remedy

Less Aggressive Remedy uncertainties include the following.

- As discussed in Section 3.2.1, uncertainties exist regarding: (1) expiration of the 1920 agreement and subsequent supplemental agreements for water production with Carrick-Mangham and RID; (2) RID's authority to move groundwater from within the boundaries of a water provider that has obtained a Designation of Assured Water Supply (in this case the COP) and the potential to negatively affect that Designation; and (3) additional concerns regarding

RID's authority to move groundwater from within the WVBA in the future. These legal issues have not yet been resolved.

- Production and water quality for a newly completed LAU production well would need to meet the AWQS. While available data indicate that the general mineral water quality in the LAU would likely be of higher quality than the UAU[17], the production capacity of the replacement LAU well can only be determined during drilling and subsequent testing of the completed well. Additional measures may be needed to keep the water provider whole regarding well capacity.
- The timing and need of potential future COP and/or SRP wells located within the WVBA in the reasonably foreseeable future is uncertain, as is whether the water quality will be fit for its intended use at that time.
- The fate of the remaining dissolved-phase WVBA plume after 2025 under the Less Aggressive contingency scenario would be an uncertainty. Hydraulic control would no longer be maintained if RID discontinued pumping, and, based on model results, the remaining plume in 2026 (if any) could migrate in a northwesterly direction under the new groundwater hydraulic conditions. The regional scale of the current plume suggests limited retardation of COCs in the UAU1, and while there will be some retardation, dilution, and dispersion that will reduce concentrations at the downgradient plume boundary, the center of the plume's mass may continue to move downgradient until a hydraulic sink such as a production well or well field is reached. COC concentrations above AWQS could migrate beyond the current model boundaries and potentially impair other production wells. The sentinel well monitoring network would be used to evaluate the extent of the post-2025 plume; additional contingent well measures may be needed based on the sentinel well monitoring results.

6.3 Reference Remedy

6.3.1 Base Components of the Reference Remedy

The Reference Remedy includes the components of the Less Aggressive Remedy, including the contingent measures except as modified below. The Reference Remedy would also include a focused remedial groundwater extraction well (assumed to be 500 gpm) within the core of the plume alongside RID irrigation pumping, with treatment of the extracted groundwater and delivery to RID from 2016 through 2025.

Focused Plume Core Groundwater Extraction

The Reference Remedy includes focused groundwater extraction to enhance COC mass removal and reduce COC mass flux at 35th Avenue with the goal of reducing the need for future contingent measures. The additional extraction well would remove additional COC mass from an area of relatively elevated COC concentrations in the UAU1, in addition to some mass removal from the UAU2.

Based on the modeling results, one new groundwater extraction well (EW-2) would be installed at 35th Avenue, north of well RID-95. This location was selected based upon the current concentrations within the plume and hydraulic modeling results. EW-2 would be screened across the UAU1 and UAU2 to

[17] For example, in 2013 TDS concentrations in APS West Phoenix Power Plant production wells completed in the LAU ranged from 790 milligrams per liter to 880 milligrams per liter, approximately one-half of those TDS concentrations generally observed in the UAU aquifer (USGS, 2010).

remove additional COC mass from both units (mostly from UAU1, with some COC removal coming from UAU2) during operation. EW-2 would pump at a rate of 500 gpm with pumping likely conducted on a seasonal basis given the proposed RID Main Canal end use, although year-round pumping may be possible under an agreement with RID[18]. Water would be discharged to the RID Main Canal for beneficial reuse. Due to RID's policy regarding third party discharges to its system, the water would require treatment for COCs prior to discharge to the canal despite the HHRA findings that the extracted water would be safe for irrigation use without treatment.

For base costing purposes, it was assumed EW-2 would cease operating at the end of 2025[19], at which time RID may be required to cease pumping within the SRRD. Locating the new extraction well within the higher concentration plume core would increase the efficiency of COC mass removal (relative to total pumping) compared to current conditions. Under current conditions, RID operates 32 irrigation wells within and adjacent to the WVBA at an aggregate pumping rate of about 84,600 gpm (Synergy, 2012). However, most of these wells extract groundwater with relatively low or no detectable COC concentrations, and approximately 75 percent of the TCE mass removed per year results from only four RID wells located within the plume core (RID-89, RID-92, RID-95, and RID-114), which pump a total of 8,600 gpm (Table 7). Operating EW-2 would increase the plume core extraction from 8,600 gpm to 9,100 gpm and remove an estimated additional 70 pounds of TCE and 4 pounds of PCE during the initial year of the remedy (Table 8).

Figures 13 through 15 provide the results of the Reference Remedy scenario modeling for model years 2015, 2020, and 2025. Modeling results indicate that simultaneously pumping EW-2 and RID-95 would effectively capture the COC mass flux at 35th Avenue (Figure 13). Reducing the COC mass flux in this area would likely result in a decline of COC concentrations (particularly TCE) west of 35th Avenue, thereby reducing the need for future contingent measures at downgradient production wells. A comparison of simulated hydraulic heads over time for scenarios with and without the new extraction well indicates that additional drawdown in the closest RID wells induced by EW-2 would be less than 10 feet during the first five years of operation. The modeling results therefore indicate that the EW-2 location would be in accordance with ADWR well spacing/well interference requirements.

The proposed location of EW-2, conveyance piping, and end use are shown on Figure 16. The proposed extraction well location is generally within an industrial area. While sufficient area for the extraction well and well-head treatment system appears to be available based on a review of Google Earth images, the exact well location may need to be adjusted based on availability of land for purchase or lease.

As noted previously, the findings of the HHRA indicate that the extracted water would be suitable for the intended irrigation end use without treatment. However, due to RID's policy regarding third party discharges to its system (RID, 2010b), a well-head LGAC treatment system capable of treating the anticipated 500 gpm would be required for the extraction well. Treated groundwater from EW-2 would be conveyed south in the existing SRP lateral at 35th Avenue and then discharged to the RID Main Canal for RID use through 2025. The discharge would require an agreement between the SRP and RID to cover operations and water transportation. This scenario would require minimal new conveyance piping to the Main Canal.

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[18] Extraction well EW-2 was modeled using year-round pumping. The Reference Remedy costing discussed in Section 7 also assumes year-round pumping.

[19] This is based on the assumption that the efficacy of the new extraction well primarily depends on operating alongside the current RID pumping regime, with the goal of enhancing the current mass removal within the WVBA and further reducing COC mass flux at 35th Avenue.

To assure resource conservation, this end use option could replace groundwater that RID would otherwise have pumped, and under this scenario, would be in accordance with the ADWR remediated groundwater use policy (ADWR, 1999).

6.3.2 Contingencies Associated With the Reference Remedy

The Reference Remedy would include all of the contingencies associated with the Less Aggressive Remedial alternative. The Reference Remedy would also include the following additional contingencies:

- Continue operating EW-2 beyond the year 2025 and reinjection of the 500 gpm extracted groundwater into the LAU;
- Select additional contingency measure(s) in 2025 after evaluating the relative costs and benefits of installing an additional 1,000 gpm extraction well or replacing up to two SRP wells, and/or other technically feasible measures; and
- An expanded sentinel monitoring well network installed downgradient of the plume footprint that exists in 2026.

Trigger for Continued Operation of EW-2 Beyond the Year 2025

A hydrogeological evaluation and cost benefit analysis would be conducted at the end of 2025 to determine the benefits of continuing to pump the 500 gpm extraction well EW-2. The hydrogeologic evaluation would calculate projected COC mass removal based upon a trend analysis of the recent water quality data from that well and a groundwater model evaluation to determine if the continued pumping would have continued beneficial impacts on protecting current or future downgradient production wells. The cost-benefit analysis would consider whether the actions are reasonable, necessary, cost-effective, and technically feasible.

Under the assumption that RID discontinues production of groundwater from within the WVBA at the end of 2025, the end use of treated groundwater for this contingency would change from discharge to the RID Main Canal to reinjection into a LAU injection well collocated with the extraction well. Because the injection well would be located within the same extraction well/treatment system compound, conveyance piping would be minimal.

This revised end use contingency would require a pump-to-waste capability, where fines within the injection well are backwashed by pumping the injection well to an adjacent COP storm sewer for 2 to 3 hours per week. Backwashing would reduce the overall maintenance required to maintain injection capacity over time and extend the life of the injection well. Because there is no existing large-diameter COP storm sewer adjacent to EW-2, the injection well's actual location may need to be moved in the vicinity of the proposed location to be near a sufficiently-sized COP storm sewer.

For costing purposes, the LAU injection well was assumed to be a 16-inch diameter cased well at a total depth of 1,100 feet bgs, with 200 feet of well screen and an anticipated injection capacity capable of recharging 500 gpm into the LAU; continued operation was assumed from 2026 through 2044 (i.e., the end of the 30 year cost estimation time period).

Trigger for Installing and Operating Contingent Remedial Actions Beyond the Year 2025

A hydrogeologic evaluation and cost benefit analysis would be conducted at the end of 2025 to determine, based upon the 2025 water level and water quality conditions within the WVBA plume, if contingencies described in this FS or other technically feasible contingencies should be implemented to protect current or future downgradient production wells. The contingencies include replacing up to two SRP production wells that could be impacted by potential continued downgradient migration of the plume and/or implementing additional remedial measures within the remaining plume core. For costing purposes for this FS, it was assumed that the additional contingent remedial action would involve installing a new 1,000 gpm extraction well in an area most beneficial to removing the maximum remaining COC mass and protecting current and future downgradient production wells as best as possible. The primary goal of the contingent remedial action is to further reduce the potential future risk of impairing SRP, COP, and other production wells.

The detailed hydrogeological evaluation would assess alternative remedial technologies then available and potentially calculate projected COC mass removal by the 1,000 gpm extraction well based upon a trend analysis of recent water quality data from wells within the plume. A groundwater model will be used to evaluate if the extra pumping will have an additional beneficial impact on capture of upgradient COC impacted groundwater and protecting current or future downgradient extraction wells, and to evaluate the impact to current and future production wells if no additional contingent remedial actions are conducted. Finally, an estimate of the anticipated costs would be made for replacing current and future downgradient production wells likely impacted by plume migration. The cost-benefit analysis would consider whether the additional actions are reasonable, necessary, cost effective, and technically feasible. Replacing up to two SRP wells (with or without any additional groundwater pumping) and other appropriate alternative contingent actions should any be deemed necessary at the appropriate time would also be evaluated as part of the cost-benefit analysis.

Due to its intended end use, a well-head LGAC treatment system capable of treating the anticipated 1,000 gpm would be required for the extraction well. The proposed end use of treated groundwater would be reinjection into two LAU injection wells with recharge capacity of 500 gpm each, collocated with the extraction well. Because the injection well would be located within the same extraction well/treatment system compound, conveyance piping would be minimal. For costing purposes, LAU injection well construction was assumed to be the same as described above. This contingency would also require a pump-to-waste capability as described above; backwashing each of the two injection wells would need to be staggered to accommodate the COP storm sewer capacity of approximately 500 gpm.

Expanded Sentinel Monitoring Well Network

Under the Reference Remedy contingency, the same seven existing UAU1 monitoring wells and five new sentinel wells drilled and constructed in 2026 (listed in Section 6.2.2, Less Aggressive Remedy Contingencies) plus four additional new sentinel wells drilled and constructed in 2026, if necessary, would be monitored for COCs on a periodic basis starting in 2026. For costing purposes, quarterly monitoring is assumed; however, monitoring frequencies and duration may be adjusted based on observed results. If operating, the same 11 SRP wells listed in Section 6.2.2 would also be sampled for COCs during the sentinel monitoring events.

The sentinel well locations are shown on Figure 17. This expanded sentinel well network would reduce uncertainties regarding water quality downgradient of the WVBA, which production wells may become

impaired post-2025, and the estimated timing of the impairment. The method for sentinel well monitoring and triggering a remedial measure would be consistent with that discussed in Section 6.2.2.

6.3.3 Permits

Several permits would be necessary for the Reference Remedy. Permitting requirements, organized by regulatory agency, are described below.

ADWR

Each new groundwater extraction well, injection well, replacement production well, and monitoring well would require the submittal of an ADWR Notice of Intent form prior to the initiation of drilling and driller's report following well completion. An Arizona-licensed driller would need to perform the monitoring well and extraction well work and the new wells must comply with ADWR well construction standards found in A.R.S. §45-594, 45-595, 45-596, and 45-600 of the Groundwater Code.

In accordance with A.R.S. §45-516, a Poor Quality Groundwater Withdrawal Permit would be required by ADWR to pump a groundwater extraction well within the Phoenix Active Management Area. This process requires an application and an ADWR processing fee. Required information includes a description of the specific purpose for withdrawing the poor quality groundwater and an indication that it would be part of remedial action at the WVBA WQARF site.

The permit would specify the groundwater withdrawal monitoring requirements, such as extracted volumes and water quality sampling, and reporting requirements, such as annual reports to document measured total pumping volumes. If the extracted water is beneficially used, the annual fees are $3.00/acre-foot withdrawal fee plus a $2.12/acre-foot WQARF fee.

An Underground Storage Facility Permit, including a Groundwater Storage Facility Permit, would also need to be obtained from the ADWR for the reinjection contingency to inject treated groundwater into the LAU, pursuant to A.R.S. §45-811.01.

COP

The COP DSD would require construction permits related to the well-head treatment system. This would include design plans and specifications for civil, plumbing, mechanical, and electrical work submitted to the COP.

A Use Permit would also need to be obtained from the COP Zoning Department to construct and operate an environmental treatment facility (COP Zoning Ordinance Section 622056).

ROW permits would be required by the COP DSD prior to installing conveyance piping in the COP ROW, if needed, and a Revocable Permit from the COP Street Transportation Department would be needed to install conveyance piping and any other well-head system infrastructure located within the ROW (Phoenix City Code Sections 31.80 to 31.84).

The COP DSD would require a ROW Building Permit for any new sentinel wells located within the COP ROW. This permit requires an application form submittal, well design specifications, and

applicable fee payment. If drilling operations are sustained continuously for 24-hours a day, the drilling contractor must obtain a 30-day "After Hours Construction" permit through the COP DSD.

As long as the water quality meets or is lower than the AWQS, no permit would be required to discharge to the COP storm sewer during the injection well backwash cycles discussed above.

ADEQ

Certain Phoenix-area canals are listed in A.A.C. R18-11-Appendix B as Waters of the United States. The RID canals are not listed, and are not currently regulated as Waters of the United States. No AZPDES permit would be required from the ADEQ Surface Water Section to discharge treated groundwater to the RID Main Canal.

6.3.4 Advantages and Disadvantages of the Reference Remedy

Compared to the Less Aggressive Remedy, the Reference Remedy provides a reduced likelihood that contingent remedies will be needed through: (1) enhanced COC mass removal in an area of relatively elevated COC concentrations; (2) reduced COC mass flux at 35th Avenue and a reduction in downgradient COC concentrations; (3) additionally removed COC mass from the UAU2; and (4) an increased sentinel monitoring well network.

Compared to the Less Aggressive Remedy, the disadvantages of the Reference Remedy are primarily related to power consumption needs (and therefore a larger carbon footprint) for groundwater extraction and treatment, the need for long-term O&M of the well-head treatment systems, increased capital and long-term O&M costs, increased mining and exporting of groundwater out of the COP service area, and the relative cost of any potential additional benefit when compared to the other remedial alternatives.

6.3.5 Uncertainties Associated With the Reference Remedy

The Reference Remedy uncertainties are similar to the Less Aggressive Remedy, and include: (1) potential changes if RID obtains the legal authority to change its current irrigation end use to deliver water to third party drinking water providers for potable use; (2) the timing of potential changes in irrigation pumping within the WVBA; (3) the timing of potential future COP or SRP production wells located within the WVBA; (4) the production rates of replacement wells completed in the LAU; (5) the ability to obtain an agreement with RID to accept treated groundwater; and (6) the ultimate fate of the remaining dissolved-phase plume after 2025 should RID cease pumping within the SRRD in 2026. As mentioned above, the sentinel well monitoring network would be used to evaluate the post-2025 plume extent over time; additional contingent well measures would be triggered by sentinel well results as described in Section 6.2.2.

6.4 More Aggressive Remedy

6.4.1 Base Components of the More Aggressive Remedy

The More Aggressive Remedy includes the base components of the Less Aggressive Remedy, including the contingent measures, plus additional extraction and treatment of currently impacted groundwater beginning in 2016 and continuing through 2025. The More Aggressive Remedy reduces the likelihood that contingent remedial strategies or measures would be triggered and may achieve the ROs over a

shorter period of time compared to the other remedial alternatives, but at a greater cost and by potentially mining and exporting greater amounts of groundwater from the COP service area.

In addition to the base components of the Less Aggressive Remedy, the More Aggressive Remedy would include adding two extraction wells (EW-1 and EW-2) within the plume core at 1,000 gpm each, beginning in 2016 and continuing through 2025.

Proposed groundwater extraction wells EW-1 and EW-2 (see Figures 18 through 20) and associated well-head treatment systems would be located at 47th Avenue and 35th Avenue, respectively. Each well would pump at a rate of 1,000 gpm on a seasonal basis given the proposed RID Main Canal end use, although year-round pumping may be possible under an agreement with RID. For base costing purposes, it was assumed the new extraction wells would cease operating at the end of 2025[20].

Modeling was performed to determine the locations for the new extraction wells within the plume core for the More Aggressive Remedy. These extraction wells would be installed and operated at the start of the remedy to enhance the ongoing COC mass removal under current irrigation pumping conditions. The primary goal of the new extraction wells is to remove additional dissolved-phase mass from the plume core before 2025 and reduce COC mass flux downgradient of the new extraction well locations, which may expedite COC concentration declines within the central and west-central portion of the WVBA and reduce the potential future risk of impairing downgradient production wells.

The new extraction wells would be located along the east-west plume axis, approximately midway between West Van Buren St. and West Buckeye Rd. on 35th Avenue (EW-2) and 47th Avenue (EW-1). Because of the proposed end use of discharge to the RID Main Canal described below, operating the new extraction wells would be seasonal and consistent with the current RID production schedule, unless an agreement with RID is made for year-round pumping[21].

As discussed above, locating the new extraction wells within the higher concentration plume core would increase COC mass removal (relative to total pumping) compared to current conditions. Under current conditions, RID operates 32 irrigation wells within and adjacent to the WVBA at an aggregate pumping rate of about 84,600 gpm (Synergy, 2012). However, most of these wells extract groundwater with relatively low or no detectable COC concentrations, and approximately 75 percent of the TCE mass removed per year results from only four RID wells located within the plume core (RID-89, RID-92, RID-95, and RID-114), which pump a total of 8,600 gpm (Table 7). Adding two new plume core wells at 1,000 gpm each would increase the total plume core extraction volume by a factor of 1.23 (10,600 gpm/8,600 gpm). Based on the anticipated PCE and TCE concentrations at EW-1 and EW-2, a 2.5 percent increase in total aggregate pumping (from 84,600 gpm to 86,600 gpm) would result in an increase in PCE and TCE mass removal by a factor of about 1.05 and 1.13, respectively (Table 9). During the initial years of the remedy, additional TCE and PCE mass removal per year (based on current concentrations) would be on the order of approximately 50 pounds and 25 pounds (EW-1), and 140 and 9 pounds (EW-2), respectively.

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[20] Similar to the Reference Remedy, this is based on the assumption that the efficacy of the two new extraction wells primarily depends on operating alongside the current RID pumping regime, with the goal of enhancing the current mass removal within the WVBA and further reducing COC mass flux downgradient of the extraction wells.

[21] Extraction wells EW-1 and EW-2 were modeled using year-round pumping; the More Aggressive costing discussed in Section 7 also assumes year-round pumping.

Figures 18 through 20 provide the results of the More Aggressive Remedy scenario modeling for model years 2015, 2020, and 2025. Modeling results indicate that the combined capture zone of extraction well EW-2 and RID-95 pumping simultaneously would effectively capture the COC mass flux at 35th Avenue, with a wider overall capture zone compared to the Reference Remedy. Reducing the COC mass flux in this area would likely result in declining COC concentrations, in particular TCE, downgradient (west) of 35th Avenue, and reduce the need for potential future contingent remedial measures. Increased pumping at EW-2, compared to the Reference Remedy, would also increase the hydraulic gradient and groundwater flow velocity in the upgradient central and eastern portion of WVBA and therefore help increase the flushing of dissolved-phase mass in this area. EW-1 would be located in an area of current PCE and TCE concentrations of approximately 10 μg/L and 20 μg/L, respectively, and would also enhance mass removal and reduce mass flux downgradient of 47th Avenue, thereby potentially reducing the need for future contingent remedial measures compared to current conditions.

A comparison of simulated hydraulic heads over time for scenarios with and without the two new extraction wells indicate that additional drawdown in the closest RID wells induced by EW-1 and EW-2 would be less than 10 feet during the first five years of operation. The modeling results therefore indicate that the locations of these new extraction wells would be in accordance with ADWR well spacing/interference requirements.

The proposed location of EW-1 and EW-2, conveyance piping, and end use are shown on Figure 21. The proposed extraction well locations are within industrial areas. While sufficient area for the extraction well and well-head treatment system appears to be available based on a review of Google Earth images, the exact well locations may need to be adjusted based on land available for purchase or lease.

As noted previously, the findings of the HHRA indicate that the extracted water would be suitable for the intended irrigation end use without treatment. However, due to RID's policy regarding third party discharges to its system, a well-head LGAC treatment system capable of treating the anticipated 1,000 gpm at each well would be required for both extraction wells. The proposed end use of treated groundwater would be discharge to the RID Main Canal. Treated groundwater from EW-1 and EW-2 would be conveyed south in the existing SRP laterals at 47th Avenue and 35th Avenue, respectively, and then discharged to the RID Main Canal, which would require an agreement between the SRP and RID. This scenario would require minimal new conveyance piping to the Main Canal.

This end use option could replace groundwater that RID would otherwise have pumped, and under this scenario, would be in accordance with ADWR policy.

6.4.2 Contingencies Associated with the More Aggressive Remedy

The More Aggressive Remedial Alternative would incorporate the potential contingent measures included within the Less Aggressive Remedy, and additionally include continued remedial groundwater extraction with treatment and reinjection from the two 1,000 gpm extraction wells from 2026 until 2044, or until no longer necessary.

Continued Operation of EW-1 and EW-2 Beyond the Year 2025

Similar to the Reference Remedy, a hydrogeological evaluation and cost benefit analysis would be conducted at the end of 2025 to determine, based upon the 2025 water level and water quality

conditions within the WVBA UAU1 plume, the benefits of continuing to pump the two extraction wells beyond 2025, or if contingencies described in this FS or other technically feasible contingencies should be implemented to protect current or future downgradient production wells. The contingencies include replacing up to two SRP production wells that could be impacted by potential continued downgradient plume migration and/or implementing additional remedial measures within the remaining plume core. For costing purposes, it was assumed that the additional contingent remedial action would continue operating EW-1 and EW-2 from 2026 through 2044, to protect current and future downgradient production wells.

The detailed hydrogeological evaluation would assess alternative remedial technologies then available and potentially calculate projected COC mass removal by the two extraction wells based upon a trend analysis of recent water quality data from wells within the plume. A groundwater model will also be used to determine if the continued pumping will have a beneficial impact on current or future downgradient extraction wells, and to determine the impact to current and future production wells if no additional contingent remedial pumping is conducted. An estimate of the costs will be made for replacing current and future downgradient production wells that likely would be impacted by plume migration. The cost-benefit analysis will consider whether the actions are reasonable, necessary, cost effective, and technically feasible.

If the hydrological evaluation determines it is reasonable, necessary, cost effective, and technically feasible to continue operating EW-1 and EW-2 beyond 2025, then the end use of the treated groundwater would change from discharge to the RID Main Canal to reinjection into LAU injection wells collocated with the extraction wells. Because the injection wells would be located within the same extraction well/treatment system compound, conveyance piping would be minimal. Two LAU injection wells with recharge capacity of 500 gpm each are anticipated for each 1,000 gpm extraction well (total of four LAU injection wells).

Similar to the Reference Remedy, this modified end use would require a pump-to-waste capability, where fines within each injection well are backwashed by pumping the injection well to an adjacent COP storm sewer for 2 to 3 hours per week. Backwashing each injection well would need to be staggered to accommodate the COP storm sewer capacity of approximately 500 gpm. Backwashing would reduce the overall maintenance required to maintain injection capacity over time and extend the life of the injection well. Because there is no existing large-diameter COP storm sewer adjacent to the anticipated location for EW-2, the injection well's actual location may need to be moved in the vicinity of the proposed location to be near a sufficiently-sized COP storm sewer.

For costing purposes, each LAU injection well was assumed to be a 16-inch diameter cased well at a total depth of 1,100 feet bgs, with 200 feet of well screen and an injection capacity capable of recharging 500 gpm into the LAU; continued operation was assumed from 2026 through 2044 (i.e., the end of the 30 year cost estimation time period).

Remedial Measures for Impaired or Threatened Wells

Similar to the Reference Remedy remedial measures, as part of the cost-benefit analysis, replacing up to two SRP wells (with or without any additional groundwater pumping) and other appropriate alternative contingent actions should any be necessary at the appropriate time would also be evaluated as part of the cost-benefit analysis.

6.4.3 Permits

The permits necessary for the More Aggressive Remedy are the same as those described in the Reference Remedy.

6.4.4 Advantages and Disadvantages of the More Aggressive Remedy

The primary advantage of the More Aggressive Remedy is to increase COC mass removal from groundwater within the WVBA to reduce the extent and concentration of the remaining plume in 2026, thereby further reducing the need for contingent remedial measures compared to the other remedial alternatives.

The disadvantages of the More Aggressive Remedy are primarily related to large power consumption needs (and therefore a larger carbon footprint) for groundwater extraction and treatment, the need for long-term O&M of the well-head treatment systems, increased capital and long-term O&M costs, potentially increased mining and exporting of groundwater out of the COP service area, and the relative cost of any potential additional benefit when compared to the other remedial alternatives.

6.4.5 Uncertainties Associated With the More Aggressive Remedy

The More Aggressive Remedy uncertainties are similar to those described previously for the other remedial alternatives, including the potential for a change if RID obtains the legal authority to deliver water to third party drinking water providers for potable use, the timing of potential changes in irrigation pumping within the WVBA, and the timing of potential future COP or SRP production wells located within the WVBA.

Other uncertainties specific to the More Aggressive Remedy include: (1) the efficacy and potential additional benefit of additional plume core extraction over the Reference Remedy and how much it may reduce the overall plume extent and COC concentrations within the plume over time; (2) the ability to obtain an agreement with RID to accept treated groundwater; and (3) the ultimate fate of the remaining post-2025 dissolved-phase plume should RID cease pumping within the SRRD at that time. The contingent sentinel well monitoring network would be used to evaluate the post-2025 plume extent over time based on an evaluation of the results as described in Section 6.2.2. Additional contingent well measures may be needed based on the sentinel well monitoring results.

7. COMPARATIVE EVALUATION OF REMEDIAL ALTERNATIVES

This FS was prepared to identify a Reference Remedy, Less Aggressive Remedy, and More Aggressive Remedy capable of meeting the ROs, evaluate each of the remedies based on the comparison criteria, and select a remedy that satisfies the following requirements of A.R.S. Title 49, Section §49-282-06, Remedial Action criteria:

- Assure the protection of public health and welfare and the environment;
- To the extent practicable, provide for the control, management, or cleanup of the hazardous substance in order to allow maximum beneficial use of the waters of the state;
- Be reasonable, necessary, cost-effective, and technically feasible; and
- For remediation of waters of the state, the selected remedial action shall address, at a minimum, any well that at the time of selection of the remedial action either supplies water for municipal, domestic, industrial, irrigation or agricultural uses or is part of a public water supply system if the well would now or in the reasonably foreseeable future produce water that would not be fit for its current or reasonably foreseeable end uses without treatment due to the release of hazardous substances. The specific measures to address any such well shall not reduce the supply of water available to the owner of the well.

This section provides a comparative evaluation of the remedial alternatives individually and in relation to each other, including:

- A demonstration that the remedial alternative will achieve the ROs;
- An analysis of consistency with the water management plans of the affected and potentially affected water providers and the general land use plans of local governments with land use jurisdiction; and
- An evaluation of the comparison criteria, which include practicability, risk, cost, and benefit or value [R18-16-407(H)(3)], as described below.

Practicability

The practicability of the remedies includes their feasibility, short- and long-term effectiveness, and reliability [R18-16-407(H)(3)(a)], considering site-specific conditions, characteristics of the contamination resulting from the release(s), performance capabilities of available technologies, and institutional considerations such as site access issues, easements and ROW, and utilities.

Risk

Risk includes overall protectiveness of public health and aquatic and terrestrial biota under reasonably foreseeable land use scenarios and end uses of water [R18-16-407(H)(3)(b)] and includes:

- Fate and transport of contaminants and contaminant concentrations and toxicity over the life of the remediation;
- Current and future land and resource use;

- Exposure pathways, duration of exposure, and changes in risk over the lifetime of the remediation;
- Protection of public health and aquatic and terrestrial biota while implementing the remedial action; and
- Residual risk in the aquifer at the end of remediation.

A HHRA was conducted for the WVBA following EPA and ADEQ risk assessment guidance and is provided in Appendix D. No human health risks were identified. Potential human receptors were identified based on current land use and hypothetical (but plausible) future land use within the WVBA. Estimated health risks were quantified for two receptor groups identified within the WVBA: (1) RID workers; and (2) residents. Ongoing exposures to COC concentrations were based on the last five years of data (2009 through 2013). Based on the results of the HHRA, the estimated health risks to receptors potentially exposed to COCs within the WVBA are acceptable.

Cost

Remedy costs include expenses and losses, including capital, operating, maintenance, and life cycle costs [R18-16-407(H)(3)(c)]. The cost analysis may also include uncertainties that may impact the cost of the remedial alternatives, projected water uses and costs associated with user-based treatment, other use impairment costs of water not remediated to water quality standards, and the cost of alternative water supply or treatment.

Benefit or Value

The benefit or value evaluation includes the following, consistent with R18-16-407(H)(3)(d):

- Lowered risk to human, aquatic and terrestrial species;
- Reduced concentration and reduced volume of contaminated water;
- Decreased liability and acceptance by the public;
- Aesthetics and preservation of existing uses;
- Enhancement of future uses; and
- Improvements to local economies.

Sustainability and water conservation were also included in the benefit or value evaluation.

7.1 Less Aggressive Remedy

A comparative evaluation of the Less Aggressive Remedy included the ability to meet the ROs, consistency with water management and land use plans, and an evaluation of the comparison criteria. The Less Aggressive Remedy components, described in Section 6.2, were developed using information provided by water providers (the COP, SRP, RID, and COT), water provider meetings, and a review of available water provider plans.

Ability to Meet Remedial Objectives

The Less Aggressive Remedy would be able to meet the ROs. Current groundwater quality within the WVBA is suitable for irrigation end use, and no SRP, COP, or COT production wells are currently

located within the WVBA. Private water wells within the WVBA that may become impaired will be addressed by connecting the property to the COP drinking water distribution system.

ROs for reasonably foreseeable water use would be met by implementing the contingent remedial strategies and measures described in Section 6.2.2. Should RID obtain legal authority to sell water to third party drinking water providers, RID could employ a blending approach (assuming reclaimed wastewater is not conveyed in the Main Canal and the Main Canal can be used for delivery of drinking water) similar to the one described in their MERA Work Plan that would provide groundwater that meets the AWQS at the point of use in RID's west valley service area. A remedial measure would replace well RID-114 at a location adjacent to the Salt Canal, outside of the plume extent, if RID uses only the Salt Canal as a drinking water supply end use.

Consistency with Water and Land Use Plans

If the SRP needs to drill and construct a production well within the WVBA in the reasonably foreseeable future and the well cannot reasonably be located in a particular area of the WVBA where the water produced by the well would be fit for its intended purposes without treatment, a contingent remedial measure would be selected in consultation with the water provider to modify the well design to deepen the well to produce only in the LAU. SRP production wells outside of the WVBA that may potentially become impaired under the post-2025 contingent scenario would be addressed by replacing the impaired UAU well with a collocated LAU production well.

Based on the modeling results, no existing COP production wells with anticipated production over the next 30 years would be impaired under the Less Aggressive Remedy. While the COP does not have specific plans for groundwater wells within the WVBA today, the COP states in their 2011 Groundwater Management Plan, *"With regard to remediation of contaminated groundwater within Phoenix's service area, it has been the City's stated intent to preserve that water for future service area use."* If the COP needs to install a production well within the WVBA in the reasonably foreseeable future and the water quality is not fit for its intended use at that time, a contingent remedial measure would be evaluated with consultation with the COP. The well would be located in an area where water quality is sufficient for its intended use or the well deepened to produce water only from the LAU.

The Less Aggressive Remedy is consistent with the land use and zoning changes described in the COP General Plan. Groundwater monitoring/MNA and the proposed remedial measures and contingencies would not interfere with the planned land use within the WVBA or entail additional extraction and exportation of groundwater from the COP service area.

Proposed future COT production wells COT-2, COT-3, and COT-4 would be addressed by working with the COT to possibly relocate these proposed wells south-southwest of their currently proposed locations to mitigate any possible future impact. Potential relocation of these wells would require discussions with the COT.

While the RID blending approach is consistent with the blending approach proposed in their MERA Work Plan, this approach, and possibly replacing well RID-114, would require discussions with RID should this contingent remedial measure become necessary.

Any private water wells downgradient of the WVBA that become impaired would be addressed by connecting the property to the COP drinking water distribution system.

Practicability

The Less Aggressive Remedy components are considered feasible and practicable, as groundwater monitoring, and production well and monitoring well drilling and construction are effective, use reliable industry-standard methods, and require limited access agreements to implement. Many of the proposed sentinel wells are already part of the current monitoring well network. Connecting an impaired private water well property to the COP drinking water distribution system is feasible and effective in both the short- and long-term, as it only requires routine plumbing and the water supply source would be the COP municipal supply. The Less Aggressive Remedy is also the least costly FS remedial alternative over the 30-year cost estimation time period.

Groundwater monitoring is effective and reliable in both the short- and long-term to further evaluate COC concentration trends within the WVBA, intrinsic MNA processes, changes in the lateral and vertical extent of the plume, and seasonal and long-term changes in water levels and hydraulic gradients. Replacing SRP production wells with new, collocated LAU wells is considered practicable, effective, and reliable in both the short- and long-term provided the replacement well is drilled and constructed with a sufficient well seal to isolate the LAU screened interval from the UAU and provided an equivalent capacity is obtained from the replacement well. Obtaining ROW permits from the COP for drilling and constructing sentinel monitoring wells should not present a significant challenge. Since an impaired SRP production well replacement would be collocated with the existing well, access issues with this contingent remedial measure are not anticipated.

The other contingent remedial strategies, such as moving or deepening potential future production wells and groundwater blending are also considered practicable and effective.

Risk

Based on the results of the HHRA provided in Appendix D, the estimated health risks to receptors potentially exposed to COCs within the WVBA are acceptable. While some COCs exceed the MCLs at select locations, groundwater beneath the WVBA is not currently used for drinking water purposes. The Land and Water Use Report identifies a few private wells in the area but does not describe them as used for potable purposes or reflect that users of these wells are receiving impacted groundwater. Any private wells that become impaired through contamination or change of use would be addressed by connecting the property to the COP drinking water distribution system. If RID end use changes from irrigation to drinking water, a blending approach, and replacing RID-114 if needed, would provide groundwater that meets the AWQS at the point of delivery to third party potable water providers in RID's west valley service area.

Should the COP or SRP need to drill and construct a production well within the WVBA in the reasonably foreseeable future and the water quality is not fit for its intended use at that time, the contingent remedial measures described above would mitigate the risk of potable water use of the well.

The COC concentration declines observed within the regional WVBA plume will likely continue under current regional pumping conditions; mitigating ongoing sources under the direction of ADEQ would expedite these declining trends.

If RID ceases pumping within the SRRD in 2026 and the remaining dissolved-phase plume contains concentrations high enough to impair downgradient SRP wells, impaired SRP production wells would be replaced with collocated LAU production wells, mitigating the risk of potable use of the well(s) and

the impact on water supply. The sentinel monitoring well network would provide advanced notice of potential production well impairment.

Cost

Table 10 summarizes estimated costs for the Less Aggressive Remedy base components and contingencies, including capital, O&M costs, and the assumed time period for each cost component within the 30-year cost estimation period (2014 through 2044). The costs were developed primarily using vendor quotes, recent contractor bids, communications with vendors and contractors, information and communication from water providers, and professional judgment. Detail costing sheets are provided in Appendix E. Not all of the identified contingent measures may necessarily need to be implemented; specific contingent measures would be identified based on monitoring future conditions as described in Section 6.2.2.

A discount rate of 6 percent was used to calculate the net-present value (NPV) for O&M and capital costs required some time beyond year one of the 30-year cost estimation period[22]. This discount rate was based on an interest rate of 9 percent and a 3 percent inflation escalation rate.

The Less Aggressive Remedy base components total NPV cost is estimated at $2.95M ($10.38M non-discounted with 3 percent inflation rate). The estimated NPV costs for the Less Aggressive Remedy contingencies listed in Table 10 range from $0.02M to $2.64M ($0.07M to $10.74M non-discounted with 3 percent inflation rate). The total NPV for all Less Aggressive Remedy contingencies included in Table 10 is approximately $3.81M.

Benefit or Value

Because the WVBA plume is already hydraulically contained under current pumping conditions, additional hydraulic control wells are not necessary and would only act to further remove groundwater storage from within the WVBA. Since no new extraction wells are included in the Less Aggressive Remedy, implementing the Less Aggressive Remedy would not further deplete the UAU aquifer within the WVBA. Groundwater within the WVBA would remain in storage within the aquifer for future beneficial use. Contaminant concentrations will continue to decrease over time and could potentially fall below AWQS before future potable water uses might be needed.

The Less Aggressive Remedy would not require long lengths of conveyance piping to be installed through urban streets with heavy traffic and significant underground utilities, and therefore not disrupt traffic, commerce, or pedestrians. Constructing well-head treatment systems, long-term well-head treatment O&M, and conveying treated groundwater to end users, with their associated high, long-term power consumption and carbon footprint, would not be necessary.

7.2 Reference Remedy

A similar comparative evaluation was performed for the Reference Remedy. The Reference Remedy components are provided in Section 6.3.

[22] This discount rate is lower than the discount rate of 7 percent used in the WOC FS reports, and is lower than the EPA recommended 7 percent discount rate for CERCLA FS cost estimating (EPA, 2000).

Ability to Meet Remedial Objectives

The Reference Remedy would also be able to meet the ROs. Current groundwater quality within the WVBA is suitable for irrigation end use, and no SRP, COP, or COT production wells are currently located within the WVBA. Wells that might be threatened or impaired in the future would be addressed using remedial measures and contingencies. Remedial measures for private water wells within the WVBA that may become impaired in the future would be addressed by connecting the properties to the COP drinking water distribution system.

The focused groundwater extraction and treatment proposed in the Reference Remedy would remove additional COC mass from within the WVBA compared to the Less Aggressive Remedy and help to reduce westward moving COC mass flux at 35th Avenue, which, along with source control under ADEQ oversight, and would help expedite COC concentration declines in WVBA groundwater over time. The reduced plume footprint and lower COC concentrations should result in less future contingencies needed to meet the ROs as compared to the Less Aggressive Remedy.

ROs for reasonably foreseeable water use will be met by implementing the contingencies as described in Section 6.3.2, above. Contingent remedial measures and an expanded sentinel monitoring well network would be employed as needed post-2025 to meet the ROs, based on the overall extent and concentrations within the plume at that time.

Consistency with Water and Land Use Plans

The Reference Remedy is consistent with Water and Land Use plans for the same reasons described in the Less Aggressive Remedy in Section 7.1 above. The remedial extraction well and well-head treatment compound would not interfere with planned land use.

Practicability

The Reference Remedy components are considered feasible and practicable. Groundwater extraction and treatment is considered a demonstrated and feasible technology, and installing and operating the new extraction well would be implemented using reliable industry-standard methods. LGAC treatment technology is considered practicable due to its proven performance and treatment reliability, relative low-cost and low-maintenance, and would be effective and reliable in both the short- and long-term as long as the well-head treatment system is properly operated, maintained, and monitored.

Sufficient area appears to be available for the extraction well and well-head treatment system based on a review of Google Earth images, although the exact well location may need to be adjusted based on the availability of land for purchasing or leasing.

Treated groundwater from new extraction well EW-2 would be conveyed to the south in the existing SRP laterals at 35th Avenue and discharged to the RID Main Canal prior to 2026. This scenario is considered practical because it would require minimal new conveyance piping to the end user. Year-round discharge of treated groundwater from the new extraction well could be possible under an agreement with RID.

While the COC concentrations would not require treatment given the absence of risk (see the HHRA in Appendix D) and the current end use, persons other than RID may not discharge to the RID Main Canal unless the water meets AWQS (RID, 2010b); extracted groundwater would therefore require

treatment prior to discharge. While this end use is considered feasible because RID would receive up to 500 gpm of treated groundwater for their use, it would require discussions with RID and an agreement between the SRP and RID.

The post-2025 contingency of continued focused groundwater extraction at EW-2 and possibly an additional 1,000 gpm extraction well, both with well-head treatment and reinjection end use, is also considered feasible because industry-standard methods would be employed; the COP has reliably reinjected water as part of aquifer recharge projects at various locations within the COP metropolitan area.

The remedial measure for any future impaired private water wells within the WVBA is considered feasible and effective in both the short- and long-term, as it only requires routine plumbing and the water supply source would be the COP municipal supply.

Groundwater monitoring is effective in both the short- and long-term to further evaluate COC concentration trends within the WVBA, intrinsic MNA processes, changes in the lateral and vertical extent of the plume, and seasonal and long-term changes in water levels and hydraulic gradients. The expanded sentinel monitoring well network would also be practicable.

If required, replacing SRP production wells with new, collocated LAU wells is considered practicable since industry-standard well installation methods would be used, and effective and reliable in both the short- and long-term provided the replacement well is drilled and constructed with the LAU screened interval fully isolated from the UAU. Access issues are not anticipated because the replacement well would be collocated with the existing well.

The other Reference Remedy contingencies, such as well replacement, groundwater blending, and connecting impaired downgradient private well properties to the COP municipal system are also considered to be practicable and effective.

Risk

The additional, focused groundwater extraction and treatment would further reduce the concentration, volume, mass, and toxicity of COCs over time. Along with source control by the ADEQ, this additional focused remedial measure is designed to reduce the likelihood of contingent remedial measures.

Risk from potable use of an impaired well either today or in the reasonably foreseeable future would be mitigated or eliminated using a combination of remedial measures and contingencies. LGAC as a treatment technology, properly operated, maintained, and monitored, will address the risk associated with potential changes to the end use of the extracted water. Groundwater monitoring would be used to evaluate declining COC concentrations within the WVBA resulting from the Reference Remedy and future source area mitigation under the direction of ADEQ. The expanded sentinel monitoring well network would provide a method for advanced notice of potential production well impairment under the post-2025 Reference Remedy contingency, thereby mitigating the potential risk of potable use in these wells.

Cost

Table 10 summarizes the estimated costs for the Reference Remedy base components and contingencies, including capital, O&M costs, and assumed time period for each cost component within the 30-year cost estimation period (2014 through 2044). Detail costing sheets are provided in Appendix E. Not all of the identified contingent measures may necessarily need to be implemented; specific contingent measures would be identified based on monitoring future conditions as described in Section 6.3.2.

A discount rate of 6 percent was used to calculate the NPV for O&M and capital costs required some time beyond year one of the 30-year period.

The Reference Remedy base components total NPV cost is estimated at $8.57M ($19.55M non-discounted with 3 percent inflation rate). The estimated NPV costs for the Reference Remedy contingencies listed in Table 10 range from $0.02M to $5.1M ($0.07M to $28.10M non-discounted with 3 percent inflation rate). The total NPV for all Reference Remedy contingencies included in Table 10 is approximately $14.58M.

Benefit or Value

The focused remedial groundwater extraction would help reduce the concentration, volume, mass, and toxicity of COCs within WVBA groundwater over time in an efficient manner because the 500 gpm plume core extraction well would be located in an area of relatively elevated COC concentrations. This should result in a lower likelihood of future contingencies to meet the ROs. At the proposed flow rate, the Reference Remedy could have a modest increased impact to storage within the aquifer compared to the Less Aggressive Remedy. The expanded sentinel monitoring well network would provide a means to identify and address potentially impaired wells under the post-2025 Reference Remedy contingency in a timely manner.

The Reference Remedy would also not require long lengths of conveyance piping to be installed through busy urban streets, and would therefore not disrupt traffic, commerce, or pedestrians. Given the proposed pumping rate, the power consumption and carbon footprint from operating the extraction well and well-head treatment system would also be relatively low in comparison to the More Aggressive Remedy.

The end use option could be net-neutral to the aquifer if it replaces groundwater that would otherwise have been pumped.

7.3 More Aggressive Remedy

A similar comparative evaluation was performed for the More Aggressive Remedy. The More Aggressive Remedy components are provided in Section 6.4.

Ability to Meet Remedial Objectives

The More Aggressive Remedy would be able to meet the ROs. Current groundwater quality within the WVBA is suitable for irrigation end use, and no SRP, COP, or COT production wells are currently located within the WVBA. Wells that might be threatened or impaired in the future would be addressed using remedial measures and contingencies. Remedial measures for private water wells within the

WVBA that may become impaired in the future would be addressed by connecting the well owner's property to the COP drinking water distribution system.

The additional focused groundwater extraction and treatment proposed in the More Aggressive Remedy would remove more COC mass from within the WVBA compared to the other remedial alternatives, which, along with source control under ADEQ oversight, would help further expedite COC concentration declines in WVBA groundwater over time. This should result in a lower likelihood of future contingencies needed to meet the ROs.

If necessary, ROs for reasonably foreseeable water use would be met by implementing the contingencies described in Section 6.4.2 above. Contingent remedial measures and a sentinel monitoring well network consistent with the Less Aggressive Remedy would be employed as needed post-2025 based on the overall extent and concentrations within the plume at that time, which should be reduced compared to the other remedial alternatives due to the additional focused remedial groundwater extraction.

Consistency with Water and Land Use Plans

The More Aggressive Remedy is consistent with Water and Land Use plans for the same reasons described in Sections 7.1 and 7.2, above. However, the More Aggressive Remedy could export more groundwater out of the COP service area, which is inconsistent with the COP's long-term groundwater management plan. The treated groundwater end use under the More Aggressive Remedy would require discussions with RID to determine if this end use is acceptable and an agreement between the SRP and RID. The end use option would provide RID with up to 2,000 gpm of treated groundwater for use prior to 2026, and could replace groundwater that RID would otherwise have pumped.

Practicability

The More Aggressive Remedy components are considered feasible and practicable. Groundwater extraction and treatment via multiple pumping wells is a demonstrated and feasible technology, and installing and operating extraction wells would be implemented using reliable industry-standard methods. The LGAC treatment technology is considered practicable due to its proven performance and treatment reliability and low-maintenance, and would be effective and reliable in both the short- and long-term as long as the well-head treatment systems are properly operated, maintained, and monitored.

Sufficient area for the extraction wells and well-head treatment systems appears to be available based on a review of Google Earth images, although the exact well locations may need to be adjusted based on the availability of land for purchasing or leasing.

Prior to 2026, treated groundwater from EW-1 and EW-2 would be conveyed to the south in the existing SRP laterals at 47th Avenue and 35th Avenue, respectively, and discharged to the RID Main Canal, which would require an agreement between the SRP and RID. While the COC concentrations would not require treatment given the absence of risk (see the HHRA in Appendix D) and the current end use, persons other than RID may not discharge to the RID Main Canal unless the water meets AWQS (RID, 2010b); the extracted groundwater would therefore require treatment prior to discharge.

While this end use is considered feasible because RID would receive up to 2,000 gpm of treated groundwater for their use, it would require discussions with RID and an agreement between the SRP and RID. This scenario is considered practical because it would require minimal new conveyance

piping to the end user. Year-round discharge of treated groundwater from the new extraction wells could also be possible under an agreement with RID.

The post-2025 contingency of continued groundwater extraction at EW-1 and EW-2 with well-head treatment and reinjection end use is also considered feasible, because industry-standard methods would be employed; as noted above, the COP has reliably reinjected water as part of aquifer recharge projects at various locations within the COP metropolitan area.

Groundwater monitoring would be effective in both the short- and long-term to further evaluate COC concentration trends within the WVBA, intrinsic MNA processes, changes in the lateral and vertical extent of the plume, and seasonal and long-term changes in water levels and hydraulic gradients. The sentinel monitoring well network would also be practicable.

Replacing SRP production wells with new, collocated LAU wells is considered practicable because industry-standard well drilling and construction methods would be used, and effective and reliable in both the short- and long-term, provided the replacement well is drilled and constructed with the LAU screened interval fully isolated from the UAU. Access issues are not anticipated because the replacement well would be collocated with the existing well.

The practicability of the other More Aggressive Remedy components is consistent with the other remedial alternatives described above.

Risk

Mitigating risk under the More Aggressive Remedy is consistent with that discussed in the other remedial alternatives above; the additional, focused groundwater extraction and treatment would further reduce the concentration, volume, mass, and toxicity of COCs over time compared to the other remedial alternatives. Along with source control by the ADEQ, this additional focused remedial measure is designed to reduce the likelihood of contingent remedial measures. LGAC as a treatment technology, properly operated, maintained, and monitored, would address the risk associated with potential changes to the end use of the extracted water.

As discussed above, risk from potable use of an impaired well in the future would be mitigated or eliminated using a combination of remedial measures and contingencies, including groundwater monitoring to evaluate the decrease in risk over time within the aquifer.

Because of the additional focused groundwater extraction and mass removal, the post-2025 plume extent and concentrations should be reduced compared to the other remedial alternatives. However, the More Aggressive Remedy contingency would still include a sentinel monitoring well network as needed based on the plume conditions at that time, which would provide advanced notice of potential production well impairment post-2025. The sentinel monitoring program would allow contingent remedial measures to be implemented prior to well impairment, thereby mitigating the potential risk of potable use in these wells.

Cost

Table 10 summarizes estimated costs for the More Aggressive Remedy base components and contingencies, including capital, O&M costs, and assumed time period for each cost component within the 30-year cost estimation period (2014 through 2044). Detail costing sheets are provided in Appendix

E. Not all of the identified contingent measures may necessarily need to be implemented; specific contingent measures would be identified based on monitoring future conditions as described in Section 6.4.2.

A discount rate of 6 percent was used to calculate the NPV for O&M and also capital costs that would be required some time beyond year one of the 30-year period.

The More Aggressive Remedy is the highest cost alternative, for both capital and O&M costs, with base components total NPV cost estimated at $15.97M ($32.06M non-discounted with 3 percent inflation rate). The estimated NPV costs for the More Aggressive Remedy contingencies listed in Table 10 range from $0.02M to $7.03M ($0.07M to $44.90M non-discounted with 3 percent inflation rate). The total NPV for all More Aggressive Remedy contingencies included in Table 10 is approximately $14.48M.

Benefit or Value

The additional focused groundwater extraction and treatment would provide additional reductions in the concentration, volume, mass, and toxicity, of COCs within WVBA groundwater over time, with the intent of further reducing the need for contingent remedial measures compared to the Reference Remedy. However, compared to the Reference Remedy, the More Aggressive Remedy could export more groundwater out of the COP service area.

Based on the proposed end use of treated groundwater, this remedy would require minimal new conveyance piping to the RID Main Canal, which would avoid installing new conveyance piping within heavily urbanized ROWs and the associated disruption of traffic, commerce, or pedestrians.

The end use option could be net-neutral to the aquifer if it replaces groundwater that would otherwise have been pumped.

7.4 Comparison of Remedial Alternatives

A comparison of the remedial alternatives to one another was also performed for practicability, risk, cost, and benefit or value.

Practicability

Each remedial alternative is considered practicable and effective in both the short- and long-term. The remedial strategies and measures, including groundwater monitoring/MNA, focused remedial groundwater extraction, and private well measures are effective and reliable industry-standard methods and would require limited access agreements to implement.

The proposed end use of extracted groundwater for the Reference Remedy and More Aggressive Remedy would also minimize the need for installing conveyance piping along the ROW of busy urban streets, and sufficient area for the extraction wells and well-head treatment systems appears to be available. The contingencies for each remedial alternative, including installing sentinel monitoring wells, sentinel well monitoring, replacing existing production wells, moving or deepening potential future production wells, connecting downgradient private well properties to the COP municipal system, and potentially groundwater blending are also considered practicable and effective, because

implementation would employ industry-standard methods already reliably used in the vicinity of WVBA.

Risk

Since there are no current health risks to receptors, the Less Aggressive Remedy, Reference Remedy, and More Aggressive Remedy are comparable with respect to addressing current risks. While select COC concentrations in WVBA groundwater exceeded MCLs at some locations, groundwater beneath the WVBA is not currently used for drinking water purposes.

Future risk is a function of future groundwater use in the WVBA or cessation of hydraulic control currently created by RID's irrigation pumping. Each of the three remedial alternatives assumes that RID ceases pumping by 2026. Each also includes sufficient remedial measures and contingencies to mitigate or eliminate risks associated with potable water end use in the future.

Recognizing that each remedial alternative contains sufficient contingency measures to adequately address future risk, the question is whether any additional extraction of water should be implemented today to enhance reduction of the COC mass in the groundwater. Of the three remedies, the Reference Remedy includes groundwater extraction focused on enhanced COC removal in the plume core along 35th Avenue, and the More Aggressive Remedy includes a greater amount of groundwater extraction than the Reference Remedy. The enhanced groundwater extraction in the Reference Remedy and More Aggressive Remedy is intended to help expedite declining COC concentration trends observed in the WVBA, and the resulting smaller plume footprint and concentrations over time is intended to lessen the need for post-2025 contingencies assuming that site source investigation/remedial activity is implemented by ADEQ.

Cost

A summary of the base costs and contingency costs for each remedial alternative is provided in Table 10. The NPV is the best measure to compare remedial alternative costs due to the differing time periods for base costs and contingencies. A discount factor of 6 percent was used to calculate the NPV for each remedial alternative, including capital and O&M costs incurred within the 30-year cost estimation period (2014 through 2044).

The Less Aggressive Remedy is the least costly remedial alternative over the 30-year cost estimation period. The Less Aggressive Remedy base components total NPV cost is estimated at $2.95M ($10.38M non-discounted with 3 percent inflation rate). The estimated NPV costs for the Less Aggressive Remedy contingencies range from $0.02M to $2.64M ($0.07M to $10.74M non-discounted with 3 percent inflation rate).

The Reference Remedy has the next highest estimated costs, with a base components total NPV cost estimated at $8.57M ($19.55M non-discounted with 3 percent inflation rate). The estimated NPV costs for the Reference Remedy contingencies range from $0.02M to $5.10M ($0.07M to $28.10M non-discounted with 3 percent inflation rate).

The More Aggressive Remedy has the highest estimated costs of the remedial alternatives, with the base components total NPV cost estimated at $15.97M ($32.06M non-discounted with 3 percent inflation rate). The estimated NPV costs for the More Aggressive Remedy contingencies range from $0.02M to $7.03M ($0.07M to $44.90M non-discounted with 3 percent inflation rate).

The primary cost driver for both the Reference Remedy and the More Aggressive Remedy is the construction and long-term O&M of the remedial groundwater extraction systems.

Benefit or Value

All three remedial alternatives provide benefit and value by reducing the concentration and volume of contaminated water over time. For all three alternatives, the extracted water is acceptable for its current end use. For each remedial alternative, the risk of potable water use at an impaired well would be mitigated or eliminated using remedial measures and contingencies.

None of the remedial alternatives would require long lengths of conveyance piping to be installed through busy urban streets, and would therefore not disrupt traffic, commerce, or pedestrians.

For the Less Aggressive Remedy, no additional groundwater would be removed from storage within the aquifer, meaning that groundwater within the WVBA would remain in storage for future beneficial use. The focused groundwater extraction for the Reference Remedy and More Aggressive Remedy would result in an increase in COC mass removal over the current pumping conditions, with the intent of reducing the need for future contingent measures. Compared to the More Aggressive remedy, the Reference Remedy has a lower power consumption and associated carbon footprint and results in less water being exported from the COP service area.

7.5 Proposed Remedy

The Reference Remedy is recommended as the Proposed Remedy. Pumping at extraction well EW-2 would enhance COC removal within the east-west plume core and help mitigate COC mass flux at 35th Avenue. With the mass flux reduced, COC concentrations downgradient of 35th Avenue, particularly TCE, should decline over time. This remedial groundwater extraction is intended to result in a lower potential need for future contingencies to meet the ROs, assuming ADEQ site source investigation/remediation activity is effective.

Achievement of Remedial Objectives

The Reference Remedy would meet the ROs using the remedial strategies, remedial measures, and contingencies described above. Current groundwater quality within the WVBA is suitable for irrigation end use, and no SRP, COP, or COT production wells are currently located within the WVBA. Wells impaired in the reasonably foreseeable future would be addressed using remedial measures and contingencies. The focused groundwater extraction and treatment proposed in the Reference Remedy is intended to reduce the need for future contingencies to meet the ROs. If necessary, contingent remedial measures and the sentinel monitoring well network would be employed as needed post-2025 based on triggers described in Section 6.2.2.

Consistency with Water Management Plans

The Reference Remedy components were developed using information provided by water providers, water provider meetings, and a review of available water provider plans, and are consistent with land and water management plans as discussed in Section 7.2.

Consideration of Comparison Criteria

The Reference Remedy provides a balanced, cost-effective approach to meeting the ROs. The Reference Remedy components are considered practicable and effective in both the short- and long-term. The focused groundwater extraction and treatment would further reduce the concentration, volume, mass, and toxicity of COCs over time. Risk from potable use of an impaired well in the reasonably foreseeable future would be mitigated or eliminated using a combination of remedial measures and contingencies. The sentinel monitoring well network would provide a method for advanced notice of potential production well impairment under the post-2025 contingency.

The proposed end use of treated groundwater would not require conveyance piping to be installed through busy urban streets, and would therefore not disrupt traffic, commerce, or pedestrians. Given the proposed pumping rate, the power consumption and carbon footprint from operating the extraction well and well-head treatment system would be relatively low and there would only be a moderate increase in the amount of water exported from the COP service area. The end use option would also provide water for beneficial use and could be net-neutral to the aquifer if it replaces groundwater that would otherwise have been pumped.

Requirements of A.R.S.§49-282-06

The Proposed Remedy satisfies the requirements of A.R.S. Title 49, Section §49-282-06, Remedial Action Criteria. The Proposed Remedy would assure the protection of public health, welfare, and the environment. The focused remedial groundwater extraction would further reduce the concentration, volume, mass, and toxicity of COCs over time. Risk from potable use of an impaired well in the reasonably foreseeable future would be mitigated or eliminated using a combination of remedial measures and contingencies.

To the extent practicable, the Proposed Remedy would provide for the control, management, or cleanup of hazardous substance to allow for the maximum beneficial use of the waters of the state. The remedial groundwater extraction would help to control and remediate COCs in WVBA groundwater and potable water use in the reasonably foreseeable future would be managed using remedial measures and contingencies. The Proposed Remedy remedial strategies, measures, and contingencies would allow for beneficial use of groundwater within the WVBA.

The Proposed Remedy is reasonable, necessary, cost-effective, and technically feasible. The Proposed Remedy is a balanced, cost-effective approach to meeting the ROs and is reasonable and technically feasible because the remedy components would be implemented using industry-standard methods. The remedial measures and contingent measures would also address wells that may become impaired in the future.

Using remedial strategies, remedial measures, and contingencies, the Proposed Remedy would address, at a minimum, any well that at the time of selection of the remedial action either supplies water for municipal, domestic, industrial, irrigation or agricultural uses or is part of a public water supply system if the well would now or in the reasonably foreseeable future produce water that would not be fit for its current or reasonably foreseeable end uses without treatment due to the release of hazardous substances. The specific measures to address any such well would not reduce the supply of water available to the owner of the well.

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TABLE 1
WVBA FACILITY SUMMARY MATRIX
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

Facility	Historical Operations	Site Investigation Activities	Remedial Actions	Current Regulatory Status
Air Liquide America Specialty Gases, LLC	Industrial and medical gases - site operations began in 1963. TCA reportedly used to clean compressors, valves, and other equipment from 1973 to 1996.	Soil, soil gas, and groundwater investigations began in 1998. Air Liquide entered into Consent Order with ADEQ in 2007. In 2011, the Consent Order was amended to include additional vadose zone testing and semi-annual groundwater monitoring/reporting.	**SOIL** Air Liquide performed contaminant source removal in its former Air Separation Unit. Excavated and disposed of two grease traps, associated concrete, and surrounding soils; confirmation soil testing; performed soil-vapor extraction pilot test. On basis of test results, ADEQ determined that soil-vapor radius of influence testing was not necessary; vadose zone characterization completed.	Air Liquide completed approximately six years of quarterly and semi-annual groundwater quality sampling and monthly/quarterly water-level monitoring. ADEQ concurred with Air Liquide that it would be receptive to considering Air Liquide's request for a No Further Action determination on the vadose zone. Air Liquide now is preparing a formal NFA request. Air Liquide completed two-years of additional groundwater monitoring and reporting, as stipulated in the amended Consent Order.
American Linen Supply Company (ALSCo)	Dry cleaner - ceased operations in 1995. PCE reportedly used from 1956 to 1984.	Soil, soil gas, and groundwater investigations began in 1992. Settled with ADEQ in 1997.	1999: Early Response Action conducted by ADEQ. **SOIL** 1999 to 2003: SVE performed. 2002: SVE system shutdown and rebound monitoring performed. **GROUNDWATER** 1999 to 2003: Air sparging and groundwater extraction. 2002: Air sparging system shutdown. 2003: Groundwater extraction system shutdown.	2008: NFA for soil.
ChemResearch Co., Inc.	Electroplating, metal finishing and metal parts painting, chrome plating - site operations began in 1953. PCE vapor degreasing reportedly used during historical operations.	Soil, soil gas, and groundwater investigations began in 1990.	**SOIL** 1995: Excavated and removed chromium-impacted soil to 10.5 feet bgs in the chromium plating east bay area. To date, no VOC-impacted groundwater remediation has been conducted.	ADEQ-approved Remedial Action Plan to conduct additional soils investigation and remediation. Unknown whether the remediation is related to chromium or VOC impacts, or both.
Department of Energy	Electrical substation and operations and maintenance facility, including administration, maintenance, storage, and vehicle fueling areas - site constructed in 1941. Chlorinated solvents reportedly used during historical operations.	Soil, soil gas, and groundwater investigations began in 1992.	None to date – unclear whether remedial actions are required by ADEQ.	ADEQ-approved soil sampling plan related to five disposal structures, the installation of additional monitoring wells, and continued monitoring.
Dolphin, Inc.	Wax pattern preparation, silica shell preparation, casting, and cleaning and finishing - site operations began in 1968. PCE and TCA reportedly used during operations. PCE used in vapor degreasing; PCE use was discontinued in 1994.	Soil, soil gas, and groundwater investigations began in 1988. RCRA Consent Order was issued by ADEQ in 2000.	**SOIL** 1998 to 2002: SVE performed. 2002: SVE system shutdown and rebound sampling. **GROUNDWATER** 1998 to 2002: Air sparging performed.	2006: Termination of ADEQ Consent Order.
Maricopa County Materials Management (MCMM)	1964 - 1974: Southwest Solvents operated on property now owned by MCMM - solvent recycling operation; reclaimed solvents reportedly included PCE, TCE, TCA, and Freon. 1974: Printing operation by MCMM; use of multi-graphic blankwash cleaning solutions and SafetyKleen cleaning solution reportedly containing PCE.	Soil, soil gas, and groundwater investigations began in 1992.	**SOIL** 1995 to 1997: SVE. 1997: SVE system shut down due to asymptotic conditions; subsequent soil vapor samples were below Soil Remediation Levels (SRLs).	2001: Maricopa County and Union Pacific Railroad settled with ADEQ to cover response and oversight costs.
Prudential Overall Supply	Commercial Laundry: Dry cleaner - began operations in 1982. PCE reportedly used from 1982 to 1991.	Soil and soil gas investigation activities began in 2004; four groundwater monitor wells have been installed and are monitored and sampled per ADEQ Consent Orders. Soil vapor extraction wells have been installed and tested.	**SOIL** A Remedial Action Plan was prepared and approved by ADEQ for remediation of Site soils. Installation and operation of a soil vapor extraction system to address soil impacts in operation since November 2012.	Working under the June 2010 amended Consent Order with ADEQ.
Reynolds Metals Co.	1946 to 1983: Aluminum extrusion facility. Stoddard solvent reportedly used until early 1970s; vapor degreasing with TCA reportedly used until the facility closed in 1983.	Soil, soil gas, and groundwater investigations began in 1988.	**SOIL** 1989 to 1991: SVE. 1991: SVE system was shut down after asymptotic conditions were reached. Excavated and removed approximately 3,100 tons of contaminated soil (primarily impacted with petroleum hydrocarbons).	2000: ADEQ issued NFA for soil at 14 target areas.
Van Waters & Rogers (Univar USA Inc.)	Industrial chemical warehousing, distribution, repackaging, and transport facility - site acquired in 1968; office and warehouse built in 1971. Wastewater pre-treatment system, RCRA Interim Status Storage unit, sewer interceptor, and a bulk solvent tank farm.	Soil, soil gas, and groundwater investigations began in 1989. 1996: Consent Order with ADEQ related to additional site investigations.	**SOIL** 1992 to 1998: SVE. 1998: SVE system shut down.	2002: Termination of ADEQ Consent Order. 2002: NFA for soils.

NOTES:
1. NFA = No further action
2. PCE = Tetrachloroethene
3. SVE = Soil vapor extraction
4. TCA = 1,1,1-Trichloroethane
5. TCE = Trichloroethene
6. VOCs = Volatile organic compounds
7. ADEQ = Arizona Department of Environmental Quality
8. RCRA = Resource Conservation and Recovery Act

TABLE 2
SCREENING OF GROUNDWATER REMEDIAL STRATEGIES AND TECHNOLOGIES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

REMEDIAL STRATEGIES	REMEDIAL TECHNOLOGIES	REMEDIAL TECHNOLOGIES DESCRIPTION	SCREENING CRITERIA			BENEFIT	SCREENING COMMENTS	RETAINED?
			PRACTICABILITY	RISK	RELATIVE COST			
No Action	Not Applicable	No actions taken to address impacted groundwater or threatened or impacted municipal, agricultural, or private water wells.	• Poor: Although alternative is feasible, it has low short- and long-term effectiveness and reliability relative to other alternatives.	No action would not reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Very Good: No action would not incur additional costs.	• Fair: Concentrations of COC are degrading over time and therefore the No Action alternative would ultimately lower risk to human and aquatic and terrestrial biota but over a much longer timeframe relative to other alternatives.	Does not pass initial screening as Remedial Objectives will not be met.	NO
Monitoring	Routine Groundwater Monitoring	Natural processes result in the reduction of concentrations of VOCs in groundwater.	• Very Good: Alternative is feasible, is likely to have good long-term effectiveness. The technology to implement this alternative is well known and implementable.	Groundwater monitoring and MNA, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Good: Groundwater monitoring is relatively inexpensive to implement, requiring little equipment, low labor-hours, and the costs for analyses of groundwater samples.	• Good: Groundwater monitoring and MNA, in combination with other remedial technologies, would lower risk to public health or aquatic and terrestrial biota; and will enhance future uses. Since equipment used for sampling is minimal, this remedy would have limited disruption to aesthetics and local land use.	Would provide long-term evaluation of plume morphology and concentrations of COC in groundwater. Will be retained as a component of the remedial alternatives for the site.	**YES**
	Monitored Natural Attenuation (MNA)	Natural physical, biological, and chemical processes attenuate dissolved-phase VOCs and limit migration of some contaminants.			• Good: MNA is relatively inexpensive to implement compared with other remedial alternatives. MNA requires monitoring of water quality parameters that are additional to those analyzed for routine groundwater monitoring, so MNA is slightly more expensive than routine groundwater monitoring.		Similar to monitoring, MNA would provide long-term evaluation of plume morphology and concentrations of COC in the plume. MNA also provides an evaluation of groundwater conditions (for example, to indicate whether groundwater is aerobic or anaerobic) to evaluate whether conditions in groundwater are conducive to degradation of COC. MNA will be retained as a component of the remedial alternatives for the site.	**YES**
Source Control	Source control to be addressed separately by ADEQ							**YES** - but addressed by ADEQ
Controlled Migration	Groundwater Extraction	Groundwater is extracted by pumping from the subsurface, to influence the migration direction of a portion of the WVBA plume.	• Good: Infrastructure (extraction wells) to implement this alternative is in place or can be installed. Alternative is likely to have good long-term effectiveness. Performance of groundwater extraction is well-understood. Conveyance piping challenging and extensive given dense population/development and large plume.	Groundwater extraction, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Fair: Groundwater extraction and conveyance of treated groundwater to distant areas requires substantial infrastructure, treatment of water to water quality standards, high energy input and long-term operations & maintenance.	• Good: Groundwater extraction, in combination with other remedial technologies, would lower risk to public health or aquatic and terrestrial biota; and will enhance future uses. Since extraction wells already exist or may be installed readily, this remedy would cause minimal change to aesthetics and local land use.	Groundwater extraction would provide a means of influencing migration of large areas of the plume. It is logistically possible and feasible to install and maintain groundwater extraction wells at the WVBA site.	**YES**
Physical Containment	Hydraulic Containment	Groundwater is contained by pumping from the subsurface to control the movement of groundwater and limit further migration of a portion of the WVBA plume.	• Good: Infrastructure (extraction wells) to implement this alternative is in place or may be readily installed, however extensive piping network for conveyance needed in congested, densely populated area. Alternative is likely to have good long-term effectiveness.	Hydraulic containment, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Fair: Hydraulic containment via extraction and conveyance of treated groundwater to distant areas requires substantial infrastructure, treatment of water to water quality standards, high energy input and long-term operations & maintenance.	• Good: Hydraulic containment, in combination with other remedial technologies, would lower risk to public health or aquatic and terrestrial biota; and will enhance future uses. Since extraction wells already exist or may be readily installed, this remedy would cause minimal change to aesthetics and local land use.	Groundwater extraction from strategic locations in the plume to create a barrier past which groundwater flow is minimized. Hydraulic containment is logistically possible, and it is feasible to install and maintain groundwater extraction wells at the WVBA site.	**YES**
	Permeable Reactive Barrier (PRB)	Permeable treatment walls are installed using trenches, fracturing, boreholes or other means to create a barrier wall across the flow path of a containment plume. As groundwater migrates through the permeable vertical barrier, it is passively treated via zero-valent metals, sorbents, or other materials.	• Poor: Alternative is not considered feasible. It has low short- and long-term effectiveness and reliability relative to other alternatives. The performance capability of this technology would likely be low, given the scale of the plume and the depth to groundwater given capabilities of current construction methodologies.	Since this remedial technology is considered impractical to implement at the Site, it would not reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: Installing a permeable reactive barrier for a plume this large (and to a depth of ~100+ ft. bgs, at the groundwater table) and the congested site setting would be very expensive relative to other remedial technologies.	• Poor: Since this remedial technology is considered impractical to implement at the Site, it would not result in lowered risk or reduced concentrations of VOCs in groundwater. Installing a PRB for a plume of this size, and at a depth of ~100+ ft. bgs (to water table) would be greatly disruptive to aesthetics and local land use in the short term.	A permeable reactive barrier is impracticable due to the length and depth required for plume treatment. A permeable reactive barrier would also be impracticable due to access and logistical issues.	NO

TABLE 2
SCREENING OF GROUNDWATER REMEDIAL STRATEGIES AND TECHNOLOGIES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

REMEDIAL STRATEGIES	REMEDIAL TECHNOLOGIES	REMEDIAL TECHNOLOGIES DESCRIPTION	SCREENING CRITERIA			BENEFIT	SCREENING COMMENTS	RETAINED?
			PRACTICABILITY	RISK	RELATIVE COST			
Plume Remediation - In Situ	In Situ Air Sparging with Soil Vapor Extraction (SVE)	Dissolved-phase VOCs in groundwater are converted to the vapor phase by introducing air into the saturated zone. The VOCs in the vapor phase rise to the unsaturated zone, where they are captured by soil vapor extraction.	• Poor: Alternative is not considered feasible, given the scale of the plume and the depth to groundwater. Implementation would require a large number of injection points, which may be impractical/infeasible to install in a densely populated area. Therefore, it has low short- and long-term effectiveness and reliability relative to other alternatives.	Soil vapor extraction over a large area is considered infeasible. Therefore, VOCs that are partitioned into the air phase could result in increased risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: Conducting air sparging and soil vapor extraction for a plume this large (and to a depth of ~100 ft. bgs, at the groundwater table) would be very expensive relative to other remedial technologies.	• Poor: Since this remedial technology is considered impractical to implement at the Site, it would not result in lowered risk or reduced concentrations of VOCs in groundwater. Air sparging for a plume of this size, and at a depth of ~100+ ft. bgs (to water table), would be greatly disruptive to aesthetics and local land use.	Thick unsaturated zone and large scale of WVBA plume problematic to adequate capture of sparged COCs, thus limiting the efficacy of air sparging with SVE. Complete plume remediation via air sparge/SVE is impracticable due to scale of WVBA.	NO
	In Situ Chemical Oxidation via Injection Points	A chemical oxidant is introduced into the saturated zone via injection points in order to aerobically degrade VOCs in groundwater.	• Poor: Alternative is not considered feasible, given the scale of the plume and the depth to groundwater. Implementation would require a large number of injection points, which may be impractical/infeasible to install in a densely populated area. Therefore, it has low short- and long-term effectiveness and reliability relative to other alternatives.	Since this remedial technology is considered impractical to implement at the Site, it would not reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: The quantity of chemical oxidant required to be effective for a plume this size would be very expensive relative to other remedial technologies.	• Poor: Since this remedial technology is considered impractical to implement at the Site, it would not result in lowered risk or reduced concentrations of VOCs in groundwater. Chemical oxidation injection for a plume of this size would be greatly disruptive to aesthetics and local land use.	This technology requires handling of large volumes of oxidants requiring special safety considerations. Complete plume remediation via in-situ chemical oxidation is impracticable due to scale of WVBA.	NO
	In Situ Enhanced Bioremediation	Enhanced bioremediation amendments are introduced into the saturated zone in order to enhance the natural biodegradation of VOCs in groundwater by naturally-occurring microbes.	• Poor: Alternative is not considered feasible, given the scale of the plume and the depth to groundwater. Implementation would require a large number of injection points, which may be impractical/infeasible to install in a densely populated area. Therefore, it has low short- and long-term effectiveness and reliability relative to other alternatives.	Since this remedial technology is considered impractical to implement at the Site, it would not reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: The quantity of bioremediation amendments required to be effective for a plume this size would be very expensive relative to other remedial technologies.	• Poor: Since this remedial technology is considered impractical to implement at the Site, it would not result in lowered risk or reduced concentrations of VOCs in groundwater. Installation of the number of injection points required for a plume of this size would be greatly disruptive to aesthetics and local land use.	Complete plume remediation via in-situ enhanced bioremediation is impracticable due to the scale of WVBA.	NO

TABLE 2
SCREENING OF GROUNDWATER REMEDIAL STRATEGIES AND TECHNOLOGIES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

REMEDIAL STRATEGIES	REMEDIAL TECHNOLOGIES	REMEDIAL TECHNOLOGIES DESCRIPTION	SCREENING CRITERIA			BENEFIT	SCREENING COMMENTS	RETAINED?
			PRACTICABILITY	RISK	RELATIVE COST			
Plume Remediation - Ex Situ	Ex Situ Advanced Oxidation	A strong oxidizer is added to extracted groundwater to aerobically degrade VOCs. Extracted groundwater is also exposed to ultraviolet (UV) light which further breaks down the chemical bonds of the contaminants.	• Fair: Alternative is considered feasible. In combination with groundwater extraction, alternative could be expected to have long-term effectiveness.	This alternative, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water. Additionally, handling of oxidants may expose staff implementing remedy to risk.	• Poor: The components of an advanced oxidation treatment train are expensive to install and replace, relative to granulated activated carbon treatment.	• Good: Alternative would lower concentrations of COC; would reduce risk to public health or aquatic and terrestrial biota; and would enhance future uses. Installation of treatment trains would cause some change to aesthetics and local land use.	Technology requires handling of oxidants requiring special safety considerations. Quartz tubes for ultraviolet lights are expensive to install and replace, compounded for the high flow conditions associated with WVBA plume remedy. Thus, plume remediation via advanced oxidation is impracticable due to scale of WVBA.	NO
	Ex Situ Ion Exchange (Resin)	Extracted groundwater is pumped through vessels containing resin. Ions from the aqueous phase are removed by exchange with ions on the exchange medium/resin, thereby converting or breaking down the contaminant of concern.	• Fair: Alternative is considered feasible. In combination with groundwater extraction, alternative could be expected to have long-term effectiveness. However, resin requires specific expertise to regenerate/manage.	This alternative, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: The components of an ion exchange treatment train are expensive to install and replace, relative to granulated activated carbon treatment. Pretreatment may require additional steps (e.g., pH modification) relative to other ex-situ treatment technologies.	• Good: Alternative would lower concentrations of COC; would reduce risk to public health or aquatic and terrestrial biota; and would enhance future uses. Installation of treatment trains would cause some change to aesthetics and local land use.	Resin and the associated treatment train are expensive to install and maintain. Resins require periodic regeneration to remain effective; regeneration requires specific expertise. The ion exchange process generates wastewater that must be treated. As with other ex situ treatments, suspended solids could limit the effectiveness of the technology, requiring pretreatment via filtration. The treatment may require pH adjustment to optimize performance. Thus, plume remediation via ion exchange is impracticable due to scale of WVBA.	NO
	Ex Situ Air Stripping with Air Emission Control	Extracted groundwater is passed through an air stripper to partition the VOCs from groundwater to air. Air containing VOCs may then be treated using emission control methods such as activated carbon vessels or oxidizers.	• Poor: In combination with groundwater extraction, alternative could be expected to have long-term effectiveness. However, air stripping requires treatment of groundwater, air, and wastewater generated by the process. Relative to other ex-situ technologies, this alternative is less practicable.	This alternative, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Poor: Air stripping requires significant energy costs to run and maintain the system.	• Good: Alternative would lower concentrations of COC; would reduce risk to public health or aquatic and terrestrial biota; and would enhance future uses. However, installation of treatment train would cause change to aesthetics and local land use.	As with other ex situ treatments, suspended solids in groundwater could limit the effectiveness of the technology due to scaling. Phase transfer of COCs to gas that also requires treatment (e.g. vapor phase GAC) results in added energy and equipment costs. An air stripping system would likely require significant on-going maintenance due to potential fouling by suspended solids in groundwater, requiring pre-filtration. Thus, plume remediation via air stripping is impracticable due to scale of WVBA.	NO
	Ex Situ Granulated Activated Carbon (Liquid Phase)	Extracted groundwater is pumped through pre-treatment filter bags (or similar) to remove total dissolved solids. Subsequently water is pumped through vessels containing activated carbon. Dissolved-phase VOCs adsorb to the activated carbon, which is periodically changed.	• Very Good: In combination with groundwater extraction, alternative is expected to exhibit long-term effectiveness. Relative to other ex-situ technologies, this alternative is reliable and practical to implement, especially for relatively dilute plumes.	This alternative, in combination with other remedial technologies, would reduce risk to public health or aquatic and terrestrial biota under reasonably foreseeable use scenarios and end use of water.	• Good: Alternative is less expensive than other ex-situ treatment technologies and much less expensive than in-situ treatment.	• Good: Alternative would lower concentrations of COC; would reduce risk to public health or aquatic and terrestrial biota; and would enhance future uses. Installation of treatment trains would cause some change to aesthetics and local land use, but the well-head treatment would be relatively small footprint and be located in an existing developed area.	Granulated activated carbon is a well-known remediation technology that is relatively inexpensive to implement and maintain. Carbon may be re-generated or replaced. Although complete plume remediation via groundwater extraction and treatment is impracticable within a reasonable time frame due to the scale of WVBA, localized remediation in areas of the plume with relatively elevated VOC concentrations could be used to reduce the need for additional remedial measures or contingency measures. Treated groundwater effluent could be reinjected into the aquifer, to a City of Phoenix treatment plant, the SRP Grand Canal, or the RID Main Canal.	**YES** - on a localized basis in combination with other strategies and measures.

Notes:
Alternatives were rated on a relative scale as:
• Very Good
• Good
• Fair
• Poor

Abbreviations:
COC = contaminants of concern
GAC = granulated activated carbon
MNA = monitored natural attenuation
PRB = permeable reactive barrier
SVE = soil vapor extraction
VOC(s) = volatile organic compounds
WVBA = West Van Buren Area
Ft. bgs = feet below ground surface

TABLE 3
SEMI-ANNUAL GROUNDWATER MONITORING PROGRAM
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Semiannual Sampling
AVB10-01	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU1	MW-1	55-532041	8260B; 6010B
AVB10-02	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU2	MW-2	55-532042	8260B; 6010B
AVB12-01	ADEQ/MW-4-7TH AVE	Monitoring	UAU1	MW-4	55-532767	8260B; 6010B
AVB14-01	ADEQ 7TH AVE	Monitoring	UAU1	MW-2	55-531086	8260B; 6010B
AVB15-01	ROGERS SHELL	Monitoring	UAU1	MW-2	55-520257	8260B; 6010B
AVB18-01	ADEQ 7TH AVE	Monitoring	UAU1	MW-1	55-531084	8260B
AVB20-03	APS WEST PHOENIX	Monitoring	UAU1	RB-3	55-590922	8260B; 6010B
AVB26-01	ADOT 15TH/BUCKEYE	Monitoring	UAU1	DW-2	55-504687	8260B
AVB38-04	ADEQ-RID ROW	Monitoring	UAU1	AVB38-04	55-535311	8260B
AVB40-05	ADEQ - ALSCO	Monitoring	UAU1	MW-3	55-536228	8260B
AVB40-06	ADEQ - ALSCO	Monitoring	UAU1	MW-1	55-536229	8260B
AVB40-07	ADEQ - ALSCO	Monitoring	UAU1	MW-2	55-536227	8260B
AVB40-08	ADEQ - ALSCO	Monitoring	UAU1	MW-4	55-536284	8260B; 6010B
AVB57-01	ADEQ-WILCOX	Monitoring	UAU1	APS-1	55-539219	8260B; 6010B
AVB60-01	ADEQ NSW	Monitoring	MAU	AVB60-01	55-543717	8260B
AVB61-01	ADEQ SSW	Monitoring	MAU	AVB61-01	55-546228	8260B; 6010B
AVB68-02	ADEQ-MADISON	Monitoring	UAU1	MW-2	55-561942	8260B
AVB68-04	ADEQ-MADISON	Monitoring	UAU2	MW-3	55-561940	8260B
AVB69-01	ADEQ-19TH AVE/PIMA	Monitoring	UAU2	MW-2	55-562052	8260B
AVB69-02	ADEQ-19TH AVE/PIMA	Monitoring	UAU1	MW-1	55-562053	8260B; 6010B
AVB70-01	ADEQ-19TH AVE/LINCOLN	Monitoring	UAU1	MW-I	55-569883	8260B; 6010B
AVB71-01	ADEQ-75TH AVE	Monitoring	UAU1	MW-2	55-569741	8260B; 6010B
AVB72-01	ADEQ-29TH AVE/VAN BUREN	Monitoring	UAU1	MW-3	55-569882	8260B; 6010B
AVB73-01	ADEQ-67TH AVE/BUCKEYE	Monitoring	UAU1	MW-4	55-569880	8260B; 6010B
AVB74-01	ADEQ-83RD AVE/VAN BUREN	Monitoring	UAU1	MW-5	55-570051	8260B; 6010B
AVB75-01	ADEQ-69TH AVE/WASHINGTON	Monitoring	UAU1	MW-6	55-569881	8260B; 6010B
AVB76-01	ADEQ-75TH AVE/MADISON	Monitoring	UAU1	MW-7	55-570052	8260B; 6010B
AVB77-01	ADEQ - ALSCO	Monitoring	UAU1	MW-5S	55-567445	8260B
AVB77-02	ADEQ - ALSCO	Monitoring	UAU2	MW-5D	55-567443	8260B
AVB77-03	ADEQ - ALSCO	Monitoring	UAU1	MW-5M	55-567444	8260B
AVB81-01	ADEQ-7200 W SHERMAN	Monitoring	UAU2	AVB81-01	55-584503	8260B
AVB81-02	ADEQ-7200 W SHERMAN	Monitoring	UAU1	AVB81-02	55-584500	8260B
AVB82-01	ADEQ-6800 W VAN BUREN	Monitoring	MAU	AVB82-01	55-584504	8260B
AVB82-02	ADEQ-6800 W VAN BUREN	Monitoring	MAU	AVB82-02	55-214608	8260B; 6010B
AVB83-01	ADEQ-700 S 11TH AVE	Monitoring	UAU1	AVB83-01	55-584501	8260B
AVB84-01	ADEQ-1300 S 22ND AVE	Monitoring	UAU1	AVB84-01	55-584497	8260B
AVB85-01	ADEQ-500 S 16TH AVE	Monitoring	UAU1	AVB85-01	55-584505	8260B
AVB88-01	ADEQ-1900 S 25TH AVE	Monitoring	UAU1	AVB88-01	55-584498	8260B; 6010B

TABLE 3
SEMI-ANNUAL GROUNDWATER MONITORING PROGRAM
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Semiannual Sampling
AVB91-01	ADEQ-73RD AVE/ROOSEVELT	Monitoring	UAU1	AVB91-01	55-589635	8260B; 6010B
AVB91-02	ADEQ-73RD AVE/ROOSEVELT	Monitoring	UAU2	AVB91-02	55-589644	8260B
AVB91-03	ADEQ-73RD AVE/ROOSEVELT	Monitoring	MAU	AVB91-03	55-214616	8260B; 6010B
AVB92-01	ADEQ-53RD AVE/ROOSEVELT	Monitoring	UAU1	AVB92-01	55-589637	8260B; 6010B
AVB92-02	ADEQ-53RD AVE/ROOSEVELT	Monitoring	UAU1	AVB92-02	55-589646	8260B
AVB93-01	ADEQ-52ND AVE/MCKINLEY	Monitoring	UAU1	AVB93-01	55-589638	8260B; 6010B
AVB94-01	ADEQ-43RD AVE/ROOSEVELT	Monitoring	UAU1	AVB94-01	55-589639	8260B; 6010B
AVB94-02	ADEQ-43RD AVE/ROOSEVELT	Monitoring	UAU1	AVB94-02	55-589642	8260B; 6010B
AVB95-01	ADEQ-34TH AVE/ROOSEVELT	Monitoring	UAU1	AVB95-01	55-589636	8260B; 6010B
AVB95-02	ADEQ-34TH AVE/ROOSEVELT	Monitoring	UAU1	AVB95-02	55-626533	8260B; 6010B
AVB96-01	ADEQ-63RD AVE/GARFIELD	Monitoring	UAU1	AVB96-01	55-589640	8260B; 6010B
AVB97-01	ADEQ-25TH AVE/YAVAPAI	Monitoring	UAU1	AVB97-01	55-589641	8260B; 6010B
AVB98-01	ADEQ-75TH AVE/MADISON	Monitoring	UAU2	AVB98-01	55-589645	8260B
AVB99-01	ADEQ-11TH AVE/BUCKEYE	Monitoring	UAU1	AVB99-01	55-589634	8260B
AVB103-02	TRISTAR	Monitoring	UAU1	MW-2	55-581001	8260B; 6010B
AVB106-01	MCMM	Monitoring	UAU1	MC-05	55-549619	8260B; 6010B
AVB106-02	MCMM	Monitoring	UAU1	MC-N06 #2	55-549233	8260B
AVB106-03	MCMM	Monitoring	UAU2	MC-N06 #3	55-549233	8260B
AVB107-01	TRANSCON (TRNS03-01)	Monitoring	UAU1	MW-2	55-525469	8260B
AVB108-01	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-6	55-531539	8260B; 6010B
AVB108-02	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-11	55-562746	8260B; 6010B
AVB112-05	SEVEN ELEVEN INC	Monitoring	UAU1	MW-5	55-200601	8260B; 6010B
AVB115-01	ADEQ-12TH AVE/VAN BUREN	Monitoring	UAU1	AVB115-01	55-596920	8260B
AVB116-01	ADEQ-21ST AVE/JACKSON	Monitoring	UAU1	AVB116-01	55-596916	8260B
AVB116-02	ADEQ-21ST AVE/JACKSON	Monitoring	UAU2	AVB116-02	55-202187	8260B
AVB117-01	ADEQ-37TH LANE/MCKINLEY	Monitoring	UAU1	AVB117-01	55-596917	8260B
AVB119-01	ADEQ-50TH AVE/ROOSEVELT	Monitoring	UAU1	AVB119-01	55-596918	8260B
AVB120-01	ADEQ-40TH AVE/GRANT	Monitoring	UAU1	AVB120-01	55-596919	8260B
AVB120-02	ADEQ-40TH AVE/GRANT	Monitoring	UAU2	AVB120-02	55-596922	8260B
AVB120-03	ADEQ-40TH AVE/GRANT	Monitoring	MAU	AVB120-02	55-217205	8260B
AVB121-01	ADEQ-41ST AVE/GIBSON	Monitoring	UAU1	AVB121-01	55-596921	8260B
AVB121-02	ADEQ-41ST AVE/GIBSON	Monitoring	UAU2	AVB121-02	55-214615	8260B; 6010B
AVB122-01	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU1	AVB122-01	55-596931	8260B
AVB122-02	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU1	AVB122-02	55-596932	8260B
AVB122-03	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU2	AVB122-03	55-202186	8260B; 6010B
AVB123-01	ADEQ-1STH AVE/FILLMORE	Monitoring	UAU1	AVB123-01	55-202185	8260B
AVB124-01	ADEQ-19TH AVE/MONROE	Monitoring	UAU2	AVB124-01	55-202184	8260B
AVB124-02	ADEQ-19TH AVE/MONROE	Monitoring	UAU2	AVB124-02	55-207163	8260B; 6010B

TABLE 3
SEMI-ANNUAL GROUNDWATER MONITORING PROGRAM
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Semiannual Sampling
AVB125-01	ADEQ-19TH AVE/DURANGO	Monitoring	UAU1	AVB125-01	55-202189	8260B; 6010B
AVB126-01	ADEQ-25TH AVE/GRANT	Monitoring	UAU1	AVB126-01	55-211115	8260B; 6010B
AVB126-02	ADEQ-25TH AVE/GRANT	Monitoring	UAU2	AVB126-02	55-211114	8260B; 6010B
AVB126-03	ADEQ-25TH AVE/GRANT	Monitoring	UAU2	AVB126-03	55-214611	8260B; 6010B
AVB127-01	ADEQ-31ST AVE/WASHINGTON	Monitoring	UAU1	AVB127-01	55-202279	8260B
AVB128-01	ADEQ-31ST AVE/WASHINGTON	Monitoring	UAU2	AVB128-01	55-202283	8260B
AVB129-01	ADEQ-79TH AVE/ROOSEVELT	Monitoring	UAU1	AVB129-01	55-202280	8260B
AVB129-02	ADEQ-79TH AVE/ROOSEVELT	Monitoring	UAU2	AVB129-02	55-202282	8260B
AVB130-01	ADEQ-43RD AVE/MCDOWELL	Monitoring	UAU1	AVB130-01	55-202188	8260B
AVB131-01	ADEQ-18TH AVE/LINDEN	Monitoring	UAU2	AVB131-01	55-207161	8260B; 6010B
AVB132-01	ADEQ-HYDE PARK	Monitoring	UAU2	AVB132-01	55-208664	8260B
AVB132-02	ADEQ-HYDE PARK	Monitoring	UAU2	AVB132-02	55-208663	8260B; 6010B
AVB133-01	ADEQ-I7TH AVE/BUCKEYE	Monitoring	UAU1	AVB133-01	55-207162	8260B; 6010B
AVB134-01	ADEQ-31ST AVE/HARRISON	Monitoring	UAU1	AVB134-01	55-211113	8260B
AVB134-02	ADEQ-31ST AVE/HARRISON	Monitoring	UAU2	AVB134-02	55-211112	8260B
AVB135-01	ADEQ-63RD AVE/SHERMAN	Monitoring	UAU1	AVB135-01	55-211111	8260B; 6010B
AVB136-01	ADEQ-39TH AVE/MOHAVE	Monitoring	UAU2	AVB136-01	55-211110	8260B; 6010B
AVB137-01	ADEQ-5STH AVE/MOHAVE	Monitoring	UAU2	AVB137-01	55-211109	8260B; 6010B
AVB139-01	ADEQ	Monitoring	UAU2		55-214809	8260B; 6010B
AVB140-01	ADEQ	Monitoring	UAU1		55-214610	8260B; 6010B
AVB141-01	ADEQ	Monitoring	UAU2		55-214609	8260B; 6010B
AVB142-01	ADEQ	Monitoring	UAU2		55-217206	8260B; 6010B
PS-6	REYNOLDS	Monitoring	UAU1	RMC-06	55-532037	8260B; 6010B
PS-7	REYNOLDS	Monitoring	UAU1	RMC-07	55-545676	8260B; 6010B
PS-9	REYNOLDS	Monitoring	UAU1	RMC-09	55-545678	8260B; 6010B

NOTES:
1. 8260B = EPA Method 8260B for analysis of volatile organic compounds, including 1,4-dioxane.
2. 6010B = Analysis of total chromium and filtered total chromium.
3. Samples to be collected using no-purge Hydrasleeve™ method.

TABLE 4
RID BLENDING APPROACH MASS BALANCE CALCULATIONS - CURRENT CONDITIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

RID SALT CANAL			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-105	1900	8.7%	0.55	0.05	2.56	0.22
RID-106	1500	6.8%	7.49	0.51	23.4	1.60
RID-107	2100	9.6%	7.82	0.75	4.43	0.42
RID-108	1900	8.7%	3.1	0.27	6.24	0.54
RID-109	2400	11.0%	6.92	0.76	6.65	0.73
RID-110	2900	13.2%	1.21	0.16	6.85	0.91
RID-111R	2700	12.3%	0.5	0.06	0.63	0.08
RID-112	1700	7.8%	6.4	0.50	2.01	0.16
RID-113	2300	10.5%	8.14	0.85	1.92	0.20
RID-114	2500	11.4%	48.6	5.55	2.2	0.25
Total	21900	Calc. Concentration at End of Canal		9.5		5.1
		Salt Canal Sample (2011)		11.8		4.6

RID MAIN CANAL			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-83	2300	3.7%	0	0.00	0	0.00
RID-84	2400	3.8%	1.09	0.04	6.91	0.26
RID-85	2600	4.1%	0.5	0.02	0.5	0.02
RID-86	3600	5.7%	0.5	0.03	0.5	0.03
RID-87	2000	3.2%	0	0.00	0	0.00
RID-88	2000	3.2%	0.5	0.02	0.5	0.02
RID-89	3100	4.9%	34.1	1.69	11	0.54
RID-90	2500	4.0%	0.5	0.02	0.5	0.02
RID-91	3200	5.1%	2.99	0.15	0.5	0.03
RID-92	1300	2.1%	73.5	1.52	14.7	0.30
RID-93	4000	6.4%	1.17	0.07	0.5	0.03
RID-94	3300	5.3%	0.88	0.05	0.59	0.03
RID-95	1700	2.7%	54.4	1.47	3.44	0.09
RID-96	3000	4.8%	0	0.00	0	0.00
RID-97	3200	5.1%	0	0.00	0	0.00
RID-98	3800	6.1%	0	0.00	0	0.00
RID-99	2400	3.8%	0.5	0.02	8.85	0.34
RID-100	2100	3.3%	9.38	0.31	4.72	0.16
RID-101	4500	7.2%	0.5	0.04	0.5	0.04
RID-102	3900	6.2%	0.5	0.03	5.36	0.33
RID-103	2200	3.5%	0.5	0.02	0.5	0.02
RID-104	3600	5.7%	0.5	0.03	4.2	0.24
Total	62700	Calc. Concentration at End of Canal		5.5		2.5
		Main Canal Sample - 67A - (2011)		2.3		1.2

TABLE 4
RID BLENDING APPROACH MASS BALANCE CALCULATIONS - CURRENT CONDITIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

COMBINED CANALS			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-105	1900	2.2%	0.55	0.01	2.56	0.06
RID-106	1500	1.8%	7.49	0.13	23.4	0.41
RID-107	2100	2.5%	7.82	0.19	4.43	0.11
RID-108	1900	2.2%	3.1	0.07	6.24	0.14
RID-109	2400	2.8%	6.92	0.20	6.65	0.19
RID-110	2900	3.4%	1.21	0.04	6.85	0.23
RID-111R	2700	3.2%	0.5	0.02	0.63	0.02
RID-112	1700	2.0%	6.4	0.13	2.01	0.04
RID-113	2300	2.7%	8.14	0.22	1.92	0.05
RID-114	2500	3.0%	48.6	1.44	2.2	0.07
RID-83	2300	2.7%	0	0.00	0	0.00
RID-84	2400	2.8%	1.09	0.03	6.91	0.20
RID-85	2600	3.1%	0.5	0.02	0.5	0.02
RID-86	3600	4.3%	0.5	0.02	0.5	0.02
RID-87	2000	2.4%	0	0.00	0	0.00
RID-88	2000	2.4%	0.5	0.01	0.5	0.01
RID-89	3100	3.7%	34.1	1.25	11	0.40
RID-90	2500	3.0%	0.5	0.01	0.5	0.01
RID-91	3200	3.8%	2.99	0.11	0.5	0.02
RID-92	1300	1.5%	73.5	1.13	14.7	0.23
RID-93	4000	4.7%	1.17	0.06	0.5	0.02
RID-94	3300	3.9%	0.88	0.03	0.59	0.02
RID-95	1700	2.0%	54.4	1.09	3.44	0.07
RID-96	3000	3.5%	0	0.00	0	0.00
RID-97	3200	3.8%	0	0.00	0	0.00
RID-98	3800	4.5%	0	0.00	0	0.00
RID-99	2400	2.8%	0.5	0.01	8.85	0.25
RID-100	2100	2.5%	9.38	0.23	4.72	0.12
RID-101	4500	5.3%	0.5	0.03	0.5	0.03
RID-102	3900	4.6%	0.5	0.02	5.36	0.25
RID-103	2200	2.6%	0.5	0.01	0.5	0.01
RID-104	3600	4.3%	0.5	0.02	4.2	0.18
Total	84600	Calc. Concentration at End of Canal		6.5		3.2
		Canal Sample Downstream of Confluence 83A - (2011)		5.57		2.6

NOTES:
1. Pumping rates per the Modified Early Response Action Work Plan by Synergy Environmental, LLC, dated October 2012.
2. The 2011 surface water samples were used because they represent pre-RID well head treatment conditions.
3. TCE = Trichloroethylene.
4. PCE = Tetrachloroethylene.
5. µg/L = Micrograms per liter.
6. gpm = Gallons per minute.

TABLE 5
RID BLENDING APPROACH MASS BALANCE CALCULATIONS - RID-114 REPLACED
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

RID SALT CANAL			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-105	1900	8.7%	0.55	0.05	2.56	0.22
RID-106	1500	6.8%	7.49	0.51	23.4	1.60
RID-107	2100	9.6%	7.82	0.75	4.43	0.42
RID-108	1900	8.7%	3.1	0.27	6.24	0.54
RID-109	2400	11.0%	6.92	0.76	6.65	0.73
RID-110	2900	13.2%	1.21	0.16	6.85	0.91
RID-111R	2700	12.3%	0.5	0.06	0.63	0.08
RID-112	1700	7.8%	6.4	0.50	2.01	0.16
RID-113	2300	10.5%	8.14	0.85	1.92	0.20
RID-114	2500	11.4%	0	0.00	0	0.00
Total	21900	Calc. Concentration at End of Canal		3.9		4.9

RID MAIN CANAL			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-83	2300	3.7%	0	0.00	0	0.00
RID-84	2400	3.8%	1.09	0.04	6.91	0.26
RID-85	2600	4.1%	0.5	0.02	0.5	0.02
RID-86	3600	5.7%	0.5	0.03	0.5	0.03
RID-87	2000	3.2%	0	0.00	0	0.00
RID-88	2000	3.2%	0.5	0.02	0.5	0.02
RID-89	3100	4.9%	34.1	1.69	11	0.54
RID-90	2500	4.0%	0.5	0.02	0.5	0.02
RID-91	3200	5.1%	2.99	0.15	0.5	0.03
RID-92	1300	2.1%	73.5	1.52	14.7	0.30
RID-93	4000	6.4%	1.17	0.07	0.5	0.03
RID-94	3300	5.3%	0.88	0.05	0.59	0.03
RID-95	1700	2.7%	54.4	1.47	3.44	0.09
RID-96	3000	4.8%	0	0.00	0	0.00
RID-97	3200	5.1%	0	0.00	0	0.00
RID-98	3800	6.1%	0	0.00	0	0.00
RID-99	2400	3.8%	0.5	0.02	8.85	0.34
RID-100	2100	3.3%	9.38	0.31	4.72	0.16
RID-101	4500	7.2%	0.5	0.04	0.5	0.04
RID-102	3900	6.2%	0.5	0.03	5.36	0.33
RID-103	2200	3.5%	0.5	0.02	0.5	0.02
RID-104	3600	5.7%	0.5	0.03	4.2	0.24
Total	62700	Calc. Concentration at End of Canal		5.5		2.5

TABLE 5
RID BLENDING APPROACH MASS BALANCE CALCULATIONS - RID-114 REPLACED
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

COMBINED CANALS			2013 or Most Recent Concentration (µg/L)			
Well	Pumping Rate (gpm)	Pumping Proportion	TCE	TCE Proportion	PCE	PCE Proportion
RID-105	1900	2.2%	0.55	0.01	2.56	0.06
RID-106	1500	1.8%	7.49	0.13	23.4	0.41
RID-107	2100	2.5%	7.82	0.19	4.43	0.11
RID-108	1900	2.2%	3.1	0.07	6.24	0.14
RID-109	2400	2.8%	6.92	0.20	6.65	0.19
RID-110	2900	3.4%	1.21	0.04	6.85	0.23
RID-111R	2700	3.2%	0.5	0.02	0.63	0.02
RID-112	1700	2.0%	6.4	0.13	2.01	0.04
RID-113	2300	2.7%	8.14	0.22	1.92	0.05
RID-114	2500	3.0%	0	0.00	0	0.00
RID-83	2300	2.7%	0	0.00	0	0.00
RID-84	2400	2.8%	1.09	0.03	6.91	0.20
RID-85	2600	3.1%	0.5	0.02	0.5	0.02
RID-86	3600	4.3%	0.5	0.02	0.5	0.02
RID-87	2000	2.4%	0	0.00	0	0.00
RID-88	2000	2.4%	0.5	0.01	0.5	0.01
RID-89	3100	3.7%	34.1	1.25	11	0.40
RID-90	2500	3.0%	0.5	0.01	0.5	0.01
RID-91	3200	3.8%	2.99	0.11	0.5	0.02
RID-92	1300	1.5%	73.5	1.13	14.7	0.23
RID-93	4000	4.7%	1.17	0.06	0.5	0.02
RID-94	3300	3.9%	0.88	0.03	0.59	0.02
RID-95	1700	2.0%	54.4	1.09	3.44	0.07
RID-96	3000	3.5%	0	0.00	0	0.00
RID-97	3200	3.8%	0	0.00	0	0.00
RID-98	3800	4.5%	0	0.00	0	0.00
RID-99	2400	2.8%	0.5	0.01	8.85	0.25
RID-100	2100	2.5%	9.38	0.23	4.72	0.12
RID-101	4500	5.3%	0.5	0.03	0.5	0.03
RID-102	3900	4.6%	0.5	0.02	5.36	0.25
RID-103	2200	2.6%	0.5	0.01	0.5	0.01
RID-104	3600	4.3%	0.5	0.02	4.2	0.18
Total	84600	Calc. Concentration at End of Canal		5.1		3.1

NOTES:
1. Pumping rates per the Modified Early Response Action Work Plan by Synergy Environmental, LLC, dated October 2012.
2. The 2011 surface water samples were used because they represent pre-RID well head treatment conditions.
3. TCE = Trichloroethylene.
4. PCE = Tetrachloroethylene.
5. µg/L = Micrograms per liter.
6. gpm = Gallons per minute.

TABLE 6
REMEDIAL ALTERNATIVES - STRATEGIES, MEASURES, AND CONTINGENCIES
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

REMEDIAL ALTERNATIVE	REMEDIAL STRATEGIES	END USE OF EXTRACTED GROUNDWATER	REMEDIAL MEASURES	CONTINGENCIES	CONTINGENCY TRIGGER
Less Aggressive Remedy	**MONITORED NATURAL ATTENUATION** Monitored natural attenuation and groundwater monitoring. Semi-annual monitoring program - sampling of 68 UAU1, 27 UAU2, and six MAU monitoring wells for VOCs and 1,4-dioxane, with total and dissolved chromium analyses at select wells. A full round of water levels from approximately 120 monitoring wells would also be included in each semi-annual monitoring event. 25 select monitoring wells would also be analyzed for MNA parameters once per year.	Not applicable.	**PRIVATE WELLS WITHIN WVBA** Connect impaired private water well property to COP drinking water system. For costing purposes, assume five (5) wells will require measures.	**RID WELLS WITHIN WVBA** To the extent the RID constructs the necessary infrastructure and obtains the legal authority to sell groundwater to other drinking water providers, RID could employ a blending approach should end use change from irrigation to drinking water supply. If RID only uses wells along Salt Canal for drinking water supply, contingent well measure of replacing RID-114 with a UAU production well located along the Salt Canal outside of the plume.	Imminent change in end use from irrigation to drinking water supply, and the water quality is not fit for its intended use at that time.
				FUTURE COP/SRP PRODUCTION WELLS WITHIN THE WVBA Either move the proposed well to an area where water quality is sufficient for its intended use, or deepen the well to produce only in the LAU. Only those additional costs above and beyond routine costs that would otherwise have been incurred would be applicable to the remedial measure.	Should COP or SRP drill and construct a production well within the WVBA in the reasonably foreseeable future, and the water quality is not fit for its intended use at that time.
				SENTINEL MONITORING WELL NETWORK Seven (7) existing UAU1 monitoring wells located along the northern and western perimeter of the WVBA, along with five (5) new sentinel wells located west-northwest of the current WVBA, would be monitored for VOCs on a quarterly basis. In addition, if operating, the eleven (11) SRP wells would also be sampled for VOCs during the quarterly events.	Employed to the extent necessary should RID cease pumping in 2026 and COC concentrations in the regional WVBA plume at that time are still above AWQS at concentrations which could impair known or anticipated uses of groundwater. Drilling of new sentinel wells and start of sentinel well monitoring in 2026.
				SRP PRODUCTION WELLS OUTSIDE OF WVBA Replacement of four (4) impaired SRP wells with co-located LAU production well should RID cease pumping within the SRRD and the remaining dissolved-phase plume at that time allowed to migrate downgradient under the new hydraulic conditions.	Based on sentinel well monitoring.
				PRIVATE WELLS OUTSIDE OF WVBA Connect impaired private water wells to COP drinking water system. For costing purposes, assume five (5) wells will require measures.	
				PLANNED, FUTURE COT PRODUCTION WELLS Work with City of Tolleson to move their proposed COT-2, COT-3, and COT-4 locations further south-southwest to prevent potential future impairment.	Prior to drilling and construction of planned, future wells.

TABLE 6
REMEDIAL ALTERNATIVES - STRATEGIES, MEASURES, AND CONTINGENCIES
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

REMEDIAL ALTERNATIVE	REMEDIAL STRATEGIES	END USE OF EXTRACTED GROUNDWATER	REMEDIAL MEASURES	CONTINGENCIES	CONTINGENCY TRIGGER
Reference Remedy	**MONITORED NATURAL ATTENUATION** Same semi-annual monitoring program as described above.	Not applicable.	Same remedial measures as the Less Aggressive Remedy above.	**RID, SRP, COT, PRIVATE WATER WELLS** Same contingencies as above, except for replacement of two (2) SRP wells instead of four (4) for costing purposes, due to increased remedial pumping in Reference Remedy.	Same contingency triggers as above.
	FOCUSED REMEDIAL GROUNDWATER EXTRACTION One new extraction well (EW-2) screened across both the UAU1 and UAU2 pumping at 500 gpm alongside other RID pumping wells. Located north of RID-95 on 35th Avenue. Well-head treatment of consisting of LGAC for treatment of VOCs in extracted groundwater. For costing purposes, operation of the new extraction well assumed from 2016 to 2026.	500 gpm of treated groundwater to SRP lateral on 35th Avenue, then discharged to the RID Main Canal under an agreement with SRP and RID.		**EXPANDED SENTINEL MONITORING WELL NETWORK** To reduce uncertainties regarding water quality downgradient of WVBA, which production wells may become impaired post-2025, and the timing of the impairment, the sentinel monitoring well network would be expanded to include seven (7) existing UAU1 monitoring wells located along the northern and western perimeter of the WVBA, along with nine (9) new sentinel wells located west-northwest of the current WVBA, to be monitored for VOCs (assumed on a quarterly basis for costing purposes). In addition, if operating, the eleven (11) SRP wells would also be sampled for VOCs during the sentinel well monitoring events.	
				CONTINUED OPERATION OF EW-2 BEYOND 2025 Continue to operate EW-2 beyond 2025. For costing purposes, assume operation from 2026 through 2044. Assumes re-injection of treated groundwater into collocated LAU injection well.	If deemed necessary based on the plume extent and concentrations in 2026, and a cost-benefit analysis at that time.
				OPERATION OF ADDITIONAL 1,000 GPM REMEDIAL EXTRACTION WELL STARTING IN 2026 Drilling, construction, and operating of an additional remedial extraction well at 1,000 gpm. For costing purposes, assume operation from 2026 through 2044. Assumes re-injection of treated groundwater into collocated LAU injection wells.	
More Aggressive Remedy	**MONITORED NATURAL ATTENUATION** Same semi-annual monitoring program as described above.	Not applicable.	Same remedial measures as the remedial alternatives above.	**RID, SRP, COT, PRIVATE WATER WELLS** Same contingencies as the Reference Remedy above.	Same contingency triggers as above.
	FOCUSED REMEDIAL GROUNDWATER EXTRACTION Two new extraction wells (EW-1 and EW-2) each pumping at 1,000 gpm alongside other RID pumping. EW-1 located on 47th Avenue and EW-2 located north of RID-95 on 35th Avenue. Well-head treatment at both extraction wells of consisting of LGAC for treatment of VOCs in extracted groundwater. For costing purposes, operation of the new extraction wells assumed from 2016 to 2026.	For EW-1 and EW-2, treated groundwater to SRP lateral on 47th Avenue and 35th Avenue, respectively, then discharged to the RID Main Canal under an agreement with SRP and RID.		**SENTINEL MONITORING WELL NETWORK** Same sentinel monitoring well network as the Less Aggressive Remedy.	
				CONTINUED OPERATION OF EW-1 AND EW-2 BEYOND 2025 Continue to operate EW-2 beyond 2025. For costing purposes, assume operation from 2026 through 2044. For each extraction well, assumes re-injection of treated groundwater into two, collocated LAU injection wells.	If deemed necessary based on the plume extent and concentrations in 2026, and a cost-benefit analysis at that time.

TABLE 7
VOC MASS REMOVAL CALCULATIONS - BASE CONDITIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

		2013 or Most Recent Concentration (ug/L)		VOC Mass Removal (pounds/year)			
Well	Pumping Rate (gpm)	TCE	PCE	TCE	Percent of Total	PCE	Percent of Total
RID-83	2300	0	0	0.0	0.0%	0.0	0.0%
RID-84	2400	1.09	6.91	6.7	0.5%	42.6	6.2%
RID-85	2600	0.5	0.5	3.3	0.2%	3.3	0.5%
RID-86	3600	0.5	0.5	4.6	0.3%	4.6	0.7%
RID-87	2000	0	0	0.0	0.0%	0.0	0.0%
RID-88	2000	0.5	0.5	2.6	0.2%	2.6	0.4%
RID-89	3100	34.1	11	271.3	19.1%	87.5	12.7%
RID-90	2500	0.5	0.5	3.2	0.2%	3.2	0.5%
RID-91	3200	2.99	0.5	24.6	1.7%	4.1	0.6%
RID-92	1300	73.5	14.7	245.2	17.2%	49.0	7.1%
RID-93	4000	1.17	0.5	12.0	0.8%	5.1	0.7%
RID-94	3300	0.88	0.59	7.5	0.5%	5.0	0.7%
RID-95	1700	54.4	3.44	237.4	16.7%	15.0	2.2%
RID-96	3000	0	0	0.0	0.0%	0.0	0.0%
RID-97	3200	0	0	0.0	0.0%	0.0	0.0%
RID-98	3800	0	0	0.0	0.0%	0.0	0.0%
RID-99	2400	0.5	8.85	3.1	0.2%	54.5	7.9%
RID-100	2100	9.38	4.72	50.6	3.6%	25.4	3.7%
RID-101	4500	0.5	0.5	5.8	0.4%	5.8	0.8%
RID-102	3900	0.5	5.36	5.0	0.4%	53.7	7.8%
RID-103	2200	0.5	0.5	2.8	0.2%	2.8	0.4%
RID-104	3600	0.5	4.2	4.6	0.3%	38.8	5.6%
RID-105	1900	0.55	2.56	2.7	0.2%	12.5	1.8%
RID-106	1500	7.49	23.4	28.8	2.0%	90.1	13.0%
RID-107	2100	7.82	4.43	42.1	3.0%	23.9	3.5%
RID-108	1900	3.1	6.24	15.1	1.1%	30.4	4.4%
RID-109	2400	6.92	6.65	42.6	3.0%	41.0	5.9%
RID-110	2900	1.21	6.85	9.0	0.6%	51.0	7.4%
RID-111R	2700	0.5	0.63	3.5	0.2%	4.4	0.6%
RID-112	1700	6.4	2.01	27.9	2.0%	8.8	1.3%
RID-113	2300	8.14	1.92	48.1	3.4%	11.3	1.6%
RID-114	2500	48.6	2.2	311.9	21.9%	14.1	2.0%
TOTAL	84600			1422		691	

NOTES:
1. Pumping rates per the Modified Early Response Action Work Plan by Synergy Environmental, LLC, dated October 2012.
2. Mass removal adjusted for pumping seven months of the year.
3. TCE = Trichloroethylene.
4. PCE = Tetrachloroethylene.
5. µg/L = Micrograms per liter.
6. gpm = Gallons per minute.

TABLE 8
VOC MASS REMOVAL CALCULATIONS - REFERENCE REMEDY
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

		2013 or Most Recent Concentration (ug/L)		VOC Mass Removal (pounds/year)			
Well	Pumping Rate (gpm)	TCE	PCE	TCE	Percent of Total	PCE	Percent of Total
RID-83	2300	0	0	0.0	0.0%	0.0	0.0%
RID-84	2400	1.09	6.91	6.7	0.5%	42.6	6.1%
RID-85	2600	0.5	0.5	3.3	0.2%	3.3	0.5%
RID-86	3600	0.5	0.5	4.6	0.3%	4.6	0.7%
RID-87	2000	0	0	0.0	0.0%	0.0	0.0%
RID-88	2000	0.5	0.5	2.6	0.2%	2.6	0.4%
RID-89	3100	34.1	11	271.3	18.2%	87.5	12.6%
RID-90	2500	0.5	0.5	3.2	0.2%	3.2	0.5%
RID-91	3200	2.99	0.5	24.6	1.6%	4.1	0.6%
RID-92	1300	73.5	14.7	245.2	16.4%	49.0	7.1%
RID-93	4000	1.17	0.5	12.0	0.8%	5.1	0.7%
RID-94	3300	0.88	0.59	7.5	0.5%	5.0	0.7%
RID-95	1700	54.4	3.44	237.4	15.9%	15.0	2.2%
RID-96	3000	0	0	0.0	0.0%	0.0	0.0%
RID-97	3200	0	0	0.0	0.0%	0.0	0.0%
RID-98	3800	0	0	0.0	0.0%	0.0	0.0%
RID-99	2400	0.5	8.85	3.1	0.2%	54.5	7.8%
RID-100	2100	9.38	4.72	50.6	3.4%	25.4	3.7%
RID-101	4500	0.5	0.5	5.8	0.4%	5.8	0.8%
RID-102	3900	0.5	5.36	5.0	0.3%	53.7	7.7%
RID-103	2200	0.5	0.5	2.8	0.2%	2.8	0.4%
RID-104	3600	0.5	4.2	4.6	0.3%	38.8	5.6%
RID-105	1900	0.55	2.56	2.7	0.2%	12.5	1.8%
RID-106	1500	7.49	23.4	28.8	1.9%	90.1	13.0%
RID-107	2100	7.82	4.43	42.1	2.8%	23.9	3.4%
RID-108	1900	3.1	6.24	15.1	1.0%	30.4	4.4%
RID-109	2400	6.92	6.65	42.6	2.9%	41.0	5.9%
RID-110	2900	1.21	6.85	9.0	0.6%	51.0	7.3%
RID-111R	2700	0.5	0.63	3.5	0.2%	4.4	0.6%
RID-112	1700	6.4	2.01	27.9	1.9%	8.8	1.3%
RID-113	2300	8.14	1.92	48.1	3.2%	11.3	1.6%
RID-114	2500	48.6	2.2	311.9	20.9%	14.1	2.0%
EW-2	500	54.4	3.44	69.8	4.7%	4.4	0.6%
TOTALS	85100			1492		695	

NOTES:
1. Pumping rates per the Modified Early Response Action Work Plan by Synergy Environmental, LLC, dated October 2012.
2. Mass removal adjusted for pumping seven months of the year.
3. TCE = Trichloroethylene.
4. PCE = Tetrachloroethylene.
5. µg/L = Micrograms per liter.
6. gpm = Gallons per minute.

TABLE 9
VOC MASS REMOVAL CALCULATIONS - MORE AGGRESSIVE REMEDY
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

		2013 or Most Recent Concentration (ug/L)		VOC Mass Removal (pounds/year)			
Well	Pumping Rate (gpm)	TCE	PCE	TCE	Percent of Total	PCE	Percent of Total
RID-83	2300	0	0	0.0	0.0%	0.0	0.0%
RID-84	2400	1.09	6.91	6.7	0.4%	42.6	5.9%
RID-85	2600	0.5	0.5	3.3	0.2%	3.3	0.5%
RID-86	3600	0.5	0.5	4.6	0.3%	4.6	0.6%
RID-87	2000	0	0	0.0	0.0%	0.0	0.0%
RID-88	2000	0.5	0.5	2.6	0.2%	2.6	0.4%
RID-89	3100	34.1	11	271.3	16.8%	87.5	12.1%
RID-90	2500	0.5	0.5	3.2	0.2%	3.2	0.4%
RID-91	3200	2.99	0.5	24.6	1.5%	4.1	0.6%
RID-92	1300	73.5	14.7	245.2	15.2%	49.0	6.8%
RID-93	4000	1.17	0.5	12.0	0.7%	5.1	0.7%
RID-94	3300	0.88	0.59	7.5	0.5%	5.0	0.7%
RID-95	1700	54.4	3.44	237.4	14.7%	15.0	2.1%
RID-96	3000	0	0	0.0	0.0%	0.0	0.0%
RID-97	3200	0	0	0.0	0.0%	0.0	0.0%
RID-98	3800	0	0	0.0	0.0%	0.0	0.0%
RID-99	2400	0.5	8.85	3.1	0.2%	54.5	7.5%
RID-100	2100	9.38	4.72	50.6	3.1%	25.4	3.5%
RID-101	4500	0.5	0.5	5.8	0.4%	5.8	0.8%
RID-102	3900	0.5	5.36	5.0	0.3%	53.7	7.4%
RID-103	2200	0.5	0.5	2.8	0.2%	2.8	0.4%
RID-104	3600	0.5	4.2	4.6	0.3%	38.8	5.4%
RID-105	1900	0.55	2.56	2.7	0.2%	12.5	1.7%
RID-106	1500	7.49	23.4	28.8	1.8%	90.1	12.4%
RID-107	2100	7.82	4.43	42.1	2.6%	23.9	3.3%
RID-108	1900	3.1	6.24	15.1	0.9%	30.4	4.2%
RID-109	2400	6.92	6.65	42.6	2.6%	41.0	5.6%
RID-110	2900	1.21	6.85	9.0	0.6%	51.0	7.0%
RID-111R	2700	0.5	0.63	3.5	0.2%	4.4	0.6%
RID-112	1700	6.4	2.01	27.9	1.7%	8.8	1.2%
RID-113	2300	8.14	1.92	48.1	3.0%	11.3	1.6%
RID-114	2500	48.6	2.2	311.9	19.3%	14.1	1.9%
EW-1	1000	20	10	51.3	3.2%	25.7	3.5%
EW-2	1000	54.4	3.44	139.6	8.7%	8.8	1.2%
TOTALS	86600			1613		725	

Total TCE Mass Removal	
With EW-1 and EW-2	1613
Without EW-1 and EW-2	1422
Increase	1.134

Total PCE Mass Removal	
With EW-1 and EW-2	725
Without EW-1 and EW-2	691
Increase	1.050

NOTES:
1. Pumping rates per the Modified Early Response Action Work Plan by Synergy Environmental, LLC, dated October 2012.
2. Mass removal adjusted for pumping seven months of the year.
3. TCE = Trichloroethylene.
4. PCE = Tetrachloroethylene.
5. µg/L = Micrograms per liter.
6. gpm = Gallons per minute.

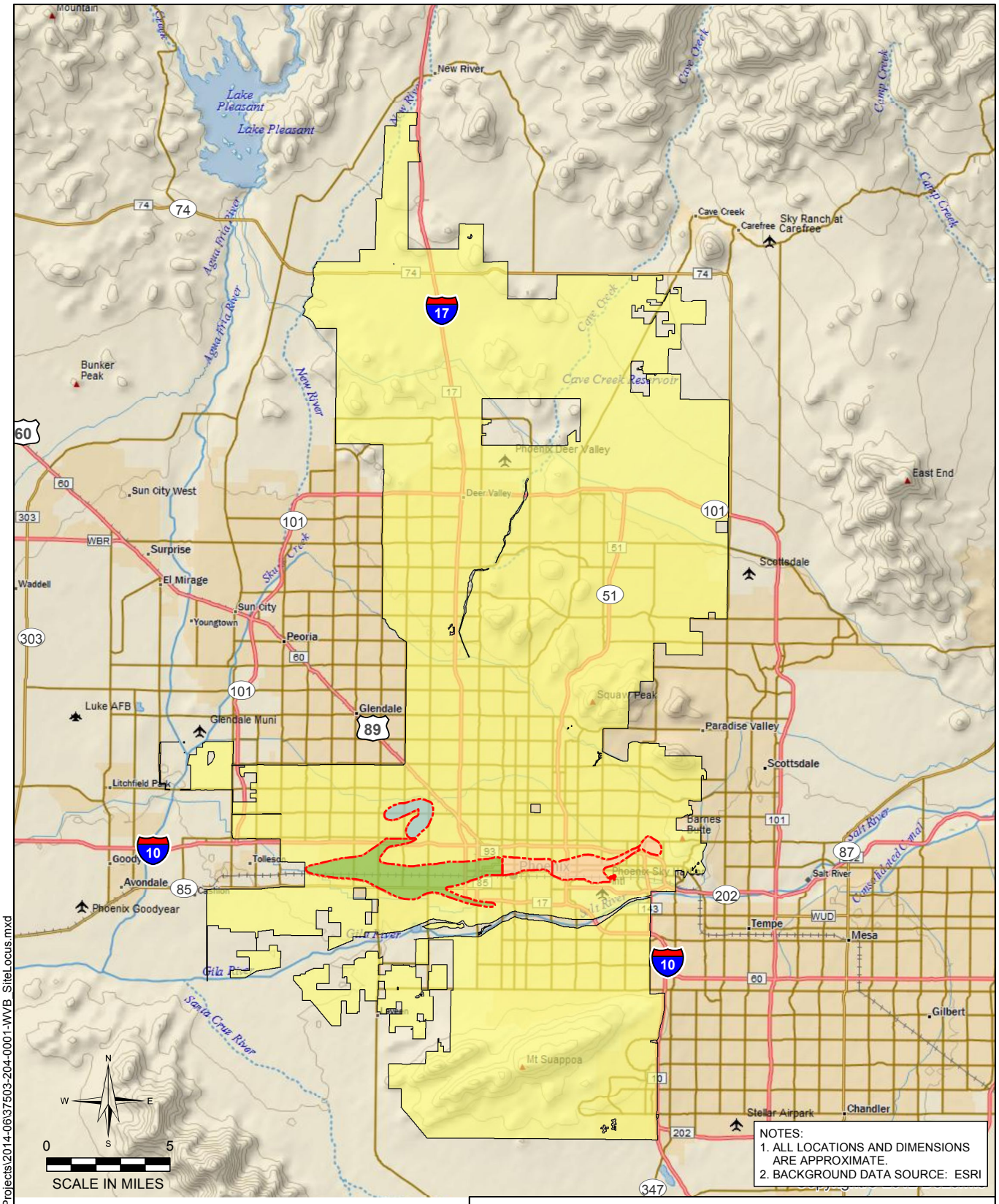
TABLE 10
REMEDIAL ALTERNATIVE COST SUMMARY
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

Invest. Ret. Rate (Net after Mgmt Fees)=	9%
Inflation Rate=	3%
Discount Rate=	6%

					Non Disc., w/ 3% Inflation			NPV @ 6% Disc. Rate		
Remedy		**Backup Reference**	**Year (Period)**	**Trigger**	**Capital**	**Total O&M**	**Total**	**Capital**	**Total O&M**	**Total**
Less Aggressive Remedy										
Base										
1	Groundwater Monitoring Program	Module A	2014-2044	N/A	$ -	$10.33	$10.33	$ -	$ 2.90	$ 2.90
2	Connect five (5) impaired private wells within the WVBA to COP municipal system	Module B	2014	N/A	$ 0.05	$ -	$ 0.05	$ 0.05	$ -	$ 0.05
3	Trust Creation Expense (See Note 1)	N/A	2014	N/A	$ 0.10	$ -	$ 0.10	$ 0.10	$ -	$ 0.10
	Base Total				**$ 0.15**	**$10.33**	**$10.48**	**$ 0.15**	**$ 2.90**	**$ 3.05**
Contingencies										
1	Drill and construct five (5) new sentinel monitoring wells	Module H	2026	As necessary based on post-2025 plume conditions	$ 0.36	$ -	$ 0.36	$ 0.13	$ -	$ 0.13
2	Quarterly sentinel well monitoring at twelve (12) monitoring wells and eleven (11) SRP wells	Module J	2026-2044	As necessary based on post-2025 plume conditions	$ -	$ 1.49	$ 1.49	$ -	$ 0.23	$ 0.23
3	Replace four (4) SRP wells with new, collocated LAU wells	Module F	2030	Based on quarterly sentinel well monitoring results	$10.74	$ -	$10.74	$ 2.64	$ -	$ 2.64
4	Connect five (5) private wells outside of WVBA to COP municipal system	Module K	2026	Based on quarterly sentinel well monitoring results	$ 0.07	$ -	$ 0.07	$ 0.02	$ -	$ 0.02
5	Replace RID-114 with a new UAU production well at different location	Module G	2019	Imminent change in end use to potable and water quality not fit for intended use at that time	$ 1.23	$ -	$ 1.23	$ 0.79	$ -	$ 0.79
Reference Remedy										
Base										
1	Groundwater Monitoring Program	Module A	2014-2044	N/A	$ -	$10.33	$10.33	$ -	$ 2.90	$ 2.90
2	Connect five (5) impaired private wells within the WVBA to COP municipal system	Module B	2014	N/A	$ 0.05	$ -	$ 0.05	$ 0.05	$ -	$ 0.05
3	One (1) plume core extraction well at 500 gpm	Module E (500 gpm)	2016-2026	N/A	$ 2.60	$ 6.57	$ 9.17	$ 2.18	$ 3.44	$ 5.62
4	Trust Creation Expense (See Note 1)	N/A	2014	N/A	$ 0.10	$ -	$ 0.10	$ 0.10	$ -	$ 0.10
	Base Total				**$ 2.75**	**$16.90**	**$19.65**	**$ 2.33**	**$ 6.34**	**$ 8.67**
Contingencies										
1	Drill and construct nine (9) new sentinel monitoring wells	Module H	2026	As necessary based on post-2025 plume conditions	$ 0.65	$ -	$ 0.65	$ 0.23	$ -	$ 0.23
2	Quarterly sentinel well monitoring at sixteen (16) monitoring wells and eleven (11) SRP wells	Module L	2026-2044	As necessary based on post-2025 plume conditions	$ -	$ 1.81	$ 1.81	$ -	$ 0.28	$ 0.28
3	Replace two (2) SRP wells with new, collocated LAU wells	Module F	2030	Based on quarterly sentinel well monitoring results	$ 5.37	$ -	$ 5.37	$ 1.32	$ -	$ 1.32
4	Connect five (5) private wells outside of WVBA to COP municipal system	Module K	2026	Based on quarterly sentinel well monitoring results	$ 0.07	$ -	$ 0.07	$ 0.02	$ -	$ 0.02
5	Replace RID-114 with a new UAU production well at different location	Module G	2019	Imminent change in end use to potable and water quality not fit for intended use at that time	$ 1.23	$ -	$ 1.23	$ 0.79	$ -	$ 0.79
6	Continue operating one (1) plume core extraction well at 500 gpm	Module E (500 gpm)	2026-2044	If deemed necessary based on post-2025 plume conditions and cost-benefit analysis	$ -	$18.03	$18.03	$ -	$ 2.82	$ 2.82
6a	Reinject 500 gpm treated water	Module C (500 gpm)	2026-2044		$ 3.76	$ 1.50	$ 5.26	$ 1.31	$ 0.24	$ 1.54
7	Add one (1) plume core extraction well at 1,000 gpm	Module E (1 @ 1,000 gpm)	2026-2044	If deemed necessary based on post-2025 plume conditions and cost-benefit analysis	$ 3.67	$24.43	$28.10	$ 1.28	$ 3.82	$ 5.10
7a	Reinject 1,000 gpm treated water	Module C (1 @ 1,000 gpm)	2026-2044		$ 5.98	$ 2.53	$ 8.51	$ 2.08	$ 0.40	$ 2.48
More Aggressive Remedy										
Base										
1	Groundwater Monitoring Program	Module A	2014-2044	N/A	$ -	$10.33	$10.33	$ -	$ 2.90	$ 2.90
2	Connect five (5) impaired private wells within the WVBA to COP municipal system	Module B	2014	N/A	$ 0.05	$ -	$ 0.05	$ 0.05	$ -	$ 0.05
3	Two (2) plume core extraction wells at 1,000 gpm each	Module E (2 @ 1,000 gpm)	2016-2026	N/A	$ 5.32	$16.36	$21.68	$ 4.46	$ 8.55	$13.02
4	Trust Creation Expense (See Note 1)	N/A	2014	N/A	$ 0.10	$ -	$ 0.10	$ 0.10	$ -	$ 0.10
	Base Total				**$ 5.47**	**$26.69**	**$32.16**	**$ 4.61**	**$11.45**	**$16.07**
Contingencies										
1	Drill and construct five (5) new sentinel monitoring wells	Module H	2026	As necessary based on post-2025 plume conditions	$ 0.36	$ -	$ 0.36	$ 0.13	$ -	$ 0.13
2	Quarterly sentinel well monitoring at twelve (12) monitoring wells and eleven (11) SRP wells	Module J	2026-2044	As necessary based on post-2025 plume conditions	$ -	$ 1.49	$ 1.49	$ -	$ 0.23	$ 0.23
3	Replace two (2) SRP wells with new, collocated LAU wells	Module F	2030	Based on quarterly sentinel well monitoring results	$ 5.37	$ -	$ 5.37	$ 1.32	$ -	$ 1.32
4	Connect five (5) private wells outside of WVBA to COP municipal system	Module K	2026	Based on quarterly sentinel well monitoring results	$ 0.07	$ -	$ 0.07	$ 0.02	$ -	$ 0.02
5	Replace RID-114 with a new UAU production well at different location	Module G	2019	Imminent change in end use to potable and water quality not fit for intended use at that time	$ 1.23	$ -	$ 1.23	$ 0.79	$ -	$ 0.79
6	Continue operating two (2) plume core extraction wells at 1,000 gpm each	Module E (2 @ 1,000 gpm)	2026-2044	If deemed necessary based on post-2025 plume conditions and cost-benefit analysis	$ -	$44.90	$44.90	$ -	$ 7.03	$ 7.03
6a	Reinject 2,000 gpm treated water	Module C (2,000 gpm)	2026-2044		$11.96	$ 5.06	$17.02	$ 4.17	$ 0.79	$ 4.96

Cost in Millions; Capped at 30yrs

1) "Trust creation cost" is the iniitial administrative costs for establishing a trust designed to manage financial expenditures for remedy construction and operation. Assumes the Trust agreement used will be derived from existing model Trust agreements used elsewhere for similar purpose. Also assumes ongoing financial management costs is accounted for in the investment return rate.
2) Text in red reflects change from the July 2014 submission.



NOTES:
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND DATA SOURCE: ESRI

LEGEND

- Motorola 52nd Street Superfund Site
- West Van Buren Area WQARF Site
- West Osborn Complex (WOC) WQARF Site
- City of Phoenix Boundary

HALEY & ALDRICH

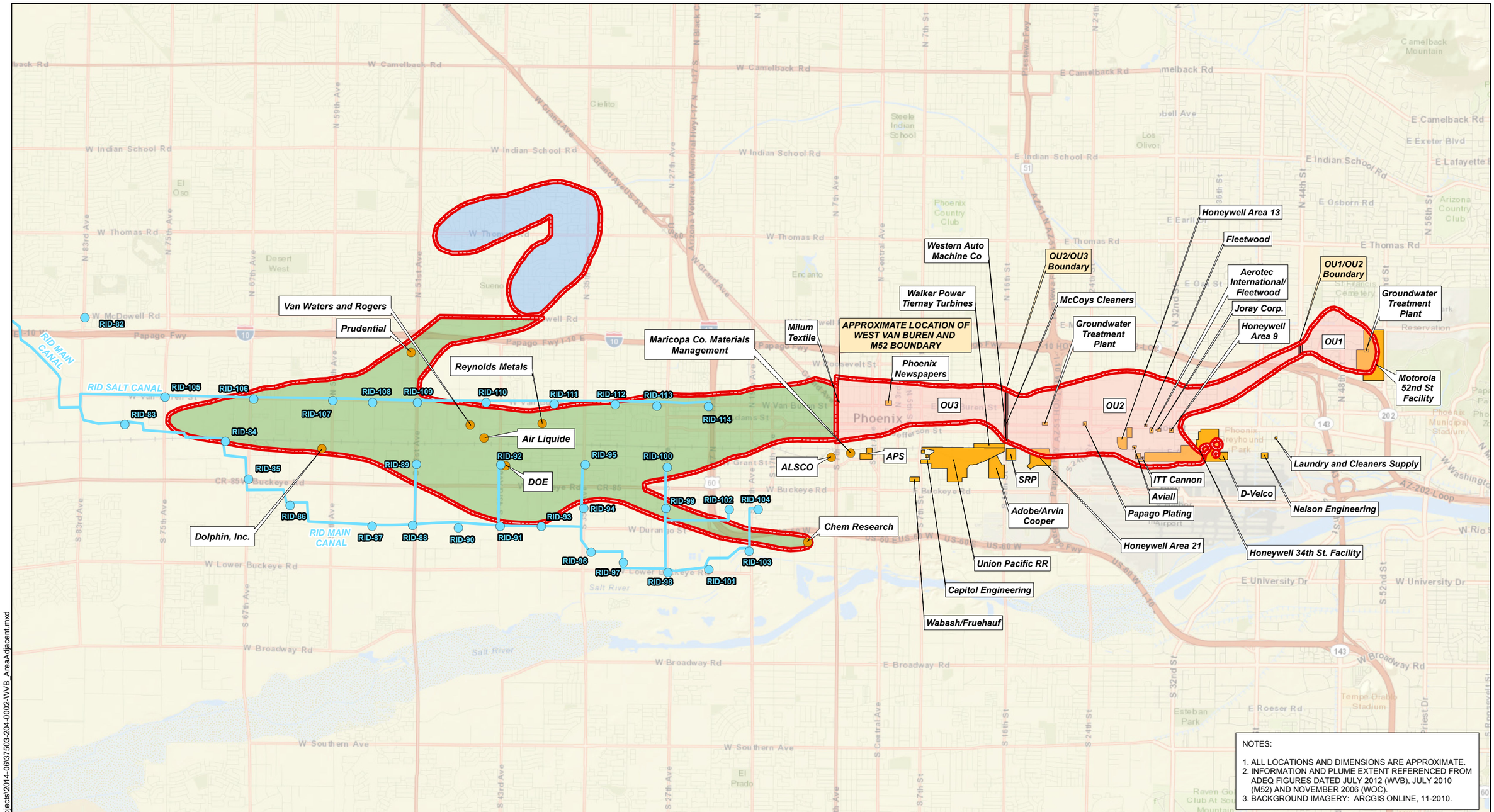
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

SITE LOCUS

SCALE: AS SHOWN
JULY 2014

FIGURE 1

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0001-WVB_SiteLocus.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- SELECT FACILITIES WITHIN THE WEST VAN BUREN WQARF SITE
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

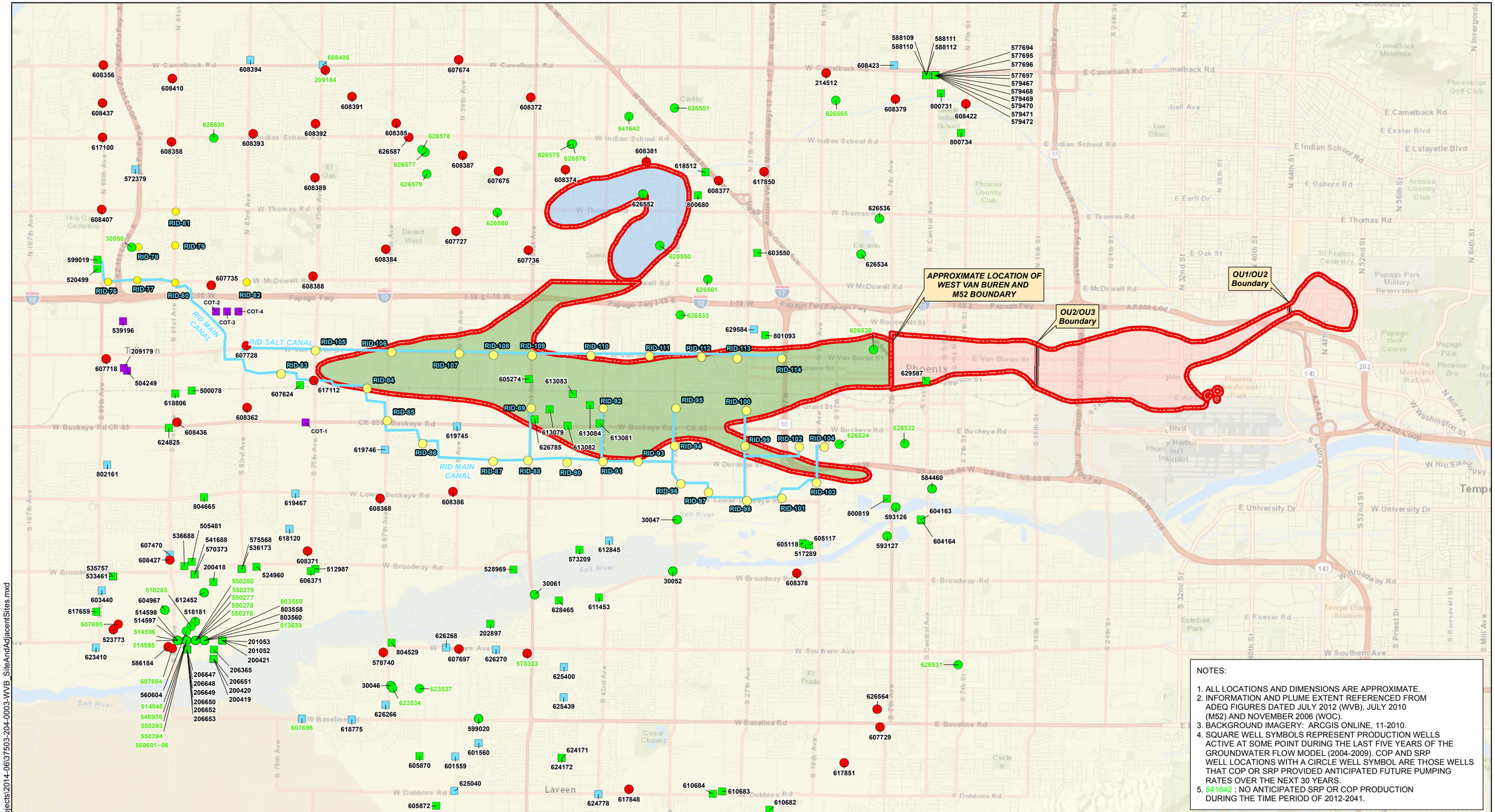
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

WEST VAN BUREN AREA
WQARF SITE AND ADJACENT SITES

SCALE: AS SHOWN
JULY 2014

FIGURE 2

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0002-WVB_AreaAdjacent.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
4. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
5. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- OTHER MUNICIPAL WELL LOCATION
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

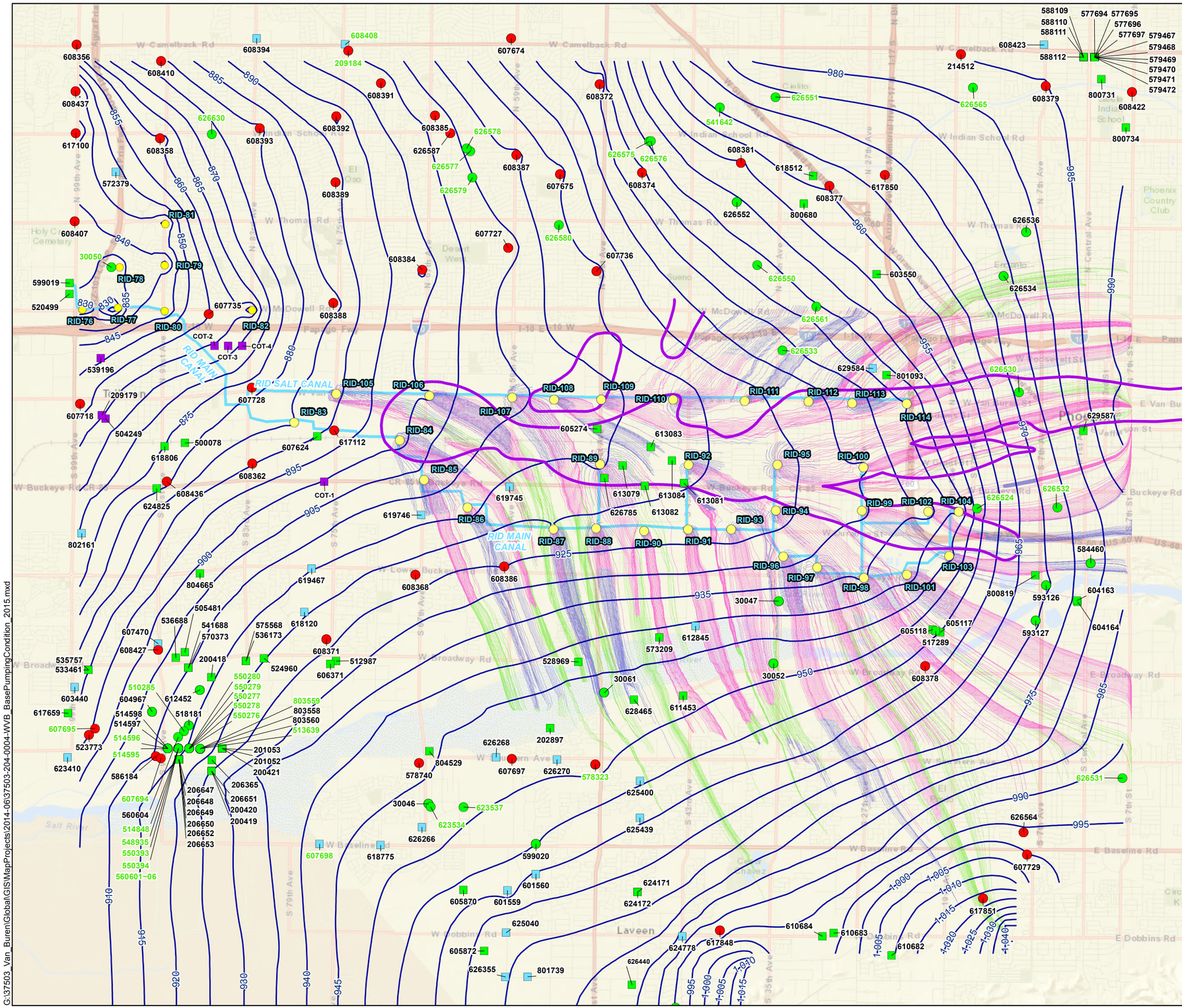
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

PRODUCTION WELLS WITHIN AND ADJACENT TO THE WEST VAN BUREN AREA

SCALE: AS SHOWN
JULY 2014

FIGURE 3

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0003-WVB_SiteAndAdjacentSites.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1

1,010 SIMULATED HEAD CONTOURS - LAYER 1
SOURCE : [WVB2_BASE14_2015SEPT_GW_L1]

REVERSE PARTICLE TRACKS
PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_BASE14_All_Pathlines]

LAYER

1
2
3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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SCALE IN FEET

HALEY & ALDRICH

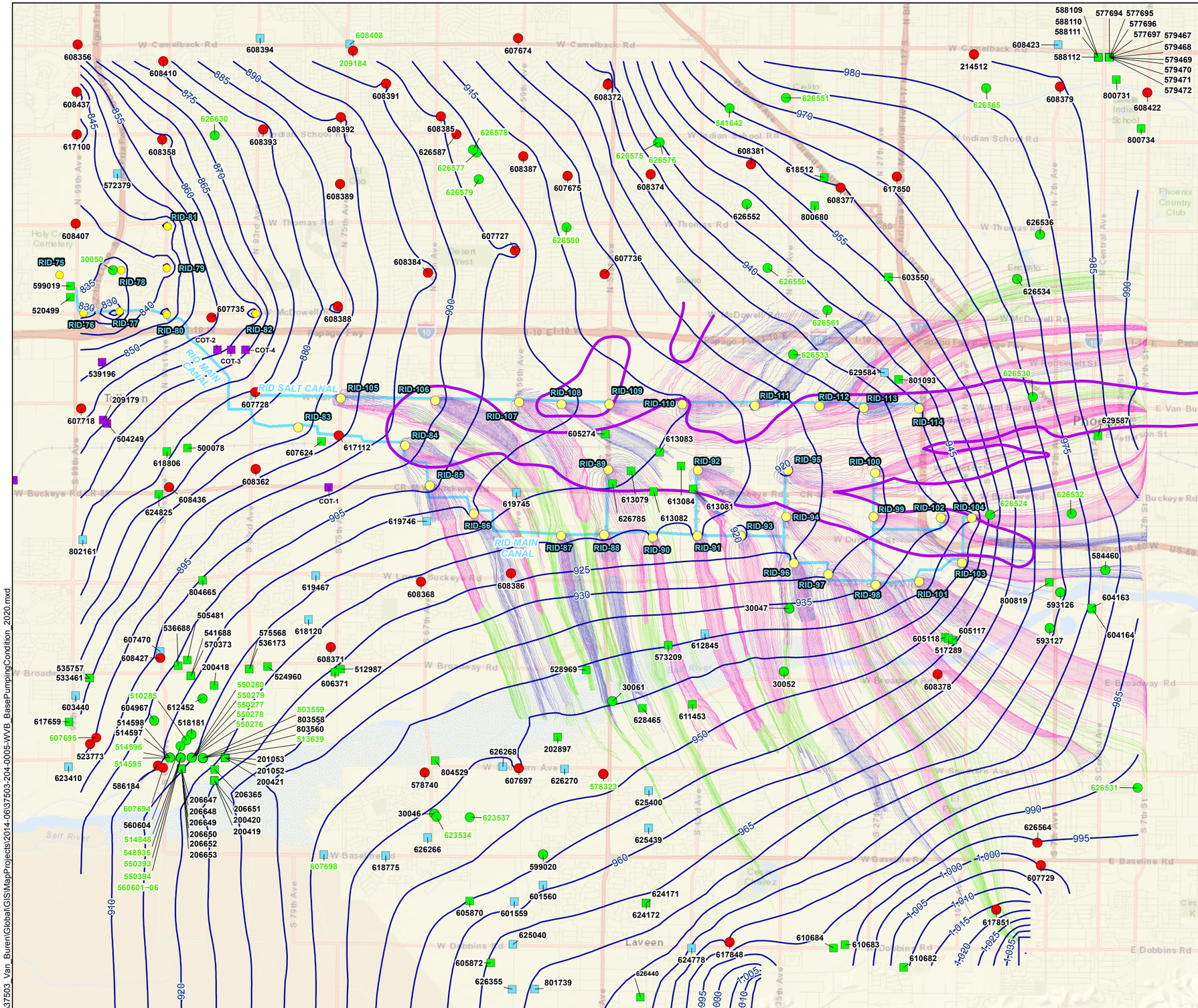
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

BASE PUMPING CONDITIONS – SEPTEMBER 2015

SCALE: AS SHOWN
JULY 2014

FIGURE 4

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0004-WVB_BasePumpingCondition_2015.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1

1,010 SIMULATED HEAD CONTOURS - LAYER 1
SOURCE : [WVB2_BASE14_2020SEPT_GW_L1]

REVERSE PARTICLE TRACKS
PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_BASE14_All_Pathlines]

LAYER

1
2
3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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SCALE IN FEET

HALEY & ALDRICH

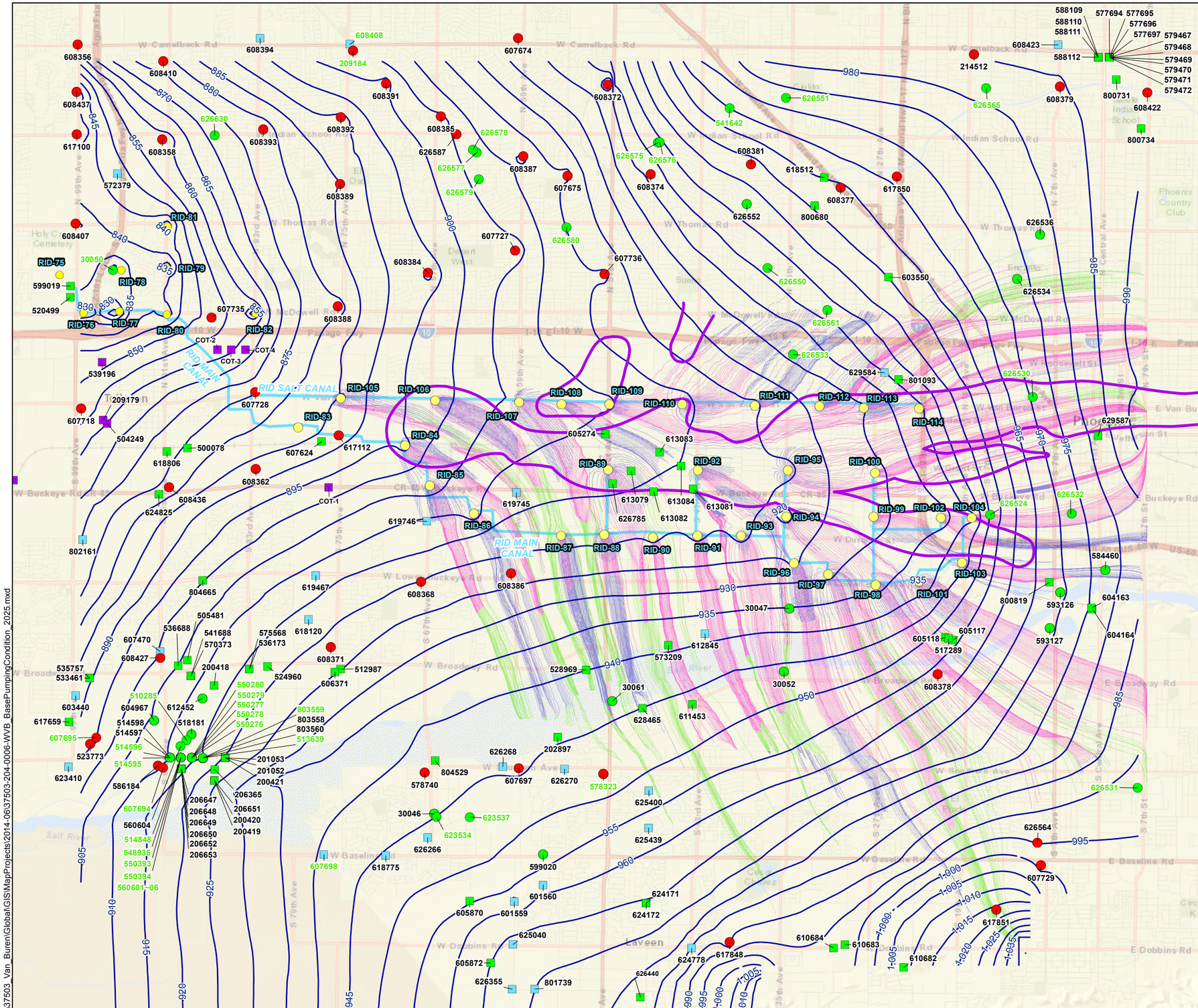
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

BASE PUMPING CONDITIONS - SEPTEMBER 2020

SCALE: AS SHOWN
JULY 2014

FIGURE 5

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0005-WVB_BasePumpingCondition_2020.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1

1,010 SIMULATED HEAD CONTOURS - LAYER 1
SOURCE : [WVB2_BASE14_2025SEPT_GW_L1]

REVERSE PARTICLE TRACKS
PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_BASE14_All_Pathlines]

LAYER

1
2
3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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SCALE IN FEET

HALEY & ALDRICH

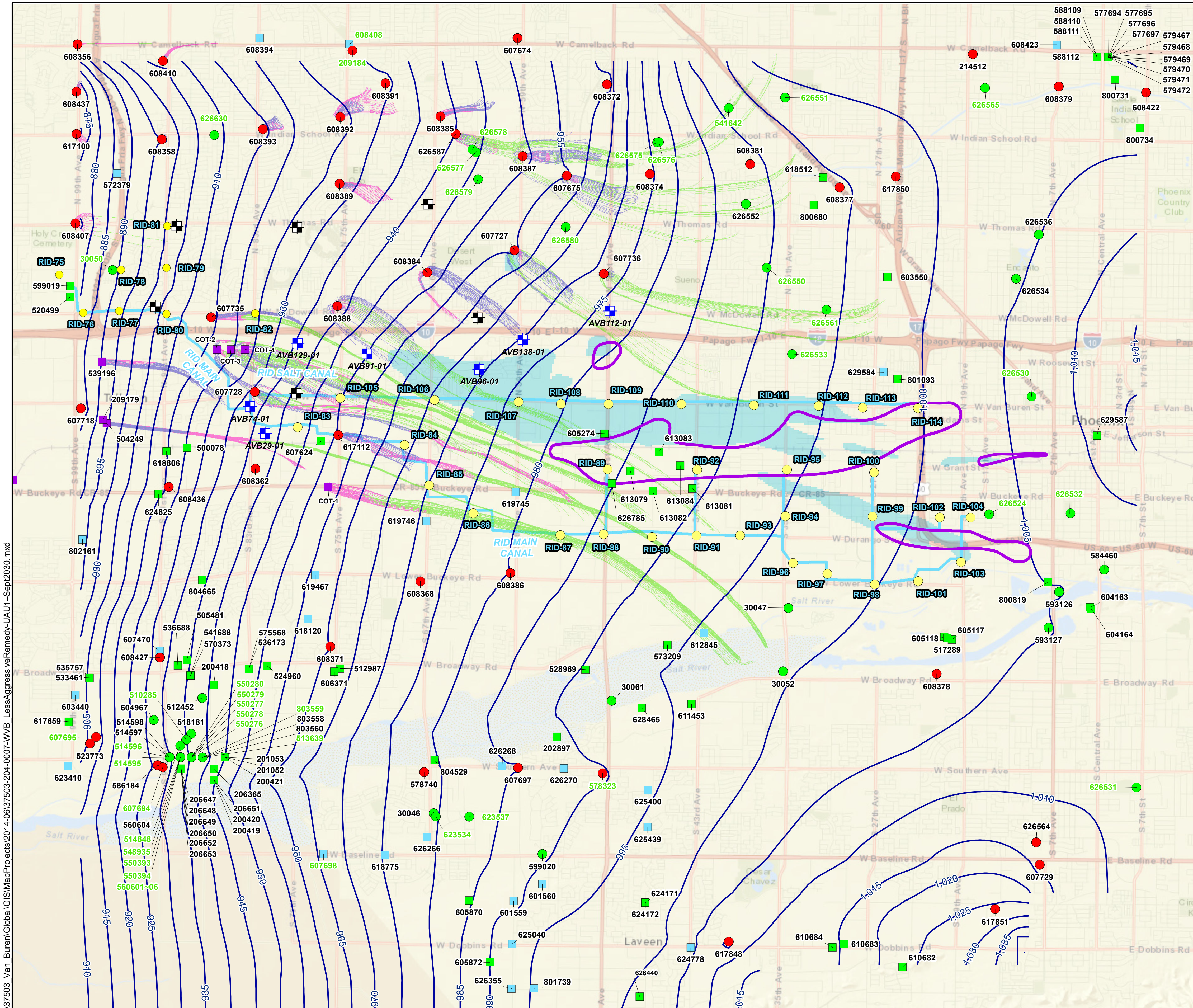
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

BASE PUMPING CONDITIONS - SEPTEMBER 2025

SCALE: AS SHOWN
JULY 2014

FIGURE 6

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0006-WVB_BasePumpingCondition_2025.mxd



G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0007-WVB_LessAggressiveRemedy-UAU1–Sept2030.mxd

BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- EXISTING SENTINEL WELL LOCATION
- NEW SENTINEL WELL LOCATION
- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>10 UG/L) – UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1
  SOURCE : [WVB2_LESS16_2030SEPT_GW_L1]

REVERSE PARTICLE TRACKS
PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2026 AND END IN 2041
SOURCE : [WVB2_LESS16_ReversePL_2026-2041_All_Layers]

LAYER
1
2
3

GROUNDWATER TRACER IN UAU1
SOURCE: [WVB2_LESS16_2026T_2030SEP_Conc_L1] AND [WVB2_LESS16_2026T_2030SEP_Conc_L2]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

N W E S

0 6,000 12,000
SCALE IN FEET

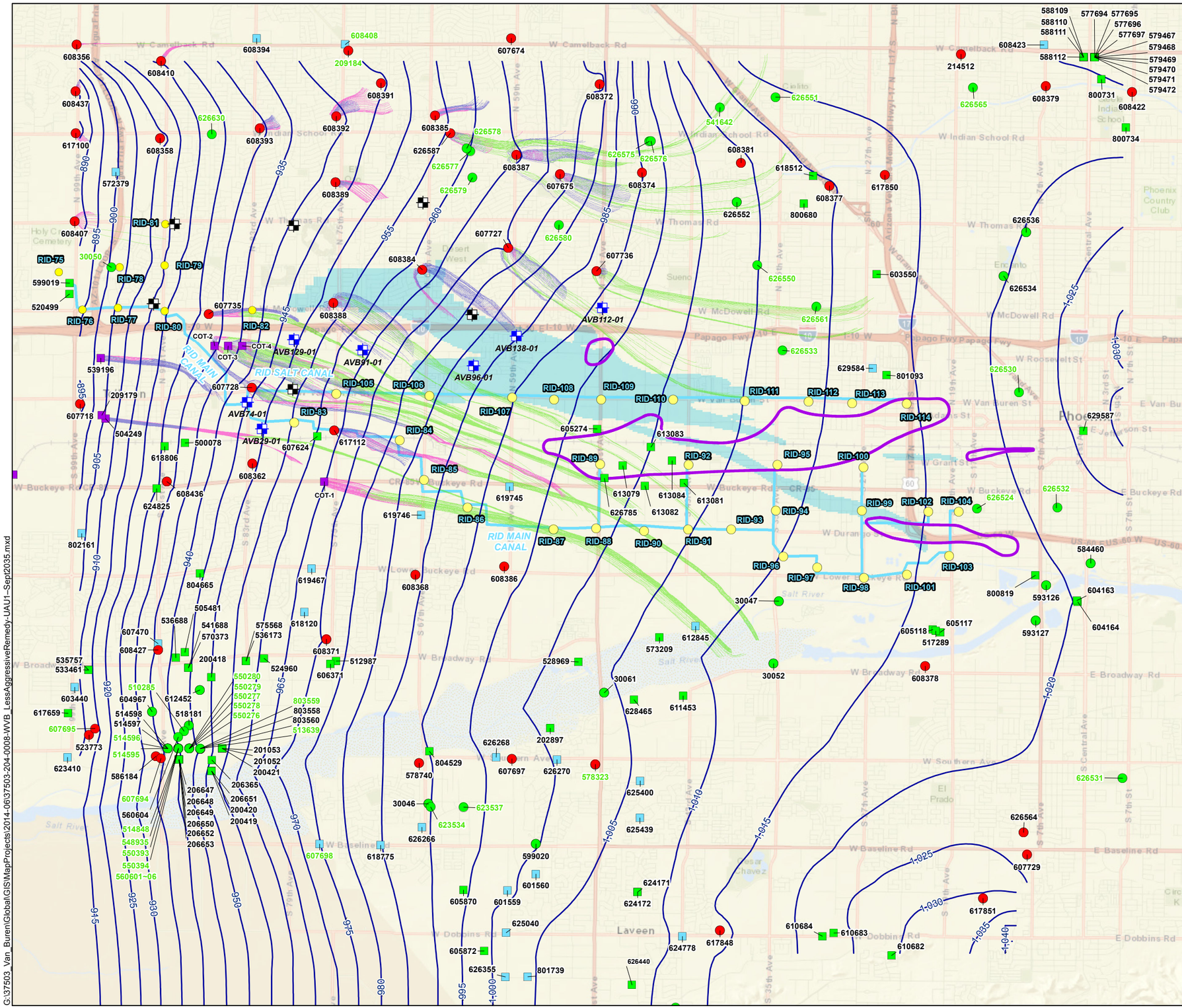
HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU1 – SEPTEMBER 2030

SCALE: AS SHOWN
JULY 2014

FIGURE 7



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- EXISTING SENTINEL WELL LOCATION
- NEW SENTINEL WELL LOCATION
- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>10 UG/L) – UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_LESS16_2035SEPT_GW_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2026 AND END IN 2041
SOURCE : [WVB2_LESS16_ReversePL_2026-2041_All_Layers]

LAYER

- 1
- 2
- 3

GROUNDWATER TRACER IN UAU1 SOURCE: [WVB2_LESS16_2026T_2035SEP_Conc_L1] AND [WVB2_LESS16_2026T_2035SEP_Conc_L2]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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S

0 6,000 12,000
SCALE IN FEET

HALEY & ALDRICH

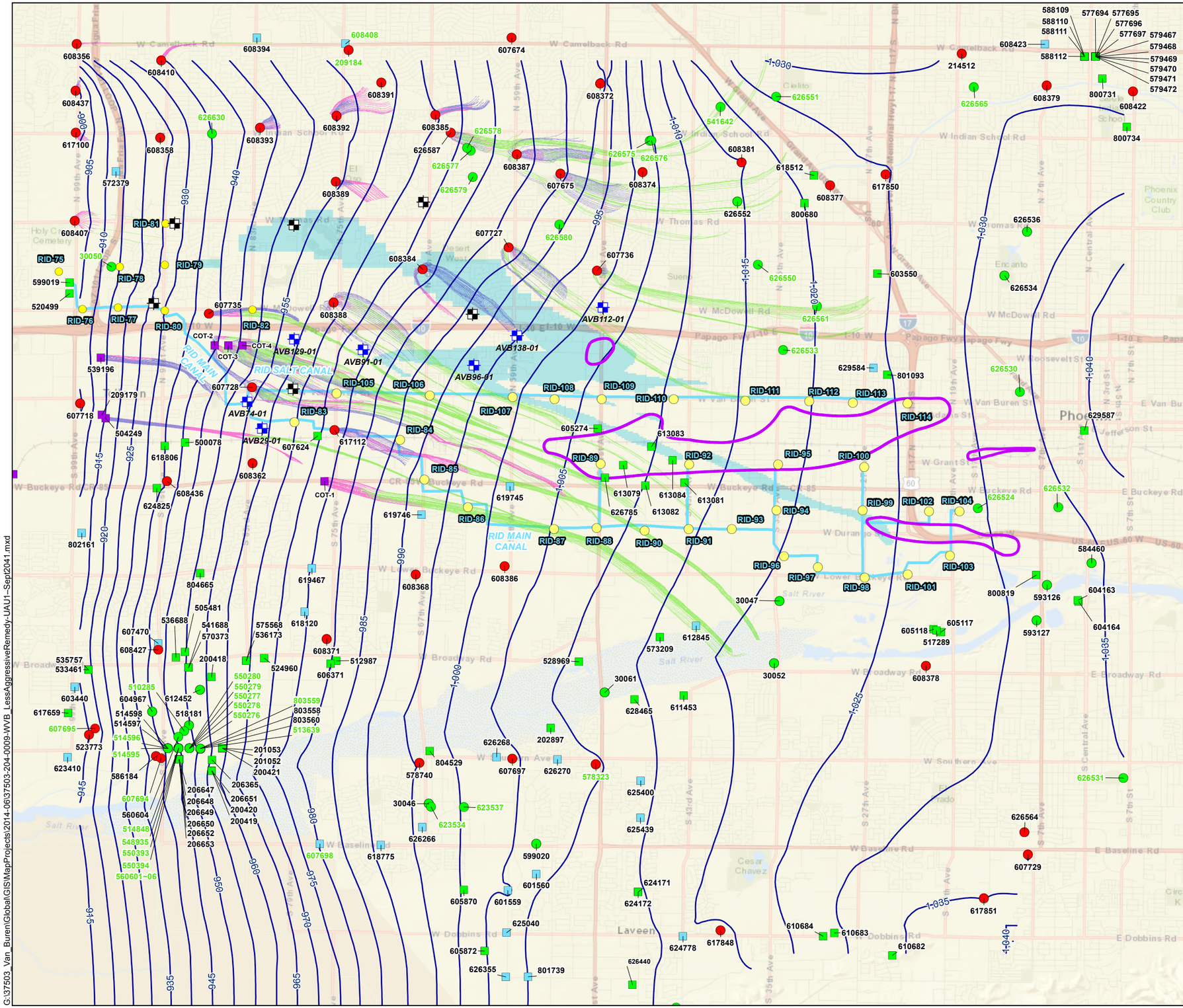
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU1 – SEPTEMBER 2035

SCALE: AS SHOWN
JULY 2014

FIGURE 8

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0008-WVB_LessAggressiveRemedy-UAU1-Sept2035.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- EXISTING SENTINEL WELL LOCATION
- NEW SENTINEL WELL LOCATION
- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>10 UG/L) – UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_LESS16_2041SEPT_GW_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2026 AND END IN 2041
SOURCE : [WVB2_LESS16_ReversePL_2026-2041_All_Layers]

LAYER

- 1
- 2
- 3

GROUNDWATER TRACER IN UAU1 SOURCE: [WVB2_LESS16_2026T_2041SEP_Conc_L1] AND [WVB2_LESS16_2026T_2041SEP_Conc_L2]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

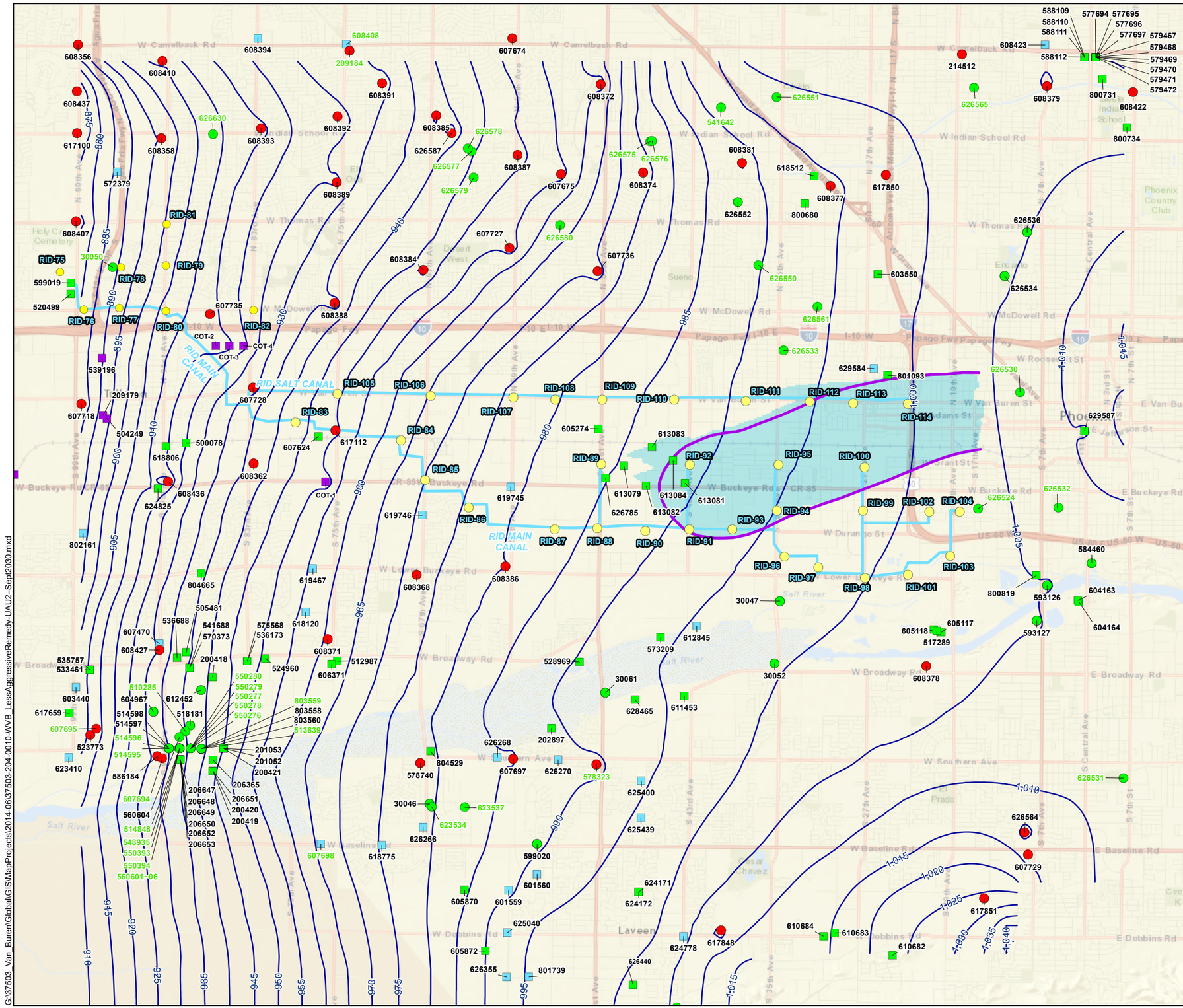
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU1 – SEPTEMBER 2041

SCALE: AS SHOWN
JULY 2014

FIGURE 9

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0009-WVB_LessAggressiveRemedy-UAU1-Sept2041.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>5 UG/L) – UAU2
- 1,010 SIMULATED HEAD CONTOURS - LAYER 3 SOURCE : [WVB2_LESS16_2030SEPT_GW_L3]
- GROUNDWATER TRACER IN UAU2 SOURCE: [WVB2_LESS16_L3T_2030SEPT_Conc_L3]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

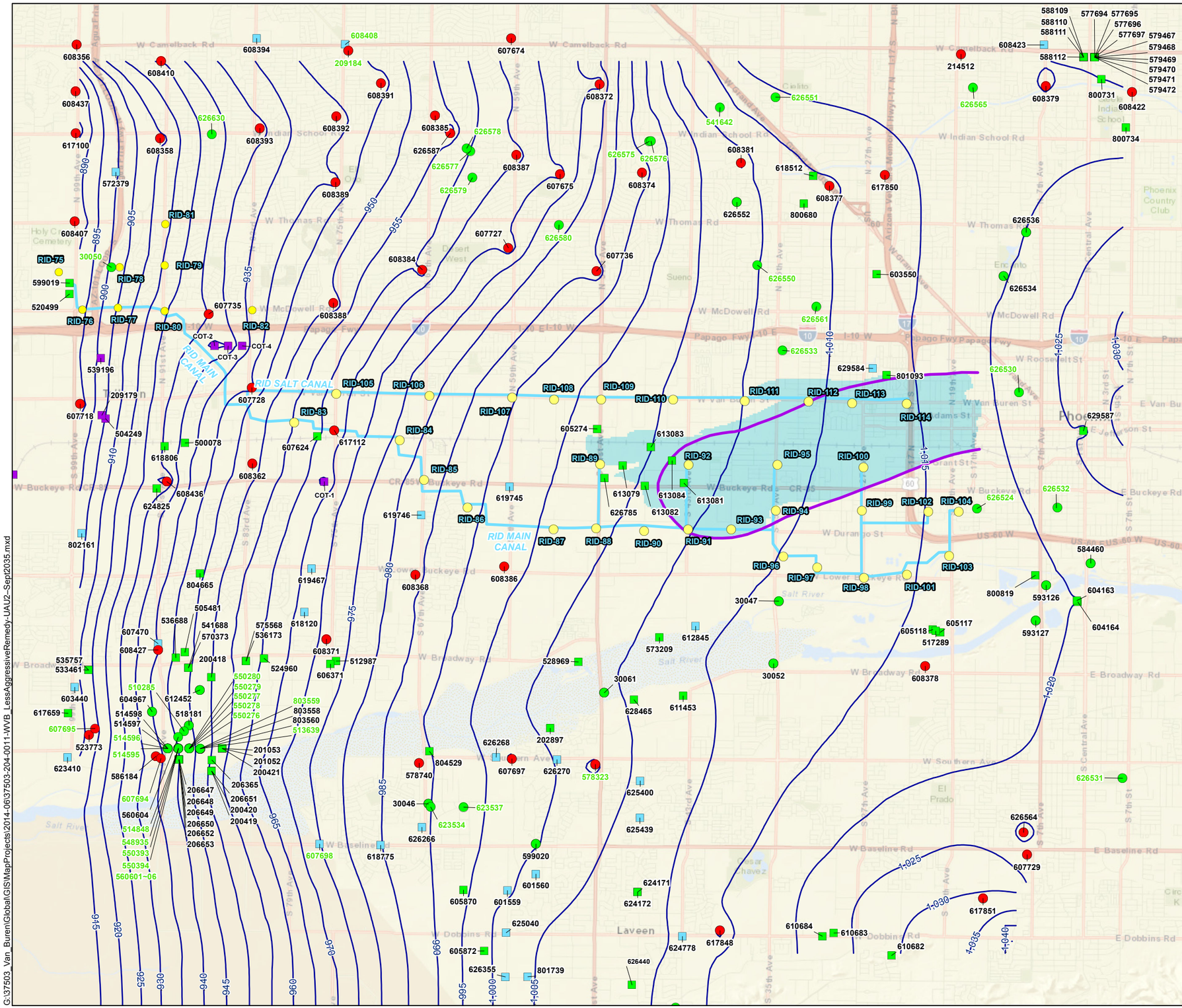
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU2 – SEPTEMBER 2030

SCALE: AS SHOWN
JULY 2014

FIGURE 10

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0010-WVB_LessAggressiveRemedy-UAU2--Sept2030.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>5 UG/L) – UAU2
- 1,010 SIMULATED HEAD CONTOURS - LAYER 3 SOURCE : [WVB2_LESS16_2035SEPT_GW_L3]
- GROUNDWATER TRACER IN UAU2 SOURCE: [WVB2_LESS16_L3T_2035SEPT_Conc_L3]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
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HALEY & ALDRICH

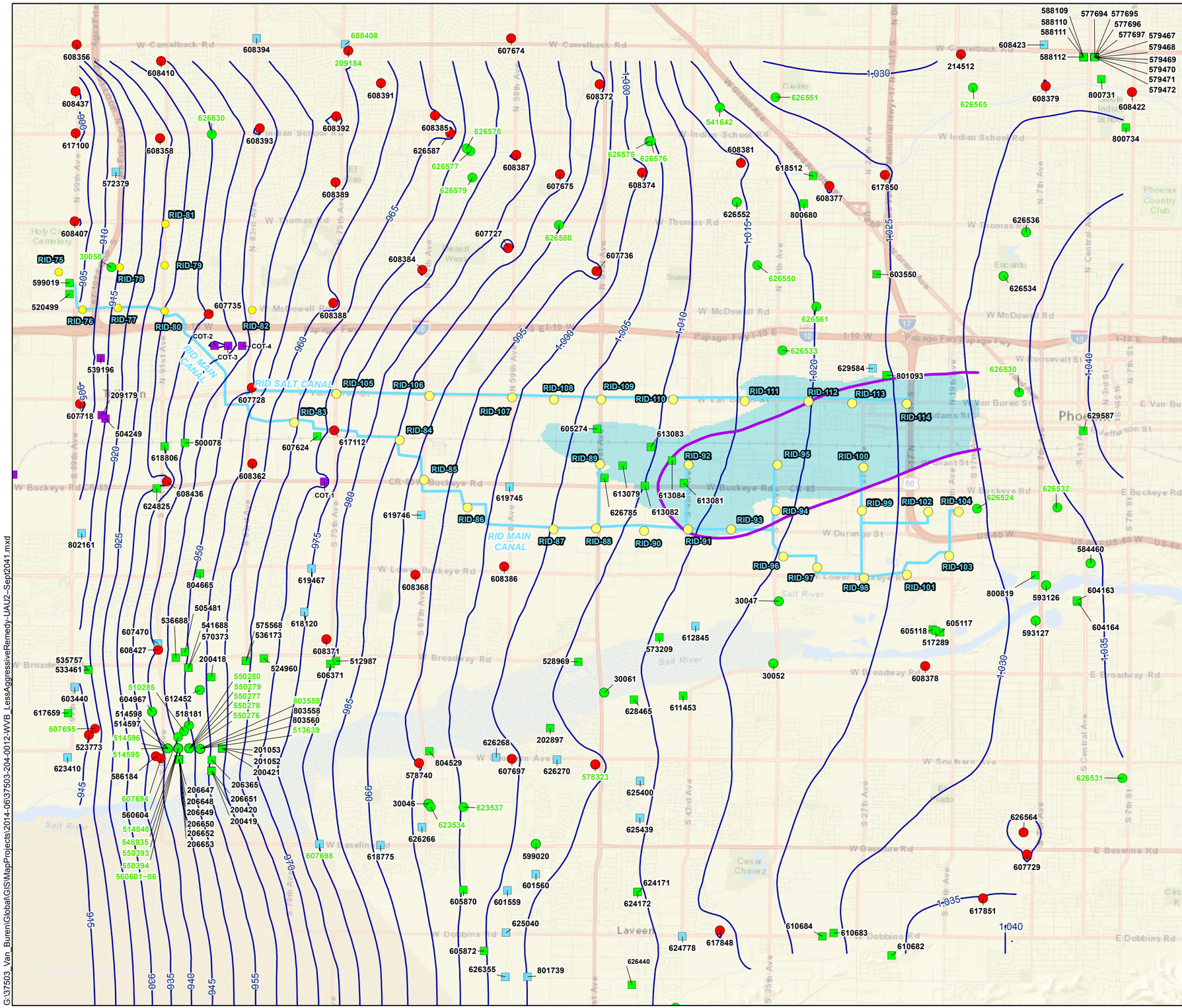
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU2 – SEPTEMBER 2035

SCALE: AS SHOWN
JULY 2014

FIGURE 11

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0011-WVB_LessAggressiveRemedy-UAU2--Sept2035.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- ESTIMATED 2026 COMBINED PCE/TCE PLUME OUTLINE (>5 UG/L) – UAU2
- 1,010 SIMULATED HEAD CONTOURS - LAYER 3 SOURCE : [WVB2_LESS16_2041SEPT_GW_L3]
- GROUNDWATER TRACER IN UAU2 SOURCE: [WVB2_LESS16_L3T_2041SEPT_Conc_L3]

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

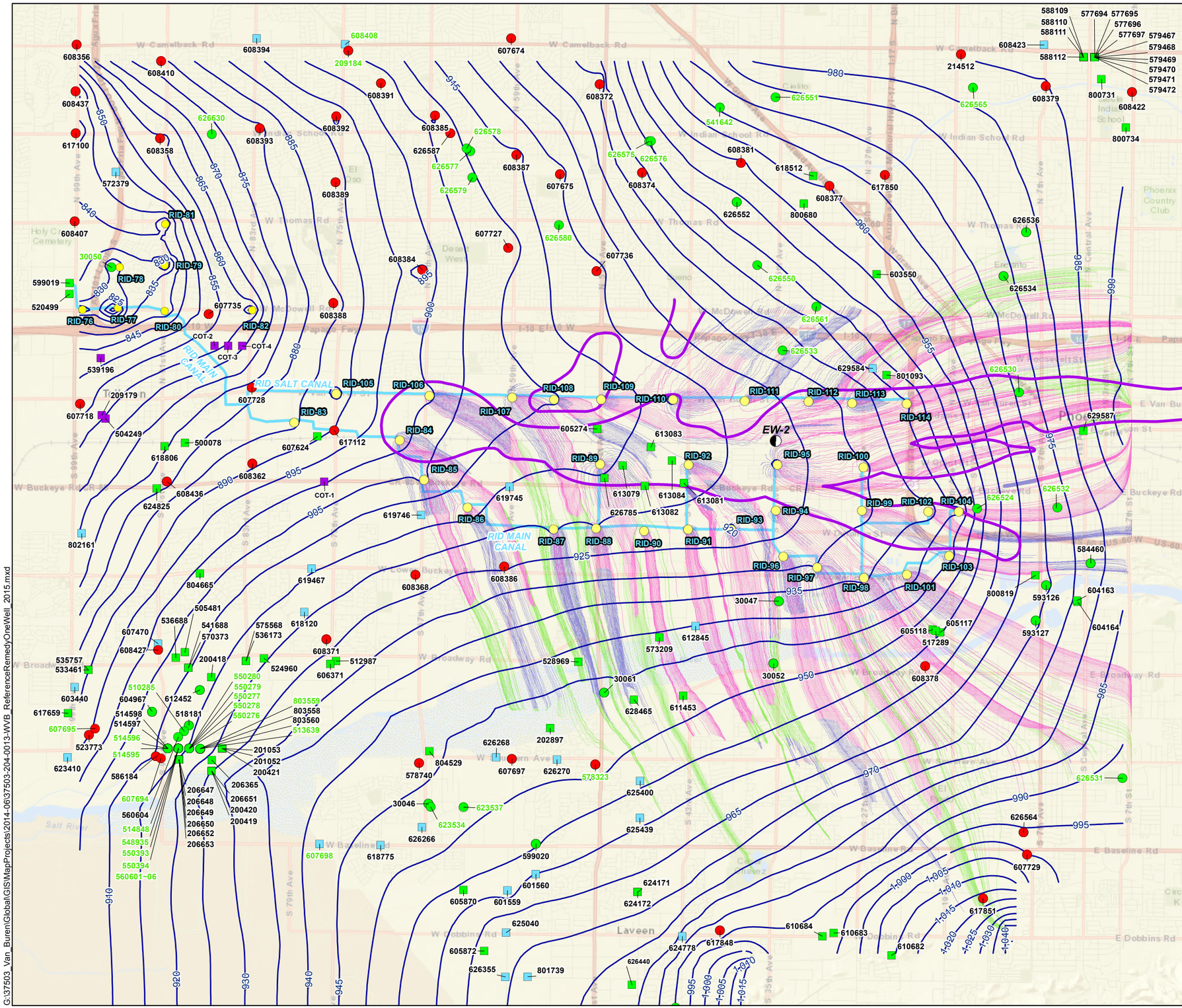
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

LESS AGGRESSIVE REMEDY CONTINGENCY – UAU2 – SEPTEMBER 2041

SCALE: AS SHOWN
JULY 2014

FIGURE 12

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0012-WVB_LessAggressiveRemedy-UAU2-Sept2041.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_MORE14_4_2015SEP_GWcon_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_4_AllPathlines]

LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

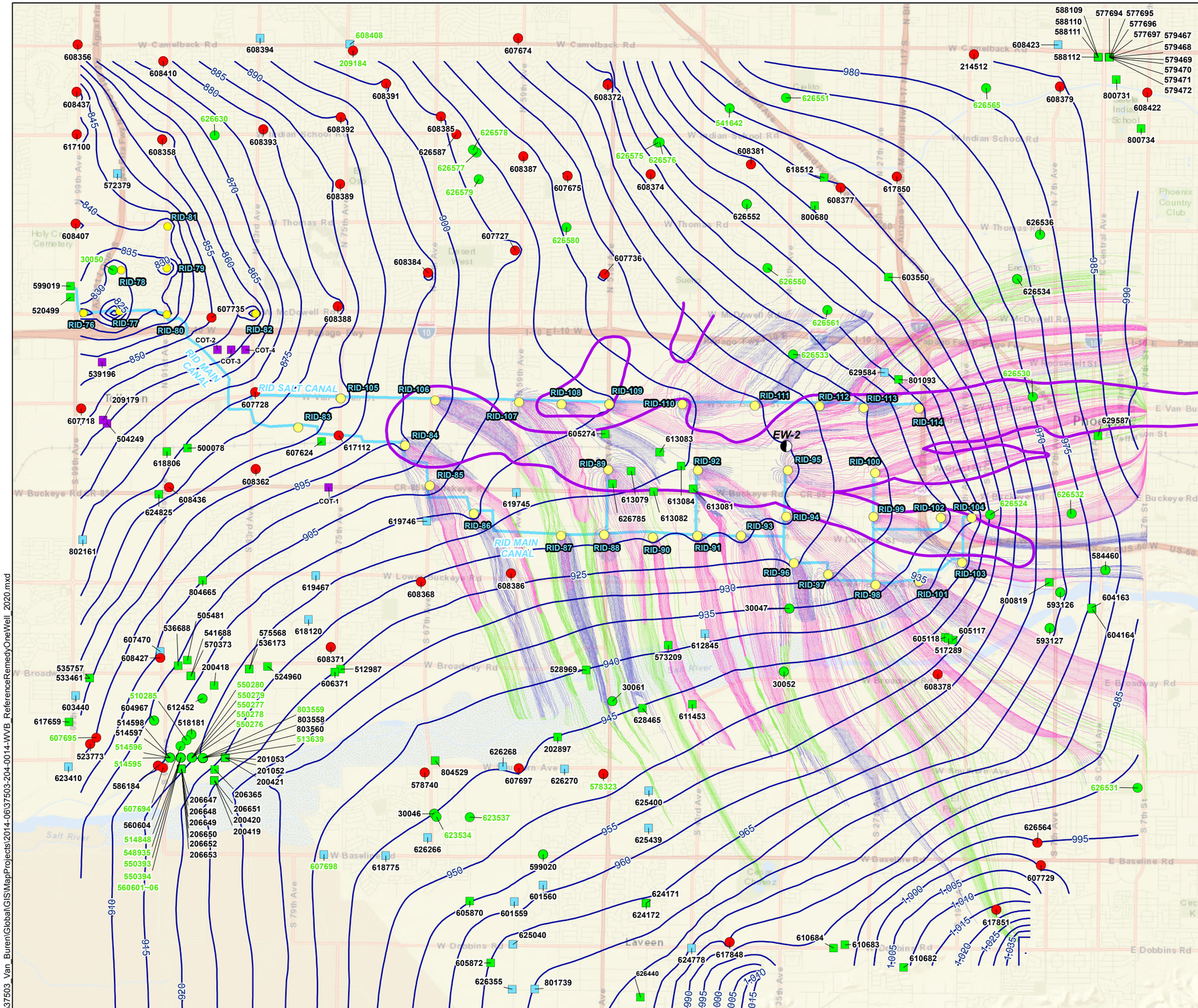
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

REFERENCE REMEDY – EW-2 AT 500 GPM – SEPTEMBER 2015

SCALE: AS SHOWN
JULY 2014

FIGURE 13

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0013-WVB_ReferenceRemedyOneWell_2015.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_MORE14_4_2020SEP_GWcon_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_4_AllPathlines]

LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

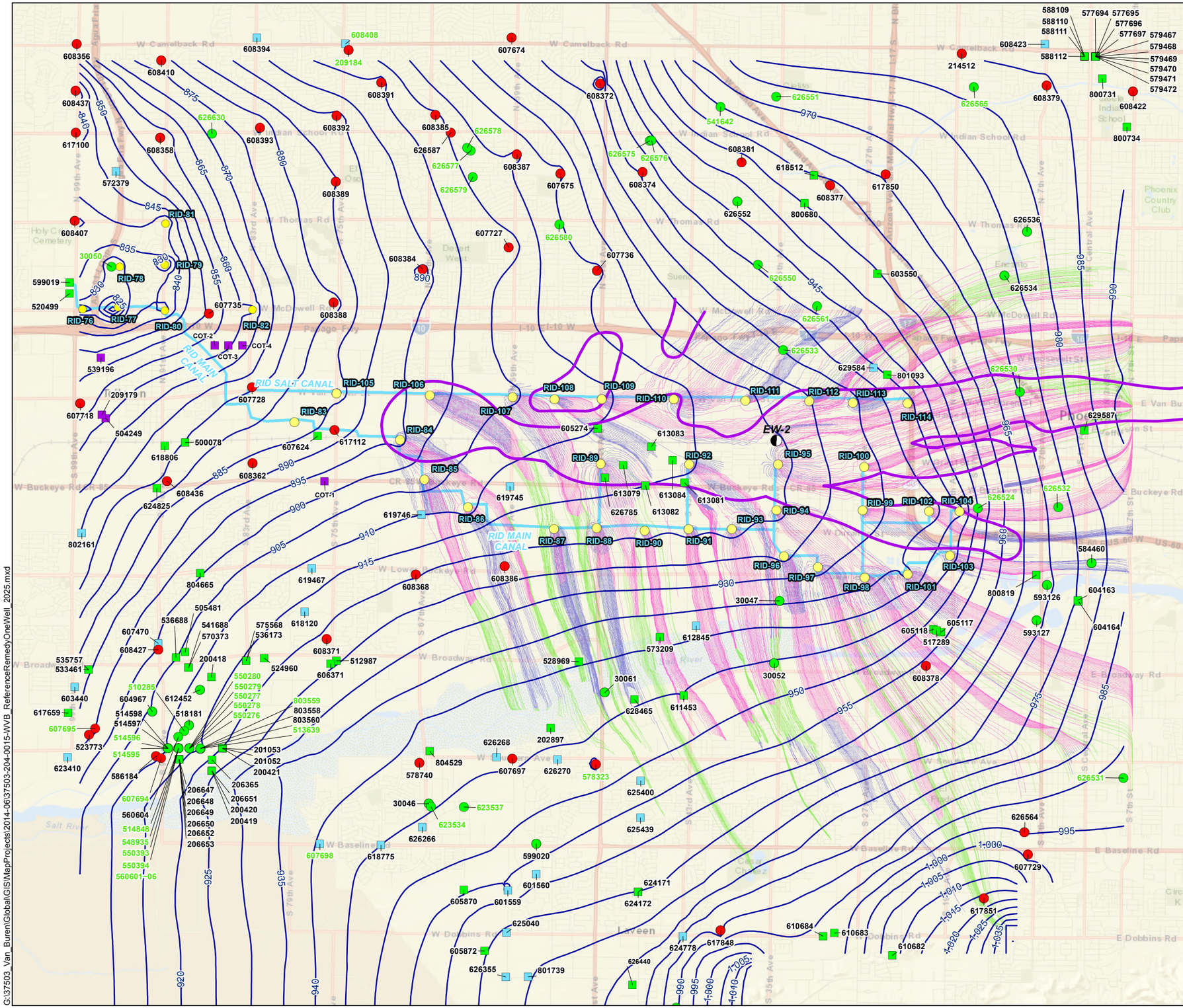
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

REFERENCE REMEDY –
EW-2 AT 500 GPM –
SEPTEMBER 2020

SCALE: AS SHOWN
JULY 2014

FIGURE 14

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0014-WVB_ReferenceRemedyOneWell_2020.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_MORE14_4_2025SEP_GWcon_L1]

REVERSE PARTICLE TRACKS
PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_4_AllPathlines]
LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

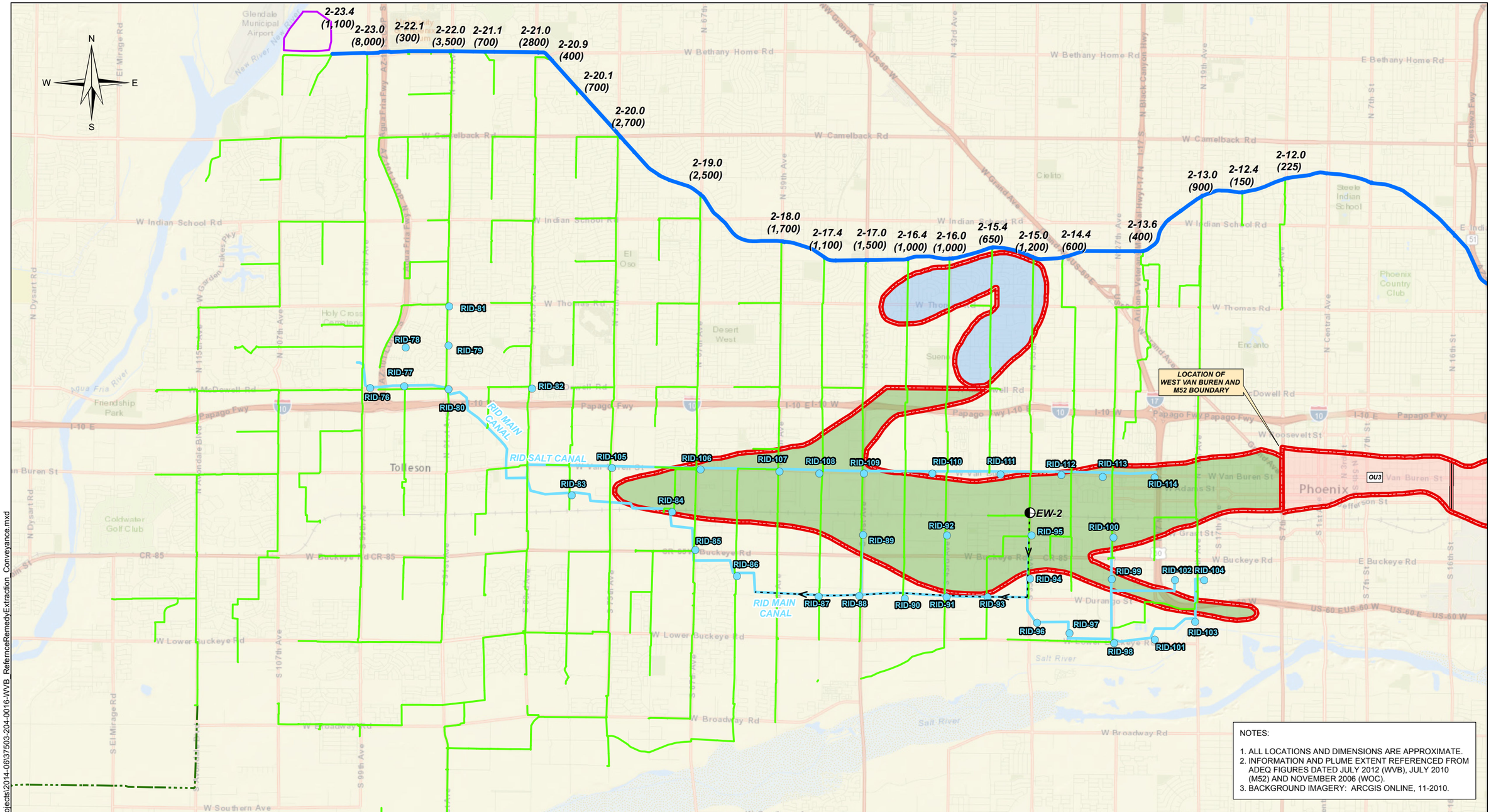
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

REFERENCE REMEDY – EW-2 AT 500 GPM – SEPTEMBER 2025

SCALE: AS SHOWN
JULY 2014

FIGURE 15

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0015-WVB_ReferenceRemedyOneWell_2025.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- 2-22.0 (3,500) CANAL-LATERAL CAPACITY IN MINER INCHES
- SRP GRAND CANAL
- SRP LATERAL
- DELIVERY TO BUCKEYE IRRIGATION DISTRICT
- RID CANAL OR LATERAL
- NEW RIVER-AGUA FRIA UNDERGROUND STORAGE PROJECT
- OU AREA BOUNDARY
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE
- PLUME CORE EXTRACTION WELL
- PROPOSED USE OF EXISTING INFRASTRUCTURE

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HALEY & ALDRICH

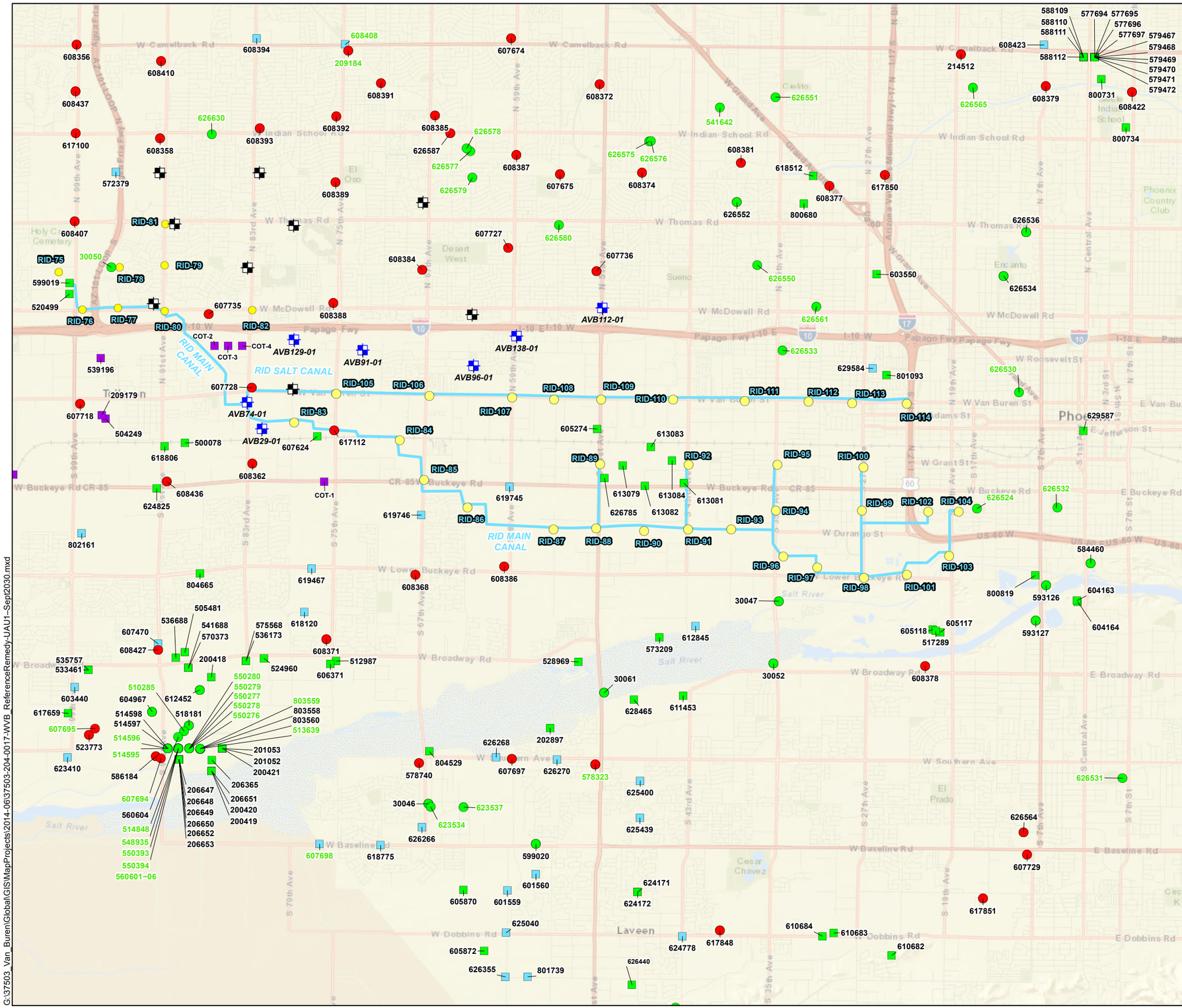
WEST VAN BUREN
WQARF SITE
PHOENIX, AZ

REFERENCE REMEDY - EXTRACTION WELL LOCATION AND CONVEYANCE PIPING

SCALE: AS SHOWN
JULY 2014

FIGURE 16

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0016-WVB_ReferenceRemedyExtraction_Conveyance.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- EXISTING SENTINEL WELL LOCATION
- NEW SENTINEL WELL LOCATION

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

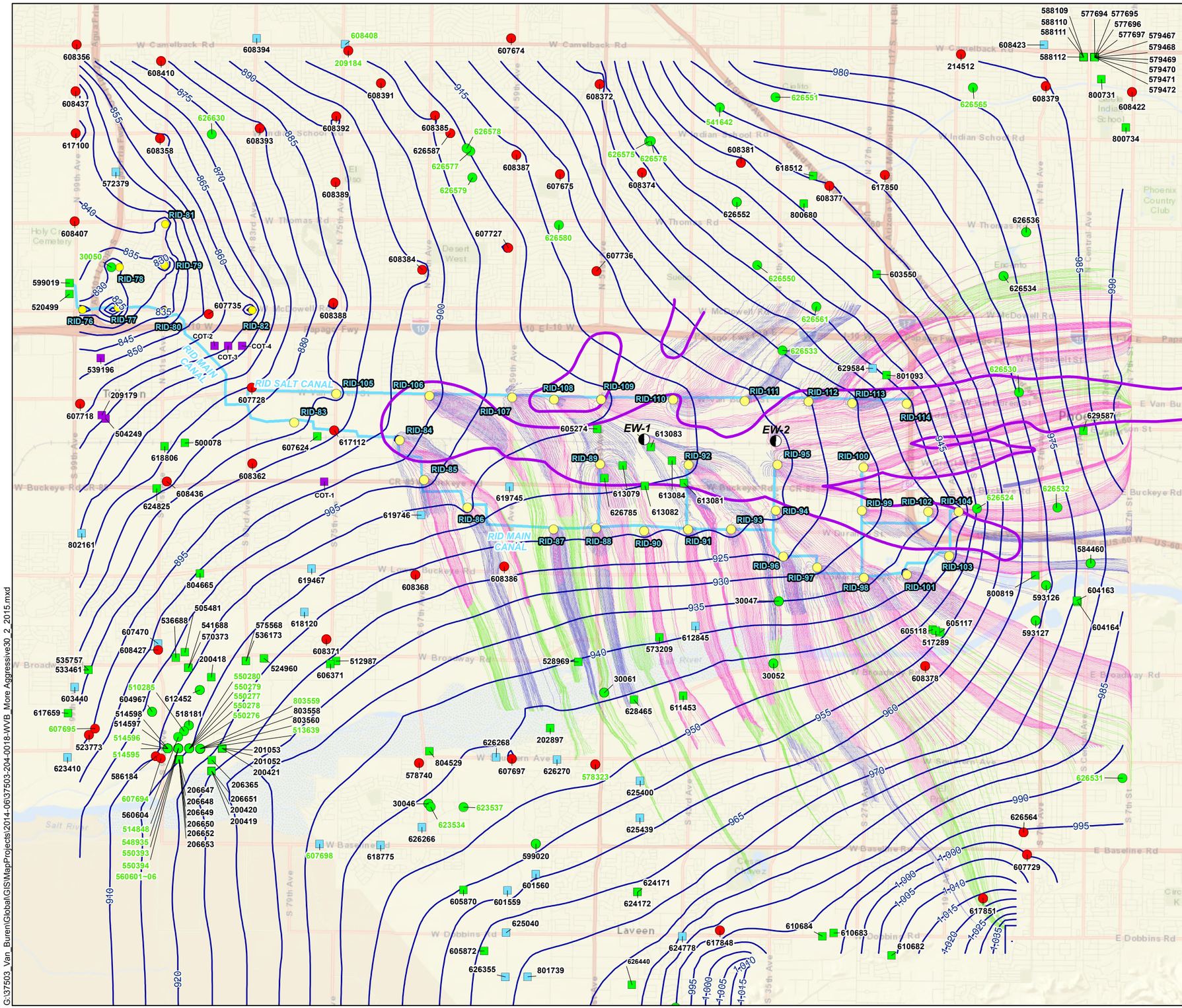
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

REFERENCE REMEDY CONTINGENCY
EXPANDED SENTINEL WELL NETWORK

SCALE: AS SHOWN
JULY 2014

FIGURE 17

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0017-WVB_ReferenceRemedy-UAU1--Sept2030.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_MORE30_2_2015SEP_GWCon_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_3_ALLPATHLINES]

LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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HALEY & ALDRICH

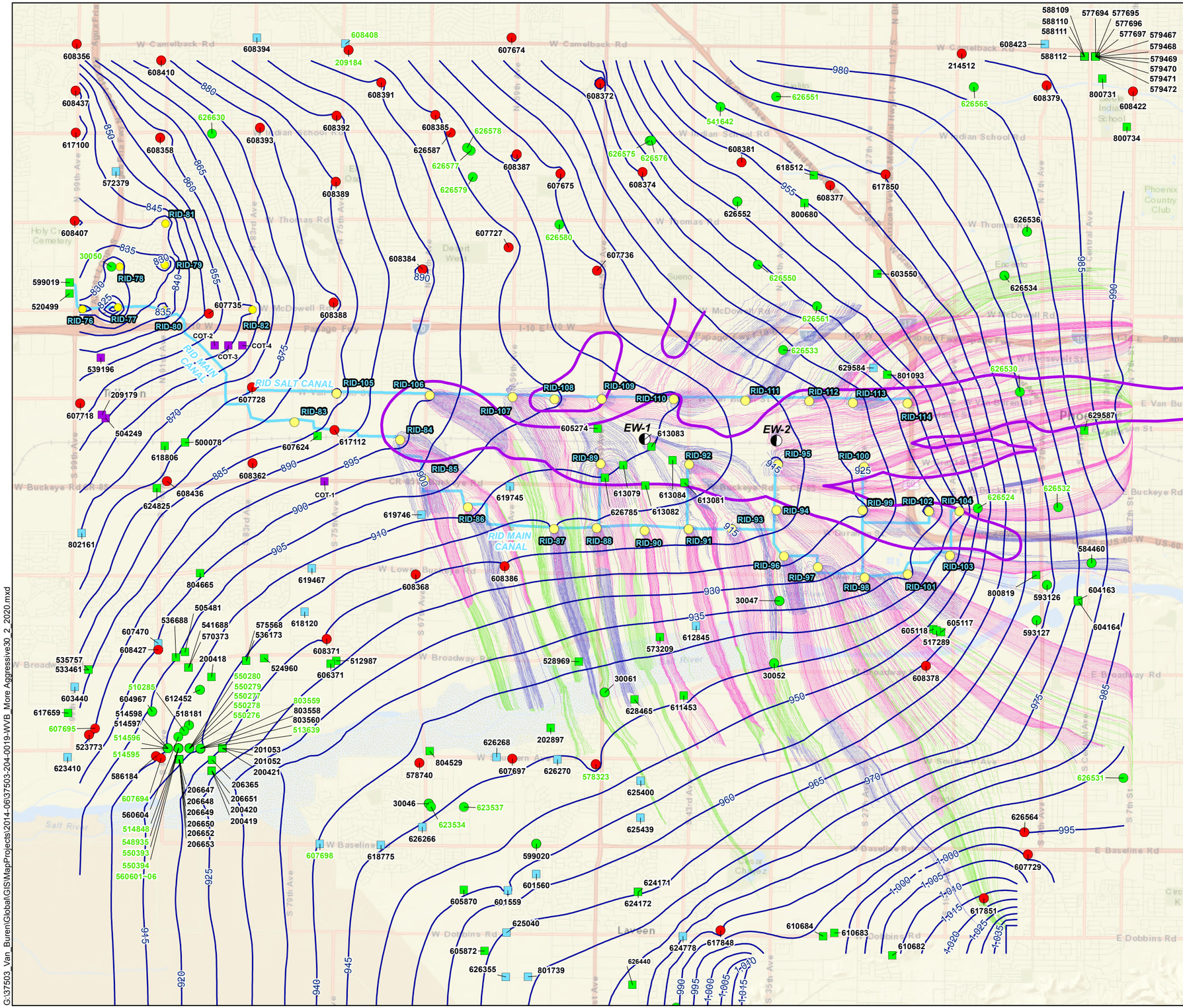
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

MORE AGGRESSIVE REMEDY – EW-1 AND EW-2 AT 1,000 GPM EACH – SEPTEMBER 2015

SCALE: AS SHOWN
JULY 2014

FIGURE 18

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0018-WVB_More Aggressive30_2_2015.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1 SOURCE : [WVB2_MORE30_2_2020SEP_GWCon_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_3_ALLPATHLINES]

LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

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SCALE IN FEET

HALEY & ALDRICH

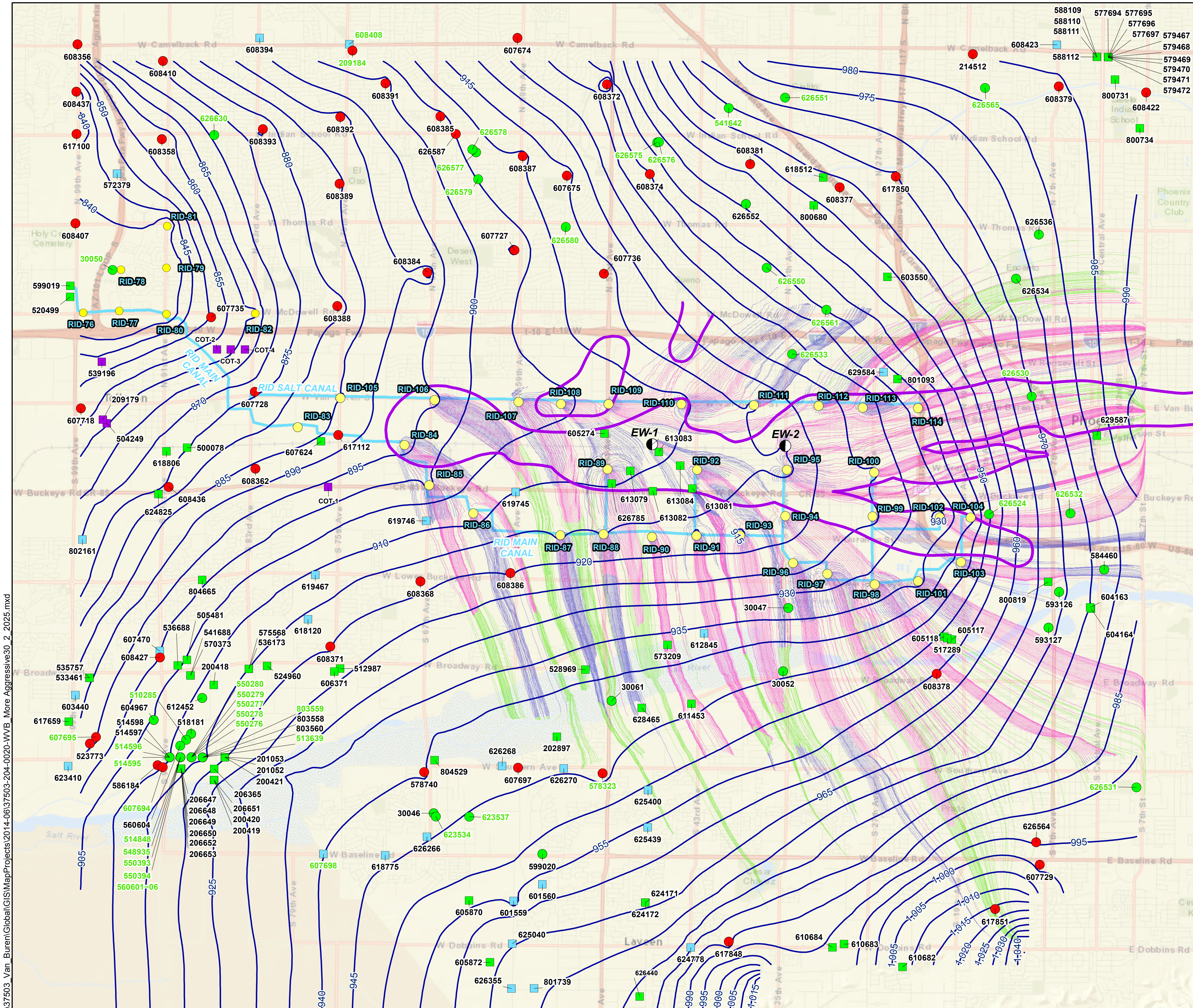
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

MORE AGGRESSIVE REMEDY –
EW-1 AND EW-2 AT 1,000 GPM EACH –
SEPTEMBER 2020

SCALE: AS SHOWN
JULY 2014

FIGURE 19

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0019-WVB_More Aggressive30_2_2020.mxd



BASE MAP LEGEND

- CITY OF PHOENIX WELL LOCATION
- SALT RIVER PROJECT WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- NON-AGRICULTURAL WELL LOCATION
- AGRICULTURAL WELL LOCATION
- CITY OF TOLLESON WELL LOCATION

MODEL LEGEND

- PLUME CORE GROUNDWATER EXTRACTION WELL
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1
- 1,010 SIMULATED HEAD CONTOURS - LAYER 1
  SOURCE : [WVB2_MORE30_2_2025SEP_GWCon_L1]

REVERSE PARTICLE TRACKS

PARTICLES PLACED AT 10 PERCENT OF THE MODEL LAYER THICKNESS OFF THE BOTTOMS OF LAYERS 2 AND 3
PARTICLES START IN 2012 AND END IN 2025
SOURCE : [WVB2_MORE14_3_ALLPATHLINES]

LAYER

- 1
- 2
- 3

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.
3. SQUARE WELL SYMBOLS REPRESENT PRODUCTION WELLS ACTIVE AT SOME POINT DURING THE LAST FIVE YEARS OF THE GROUNDWATER FLOW MODEL (2004-2009). COP AND SRP WELL LOCATIONS WITH A CIRCLE WELL SYMBOL ARE THOSE WELLS THAT COP OR SRP PROVIDED ANTICIPATED FUTURE PUMPING RATES OVER THE NEXT 30 YEARS.
4. 541642 : NO ANTICIPATED SRP OR COP PRODUCTION DURING THE TIME PERIOD OF 2012-2041.

N
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SCALE IN FEET

HALEY & ALDRICH

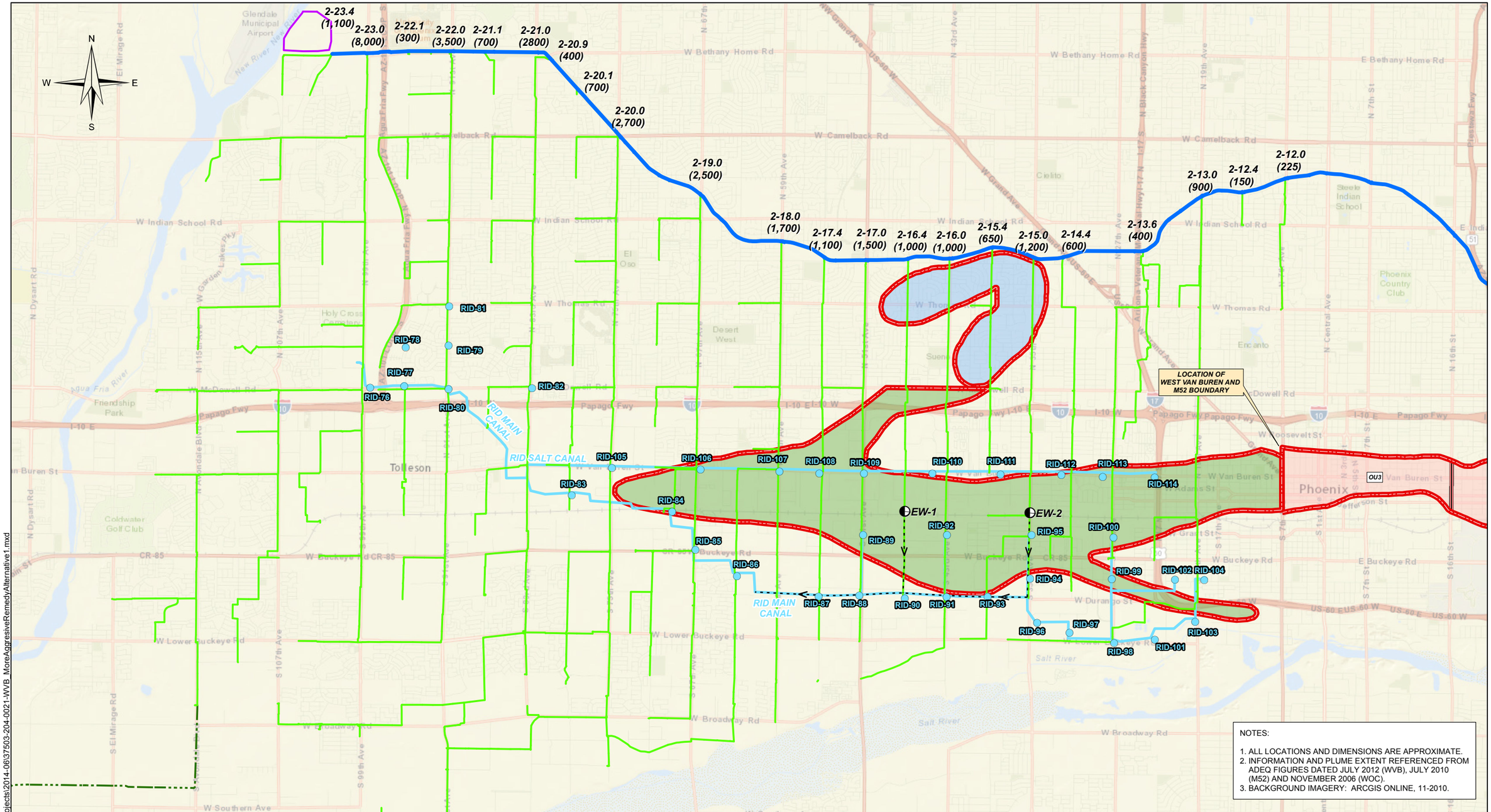
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

MORE AGGRESSIVE REMEDY –
EW-1 AND EW-2 AT 1,000 GPM EACH –
SEPTEMBER 2025

SCALE: AS SHOWN
JULY 2014

FIGURE 20

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0020-WVB_More Aggressive30_2_2025.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- 2-22.0 (3,500) CANAL-LATERAL CAPACITY IN MINER INCHES
- SRP GRAND CANAL
- SRP LATERAL
- DELIVERY TO BUCKEYE IRRIGATION DISTRICT
- RID CANAL OR LATERAL
- NEW RIVER-AGUA FRIA UNDERGROUND STORAGE PROJECT
- OU AREA BOUNDARY
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE
- PLUME CORE EXTRACTION WELL
- PROPOSED USE OF EXISTING INFRASTRUCTURE

0 6000
SCALE IN FEET

HALEY & ALDRICH

WEST VAN BUREN
WQARF SITE
PHOENIX, AZ

MORE AGGRESSIVE REMEDY - EXTRACTION WELL LOCATIONS AND CONVEYANCE PIPING

SCALE: AS SHOWN
JULY 2014

FIGURE 21

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\37503-204-0021-WVB_MoreAggresiveRemedyAlternative1.mxd

APPENDIX A

Site Conceptual Model

REGISTERED GEOLOGIST
CERTIFICATE NO.
46379
ERIC
MICHAEL
PIGATI
Date Signed 7/14/14
ARIZONA, U.S.A.
Expires: 6/30/16

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REGISTERED GEOLOGIST
CERTIFICATE NO. 46379
ERIC MICHAEL PIGATI
Date Signed 7/14/14
ARIZONA, U.S.A.
Expires: 6/30/16

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1. INTRODUCTION

This Site Conceptual Model (SCM) was prepared by Haley & Aldrich, Inc., to be used as the basis for developing the West Van Buren Area (WVBA) Feasibility Study (FS) remedial alternatives. The Arizona Department of Environmental Quality's (ADEQ) "Remedial Investigation Report, West Van Buren Area WQARF Registry Site, Phoenix, Arizona" ([RI Report]; Terranext, 2012) was the primary source of information used to create the SCM, along with additional information and data collected from 2008 to 2013 by ADEQ and other parties. The RI Report contains information regarding historical operations, site investigations and facility-specific remedial activities within the WVBA, geology and hydrogeology, and the nature and extent of groundwater contamination within the WVBA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Water Quality Assurance Revolving Fund (WQARF) sites adjacent to the WVBA. These RI information and data are incorporated into this SCM by reference.

All SCMs contain varying levels of uncertainty. The inherent heterogeneity within the WVBA aquifer, the regional scale of the WVBA in relation to the monitoring well network, differing well construction for monitoring wells installed over the course of WVBA history (i.e., screen lengths and screen elevations within the aquifer), and the potential for unknown ongoing sources contributing to the regional plume may all generate uncertainties within this SCM. Even with these uncertainties, the data set, monitoring well network, and information and analysis provided in the RI Report were deemed sufficient to build this SCM.

The components of this SCM include:

- A brief summary the WVBA and adjacent CERCLA and WQARF sites;
- A description of the geology and hydrogeology of the WVBA and conditions that have and may continue to affect volatile organic compounds (VOC) contaminant transport or remedial technology applicability;
- A summary of surface waters and canals in the vicinity of the WVBA;
- A discussion of the water use within and adjacent to the WVBA and its historical and anticipated effect on water levels and groundwater flow;
- An overview of the nature and extent of groundwater contamination in the Upper Alluvial Units 1 and 2 (UAU1 and UAU2) within and adjacent to the WVBA;
- A discussion of UAU1 groundwater degradation due to inorganics; and
- A discussion of concentration trends in UAU groundwater and overall plume stability.

Figures A-1 and A-2 show the location of UAU1 and UAU2 monitoring wells within the WVBA, respectively. Well construction information is provided in Table A-1.

1.1 Location

The WVBA is located in the western portion of the City of Phoenix (COP) and is approximately bounded by W. McDowell Road to the north, 7th Avenue to the east, W. Buckeye Road to the south, and 75th Avenue to the west. The approximate boundary of the WVBA is presented on Figures 1 and 2 of the FS report.

1.2 West Van Buren Area Facilities

The RI Report discusses numerous WVBA facilities that may have contributed to the regional groundwater plume. WVBA facilities identified in the RI Report as having conducted site investigations and, in most cases, remedial activities are shown in Figure 2 and listed in Table 1 of the FS report, and include the following:

- Air Liquide America Specialty Gases, LP;
- American Linen Supply Company (ALSCo);
- ChemResearch Co, Inc., (ChemResearch);
- Department of Energy;
- Dolphin, Incorporated (Dolphin);
- Maricopa County Materials Management (MCMM);
- Prudential Overall Supply (Prudential);
- Reynolds Metals Co.; and
- Van Waters & Rogers (now Univar).

The following facilities within the WVBA were identified in the RI Report as having conducted site investigation work, but whose investigations do not appear to have been closed by ADEQ (Terranext, 2012). These facilities may represent historical or continuing VOC sources in the WVBA.

- BC Assemblage, 333 N. Black Canyon Highway – During a preliminary site assessment, soils were sampled and analyzed for pesticides, herbicides, polychlorinated biphenyls (PCBs), and petroleum hydrocarbons; ADEQ requested copies of the report. WVBA constituents of concern (COCs) were not sampled. No letter was issued by ADEQ.
- CoStar Corp/Data Packaging Corp, 425 S. 67th Avenue – A soil release was investigated at an oil/water separator and a drywell where contaminated soil was excavated to 25 feet below ground surface (bgs). Soil remediation was confirmed but groundwater monitoring wells requested by ADEQ in a letter dated 9 September 1993 were not completed.
- Grow Group, Inc., 4940 W. Jefferson Street - During a preliminary site assessment, soils were sampled and analyzed for pesticides, herbicides, PCBs, and petroleum hydrocarbons; ADEQ requested copies of the report. WVBA COCs were not sampled.
- Hi-Tech Plating, Inc., 4313 W. Van Buren Street – Tetrachloroethylene (PCE) and trichloroethylene (TCE) were detected in drywell. The drywell area was investigated, but no VOCs were found in soil or groundwater. No letter was issued by ADEQ.
- Jacquay's Equipment Co., 1219 S. 19th Avenue – Testing was recommended in a Phase I report but there is no record of testing in the file. No letter was issued by ADEQ.
- Joe's Diesel Repair, 6316 W. Van Buren Street - 1,1,1-Trichloroethane (1,1,1-TCA) and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation, but less than concentrations detected in background samples.
- LaSalle Draperies, 710 W. Buchanan Street – PCE and TCE were detected in soil gas but not soil samples. An ADEQ telephone record dated 30 July 1992 indicated that additional sampling could result in issuing a no further action determination.

- Maricopa By-Products, Inc., 3602 W. Elwood Street - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Petco, Inc., west side of 67th Avenue, north of BNSF Railway - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Phoenix Vegetable Distribution, south side of Buckeye Road, east of 83rd Avenue - TCE was detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Ray & Bob's Truck Salvage, 101 S. 35th Avenue – 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Research Chemicals, 8220 W. Harrison Street, Tolleson – 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples. According to a facility permit, the facility was investigated/operated under the Resource Conservation Recovery Act.
- Roadway Express, 2021 S. 51st Avenue – TCE was detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Salesco Systems/Turken Industrial Properties, 5736 W. Jefferson Street – COCs were detected in drywell sludge. In a letter dated 19 February 1992, ADEQ requested that the full extent of contaminated drywell be investigated; there is no information in the file indicating that the investigation was completed.
- Santa Fe Railroad Yard, West of 19th Avenue between McDowell Road and Fillmore Street - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Schuff Steel, 4420 S. 19th Avenue - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Smithey Recycling Co., 3640 S. 35th Avenue - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Southwest Feed & Seed, 350 S. 75th Avenue - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.
- Sta-Rite Industries, Inc. 1146 W. Hilton Street – PCE was released at the facility and the PCE-contaminated soil excavated. A groundwater investigation was not performed. No response was provided by ADEQ.
- Transco Lines, 3839 W. Buckeye Road - 1,1,1-TCA and TCE were detected at concentrations slightly greater than detection limits in a soil sample collected during a Phase I investigation but less than concentrations detected in background samples.

- Tritech Manufacturing, Inc.,/Tri-Star Quality Metal Finishing, Inc., 5144 W. McKinley Street – Soil sampling around a drywell indicated that COCs were not present in the subsurface. An upgradient monitoring well installed by ADEQ contained higher VOC concentrations compared to downgradient monitoring wells.
- Unocal, 10 S. 51st Avenue – PCE was detected in soil samples collected from a property leased from Santa Fe Pacific Pipeline Partners, L.P. Soil data collected by Brown and Caldwell and Levine Fricke, and groundwater data collected from groundwater monitor wells upgradient and downgradient of the area indicate that COC concentrations are similar.

Many more WVBA facilities identified in the RI Report and other potential sources have not yet conducted site investigations. ADEQ's Potentially Responsible Parties (PRP) search for the WVBA, including orphan sites, is ongoing, and PRPs will be identified in ADEQ's Proposed Remedial Action Plan.

1.3 Adjacent Sites

The Motorola 52nd Street site (M52) is a CERCLA or "Superfund" site, was placed on the National Priority List in 1989, and is divided into three operable units (OUs). Although the M52 site is a federal CERCLA site, the United States Environmental Protection Agency (EPA) designated ADEQ as the lead agency for activities in OU1 and OU2, while EPA Region 9 is the lead agency for OU3. OU3 is located immediately adjacent to the eastern boundary of the WVBA at 7th Avenue, as shown on Figure 2 of the FS report.

The West Central Phoenix WQARF site is located north of the WBVA and was divided into five separate WQARF sites in 1998. The West Osborn Complex (WOC) is the southern-most of the five sites and is therefore closest to the WVBA (Figure 2 of the FS report). The WOC was originally a 15-acre parcel located near 35th Avenue and Osborn Road used to manufacture electronic components from the late 1950s to the mid-1970s. TCE and other chemicals were reportedly used during historical operations (ADEQ, 2010b).

2. GEOLOGY AND HYDROGEOLOGY

2.1 Geology

The WVBA is located within the east-central portion of the West Salt River Valley (WSRV), a sediment-filled structural basin typical of the Basin and Range physiographic region. The basin fill deposits are late Tertiary- to Quaternary-aged alluvial/fluvial sediments consisting of interbedded sequences of cobbles, gravels, sand, silt, clay, evaporites, and volcanics. The basin fill thickness ranges from less than 100 feet along the basin margins and near bedrock pediments, to approximately 11,000 feet thick in the vicinity of the Luke Sink, northwest of the WVBA (Brown and Pool, 1989).

Early- to middle-stages of basin development are characterized by a closed basin environment, with deposition of alluvial fan and playa deposits. These closed-basin deposits are generally coarse-grained near the edges of the basin, with more fine-grained deposits and evaporites near the center of the basin. The later stages of basin formation were dominated by fluvial and alluvial sediments deposited by through-flowing streams within the WSRV. Fine- and coarse-grained sequences deposited during this period were influenced by the stream channel locations, surface water drainage direction, stream meandering, and basin subsidence.

The WSRV basin fill deposits are divided into three units, described in descending order below. Figures A-3 through A-7 are schematic geologic cross-sections that provide information, to the extent available, on general lithologies encountered during drilling[1], well construction, first quarter 2008 water levels, and the UAU1, UAU2, and Middle Alluvial Unit (MAU) boundaries derived from information in the RI Report.

Upper Alluvial Unit

The UAU consists of unconsolidated Quaternary-aged sands and gravels with interbedded fine-grained silts and clays deposited in fluvial channel, terrace, and floodplain environments by through-flowing streams during the later stages of basin development. The UAU is dominated by sand and gravel in the vicinity of the Salt River, Gila River, and Agua Fria River, with an increase in finer-grained material laterally away from these rivers. The lateral extent and thickness of coarse-grained streambed deposits, along with associated finer-grained terrace and floodplain deposits, are the result of drainage direction and stream meandering of through-flowing streams during basin development.

Based on distinctions in the UAU lithology, the UAU has been divided into the UAU1 and UAU2 (Weston, 2000; Terranext, 2012). The UAU1 consists of surface soils that grade downward into interbedded sand and gravel. When present, clay layers are generally thin and described as clayey sands. The thickness of UAU1 ranges from approximately 170 to 310 feet in the WVBA (Terranext, 2012), and the UAU1 appears to become more fine-grained west of 75th Avenue and to the north, particularly in the northwest portion of the WVBA.

[1] The quality of the boring logs available to generate the cross-sections varied from general lithologic descriptions from driller's logs to detailed boring logs from consultants' reports. The type of drilling method also affects the quality of the boring logs, with sonic drilling generally providing the highest quality samples for lithologic description.

The UAU2 is generally associated with an increase in clay layers and percentage of fine-grained materials within the more coarse-grained UAU deposits (Terranext, 2012). The UAU2 is immediately below the UAU1 and ranges from about 30 to 260 feet thick.

Middle Alluvial Unit

The contact between the UAU2 and underlying MAU is identified by a clay layer at least 40 feet thick, often described as a hard brown clay or sticky brown clay (Terranext, 2012). The MAU is increasingly coarse-grained near the basin margins where the distinction between the UAU and MAU is less obvious, and grades to fine-grained playa and evaporite deposits near the basin center (Brown and Pool, 1989).

The lower MAU is generally comprised of silts and clays with interbedded sand and gravel layers and lenses. As the closed basin matured and through-flowing streams developed, coarser-grained alluvial fan and fluvial sediments were deposited in the upper MAU. The top of the MAU is encountered at depths ranging from approximately 250 to 500 feet bgs in the WVBA.

The thickness of the MAU varies within the WVBA. The base of the MAU was encountered at approximately 650 feet bgs near 45th Avenue and West Van Buren Street, while monitoring well AVB10-02 (near 67th Avenue between West Van Buren Street and Lower Buckeye) was drilled to 850 feet bgs and considered to be in the MAU[2]. Within the Salt River Basin, the MAU thickness can range up to 1,600 feet (Terranext, 2012).

Lower Alluvial Unit

The Lower Alluvial Unit (LAU) represents the early stages of basin formation and generally consists of conglomerate and semi-consolidated gravels along the basin edges, grading into finer-grained playa and evaporite deposits towards the center of the basin; interbedded volcanics are also present within the LAU. The thickness of the LAU ranges up to 10,000 feet near the Luke Sink. Based on driller's logs, the total basin fill thickness within the WVBA is at least 2,000 feet (Terranext, 2012).

2.2 Hydrogeology

The UAU is the most productive of the three basin fill units within the WVBA, predominantly within the unconsolidated sand and gravel units within the UAU1. Groundwater in the UAU typically exists under unconfined (water table) hydraulic conditions; the current saturated thickness of the UAU is on the order of 200 feet.

Based on pumping and aquifer tests performed within the WVBA, aquifer transmissivity values in the vicinity of the WVBA ranged from 4,000 to 160,000 gallons per day per foot; hydraulic conductivities ranged from 5 to 700 feet per day for the UAU (Terranext, 2012). Large scale hydraulic conductivities of the UAU are estimated to range from 150 feet per day up to 1,500 feet per day in sand and gravel zones (Brown and Pool, 1989). The relatively high pumping rates of irrigation wells within the WVBA

[2] Approximately 500 feet of the MAU was penetrated at AVB10-02 before drilling was terminated at a total depth of 850 feet.

suggest that the hydraulic conductivity of the UAU sand and gravel units is likely at the mid- to high-end of this range[3].

UAU1 hydraulic conductivities used in the WVB 38-Year groundwater flow model[4] ranged from 100 to 1,000 feet per day in the upper, more permeable UAU1 to 75 to 500 feet per day in the lower UAU1. UAU2 hydraulic conductivities used in the model ranged from 1 to 100 feet per day (Brown and Caldwell, 2013).

Most of the water production within the MAU is derived from thin sand and gravel zones and lenses interbedded within the finer-grained deposits. Based on aquifer tests described in the RI Report, hydraulic conductivities ranged from 7 to 30 feet per day for the MAU. These are consistent with large scale hydraulic conductivities ranging from 4 to 60 feet per day as estimated by Brown and Pool, although hydraulic conductivities may be up to two orders of magnitude less in zones consisting primarily of silt and clay. Hydraulic conductivities in the uppermost MAU used in the WVB 38-Year flow groundwater flow model ranged from 1 to 25 feet per day. Groundwater in the MAU is under confined to semi-confined conditions.

Hydraulic conductivity in the LAU reportedly ranges 0.001 feet per day to 24 feet per day (Brown and Pool, 1989; Laney and Hahn, 1986). Groundwater in the LAU is under confined to semi-confined conditions (Terranext, 2012).

2.2.1 Water Levels

Groundwater levels and hydraulic gradients within the WVBA are primarily influenced by regional irrigation pumping; other secondary influences include recharge along the Salt River from storm flows, releases from upstream reservoirs, discharge of reclaimed water, and recharge from canal leakage, and excess irrigation. These influences result in both seasonal and multi-year trends in groundwater levels within the WVBA.

During the past 80 years, overall water levels have declined a total of about 100 to 150 feet within the WVBA (Salt River Project [SRP], 2009; United States Geological Survey [USGS], 2010). In 2013, depth to water in the WVBA ranged from approximately 100 to 150 feet bgs. Groundwater levels declined during the mid-1950s over much of the WSRV due to increased pumping for irrigated agriculture, primarily cotton, and water levels continued to decline until the mid-1960s. Significant precipitation events in subsequent decades resulted in periods of increased recharge and reduced need for irrigation pumping. The retirement of agricultural land for development and the 1980 Groundwater Management Act, which places certain restrictions on pumping and drilling new irrigation supply wells, also reduced the amount of irrigation pumping within the WSRV.

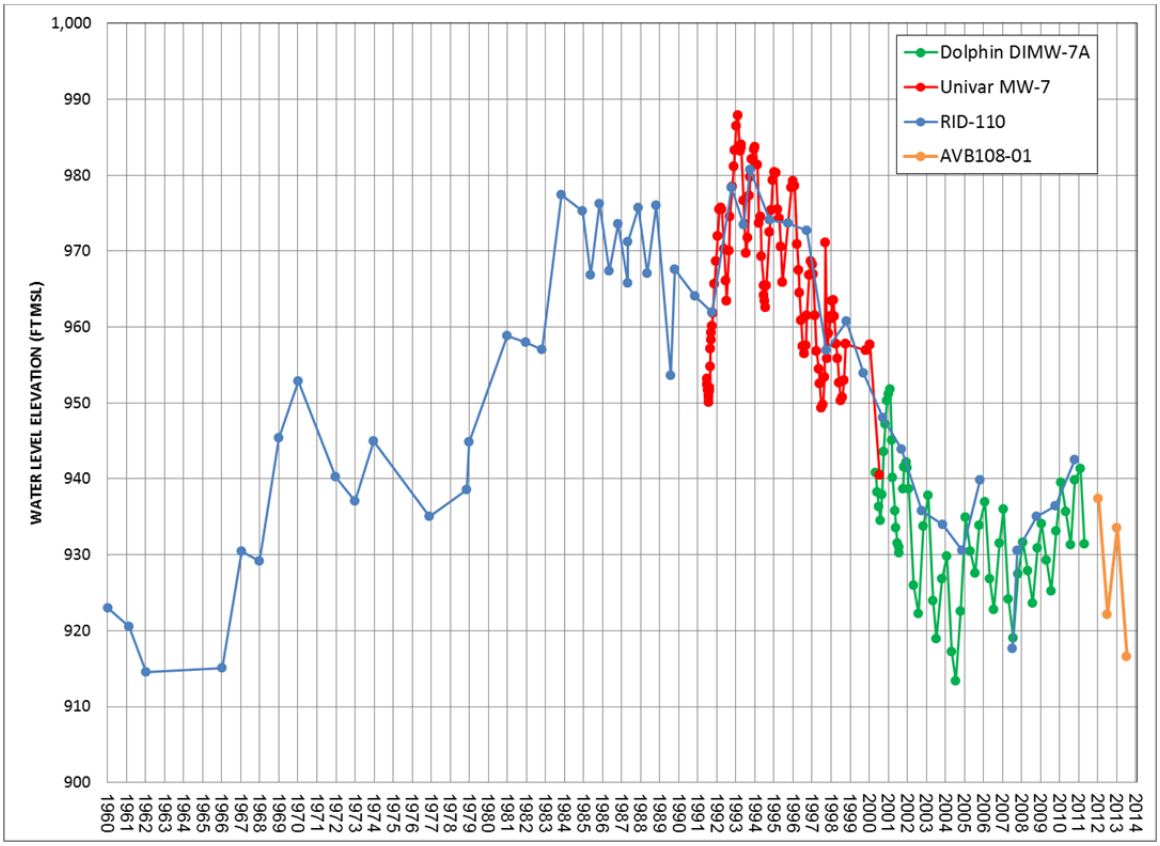
As a result, regional water levels rose about 40 to 60 feet from the 1960's to the early 1990's (USGS, 2010). Since about 1993, however, water levels within the central portion of the WVBA have declined approximately 60 feet due to drought conditions and regional irrigation pumping. The graph below shows water level data for wells within the central part of the WVBA and illustrates the overall increase

---

[3] Individual Roosevelt Irrigation District irrigation well pumping rates within and adjacent to WVBA range from approximately 1,300 gallons per minute to 4,500 gallons per minute (Synergy, 2012).

[4] A summary of the WVB 38-Year Groundwater Flow Model is provided in "West Van Buren Study Area: Univar Groundwater Flow Model Update" prepared by Brown and Caldwell and dated June 2014.

in water levels from the 1960s to the early 1990s, followed by an overall decline in water levels from the early 1990s to 2013.



Long Term Water Levels in the Central WVBA (1960-2013)

Superimposed over the multi-year water level trends are seasonal fluctuations in water levels within the UAU, resulting primarily from the aggregate influence of 32 Roosevelt Irrigation District (RID) irrigation wells located within and adjacent to the WVBA (Figure A-1). These wells are used primarily during the irrigation season from March to September and pump a total of approximately 75,000 acre-feet per year. During the irrigation season, pumping results in an overall lowering of the water table, a flattening of the hydraulic gradient, and creates a hydraulic trough or sink within the WVBA. Individual RID irrigation wells also influence local groundwater gradients and flow directions within the area of influence of each pumping well.

Seasonal water levels are also influenced by recharge along the Salt River from storm flows, releases from upstream reservoirs, and discharge of reclaimed water. Groundwater levels in UAU monitoring wells fluctuate between approximately 10 to 40 feet during the year, depending on the timing and rate of both RID irrigation pumping and any significant Salt River flows.

2.2.2 Groundwater Flow Directions

Regional Groundwater Flow Directions

Historically, groundwater in the WSRV primarily flowed west towards the basin outlet between the Sierra Estrella and White Tank mountain ranges (USGS, 2010; Figure A-8). Since the 1960's, regional

groundwater flow has been towards either the basin outlet or northwest towards the Luke Sink, where irrigation pumping since the 1950's has resulted in an extensive, regional groundwater depression that controls groundwater gradients over much of the central and northern portions of the WSRV, including the WVBA (USGS, 2010; Figure A-8). This is important because if irrigation pumping within and adjacent to the WVBA is significantly reduced or ceases altogether, the resulting groundwater flow direction within the WVBA would likely shift more towards the northwest, compared to today's more east to west groundwater flow direction.

WVBA Groundwater Flow Directions

As discussed above, groundwater gradients and flow directions within the WVBA are primarily controlled by irrigation pumping, with additional influence from recharge along the Salt River during significant flow events. RID irrigation wells also influence local groundwater gradients and flow directions within the area of influence of individual pumping wells. The RID irrigation wells within the WVBA typically pump from March through September each year. There is some limited winter cropping that requires some wells to be pumped year round.

Summer Months: The overall water table is lowered during the summer months, primarily due to irrigation pumping. The general groundwater flow direction during the third quarter 2008 was to the west-southwest across the WVBA (Figure A-9)[5], with a hydraulic gradient of about 0.004 feet per foot (ft/ft) within the eastern portion of the WVBA, generally flattening within the central and western portions of the WVBA to approximately 0.0018 ft/ft to 0.0006 ft/ft.

Figure A-10 provides the WVB 38-Year model head contours for the September 2008 model period (i.e., just prior to the end of the irrigation season) in Layer 1 of the model, representing the upper UAU1, and provides an expanded view of regional hydraulic gradients based on the model simulations. The hydraulic gradient shown in the model output is relatively steep in the eastern WVBA, with an overall flattening of the gradient in the central WVBA, consistent with groundwater monitoring observations. Overall groundwater flow direction is primarily from east to west along the central axis of the WVBA. The effects of recharge along the Salt River and irrigation pumping result in a northwesterly flow component in the south-central and southeast WVBA. The southwesterly flow component along the north-central WVBA is the result of the hydraulic trough that forms across the WVBA during irrigation pumping.

Winter Months: Water levels rebound approximately 20 feet within the central WVBA during the winter months following cessation of the majority of irrigation pumping. The overall groundwater flow direction during the first quarter 2008 was to the west, with a northwesterly flow component along the south-southeastern portion of the WVBA (Figure A-11). Within the eastern portion of the WVBA, the overall groundwater flow direction in the UAU was to the west with a hydraulic gradient of about 0.002 ft/ft, compared to 0.004 ft/ft in the summer months. The hydraulic gradient flattens within the central and western portions of the WVBA with a hydraulic gradient of about 0.0005 ft/ft.

Figure A-12 provides the WVB 38-Year model head contours for the February 2009 model period (i.e., just prior to the start of the irrigation season) in Layer 1. The hydraulic gradient shown in the model output is less steep in the eastern WVBA compared to September, with a similar overall flattening of

[5] First and third quarter 2008 water level maps (Figure A-9 and Figure A-11) were used to compare against a similar time frame near the end of the WVB 38-Year Groundwater Flow Model period, which ends in 2009.

the gradient in the central WVBA. Between the September and February model period, overall water levels rise approximately 15 to 20 feet in the central WVBA. The hydraulic trough formed as a result of irrigation pumping, while reduced in overall magnitude, is still evident during the winter months. This suggests that, while water levels increase following the irrigation season pumping, the water table has not yet reached static conditions before the start of the subsequent irrigation season[6]. The hydraulic trough therefore remains in effect to a certain extent in between irrigation seasons.

2.2.3 Vertical Gradients

Vertical hydraulic gradients were calculated for paired UAU1 and UAU2 monitoring wells located along the east-west axis of the WVBA plume[7] using first and third quarter 2013 data, representing pre-irrigation and irrigation pumping conditions, respectively. One additional well pair (AVB69) adjacent to irrigation well RID-104 was evaluated to determine the effect of proximity to irrigation pumping on vertical gradients. The well locations are provided in Figure A-13. Table A-2 provides the results of the vertical gradient calculations.

During the first quarter 2013, for monitoring wells along the east-west plume axis, a downward vertical gradient existed between these well pairs except for AVB122, which had an upward vertical gradient of 0.0281 ft/ft. The downward gradients ranged from 0.014 ft/ft (AVB116) to 0.0014 ft/ft (AVB126). An upward vertical gradient of 0.0014 ft/ft was calculated for AVB69, located adjacent to irrigation well RID-104.

During the third quarter 2013, a downward vertical gradient was still evident for most of the paired monitoring wells, except for AVB120 (0.005 ft/ft) and AVB122 (0.0034 ft/ft). The downward gradients were higher compared to the first quarter and ranged from 0.029 ft/ft (AVB116) to 0.003 ft/ft (AVB126). The highest downward hydraulic gradient of 0.16 ft/ft was observed at well pair AVB69, adjacent to irrigation well RID-104, indicating a downward hydraulic gradient induced by this well during pumping.

The general downward hydraulic gradient may help explain the origin of the TCE plume within UAU2. TCE that migrated primarily within the UAU1 to the east-central portion of WVBA, with subsequent downward migration of some of the dissolved-phase TCE mass into the UAU2, may have resulted in the UAU2 plume observed today.

2.3 Surface Water

The surface water features within and adjacent to the WVBA include the Salt River, SRP canals and laterals, and RID canals and laterals (Figure A-14).

Salt River

The Salt River is located south of the WVBA and runs westward along its length. The Salt River is typically dry in the vicinity of the WVBA except for upstream dam releases, local stormwater runoff,

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[6] Modeling results indicate that it may take 15 to 20+ years for water levels to reach static conditions within the WVBA following permanent cessation of irrigation pumping, should it occur. See Section 6.2.3 of the FS report.

[7] AVB10, AVB116, AVB120, AVB122, AVB126, and AVB134.

and treated effluent discharge from the COP 23rd Avenue Wastewater Treatment Facility. When significant surface flows occur, the Salt River acts as a linear source of groundwater recharge in the vicinity of the WVBA (Terranext, 2012), resulting, in part, in an overall northwesterly groundwater flow direction in the south-central and southeast portion of the WVBA. Even during times of significant flow in the Salt River, however, the general groundwater flow directions within the WVBA are still controlled by regional irrigation pumping.

SRP Canal System

SRP operates the Grand Canal and a system of south-flowing laterals in the vicinity of the WVBA. The Grand Canal is lined for most of its length, oriented east to west adjacent to the WVBA, and is approximately 1.75 miles north of the WVBA boundary at its closest point. The laterals extend north to south and are located from 19th Avenue westward beyond 83rd Avenue at approximately ½-mile intervals. Water within the laterals is used for agricultural purposes (Terranext, 2012).

RID Canal System

RID operates the Salt Canal and the Main Canal and its laterals in the vicinity of the WVBA. Water within the RID canal system is pumped from RID production wells and used for agricultural purposes within the RID service area in the west valley, outside the WVBA.

The Main Canal is open, lined, and oriented towards the northwest beginning at 19th Avenue and extending beyond the WVBA boundary in western Phoenix. Six laterals connect to the Main Canal between 19th Avenue and 51st Avenue. The laterals are underground gravity flow pipelines except for one 400-foot segment along 43rd Avenue, which is an open section (Salmon, Lewis & Weldon, 2010). In addition to discharge from RID production wells, the COP 23rd Avenue Wastewater Treatment Facility discharges about 30,000 acre-feet of treated wastewater into the Main Canal each year (COP, 2011).

The east to west Salt Canal runs from 23rd Avenue along West Van Buren Street until it connects with the RID Main Canal at 83rd Avenue. The Salt Canal has been converted to an underground gravity pipeline, except for two segments (300 feet and 1,100 feet long) between 75th Avenue and 83rd Avenue. The pipe diameter increases from 21 inches to 48 inches from east to west, with a total capacity on the order of 20,000 gallons per minute (Montgomery & Associates, 2010).

3. NATURE AND EXTENT OF GROUNDWATER CONTAMINATION

Groundwater within the WVBA is impacted with COCs presumably released during historical operations at certain facilities within the WVBA and contributions from adjoining areas to the WVBA, including the M52 site and the WOC WQARF site. The approximate lateral extent of VOC-impacted groundwater at WVBA, M52, and WOC, as provided by ADEQ, is shown on Figure 2 of the FS report (ADEQ, 2006; 2011, and 2012).

3.1 Constituents of Concern in WVBA Groundwater

The COCs in WVBA groundwater are (ADEQ, 2010a; Terranext, 2012):

- PCE;
- TCE;
- 1,1,1-TCA;
- cis-1,2-Dichloroethlyene (cis-1,2-DCE);
- 1,1-Dichloroethane (1,1-DCA);
- 1,1-Dichloroethylene (1,1-DCE); and
- Chromium[8].

While PCE, 1,1,1-TCA, and TCE are considered parent compounds reportedly used during operations, cis-1,2-DCE, 1,1-DCA, and 1,1-DCE detected in groundwater are generally considered breakdown products of these parent compounds. Cis-1,2-DCE is the primary anaerobic breakdown product of TCE; 1,1-DCA is the anaerobic breakdown product of 1,1,1-TCA; and 1,1-DCE is an abiotic breakdown product of 1,1,1-TCA, and a minor anaerobic breakdown product of PCE and TCE (Fetter, 1993). TCE is also a breakdown product of PCE under anaerobic conditions.

3.2 Sites Adjacent to WVBA

The OU3 area of the M52 site and the WOC WQARF site are immediately adjacent to the WVBA (Figure 2 of the FS report). Information and data from these adjacent sites were considered during the preparation of the WVBA FS to the extent that they influenced the development of the FS remedial alternatives and ultimately the proposed remedy.

Motorola 52nd Street Superfund Site

The COCs in M52 site groundwater include TCE, 1,1,1-TCA, and to a lesser extent their associated breakdown products, and PCE (EPA, 2010). TCE-impacted groundwater originating from M52 OU3 appears to continue to migrate into the WVBA (EPA, 2010; Terranext, 2012) and is commingled with other VOC-impacted groundwater from sources located within the WVBA. However, operation of the OU2 groundwater extraction system and treatment plant since 2001 has reduced the VOC mass flux

[8] The RI Report states that chromium is a COC in groundwater "to a limited extent," located within the southeast portion of the WVBA.

across the OU2/OU3 boundary as well as the downgradient OU3/WVBA boundary. As the mass flux has diminished, VOC concentrations in OU3 monitoring wells and monitoring wells located within the eastern and central WVBA in UAU1 have declined.

The development of the WVBA FS remedial alternatives assumes that the mass flux at the M52 OU3/WVBA border will further decline as the OU2 groundwater extraction system continues to operate until VOC sources upgradient of the OU2/OU3 border have been mitigated to the extent practicable, and operation of the OU2 system is no longer deemed necessary.

West Central Phoenix, West Osborn Complex WQARF Site

The approximate boundary of the WOC groundwater plume, as provided by ADEQ, is shown on **Figure 2** of the FS report. ADEQ concluded that the downgradient extent of the WOC WQARF plume has merged with the WVBA, as the RI Report states "*TCE and other VOCs appear to be entering the central portion of the WVBA from the north.*" Regarding COCs in the WOC plume, the RI Report says "*The current COCs in groundwater at the WOC include TCE, 1,1-DCE, and PCE. TCE presents the highest contaminant concentration in the WOC.*"

WVBA monitoring wells AVB130-01 (water table), AVB94-01 (water table), and AVB94-02 (near the base of the UAU1) monitor the downgradient extent of the WOC plume located north of WVBA. During the first quarter 2013, VOCs detected in these wells were:

- AVB94-01: TCE (27.8 micrograms per liter [μg/L]), dichlorodifluoromethane (11.9 μg/L), 1,2-dichloroethane (1.57 μg/L), and 1,1-DCE (1.43 μg/L);
- AVB94-02: TCE (4.19 μg/L) and PCE (2.76 μg/L); and
- AVB130-01: TCE (8.4 μg/L) and PCE (1.4 μg/L).

There are no monitoring wells to delineate the downgradient area between AVB94 and the northern portion of the WVBA plume near West Van Buren Street.

GeoTrans, Inc., prepared the final WOC FS reports for the shallow groundwater system and the lower sand and gravel unit dated 27 January 2012 and 16 May 2012, respectively (GeoTrans, Inc., 2012a and 2012b). Components of the proposed remedy for the shallow groundwater system include groundwater extraction at the downgradient margin of the WOC site, groundwater monitoring, and monitored natural attenuation. The proposed remedy for the lower sand and gravel unit includes monitored natural attenuation and replacing impaired COP wells COP-70 and COP-71 with new wells completed in the lower sand and gravel unit, along with well-head treatment at the new wells.

The WVBA FS remedial alternatives assume that the VOC mass flux from the WOC into the WVBA will be mitigated during implementation of the WOC remedy.

3.3 Nature and Extent of VOCs in WVBA Groundwater - 2013

VOC-impacted groundwater within the WVBA is generally limited to the UAU1 and, on a smaller scale, the UAU2. Localized VOC concentrations have also been detected in monitoring wells within the uppermost MAU. Because COCs are primarily constrained to the UAU, the FS only focuses on impacted groundwater within the UAU.

The WVBA plume is generally located between West Van Buren Street and West Buckeye Road and extends from 7th Avenue to just west of 67th Avenue. Based on first quarter 2013 groundwater sampling results, COCs currently detected above the State of Arizona Aquifer Water Quality Standards (AWQS) in WVBA groundwater are primarily TCE and PCE. 1,1-DCE was detected above the AWQS in limited, localized areas within the central portion of the WVBA; the few detections of 1,1,1-TCA were below the AWQS.

Figures A-15 through A-18 are PCE and TCE concentration maps for WVBA groundwater in the UAU1 and UAU2 based on water quality data collected during the first quarter 2013. Select monitoring wells adjacent to the WVBA were also included to represent the eastern and northern boundaries of the WVBA. An overlay of the PCE and TCE plumes in UAU1 groundwater during 2013 is provided in Figure A-19.

Tetrachloroethylene (PCE)

The highest PCE concentrations detected in UAU1 groundwater during first quarter 2013 were observed in localized, facility-specific areas in the southeast and north-central portions of the WVBA (Figure A-15). The highest site-specific PCE concentrations were observed in the north-central portion (1,120 μg/L at PRU-MW-3[9]) and the southeast portion (274 μg/L at CMW-1) of the WVBA. Detected PCE concentrations within regional, site-wide WVBA groundwater were generally below 20 μg/L.

PCE was also detected during first quarter 2013 in the westernmost M52 OU3 groundwater wells, but at concentrations below 5 μg/L.

The extent of PCE-impacted groundwater within the UAU2 is limited to isolated areas within the WVBA (Figure A-16), with lower PCE concentrations compared to the UAU1 (non-detect up to 35.5 μg/L at AVB120-02).

Regional UAU1 PCE concentrations have generally declined over time, while detected concentrations within the UAU2 have remained stable along the east-west axis of the plume (see discussion in Section 3.7.4).

Trichloroethylene (TCE)

During first quarter 2013, the highest TCE concentrations detected in UAU1 groundwater were within the eastern and central portion of the WVBA, ranging up to 93 μg/L at AVB53-01 (Figure A-17). TCE concentrations (up to 27 μg/L) were also detected in the north-central portion of the WVBA, along the downgradient extent of the WOC plume at AVB94-01 and AVB130-01.

The distribution of TCE and collocated PCE concentrations in samples from monitoring wells AVB85-01 and AVB70-01, downgradient from the MCMM and ALSCo facilities, suggests that both PCE and TCE in these wells may originate in the vicinity of these facilities, or possibly an unidentified source between these facilities and well AVB85-01. Historically, this area has been heavily industrialized.

TCE concentrations in monitoring wells and irrigation wells within the south-southeast portion of the WVBA were generally either not detected (reporting limit of 0.5 μg/L) or at or below 1 μg/L.

[9] Prudential is currently operating an ADEQ-approved soil vapor extraction remedial system.

The lateral extent of TCE-impacted groundwater within the UAU2 is less than the UAU1, but with higher concentrations, from not detected (reporting limit of 0.5 μg/L) up to 177 μg/L at AVB132-01 (Figure A-18). While TCE concentrations within UAU1 and UAU2 may have been similar in the past, TCE concentrations in the UAU1 have generally declined over time (discussed below), while concentrations within the UAU2 have remained relatively stable along the axis of the plume, likely as a result of increased sorption onto the finer grained materials in the UAU2. As a result, concentrations within the UAU1 are now lower compared to the UAU2.

1,1-Dichloroethlyene (1,1-DCE)

1,1-DCE was detected above the AWQS of 7 μg/L at a few UAU1 wells[10] at concentrations up to 13.3 μg/L during 2013, primarily in the east-central portion of the WVBA. Except for AVB65-01, samples from these wells also have relatively high TCE concentrations. 1,1-DCE was also detected above the AWQS in the central portion of the WVBA at wells AL MW-1, AL MW-3, and AL MW-5 (ranging from 9.3 μg/L to 14 μg/L) in the most recent samples collected during 2012 and 2013. 1,1-DCE was detected above the AWQS in a limited number of UAU2 monitoring wells[11] at concentrations ranging from 13.4 μg/L to 24.5 μg/L.

1,1,1-Trichloroethane (1,1,1-TCA)

1,1,1-TCA was generally not detected in groundwater samples collected within the WVBA during 2013, except for low concentrations at monitoring wells AVB85-01 and PS-2 (0.6 μg/L and 1.8 μg/L, respectively) and some monitoring wells within the central portion of the WVBA[12] at concentrations of approximately 10 μg/L or less. The AWQS for 1,1,1-TCA is 200 μg/L.

3.4 Total Chromium and Hexavalent Chromium

Hexavalent chromium is present in groundwater beneath the ChemResearch facility and is considered a COC at this location (Terranext, 2012). The hexavalent chromium plume emanating from this area is generally collocated with elevated PCE concentrations, with the highest observed hexavalent chromium concentration at ChemResearch monitoring well CMW-1 (6,620 μg/L in the most recent sample from 2012). Hexavalent chromium and/or dissolved chromium are present in monitoring wells AVB47-01, AVB88-01, AVB125-01, and CMW-5, downgradient of the ChemResearch area. Concentrations decrease with distance from the ChemResearch area, ranging from 700 μg/L to 40.9 μg/L in the most recent samples from 2012 to 2013. The most recent sample from RID-99 (2008) contained dissolved chromium at a concentration of 12 μg/L. Several potential sources for the chromium plume exist in the vicinity of ChemResearch and the area between ChemResearch and RID-99.

The extent of the hexavalent/dissolved chromium plume in this area appears to be limited to these wells. As part of ADEQ's semiannual monitoring program, groundwater samples from a select number of monitoring wells within the regional WVBA plume were analyzed for dissolved chromium. During 2013, concentrations were generally non-detect with a reporting limit of 10 μg/L. These observations suggest that the dissolved chromium plume in the southeast portion of the WVBA has not impacted regional groundwater along the central east-west axis of the WVBA plume.

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[10] AVB53-01, AVB65-01, AVB134-01, and RID-95.
[11] AVB124-01, AVB132-01, and AVB134-02.
[12] AL MW-1, AL MW-2, AL MW-3R, and AL MW-5.

Regarding total chromium detections in groundwater above the AWQS, the RI Report states "*With the exception of the southeast corner of the site, these wells* [with total chromium above the AWQS] *are spread across the entire WVBA without a distinct pattern to identify a manmade source. Therefore, data interpretation suggests that the chromium in the wells not located in the southeast corner of the WVBA is possibly from deterioration of stainless steel well casing, or naturally occurring within native soils.*"

Based on these results and the proposed groundwater extraction well locations, this FS assumes that total and dissolved chromium treatment will not be required for those remedial alternatives that include groundwater extraction and treatment.

3.5 1,4-Dioxane in Groundwater

During recent facility-specific groundwater monitoring within the central portion of the WVBA, 1,4-dioxane was detected in monitoring wells AL MW-1, AL MW-5, and AL MW-6 at concentrations ranging from 2.2 μg/L to 6.3 μg/L during 2012. Monitoring wells AL MW-3R, AL MW-4, AL MW-5, and AL MW-6 were sampled in 2013; 1,4-dioxane was not detected except at AL MW-5 at a concentration of 2.7 μg/L.

1,4-Dioxane was analyzed using EPA Method 8260B during ADEQ's first quarter 2013 groundwater monitoring performed within WVBA. No first quarter 2013 groundwater samples contained detectable 1,4-dioxane concentrations, with a reporting limit of 4 μg/L. Based on these results, 1,4-dioxane does not appear to be present in regional WVBA groundwater above the reporting limit.

This FS assumes that 1,4-dioxane treatment will not be required for those remedial alternatives that include groundwater extraction and treatment.

3.6 Inorganic Constituents in UAU Groundwater

Significant agricultural land use within and surrounding the WVBA over the past 100 years has degraded UAU groundwater within the WVBA, in particular from elevated total dissolved solids ([TDS]; USGS, 2010). Excess irrigation water, usually already high in TDS, leaches salts within the soil and underlying alluvial sediments as it percolates downward to the water table, resulting in elevated TDS concentrations in groundwater. TDS concentrations in groundwater are in the 1,000 to 3,000 milligrams per liter (mg/L) range within and surrounding the WVBA (USGS, 2010). Groundwater samples collected from RID production wells in the late 1980s contained elevated TDS concentrations ranging from about 800 to 1,500 mg/L, and TDS concentrations from groundwater samples collected at the Univar site from 1991 to 1993 ranged from 1,260 to 1,350 mg/L.

While there is no primary Maximum Contaminant Level (MCL) for TDS, the secondary MCL for aesthetic considerations is 500 mg/L. TDS above 1,000 mg/L generally requires treatment before use as a public water source because of poor taste (COP, 2005).

3.7 COC Concentration Trends and Groundwater Plume Stability

The following sections provide a discussion of: (1) VOC concentration declines resulting in part from both facility-specific remedial work within the WVBA and areas adjoining the WVBA, including the M52 site; (2) Mann-Kendall statistics and UAU1 and UAU2 concentration trends within the regional plume, including a trend analysis to estimate potential future concentrations at select wells; (3) the

relationship between COC concentrations and water levels; and (4) overall plume stability under current pumping conditions. Time series graphs of TCE, PCE, and cis-1,2-DCE concentrations over time are provided in Attachment A.

3.7.1 Facility-Specific VOC Concentration Declines

As presented in the RI Report, and work conducted since completion of the RI Report, several facilities within the WVBA have performed site-specific remedial work and, in part due to this work, VOC concentrations in groundwater have declined significantly at select facilities, in most cases by orders of magnitude. The aggregate result of this facility-specific work is reduced overall source inputs to the regional WVBA plume.

The time series graphs for wells DIMW-1 (115-125), AVB108-01, and AVB40-07 show the results of remedial work performed at Dolphin, Univar, and ALSCo, respectively. Each of these three wells contained the highest historical VOC concentration observed at each facility. These sites were chosen only to provide examples of site-specific concentration declines observed in the WVBA and this discussion is not meant to be all-inclusive of every facility within the WVBA.

For example, Dolphin performed soil vapor extraction/air sparging from 1998 to early 2002. The DIMW-1 (115-125) data set shows a more than two orders of magnitude decline in VOC concentrations. Nearly all of the other Dolphin wells exhibit this same type of concentration trend (see DIMW time series plots in Attachment A). Univar monitoring well AVB108-01 and ALSCo monitoring well AVB40-07 also exhibit declining trends of two to three orders of magnitude, respectively, that coincide with the timing of their remedial work. Univar performed site-specific remedial work from 1992 through 1998, while the ALSCO Early Response Action was performed from 1999 through 2002.

3.7.2 VOC Concentration Declines Resulting from M52 OU2 Extraction System

A groundwater extraction and treatment system has been operating at the M52 OU2/OU3 boundary since 2001, with three extraction wells pumping a total of approximately 2,000 gallons per minute. Treated groundwater is discharged to the SRP Grand Canal at 35th Street. Operating the system for the past 13 years has effectively cut off the dissolved-phase groundwater plume at this location, with a resulting decrease in the VOC mass flux across the downgradient OU3/WVBA boundary. Because of this, overall VOC concentrations in OU3 groundwater, and in the eastern and central portions of the WVBA in UAU1, have declined significantly over time, in some cases up to approximately two orders of magnitude, and the overall plume width has diminished[13]. See time series plots of select OU3 and WVBA monitoring wells[14] in Attachment A.

In OU3, VOC concentrations along the axis of the plume have generally declined from approximately 100 to 200 μg/L in 2008 to 20 to 92 μg/L (at OU3-16M) in 2013. Figures A-17 and A-22 show TCE concentrations in UAU1 groundwater during first quarter 2013 and first quarter 2008 and illustrate this

[13] While the apparent limited retardation of the coarse-grained UAU1 allowed for the formation of a regional-scale groundwater plume within the M52 site and the WVBA, it also means that dissolved-phase VOC mass can be flushed through the aquifer relatively quickly once continuing VOC sources are controlled or eliminated. The end result is declining concentration trends downgradient of the mitigated source, as observed in OU3.

[14] For example, see wells OU3-2M, OU3-5MR, OU3-8M, OU3-10M, OU3-13M, AVB14-01, AVB68-02, AVB115-01, AVB116-01, AVB118-01, and AVB134-01.

point. Note the greater than 100 μg/L contour originating at the OU2/OU3 boundary in 2008 has effectively been cut off and none of the UAU1 monitoring wells in OU3 or the WVBA contained TCE concentrations above 100 μg/L in 2013.

3.7.3 Regional VOC Concentration Declines

In general, the lateral extent of the WVBA plume has either remained stable or decreased in size during the past 10 years, depending on the area. PCE and TCE concentrations in UAU1 groundwater have also declined, in some cases by orders of magnitude, in particular in the vicinity and downgradient of sites that have performed remediation. Figures A-15 through Figure A-23 show TCE and PCE concentrations in groundwater samples collected from UAU1 and UAU2 monitoring wells during 2008 and 2013, and illustrate the overall declines in both plume extent and UAU1 concentrations, the relatively stable plume extent and VOC concentrations in UAU2 groundwater, and provide a reference for the discussions that follow.

UAU1 Groundwater

Overall, VOC concentrations are declining in UAU1 groundwater. The primary factors accounting for the observed decline are mass removal through pumping, facility-specific remedial efforts and source control and, to a lesser extent, natural attenuation (including sorption, dispersion, dilution, and evaporation).

When the declines in all VOCs in UAU1 groundwater are compared, the relative PCE, TCE, and cis-1,2-DCE concentrations generally track together over time (see time series graphs in Attachment A). This pattern suggests that degradation, other than possibly in localized areas, is not as significant a factor in the observed regional VOC concentration declines. This is not to suggest that in-situ degradation is not occurring in the WVBA. The occurrence of cis-1,2-DCE and 1,1-DCE (both anaerobic degradation daughter products) indicates that in-situ degradation is occurring in the WVBA, but the trends suggest that this mechanism is secondary to the primary factors listed above.

UAU2 Groundwater

The overall size of the UAU2 TCE plume is smaller than the UAU1. UAU2 monitoring well concentrations along the axis of the plume (AVB120-02, AVB124-01, AVB132-01, and AVB134-02; see time series graphs in Attachment A) have generally been stable or slightly increasing, at concentrations on the order of 100 μg/L. VOC concentrations at AVB132-01 have been increasing and the TCE concentration at this well during first quarter 2013 (177 μg/L) was the highest observed concentration in UAU2 monitoring wells during that time. UAU2 monitoring wells located off the plume axis, however, exhibit overall VOC declining trends (AVB126-02 and AVB136-01). As discussed in Section 2.2.3, downward vertical gradients within the core of the plume may have caused dissolved-phase mass in the UAU1 to migrate downward into the underlying UAU2 in this area.

The cause of the stable concentrations along the UAU2 plume axis is likely due to the silt and clay layers within UAU2 and higher percentage of fine-grained materials within UAU2 compared to UAU1. The UAU2 hydraulic conductivity is approximately an order of magnitude lower than UAU1, resulting in less groundwater flux through UAU2 and less flushing of the dissolved-phase VOC mass. Sorption and desorption of dissolved phase VOC mass in the fine-grained materials may also contribute to the stable concentrations in UAU2. This sorption and reduced groundwater flux through UAU2 also means that the VOC mass flux emanating from UAU2 is relatively small, and the mass sorbed within the fine-

grained layers may generally be considered sequestered, or at least retarded, within UAU2. In other words, the UAU2 plume may not grow significantly over time because of retardation of contaminants resulting from sorption and relatively low mass flux[15].

3.7.4 Mann Kendall Statistics and Trend Analysis

Mann-Kendall statistics were run on select data sets to evaluate concentration trends over time from both facility-specific and regional WVBA groundwater monitoring wells, along with select OU3 monitoring wells, that based on the 2013 data set contain PCE and/or TCE above the AWQS. Contaminant concentration trends over time were evaluated in select UAU1 and UAU2 wells using the Mann-Kendall test, which is used to identify trends in time-series data to evaluate whether a concentration trend is increasing, probably increasing, decreasing, probably decreasing, stable, or has no trend.

Statistical analyses were performed using the Mann-Kendall Toolkit for Constituent Trend Analysis by GSI Environmental (GSI), version 1.0, dated November 2012. The Mann-Kendall tests were applied to TCE data collected from 53 wells, and PCE data collected from 50 wells. The tests were applied to data collected in monitoring rounds over various periods ranging from six years (2008 through 2013) to 25 years (1989 through 2013).

A Mann-Kendall trend test is performed by sorting data chronologically and compiling differences between consecutive measurements. The number of decreasing pairs is subtracted from the total number of increasing pairs to compute the Mann-Kendall Statistic value, S; the magnitudes of individual differences do not affect the S value.

Mann-Kendall interprets data set trends where confidence levels are over 90% (probability, [p] less than 0.1), with positive and negative S values denoting increasing and decreasing trends, respectively. The total sample size, n, and the S value are used to compute the probability, p. Data exhibiting p values less than 0.05 (95% confidence level) indicate statistically significant increasing or decreasing trends. Data exhibiting p values between 0.05 and 0.1 indicate statistically significant trends at the 90% confidence level that are qualified as “possibly increasing” or “possibly decreasing.”

The Mann-Kendall method considers data sets with p values greater than 0.1 (less than 90% confidence interval) to exhibit “no trend”; however, the test interprets the negative S value data trends that have a coefficient of variation less than 1 to be “stable.” The following matrix summarizes the criteria for trend analysis used in the Mann-Kendall method:

[15] UAU2 monitoring wells along the perimeter of the UAU2 plume such as AVB69-01, AVB121-02, AVB122-03, AVB128-01, AVB131-01, and AVB137-01 have remained either non-detect or below MCLs over the last seven to 10 years, suggesting that the VOC mass within the UAU2 is not very mobile, in particular relative to the UAU1. The groundwater modeling results discussed in **Section 6.2.3** of the FS report support these observations.

Mann-Kendall Statistic, S	Confidence in Trend	Trend
S > 0	> 95%	Increasing
S > 0	90 to 95%	Probably Increasing
S > 0	< 90%	No Trend
S < 0	< 90% and COV ≥ 1	No Trend
S < 0	< 90% and COV < 1	Stable
S < 0	90 – 95%	Probably Decreasing
S < 0	> 95%	Decreasing

Note: The criteria for identifying the trend is consistent with the matrices used in the GSI Mann-Kendall Toolkit program, GSI's Monitoring and Remediation Optimization System Software (MAROS), and in Weidemeier et al., 2012. These references do not require a minimum confidence level for the trends interpreted as "stable."

Mann-Kendall tests are valid for sample sizes (n values) ranging from four to 40. Wells with less than four data points available were omitted from the analysis. Data sets with duplicate data values for the same sampling round were reduced to include only the maximum value for each sampling round. For wells where more than 40 data points were available in the selected time interval, data sets were reduced to include approximately two (2) values from the first and second half of each year, respectively.

The results of the Mann Kendall tests for PCE and TCE are provided on Table A-3. A visual presentation of concentration trends is also provided in the time-series plots in Attachment A. Of the 50 wells analyzed for PCE trends, 29 displayed "decreasing" trends, and two displayed "probably decreasing" trends. Six wells displayed "increasing" or "probably increasing" trends, and the remaining wells were classified as either "stable" or "no trend." Of the 53 wells analyzed for TCE trends, 28 displayed "decreasing" trends, and two displayed "probably decreasing" trends. Eleven wells displayed "increasing" or "probably increasing" trends, and the remaining 12 wells were classified as either "stable" or "no trend."

Tetrachloroethylene (PCE)

The Mann-Kendall tests indicate that PCE concentrations in facility-specific monitoring wells at ALSCo, Univar, and Dolphin have declined since the early 1990s. The majority of the UAU1 monitoring wells within the regional plume also exhibit overall declining PCE concentration trends (Figure A-24). Monitoring well AVB85-01, downgradient of the ALSCo and MCMM facilities, has a stable, relatively elevated PCE concentration trend, suggesting the potential for a continuing source upgradient from this monitoring well. The only WVBA monitoring wells with an increasing PCE concentration trend were AVB119-01, located northeast and generally upgradient of Prudential, PRU-MW-4 located at the Prudential facility, and CMW-2 at ChemResearch.

Potential ongoing PCE sources to the regional plume appear to be limited to those facilities identified within the WVBA that have yet to perform source area remedial work or the work is in progress. Within the regional plume, the generally stable, relatively elevated PCE and TCE concentrations in monitoring well AVB85-01 indicates the potential for an ongoing source somewhere upgradient from this well, and the increasing PCE concentration trend at AVB119-01 suggests a potential ongoing upgradient source.

PCE concentrations in UAU2 groundwater were generally stable or exhibited a slight increasing trend (Figure A-25).

Trichloroethylene (TCE)

The Mann-Kendall tests indicate that TCE concentrations within UAU1 have generally decreased within the northeastern portion of the WVBA adjacent to the M52 OU3 boundary (Figure A-26), primarily the result of the M52 OU2 groundwater extraction system operation. TCE concentrations appear to be either stable or declining in the central WVBA (i.e., AVB127-01 and AVB134-01) and stable in portions of the west-central and western WVBA, with a slight increasing trend at monitoring well AVB120-01. As the TCE dissolved-phase mass is flushed from the UAU1, and the M52 OU2 system continues to operate, TCE concentrations will most likely begin to decrease in these areas over time as well. Well AVB94-01, located at the downgradient edge of the WOC plume, has an overall declining TCE concentration trend.

TCE concentrations within the UAU2 are generally stable or slightly increasing along the axis of the plume, with overall declining TCE trends observed in monitoring wells off the main axis of the plume (AVB116-02, AVB126-02, and AVB136-01; Figure A-27).

Trend Analysis

A trend analysis was performed for a select group of UAU1 wells to estimate what the plume extent and VOC concentrations may be in the year 2026, at which time RID may potentially cease pumping within the Salt River Reservoir District (SRRD). Those UAU1 monitoring wells with a decreasing concentration trend (from the Mann-Kendall tests) for either PCE or TCE were used. A small subset of these wells was removed from the analysis based on professional judgment. For example, wells with a significant break in slope[16] or with significant variability in concentrations were excluded.

Consistent with EPA guidance[17], a best fit line was established for the remaining wells based on the data set (see trend analysis graphs in Attachment B) and the resulting equation used to extrapolate the trend and estimate a concentration in the year 2026. Table A-4 provides the results of the trend analysis. This approach assumes the trend will continue unchanged into the future and that current conditions that influenced the data set will exist through 2026, including regional pumping, M52 OU2 system operation, and the influence of current sources within the WVBA. Concentration trends may potentially flatten out at lower concentrations over time due to sorption/desorption of dissolved-phase mass within the UAU1. Declining concentration trends may, however, accelerate as facility source control measures are implemented and/or natural attenuation processes within the aquifer continue over the time period analyzed. Changing groundwater flow conditions could also influence future concentration trends.

For those wells with stable, increasing, or no trends, the following methodology was used to estimate UAU1 concentrations in 2026. For wells within the east-west core of the plume, a 50 percent reduction factor was applied to 2013 TCE concentrations to incorporate the continued propagation of the effects of the M52 OU2 groundwater extraction and treatment system[18].

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[16] For a few wells, while the Mann-Kendall tests indicated a declining concentration trend based on the entire data set, the well may have a relatively consistent trend, or even a minor upward trend, in the later part of the data set, and was excluded from the trend analysis.

[17] "An Approach for Evaluating Progress of Natural Attenuation in Groundwater" EPA, 2011.

[18] As discussed above, TCE concentrations in wells within the west-central and western portions of WVBA have generally remained stable over time. As the TCE dissolved-phase mass is flushed from the UAU1, and the M52

This reduction factor was determined using monitoring wells within OU3 and in the eastern and central portion of WVBA that have exhibited decreasing TCE concentration trends (see Table A-5). Extrapolation of TCE concentrations in these wells out to 2026 indicate a reduction in concentrations ranging from 50 to nearly 100 percent. The low range was used to establish the 50 percent reduction factor described above. For those wells outside of the east-west plume core, such as AVB40-08, AVB70-01, and AVB94-01, the 2013 TCE concentration was carried forward unchanged to 2026. For PCE, the 2013 concentration for those wells with stable, increasing, or no trend was also carried forward unchanged to 2026. The final estimated 2026 concentrations for both PCE and TCE, and rationale, are provided on Table A-6.

Based on the trend analysis, in 2026 the overall PCE plume would be smaller in extent and concentrations within the plume footprint would be lower (Figure A-28). In general, PCE concentrations above 5 μg/L are estimated to be limited to areas at and downgradient of facilities in the eastern, southeastern, and north-central portions of the WVBA due to currently stable and/or increasing trends in these areas. Estimated PCE concentrations above the AWQS in the western portion of WVBA are limited to AVB75-01 and RID-106. Within the regional plume, PCE concentrations currently between 5 μg/L and 10 μg/L are estimated to be generally below the AQWS in 2026 based on the trend analysis.

The trend analysis also indicates the TCE plume extent in 2026 would also be smaller than the 2013 plume extent, with overall lower concentrations within the WVBA (Figure A-29). In general, estimated 2026 TCE concentrations above 10 μg/L within the WVBA would be constrained to approximately I-17 to the east, 51st Avenue to the west, and between West Van Buren St. and West Buckeye Rd.

An overlay of the estimated 2026 PCE and TCE plumes in UAU1 groundwater is provided in Figure A-30.

3.7.5 Correlation of COC Concentrations and Water Levels

It is somewhat uncertain whether declining VOC concentration trends observed in facility-specific monitoring wells may be, in part, the result of the long-term decline in the water table beginning in the early 1990s. Because this uncertainty is related to VOC mass beneath a facility resulting from historical releases, it generally only applies to facility-specific monitoring wells. In other words, the question is whether potential residual VOC mass beneath a facility that was once in the uppermost saturated zone is now in the unsaturated zone due to a regional drop in the water table, with a resulting decline in groundwater concentrations at a facility monitoring well.

This uncertainty would be more pronounced if the entire time period of reported chemical usage at WVBA facilities coincided with a regional high water table, which then fell over time leaving residual VOC mass in the unsaturated zone. However, although it is not possible to determine the exact timing of releases, information within the RI Report indicates chlorinated solvent use at some facilities began during periods of relatively low regional water levels, in some cases as early as the mid-1950s, during some of the lowest observed water levels on record.

OU2 system continues to operate, TCE concentrations will most likely begin to decrease in these areas over time as well.

Based on an evaluation of data sets from select representative wells, VOC concentration declines at WVBA facilities generally appear to be independent of water levels.

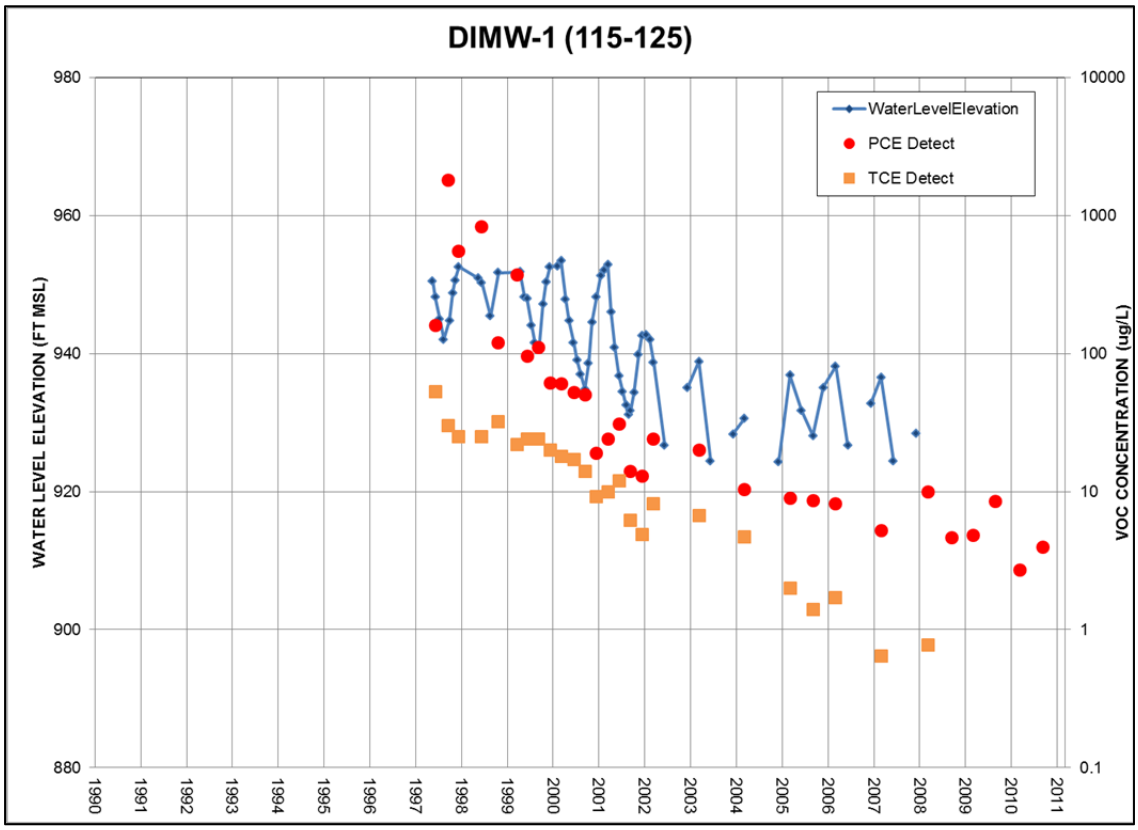
The following graph is from Dolphin monitoring well DIMW-1 (115-125)[19]. The overall water level decline on the graph was approximately 25 feet, with maximum seasonal fluctuations up to 20 feet. PCE concentrations appear to be independent of water levels. For example, in 1998 a PCE concentration of approximately 1,000 μg/L was observed with a corresponding water level elevation of about 950 feet above mean sea level (MSL). During 2001, however, the same water level elevation corresponded to a PCE concentration of about 20 μg/L. The other DIMW-1 screen within UAU1 (screened from 160 to 170 feet bgs), while fully submerged beneath the water table during the data set period of 1994 through 2010, also exhibits an overall VOC declining trend. This suggests that the observed VOC concentration declines were not significantly influenced by the water table elevation during this time period.

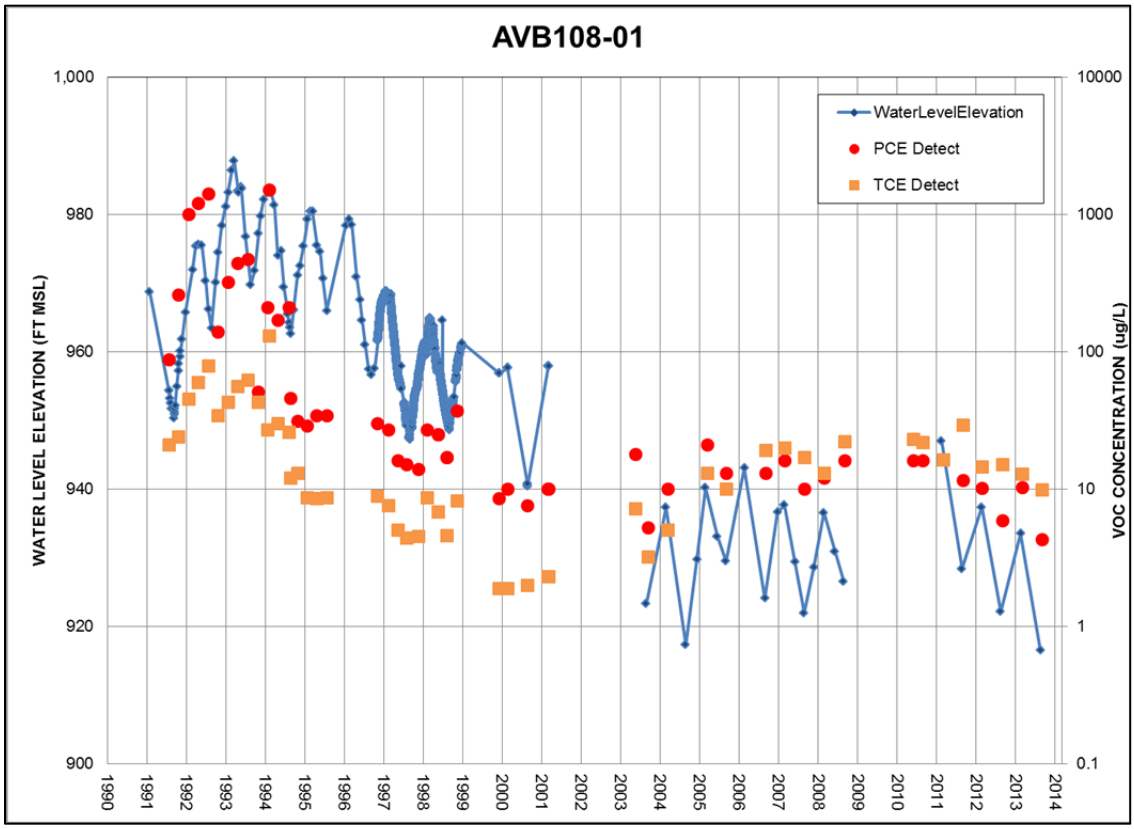
Univar monitoring well AVB108-01 is shown below; the well screen extended across the water table during the data set period of 1991 to 2008. The peak to trough water level decline was approximately 60 feet, with maximum seasonal fluctuations on the order of 20 feet. VOC concentrations appear to be independent of water levels. While there may have been a general correlation of concentrations with water levels during the early 1990s, the correlation does not exist beyond 1995. For example, in early 1994, the highest PCE concentration of approximately 1,000 μg/L corresponded to a water level elevation of about 980 feet above MSL. However, in 1995 the PCE concentration was about 30 μg/L at this same water level elevation.

These observations and the timing of the remedial activities (Dolphin from 1998 to 2002; Univar from 1992 to 1998) suggest that the concentration declines are primarily the result of facility-specific remedial work.

The final graph is from ChemResearch monitoring well CMW-1. The peak-to-trough water level decline was approximately 30 feet, with maximum seasonal fluctuations in the late 1990s on the order of 15 feet. The well is screened from about 1,000 to 970 feet above MSL, and therefore extended across the water table for most of the data set. While there may appear to be correlation on a general basis - PCE concentrations in the mid- to high-100s μg/L in the late 1990s when water levels were around 1,000 feet above MSL, to concentrations around 100 μg/L in the mid-2000s with water levels around 980 feet above MSL - this general correlation seems to break down in the late 2000s. For example, in 1999 the PCE concentration was 450 μg/L with a water level of 1,000 feet above MSL, but in 2007 the PCE concentration was higher (550 μg/L) with a water level approximately 20 feet lower, at 980 feet above MSL.

[19] DIMW-1 has a multi-screen completion for depth-discrete sampling.


DIMW-1 (115-125)
WATER LEVEL ELEVATION (FT MSL)
VOC CONCENTRATION (ug/L)
WaterLevelElevation
PCE Detect
TCE Detect
980
960
940
920
900
880
10000
1000
100
10
1
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011


AVB108-01
WATER LEVEL ELEVATION (FT MSL)
VOC CONCENTRATION (ug/L)
WaterLevelElevation
PCE Detect
TCE Detect
1,000
980
960
940
920
900
10000
1000
100
10
1
0.1
1990
1991
1992
1993
1994
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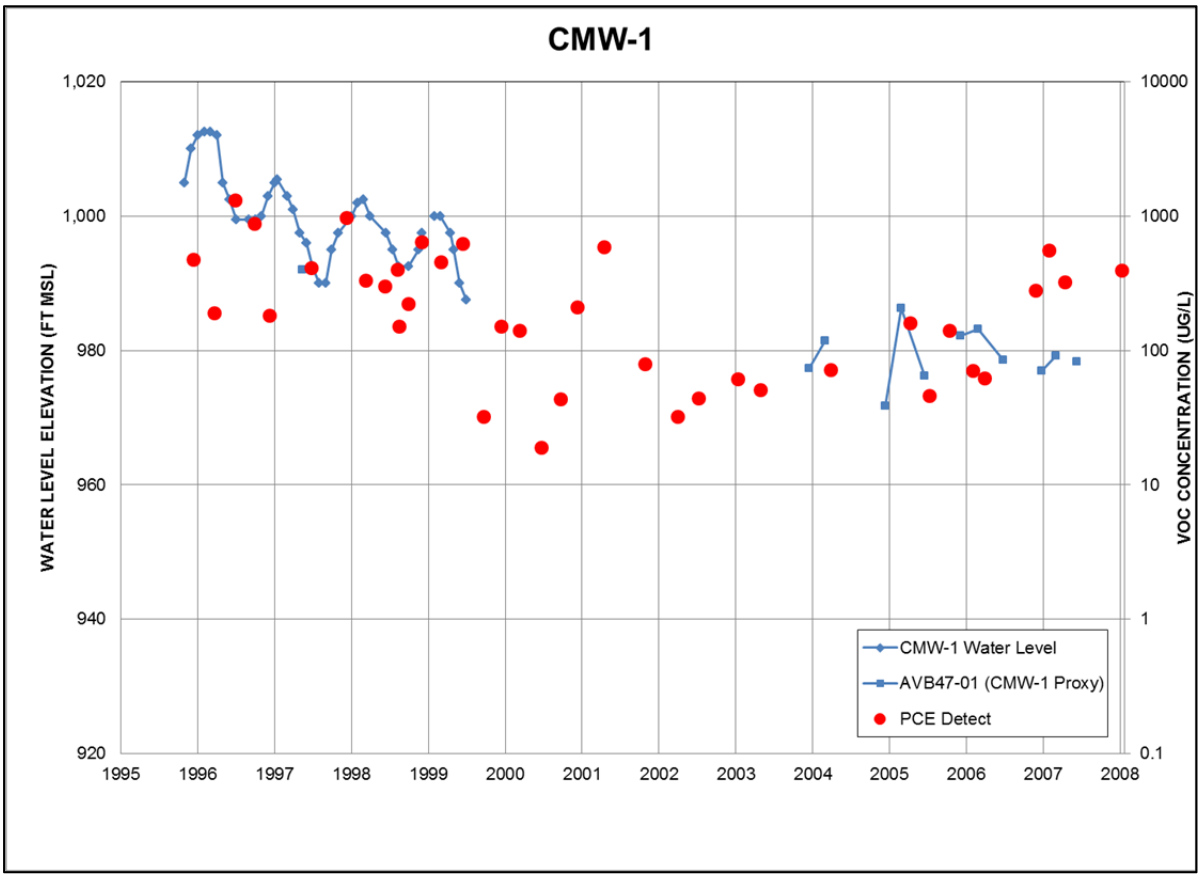
2009
2010
2011
2012
2013
2014



There will always be some uncertainty around the potential for remobilizing residual VOC mass that may still reside in the unsaturated zone if the water table were to rise significantly, for example should irrigation pumping cease in the future and facility-specific source control haven't been completed. Groundwater modeling results described in Section 6.2.3 of the FS report indicates that the water table may rise 80+ feet should regional irrigation pumping completely cease and the water table be allowed to fully recover to static conditions. In addition, the nature, extent, and severity of releases from each of the WVBA facilities are unique. The potential effects of this water level rise scenario, if any, would therefore likely be different for each facility.

3.7.6 Stability of Overall Plume Footprint

UAU1

The overall WVBA UAU1 plume footprint appears to be stable or declining, depending on the location within the WVBA, under the current regional pumping conditions. A regional hydraulic trough or sink is formed within the WVBA during irrigation pumping (Figure A-10), with capture zones of the irrigation wells extending over the regional WVBA plume footprint (see Figure 4 from the FS report). Since the retardation capacity of the UAU1 appears to be limited, the plume stability appears to be primarily the result of hydraulic control from regional irrigation pumping.

Time-series graphs of VOC concentrations for UAU1 perimeter monitoring wells[20] show that VOC concentrations along the perimeter of today's plume continue to be either non-detect or exhibit stable concentrations below the AWQS. A comparison of historical TCE and PCE plume maps also shows that the overall lateral plume extent has declined over time, in particular for PCE within the western and east-central portions of the WVBA, TCE in the western WVBA, and the overall width of the TCE plume in the eastern WVBA. Because the plume already appears to be contained under current pumping conditions, additional hydraulic control wells as part of a remedial alternative would only serve to further deplete groundwater storage and are therefore unnecessary.

UAU2

As discussed above, UAU2 monitoring wells along the perimeter of the UAU2 plume such as AVB69-01, AVB121-01, AVB137-01, AVB122-01, AVB128-01, and AVB131-01 have remained either non-detect or below MCLs over the last seven to 10 years or so, indicating that the UAU2 plume extent is relatively stable. These observations are consistent with the groundwater modeling results as described in Section 6.2.3 of the FS report.

[20] See AVB38-04, AVB71-01, AVB73-01, AVB74-01, AVB76-01, AVB81-02, AVB84-01, AVB91-01, AVB95-01, AVB95-01, AVB96-01, AVB99-01, AVB103-02, AVB111-01, AVB121-01, AVB129-01, AVB133-01, and AVB138-01.

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TABLE A-1
WELL CONSTRUCTION INFORMATION
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
AL MW-1	AIR LIQUIDE	Monitoring	UAU1	MW-1	55-582869	130	2	55	130	1051.71	392695.29	3701199.33
AL MW-2	AIR LIQUIDE	Monitoring	UAU1	MW-2	55-582870	130	2	55	130	1052.41	392707.32	3701245.39
AL MW-3	AIR LIQUIDE	Monitoring	UAU1	MW-3	55-582871	130	2	55	130	1052.11	392675.96	3701242.01
AL MW-3R	AIR LIQUIDE	Monitoring	UAU1	MW-3R	55-908221	165	5	65	165	-	392607.3	3701247.24
AL MW-4	AIR LIQUIDE	Monitoring	UAU1	MW-4	55-908226	165	5	65	165	-	392506.49	3701383.72
AL MW-5	AIR LIQUIDE	Monitoring	UAU1	MW-5	55-908228	160	5	65	160	-	392506	3701180.26
AL MW-6	AIR LIQUIDE	Monitoring	UAU1	MW-6	55-908227	165	5	65	165	-	392510.38	3701271.95
AVB02-01	FLEMING FOODS	Monitoring	UAU1	FMW-2	55-530181	115	4	70	115	1,063.12	396265.78	3700687.79
AVB04-01	VIKING FRIEGHT	Monitoring	UAU1	MW-2	55-515278	96	5	46	96	-	393143.68	3699453.5
AVB10-01	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU1	MW-1	55-532041	129	4	67	130	1,035.00	388369.5	3701052.86
AVB10-02	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU2	MW-2	55-532042	330	4	250	320	1,035.21	388368.24	3701055.34
AVB10-03	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU1	MW-3	55-532043	190	4	159	190	1,035.21	388368.24	3701055.34
AVB10-04	ADEQ-ESTRELLA BUSINESS PARK	Monitoring	UAU1	MW-4	55-532044	230	4	204	225	1,035.67	388371.68	3701063
AVB11-01	INTERNATIONAL WINDOWS	Monitoring	UAU1	MW-1	55-528031	95	4	25	95	-	398713.67	3699213.35
AVB11-02	INTERNATIONAL WINDOWS	Monitoring	UAU1	MW-2	55-547525	69	2	44	69	-	398678.27	3699234.2
AVB12-01	ADEQ/MW-4-7TH AVE	Monitoring	UAU1	MW-4	55-532767	115	4	70	110	1,076.35	399490.39	3700935.09
AVB14-01	ADEQ 7TH AVE	Monitoring	UAU1	MW-2	55-531086	110	4	66	106	1,080.02	399112.89	3701457.42
AVB15-01	ROGERS SHELL	Monitoring	UAU1	MW-2	55-520257	118	4	78	118	1,070.45	397097.17	3701887.12
AVB18-01	ADEQ 7TH AVE	Monitoring	UAU1	MW-1	55-531084	111	4	69	109	1,079.26	399197.93	3701143.89
AVB20-01	APS WEST PHOENIX	Monitoring	UAU1	RB-1	55-520383	110	6	60	110	-	392553.69	3700770.4
AVB20-02	APS WEST PHOENIX	Monitoring	UAU1	RB-2	55-538273	140	4	63	140	-	392151.74	3700852.5
AVB20-03	APS WEST PHOENIX	Monitoring	UAU1	RB-3	55-590922	149	4	48	148	1,044.47	392161.07	3700776.8
AVB24-01	TRAMMEL CROW	Monitoring	UAU1	TC-1	55-516632	89	2	79	89	-	400107.6	3701538.26
AVB25-01	ADOT	Monitoring	UAU1	DW-3	55-504686	100	2	70	100	-	398781.32	3699508.03
AVB26-01	ADOT 15TH/BUCKEYE	Monitoring	UAU1	DW-2	55-504687	102	2	71	101	1,067.20	398534.78	3700750
AVB29-01	SANTOKU AMERICA	Monitoring	UAU1	MW-1	55-522400	146	4	70	146	1,026.46	385164.91	3701374.12
AVB30-11	PRECISION COMPONENTS	Monitoring	UAU1	MW-1	55-525758	99	4	60	100	1,041.42	394450.36	3699701.33
AVB37-01	PENN RACQUET SPORTS	Monitoring	UAU1	MW-2	55-519037	106	4	65	105	-	392442.82	3701153.4
AVB37-02	PENN RACQUET SPORTS	Monitoring	UAU1	MW-3	55-519038	110	4	68	108	-	392336.76	3701280.14
AVB37-04	PENN RACQUET SPORTS	Monitoring	UAU1	MW-4	55-534735	110	4	70	110	1,051.12	392543.27	3701355.33
AVB38-04	ADEQ-RID ROW	Monitoring	UAU1	AVB38-04	55-535311	126.5	2	76.5	126.5	1,031.86	387610.53	3701164.23
AVB40-05	ADEQ - ALSCO	Monitoring	UAU1	MW-3	55-536228	97	4	60	100	1,075.83	399311.14	3700931.72
AVB40-06	ADEQ - ALSCO	Monitoring	UAU1	MW-1	55-536229	100	4	60	100	1,075.92	399242.82	3700942.29
AVB40-07	ADEQ - ALSCO	Monitoring	UAU1	MW-2	55-536227	101	4	60	100	1,076.02	399240.26	3700968.5
AVB40-08	ADEQ - ALSCO	Monitoring	UAU1	MW-4	55-536284	100	4	60	100	1,076.99	399319.4	3700980.3
AVB40-09	ADEQ - ALSCO	Monitoring	UAU1	EX-1	55-577698	125	6	67	122	-	399236.61	3700940.81
AVB40-10	ADEQ - ALSCO	Monitoring	UAU1	IN-1	55-577924	125	6	68	123	-	399246.38	3700936.4
AVB40-11	ADEQ - ALSCO	Monitoring	UAU1	MW-1A	55-589502	125	8	65	120	-	399336.12	3700924.06
AVB42-01	ADEQ/MCMM	Monitoring	UAU1	MC-01	55-538078	102	4	49	99	-	399789.23	3700867.6
AVB42-02	ADEQ/MCMM	Monitoring	UAU1	MC-02	55-538077	102	4	49	99	-	399735.29	3700932.6

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PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
AVB42-03	ADEQ/MCMM	Monitoring	UAU1	MC-03	55-538076	110	4	49	99	-	399634.48	3700909.87
AVB46-01	HILTON (ADEQ)	Monitoring	UAU1	WVB-3	55-535316	130	4	44	94	1,065.98	398977.62	3699064.58
AVB47-01	HILTON (ADEQ)	Monitoring	UAU1	WVB-4	55-535317	99	4	44	94	1,062.87	398583.81	3699390.9
AVB53-01	BUCK BROWN	Monitoring	UAU1	MW-1	55-530860	105	4	65	105	1,056.08	394643.21	3701704.12
AVB57-01	ADEQ-WILCOX	Monitoring	UAU1	APS-1	55-539219	102	4	51	101	1,078.36	400043.83	3700766.1
AVB60-01	ADEQ NSW	Monitoring	MAU	AVB60-01	55-543717	500	4	448	498	1,028.16	385761.69	3701629.8
AVB61-01	ADEQ SSW	Monitoring	MAU	AVB61-01	55-546228	500	4	447	497	1,023.98	385699.32	3701082.88
AVB65-01	MARICOPA COUNTY/TANK FARM	Monitoring	UAU1	MC-MW1	55-546261	121	4	70	125	1,055.82	391123.6	3701876.53
AVB66-01	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-3A	55-540984	127	4	60	125	1,046.71	390033.59	3701688.13
AVB66-02	PHX. TERMINAL GROUP	Monitoring	UAU2	PTG-3B	55-540983	360	4	275	315	1,046.68	390033.37	3701668.24
AVB68-02	ADEQ-MADISON	Monitoring	UAU1	MW-2	55-561942	117	2	70	120	1,075.77	398677.15	3701272.85
AVB69-01	ADEQ-19TH AVE/PIMA	Monitoring	UAU2	MW-2	55-562052	300	4	250	300	1,057.22	397830.22	3699835.3
AVB69-02	ADEQ-19TH AVE/PIMA	Monitoring	UAU1	MW-1	55-562053	124	4	75	125	1,057.01	397832.82	3699837.12
AVB70-01	ADEQ-19TH AVE/LINCOLN	Monitoring	UAU1	MW-I	55-569883	117	4	80	120	1,064.63	397834.61	3700861.58
AVB71-01	ADEQ-75TH AVE	Monitoring	UAU1	MW-2	55-569741	160	4	120	160	1,023.30	386518.46	3700798.85
AVB72-01	ADEQ-29TH AVE/VAN BUREN	Monitoring	UAU1	MW-3	55-569882	137	4	100	140	1,066.90	395779.09	3701725.68
AVB73-01	ADEQ-67TH AVE/BUCKEYE	Monitoring	UAU1	MW-4	55-569880	120	4	80	120	1,031.04	388122.27	3700482.32
AVB74-01	ADEQ-83RD AVE/VAN BUREN	Monitoring	UAU1	MW-5	55-570051	100	4	60	100	1,025.39	384891.43	3701861.61
AVB75-01	ADEQ-69TH AVE/WASHINGTON	Monitoring	UAU1	MW-6	55-569881	134	4	96	136	1,035.07	387743.3	3701590.8
AVB76-01	ADEQ-75TH AVE/MADISON	Monitoring	UAU1	MW-7	55-570052	115	4	75	115	1,026.30	386437.1	3701474.47
AVB77-01	ADEQ - ALSCO	Monitoring	UAU1	MW-5S	55-567445	106	4	70	110	-	399257.66	3700953.52
AVB77-02	ADEQ - ALSCO	Monitoring	UAU2	MW-5D	55-567443	149	4	130	150	1,075.41	399257.46	3700958.77
AVB77-03	ADEQ - ALSCO	Monitoring	UAU1	MW-5M	55-567444	225	4	205	225	1,076.12	399257.43	3700956.3
AVB77-04	ADEQ - ALSCO	Monitoring	UAU1	MW-6	55-571974	110	4	70	110	1076.03	399249.76	3700988.41
AVB81-01	ADEQ-7200 W SHERMAN	Monitoring	UAU2	AVB81-01	55-584503	330	5	290.4	319.7	1,027.45	387227.39	3700846.71
AVB81-02	ADEQ-7200 W SHERMAN	Monitoring	UAU1	AVB81-02	55-584500	120	4	70	120	1,027.45	387245.46	3700850.29
AVB82-01	ADEQ-6800 W VAN BUREN	Monitoring	MAU	AVB82-01	55-584504	345	5	310	340	1,041.11	387830.91	3702009.05
AVB82-02	ADEQ-6800 W VAN BUREN	Monitoring	MAU	AVB82-02	55-214608	420	5	400	420	1,039.79	387846.19	3702012.66
AVB83-01	ADEQ-700 S 11TH AVE	Monitoring	UAU1	AVB83-01	55-584501	121	4	70	120	1,075.67	398962.36	3700915.65
AVB84-01	ADEQ-1300 S 22ND AVE	Monitoring	UAU1	AVB84-01	55-584497	120	4	70	120	1,056.22	397149.83	3700153.77
AVB85-01	ADEQ-500 S 16TH AVE	Monitoring	UAU1	AVB85-01	55-584505	120	4	70	120	1,066.47	398350.75	3700952.87
AVB86-01	ADEQ-700 S 51ST AVE	Monitoring	UAU1	AVB86-01	55-584502	120	4	69.5	119.5	1,043.06	391325.93	3700789.85
AVB87-01	ADEQ-49TH AVE & JEFFERSON	Monitoring	UAU1	AVB87-01	55-584499	121	4	70	120	1,053.75	391639.13	3701404.68
AVB88-01	ADEQ-1900 S 25TH AVE	Monitoring	UAU1	AVB88-01	55-584498	120	4	70	120	1,048.78	396544.98	3699601.5
AVB90-01	LDS	Monitoring	UAU1	AVB90-01	55-619768	151	-	-	-	-	388070.27	3699768.22
AVB91-01	ADEQ-73RD AVE/ROOSEVELT	Monitoring	UAU1	AVB91-01	55-589635	140	4	90	140	1,042.63	387001.13	3702810.1
AVB91-02	ADEQ-73RD AVE/ROOSEVELT	Monitoring	UAU2	AVB91-02	55-589644	317.5	5	290	317.5	1,042.62	386983.5	3702810.15
AVB91-03	ADEQ-73RD AVE/ROOSEVELT	Monitoring	MAU	AVB91-03	55-214616	375	5	350	375	-	387011.41	3702809.67
AVB92-01	ADEQ-53RD AVE/ROOSEVELT	Monitoring	UAU1	AVB92-01	55-589637	140	4	90	140	1,063.32	390967.28	3702745.53
AVB92-02	ADEQ-53RD AVE/ROOSEVELT	Monitoring	UAU1	AVB92-02	55-589646	290	5	240	290	1,063.32	390982.11	3702744.55

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WELL CONSTRUCTION INFORMATION
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
AVB93-01	ADEQ-52ND AVE/MCKINLEY	Monitoring	UAU1	AVB93-01	55-589638	139	4	90	140	1,061.46	391104.69	3702546.21
AVB94-01	ADEQ-43RD AVE/ROOSEVELT	Monitoring	UAU1	AVB94-01	55-589639	140	4	90	140	1,067.29	392713.18	3702893.75
AVB94-02	ADEQ-43RD AVE/ROOSEVELT	Monitoring	UAU1	AVB94-02	55-589642	280	5	240	280	1,067.16	392712.95	3702872.75
AVB95-01	ADEQ-34TH AVE/ROOSEVELT	Monitoring	UAU1	AVB95-01	55-589636	140	4	90	140	1,070.48	394804.57	3702819.61
AVB95-02	ADEQ-34TH AVE/ROOSEVELT	Monitoring	UAU1	AVB95-02	55-626533	278.5	20	225	278.5	1,073.44	394762.57	3702798.28
AVB96-01	ADEQ-63RD AVE/GARFIELD	Monitoring	UAU1	AVB96-01	55-589640	140	4	90	140	1,049.53	389026.96	3702530.13
AVB97-01	ADEQ-25TH AVE/YAVAPAI	Monitoring	UAU1	AVB97-01	55-589641	120	4	70	120	1,052.80	396597.22	3700166.02
AVB98-01	ADEQ-75TH AVE/MADISON	Monitoring	UAU2	AVB98-01	55-589645	310	5	270	310	1026.97		
AVB99-01	ADEQ-11TH AVE/BUCKEYE	Monitoring	UAU1	AVB99-01	55-589634	120	4	70	120	1,065.44	399018.98	3700180.08
AVB100-01	TRITECH	Monitoring	UAU1	AVB100-01	55-591045	141	4	90	140	1,063.10	391177.86	3702621.9
AVB101-01	DOE	Monitoring	UAU1	MW-1	55-539692	123	4	55	115	1,052.21	393214.94	3700937.72
AVB101-02	DOE	Monitoring	UAU1	MW-2	55-539693	120	4	55	115	1050.78	393173.83	3700940.79
AVB101-03	DOE	Monitoring	UAU1	MW-3	55-539694	120	4	55	115	1,049.61	393174.3	3700910.35
AVB102-04	CHRISTIE SIGN	Monitoring	UAU1	MW-4	55-565463	120	4	50	120	1,053.57	397298.41	3699611.76
AVB103-02	TRISTAR	Monitoring	UAU1	MW-2	55-581001	90	4	45	90	1,061.64	398225.56	3700172.72
AVB104-02	CONSOLIDATED FREIGHTWAYS	Monitoring	UAU1		55-547510	83	4	44	77	-	396465.31	3700598.29
AVB105-01	WESTCO PROPERTIES	Monitoring	UAU1	MW-1	55-586867	135	4	90	135	-	392911.41	3701800.17
AVB105-02	WESTCO PROPERTIES	Monitoring	UAU1	MW-2	55-586866	135	4	90	135	-	392911.41	3701800.17
AVB106-01	MCMM	Monitoring	UAU1	MC-05	55-549619	104	4	52	105	1,076.62	399825.29	3700932.53
AVB106-02	MCMM	Monitoring	UAU1	MC-N06 #2	55-549233	183	2	178	182	1,076.99	399642.98	3700907.93
AVB106-03	MCMM	Monitoring	UAU2	MC-N06 #3	55-549233	215	2	210	215	1,076.33	399642.98	3700907.93
AVB107-01	TRANSCON (TRNS03-01)	Monitoring	UAU1	MW-2	55-525469	120	4	40	120	-	393808.86	3700289.8
AVB108-01	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-6	55-531539	150	4.5	57	147	1,056.09	392263.38	3701489.43
AVB108-02	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-11	55-562746	270	5	220	270	1,054.41	392263.35	3701486.35
AVB109-01	SUMMA MECHANICAL	Monitoring	UAU1	MW-1	55-591691	130	2	90	130	-	397911.67	3702787.33
AVB110-01	FLEMING FOODS	Monitoring	UAU1		55-580411	130	4	107	127	-	396161.54	3700633.06
AVB111-01	ULTRAMAR INC	Monitoring	UAU1	ULTRAMAR MW-3	55-590149	109	4	59	109	1,039.99	391357.9	3700261.96
AVB112-01	SEVEN ELEVEN INC	Monitoring	UAU1	MW-4	55-574934	130	4	85	130	1,072.87	391381.19	3703585.46
AVB112-05	SEVEN ELEVEN INC	Monitoring	UAU1	MW-5	55-200601	169	4	129	169	1,072.45		
AVB113-01	LA/YUMA	Monitoring	UAU1	MW-1	55-574420	120	4	80	120	1,079.41	396489.83	3702909.23
AVB114-01	PRICE REAL ESTATE	Monitoring	UAU1		55-549447	90	4	70	90	-	389812.42	3701107.73
AVB115-01	ADEQ-12TH AVE/VAN BUREN	Monitoring	UAU1	AVB115-01	55-596920	151	4	70	150	1,076.20	398912.51	3701837
AVB116-01	ADEQ-21ST AVE/JACKSON	Monitoring	UAU1	AVB116-01	55-596916	151	4	70	150	1,066.68	397353.44	3701108.36
AVB116-02	ADEQ-21ST AVE/JACKSON	Monitoring	UAU2	AVB116-02	55-202187	230	4	200	230	1,065.26	397383.15	3701165.99
AVB117-01	ADEQ-37TH LANE/MCKINLEY	Monitoring	UAU1	AVB117-01	55-596917	160	4	80	160	1,067.34	394006.7	3702428.76
AVB118-01	DEPT OF ADMINISTRATION	Monitoring	UAU1	MW-1	55-568472	106	4	65	105	1,071.93	398056.68	3701325.59
AVB119-01	ADEQ-50TH AVE/ROOSEVELT	Monitoring	UAU1	AVB119-01	55-596918	151	4	70	150	1,066.67	391477.83	3702945.64
AVB120-01	ADEQ-40TH AVE/GRANT	Monitoring	UAU1	AVB120-01	55-596919	151	4	70	150	1,050.44	393465.13	3700845.6
AVB120-02	ADEQ-40TH AVE/GRANT	Monitoring	UAU2	AVB120-02	55-596922	250	5	240	250	1,050.75	393456.41	3700848.9
AVB121-01	ADEQ-41ST AVE/GIBSON	Monitoring	UAU1	AVB121-01	55-596921	151	4	70	150	1,035.59	393306.96	3699294.36

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WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
AVB121-02	ADEQ-41ST AVE/GIBSON	Monitoring	UAU2	AVB121-02	55-214615	250	5	230	250	1,035.75	393300.81	3699294.46
AVB122-01	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU1	AVB122-01	55-596931	171	4	70	170	1,046.66	390517.15	3701103.2
AVB122-02	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU1	AVB122-02	55-596932	260	5	240	250	1,046.86	390516.81	3701096.12
AVB122-03	ADEQ-5STH AVE/BUCHANAN	Monitoring	UAU2	AVB122-03	55-202186	345	5	325	345	1,046.96	390517.49	3701108.56
AVB123-01	ADEQ-1STH AVE/FILLMORE	Monitoring	UAU1	AVB123-01	55-202185	150	4	90	150	1,074.01	398540.09	3702260.9
AVB124-01	ADEQ-19TH AVE/MONROE	Monitoring	UAU2	AVB124-01	55-202184	230	4	200	230	1,070.18	397821.53	3701748.53
AVB124-02	ADEQ-19TH AVE/MONROE	Monitoring	UAU2	AVB124-02	55-207163	283	5	263	283	1,070.26	397831.59	3701748.11
AVB125-01	ADEQ-19TH AVE/DURANGO	Monitoring	UAU1	AVB125-01	55-202189	150	4	90	150	1,056.66	397566.25	3699434.86
AVB126-01	ADEQ-25TH AVE/GRANT	Monitoring	UAU1	AVB126-01	55-211115	144	4	104	144	1,064.28	396527.88	3700828.89
AVB126-02	ADEQ-25TH AVE/GRANT	Monitoring	UAU2	AVB126-02	55-211114	238	5	218	238	1,064.03	396527.66	3700808.34
AVB126-03	ADEQ-25TH AVE/GRANT	Monitoring	UAU2	AVB126-03	55-214611	350	5	300	350	1,064.48	396543.64	3700795.54
AVB127-01	ADEQ-31ST AVE/WASHINGTON	Monitoring	UAU1	AVB127-01	55-202279	149	4	89	149	1,061.77	395281.79	3701489.44
AVB128-01	ADEQ-31ST AVE/WASHINGTON	Monitoring	UAU2	AVB128-01	55-202283	289	5	269	289	1,055.76	393751.61	3701450.4
AVB129-01	ADEQ-79TH AVE/ROOSEVELT	Monitoring	UAU1	AVB129-01	55-202280	170	4	140	170	1,040.58	385749.9	3703002.65
AVB129-02	ADEQ-79TH AVE/ROOSEVELT	Monitoring	UAU2	AVB129-02	55-202282	320	5	300	320	1,040.58	385750.74	3703008.5
AVB130-01	ADEQ-43RD AVE/MCDOWELL	Monitoring	UAU1	AVB130-01	55-202188	161	4	101	161	1,074.97	392986.79	3703616.72
AVB131-01	ADEQ-18TH AVE/LINDEN	Monitoring	UAU2	AVB131-01	55-207161	228	5	198	228	1,076.80	397972.96	3702835.18
AVB132-01	ADEQ-HYDE PARK	Monitoring	UAU2	AVB132-01	55-208664	225	5	195	225	1,067.30	396507.77	3701407.41
AVB132-02	ADEQ-HYDE PARK	Monitoring	UAU2	AVB132-02	55-208663	292	5	272	292	1,067.17	396499.37	3701412.09
AVB133-01	ADEQ-l7TH AVE/BUCKEYE	Monitoring	UAU1	AVB133-01	55-207162	215	5	185	215	1,064.71	398105.18	3700268.24
AVB134-01	ADEQ-31ST AVE/HARRISON	Monitoring	UAU1	AVB134-01	55-211113	142	4	102	142	1,060.59	395235.54	3701074.79
AVB134-02	ADEQ-31ST AVE/HARRISON	Monitoring	UAU2	AVB134-02	55-211112	244	5	224	244	1,061.03	395107.95	3701079.31
AVB135-01	ADEQ-63RD AVE/SHERMAN	Monitoring	UAU1	AVB135-01	55-211111	140	4	100	140	1,034.36	388760.81	3700781.46
AVB136-01	ADEQ-39TH AVE/MOHAVE	Monitoring	UAU2	AVB136-01	55-211110	247	5	227	247	1,041.94	393539.61	3699687.55
AVB137-01	ADEQ-5STH AVE/MOHAVE	Monitoring	UAU2	AVB137-01	55-211109	270	5	250	270	1,034.09	390504.18	3699878.73
AVB138-01	FORMER CONOCO PHILLIPS	Monitoring	UAU1	MW-14	55-561935	120	4	80	120	1,060.66	389811.41	3703067.23
AVB139-01	ADEQ	Monitoring	UAU2		55-214809	310	5	270	310	-	384304.47	3701536.18
AVB141-01	ADEQ	Monitoring	UAU2		55-214609	310	5	260	310	-	389772.3	3703710.02
CMW-1	CHEMRESEARCH	Monitoring	UAU1	CMW-1	55-550295	91	4	61	91	1,064.13	398877.8	3699136
CMW-2	CHEMRESEARCH	Monitoring	UAU1	CMW-2	55-550296	91	4	61	91	1,064.51	398877.8	3699136
CMW-3	CHEMRESEARCH	Monitoring	UAU1	CMW-3	55-562041	130	4	70	130	1,057.54	397864.1	3699751
CMW-4	CHEMRESEARCH	Monitoring	UAU1	CMW-4	55-570659	90	4	60	90	1,057.65	397864.1	3699550
CMW-5	CHEMRESEARCH	Monitoring	UAU1	CMW-5	55-568583	90	4	60	90	1,061.31	398270	3699546
DIMW-1 (70-90)	DOLPHIN	Monitoring	UAU1	DIMW-1	55-539368	430	2	70	90	1,042.08	389612.34	3700926.82
DIMW-1 (115-125)	DOLPHIN	Monitoring	UAU1	DIMW-1	55-539368	430	2	115	125	1,042.08	389612.34	3700926.82
DIMW-1 (160-170)	DOLPHIN	Monitoring	UAU1	DIMW-1	55-539368	430	2	160	170	1,042.08	389612.34	3700926.82
DIMW-1 (190-200)	DOLPHIN	Monitoring	UAU1	DIMW-1	55-539368	430	2	190	200	1,042.08	389612.34	3700926.82
DIMW-1 (235-245)	DOLPHIN	Monitoring	UAU2	DIMW-1	55-539368	430	2	235	245	1,042.08	389612.34	3700926.82
DIMW-1 (270-280)	DOLPHIN	Monitoring	UAU2	DIMW-1	55-539368	430	2	270	280	1,042.08	389612.34	3700926.82
DIMW-1 (302-307)	DOLPHIN	Monitoring	UAU2	DIMW-1	55-539368	430	2	302	307	1,042.08	389612.34	3700926.82

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WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
DIMW-1 (340-350)	DOLPHIN	Monitoring	UAU2	DIMW-1	55-539368	430	2	340	350	1,042.08	389612.34	3700926.82
DIMW-1 (380-390)	DOLPHIN	Monitoring	UAU2	DIMW-1	55-539368	430	2	380	390	1,042.08	389612.34	3700926.82
DIMW-1 (405-415)	DOLPHIN	Monitoring	MAU	DIMW-1	55-539368	430	2	405	415	1,042.08	389612.34	3700926.82
DIMW-2 (74-104)	DOLPHIN	Monitoring	UAU1	DIMW-2	55-543945	425	2	74	104	1,042.38	389687.75	3701020.13
DIMW-2 (162-172)	DOLPHIN	Monitoring	UAU1	DIMW-2	55-543945	425	2	162	172	1,042.38	389687.75	3701020.13
DIMW-2 (237-247)	DOLPHIN	Monitoring	UAU2	DIMW-2	55-543945	425	2	237	247	1,042.38	389687.46	3701019.86
DIMW-2 (340-350)	DOLPHIN	Monitoring	UAU2	DIMW-2	55-543945	425	2	340	350	1,042.38	389687.75	3701020.13
DIMW-2 (403-413)	DOLPHIN	Monitoring	MAU	DIMW-2	55-543945	425	2	403	413	1,042.38	389687.75	3701020.13
DIMW-3 (74-104)	DOLPHIN	Monitoring	UAU1	DIMW-3	55-543946	425	2	74	104	1,041.07	389688.08	3700872.09
DIMW-3 (162-172)	DOLPHIN	Monitoring	UAU1	DIMW-3	55-543946	425	2	162	172	1,041.07	389688.08	3700872.09
DIMW-3 (237-247)	DOLPHIN	Monitoring	UAU2	DIMW-3	55-543946	425	2	237	247	1,041.07	389689.32	3700872.47
DIMW-3 (340-350)	DOLPHIN	Monitoring	UAU2	DIMW-3	55-543946	425	2	340	350	1,041.07	389688.08	3700872.09
DIMW-3 (403-413)	DOLPHIN	Monitoring	MAU	DIMW-3	55-543946	425	2	403	413	1,041.07	389688.08	3700872.09
DIMW-4A	DOLPHIN	Monitoring	UAU1	DIMW-4A	55-580425	131	4	81	131	1,040.34	389577.3	3700925.13
DIMW-5A	DOLPHIN	Monitoring	UAU1	DIMW-5A	55-580426	131	4	81	132	1,037.56	389427.37	3700821.59
DIMW-6A	DOLPHIN	Monitoring	UAU1	DIMW-6A	55-580427	131	4	81	133	1,039.06	389440.47	3700986.97
DIMW-7A	DOLPHIN	Monitoring	UAU1	DIMW-7A	55-580428	131	4	81	134	1,040.38	389443.91	3701143.95
DIMW-8D	DOLPHIN	Monitoring	MAU	DIMW-8D	55-580429	415	4	405	415	1,038.68	389322.6	3700855.25
DIMW-9D	DOLPHIN	Monitoring	MAU	DIMW-9D	55-580430	415	4	405	415	1,039.52	389313.04	3701049.4
PS-1	REYNOLDS	Monitoring	UAU1	RMC-01	55-526493	120	4	70	120	1,055.60	393765.04	3701316.38
PS-2	REYNOLDS	Monitoring	UAU1	RMC-02	55-526492	120	4	70	120	1,059.46	393839.2	3701514.4
PS-3	REYNOLDS	Monitoring	UAU1	RMC-03	55-526491	120	4	70	120	1,057.99	393566.67	3701518.51
PS-4	REYNOLDS	Monitoring	UAU1	RMC-04	55-526490	110	4	60	110	1,059.05	394438.54	3701333.15
PS-5	REYNOLDS	Monitoring	UAU1	RMC-05	55-526489	120	4	70	120	1,055.63	392974.03	3701756.35
PS-6	REYNOLDS	Monitoring	UAU1	RMC-06	55-532037	140	4	90	140	1,054.57	393338.64	3701342.86
PS-7	REYNOLDS	Monitoring	UAU1	RMC-07	55-545676	140	4	90	140	1,053.94	393340.11	3701424.56
PS-8	REYNOLDS	Monitoring	UAU1	RMC-08	55-545677	140	4	90	140	1,055.18	393228.63	3701203.18
PS-9	REYNOLDS	Monitoring	UAU1	RMC-09	55-545678	140	4	90	140	1,056.99	394453.28	3701639.69
PTG-1A	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-1A	55-540986	126	4	60	126	1,055.32	391646.3	3701829
PTG-1B	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-1B	55-540985	310	4	268	310	1,056.74	391646.3	3701829
PTG-2A	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-2A	55-540988	125	4	60	123	1,049.29	390221.3	3701255
PTG-2B	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-2B	55-540987	312	4	270	312	1,050.29	390221.3	3701255
PTG-5A	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-5A	55-542661	126	4	60	126	1,047.43	390423.5	3701250
PTG-7A	PHX. TERMINAL GROUP	Monitoring	UAU1	PTG-7A	55-540981	124	4	59	124	1,044.60	389817.2	3701266
VWR-01	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-1	55-531544	145	4.5	55	145	1,052.51	392543.3	3701517.3
VWR-02	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-2	55-531543	148	4.5	58	148	1,053.33	392527.7	3701398.48
VWR-03	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-3	55-531541	149	4.5	59	149	1,056.88	392373.58	3701516.23
VWR-04	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-4	55-531545	149	4.5	59	149	1,055.34	392333.31	3701392.39
VWR-05	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-5	55-531542	148	4.5	58	148	1,056.01	392265.23	3701559.61
VWR-07	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-7	55-531538	149	4.5	59	149	1,054.86	392263.2	3701436.18

TABLE A-1
WELL CONSTRUCTION INFORMATION
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
VWR-08	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU1	MW-8	55-531540	150	4.5	60	150	1,053.96	392260.28	3701398.72
VWR-09	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU2	MW-9	55-562745	264	5	214	264	1,056.23	392540.38	3701459.48
VWR-10	VAN WATERS & ROGERS INC/Univar	Monitoring	UAU2	MW-10	55-562744	264	5	214	264	1,055.19		
RID-83	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-83	55-607227	-	-	-	-	-	385750.85	3701489.54
RID-84	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-84	55-607226	-	-	130	518	-	387678.2	3701167.33
RID-85	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-85	55-607225	700	20	135	682	-	388123.3	3700441.05
RID-86	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-86	55-607224	300	24	55	288	-	388919.67	3699934.42
RID-87	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-87	55-607223	500	20	75	480	-	390490.48	3699540.37
RID-88	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-88	55-607222	1800	24-20-16	165	820	-	391269.13	3699558.09
RID-88	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-88	55-607222	1800	24-20-16	835	1485	-	391269.13	3699558.09
RID-88	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-88	55-607222	1800	24-20-16	1500	1785	-	391269.13	3699558.09
RID-89	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-89	55-607221	1800	20-16-12	180	805	-	391342.15	3700727.81
RID-89	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-89	55-607221	1800	20-16-12	860	1434	-	391342.15	3700727.81
RID-89	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-89	55-607221	1800	20-16-12	1465	1770	-	391342.15	3700727.81
RID-90	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-90	55-607220	460	20	110	446	-	392145.4	3699508.58
RID-91	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-91	55-607219	450	24	80	448	-	392946.16	3699533.51
RID-92	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-92	55-607218	500	20	180	488	-	392956.42	3700721.12
RID-93	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-93	55-607217	540	24	110	431	-	393734.22	3699536.91
RID-94	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-94	55-607216	425	24	85	412	-	394549.27	3699884.27
RID-95	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-95	55-607215	1800	24-20-16	180	815	-	394577.74	3700721.82
RID-95	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-95	55-607215	1800	24-20-16	836	1470	-	394577.74	3700721.82
RID-95	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-95	55-607215	1800	24-20-16	1497	1775	-	394577.74	3700721.82
RID-96	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-96	55-607214	800	-	123	788	-	394686.76	3699036.7
RID-97	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-97	55-607213	1800	24-20-16	200	824	-	395306.39	3698844.8
RID-97	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-97	55-607213	1800	24-20-16	836	1490	-	395306.39	3698844.8
RID-97	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-97	55-607213	1800	24-20-16	1500	1788	-	395306.39	3698844.8
RID-98	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-98	55-607212	1675	24-20-16	200	785	-	396161.57	3698652.07
RID-98	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-98	55-607212	1675	24-20-16	800	1480	-	396161.57	3698652.07
RID-98	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-98	55-607212	1675	24-20-16	1500	1665	-	396161.57	3698652.07
RID-99	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-99	55-607211	420	24	70	400	-	396121.27	3699878.13
RID-100	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-100	55-607210	302	24	55	290	-	396149.98	3700673.1
RID-101	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-101	55-607209	400	24	110	390	-	396944.34	3698711.78
RID-102	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-102	55-607196	440	24	85	414	-	397333.97	3699861.41
RID-103	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-103	55-607208	440	24	80	420	-	397718.47	3699055.63
RID-104	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-104	55-607207	410	24	100	370	-	397891.83	3699860.83
RID-105	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-105	55-607206	622	20	80	508	-	386521.94	3702014.95
RID-106	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-106	55-607205	790	20	80	776	-	388221.66	3701976.96
RID-107	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-107	55-607204	414	16	60	404	-	389737.01	3701943.81
RID-108	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-108	55-607203	284	24	62	270	-	390500.46	3701908.63
RID-109	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-109	55-607202	500	24-20	140	394	-	391360.3	3701904.8

TABLE A-1
WELL CONSTRUCTION INFORMATION
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Owner/Facility Name	Well Type	Alluvial Unit	Facility Well ID	ADWR #	Total Depth (feet BTOC)	Casing Diameter (Inches)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	UTM X_UTM83	UTM Y_UTM83
RID-110	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-110	55-607201	500	24-20	140	465	-	392673.34	3701903.99
RID-111	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-111	55-607200	454	24-16	55	192	-	393982.28	3701885.22
RID-111	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-111	55-607200	454	24-16	206	442	-	393982.28	3701885.22
RID-112	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-112	55-607199	650	16	50	635	-	395149.89	3701872.82
RID-113	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-113	55-607198	415	20	228	398	-	395945.82	3701839.6
RID-114	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-114	55-607197	395	20	60	198	-	396940.93	3701830.5
RID-114	ROOSEVELT IRRIGATION DISTRICT	Irrigation		RID-114	55-607197	395	20	205	380	-	396940.93	3701830.5
SELECT MOTOROLA 52ND STREET OU3 WELLS												
EWOU3-10S-R	M52ND STREET OU3	Monitoring	UAU	---	---	102	4	60	100	1081.62		
EW-19S	M52ND STREET OU3	Monitoring	UAU	---	---	112	4	57	107	1087.32		
EW-20	M52ND STREET OU3	Monitoring	UAU	---	---	110	4	59	109	1091.38		
EW-21	M52ND STREET OU3	Monitoring	UAU	---	---	111	4	58	108	1094.24		
SC-MD-1D	M52ND STREET OU3	Monitoring	UAU	---	---	125	4	83	123	1092.39		
OU3-1M	M52ND STREET OU3	Monitoring	UAU	---	---	162	4	140	160	1093.3		
OU3-2M	M52ND STREET OU3	Monitoring	UAU	---	---	175	4	150	170	1087.97		
OU3-8M2	M52ND STREET OU3	Monitoring	UAU	---	---	228	4	205.5	225.6	1080.39		
OU3-8S	M52ND STREET OU3	Monitoring	UAU	---	---	110.5	4	59.9	110.5	1080.05		
OU3-9S	M52ND STREET OU3	Monitoring	UAU	---	---	110.5	4	59.6	110.2	1080.55		
OU3-5M2	M52ND STREET OU3	Monitoring	UAU	---	---	253	4	202.7	222.7	1087.24		
OU3-9M2	M52ND STREET OU3	Monitoring	UAU	---	---	235	4	219.7	229.7	1080.74		
OU3-10M	M52ND STREET OU3	Monitoring	UAU	---	---	170	4	146.7	166.7	1082.25		
OU3-10M2	M52ND STREET OU3	Monitoring	UAU	---	---	225	4	199.2	219.2	1082.29		
OU3-11M	M52ND STREET OU3	Monitoring	UAU	---	---	178	4	153.7	173.7	1078.25		
OU3-11M2	M52ND STREET OU3	Monitoring	UAU	---	---	230	4	196.7	216.7	1078.05		
OU3-12M	M52ND STREET OU3	Monitoring	UAU	---	---	170	4	146.7	166.7	1090.79		
OU3-13M	M52ND STREET OU3	Monitoring	UAU	---	---	175	4	154.7	174.7	1095.75		
OU3-5SR	M52ND STREET OU3	Monitoring	UAU	---	---	120	4	69.7	119.7	1087.28		
OU3-5MR	M52ND STREET OU3	Monitoring	UAU	---	---	169	4	148.7	168.7	1087.37		
EW-22S	M52ND STREET OU3	Monitoring	UAU	---	---	112	4	58	108	1095.81		
EW-M	M52ND STREET OU3	Extraction	UAU	---	---	233	---	86	206	1103.61		

NOTES:
1. BTOC = Below top of casing.
2. AMSL = Above mean sea level (NAVD29).
3. bls = Below land surface.

TABLE A-2
VERTICAL HYDRAULIC GRADIENTS - FIRST AND THIRD QUARTER 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

WVBA Well ID	Alluvial Unit	ADWR #	Total Depth (feet BTOC)	Screen Top (feet bls)	Screen Bottom (feet bls)	Measuring Point Elevation (feet AMSL)	Depth to Water	Groundwater Elevation (feet AMSL)	dH (feet)	dL (feet)	Vertical Gradient (dH/dL)
FIRST QUARTER 2013											
AVB10-01	UAU1	55-532041	129	67	130	1,035.00	105.08	929.92	-0.69	120	-0.0057
AVB10-02	UAU2	55-532042	330	250	320	1,035.21	105.98	929.23			
AVB69-02R	UAU1	55-562053	124	75	125	1057.48	86.19	971.29	0.18	125	0.0014
AVB69-01	UAU2	55-562052	300	250	300	1,057.22	85.75	971.47			
AVB116-01	UAU1	55-596916	151	70	150	1,066.68	98.96	967.72	-0.71	50	-0.0142
AVB116-02	UAU2	55-202187	230	200	230	1,065.26	98.25	967.01			
AVB120·01	UAU1	55-596919	151	70	150	1,050.44	108.64	941.80	-0.19	90	-0.0021
AVB120-02	UAU2	55-596922	250	240	250	1,050.75	109.14	941.61			
AVB122-01	UAU1	55-596931	171	70	170	1,046.66	115.81	930.85	4.36	155	0.0281
AVB122-02	UAU1	55-596932	260	240	250	1,046.86	116.22	930.64			
AVB122-03	UAU2	55-202186	345	325	345	1,046.96	111.75	935.21			
AVB126-01	UAU1	55-211115	144	104	144	1,064.28	102.23	962.05	-0.10	74	-0.0014
AVB126-02	UAU2	55-211114	238	218	238	1,064.03	102.08	961.95			
AVB134-01	UAU1	55-211113	142	102	142	1,060.59	106.69	953.90	-0.68	82	-0.0083
AVB134-02	UAU2	55-211112	244	224	244	1,061.03	107.81	953.22			
THIRD QUARTER 2013											
AVB10-01	UAU1	55-532041	129	67	130	1,035.00	120.61	914.39	-0.96	120	-0.0080
AVB10-02	UAU2	55-532042	330	250	320	1,035.21	121.78	913.43			
AVB69-02R	UAU1	55-562053	124	75	125	1,057.01	108.25	948.76	-19.93	125	-0.1594
AVB69-01	UAU2	55-562052	300	250	300	1,057.22	128.39	928.83			
AVB116-01	UAU1	55-596916	151	70	150	1,066.68	117.25	949.43	-1.45	50	-0.0290
AVB116-02	UAU2	55-202187	230	200	230	1,065.26	117.28	947.98			
AVB120·01	UAU1	55-596919	151	70	150	1,050.44	134.33	916.11	0.45	90	0.0050
AVB120-02	UAU2	55-596922	250	240	250	1,050.75	134.19	916.56			
AVB122-01	UAU1	55-596931	171	70	170	1,046.66	133.21	913.45	0.52	155	0.0034
AVB122-02	UAU1	55-596932	260	240	250	1,046.86	132.69	914.17			
AVB122-03	UAU2	55-202186	345	325	345	1,046.96	132.99	913.97			
AVB126-01	UAU1	55-211115	144	104	144	1,064.28	126.91	937.37	-0.22	74	-0.0030
AVB126-02	UAU2	55-211114	238	218	238	1,064.03	126.88	937.15			
AVB134-01	UAU1	55-211113	142	102	142	1,060.59	131.73	928.86	-0.61	82	-0.0074
AVB134-02	UAU2	55-211112	244	224	244	1,061.03	132.78	928.25			

NOTES:
1. Negative dH/dL value represents a downward vertical gradient.
2. BTOC = Below top of casing.
3. AMSL = Above mean sea level (NAVD29).
4. bls = Below land surface.

TABLE A-3
MANN KENDALL TESTS - PCE AND TCE IN UAU GROUNDWATER
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well ID	Alluvial Unit	Constituent	Data Time Period	n	S	CF [%]	p	COV	Trend
AL MW-1	UAU1	PCE	2000 - 2012	14	6	61	0.39	0.28	No Trend
AL MW-2	UAU1	PCE	2000 - 2012	16	-7	61	0.40	0.24	Stable
AL MW-3	UAU1	PCE	2000 - 2012	16	-39	96	0.043	0.47	Decreasing
AL MW-4	UAU1	PCE	2008 - 2013	16	-51	99	0.011	0.36	Decreasing
AL MW-5	UAU1	PCE	2008 - 2013	17	-85	100	0.0010	0.47	Decreasing
AL MW-6	UAU1	PCE	2008 - 2013	16	-66	100	0.0010	0.48	Decreasing
AVB100-01	UAU1	PCE	2002 - 2012	15	-54	100	0.0030	0.83	Decreasing
AVB10-01	UAU1	PCE	1994 - 2013	33	-420	100	0.0010	1.3	Decreasing
AVB101-01	UAU1	PCE	2002 - 2012	13	-59	100	0.0010	0.52	Decreasing
AVB108-01	UAU1	PCE	1992 - 2013	40	-470	100	0.0010	2.2	Decreasing
AVB119-01	UAU1	PCE	2003 - 2013	19	133	100	0.0010	1.3	Increasing
AVB120-01	UAU1	PCE	2003 - 2013	19	-84	100	0.0010	0.33	Decreasing
AVB122-01	UAU1	PCE	2003 - 2013	20	-81	100	0.0040	0.70	Decreasing
AVB125-01	UAU1	PCE	2004 - 2013	16	8	62	0.38	0.59	No Trend
AVB126-01	UAU1	PCE	2006 - 2013	13	-33	98	0.025	0.39	Decreasing
AVB134-01	UAU1	PCE	2006 - 2013	12	-40	100	0.0030	0.28	Decreasing
AVB20-03	UAU1	PCE	2002 - 2013	20	-3	53	0.47	0.3	Stable
AVB40-07	UAU1	PCE	1994 - 2013	25	-160	100	0.0010	2.0	Decreasing
AVB47-01	UAU1	PCE	1994 - 2012	21	-66	98	0.024	1.2	Decreasing
AVB65-01	UAU1	PCE	1995 - 2011	12	-8	68	0.32	0.34	Stable
AVB69-02	UAU1	PCE	1997 - 2013	40	-475	100	0.0010	0.56	Decreasing
AVB70-01	UAU1	PCE	1998 - 2013	24	-108	100	0.0030	0.63	Decreasing
AVB75-01	UAU1	PCE	1998 - 2013	26	15	62	0.38	0.40	No Trend
AVB85-01	UAU1	PCE	2001 - 2013	25	-39	81	0.19	0.58	Stable
AVB87-01	UAU1	PCE	2001 - 2012	13	-30	96	0.038	0.45	Decreasing
AVB88-01	UAU1	PCE	2001 - 2013	40	-138	95	0.055	1.0	Probably Decreasing
AVB93-01	UAU1	PCE	2002 - 2013	19	-139	100	0.0010	0.87	Decreasing
CMW-1	UAU1	PCE	1995 - 2012	40	-166	97	0.027	0.91	Decreasing
CMW-2	UAU1	PCE	1995 - 2012	40	222	100	0.0050	0.75	Increasing
CMW-4	UAU1	PCE	1998 - 2012	21	-53	94	0.058	0.42	Probably Decreasing
CMW-5	UAU1	PCE	1998 - 2012	23	-113	100	0.0010	0.63	Decreasing
DIMW-2 (162-172)	UAU1	PCE	1994 - 2010	40	-580	100	0.0010	0.62	Decreasing
PRU-MW-1	UAU1	PCE	2008 - 2013	16	34	93	0.070	0.58	Probably Increasing
PRU-MW-2	UAU1	PCE	2008 - 2013	16	16	75	0.25	0.85	No Trend
PRU-MW-3	UAU1	PCE	2008 - 2013	16	60	100	0.0030	1.0	Increasing
Pru-MW-4	UAU1	PCE	2012 - 2013	3	Insufficient Data for Analysis				---
RID-102	UAU1	PCE	2000 - 2013	12	-29	97	0.026	0.36	Decreasing
RID-106	UAU1	PCE	2003 - 2012	12	-37	100	0.0050	0.30	Decreasing
RID-108	UAU1	PCE	1998 - 2013	17	-76	100	0.0010	0.32	Decreasing
RID-109	UAU1	PCE	2003 - 2013	15	-12	70	0.30	0.53	Stable
RID-110	UAU1	PCE	2000 - 2013	16	-3	54	0.46	0.61	Stable
RID-84	UAU1	PCE	1990 - 2013	19	-146	100	0.0010	1.0	Decreasing
RID-89	UAU1	PCE	2000 - 2013	14	-49	100	0.0030	0.16	Decreasing
RID-92	UAU1	PCE	2000 - 2013	14	-54	100	0.0010	0.29	Decreasing
RID-99	UAU1	PCE	2000 - 2013	13	-33	98	0.025	0.42	Decreasing
AVB10-02	UAU2	PCE	1994 - 2013	34	-317	100	0.0010	0.69	Decreasing
AVB120-02	UAU2	PCE	2003 - 2013	20	73	99	0.0090	0.31	Increasing
AVB124-01	UAU2	PCE	2004 - 2013	16	85	100	0.0010	0.23	Increasing
AVB132-01	UAU2	PCE	2006 - 2013	13	14	78	0.22	0.48	No Trend
AVB134-02	UAU2	PCE	2006 - 2013	14	-12	72	0.28	0.25	Stable
AVB136-01	UAU2	PCE	2006 - 2013	13	-14	78	0.22	0.28	Stable
AL MW-1	UAU1	TCE	2000 - 2012	14	57	100	0.0010	0.45	Increasing
AL MW-2	UAU1	TCE	2000 - 2012	16	43	97	0.029	0.51	Increasing
AL MW-3	UAU1	TCE	2000 - 2012	16	54	99	0.0080	0.42	Increasing
AL MW-4	UAU1	TCE	2008 - 2013	16	0	48	0.52	0.40	Stable

TABLE A-3
MANN KENDALL TESTS - PCE AND TCE IN UAU GROUNDWATER
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well ID	Alluvial Unit	Constituent	Data Time Period	n	S	CF [%]	p	COV	Trend
AL MW-5	UAU1	TCE	2008 - 2013	17	7	60	0.40	0.32	No Trend
AL MW-6	UAU1	TCE	2008 - 2013	16	-9	64	0.36	0.40	Stable
AVB101-01	UAU1	TCE	2002 - 2012	13	-54	100	0.0010	0.43	Decreasing
AVB107-01	UAU1	TCE	1998 - 2013	18	-49	97	0.034	0.75	Decreasing
AVB108-01	UAU1	TCE	1992 - 2013	40	-157	97	0.034	1.1	Decreasing
AVB115-01	UAU1	TCE	2003 - 2013	20	-142	100	0.0010	0.50	Decreasing
AVB118-01	UAU1	TCE	2003 - 2012	11	-57	100	0.0010	0.91	Decreasing
AVB120-01	UAU1	TCE	2003 - 2013	19	78	100	0.0030	0.36	Increasing
AVB122-01	UAU1	TCE	2003 - 2013	20	-21	74	0.26	0.51	Stable
AVB122-02	UAU1	TCE	2003 - 2013	22	-125	100	0.0010	2.44	Decreasing
AVB123-01	UAU1	TCE	2004 - 2013	16	-22	83	0.18	0.58	Stable
AVB126-01	UAU1	TCE	2006 - 2013	13	-67	100	0.0010	0.46	Decreasing
AVB127-01	UAU1	TCE	2004 - 2013	16	-22	83	0.18	0.47	Stable
AVB130-01	UAU1	TCE	2004 - 2013	16	-39	96	0.043	0.80	Decreasing
AVB134-01	UAU1	TCE	2006 - 2013	12	-35	99	0.0080	0.28	Decreasing
AVB15-01	UAU1	TCE	1989 - 2013	25	-105	99	0.0070	0.39	Decreasing
AVB20-03	UAU1	TCE	2002 - 2013	20	42	91	0.093	0.25	Probably Increasing
AVB40-07	UAU1	TCE	1994 - 2013	25	-242	100	0.0010	1.9	Decreasing
AVB40-08	UAU1	TCE	1998 - 2013	13	-46	100	0.0020	0.46	Decreasing
AVB53-01	UAU1	TCE	1998 - 2011	6	3	64	0.36	0.12	No Trend
AVB70-01	UAU1	TCE	1998 - 2013	24	-113	100	0.0020	0.77	Decreasing
AVB72-01	UAU1	TCE	1998 - 2013	21	38	87	0.13	0.94	No Trend
AVB85-01	UAU1	TCE	2001 - 2013	25	-76	96	0.040	0.57	Decreasing
AVB92-02	UAU1	TCE	2002 - 2013	21	152	100	0.0010	0.72	Increasing
AVB94-01	UAU1	TCE	2002 - 2013	17	-72	100	0.0010	0.65	Decreasing
OU3-10M	UAU1	TCE	2003 - 2013	24	-226	100	0.0010	1.0	Decreasing
OU3-10M2	UAU1	TCE	2003 - 2013	24	-170	100	0.0010	0.67	Decreasing
OU3-13M	UAU1	TCE	2003 - 2013	24	-205	100	0.0010	0.64	Decreasing
OU3-2M	UAU1	TCE	2002 - 2013	26	-272	100	0.0010	0.99	Decreasing
OU3-5M2	UAU1	TCE	2003 - 2013	24	-174	100	0.0010	0.44	Decreasing
OU3-8M2	UAU1	TCE	2002 - 2013	25	-135	100	0.0010	0.50	Decreasing
PRU-MW-3	UAU1	TCE	2008 - 2013	16	62	100	0.0020	0.96	Increasing
RID-100	UAU1	TCE	2003 - 2013	12	-50	100	0.0010	0.60	Decreasing
RID-106	UAU1	TCE	2003 - 2012	12	-49	100	0.0010	0.26	Decreasing
RID-107	UAU1	TCE	2003 - 2013	13	-57	100	0.0010	0.25	Decreasing
RID-109	UAU1	TCE	2003 - 2013	15	-74	100	0.0010	0.27	Decreasing
RID-112	UAU1	TCE	2000 - 2013	17	39	94	0.059	0.45	Probably Increasing
RID-113	UAU1	TCE	2003 - 2013	12	-20	90	0.098	0.42	Probably Decreasing
RID-114	UAU1	TCE	2003 - 2013	15	-65	100	0.00	0.24	Decreasing
RID-89	UAU1	TCE	2000 - 2013	14	-3	54	0.46	0.11	Stable
RID-92	UAU1	TCE	2000 - 2013	14	-23	88	0.12	0.14	Stable
RID-95	UAU1	TCE	2003 - 2013	12	3	55	0.45	0.12	No Trend
AVB116-02	UAU2	TCE	2004 - 2013	16	-90	100	0.0010	0.61	Decreasing
AVB120-02	UAU2	TCE	2003 - 2013	20	28	81	0.19	0.30	No Trend
AVB124-01	UAU2	TCE	2004 - 2013	16	52	99	0.010	0.29	Increasing
AVB126-02	UAU2	TCE	2006 - 2013	13	-40	99	0.0070	0.45	Decreasing
AVB132-01	UAU2	TCE	2006 - 2013	13	30	96	0.038	0.47	Increasing
AVB134-02	UAU2	TCE	2006 - 2013	14	40	99	0.015	1.4	Increasing
AVB136-01	UAU2	TCE	2006 - 2013	13	-27	94	0.057	0.31	Probably Decreasing

NOTES:
1. n = number of sampling points
2. S = Mann-Kendall Statistic
3. CF = confidence factor
4. p = probability value based on n and S.
5. COV = coefficient of variation

TABLE A-4
TREND ANALYSIS - ESTIMATED PCE AND TCE CONCENTRATIONS IN 2026
FOR WELLS WITH DECREASING TRENDS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well	Constituent	Data Period	Result Count	Mann Kendall Trend	Best Fit Line R-Squared	Estimated Concentration in 2026
AL MW-4	PCE	2008 - 2013	17	Decreasing	0.50	0.7
AL MW-5	PCE	2008 - 2013	18	Decreasing	0.69	0.6
AL MW-6	PCE	2008 - 2013	18	Decreasing	0.53	0.3
AVB100-01	PCE	2002 - 2012	15	Decreasing	0.32	10.8
AVB10-01	PCE	1994 - 2013	33	Decreasing	0.85	1.3
AVB101-01	PCE	2002 - 2012	13	Decreasing	0.56	0.8
AVB120-01	PCE	2003 - 2013	19	Decreasing	0.40	3.1
AVB126-01	PCE	2006 - 2013	12	Decreasing	0.17	2.5
AVB134-01	PCE	2006 - 2013	12	Decreasing	0.79	1.1
AVB69-02	PCE	1997 - 2013	58	Decreasing	0.55	2.6
AVB70-01	PCE	1998 - 2013	24	Decreasing	0.28	4.07
AVB87-01	PCE	2001 - 2012	13	Decreasing	0.38	5.5
AVB93-01	PCE	2002 - 2013	19	Decreasing	0.84	0.7
CMW-5	PCE	1998 - 2012	23	Decreasing	0.44	5.3
DIMW-2 (162-172)	PCE	1994 - 2010	47	Decreasing	0.81	2.6
RID-102	PCE	2000 - 2013	12	Decreasing	0.27	4.4
RID-106	PCE	2003 - 2012	12	Decreasing	0.60	8.7
RID-108	PCE	1998 - 2013	17	Decreasing	0.36	3.8
RID-84	PCE	1990 - 2013	19	Decreasing	0.83	1.3
RID-89	PCE	2000 - 2013	14	Decreasing	0.50	6.1
RID-92	PCE	2000 - 2013	14	Decreasing	0.51	7.0
RID-99	PCE	2000 - 2013	13	Decreasing	0.37	2.7
AVB101-01	TCE	2002 - 2012	13	Decreasing	0.59	6.34
AVB107-01	TCE	1998 - 2013	18	Decreasing	0.46	1.5
AVB115-01	TCE	2003 - 2013	19	Decreasing	0.82	7.1
AVB118-01	TCE	2003 - 2012	11	Decreasing	0.94	0.04
AVB126-01	TCE	2006 - 2013	12	Decreasing	0.89	0.5
AVB134-01	TCE	2006 - 2013	12	Decreasing	0.49	26.2
AVB15-01	TCE	1989 - 2013	26	Decreasing	0.17	37.7
AVB40-08	TCE	1998 - 2013	13	Decreasing	0.64	3.8
AVB70-01	TCE	1998 - 2013	24	Decreasing	0.40	1.6
AVB94-01	TCE	2002 - 2013	16	Decreasing	0.12	5.6
OU3-10M	TCE	2003 - 2013	24	Decreasing	0.82	0.1
OU3-10M2	TCE	2003 - 2013	24	Decreasing	0.46	3.6
OU3-13M	TCE	2003 - 2013	24	Decreasing	0.81	2.8
OU3-2M	TCE	2002 - 2013	26	Decreasing	0.90	0.5
OU3-5M2	TCE	2003 - 2013	24	Decreasing	0.73	15.0
OU3-8M2	TCE	2002 - 2013	25	Decreasing	0.26	6.1
RID-100	TCE	2003 - 2013	12	Decreasing	0.73	1.9
RID-106	TCE	2003 - 2012	12	Decreasing	0.90	2.7
RID-107	TCE	2003 - 2013	13	Decreasing	0.83	3.0
RID-109	TCE	2003 - 2013	15	Decreasing	0.80	2.3
RID-113	TCE	2003 - 2013	12	Probably Decreasing	0.33	3.91
RID-114	TCE	2003 - 2013	15	Decreasing	0.62	24.4

TABLE A-5
TREND ANALYSIS - TCE CONCENTRATION REDUCTION FACTOR
FOR SELECT UAU1 WELLS WITH DECREASING TRENDS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well	Constituent	Data Period	Result Count	Mann Kendall Trend	Best Fit Line R-Squared	2013 TCE Concentration	Estimated TCE Concentration in 2026	Reduction Factor
AVB101-01	TCE	2002 - 2012	13	Decreasing	0.59	19	6.34	0.67
AVB107-01	TCE	1998 - 2013	18	Decreasing	0.46	20.1	1.5	0.92
AVB115-01	TCE	2003 - 2013	19	Decreasing	0.82	40.8	7.1	0.83
AVB118-01	TCE	2003 - 2012	11	Decreasing	0.94	5.49	0.04	0.99
AVB126-01	TCE	2006 - 2013	12	Decreasing	0.89	5.39	0.5	0.91
AVB134-01	TCE	2006 - 2013	12	Decreasing	0.49	77.7	26.2	0.66
OU3-10M	TCE	2003 - 2013	24	Decreasing	0.82	7.2	0.1	0.99
OU3-10M2	TCE	2003 - 2013	24	Decreasing	0.46	36	3.6	0.90
OU3-13M	TCE	2003 - 2013	24	Decreasing	0.81	22	2.8	0.87
OU3-2M	TCE	2002 - 2013	26	Decreasing	0.90	25	0.5	0.98
OU3-5M2	TCE	2003 - 2013	24	Decreasing	0.73	81	15.0	0.81
OU3-8M2	TCE	2002 - 2013	25	Decreasing	0.26	17	6.1	0.64
RID-100	TCE	2003 - 2013	12	Decreasing	0.73	9.38	1.9	0.80
RID-106	TCE	2003 - 2012	12	Decreasing	0.90	7.49	2.7	0.64
RID-107	TCE	2003 - 2013	13	Decreasing	0.83	7.82	3.0	0.61
RID-109	TCE	2003 - 2013	15	Decreasing	0.80	6.92	2.3	0.66
RID-113	TCE	2003 - 2013	12	Probably Decreasing	0.33	8.14	3.91	0.52
RID-114	TCE	2003 - 2013	15	Decreasing	0.62	48.6	24.4	0.50

Minimum Reduction Factor =	0.50
Maximum Reduction Factor =	0.99
Average Reduction Factor =	0.77

TABLE A-6
TREND ANALYSIS - ESTIMATED 2026 CONCENTRATIONS AND RATIONALE
FOR UAU1 WELLS CURRENTLY ABOVE AWQS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well ID	Constituent	Estimated 2026 Concentration	Units	Comments
AL MW-1	PCE	5.1	µg/l	No trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB100-01	PCE	10.8	µg/l	Declining trend - Projected 2026 concentration used
AVB10-01	PCE	1.3	µg/l	Declining trend - Projected 2026 concentration used
AVB101-01	PCE	0.8	µg/l	Declining trend - Projected 2026 concentration used
AVB108-01	PCE	10.3	µg/l	Declining trend based on overall data set, but stable trend for last 10 years - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB119-01	PCE	87.5	µg/l	Increasing trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB120-01	PCE	3.1	µg/l	Declining trend - Projected 2026 concentration used
AVB122-01	PCE	13.4	µg/l	Declining trend based on overall data set, but recent increasing trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB125-01	PCE	18.1	µg/l	No trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB126-01	PCE	2.5	µg/l	Declining trend - Projected 2026 concentration used
AVB134-01	PCE	1.1	µg/l	Declining trend - Projected 2026 concentration used
AVB20-03	PCE	8.6	µg/l	Stable Trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB40-07	PCE	24.5	µg/l	Declining trend based on overall data set, but stable trend for last 10 years - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB47-01	PCE	93.9	µg/l	Variability in data set - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB65-01	PCE	7.25	µg/l	Stable Trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB69-02	PCE	2.6	µg/l	Declining trend - Projected 2026 concentration used
AVB70-01	PCE	4.07	µg/l	Declining trend - Projected 2026 concentration used
AVB75-01	PCE	13.6	µg/l	No trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB85-01	PCE	36.8	µg/l	Stable Trend - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB87-01	PCE	5.5	µg/l	Declining trend - Projected 2026 concentration used
AVB88-01	PCE	65.1	µg/l	Variability in data set - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB93-01	PCE	0.7	µg/l	Declining trend - Projected 2026 concentration used
DIMW-2 (162-172)	PCE	2.6	µg/l	Declining trend - Projected 2026 concentration used

TABLE A-6
TREND ANALYSIS - ESTIMATED 2026 CONCENTRATIONS AND RATIONALE
FOR UAU1 WELLS CURRENTLY ABOVE AWQS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

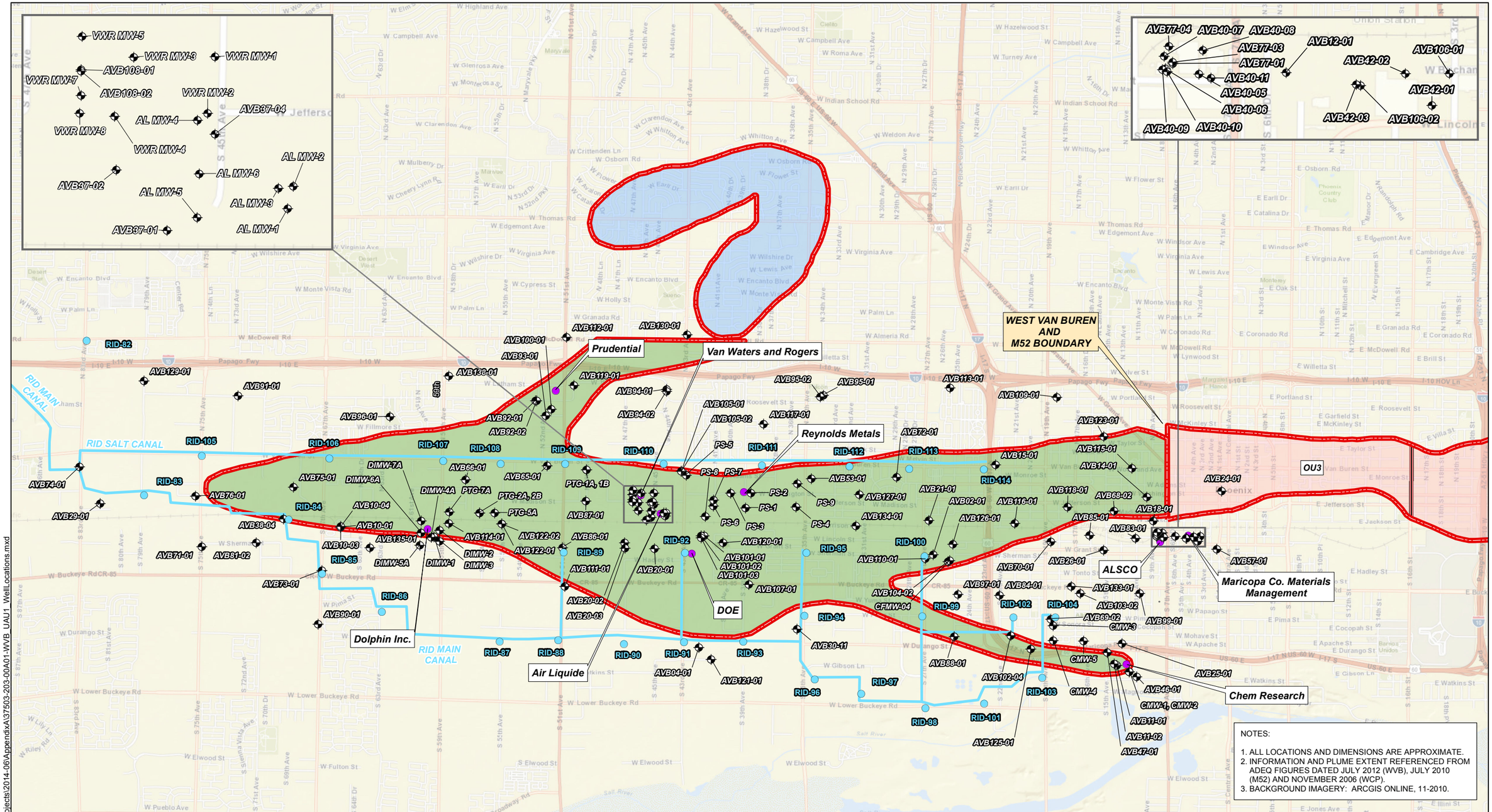
Well ID	Constituent	Estimated 2026 Concentration	Units	Comments
PRU-MW-1	PCE	142	µg/l	Probably increasing - Q1 2013 or most recent value used if not sampled in Q1 2013
PRU-MW-2	PCE	116	µg/l	No trend - Q1 2013 or most recent value used if not sampled in Q1 2013
PRU-MW-3	PCE	1120	µg/l	Increasing trend - Q1 2013 or most recent value used if not sampled in Q1 2013
Pru-MW-4	PCE	141	µg/l	2013 or most recent value used if not sampled in Q1 2013
RID-102	PCE	4.4	µg/l	Declining trend - Projected 2026 concentration used
RID-106	PCE	8.7	µg/l	Declining trend - Projected 2026 concentration used
RID-108	PCE	3.8	µg/l	Declining trend - Projected 2026 concentration used
RID-109	PCE	6.65	µg/l	Stable Trend - Q1 2013 or most recent value used if not sampled in Q1 2013
RID-110	PCE	6.85	µg/l	Stable Trend - Q1 2013 or most recent value used if not sampled in Q1 2013
RID-84	PCE	1.3	µg/l	Declining trend - Projected 2026 concentration used
RID-89	PCE	6.1	µg/l	Declining trend - Projected 2026 concentration used
RID-92	PCE	7	µg/l	Declining trend - Projected 2026 concentration used
RID-99	PCE	2.7	µg/l	Declining trend - Projected 2026 concentration used
CMW-1	PCE	274	µg/l	Variability in data set - Q1 2013 or most recent value used if not sampled in Q1 2013
CMW-2	PCE	38	µg/l	Increasing trend - Q1 2013 or most recent value used if not sampled in Q1 2013
CMW-4	PCE	24.5	µg/l	2013 or most recent value used if not sampled in Q1 2013
CMW-5	PCE	5.3	µg/l	Declining trend - Projected 2026 concentration used
AL MW-1	TCE	12	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AL MW-2	TCE	4	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AL MW-3	TCE	6	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AL MW-4	TCE	6	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AL MW-5	TCE	9	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AL MW-6	TCE	5	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB101-01	TCE	6	µg/l	Declining trend - Projected 2026 concentration used
AVB107-01	TCE	2	µg/l	Declining trend - Projected 2026 concentration used

TABLE A-6
TREND ANALYSIS - ESTIMATED 2026 CONCENTRATIONS AND RATIONALE
FOR UAU1 WELLS CURRENTLY ABOVE AWQS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well ID	Constituent	Estimated 2026 Concentration	Units	Comments
AVB108-01	TCE	6	µg/l	Declining trend based on overall data set, but stable trend for last 10 years - 50% Reduction Factor Applied to 2013 value
AVB115-01	TCE	7	µg/l	Declining trend - Projected 2026 concentration used
AVB118-01	TCE	0.05	µg/l	Declining trend - Projected 2026 concentration used
AVB120-01	TCE	37	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB122-01	TCE	5	µg/l	Declining trend based on overall data set, but recent increasing trend - 50% Reduction Factor Applied to 2013 value
AVB123-01	TCE	4	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB126-01	TCE	0.5	µg/l	Declining trend - Projected 2026 concentration used
AVB127-01	TCE	17	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB130-01	TCE	8.4	µg/l	Outside of Plume Core - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB134-01	TCE	26	µg/l	Declining trend - Projected 2026 concentration used
AVB15-01	TCE	35	µg/l	Declining trend - Projected 2026 concentration used
AVB20-03	TCE	24	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB40-07	TCE	6.59	µg/l	Outside of Plume Core - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB40-08	TCE	4	µg/l	Declining trend - Projected 2026 concentration used
AVB53-01	TCE	47	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB70-01	TCE	2	µg/l	Declining trend - Projected 2026 concentration used
AVB72-01	TCE	3	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
AVB85-01	TCE	10.1	µg/l	Outside of Plume Core - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB92-02	TCE	13.5	µg/l	Outside of Plume Core - Q1 2013 or most recent value used if not sampled in Q1 2013
AVB94-01	TCE	6	µg/l	Declining trend - Projected 2026 concentration used
OU3-10M2	TCE	4	µg/l	Declining trend - Projected 2026 concentration used
OU3-13M	TCE	3	µg/l	Declining trend - Projected 2026 concentration used
OU3-16M	TCE	46	µg/l	Not enough data for trend analysis - 50% Reduction Factor Applied to 2013 value
OU3-5M2	TCE	15	µg/l	Declining trend - Projected 2026 concentration used

TABLE A-6
TREND ANALYSIS - ESTIMATED 2026 CONCENTRATIONS AND RATIONALE
FOR UAU1 WELLS CURRENTLY ABOVE AWQS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Well ID	Constituent	Estimated 2026 Concentration	Units	Comments
OU3-8M2	TCE	6	µg/l	Declining trend - Projected 2026 concentration used
PRU-MW-3	TCE	18.8	µg/l	Outside of Plume Core - Q1 2013 or most recent value used if not sampled in Q1 2013
PS-4	TCE	17	µg/l	Not enough data for trend analysis - 50% Reduction Factor Applied to 2013 value
RID-100	TCE	2	µg/l	Declining trend - Projected 2026 concentration used
RID-106	TCE	3	µg/l	Declining trend - Projected 2026 concentration used
RID-107	TCE	3	µg/l	Declining trend - Projected 2026 concentration used
RID-109	TCE	2	µg/l	Declining trend - Projected 2026 concentration used
RID-112	TCE	3	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
RID-113	TCE	4	µg/l	Declining trend - Projected 2026 concentration used
RID-114	TCE	24	µg/l	Declining trend - Projected 2026 concentration used
RID-89	TCE	17	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
RID-92	TCE	37	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value
RID-95	TCE	27	µg/l	Stable/No Trend in Plume Core - 50% Reduction Factor Applied to 2013 value



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WCP).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- WVBA MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- SELECT FACILITIES WITHIN THE WEST VAN BUREN WQARF SITE
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

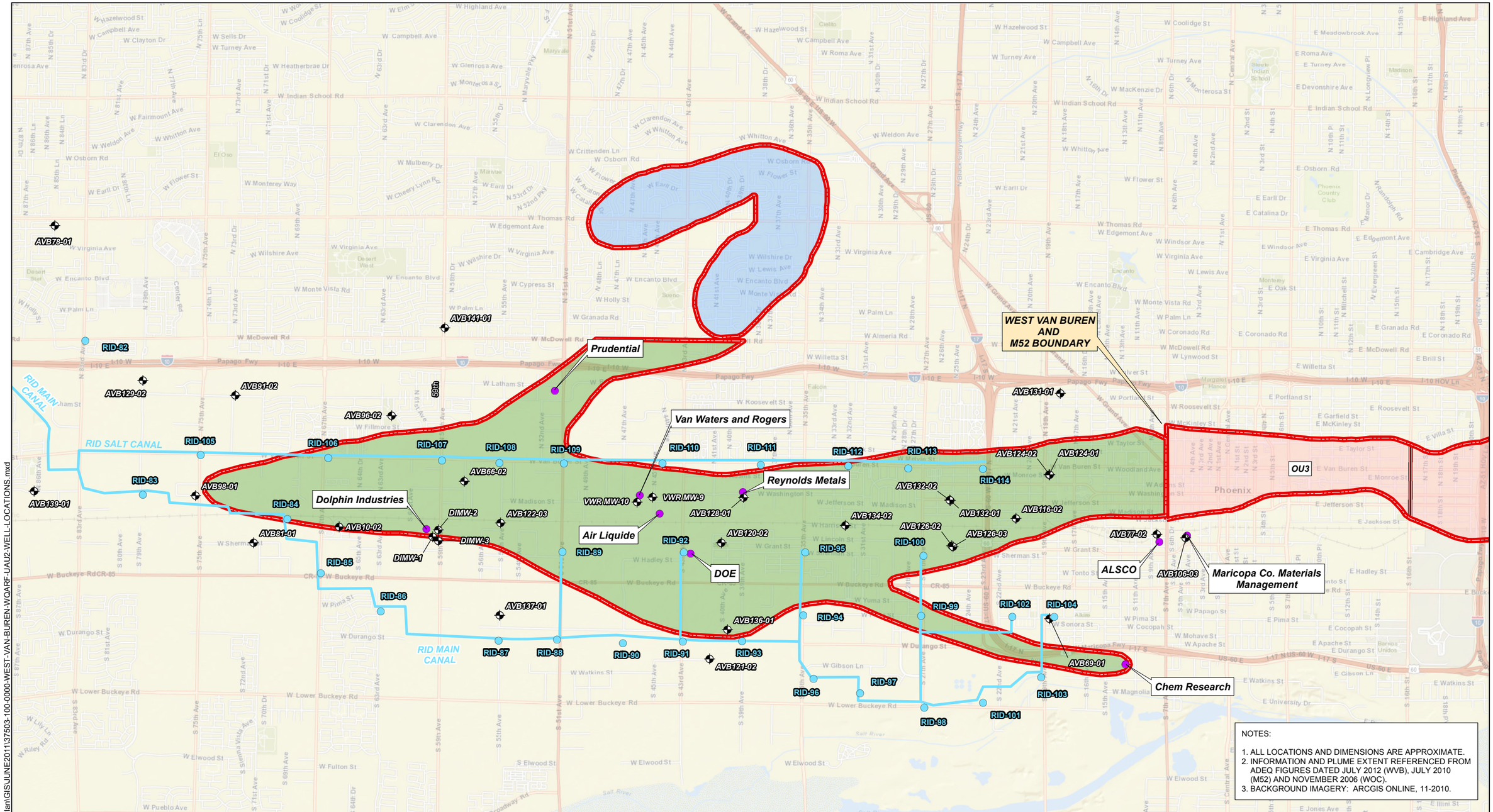
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

WEST VAN BUREN WQARF
UAU1 WELL LOCATIONS

SCALE: AS SHOWN
JULY 2014

FIGURE A-1

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A01-WVB_UAU1_WellLocations.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- WVBA MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- SELECT FACILITIES WITHIN THE WEST VAN BUREN WQARF SITE
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

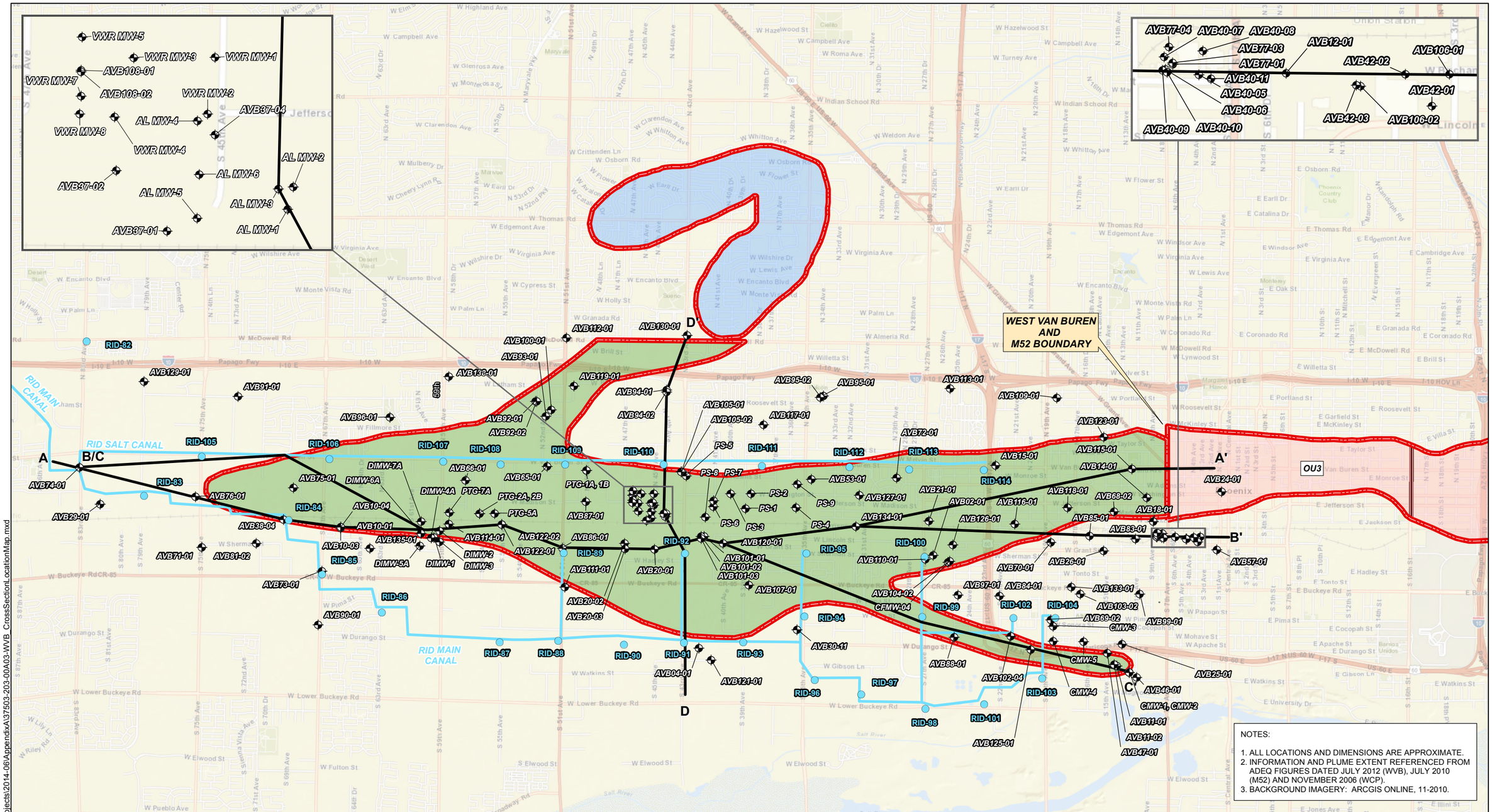
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

WEST VAN BUREN WQARF
UAU2 WELL LOCATIONS

SCALE: AS SHOWN
JULY 2014

FIGURE A-2

G:\37503_West_Van_Buren\100_Work Plan\GIS\JUNE2011\37503-100-0000-WEST-VAN-BUREN-WQARF-UAU2-WELL-LOCATIONS.mxd



LEGEND

- WVBA MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- A ——— A' CROSS SECTION LINE
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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0 5000
SCALE IN FEET

HALEY & ALDRICH

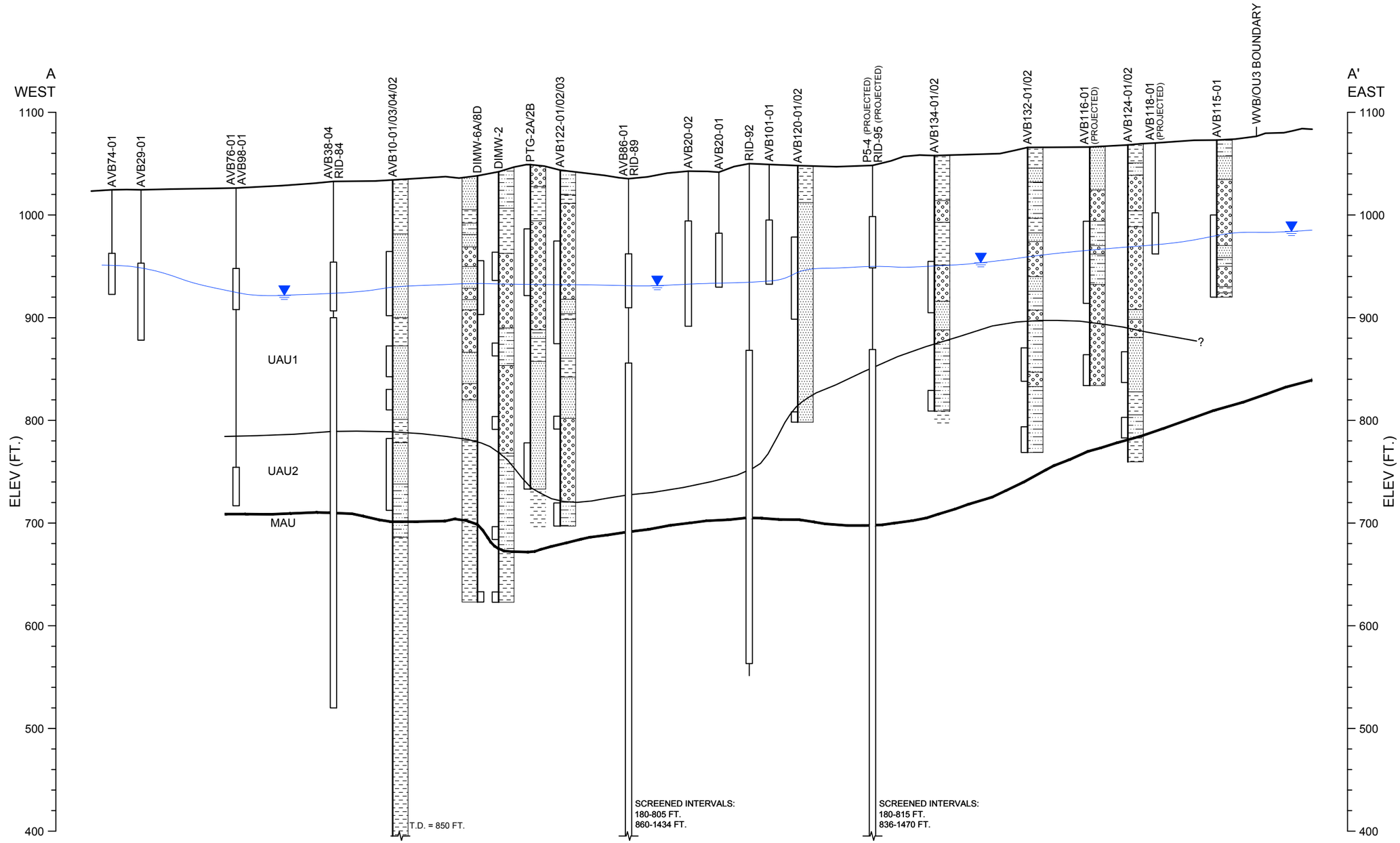
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

CROSS-SECTION LOCATION MAP

SCALE: AS SHOWN
JULY 2014

FIGURE A-3

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A03-WVB_CrossSectionLocationMap.mxd



EXPLORATION LEGEND

RID-84
- WELL DESIGNATION
- GROUND SURFACE
- WATER LEVELS - Q1 2008
- SCREENED INTERVAL

GEOLOGIC LEGEND:

- SILT / CLAY (ML/CL)
- SILTY / CLAYEY SAND / GRAVEL (GM/GC/SM/SC)
- SAND WITH GRAVEL (SP/SW)
- GRAVEL WITH SAND (GW)

HORIZ. 0 4000 8000
VERT. 0 100 200
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

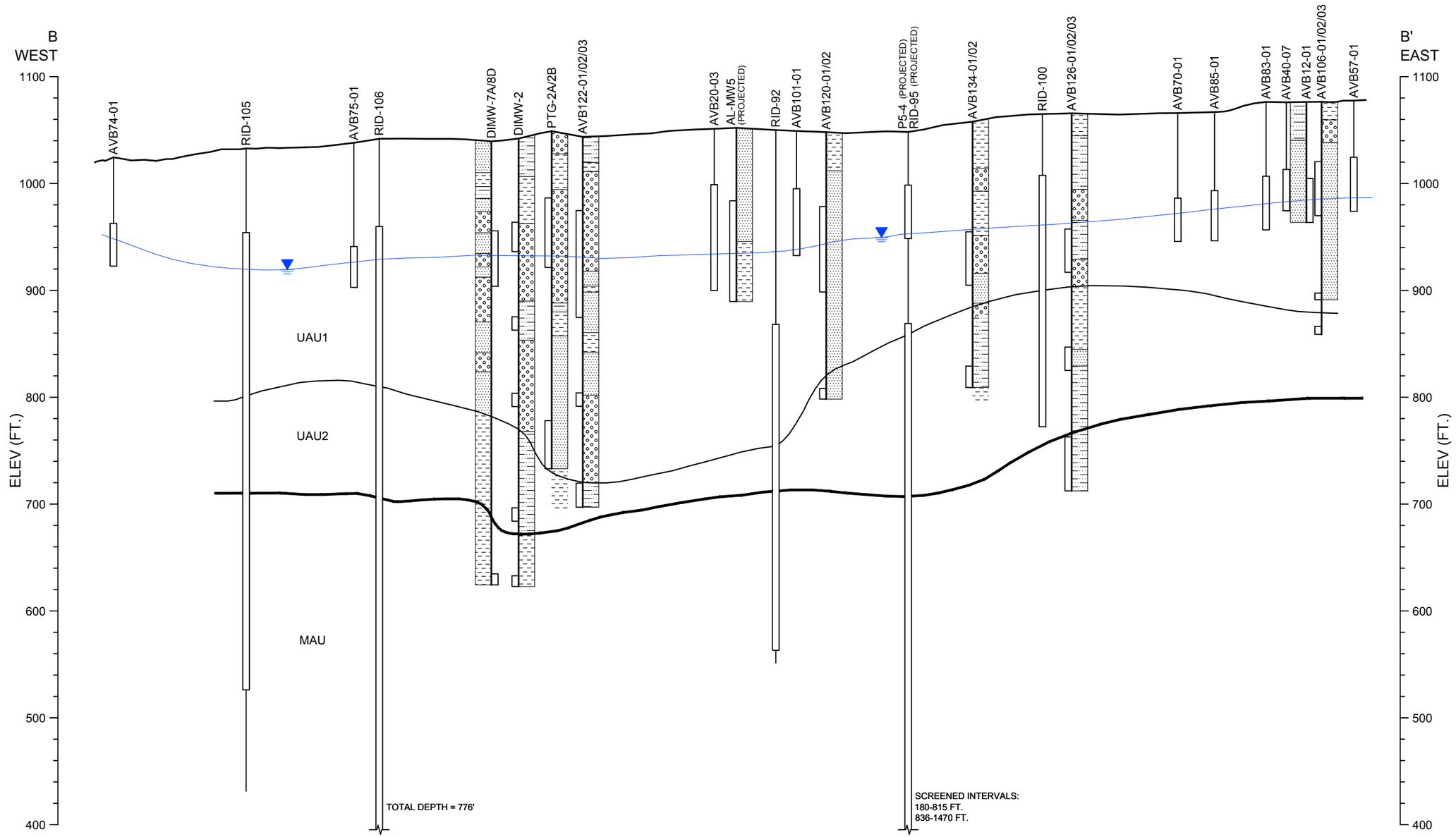
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

SCHEMATIC CROSS-SECTION A-A'

SCALE: AS SHOWN
JULY 2014

FIGURE A-4

G:\37503_VAN_BUREN\GLOBAL\CAD\DRAWINGS\2014-06\37053-203-00A4-7-CROSSSECTIONS.DWG



EXPLORATION LEGEND

RID-84 — WELL DESIGNATION
GROUND SURFACE
WATER LEVELS - Q1 2008
SCREENED INTERVAL

GEOLOGIC LEGEND:

- SILT / CLAY (ML/CL)
- SILTY / CLAYEY SAND / GRAVEL (GM/GC/SM/SC)
- SAND WITH GRAVEL (SP/SW)
- GRAVEL WITH SAND (GW)

HORIZ. 0 4000 8000
VERT. 0 100 200
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

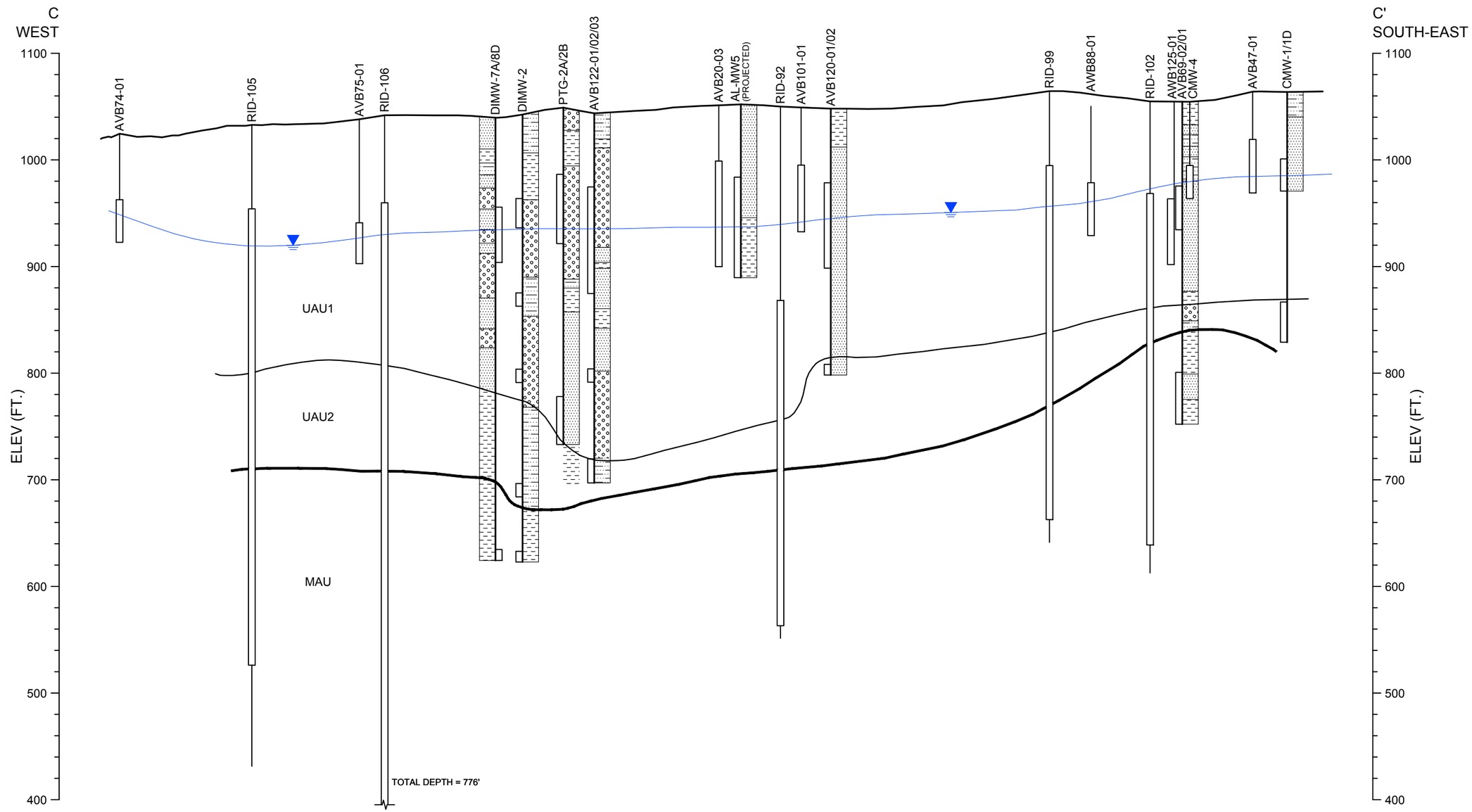
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

SCHEMATIC CROSS-SECTION B-B'

SCALE: AS SHOWN
JULY 2014

FIGURE A-5

G:\37503_VAN_BUREN\GLOBAL\CAD\DRAWINGS\2014-06\37053-203-00A4-7-CROSSSECTIONS.DWG



EXPLORATION LEGEND

RID-84 — WELL DESIGNATION
GROUND SURFACE
WATER LEVELS - Q1 2008
SCREENED INTERVAL

GEOLOGIC LEGEND:

- SILT / CLAY (ML/CL)
- SILTY / CLAYEY SAND / GRAVEL (GM/GC/SM/SC)
- SAND WITH GRAVEL (SP/SW)
- GRAVEL WITH SAND (GW)

HORIZ. 0 4000 8000
VERT. 0 100 200
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

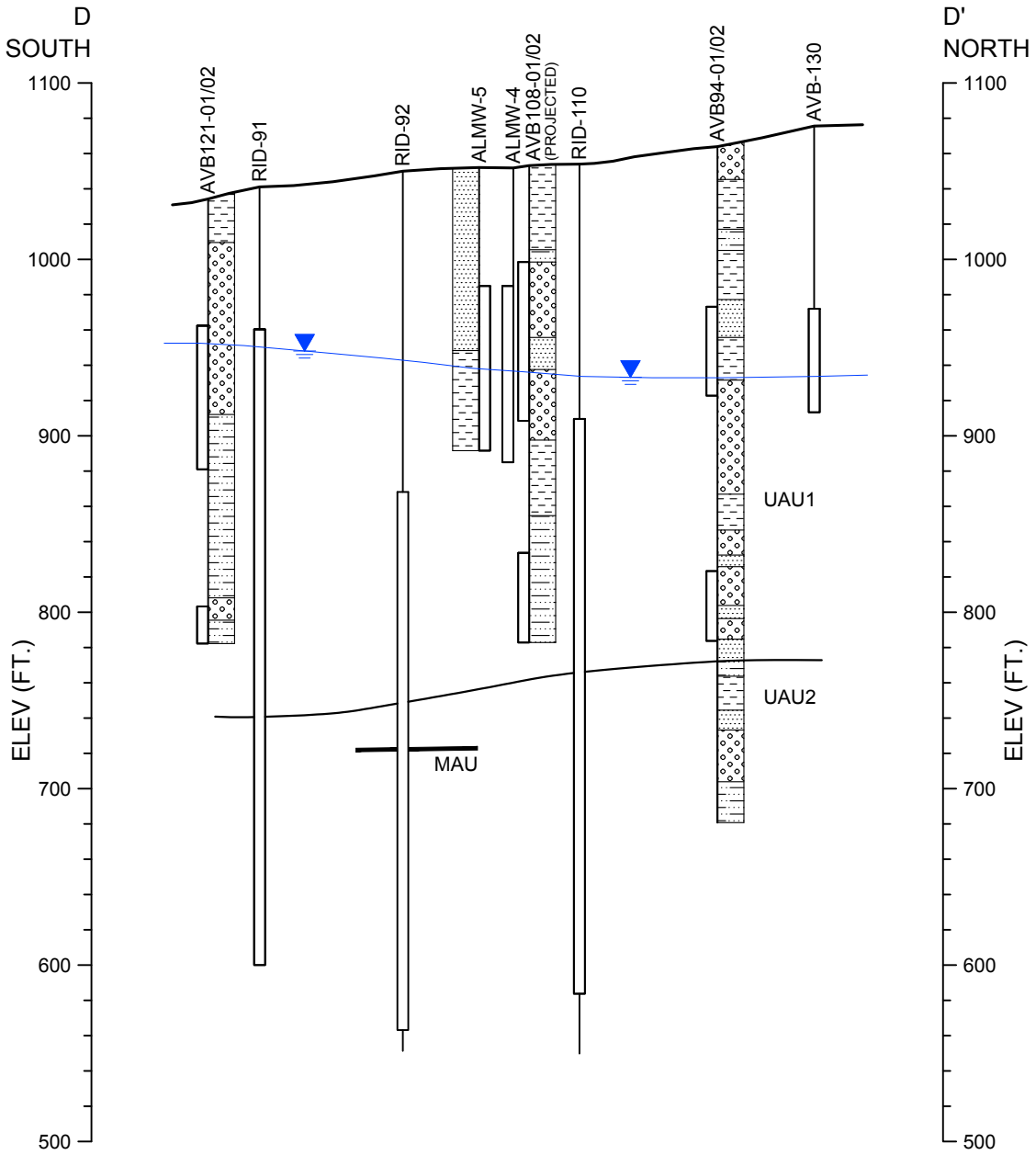
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

SCHEMATIC CROSS-SECTION C-C'

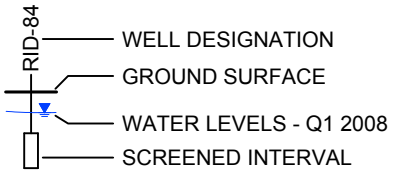
SCALE: AS SHOWN
JULY 2014

FIGURE A-6

G:\37503_VAN_BUREN\GLOBAL\CAD\DRAWINGS\2014-06\37053-203-00A4-7-CROSSSECTIONS.DWG



EXPLORATION LEGEND



GEOLOGIC LEGEND:

- SILT / CLAY (ML/CL)
- SILTY / CLAYEY SAND / GRAVEL (GM/GC/SM/SC)
- SAND WITH GRAVEL (SP/SW)
- GRAVEL WITH SAND (GW)

HORIZ. 0 4000 8000
VERT. 0 100 200
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

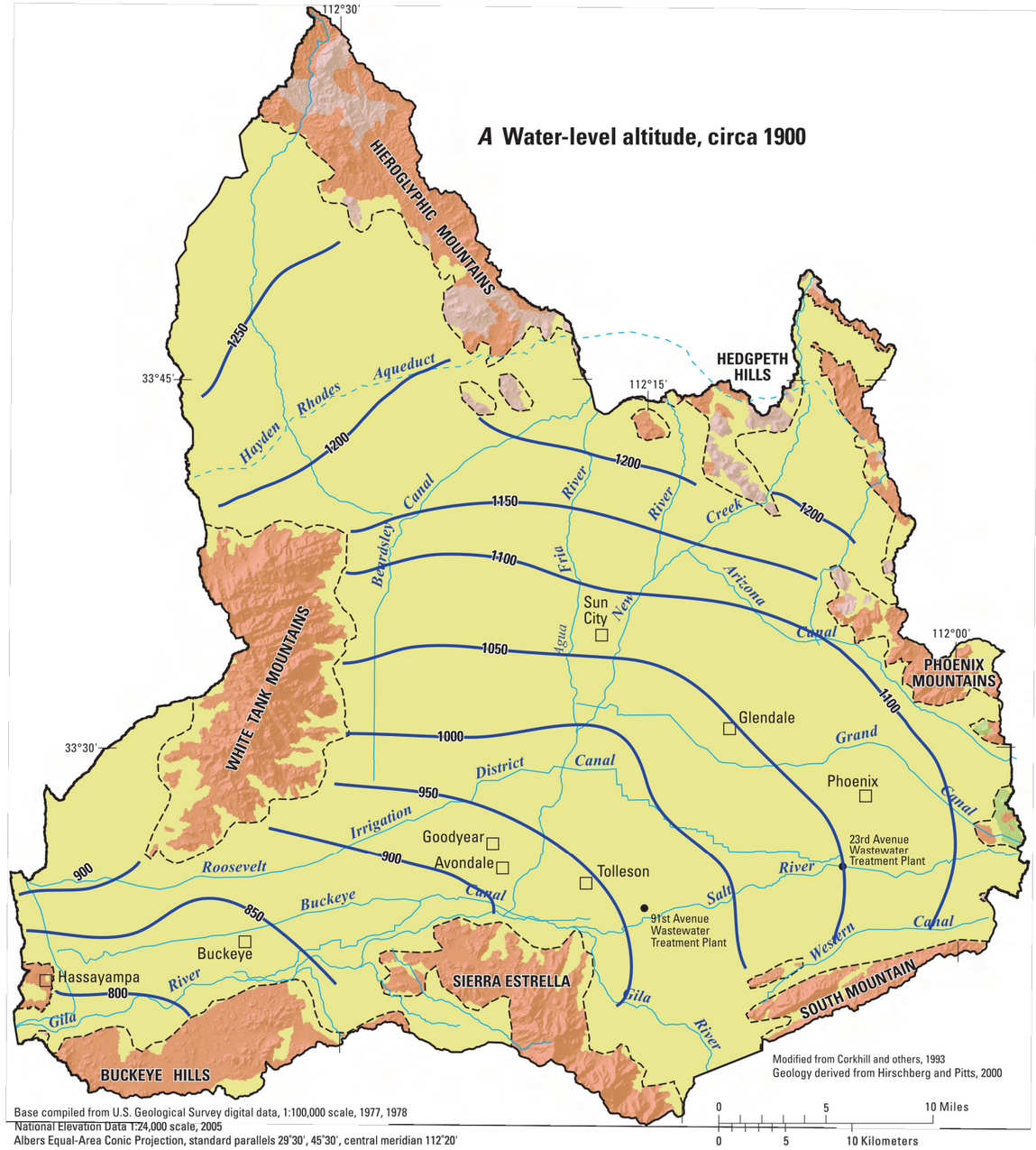
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

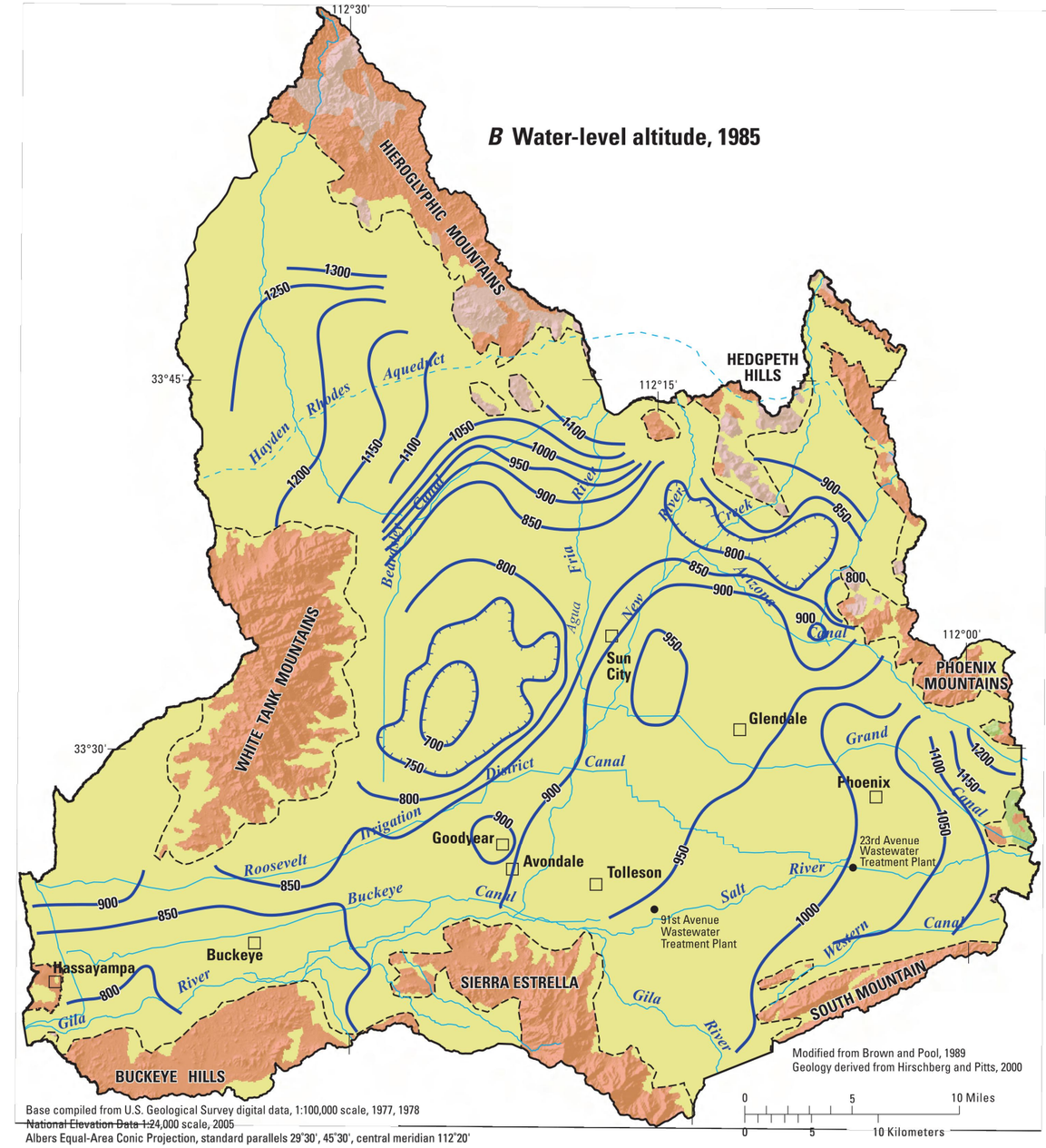
SCHEMATIC CROSS-SECTION D-D'

SCALE: AS SHOWN
JULY 2014

FIGURE A-7

G:\37503_VAN_BUREN\GLOBAL\CAD\DRAWINGS\2014-06\37053-203-00A4~7-CROSSSECTIONS.DWG





EXPLANATION

Geology

- Metamorphic or intrusive igneous rocks
- Sedimentary-dominated rocks
- Volcanic rocks
- Basin-fill sediments

–850– Water-level altitude, in feet—Datum for contour lines is the National Geodetic Vertical Datum of 1929

– – – – Approximate boundary of basin-fill sediments

——— Study area boundary

NOTES:

Regional water level maps from the United States Geological Survey's Conceptual Understanding and Groundwater Quality of Selected Basin-Fill Aquifers in the Southwestern United States, Professional Paper 1781. 2010.

HALEY & ALDRICH

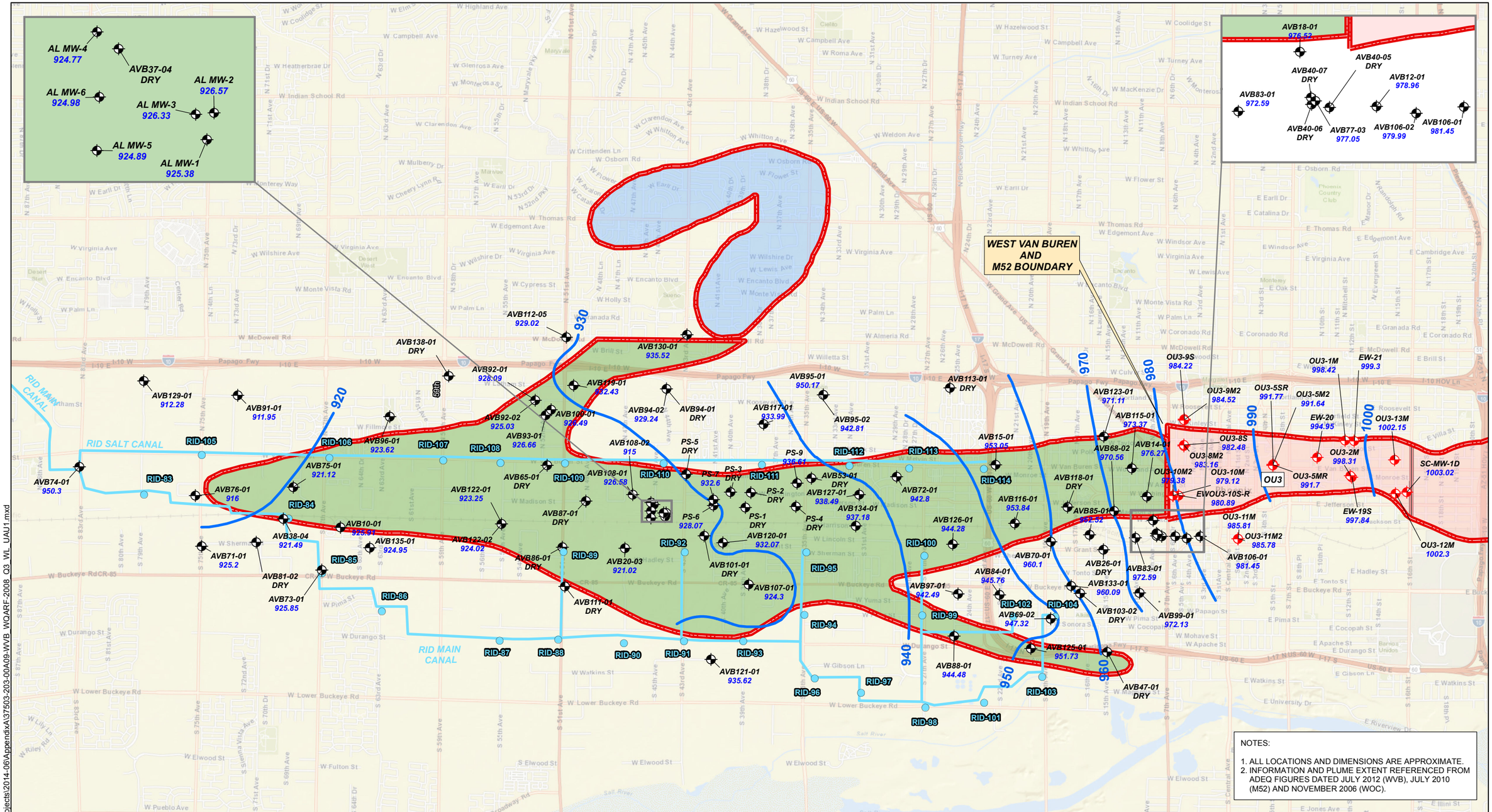
WEST VAN BUREN AREA
WQAEF SITE
PHOENIX, ARIZONA

REGIONAL WATER LEVELS
WITHIN THE WSRV - 1900 AND 1985

SCALE: NOT TO SCALE
JULY 2014

FIGURE A-8

G:\37503_VAN_BUREN\GLOBAL\CAD\DRAWINGS\2014-06\37503-203-00A8-REGIONALWATERCONTOUR.DWG



LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- WATER LEVEL ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

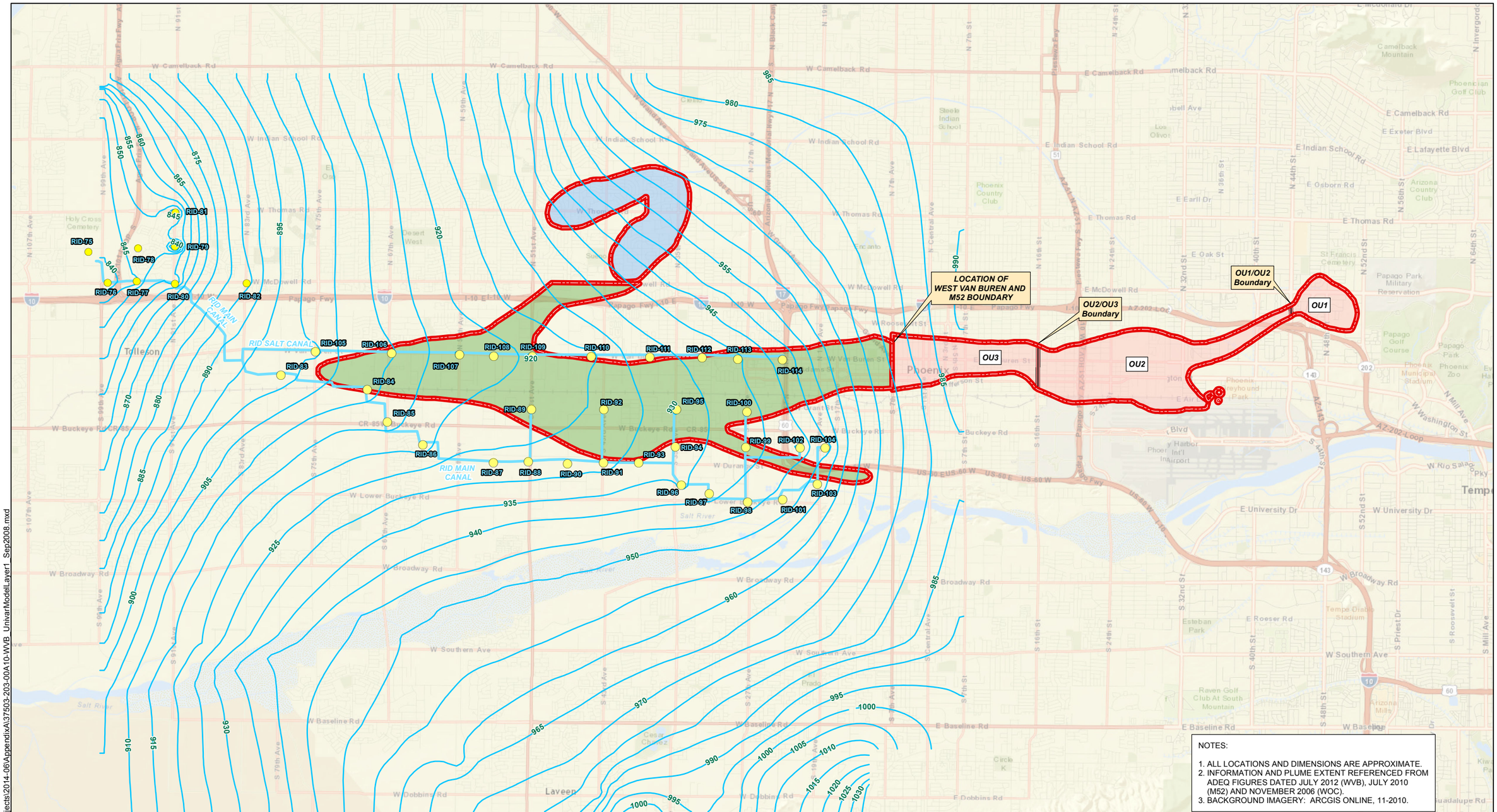
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

WATER LEVEL CONTOURS-
UAU1 THIRD QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-9

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\Appendix\37503-203-00A09-WVB_WQARF-2008_Q3_WL_UAU1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- OU AREA BOUNDARY
- WVB 38-YEAR FLOW MODEL LAYER 1 - SEPTEMBER 2008
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

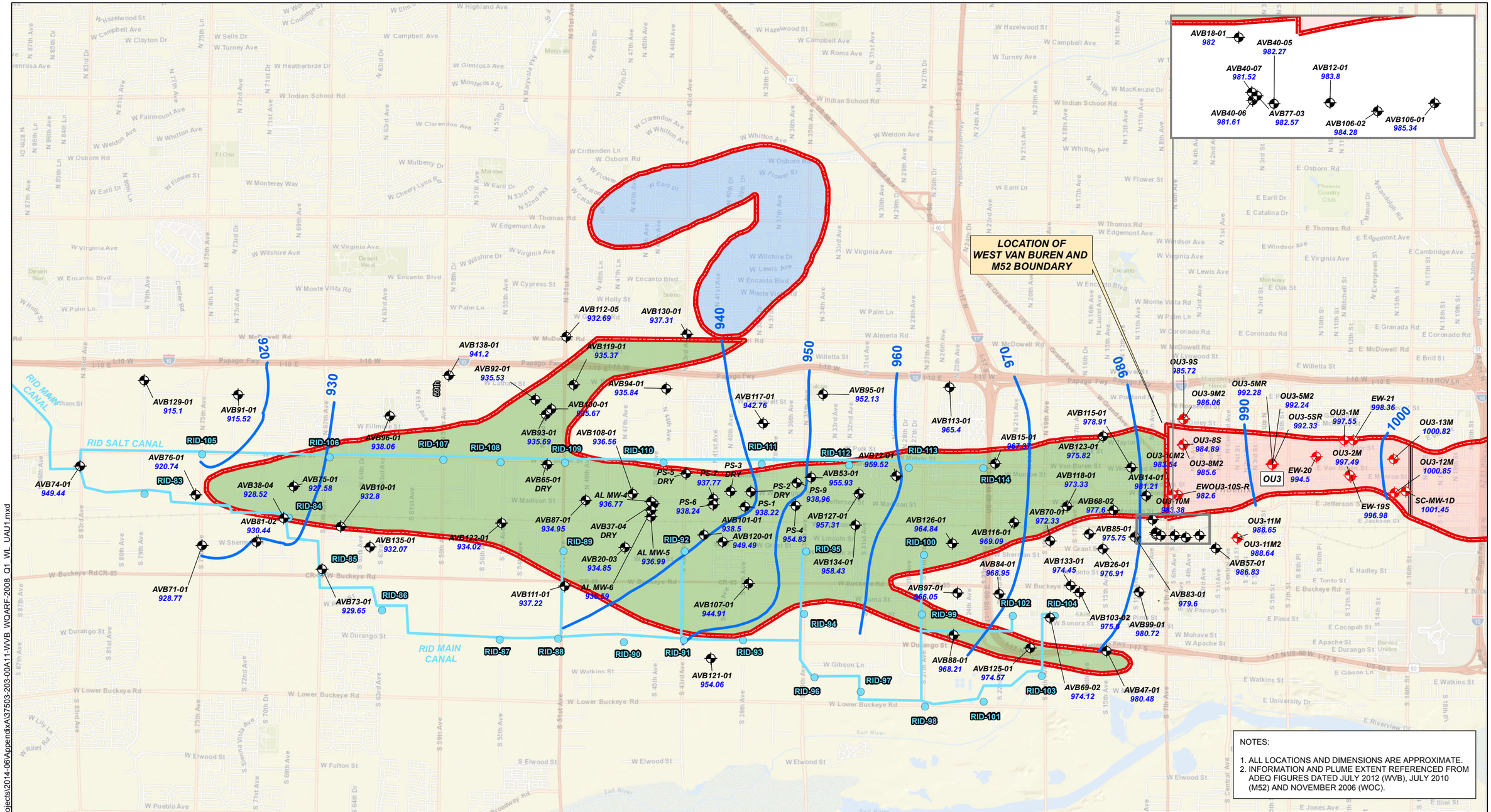
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

WVB 38-YEAR FLOW MODEL – LAYER 1
HEAD CONTOUR MAP (SEPTEMBER 2008)

SCALE: AS SHOWN
JULY 2014

FIGURE A-10

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A10-WVB_UnivarModelLayer1_Sep2008.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- WATER LEVEL ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

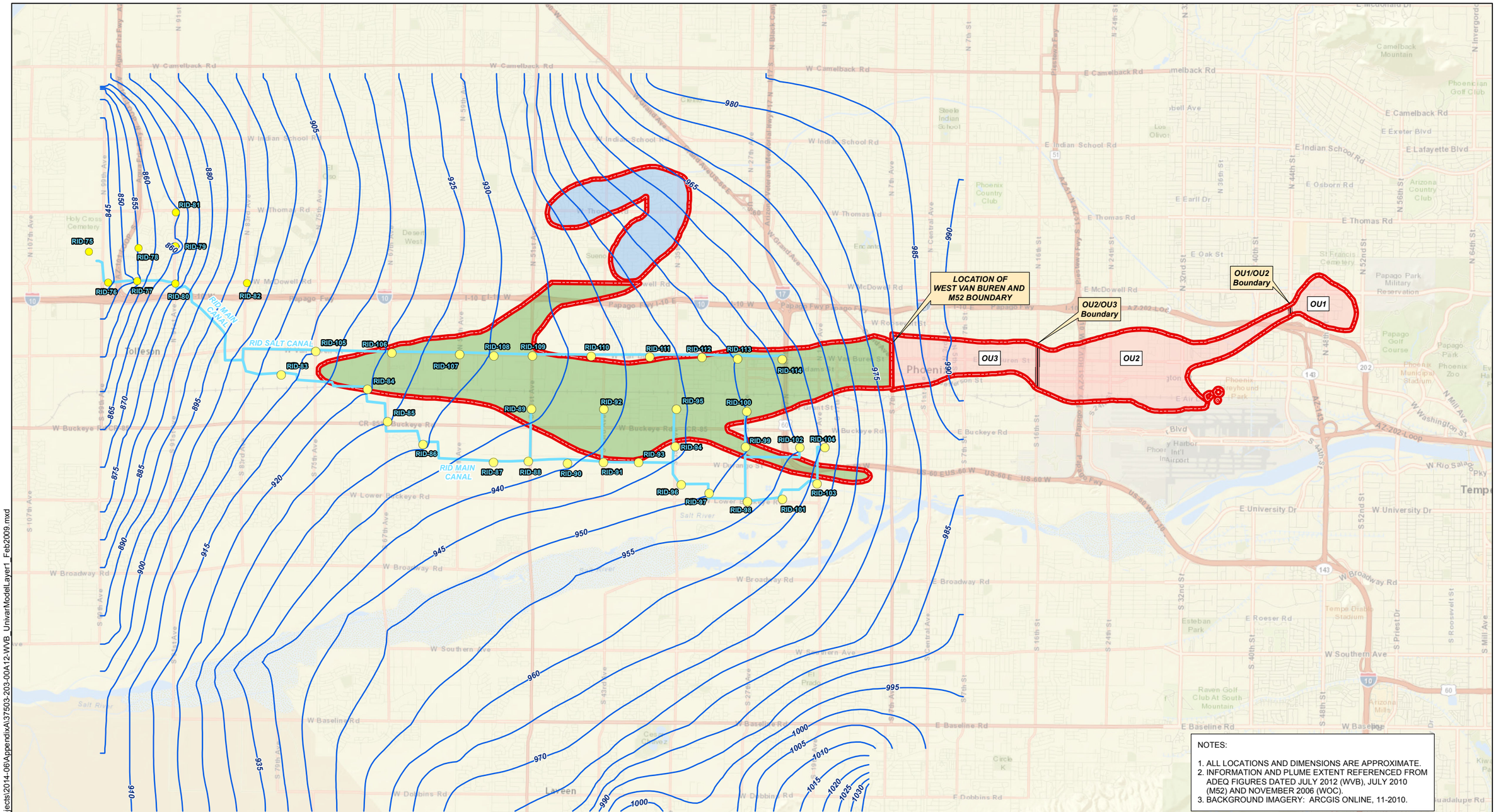
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

WATER LEVEL CONTOURS-
UAU1 FIRST QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-11

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A11-WVB_WQARF-2008_Q1_WL_UAU1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- OU AREA BOUNDARY
- WVB 38-YEAR FLOW MODEL LAYER 1 - FEBRUARY 2009
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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SCALE IN FEET

HALEY & ALDRICH

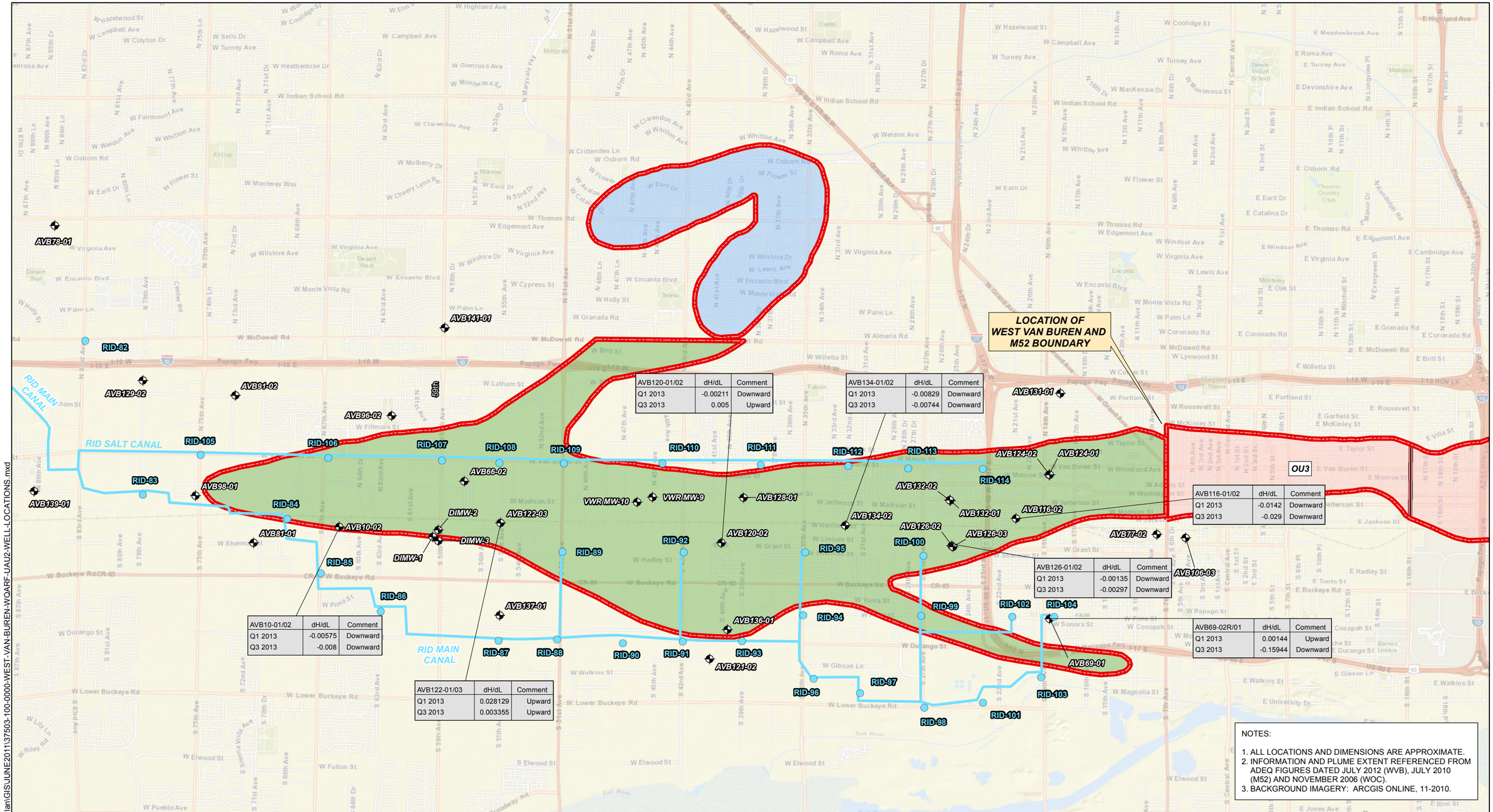
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

WVB 38-YEAR FLOW MODEL – LAYER 1
HEAD CONTOUR MAP (FEBRUARY 2009)

SCALE: AS SHOWN
JULY 2014

FIGURE A-12

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\Appendix\37503-203-00A12-WVB_UnivarModelLayer1_Feb2009.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- WVBA - UAU2 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

WELL ID — VERTICAL HYDRAULIC GRADIENT

AVB134-01/02	dH/dL	Comment
Q1 2013	-0.00829	Downward
Q3 2013	-0.00744	Downward

QUARTER

N W E S

0 5000
SCALE IN FEET

HALEY & ALDRICH

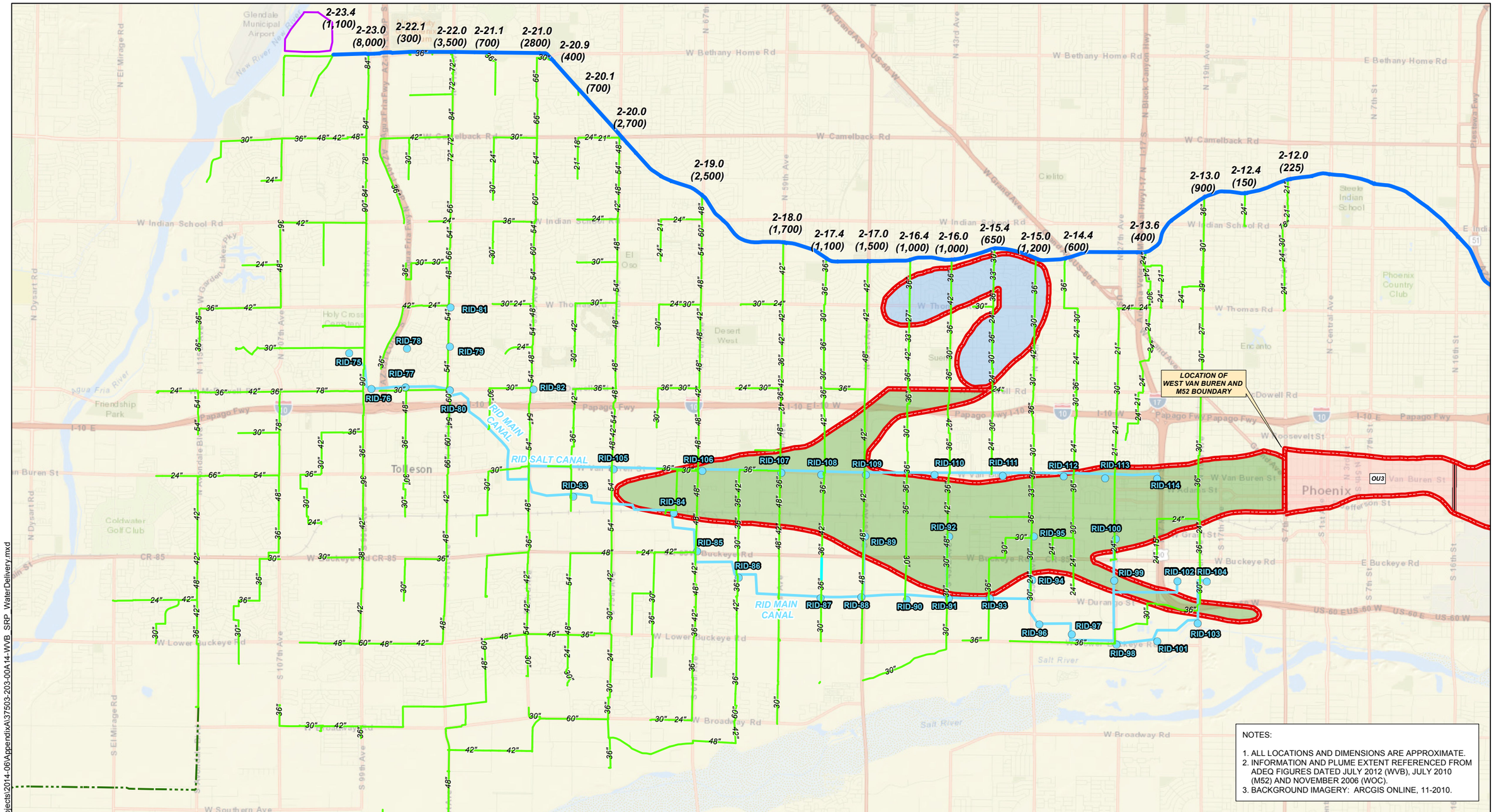
WEST VAN BUREN
WQARF SITE
PHOENIX, AZ

VERTICAL HYDRAULIC GRADIENTS - 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-13

G:\37503_West_Van_Buren\100_Work Plan\GIS\JUNE2011\37503-100-0000-WEST-VAN-BUREN-WQARF-UAU2-WELL-LOCATIONS.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WOC).
3. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

LEGEND

- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- **2-22.0 (3,500)** CANAL-LATERAL CAPACITY IN MINER INCHES
- SRP GRAND CANAL
- 42" SRP LATERAL WITH DIAMETER (INCHES)
- DELIVERY TO BUCKEYE IRRIGATION DISTRICT
- RID CANAL OR LATERAL
- NEW RIVER-AGUA FRIA UNDERGROUND STORAGE PROJECT
- OU AREA BOUNDARY
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

N W E S

0 5000
SCALE IN FEET

HALEY & ALDRICH

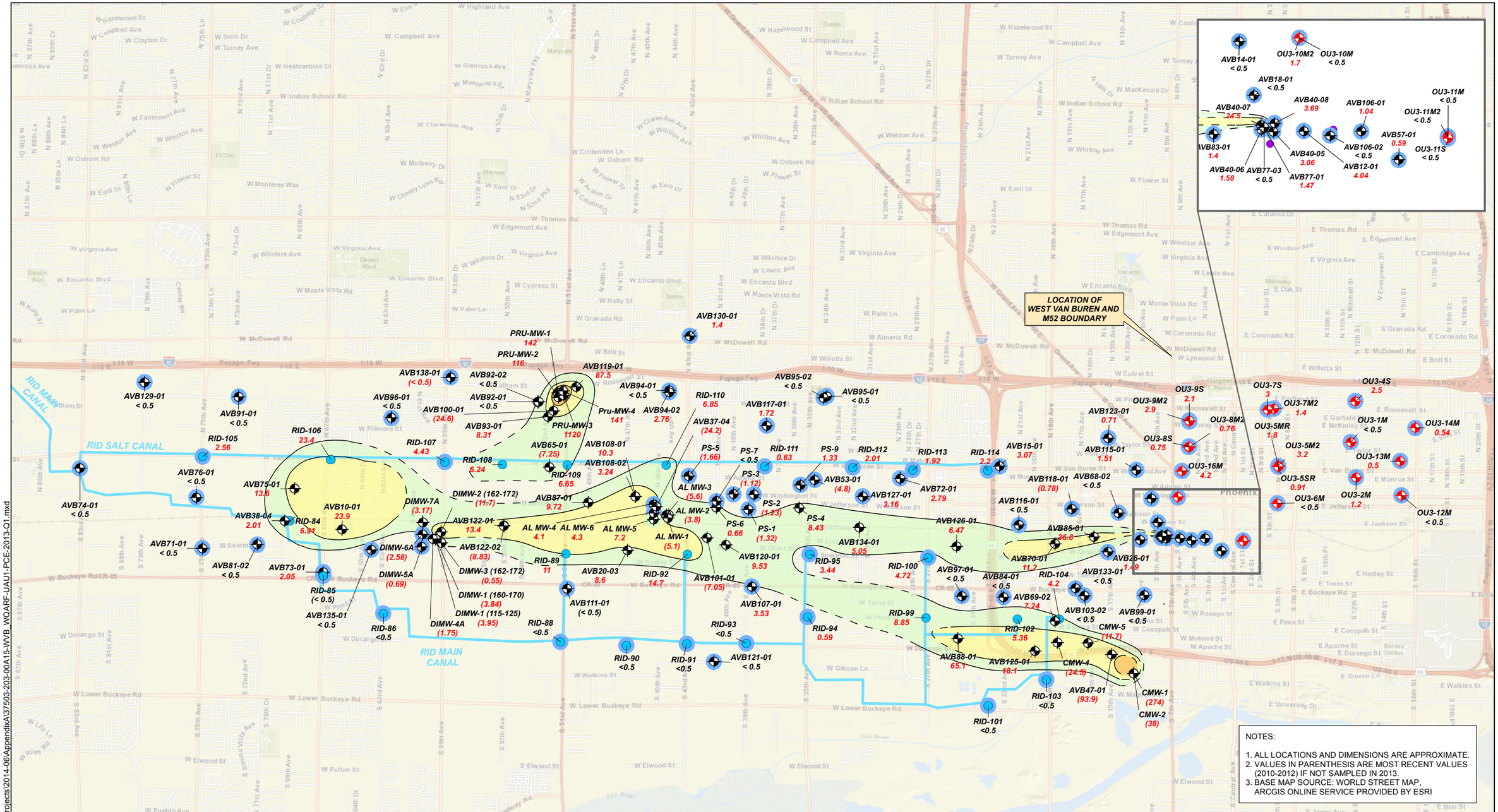
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

SURFACE WATER
AND CANAL LOCATIONS

SCALE: AS SHOWN
JULY 2014

FIGURE A-14

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A14-WVB_SRP_WaterDelivery.mxd



LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N W E S

0 5000

SCALE IN FEET

HALEY & ALDRICH

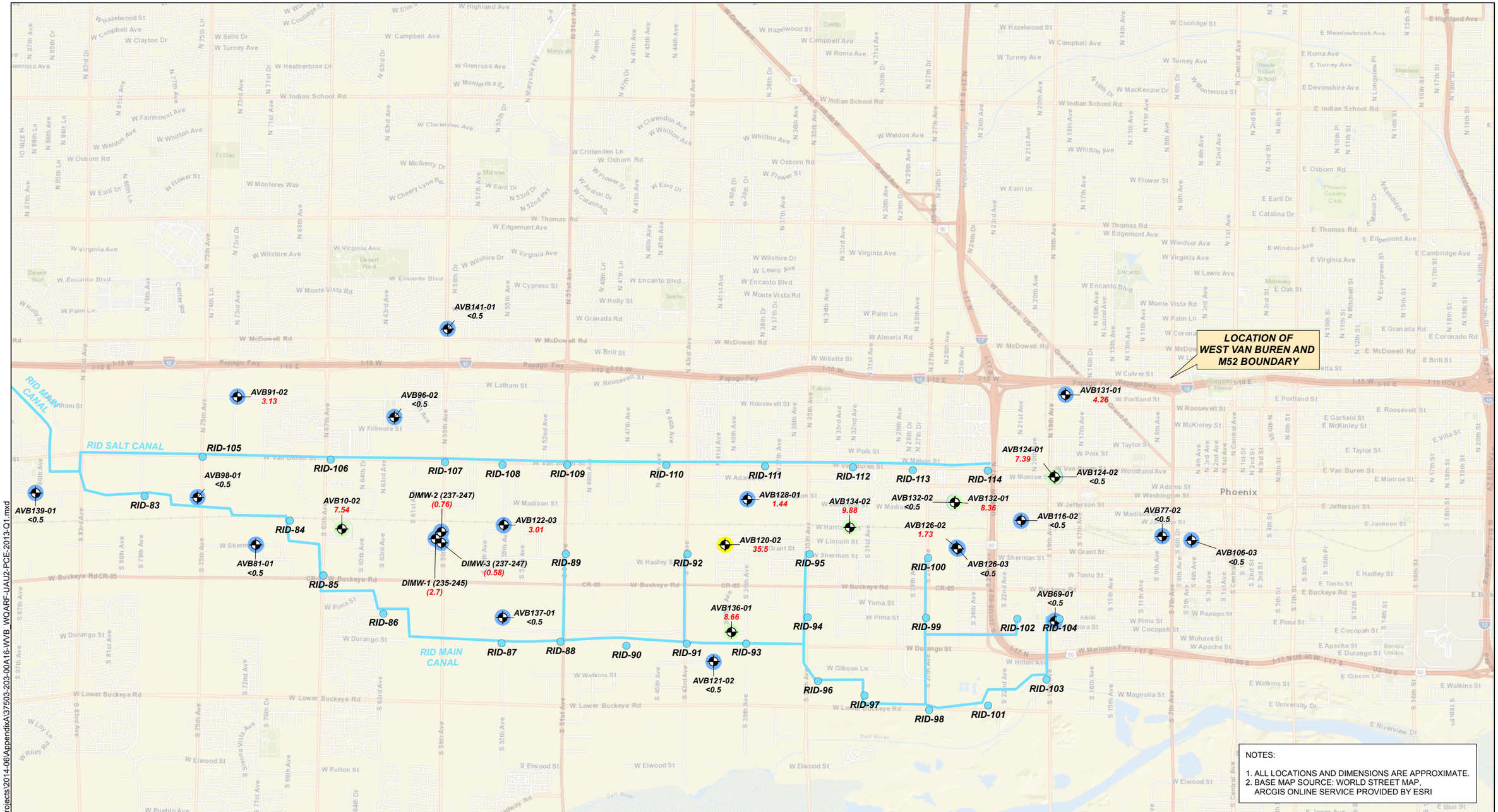
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

PCE CONCENTRATIONS IN UAU1 GROUNDWATER – FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-15

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A15-WVB_WQARF-UAU1-PCE-2013-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
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0 5000
SCALE IN FEET

HALEY & ALDRICH

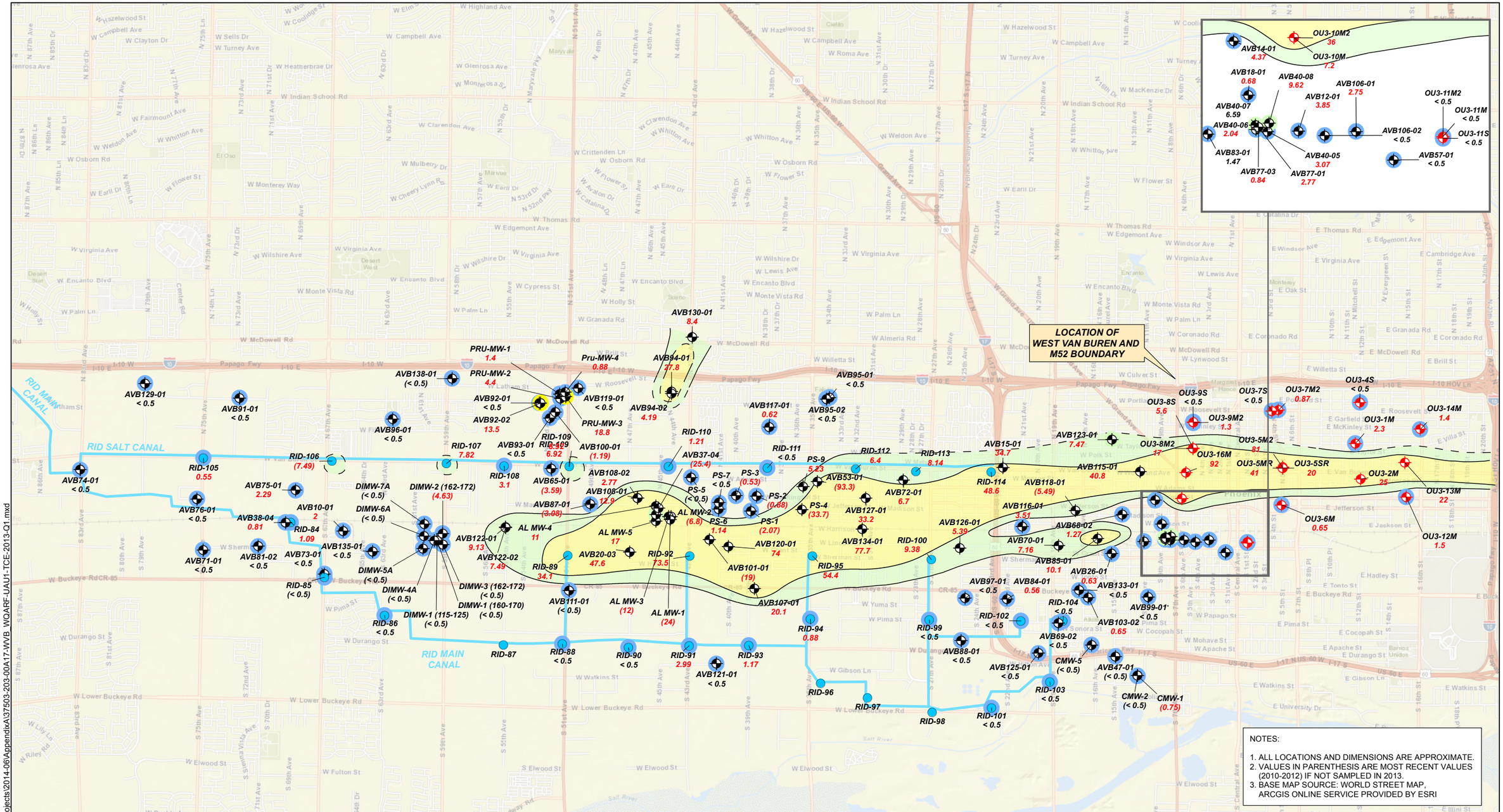
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

PCE CONCENTRATIONS IN UAU2 GROUNDWATER – FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-16

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A16-WVB_WQARF-UAU2-PCE-2013-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. VALUES IN PARENTHESIS ARE MOST RECENT VALUES (2010-2012) IF NOT SAMPLED IN 2013.
3. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

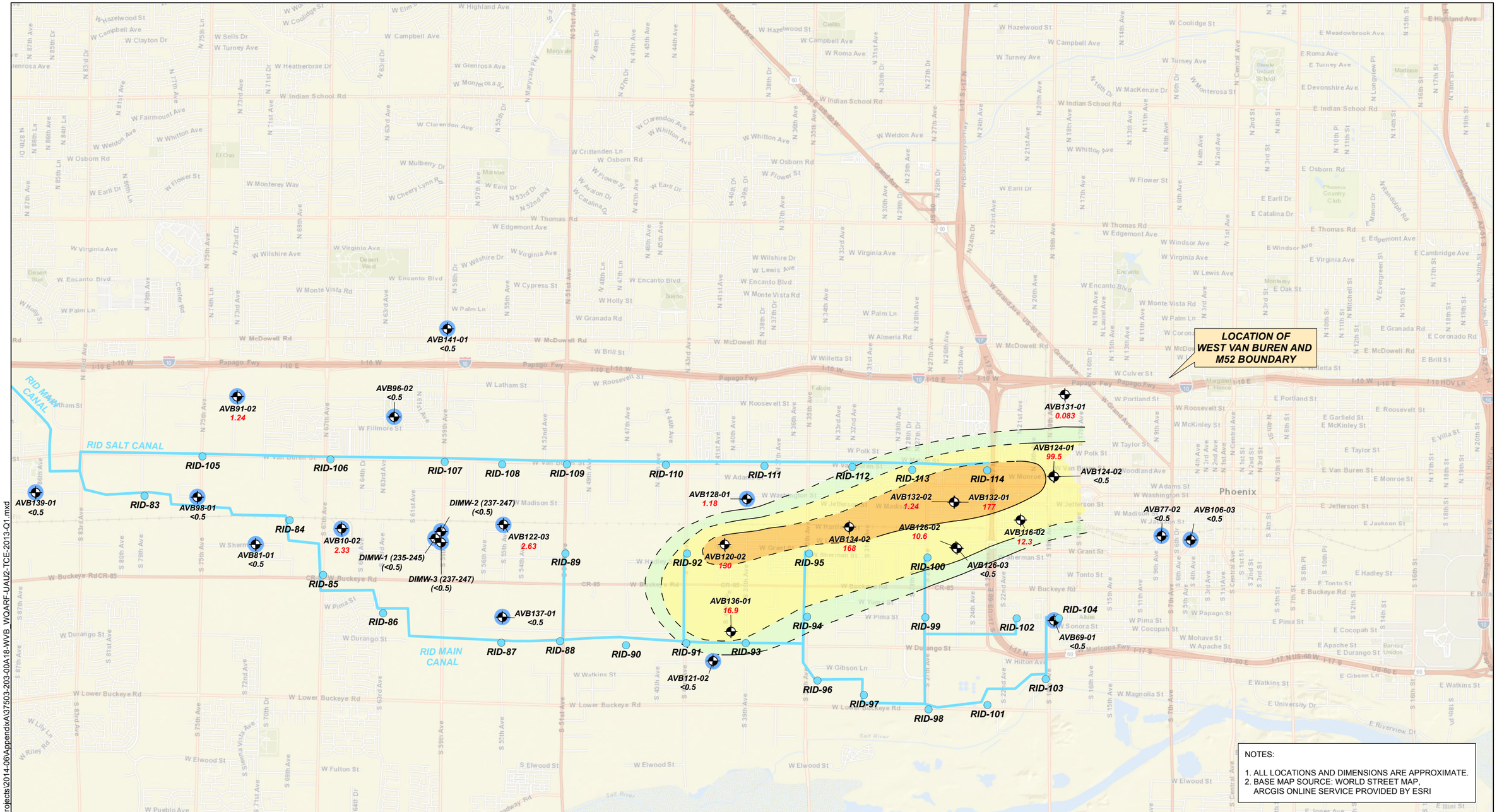
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

TCE CONCENTRATIONS IN UAU1 GROUNDWATER – FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-17

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A17-WVB_WQARF-UAU1-TCE-2013-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

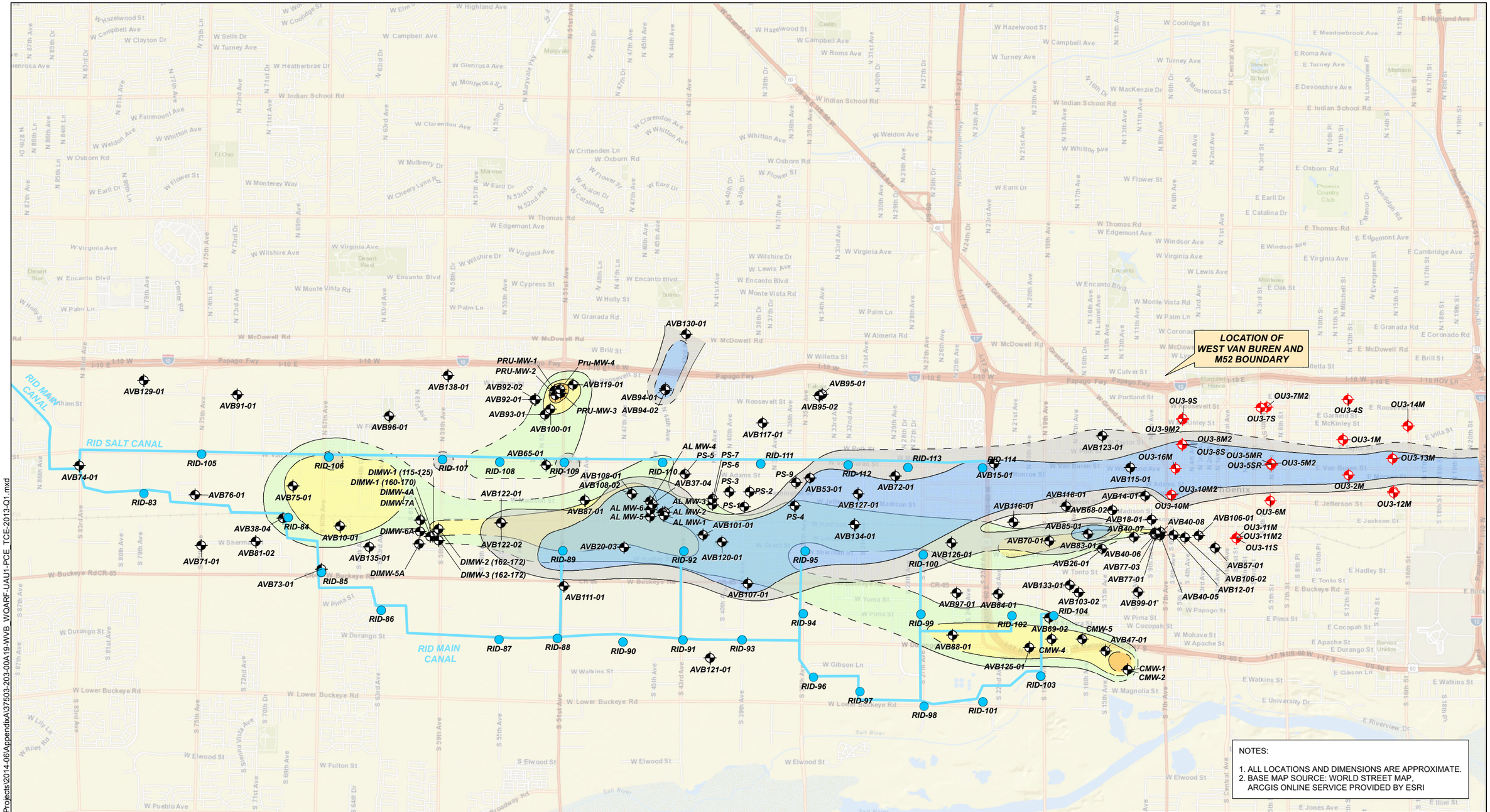
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

TCE CONCENTRATIONS
IN UAU2 GROUNDWATER –
FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-18

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A18-WVB_WQARF-UAU2-TCE-2013-Q1.mxd



HALEY & ALDRICH

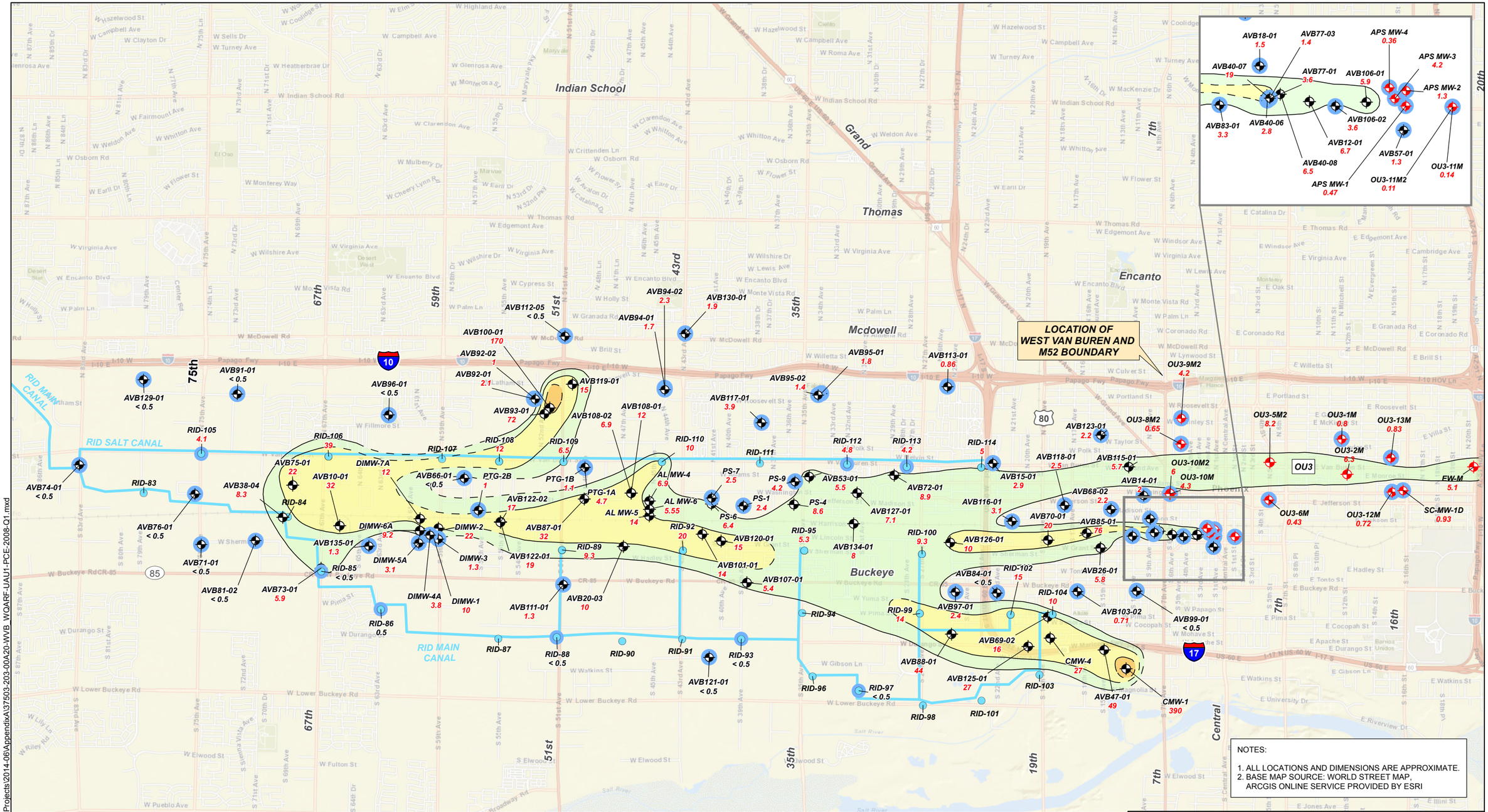
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

OVERLAY OF TCE AND PCE PLUMES IN UAU1 GROUNDWATER – FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE A-19

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A19-WVB_WQARF-UAU1-PCE_TCE-2013-Q1.mxd



LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

HALEY & ALDRICH

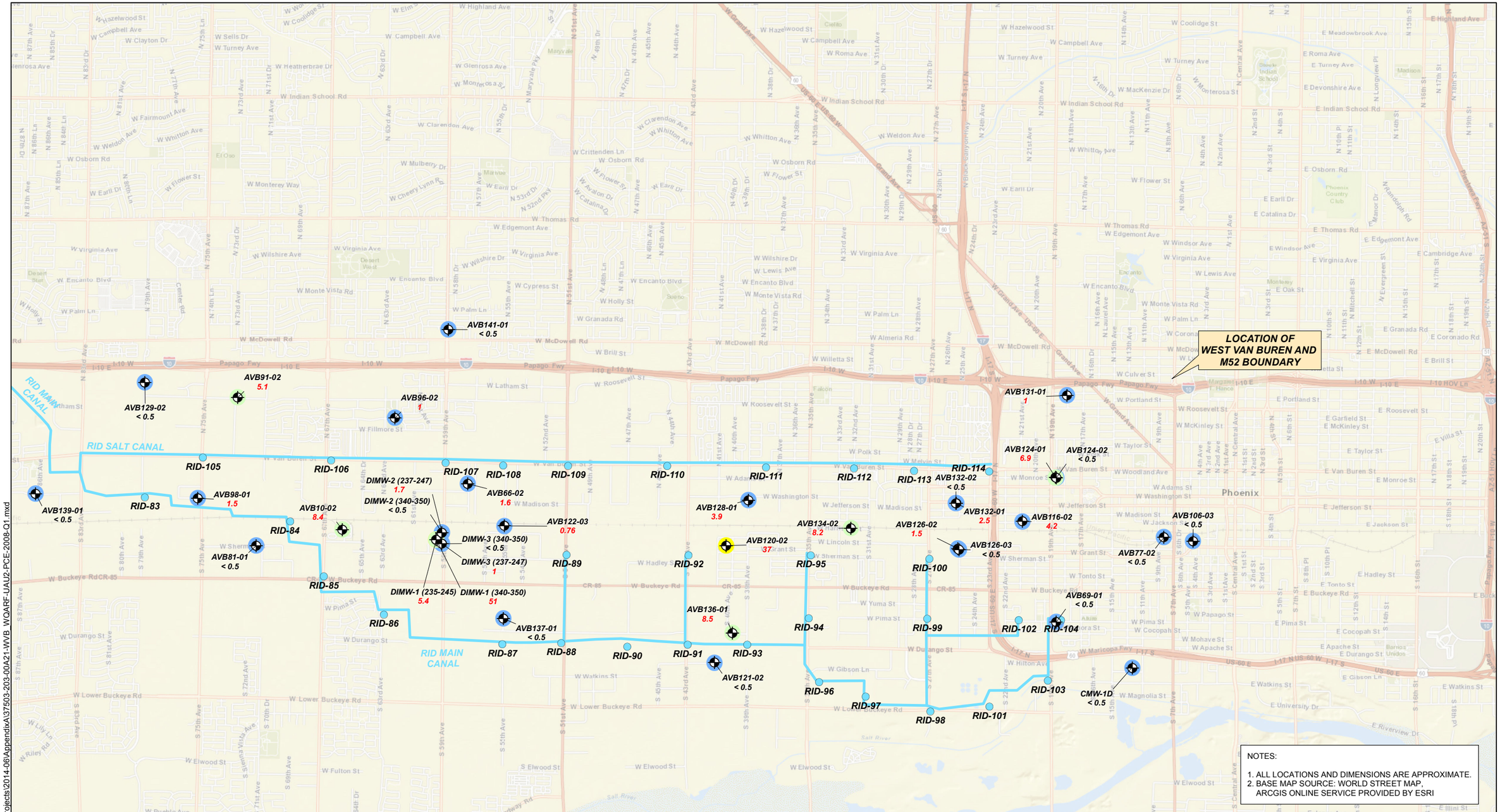
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

PCE CONCENTRATIONS
IN UAU1 GROUNDWATER –
FIRST QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-20

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A20-WVB_WQARF-UAU1-PCE-2008-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

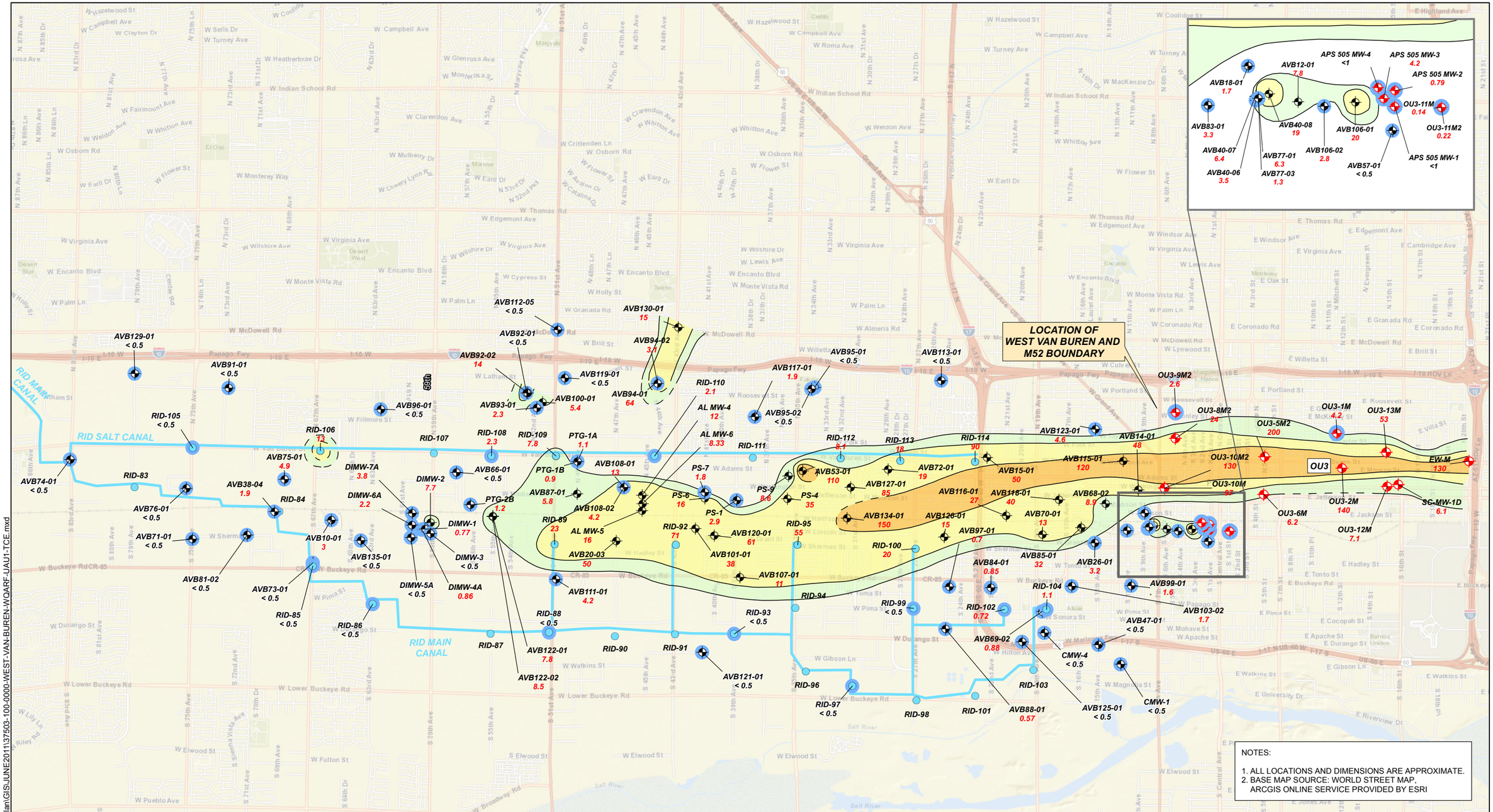
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

PCE CONCENTRATIONS IN UAU2 GROUNDWATER – FIRST QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-21

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A21-WVB_WQARF-UAU2-PCE-2008-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

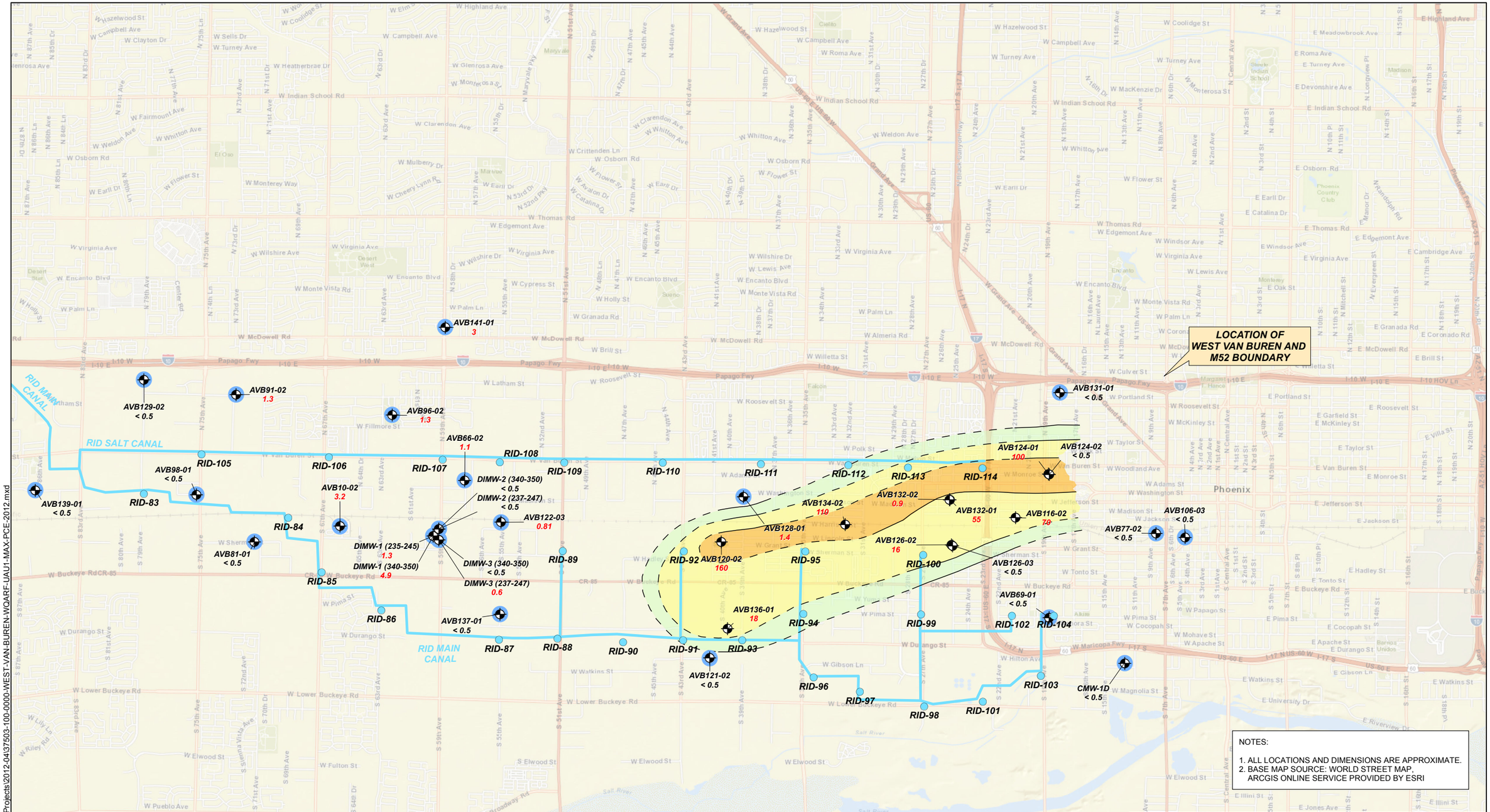
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

TCE CONCENTRATIONS
IN UAU1 GROUNDWATER –
FIRST QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-22

G:\37503_West_Van_Buren\100_Work Plan\GIS\JUNE2011\37503-100-0000-WEST-VAN-BUREN-WQARF-UAU1-TCE.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

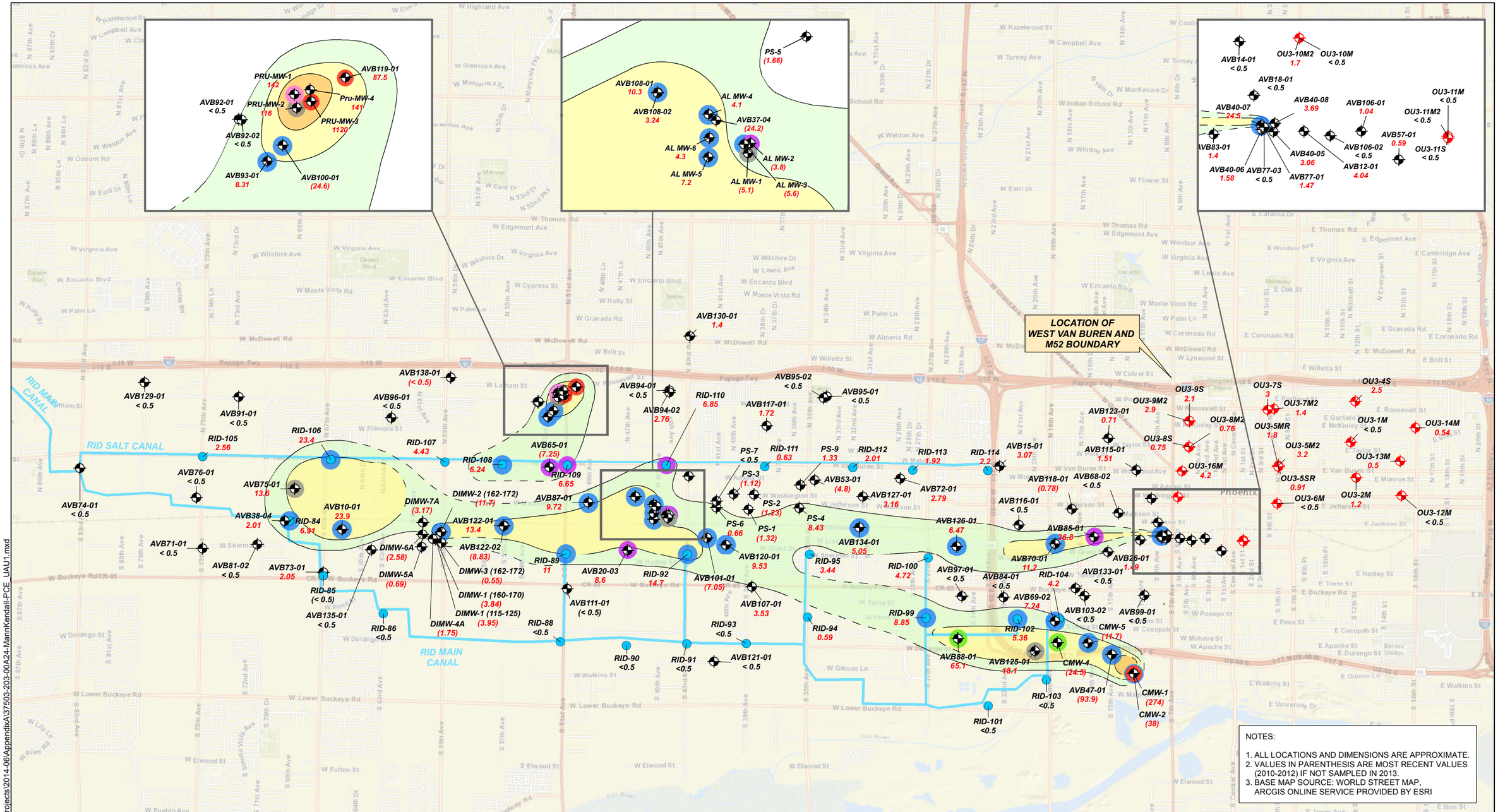
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

TCE CONCENTRATIONS IN UAU2 GROUNDWATER – FIRST QUARTER 2008

SCALE: AS SHOWN
JULY 2014

FIGURE A-23

G:\37503_Van_Buren\Global\GIS\MapProjects\2012-04\37503-100-0000-WEST-VAN-BUREN-WQARF-UAU1-MAX-PCE-2012.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. VALUES IN PARENTHESIS ARE MOST RECENT VALUES (2010-2012) IF NOT SAMPLED IN 2013.
3. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10

CONTOUR LINE DASHED WHERE INFERRED

MANN KENDALL RESULTS

- INCREASING
- PROBABLY INCREASING
- STABLE
- PROBABLY DECREASING
- DECREASING
- NO TREND

N W E S

0 5000

SCALE IN FEET

HALEY & ALDRICH

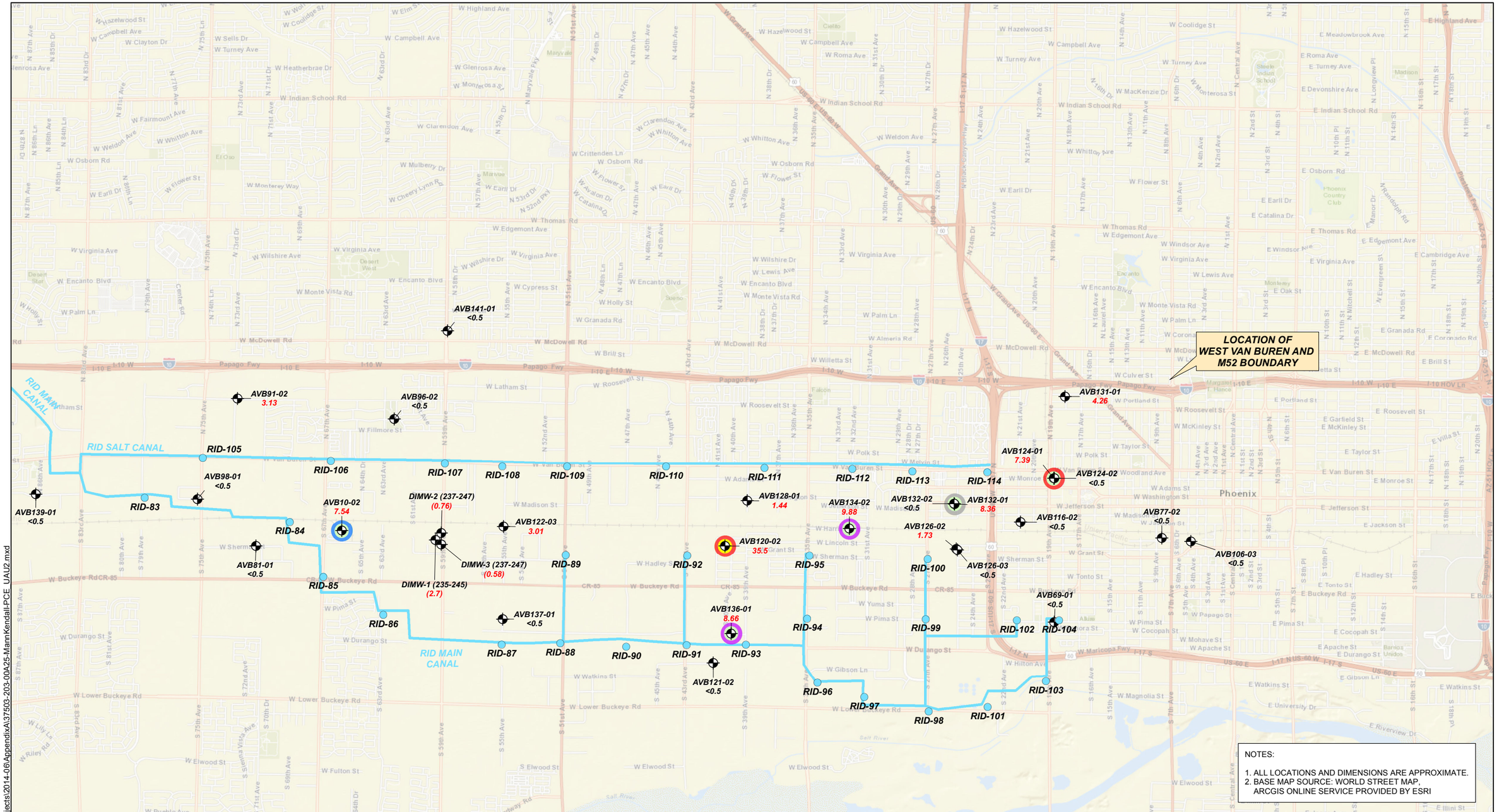
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

MANN KENDALL RESULTS - PCE IN UAU1 GROUNDWATER

SCALE: AS SHOWN
JULY 2014

FIGURE A-24

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A24-MannKendall-PCE_UAU1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10

CONTOUR LINE DASHED WHERE INFERRED

MANN KENDALL RESULTS

- INCREASING
- STABLE
- DECREASING
- NO TREND

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

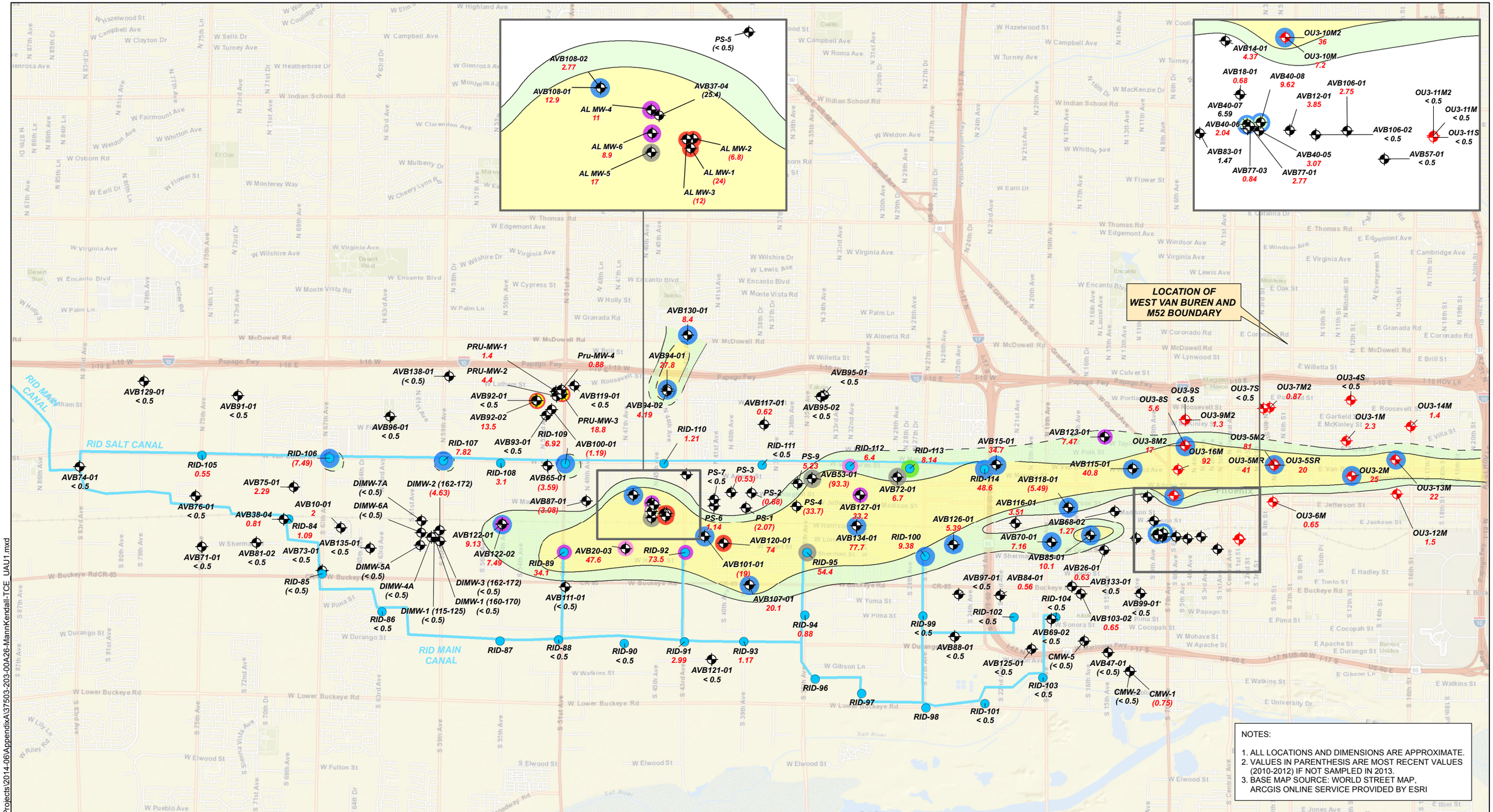
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

MANN KENDALL RESULTS -
PCE IN UAU2 GROUNDWATER

SCALE: AS SHOWN
JULY 2014

FIGURE A-25

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A25-MannKendallPCE_UAU2.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. VALUES IN PARENTHESIS ARE MOST RECENT VALUES (2010-2012) IF NOT SAMPLED IN 2013.
3. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10

CONTOUR LINE DASHED WHERE INFERRED

MANN KENDALL RESULTS

- INCREASING
- PROBABLY INCREASING
- STABLE
- PROBABLY DECREASING
- DECREASING
- NO TREND

N W E S

0 5000

SCALE IN FEET

HALEY & ALDRICH

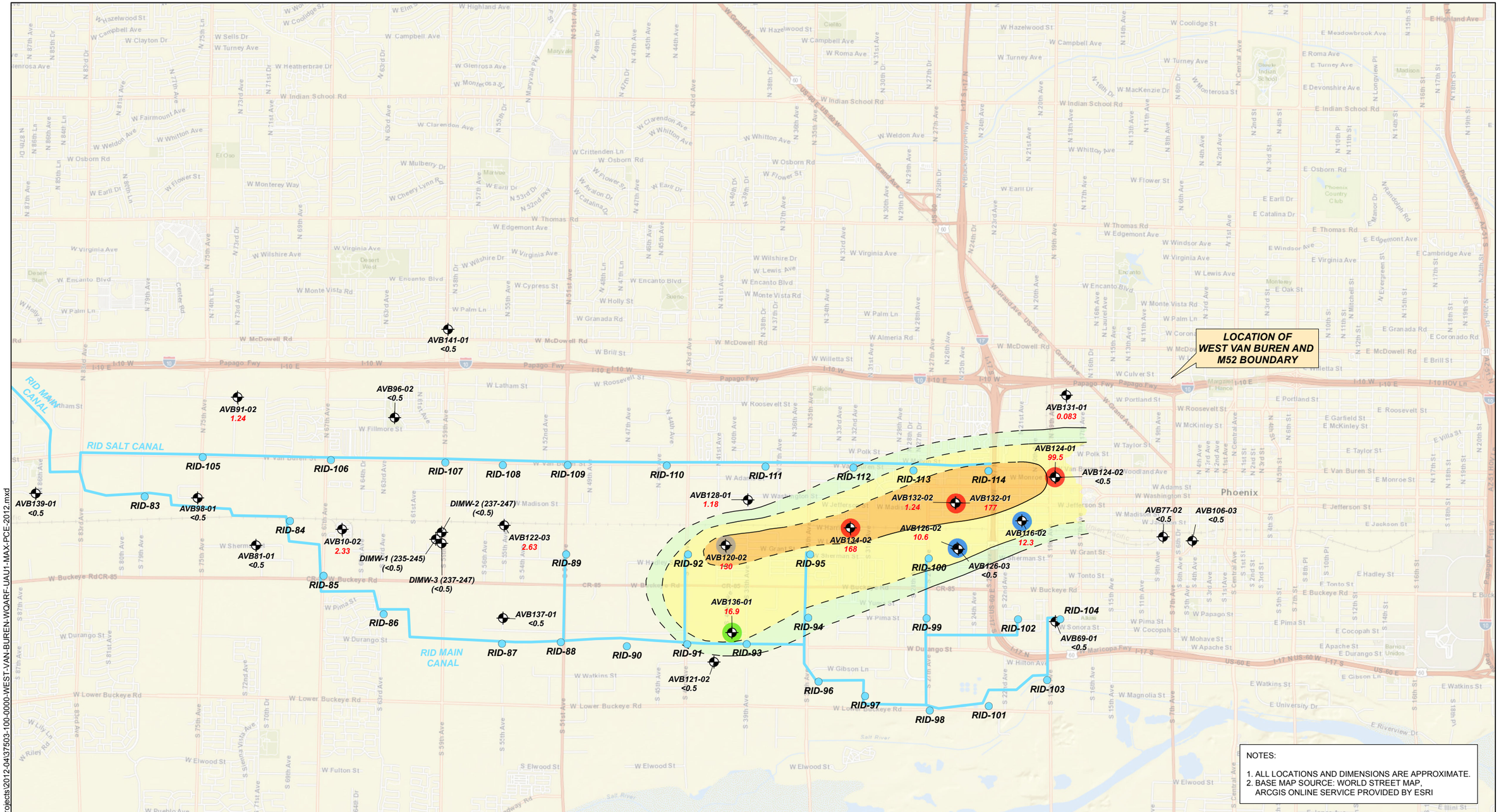
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

MANN KENDALL RESULTS - TCE IN UAU1 GROUNDWATER

SCALE: AS SHOWN
JULY 2014

FIGURE A-26

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A26-MannKendall-TCE_UAU1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10

CONTOUR LINE DASHED WHERE INFERRED

MANN KENDALL RESULTS

- INCREASING
- PROBABLY DECREASING
- DECREASING
- NO TREND

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

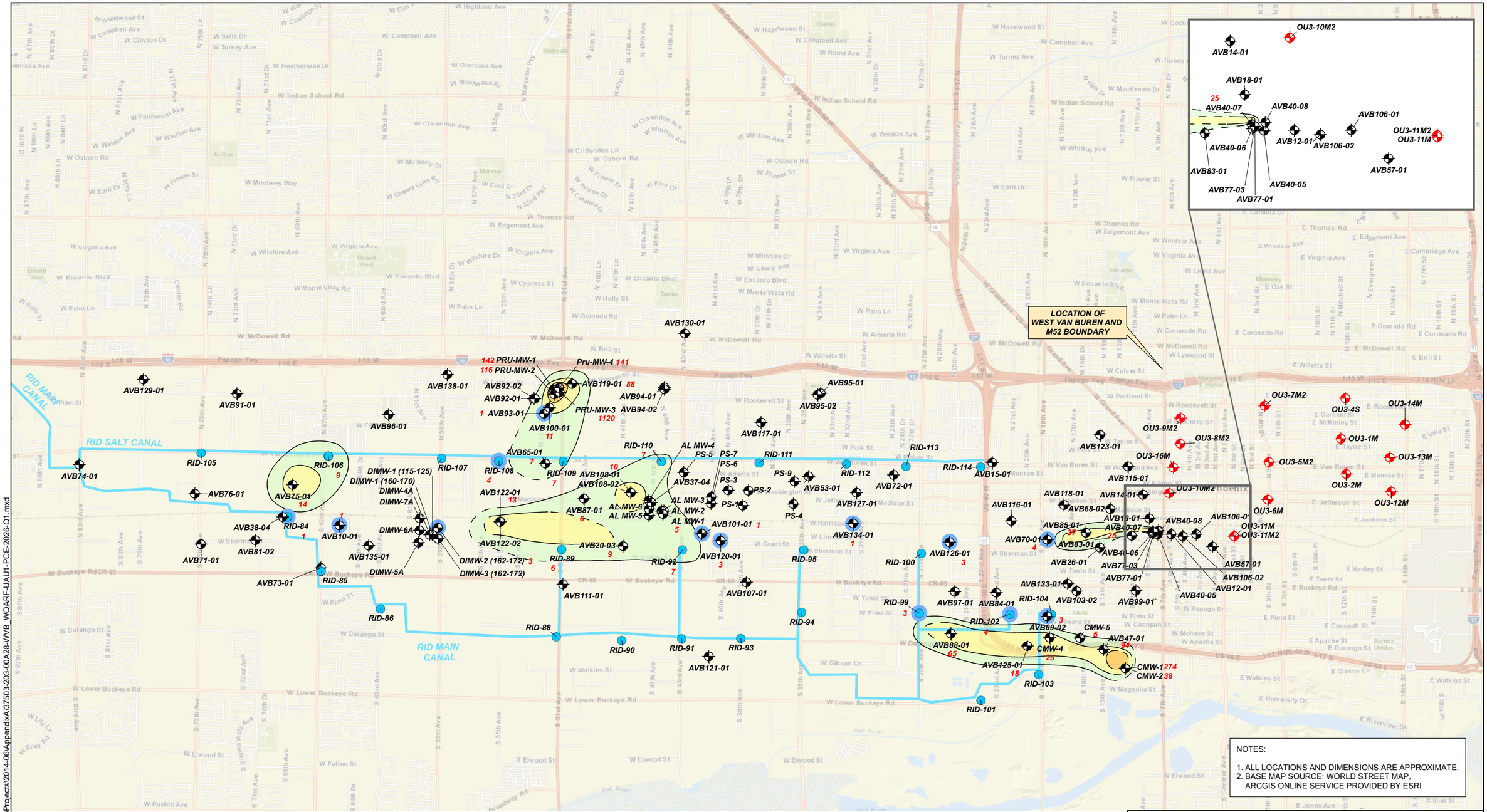
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

MANN KENDALL RESULTS -
TCE IN UAU2 GROUNDWATER

SCALE: AS SHOWN
JULY 2014

FIGURE A-27

G:\37503_Van_Buren\Global\GIS\MapProjects\2012-04\37503-100-0000-WEST-VAN-BUREN-WQARF-UAU1-MAX-PCE-2012.mxd



LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

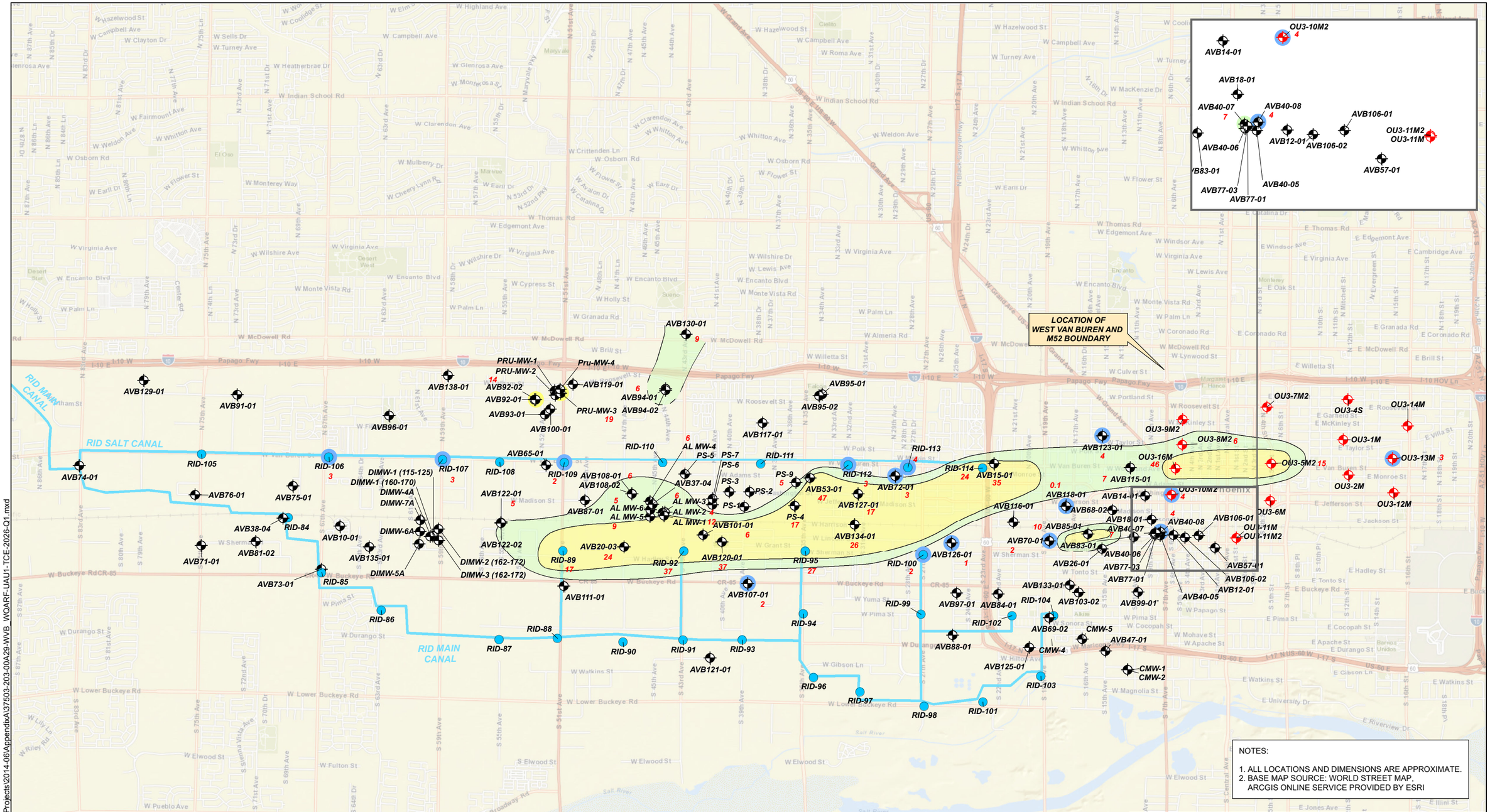
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

ESTIMATED PCE CONCENTRATIONS
IN UAU1 GROUNDWATER
FROM TREND ANALYSIS - 2026

SCALE: AS SHOWN
JULY 2014

FIGURE A-28

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\Appendix\37503-203-00A28-WVB_WQARF-UAU1-PCE-2026-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

TCE CONCENTRATION (ug/L)

- > 100
- 10 - 100
- 5 - 10
- < 5 or ND

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

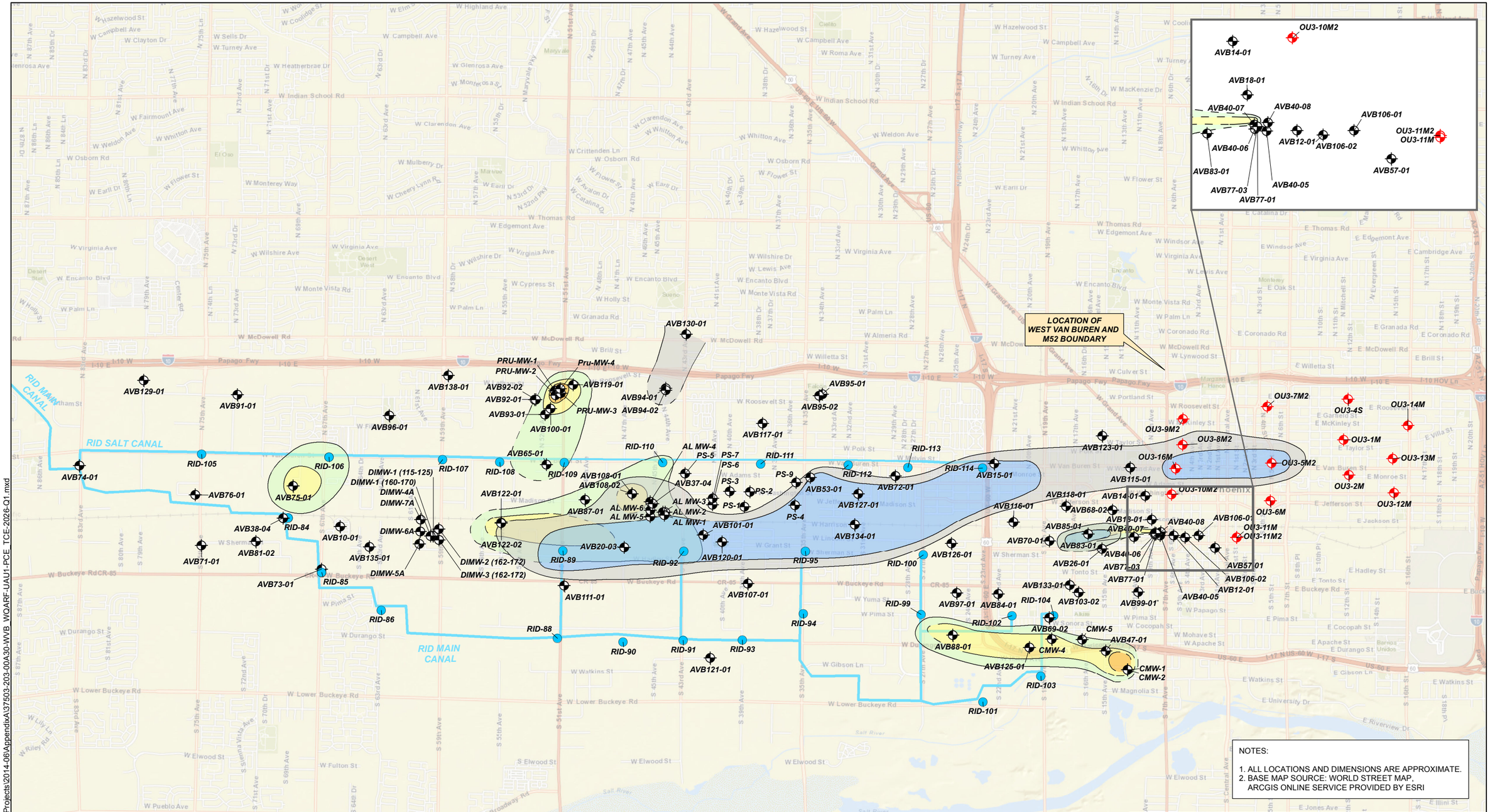
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

ESTIMATED TCE CONCENTRATIONS
IN UAU1 GROUNDWATER
FROM TREND ANALYSIS - 2026

SCALE: AS SHOWN
JULY 2014

FIGURE A-29

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A29-WVB_WQARF-UAU1-TCE-2026-Q1.mxd



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)	TCE CONCENTRATION (ug/L)
> 100	> 100
10 - 100	10 - 100
5 - 10	5 - 10

CONTOUR LINE DASHED WHERE INFERRED

N
W E
S

0 5000
SCALE IN FEET

HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

OVERLAY OF ESTIMATED PCE AND TCE PLUMES IN UAU1 GROUNDWATER FROM TREND ANALYSIS – 2026

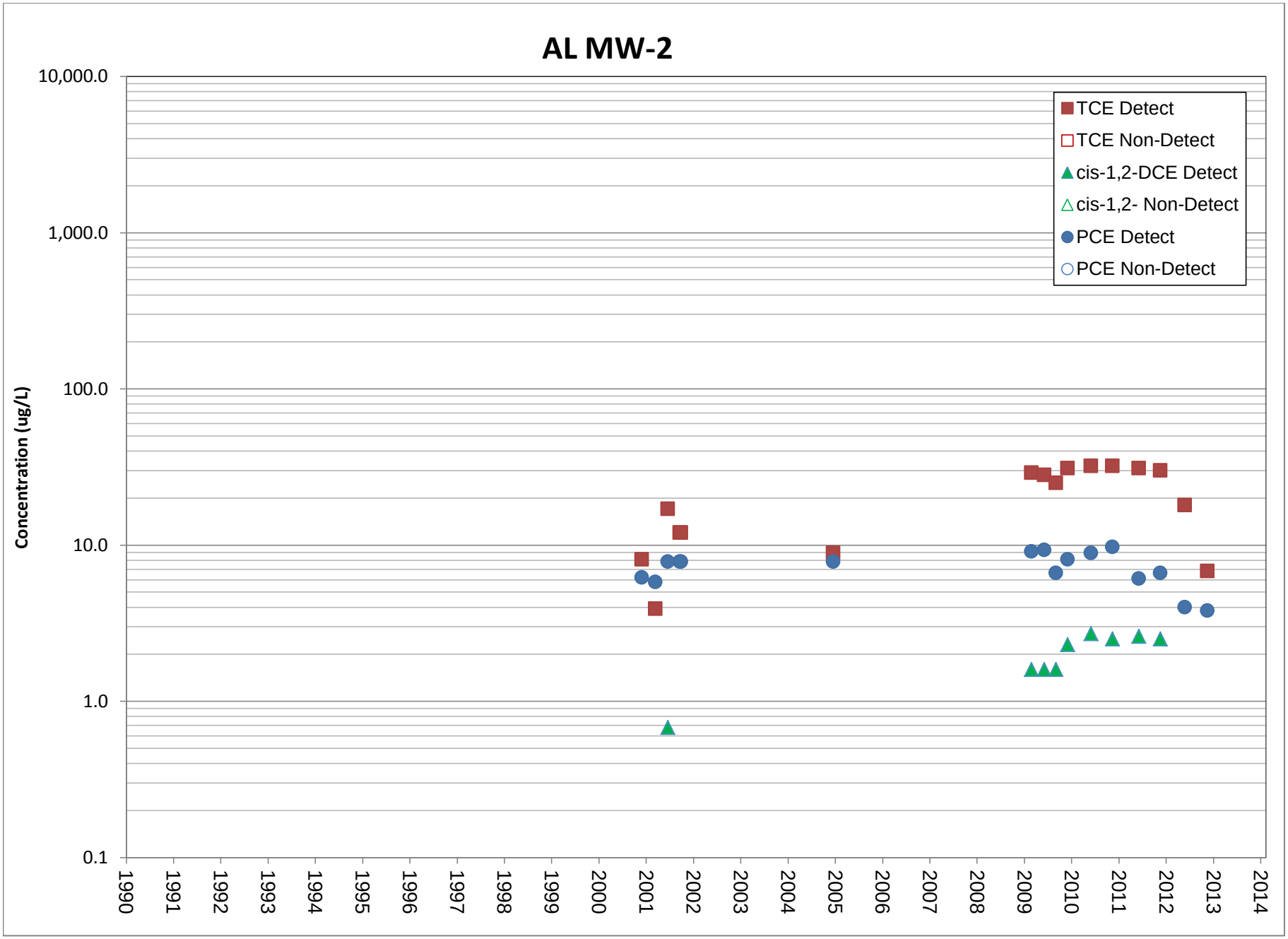
SCALE: AS SHOWN
JULY 2014

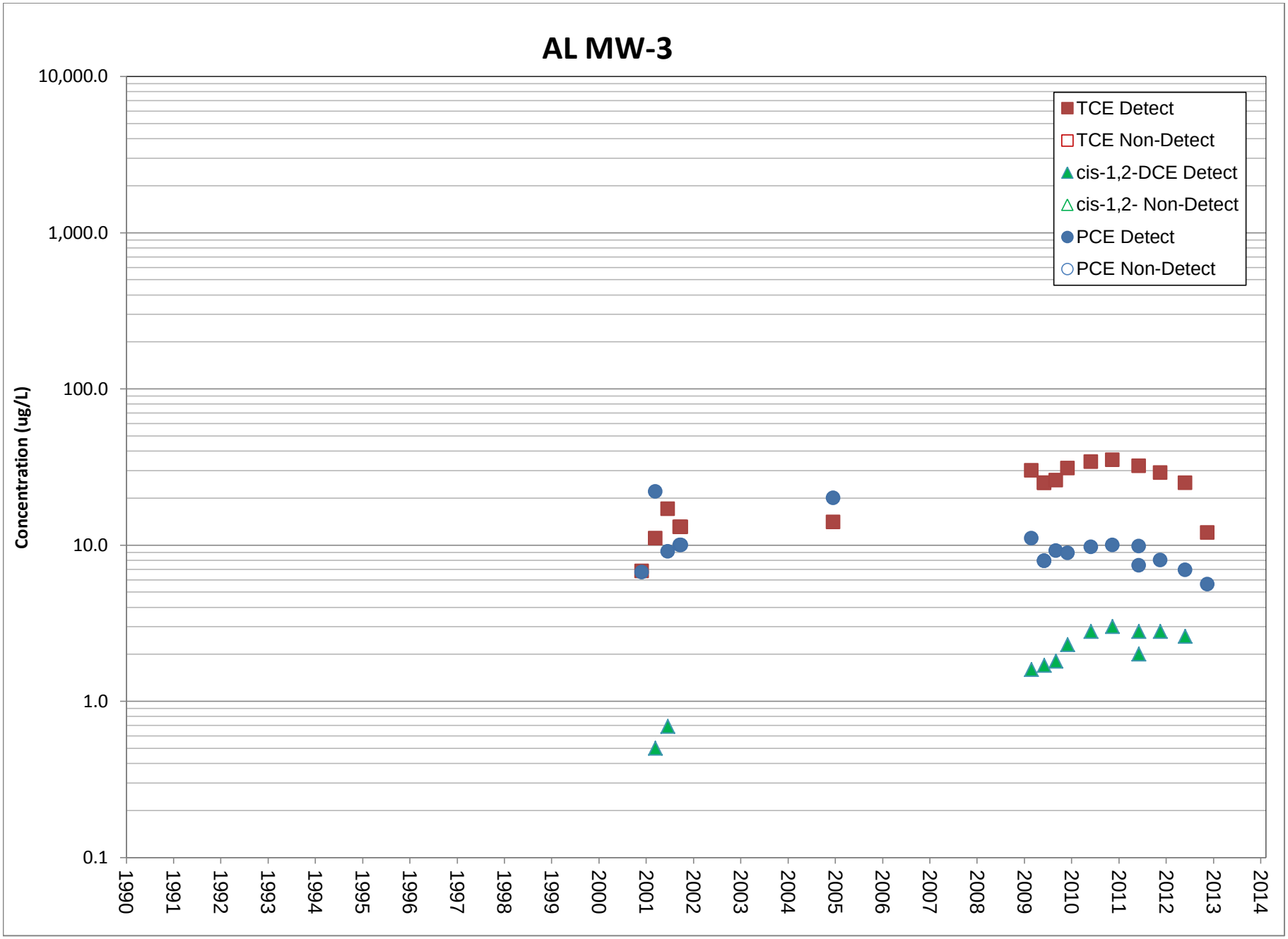
FIGURE A-30

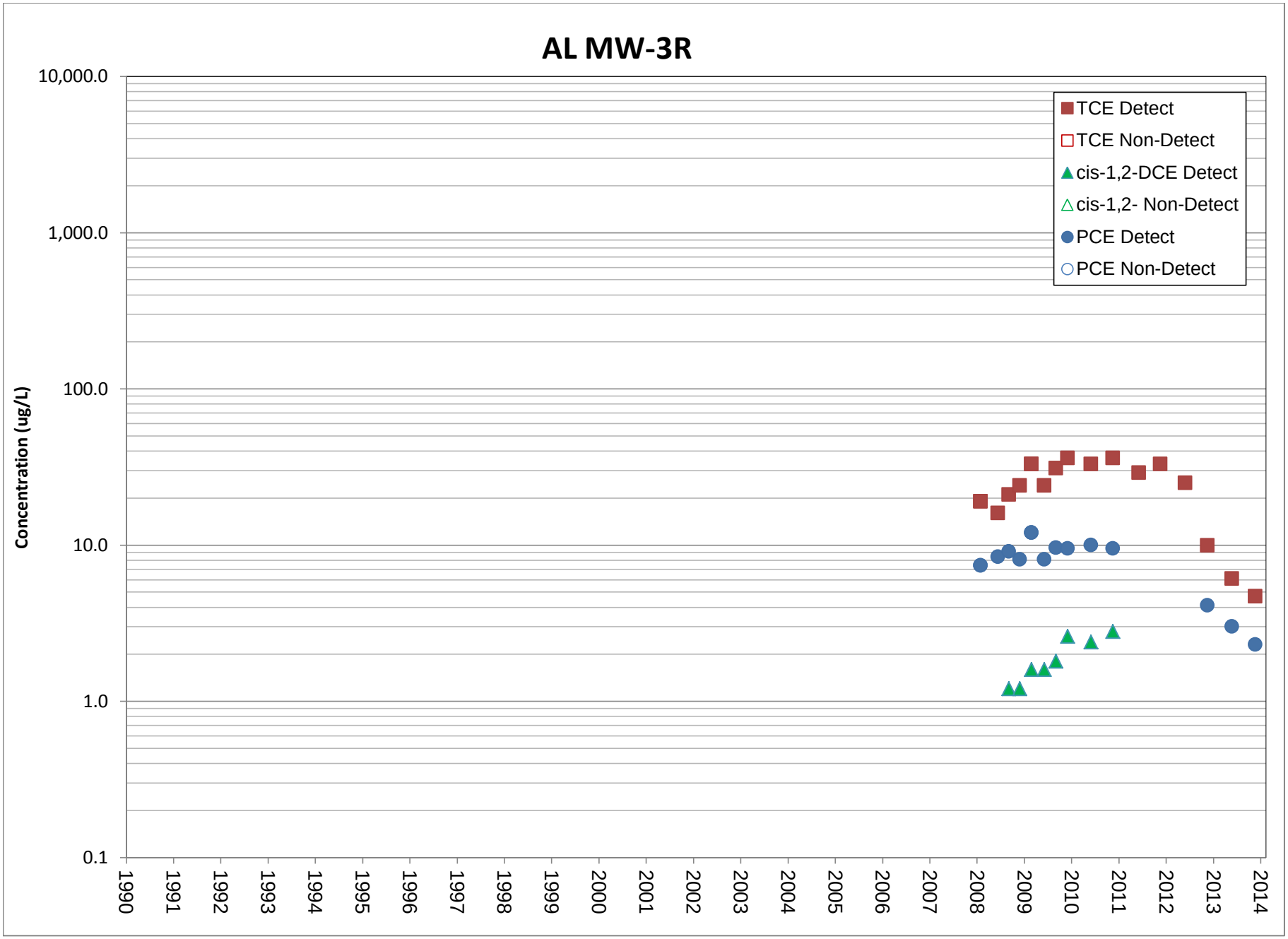
G:\37503_Van_Buren\Global\GIS\MapProjects\2014-06\AppendixA\37503-203-00A30-WVB_WQARF-UAU1-PCE_TCE-2026-Q1.mxd

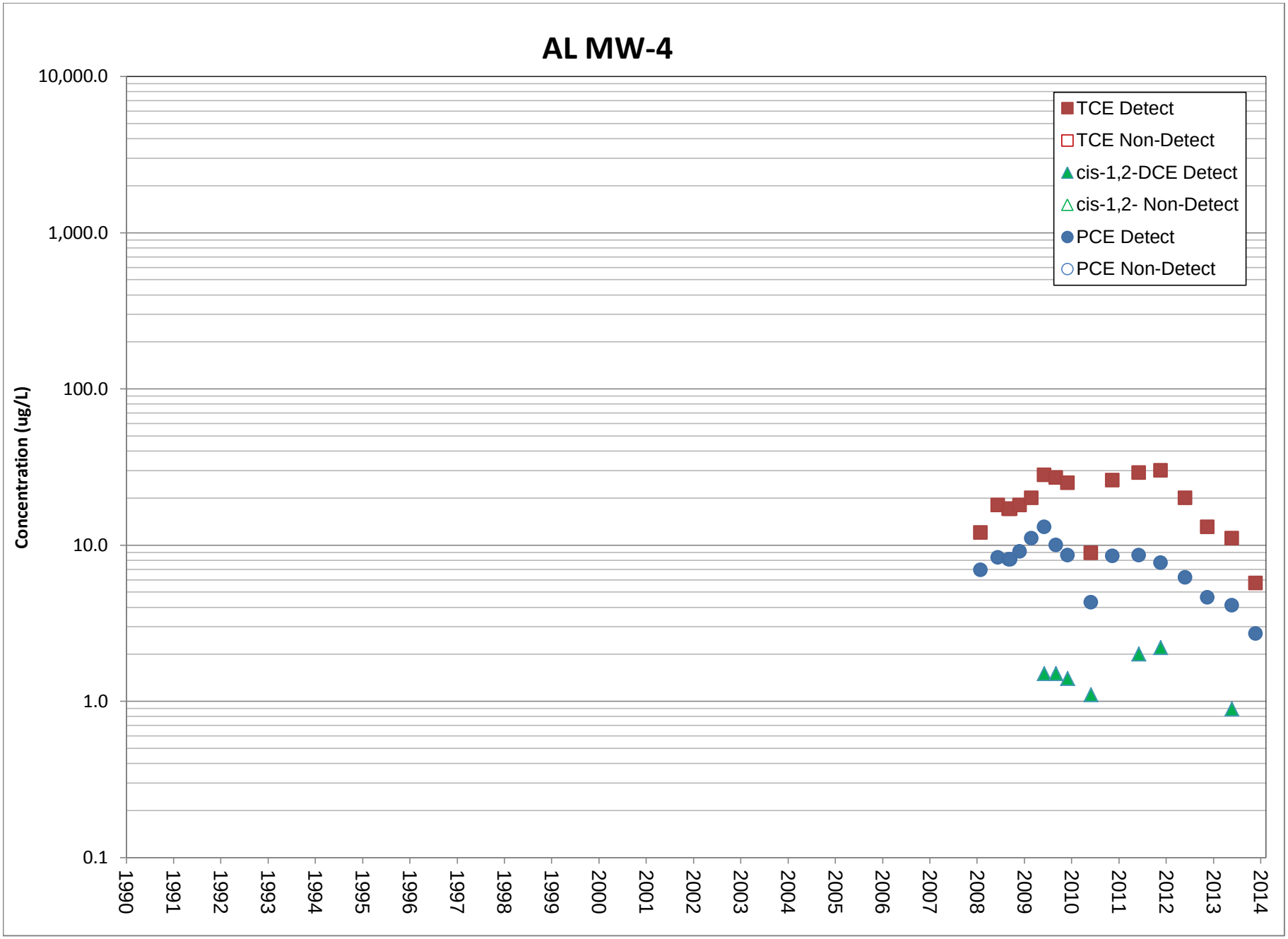
ATTACHMENT A

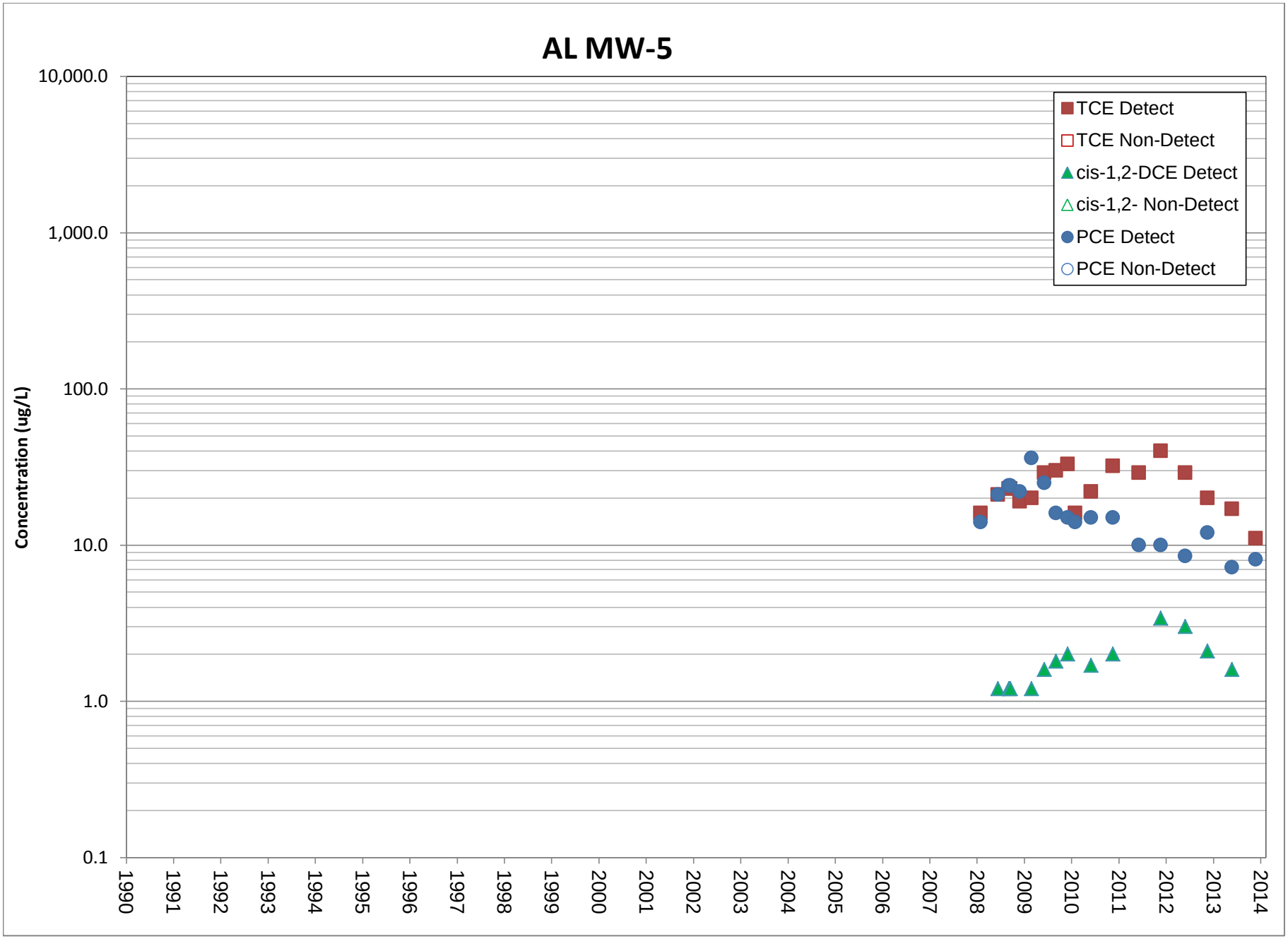
VOC Concentration Time Series Graphs

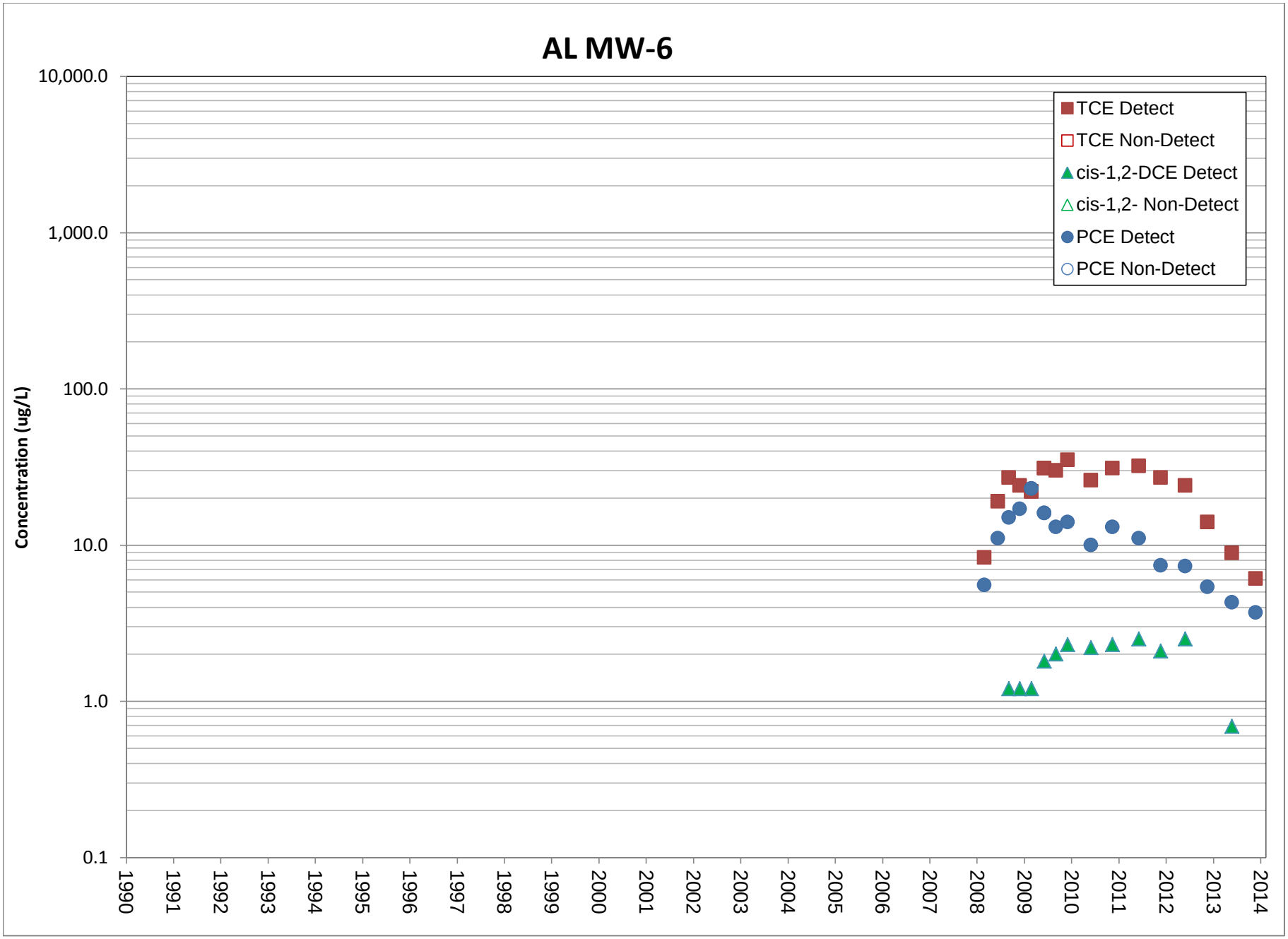

AL MW-2
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect

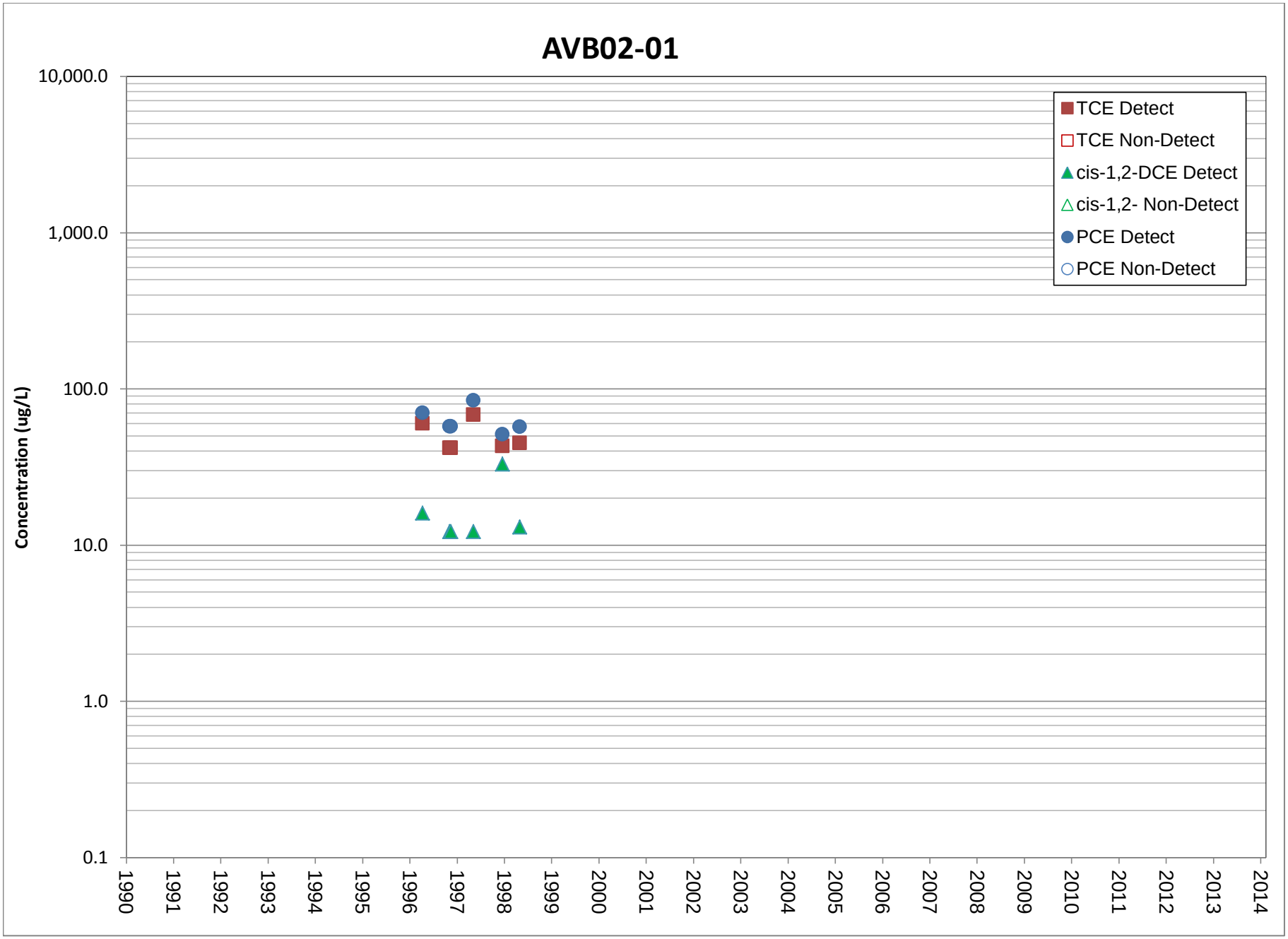

AL MW-3
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect

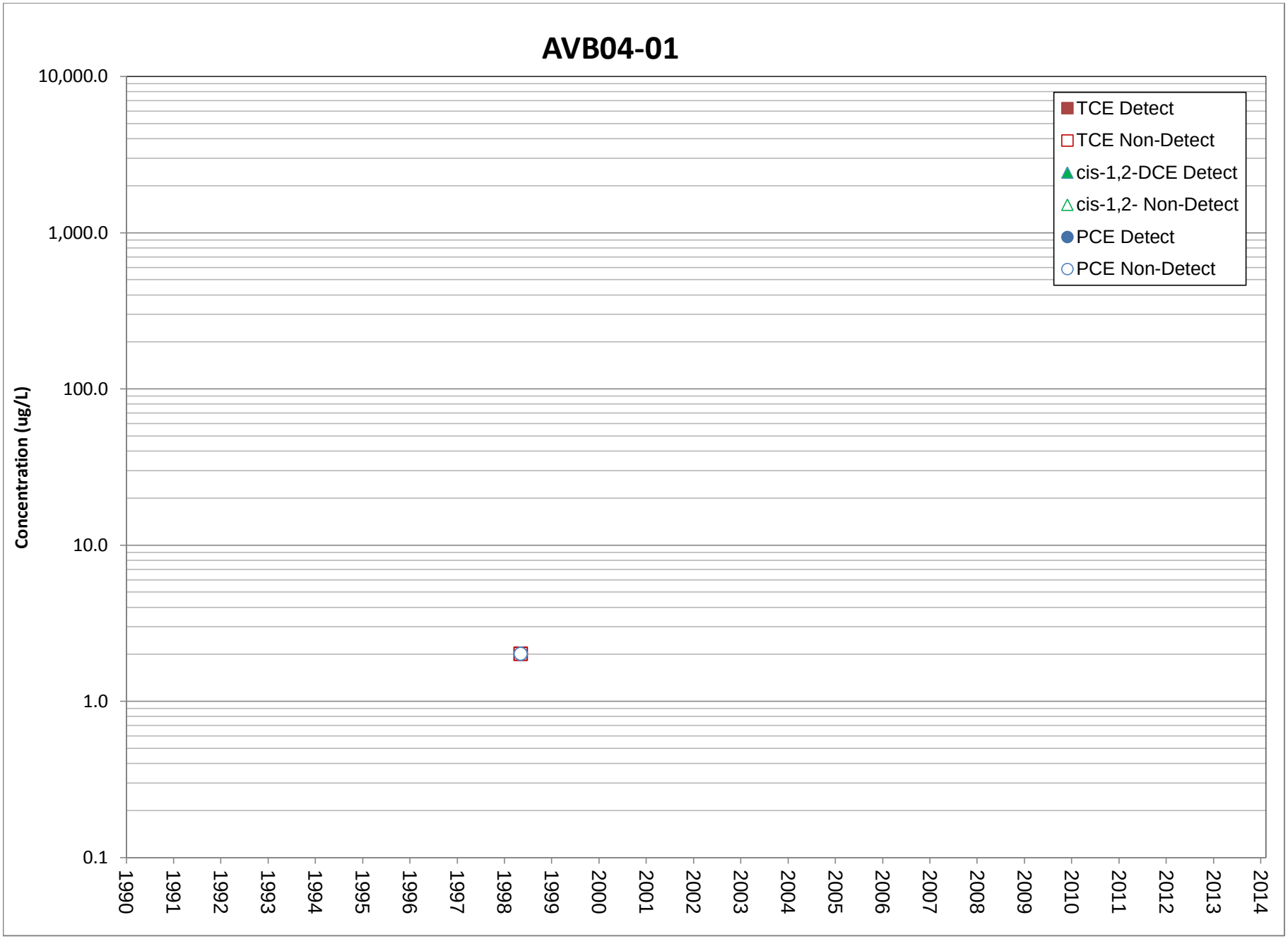

AL MW-3R
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AL MW-4
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AL MW-5
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AL MW-6
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB02-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB04-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
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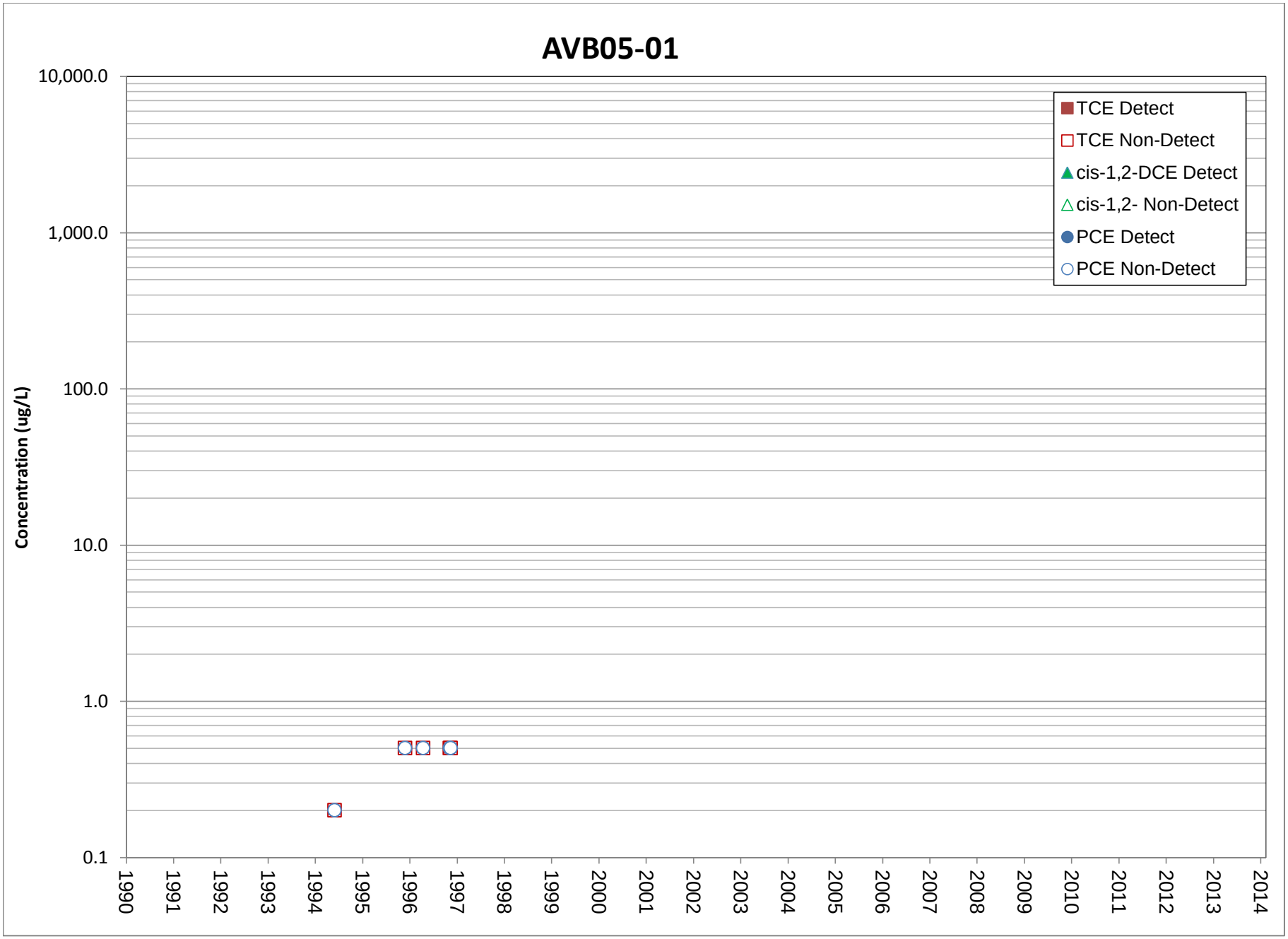
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB05-01
Concentration (ug/L)
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1,000.0
100.0
10.0
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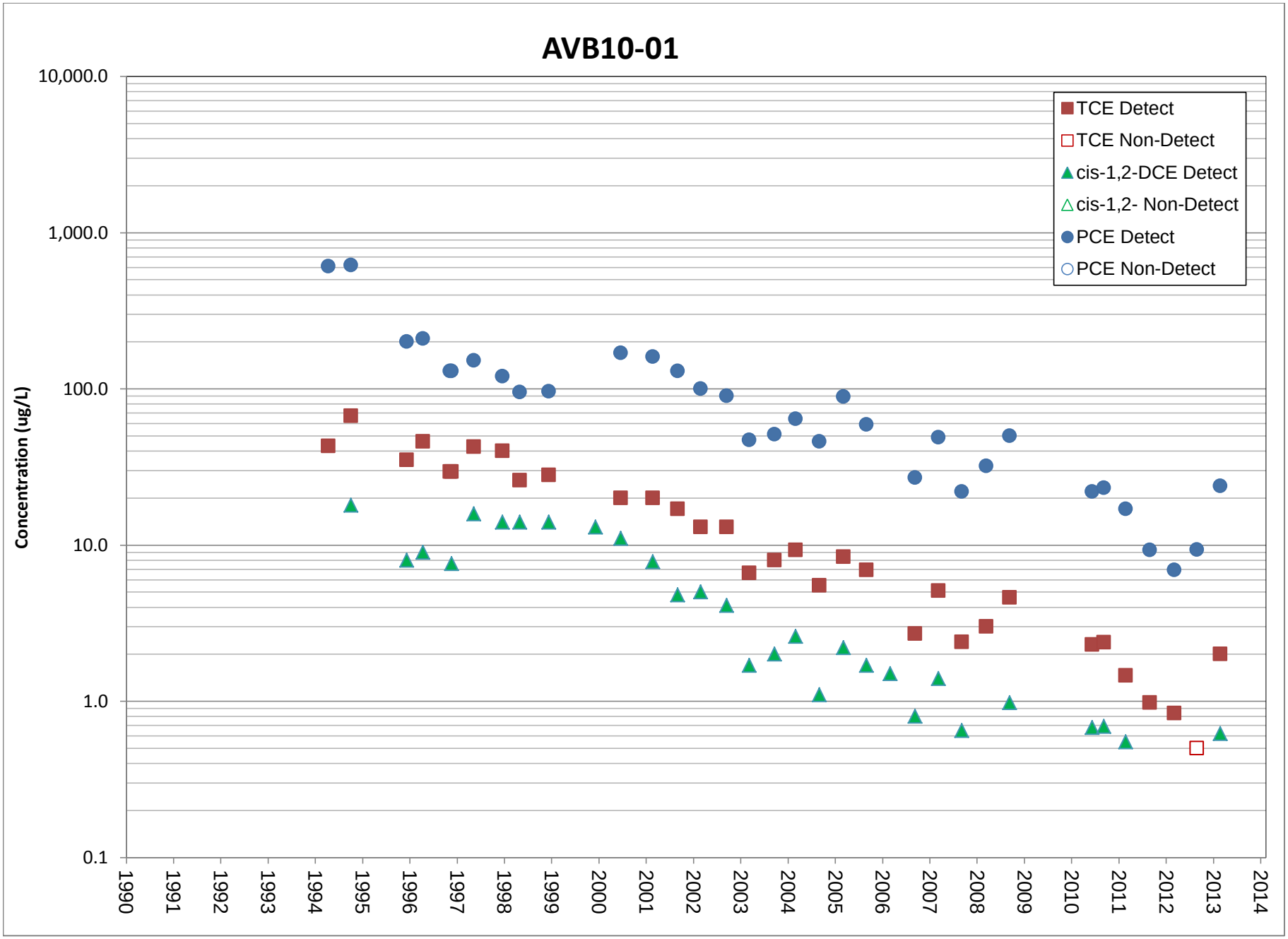
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB10-01
Concentration (ug/L)
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1,000.0
100.0
10.0
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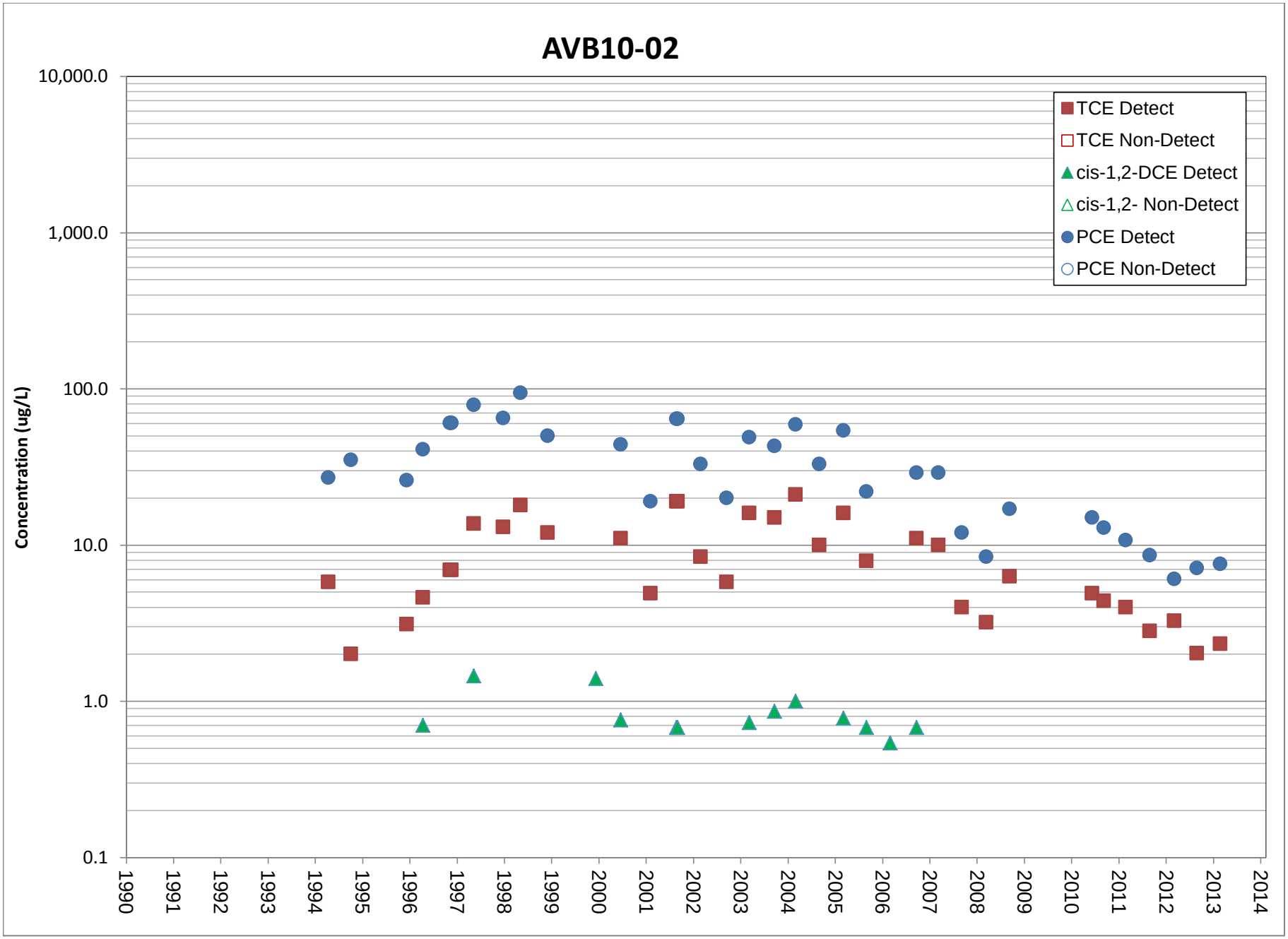
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB10-02
Concentration (ug/L)
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100.0
10.0
1.0
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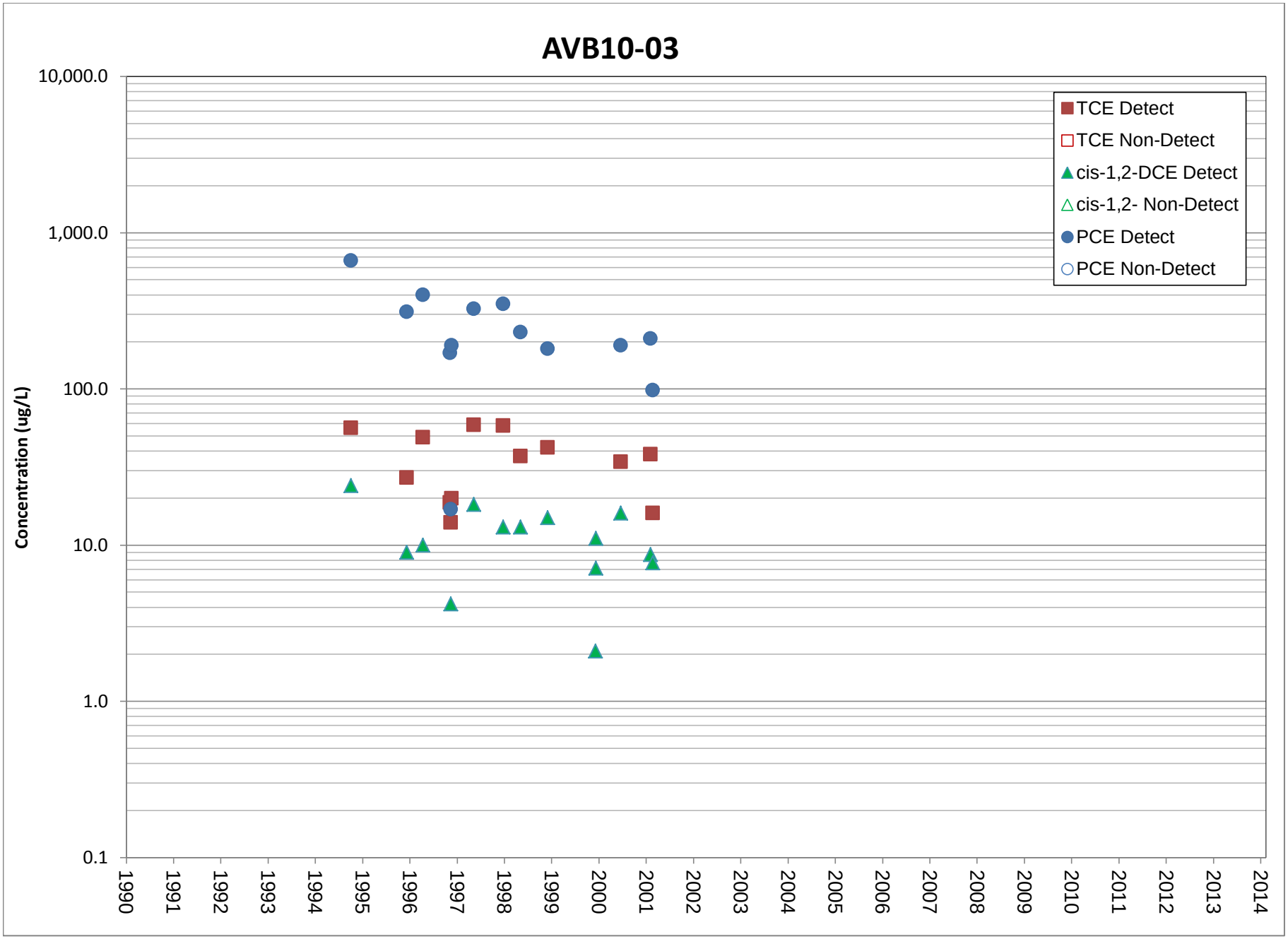
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB10-03
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100.0
10.0
1.0
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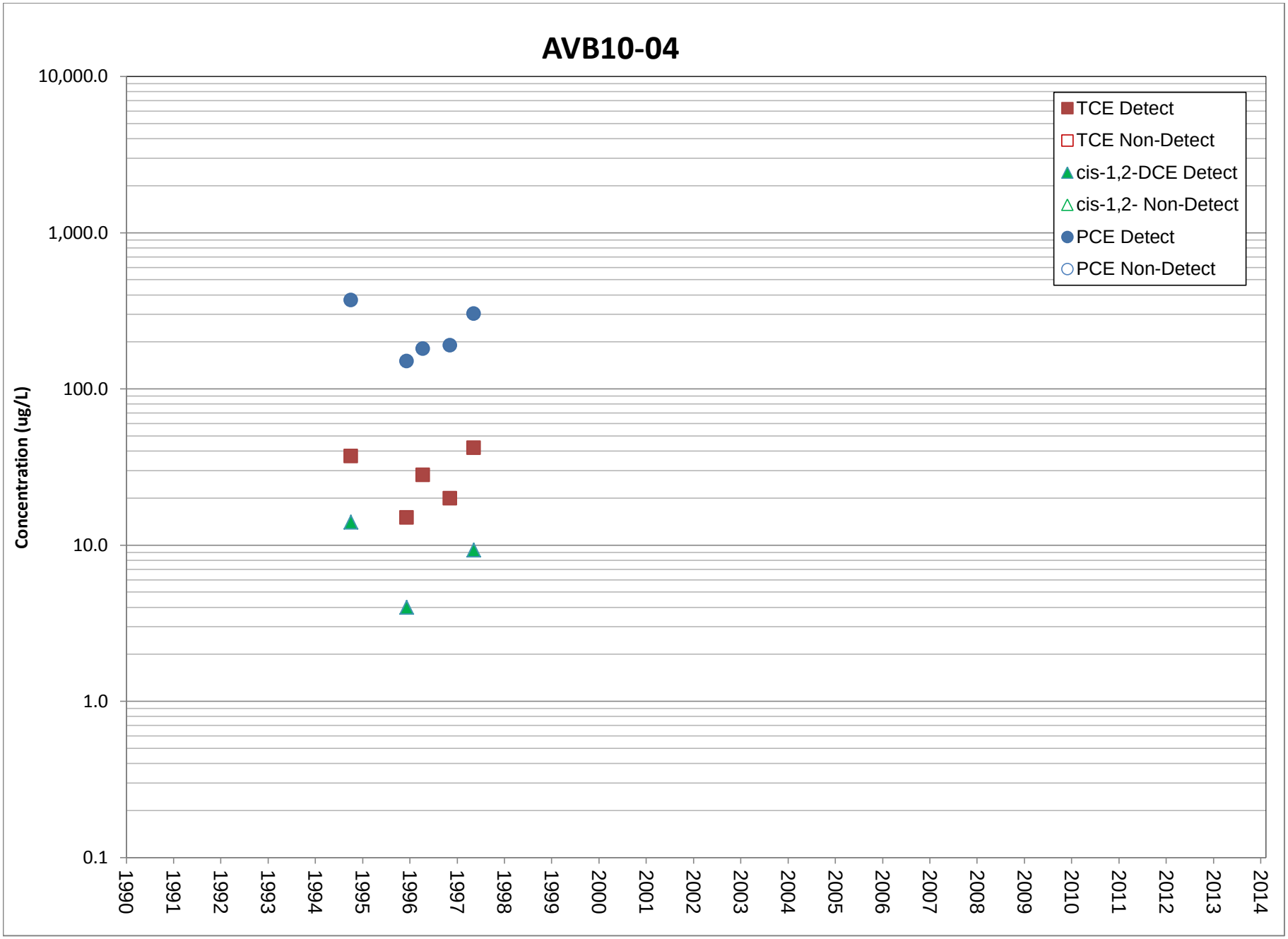
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB10-04
Concentration (ug/L)
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1,000.0
100.0
10.0
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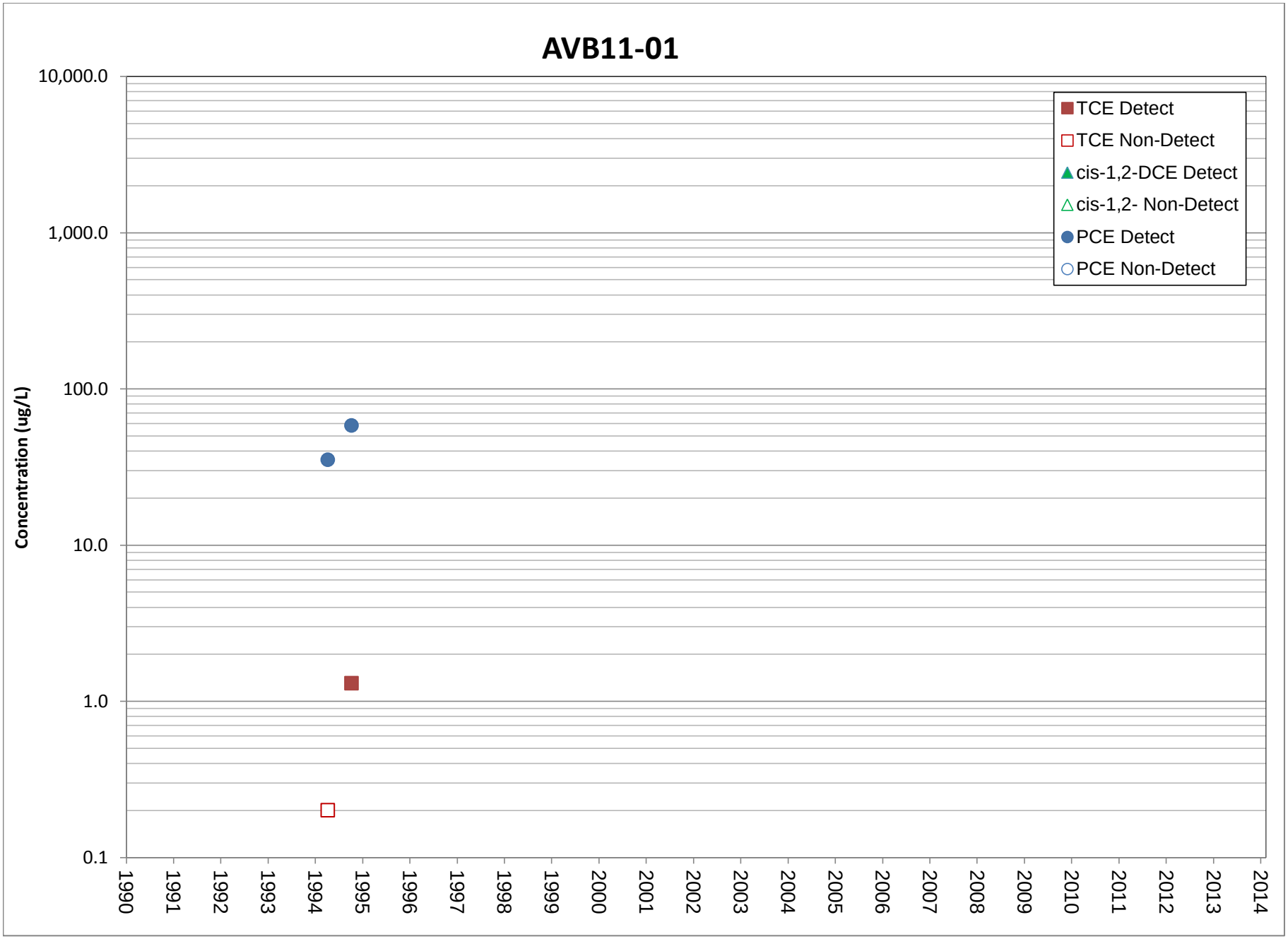
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB11-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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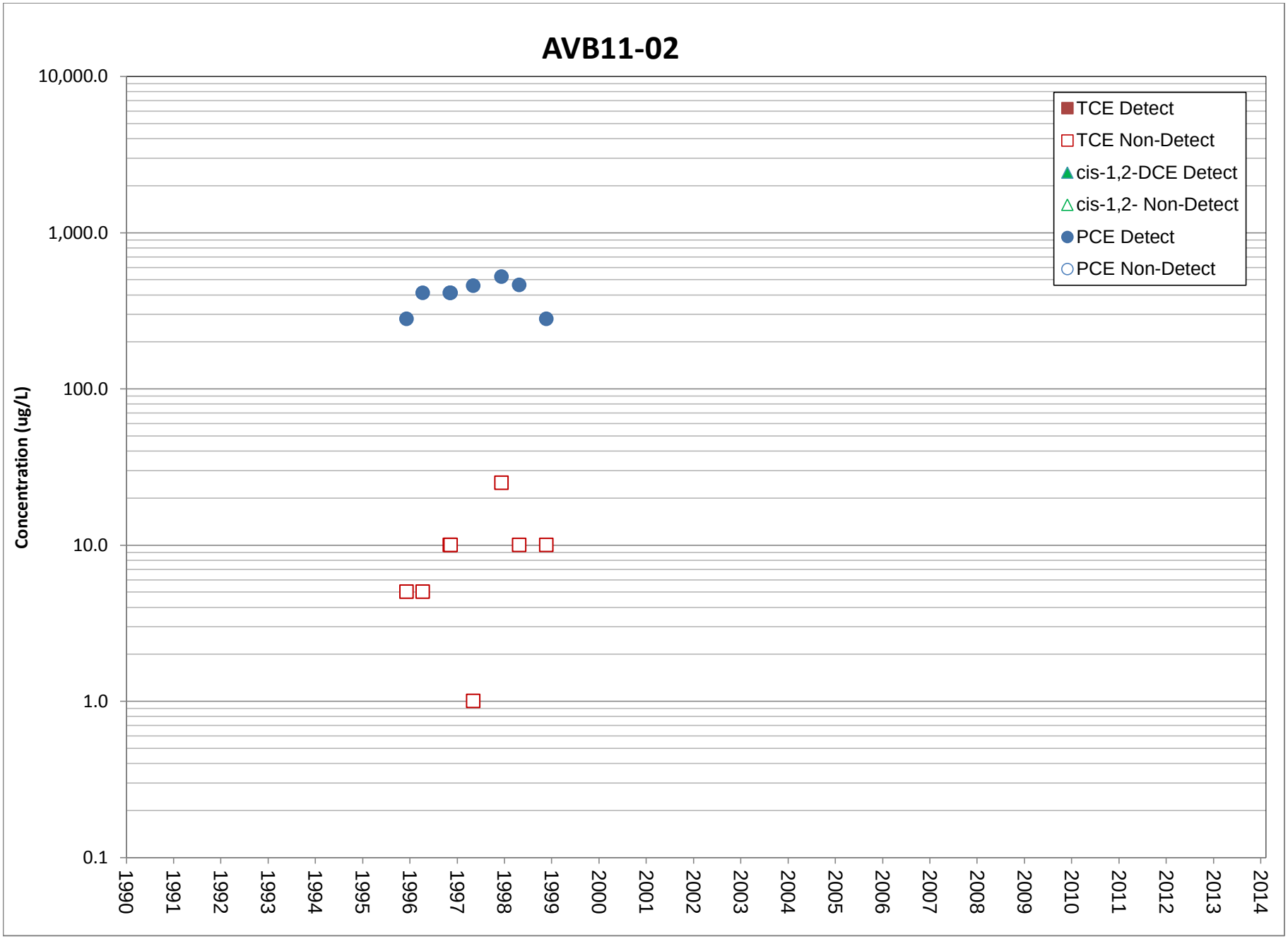
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB11-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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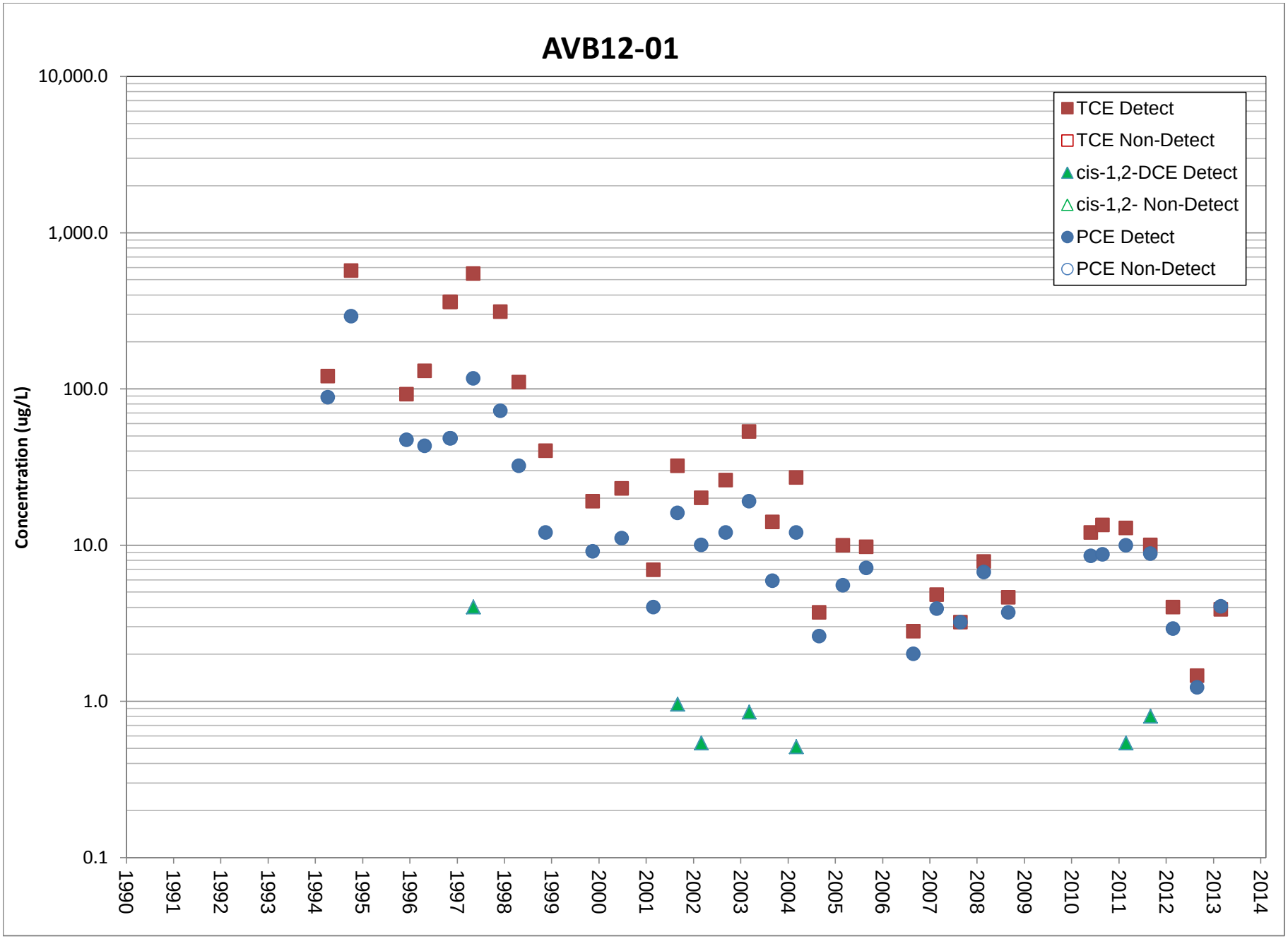
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB12-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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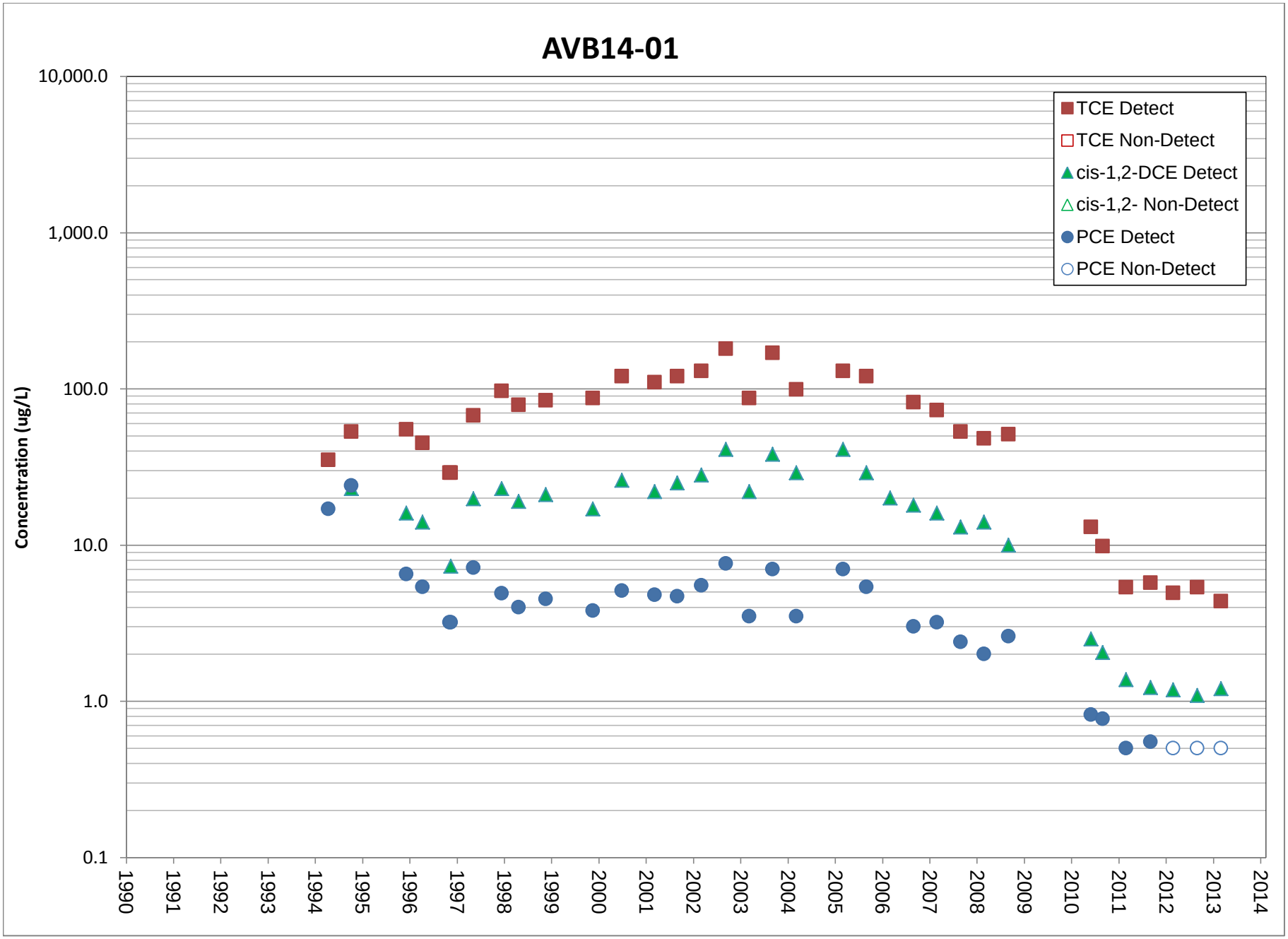
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB14-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
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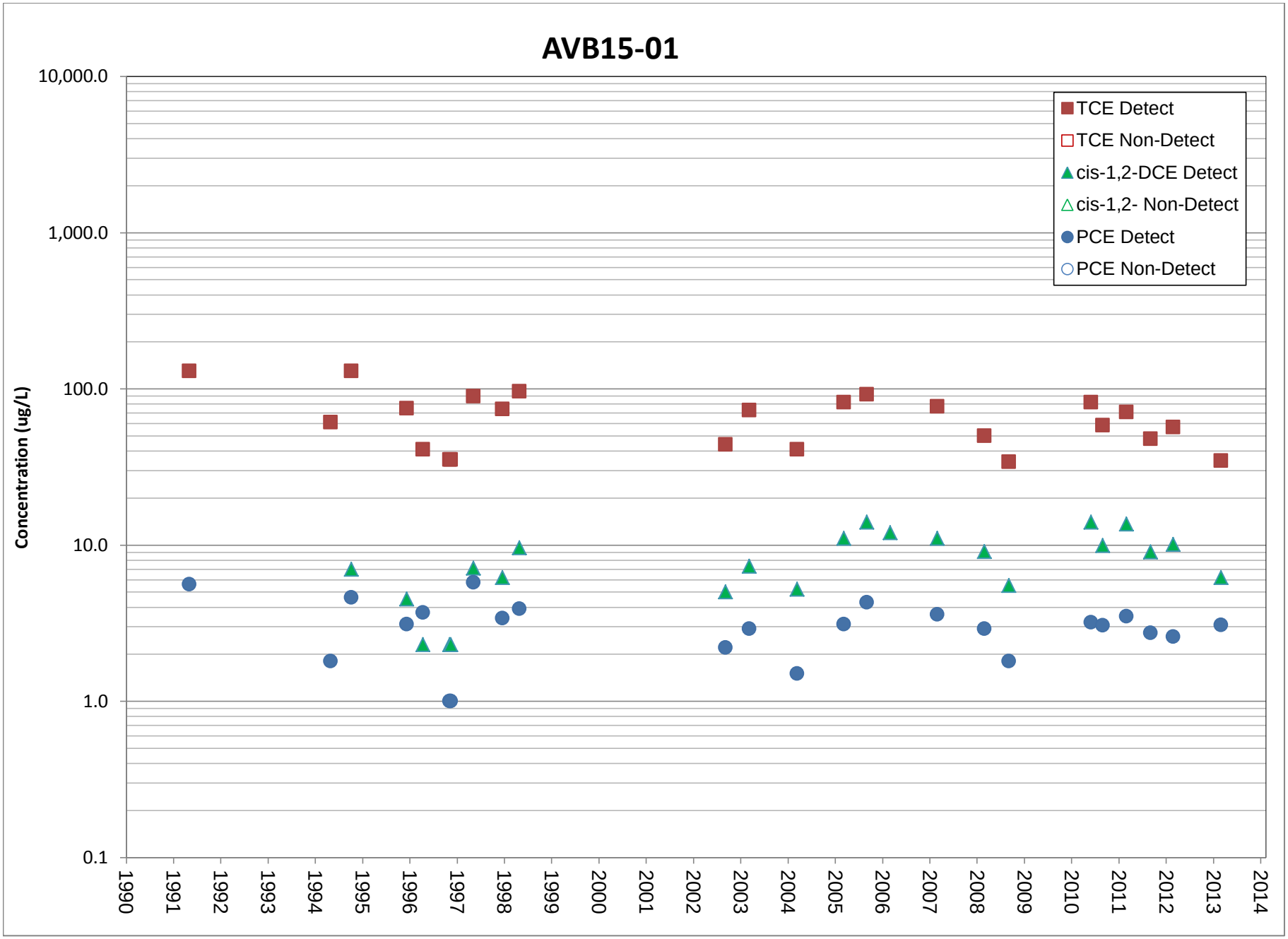
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB15-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
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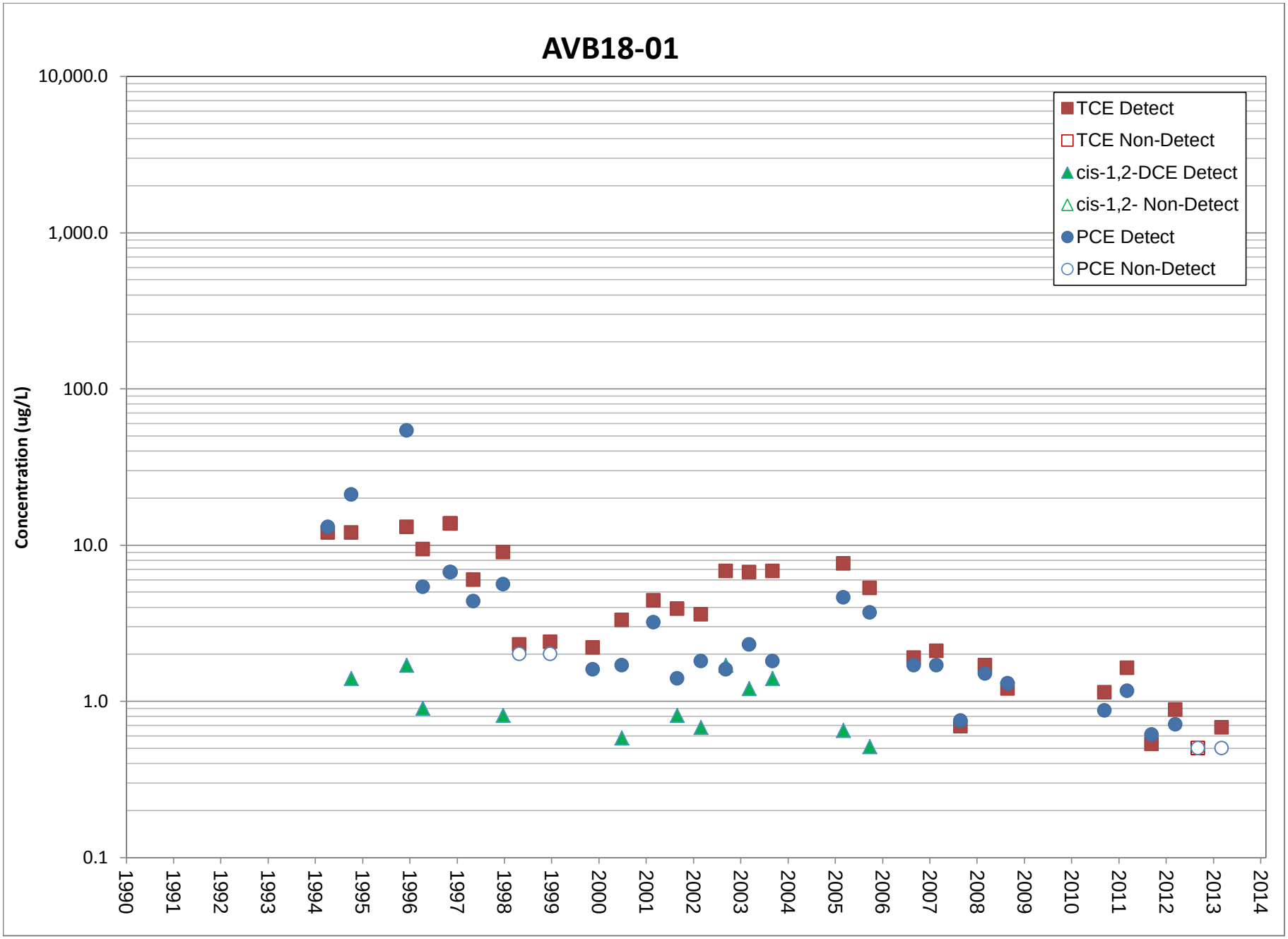
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB18-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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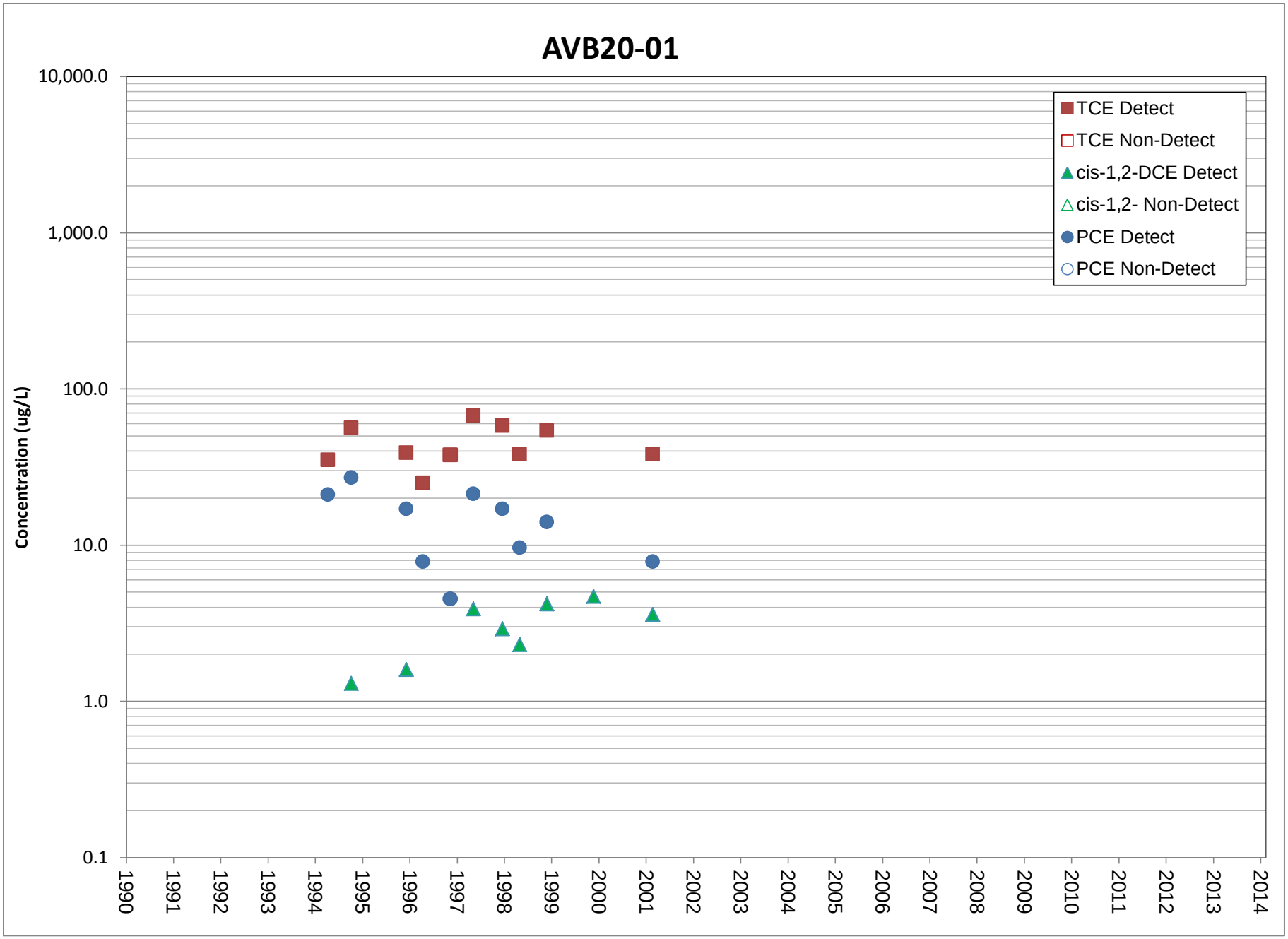
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB20-01
Concentration (ug/L)
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100.0
10.0
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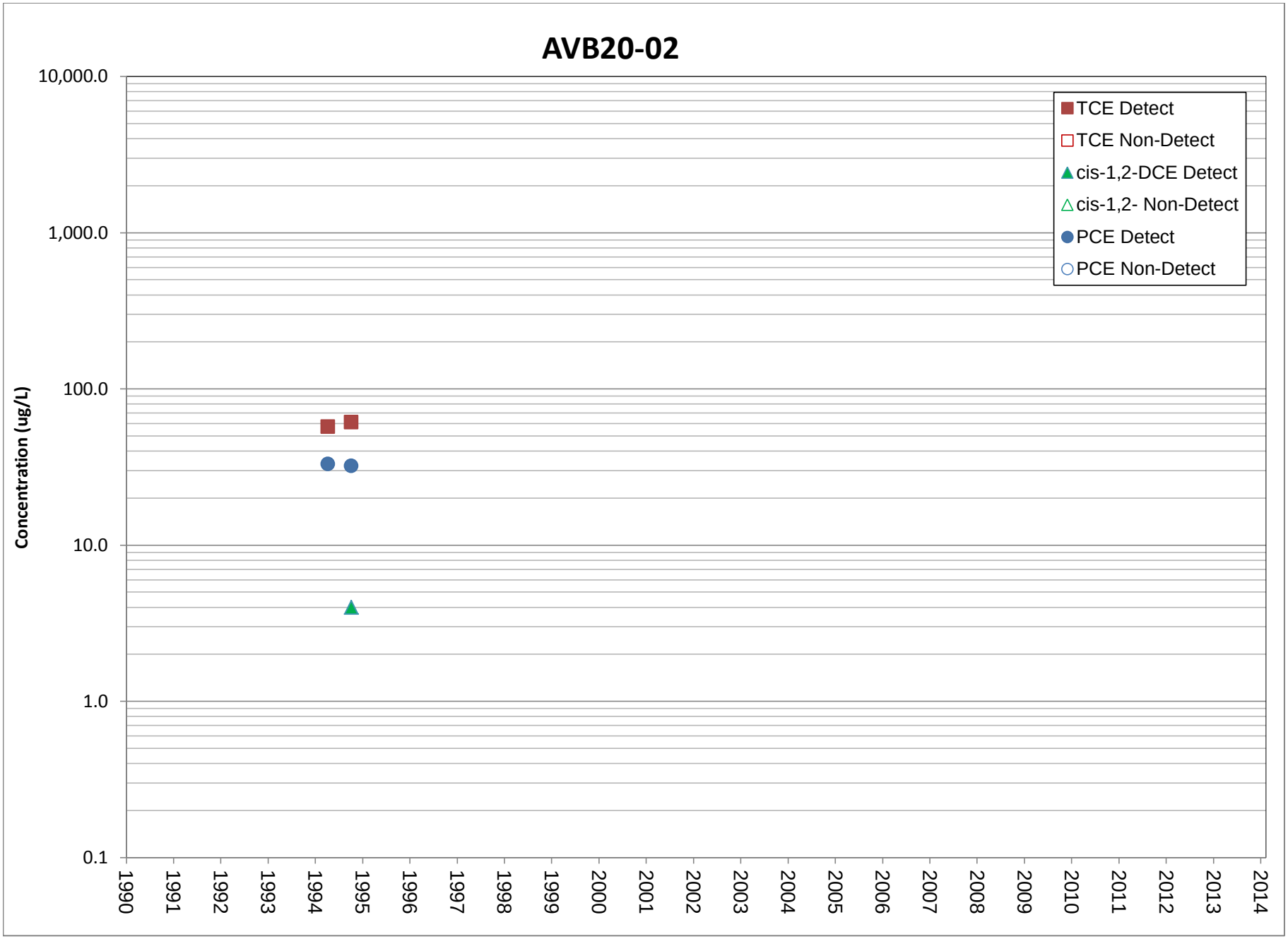
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB20-02
Concentration (ug/L)
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1,000.0
100.0
10.0
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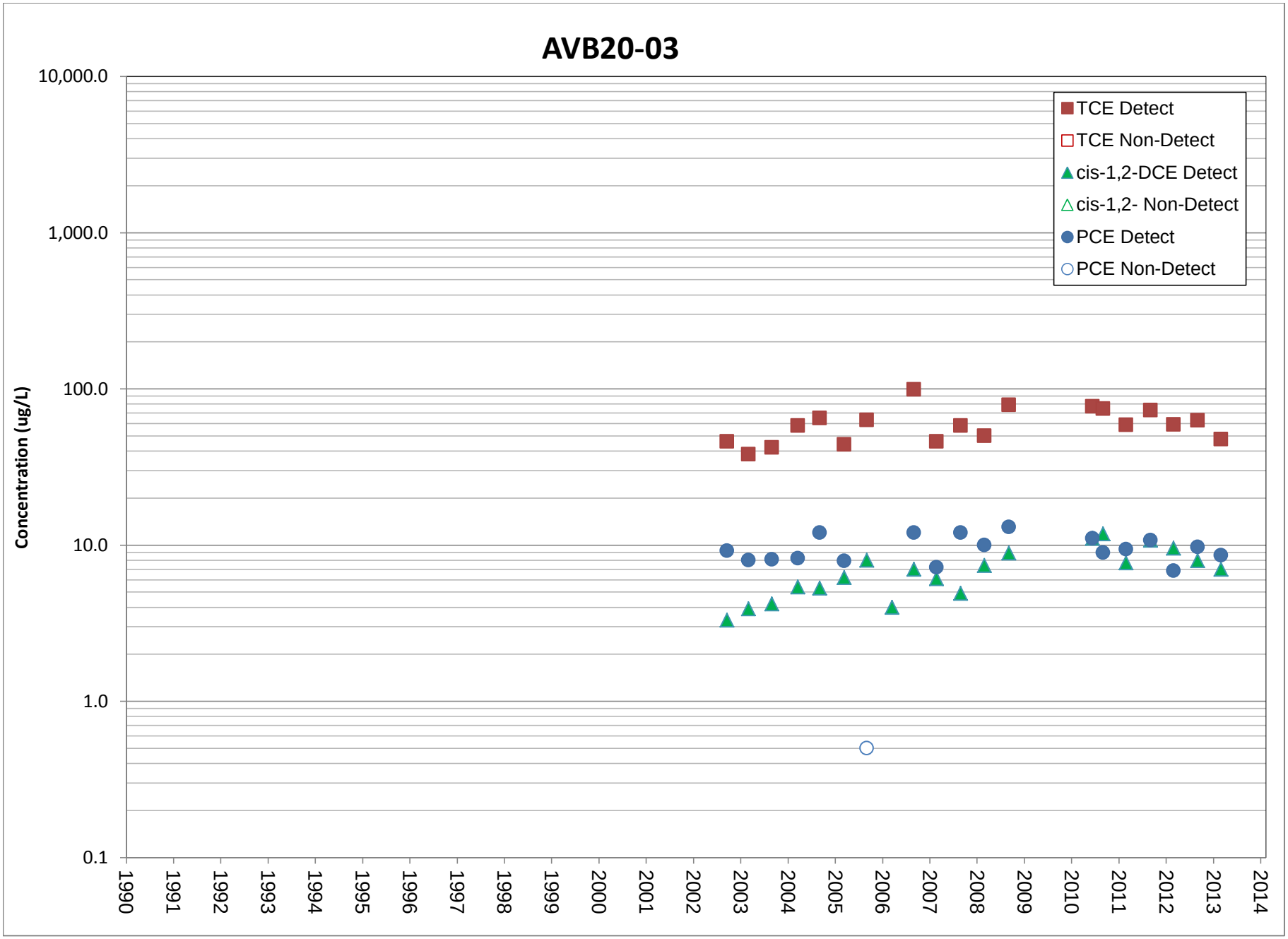
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB20-03
Concentration (ug/L)
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100.0
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0.1
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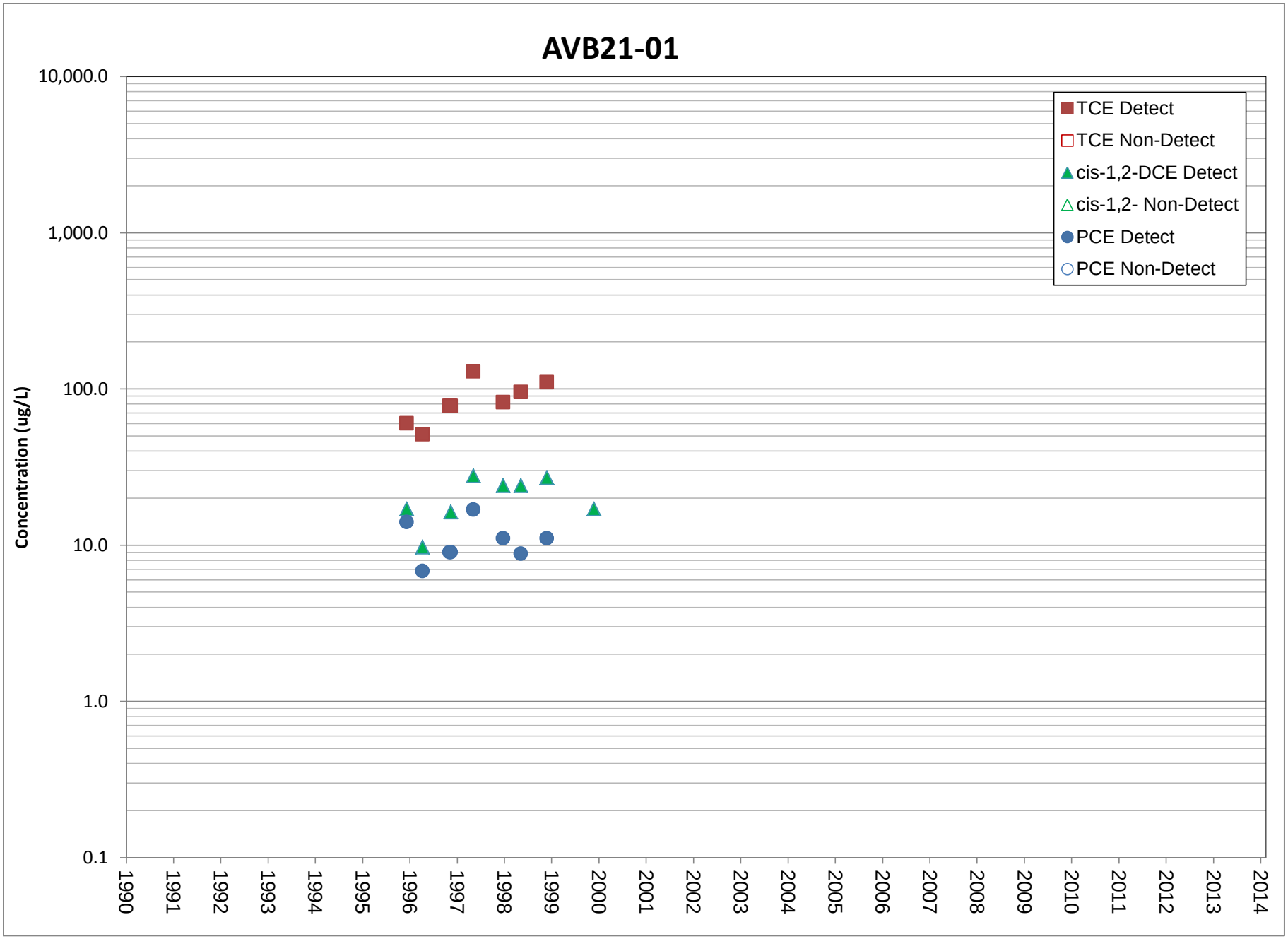
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB21-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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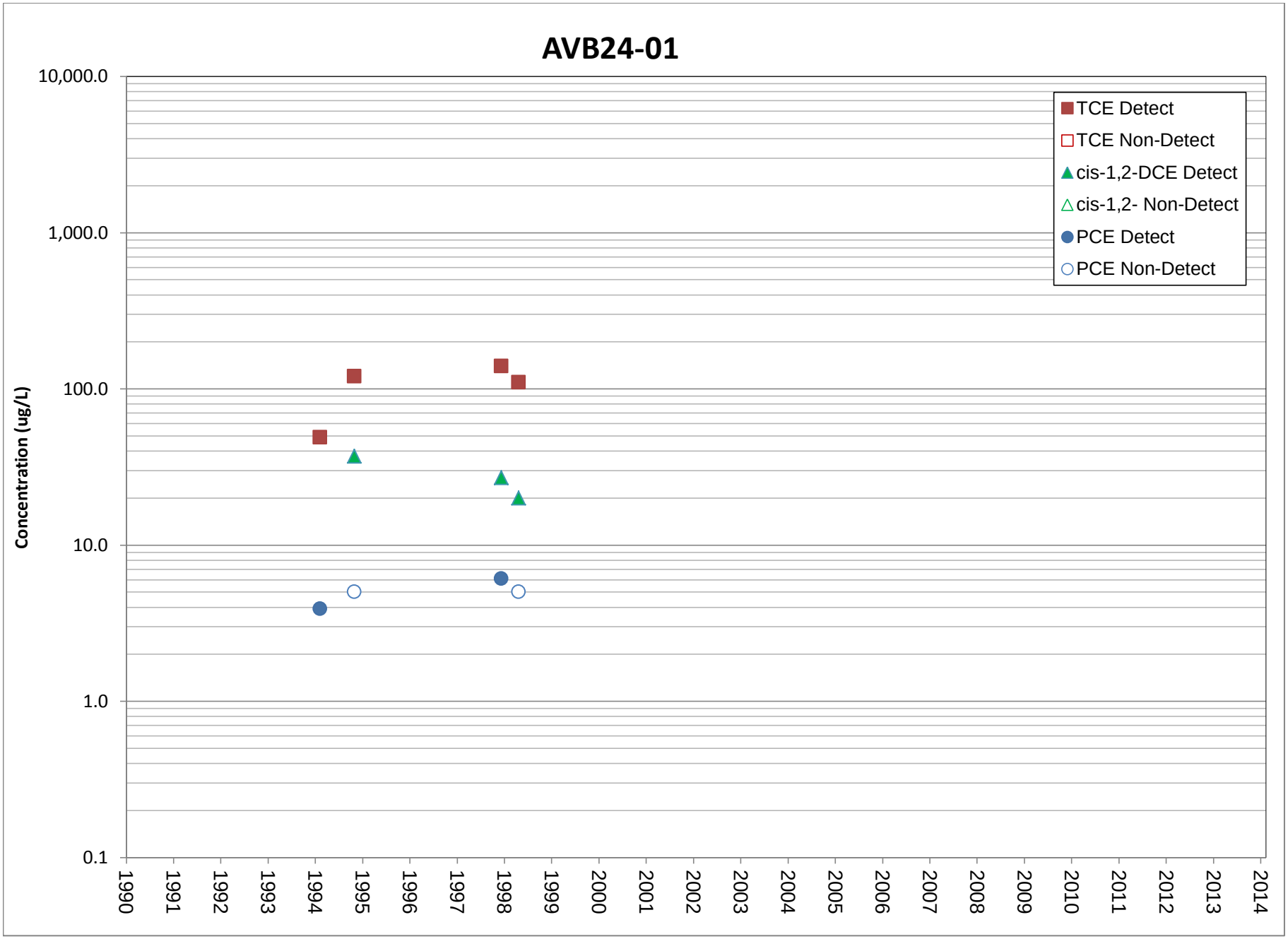
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB24-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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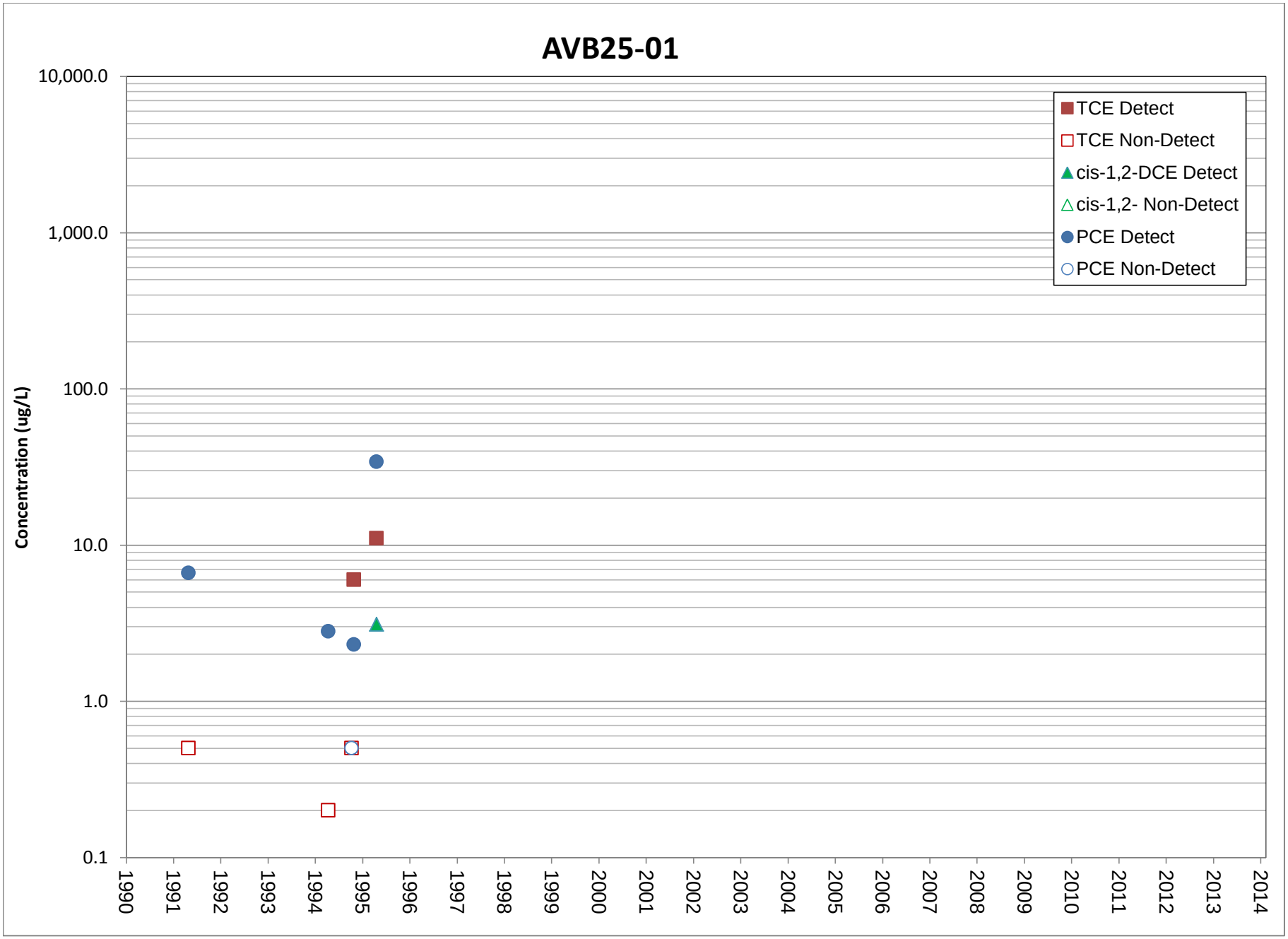
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB25-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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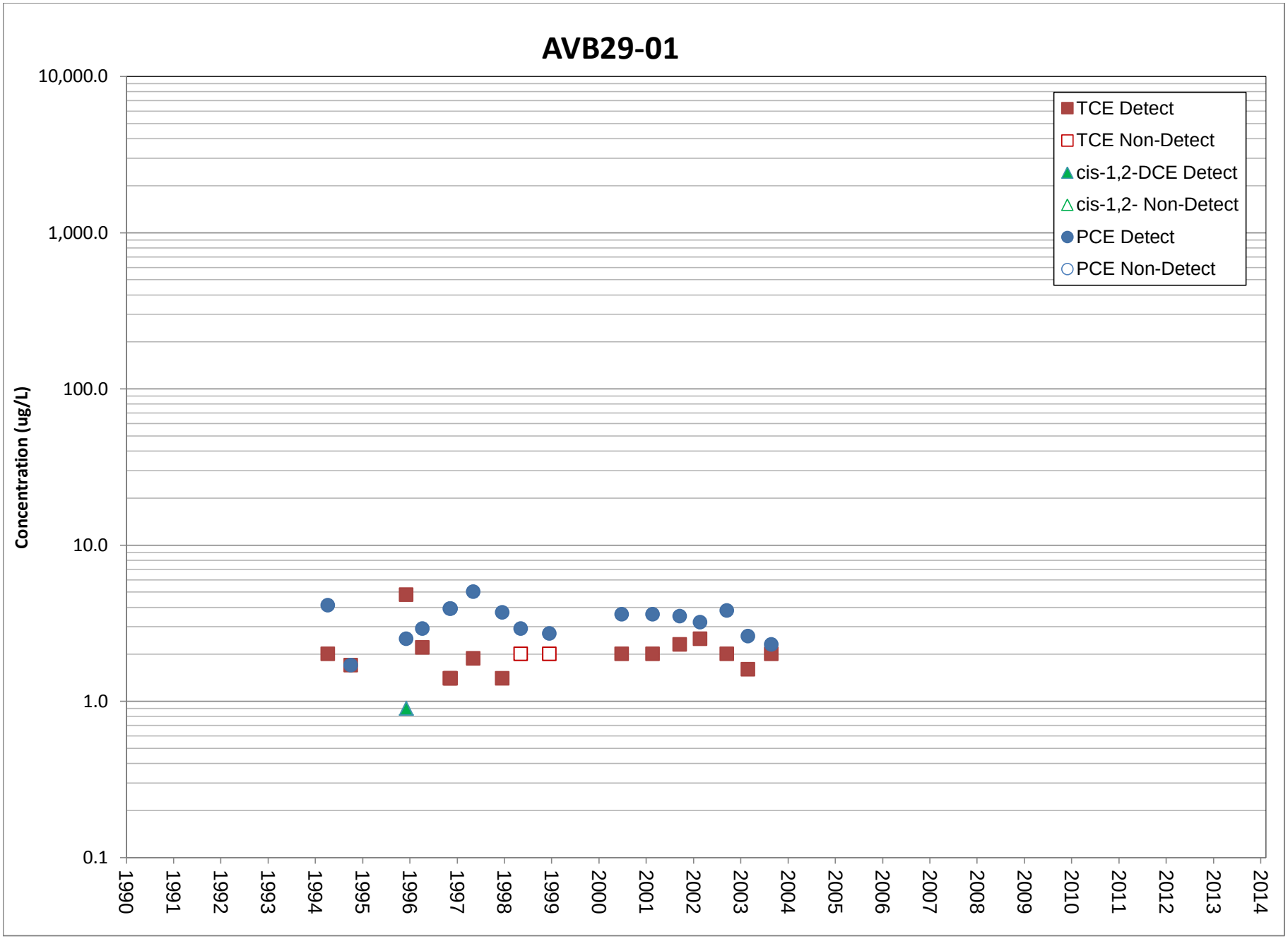
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB29-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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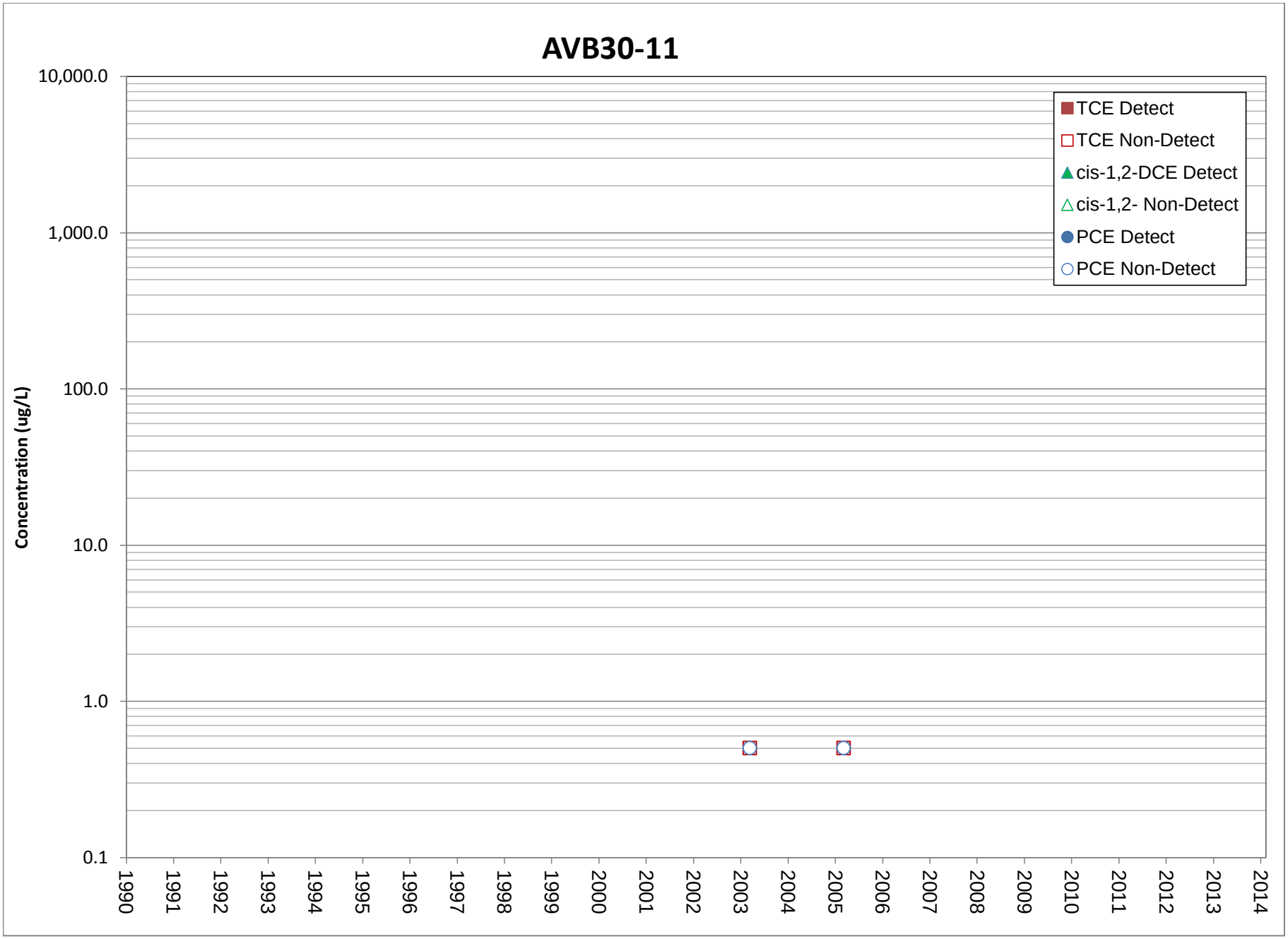
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB30-11
Concentration (ug/L)
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1.0
0.1
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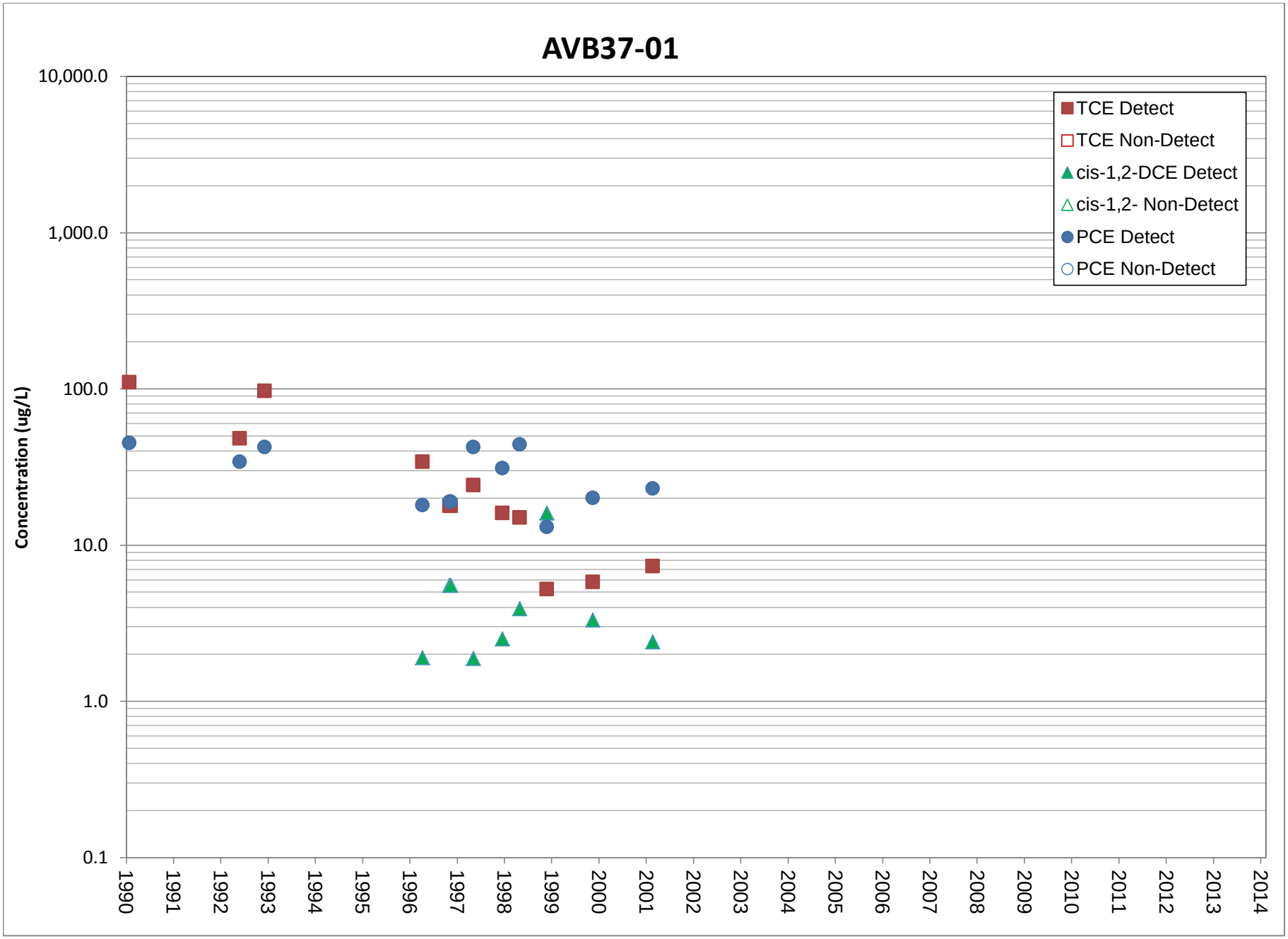
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB37-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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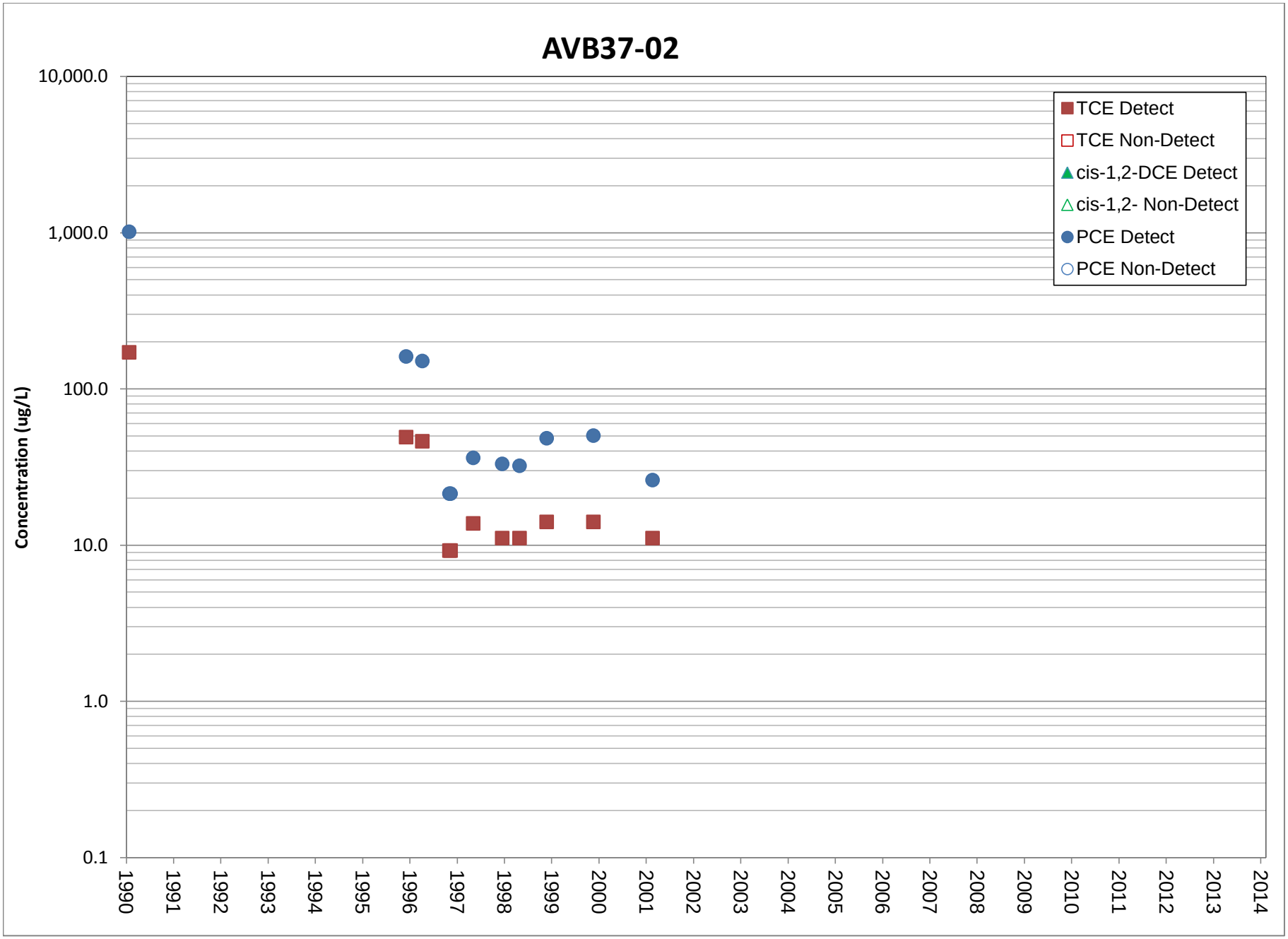
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB37-02
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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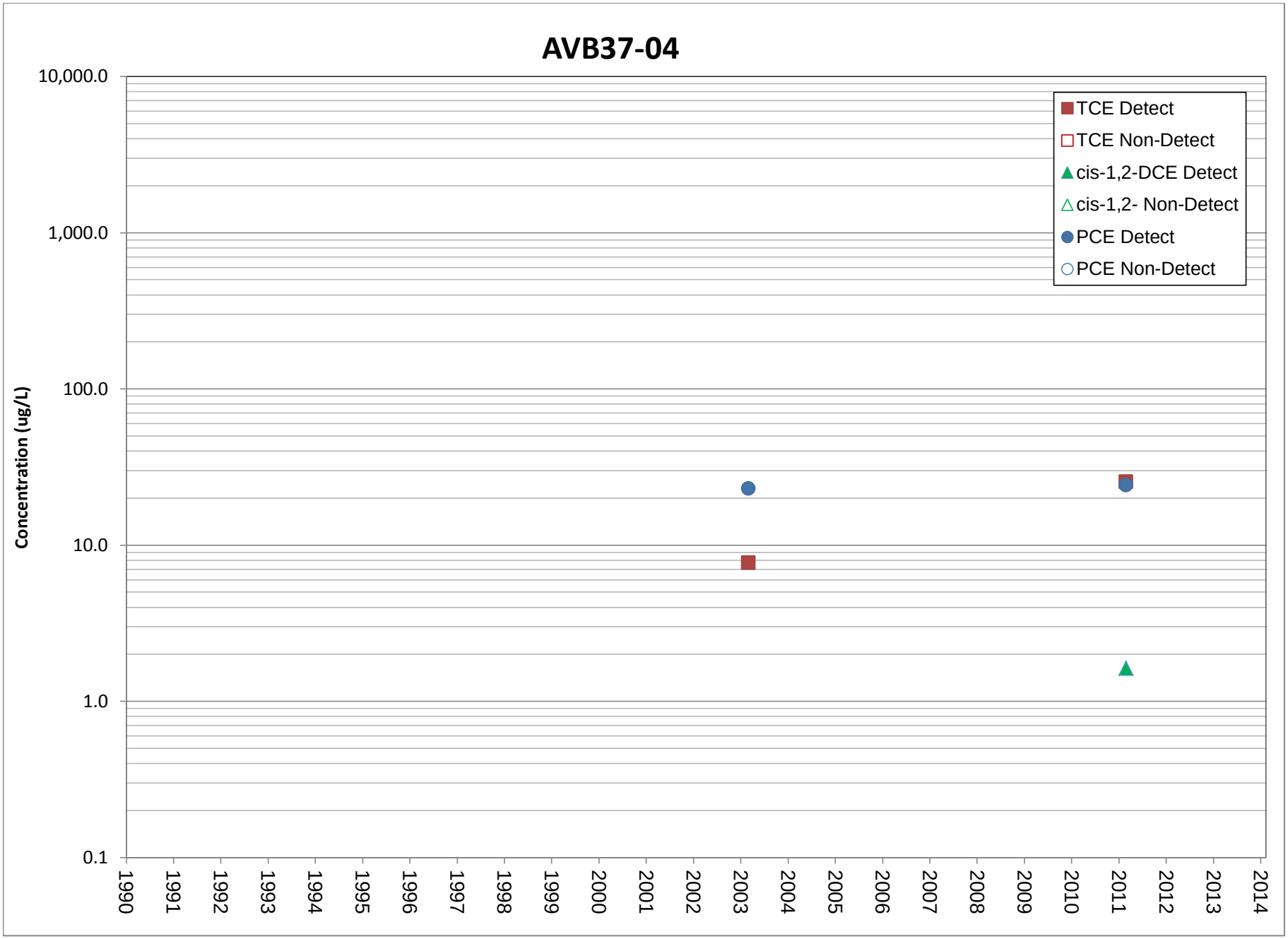
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB37-04
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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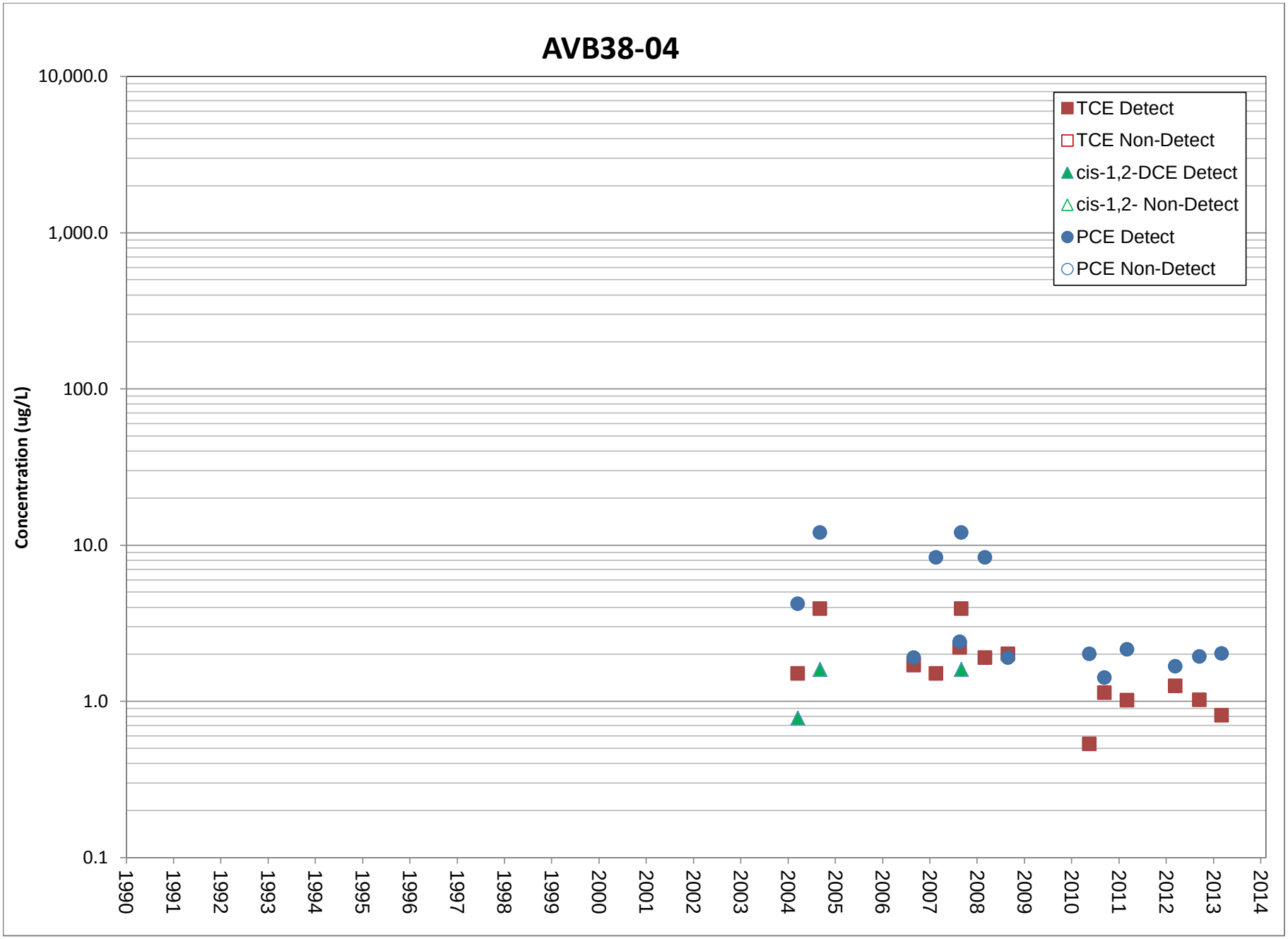
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB38-04
Concentration (ug/L)
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100.0
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1.0
0.1
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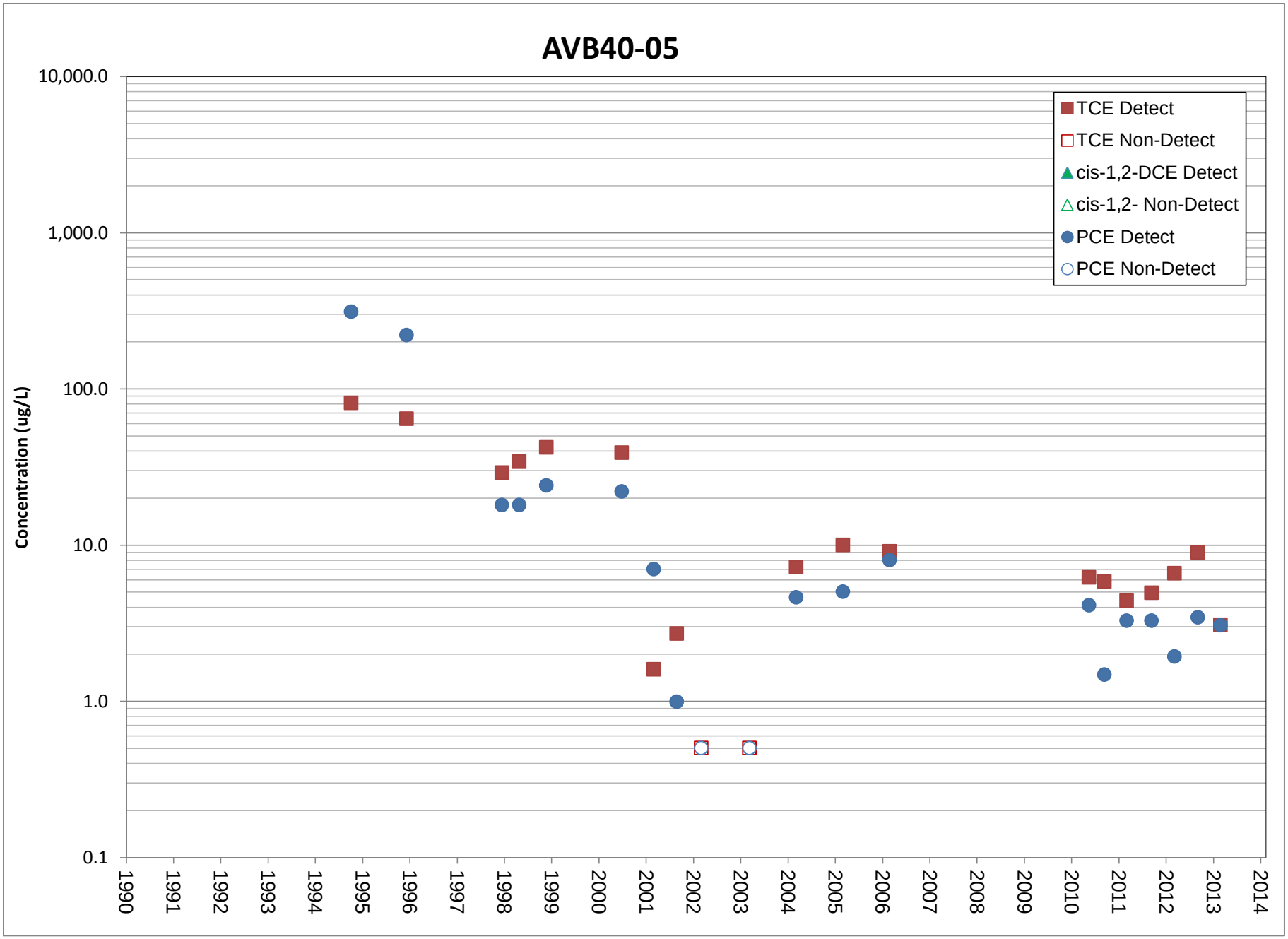
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB40-05
Concentration (ug/L)
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0.1
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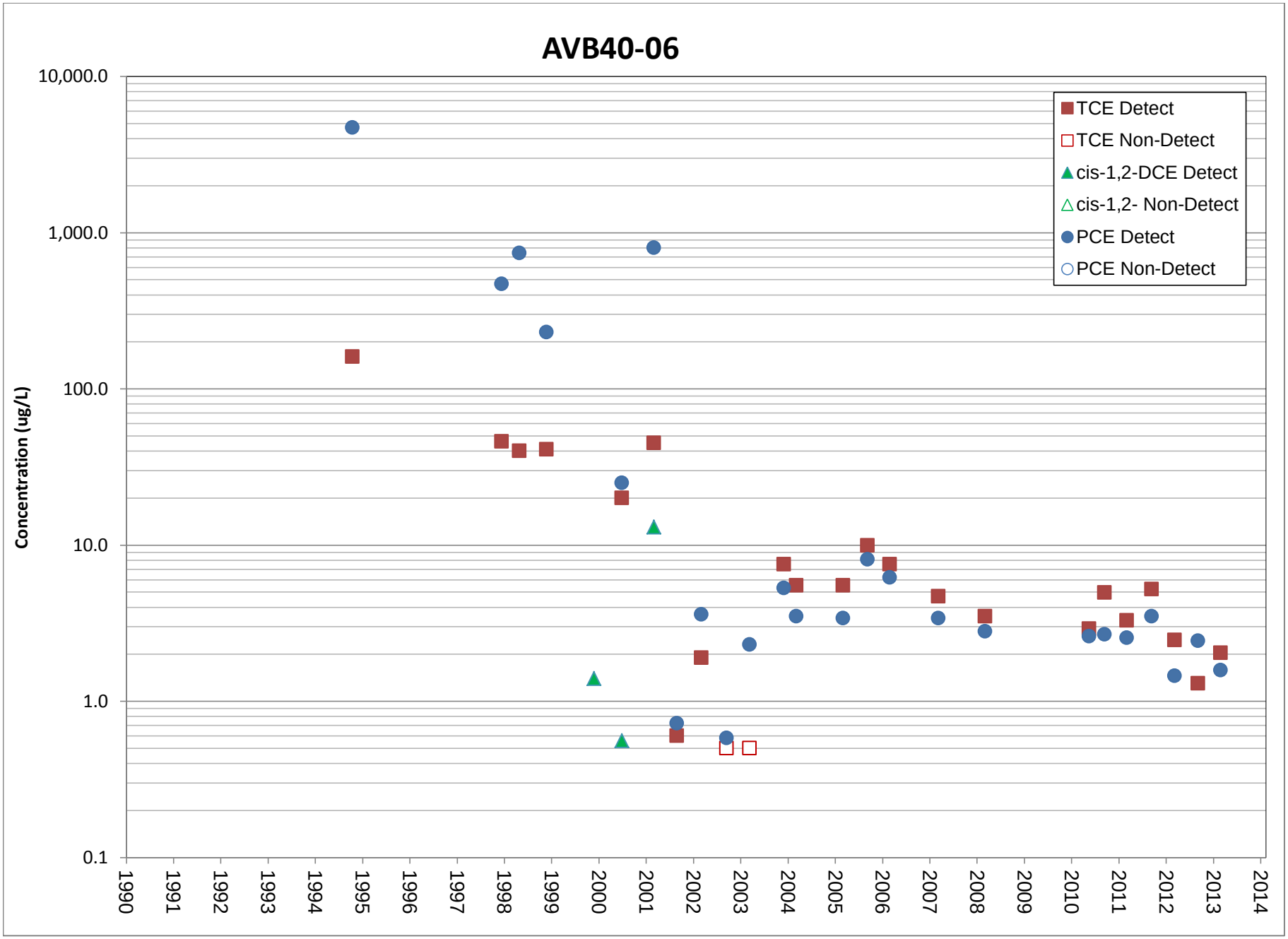
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB40-06
Concentration (ug/L)
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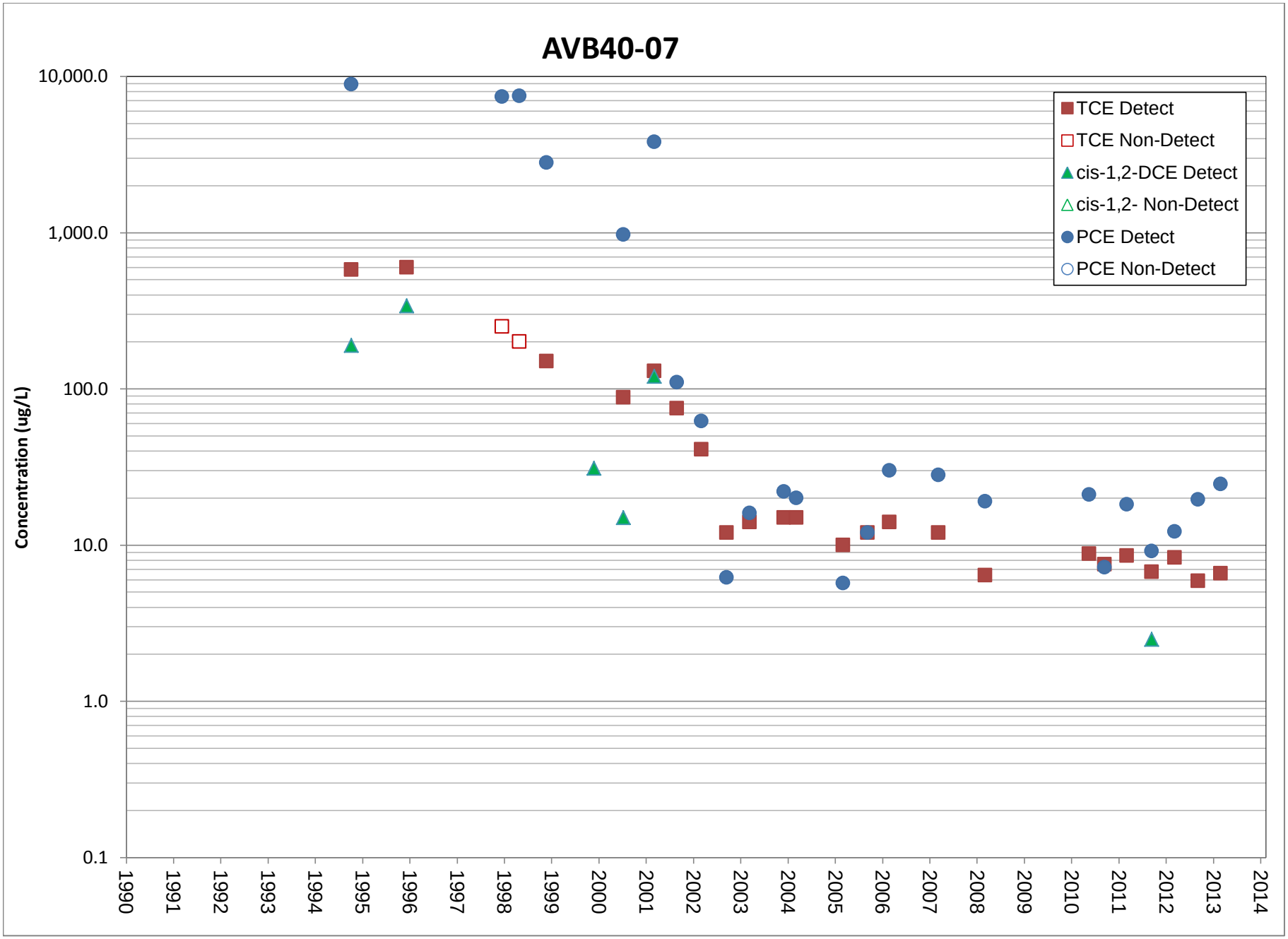
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB40-07
Concentration (ug/L)
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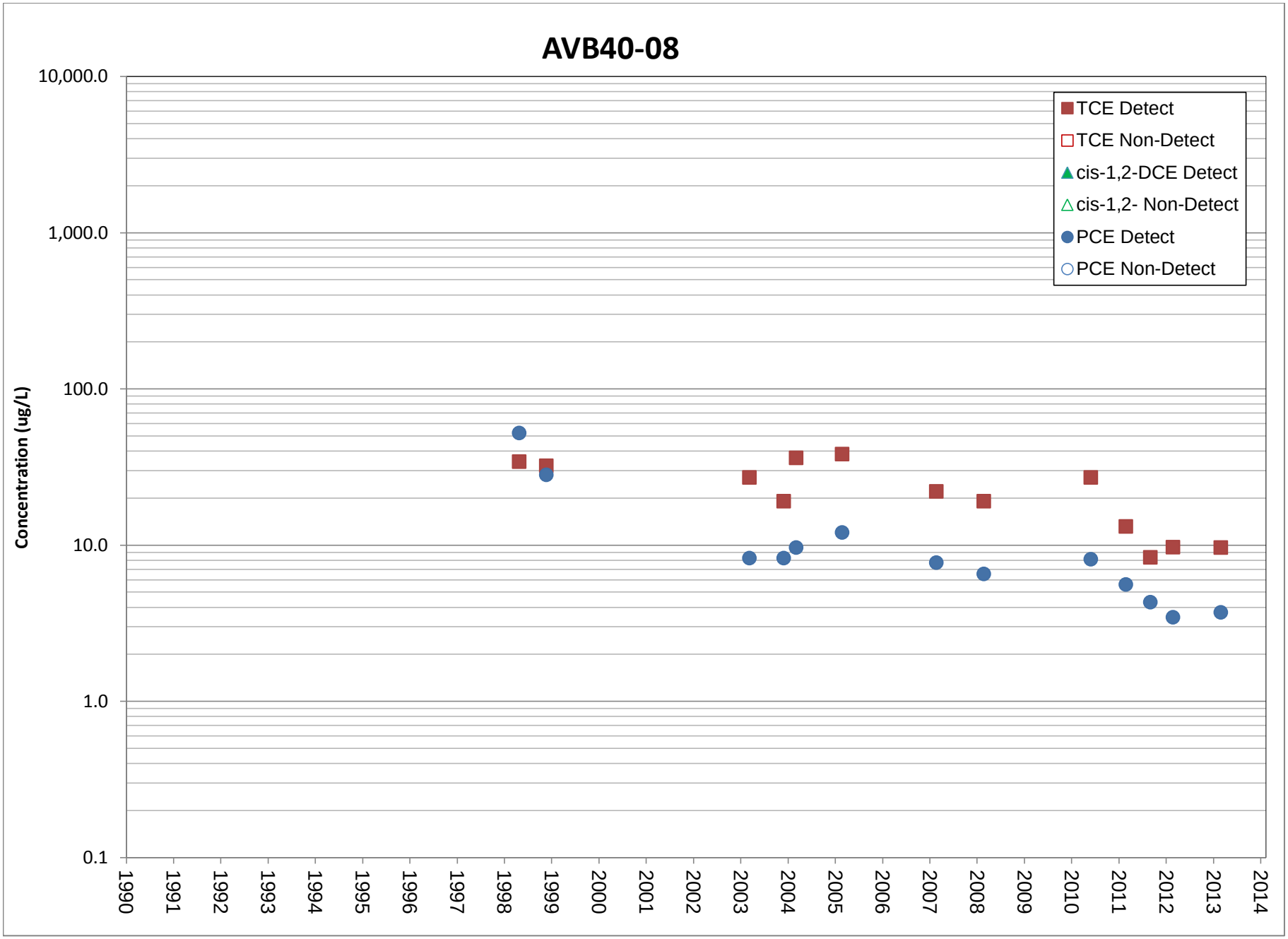
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB40-08
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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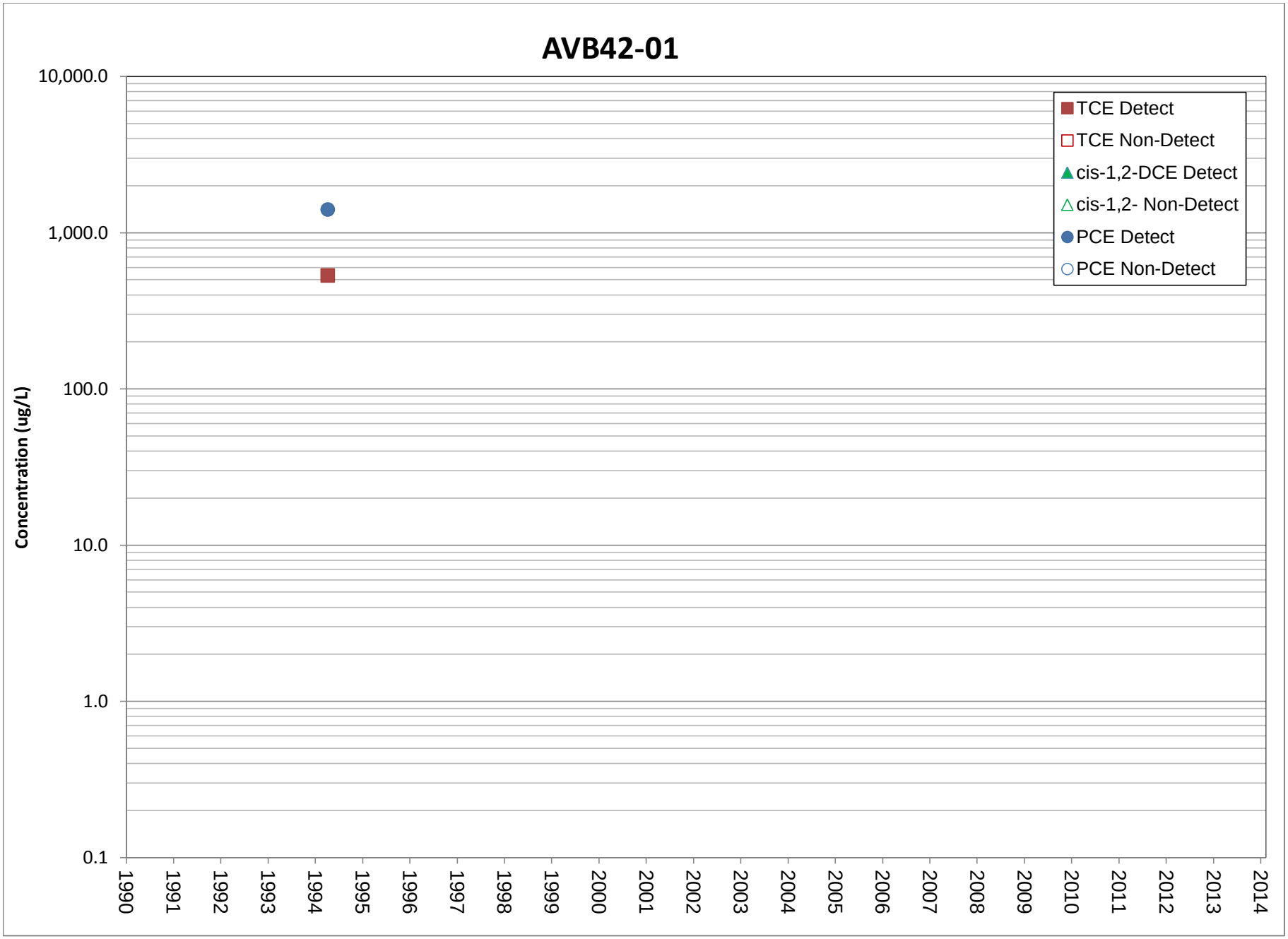
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB42-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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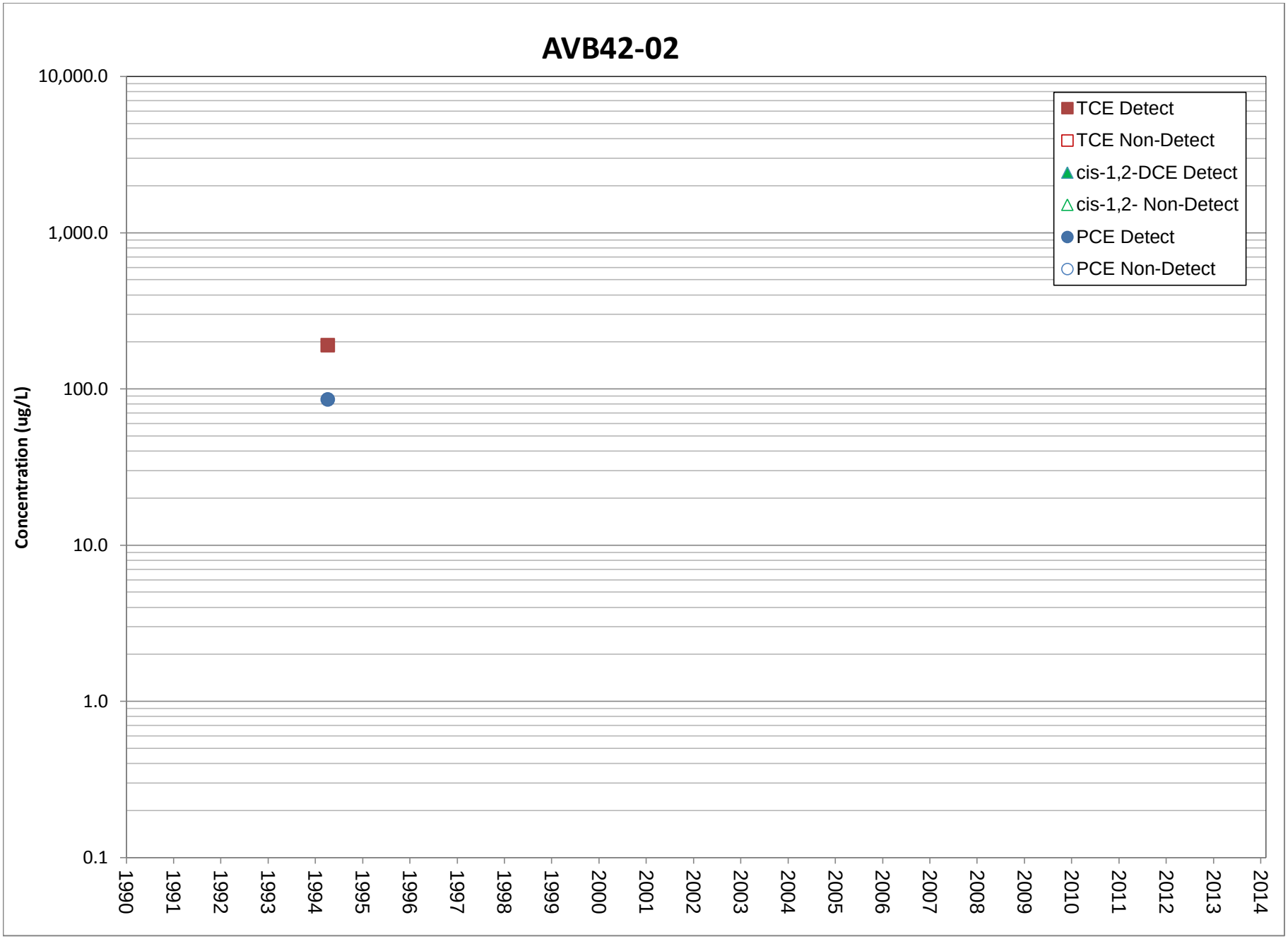
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB42-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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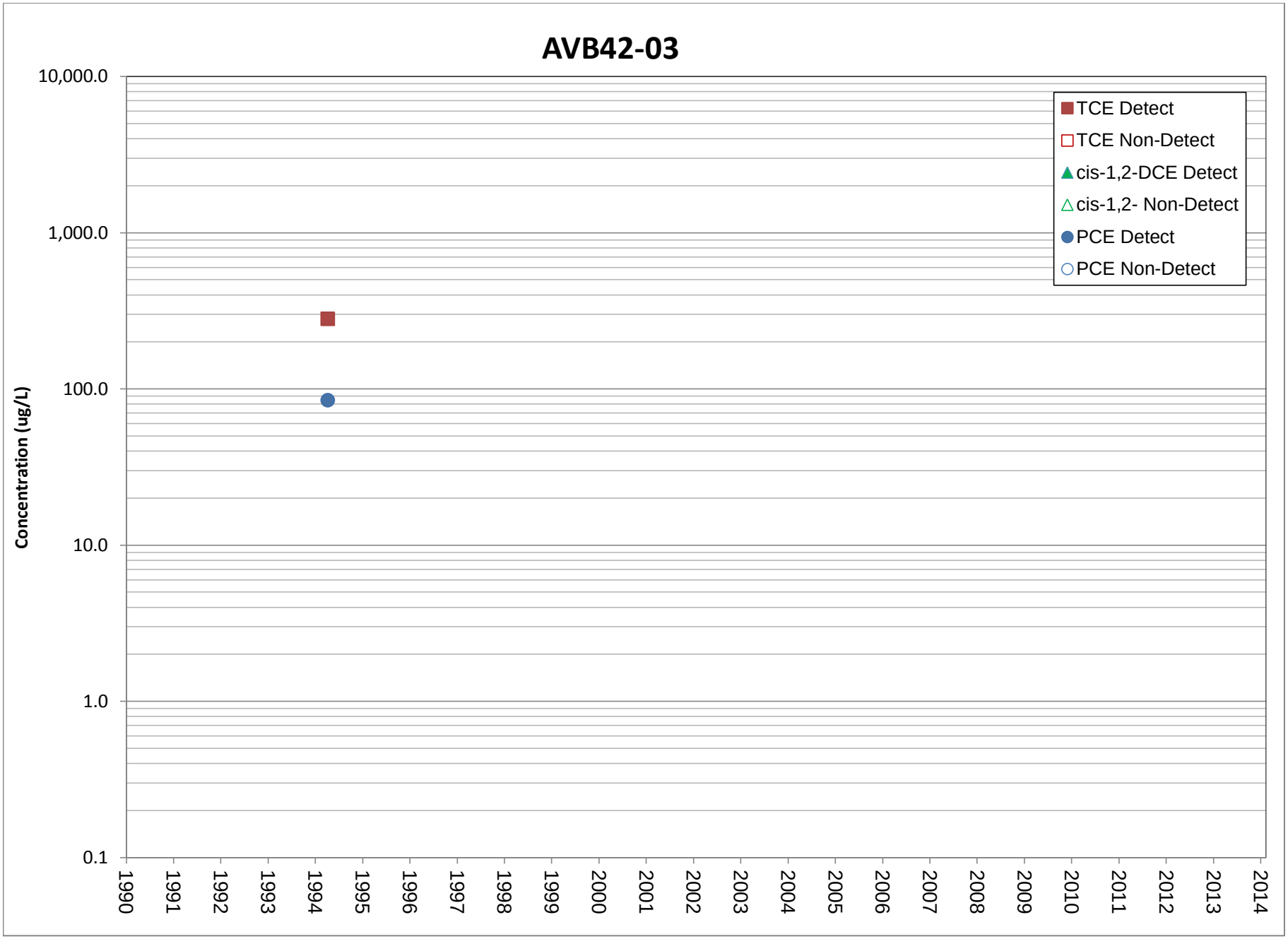
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB42-03
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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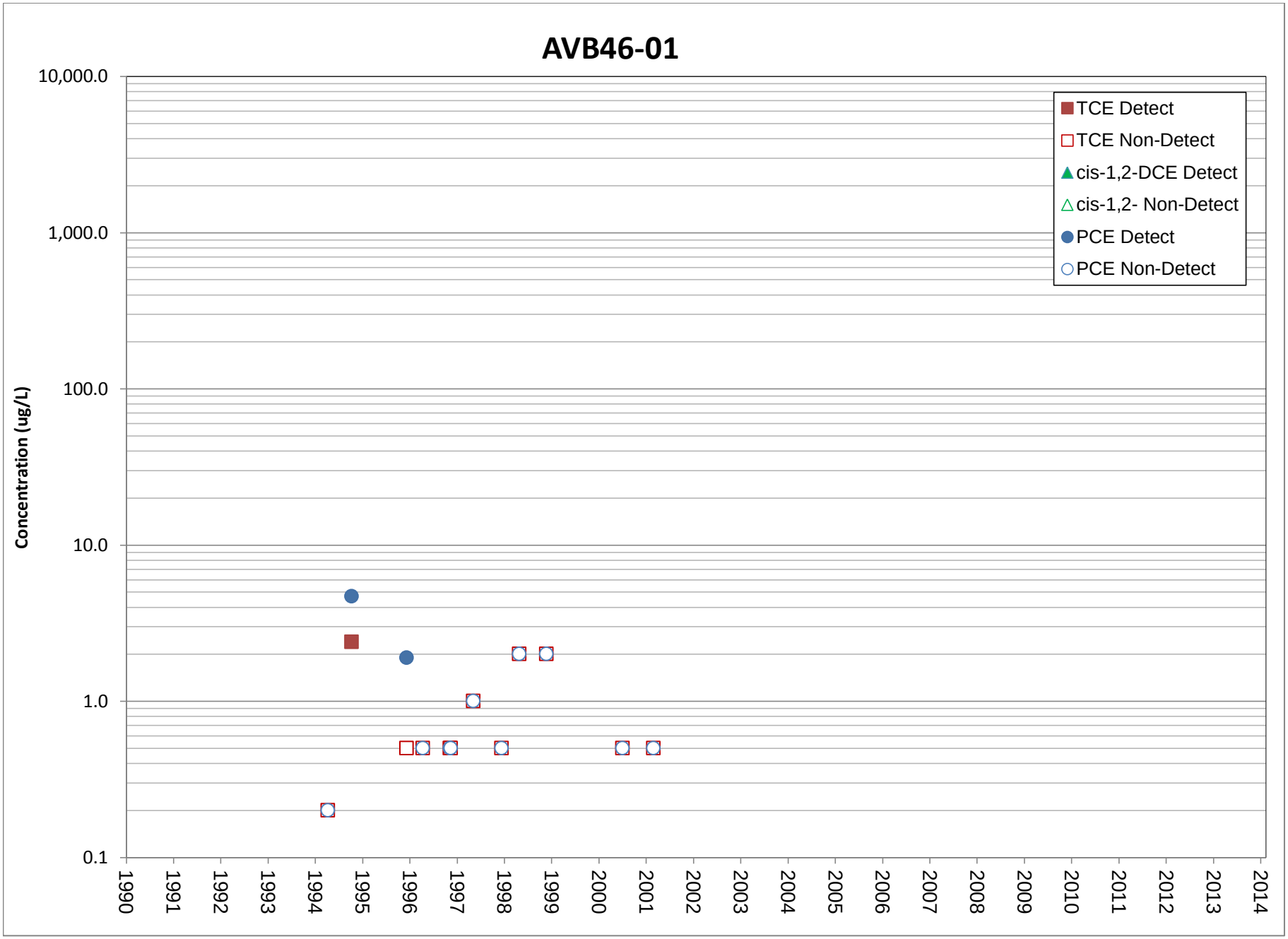
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB46-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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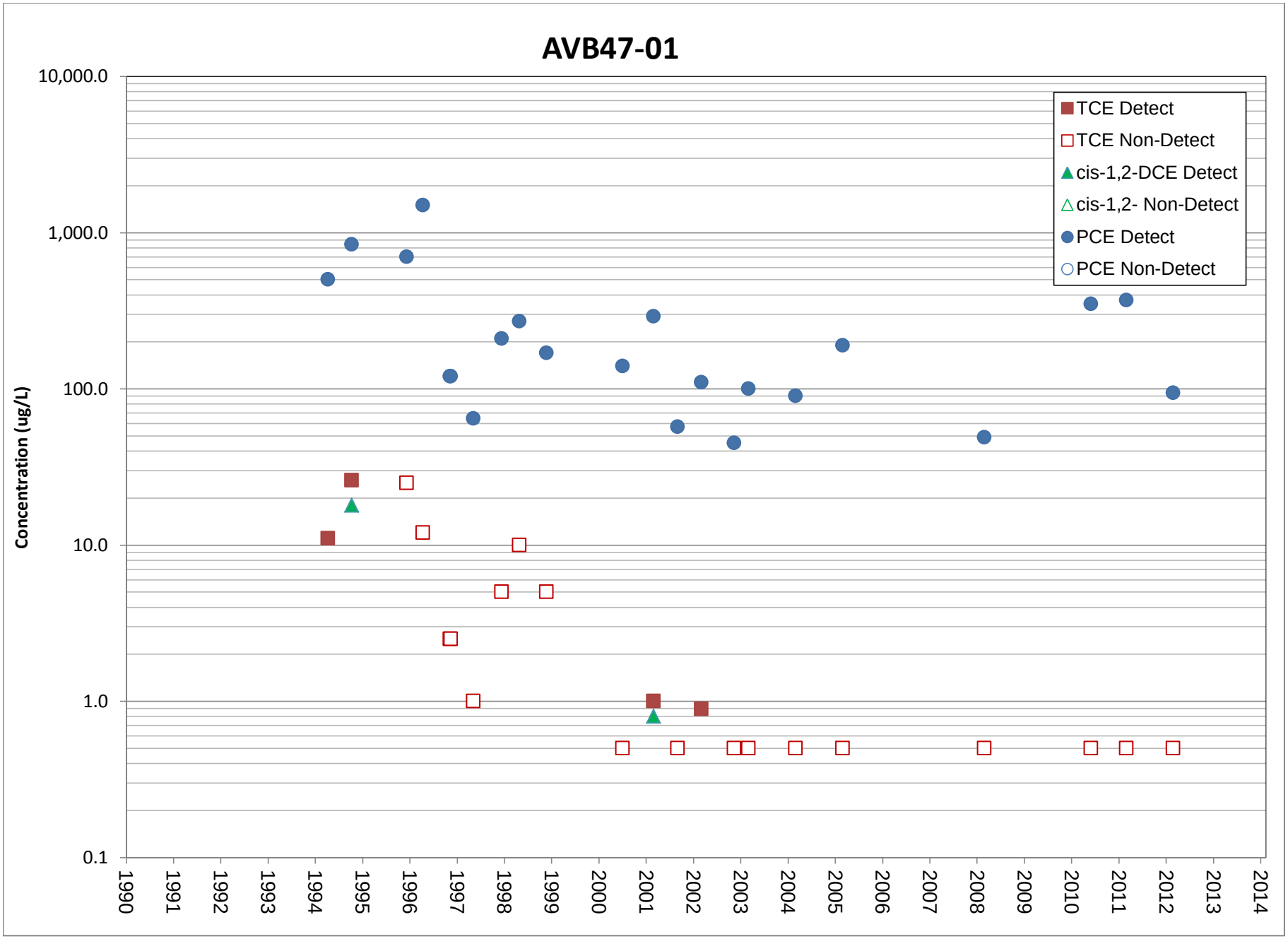
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB47-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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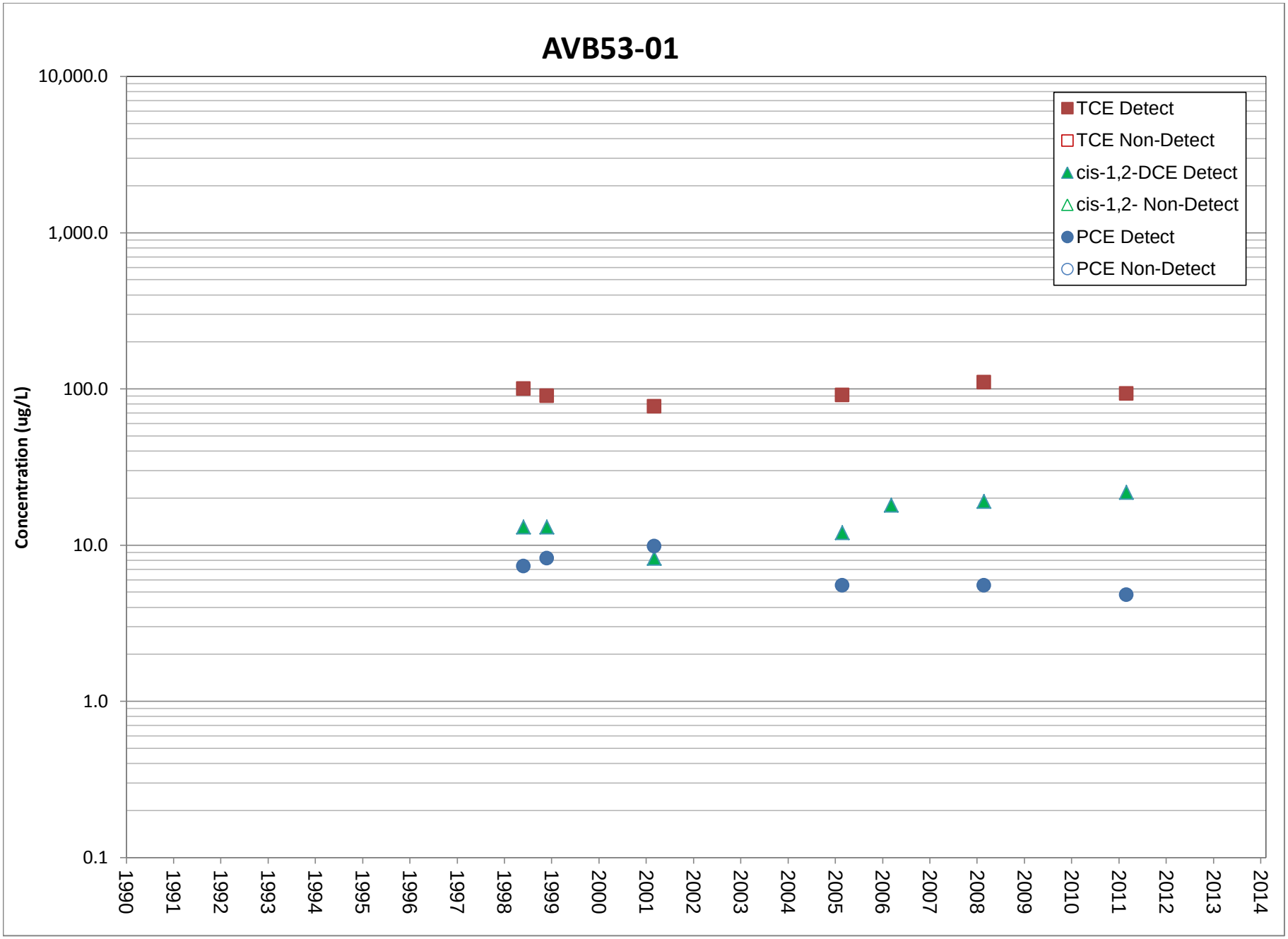
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB53-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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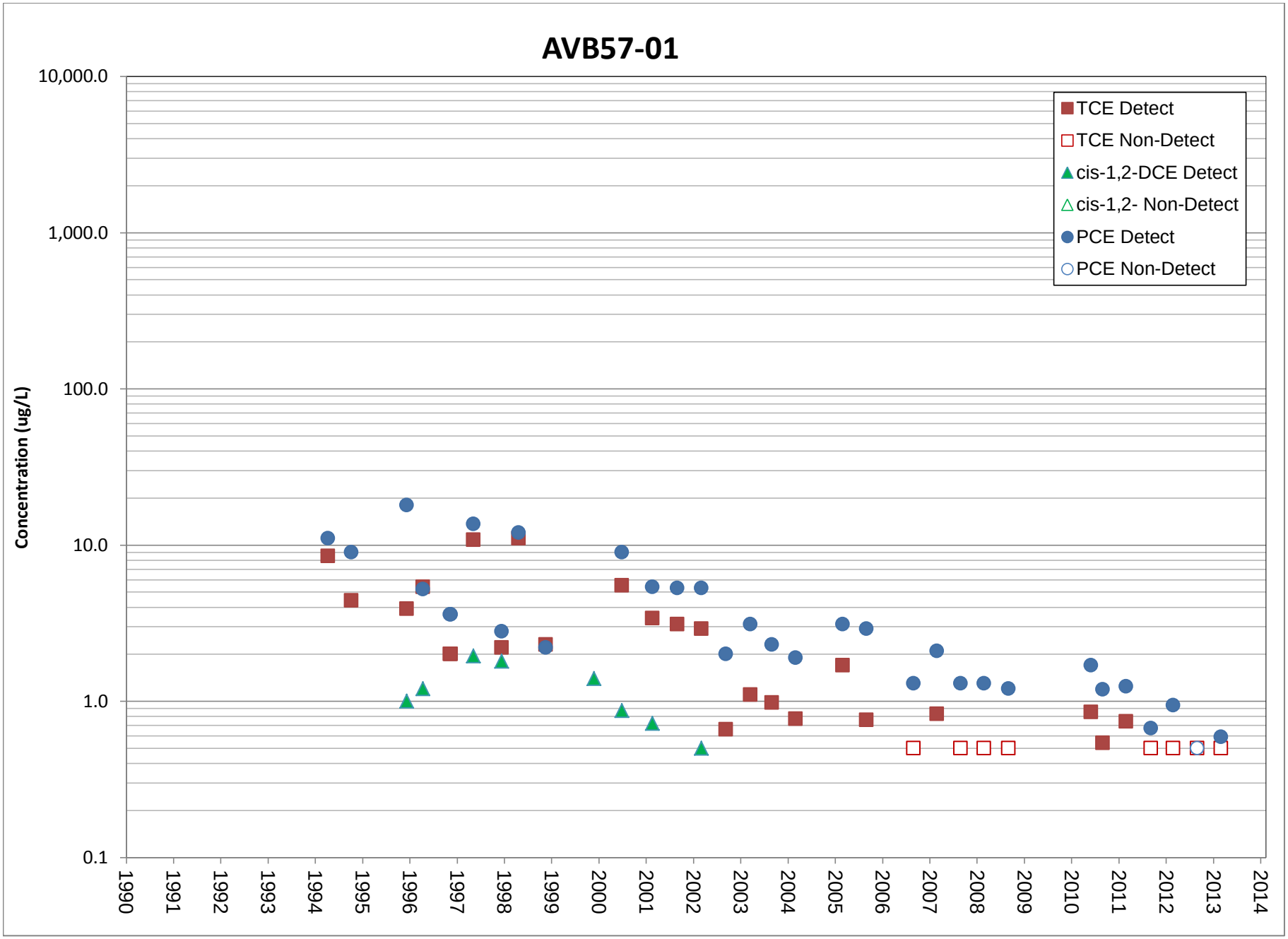
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB57-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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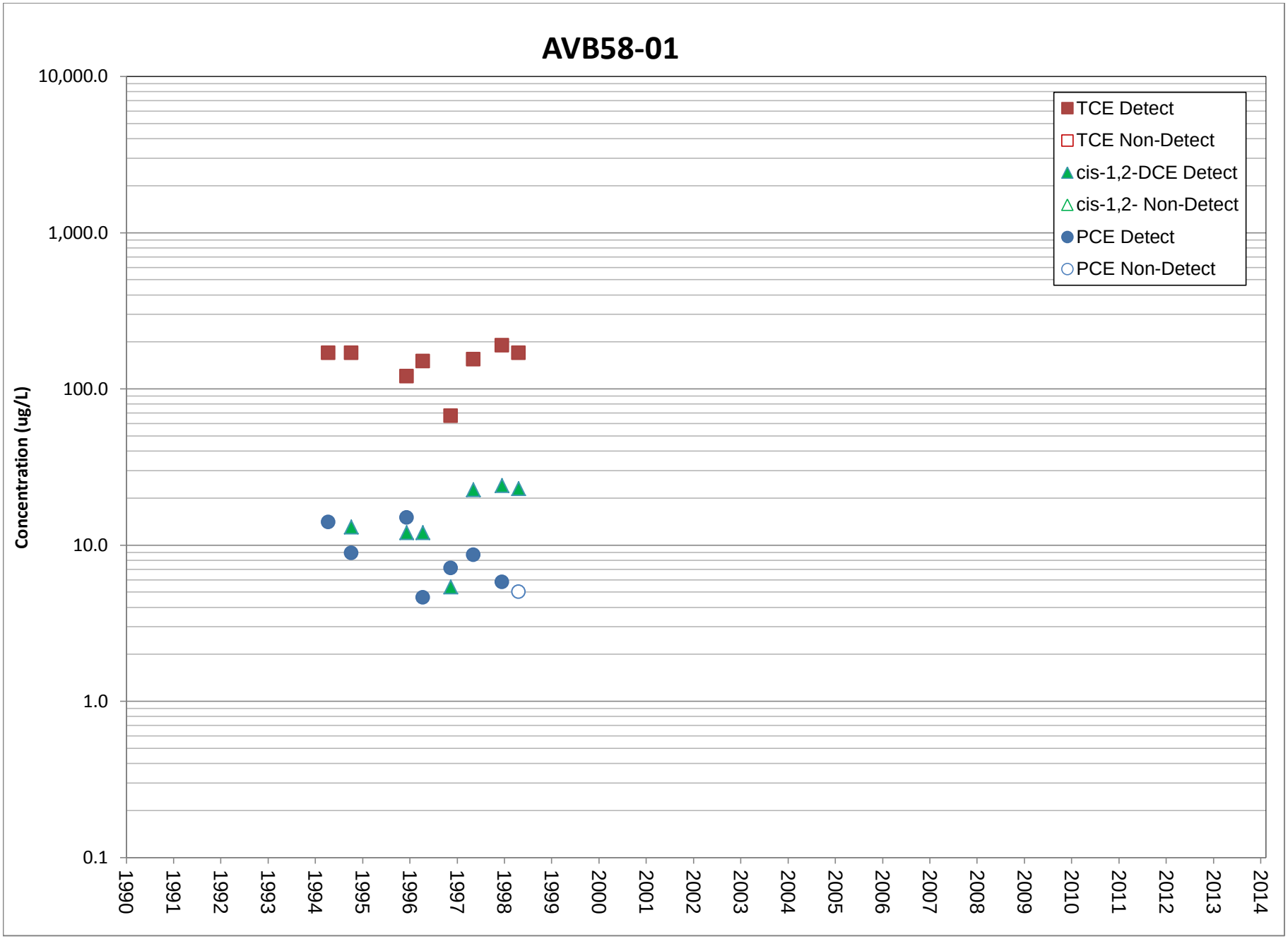
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB58-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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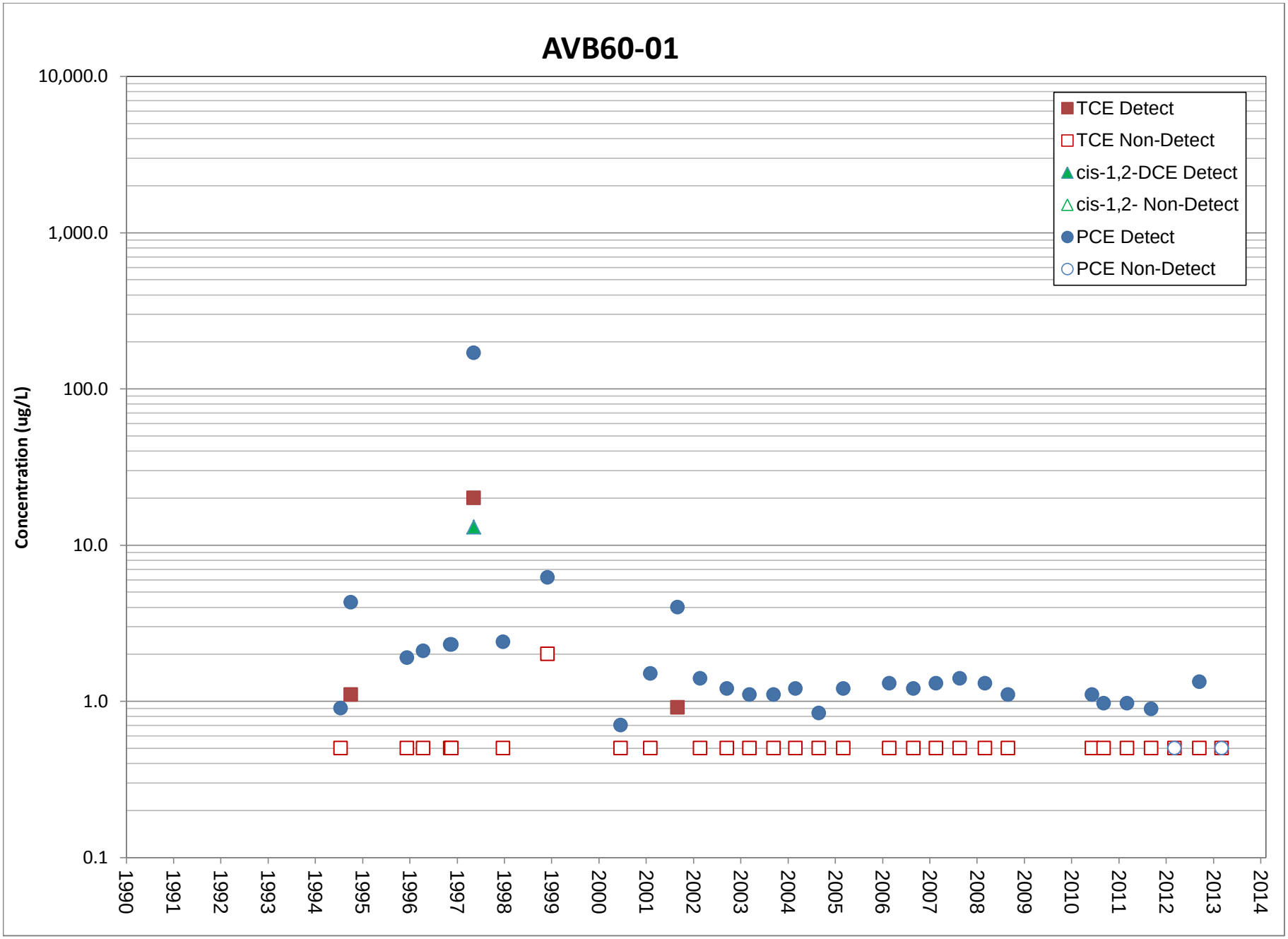
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB60-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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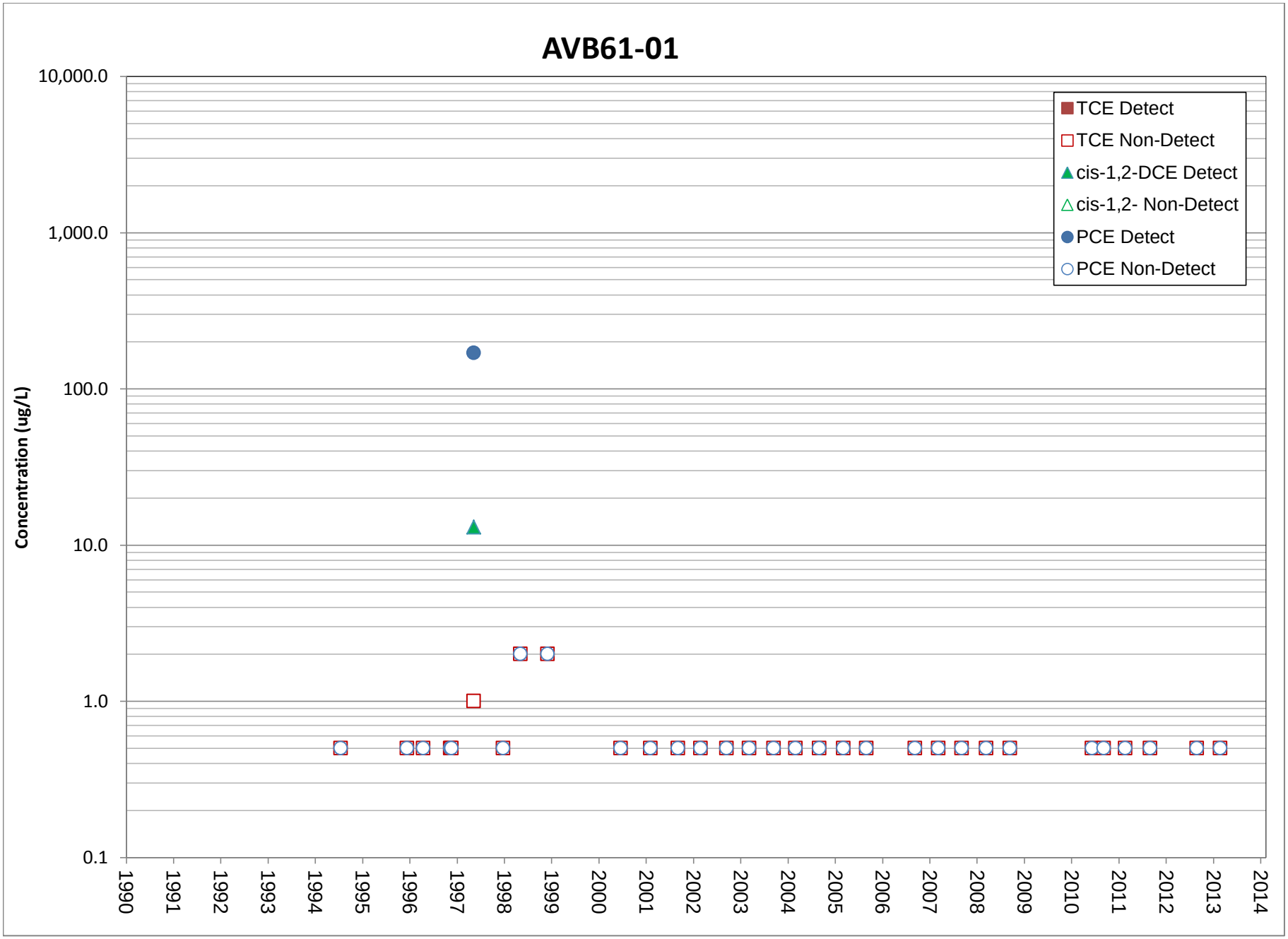
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB61-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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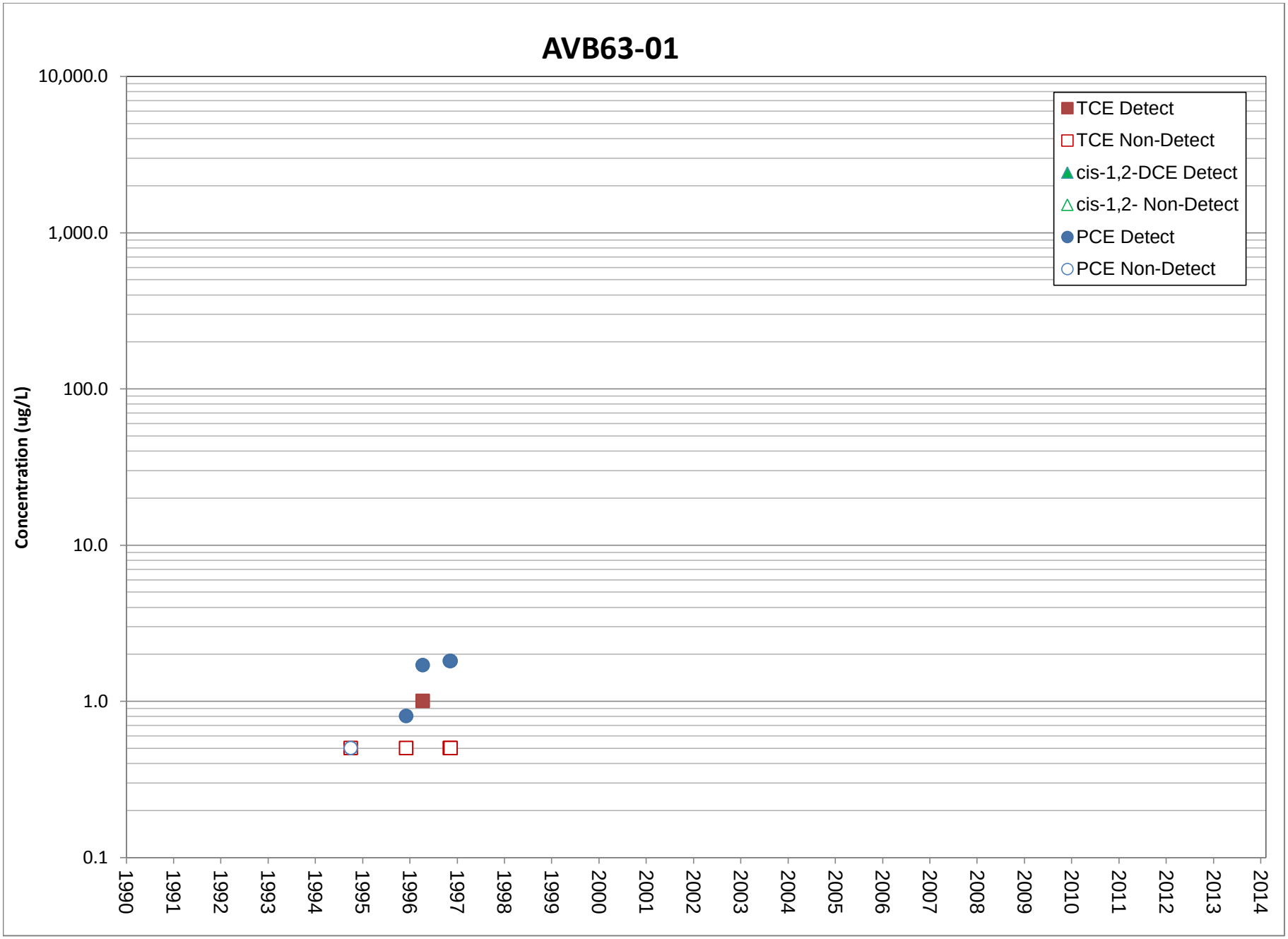
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB63-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
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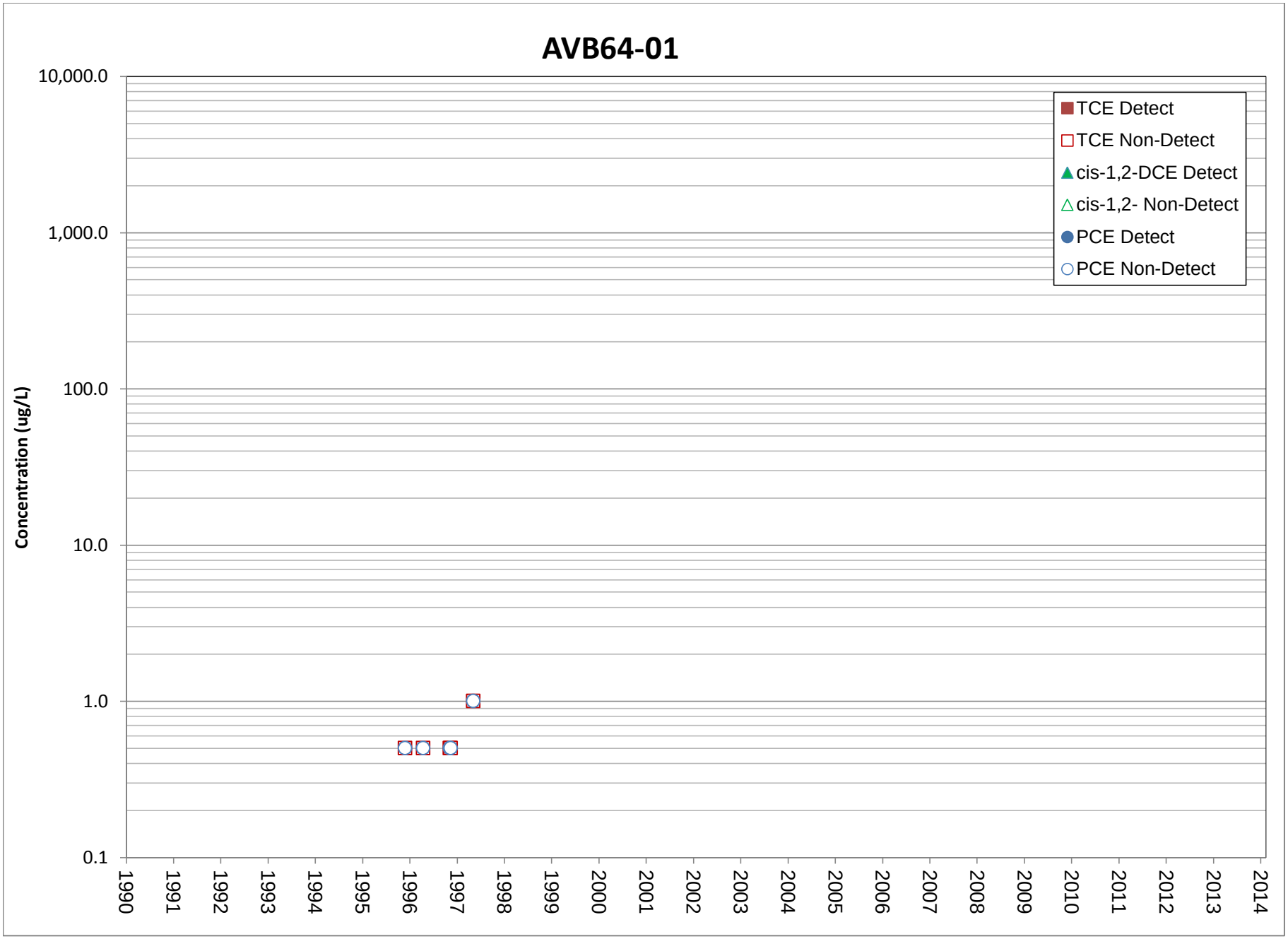
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB64-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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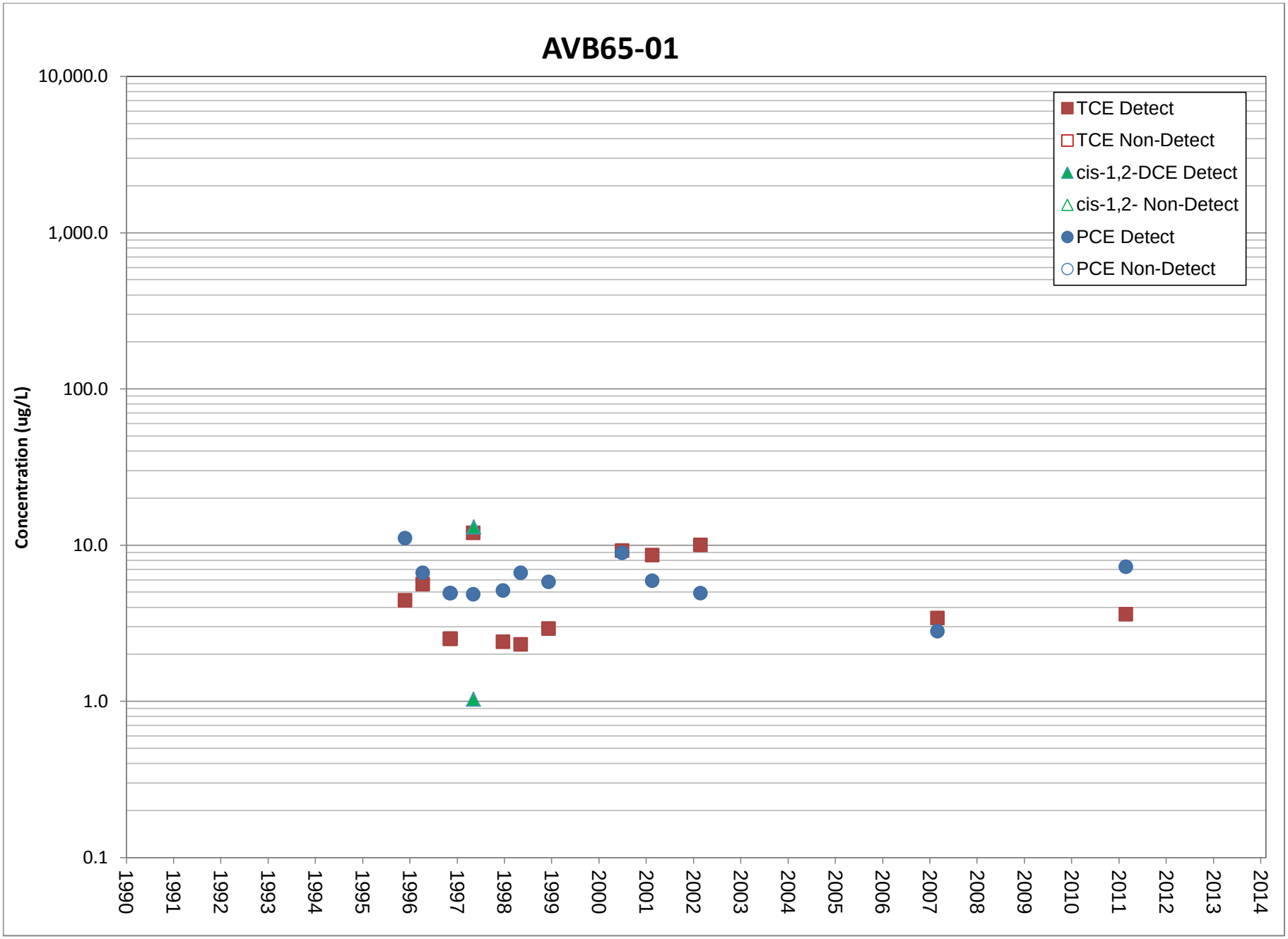
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB65-01
Concentration (ug/L)
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1,000.0
100.0
10.0
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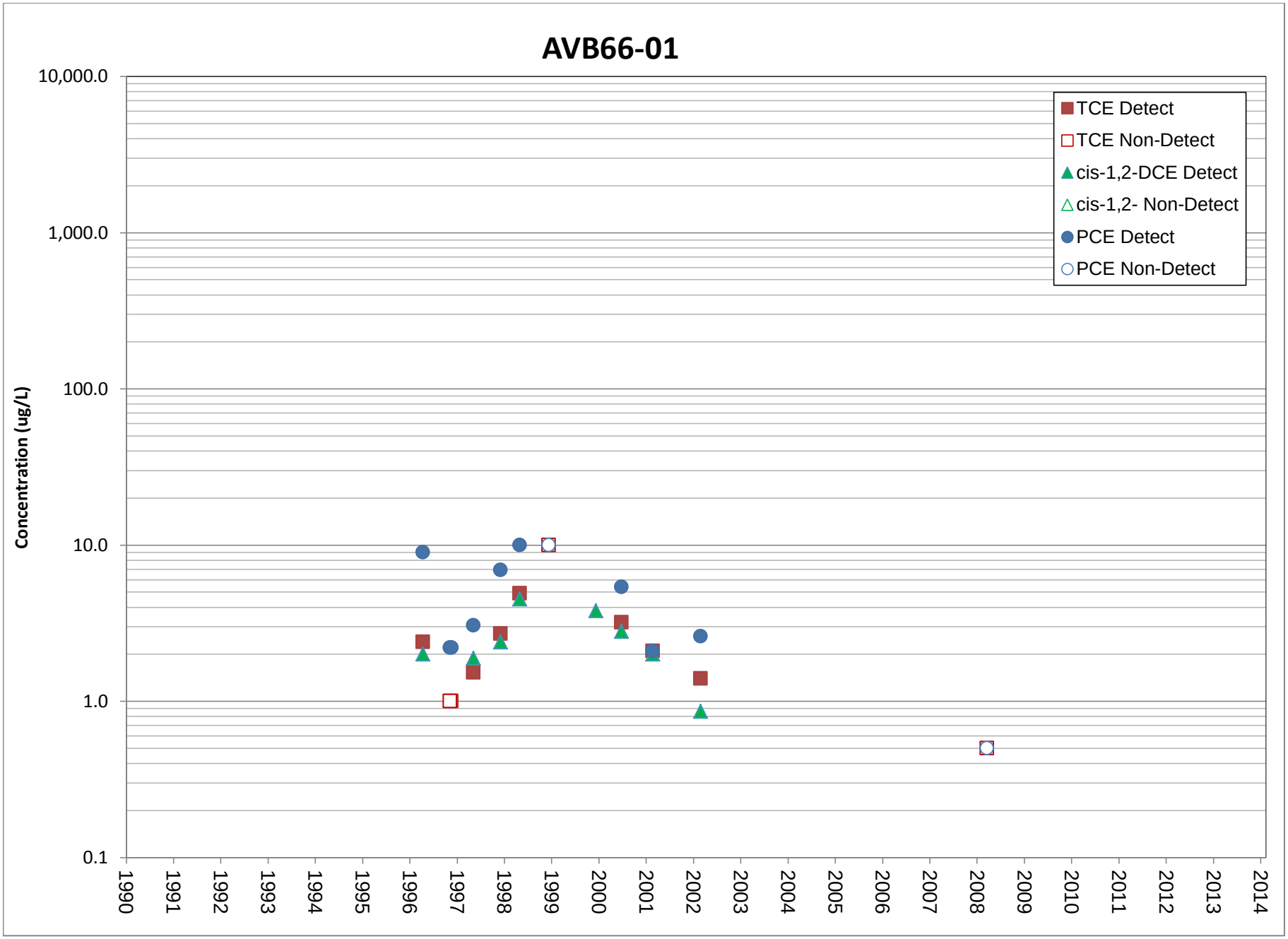
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB66-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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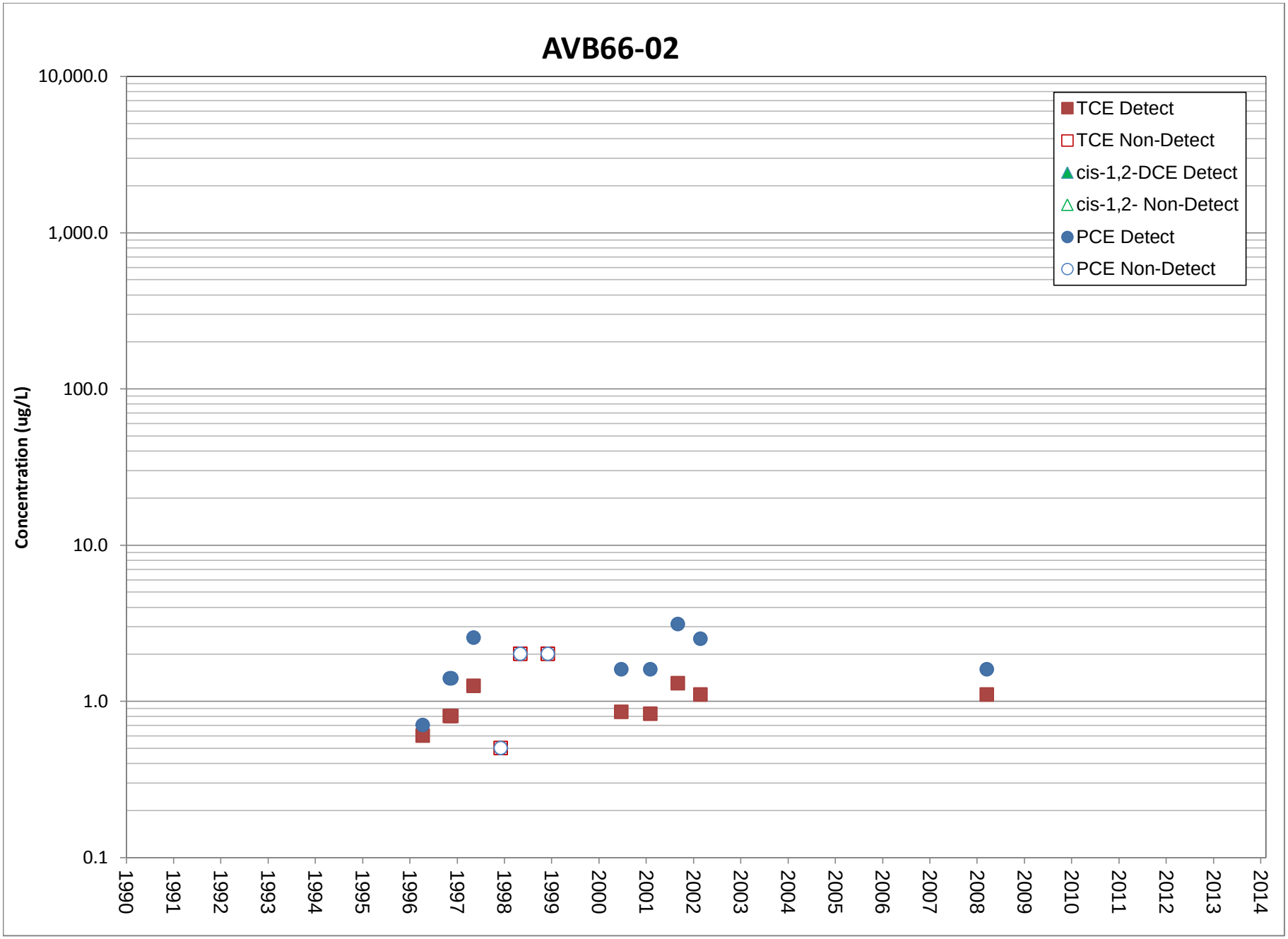
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB66-02
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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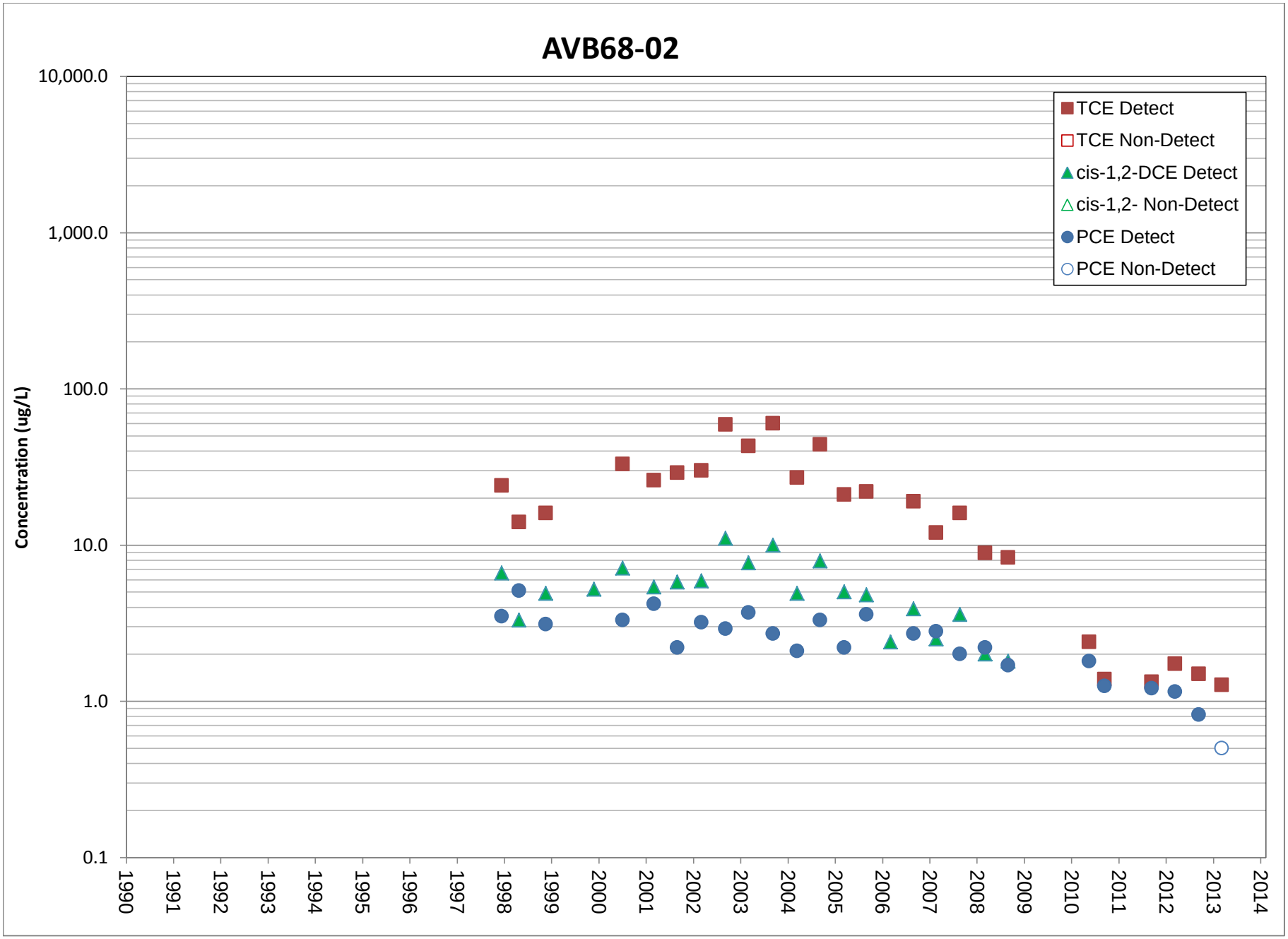
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB68-02
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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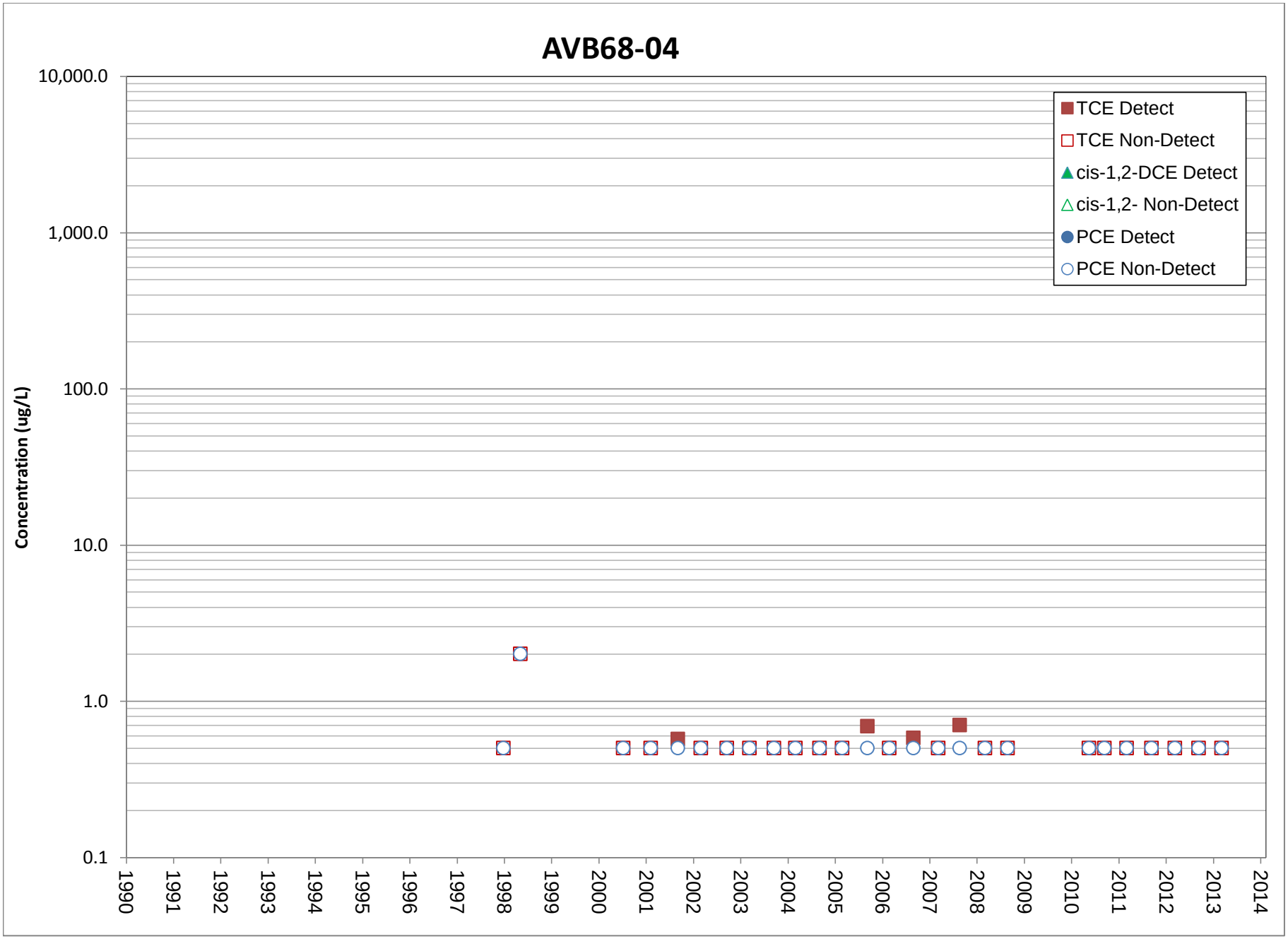
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB68-04
Concentration (ug/L)
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1.0
0.1
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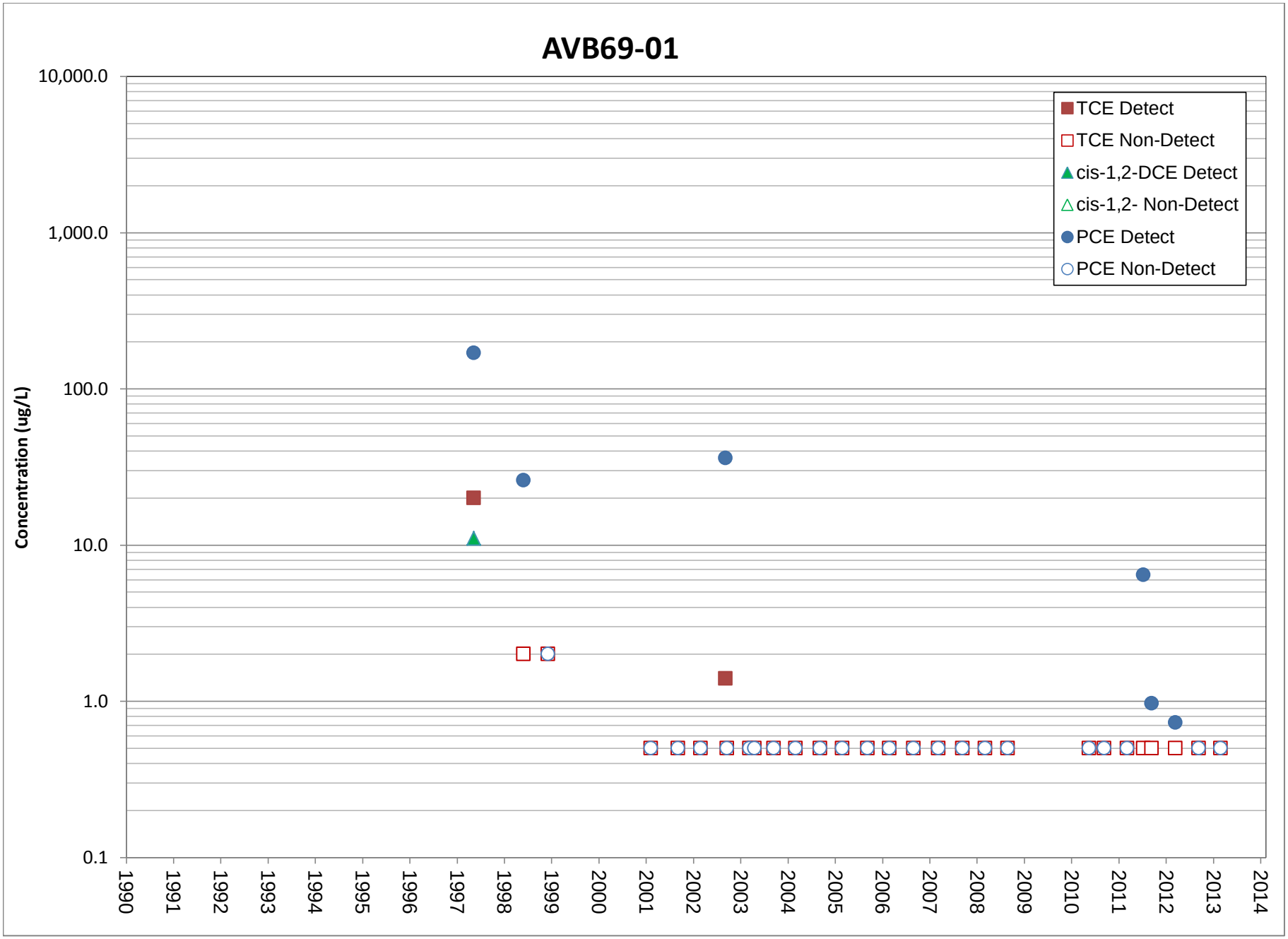
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB69-01
Concentration (ug/L)
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1,000.0
100.0
10.0
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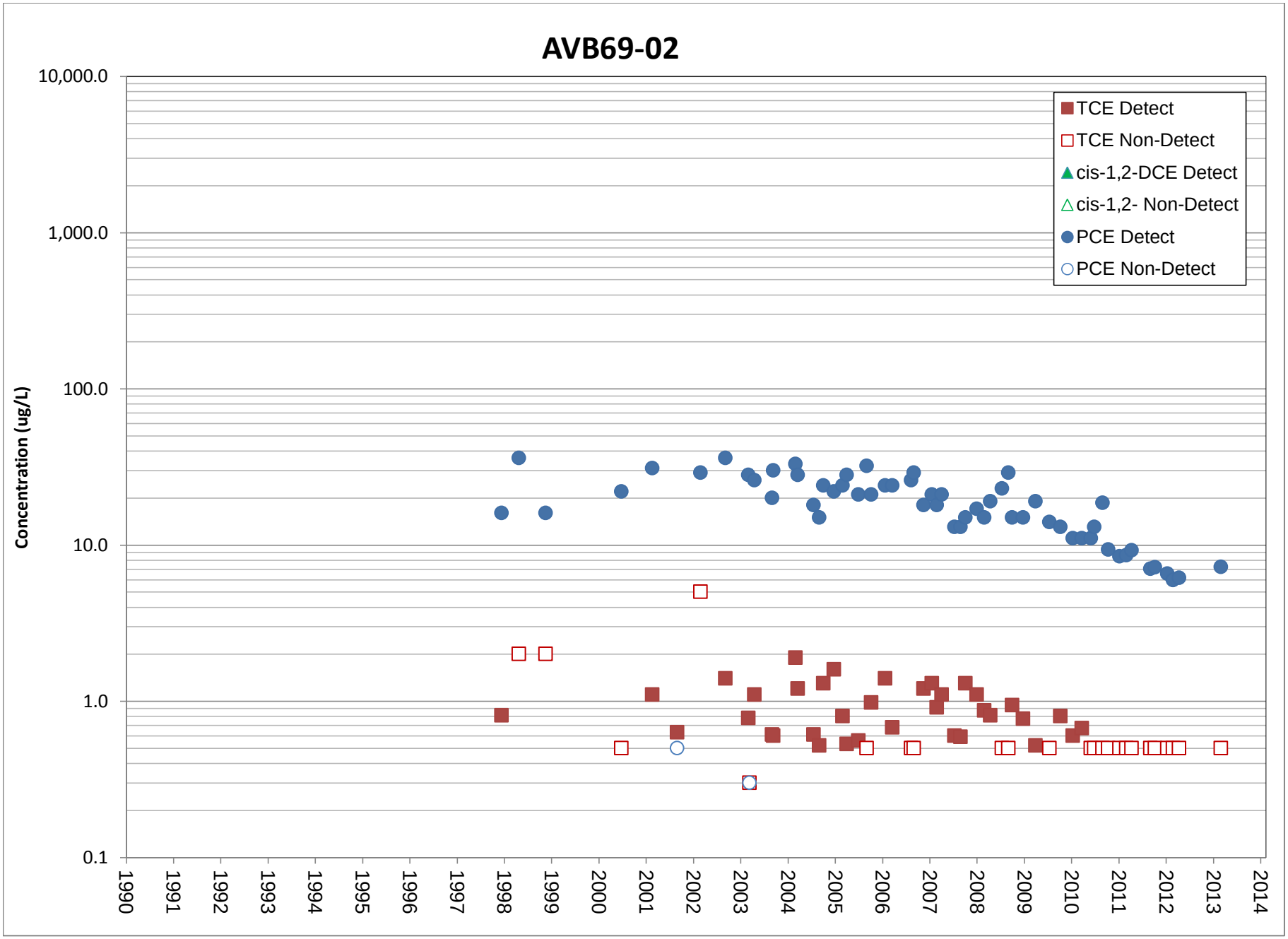
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB69-02
Concentration (ug/L)
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1,000.0
100.0
10.0
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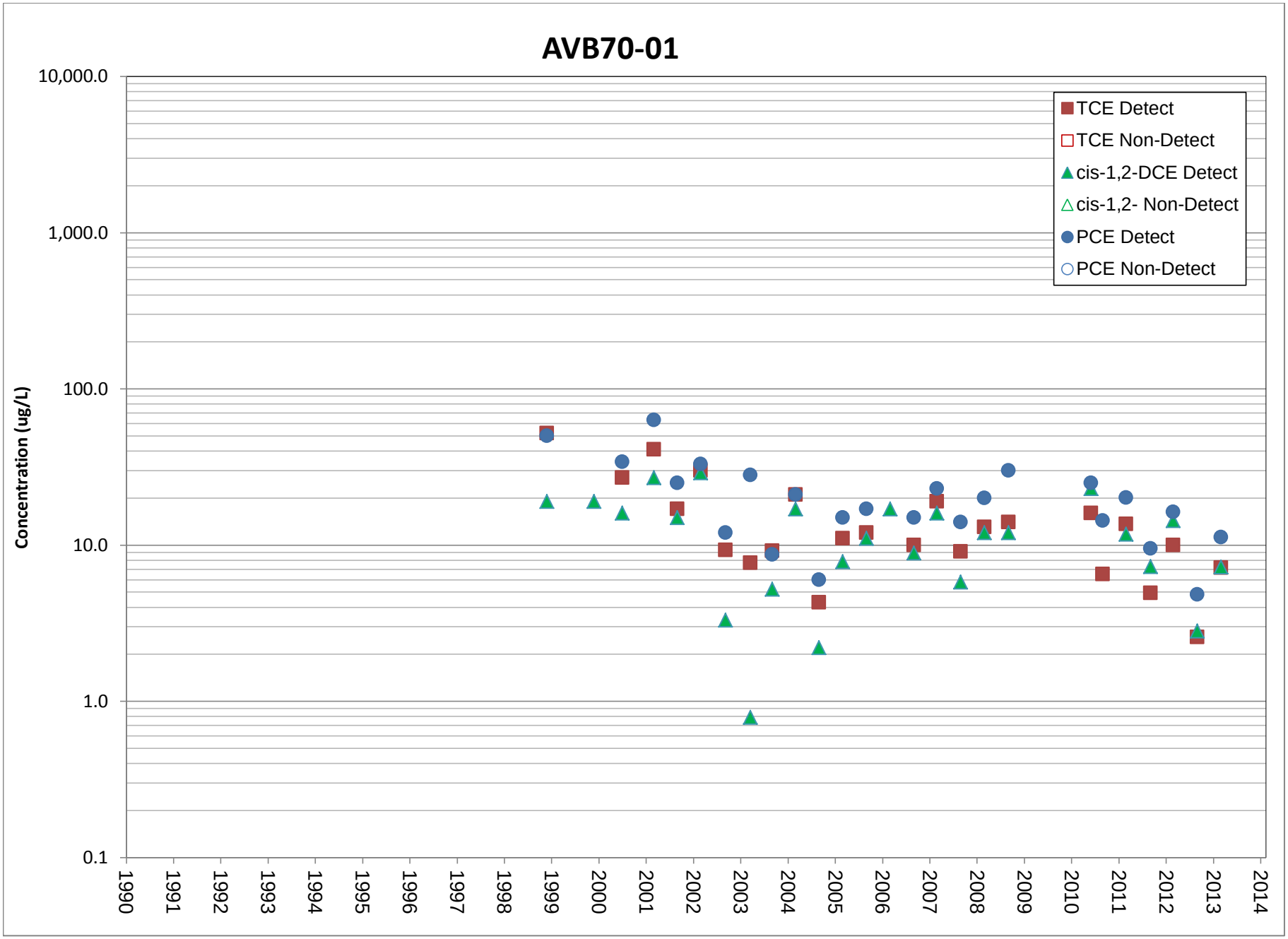
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB70-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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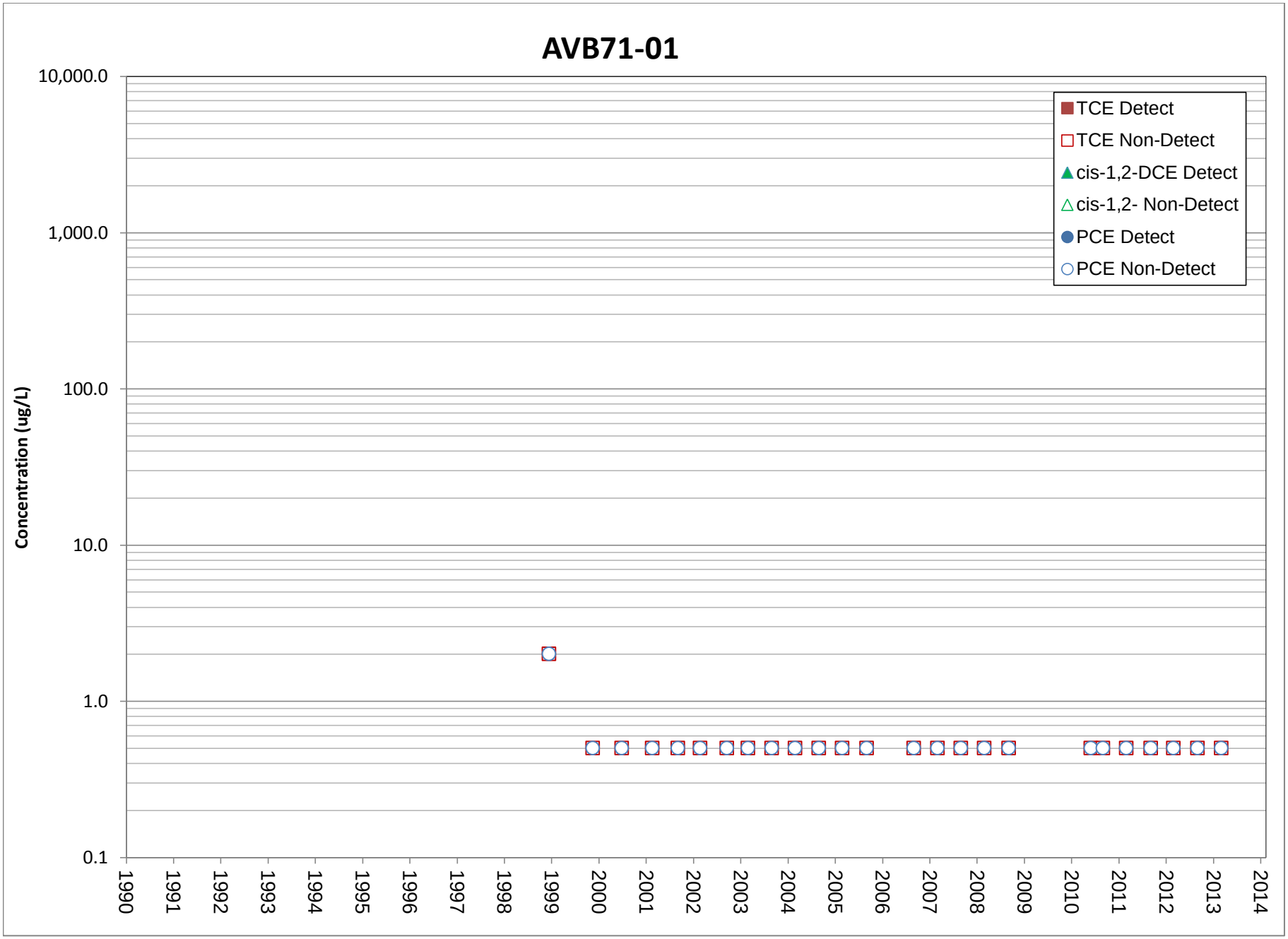
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB71-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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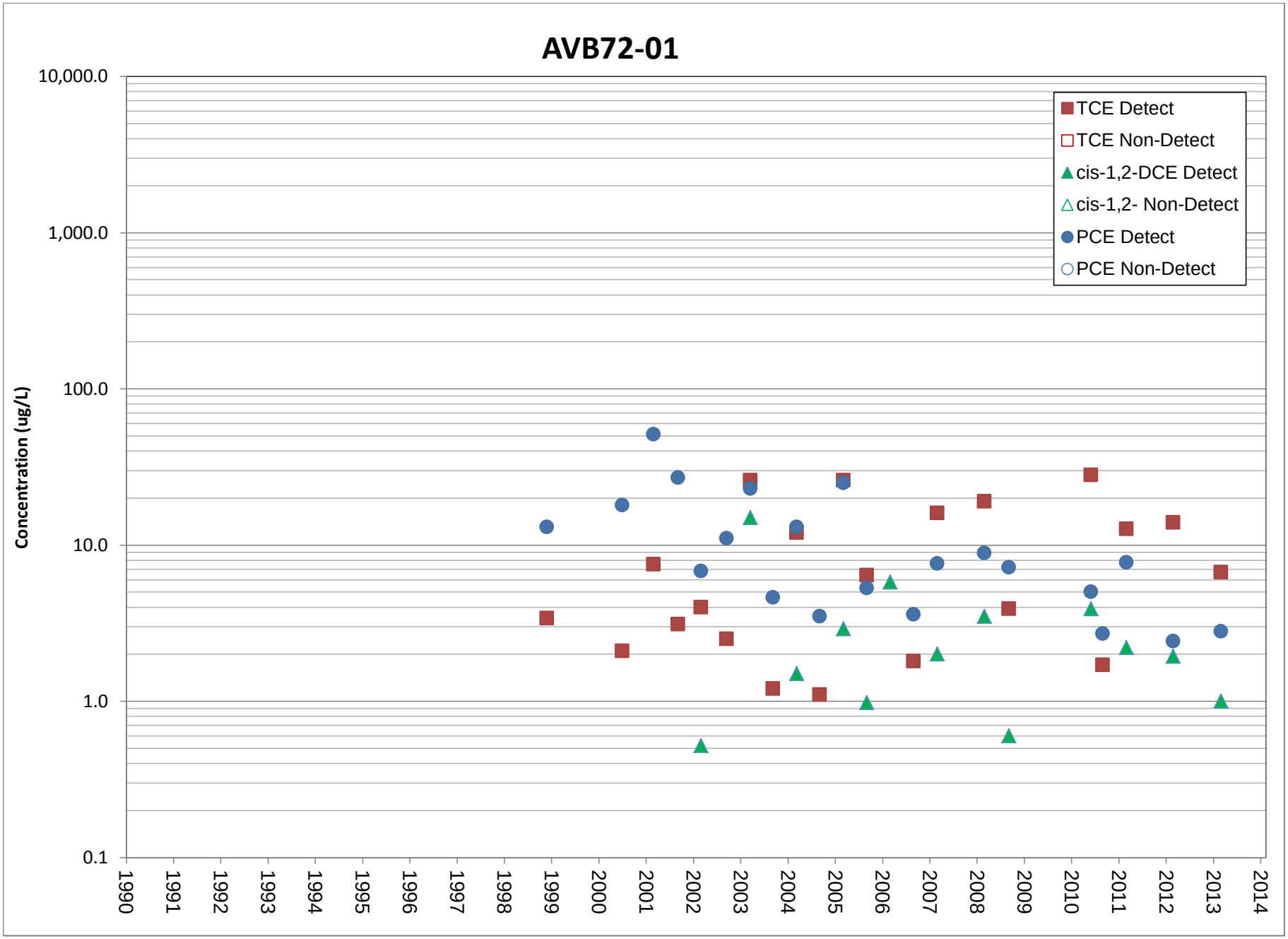
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB72-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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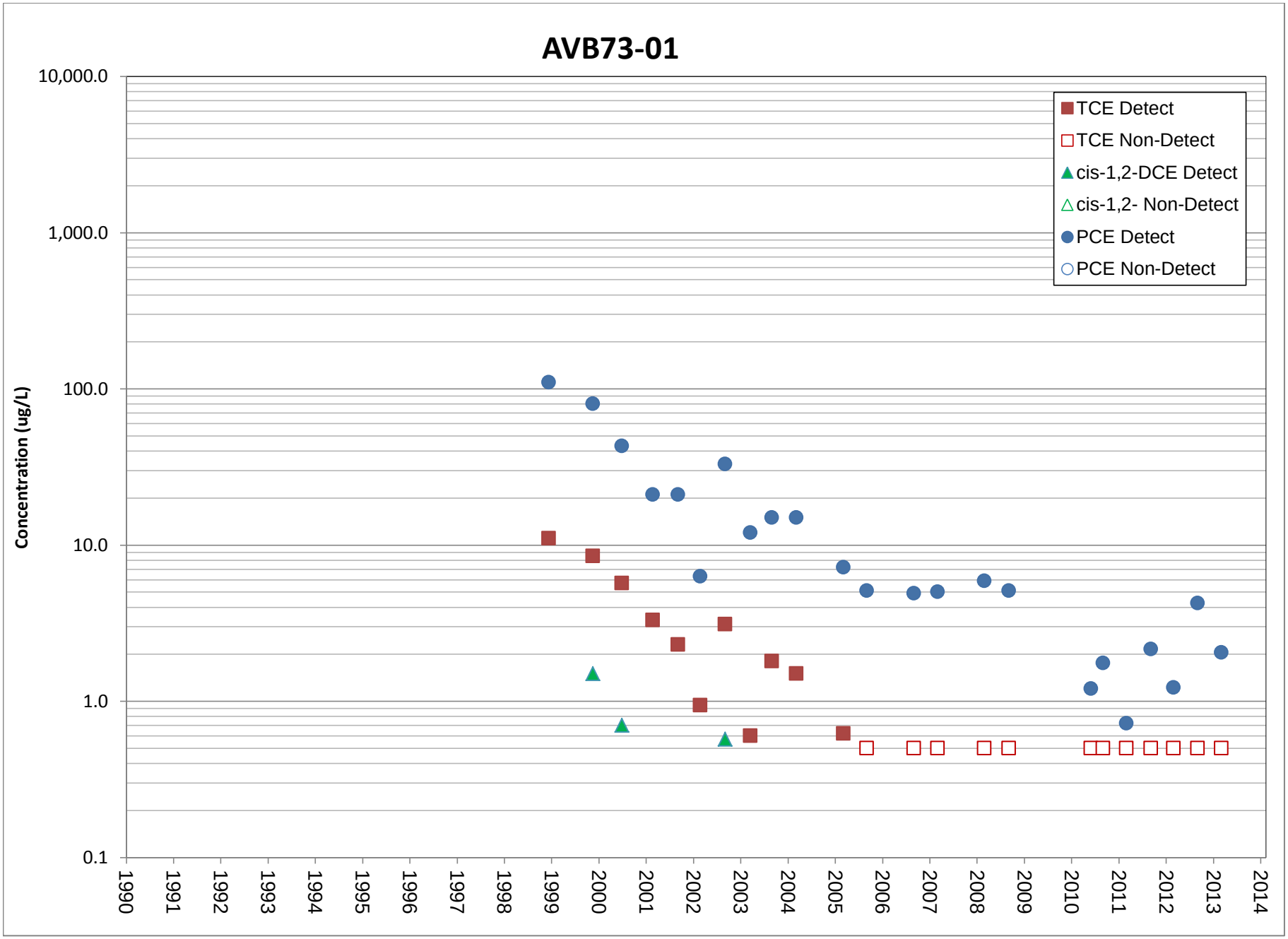
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB73-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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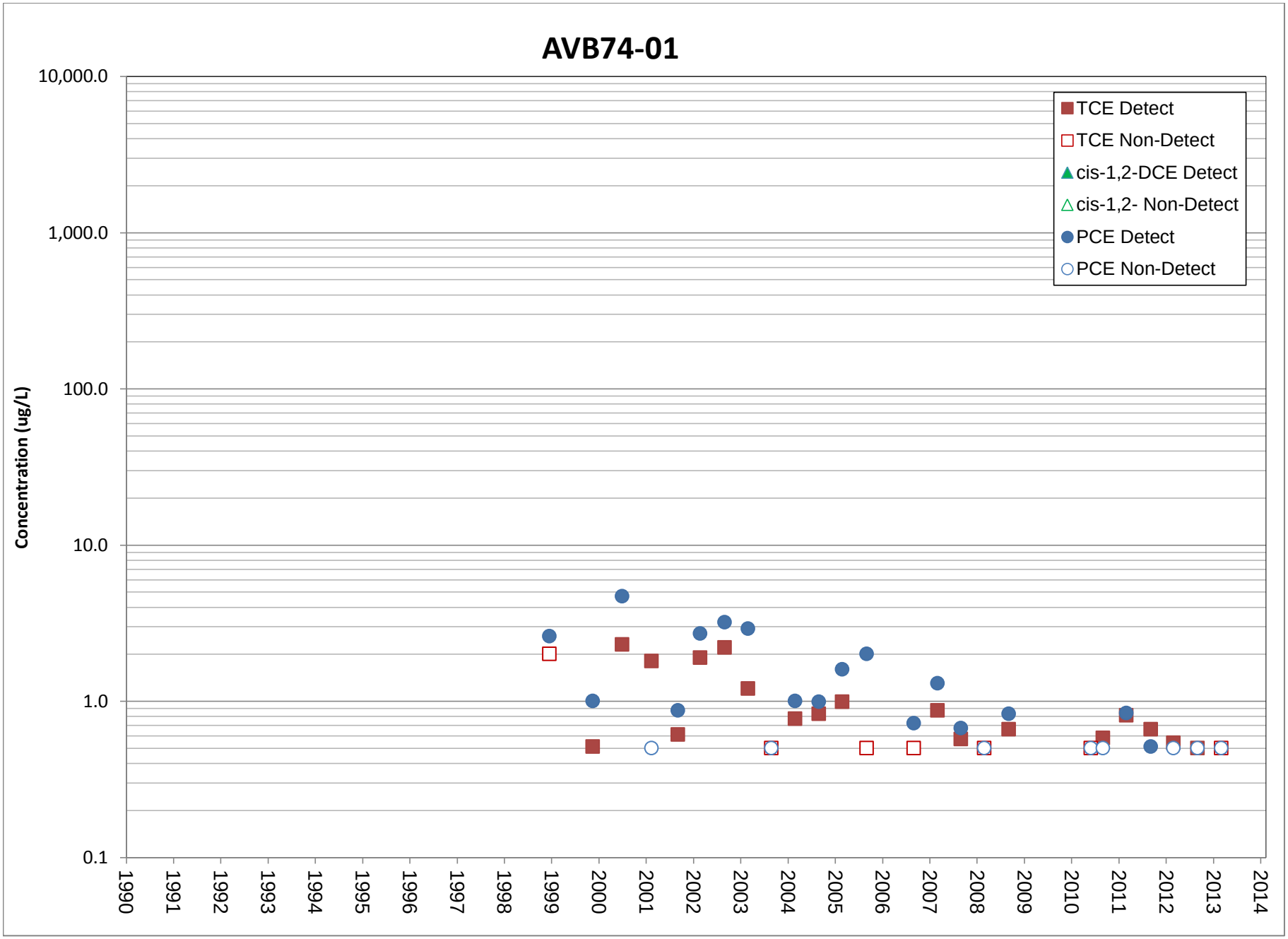
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB74-01
Concentration (ug/L)
10,000.0
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100.0
10.0
1.0
0.1
1990
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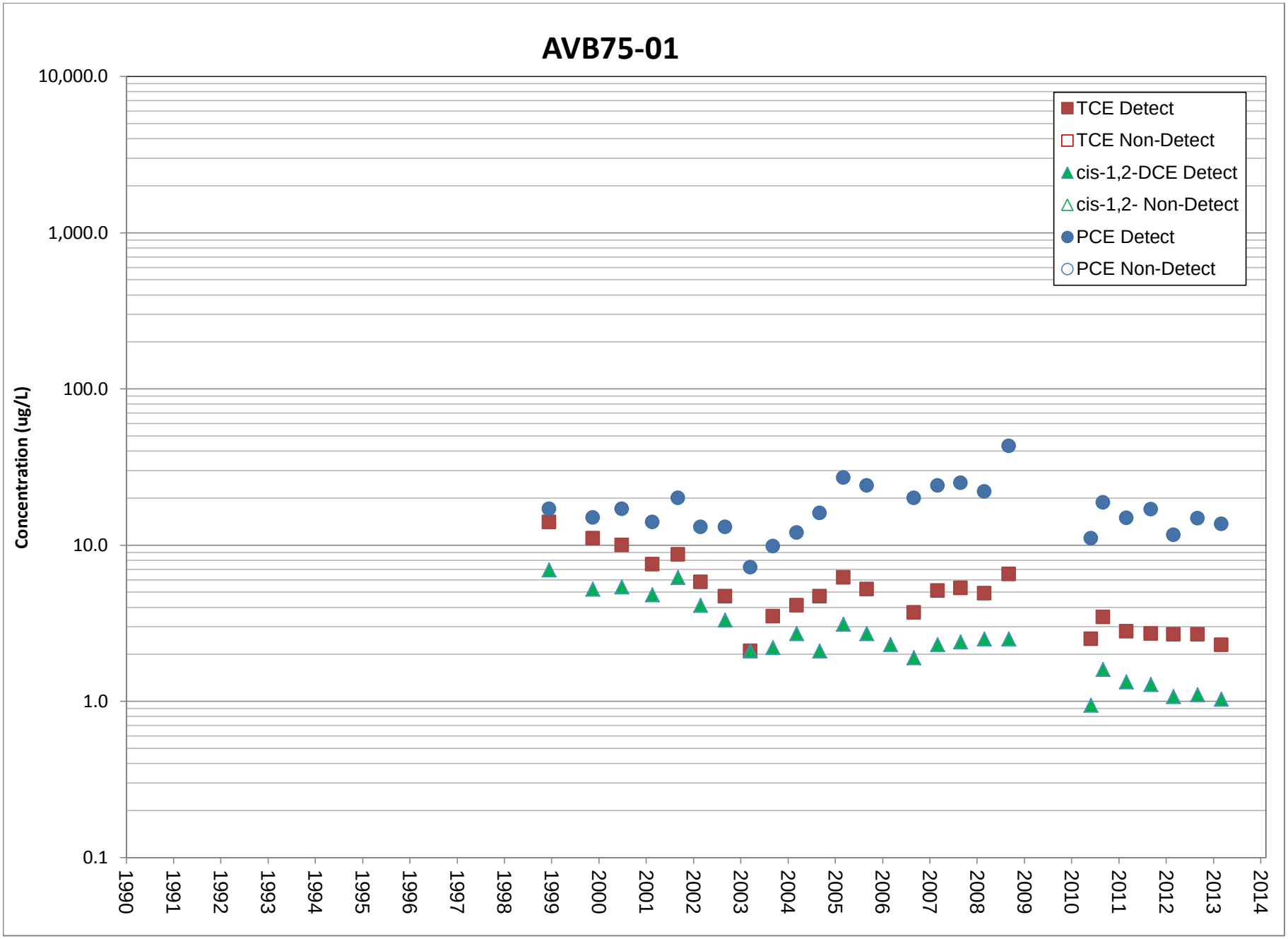
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB75-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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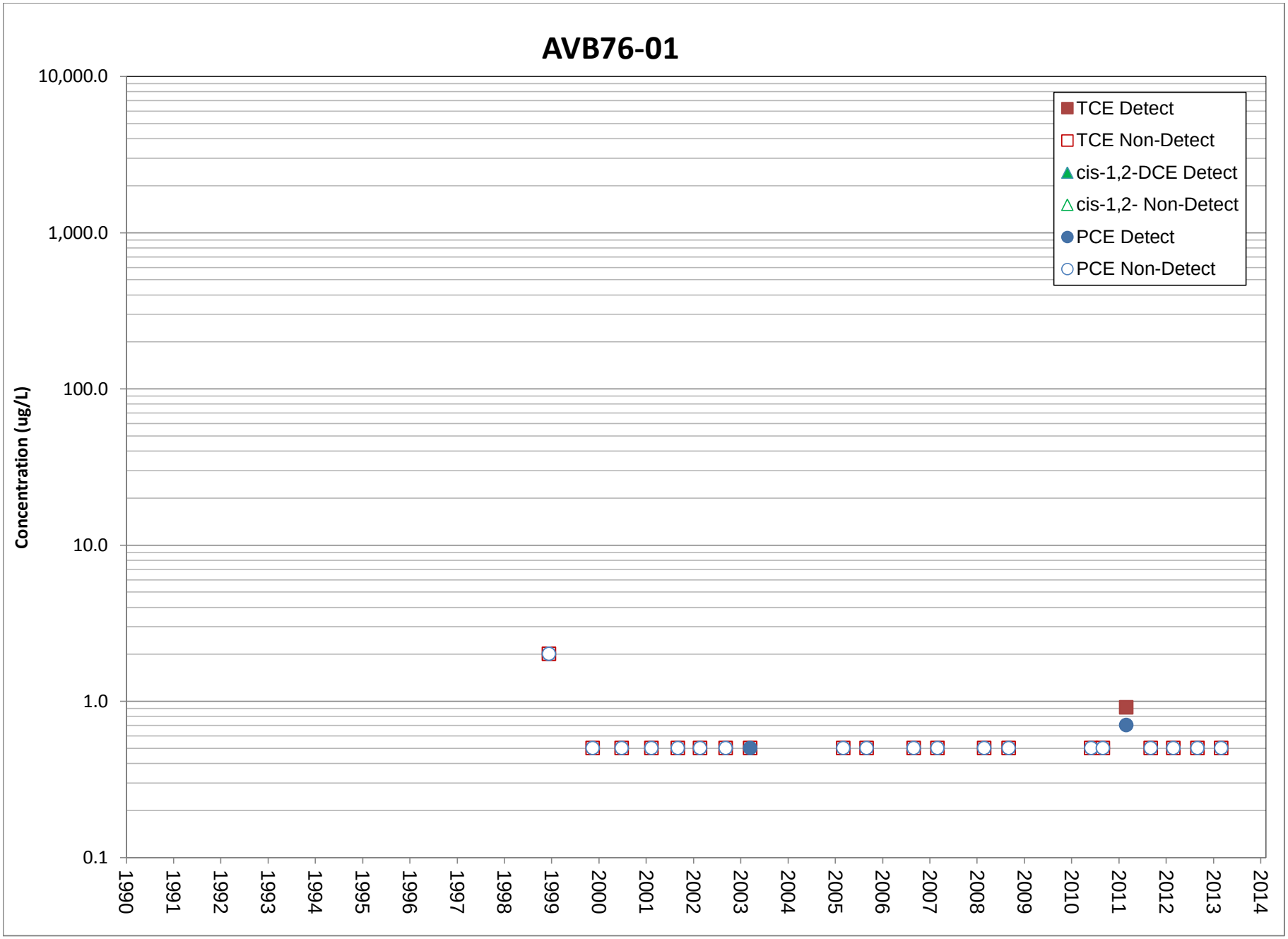
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB76-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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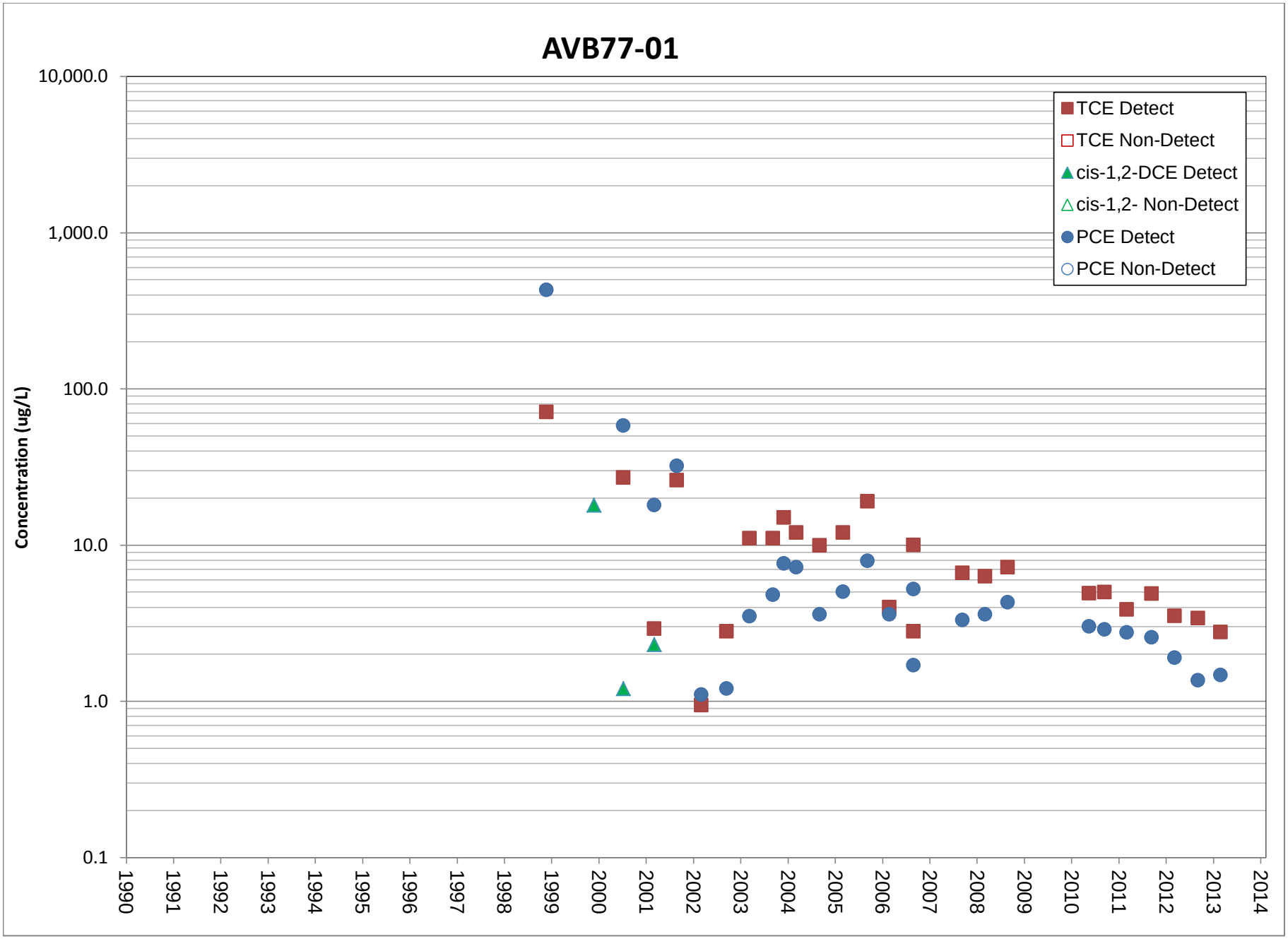
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB77-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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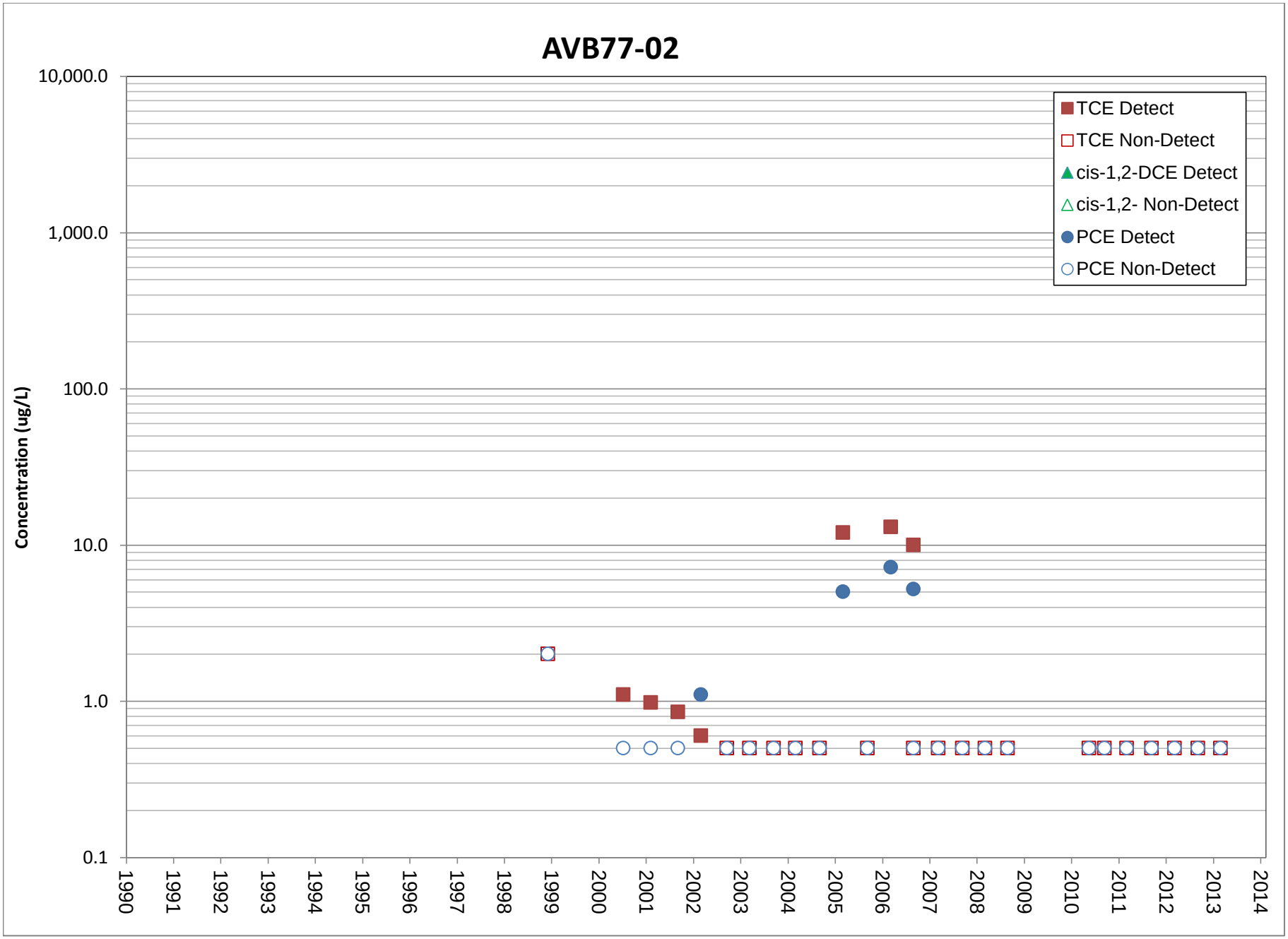
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB77-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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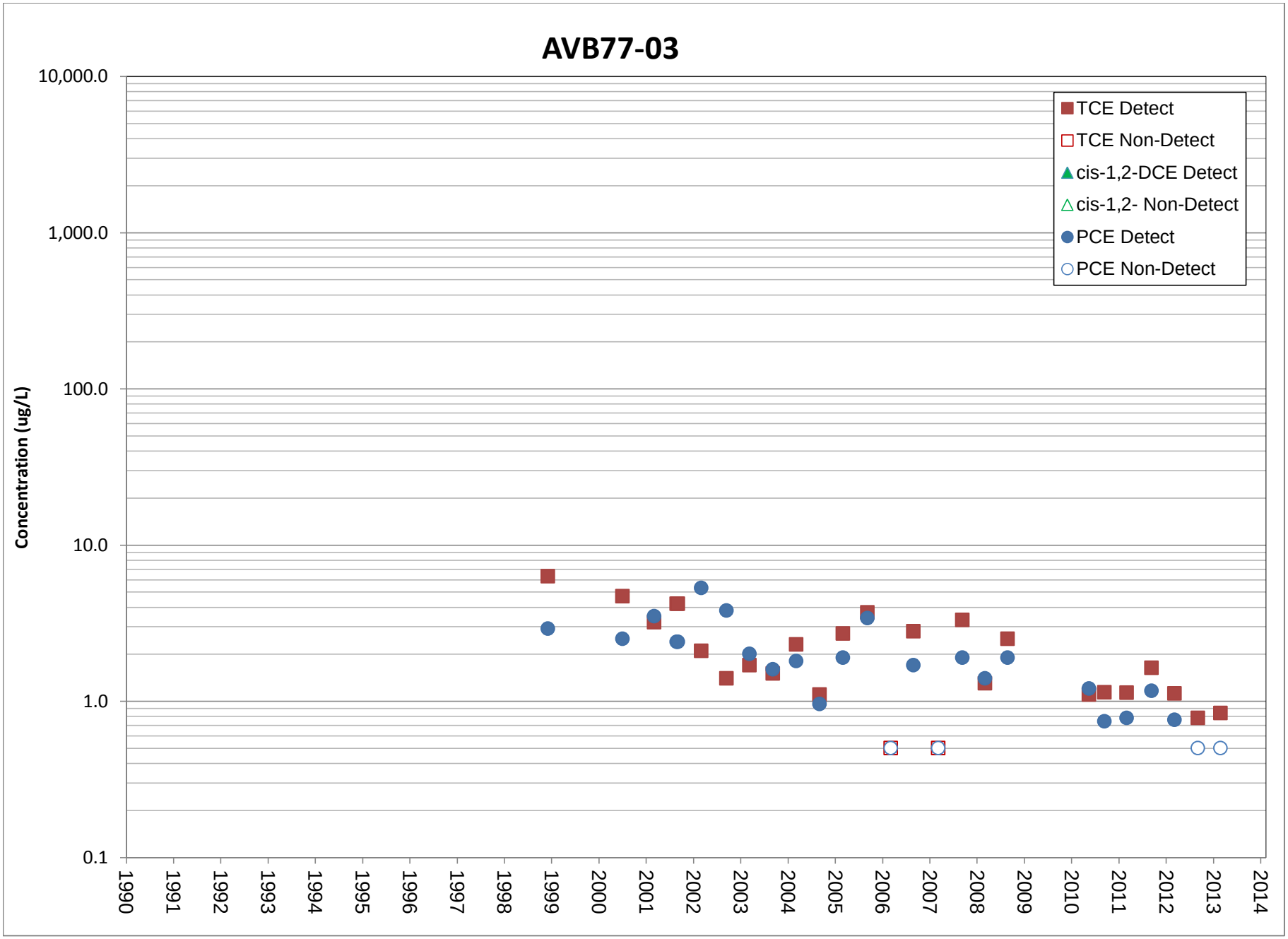
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB77-03
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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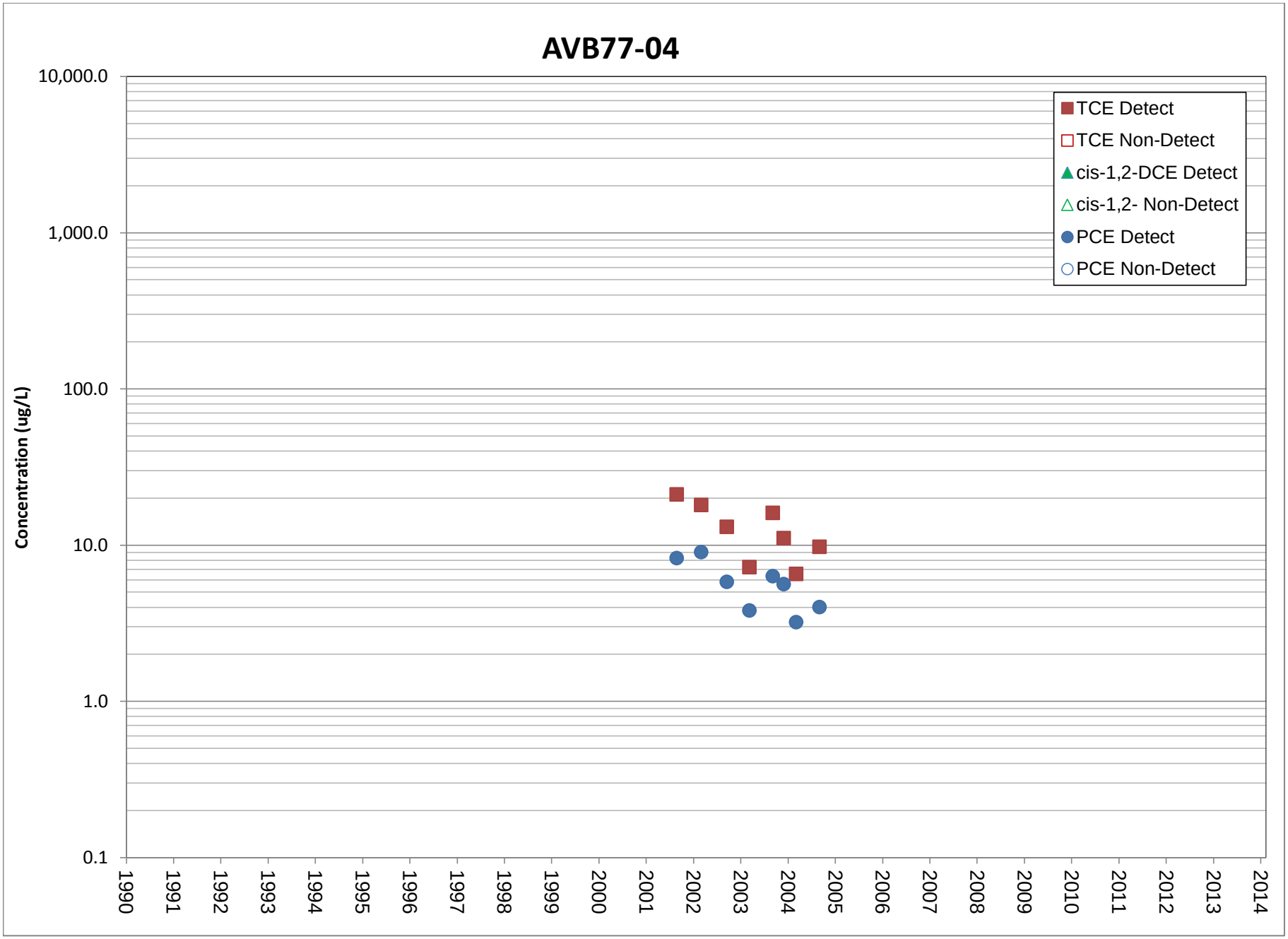
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB77-04
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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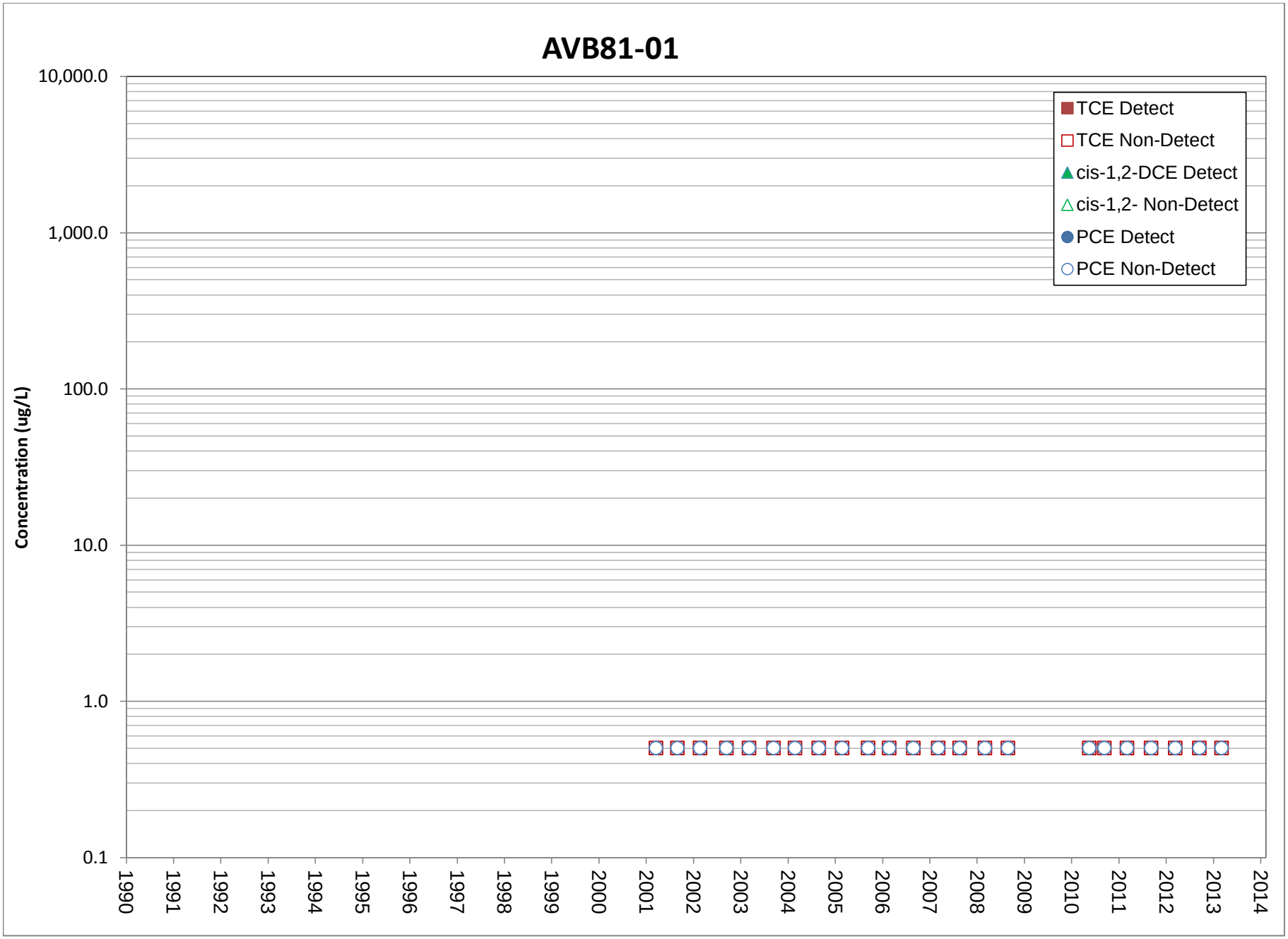
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB81-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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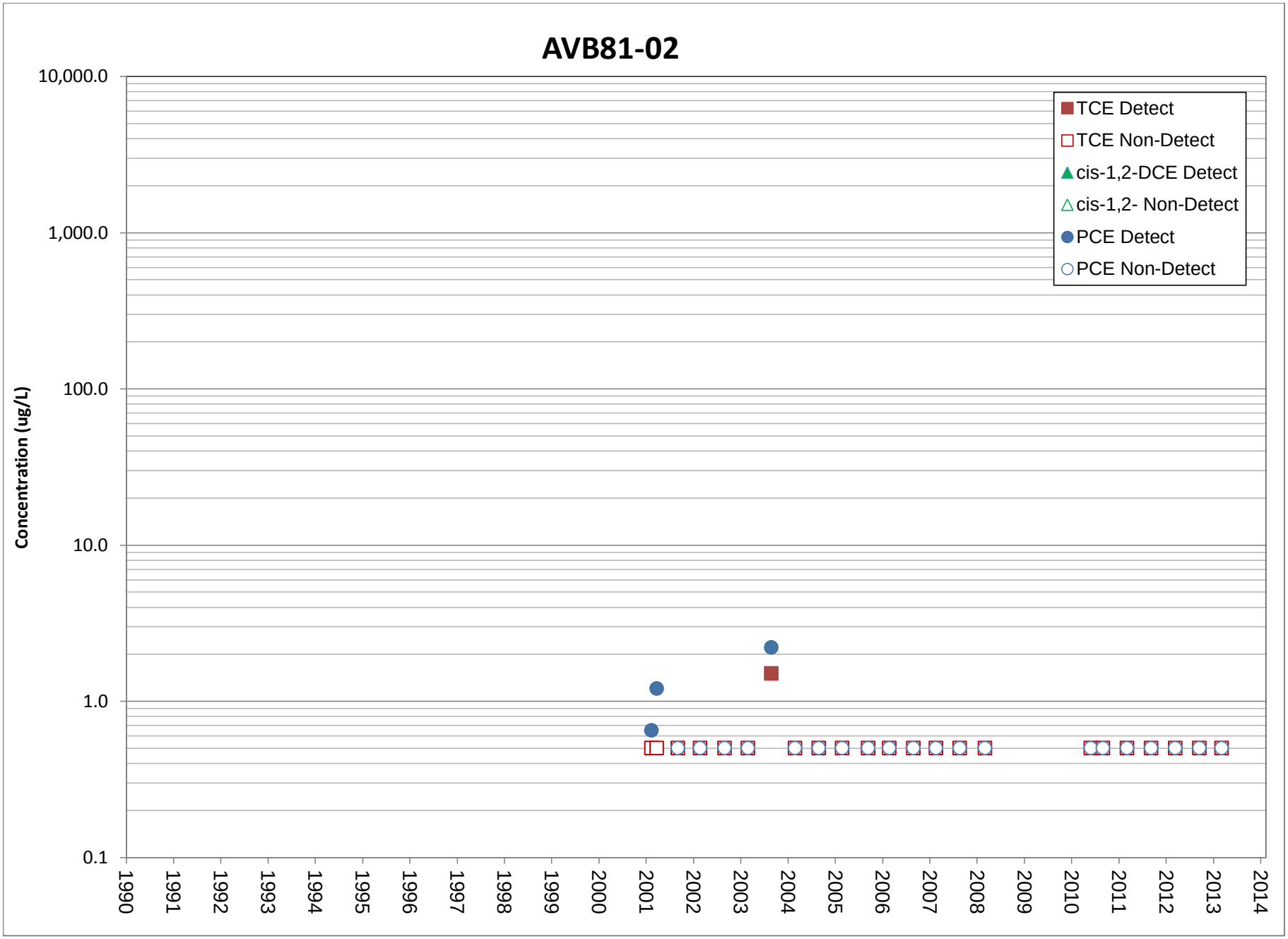
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB81-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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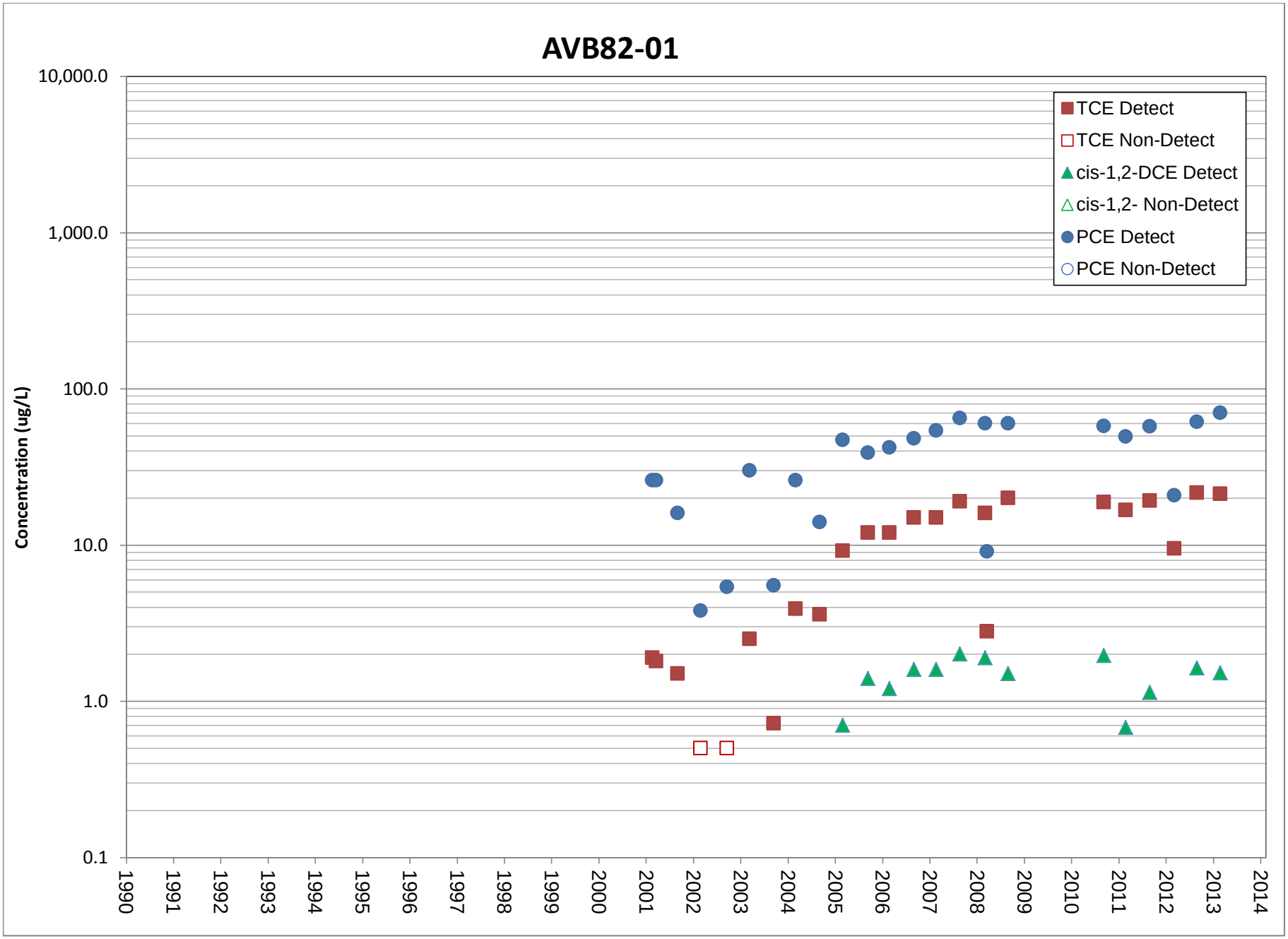
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB82-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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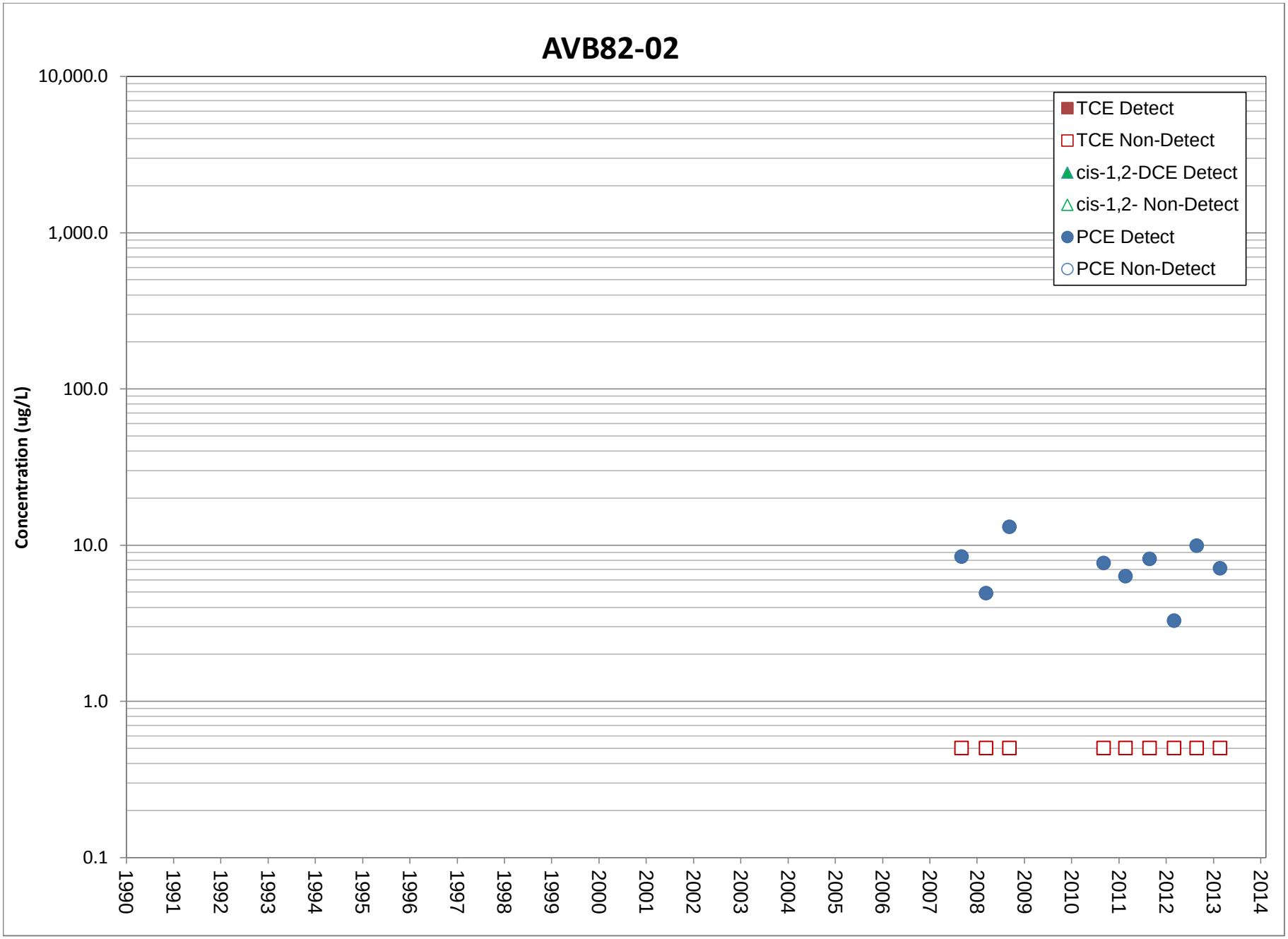
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB82-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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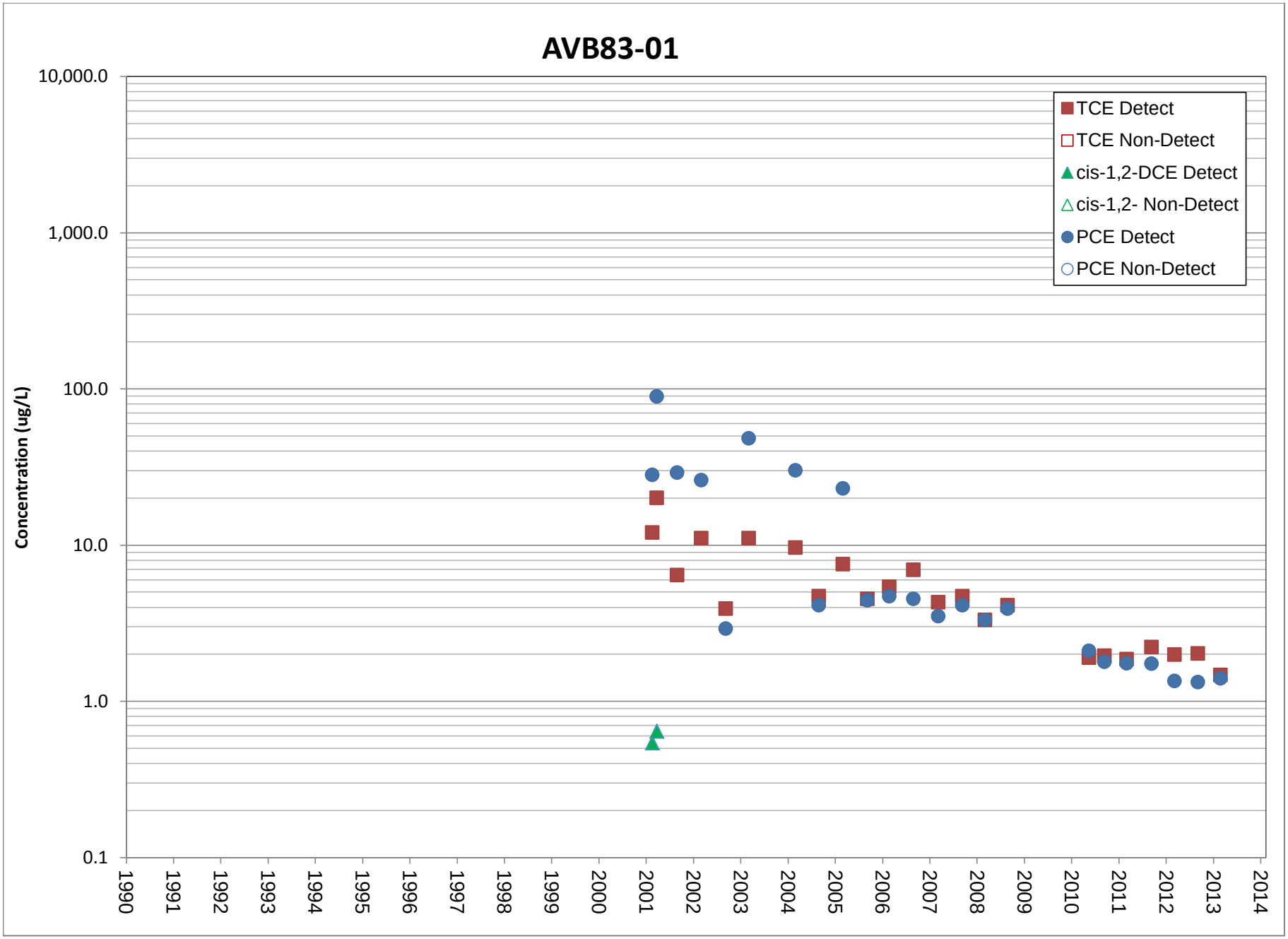
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB83-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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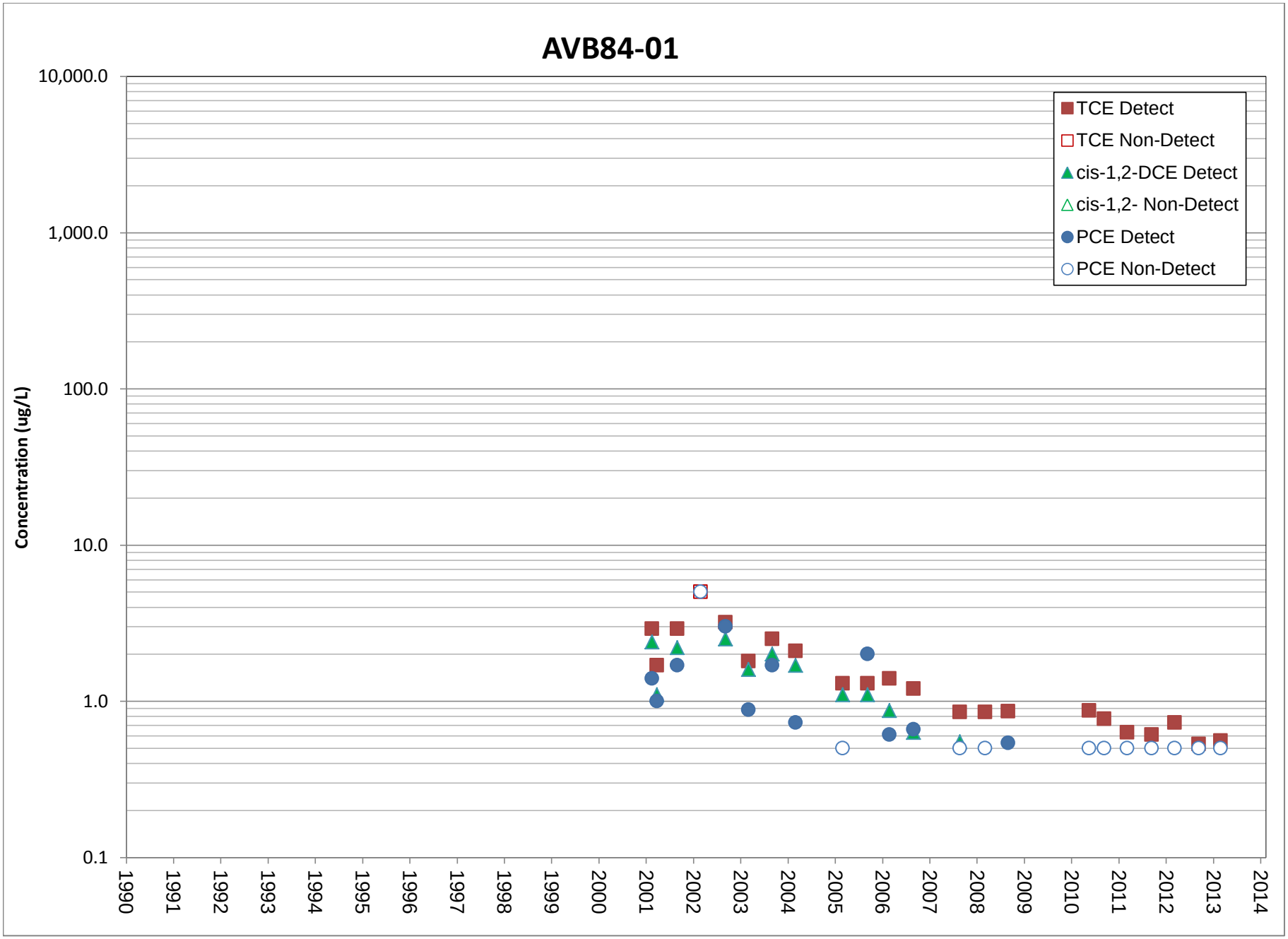
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB84-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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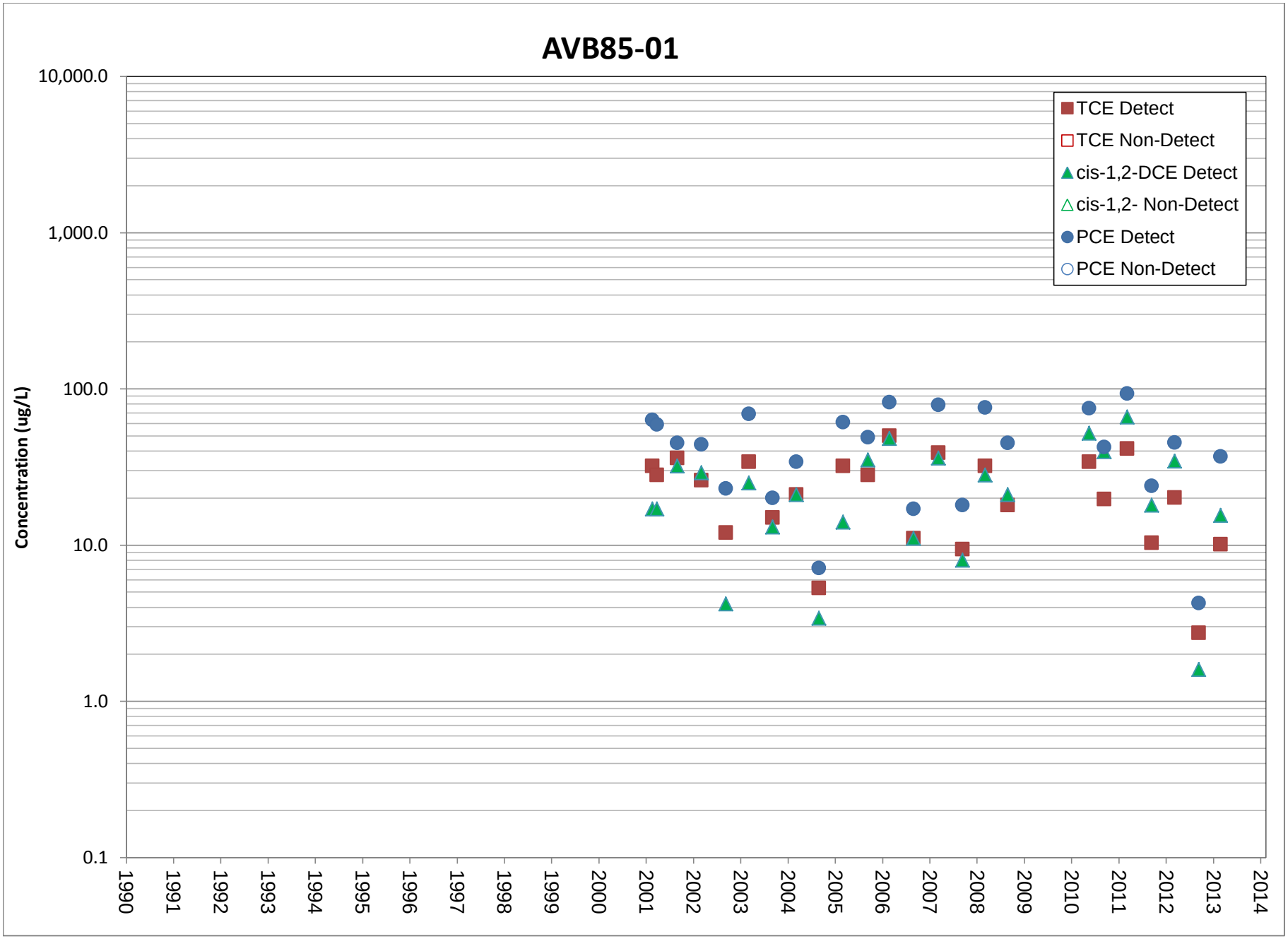
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB85-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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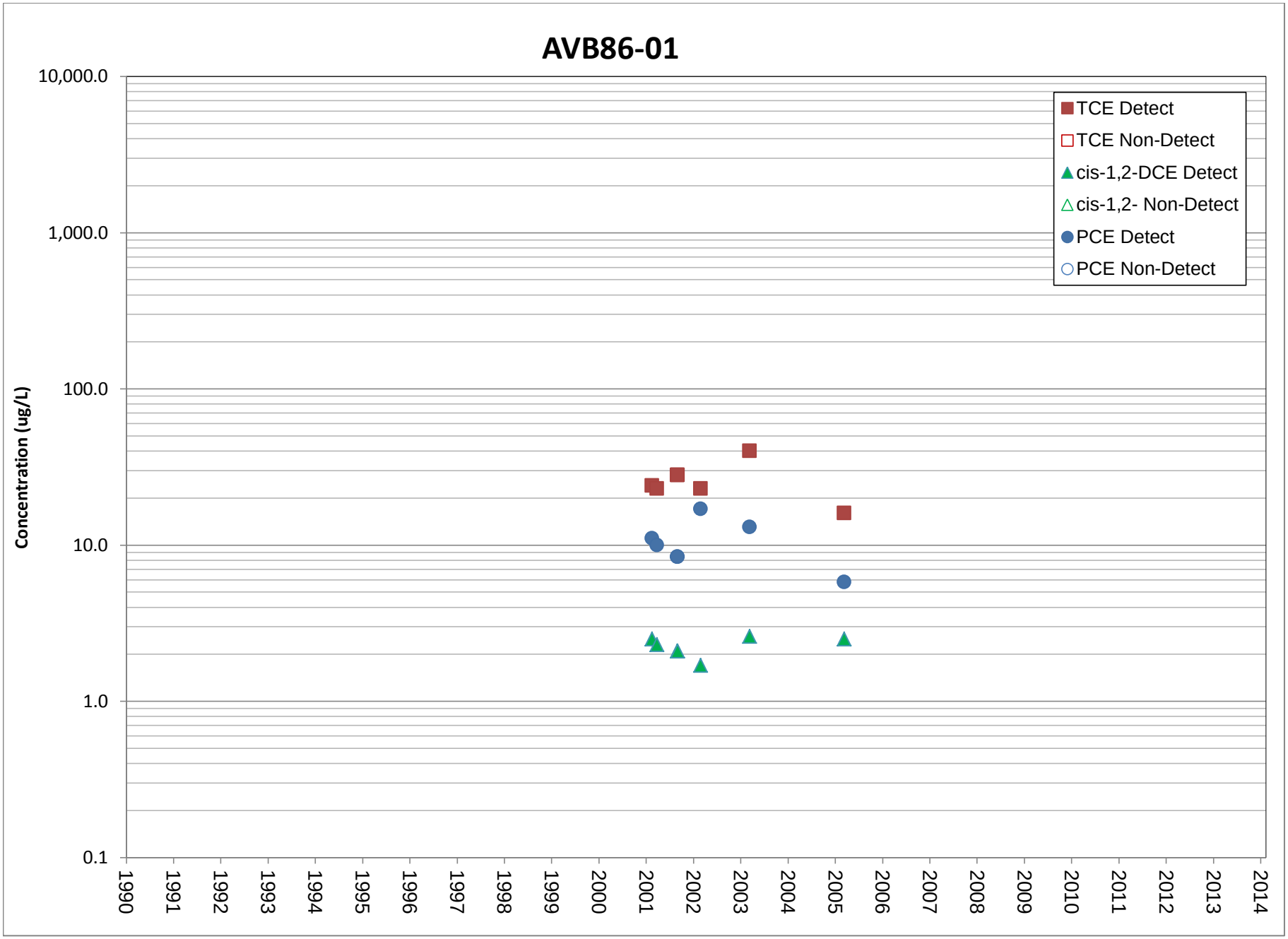
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB86-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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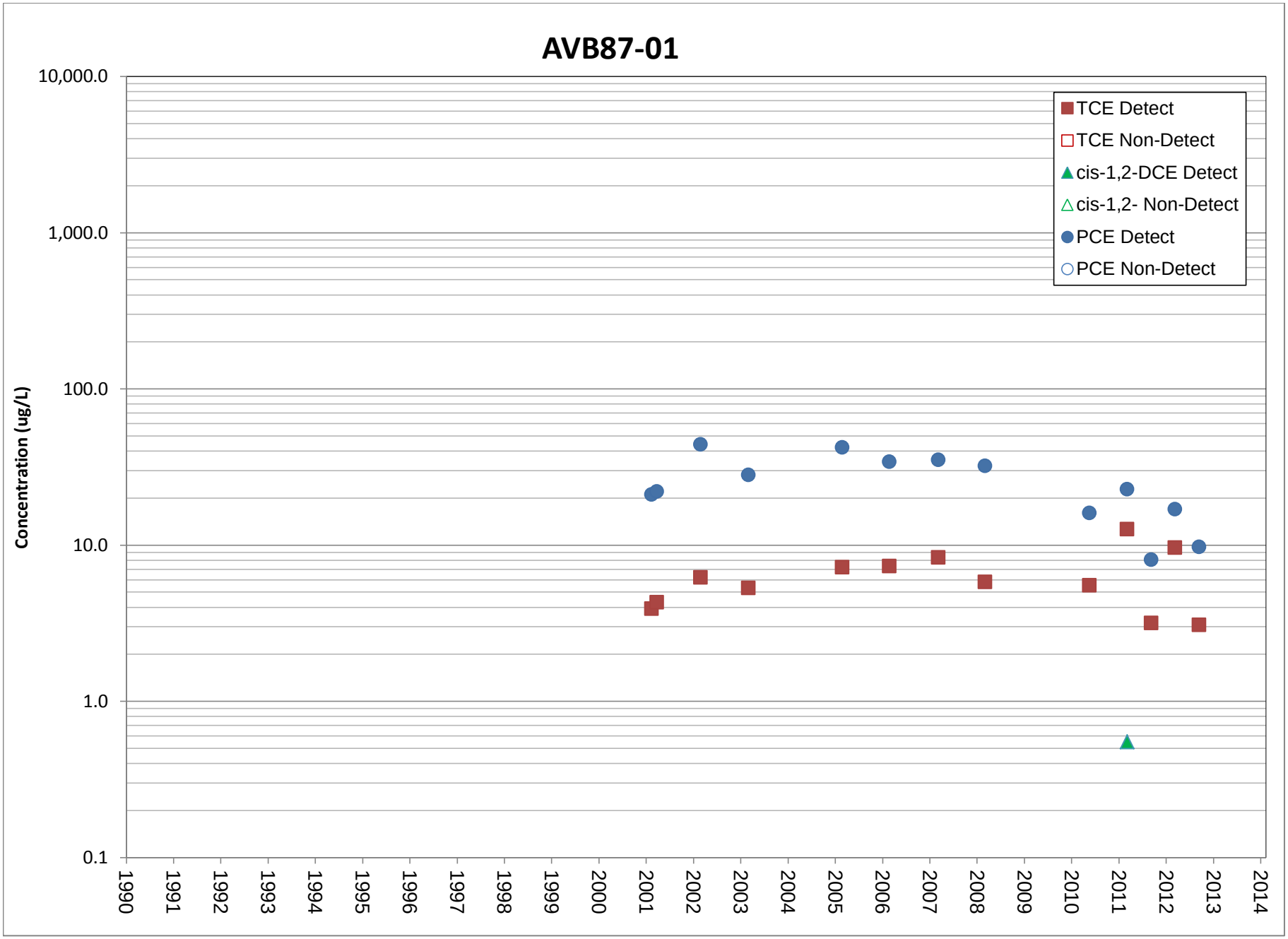
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB87-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
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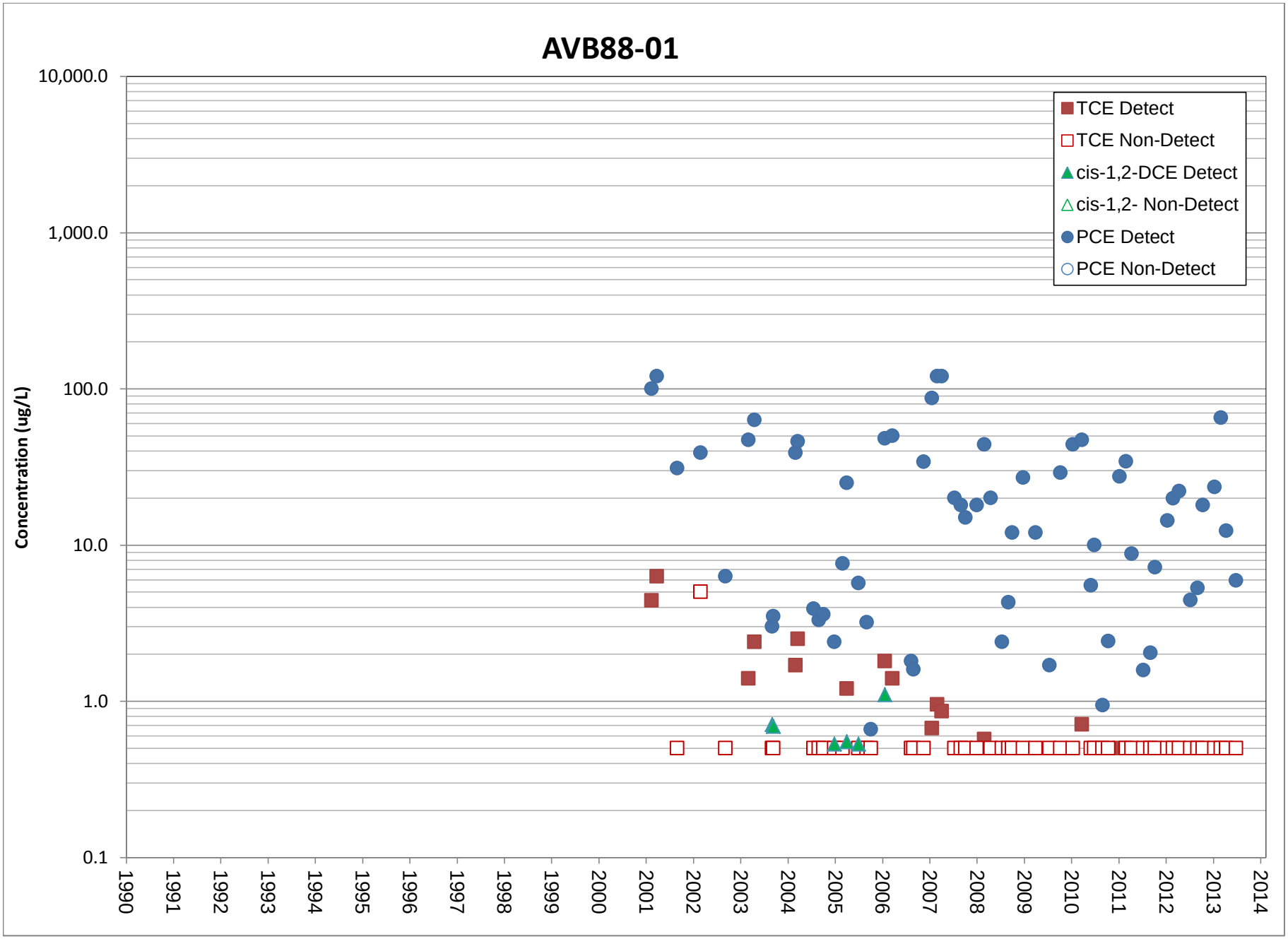
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB88-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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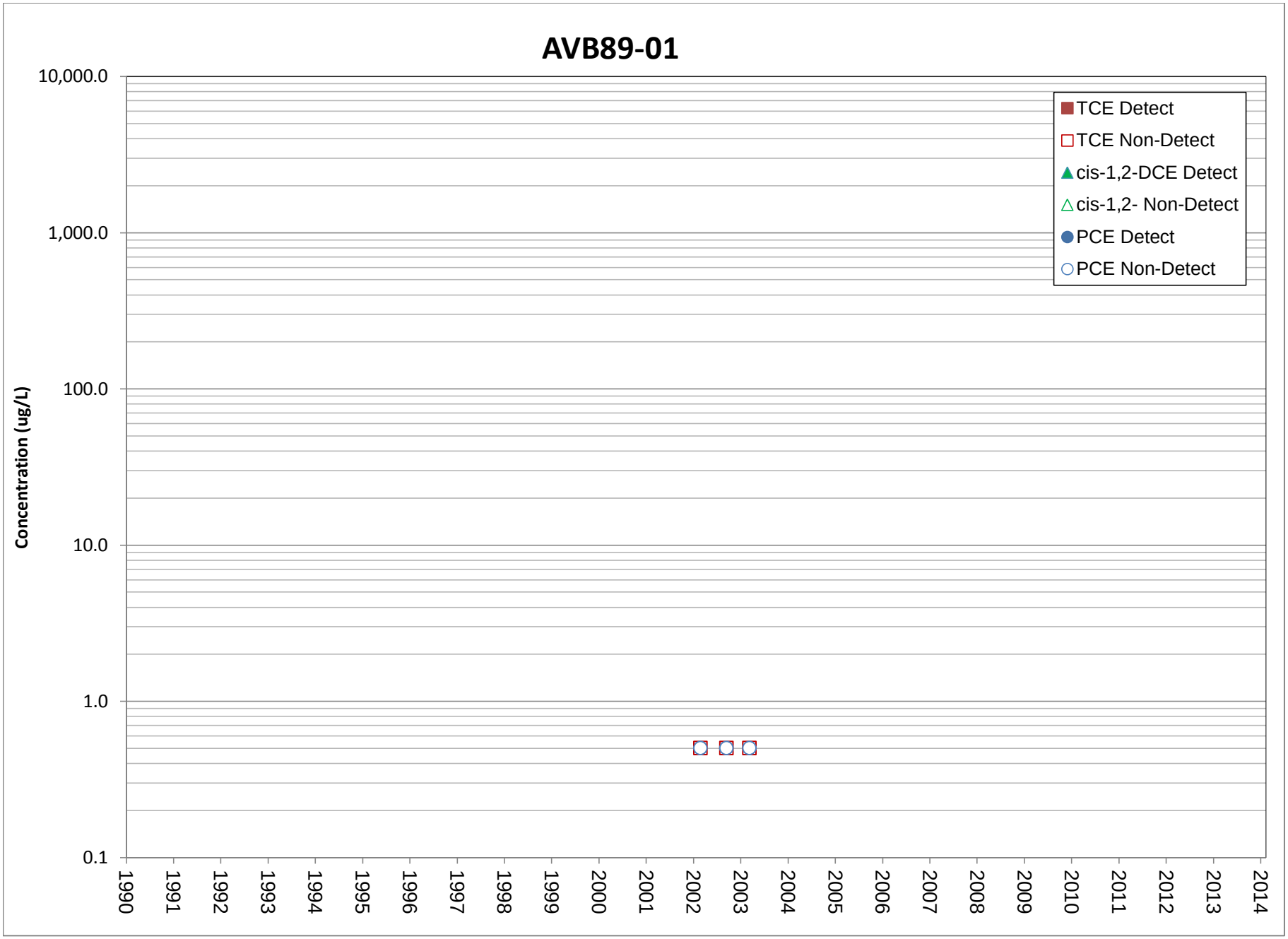
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB89-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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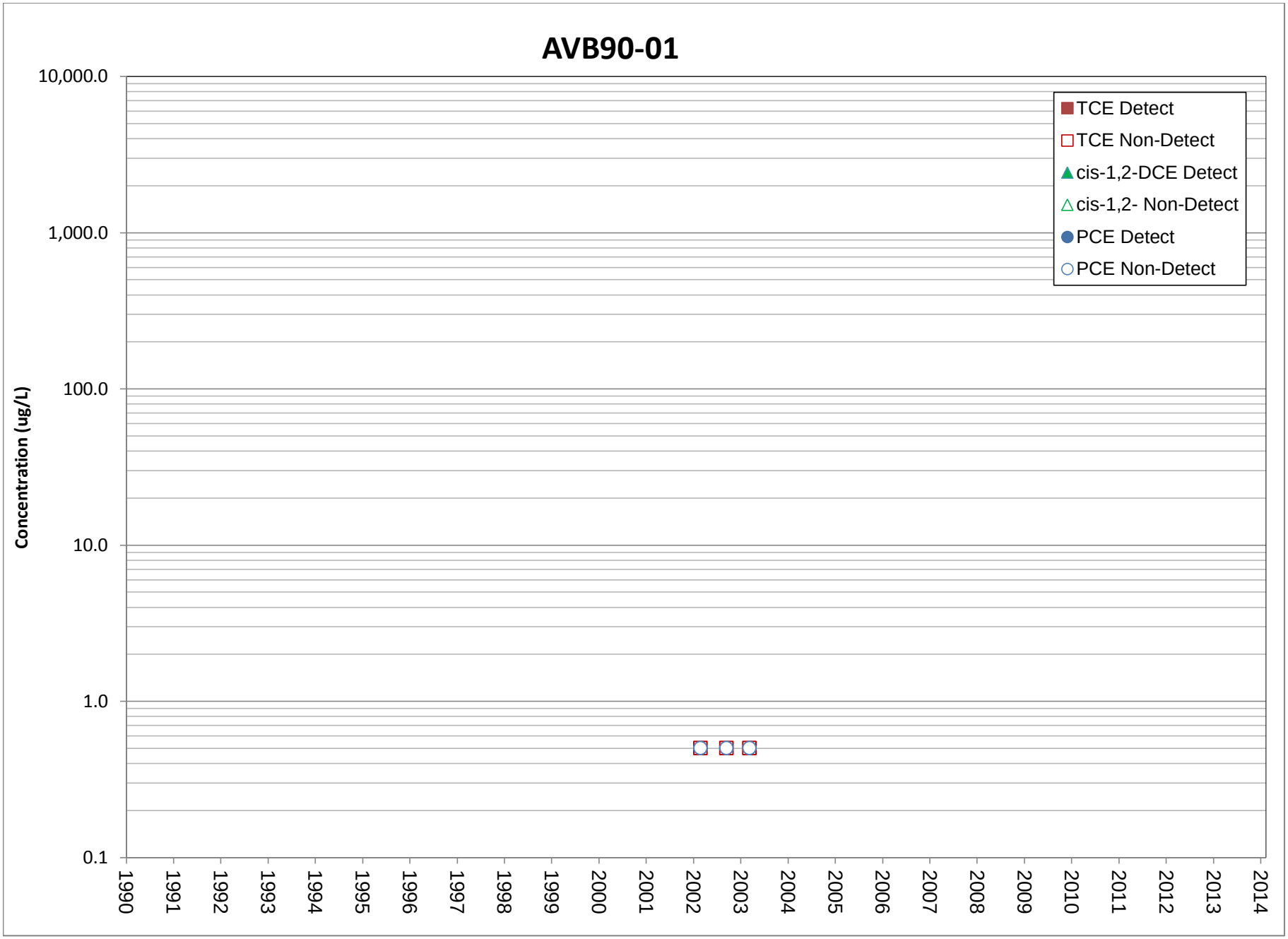
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB90-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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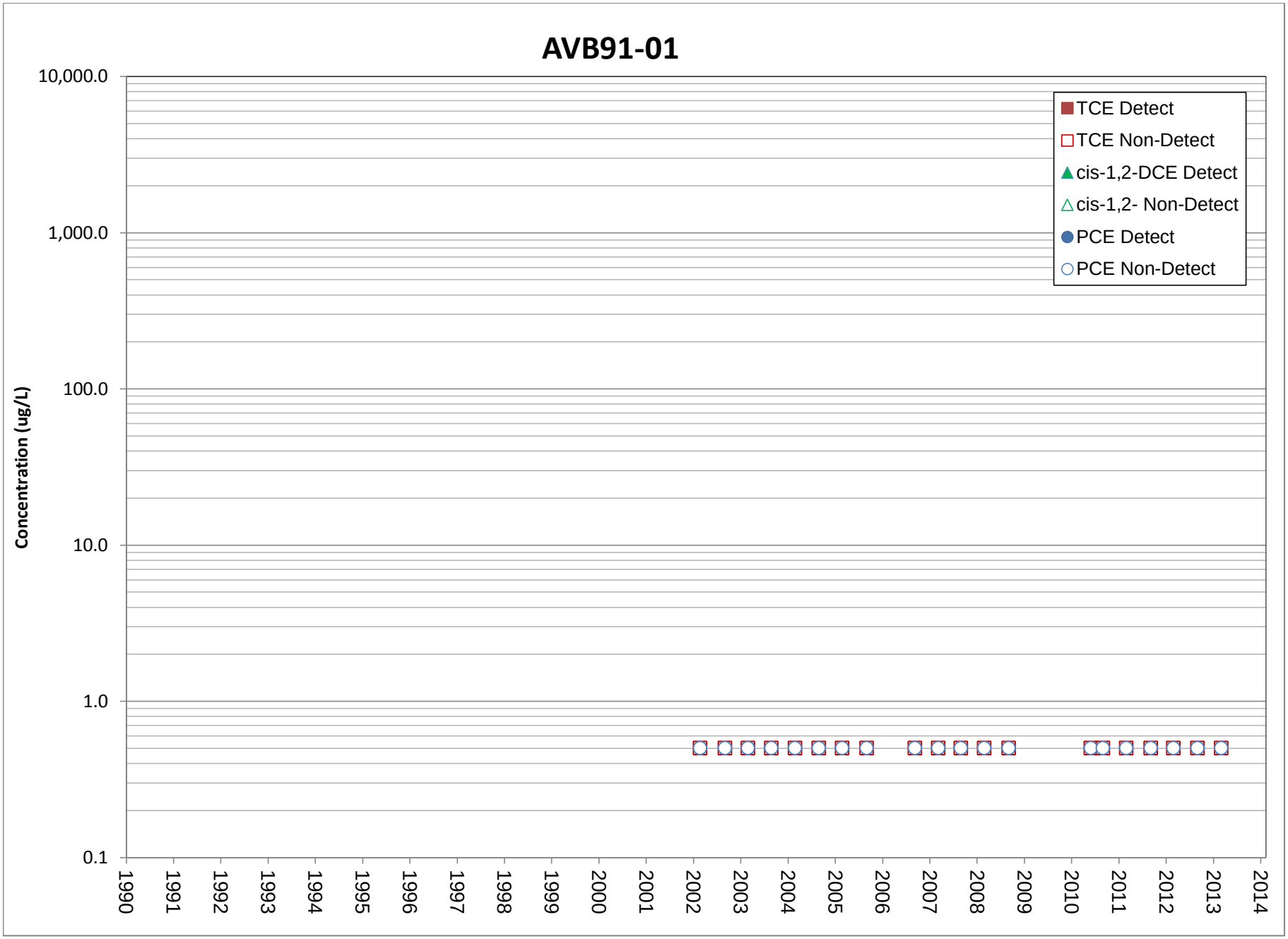
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB91-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
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1990
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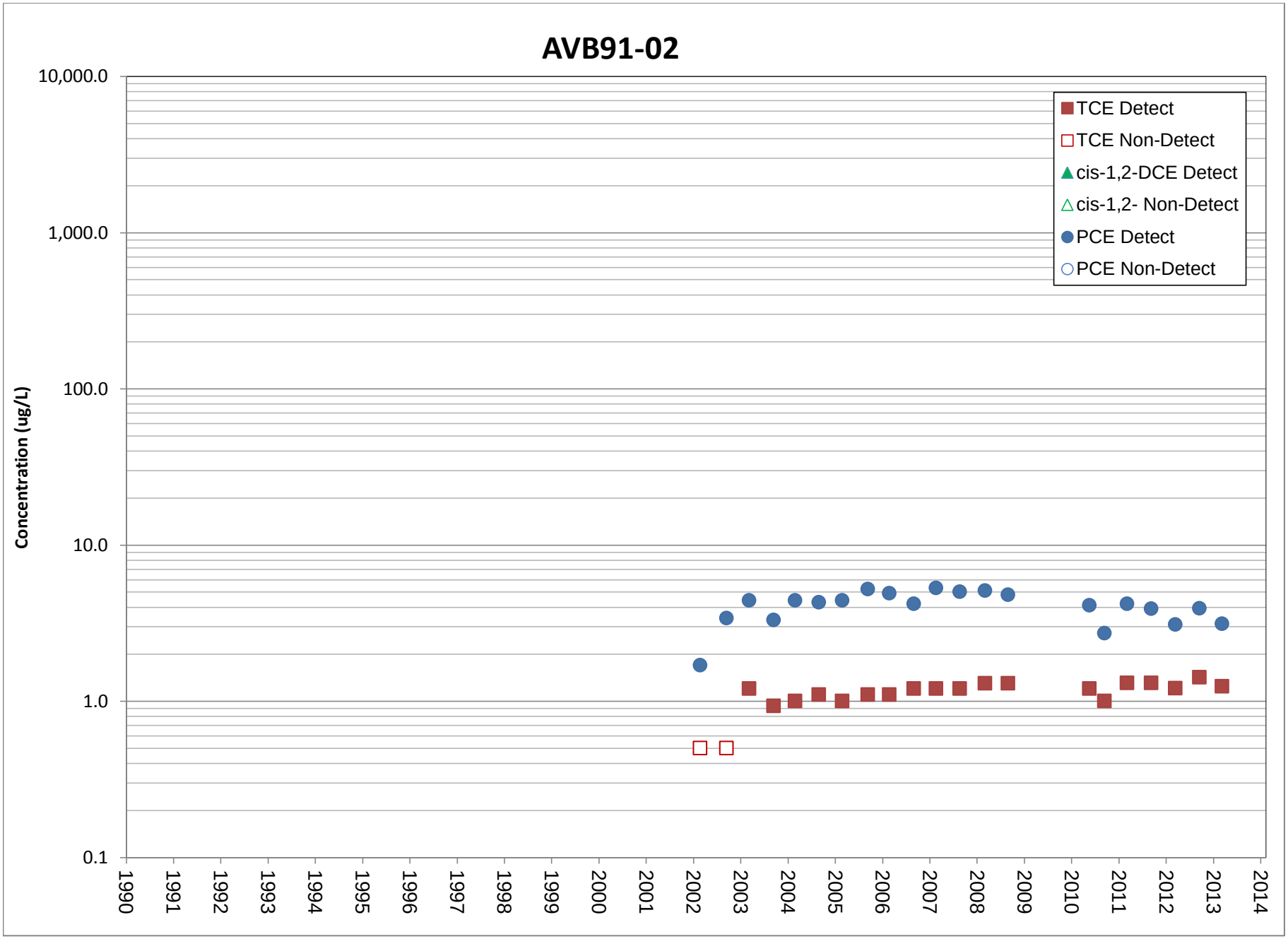
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB91-02
Concentration (ug/L)
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1.0
0.1
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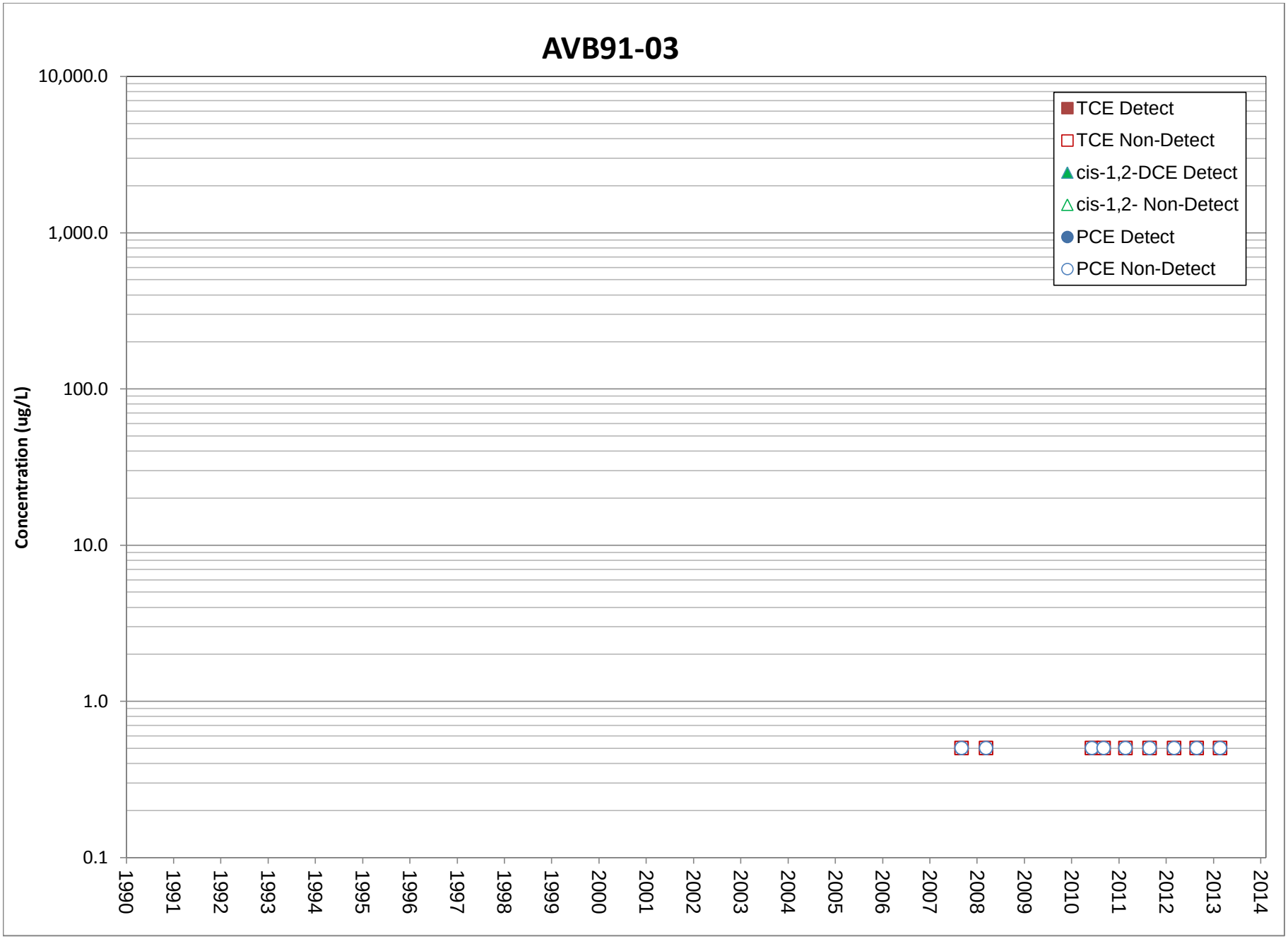
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB91-03
Concentration (ug/L)
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100.0
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1.0
0.1
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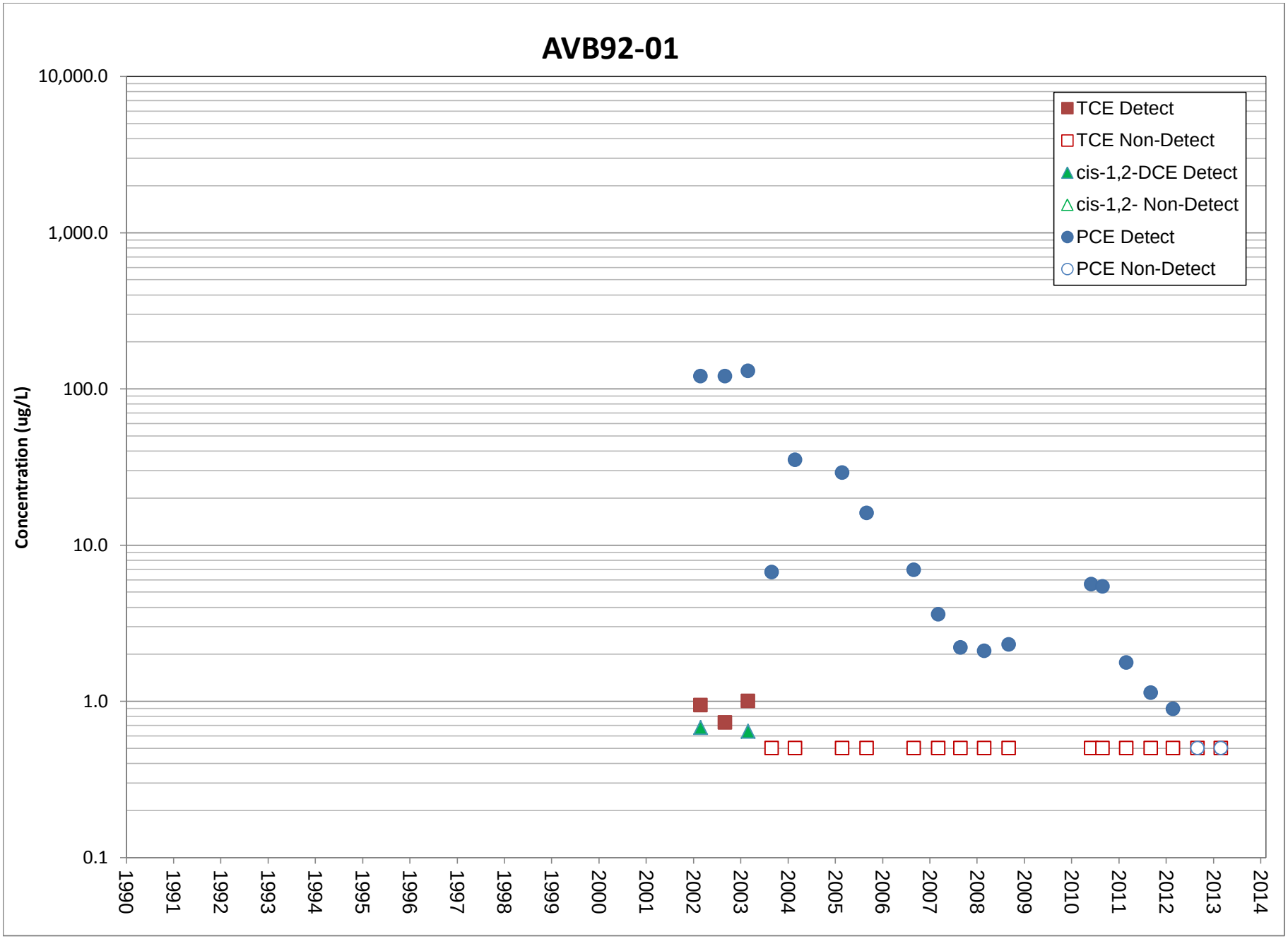
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB92-01
Concentration (ug/L)
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100.0
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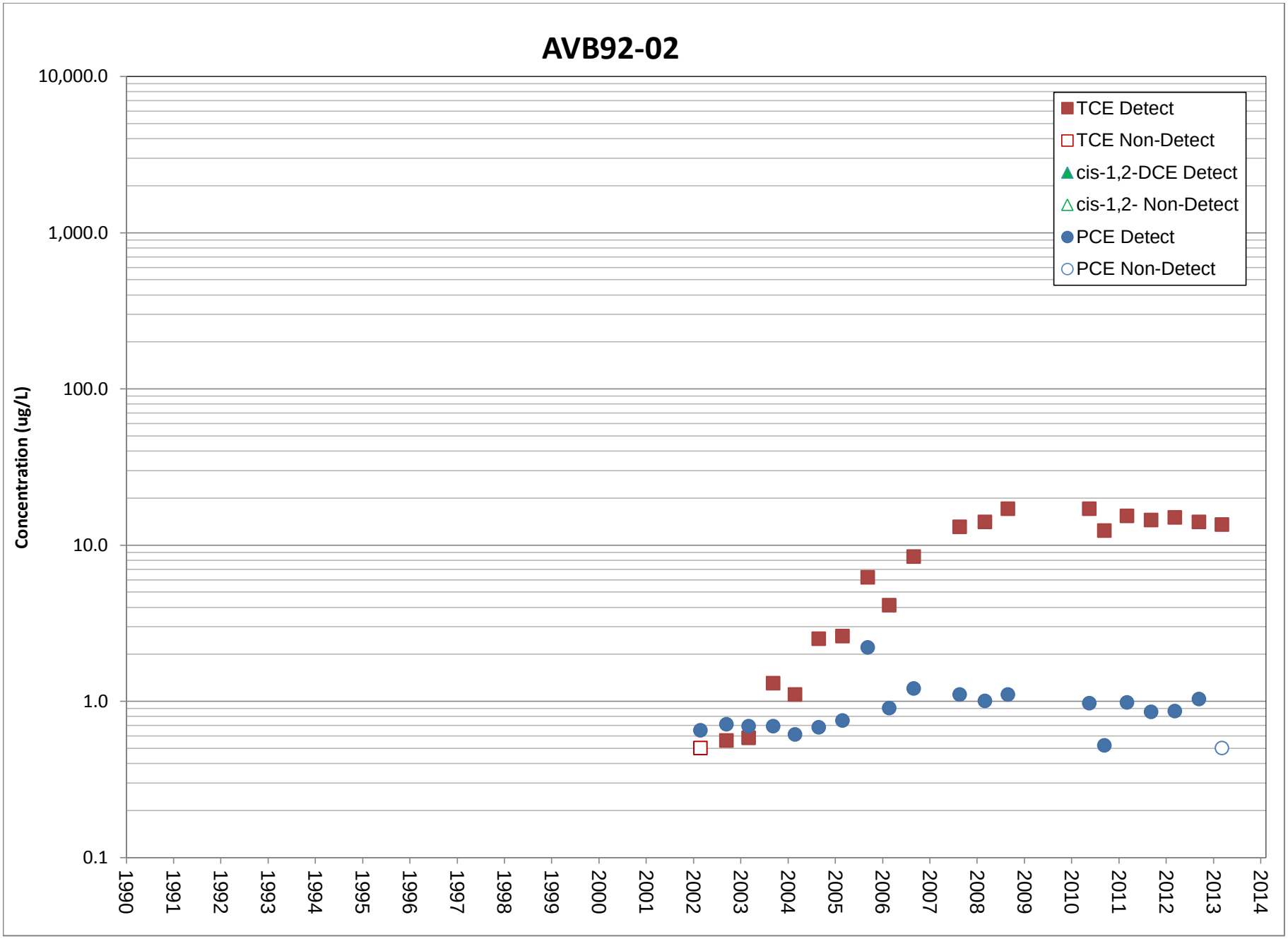
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB92-02
Concentration (ug/L)
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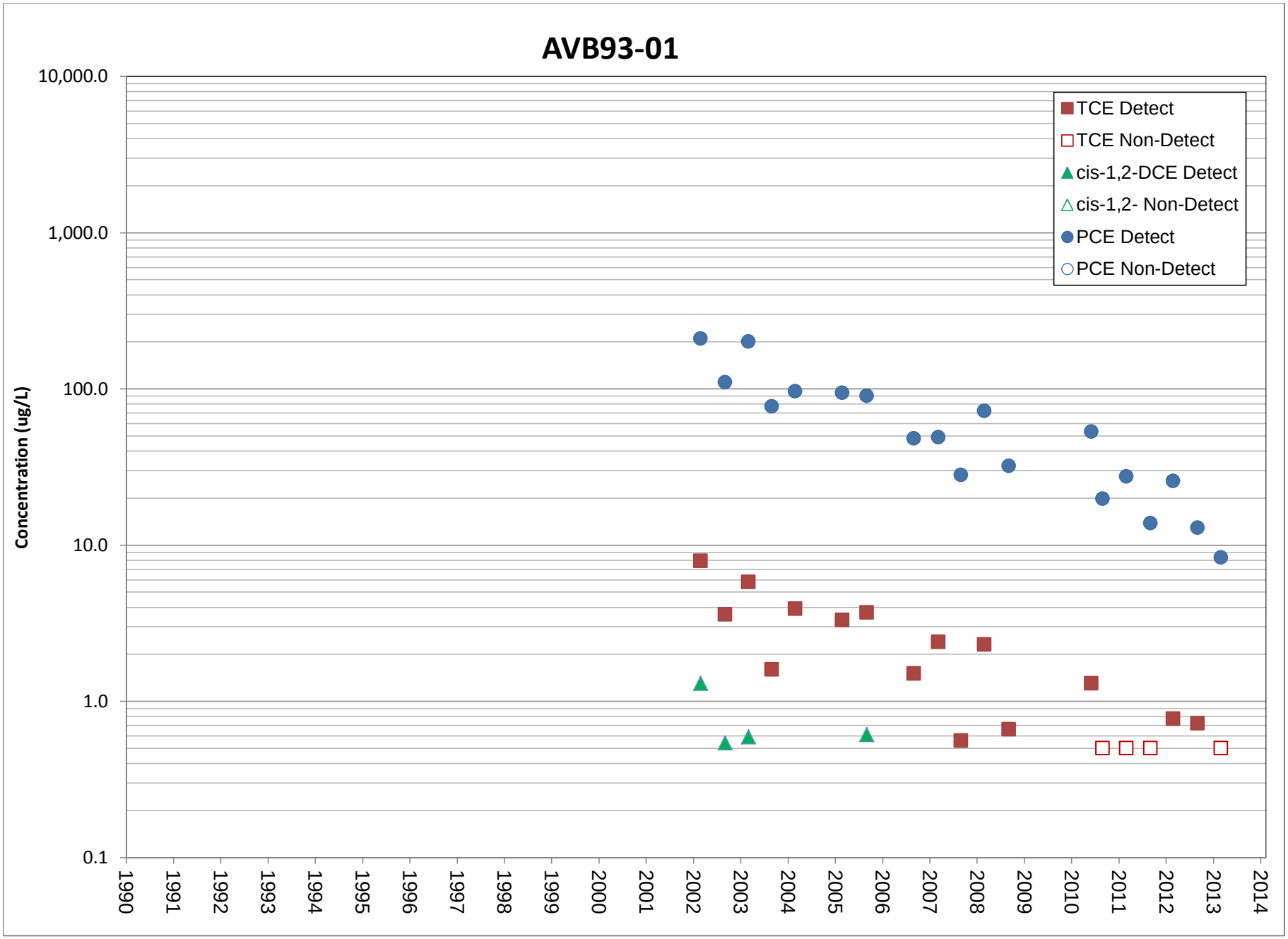
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB93-01
Concentration (ug/L)
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100.0
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0.1
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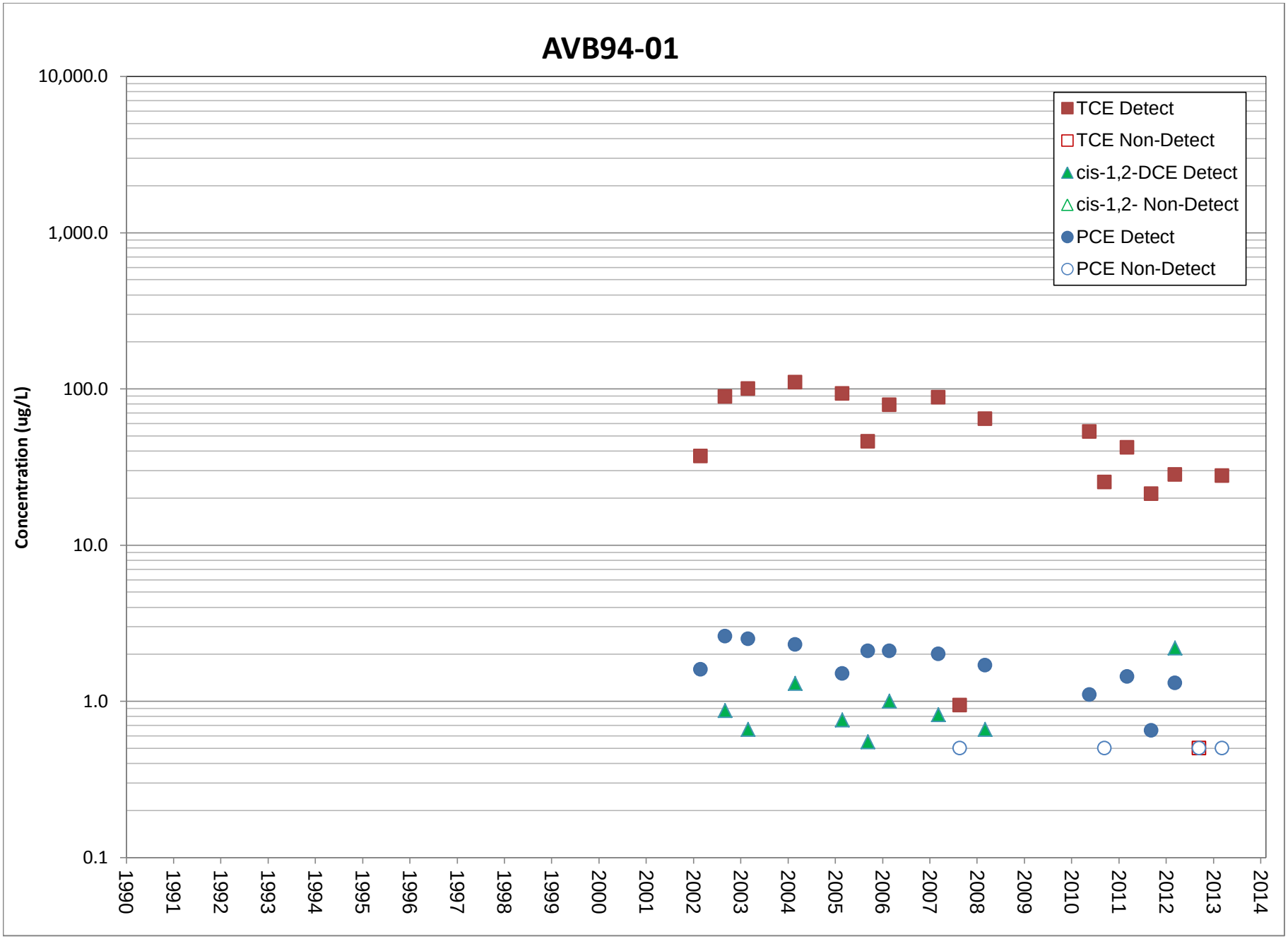
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB94-01
Concentration (ug/L)
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100.0
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1.0
0.1
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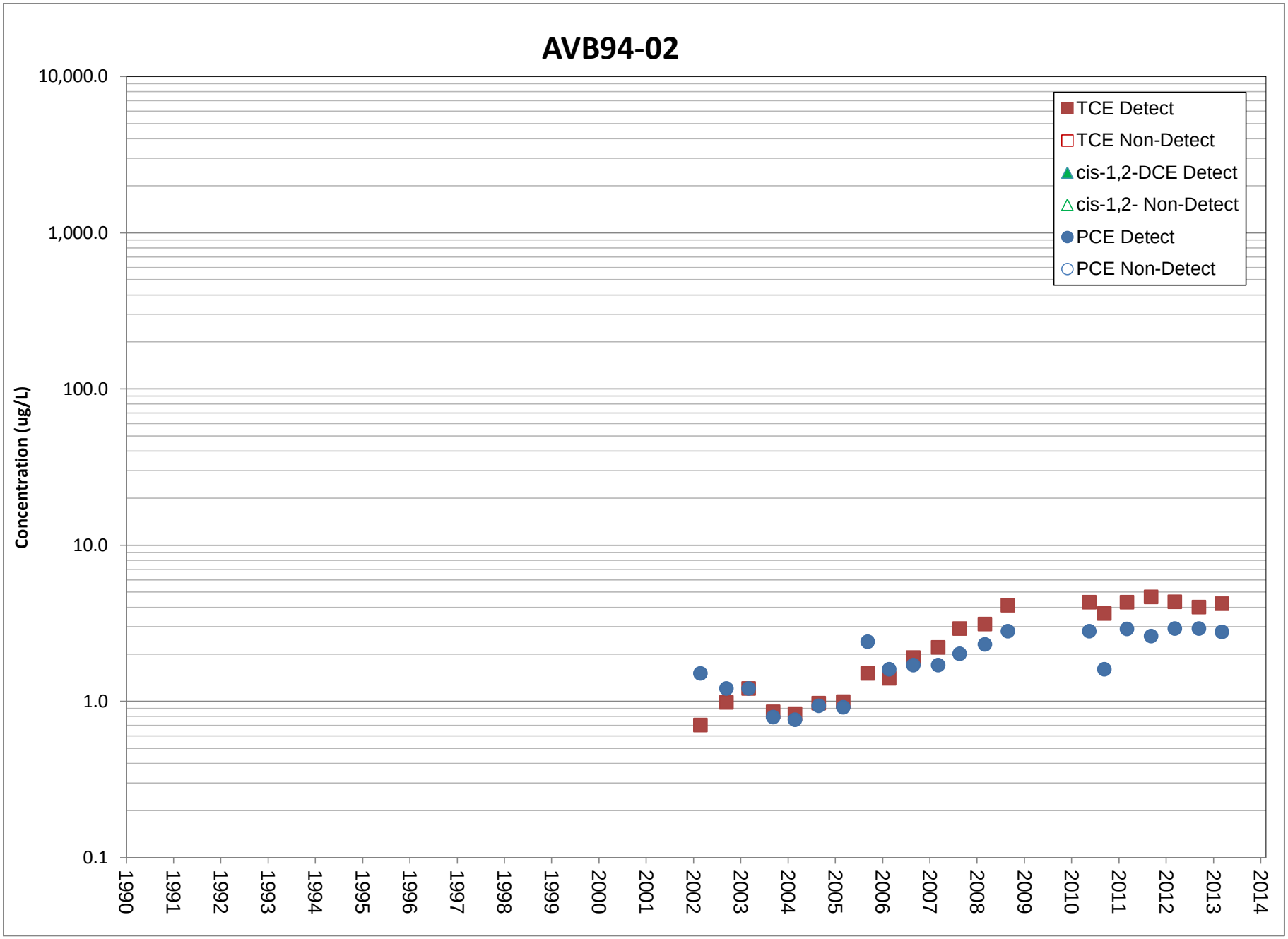
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB94-02
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
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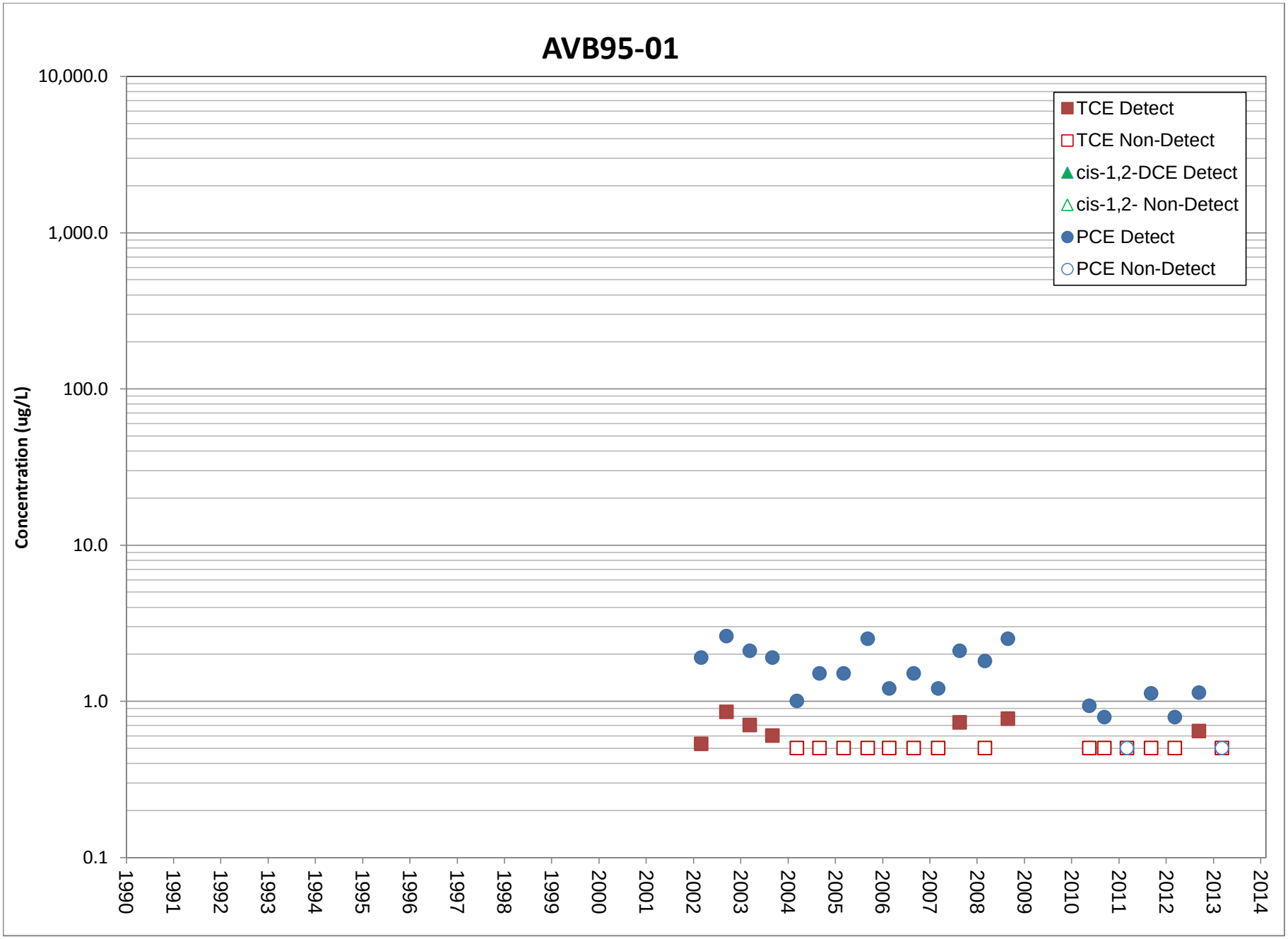
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB95-01
Concentration (ug/L)
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100.0
10.0
1.0
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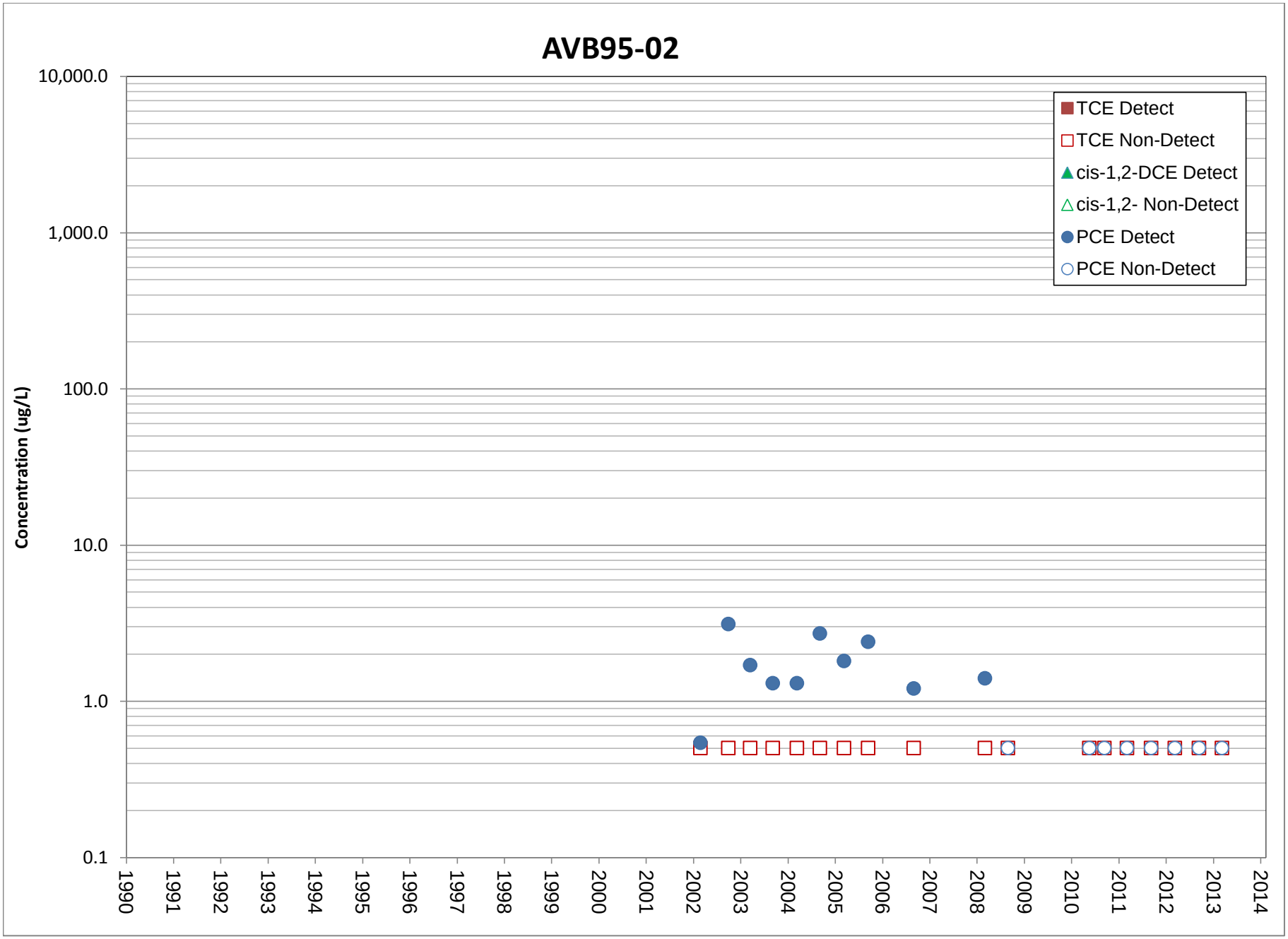
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB95-02
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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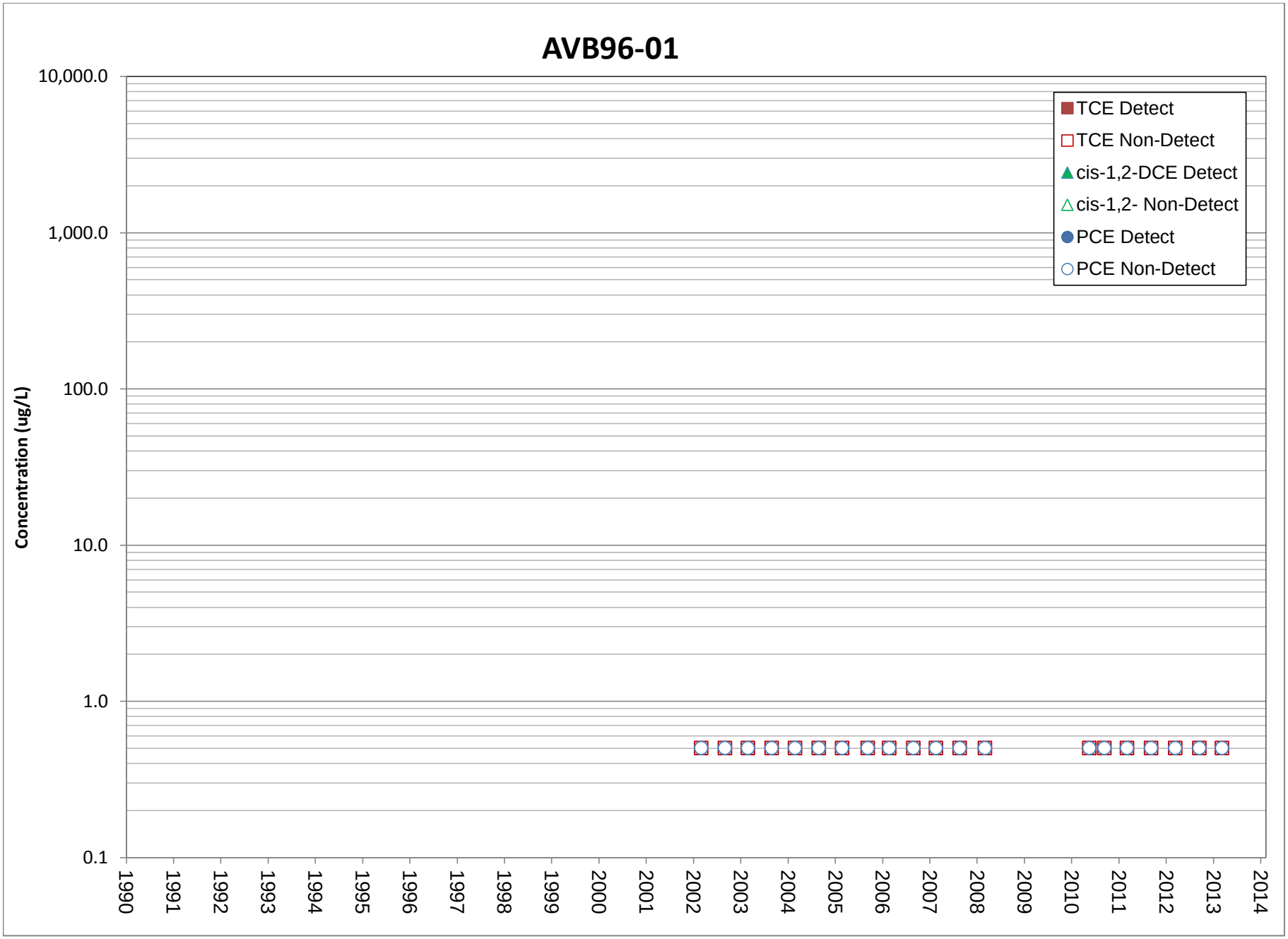
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB96-01
Concentration (ug/L)
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0.1
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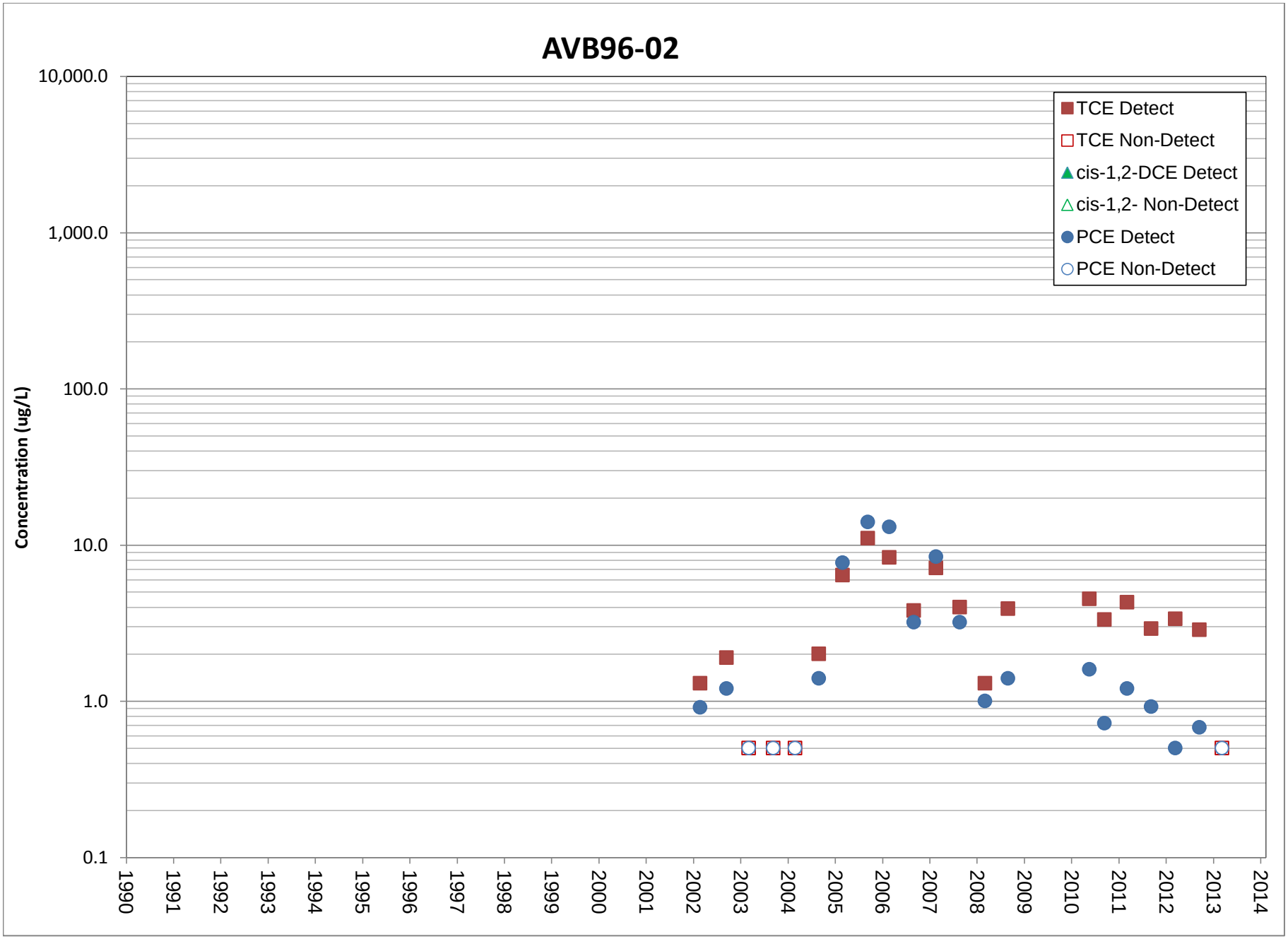
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB96-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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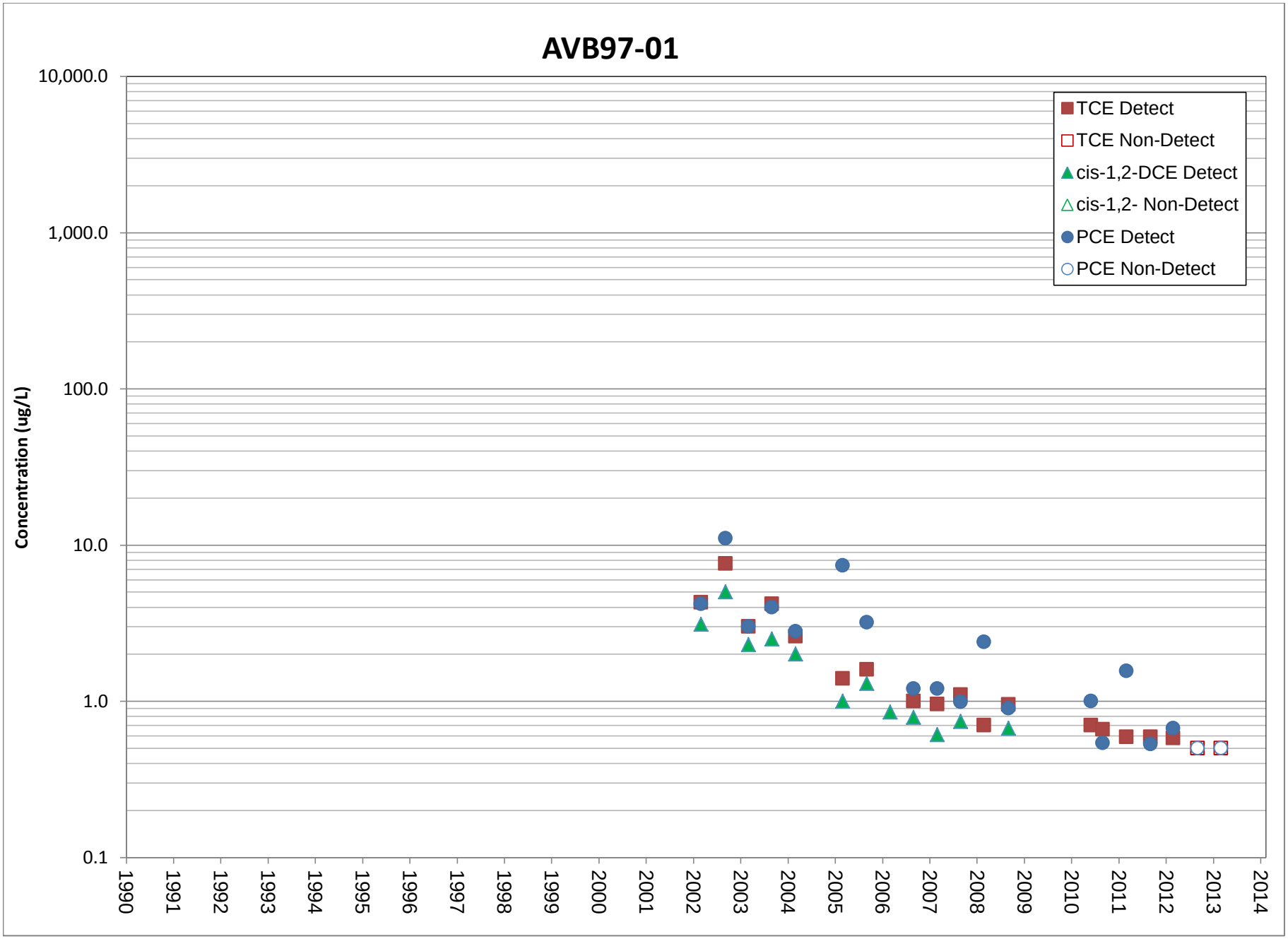
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB97-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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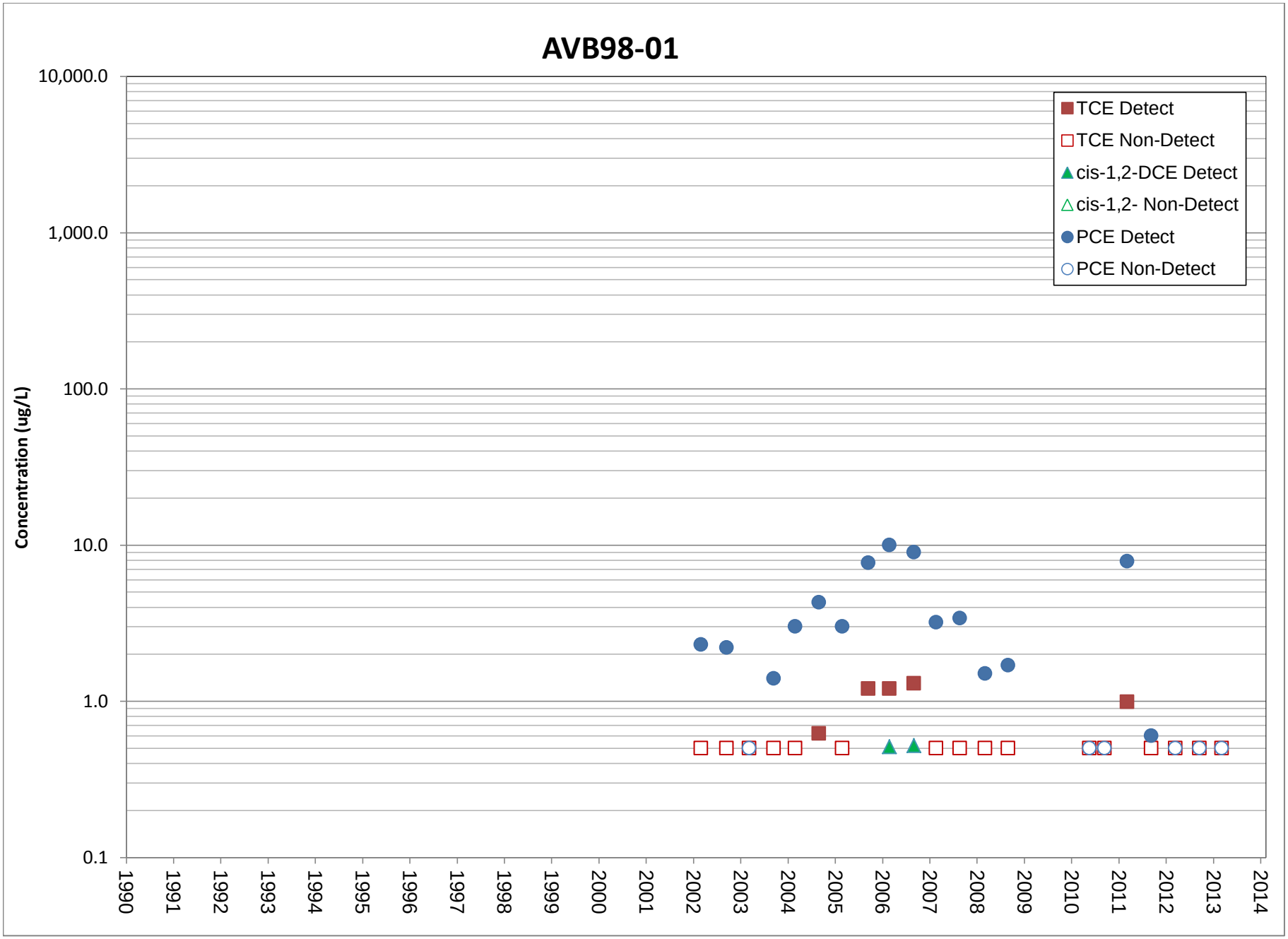
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB98-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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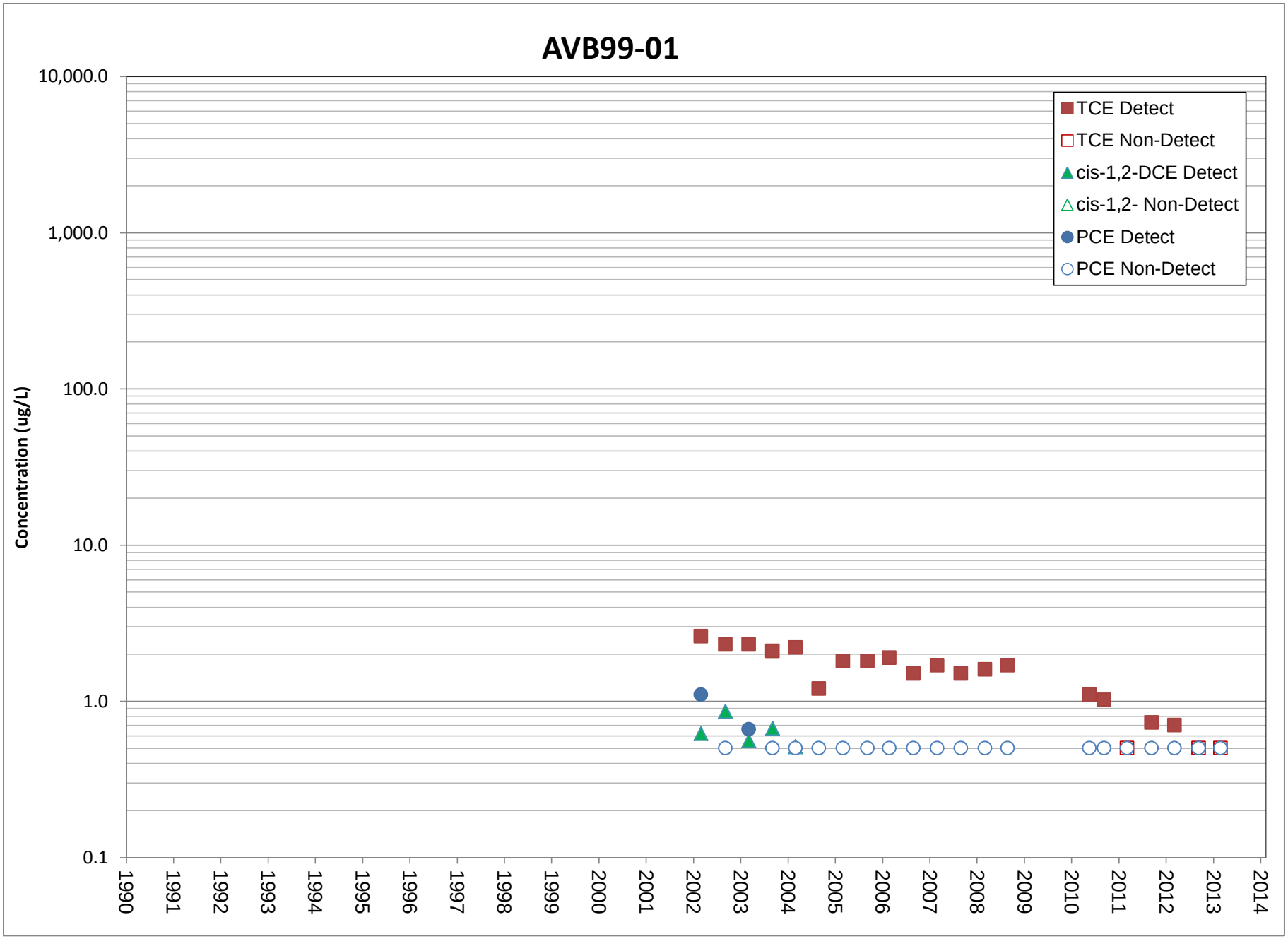
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB99-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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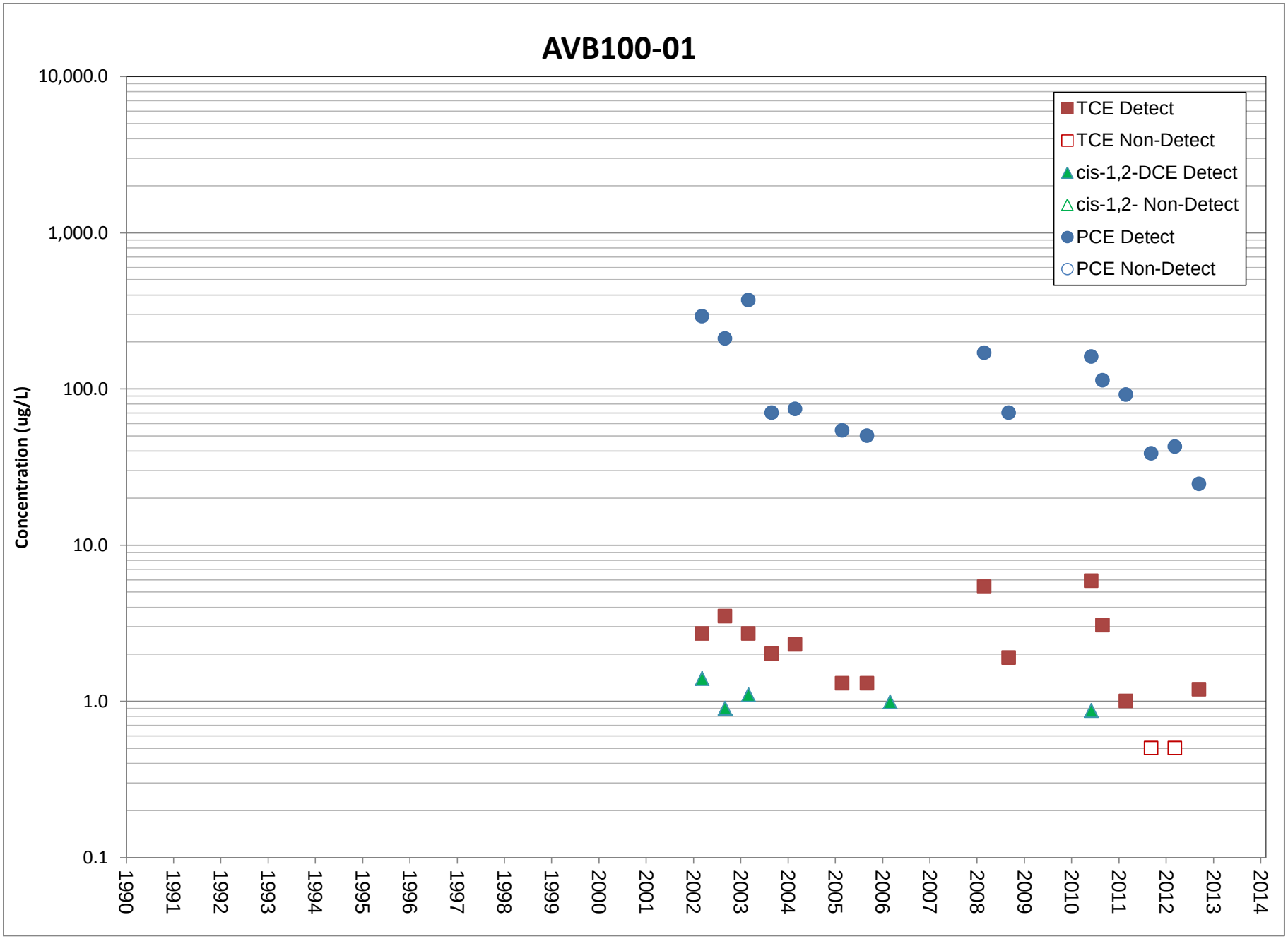
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB100-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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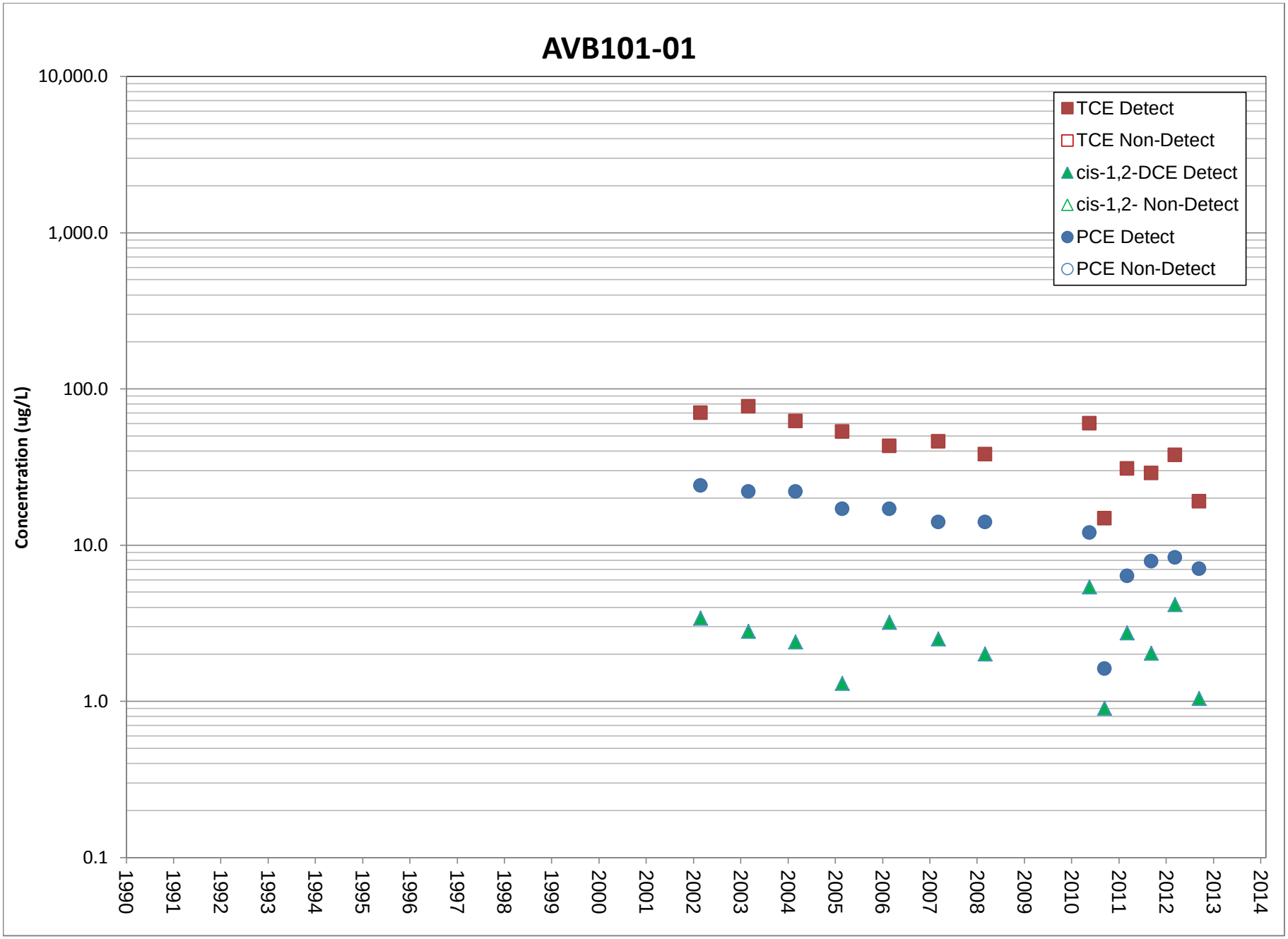
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB101-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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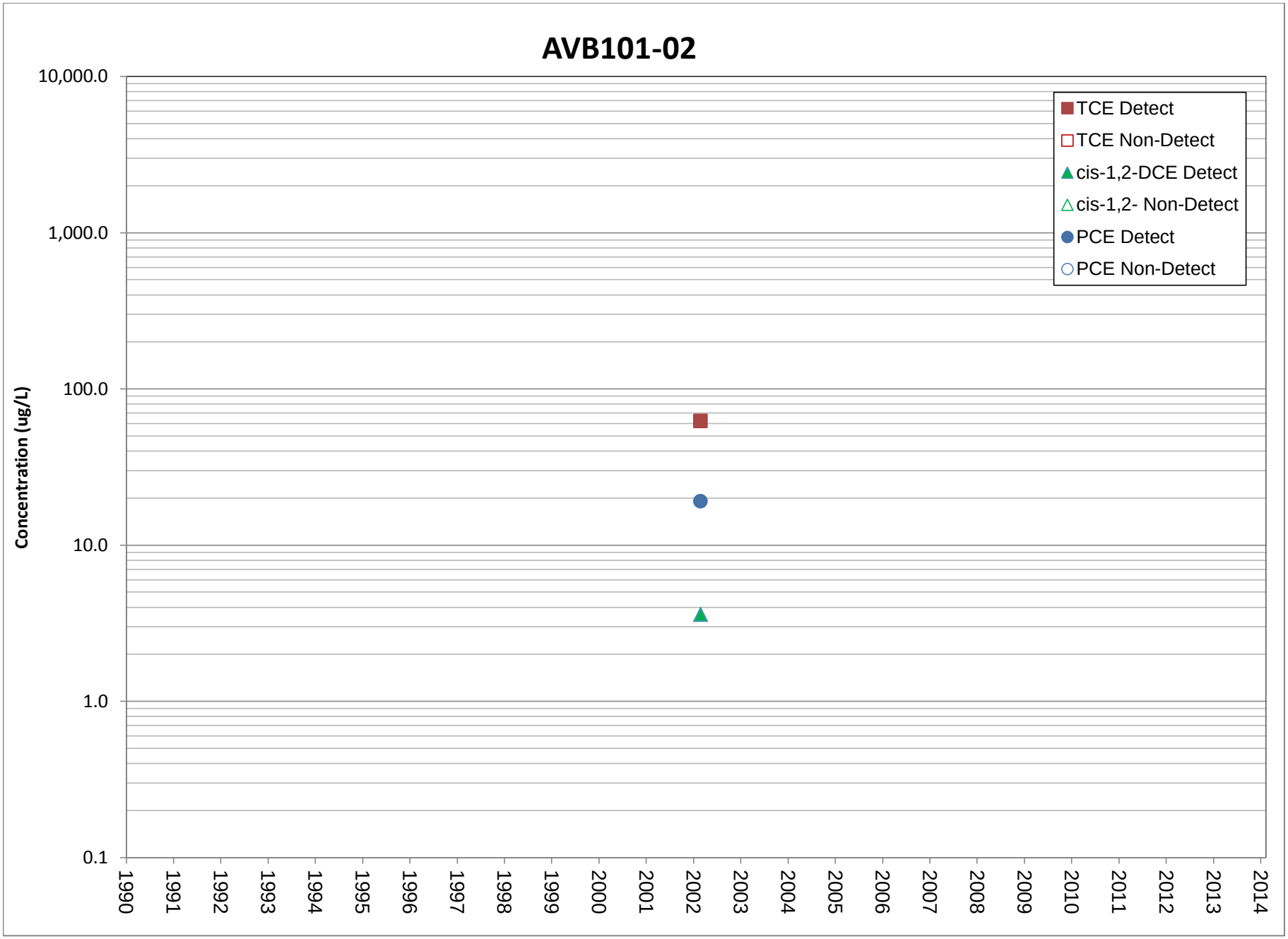
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB101-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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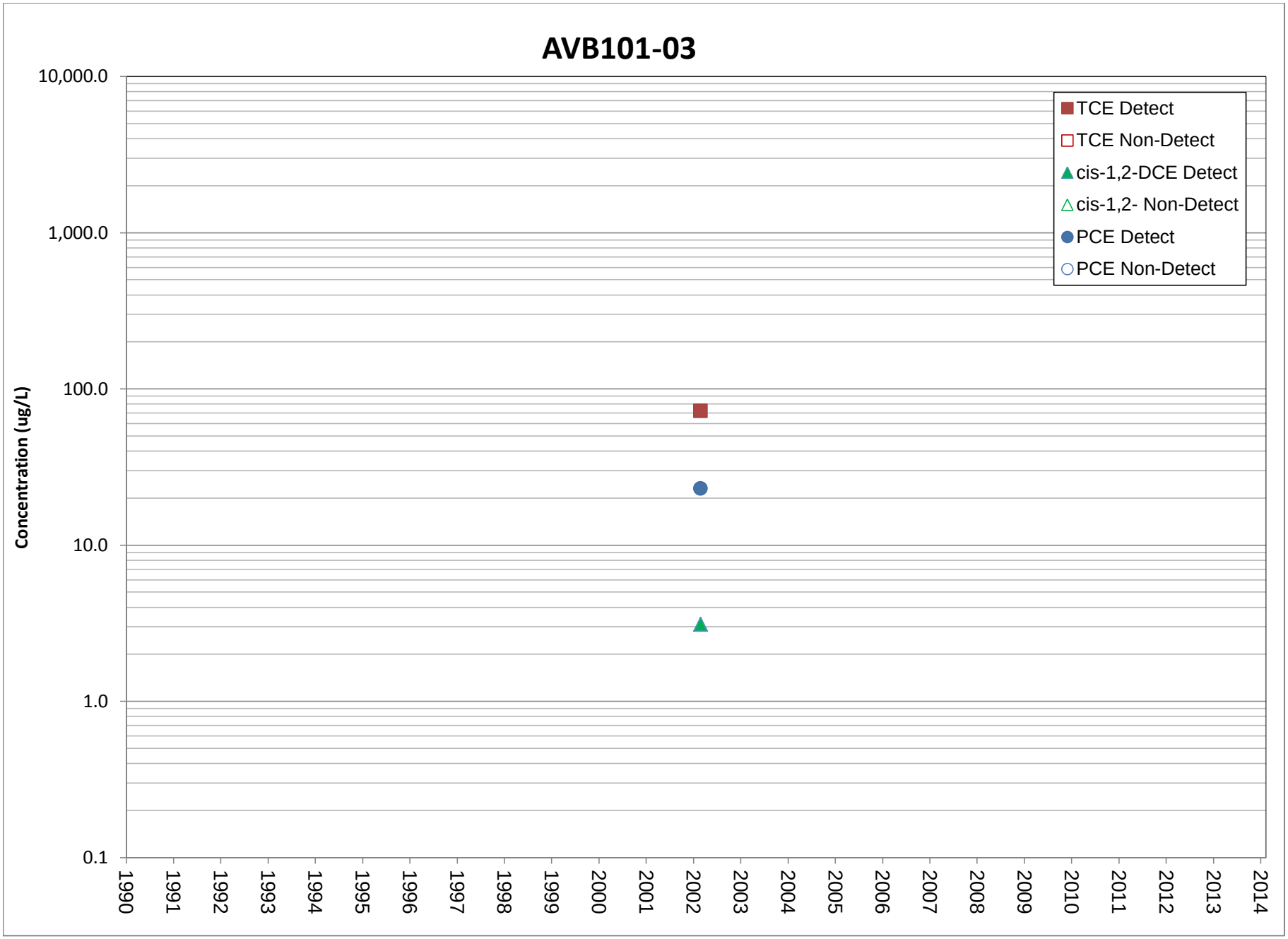
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB101-03
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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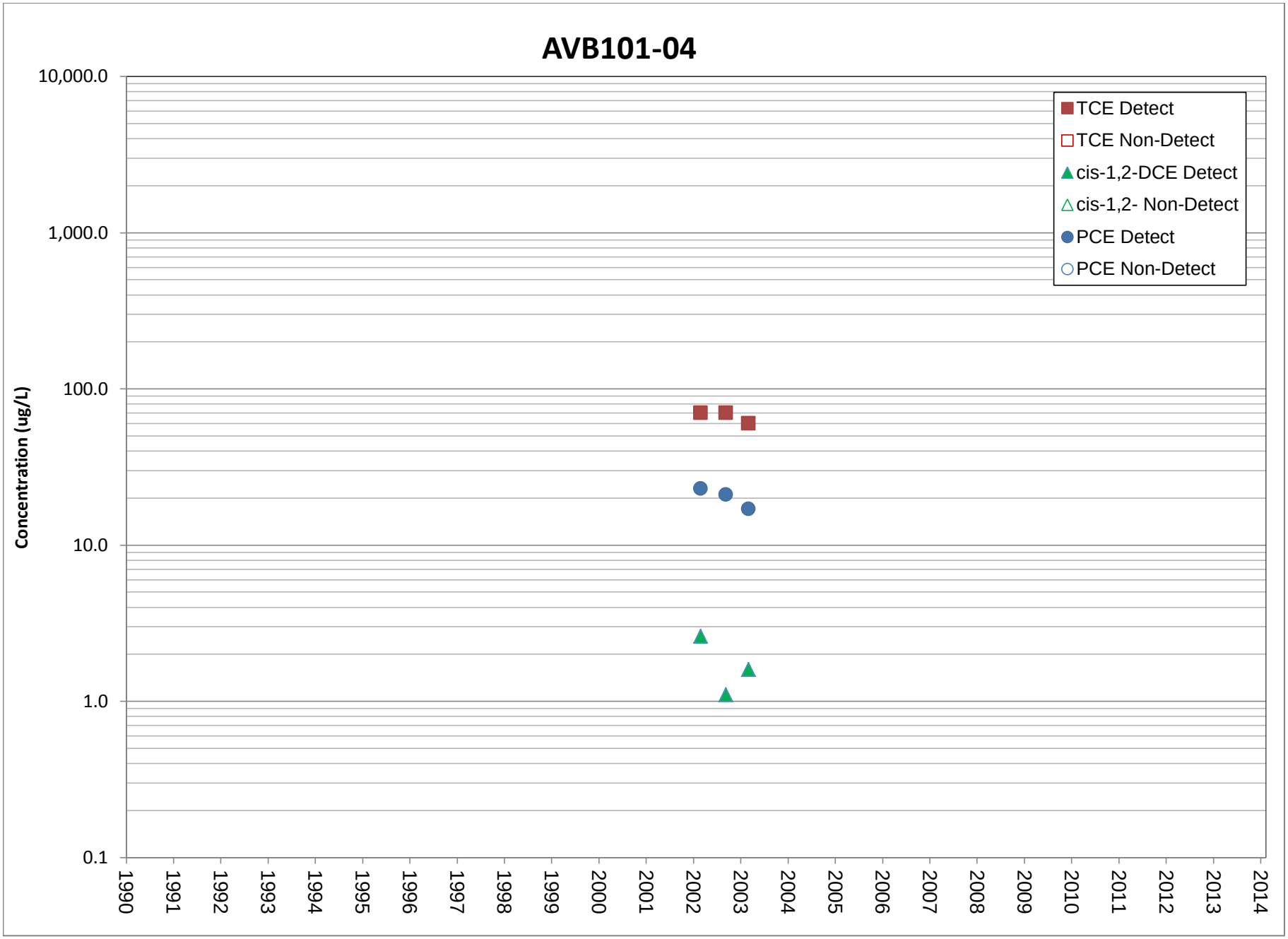
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB101-04
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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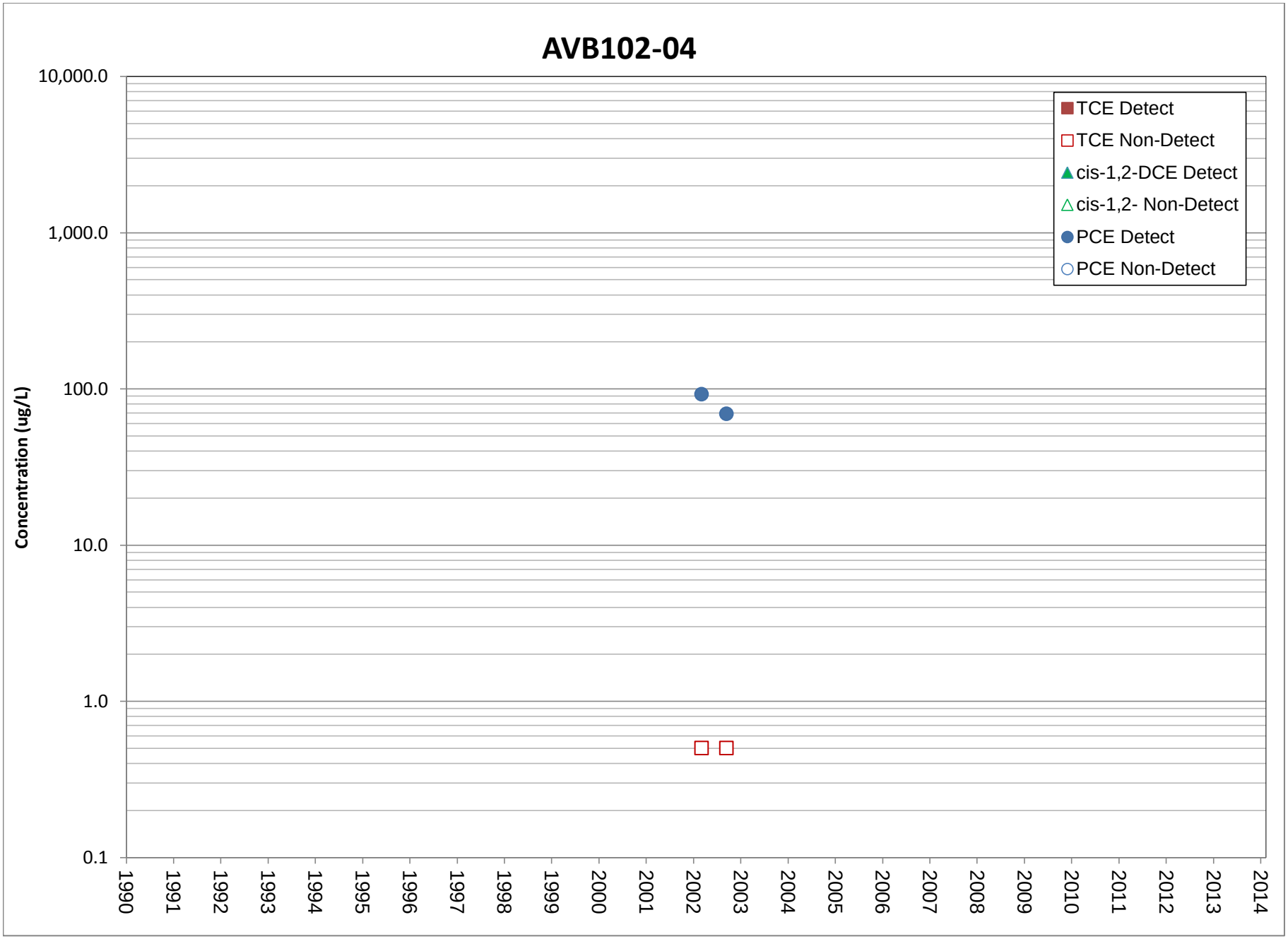
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB102-04
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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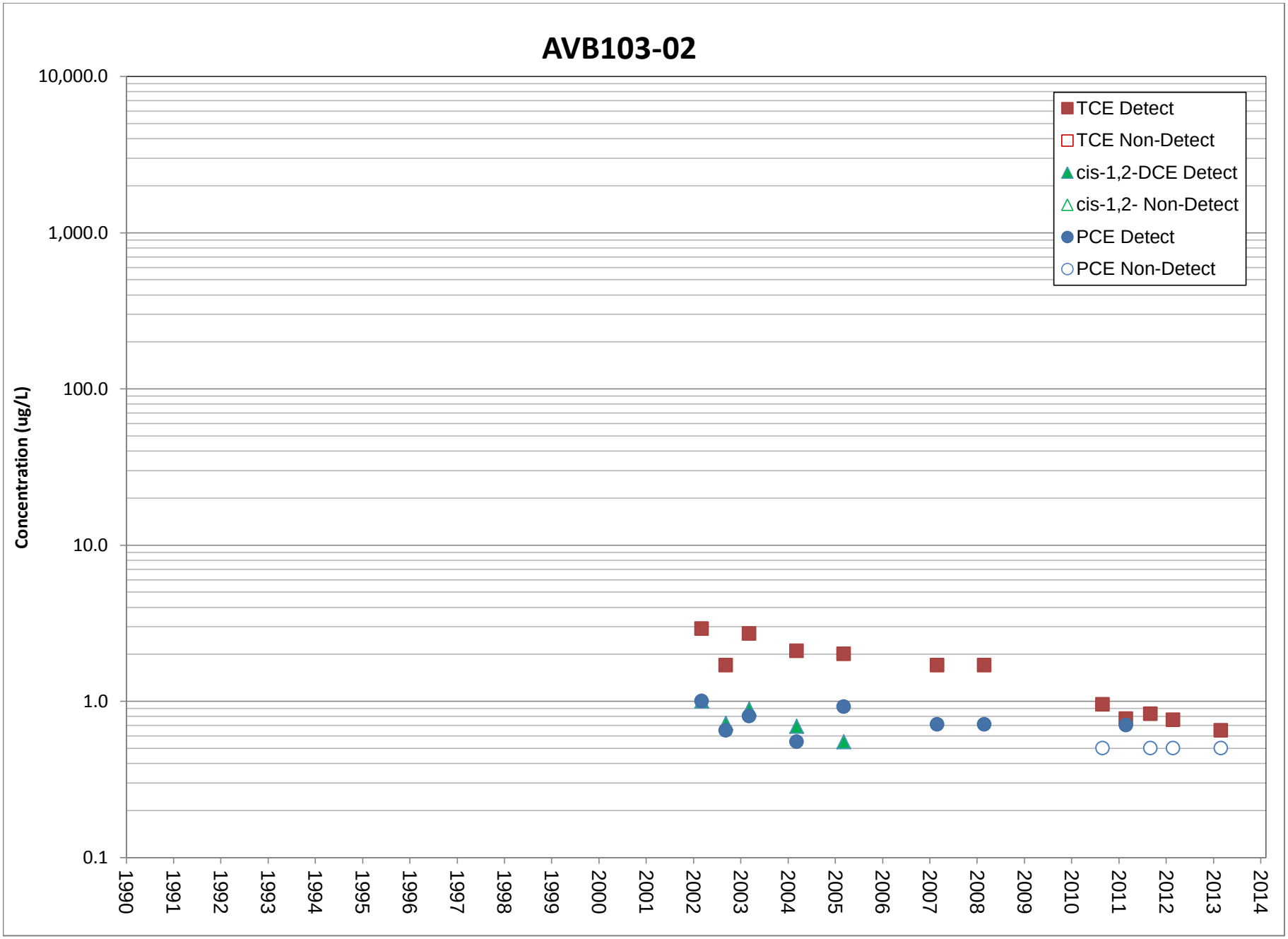
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB103-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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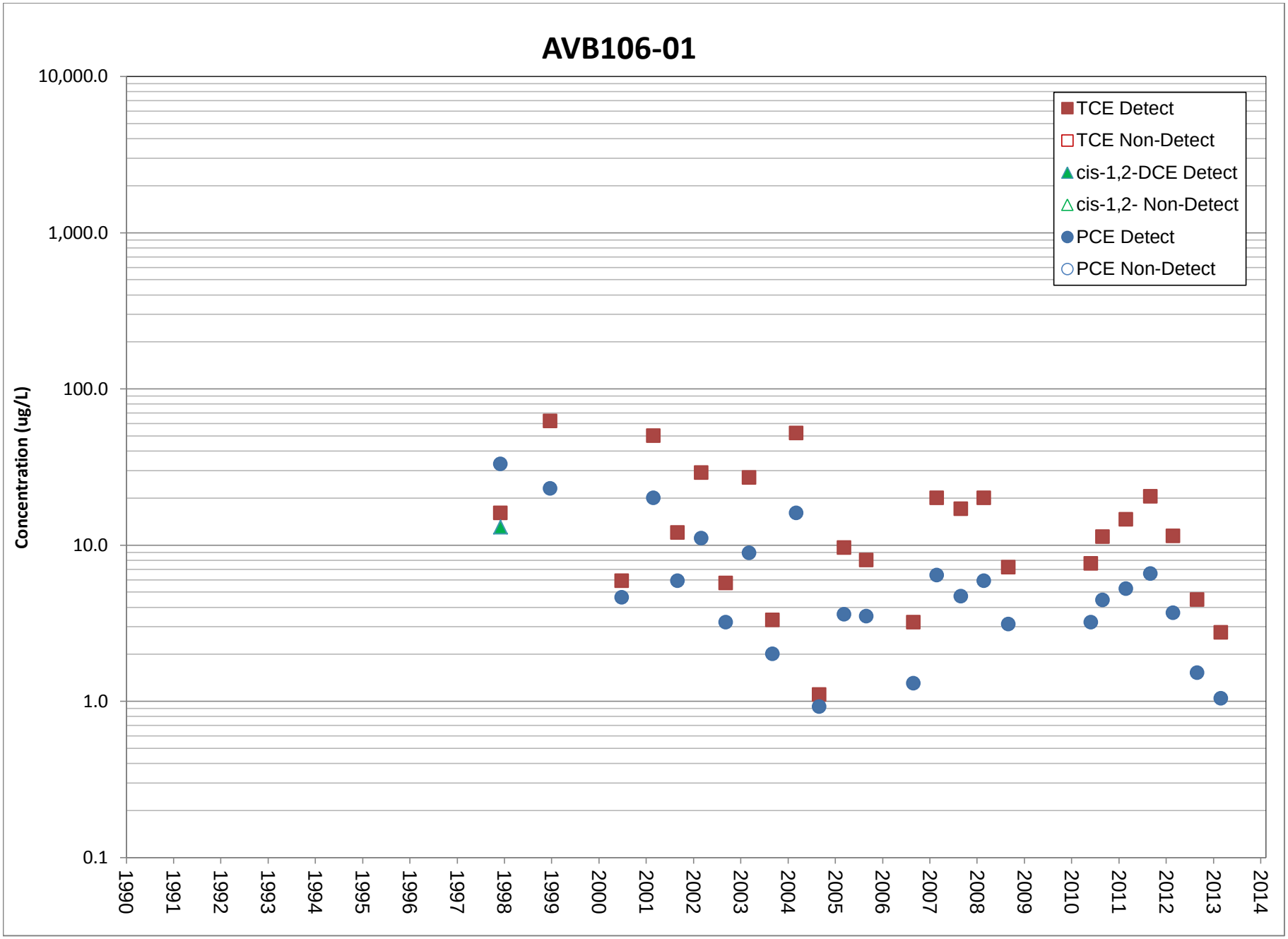
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB106-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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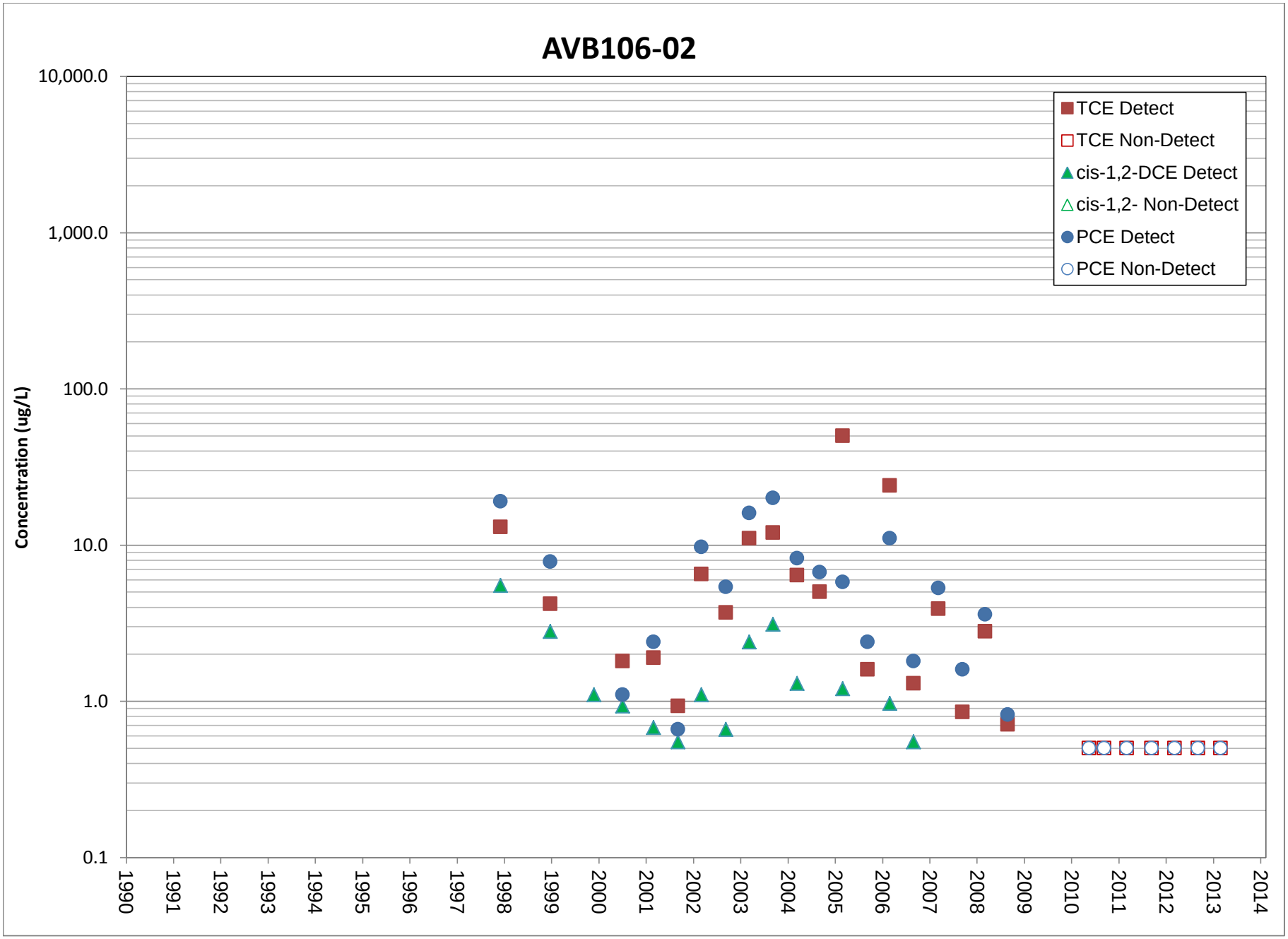
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB106-02
Concentration (ug/L)
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1,000.0
100.0
10.0
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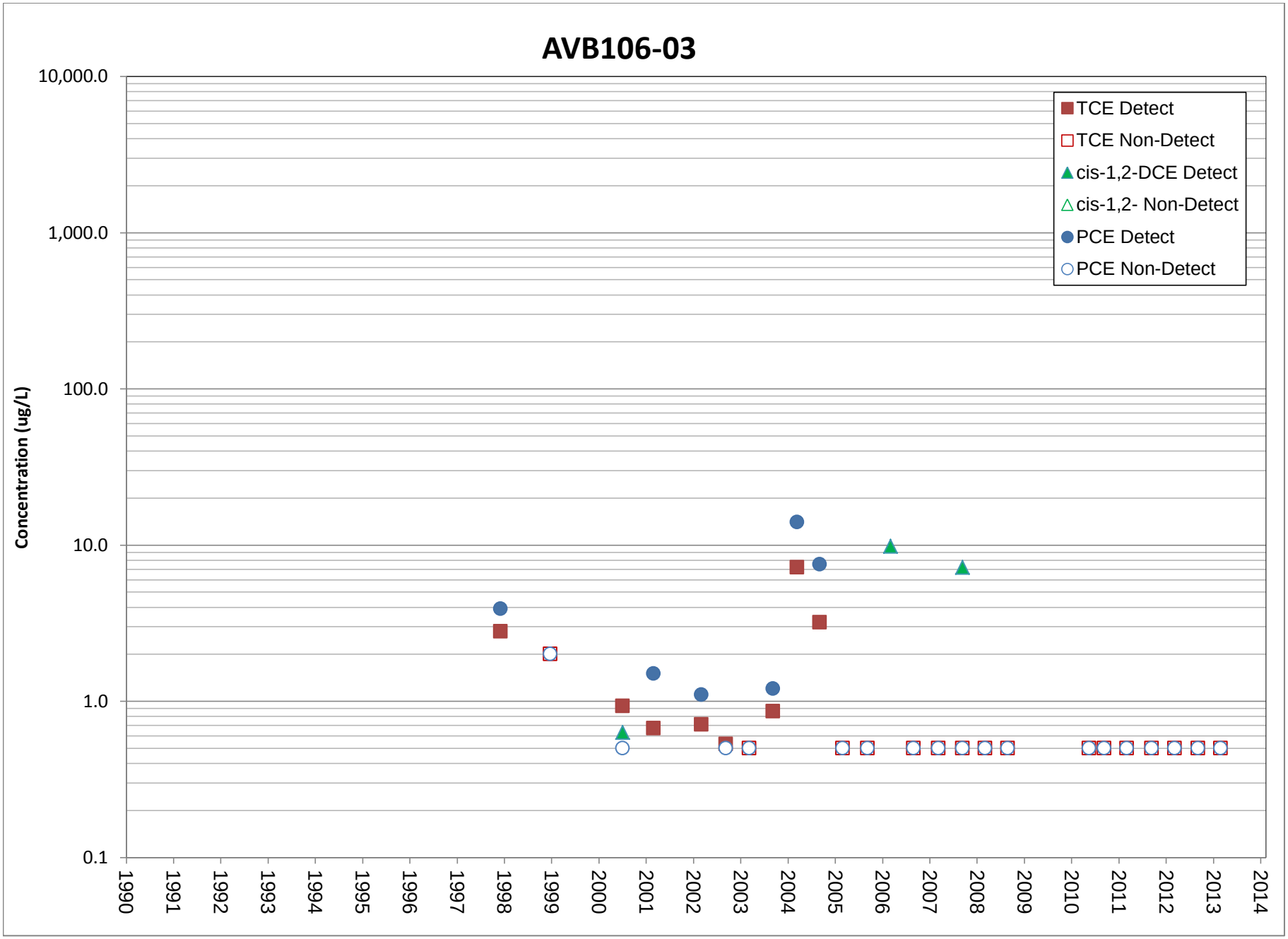
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB106-03
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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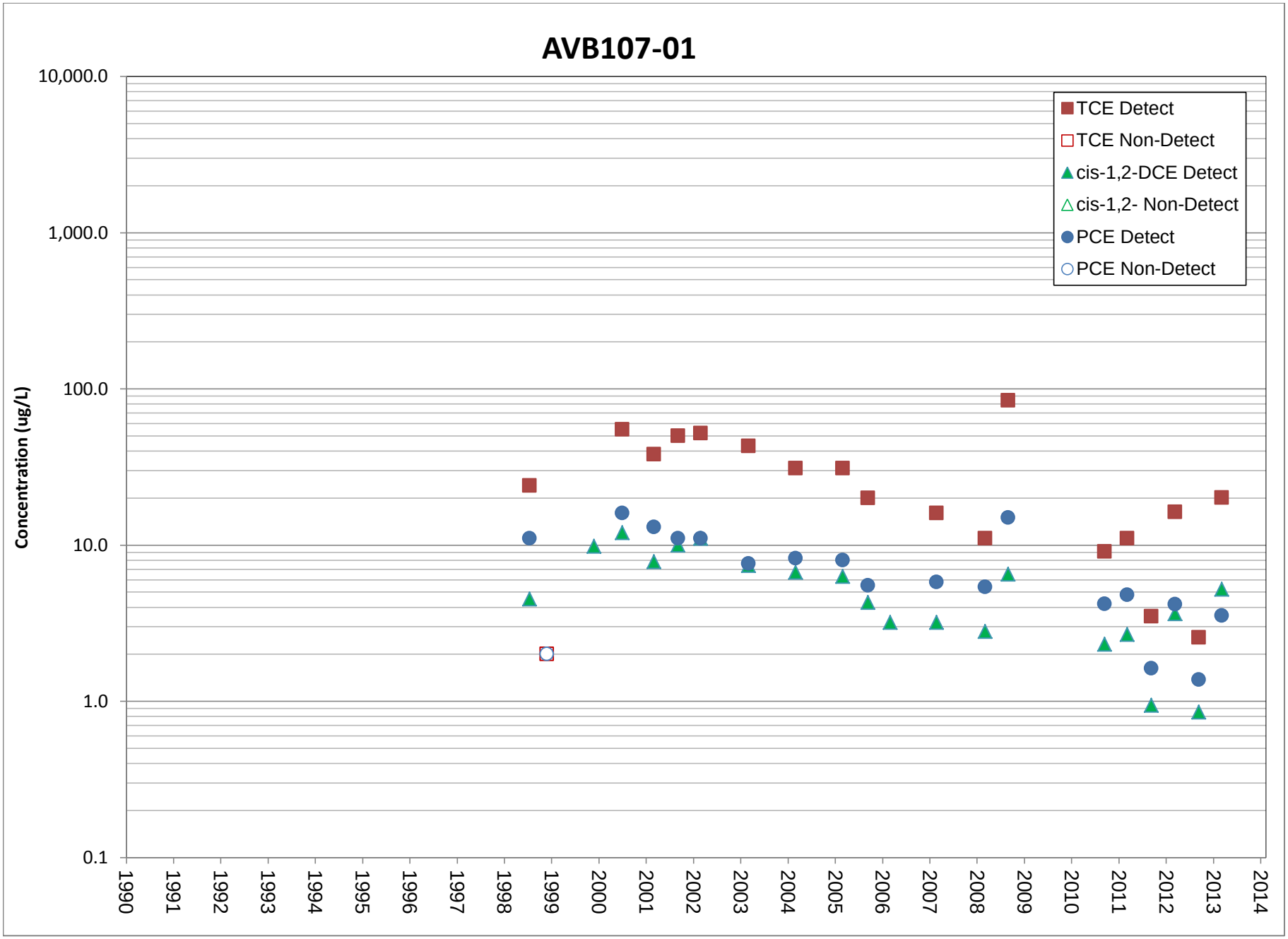
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB107-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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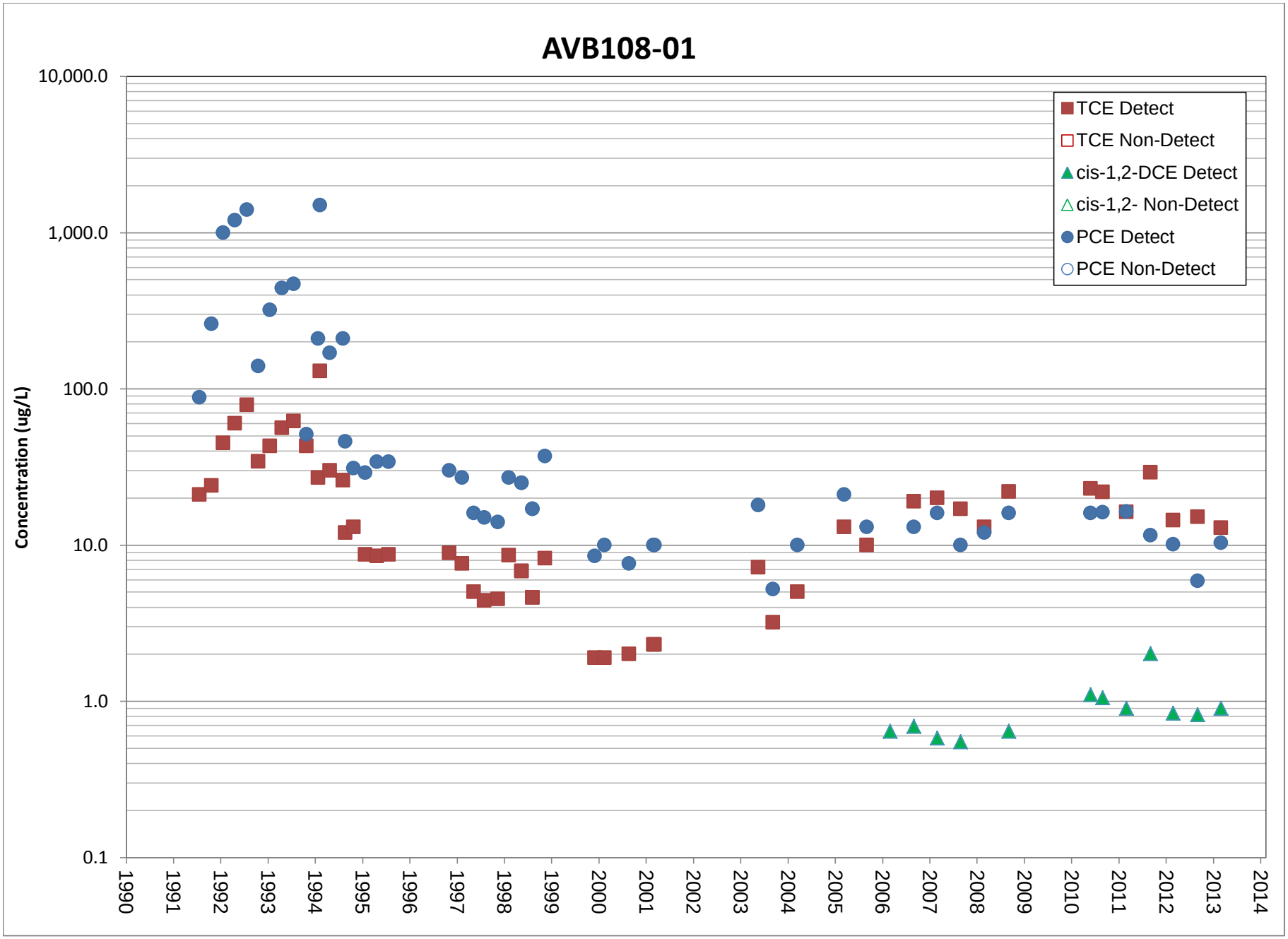
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB108-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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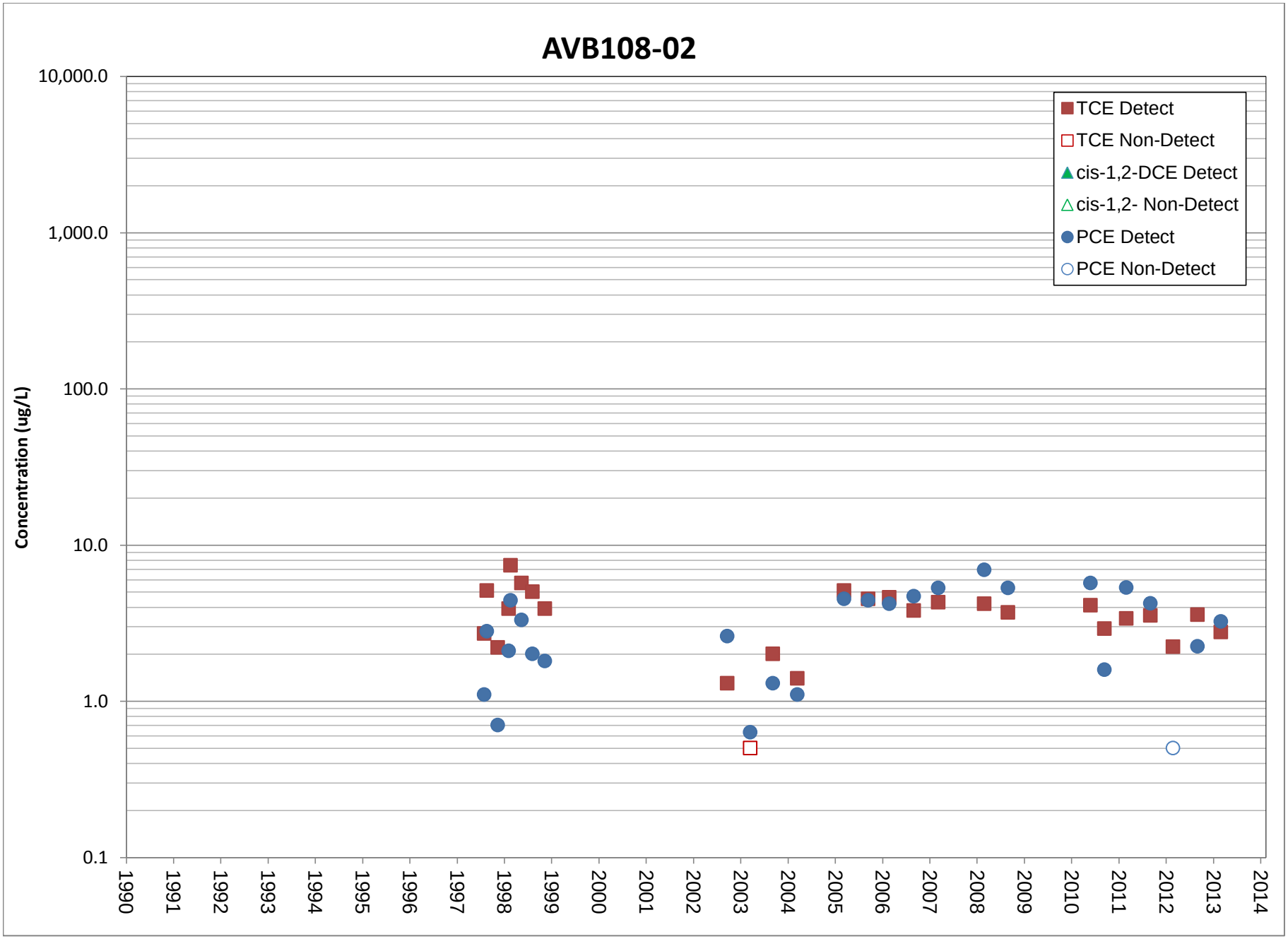
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB108-02
Concentration (ug/L)
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1.0
0.1
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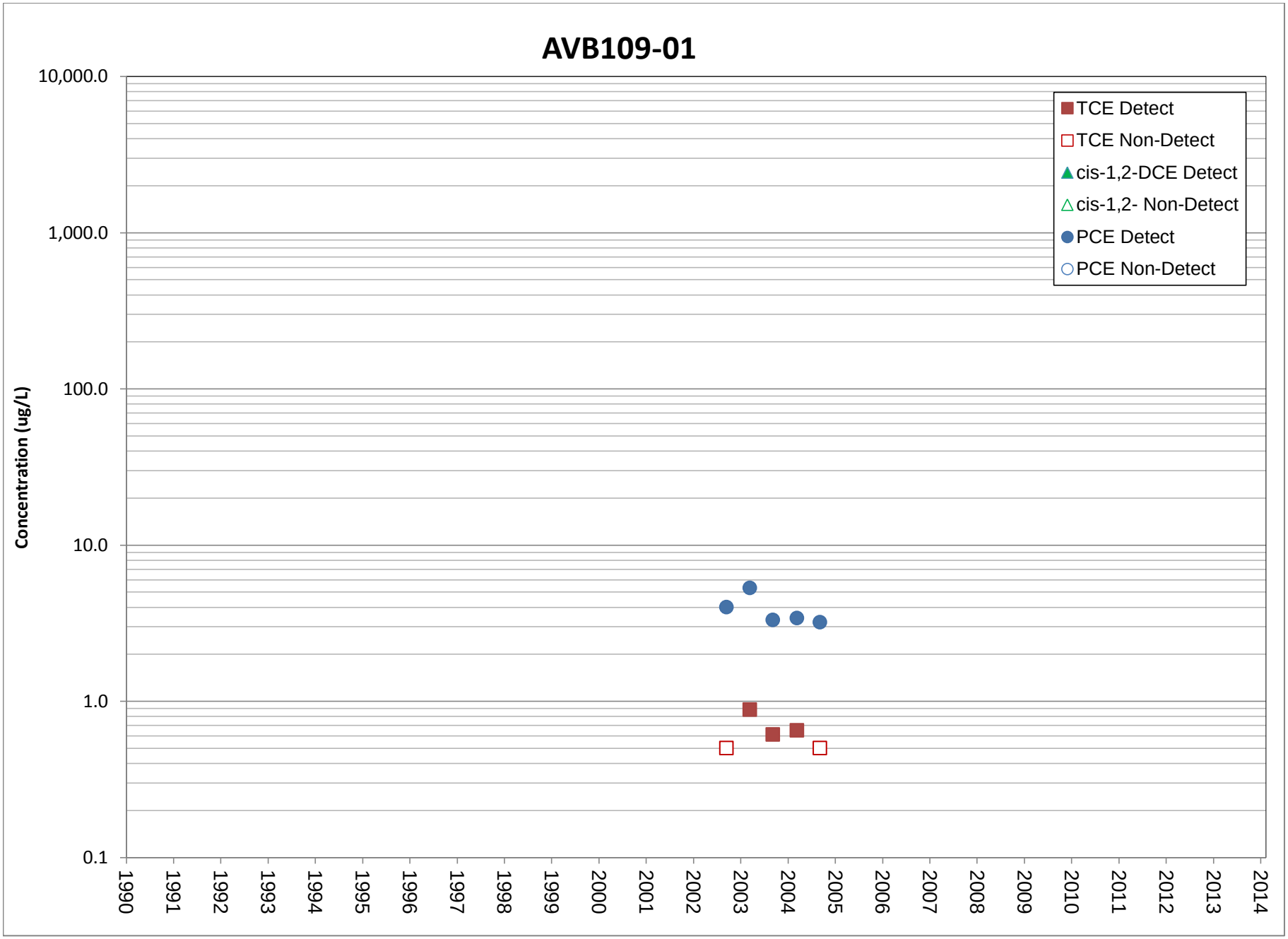
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB109-01
Concentration (ug/L)
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10.0
1.0
0.1
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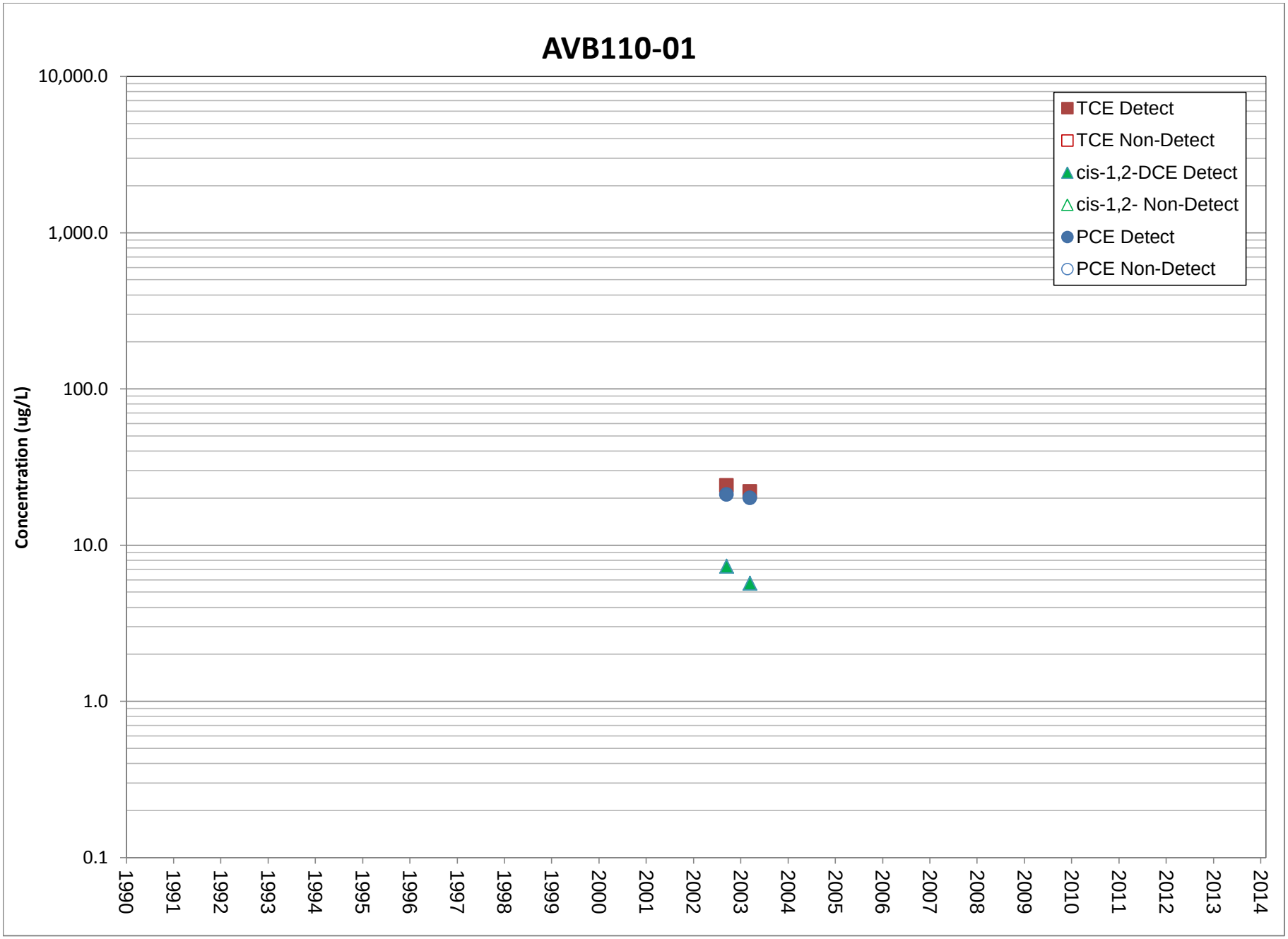
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB110-01
Concentration (ug/L)
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10.0
1.0
0.1
1990
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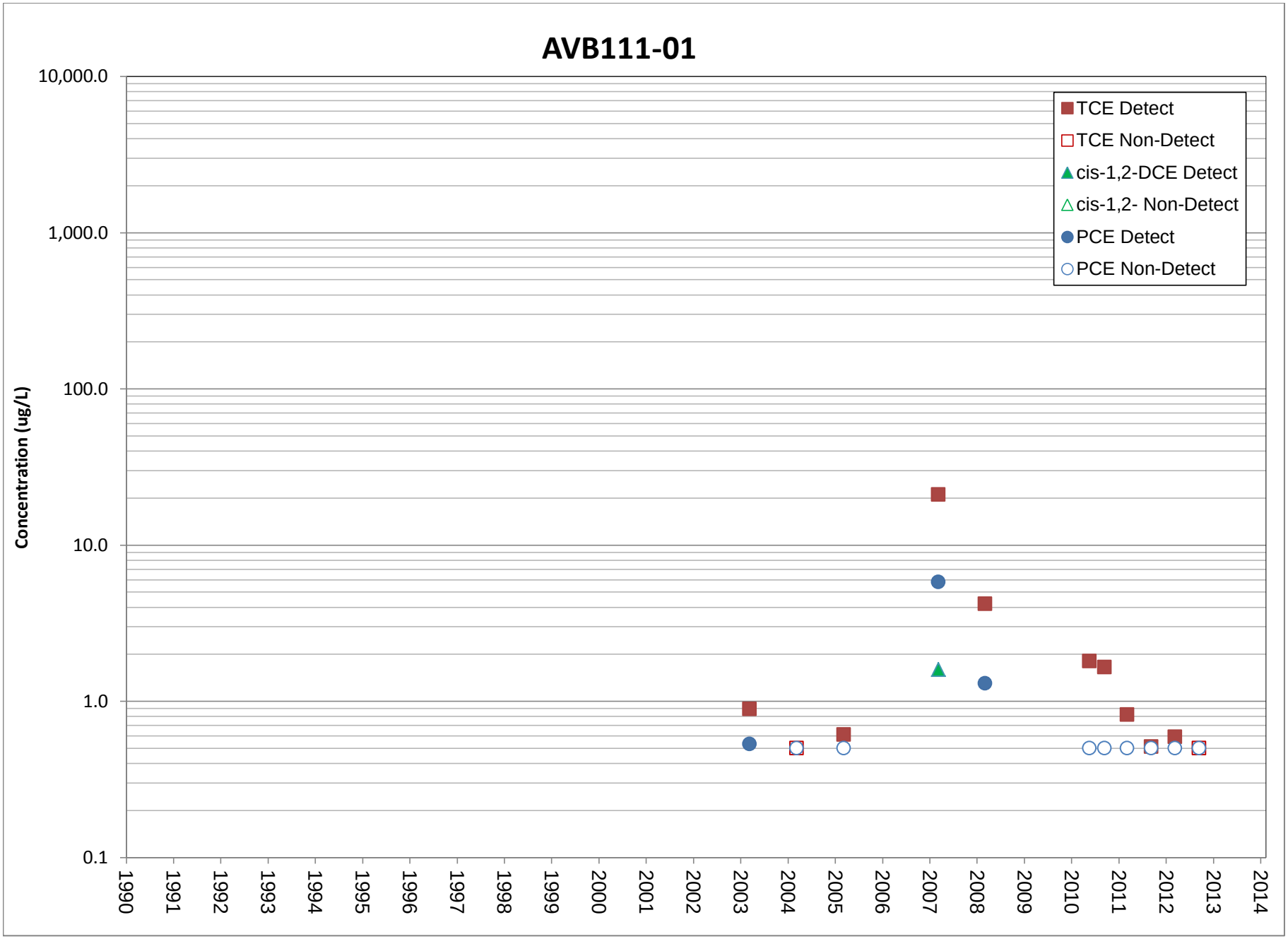
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB111-01
Concentration (ug/L)
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1.0
0.1
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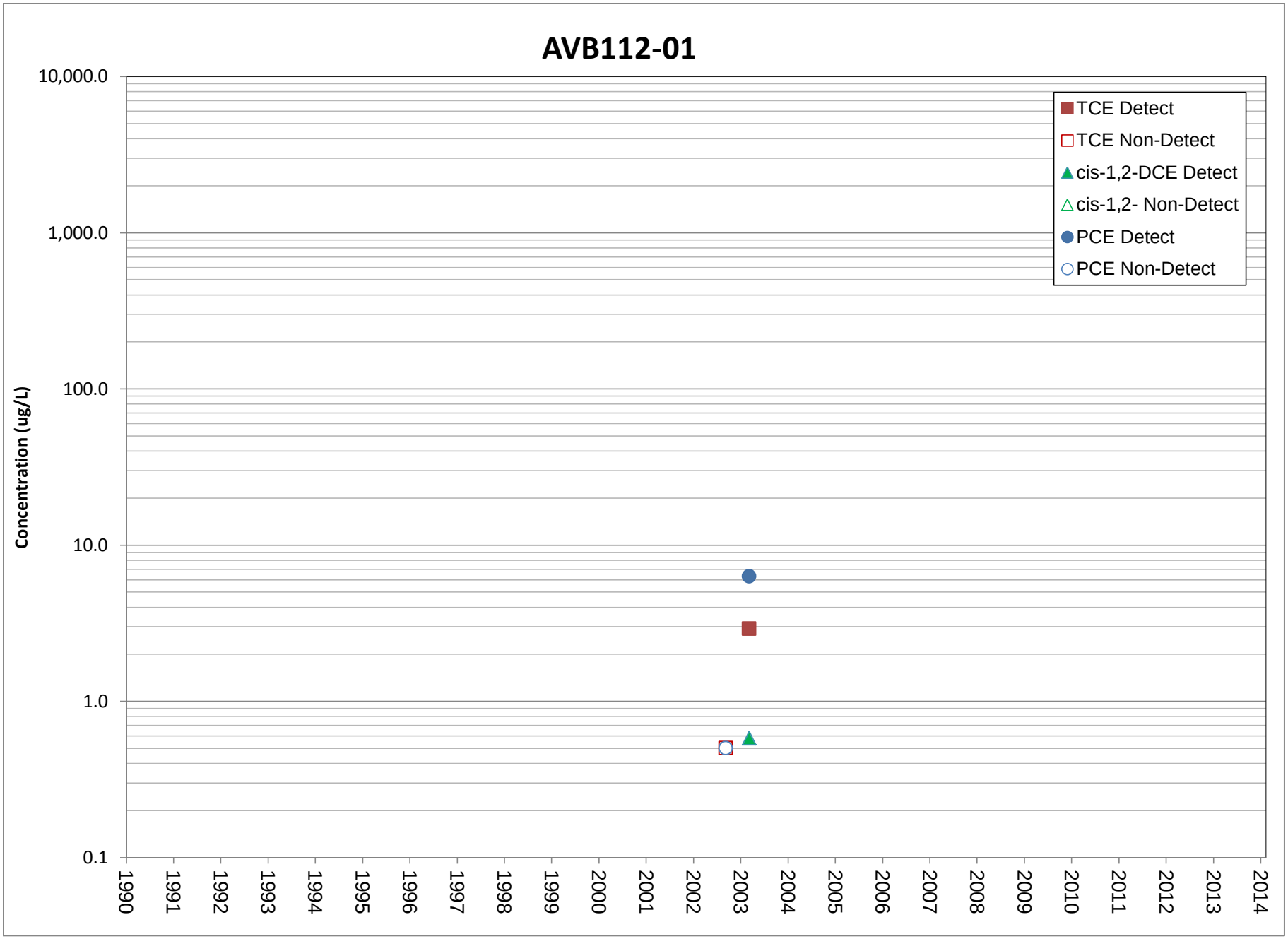
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB112-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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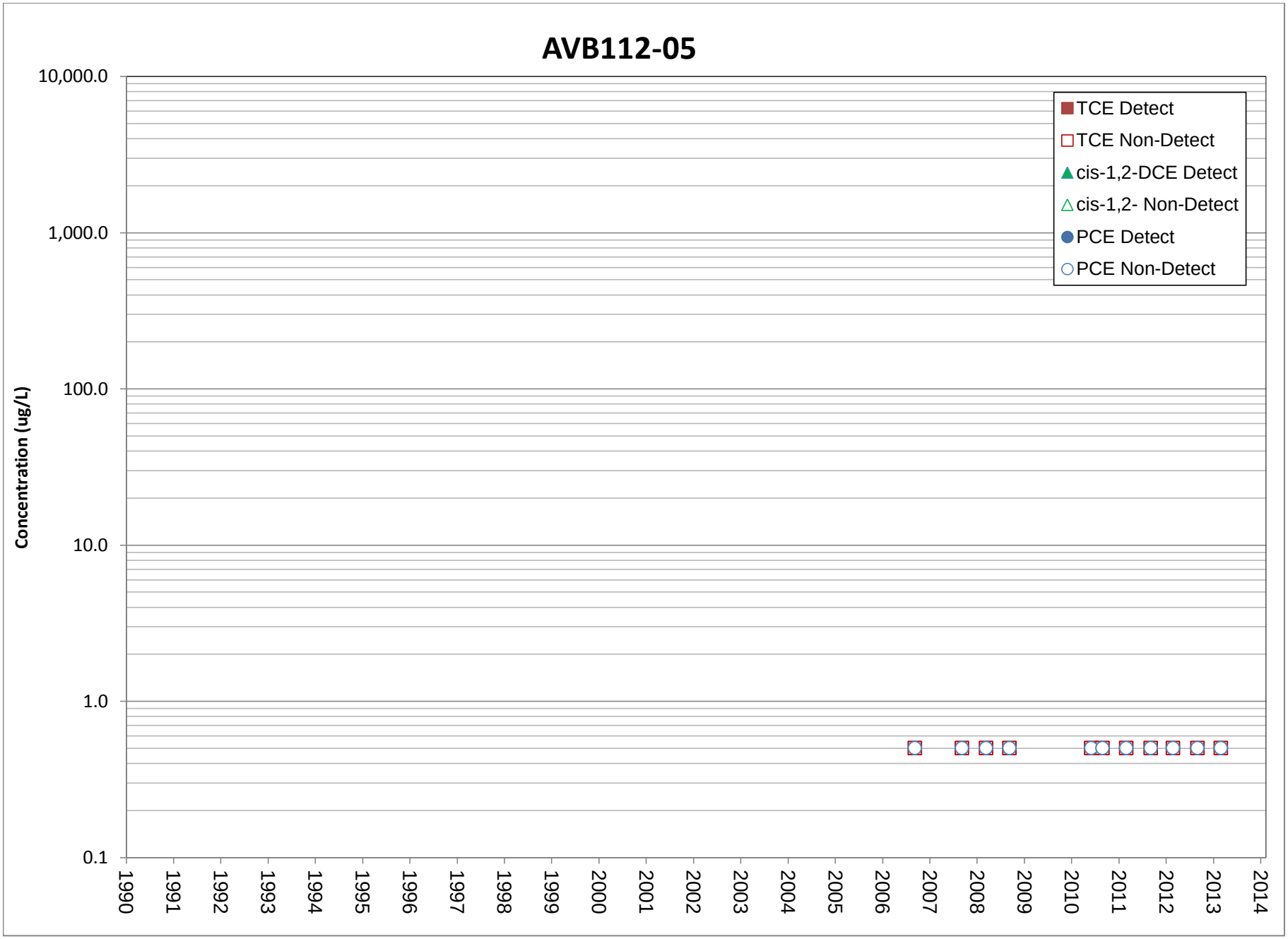
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB112-05
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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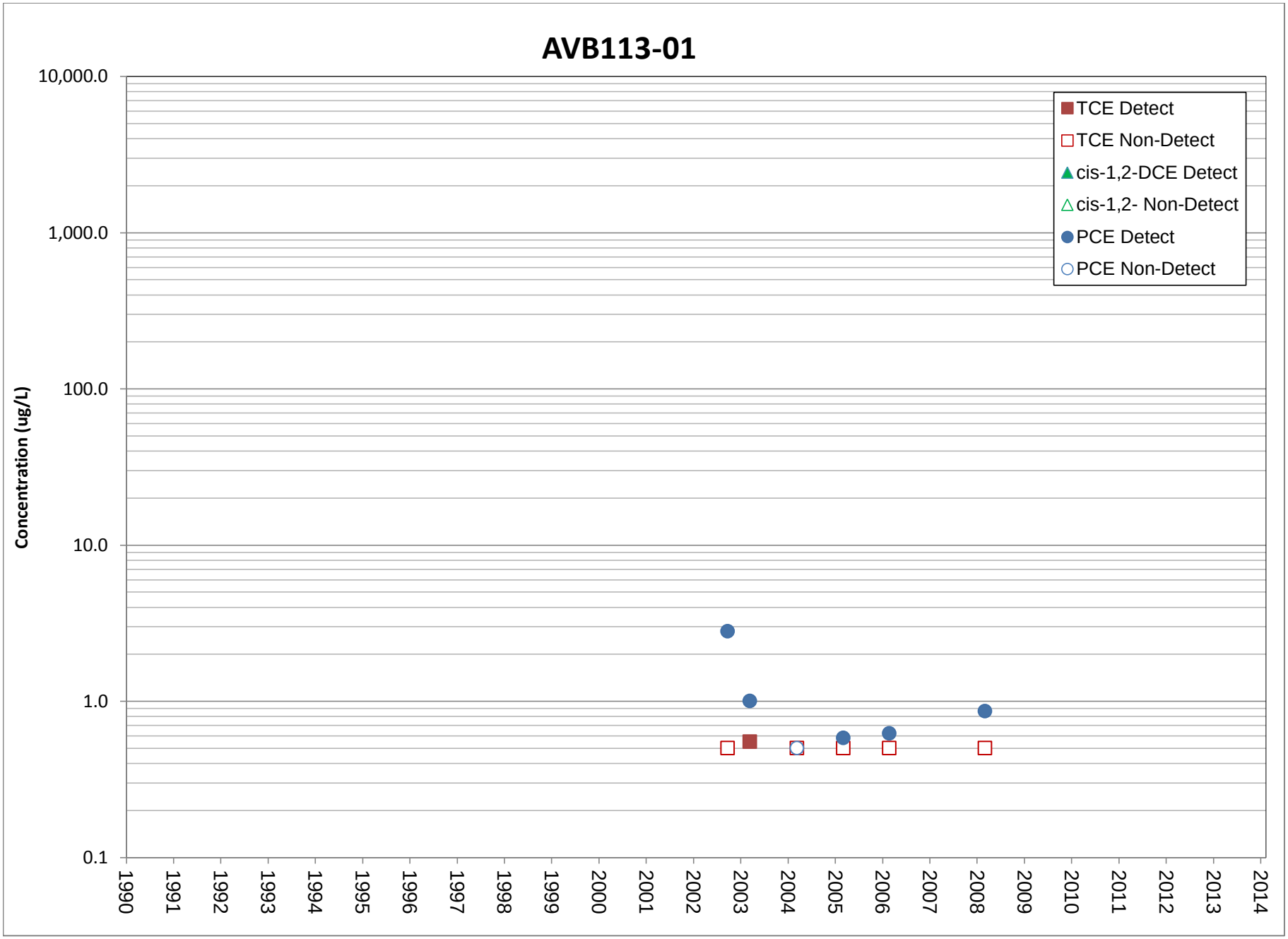
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB113-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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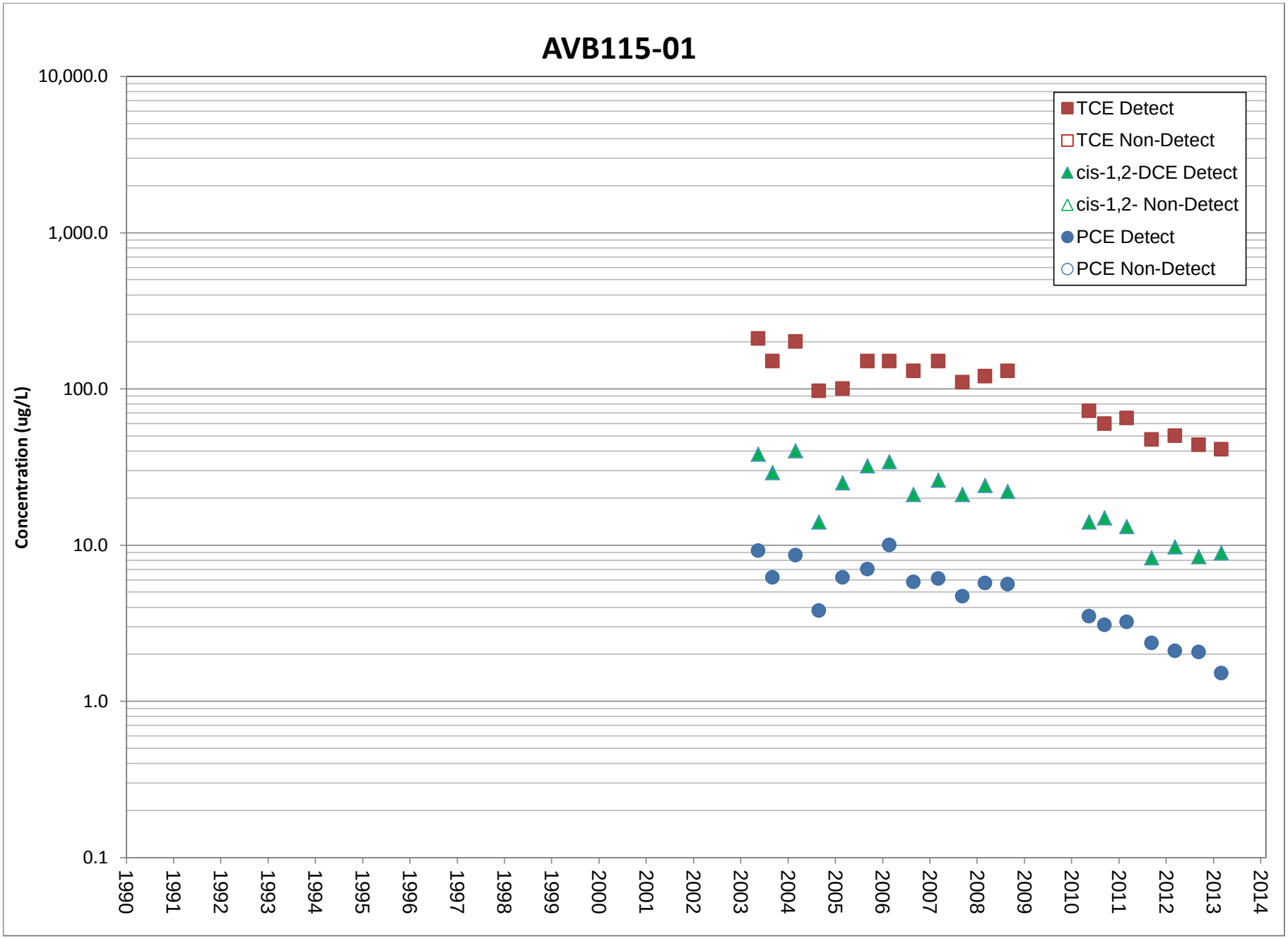
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB115-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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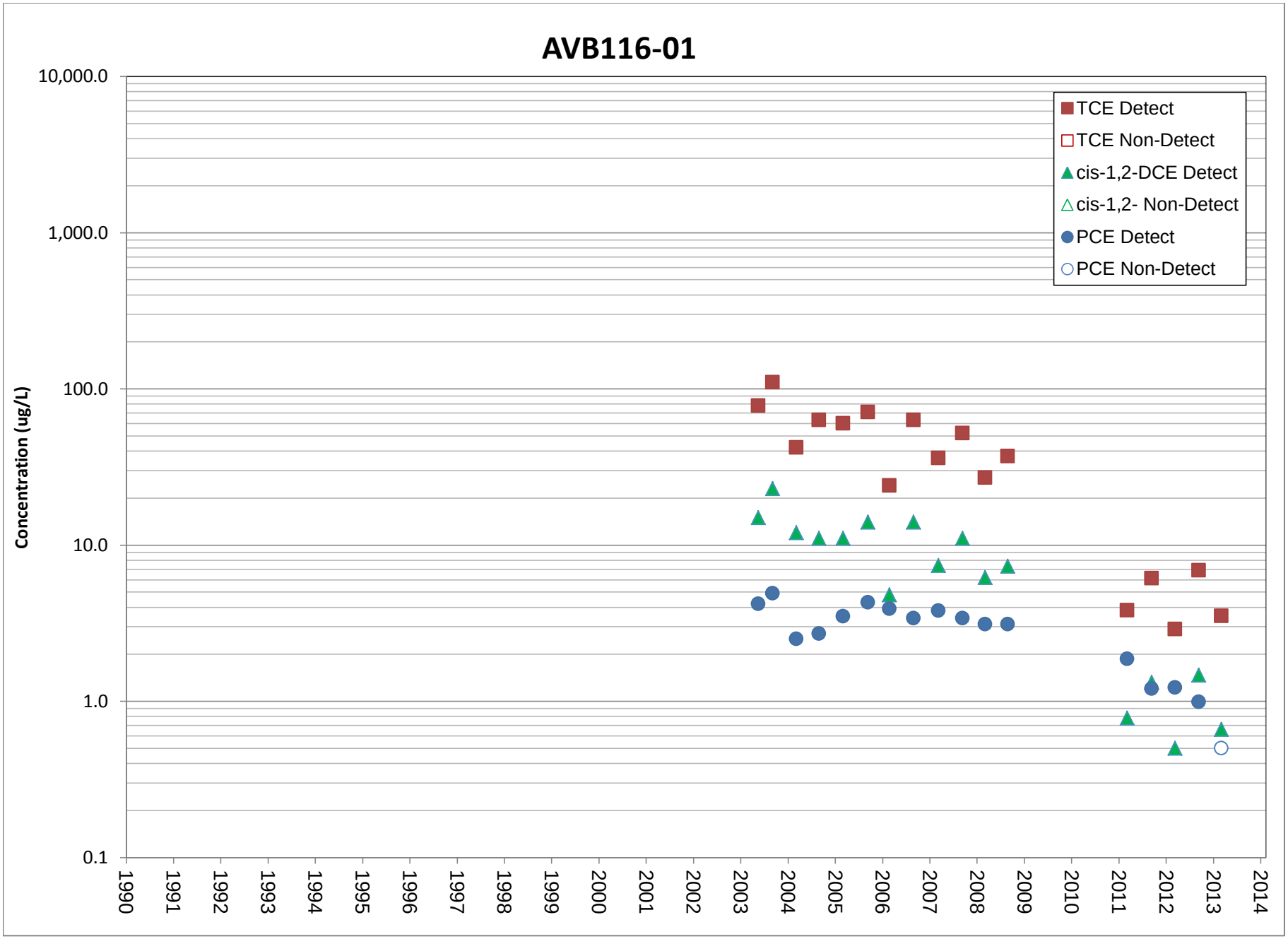
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB116-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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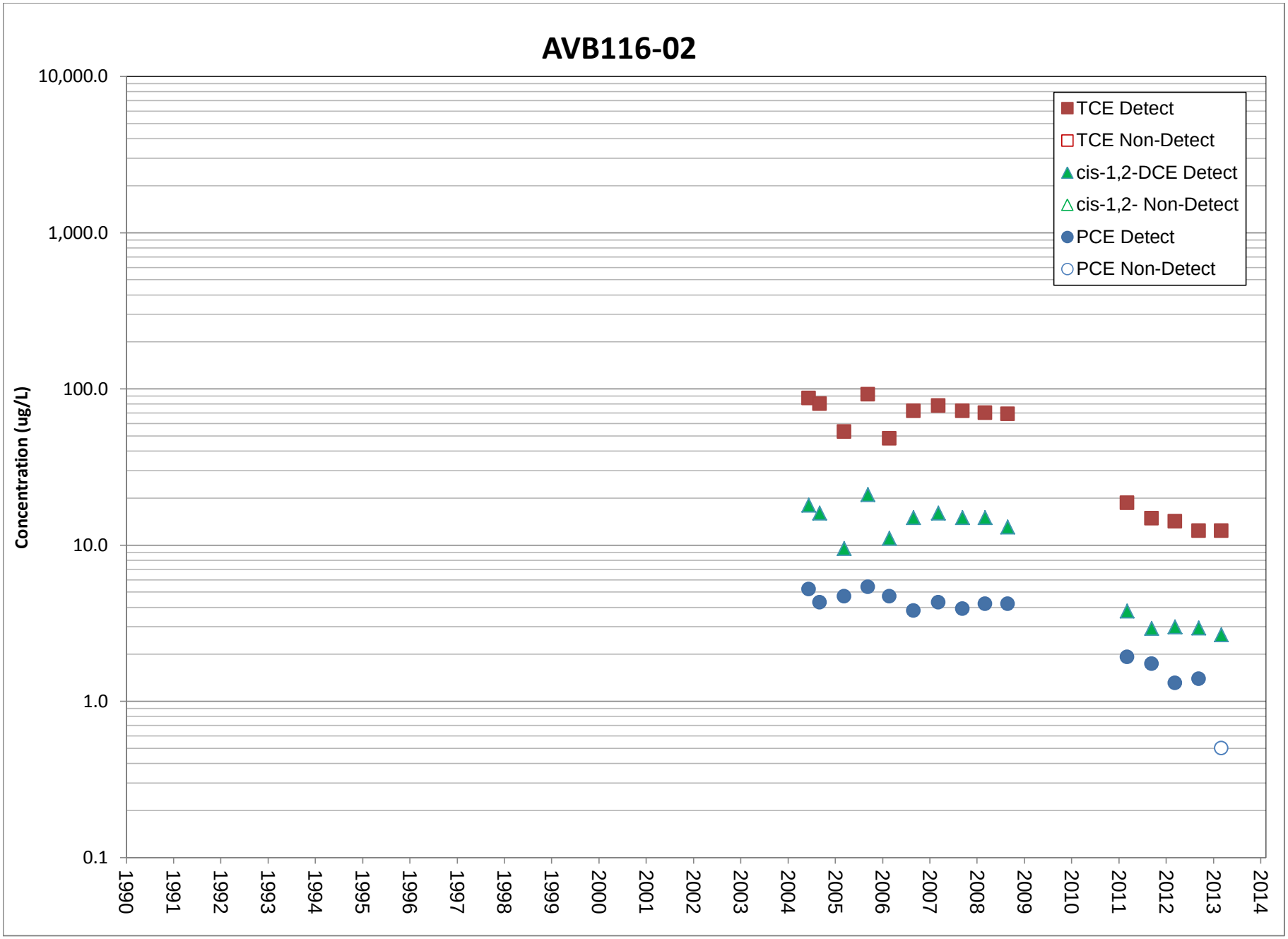
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB116-02
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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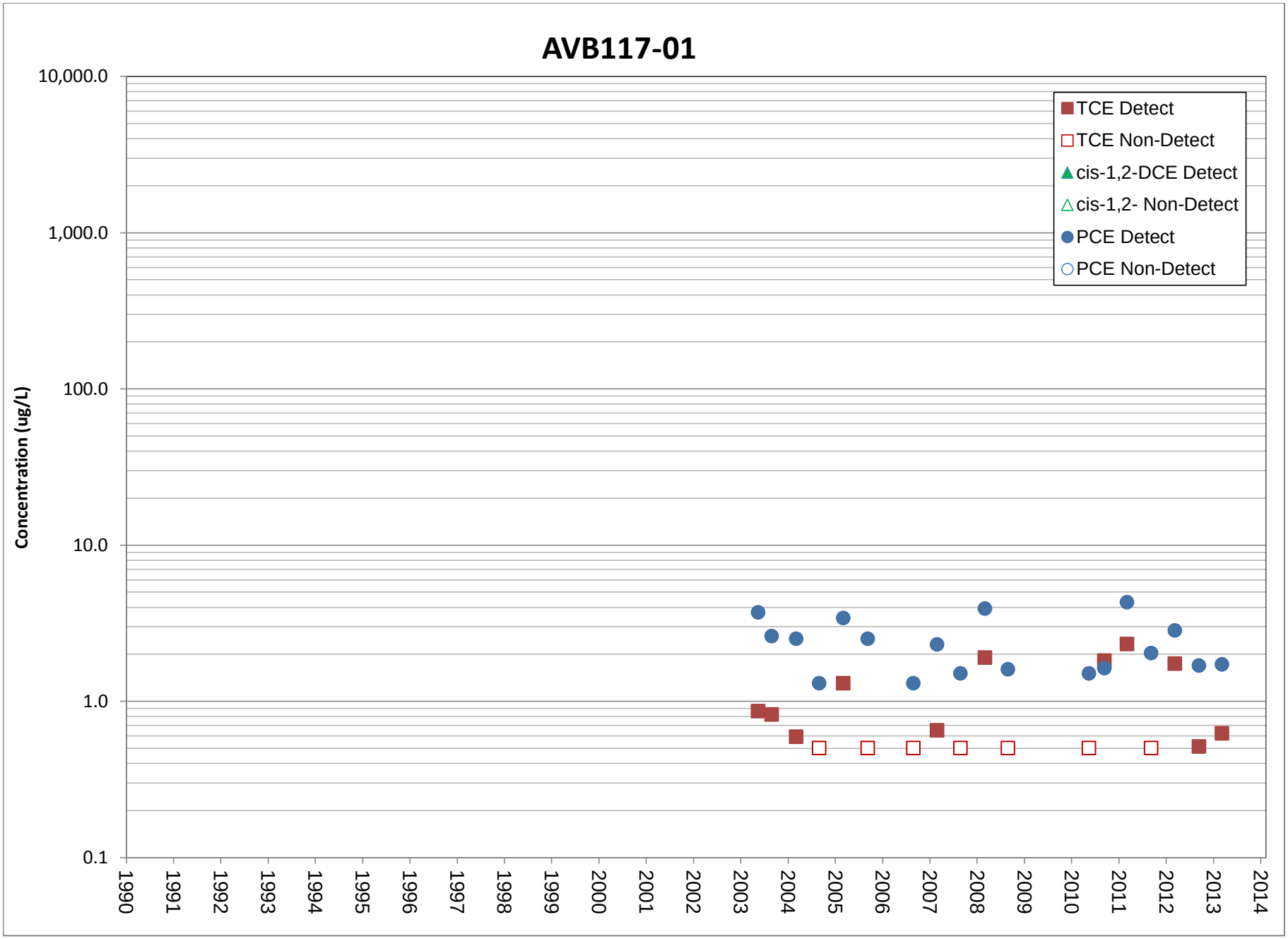
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB117-01
Concentration (ug/L)
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1.0
0.1
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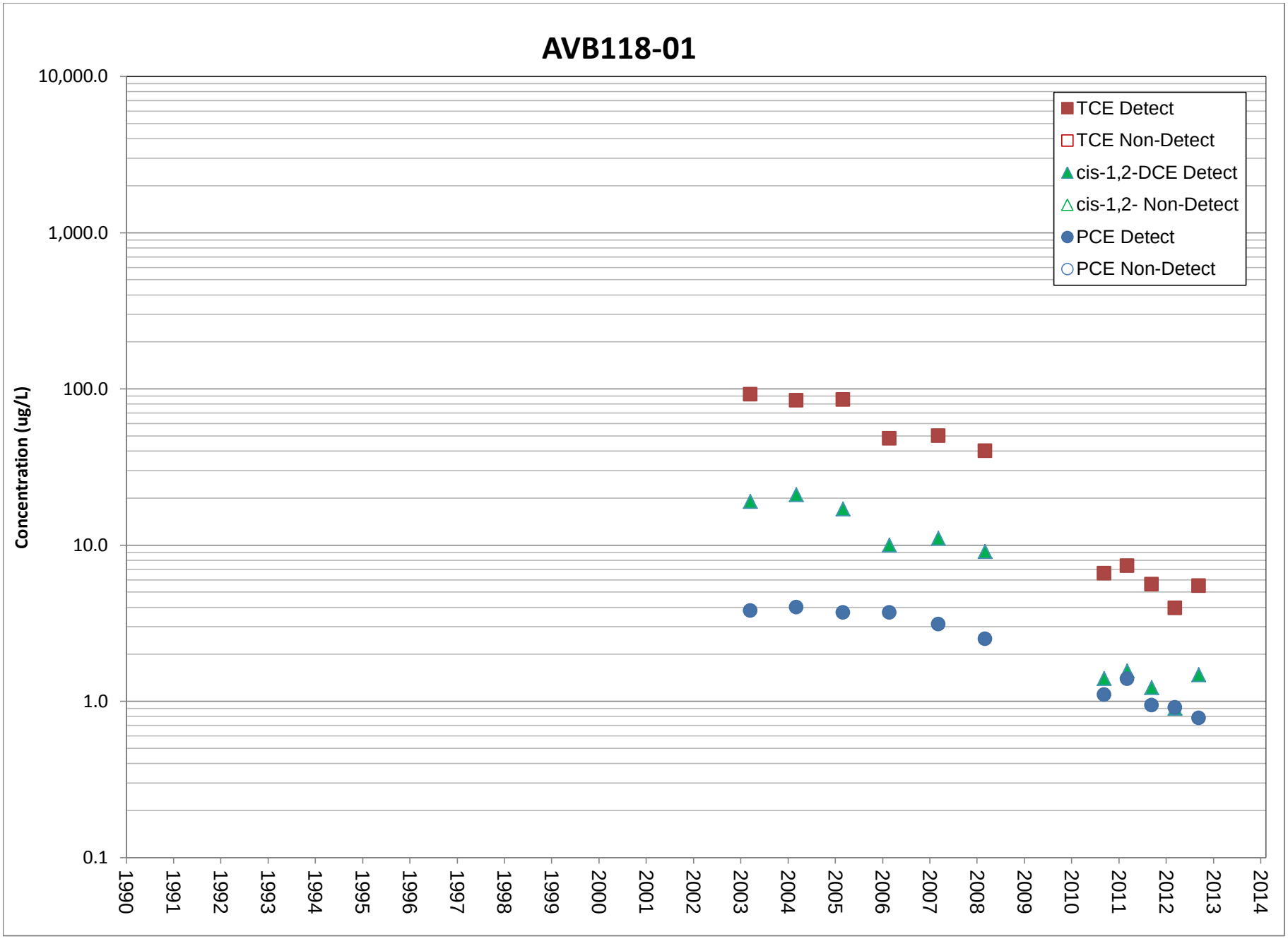
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB118-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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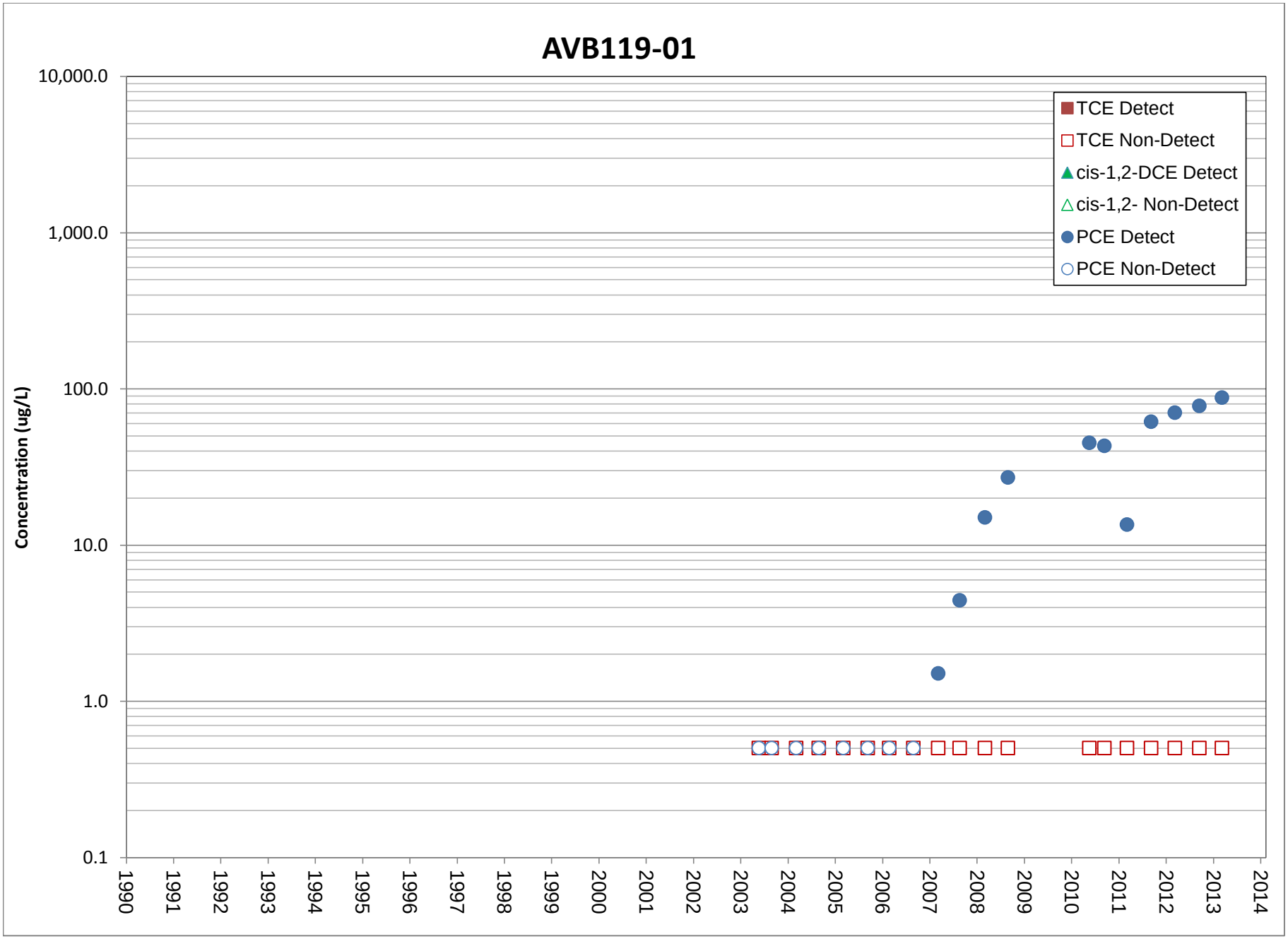
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB119-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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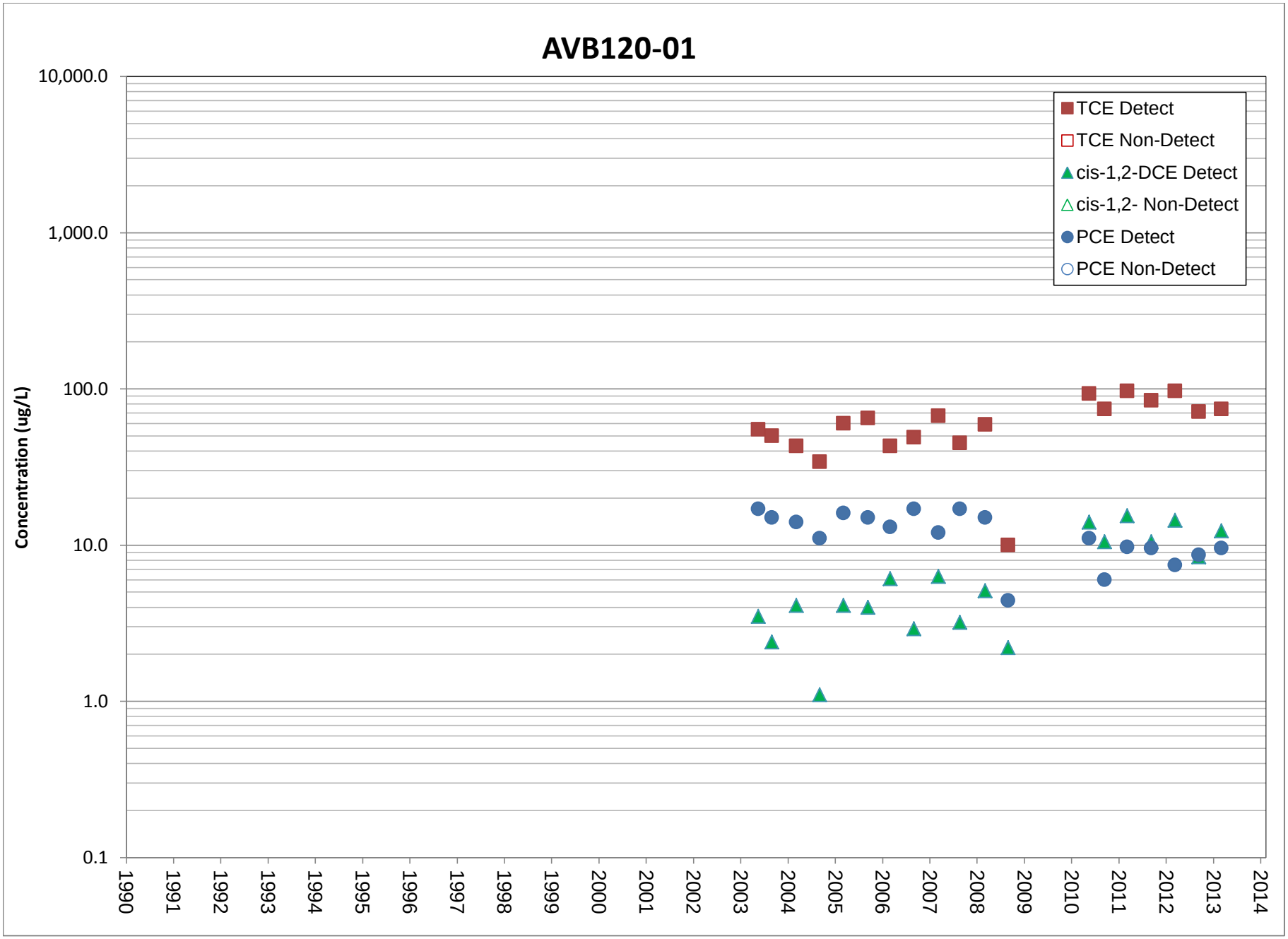
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB120-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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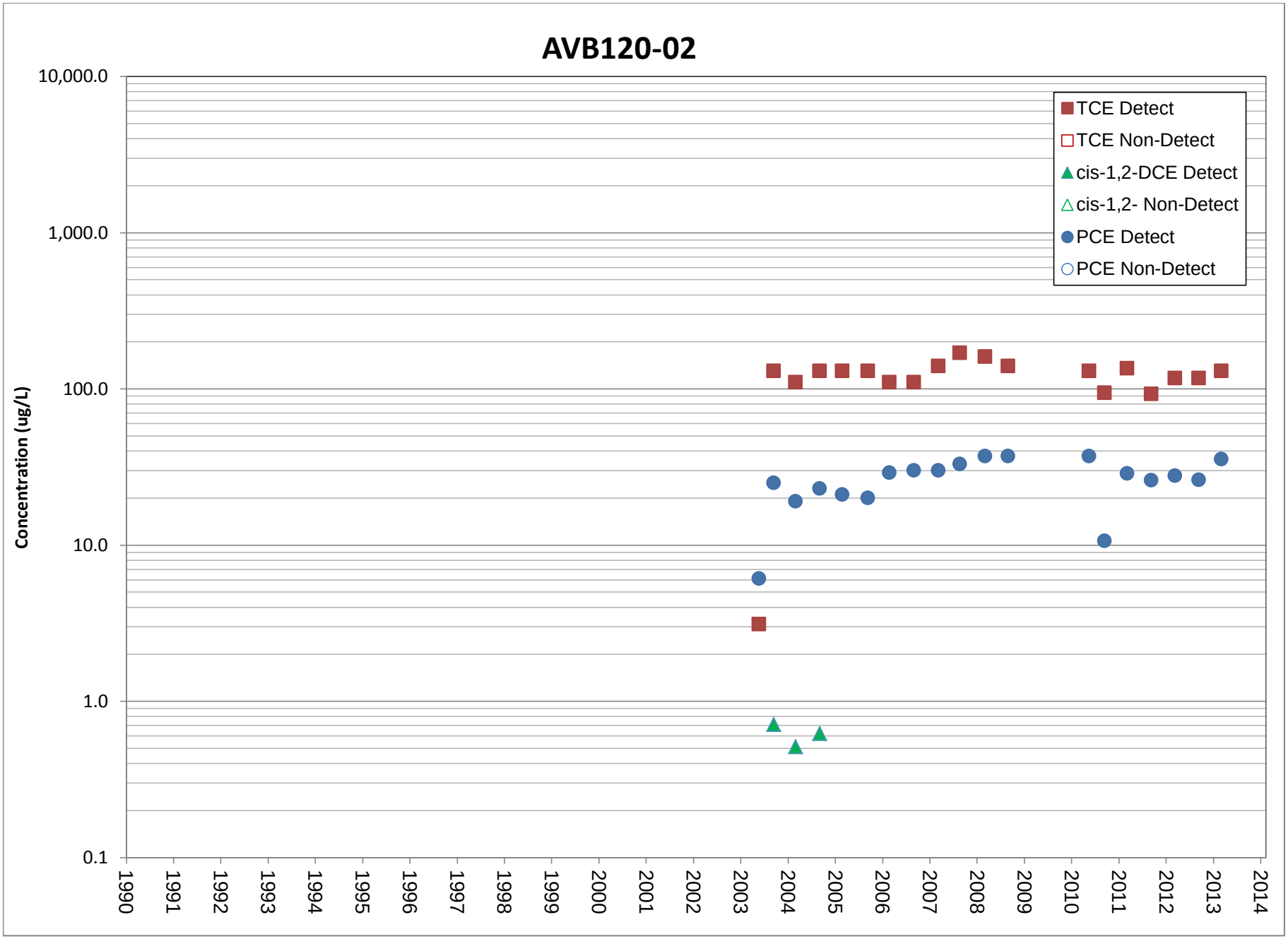
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB120-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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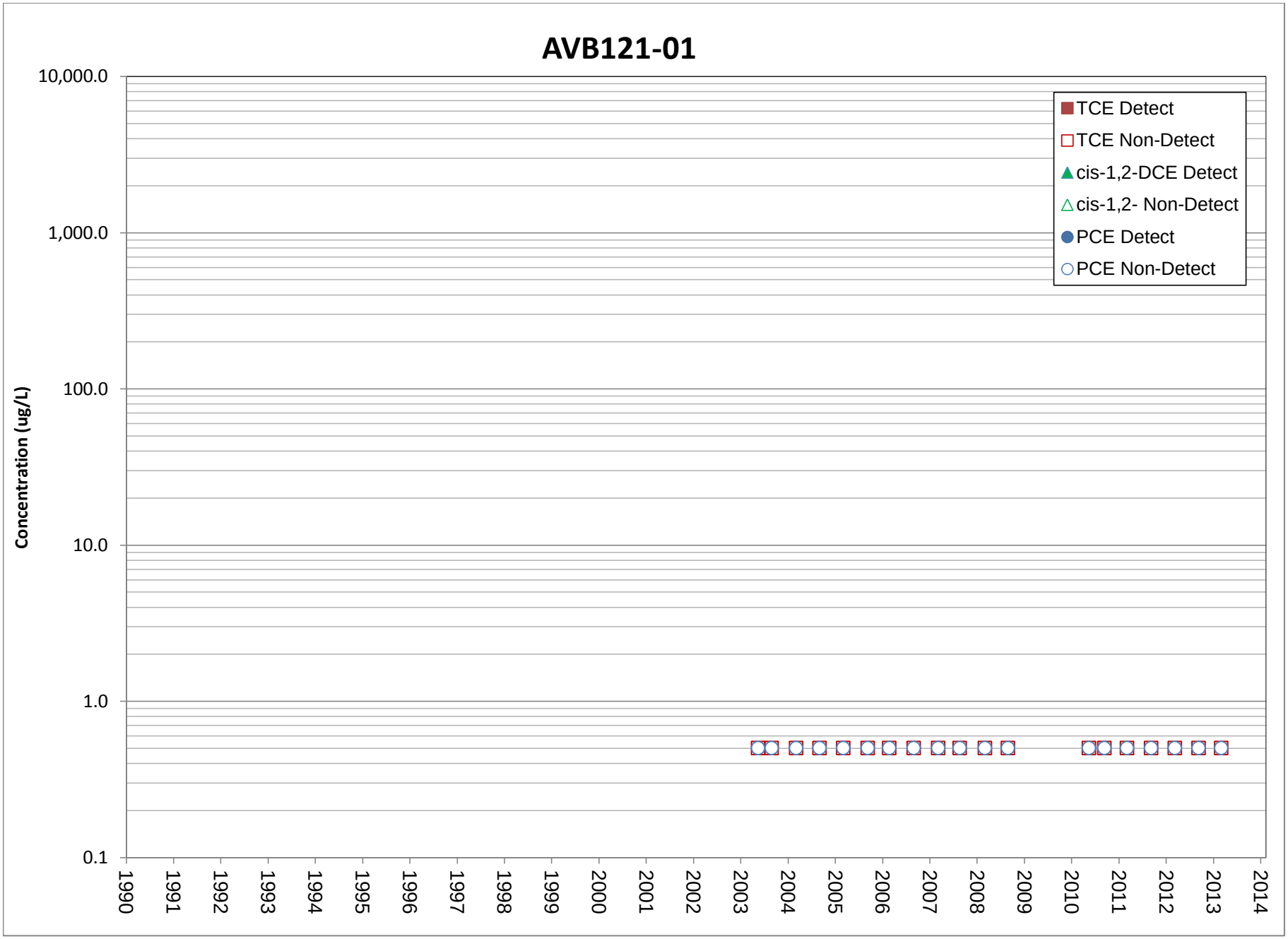
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB121-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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0.1
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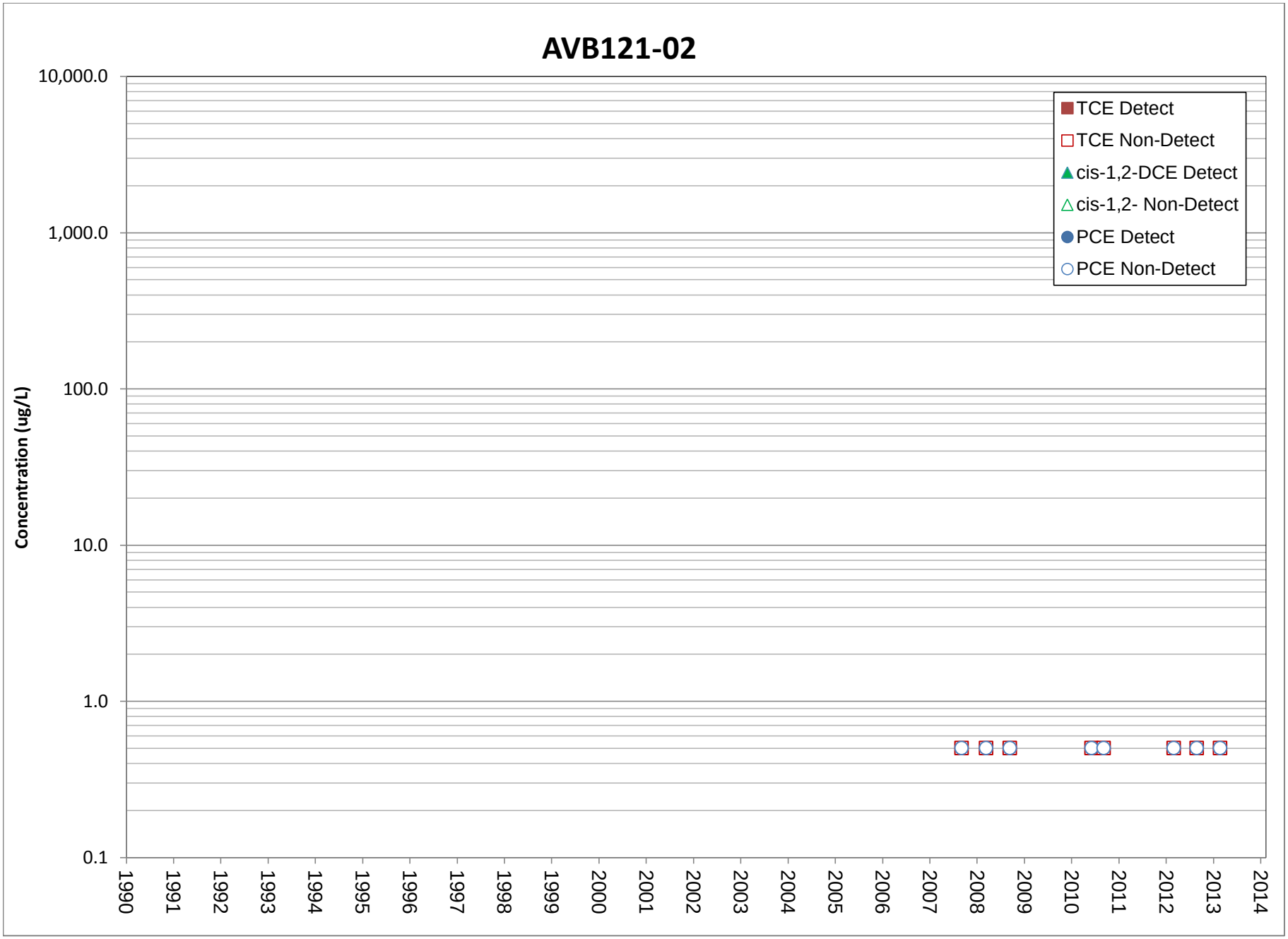
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB121-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
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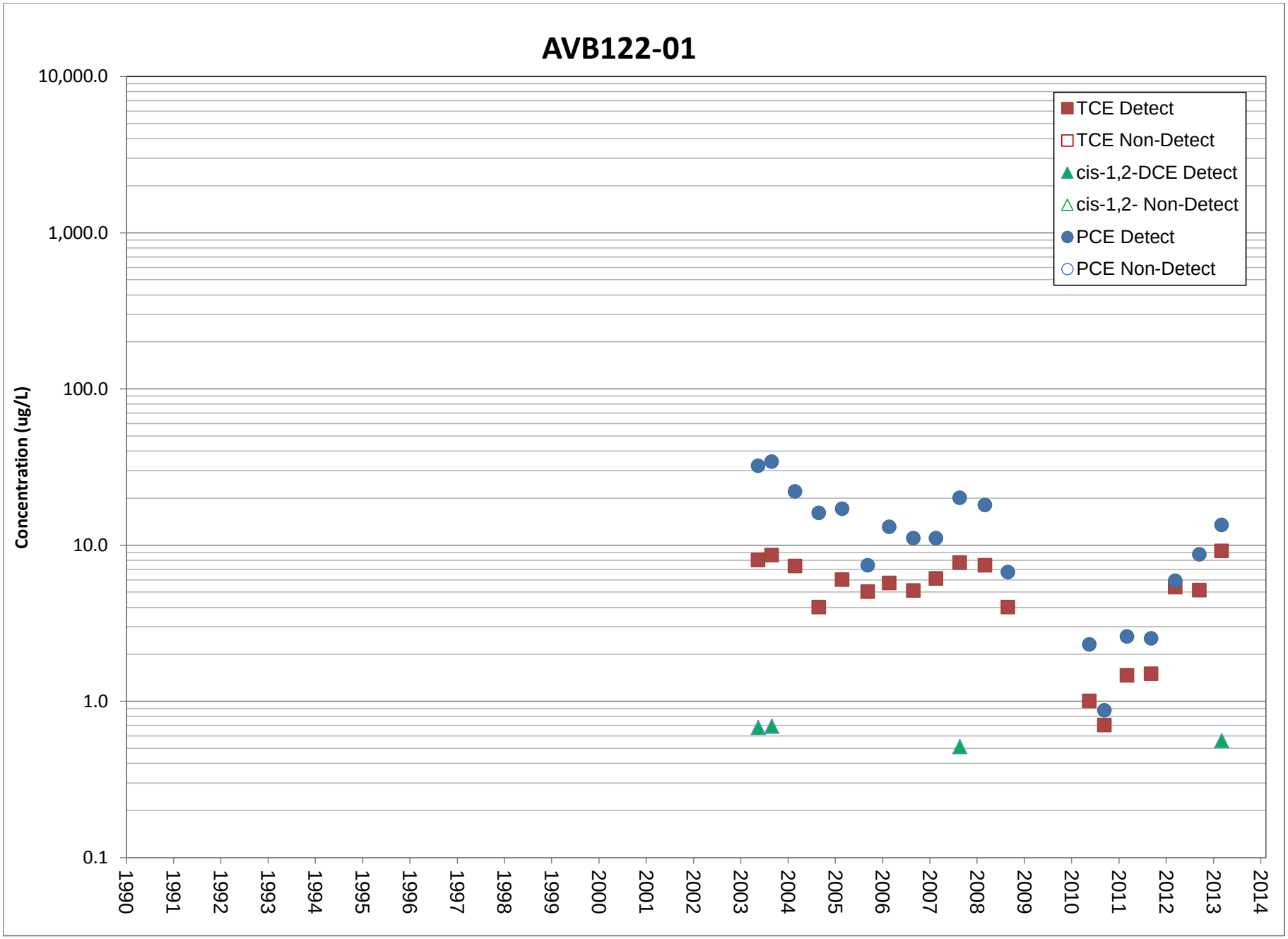
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB122-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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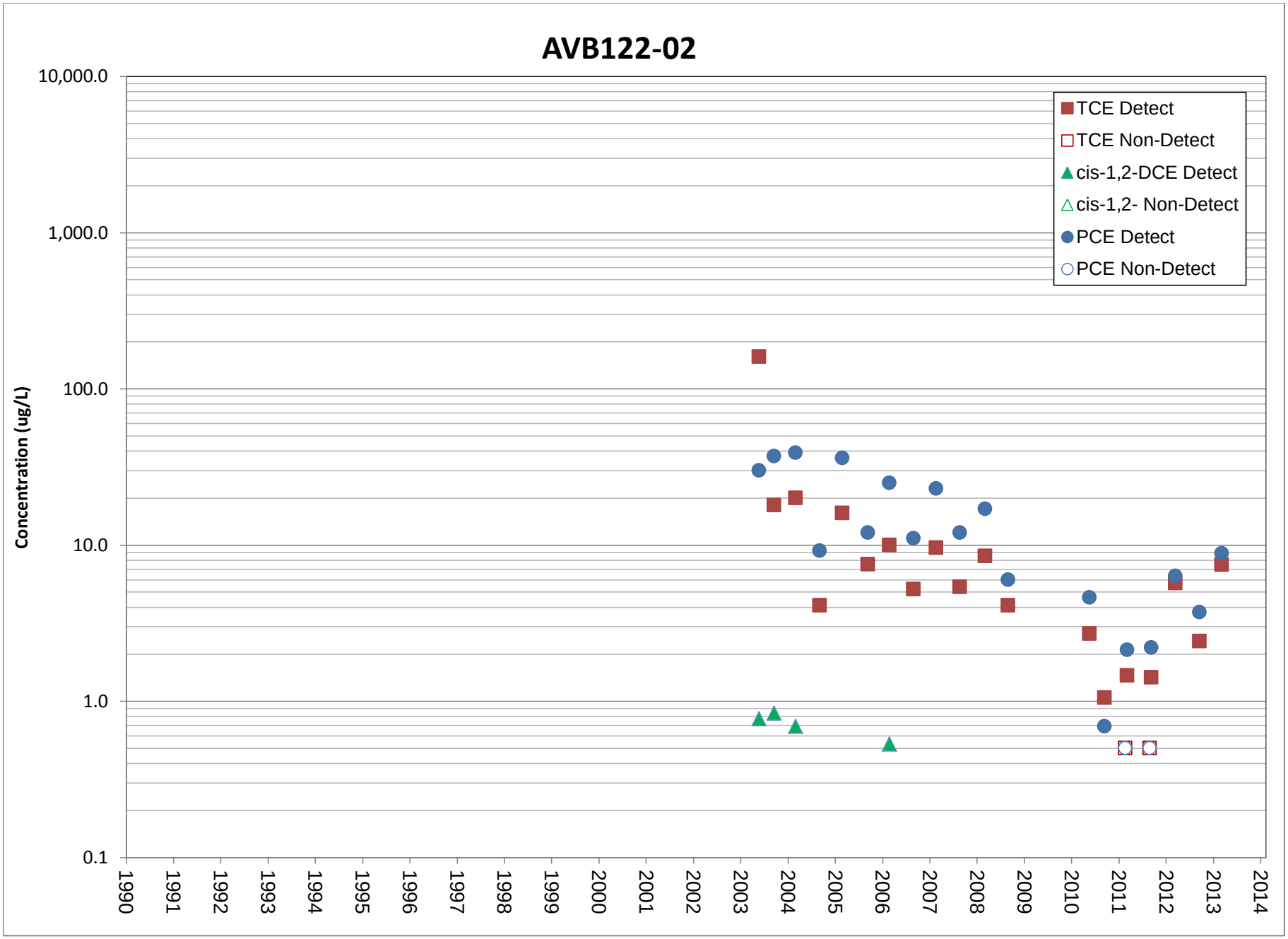
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB122-02
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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0.1
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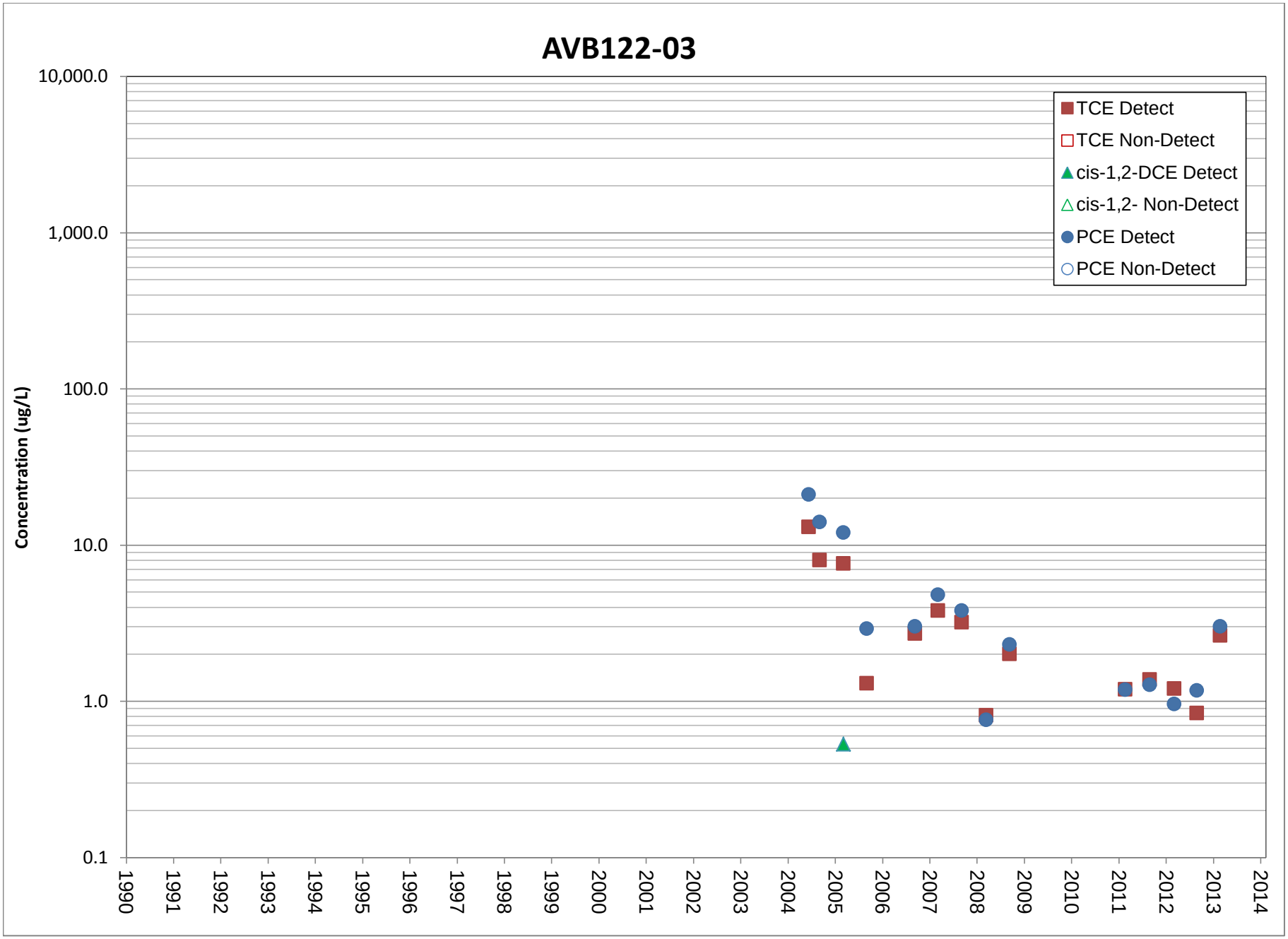
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB122-03
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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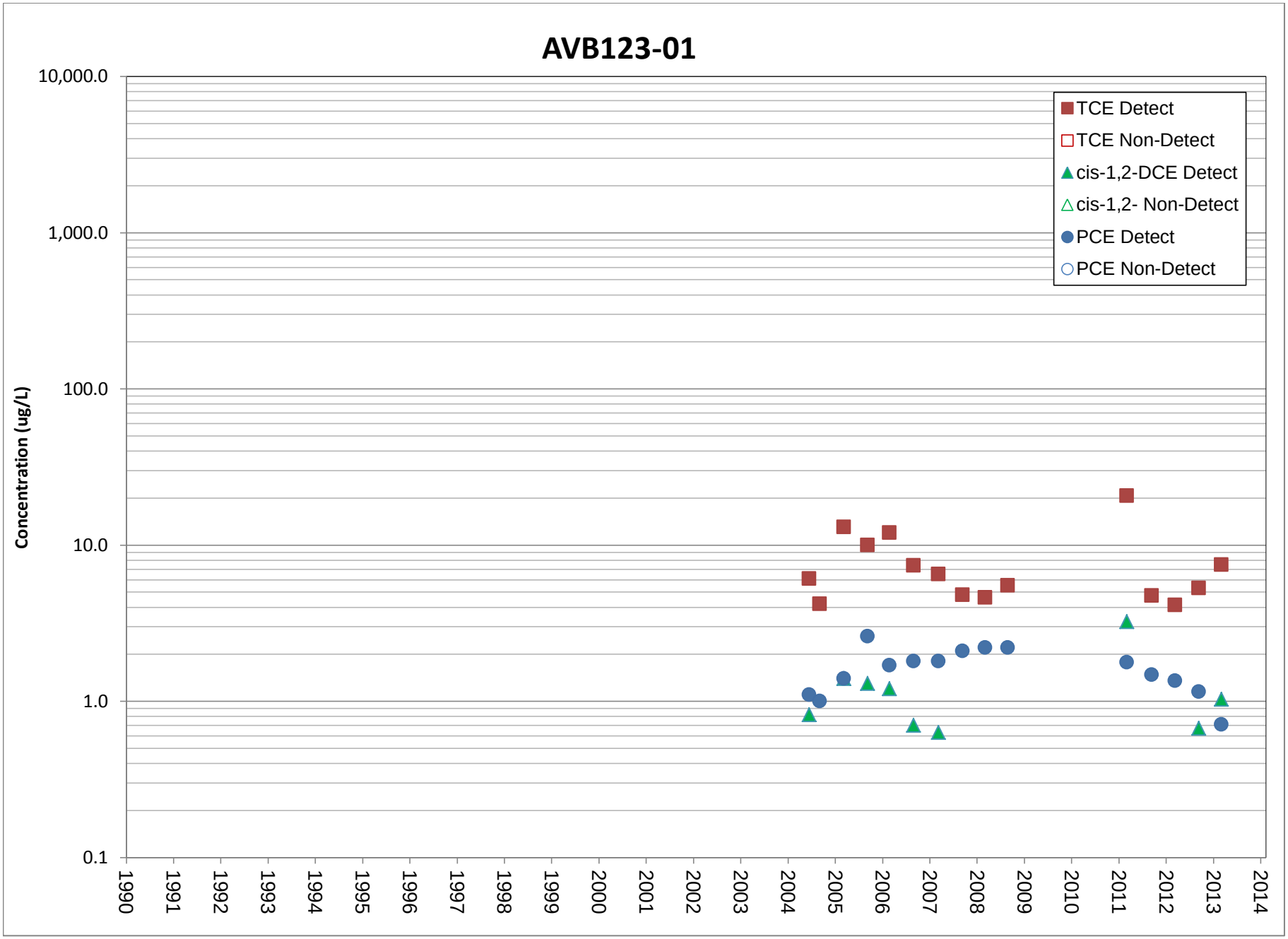
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB123-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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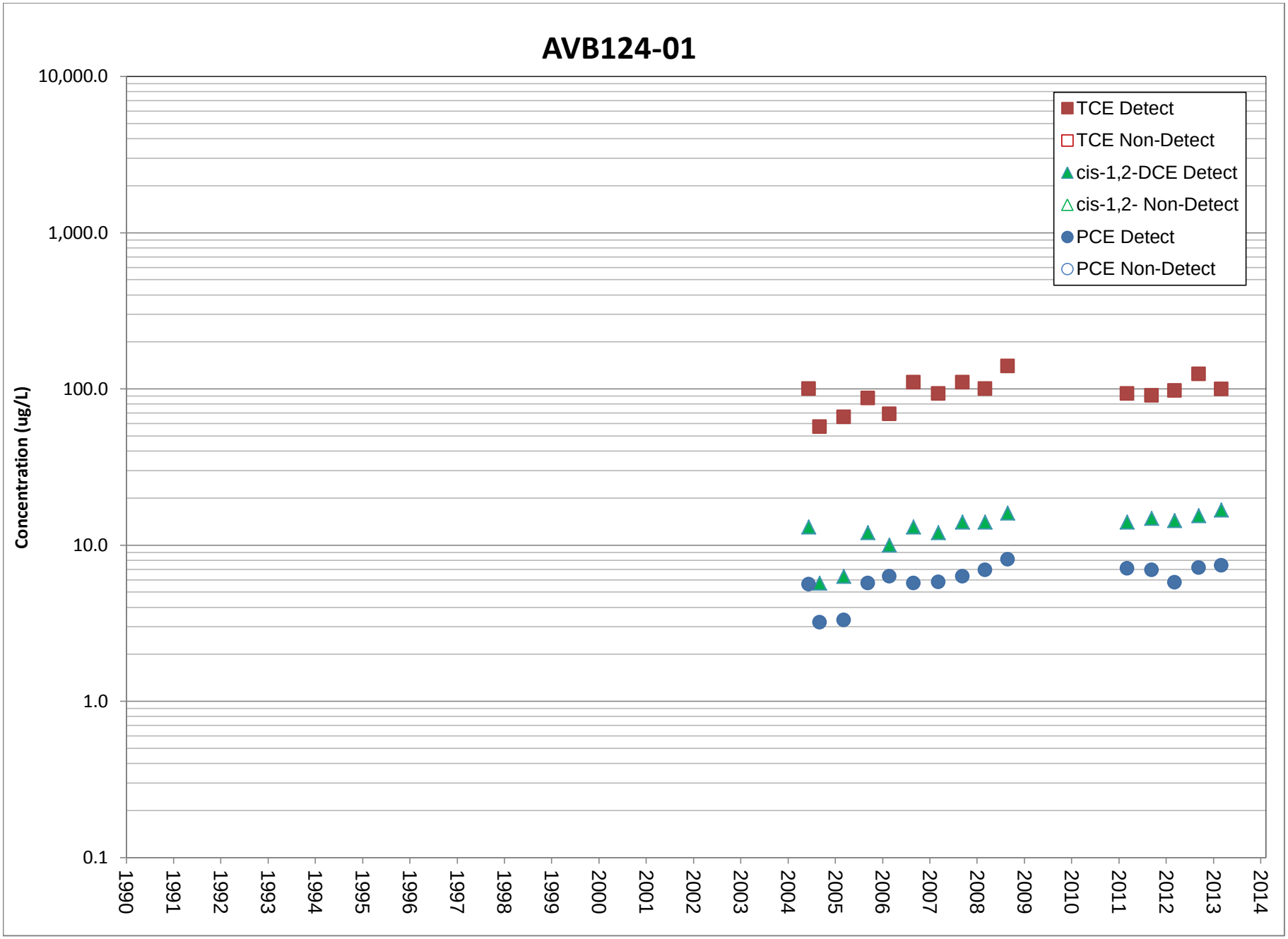
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB124-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
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0.1
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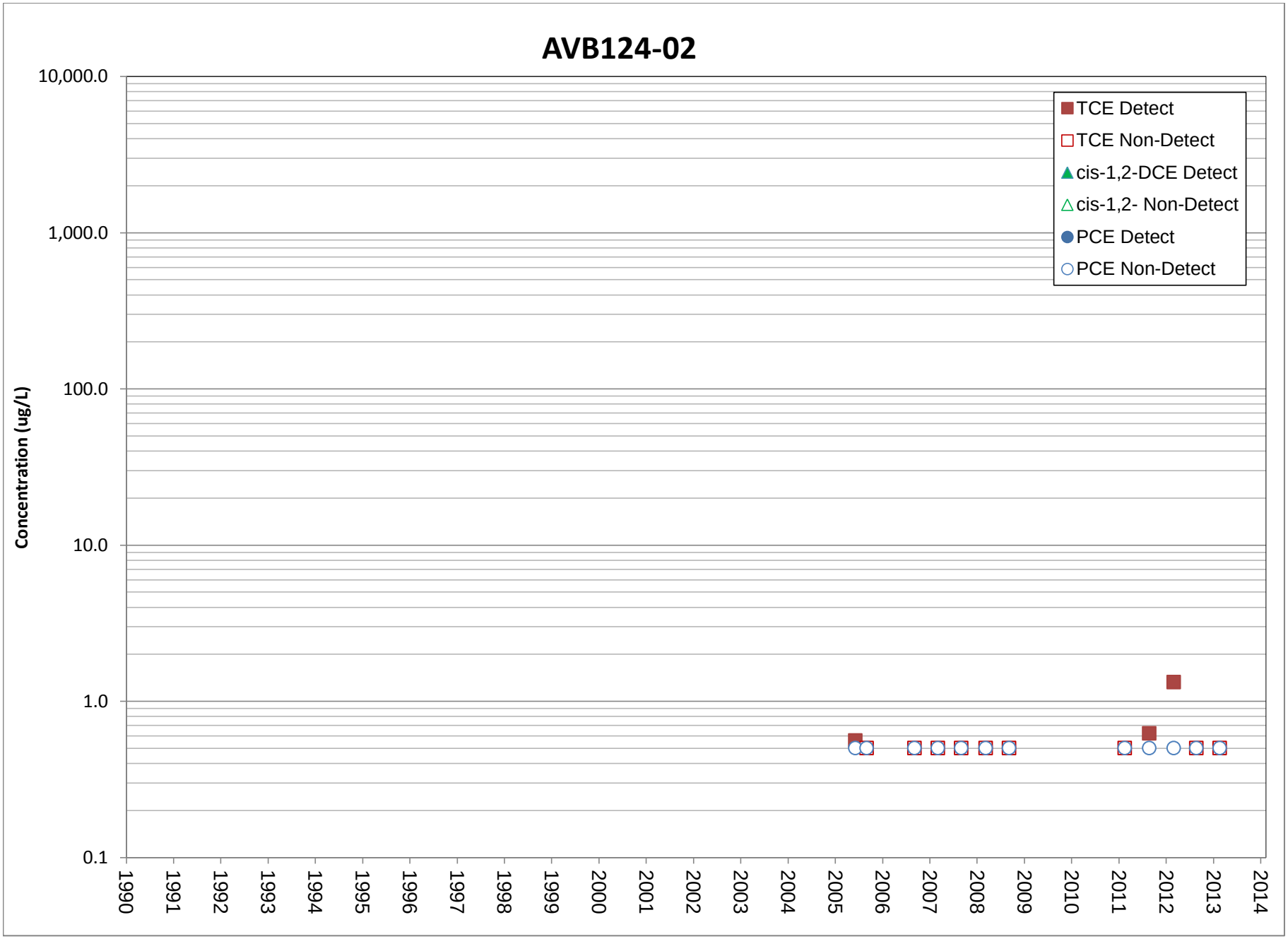
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB124-02
Concentration (ug/L)
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1,000.0
100.0
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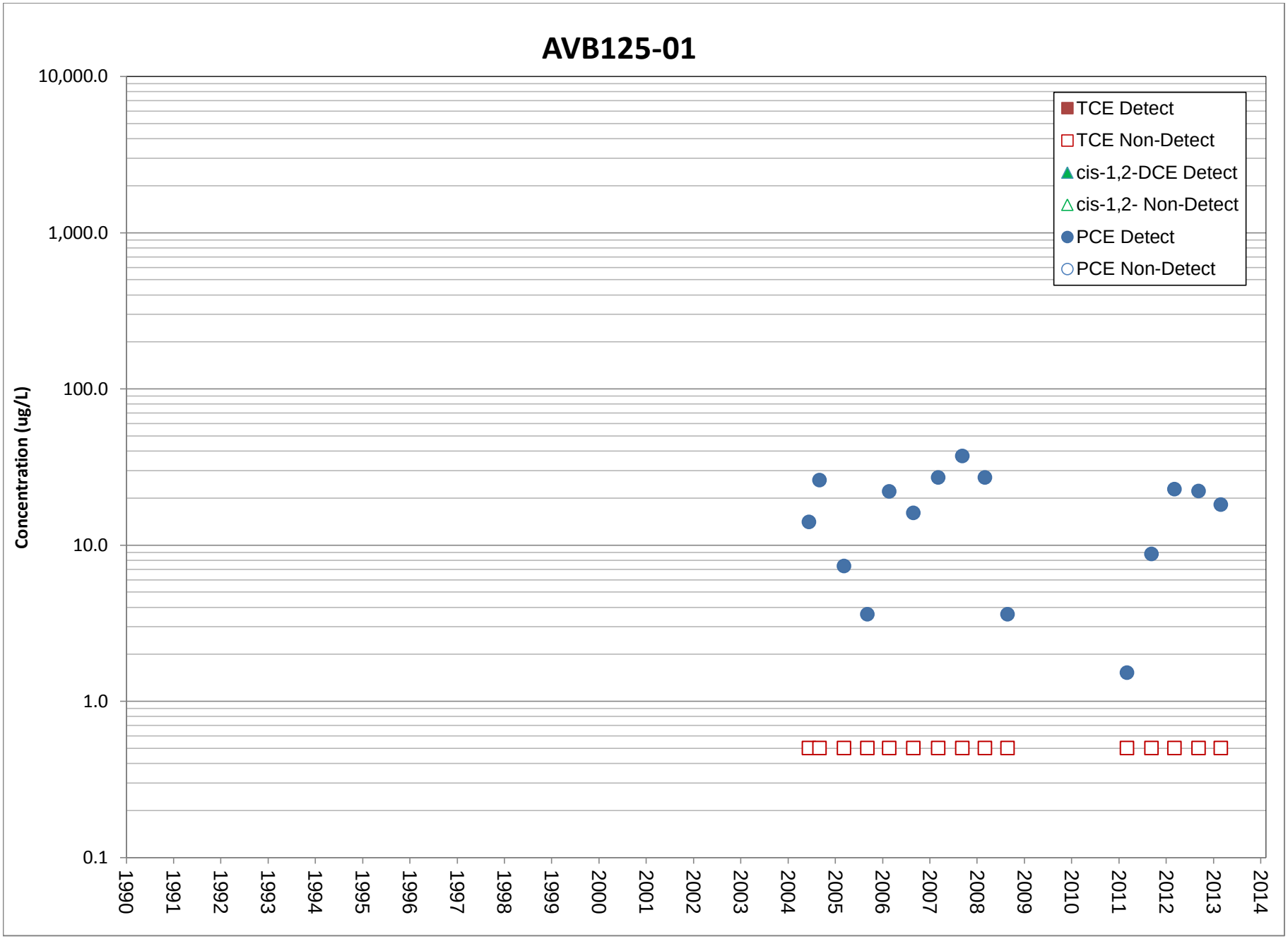
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB125-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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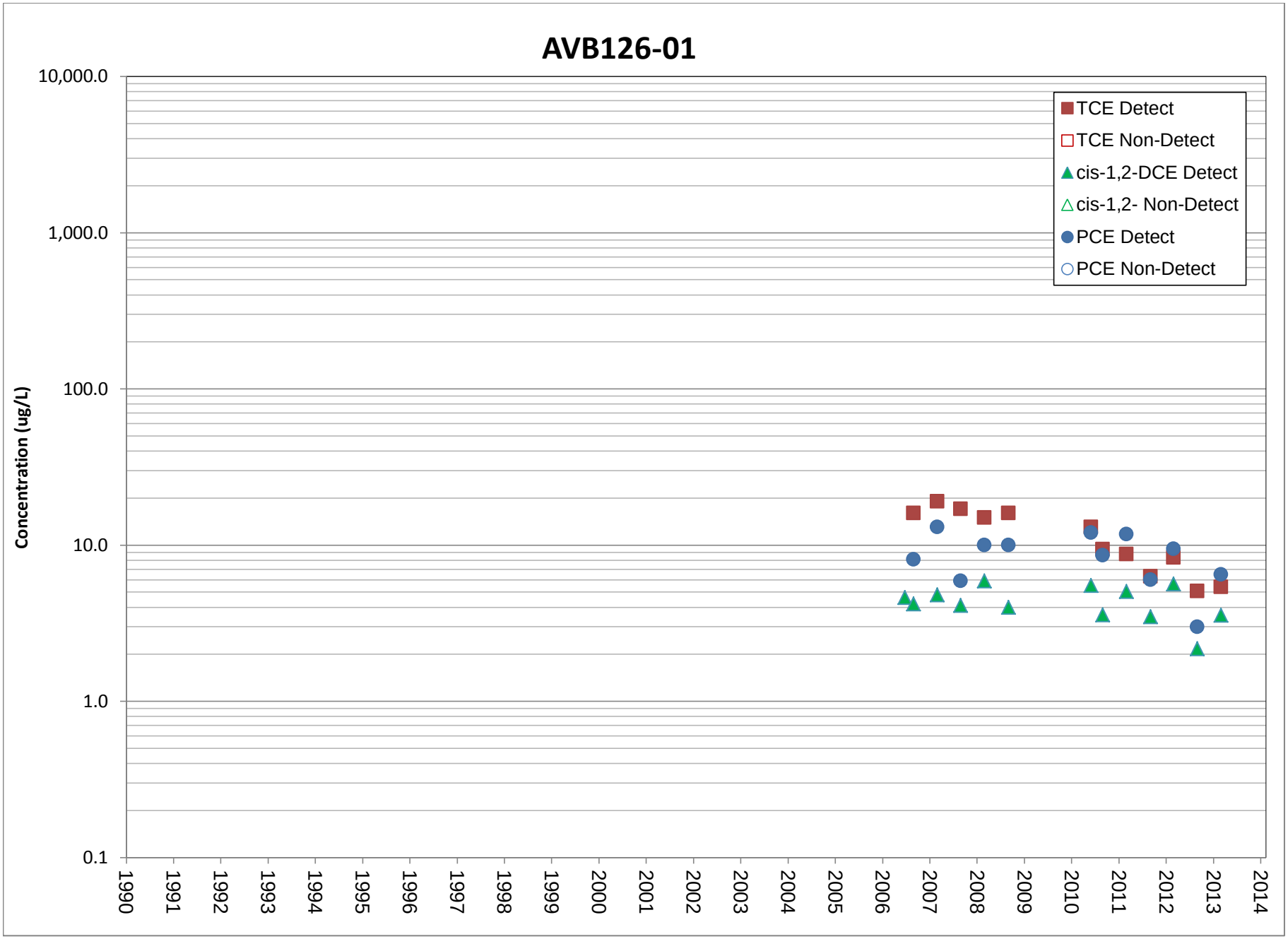
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB126-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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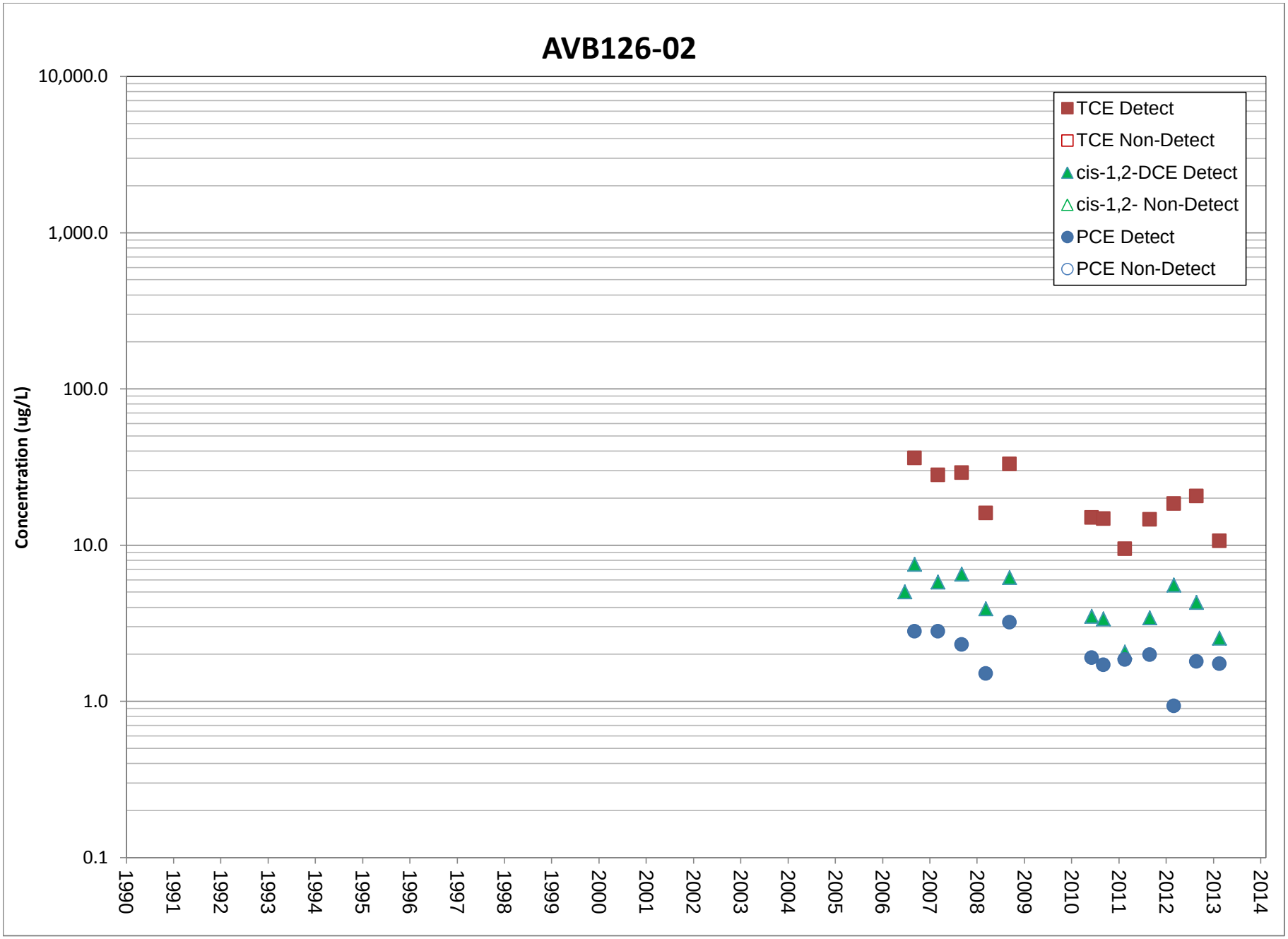
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB126-02
Concentration (ug/L)
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1,000.0
100.0
10.0
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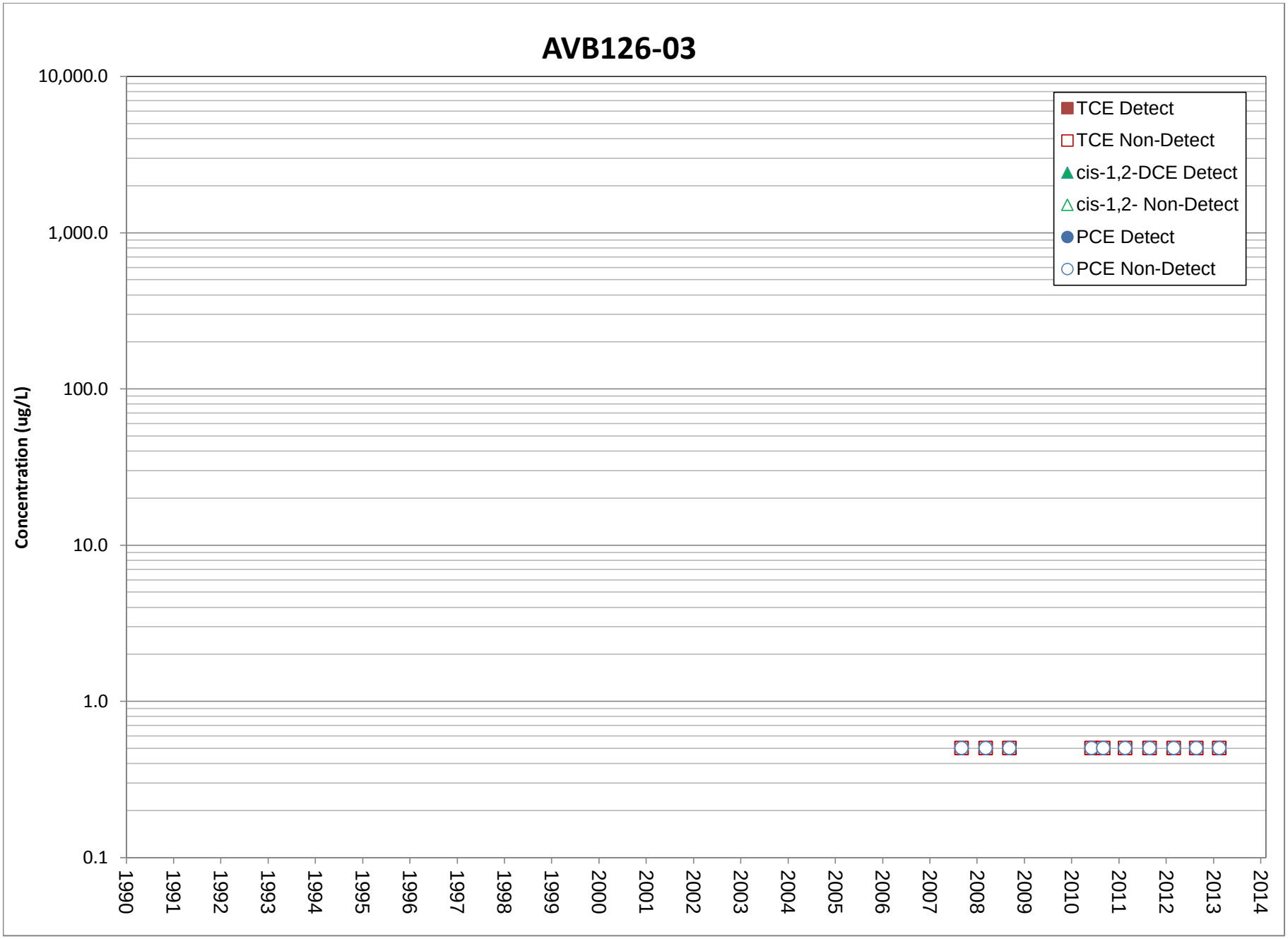
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB126-03
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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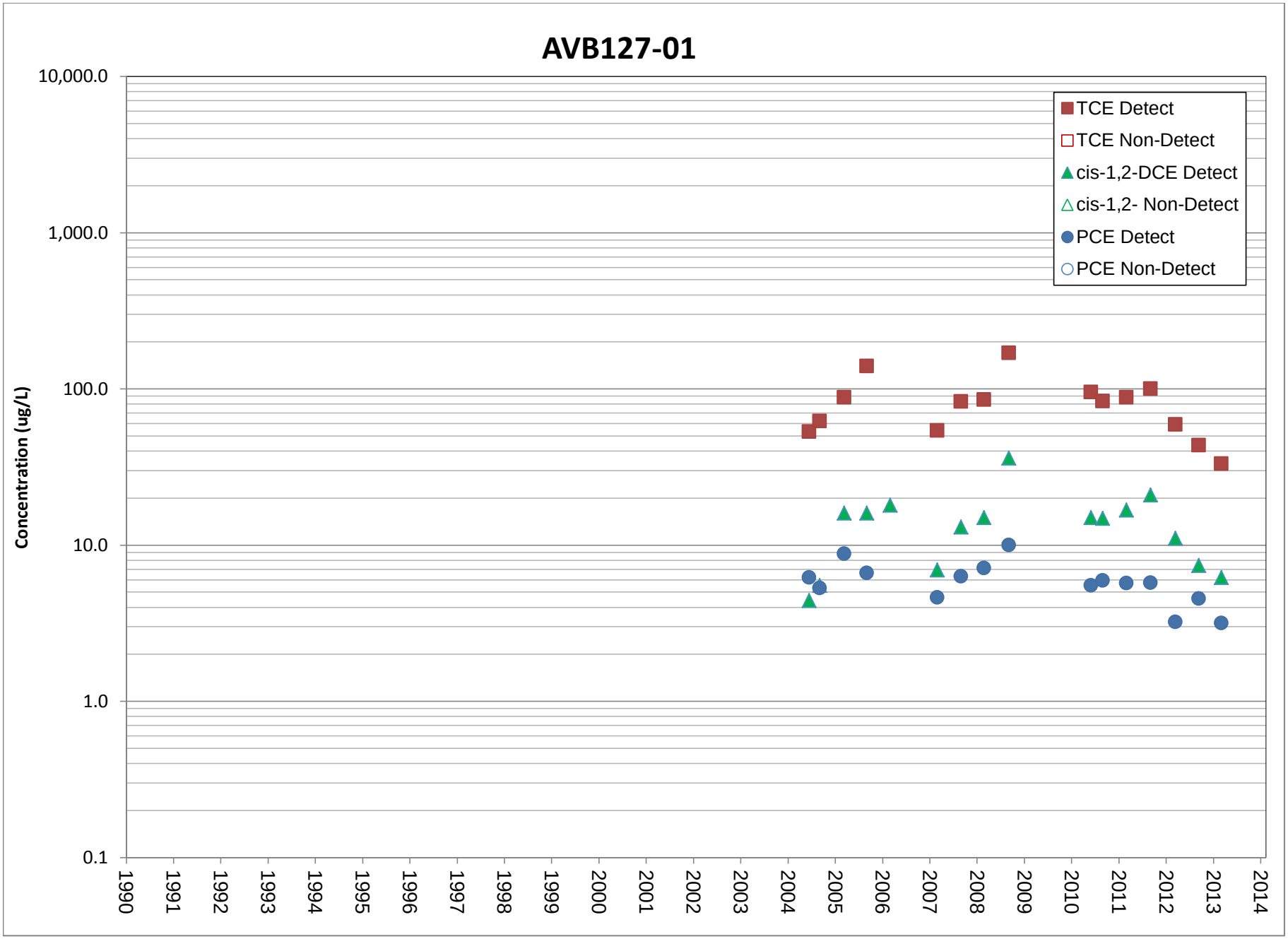
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB127-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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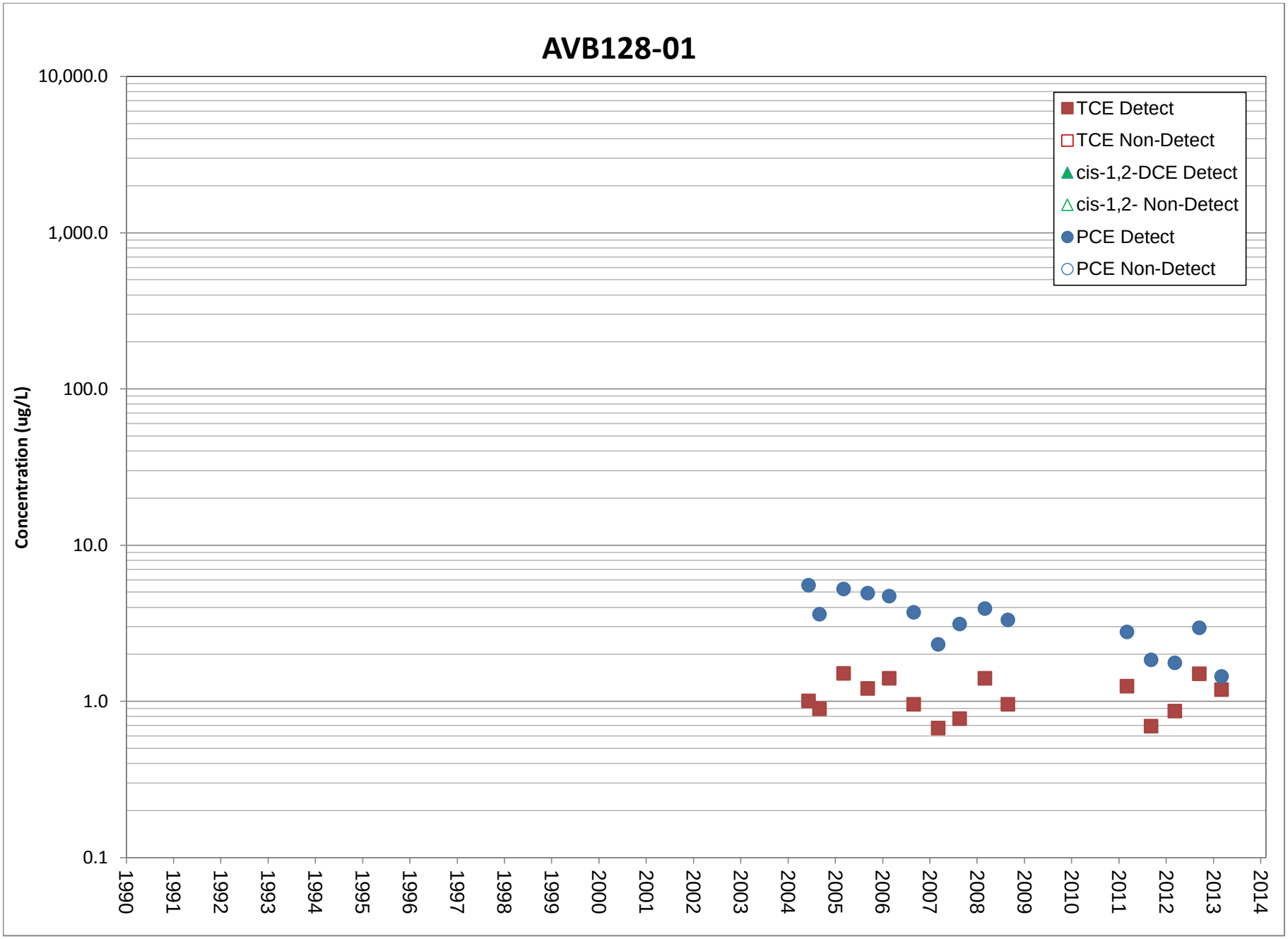
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB128-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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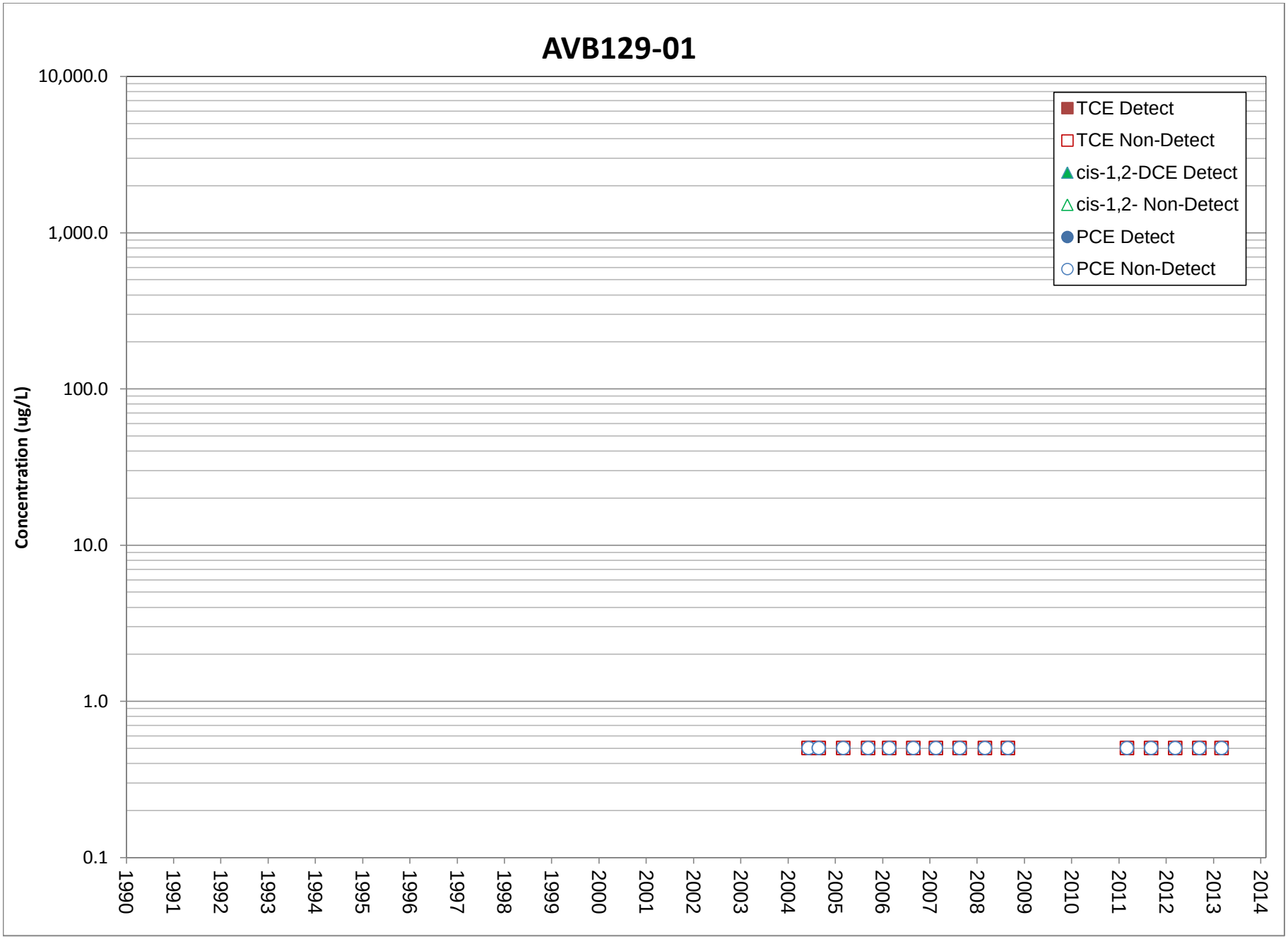
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB129-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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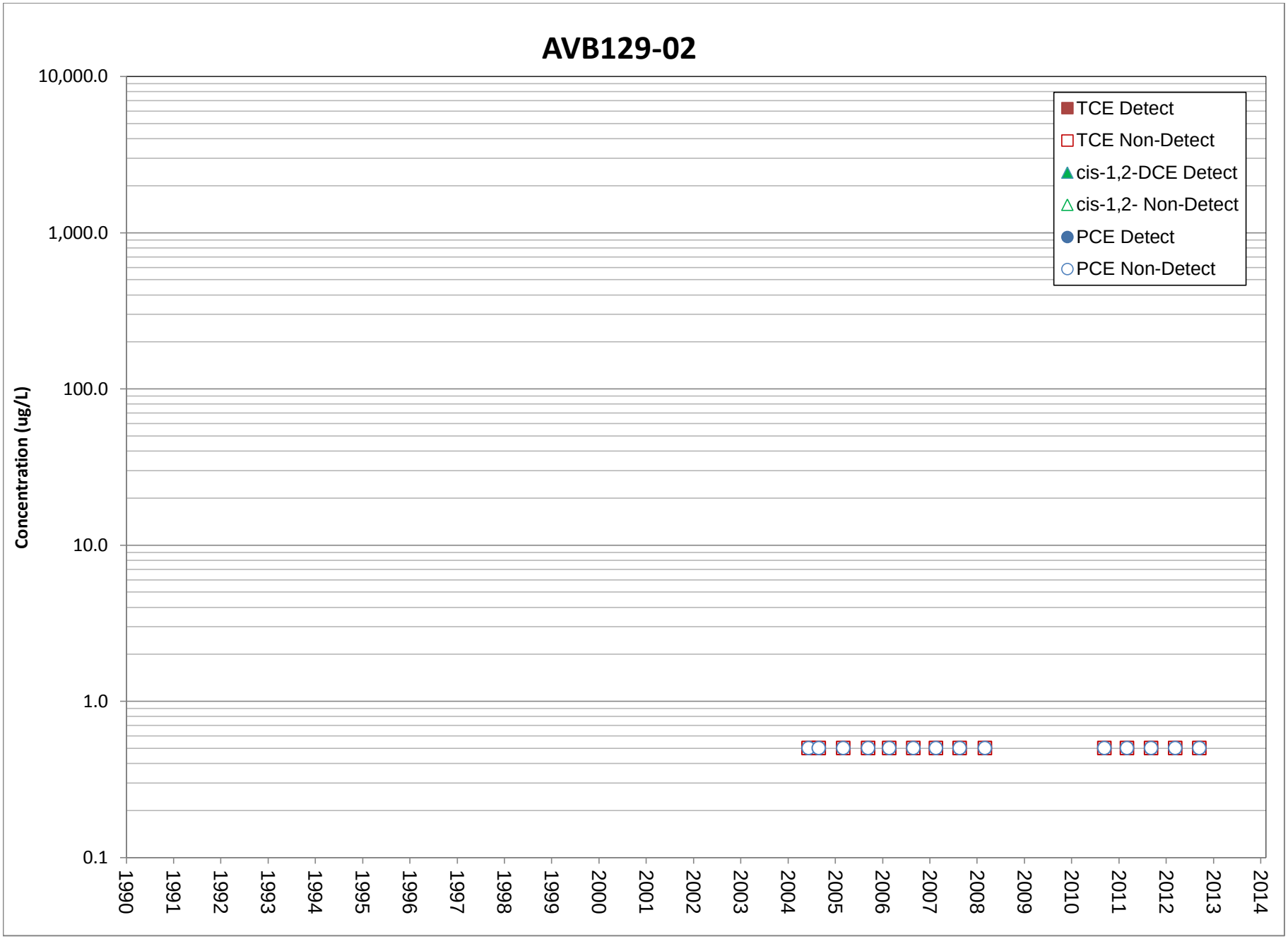
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB129-02
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
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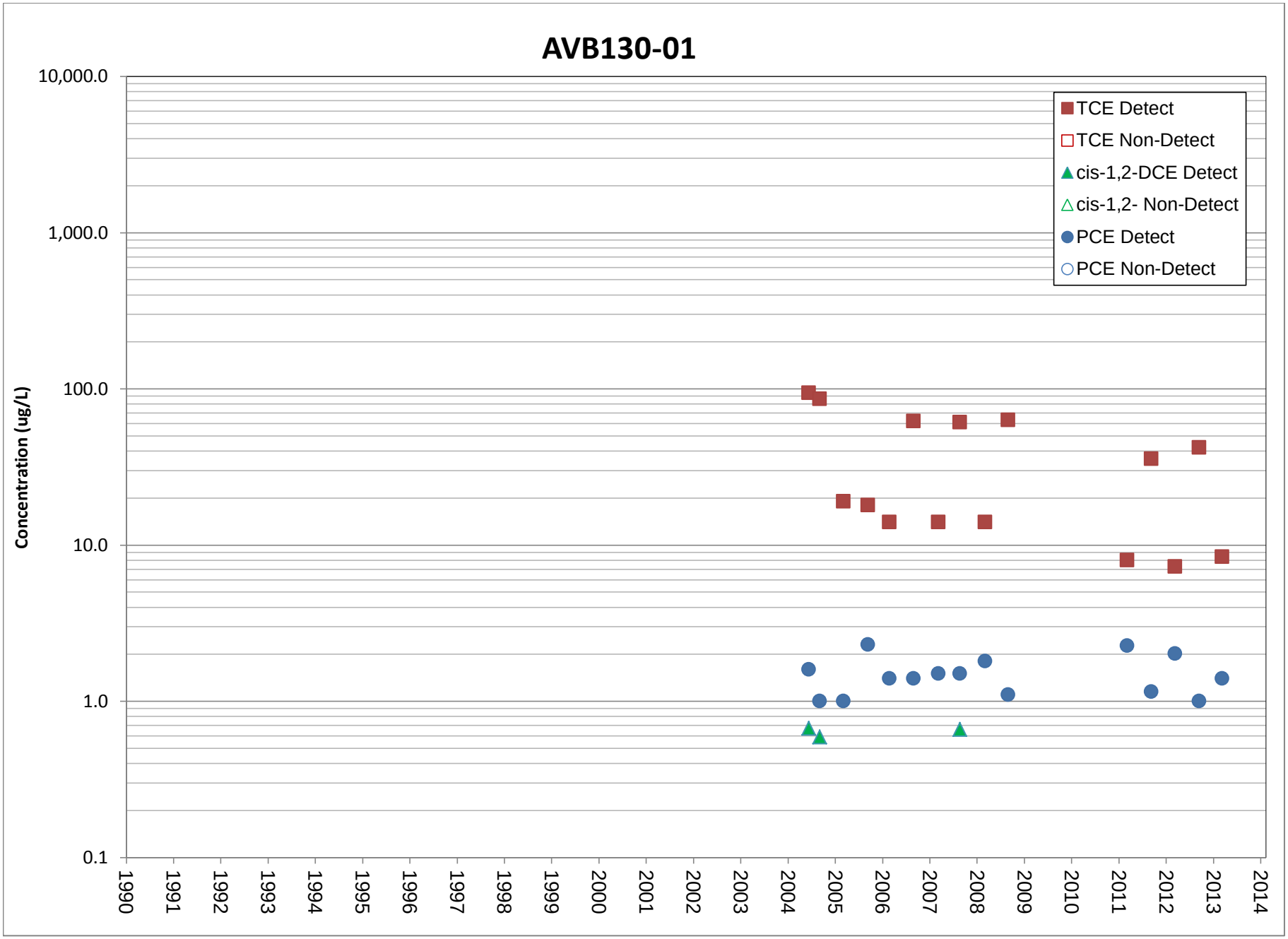
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB130-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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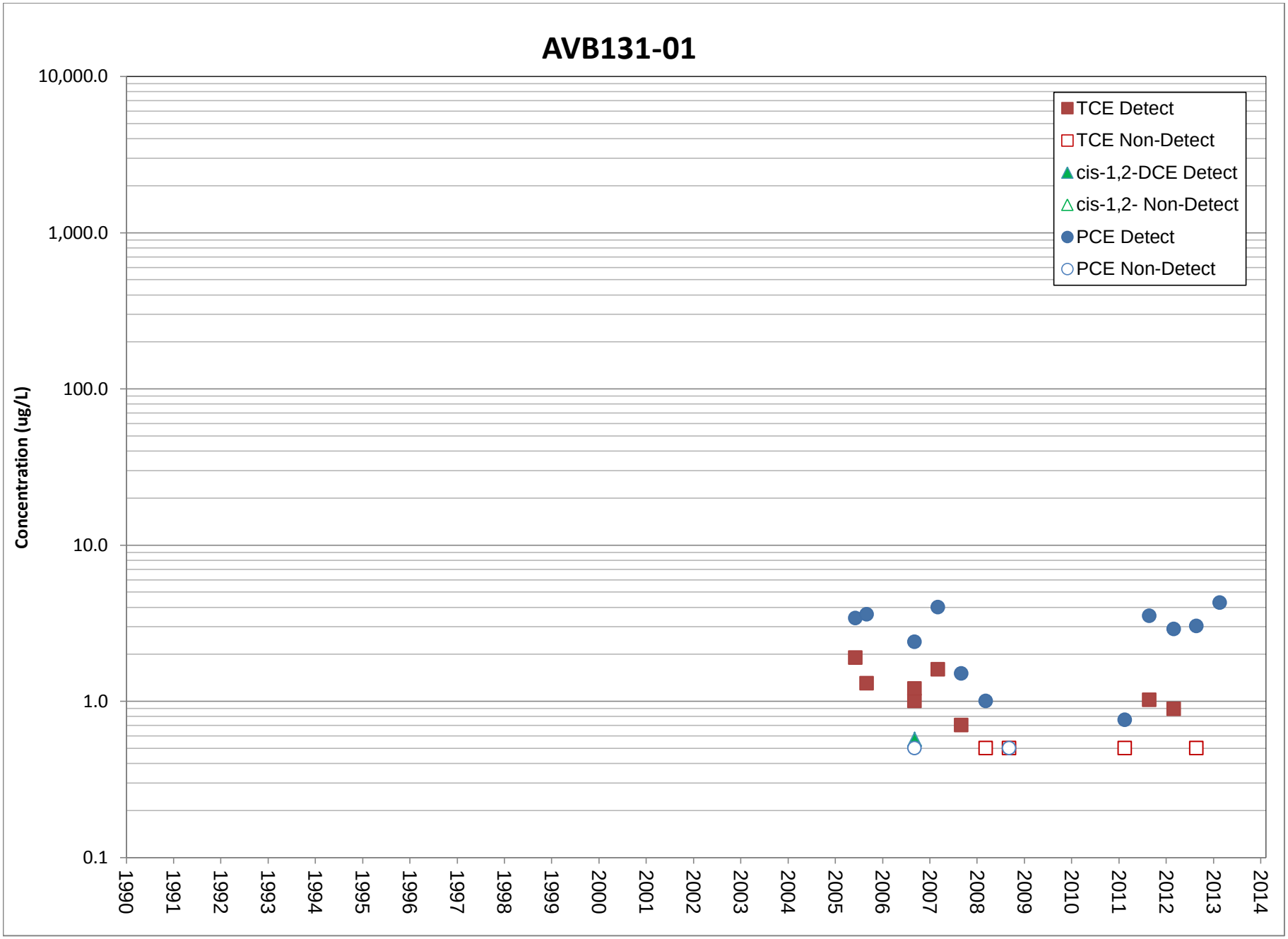
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB131-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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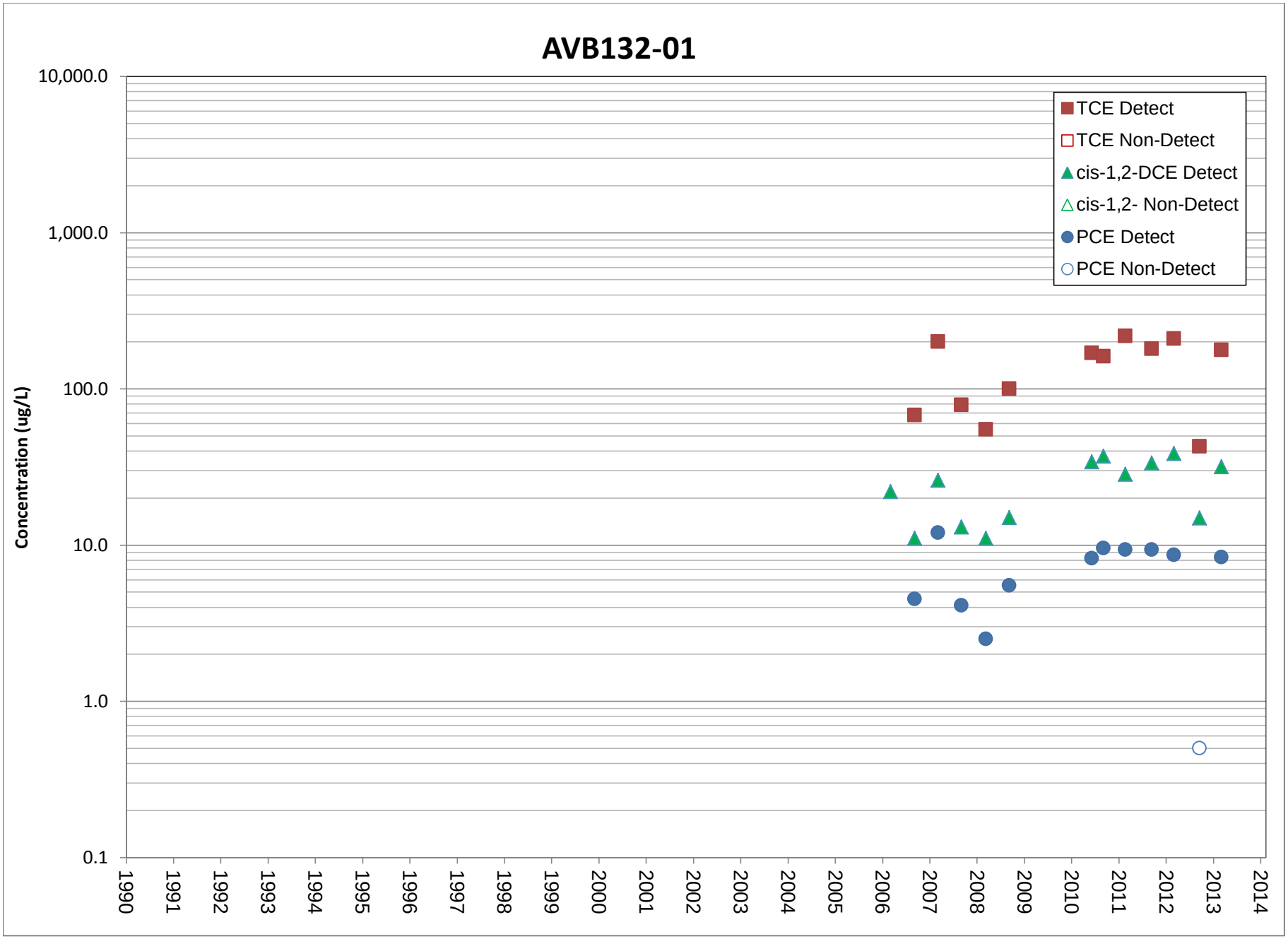
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB132-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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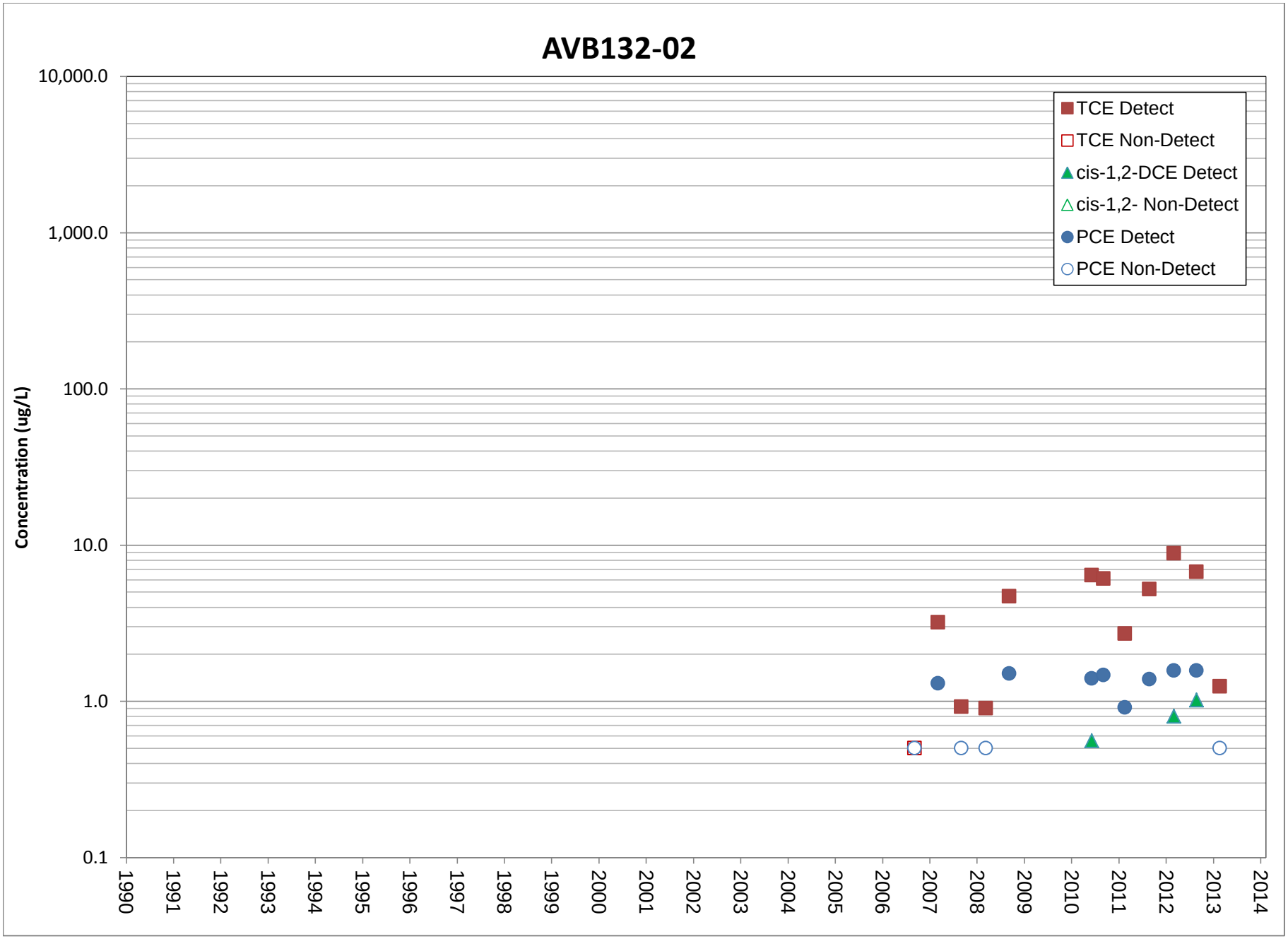
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB132-02
Concentration (ug/L)
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100.0
10.0
1.0
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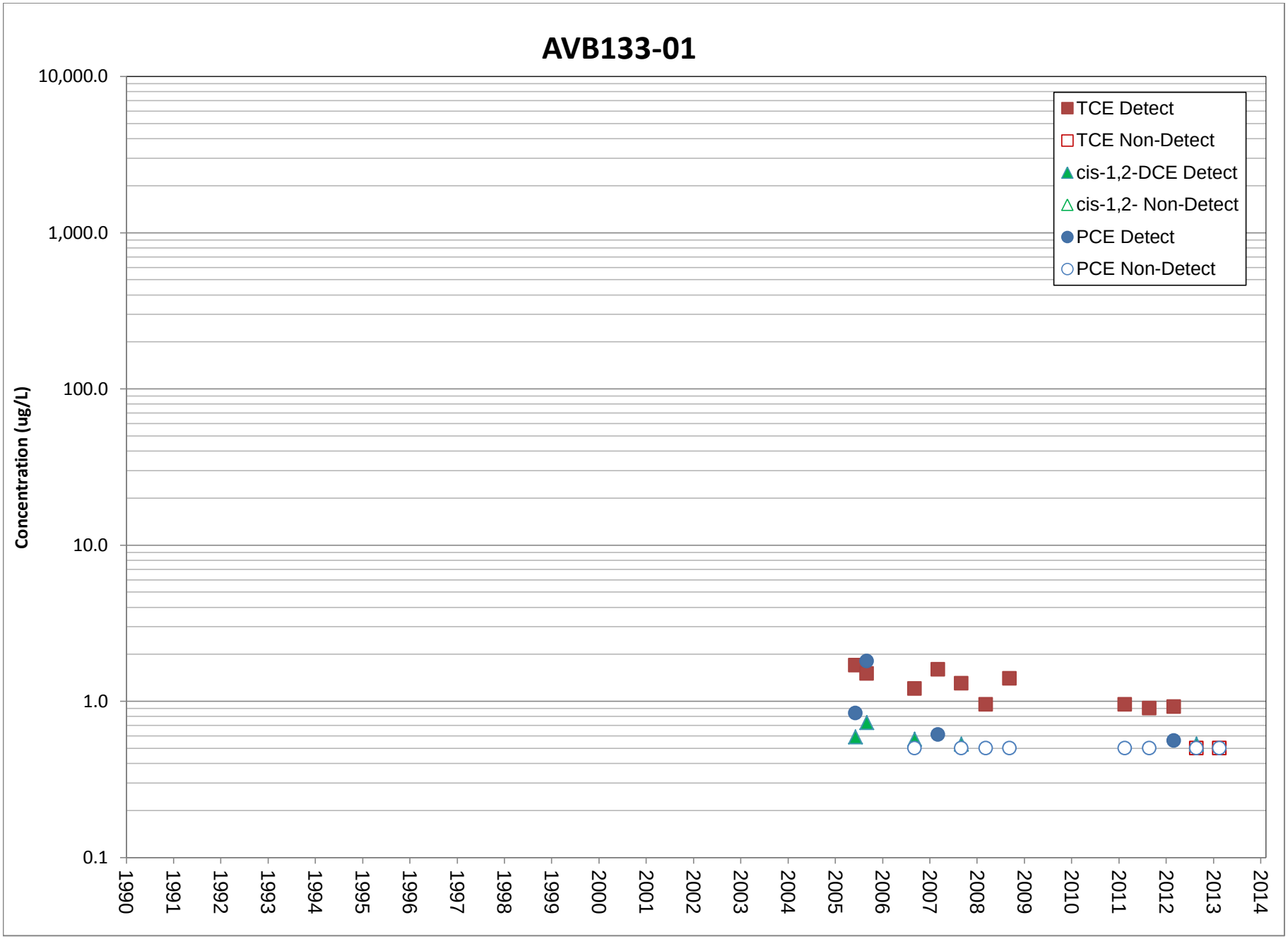
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB133-01
Concentration (ug/L)
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100.0
10.0
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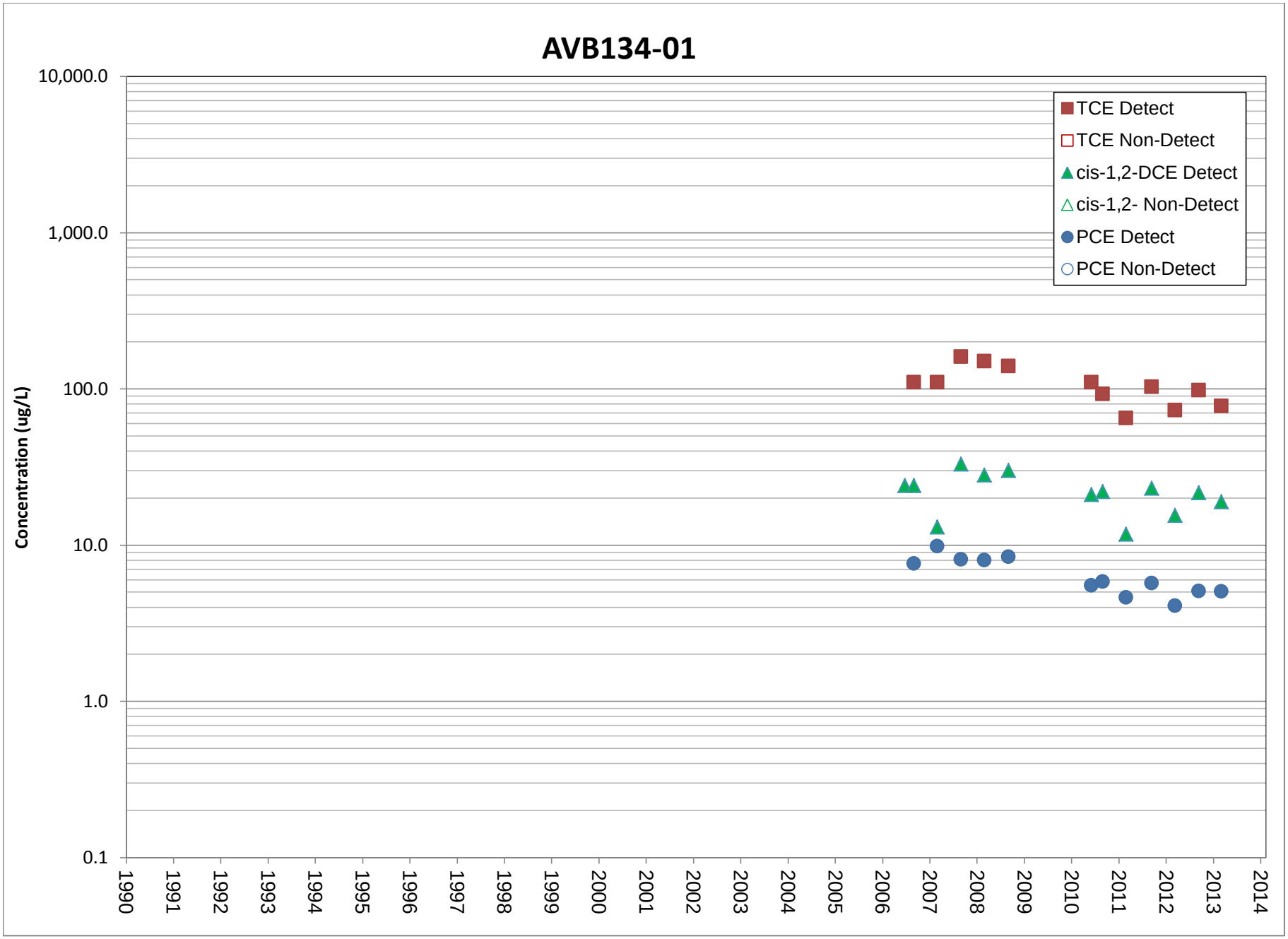
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB134-01
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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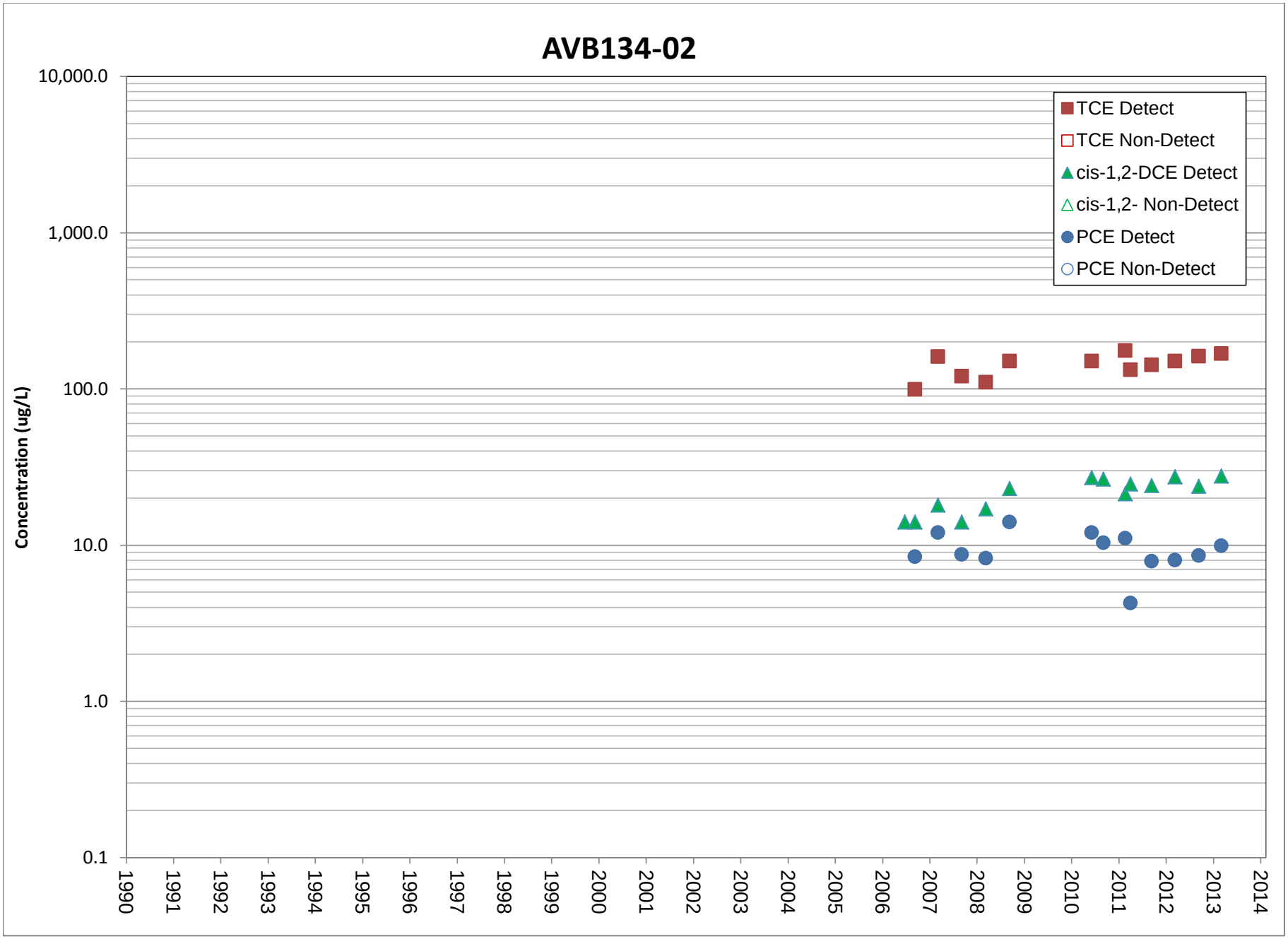
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB134-02
Concentration (ug/L)
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100.0
10.0
1.0
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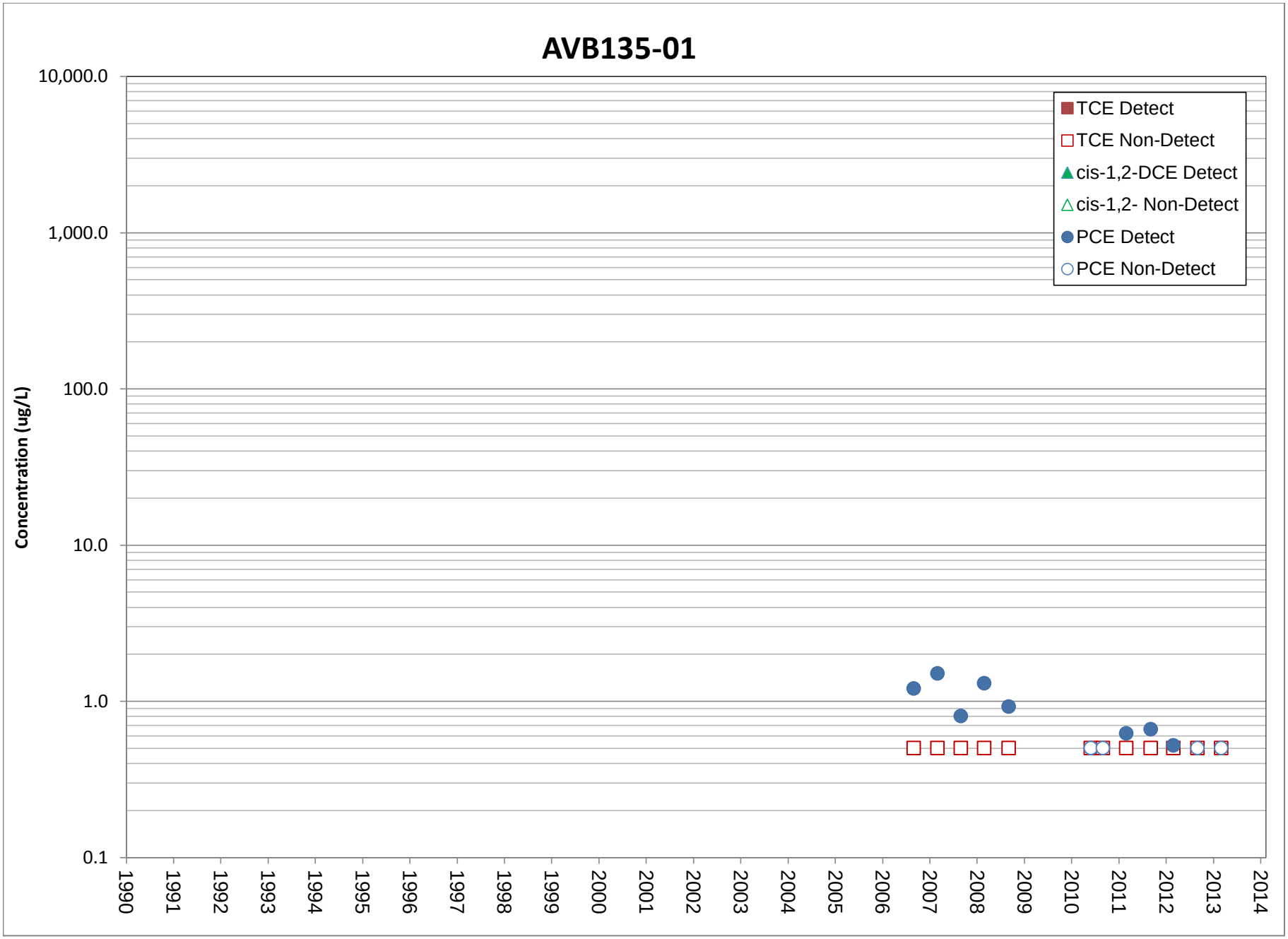
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB135-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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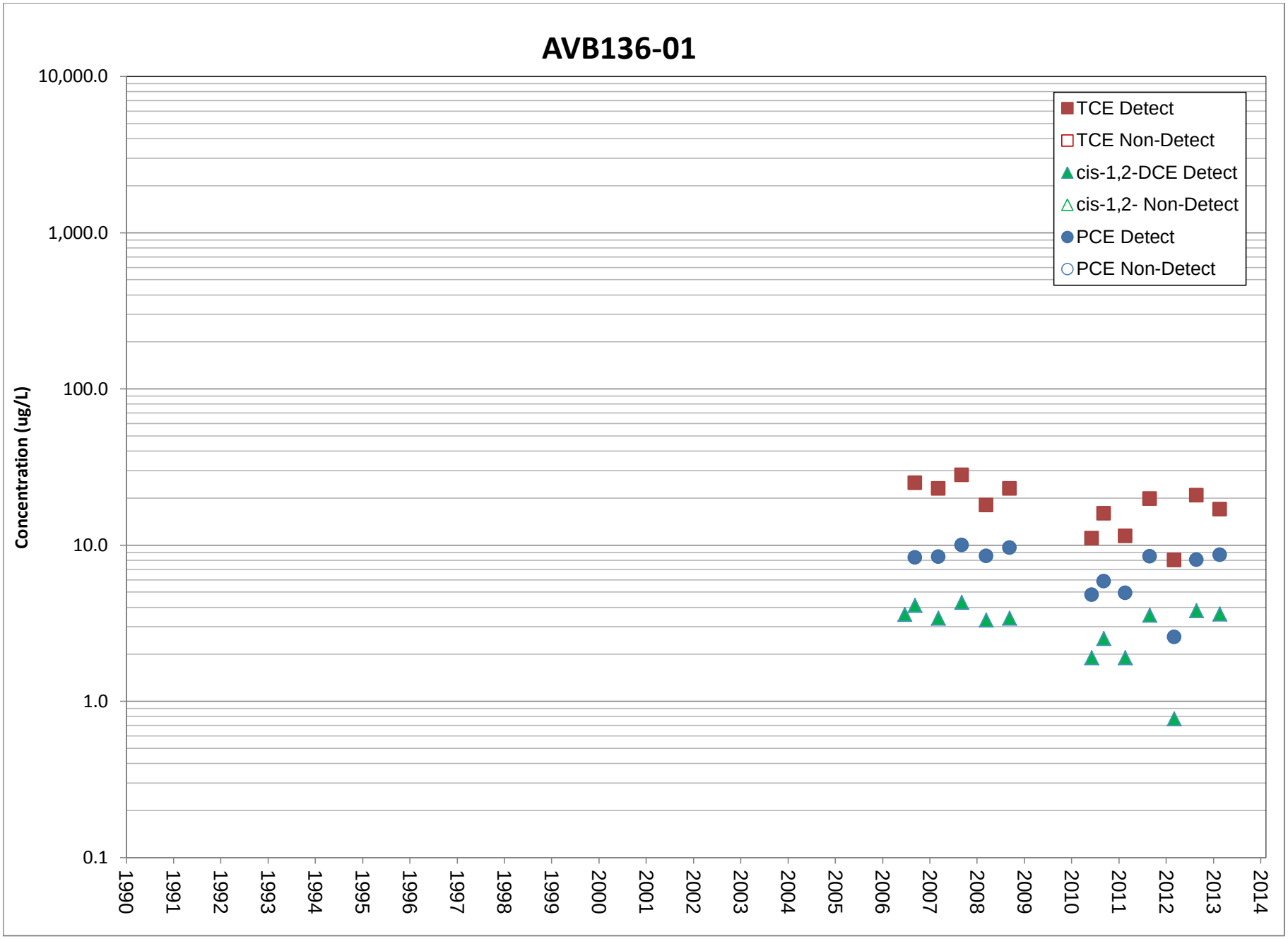
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB136-01
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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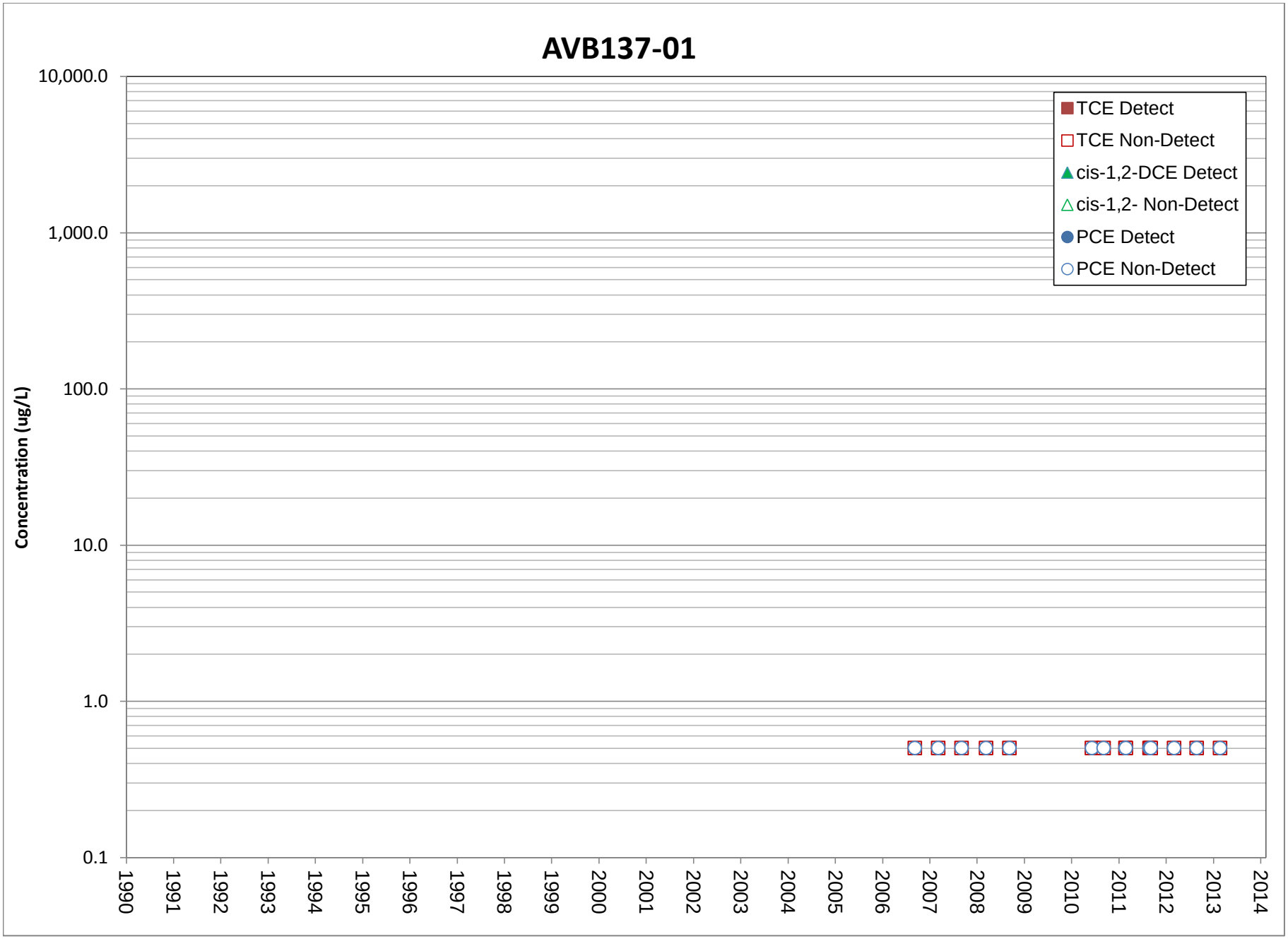
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB137-01
Concentration (ug/L)
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1,000.0
100.0
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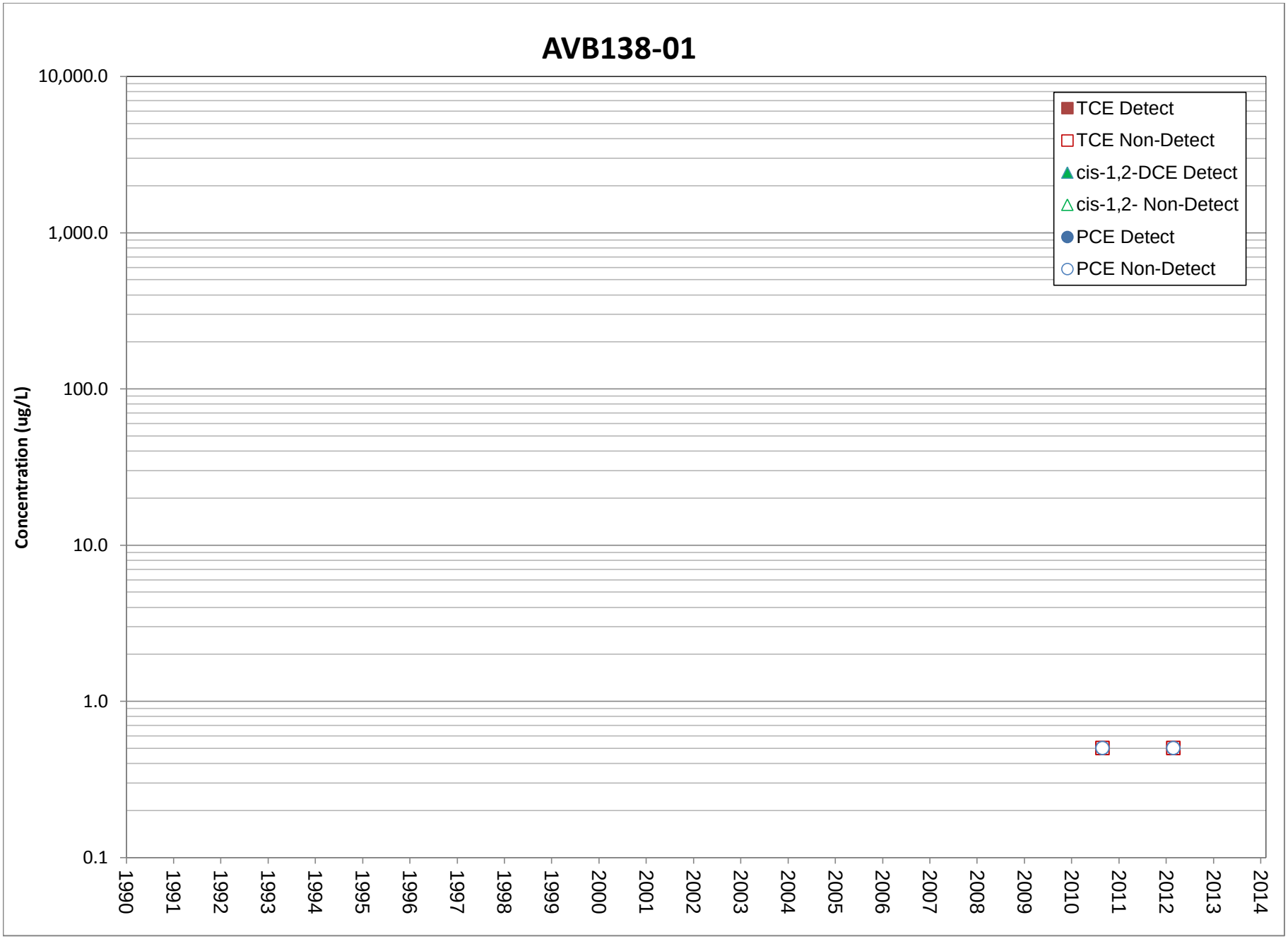
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB138-01
Concentration (ug/L)
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100.0
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0.1
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TCE Detect
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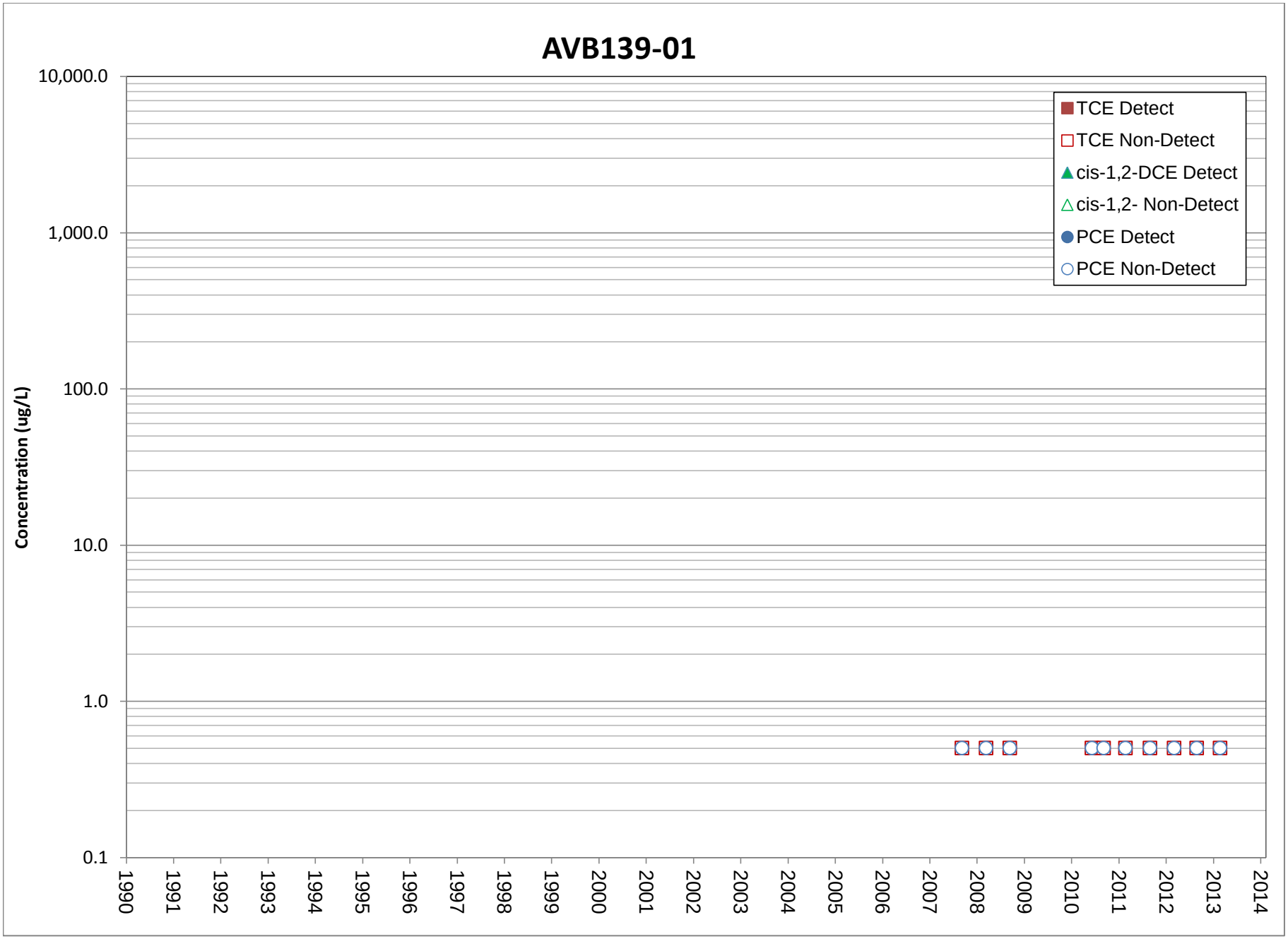
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB139-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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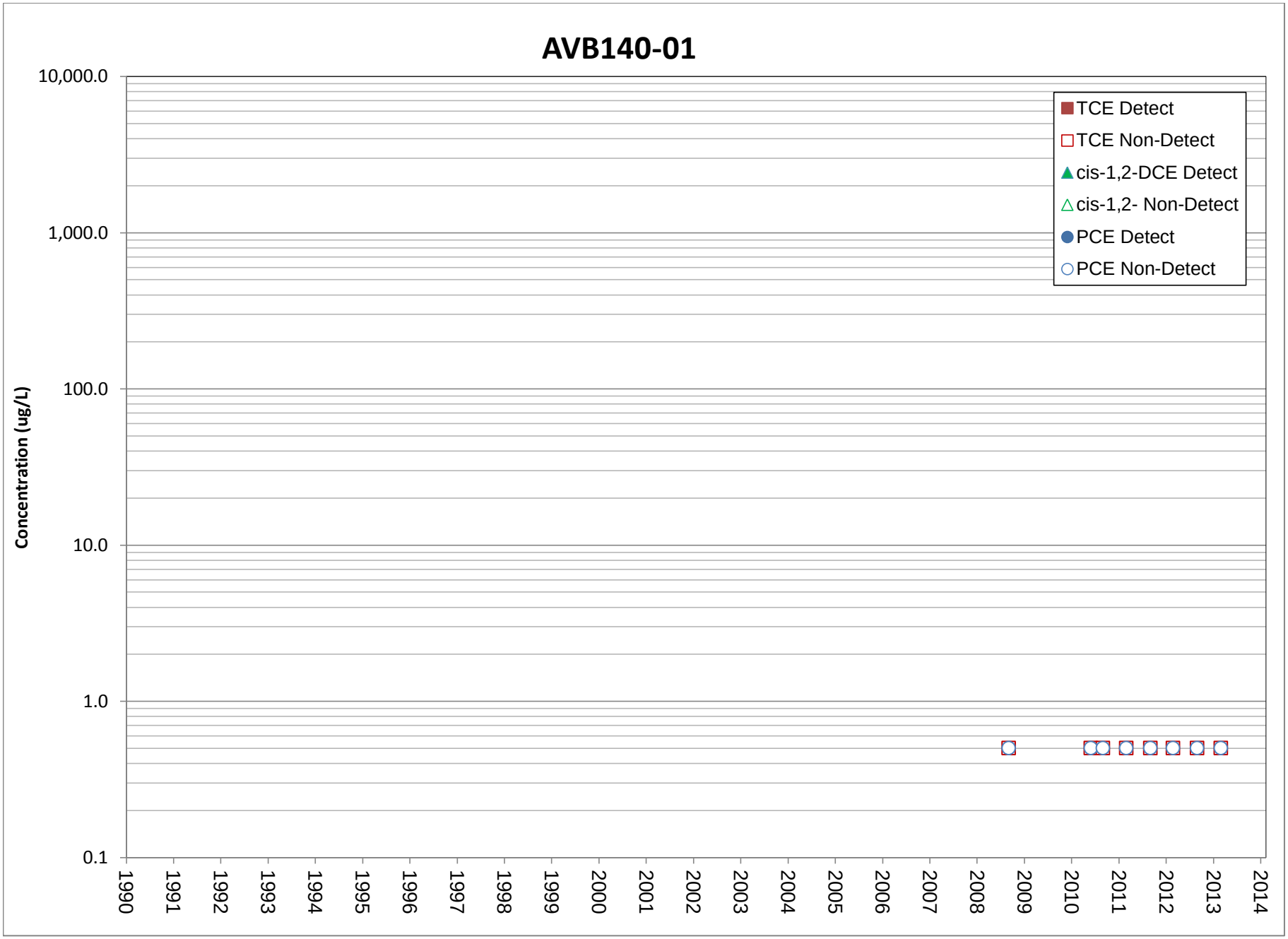
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB140-01
Concentration (ug/L)
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10.0
1.0
0.1
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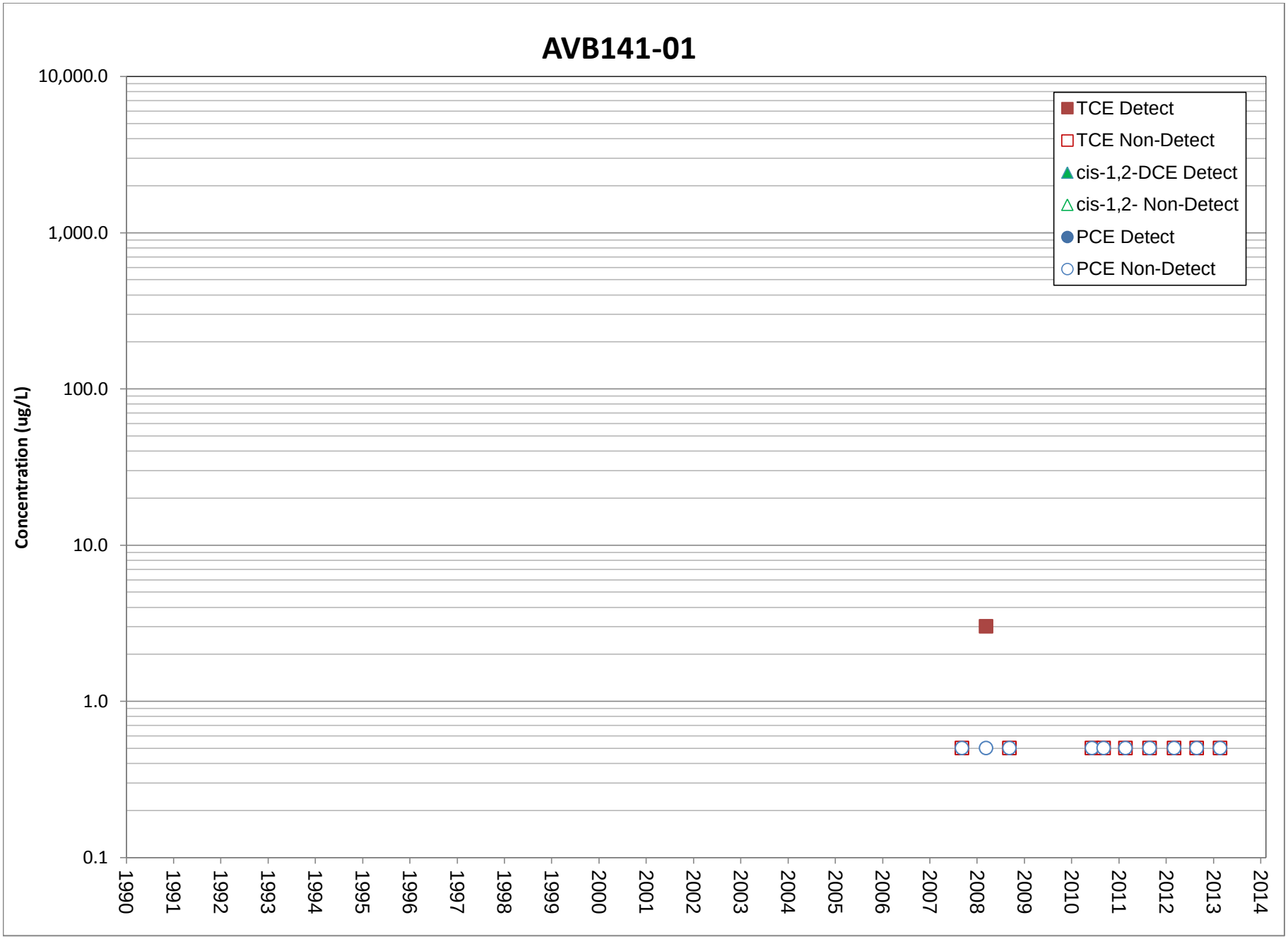
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB141-01
Concentration (ug/L)
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10.0
1.0
0.1
1990
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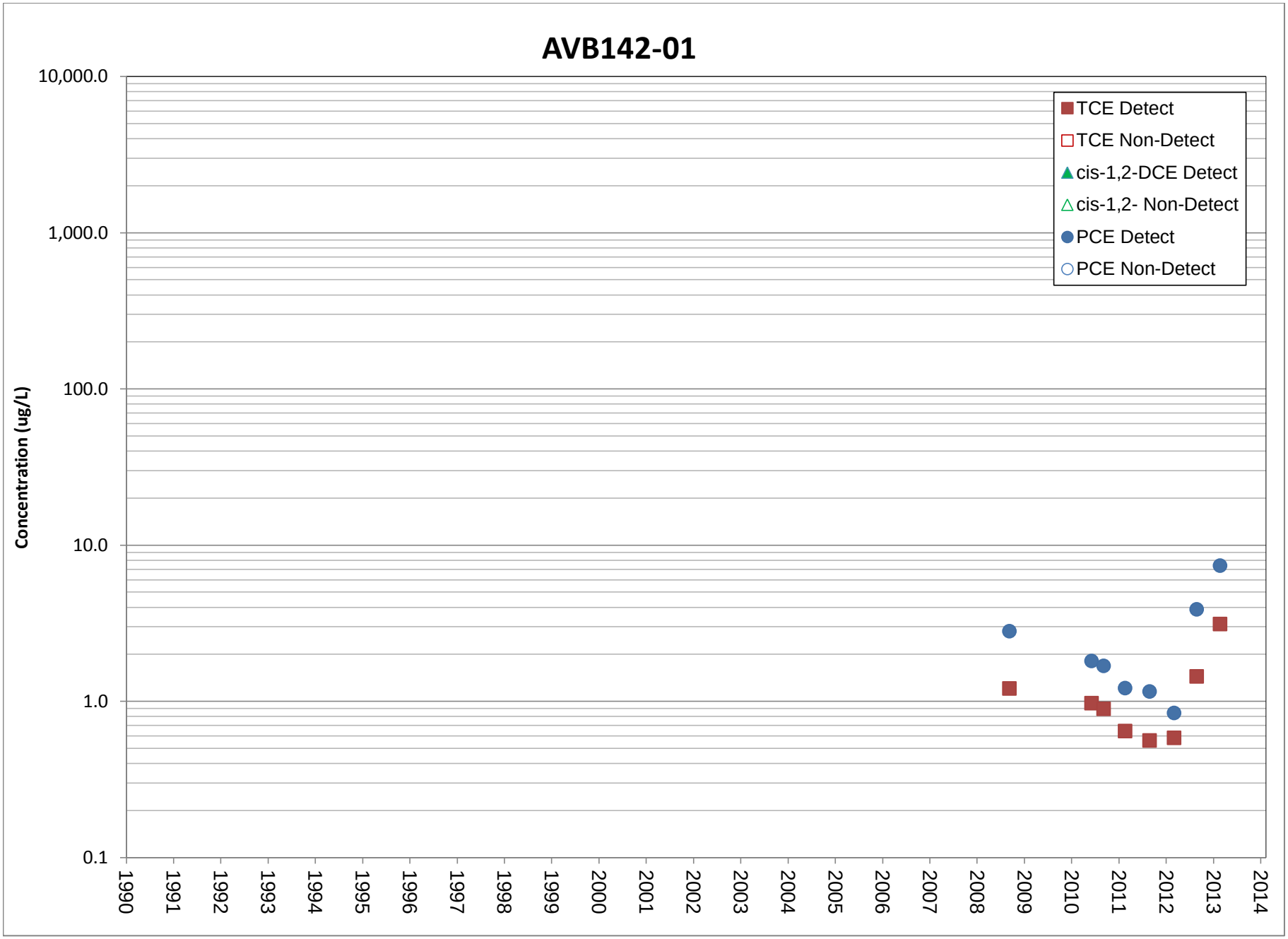
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


AVB142-01
Concentration (ug/L)
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1.0
0.1
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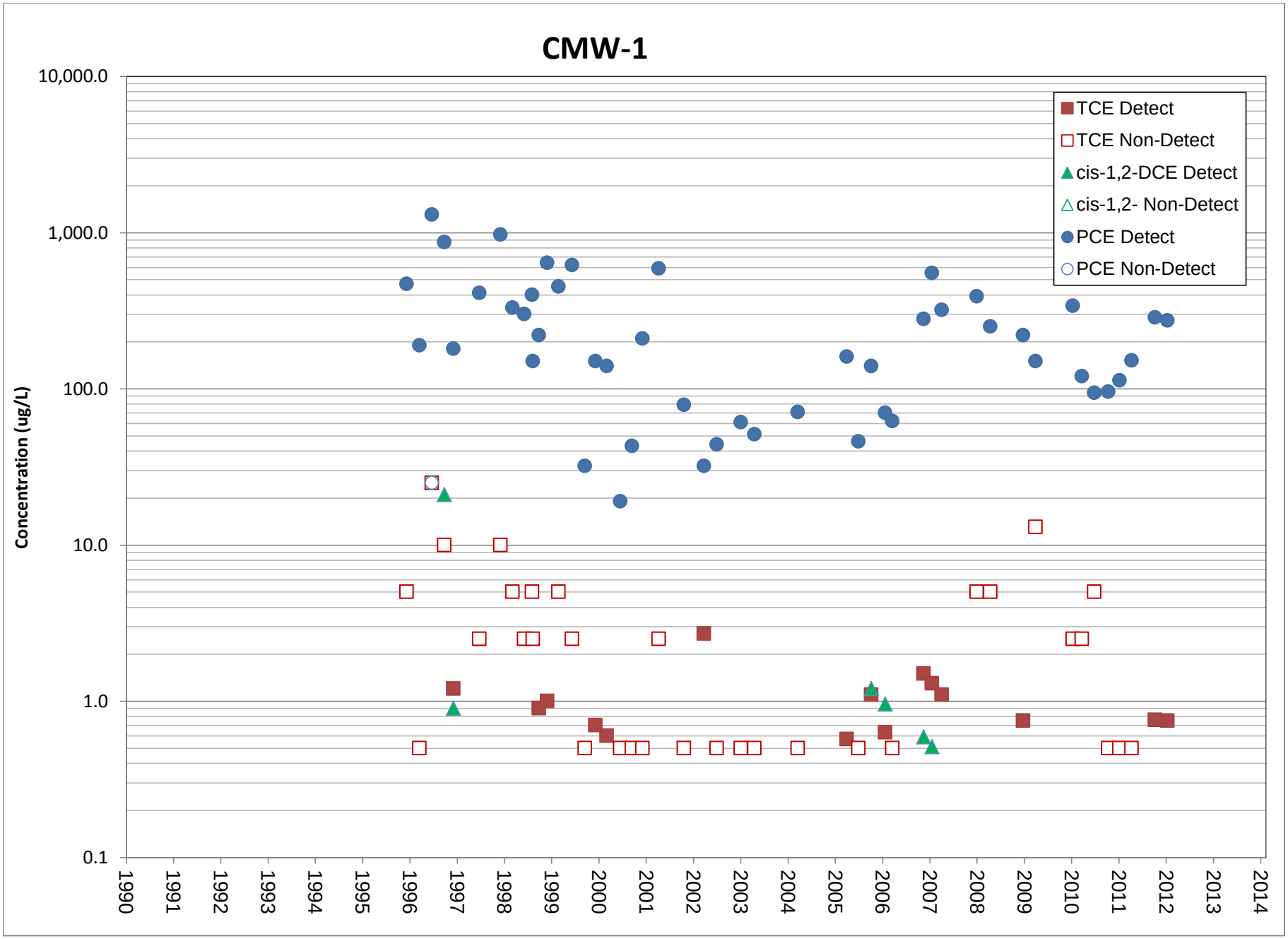
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


CMW-1
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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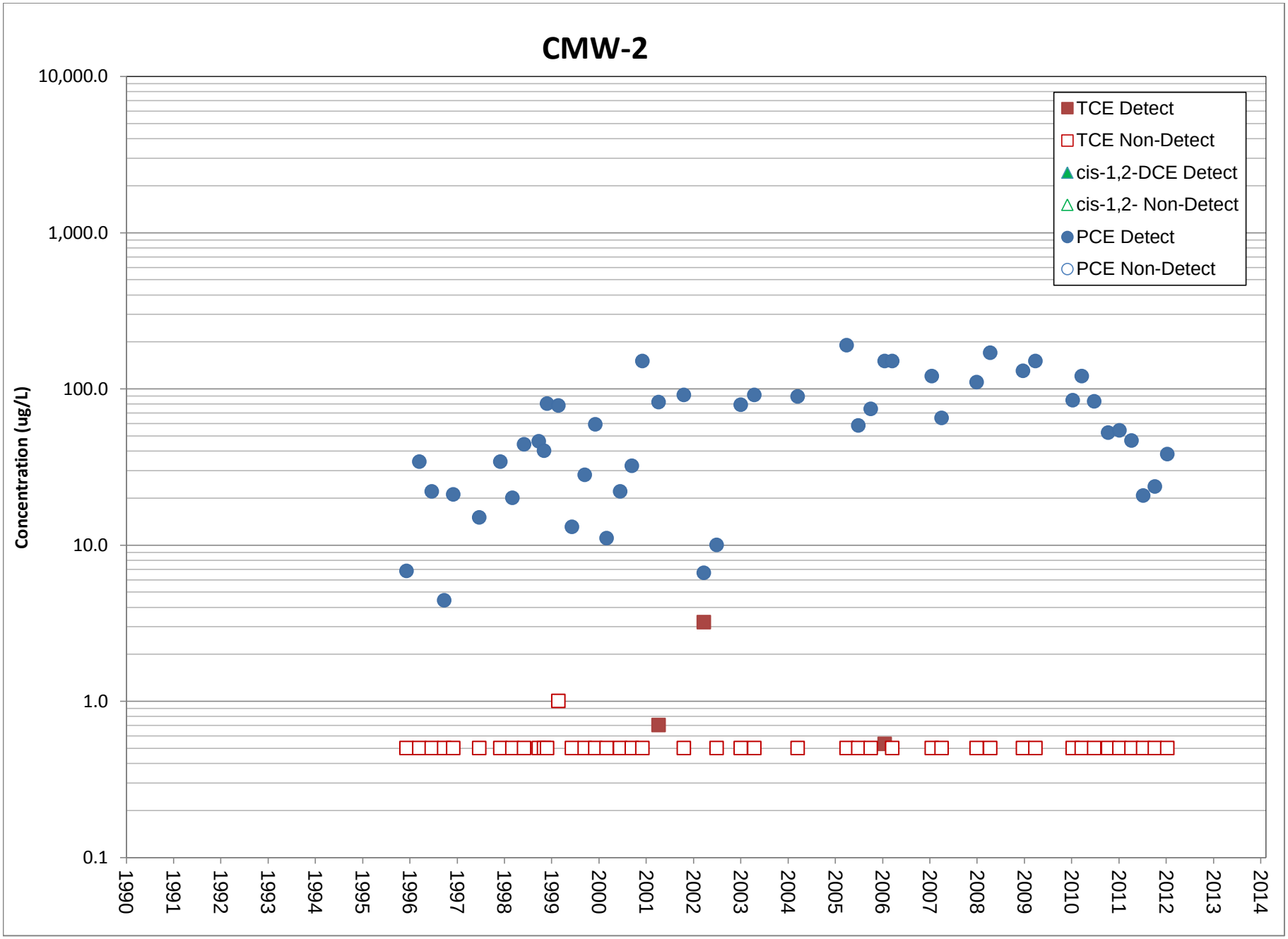
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


CMW-2
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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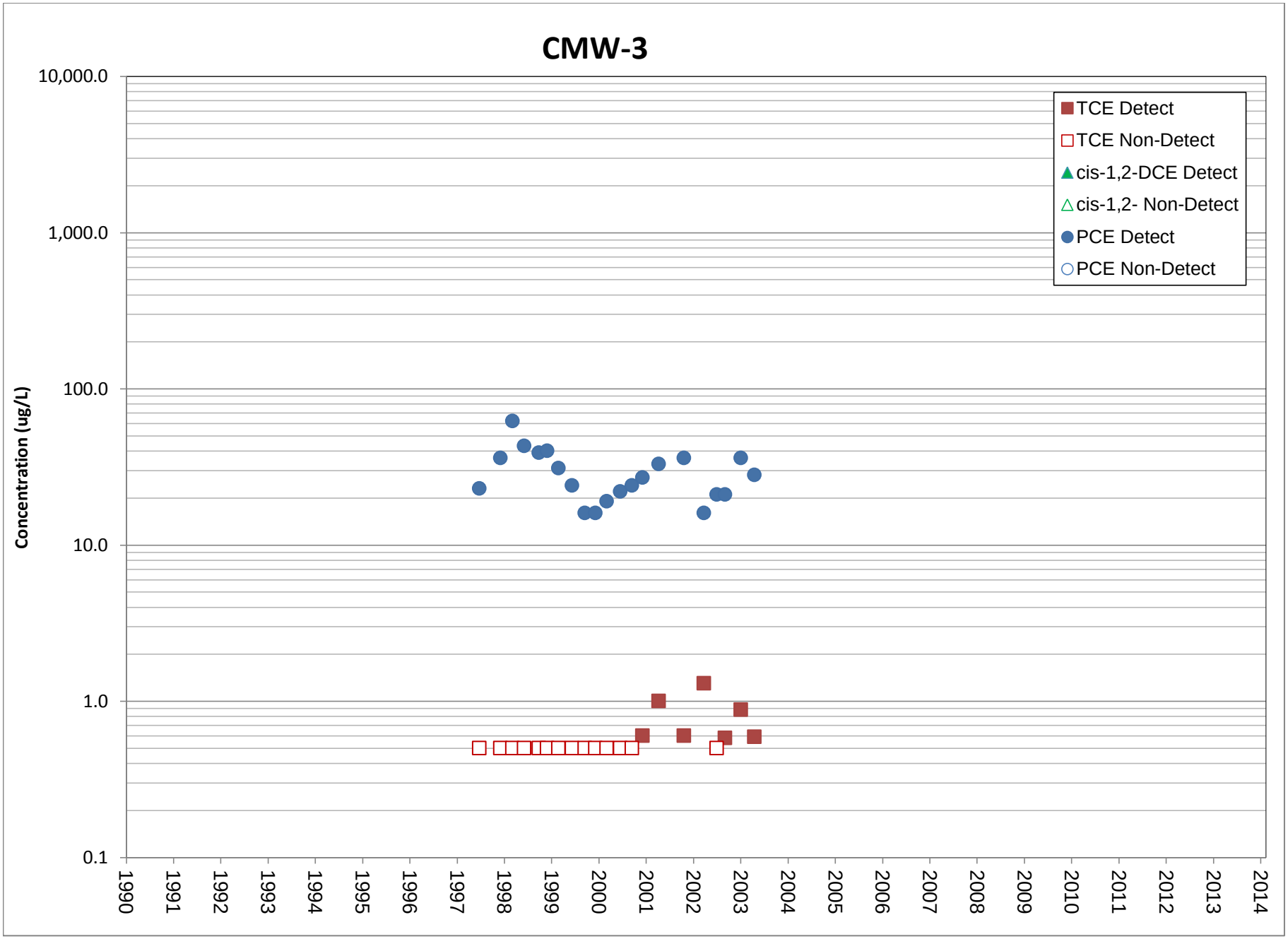
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


CMW-3
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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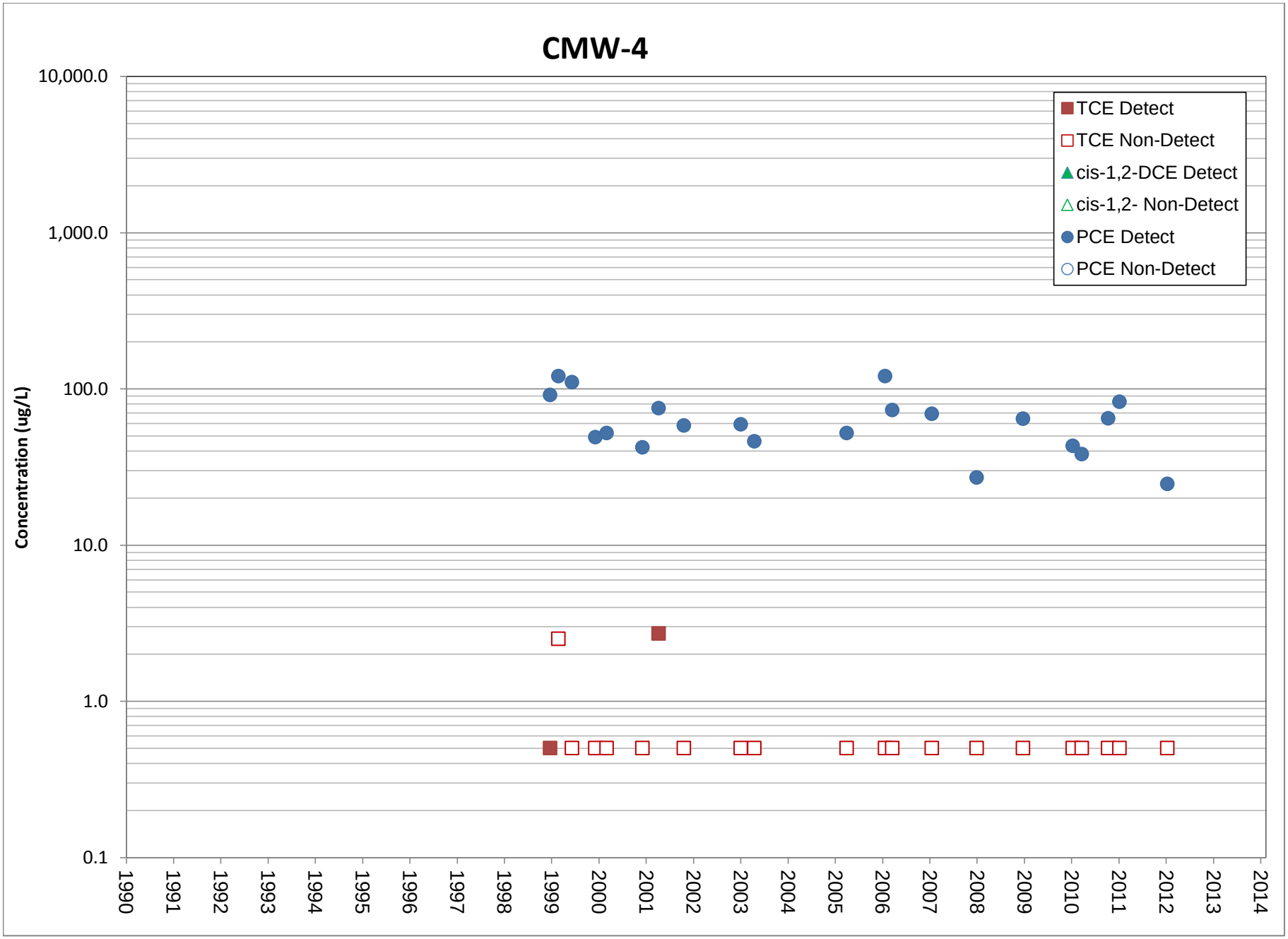
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


CMW-4
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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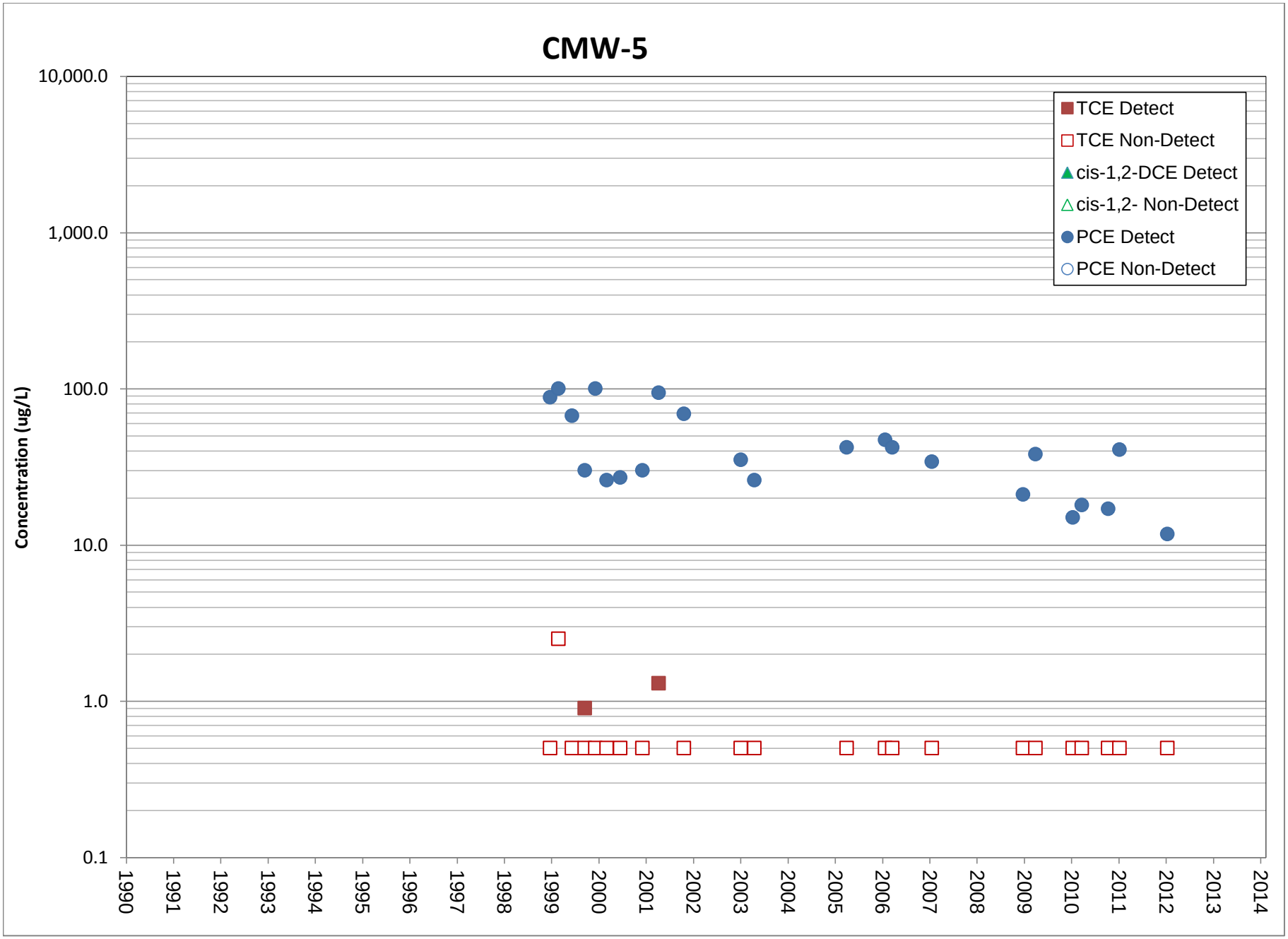
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


CMW-5
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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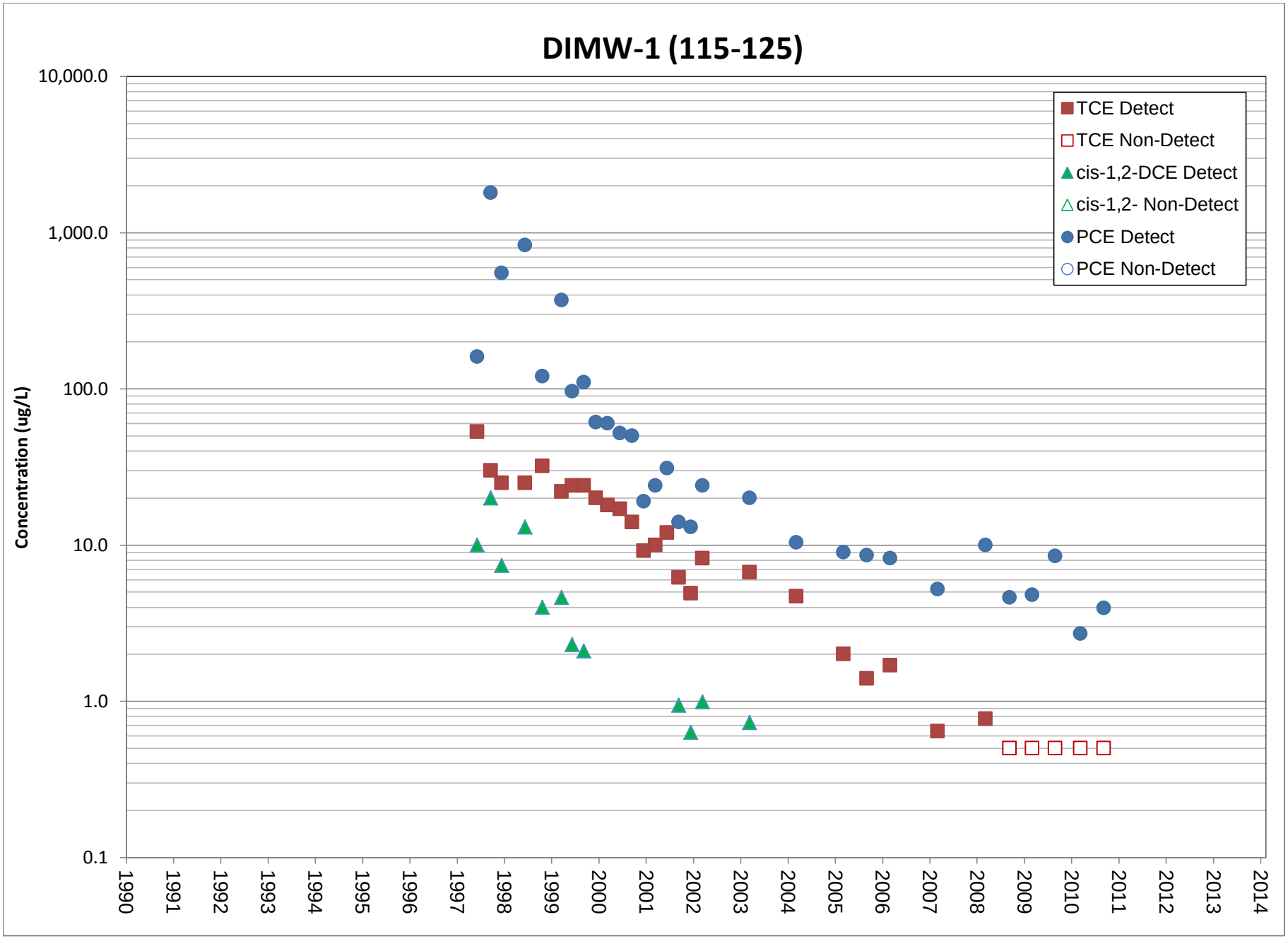
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (115-125)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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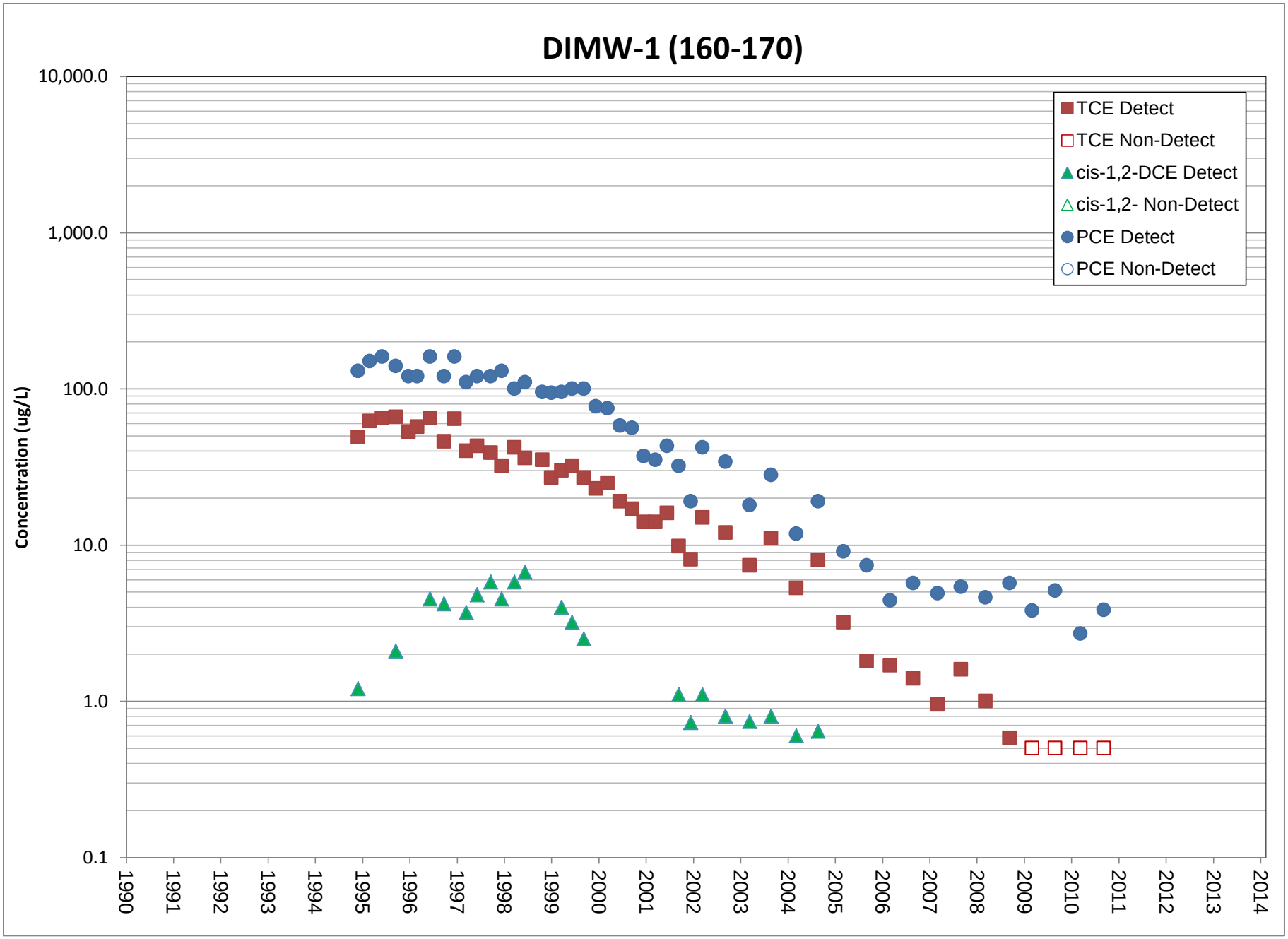
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (160-170)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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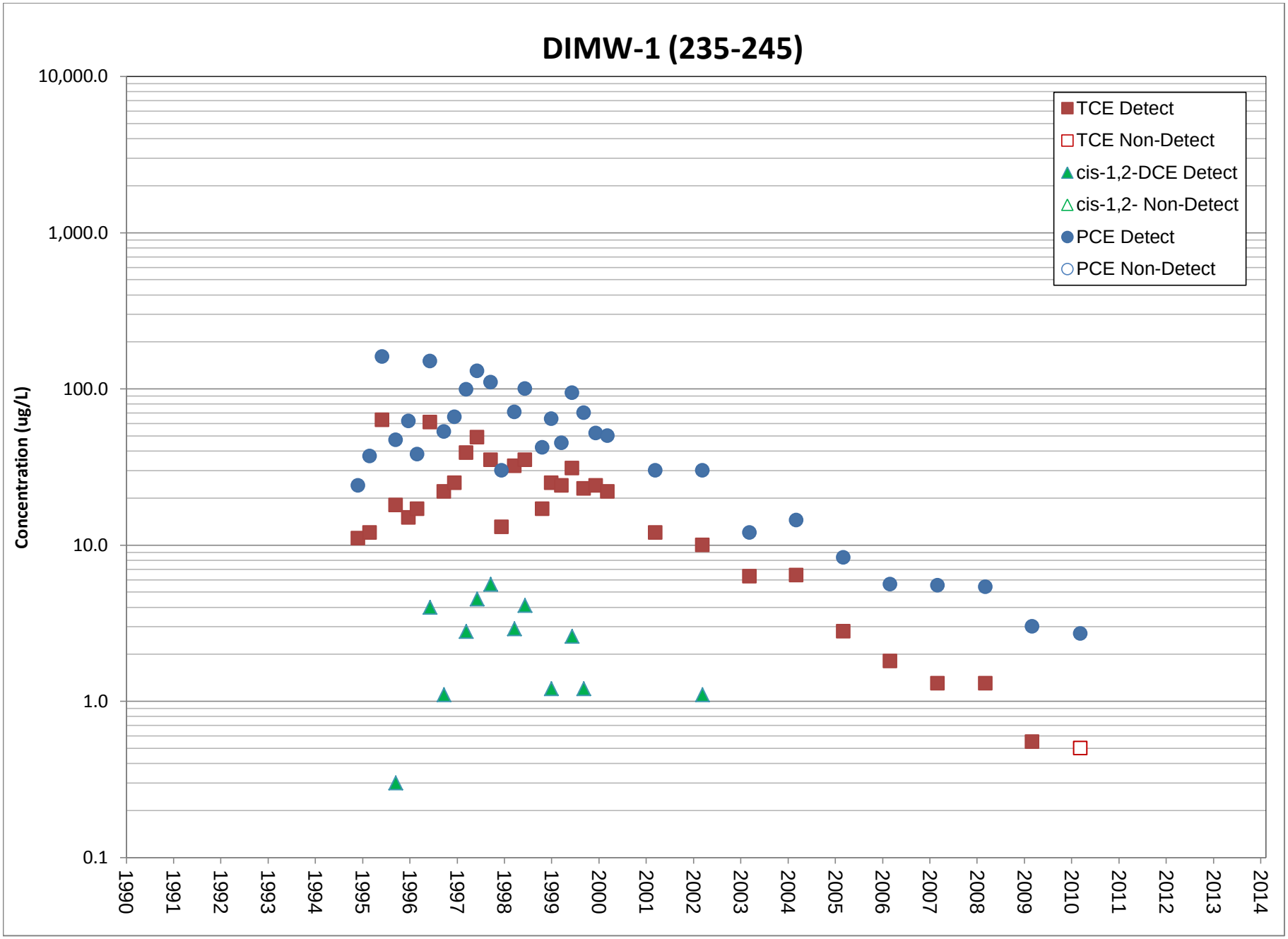
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (235-245)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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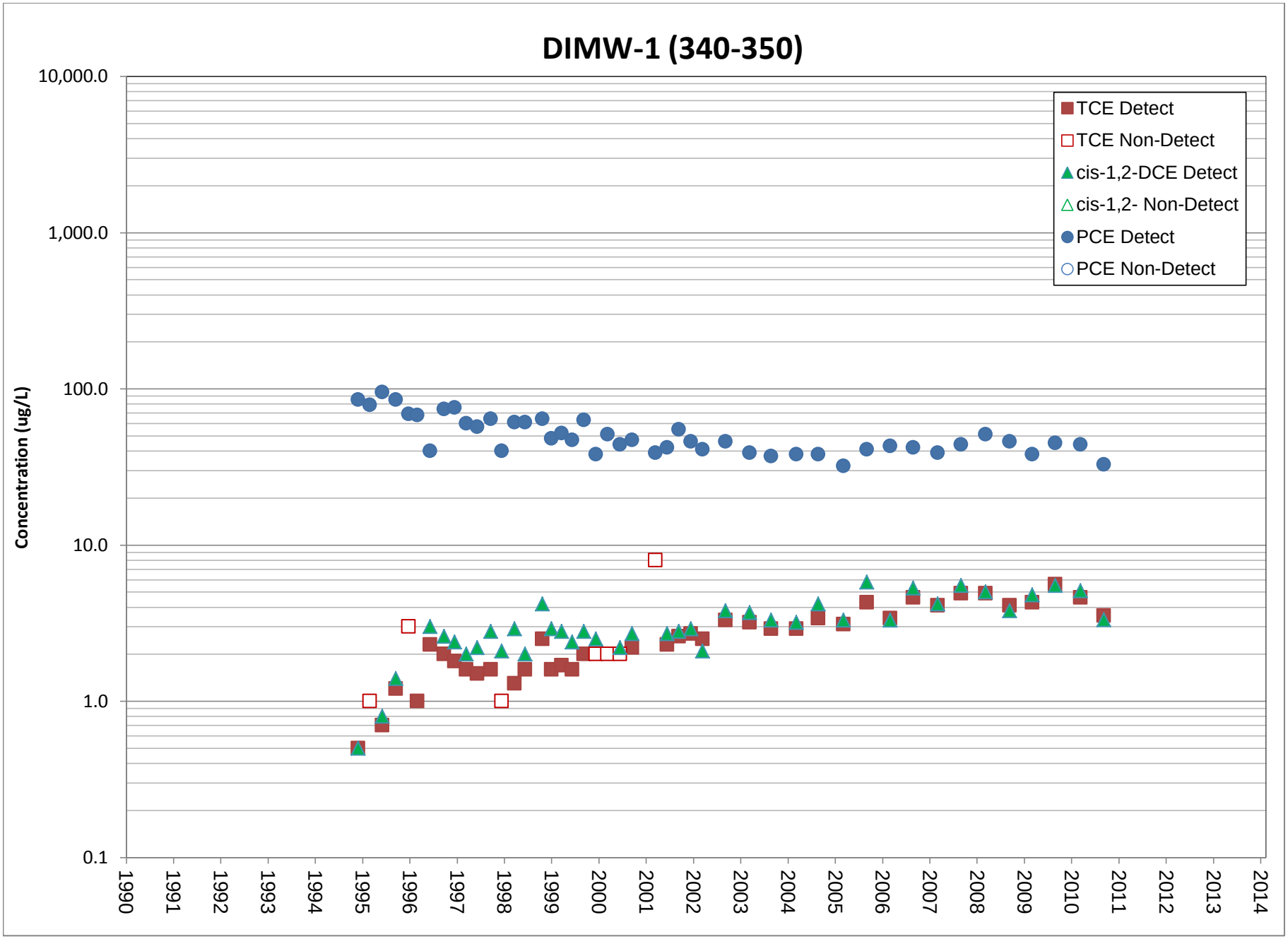
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (340-350)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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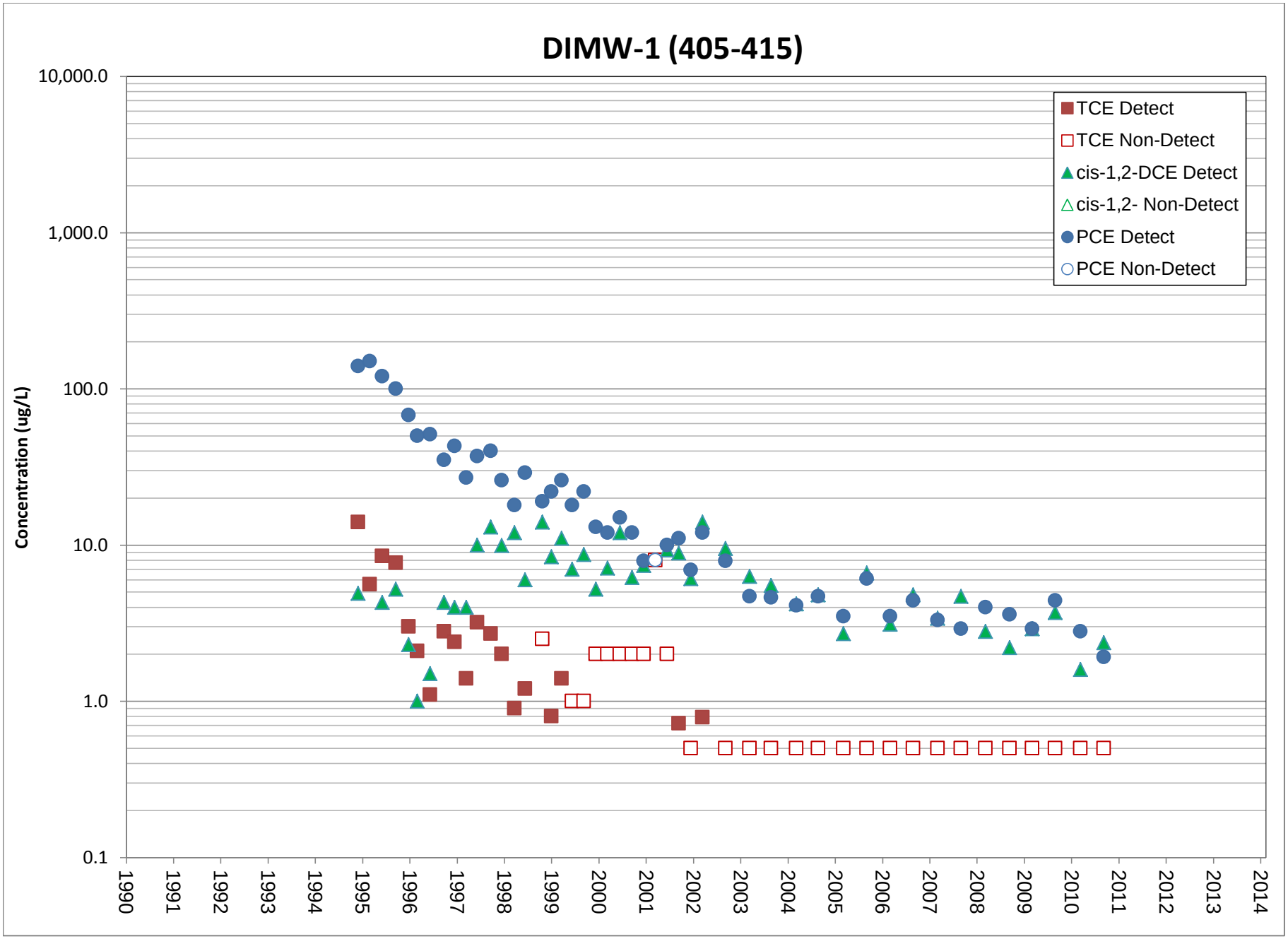
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (405-415)
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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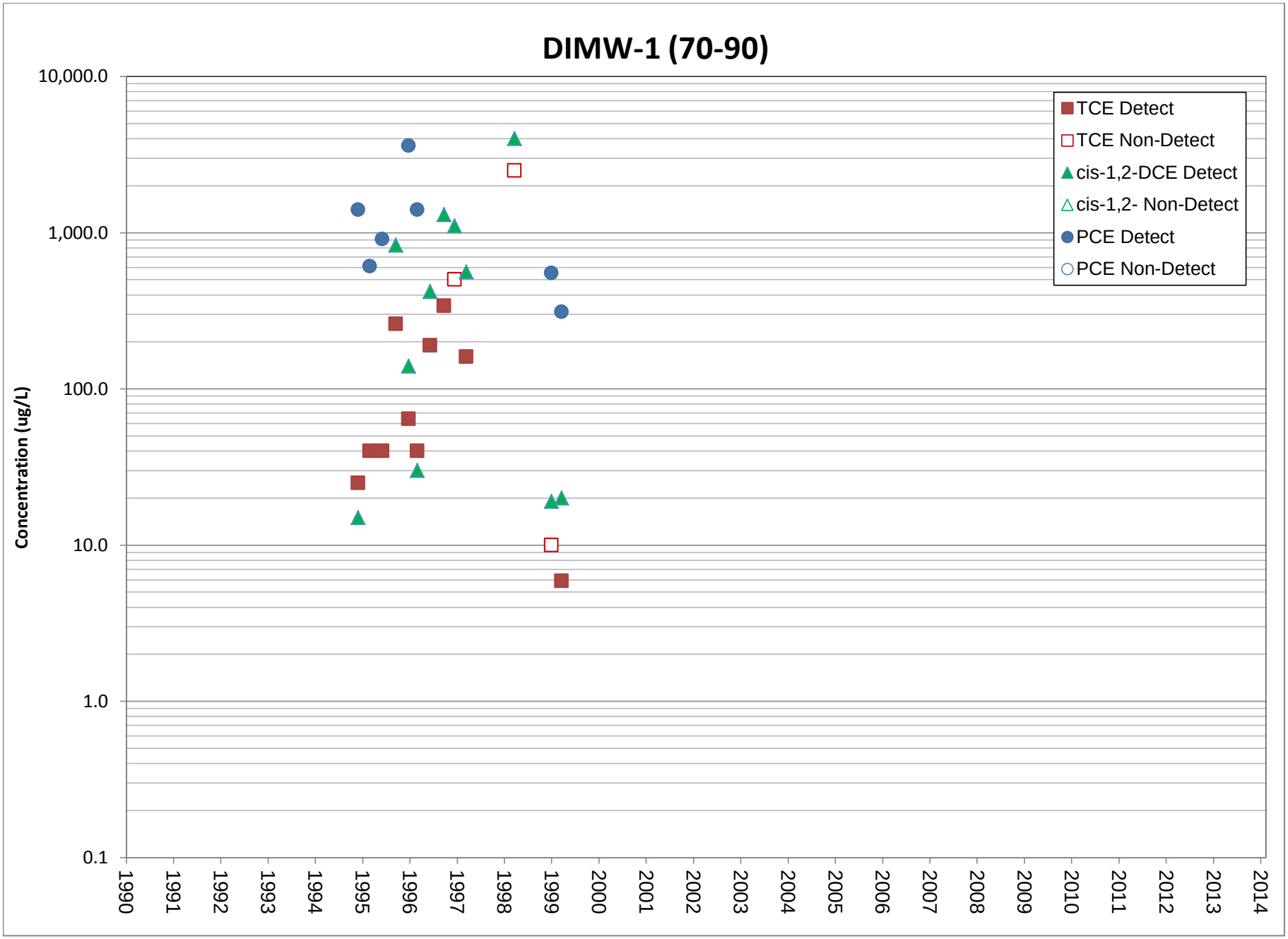
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-1 (70-90)
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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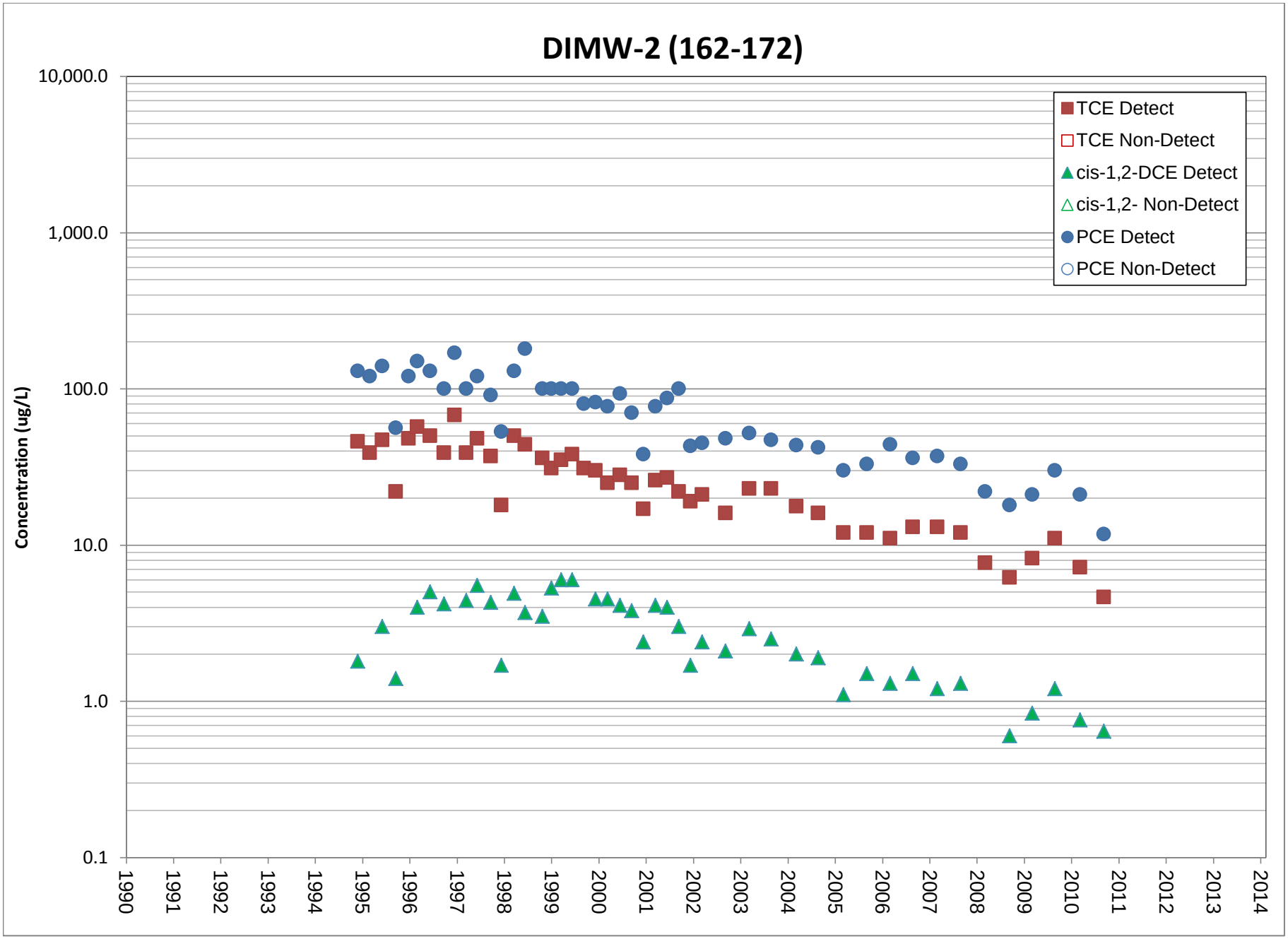
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-2 (162-172)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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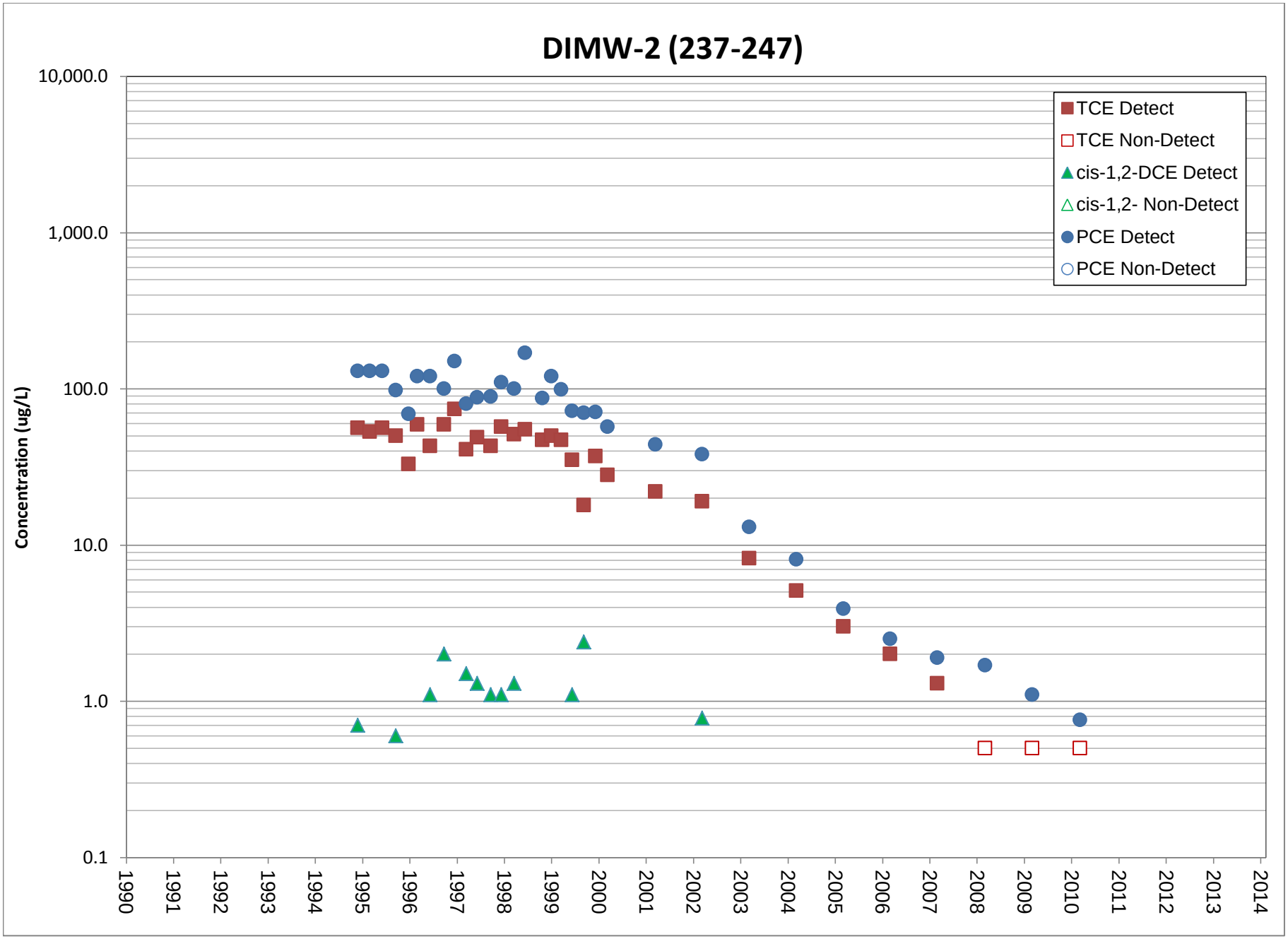
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-2 (237-247)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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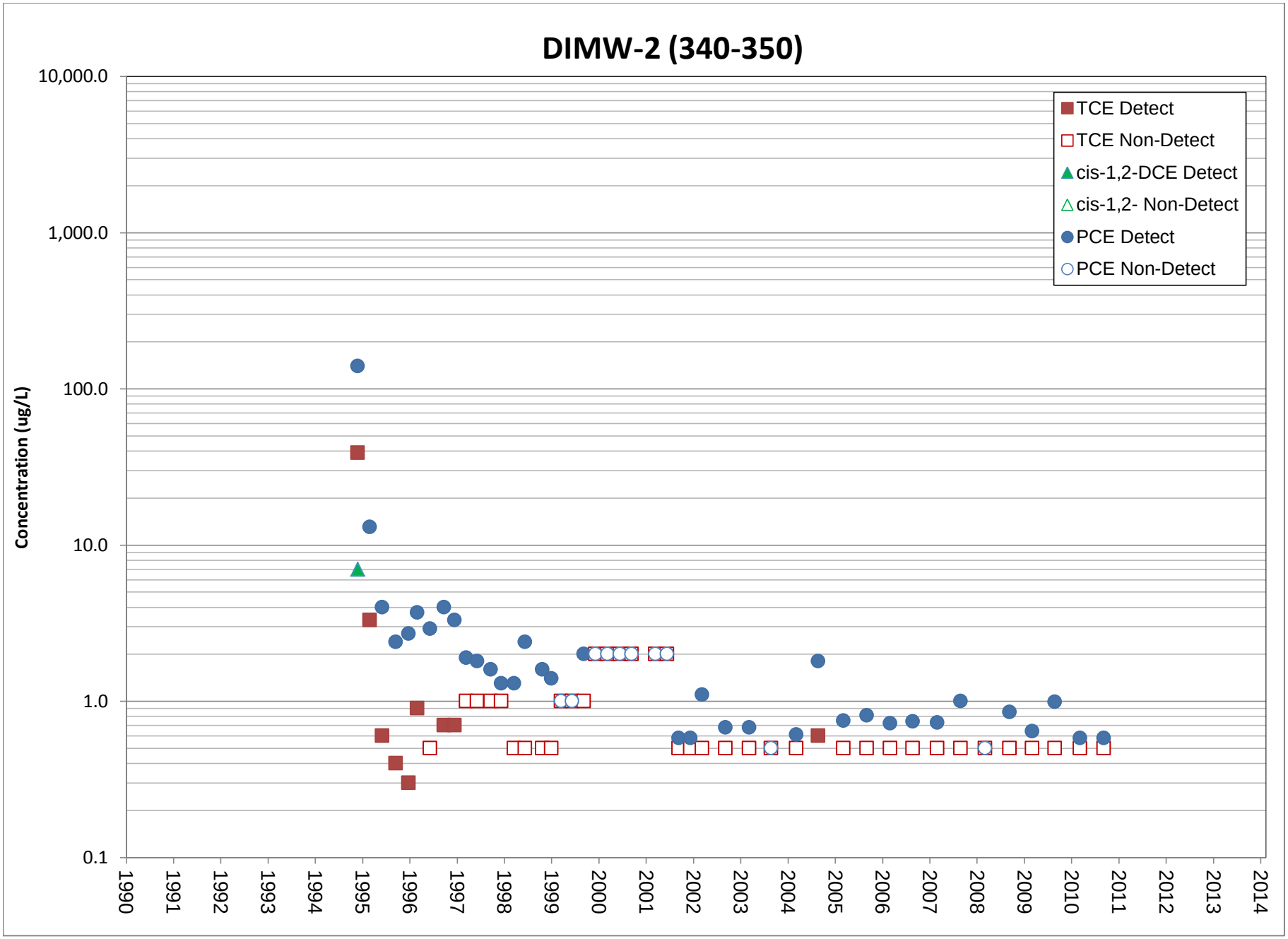
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-2 (340-350)
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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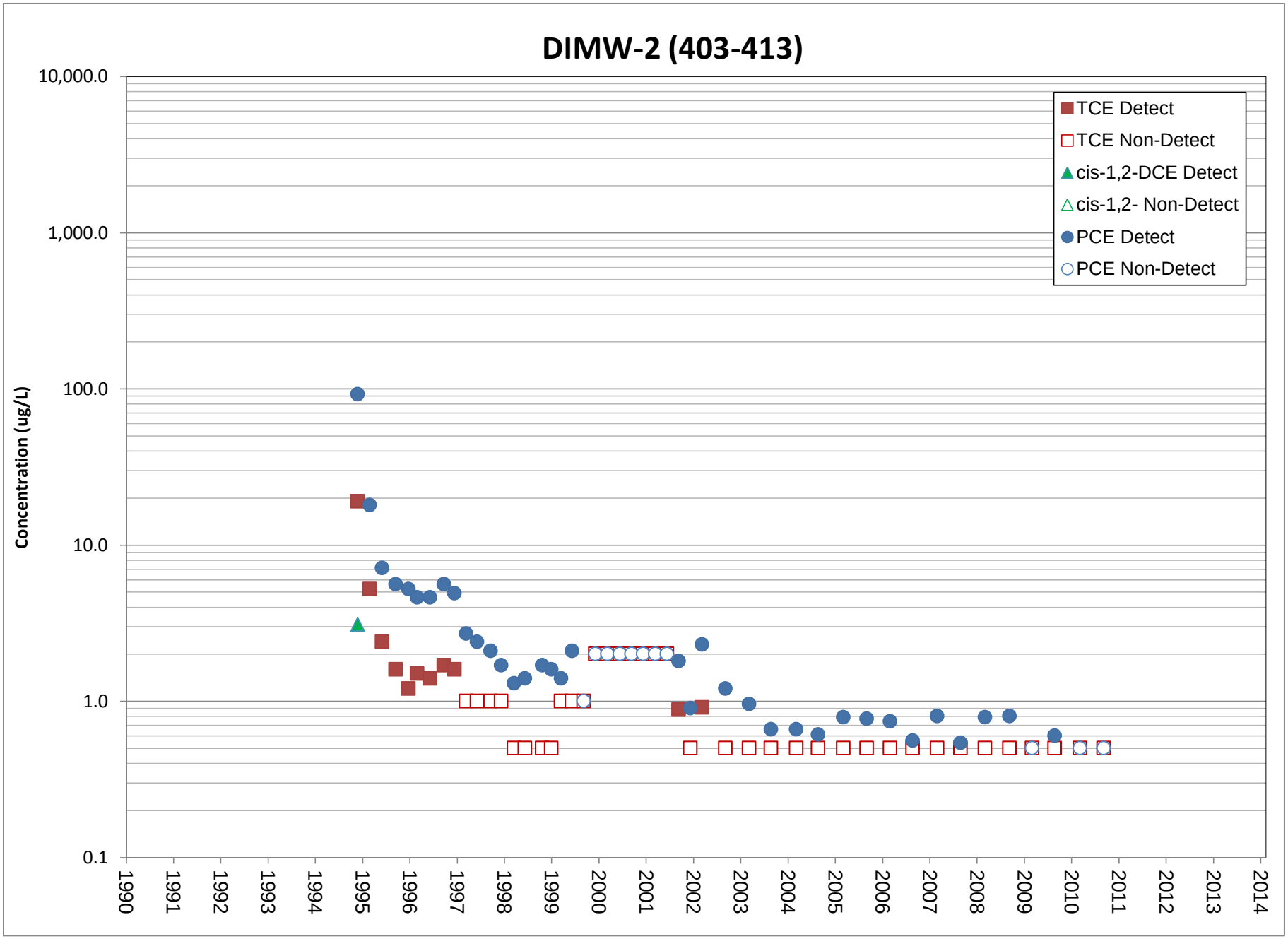
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-2 (403-413)
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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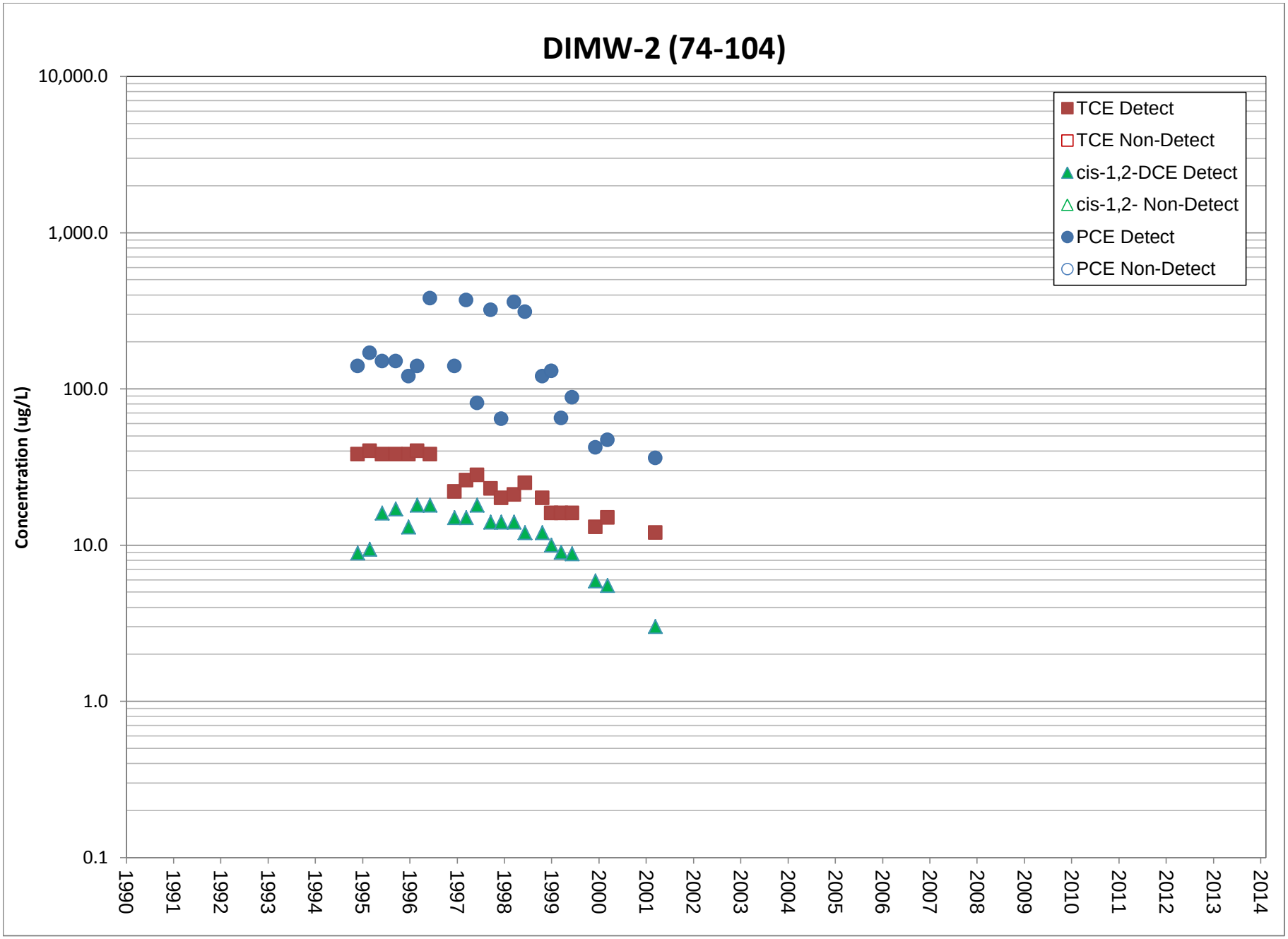
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-2 (74-104)
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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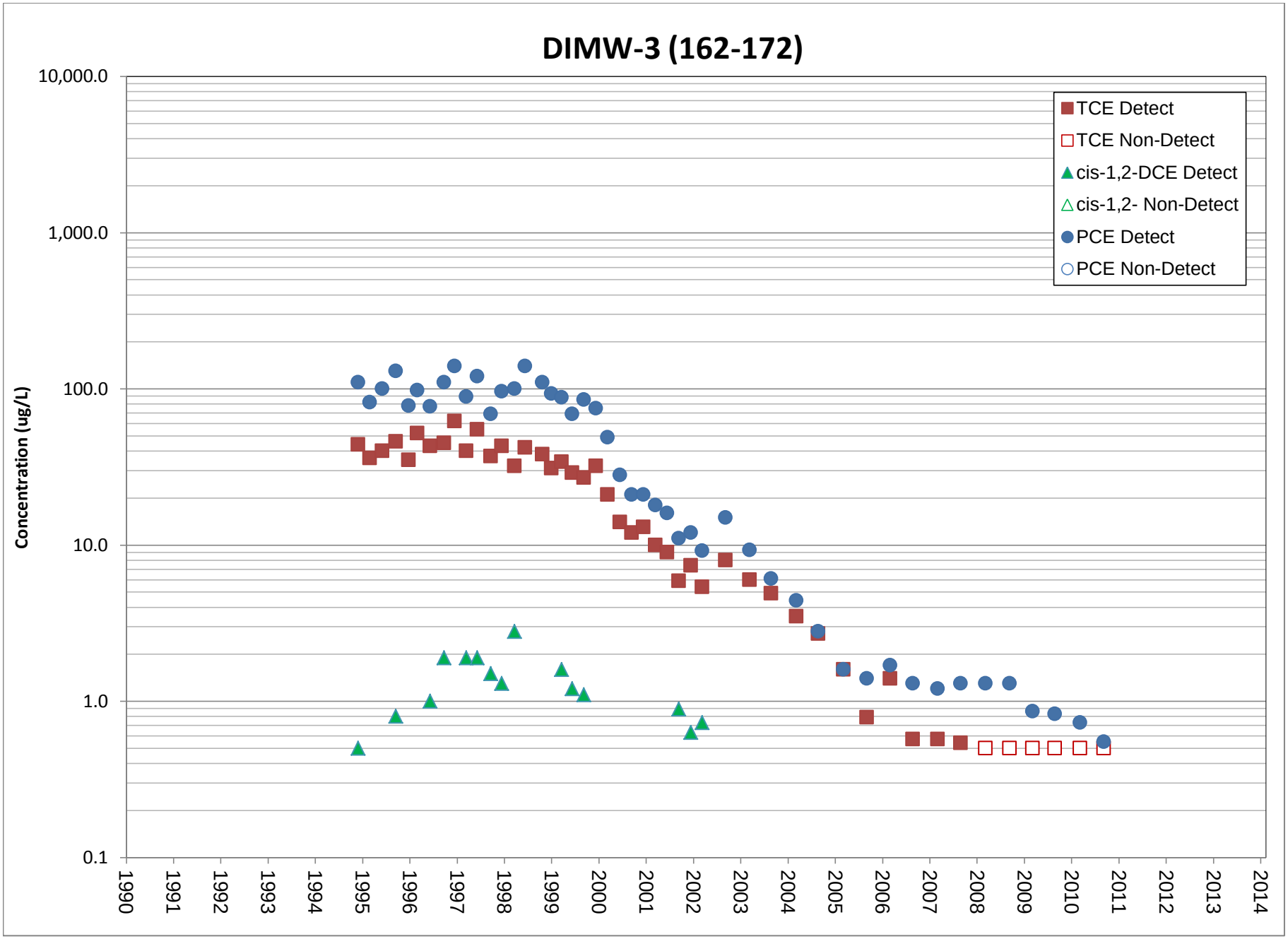
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-3 (162-172)
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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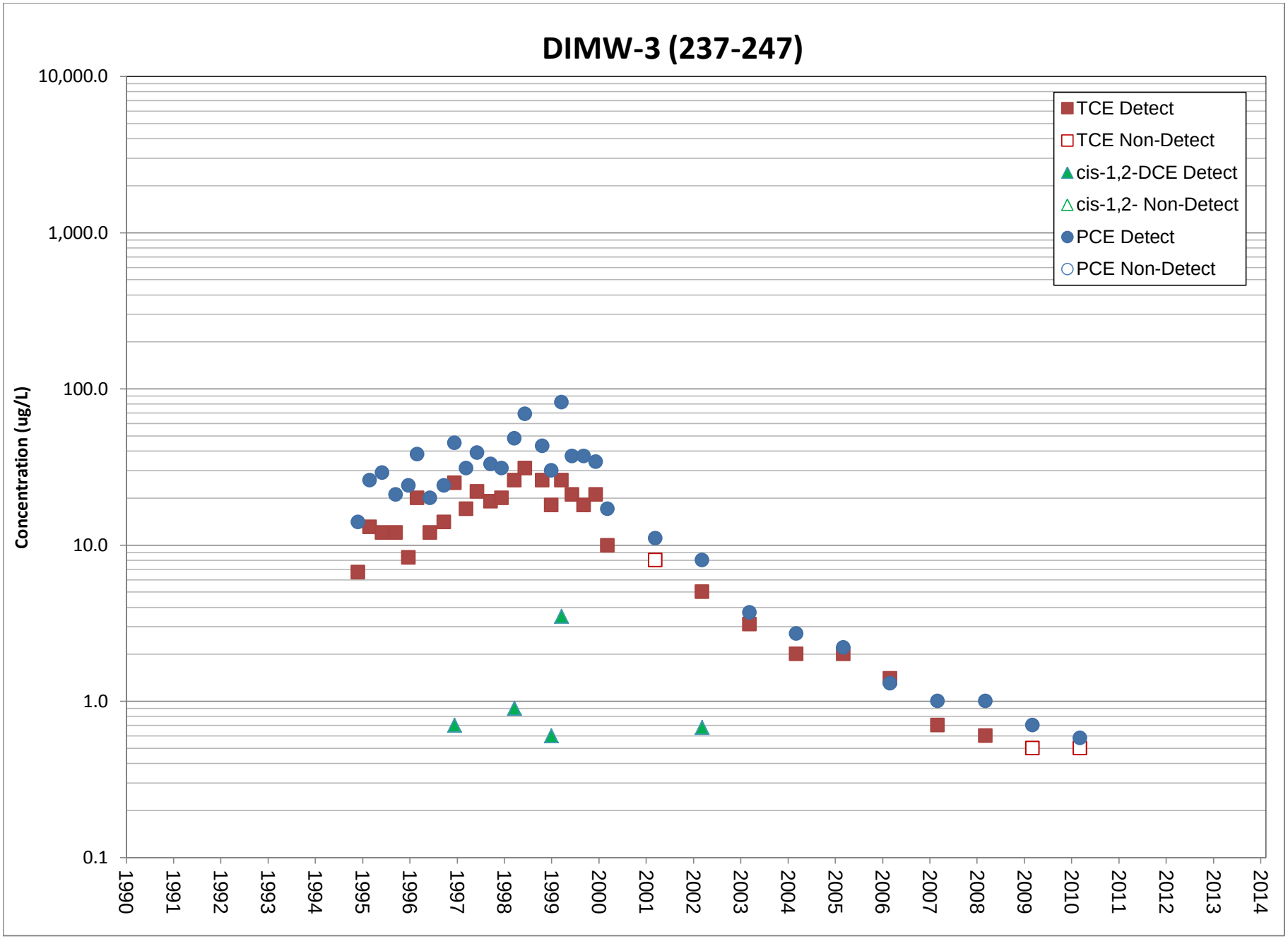
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-3 (237-247)
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
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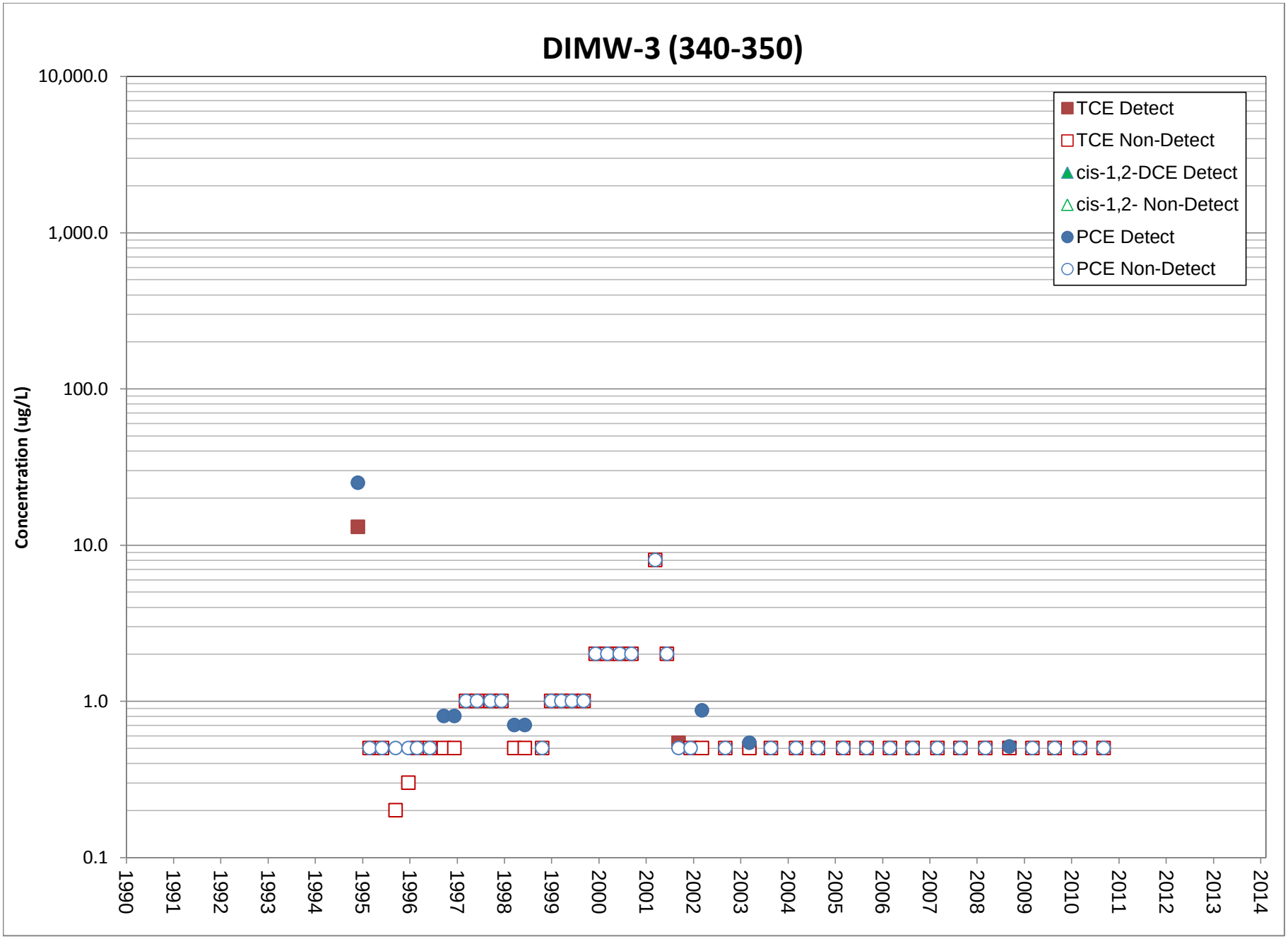
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-3 (340-350)
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
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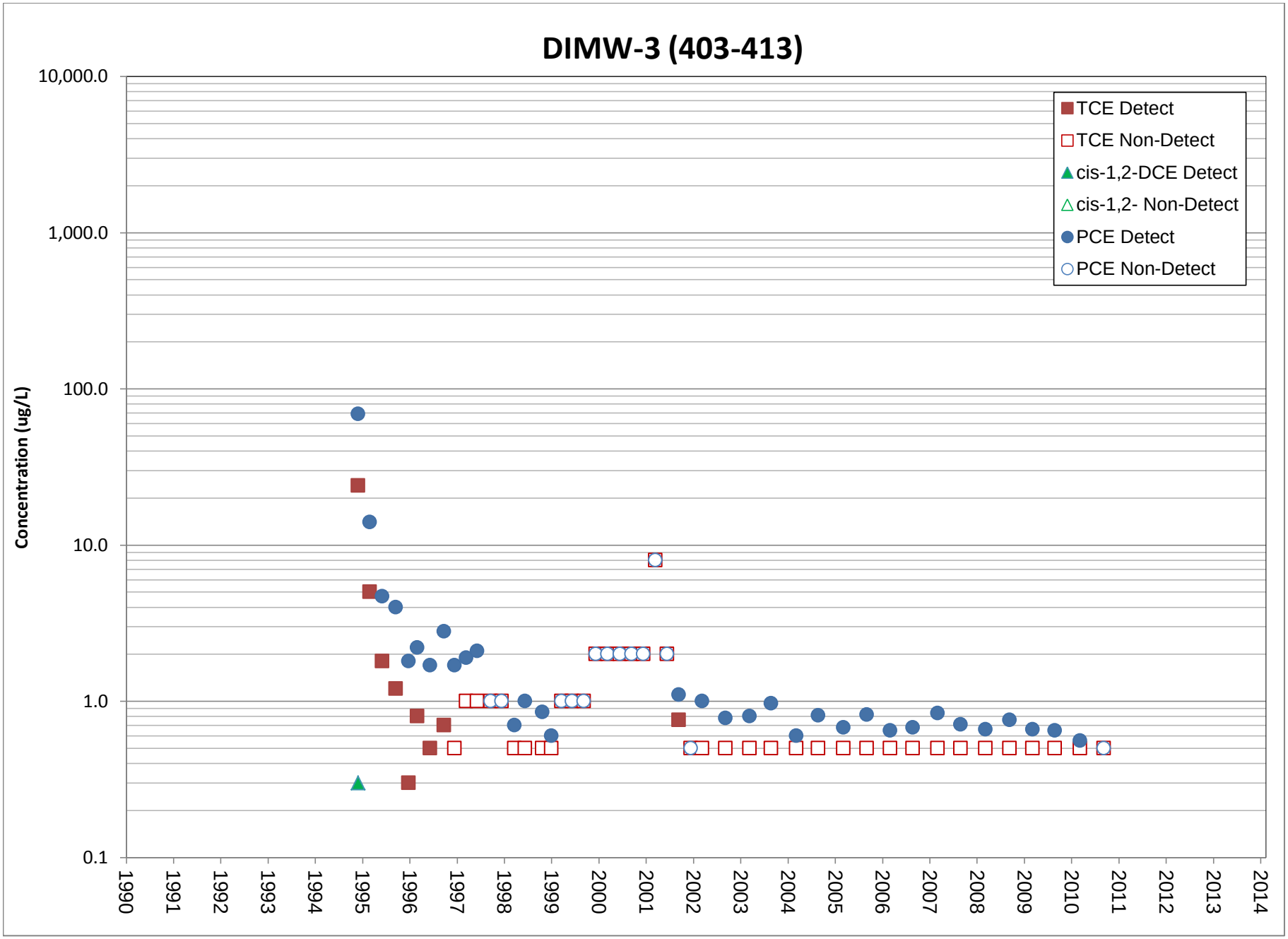
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-3 (403-413)
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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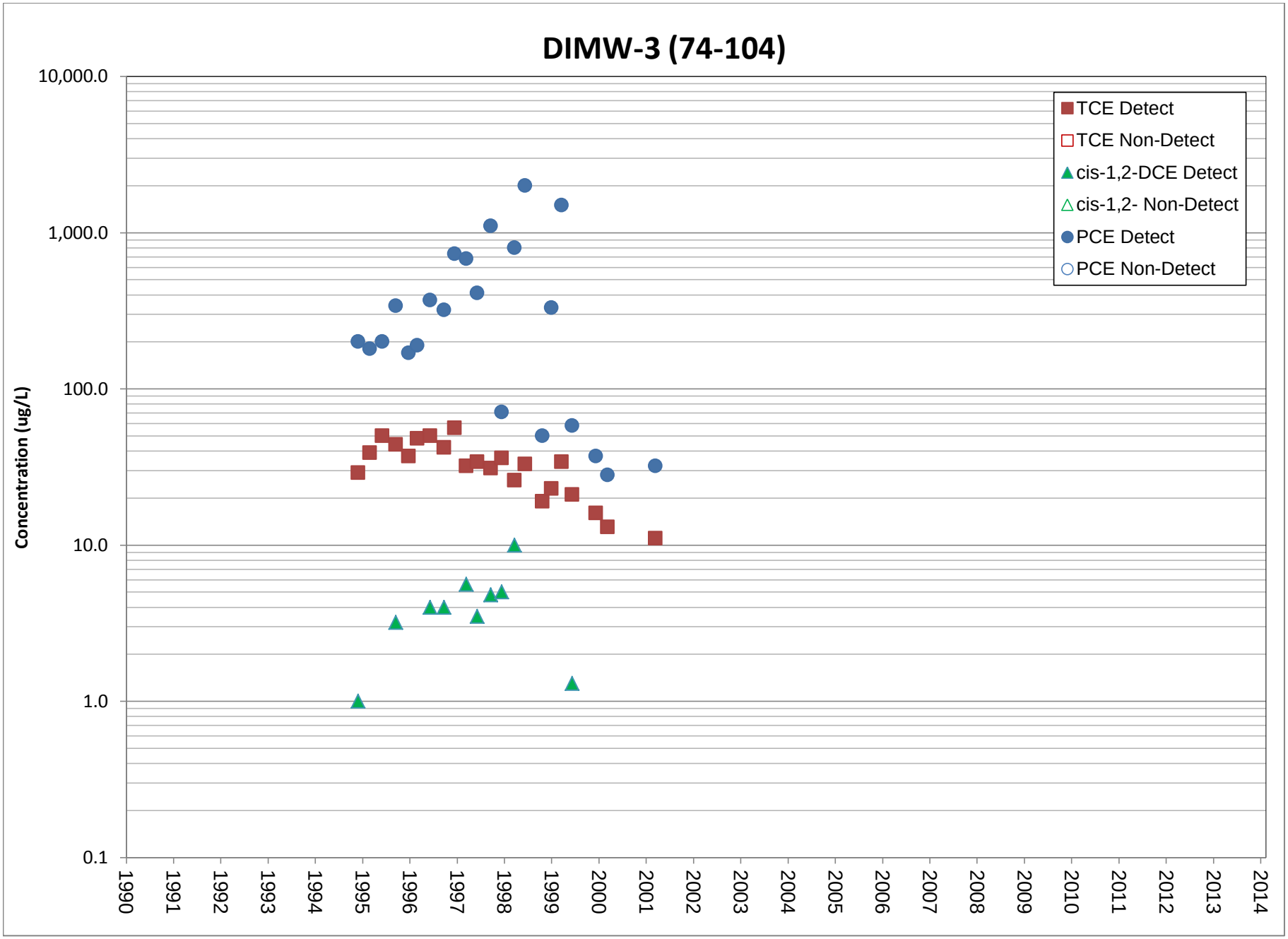
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-3 (74-104)
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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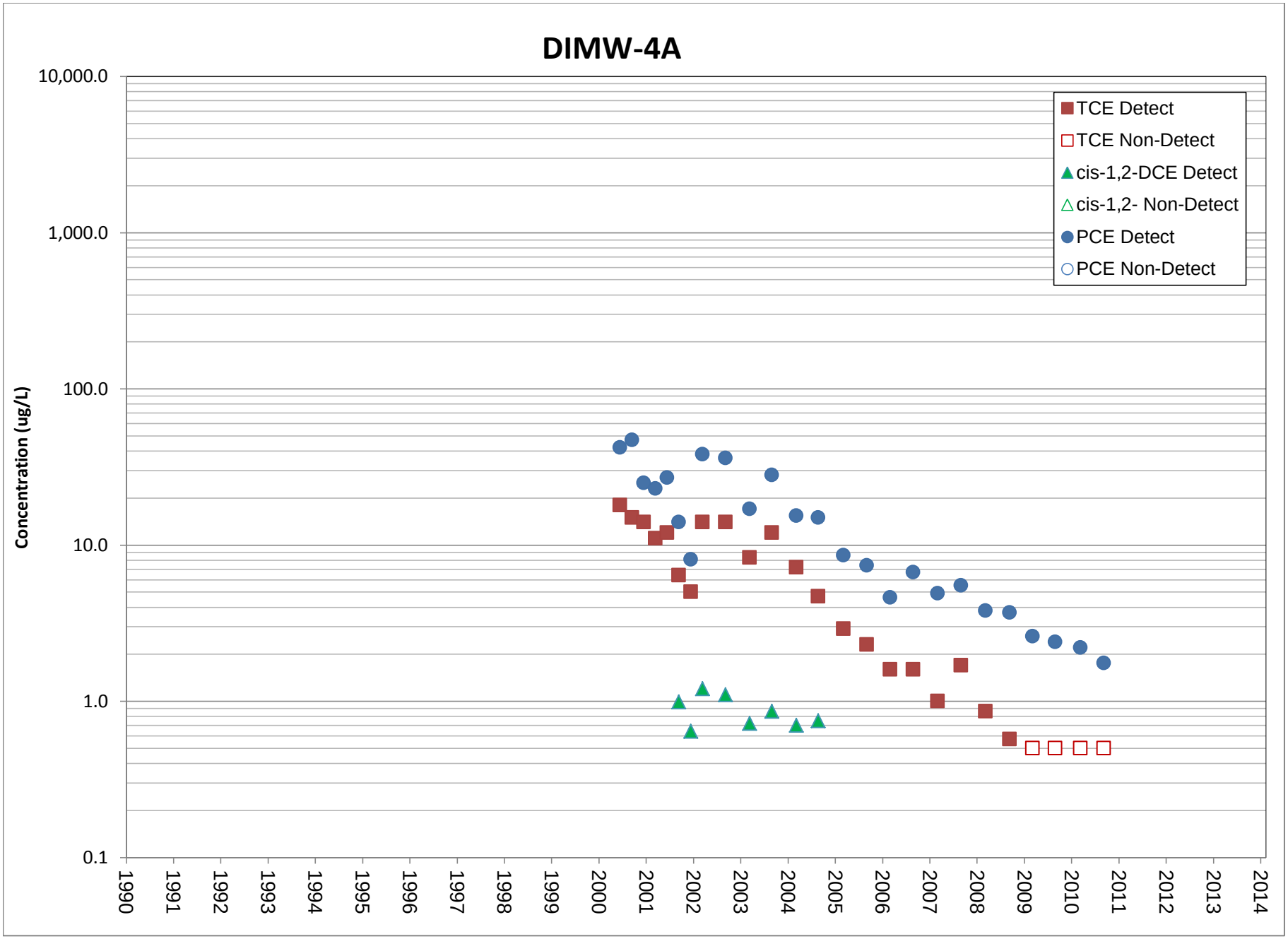
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-4A
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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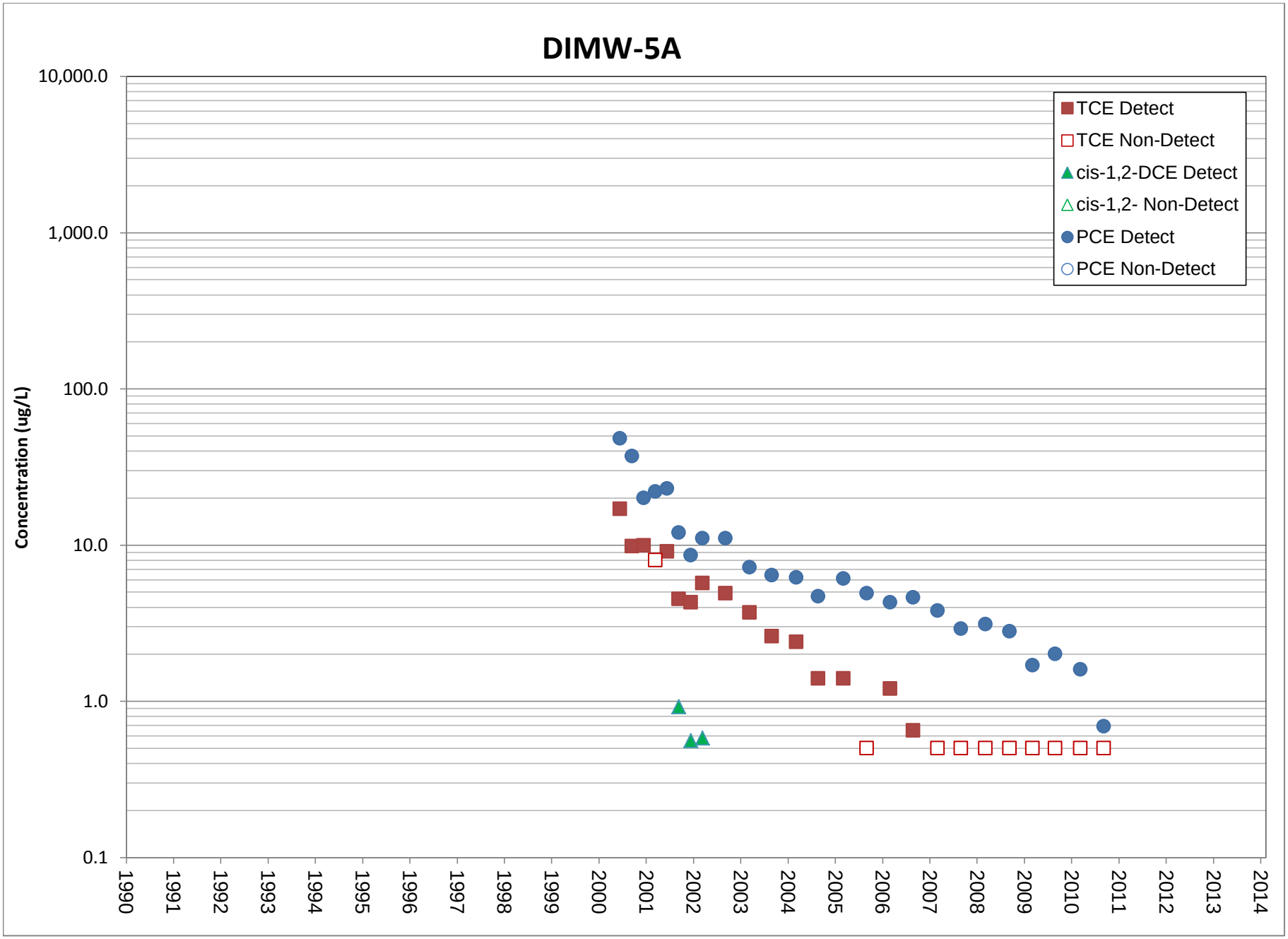
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-5A
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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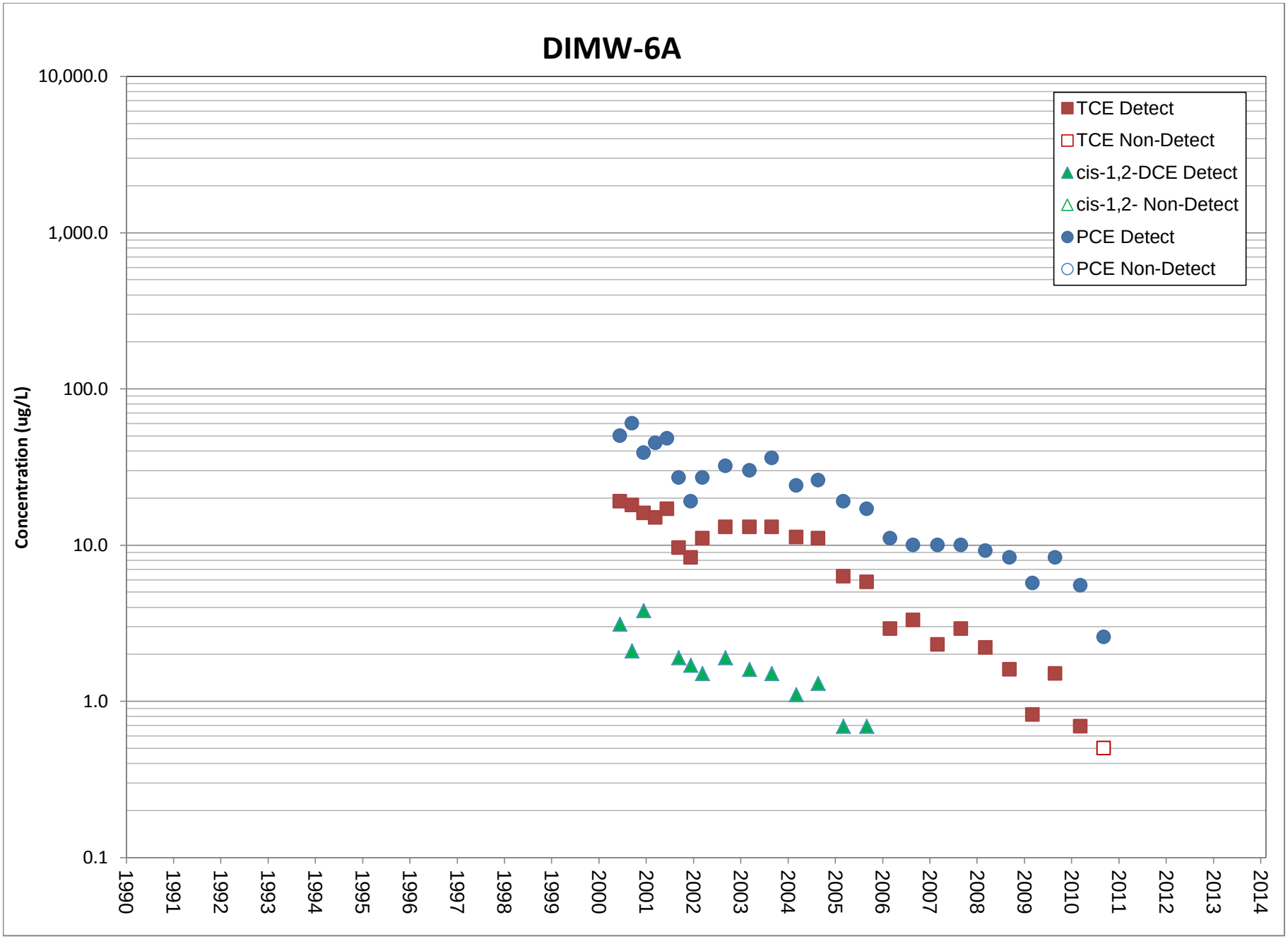
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-6A
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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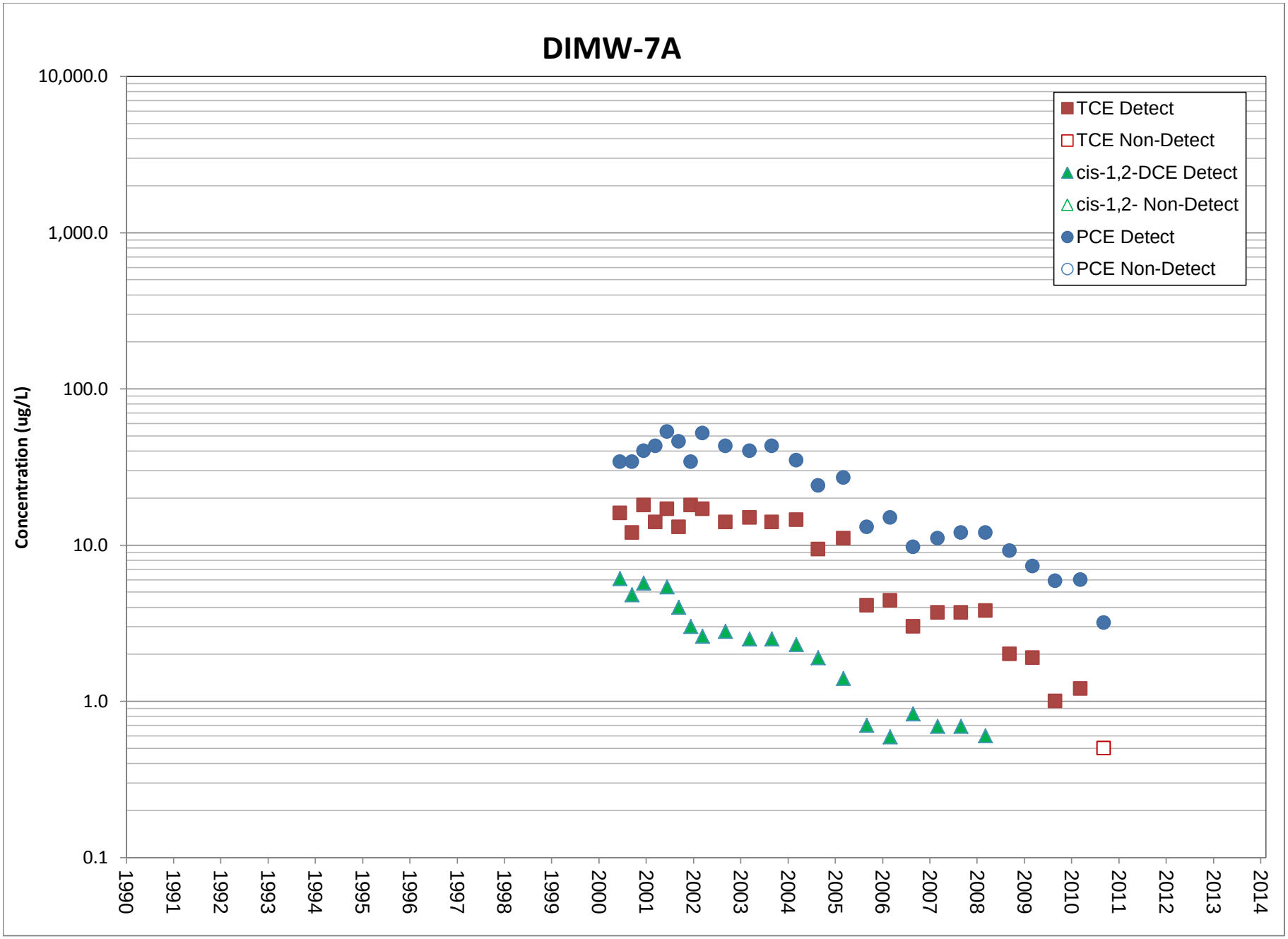
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-7A
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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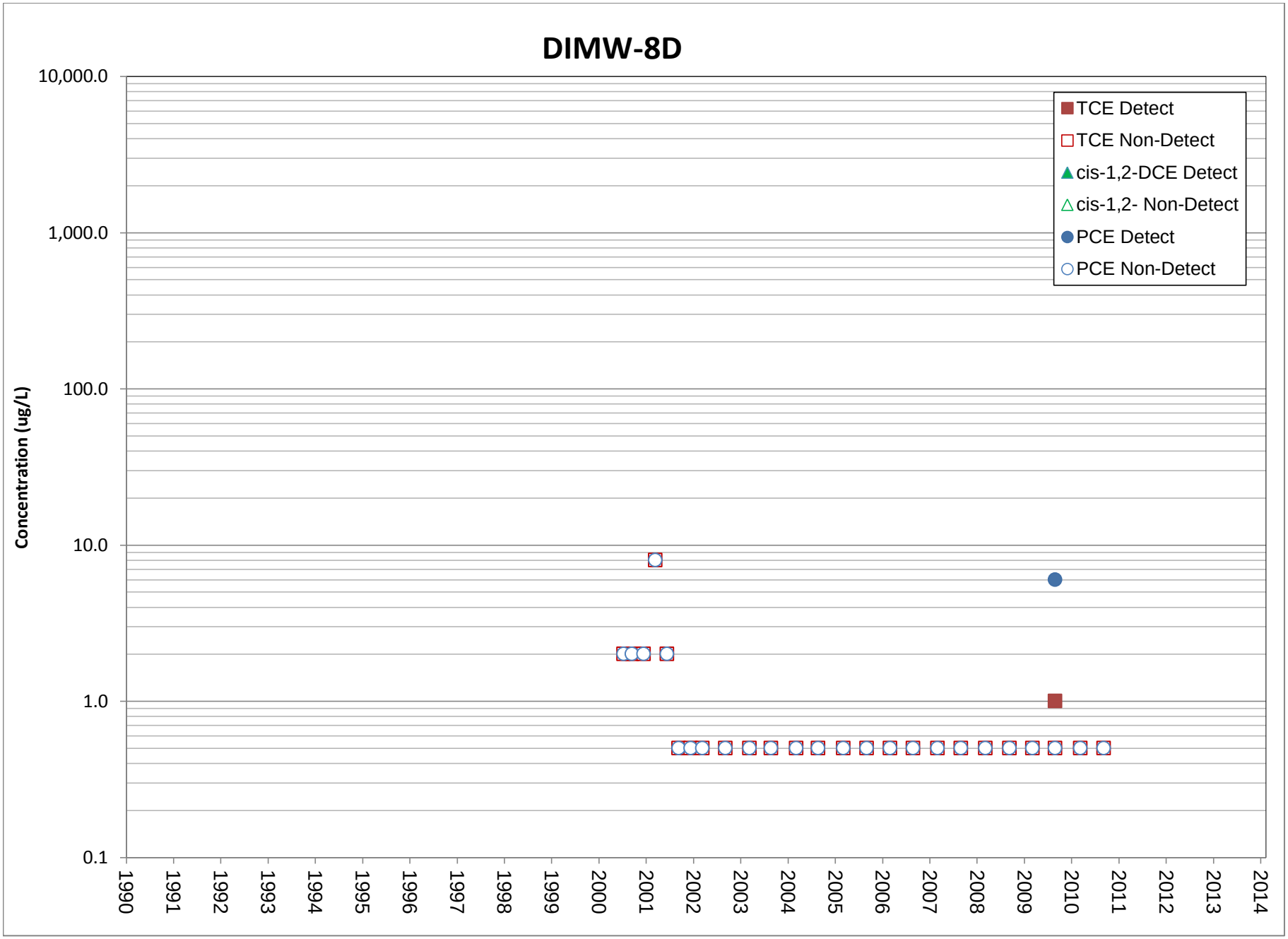
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-8D
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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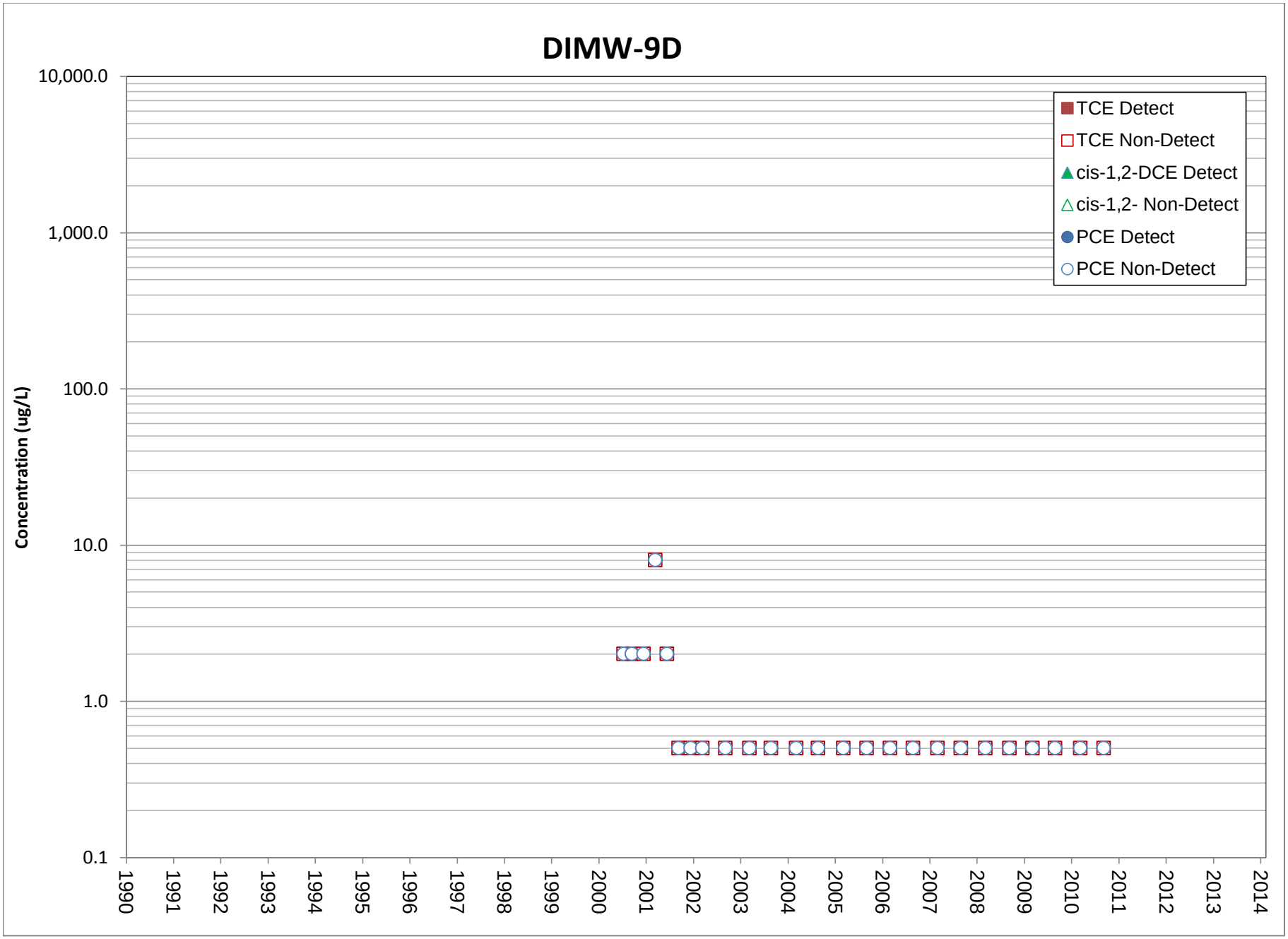
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


DIMW-9D
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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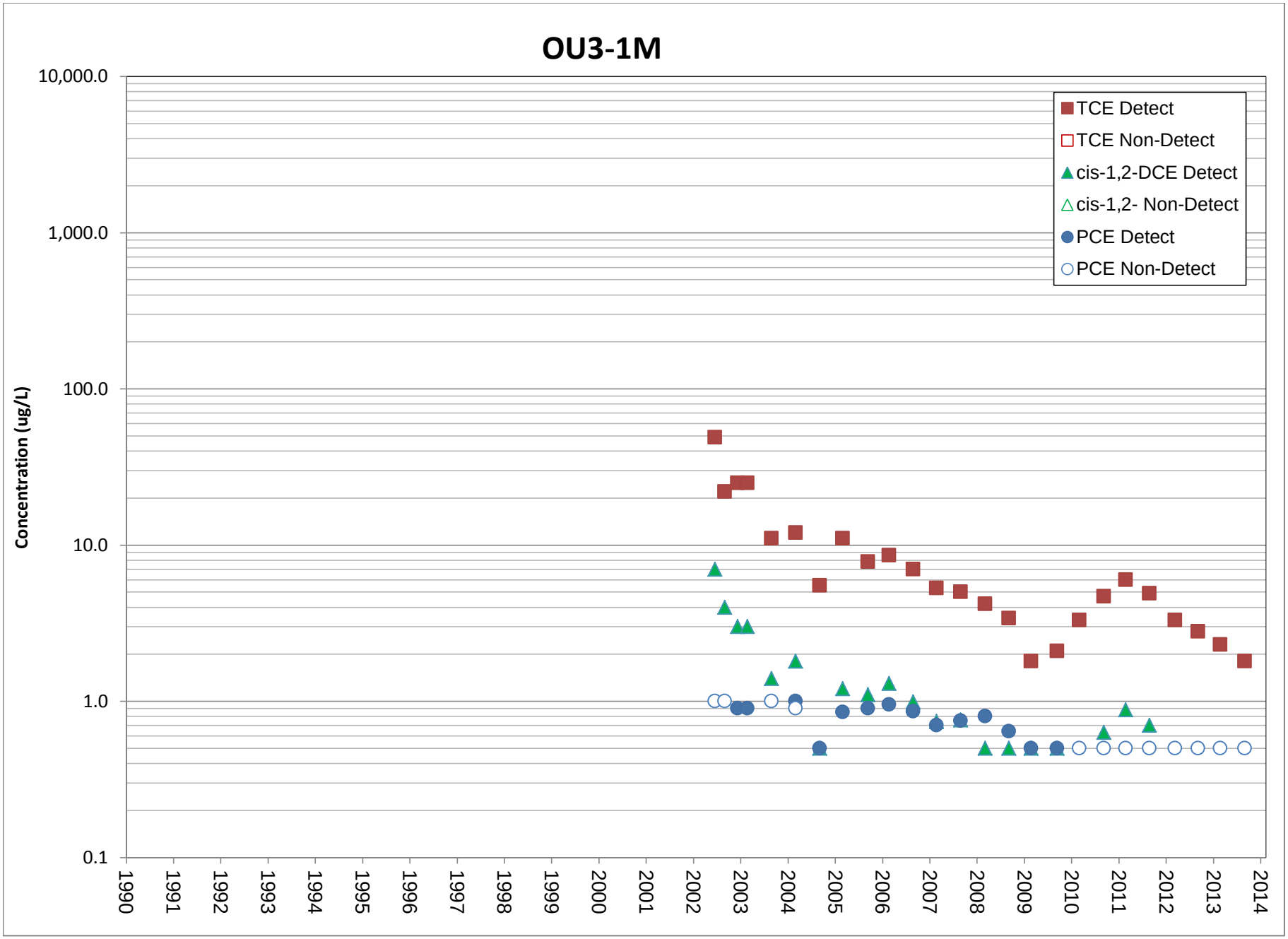
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-1M
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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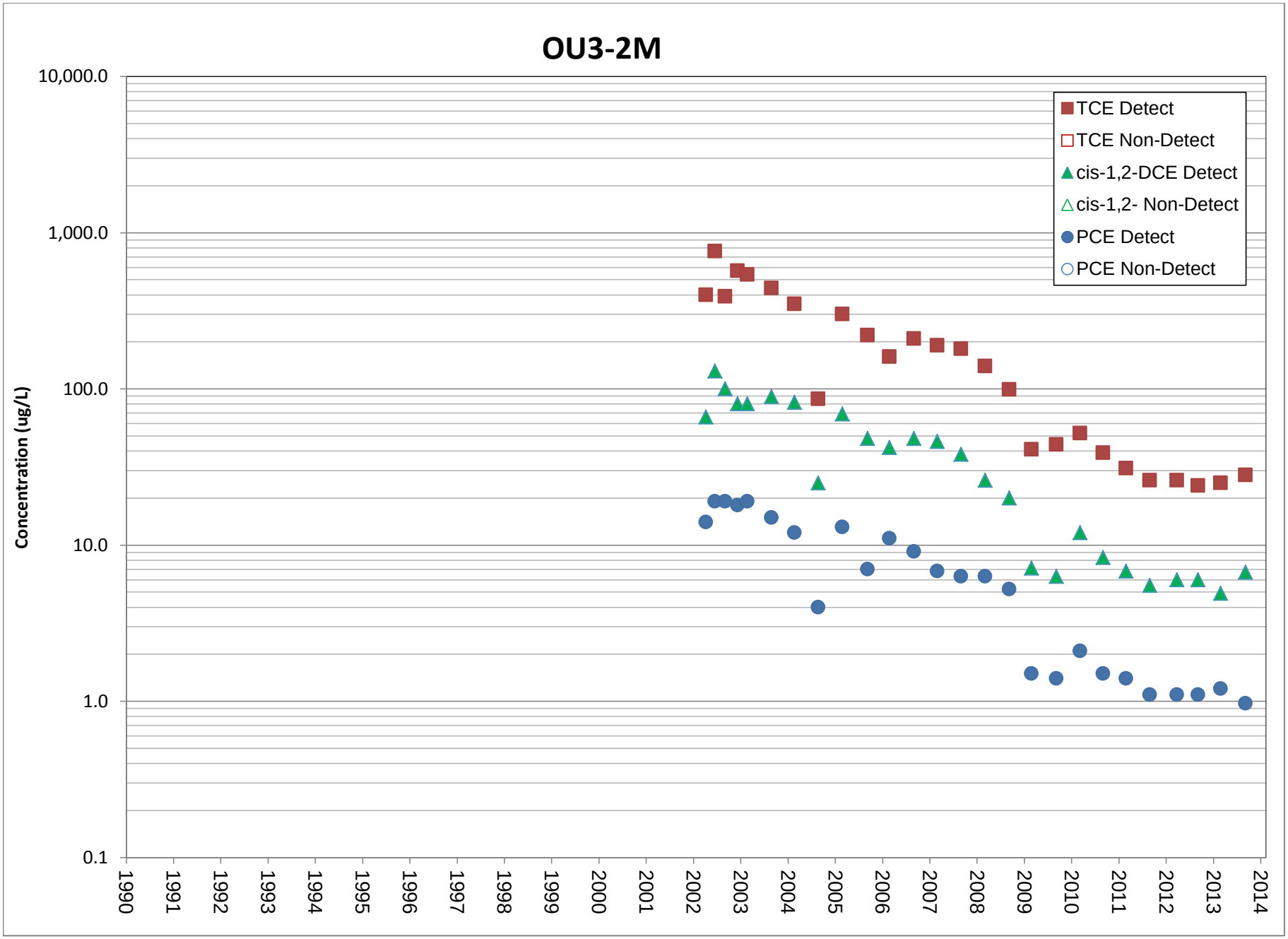
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-2M
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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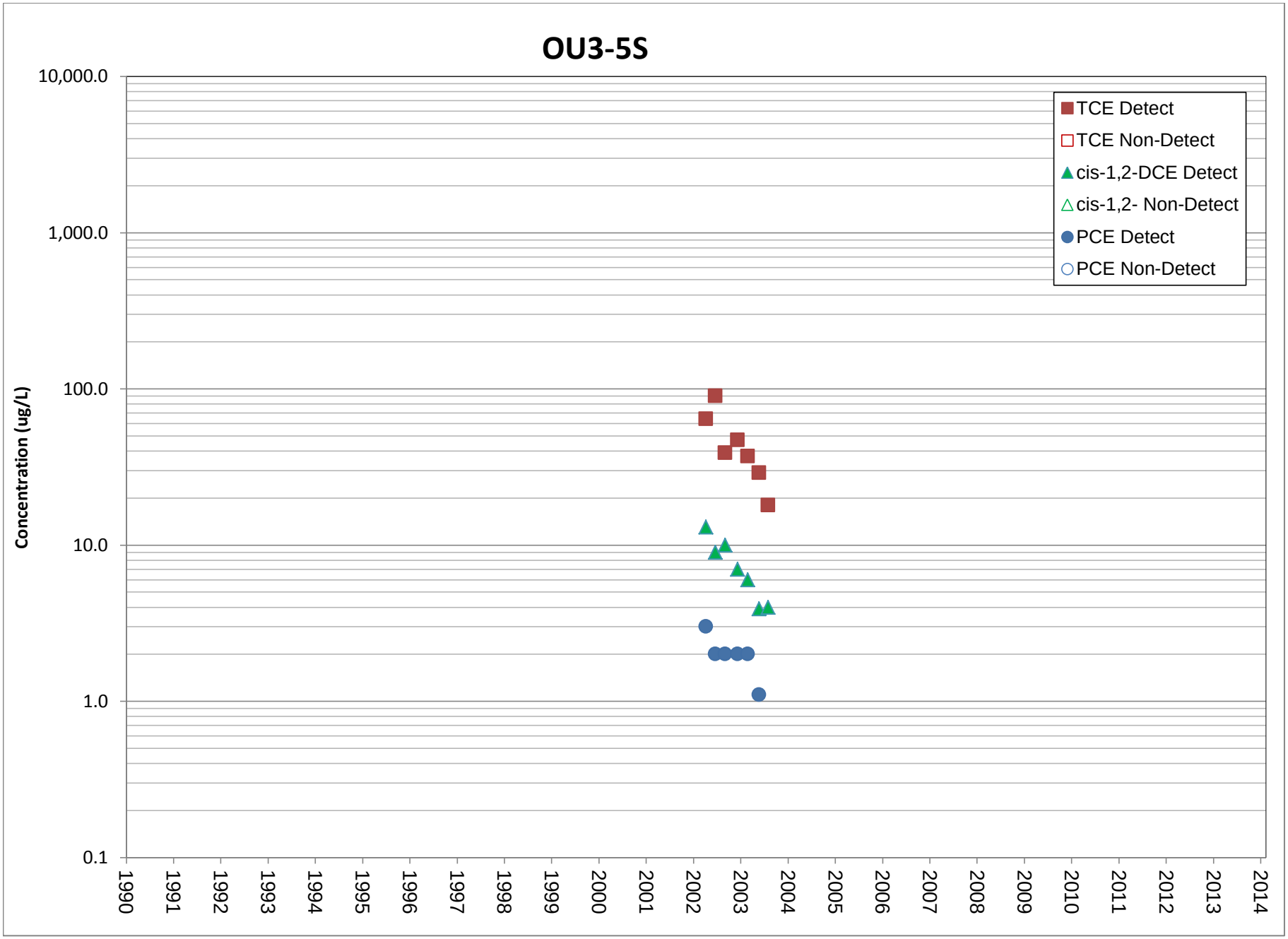
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-5S
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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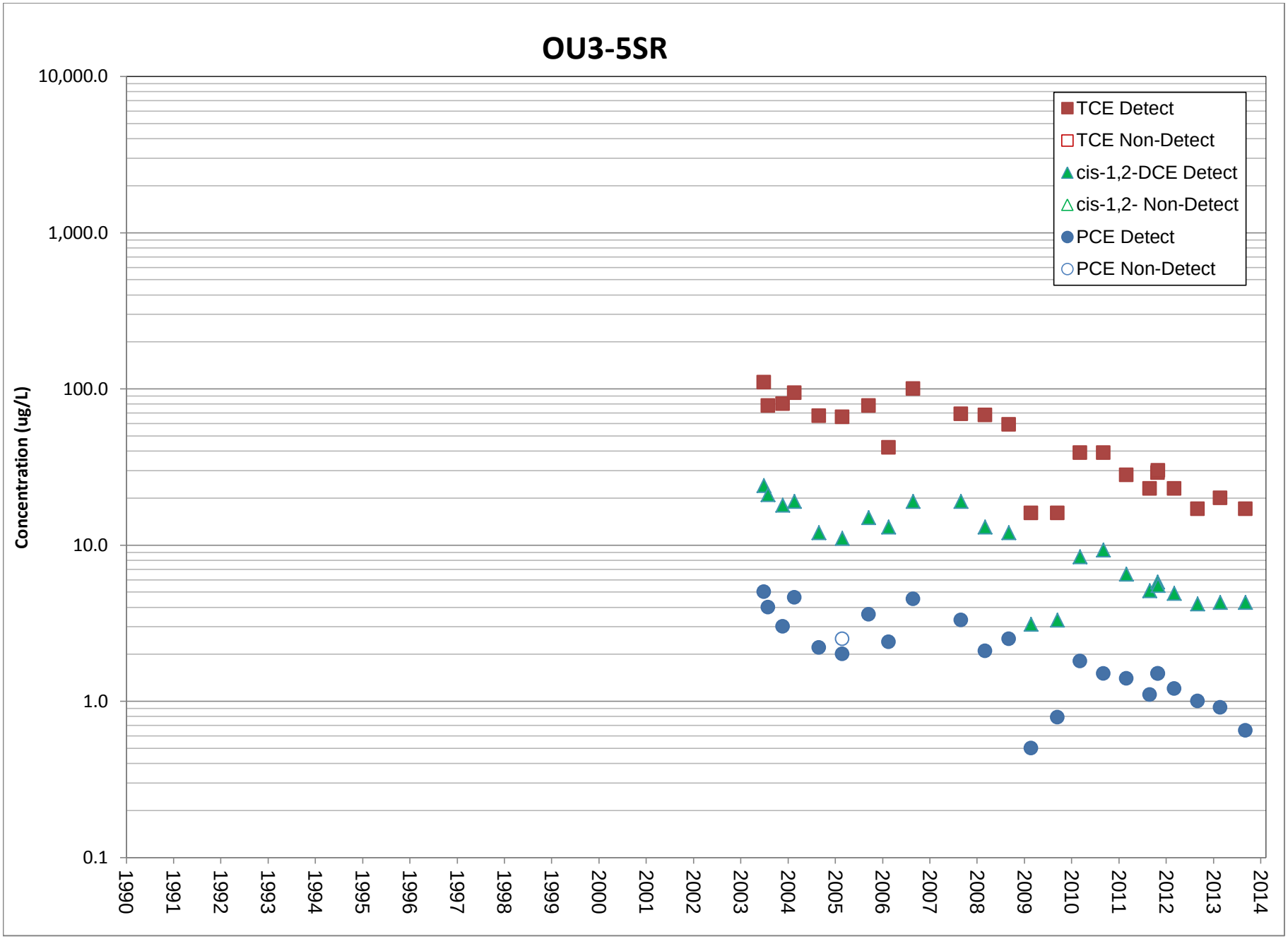
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-5SR
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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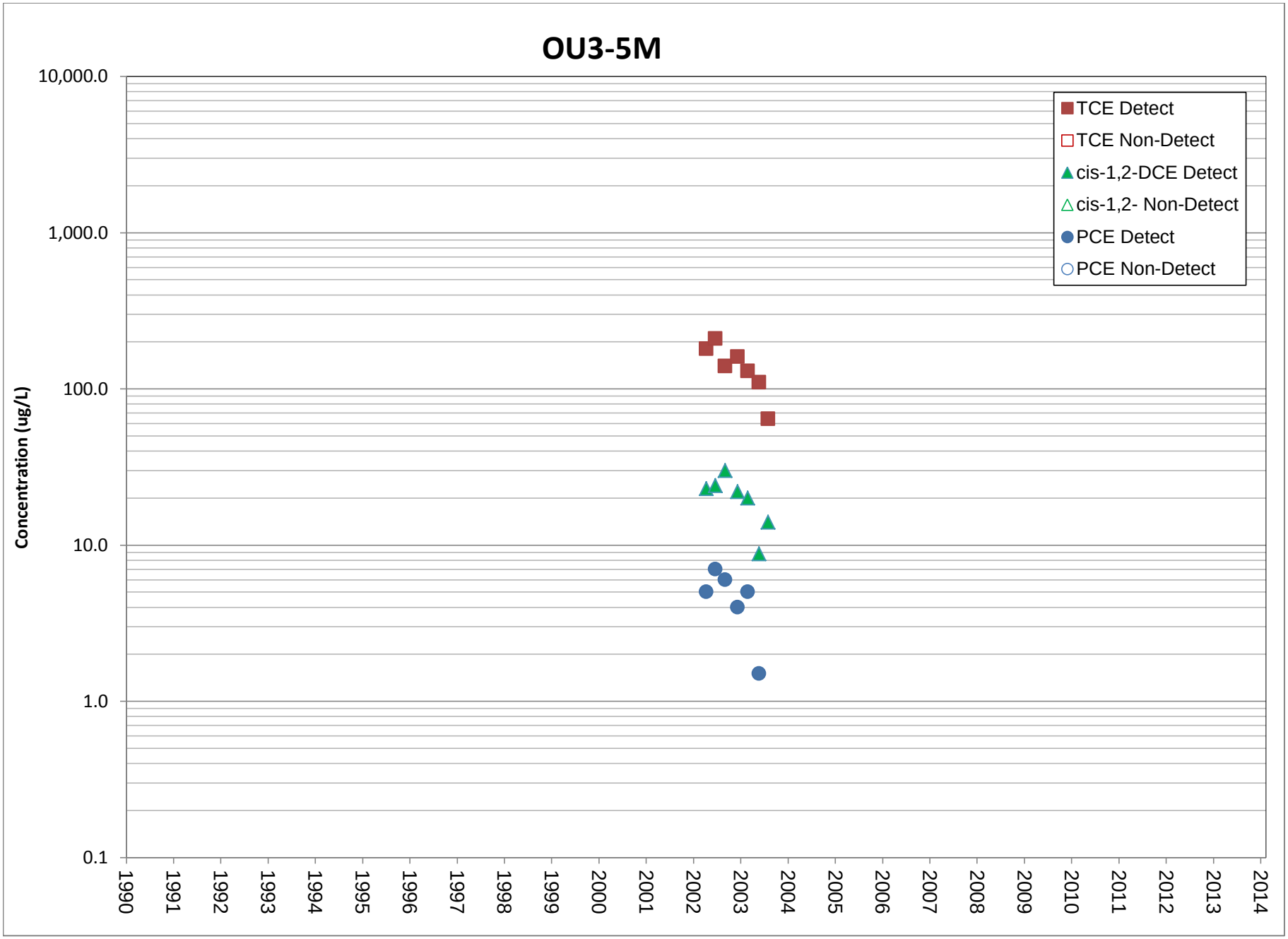
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-5M
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
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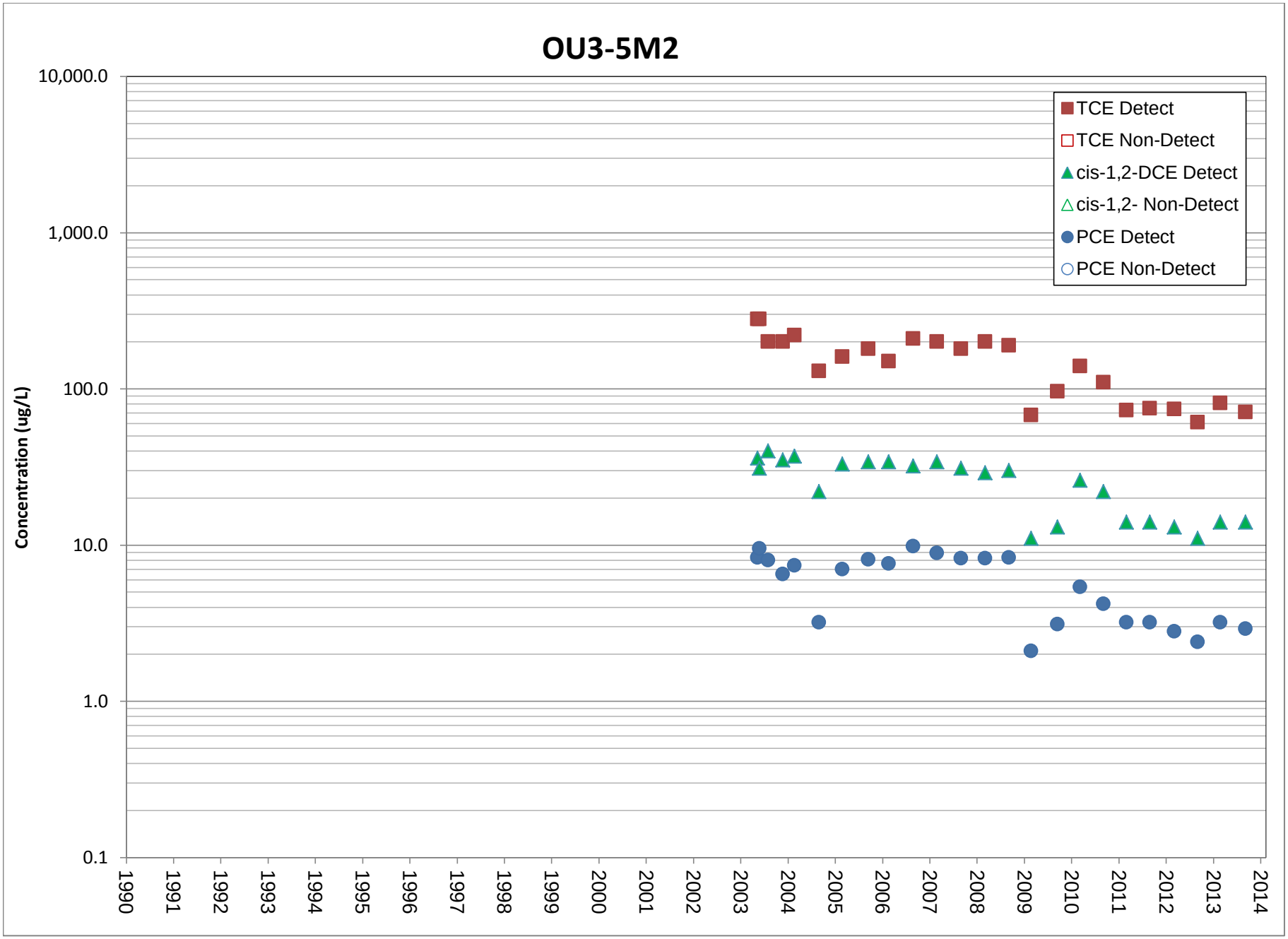
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-5M2
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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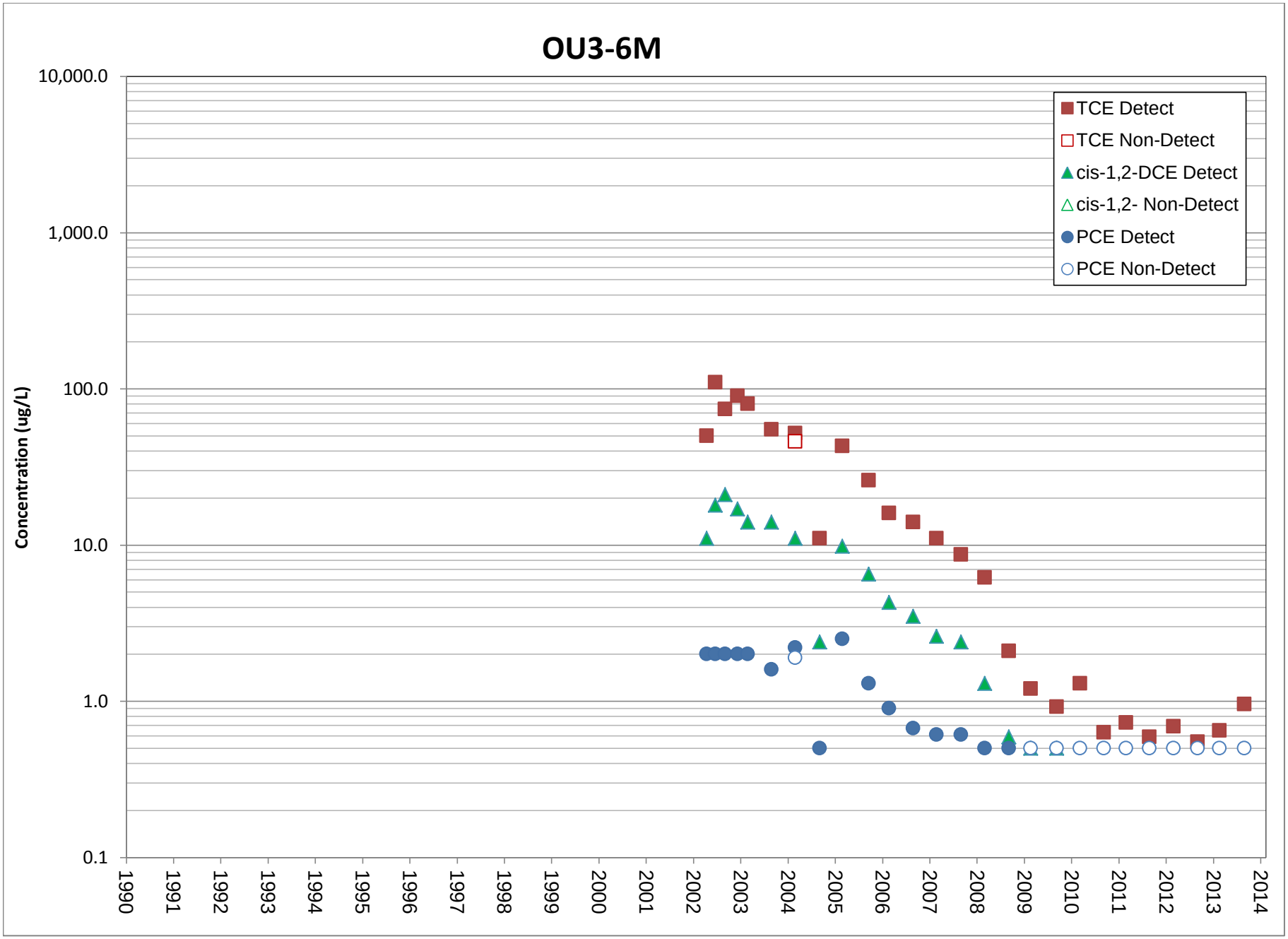
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-6M
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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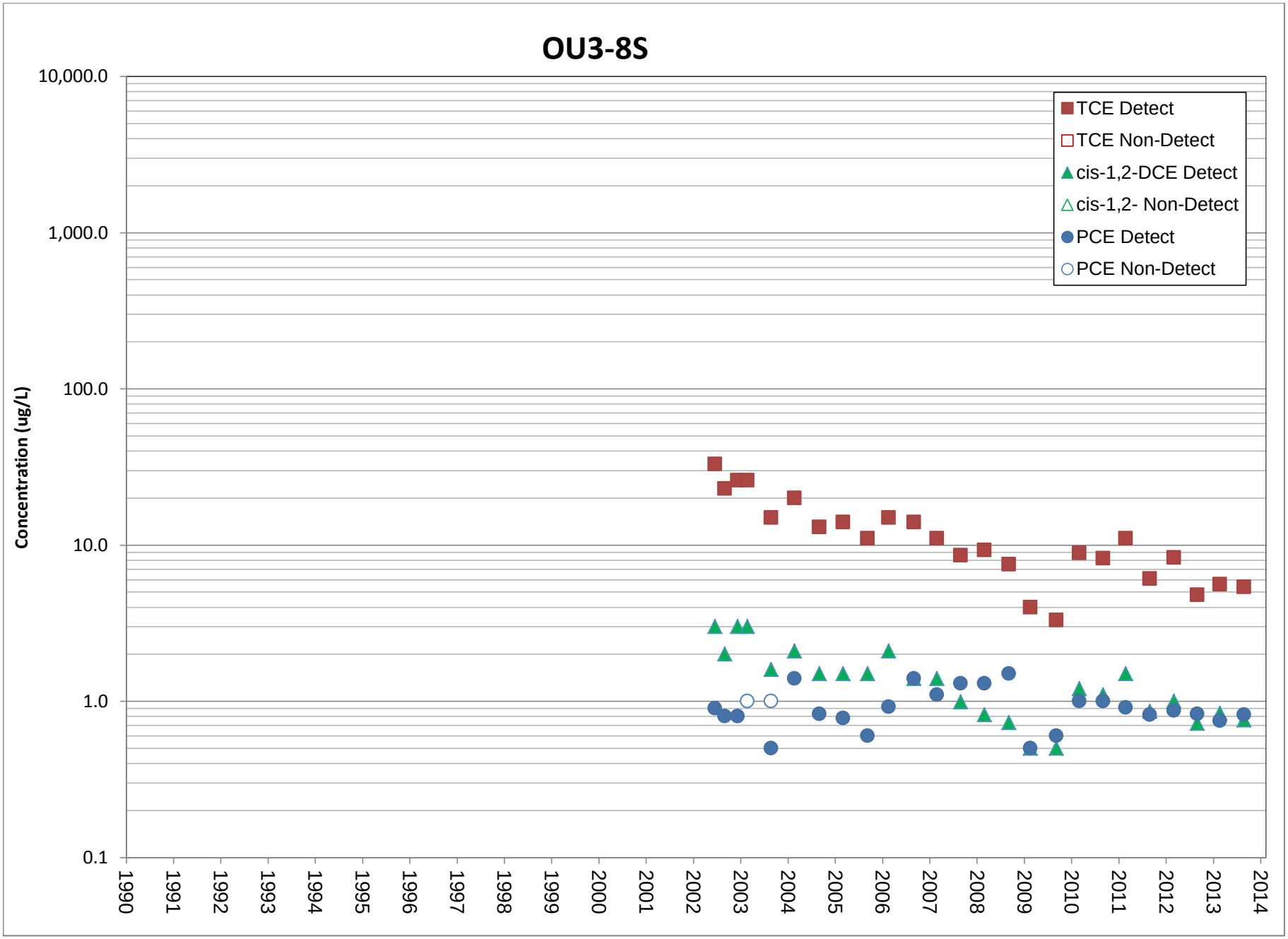
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-8S
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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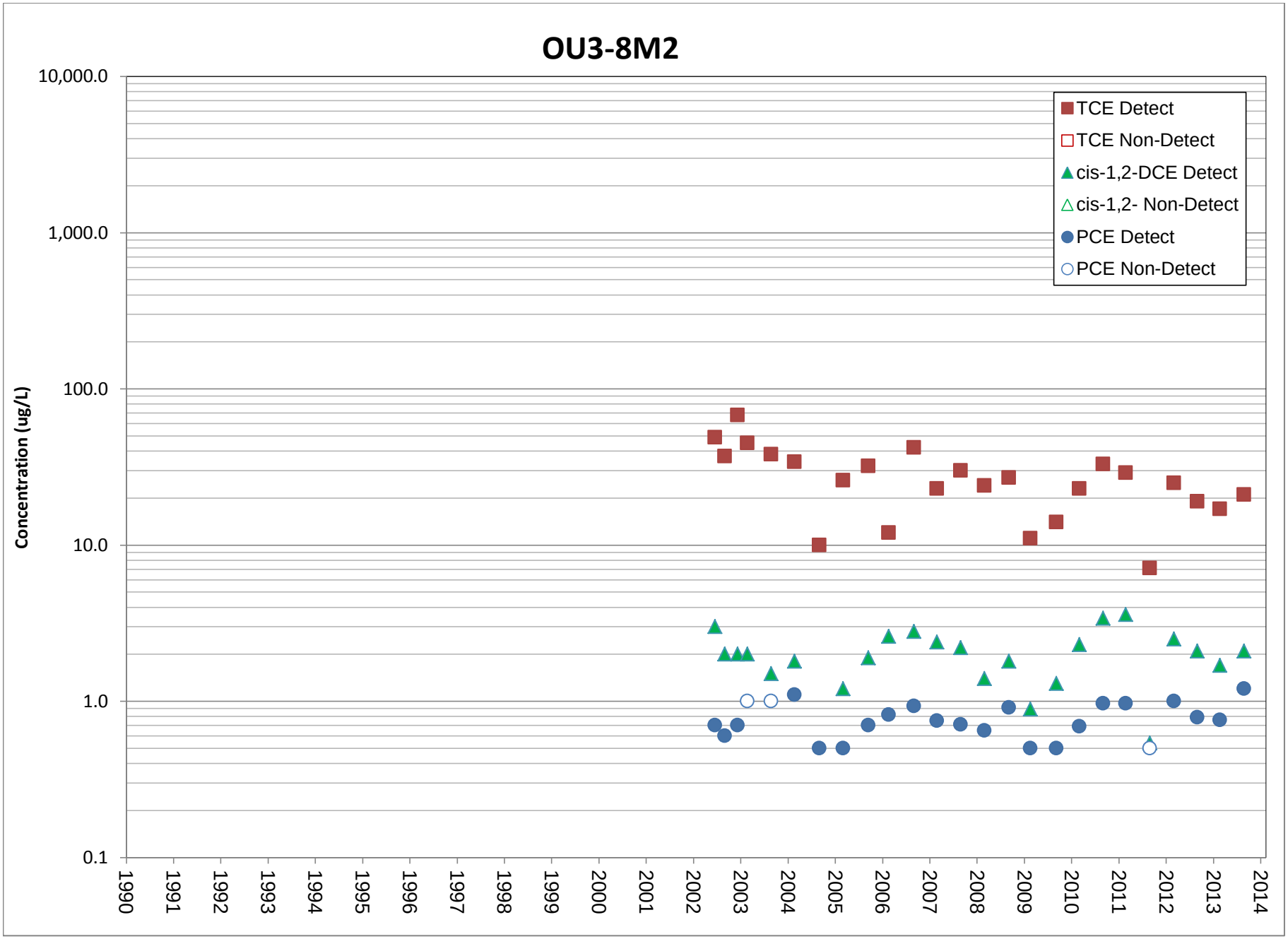
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-8M2
Concentration (ug/L)
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10.0
1.0
0.1
1990
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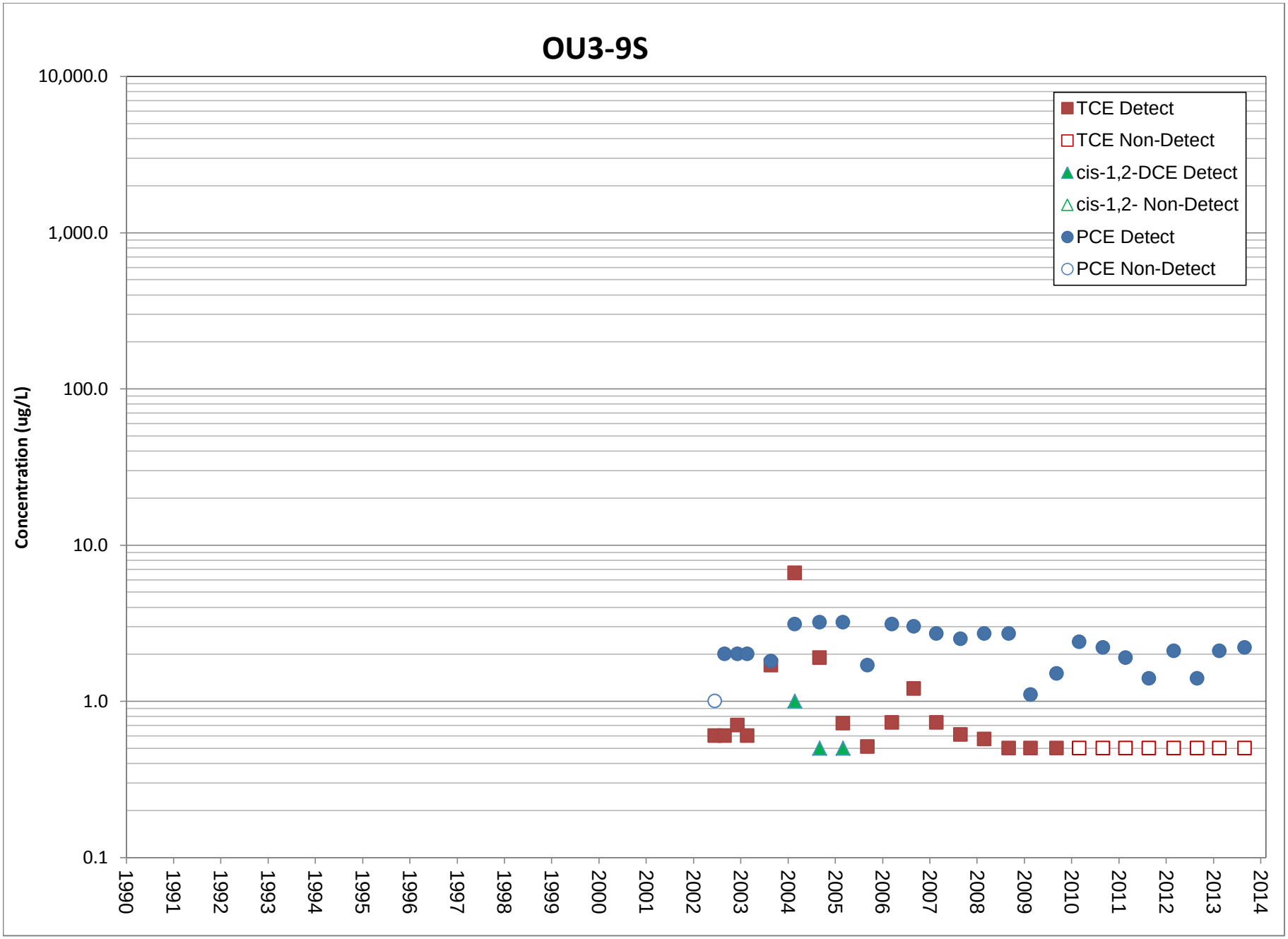
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-9S
Concentration (ug/L)
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1.0
0.1
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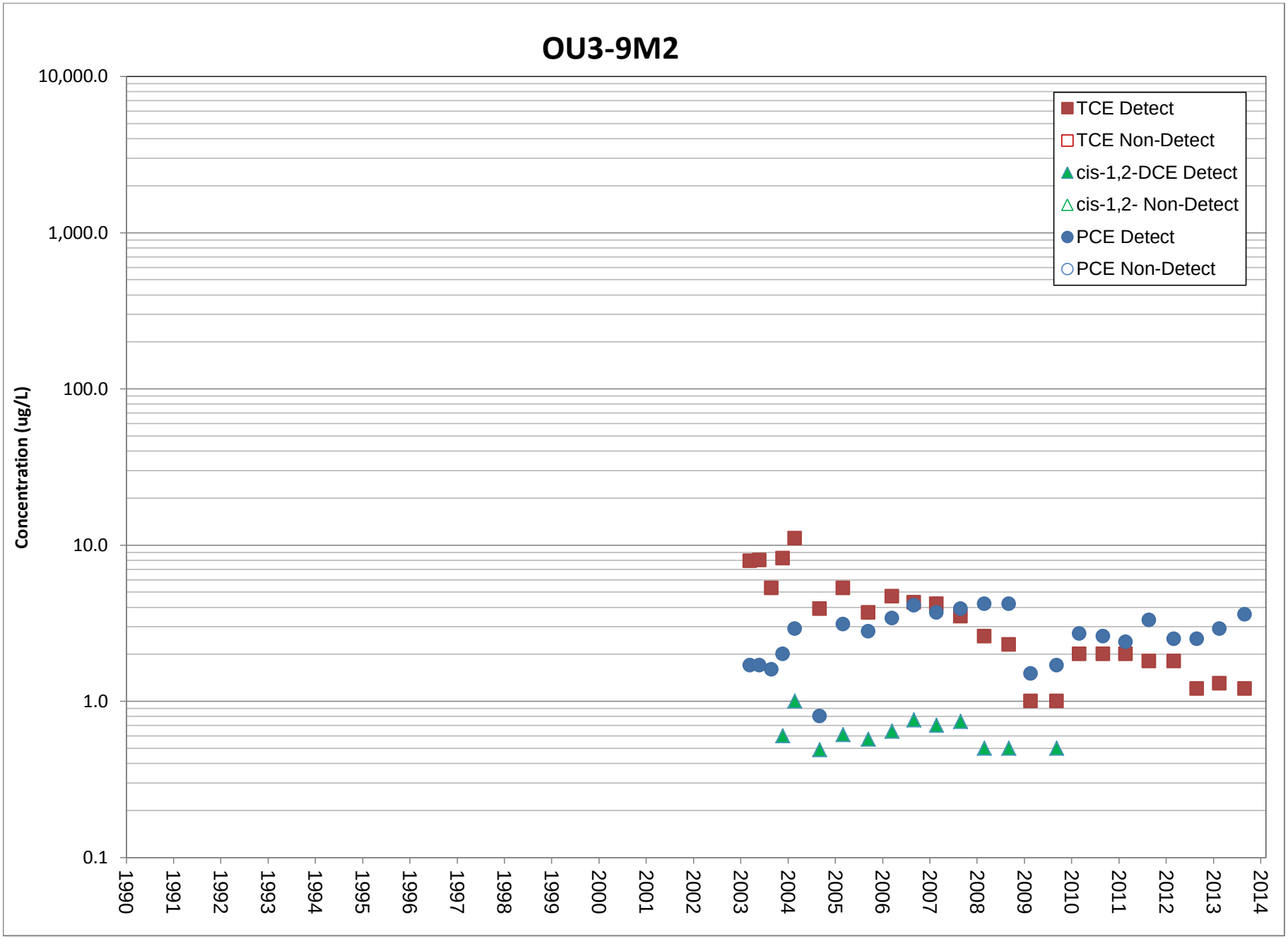
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-9M2
Concentration (ug/L)
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1.0
0.1
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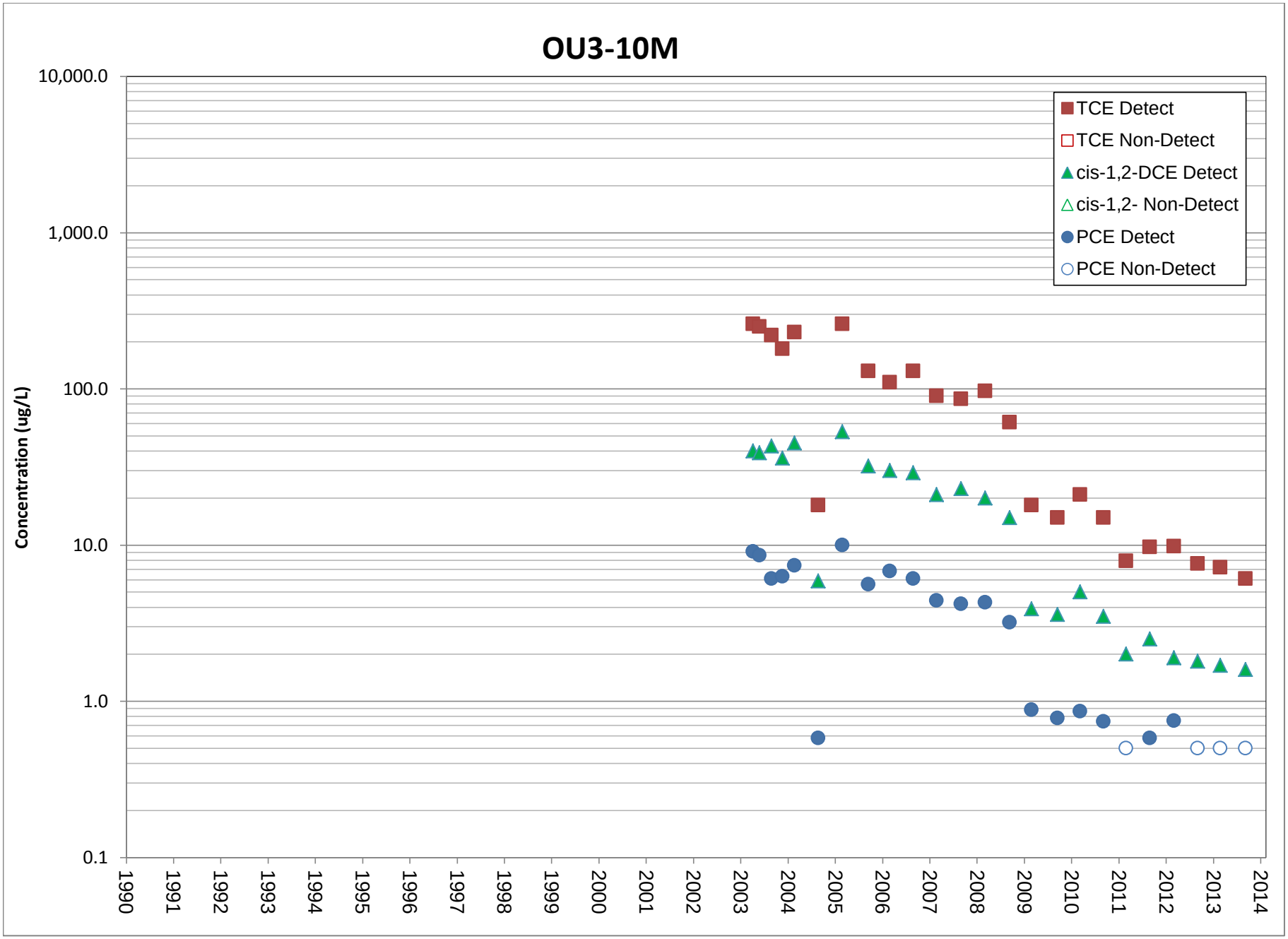
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-10M
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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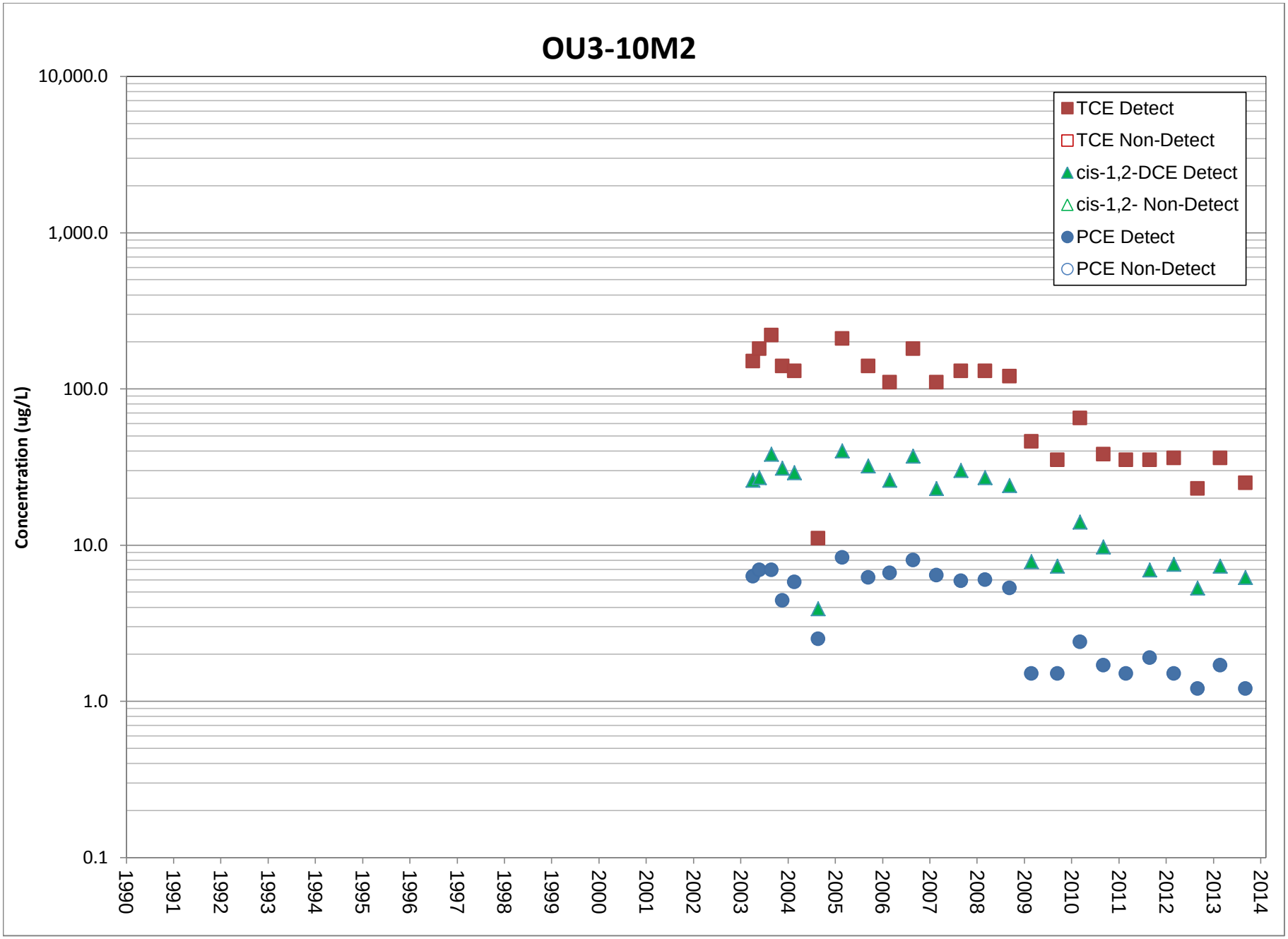
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-10M2
Concentration (ug/L)
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10.0
1.0
0.1
1990
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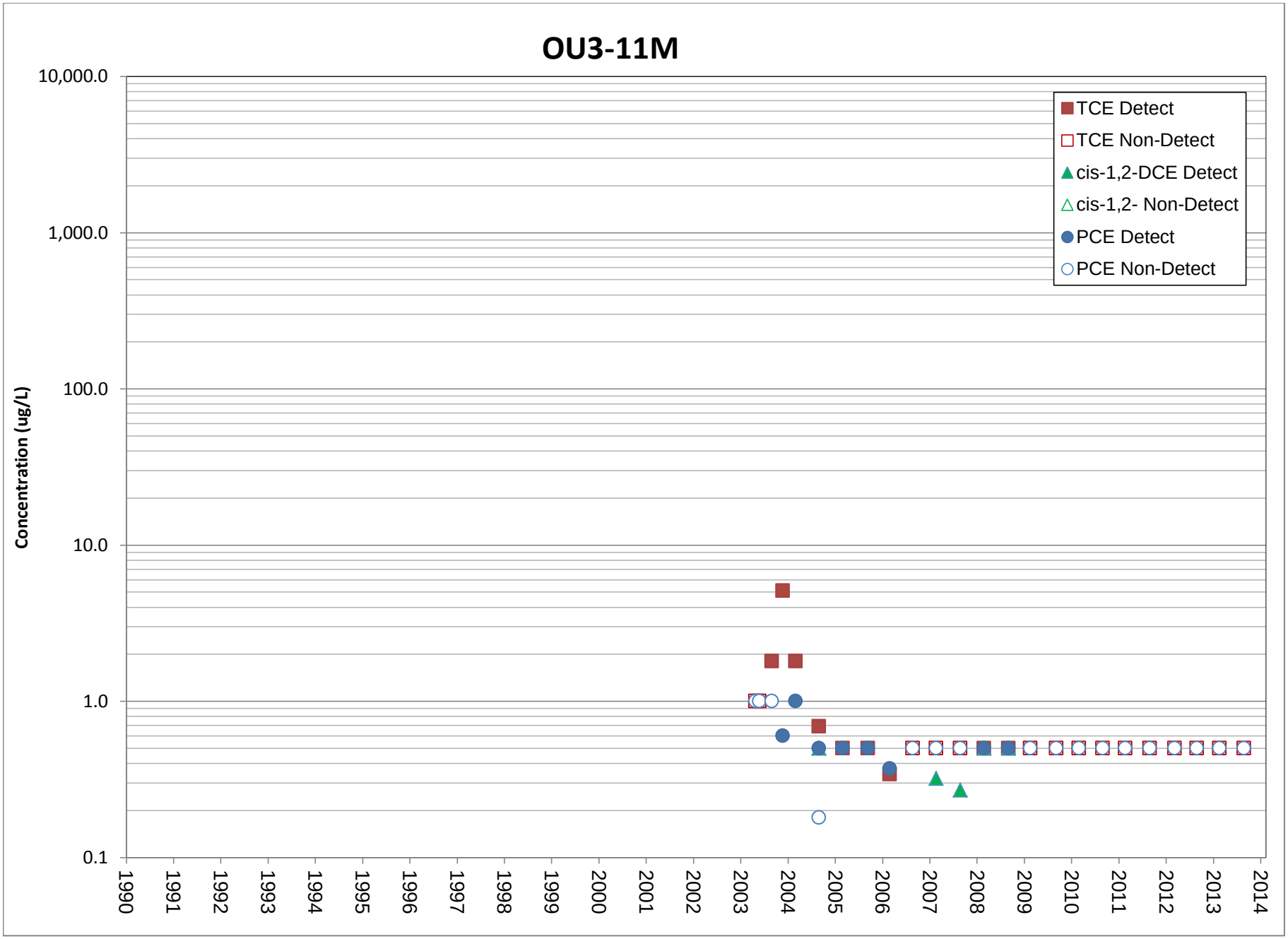
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-11M
Concentration (ug/L)
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100.0
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1.0
0.1
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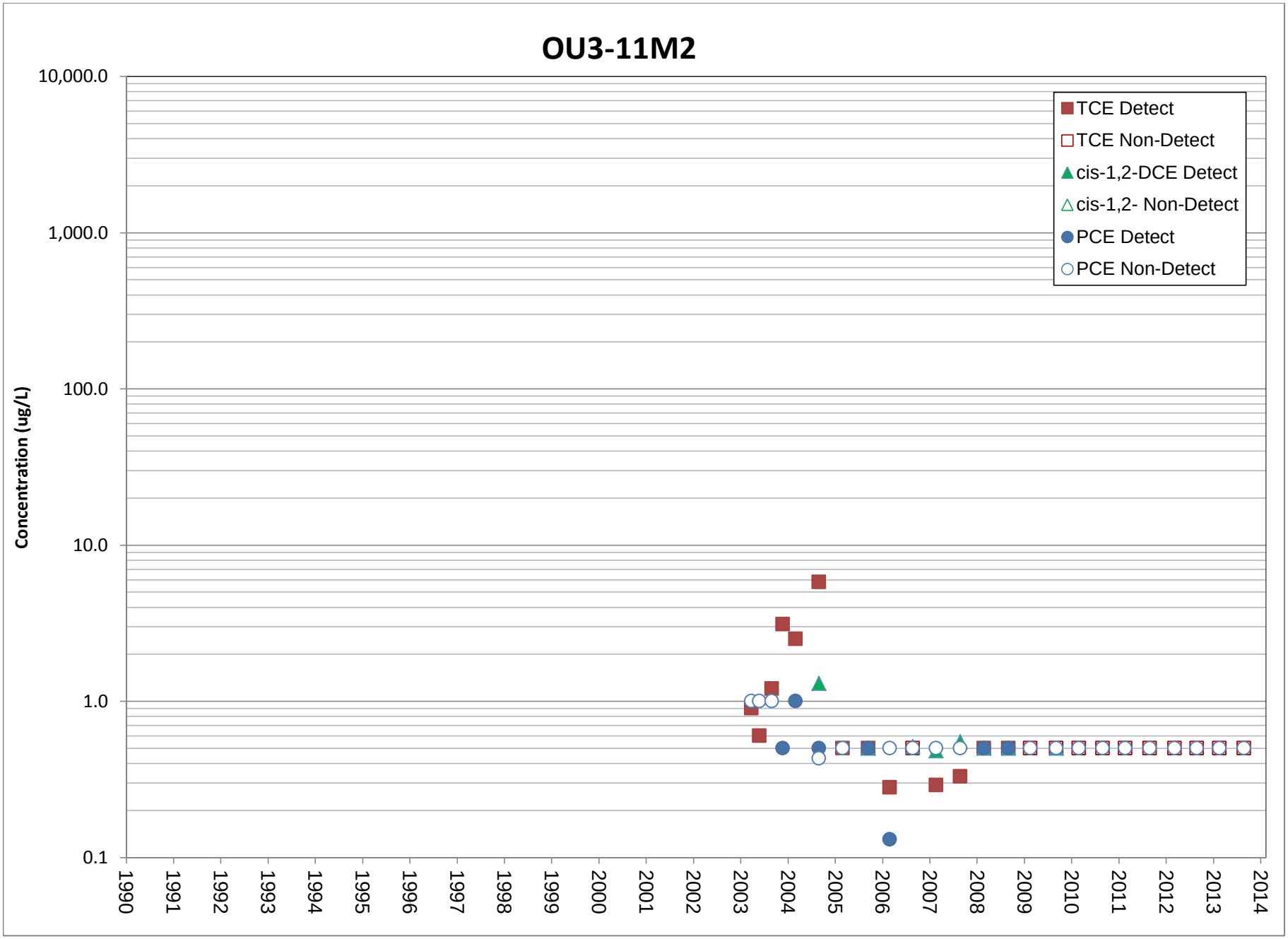
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-11M2
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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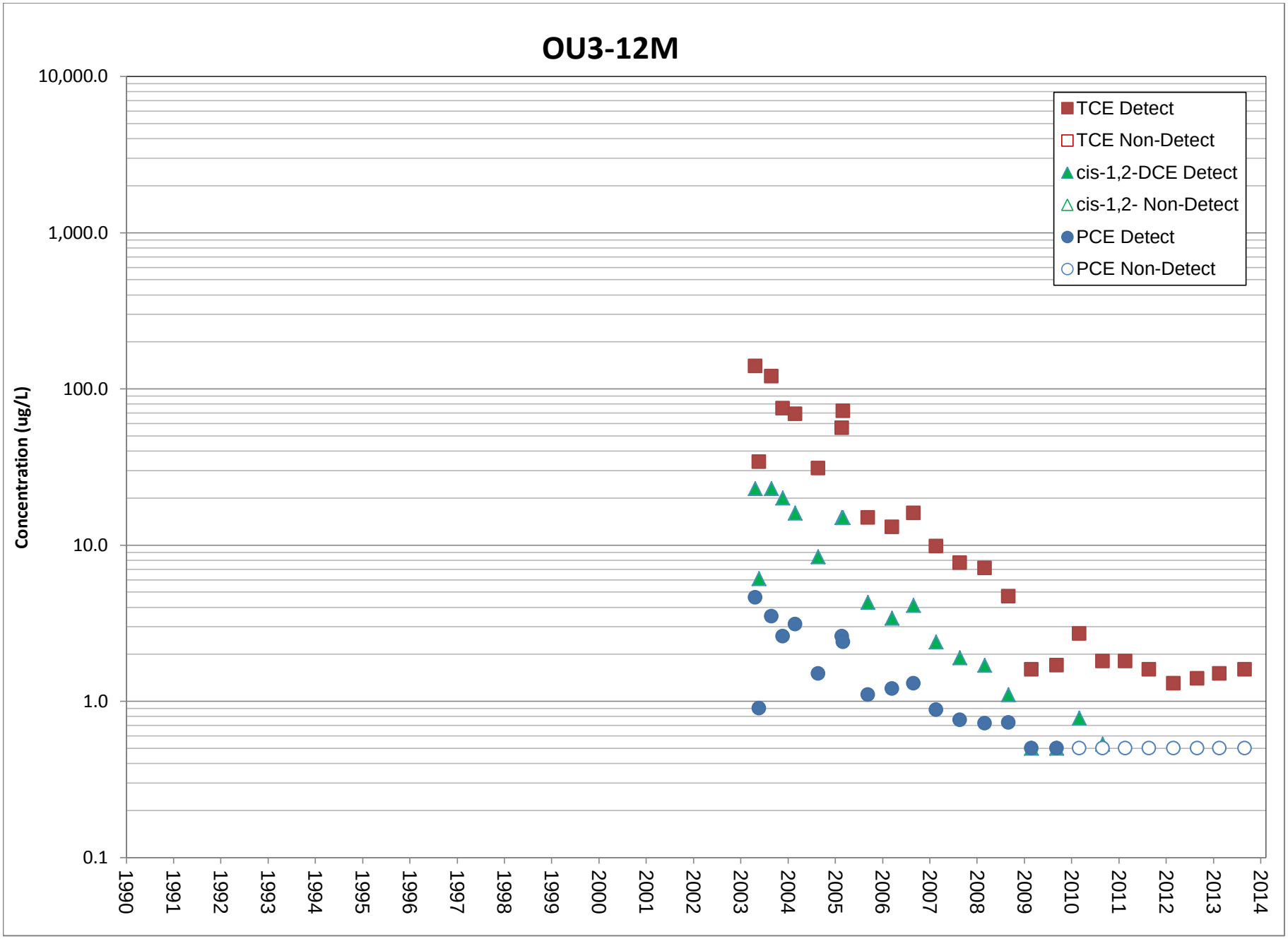
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-12M
Concentration (ug/L)
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100.0
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1.0
0.1
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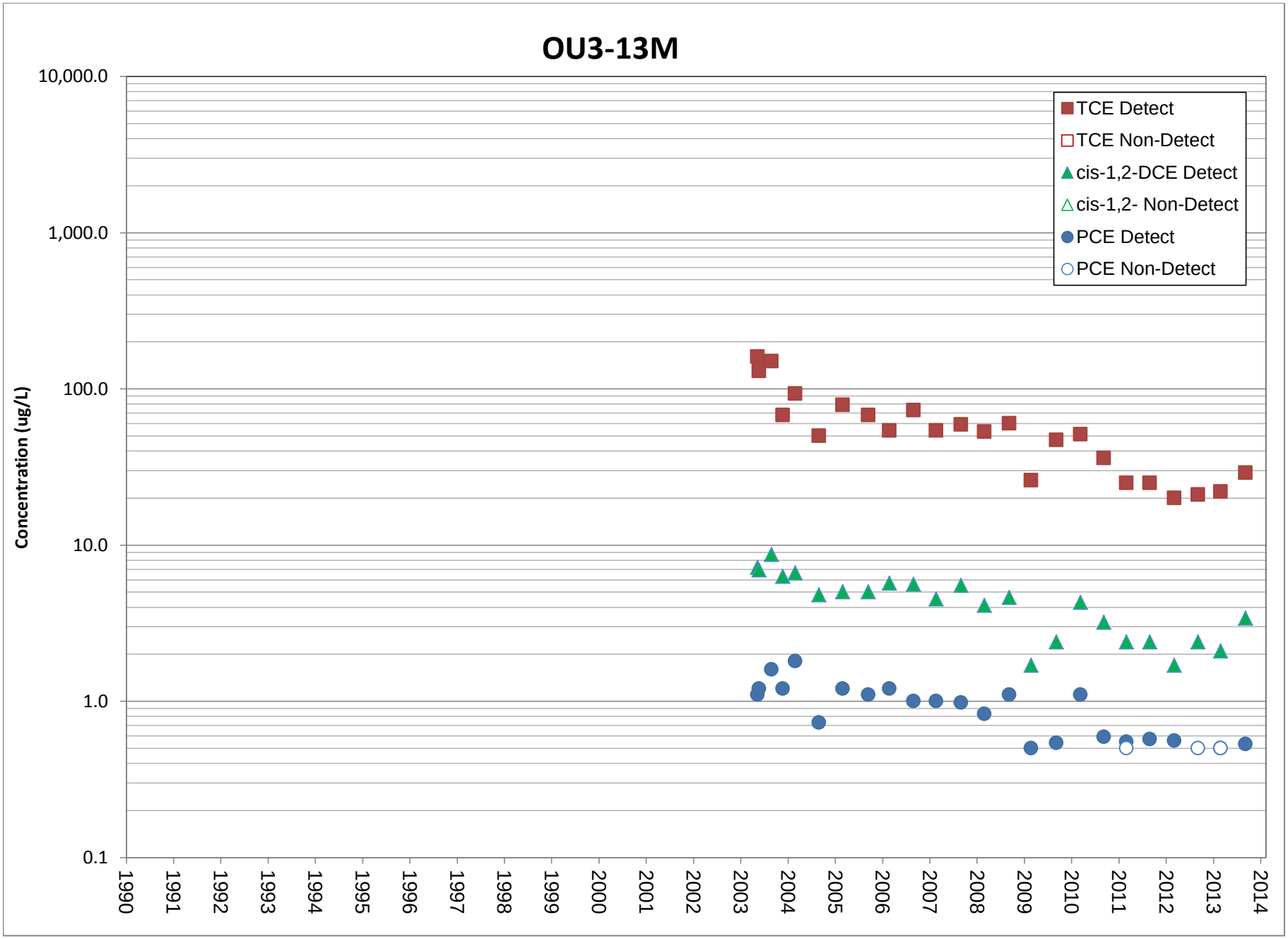
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


OU3-13M
Concentration (ug/L)
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100.0
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1.0
0.1
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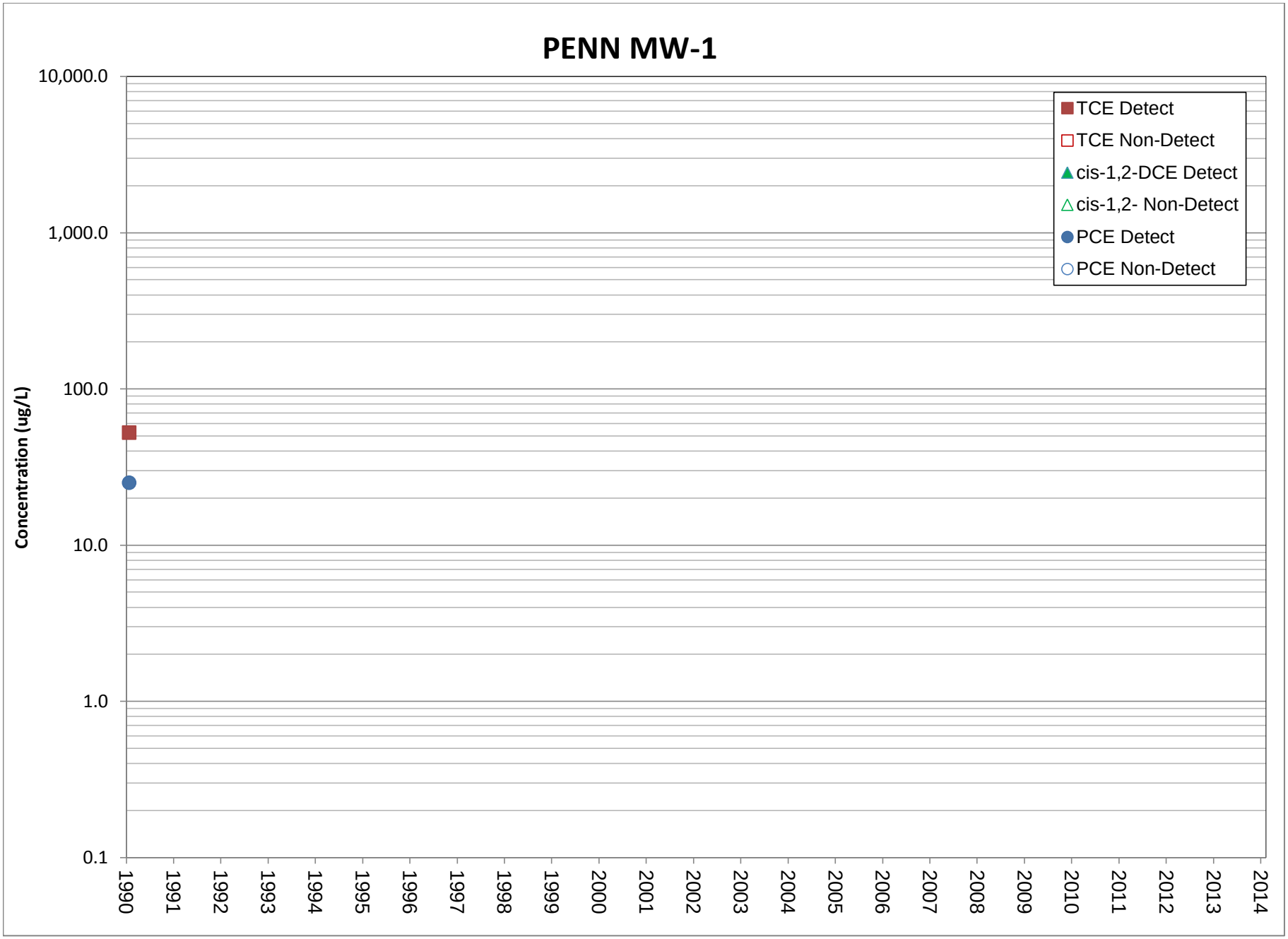
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PENN MW-1
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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1993
1994
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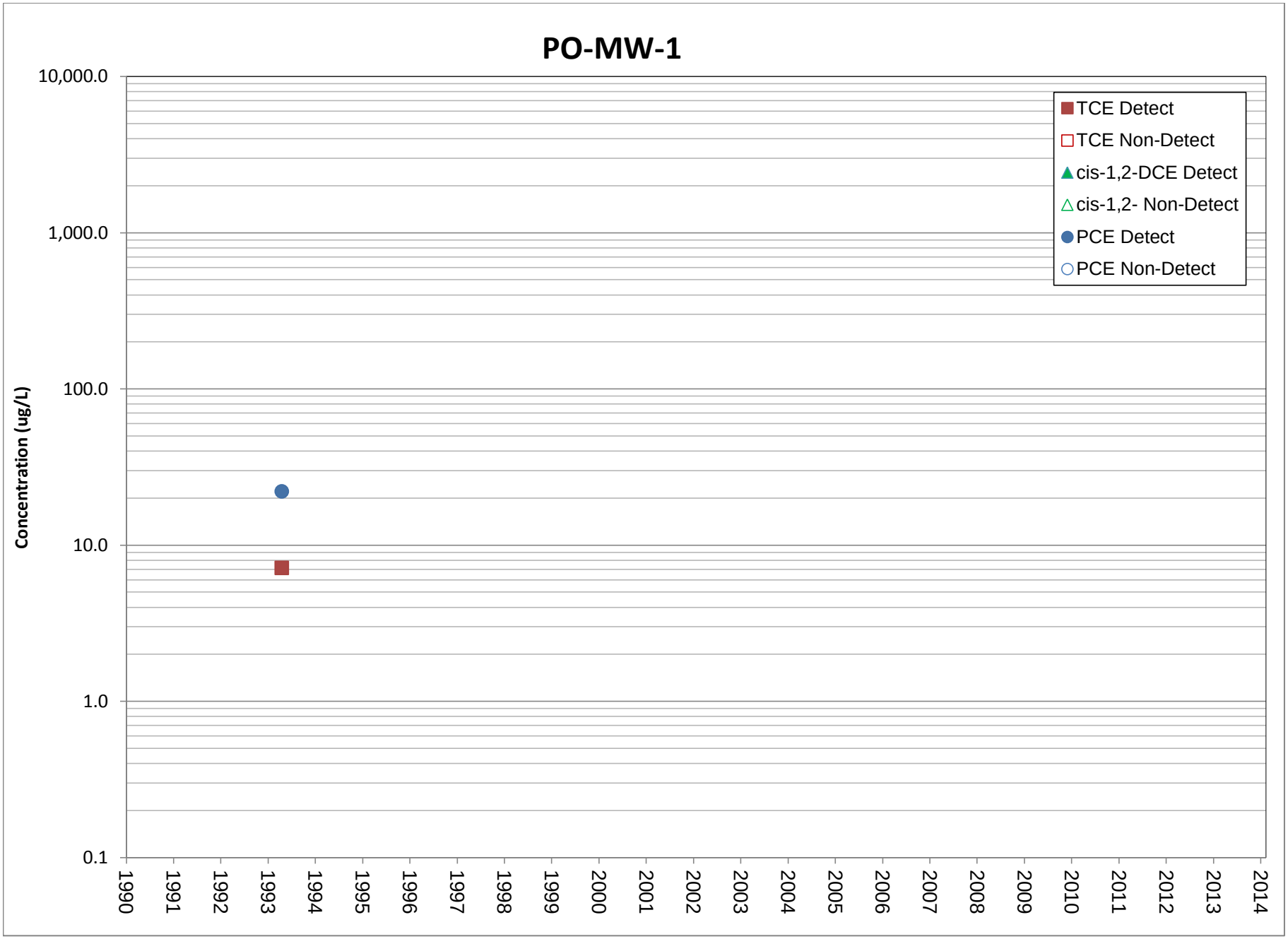
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PO-MW-1
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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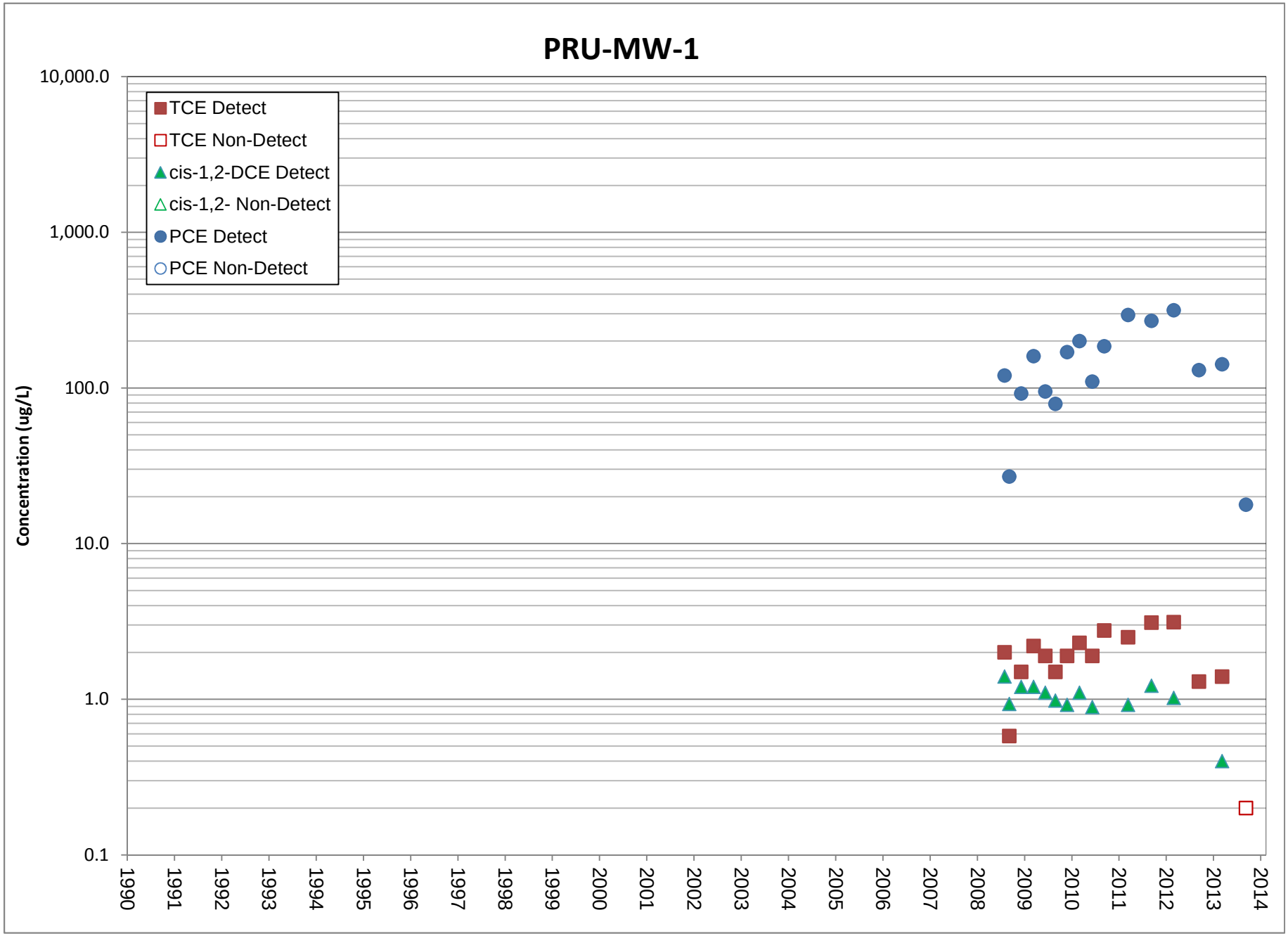
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PRU-MW-1
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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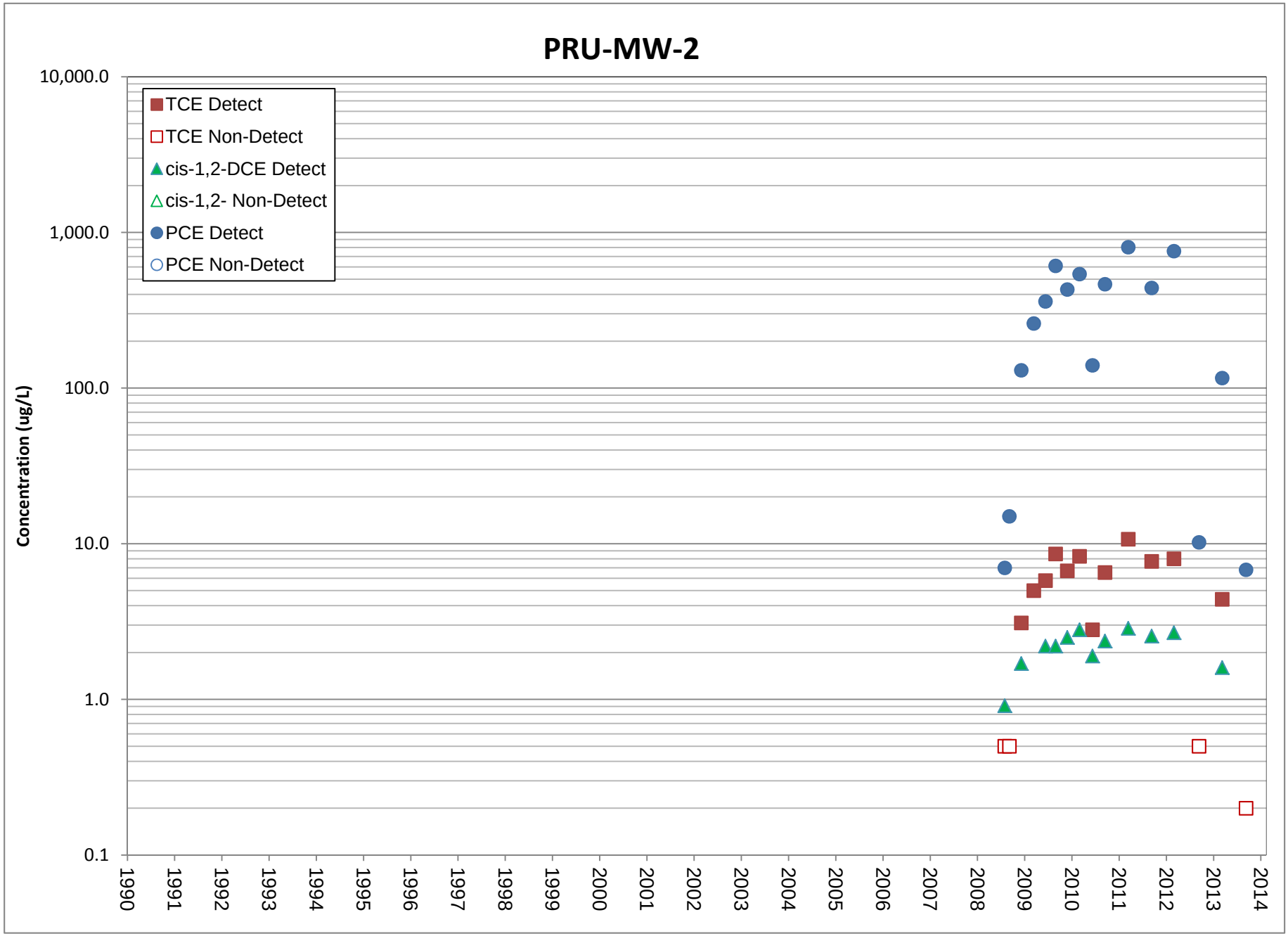
PRU-MW-2
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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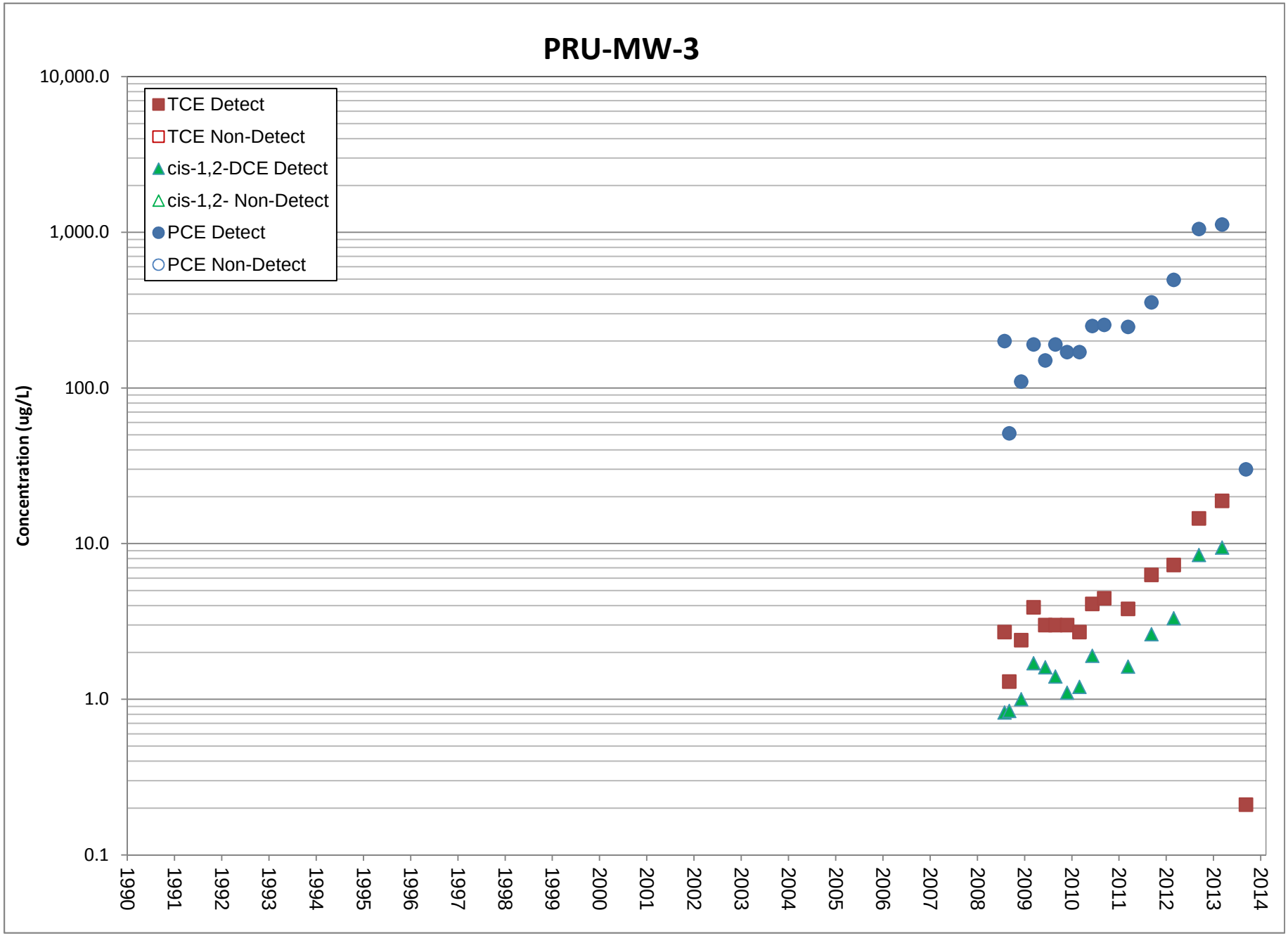
PRU-MW-3
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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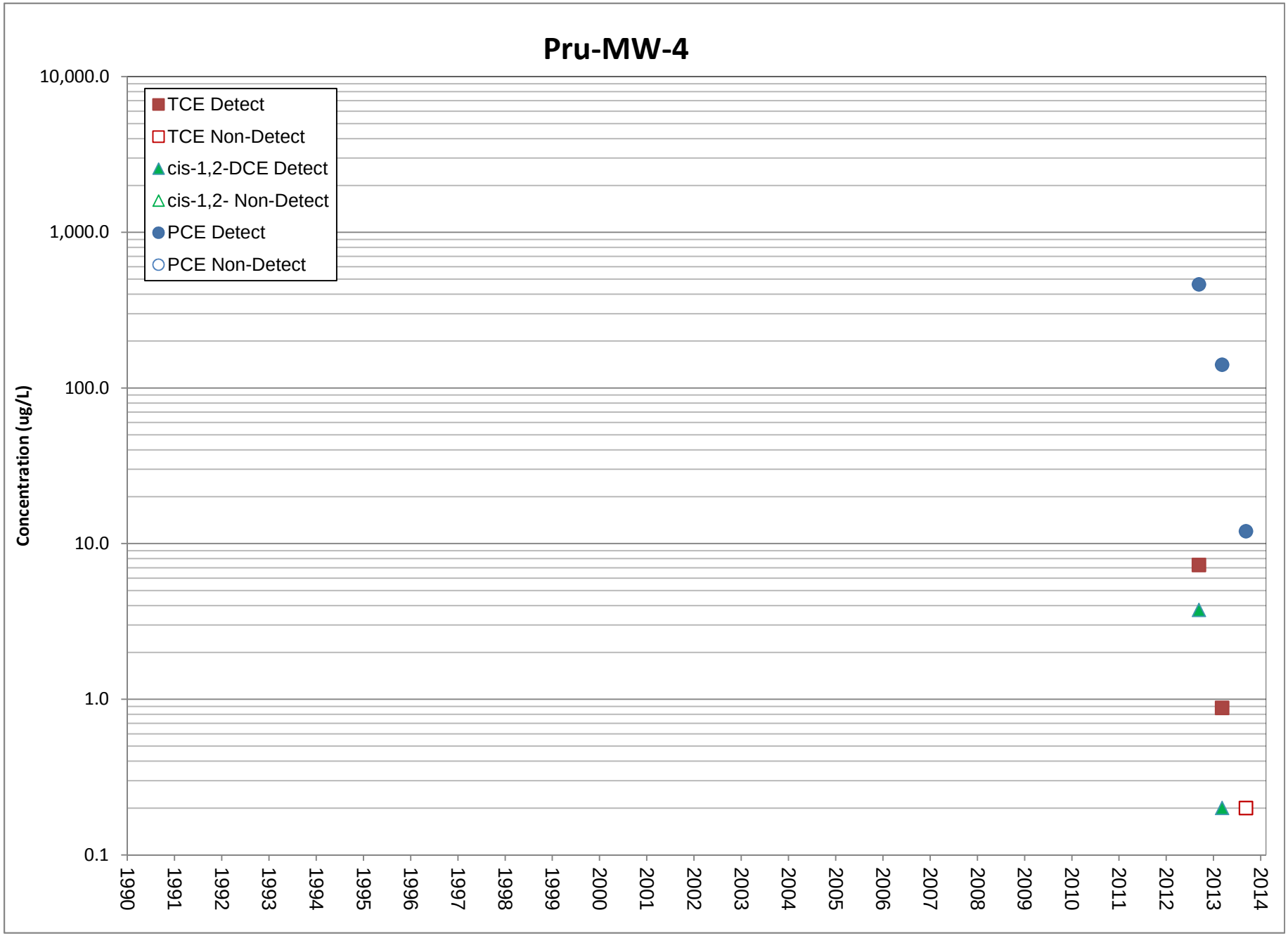
2013
2014


Pru-MW-4
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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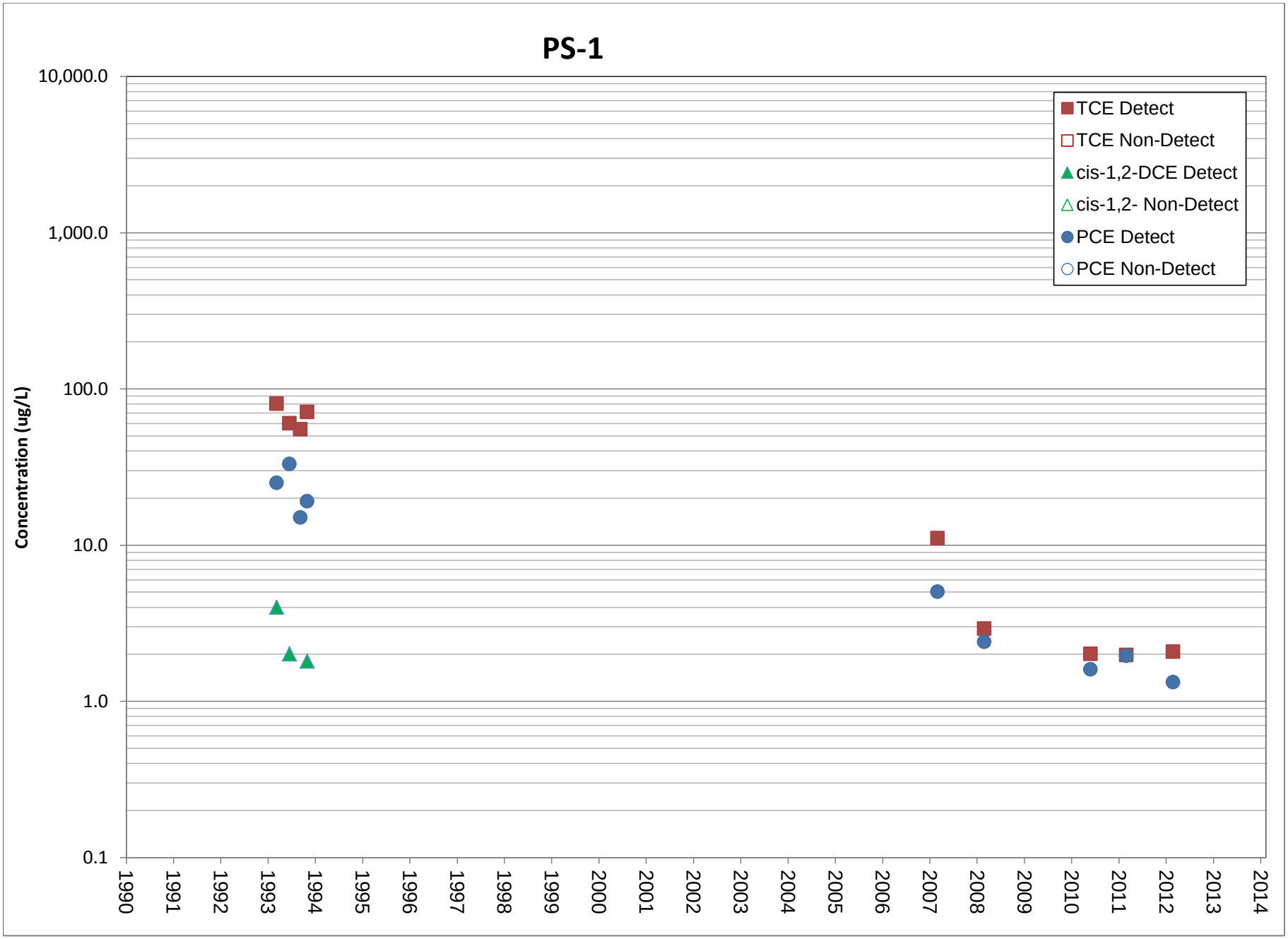
PS-1
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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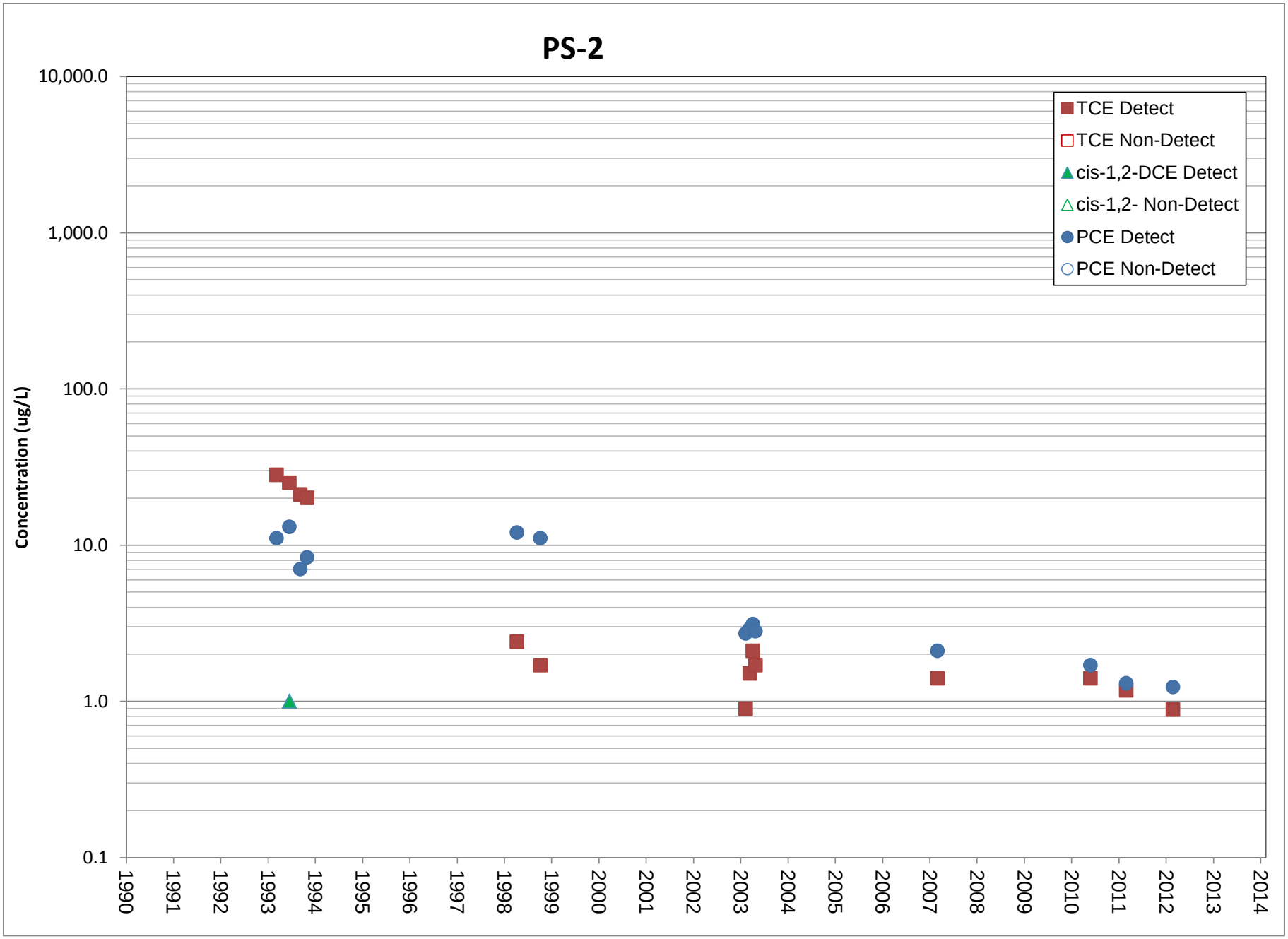
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-2
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
1994
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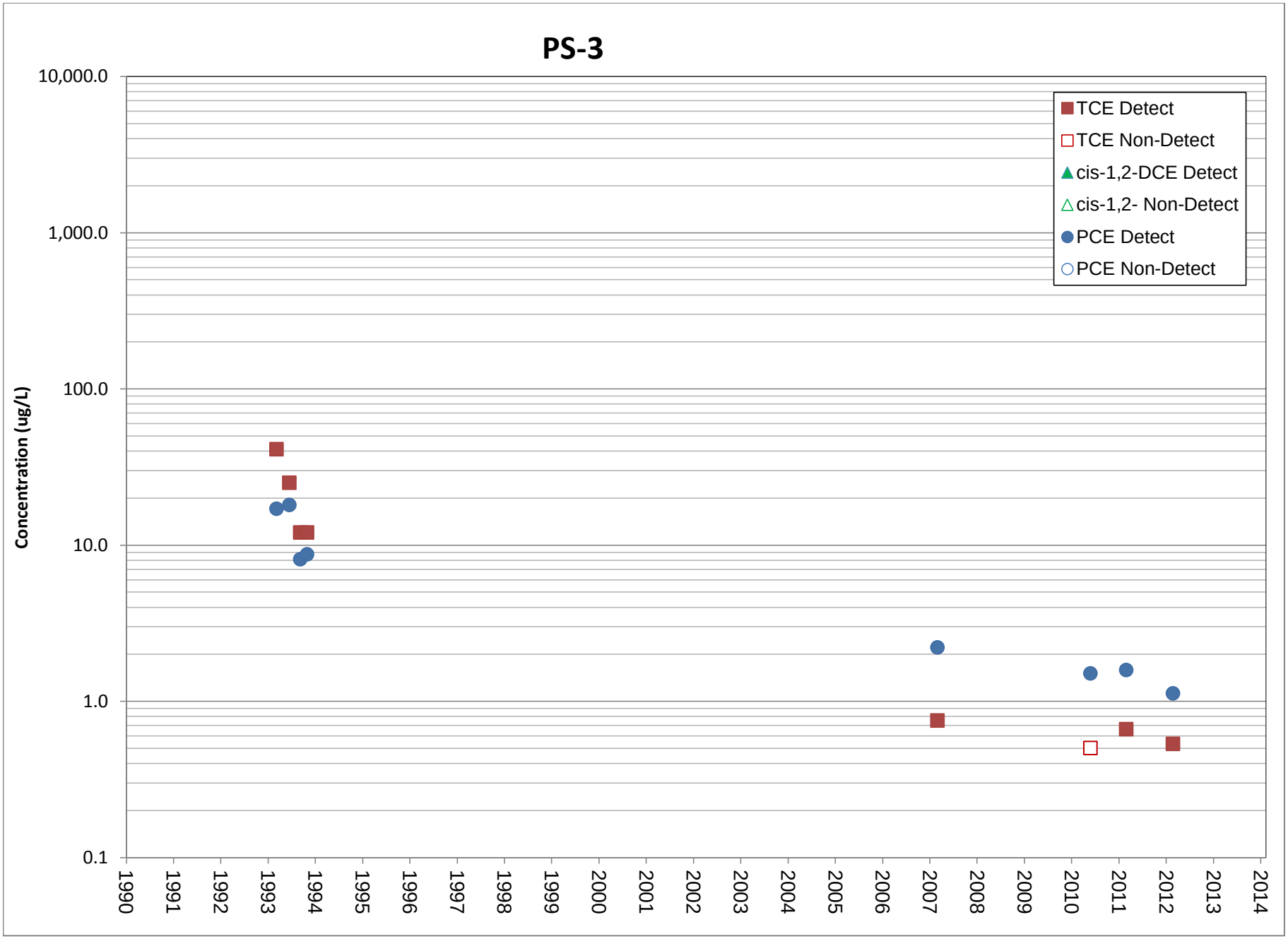
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-3
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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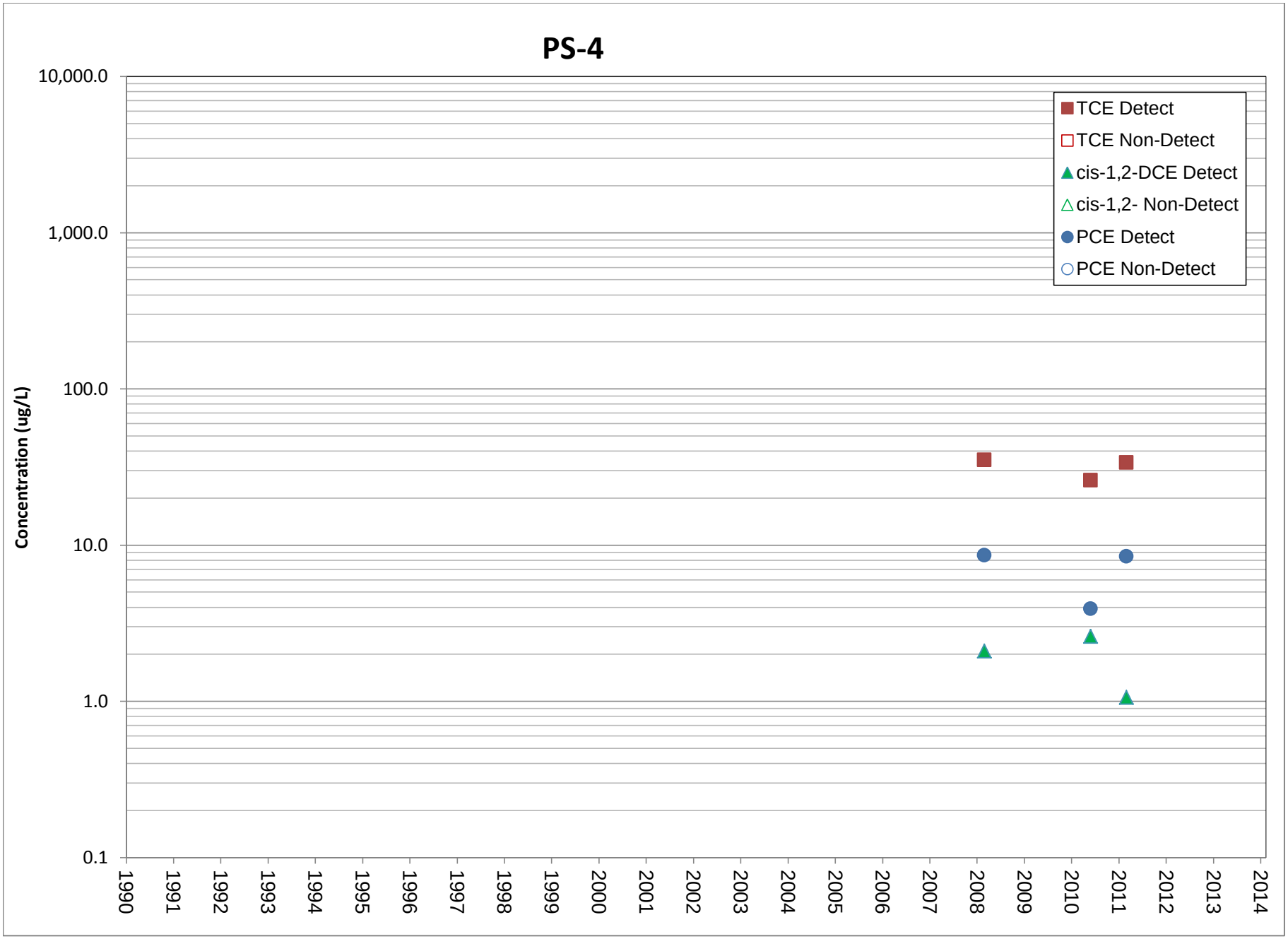
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-4
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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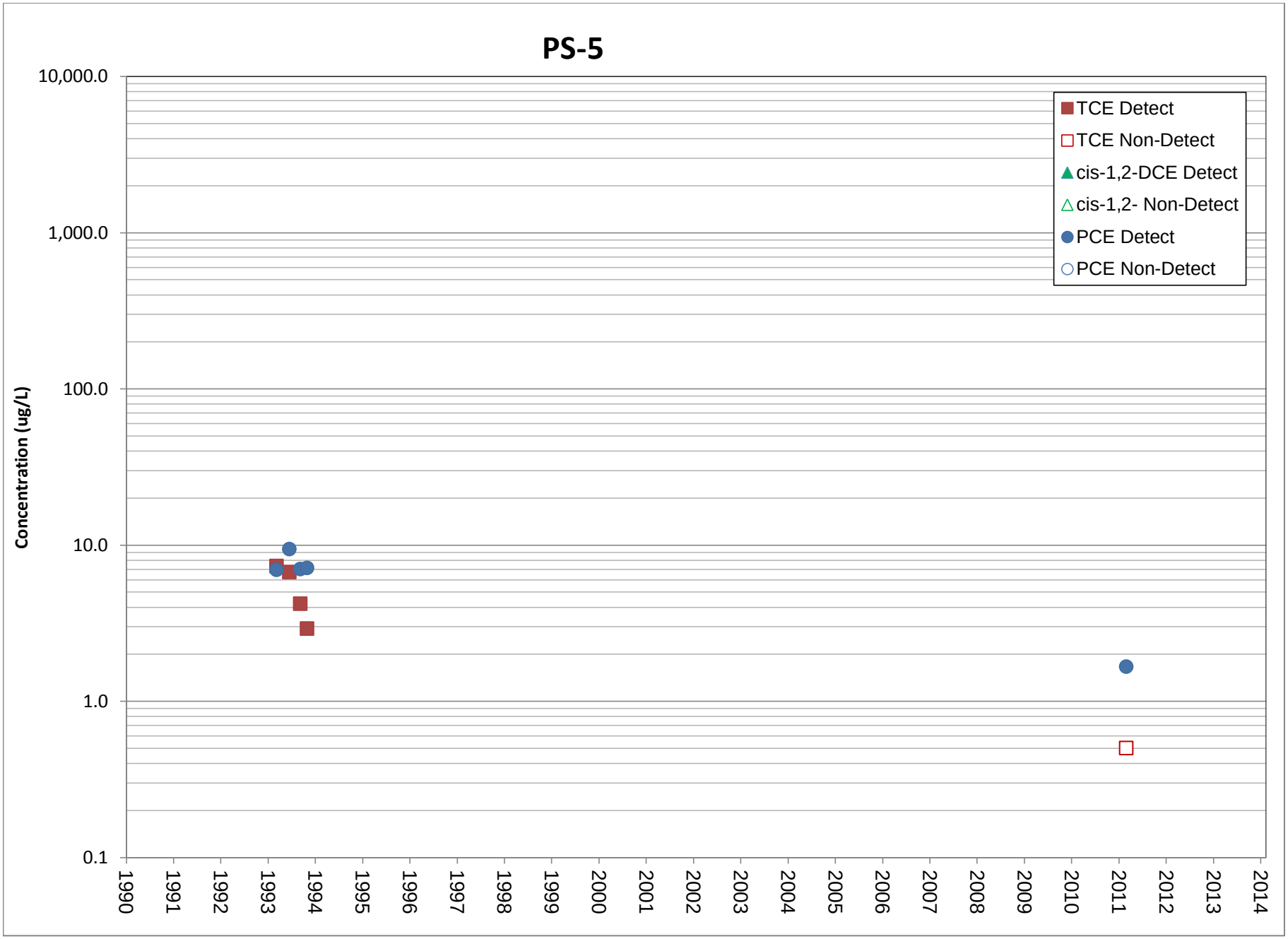
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-5
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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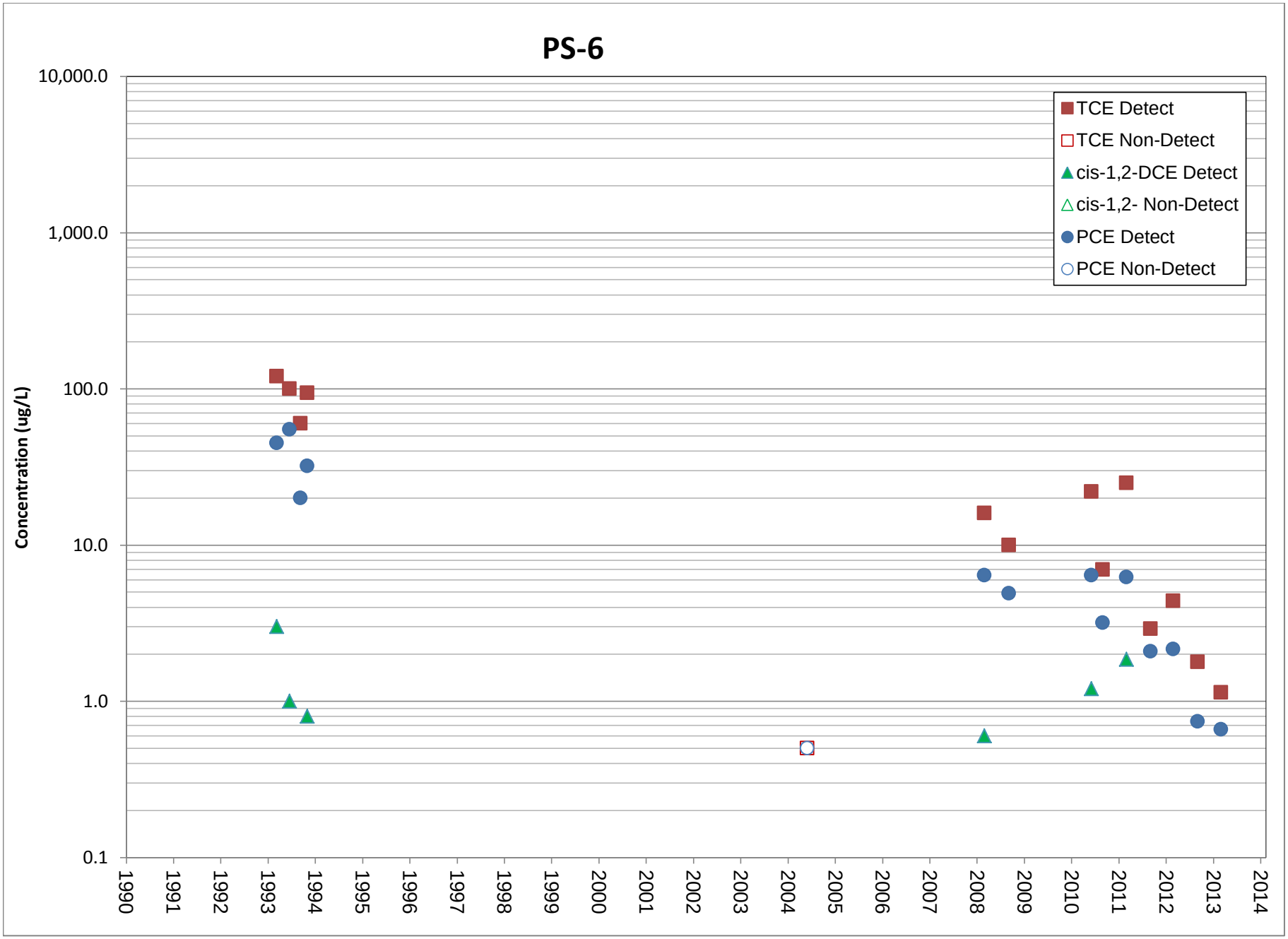
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-6
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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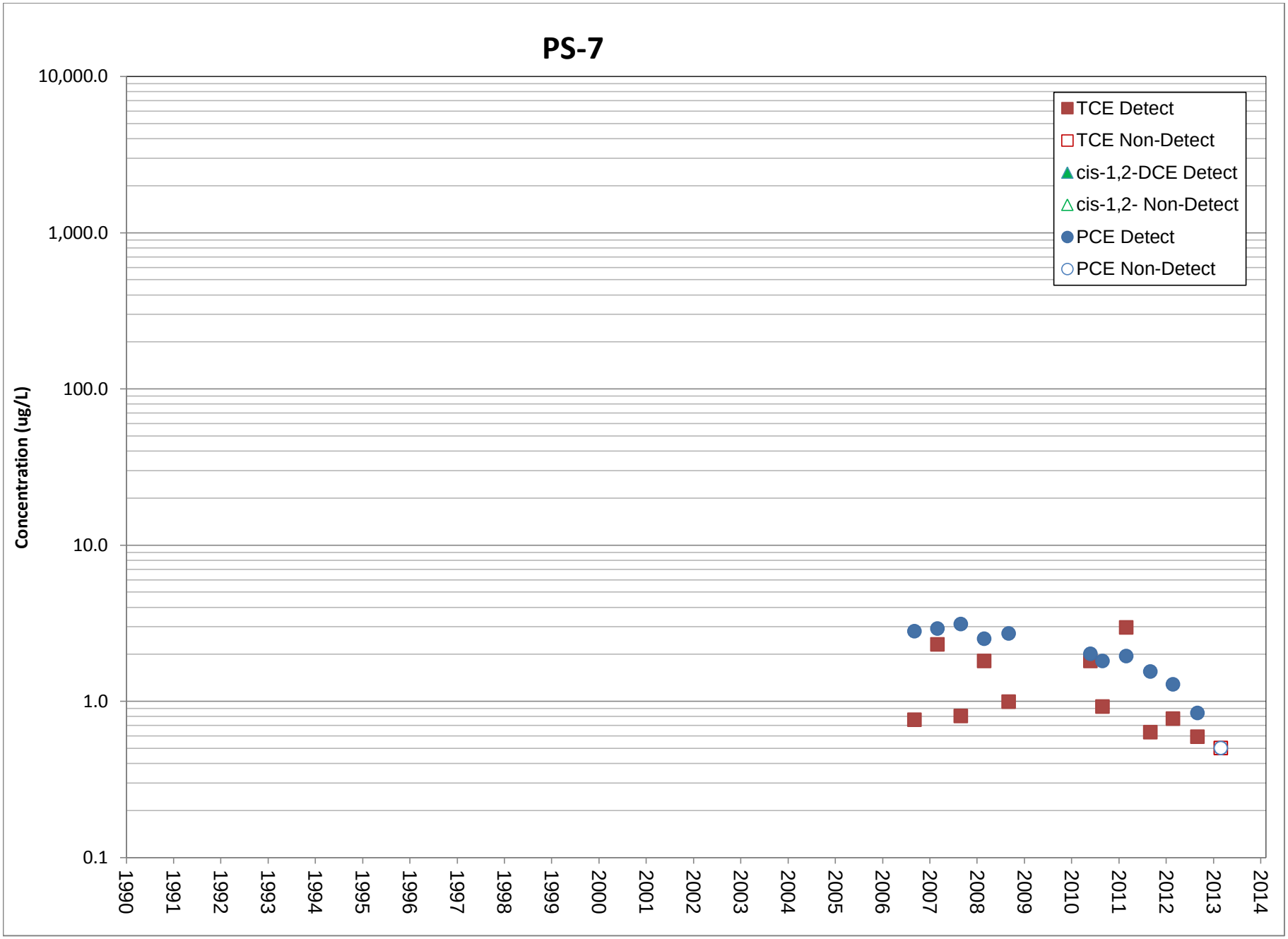
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-7
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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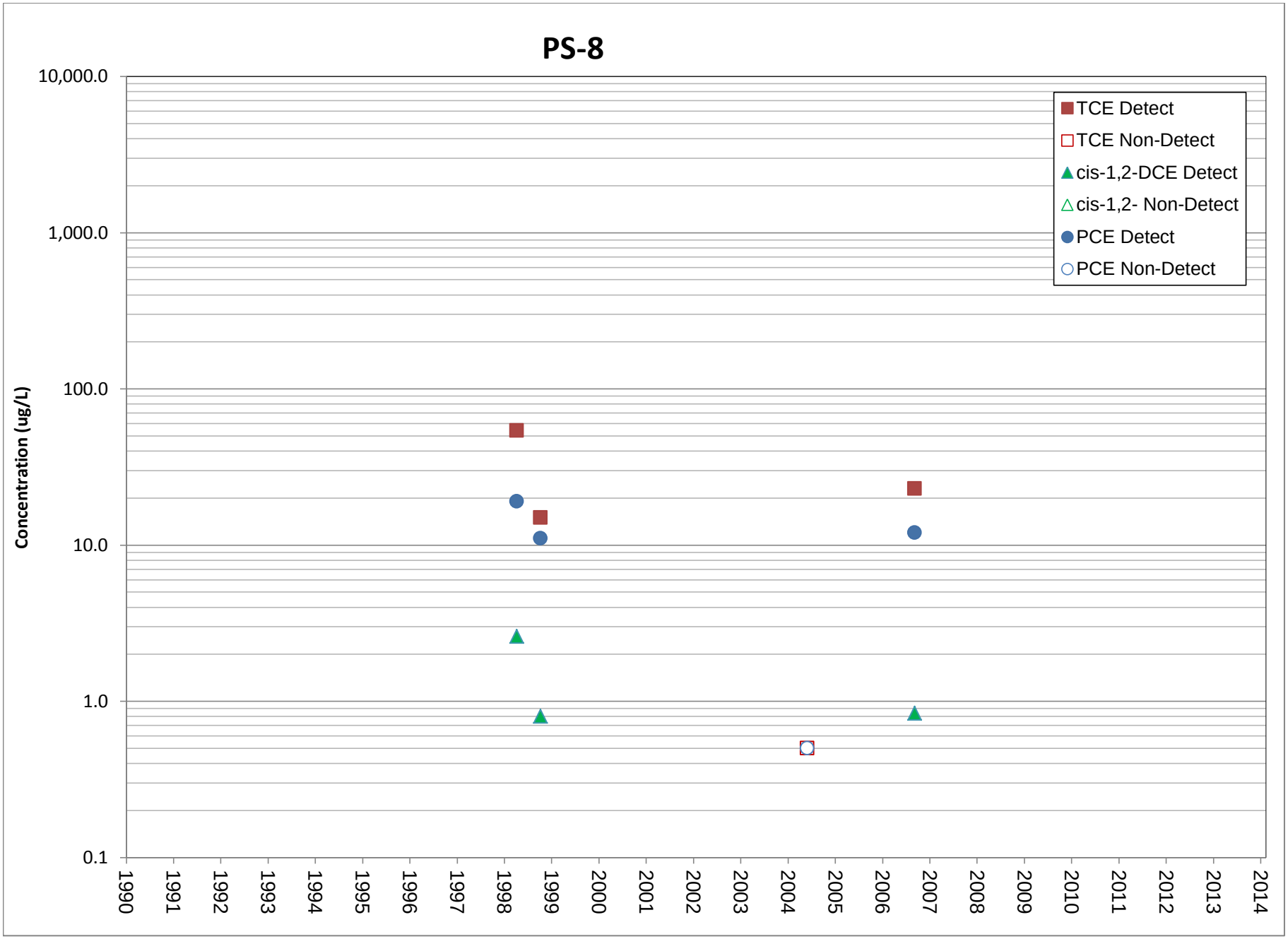
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-8
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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2011
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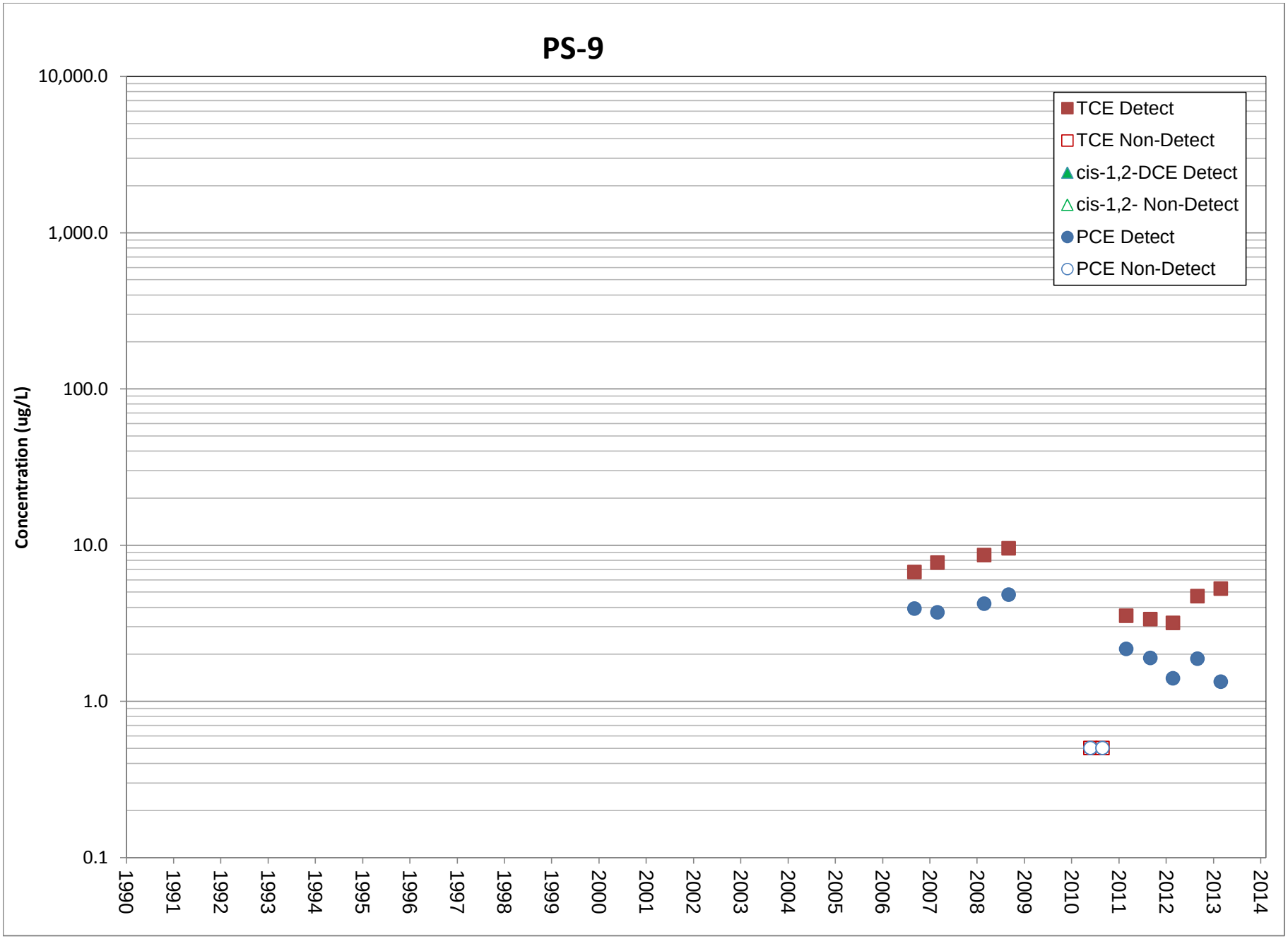
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PS-9
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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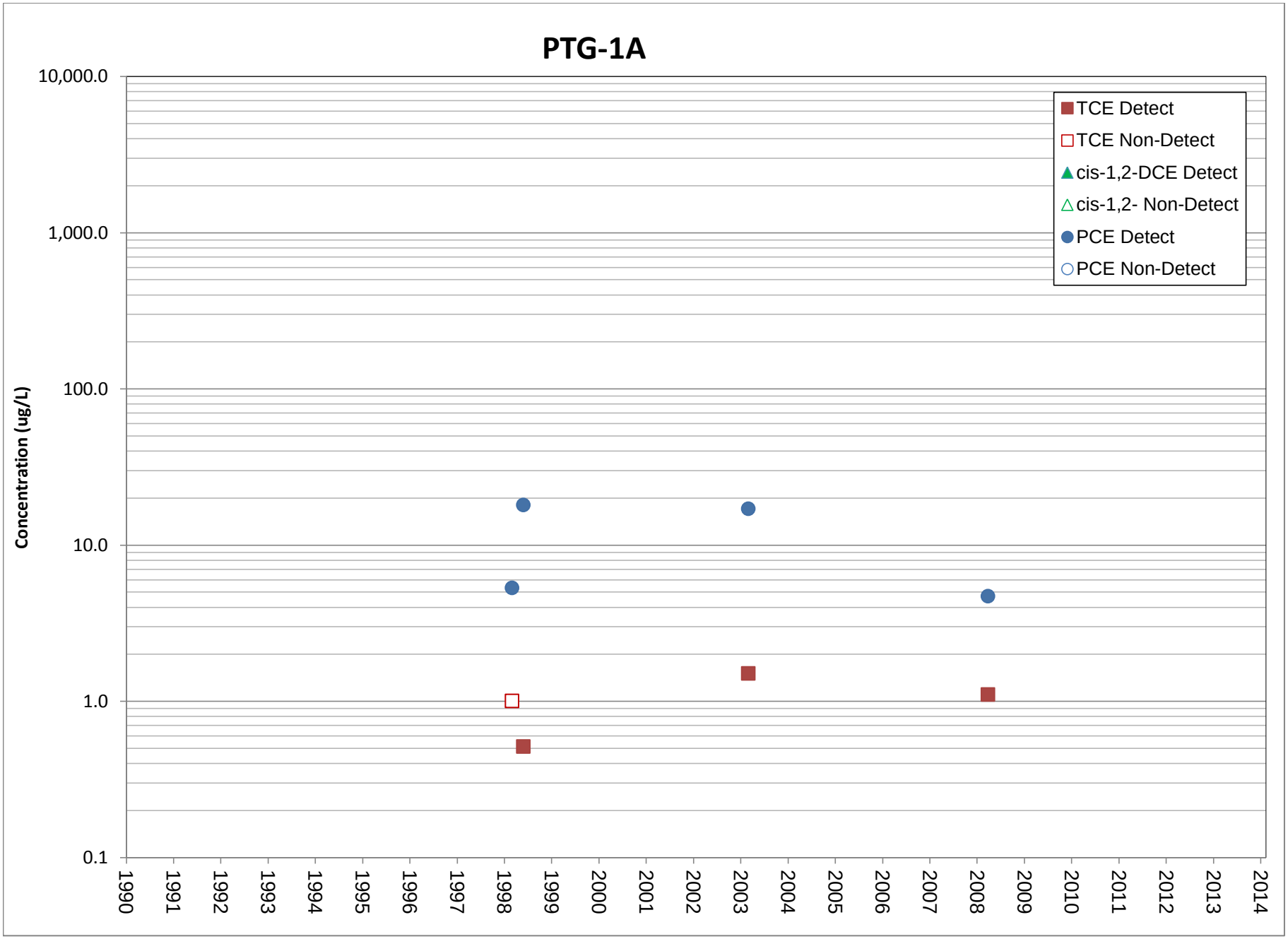
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PTG-1A
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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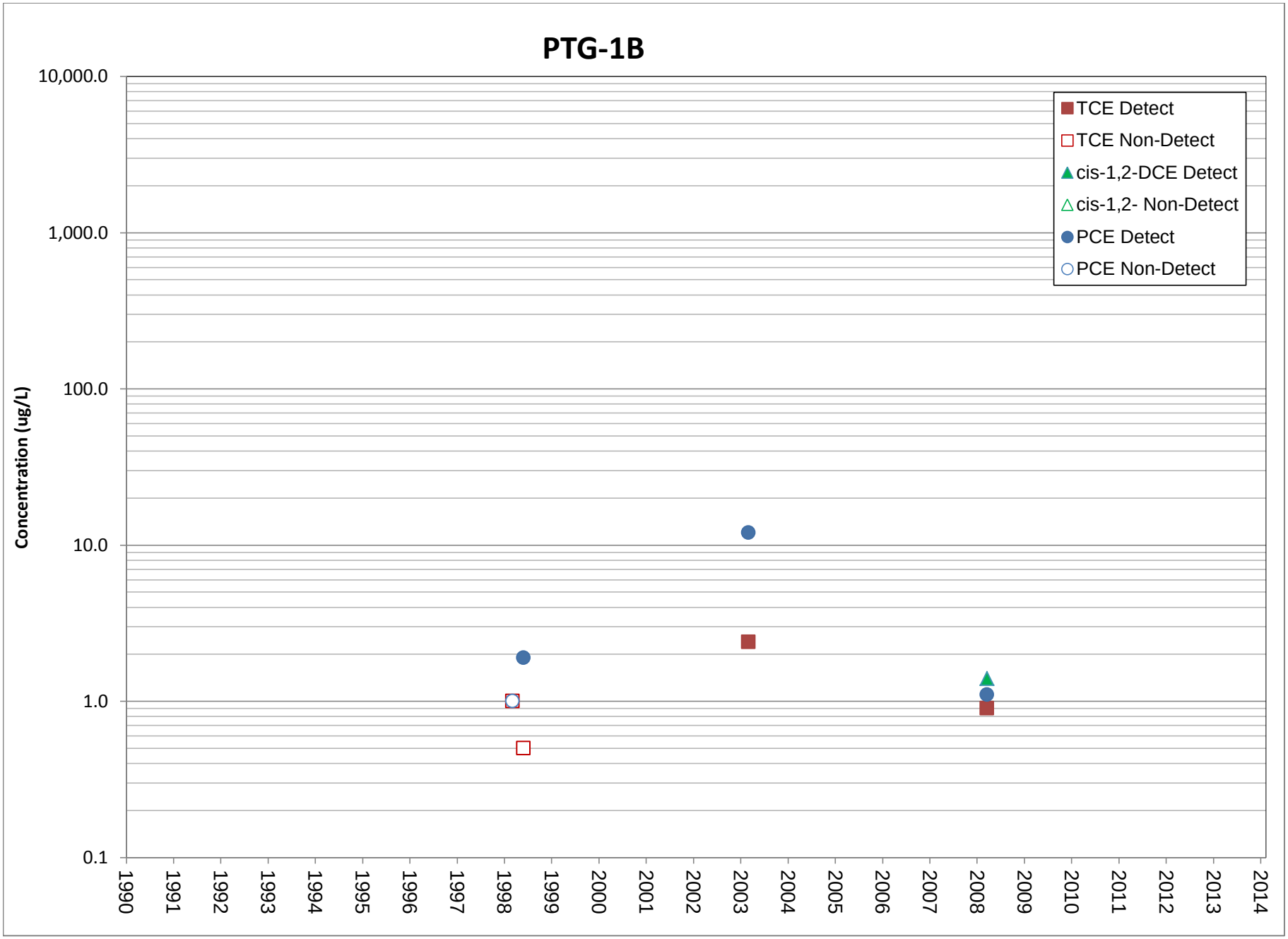
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PTG-1B
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
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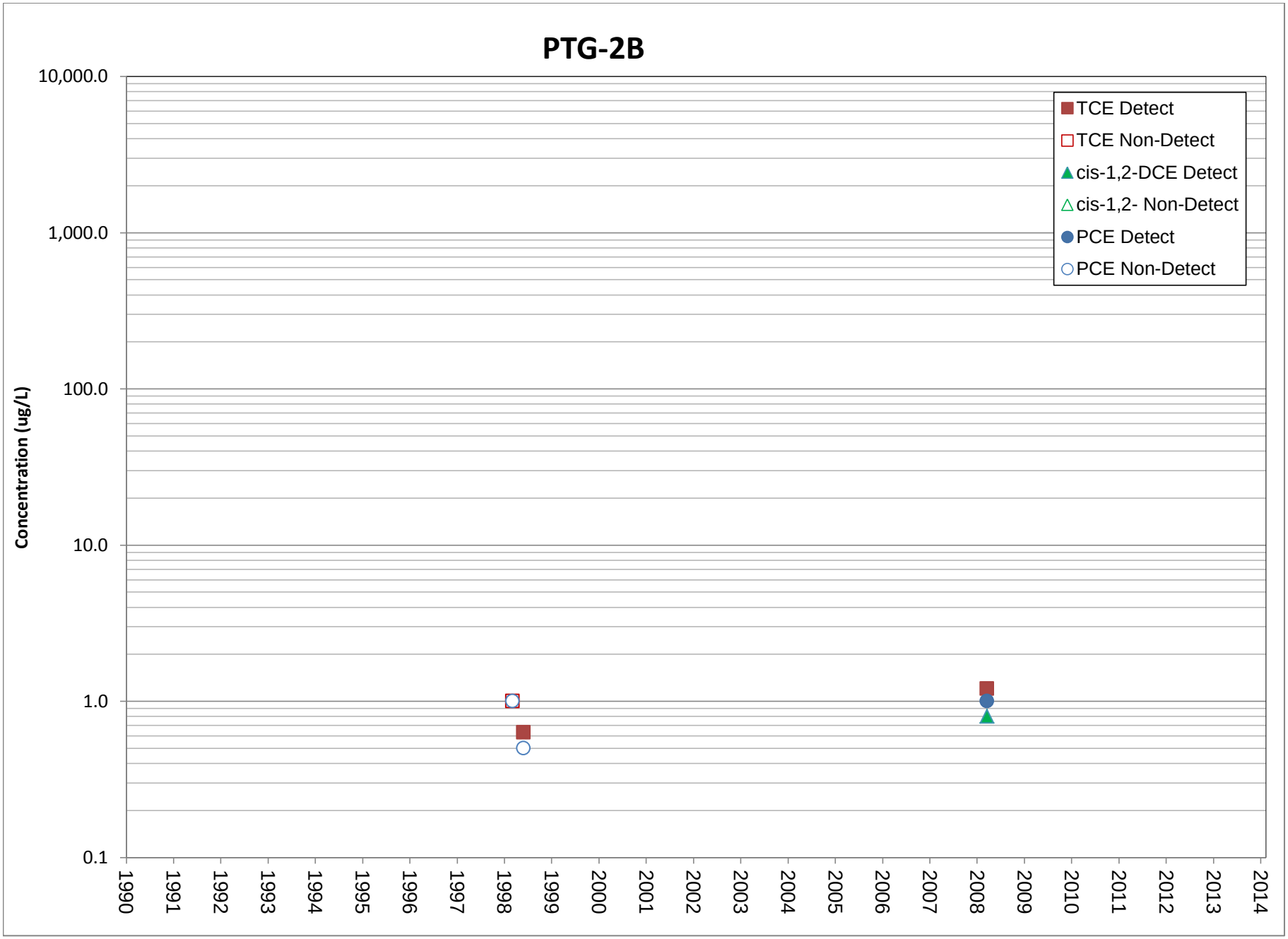
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


PTG-2B
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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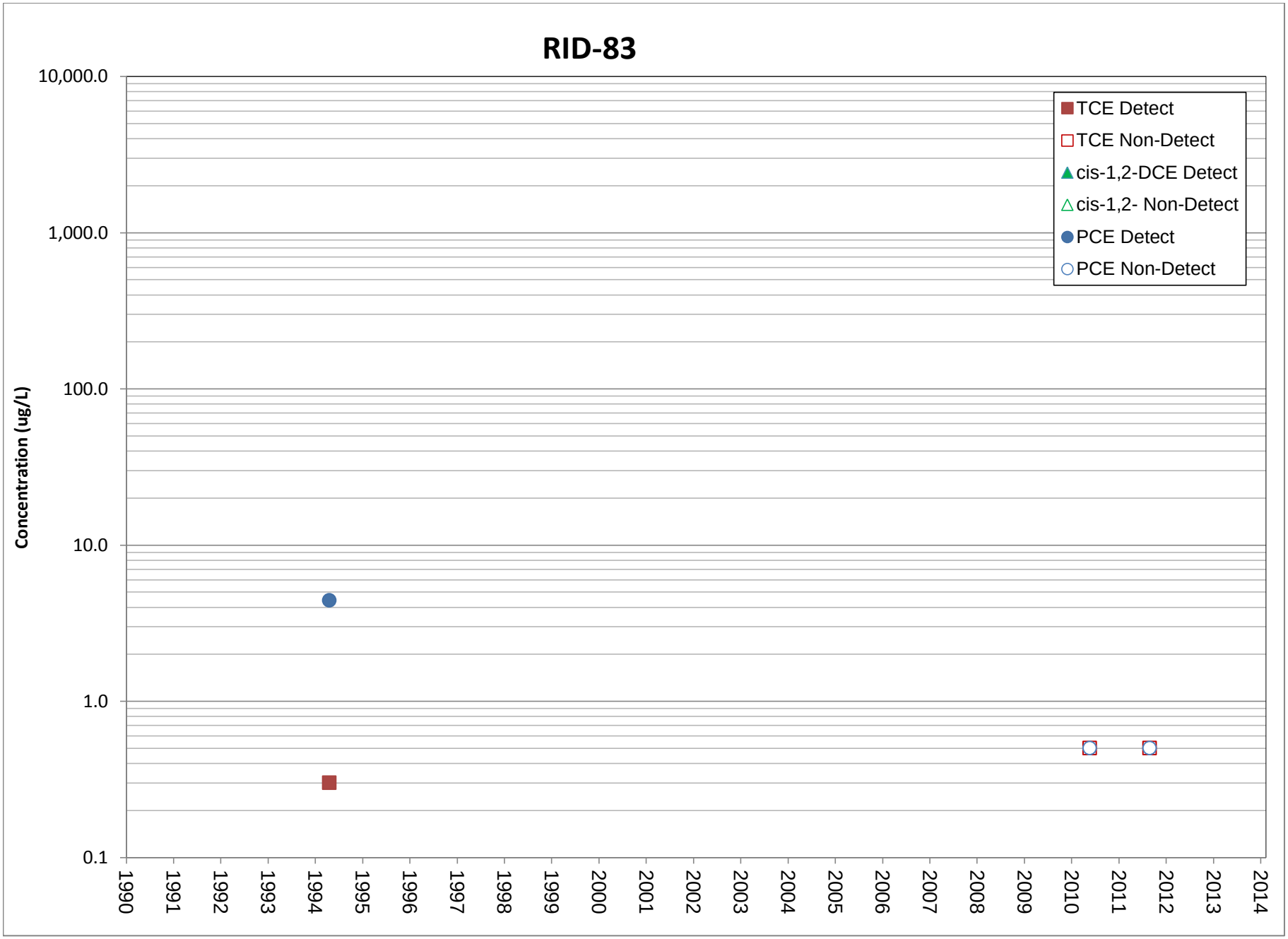
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-83
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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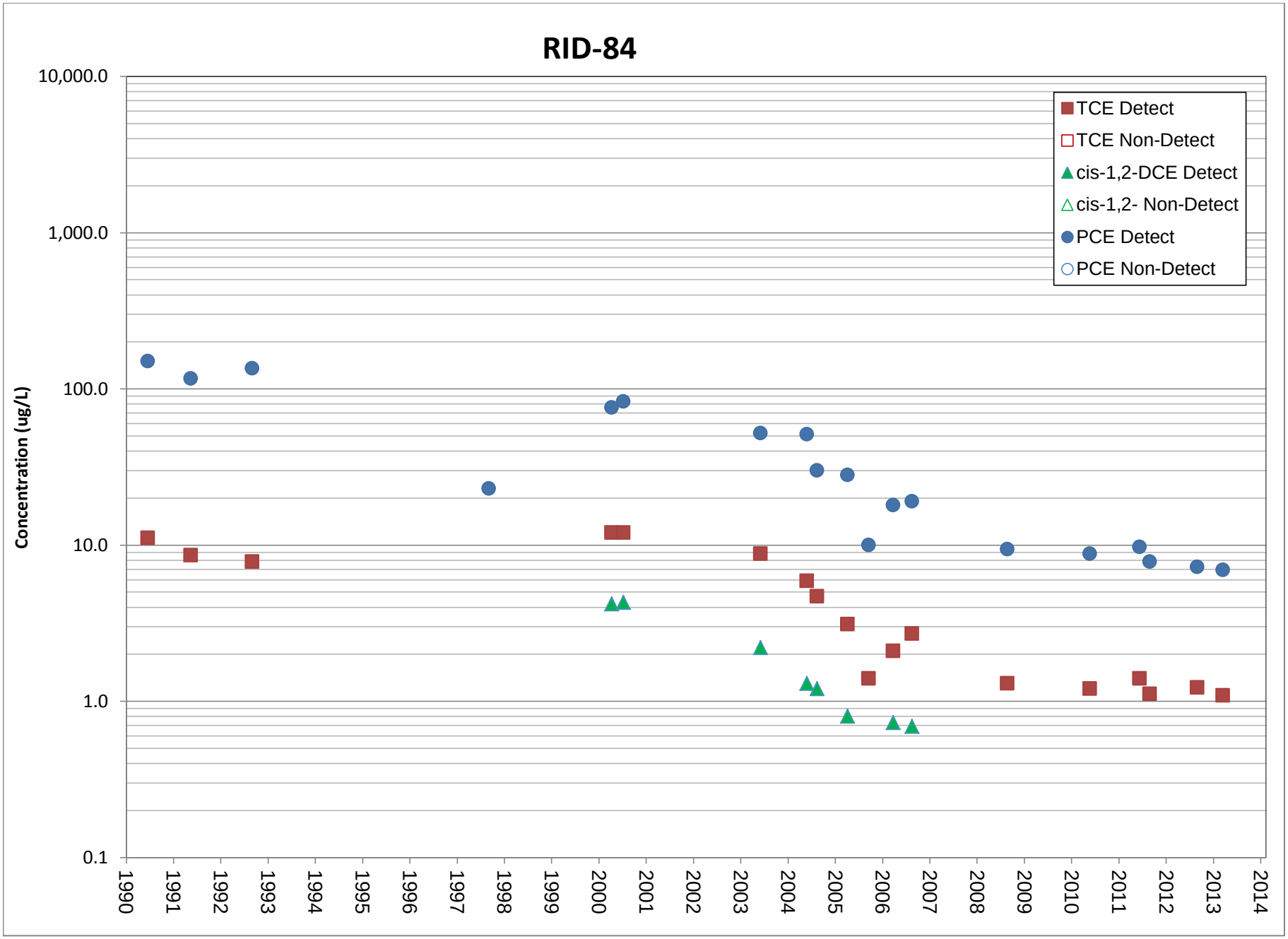
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-84
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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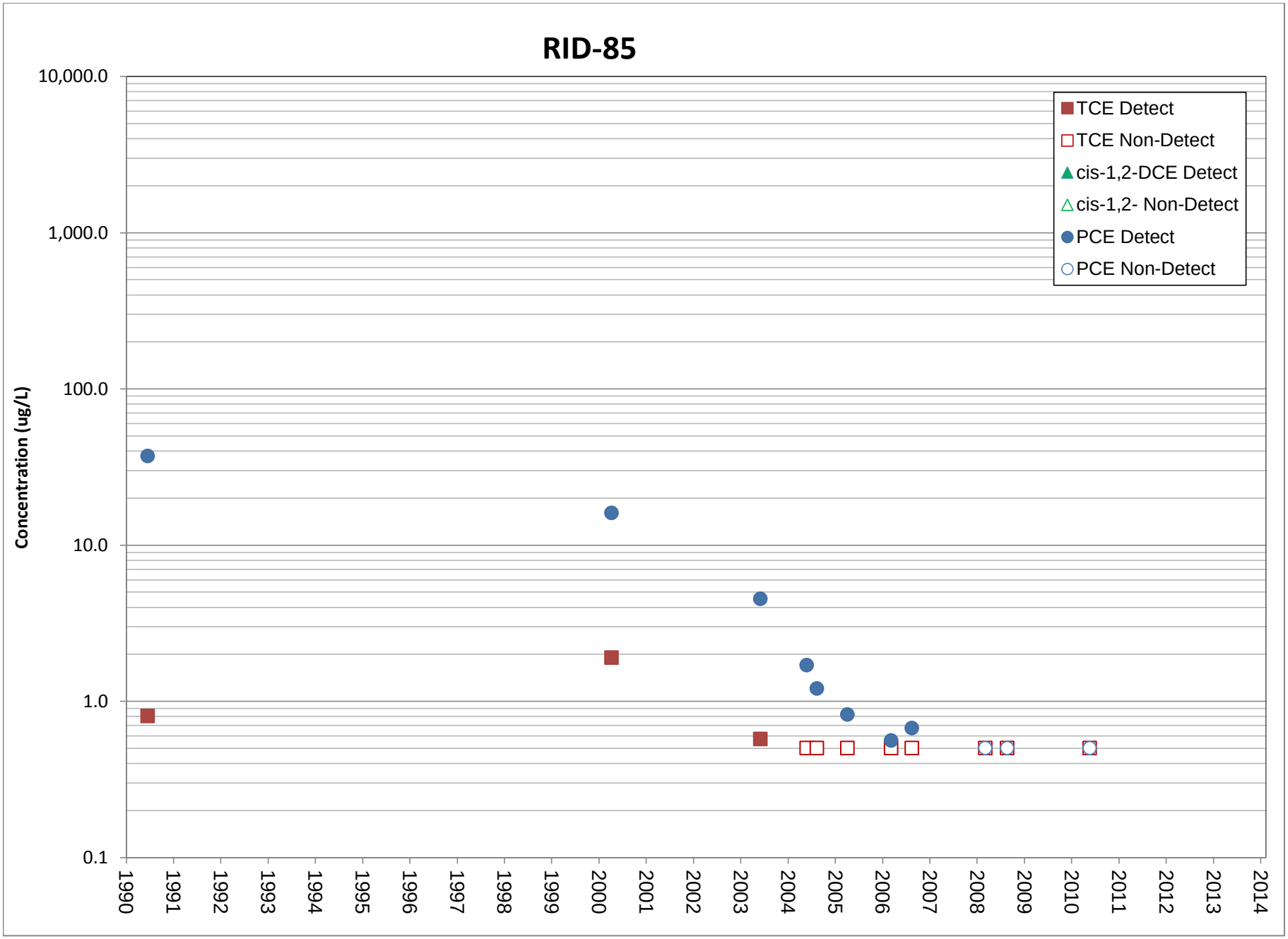
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-85
Concentration (ug/L)
10,000.0
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100.0
10.0
1.0
0.1
1990
1991
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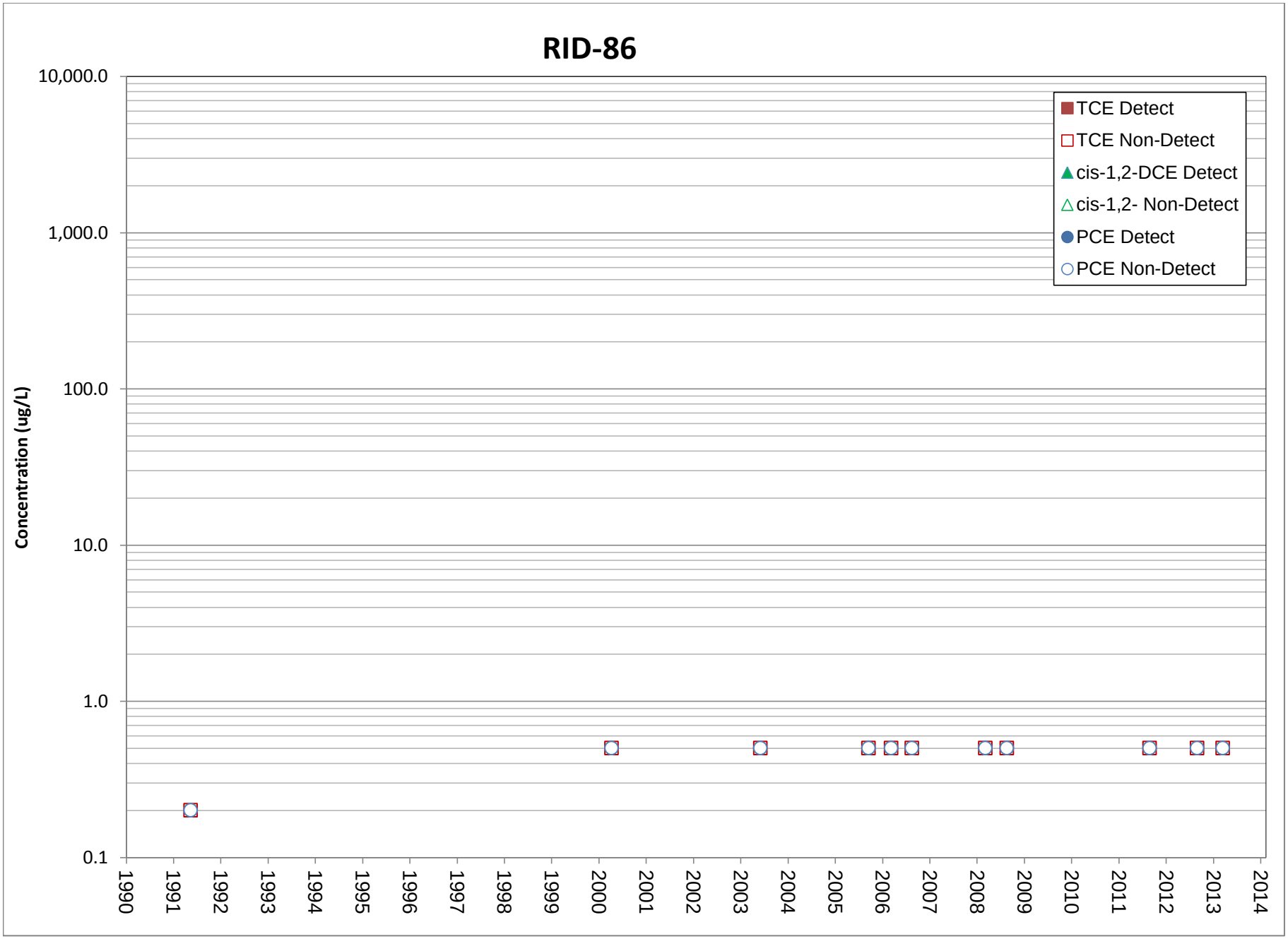
2010
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-86
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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2011
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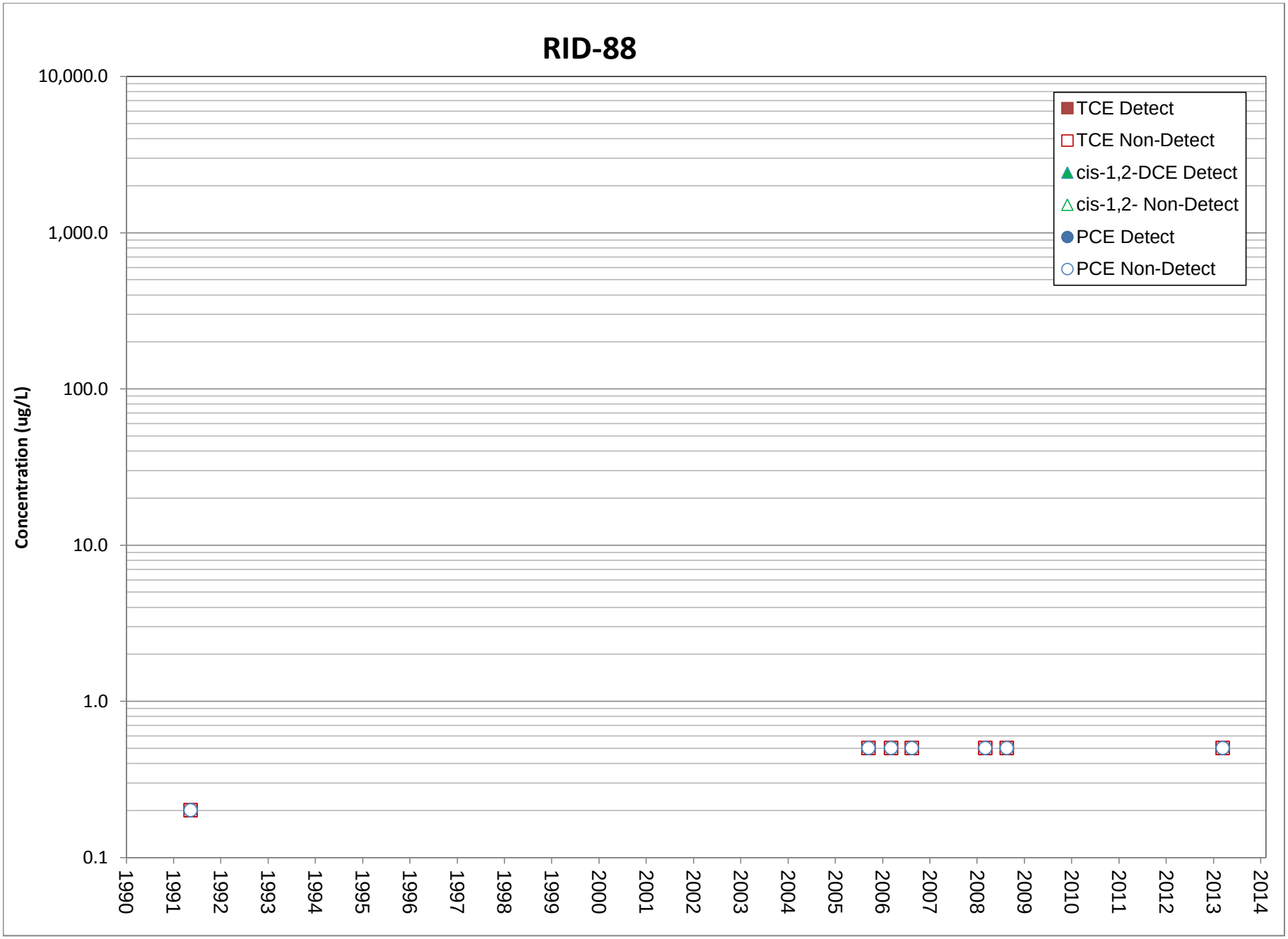
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-88
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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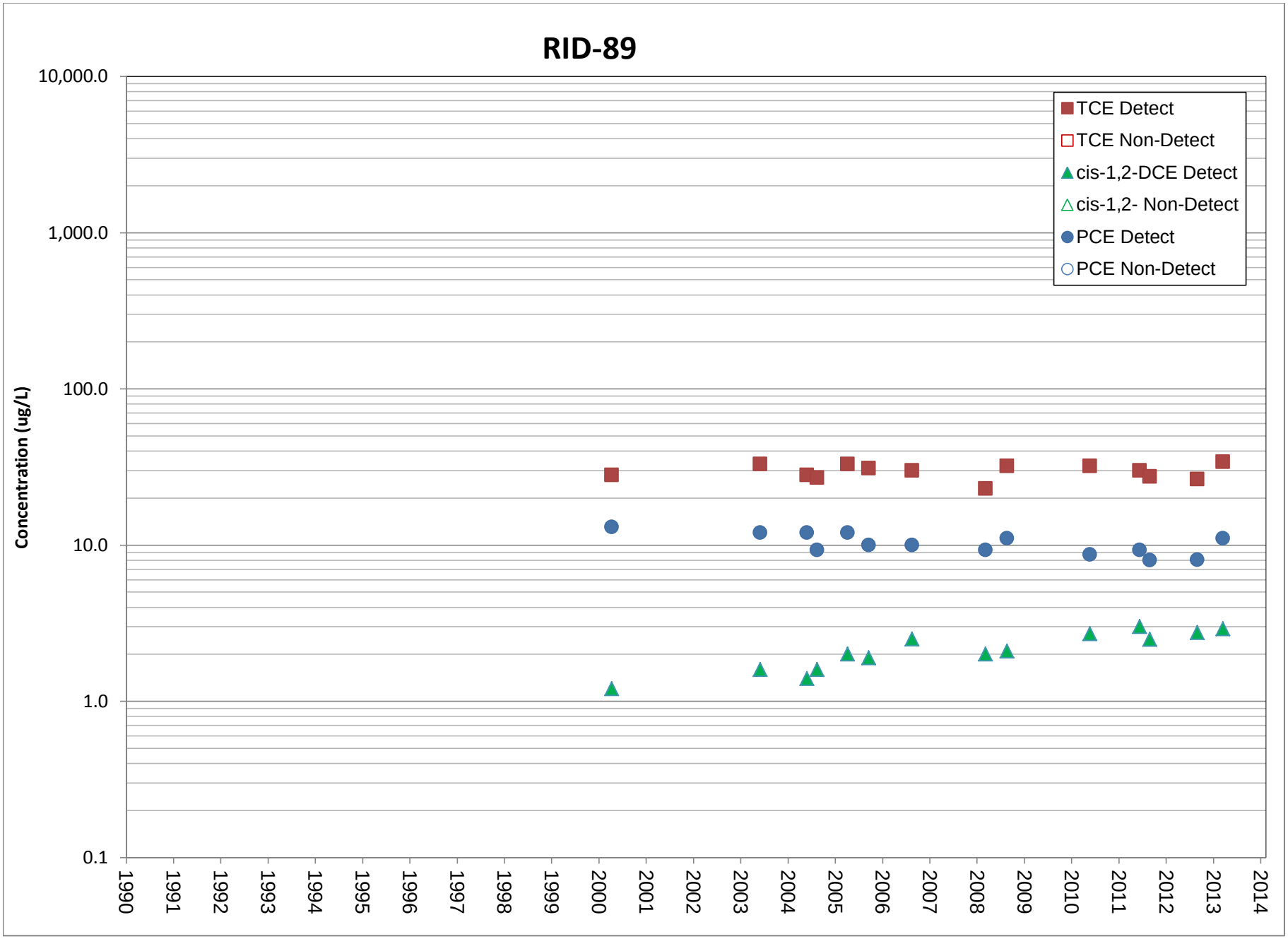
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-89
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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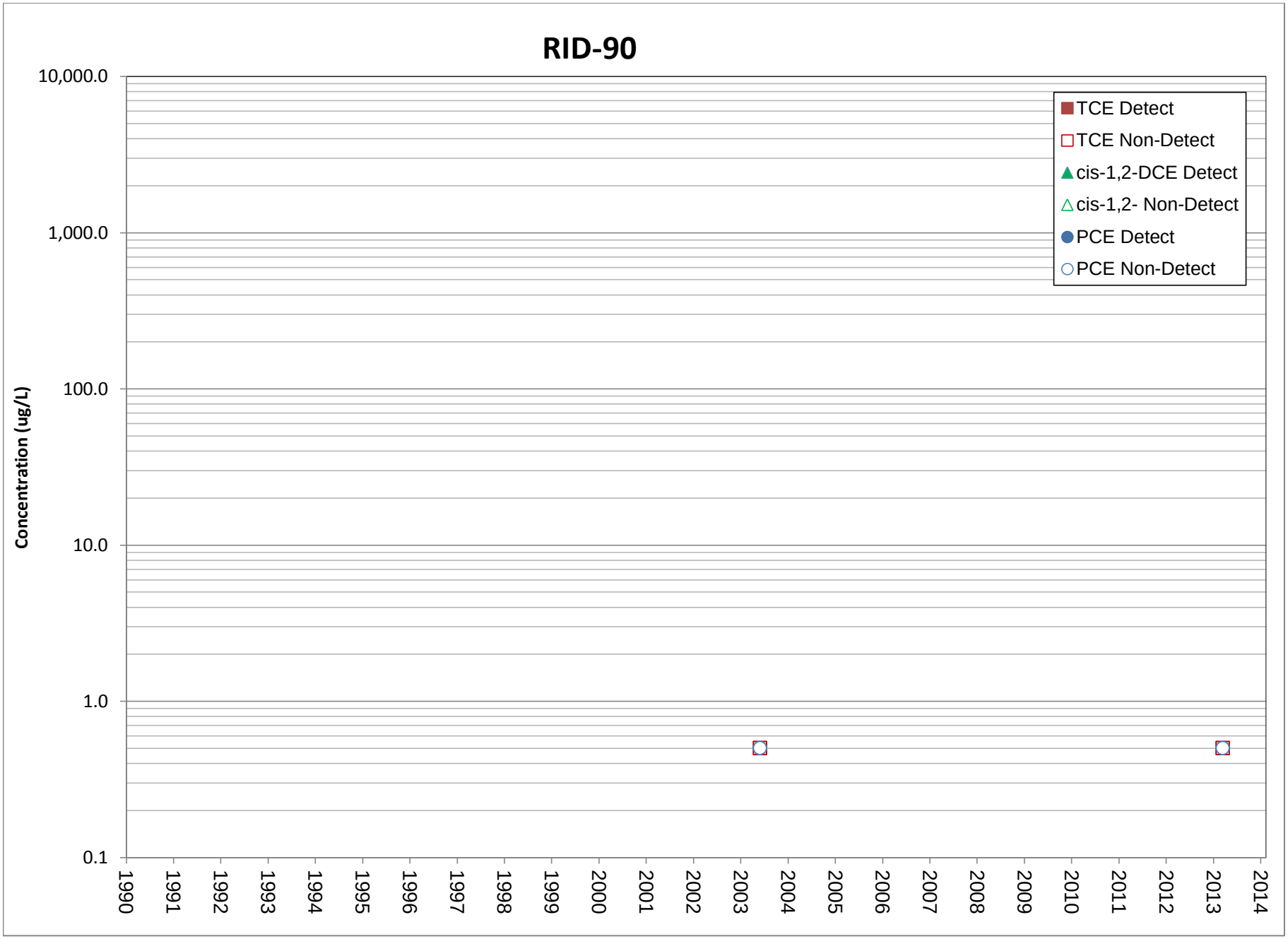
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-90
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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2011
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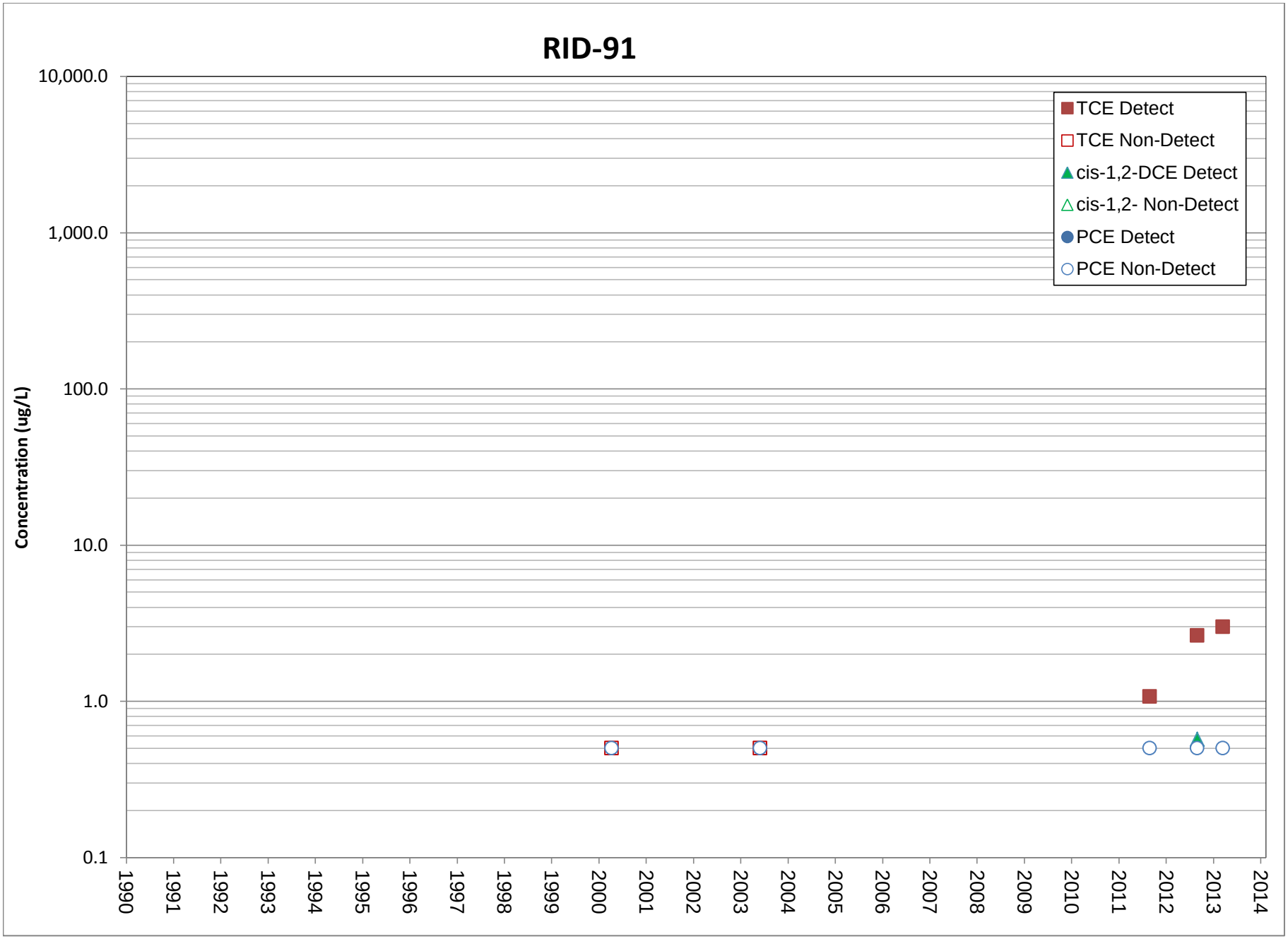
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-91
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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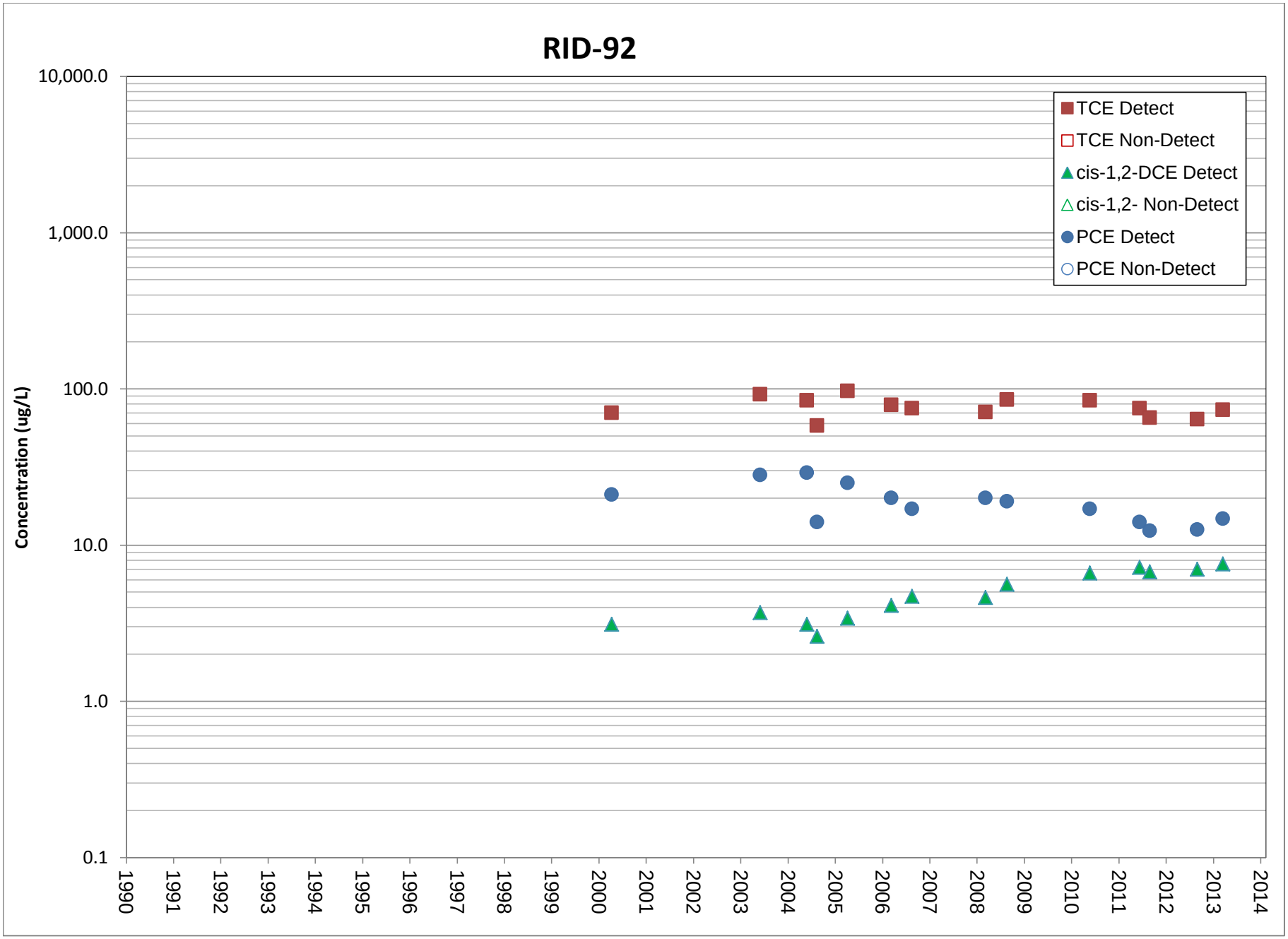
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-92
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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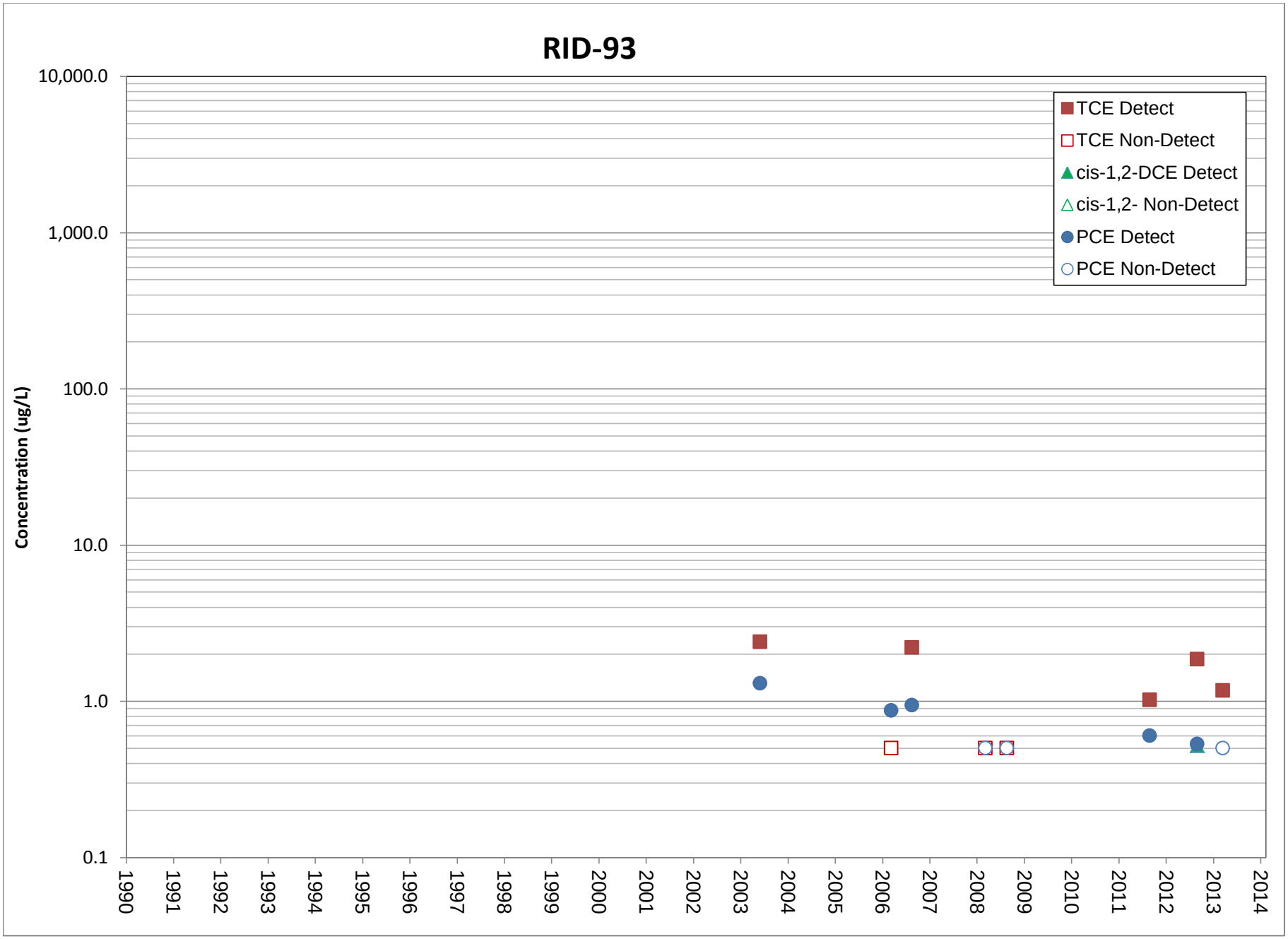
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-93
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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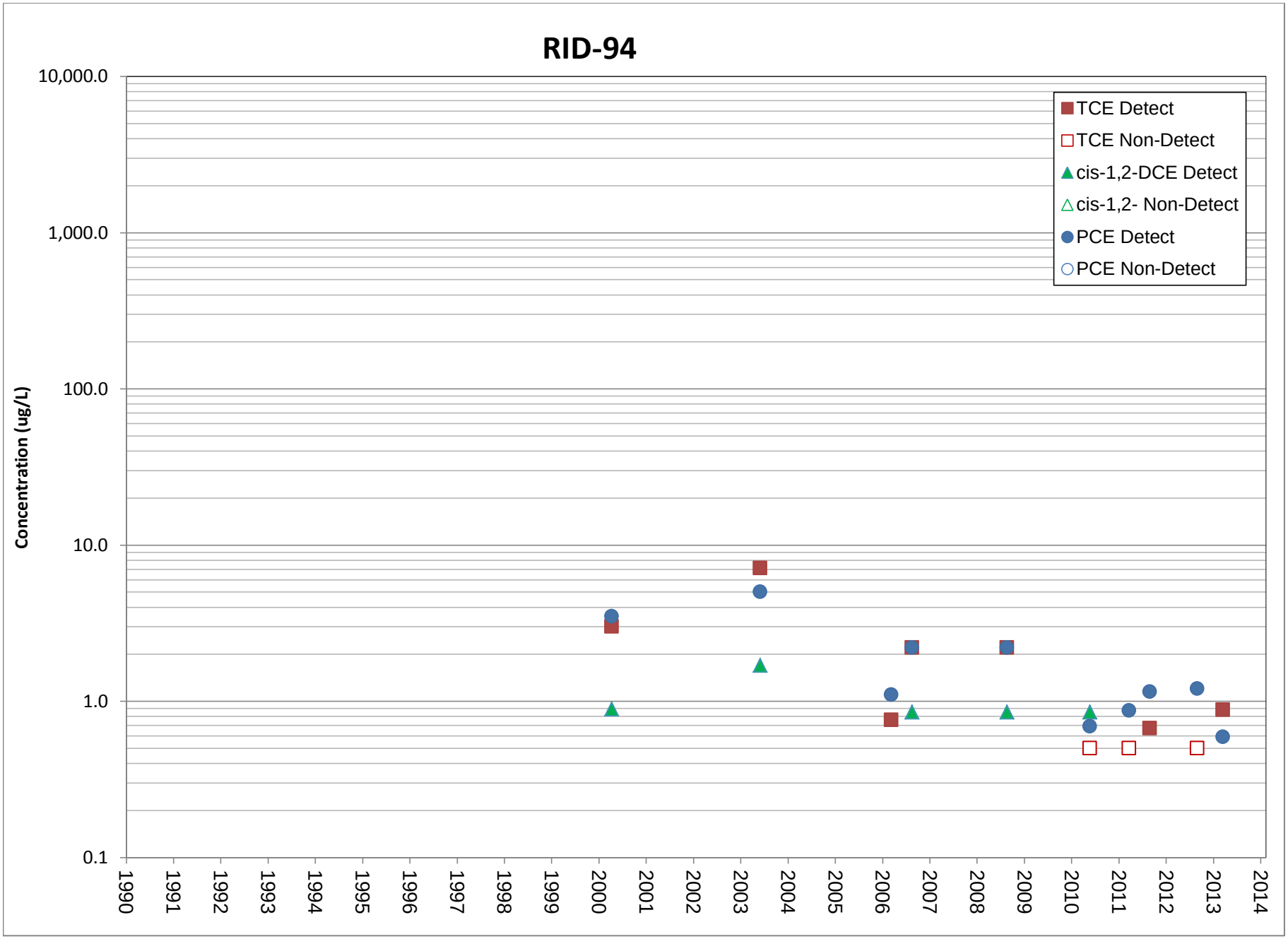
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-94
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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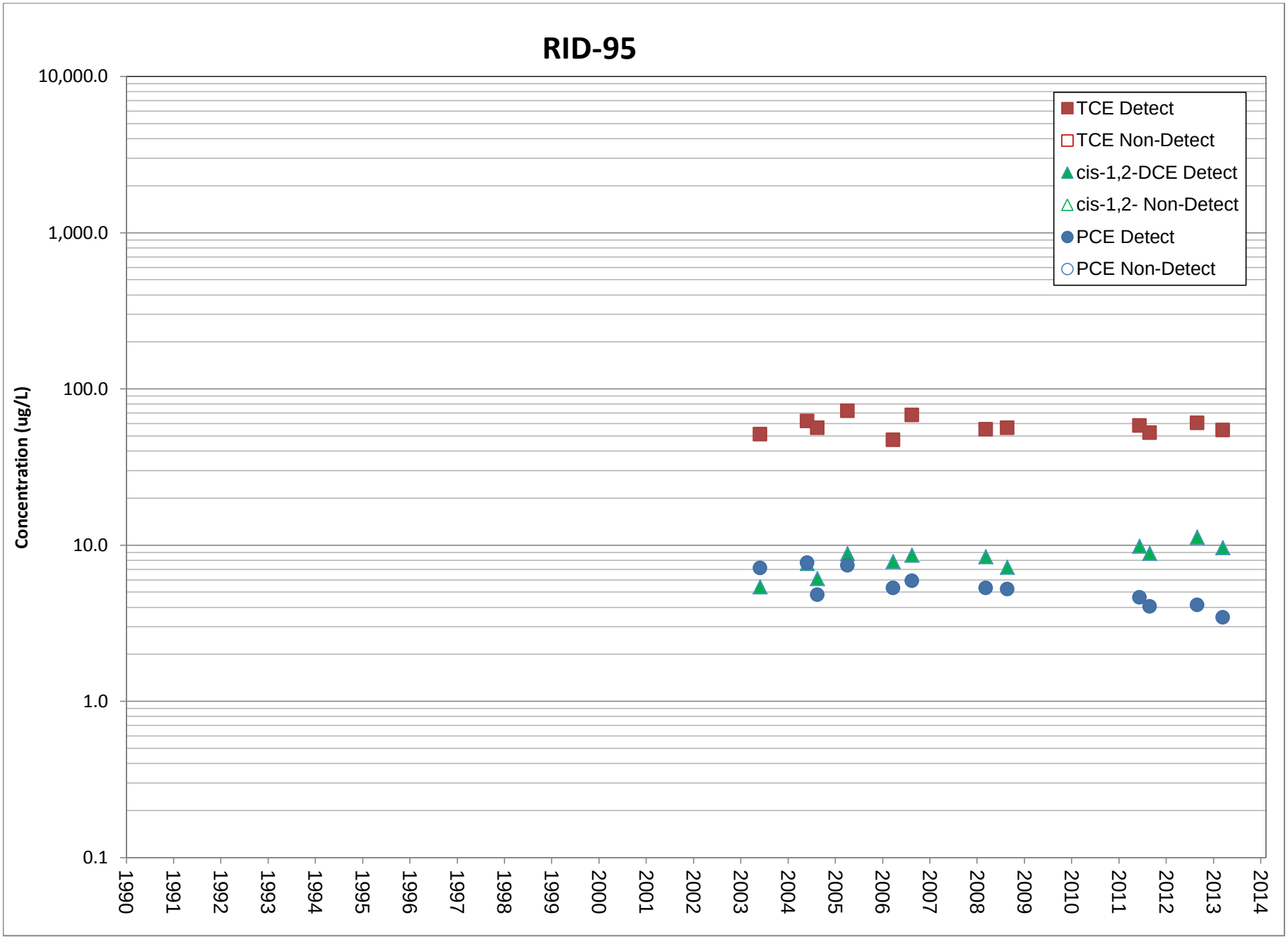
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-95
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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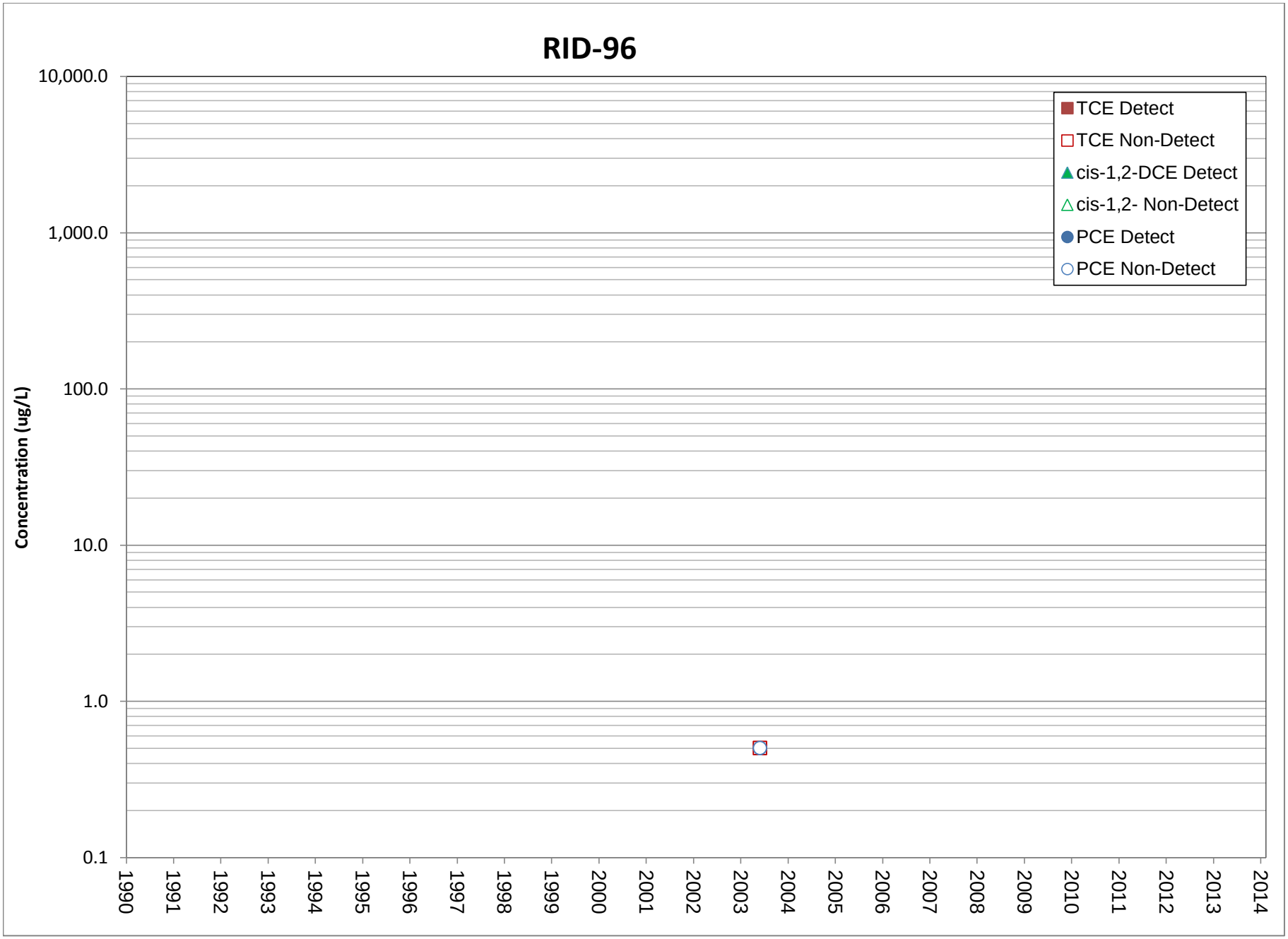
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect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Concentration (ug/L)
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100.0
10.0
1.0
0.1
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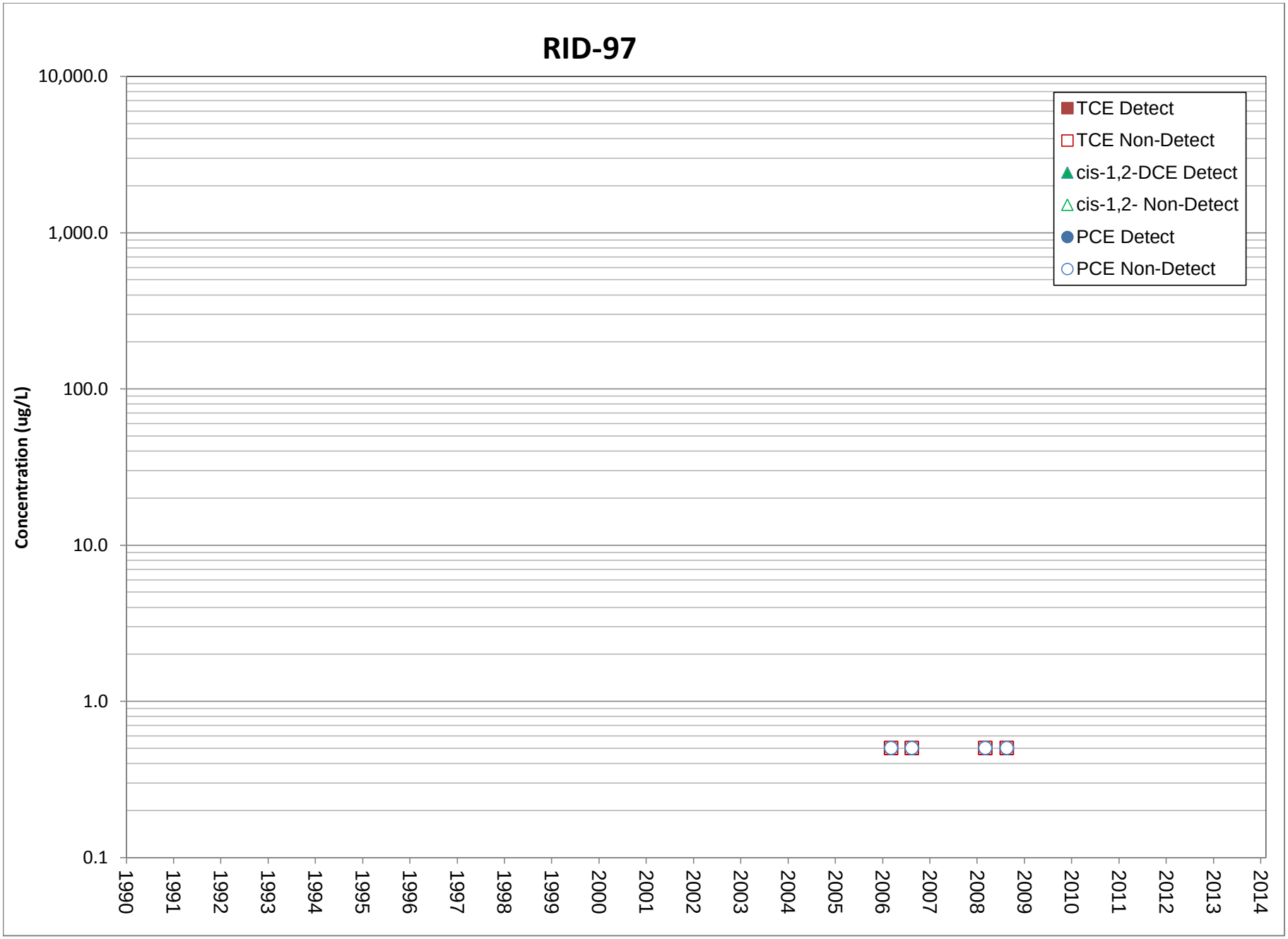
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-97
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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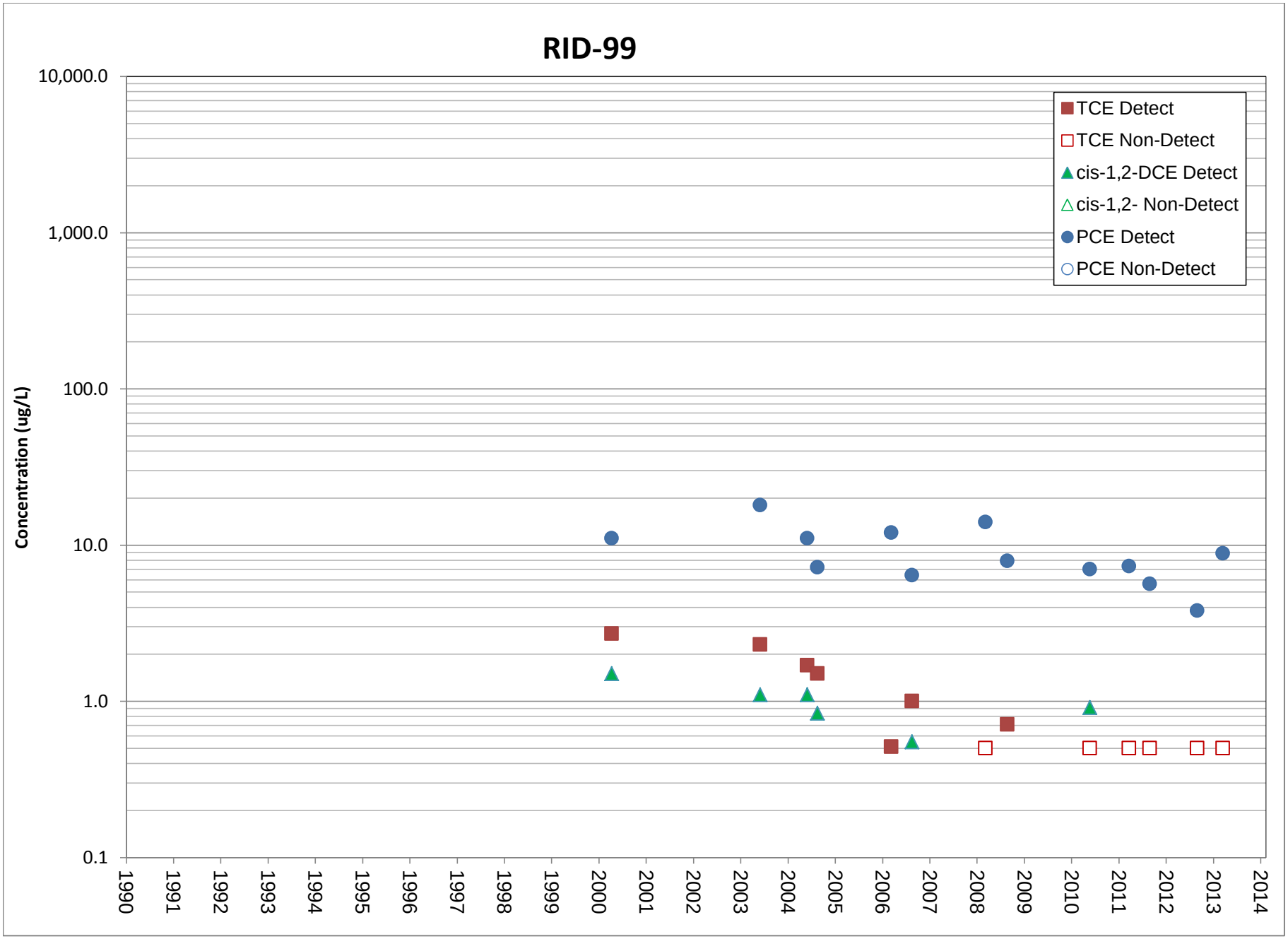
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-99
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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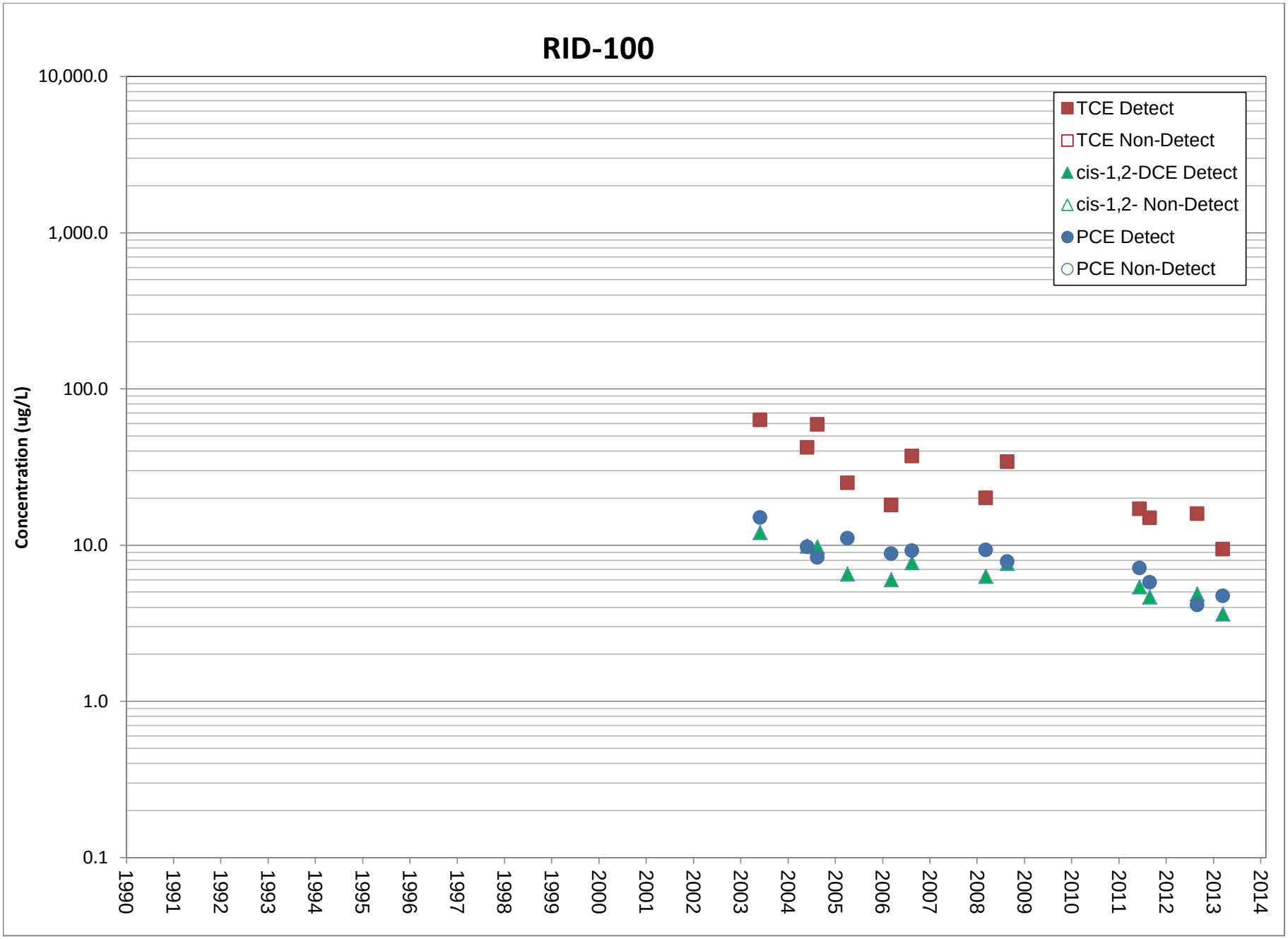
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-100
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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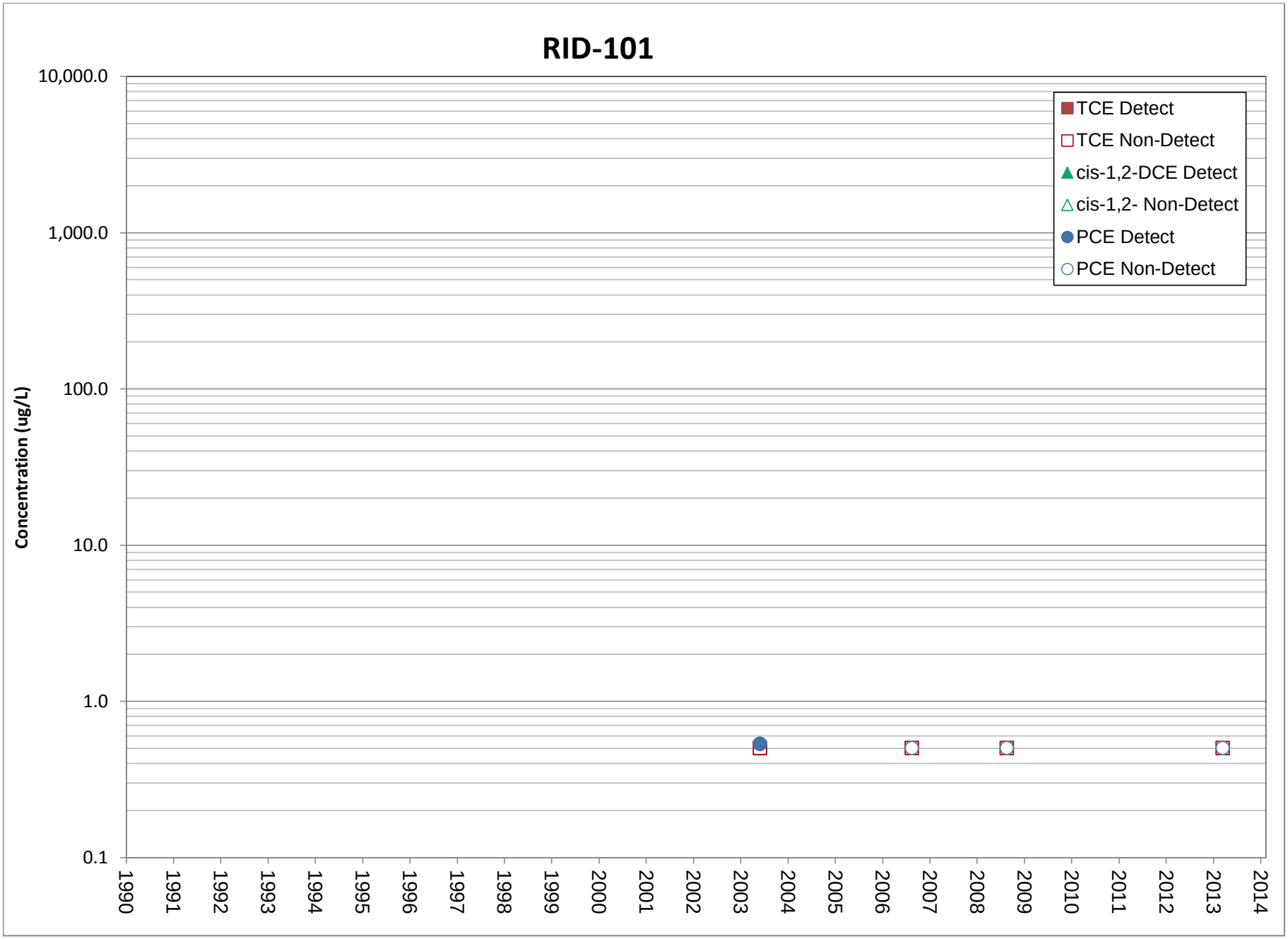
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-101
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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2011
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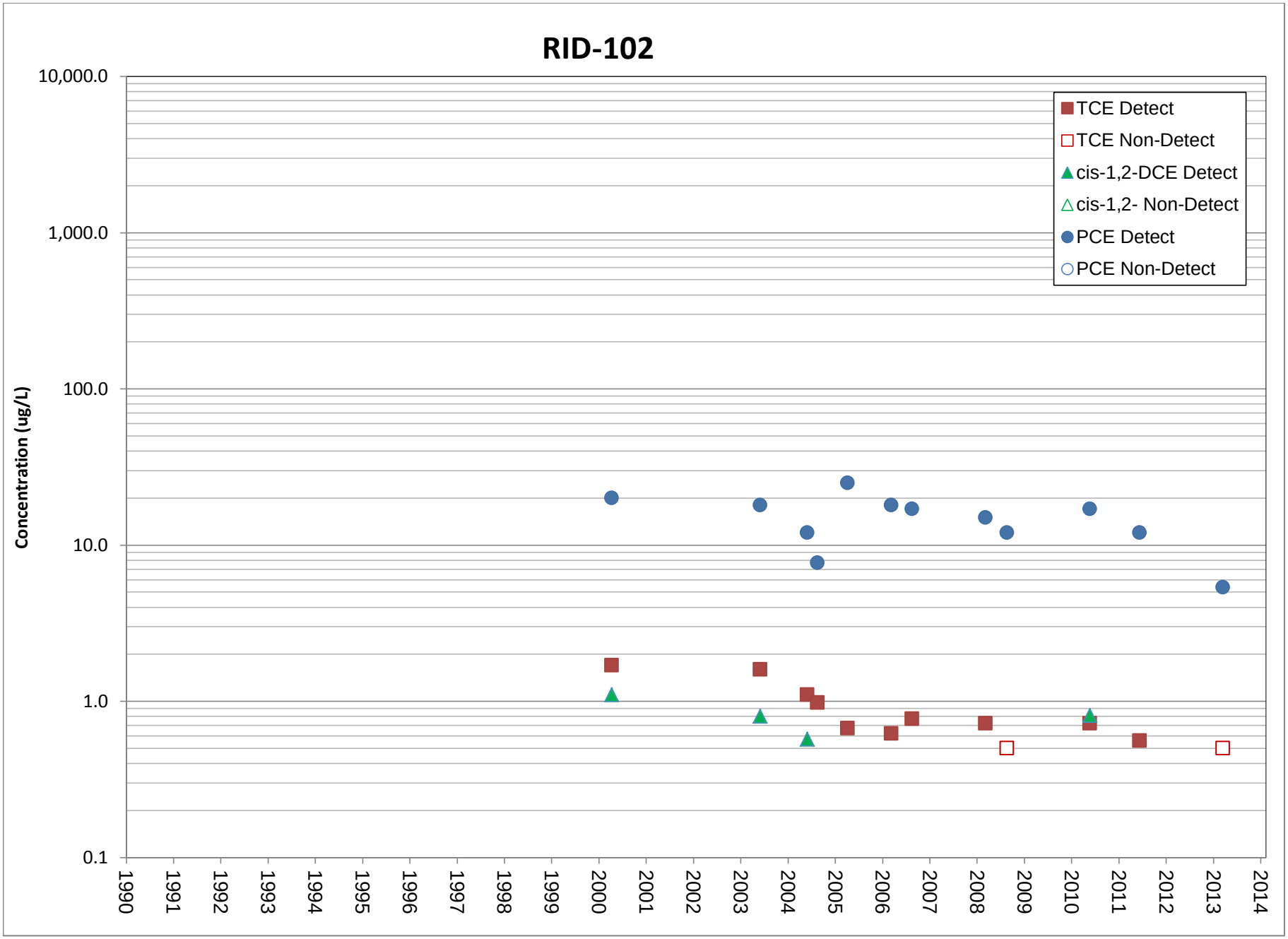
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-102
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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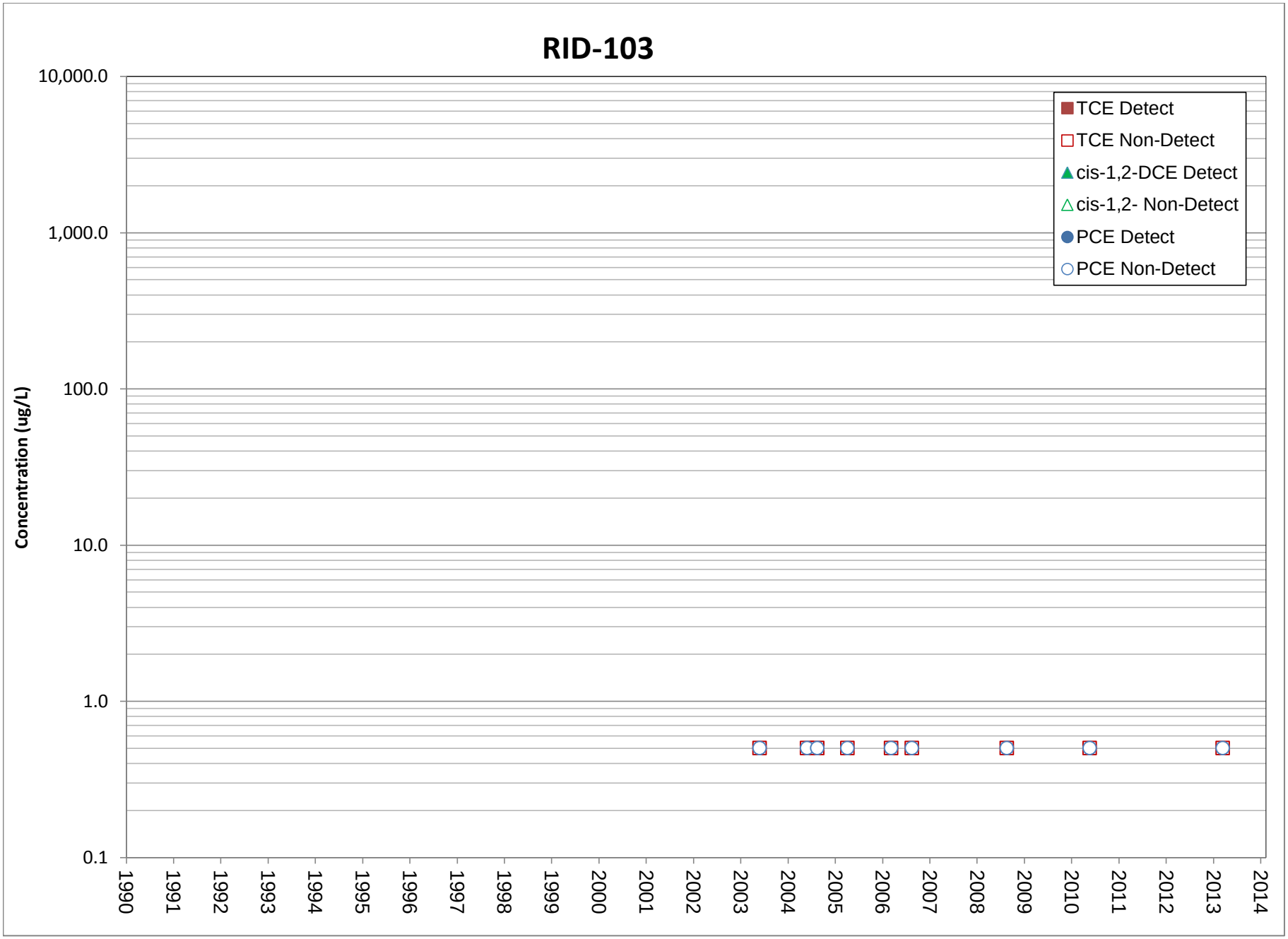
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-103
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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1995
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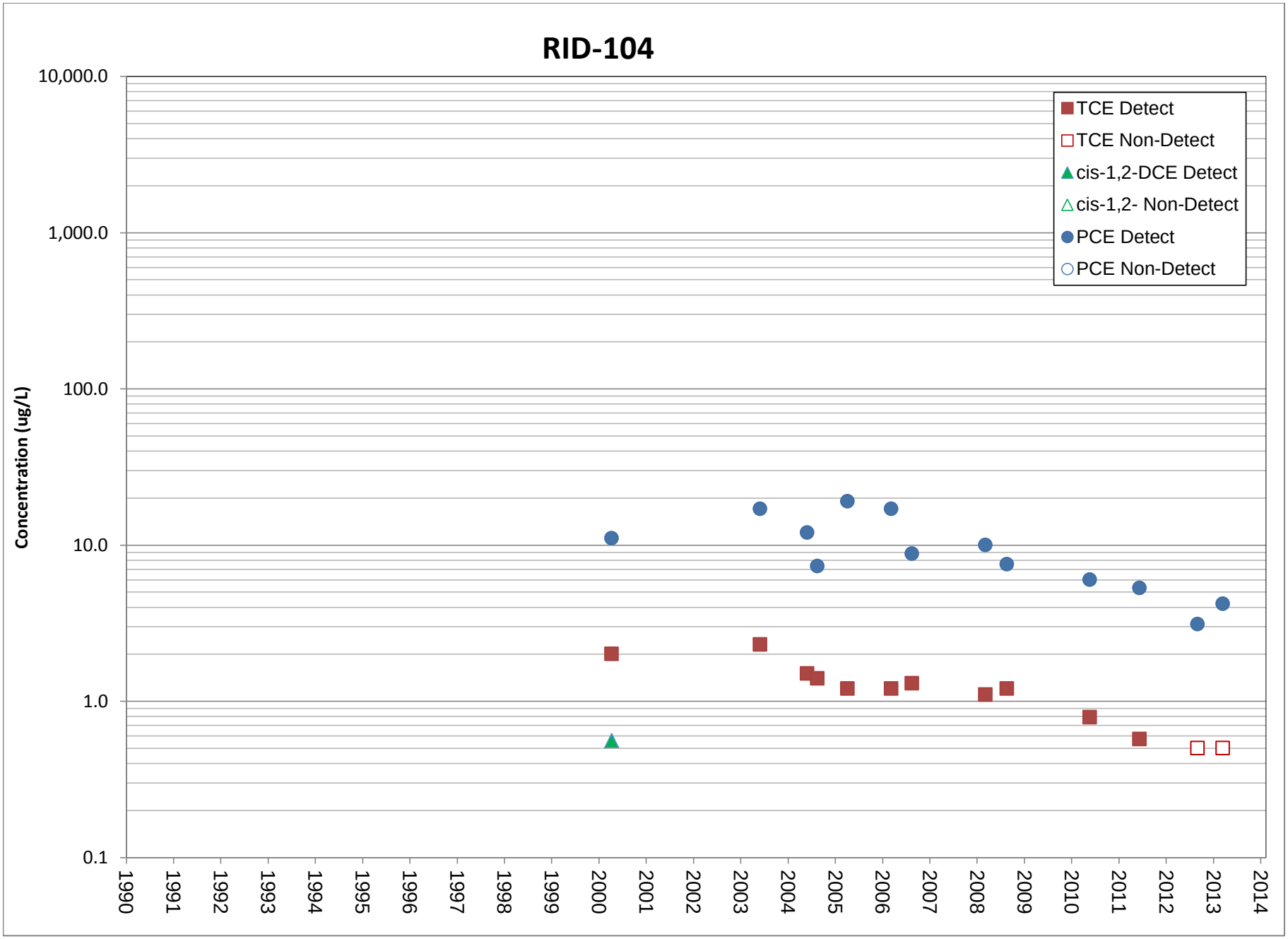
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-104
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1993
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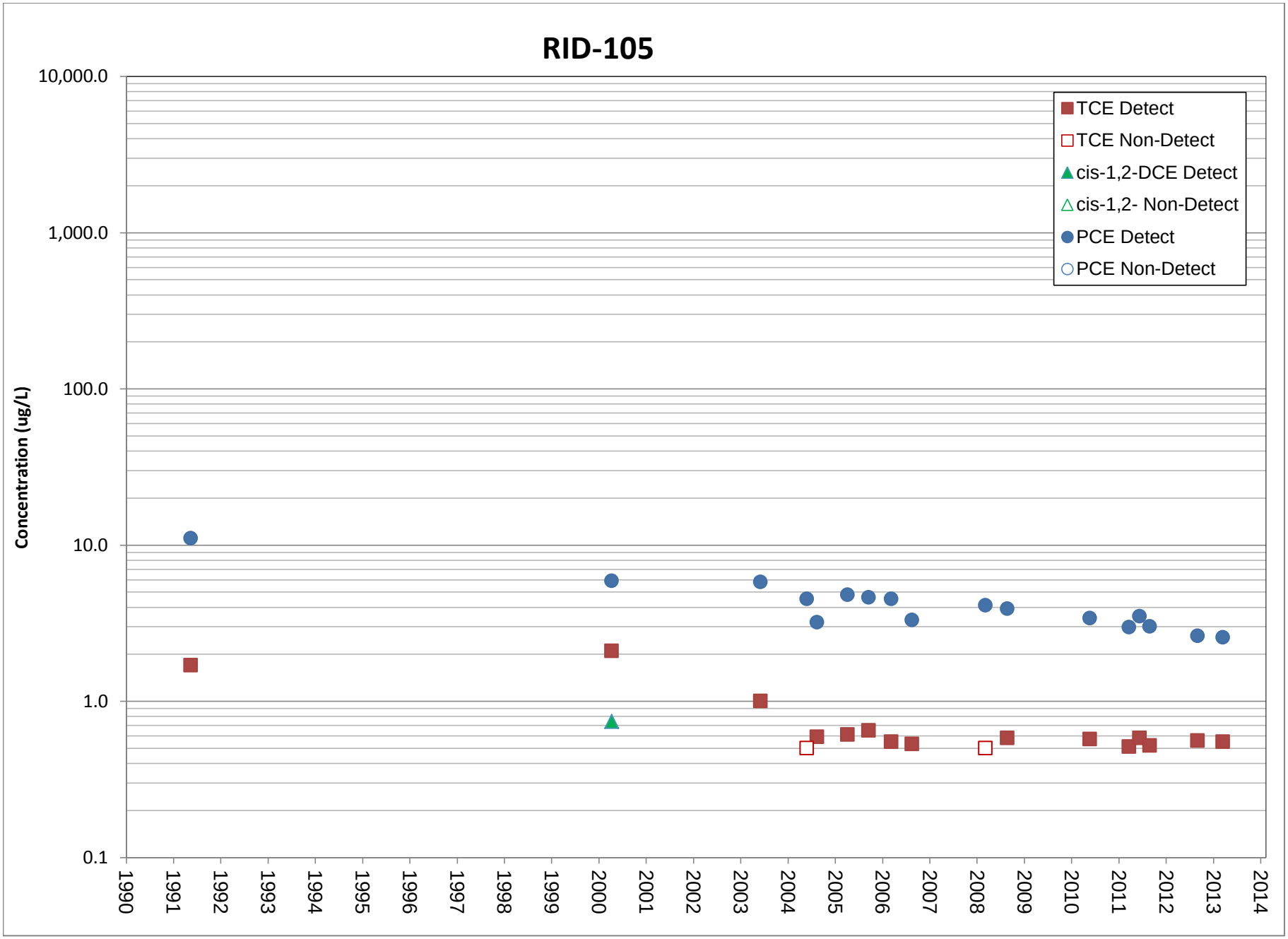
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-105
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
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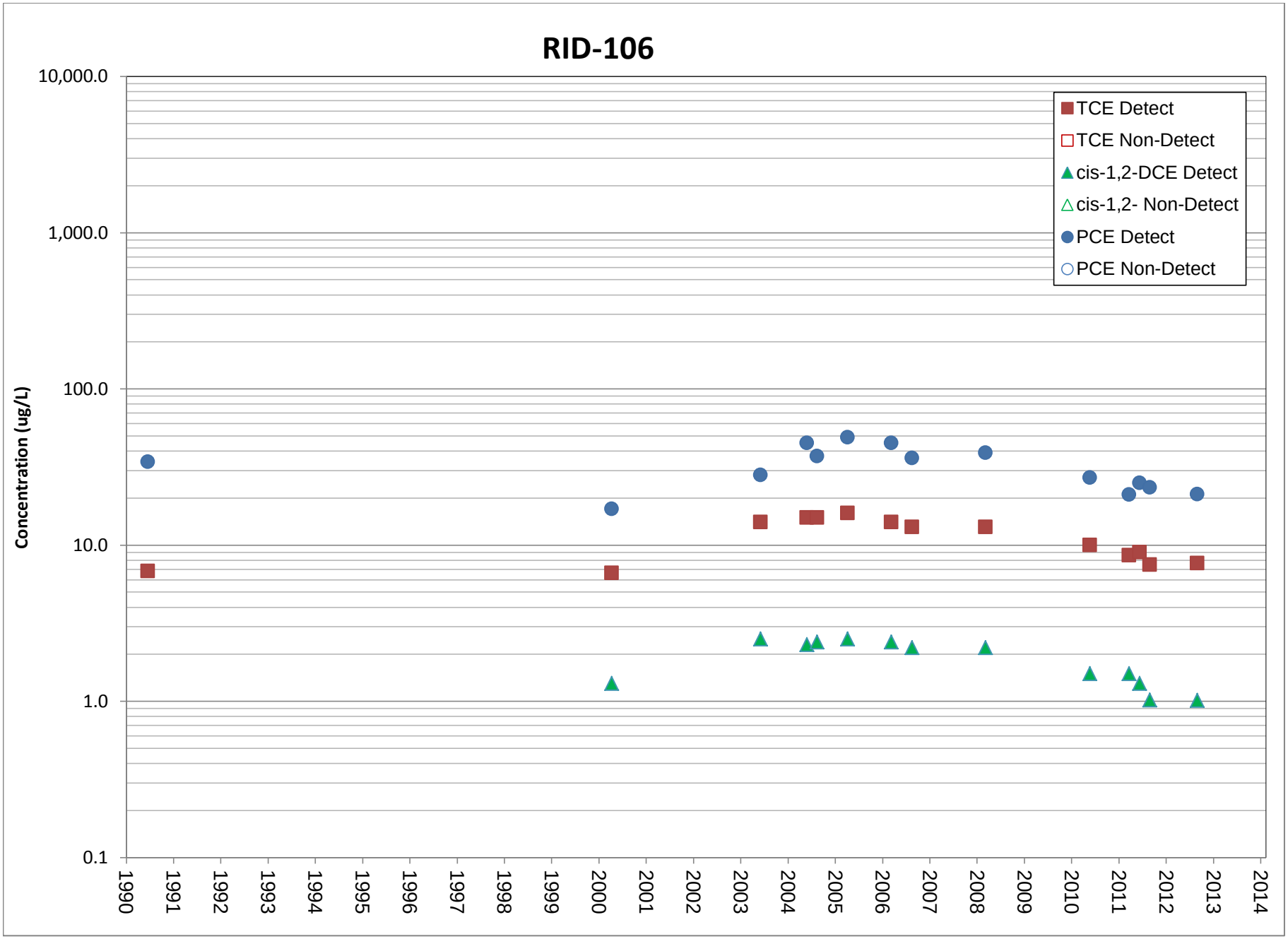
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-106
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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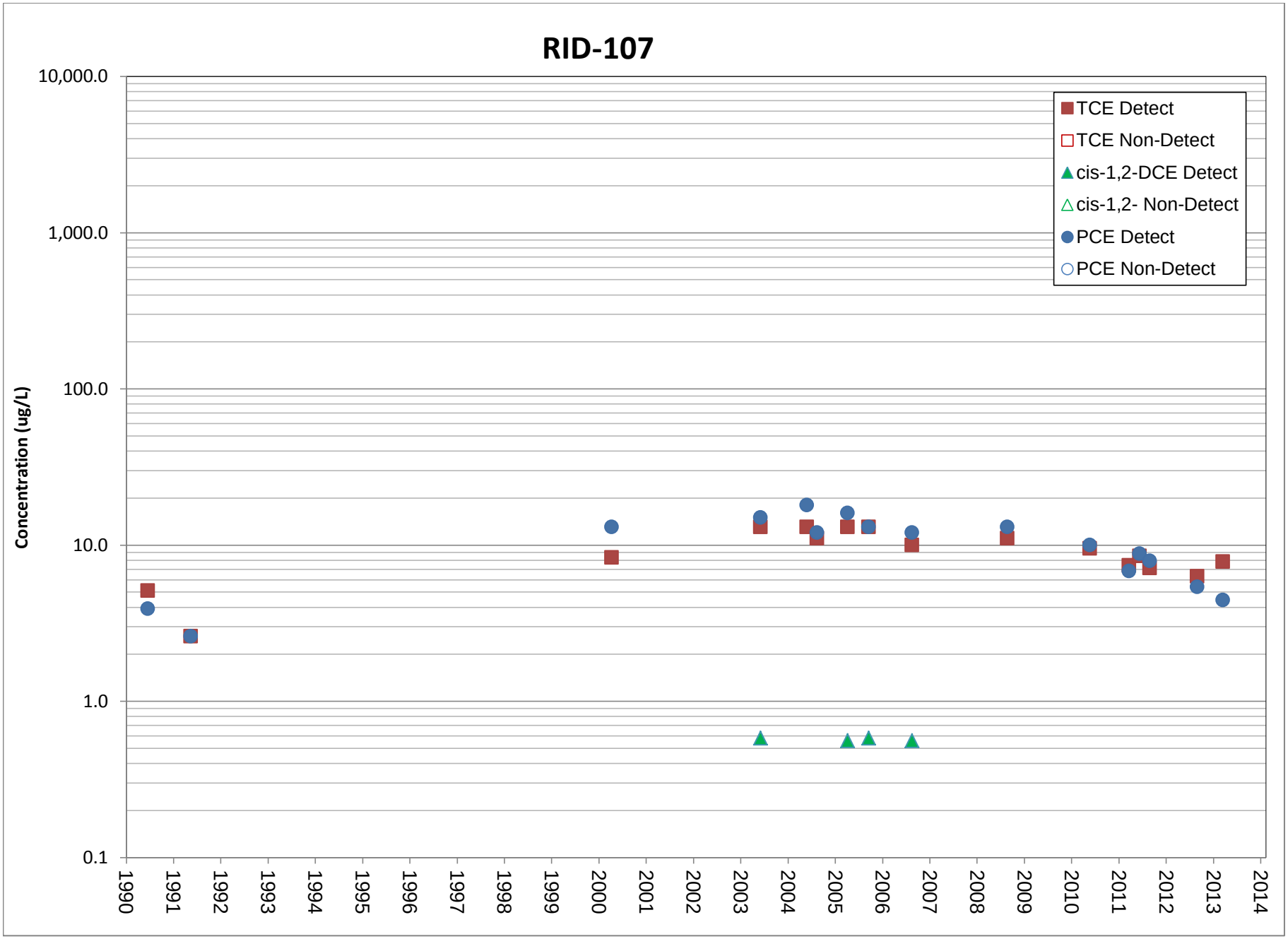
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-107
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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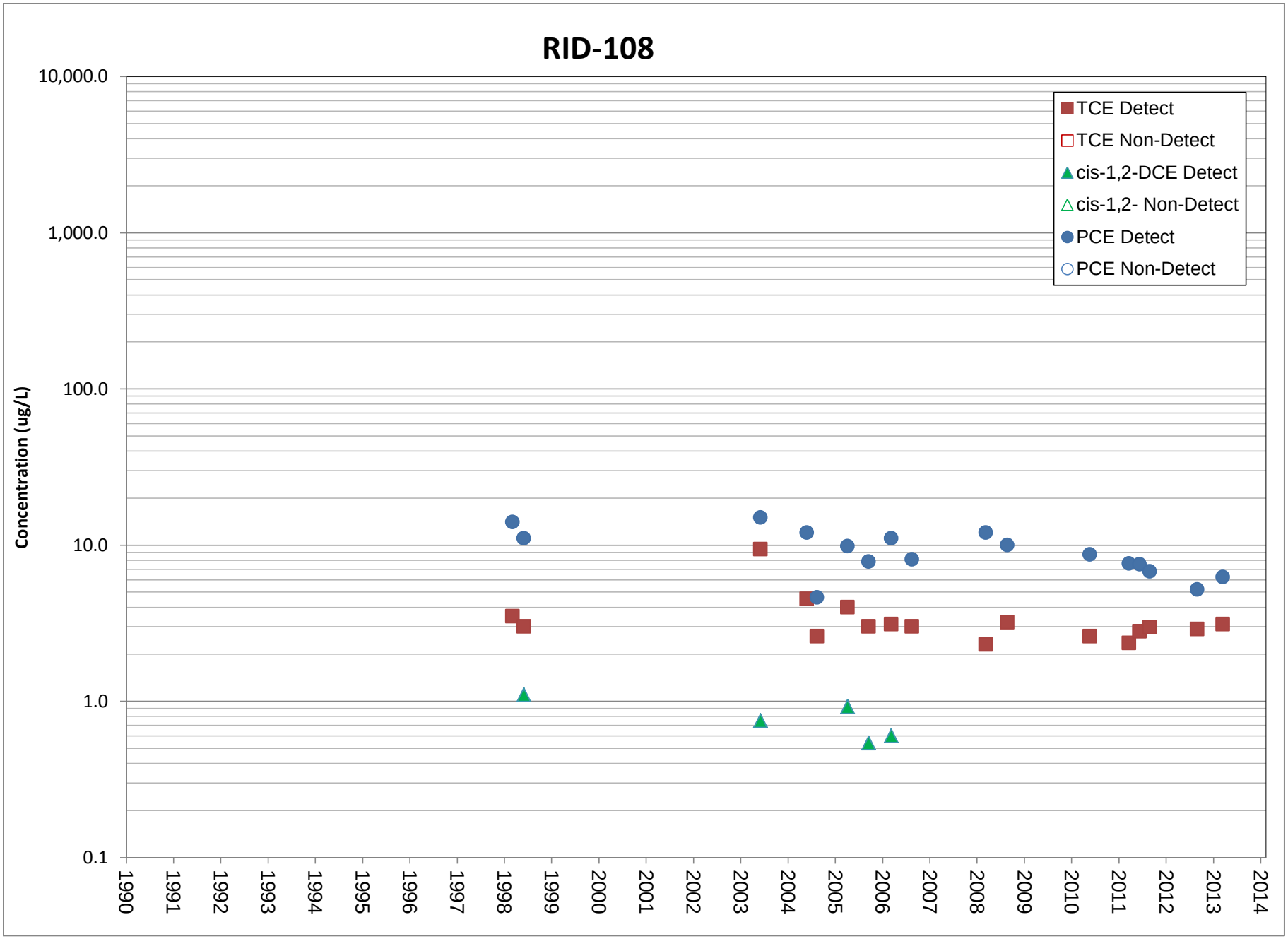
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-108
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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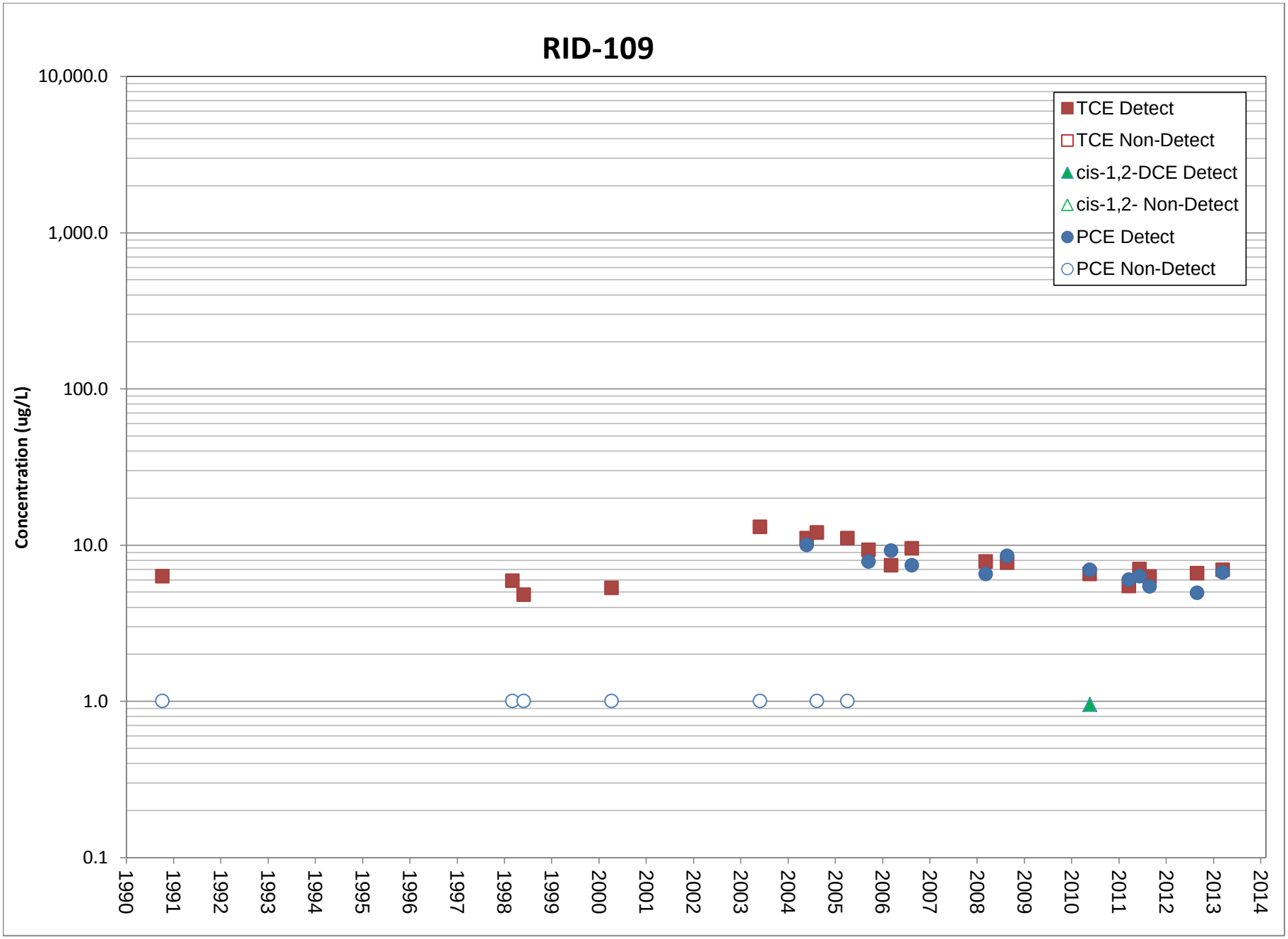
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-109
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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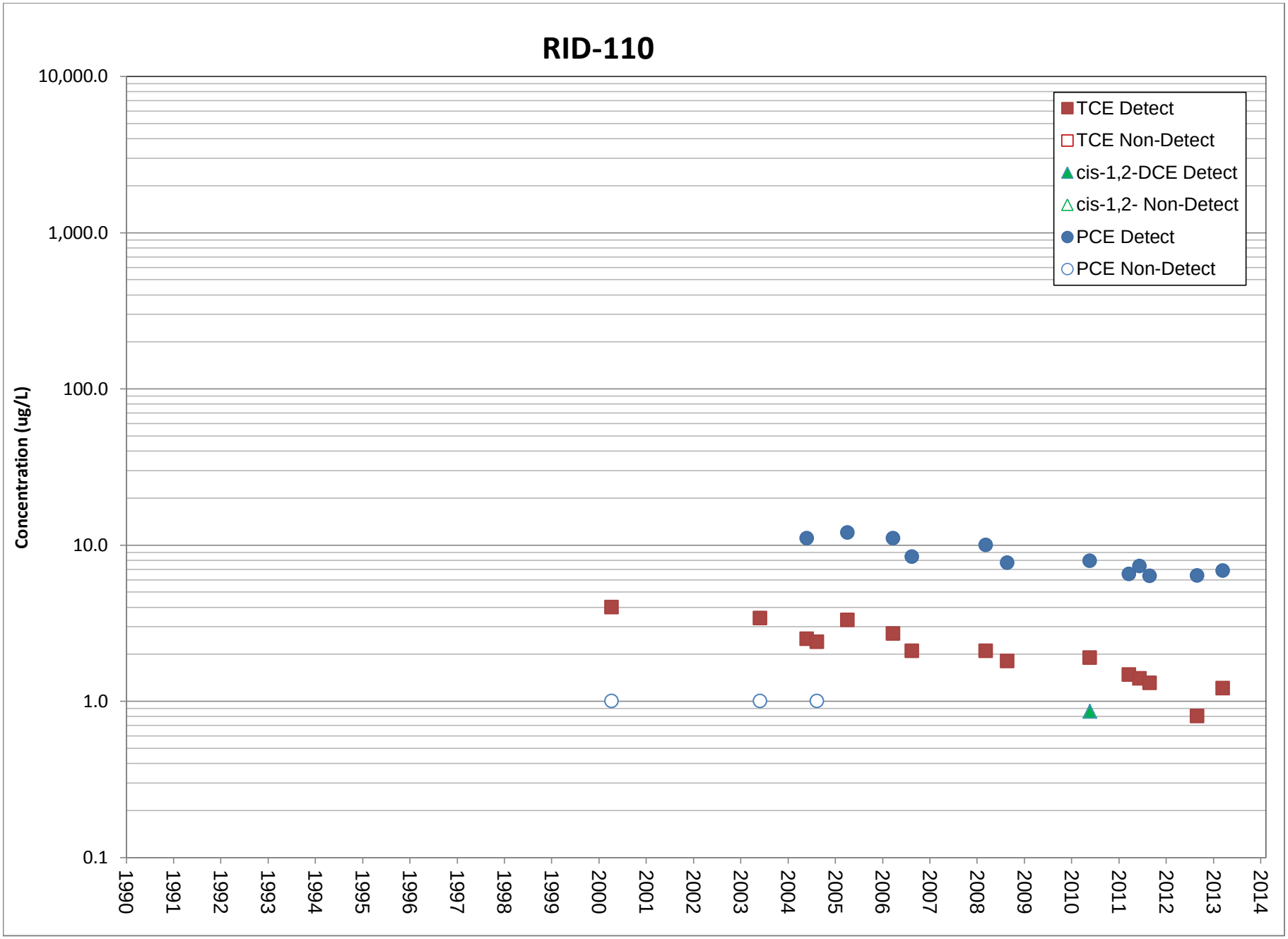
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-110
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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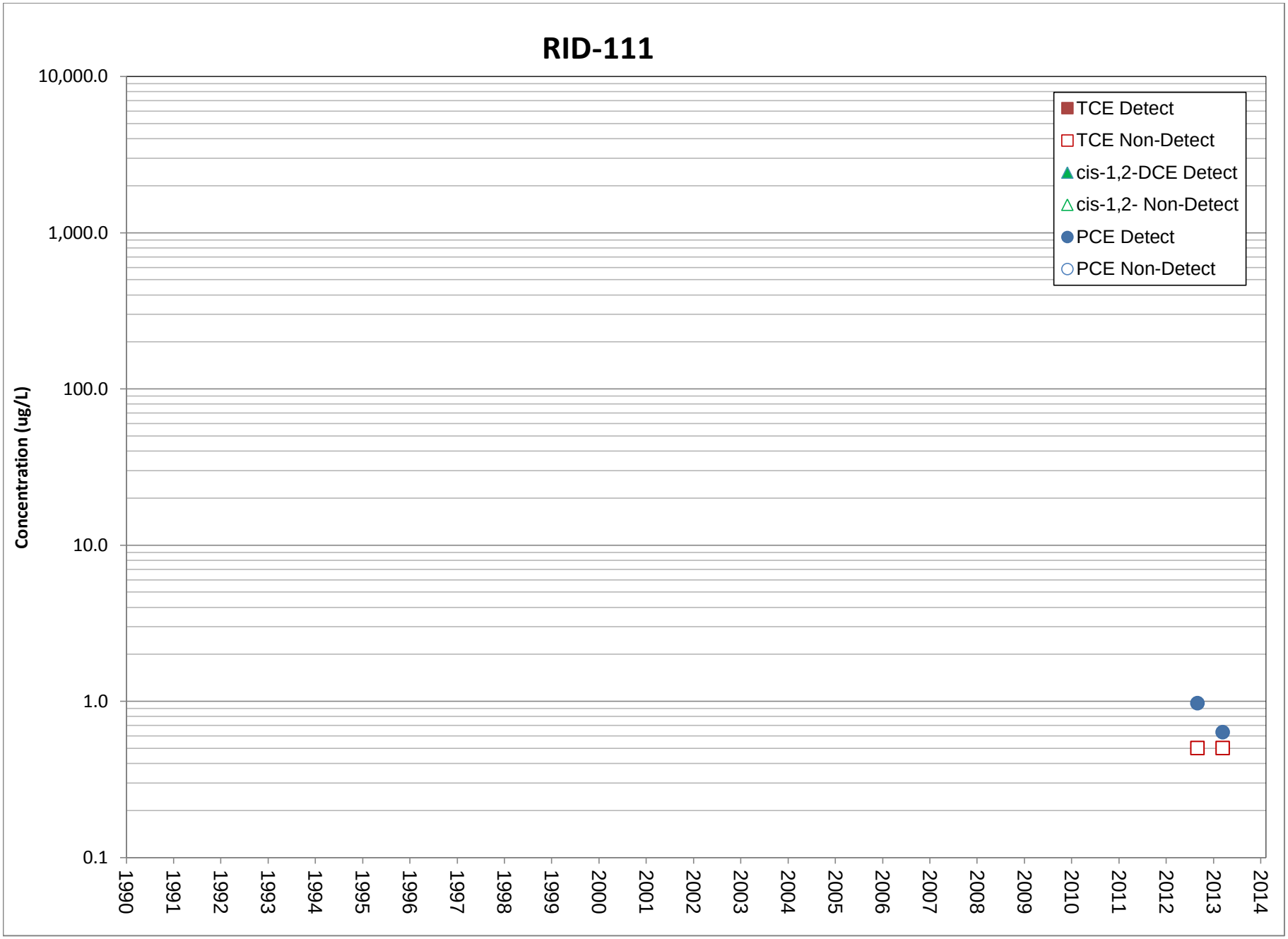
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-111
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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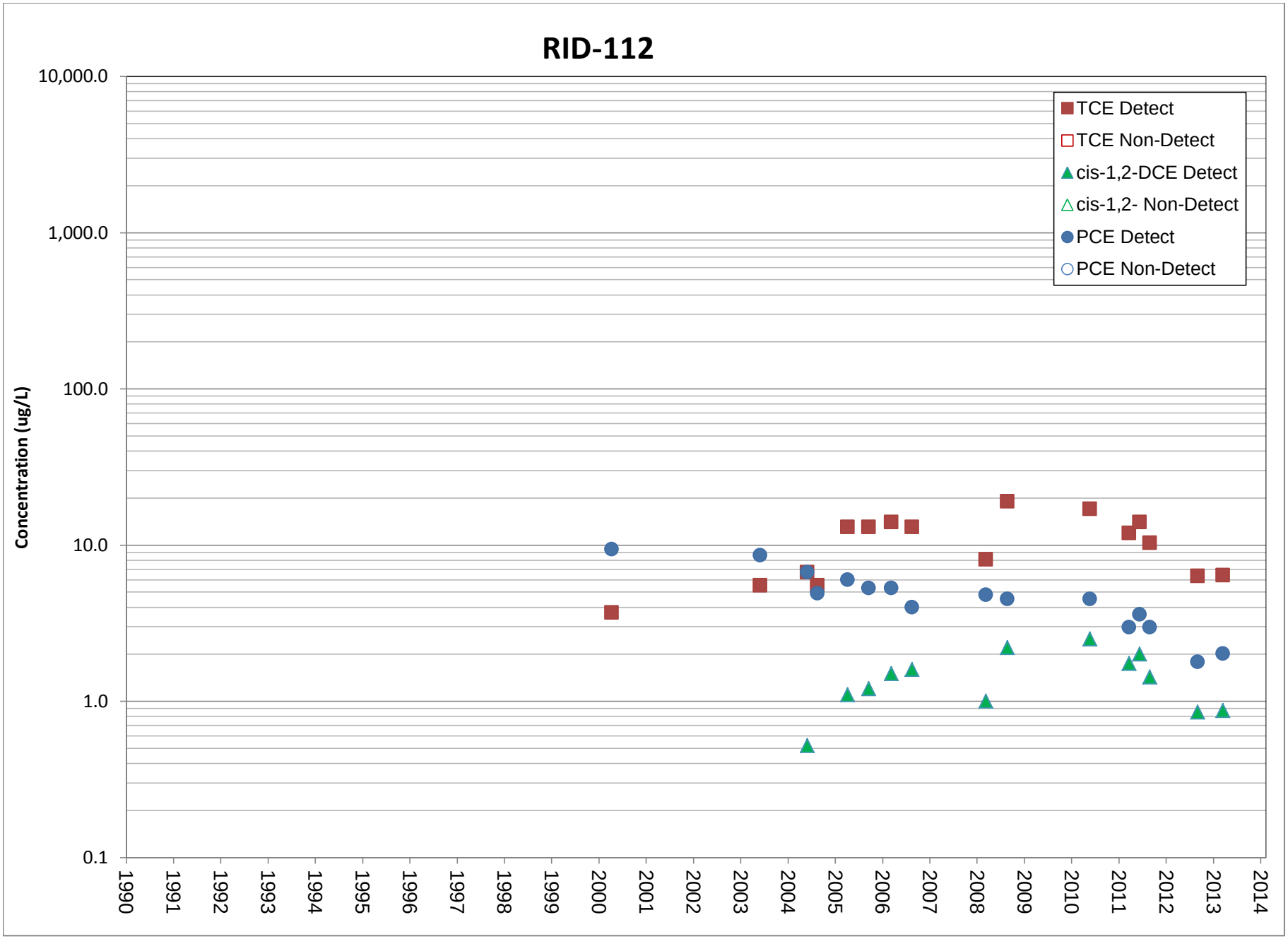
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-112
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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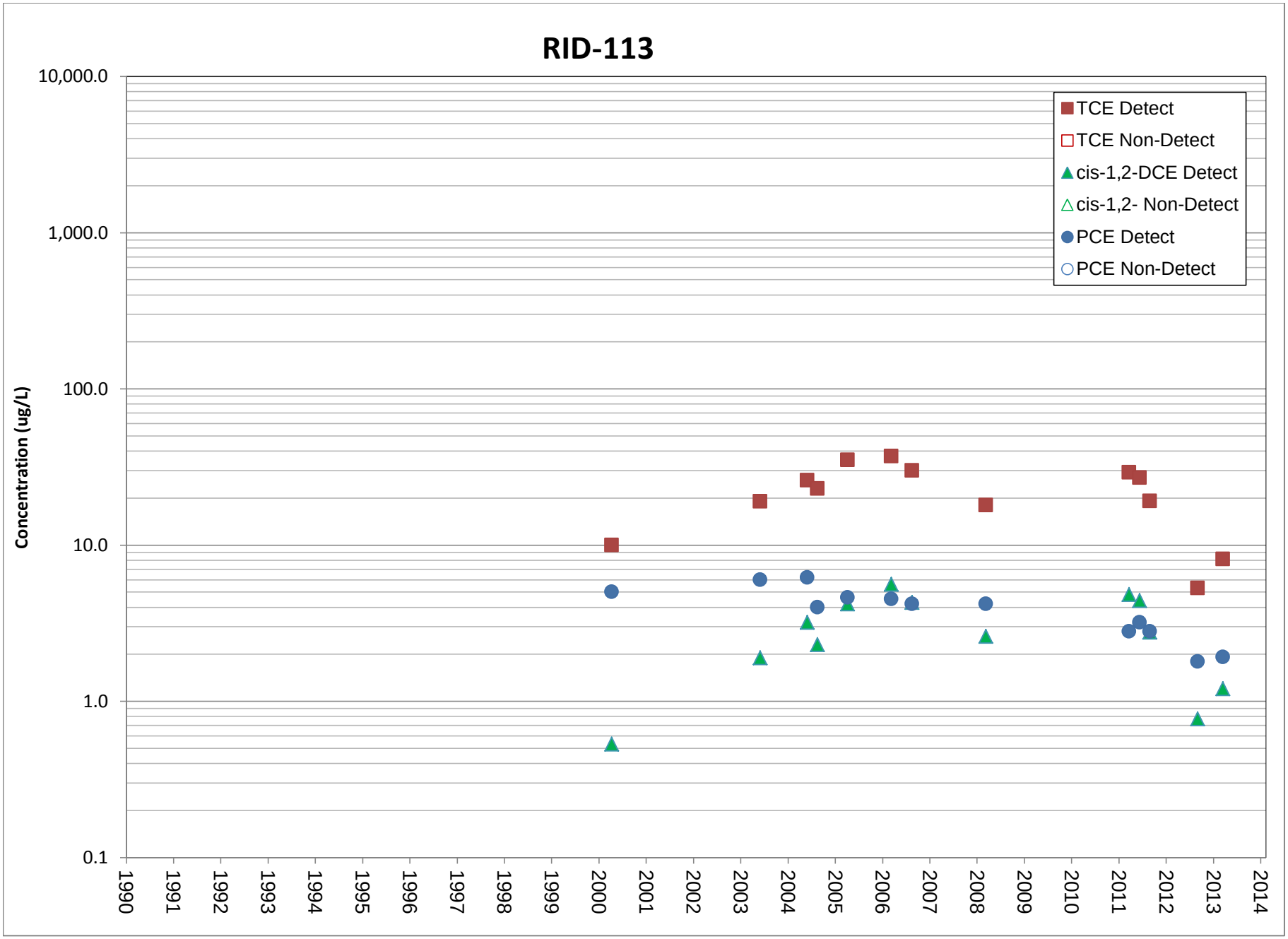
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-113
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
1991
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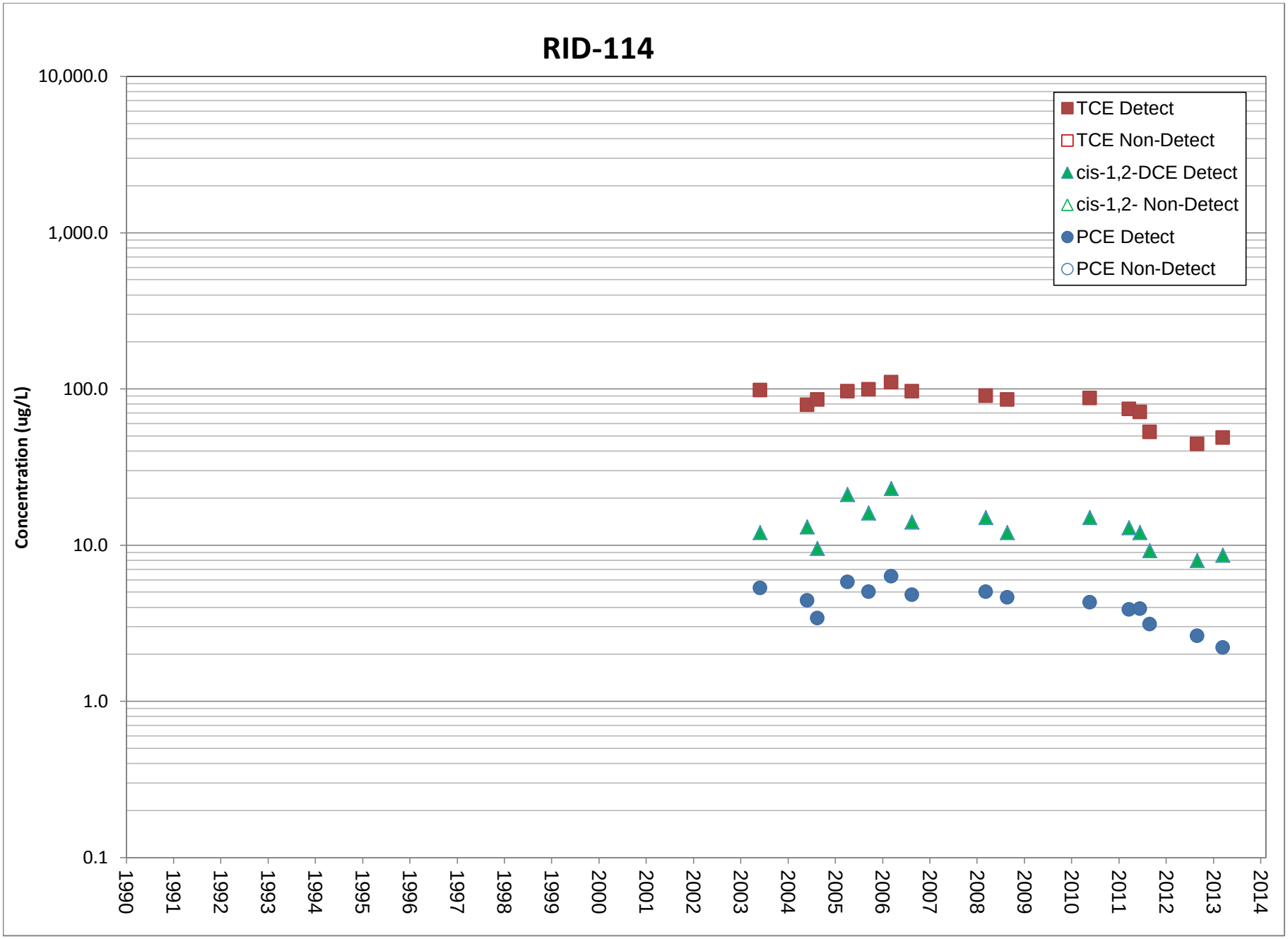
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


RID-114
Concentration (ug/L)
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100.0
10.0
1.0
0.1
1990
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TCE Detect
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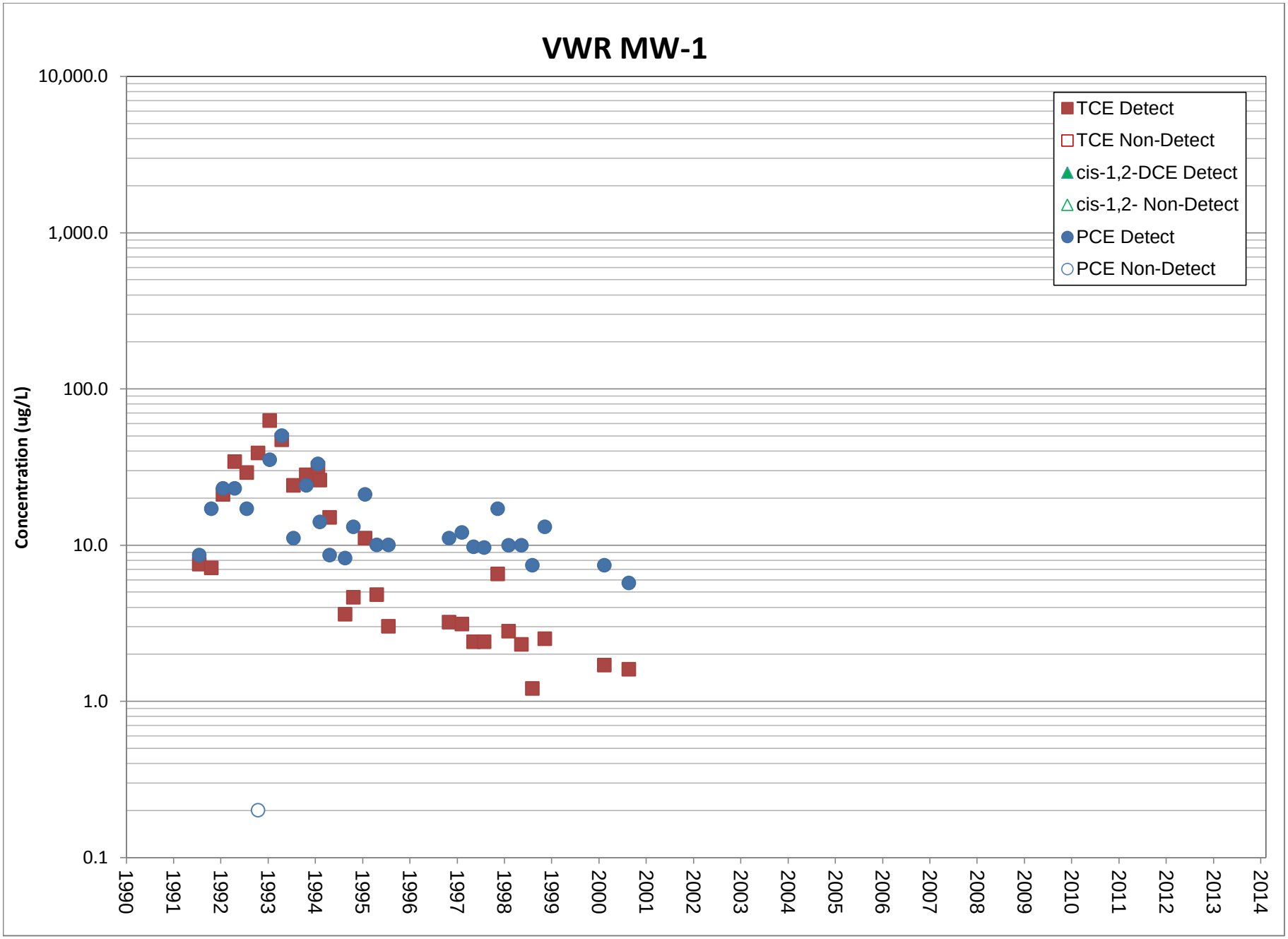
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-1
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1992
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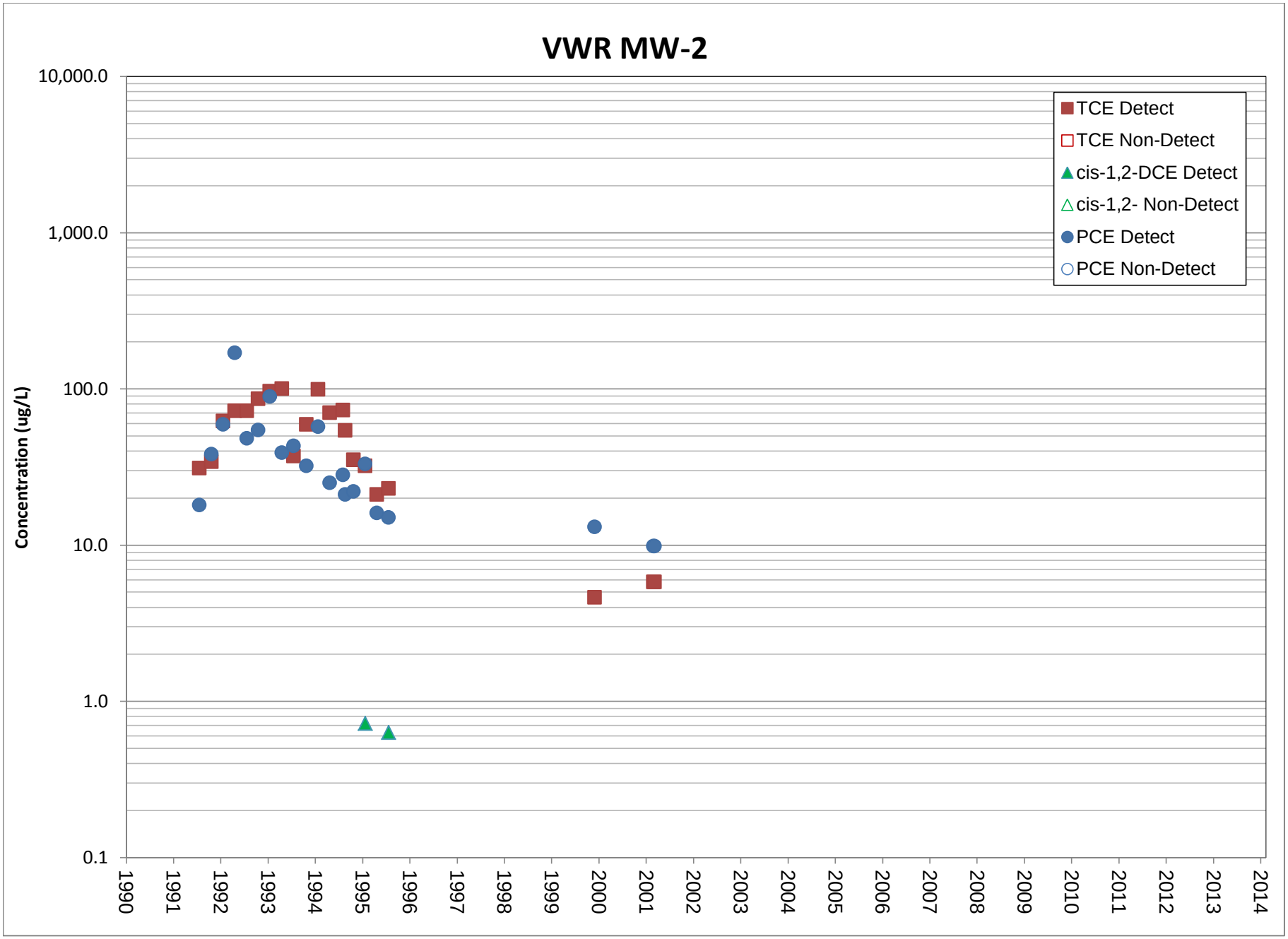
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-2
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
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1992
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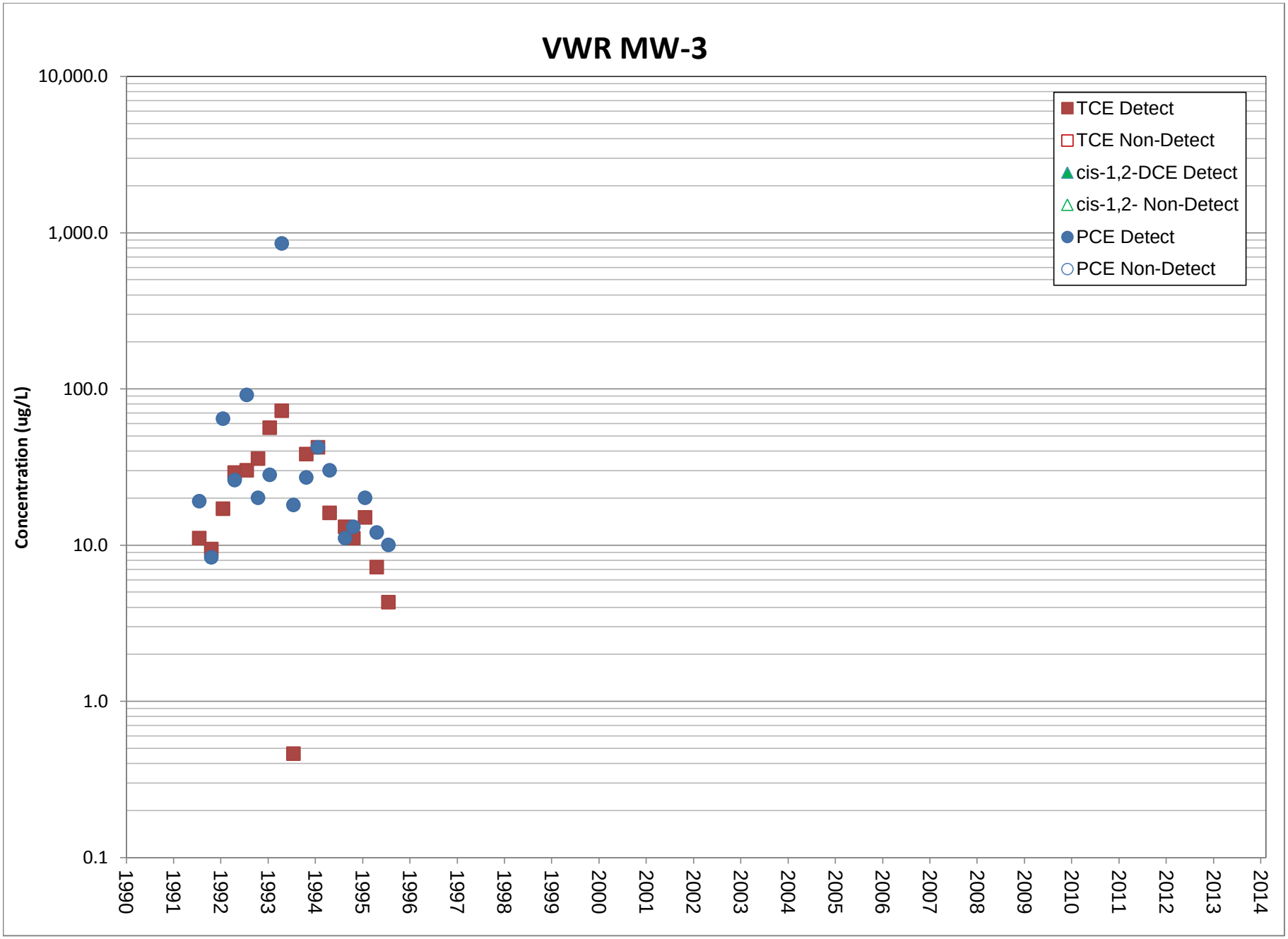
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-3
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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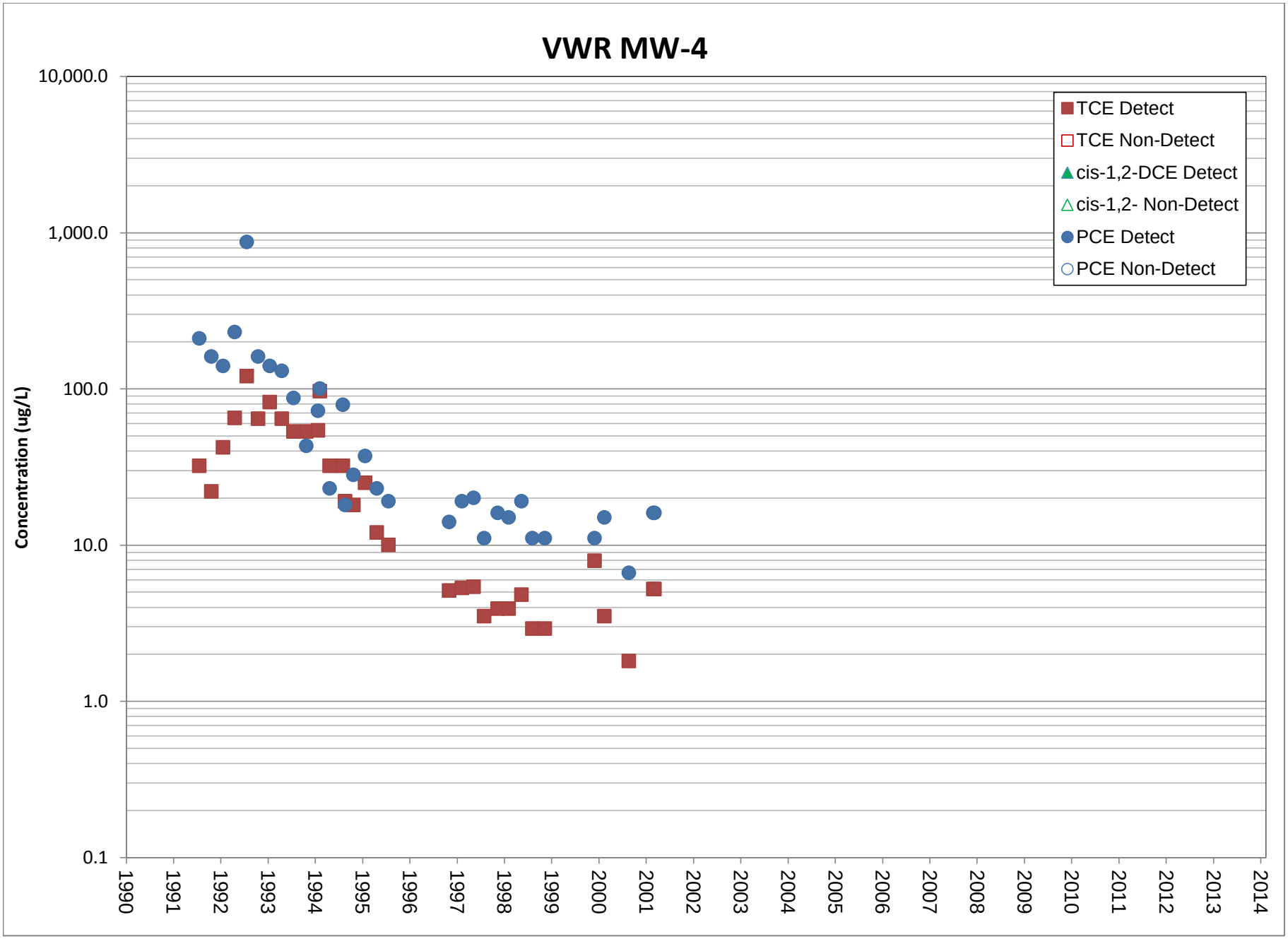
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-4
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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1992
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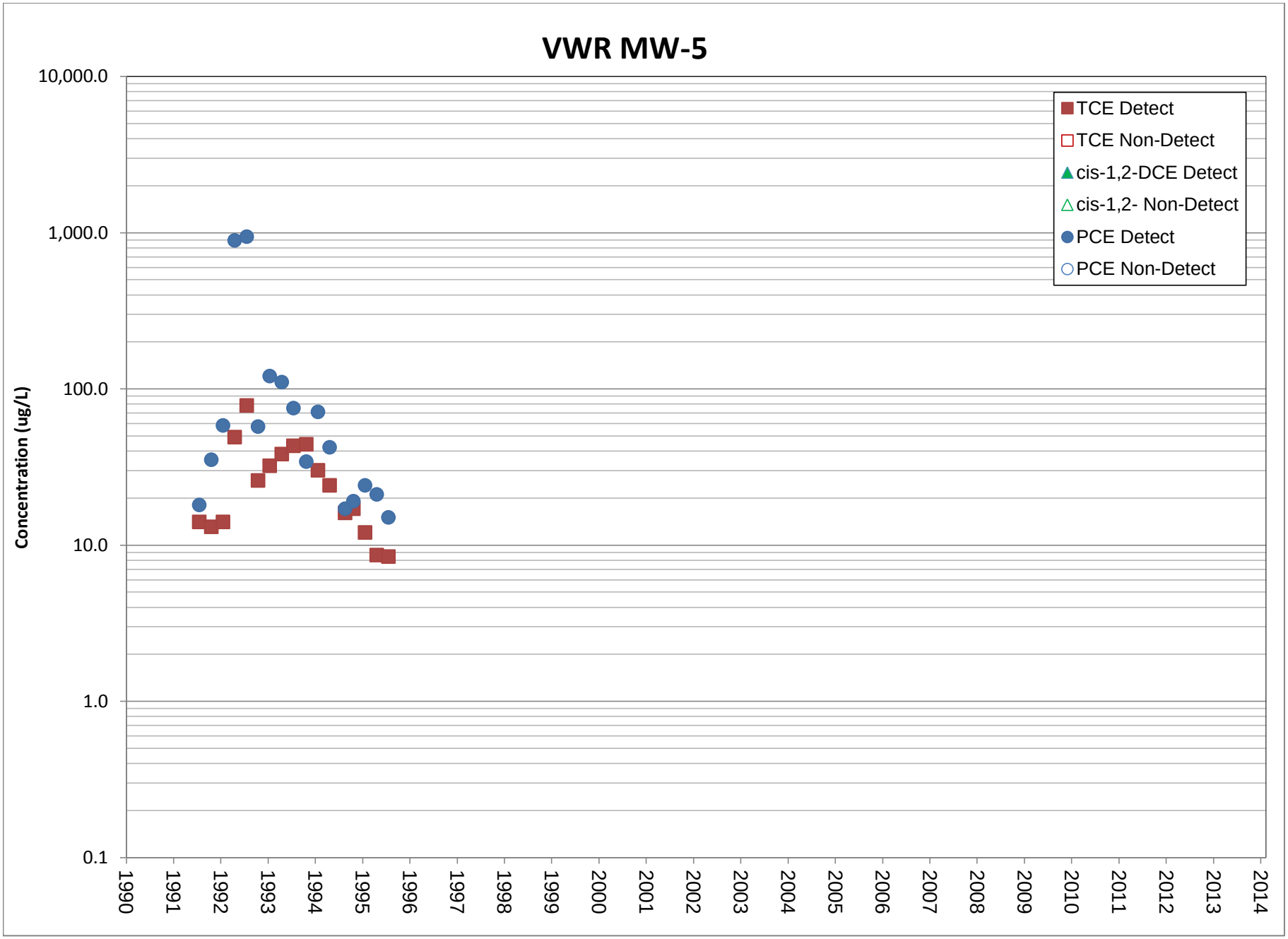
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-5
Concentration (ug/L)
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100.0
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1.0
0.1
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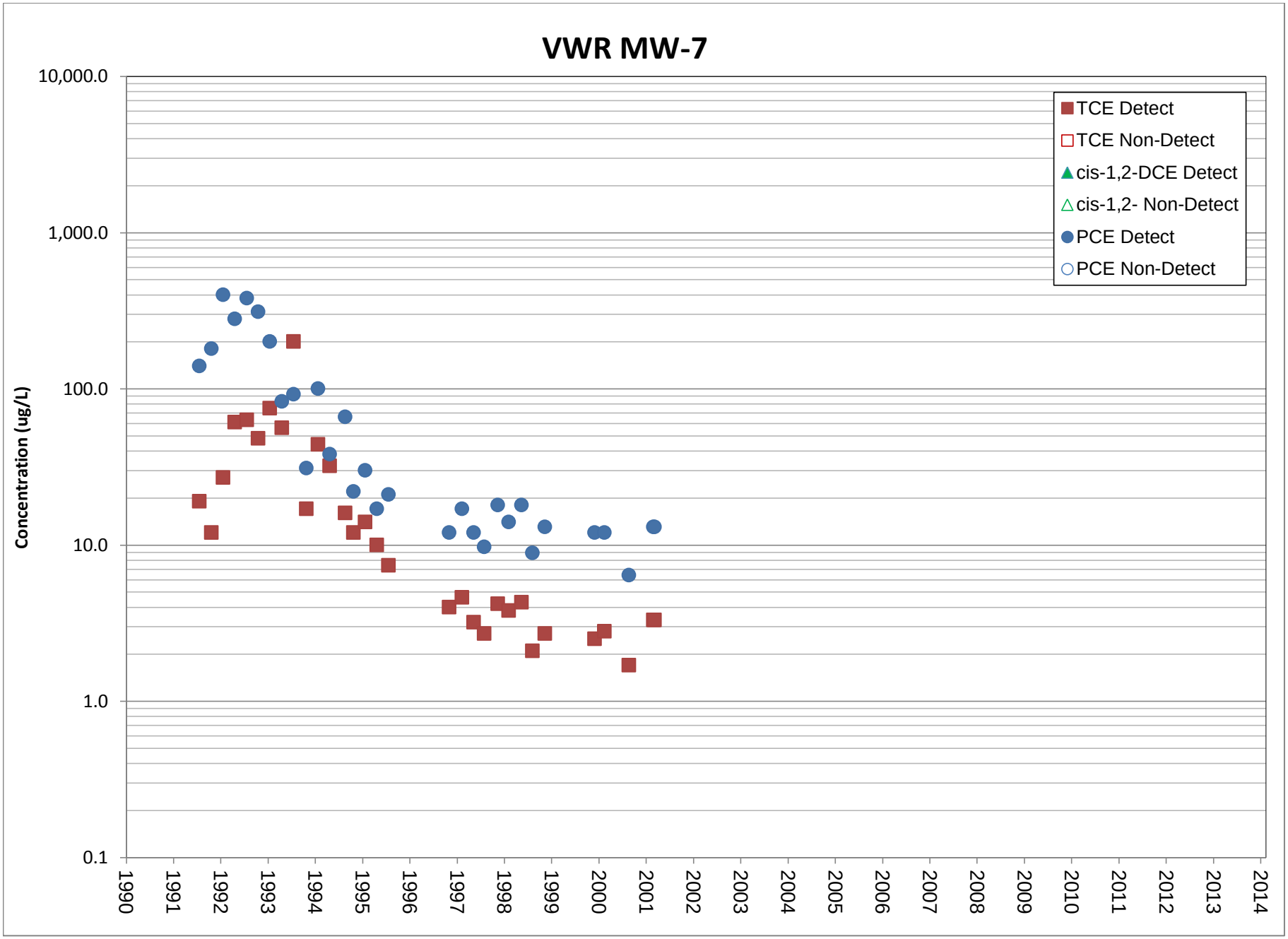
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-7
Concentration (ug/L)
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100.0
10.0
1.0
0.1
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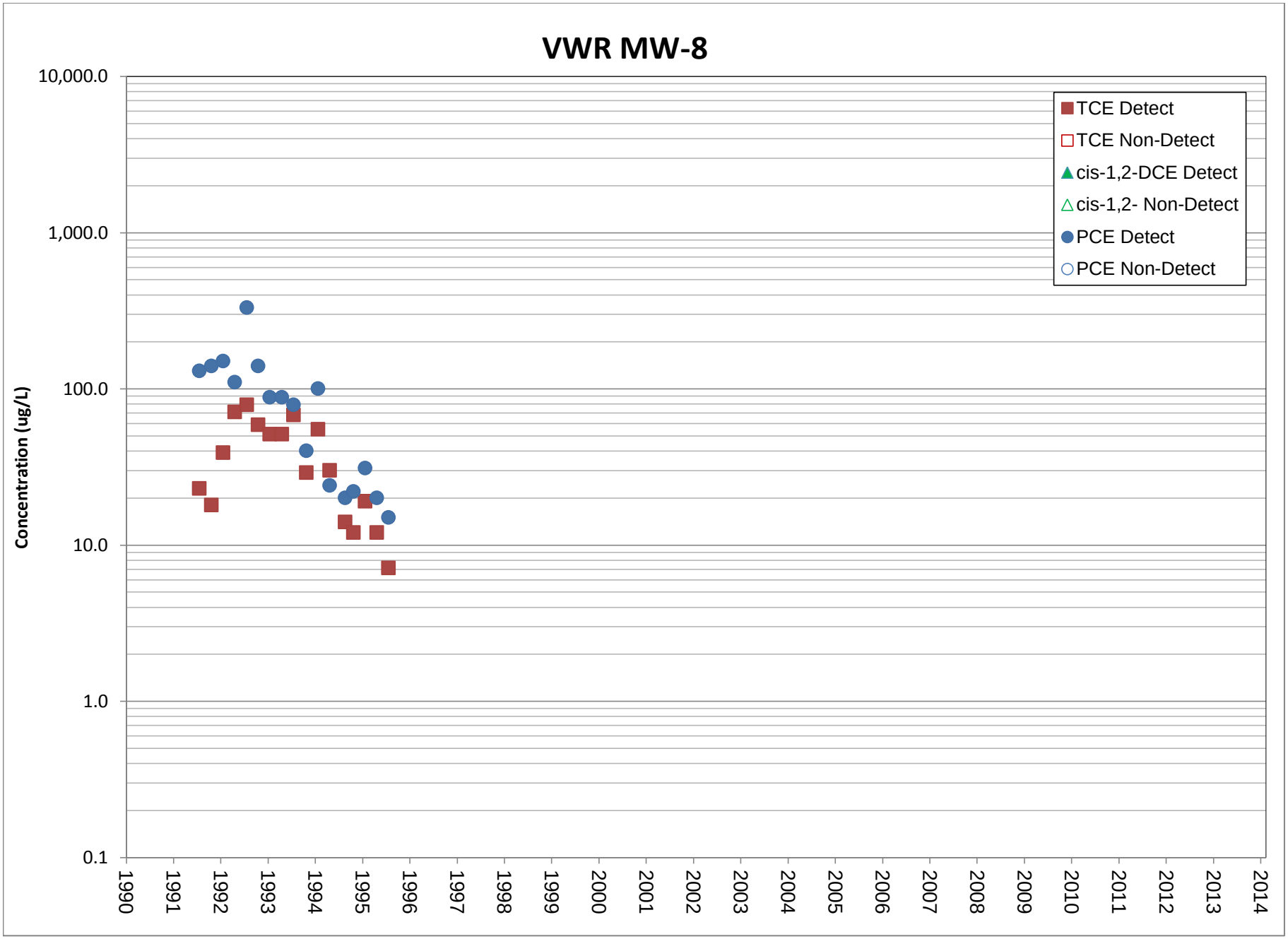
2011
2012
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-8
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
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1992
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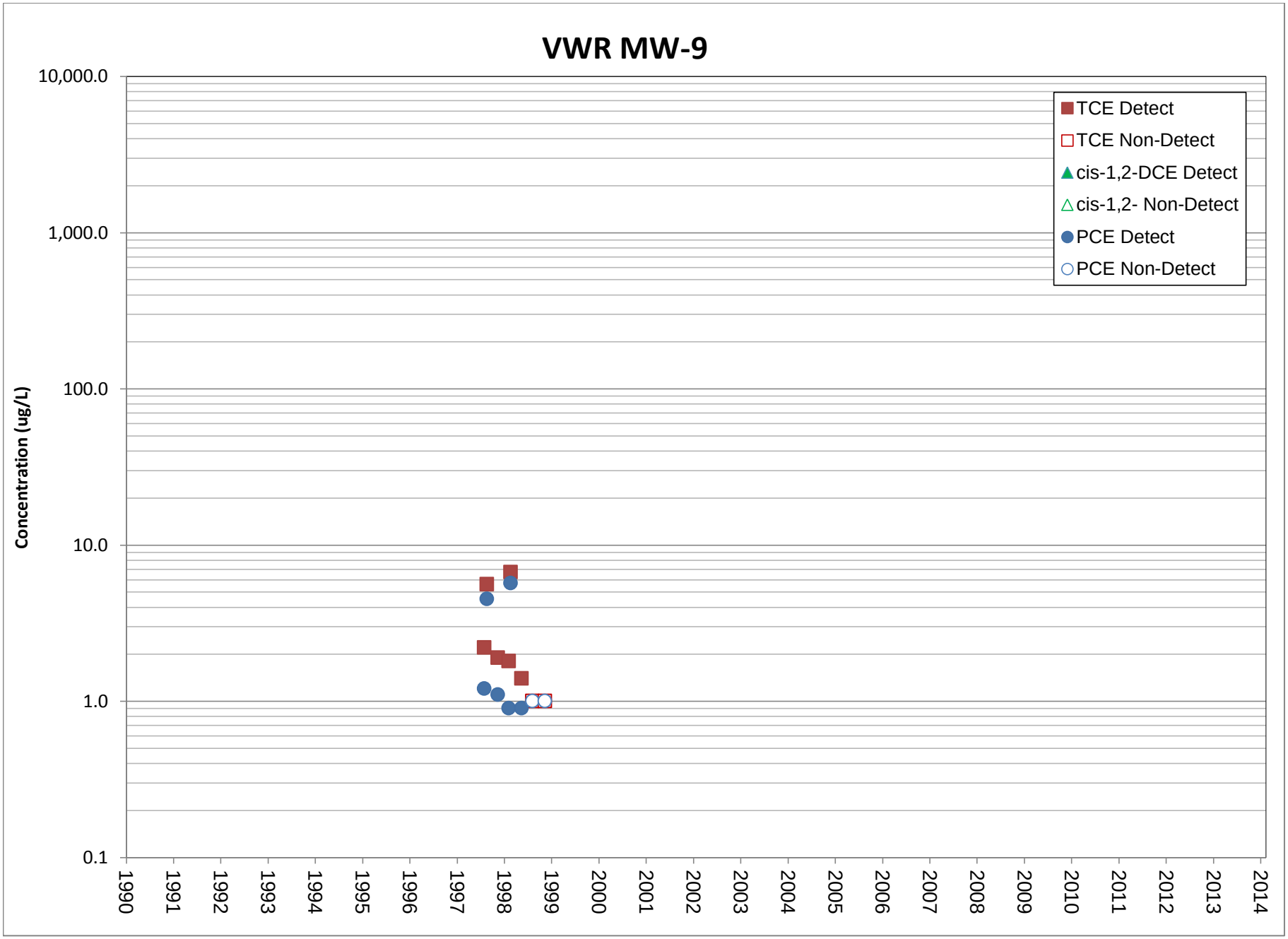
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect


VWR MW-9
Concentration (ug/L)
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1,000.0
100.0
10.0
1.0
0.1
1990
1991
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1993
1994
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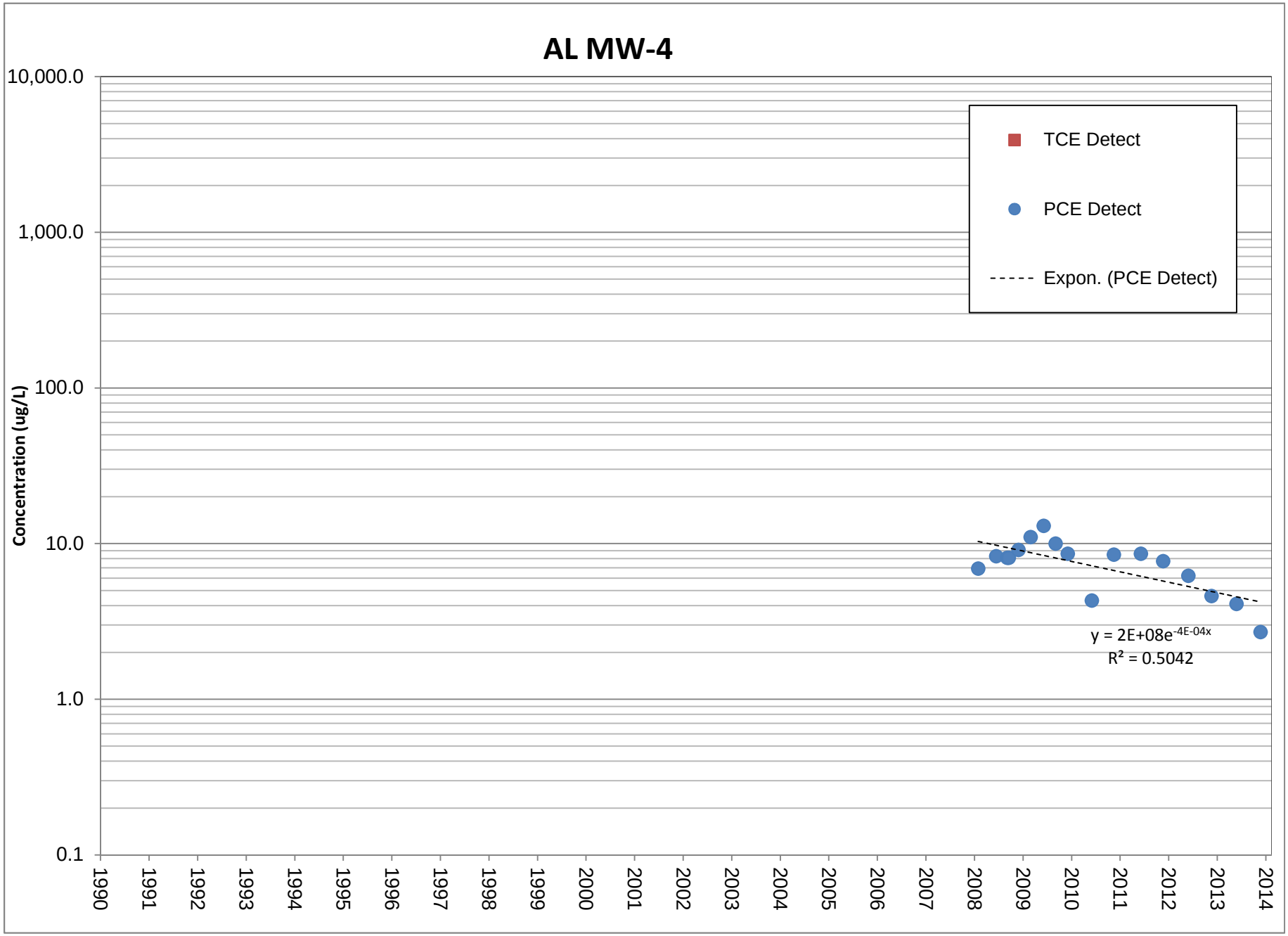
2013
2014
TCE Detect
TCE Non-Detect
cis-1,2-DCE Detect
cis-1,2- Non-Detect
PCE Detect
PCE Non-Detect

ATTACHMENT B

Trend Analysis Graphs


AL MW-4
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 2E+08e-4E-04x
R² = 0.5042
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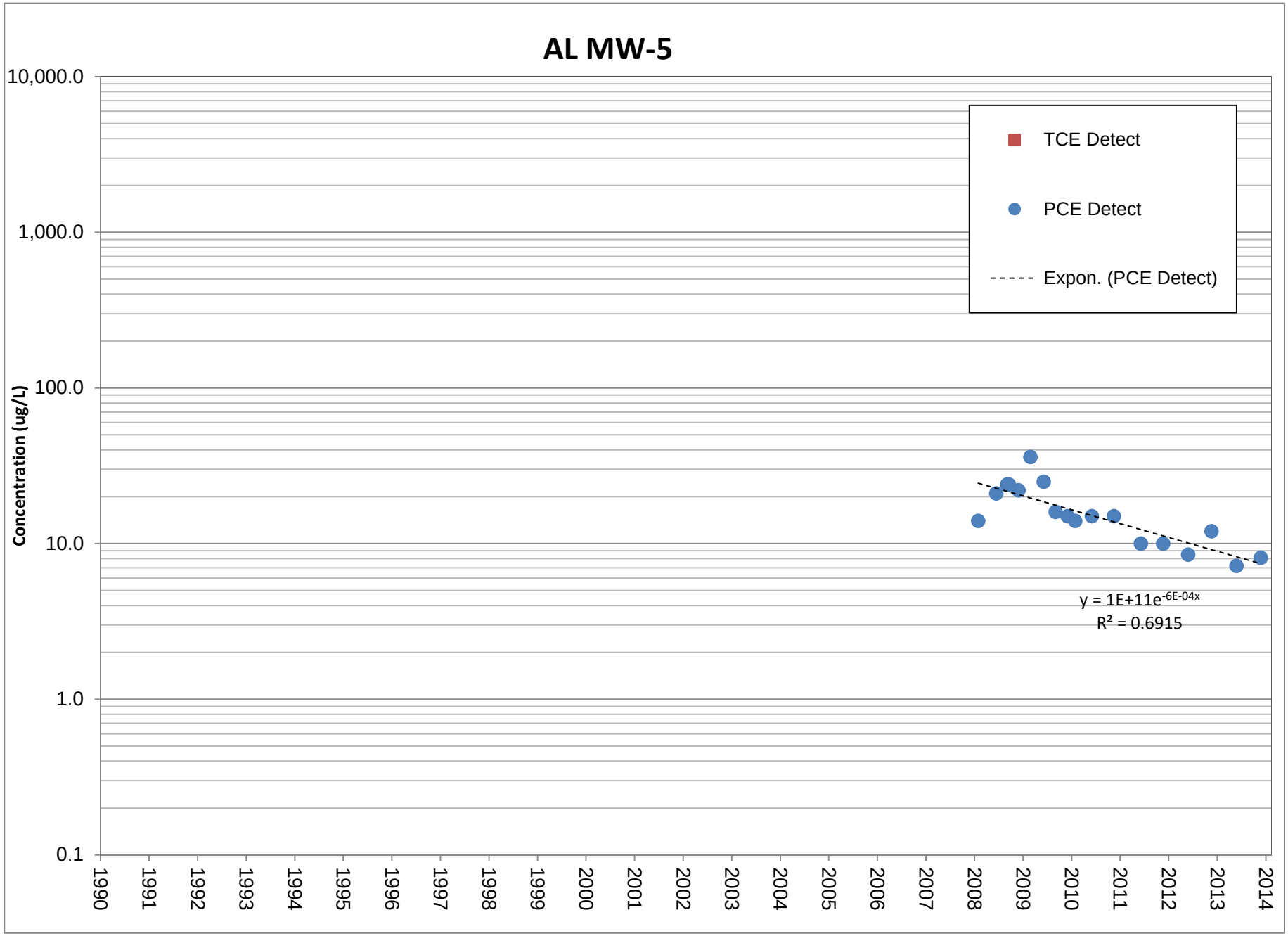
AL MW-5
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 1E+11e^-6E-04x
R² = 0.6915
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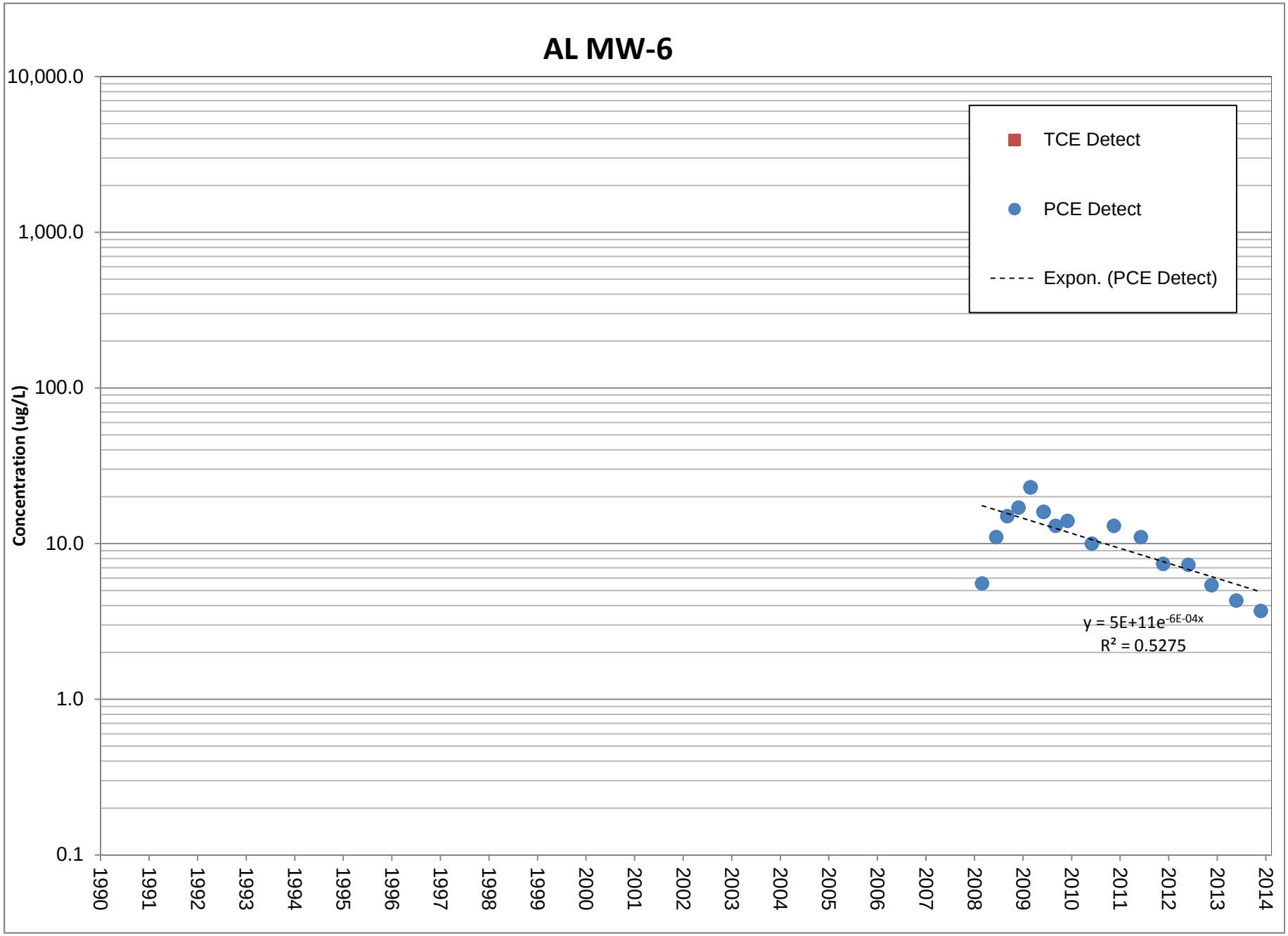
AL MW-6
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 5E+11e^-6E-04x
R² = 0.5275
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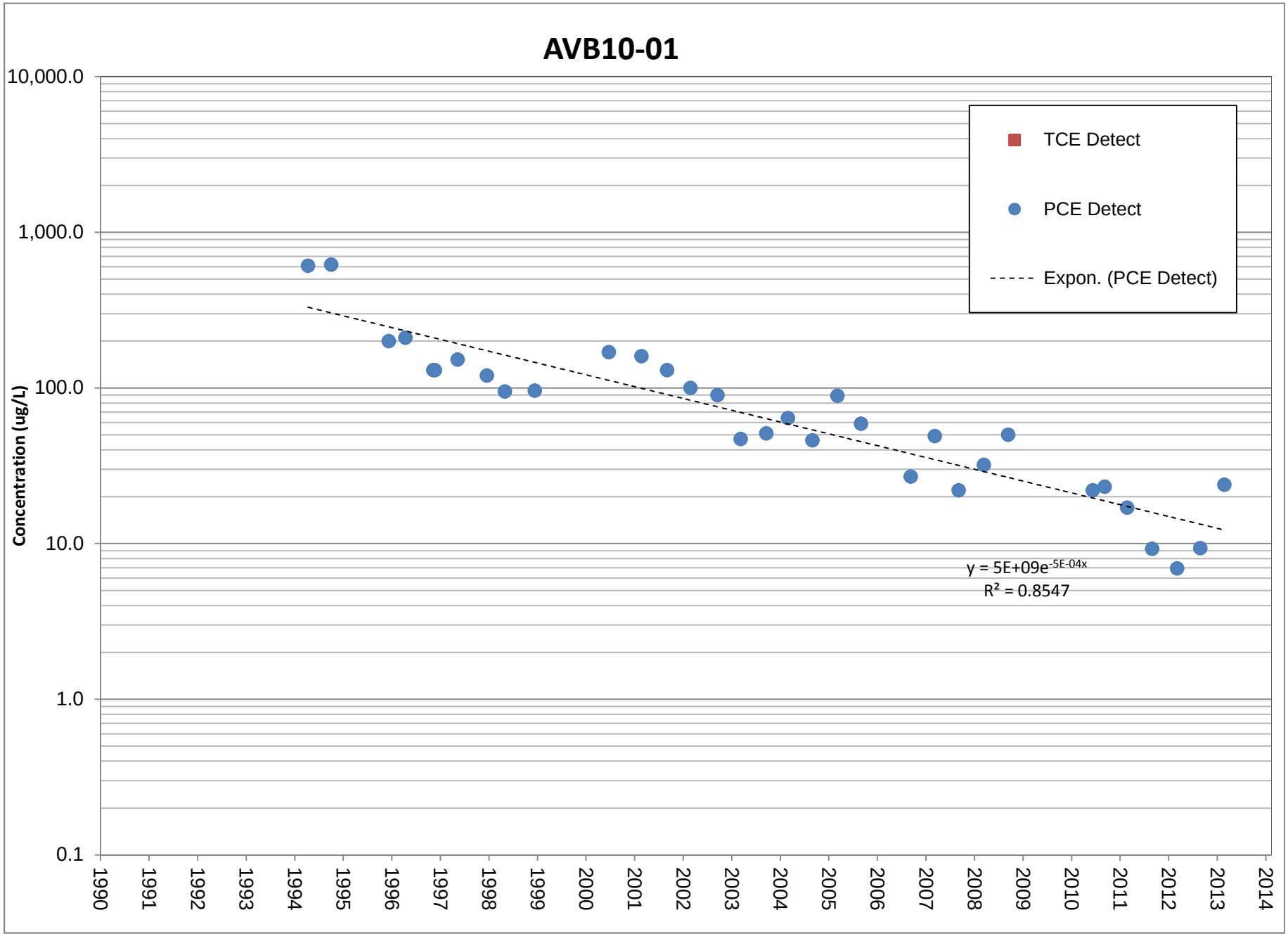
AVB10-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 5E+09e-5E-04x
R² = 0.8547
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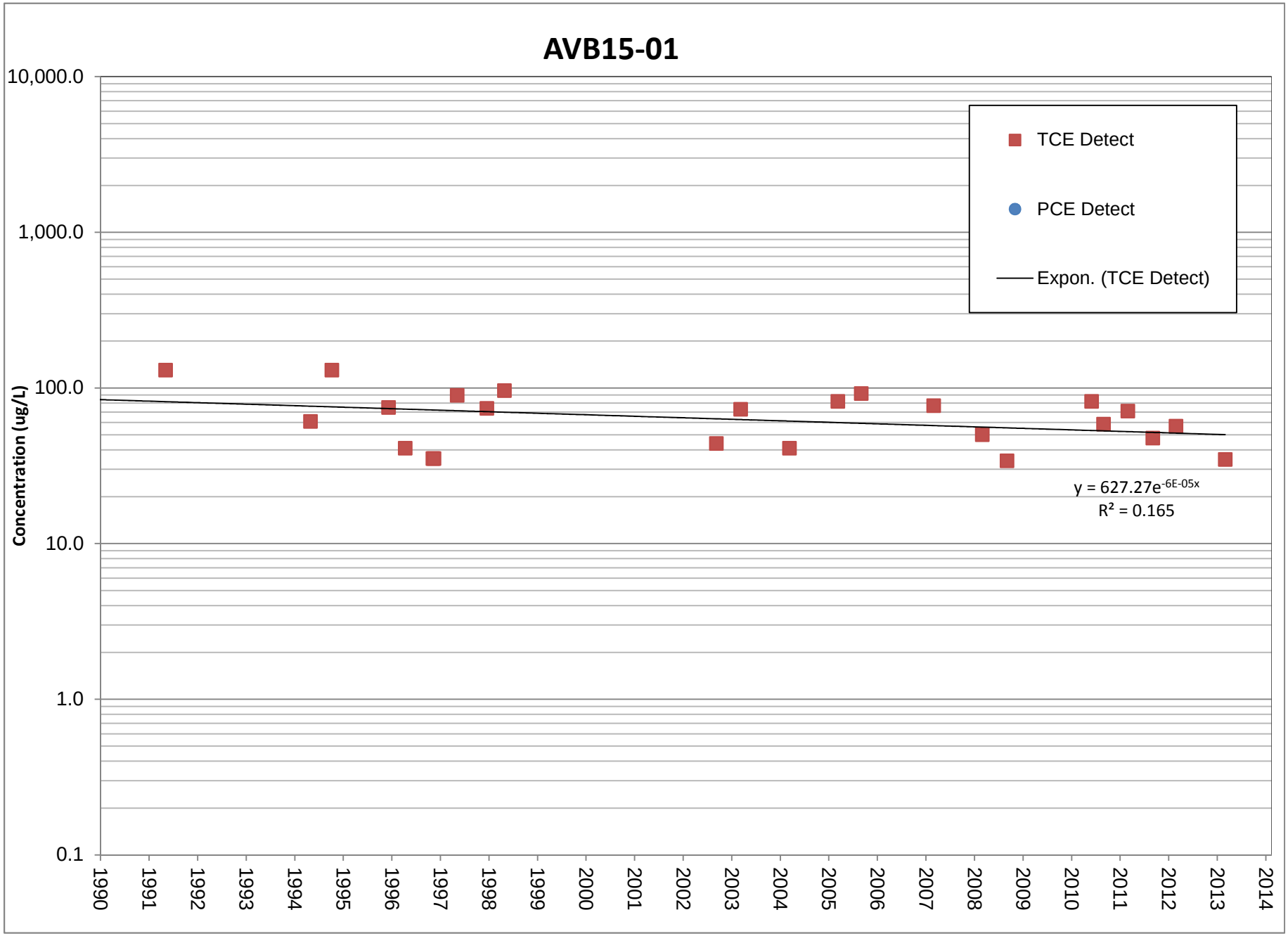
AVB15-01
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1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 627.27e-6E-05x
R² = 0.165
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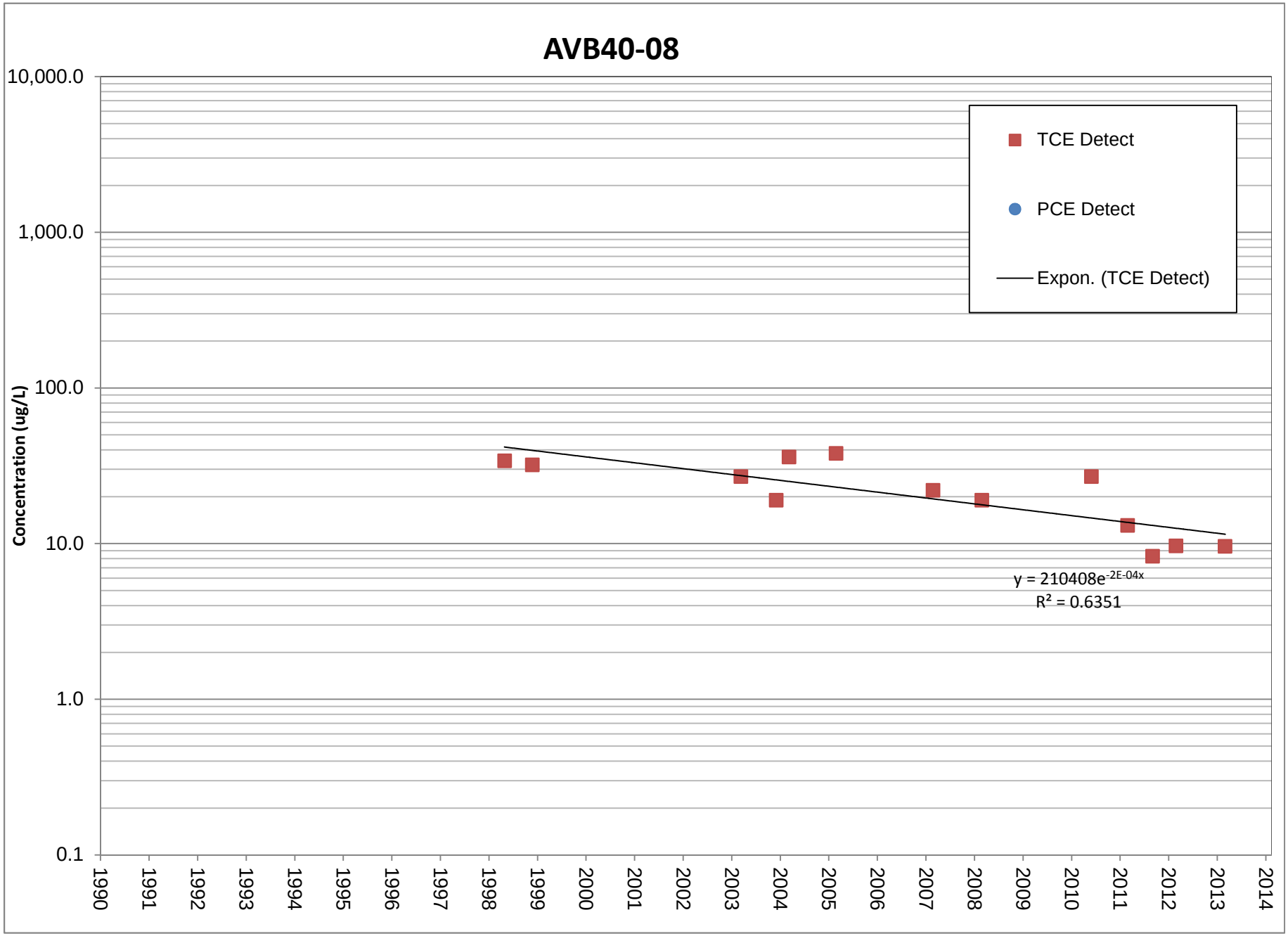
AVB40-08
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 210408e-2E-04x
R² = 0.6351
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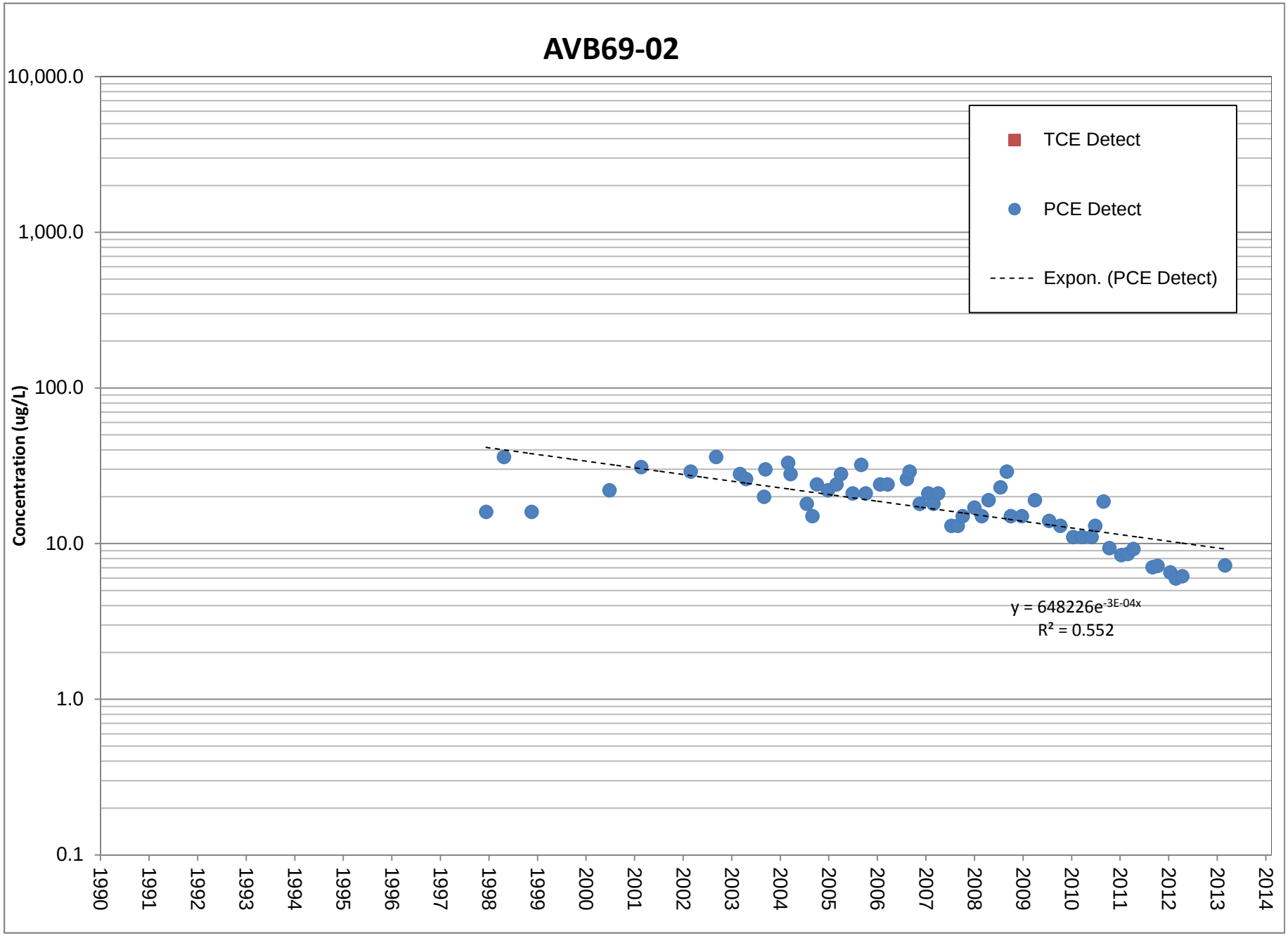
AVB69-02
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1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 648226e-3E-04x
R² = 0.552
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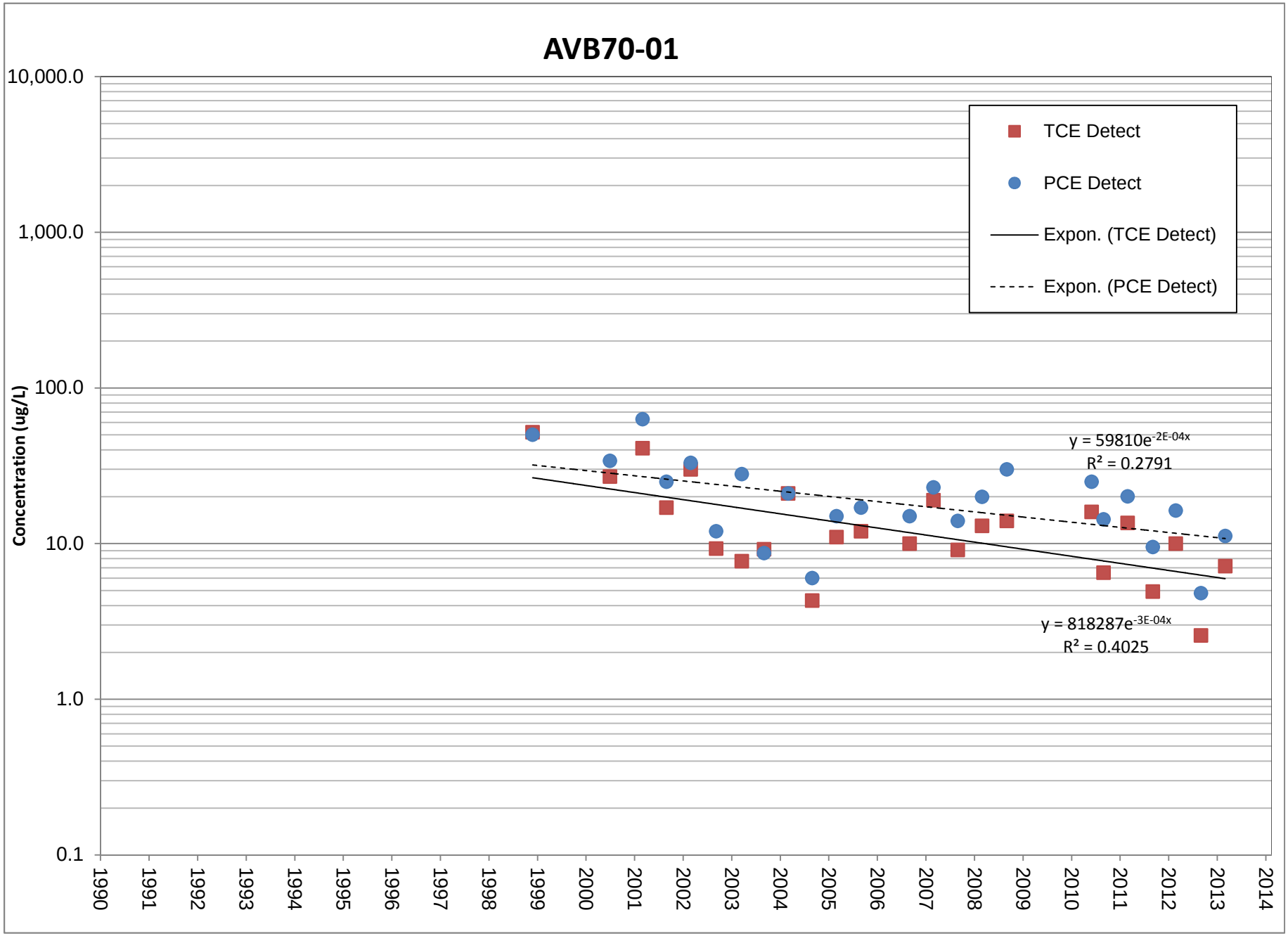
AVB70-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
Expon. (PCE Detect)
y = 59810e^-2E-04x
R² = 0.2791
y = 818287e^-3E-04x
R² = 0.4025
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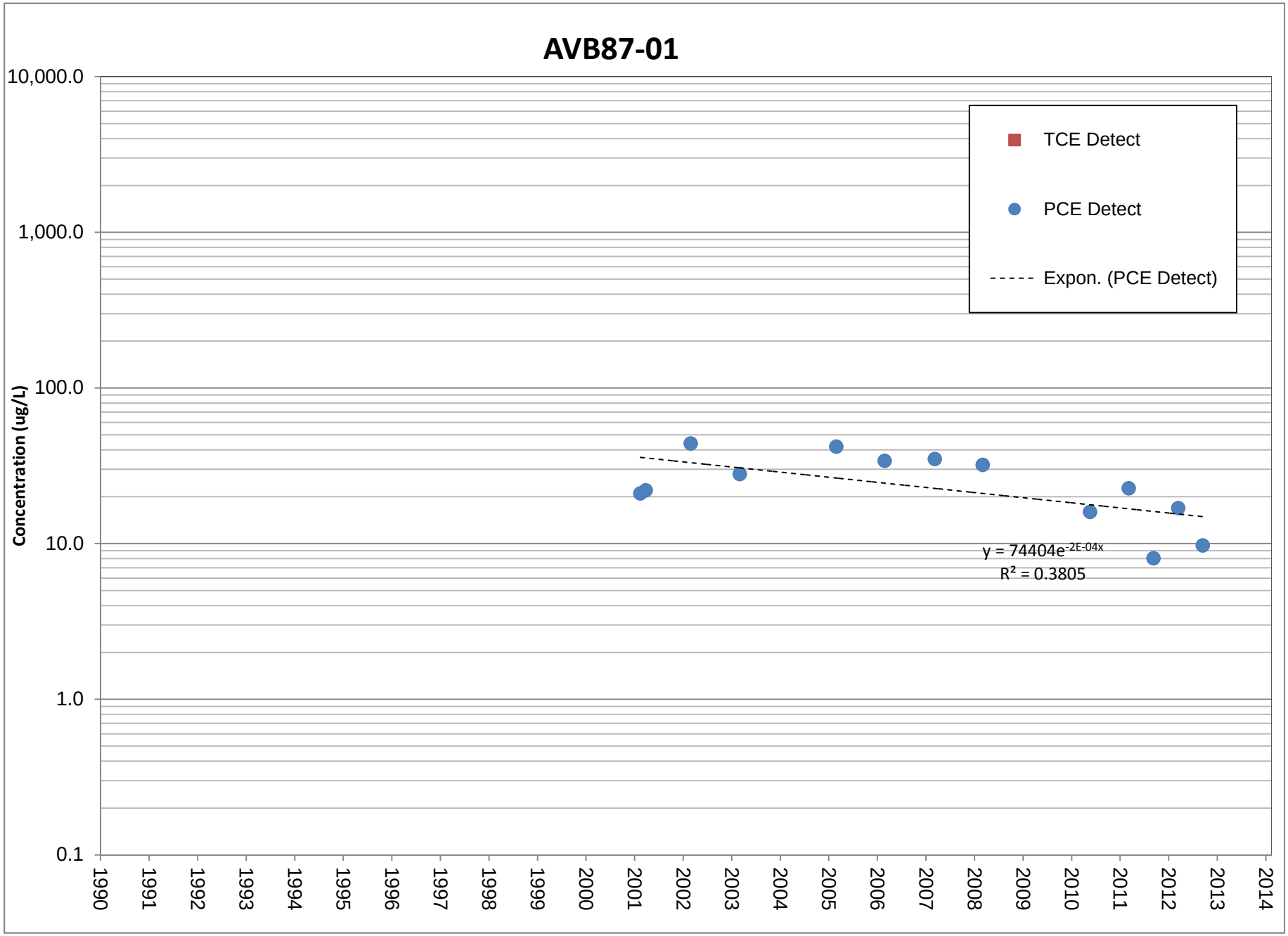
AVB87-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 74404e^-2E-04x
R² = 0.3805
1990
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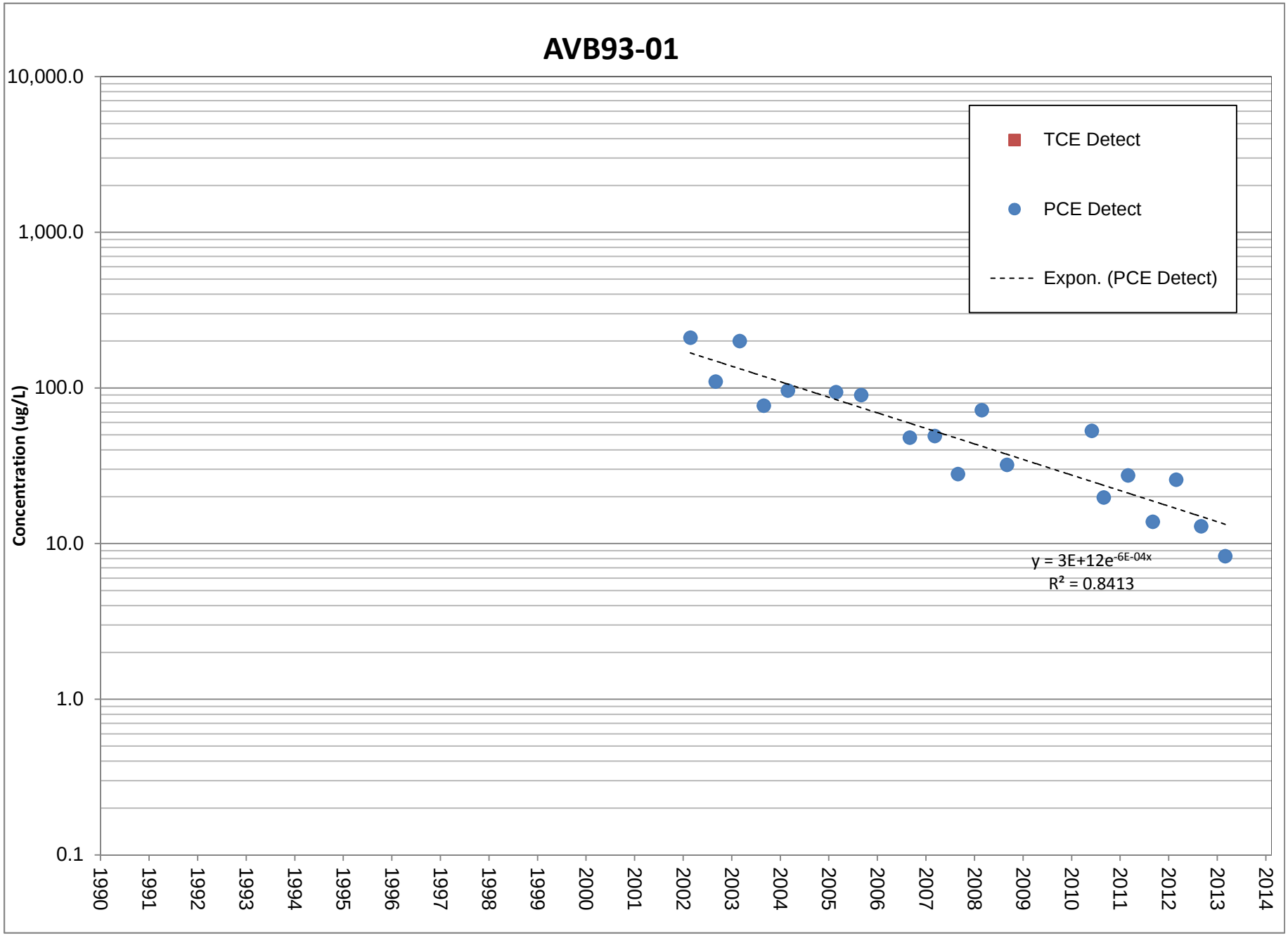
AVB93-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 3E+12e^-6E-04x
R² = 0.8413
1990
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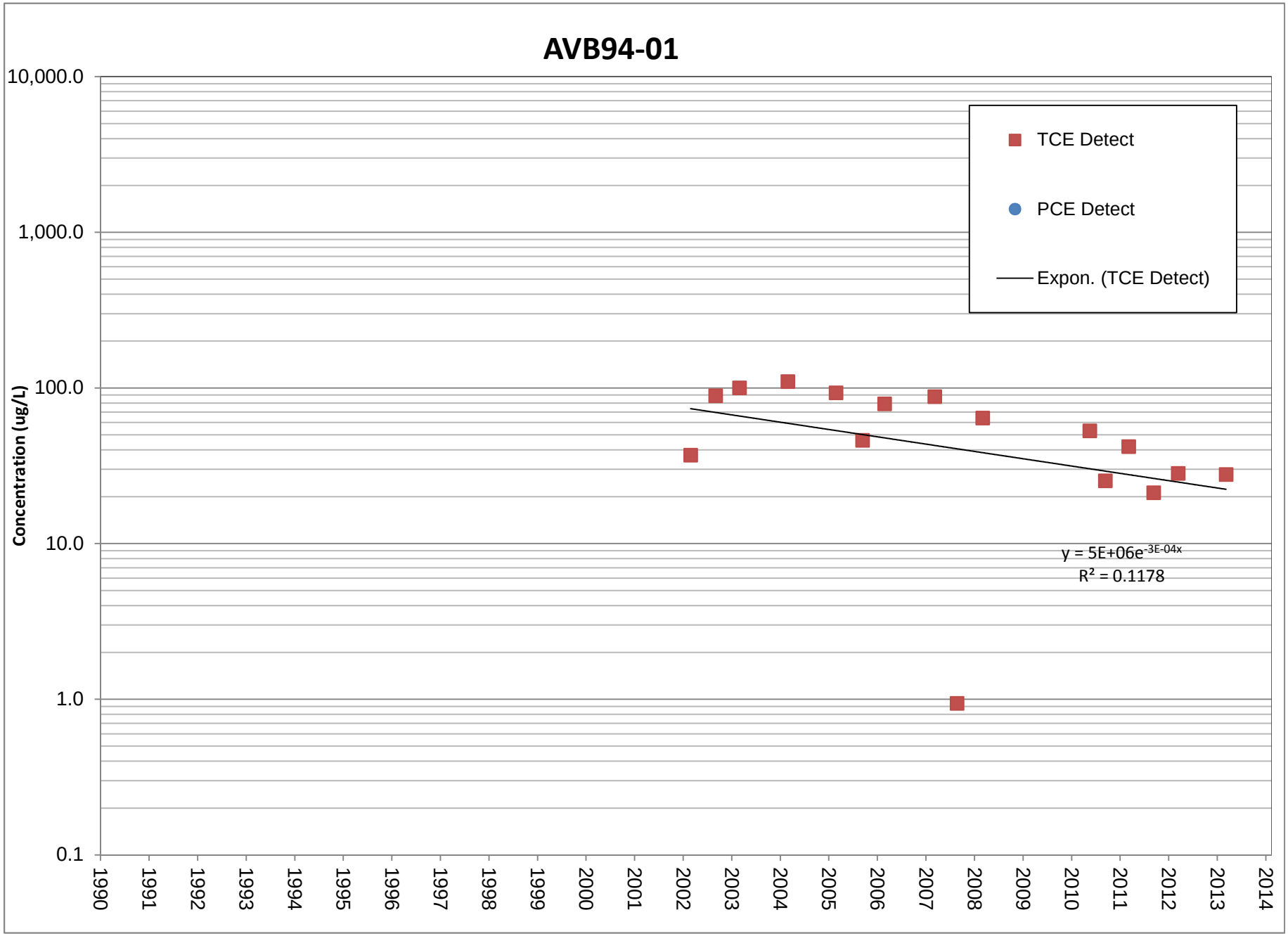
AVB94-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 5E+06e^-3E-04x
R² = 0.1178
1990
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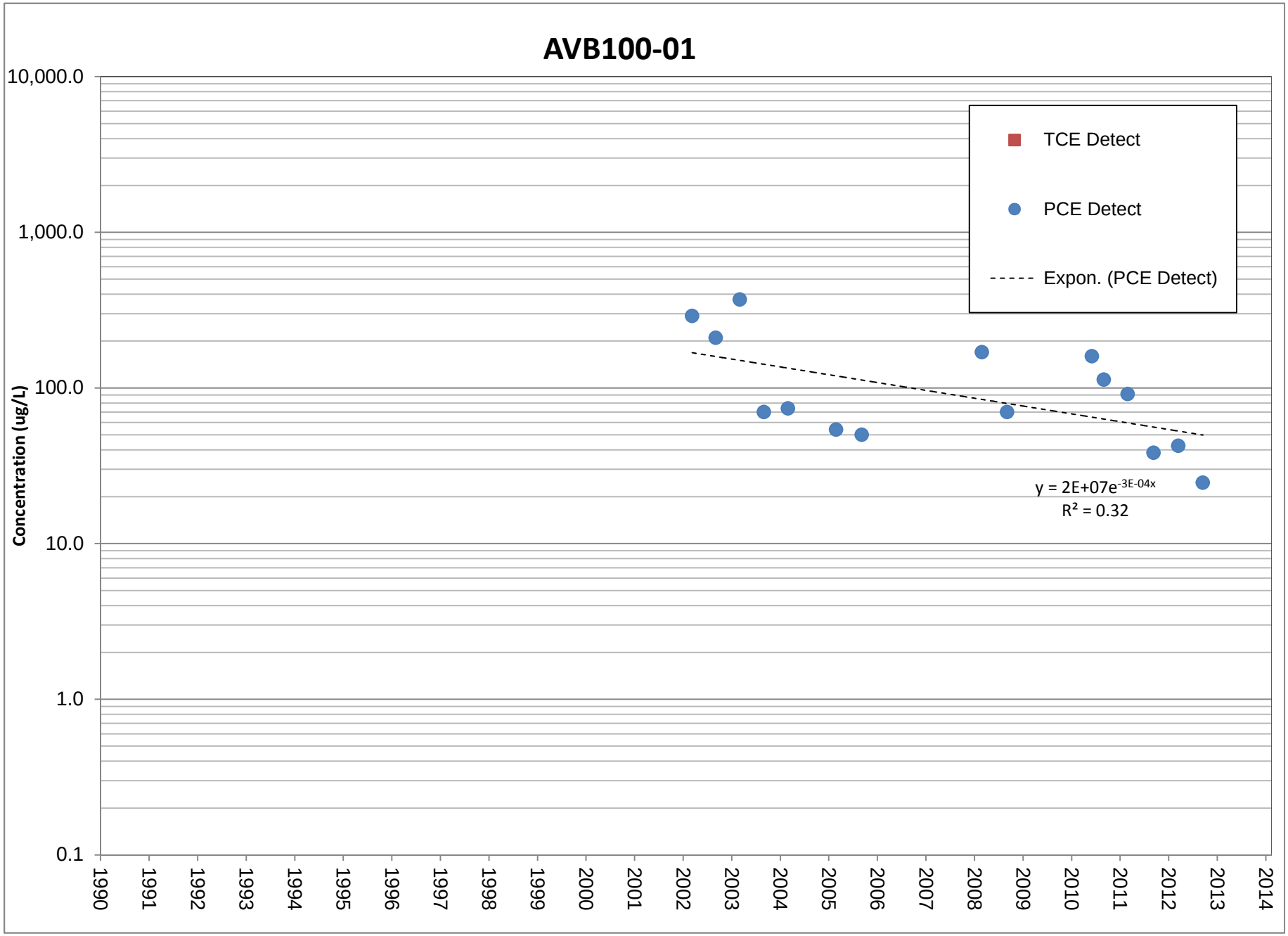
AVB100-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 2E+07e-3E-04x
R² = 0.32
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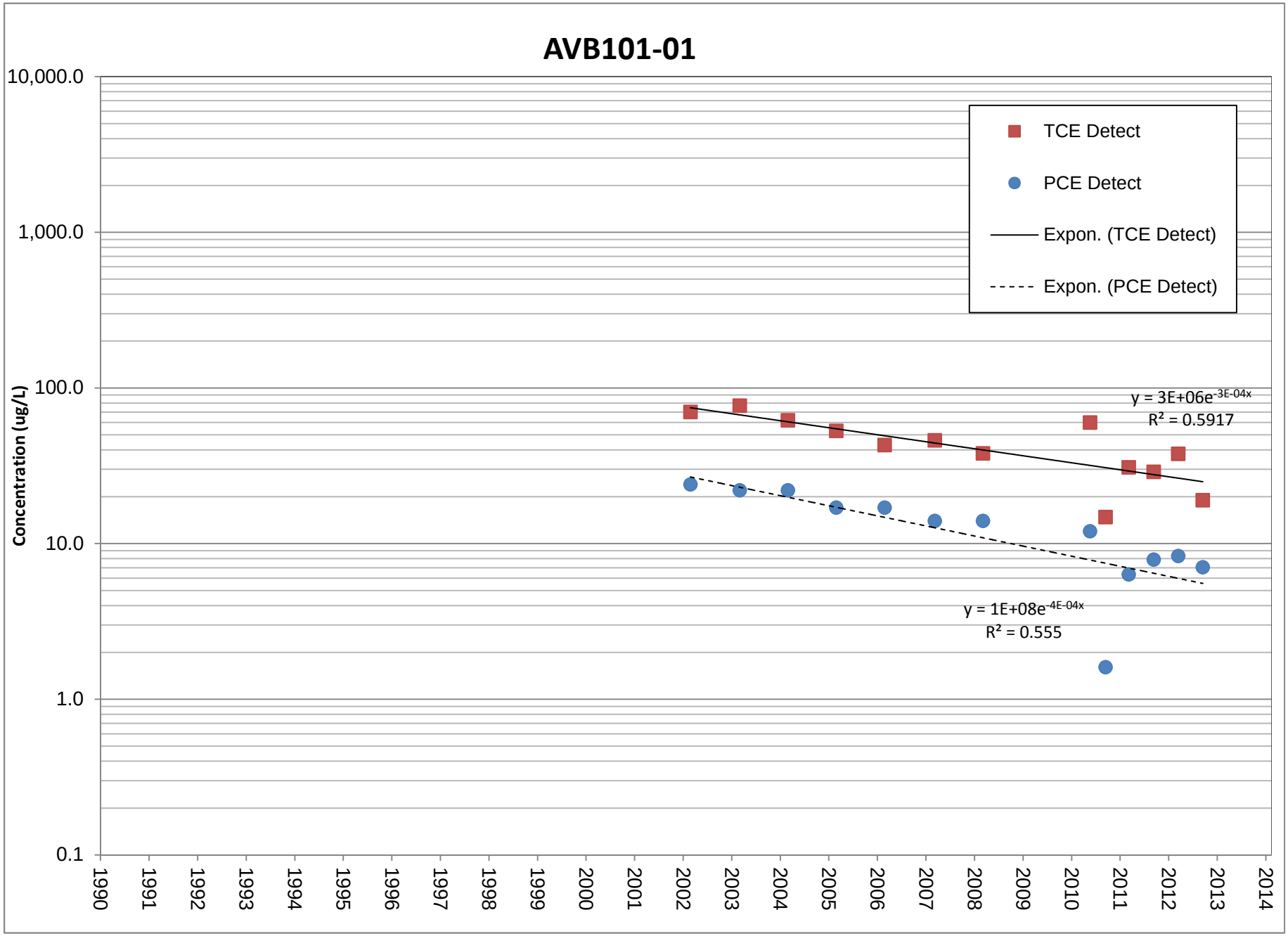
AVB101-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
1990
1991
1992
1993
1994
1995
1996
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2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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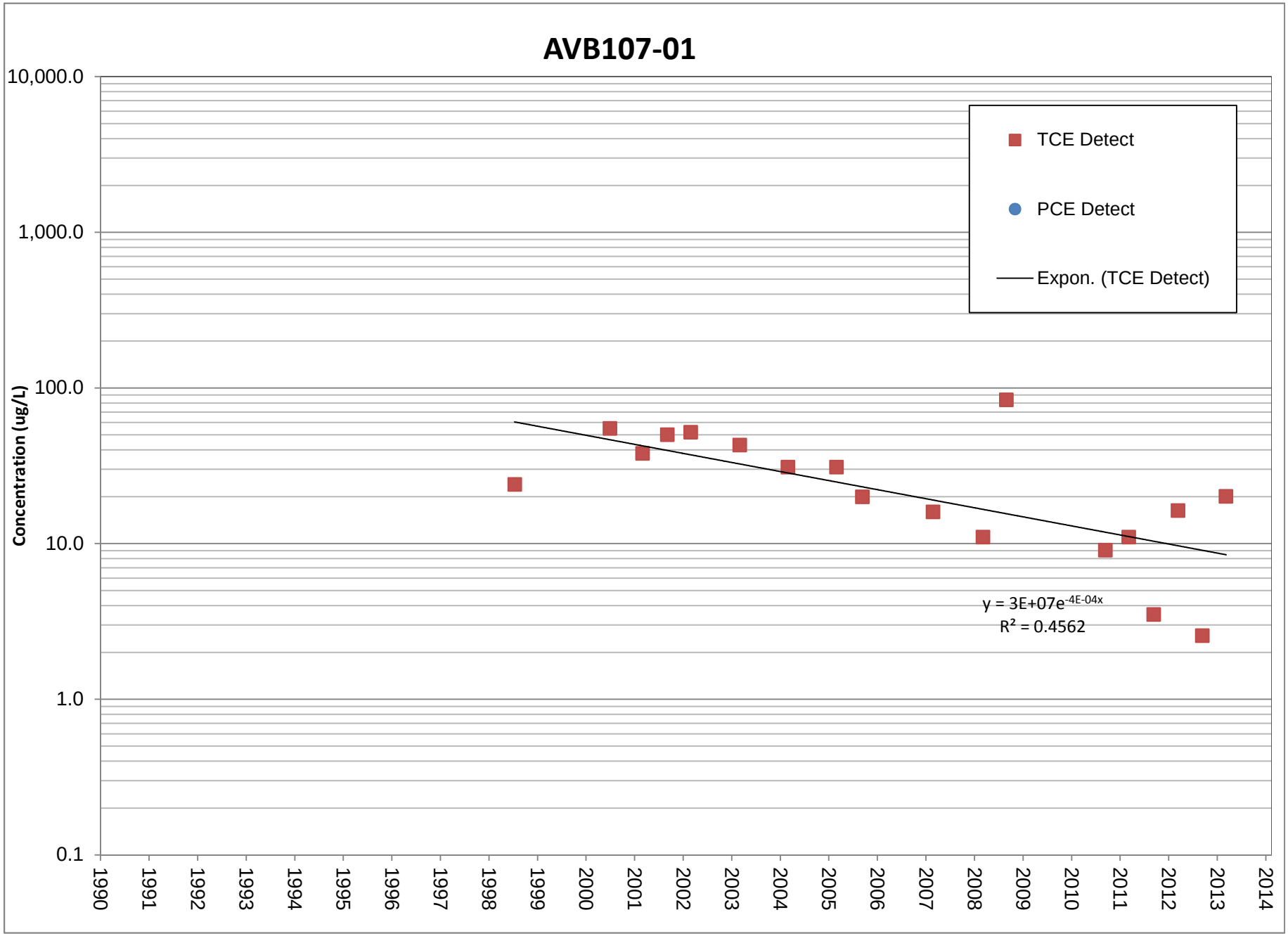
2014
TCE Detect
PCE Detect
Expon. (TCE Detect)
Expon. (PCE Detect)
y = 3E+06e^-3E-04x
R² = 0.5917
y = 1E+08e^-4E-04x
R² = 0.555


AVB107-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 3E+07e^-4E-04x
R² = 0.4562
1990
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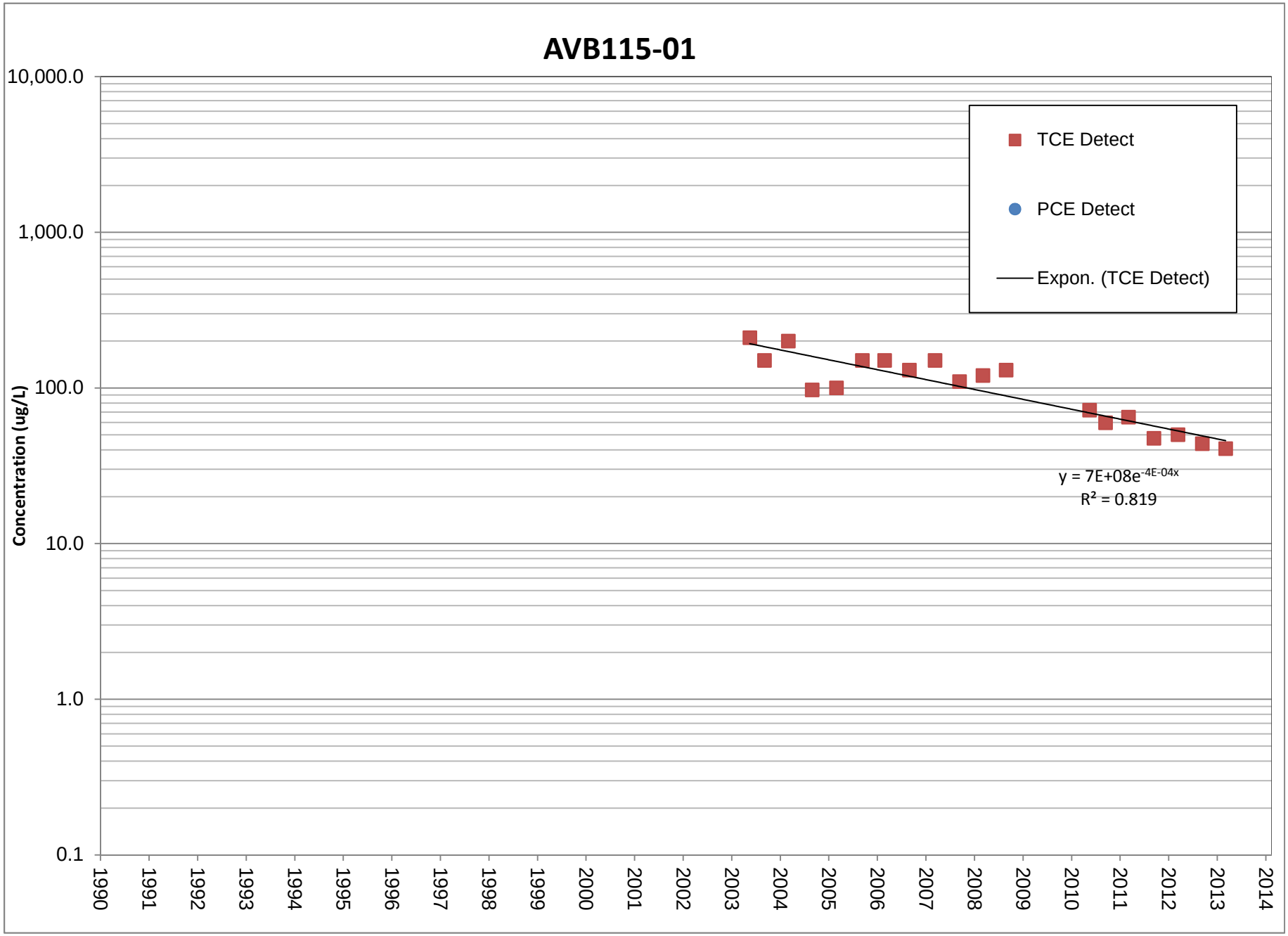
AVB115-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 7E+08e-4E-04x
R² = 0.819
1990
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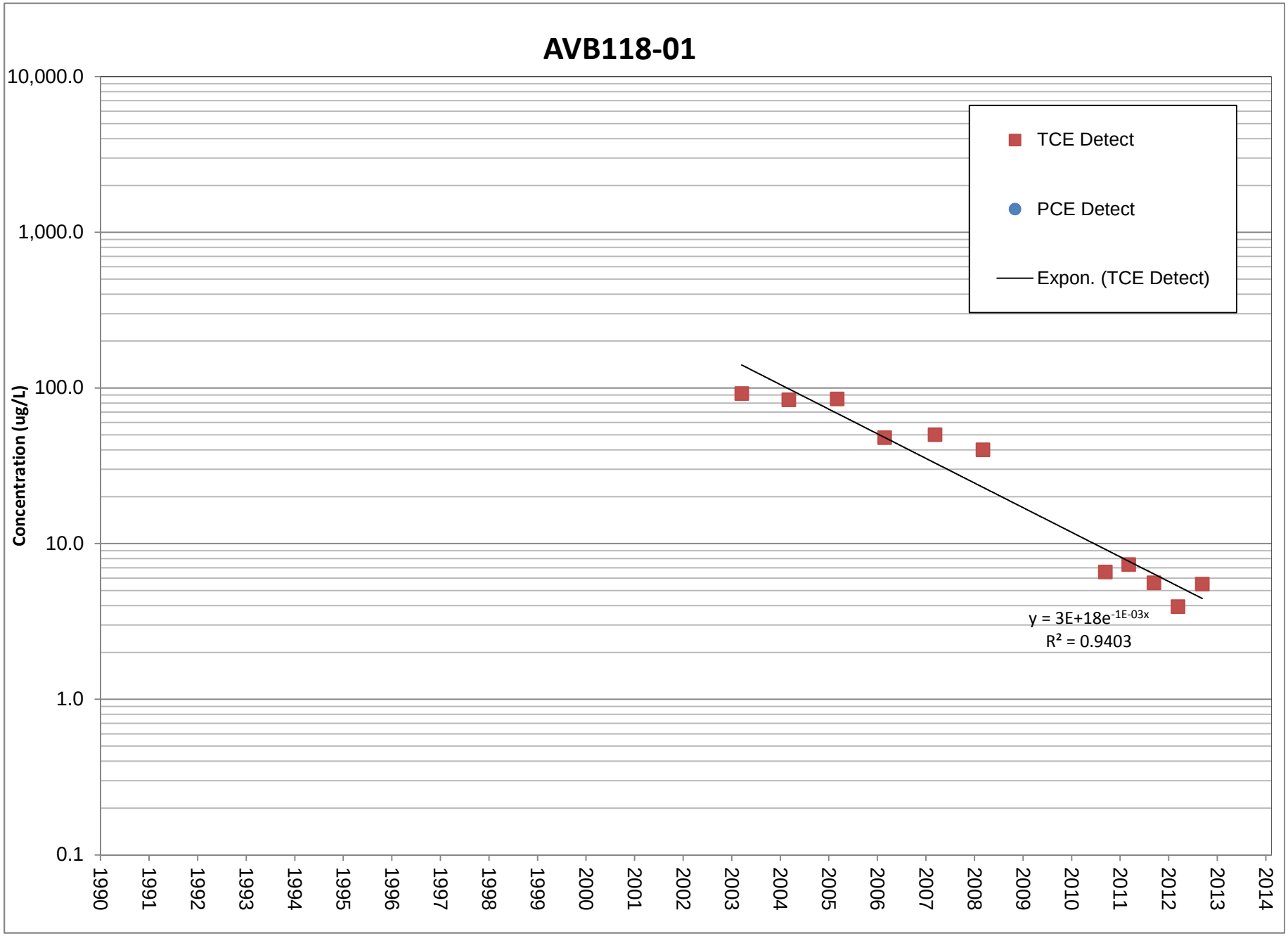
AVB118-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 3E+18e-1E-03x
R² = 0.9403
1990
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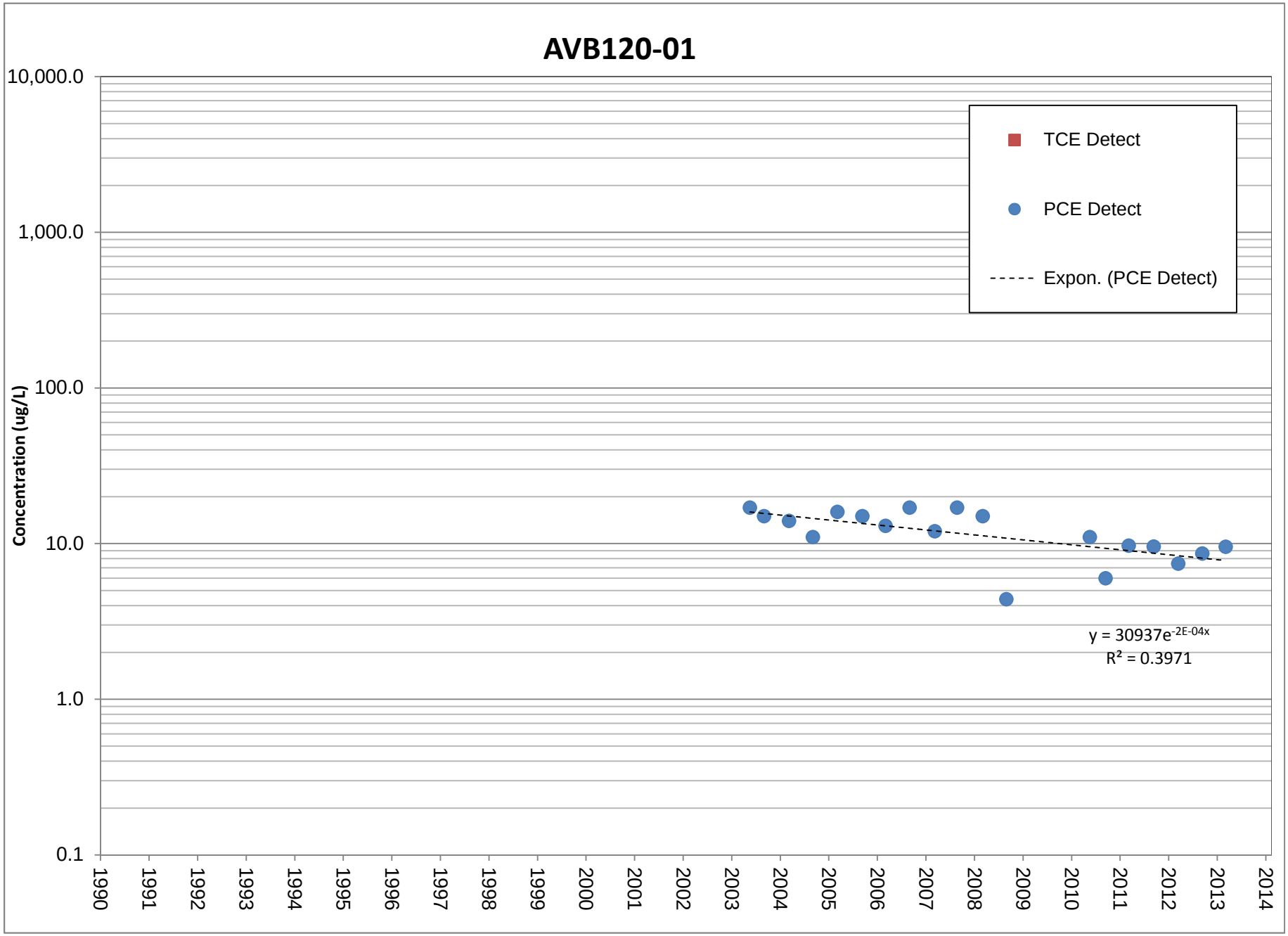
AVB120-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 30937e-2E-04x
R² = 0.3971
1990
1991
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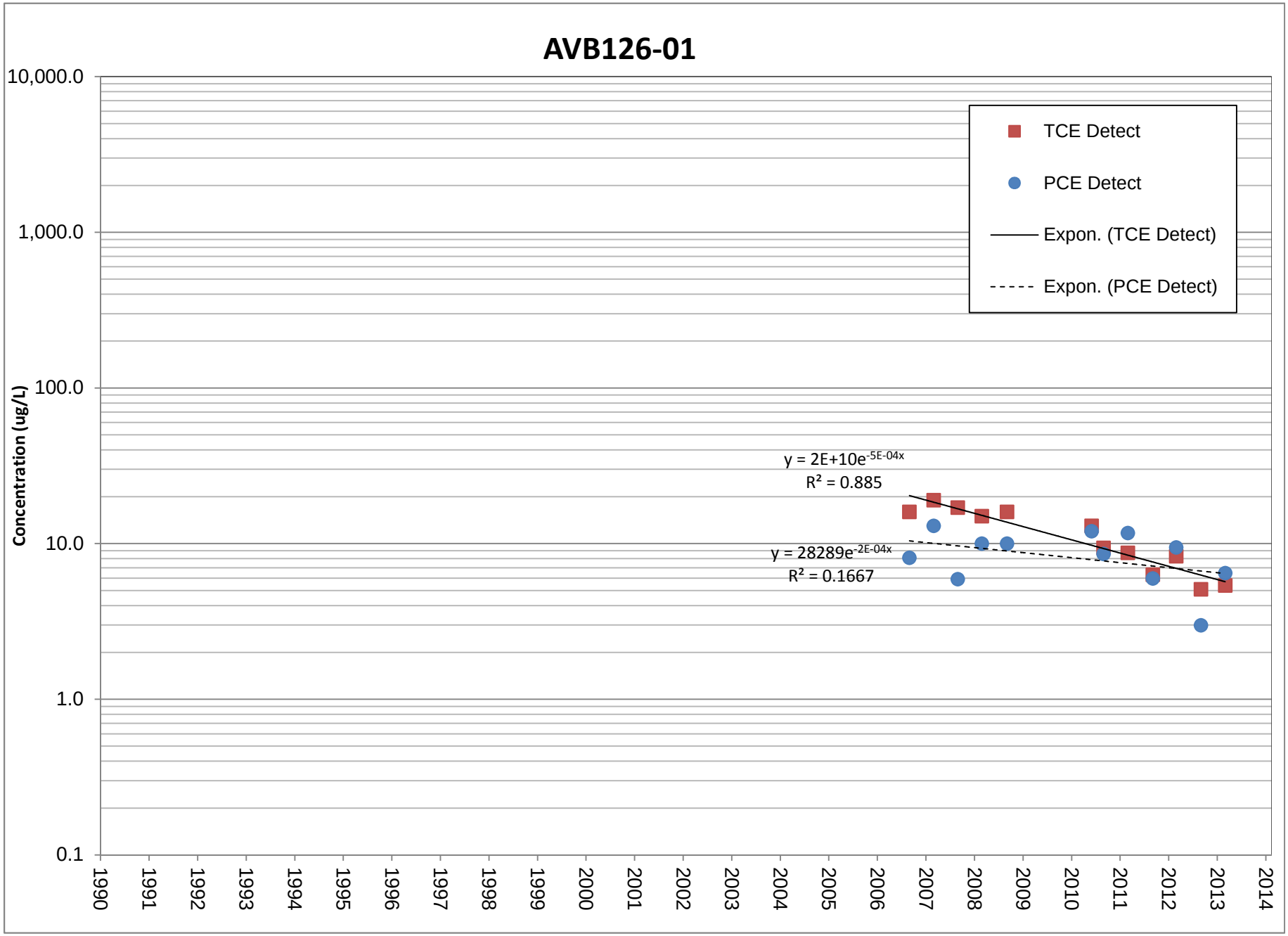
AVB126-01
Concentration (ug/L)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
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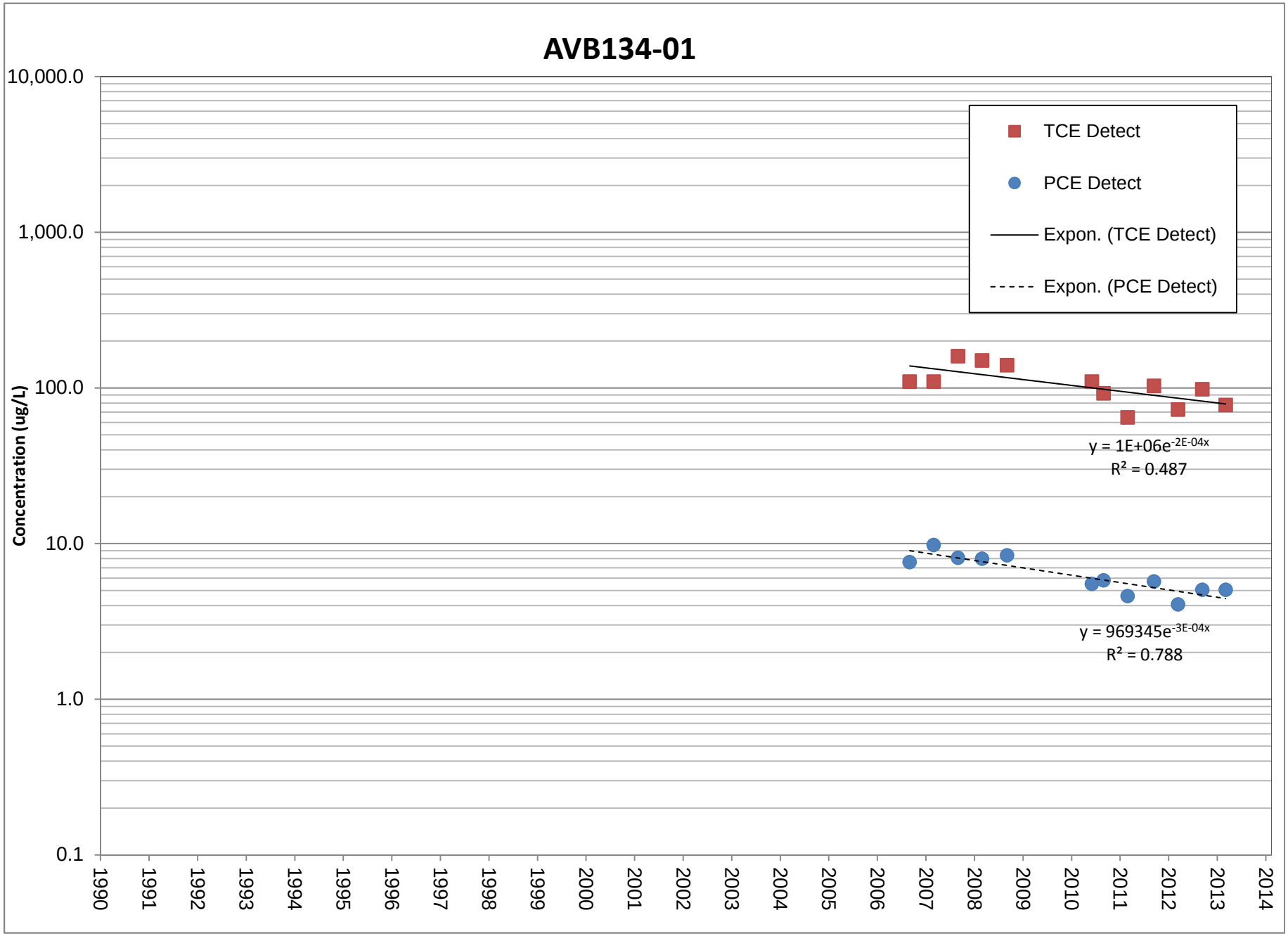
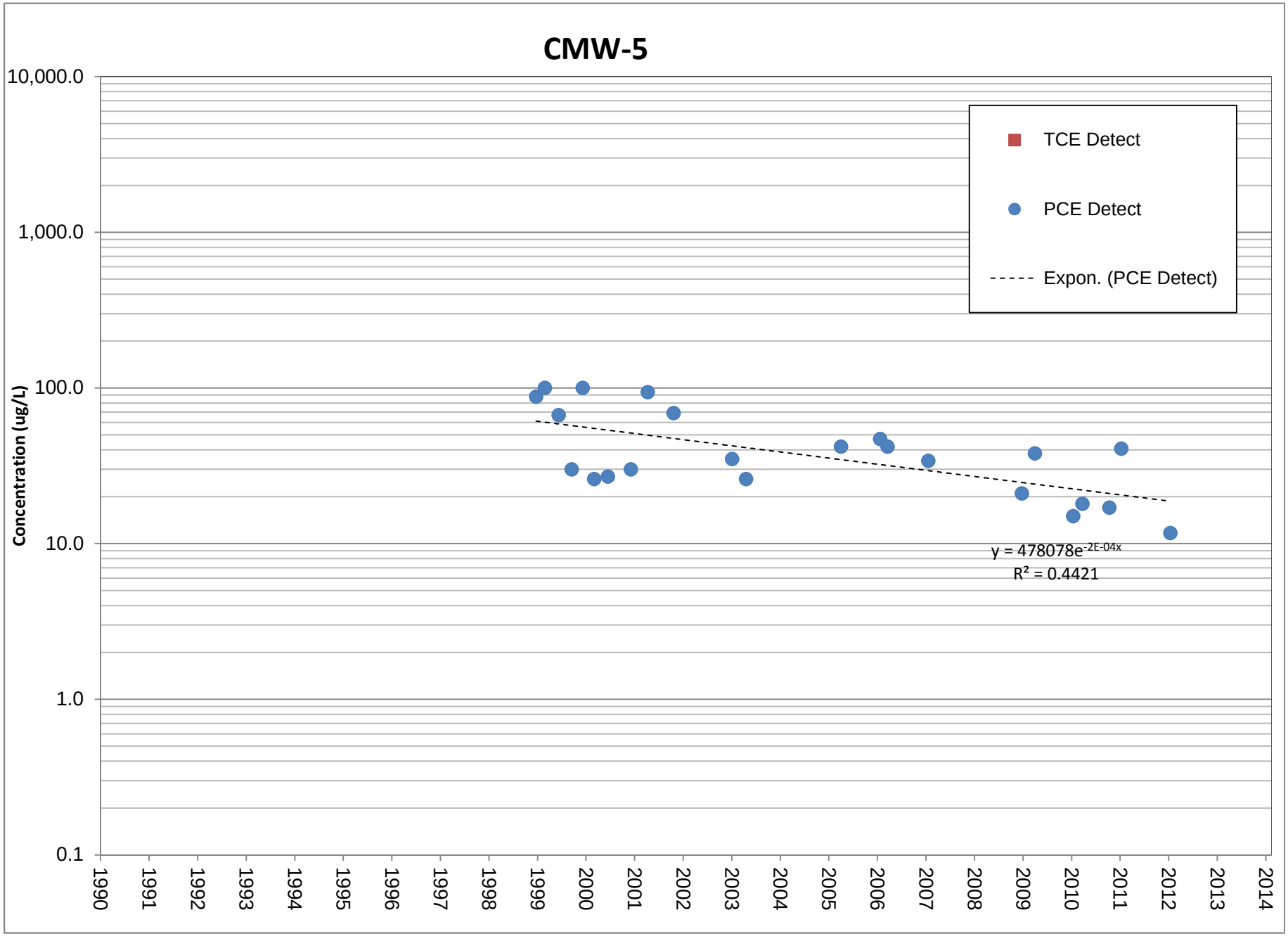
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
PCE Detect
Expon. (TCE Detect)
Expon. (PCE Detect)
y = 2E+10e^-5E-04x
R² = 0.885
y = 28289e^-2E-04x
R² = 0.1667


AVB134-01
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
TCE Detect
PCE Detect
Expon. (TCE Detect)
Expon. (PCE Detect)
y = 1E+06e-2E-04x
R² = 0.487
y = 969345e-3E-04x
R² = 0.788


CMW-5
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 478078e-2E-04x
R² = 0.4421
1990
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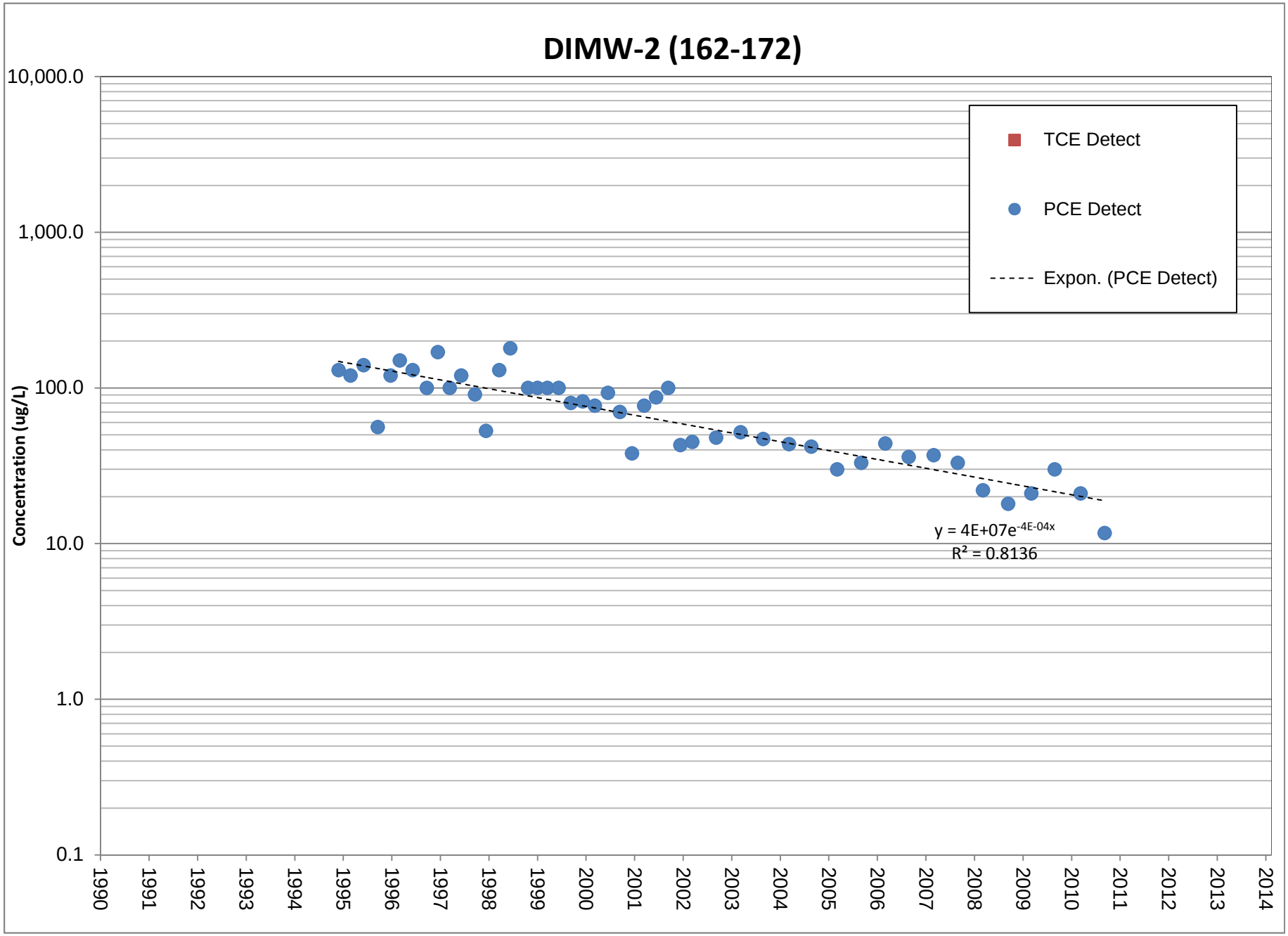
DIMW-2 (162-172)
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 4E+07e^-4E-04x
R² = 0.8136
1990
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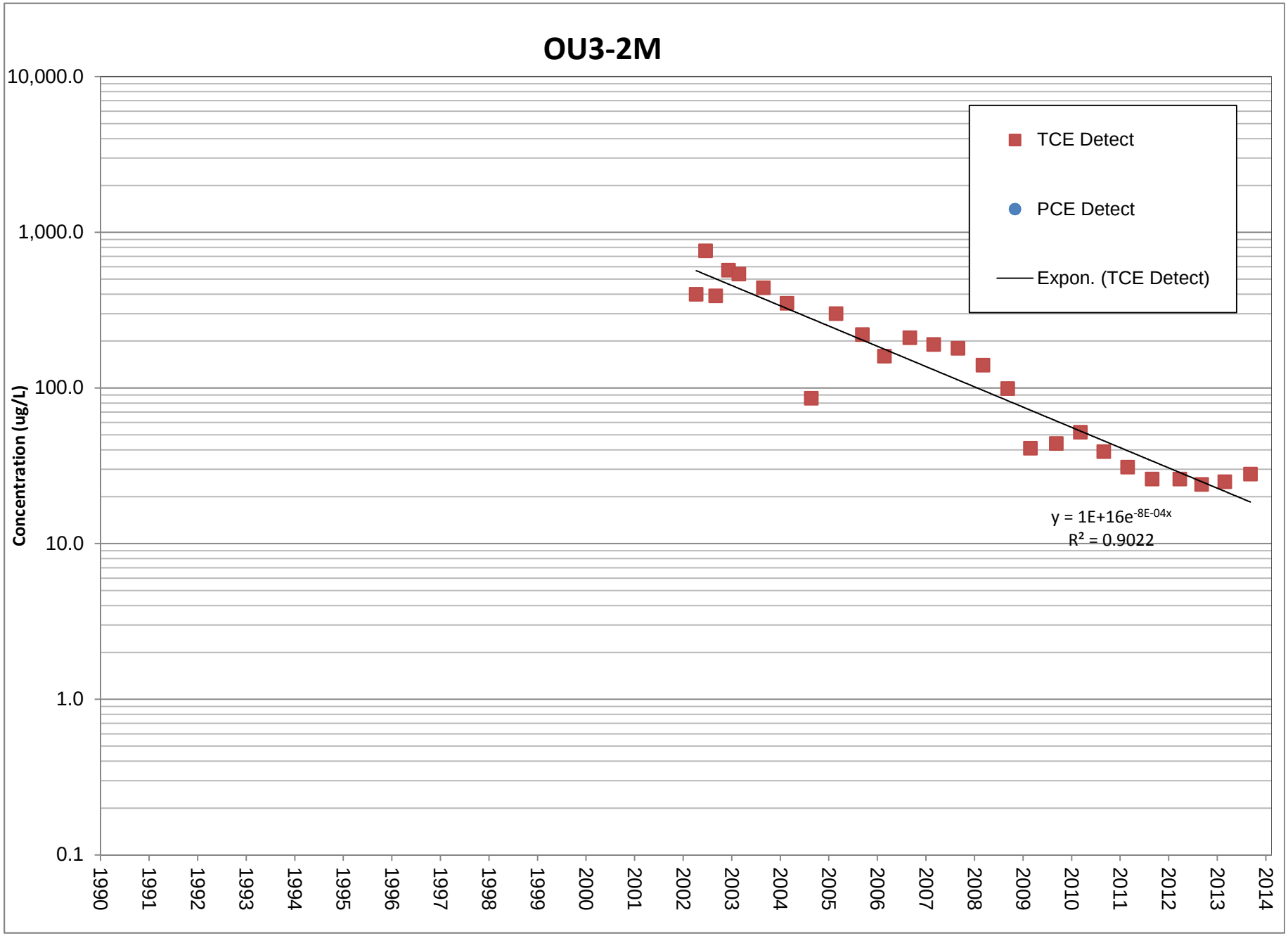
OU3-2M
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 1E+16e^-8E-04x
R² = 0.9022
1990
1991
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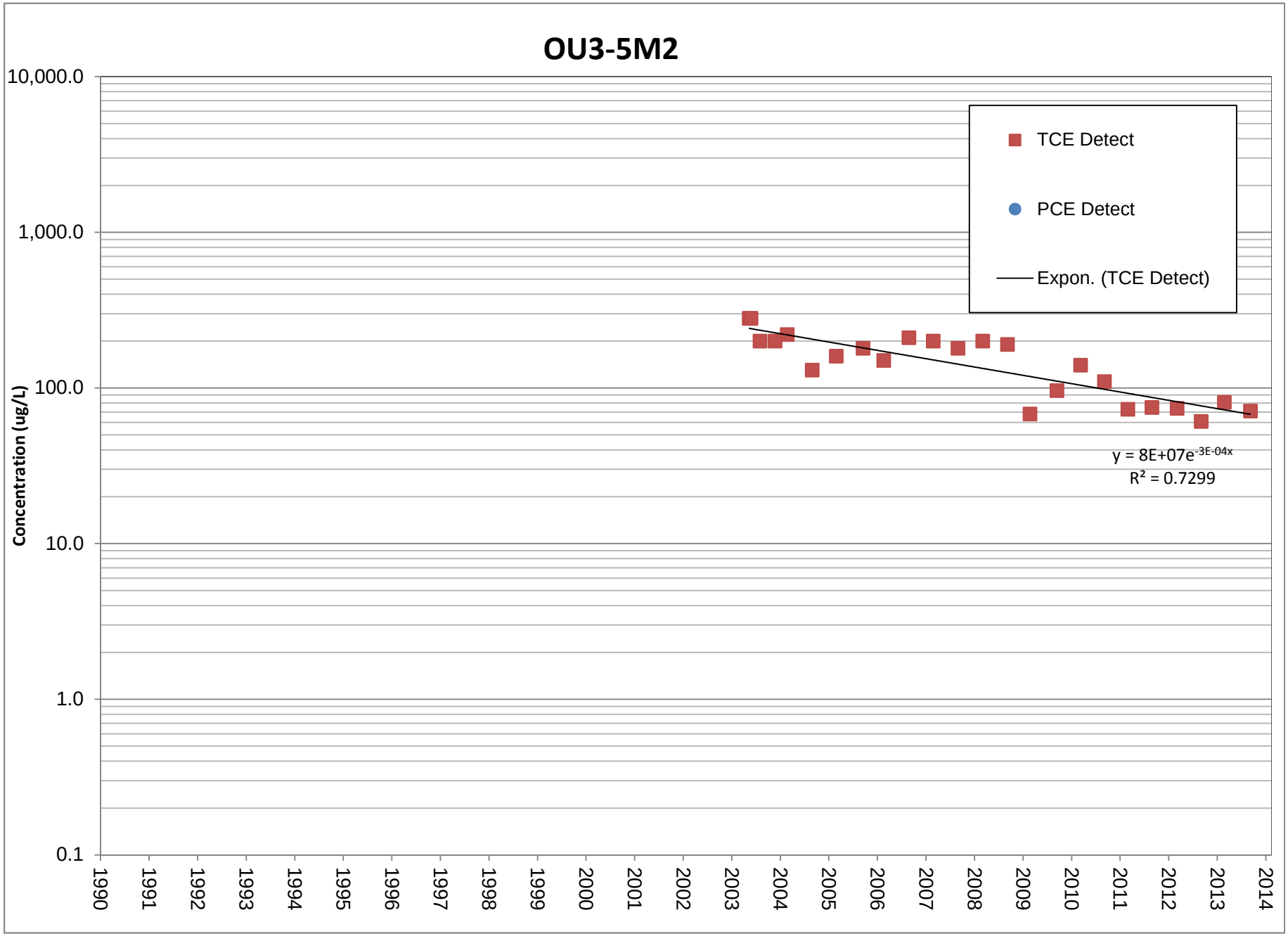
OU3-5M2
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 8E+07e^-3E-04x
R² = 0.7299
1990
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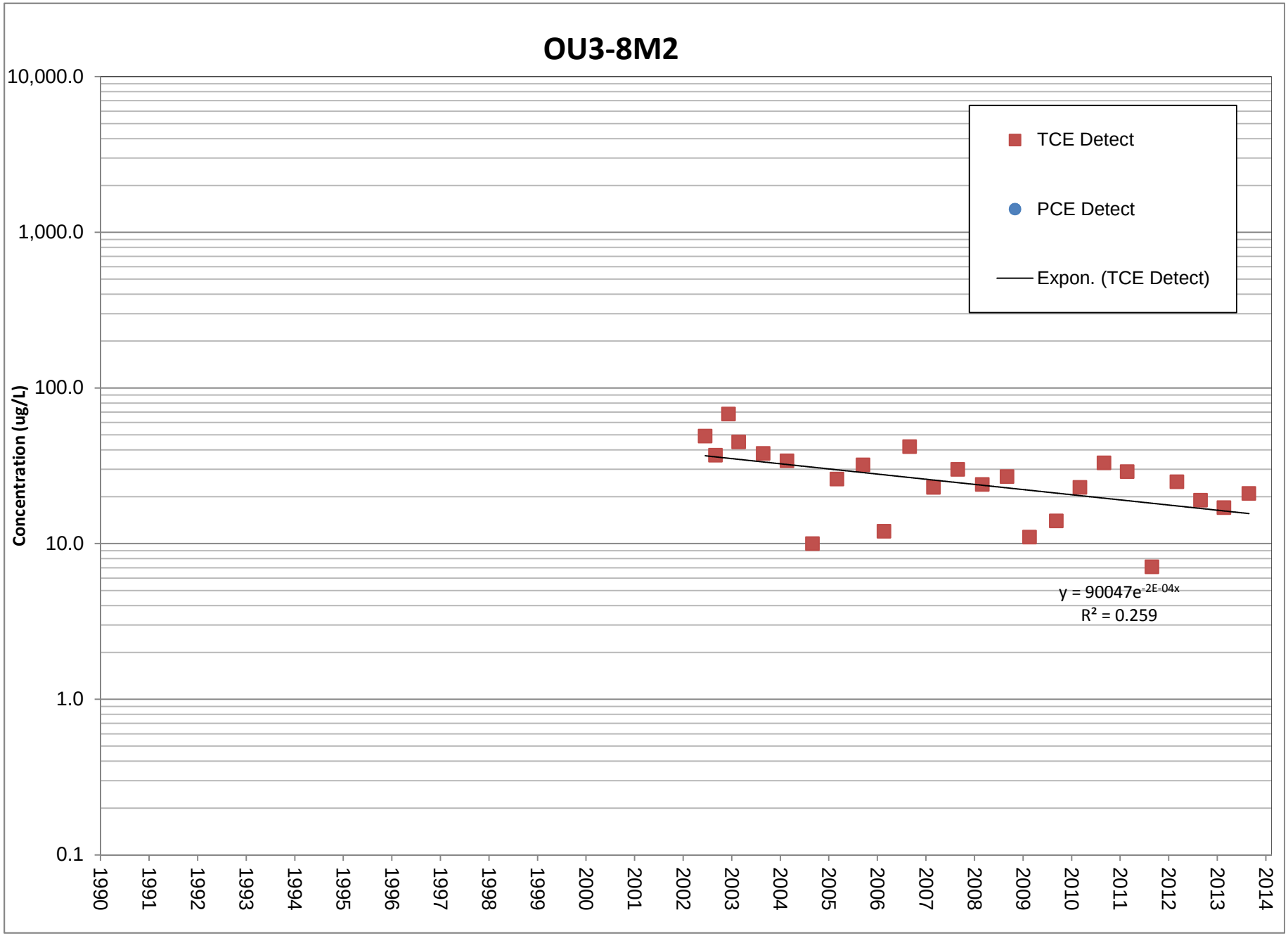
2012
2013
2014


OU3-8M2
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 90047e^-2E-04x
R² = 0.259
1990
1991
1992
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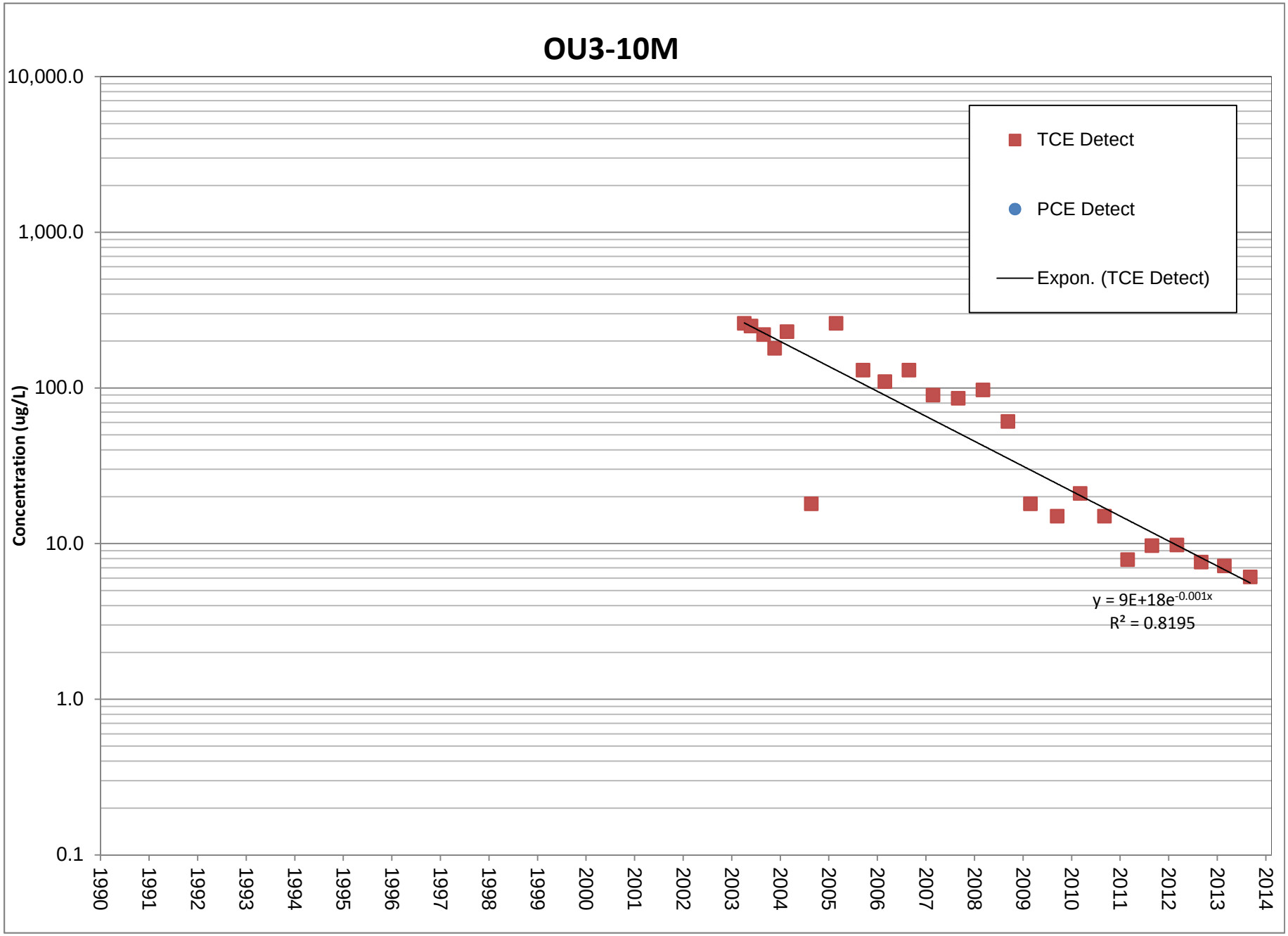
2011
2012
2013
2014


OU3-10M
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1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 9E+18e-0.001x
R² = 0.8195
1990
1991
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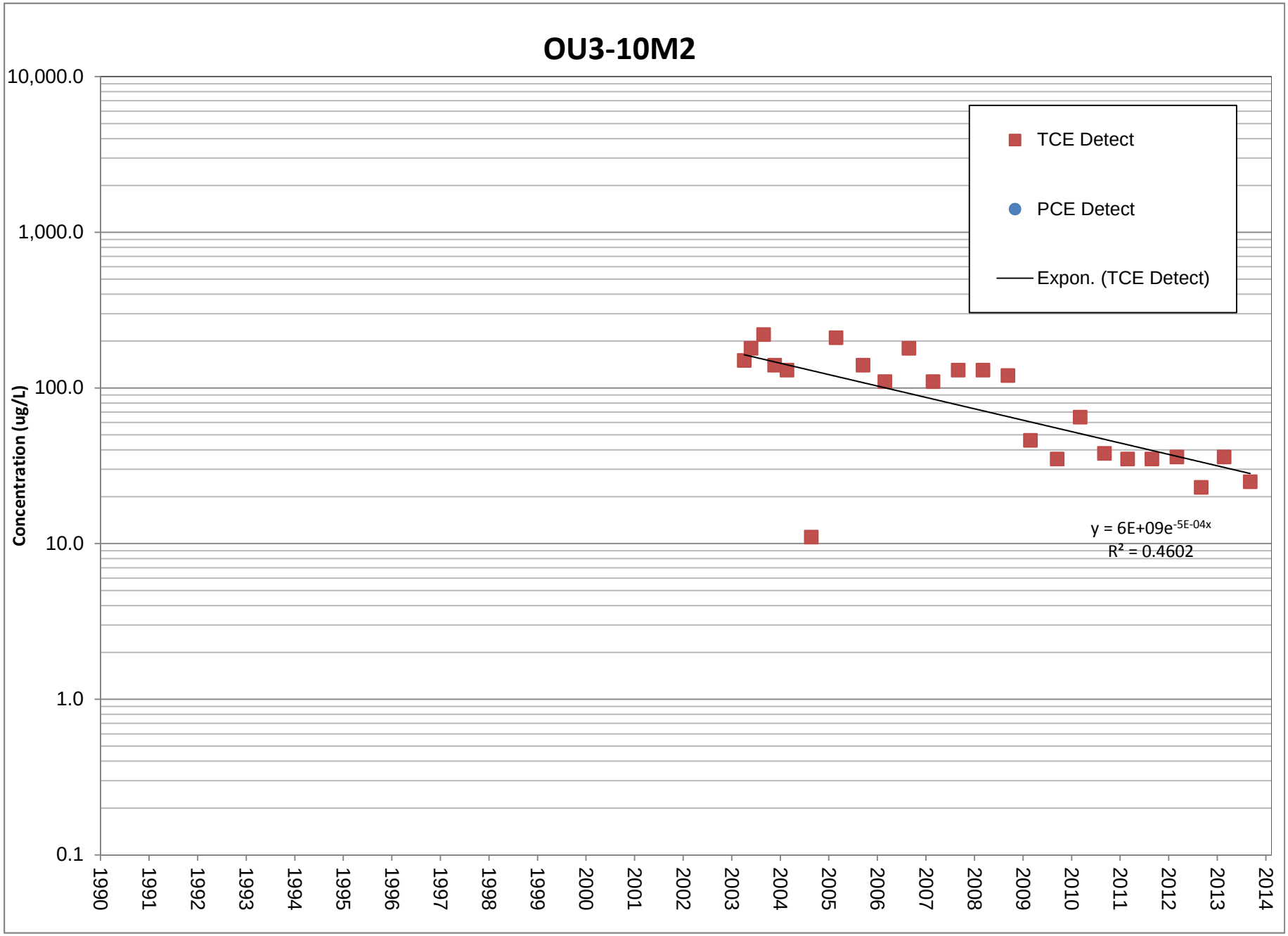
OU3-10M2
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1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 6E+09e-5E-04x
R² = 0.4602
1990
1991
1992
1993
1994
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1996
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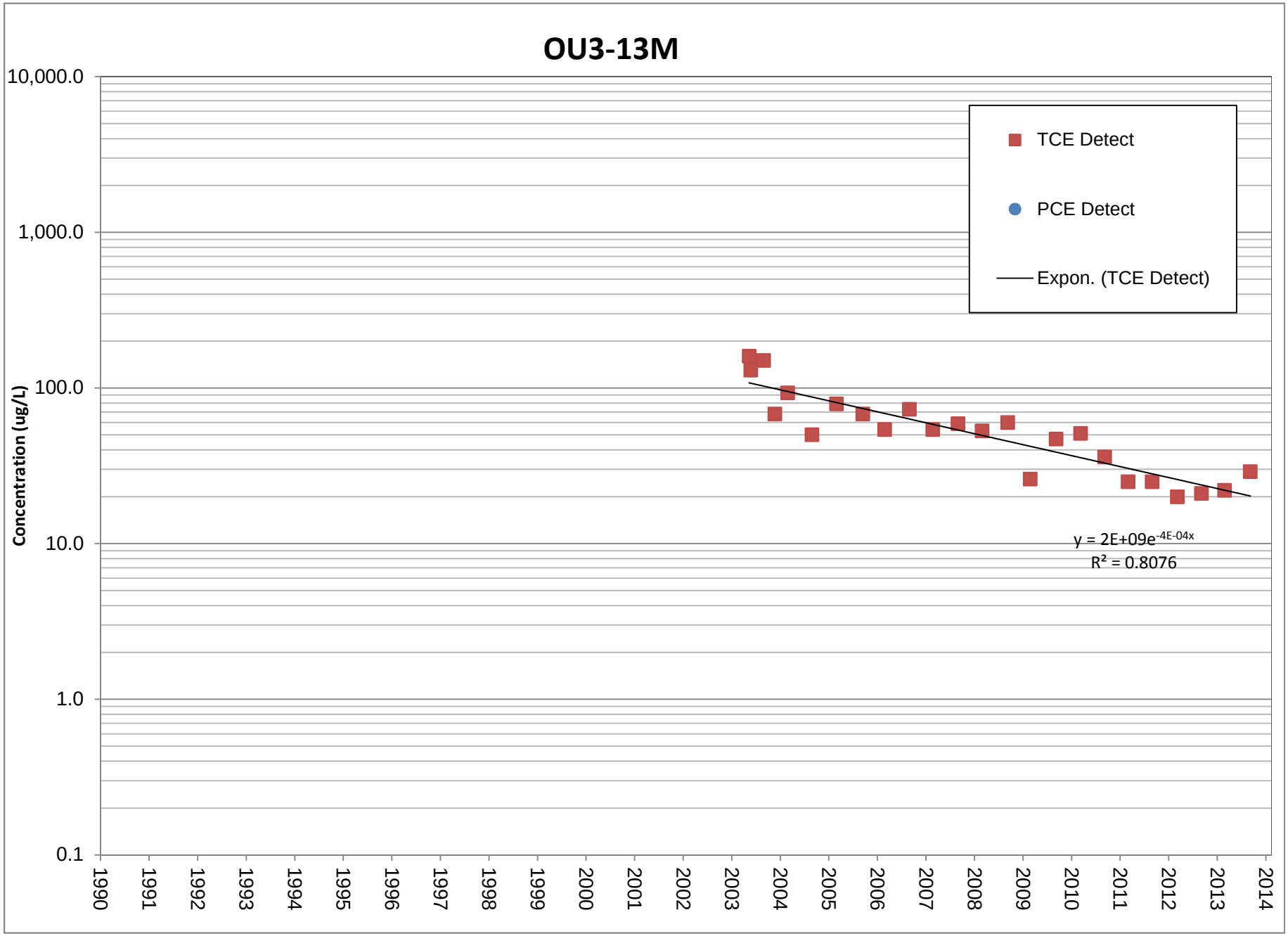
OU3-13M
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 2E+09e-4E-04x
R² = 0.8076
1990
1991
1992
1993
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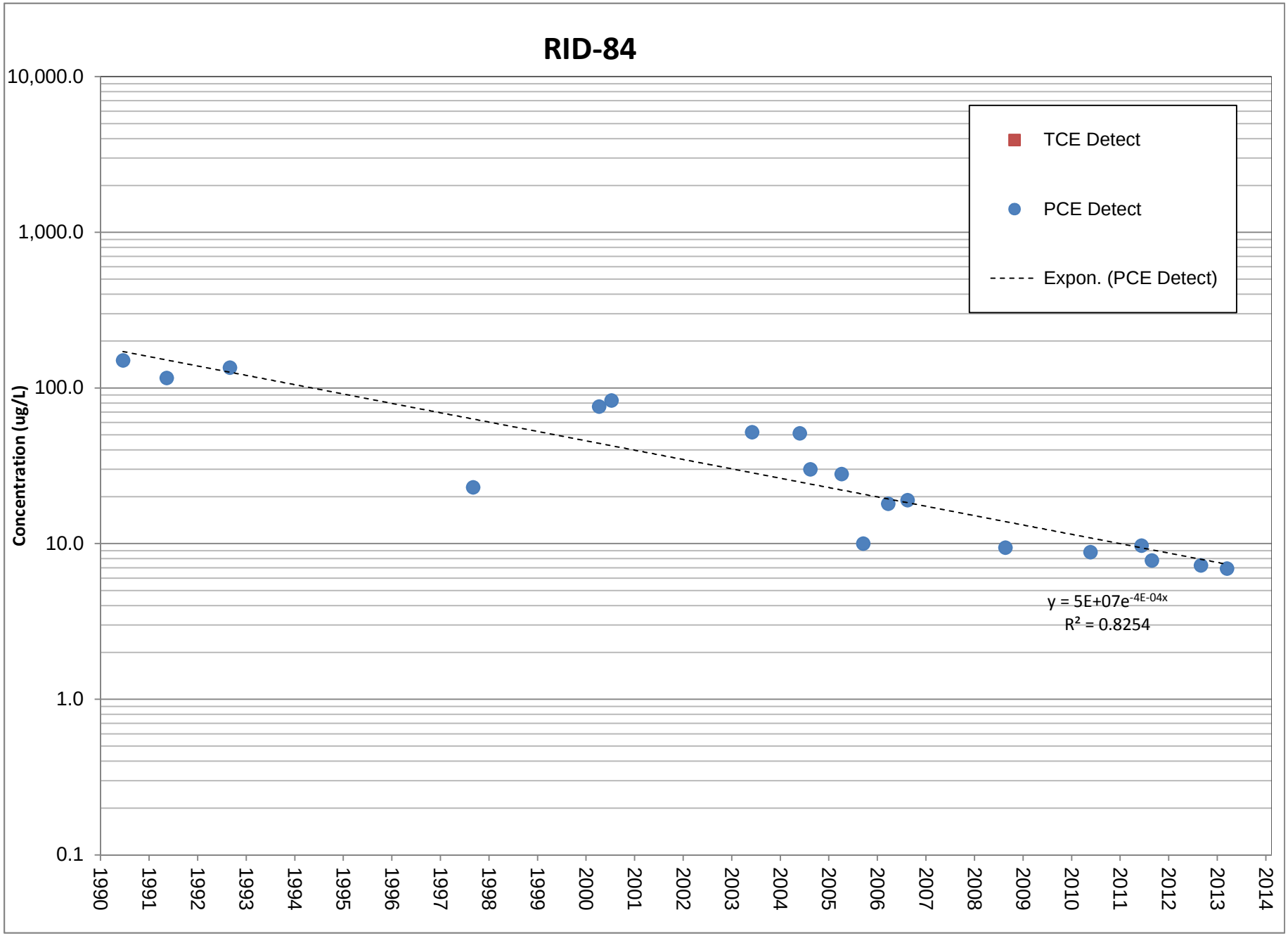
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100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 5E+07e-4E-04x
R² = 0.8254
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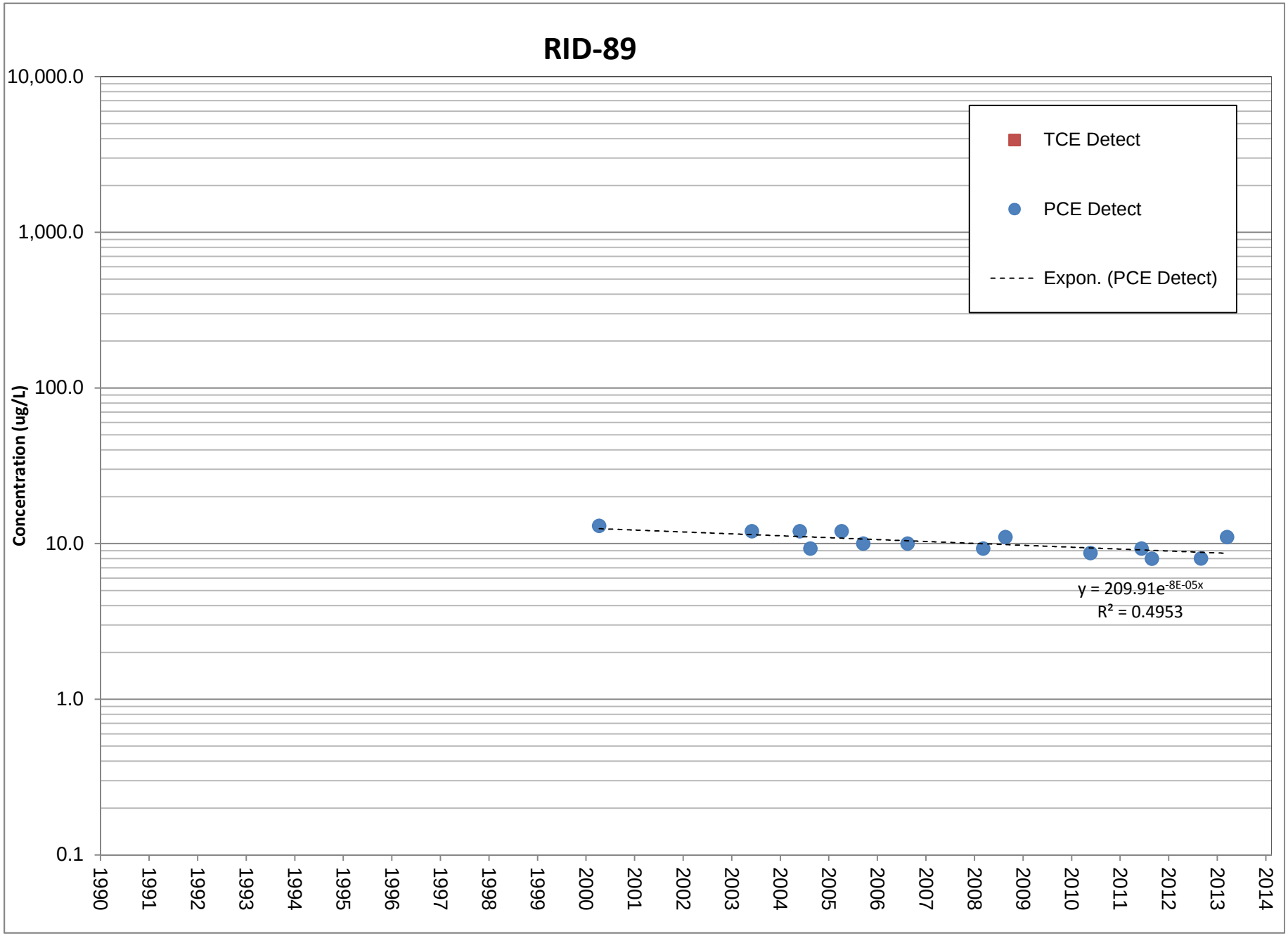
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10.0
1.0
0.1
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TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 209.91e-8E-05x
R² = 0.4953
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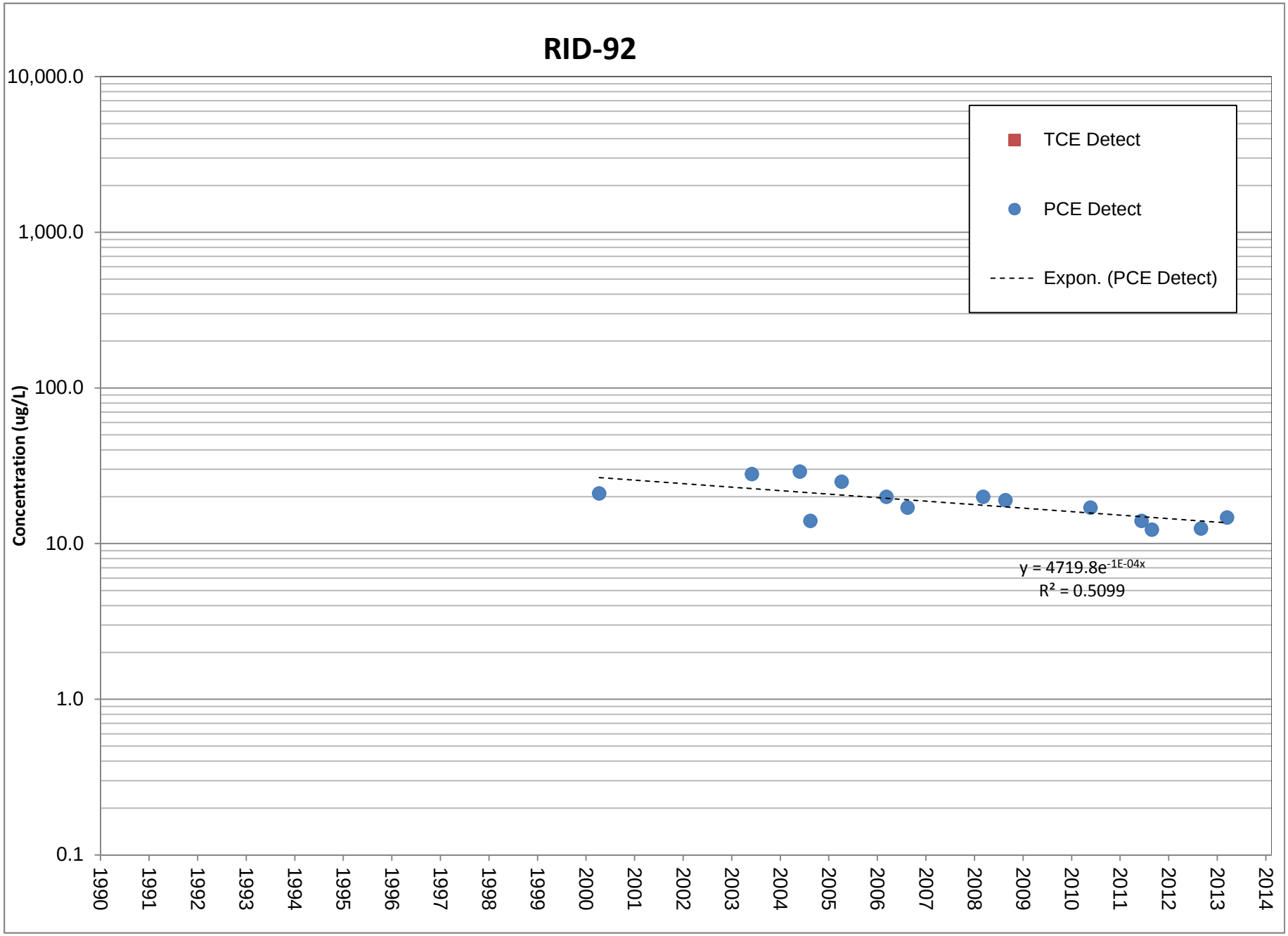
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10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 4719.8e-1E-04x
R² = 0.5099
1990
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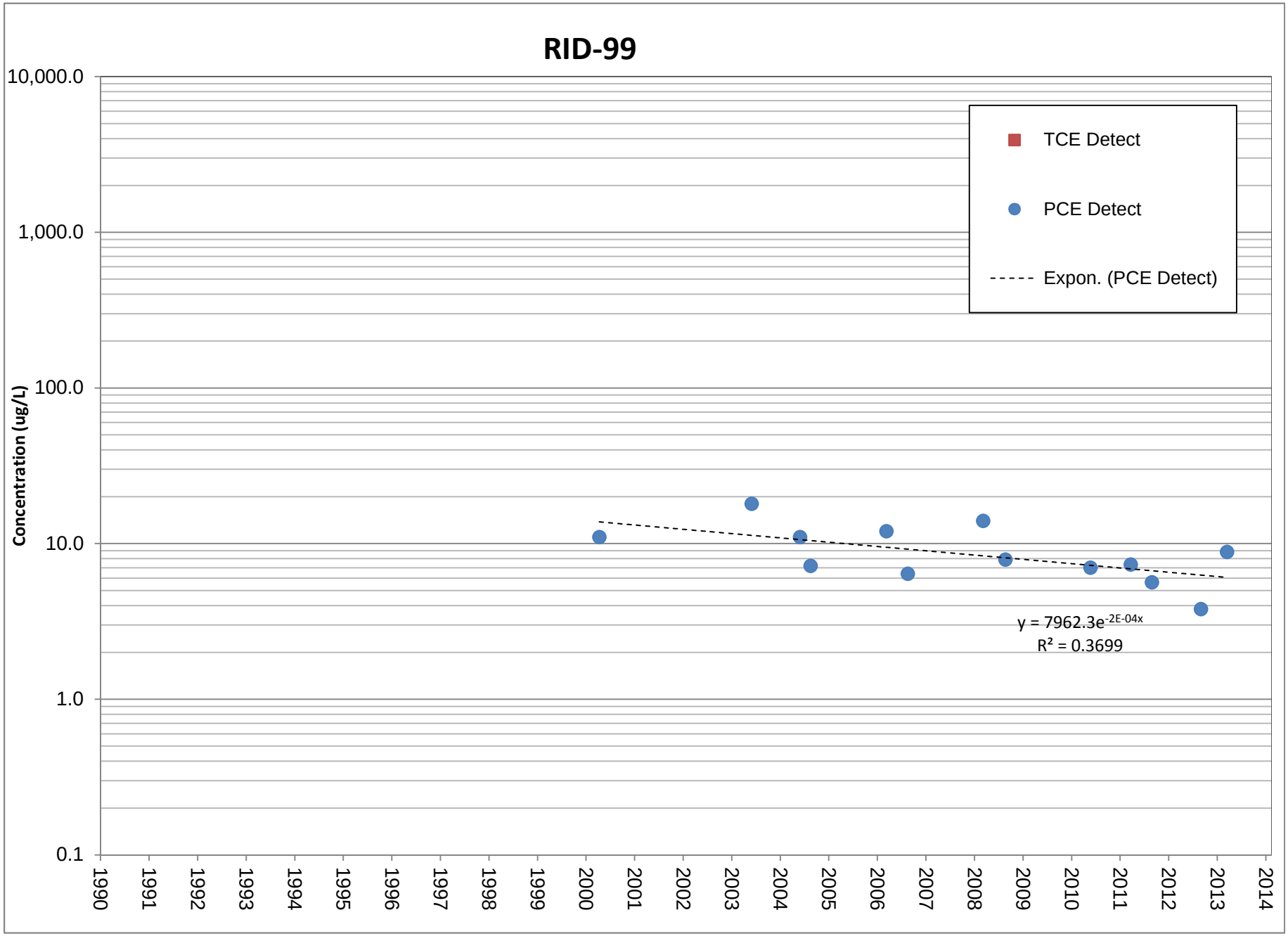
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100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 7962.3e-2E-04x
R² = 0.3699
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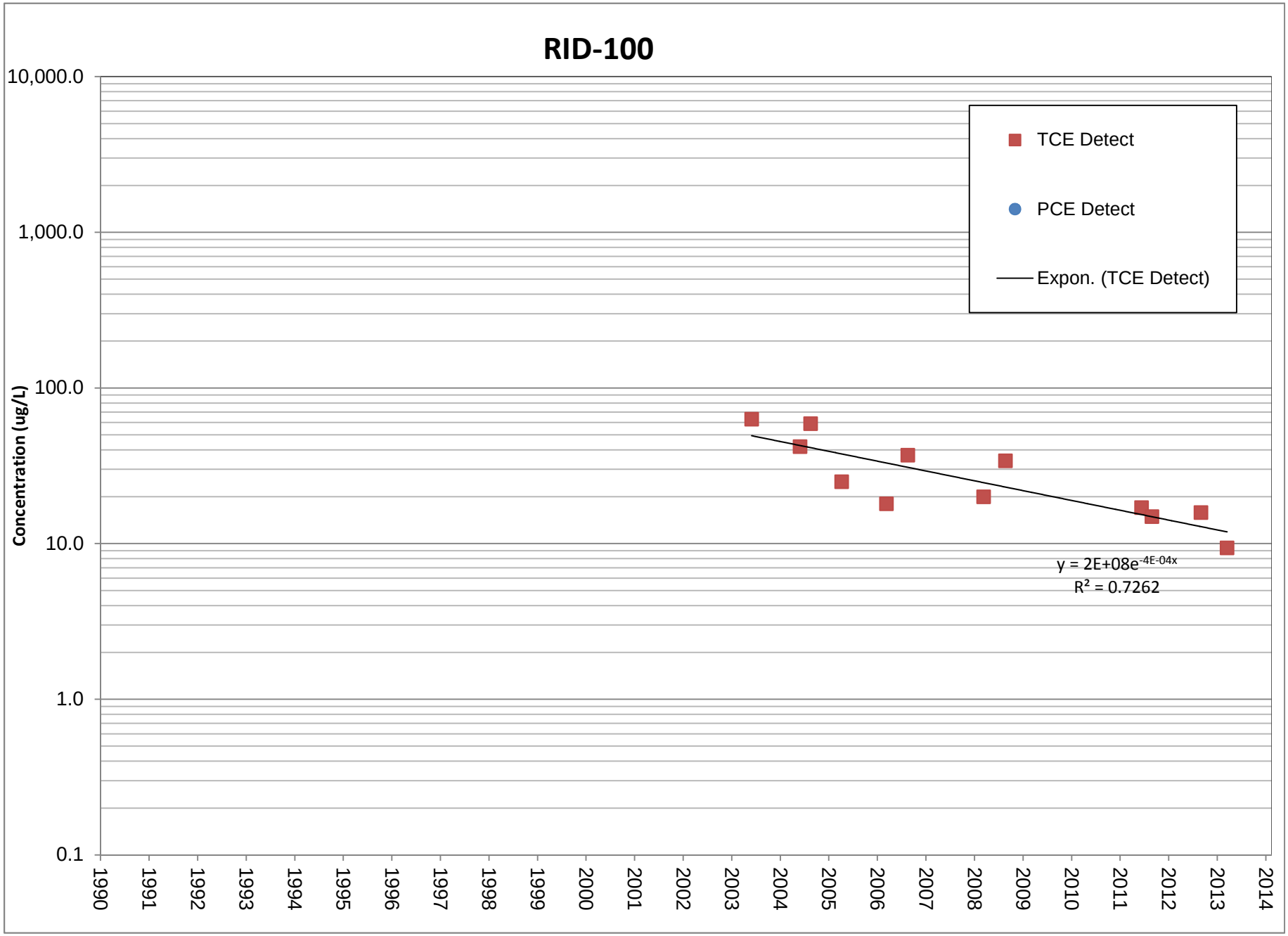
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10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 2E+08e-4E-04x
R² = 0.7262
1990
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1993
1994
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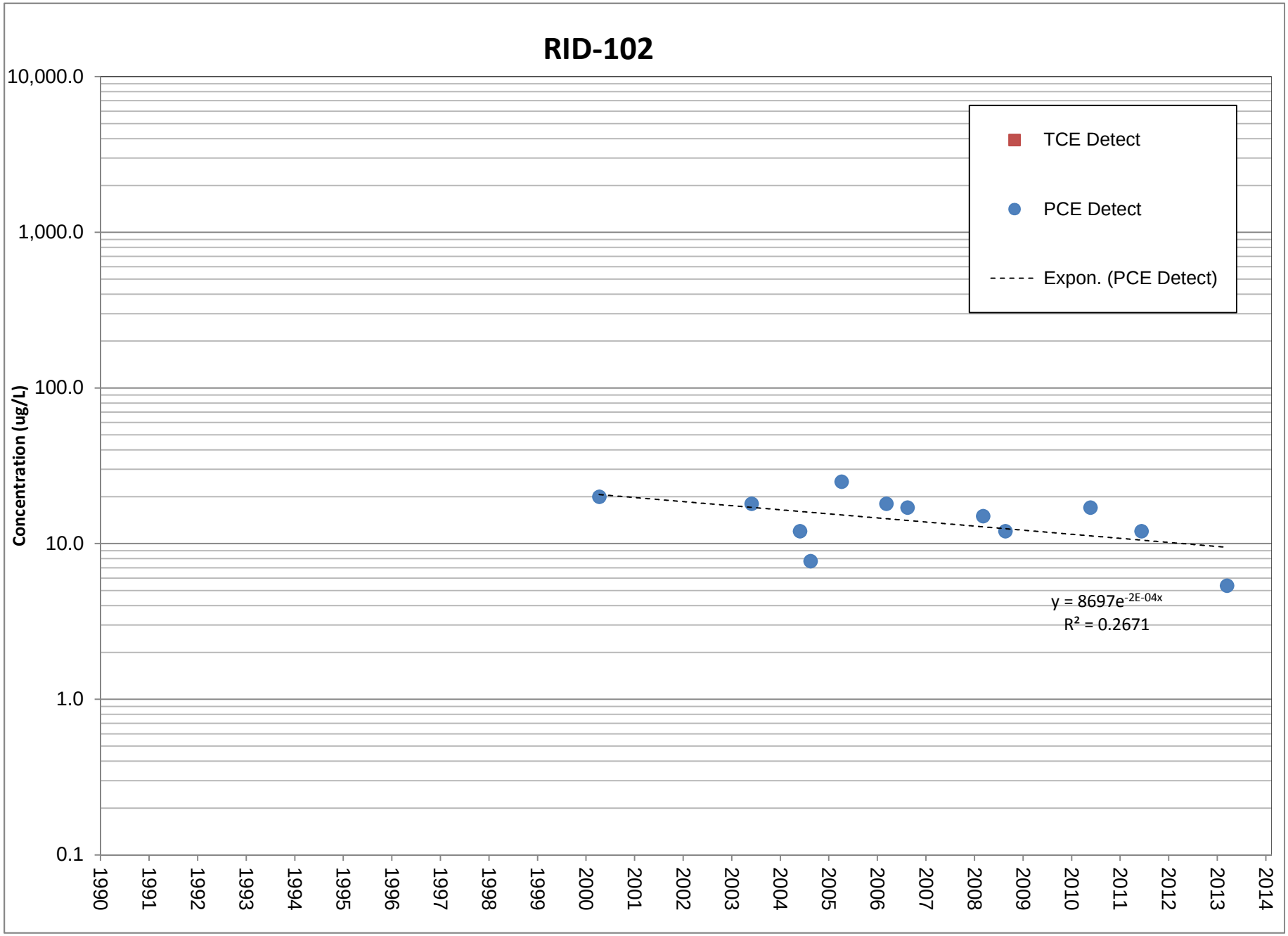
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100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 8697e^-2E-04x
R² = 0.2671
1990
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1994
1995
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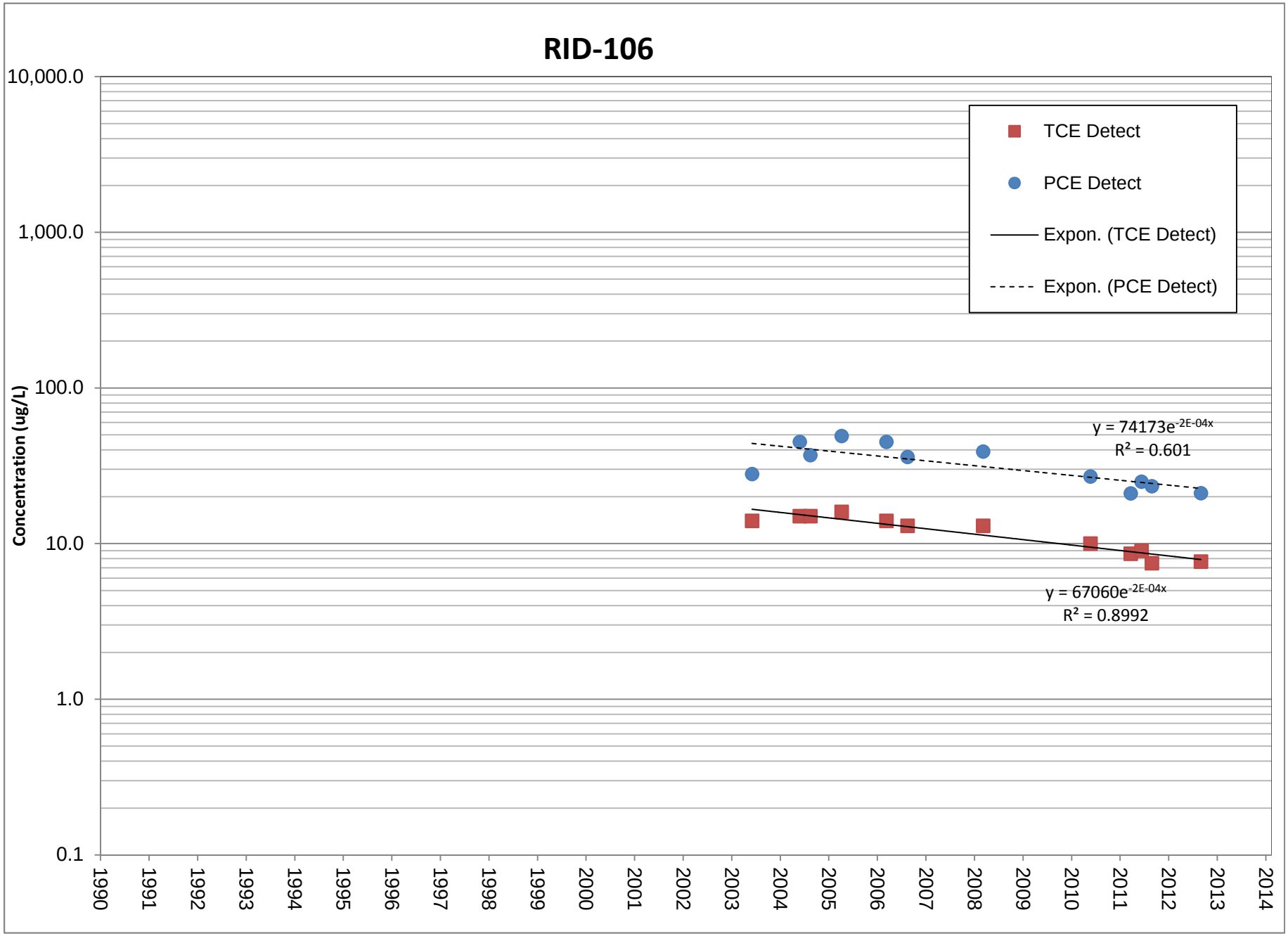
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10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
Expon. (PCE Detect)
y = 74173e-2E-04x
R² = 0.601
y = 67060e-2E-04x
R² = 0.8992
1990
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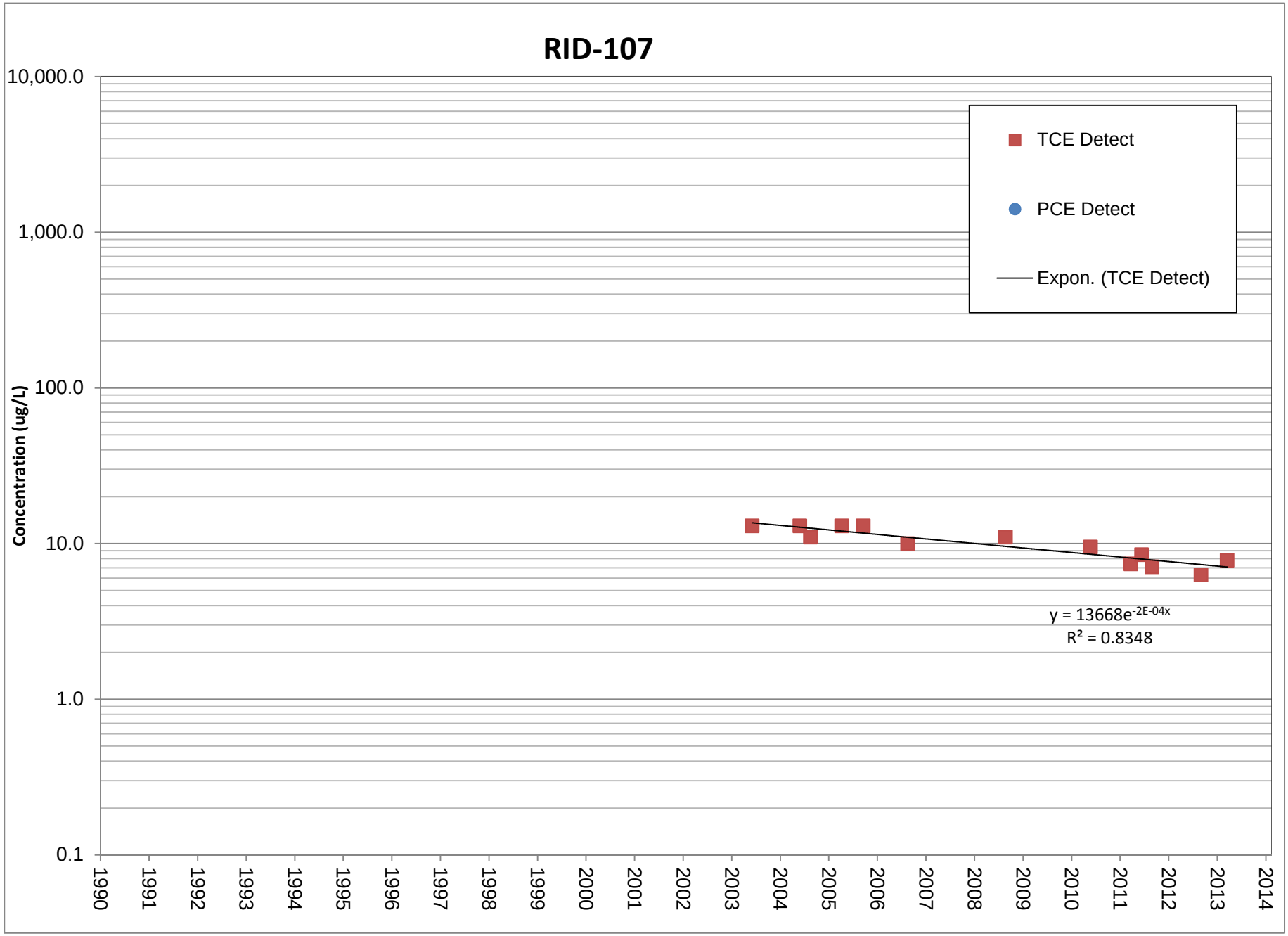
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100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 13668e^-2E-04x
R² = 0.8348
1990
1991
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1994
1995
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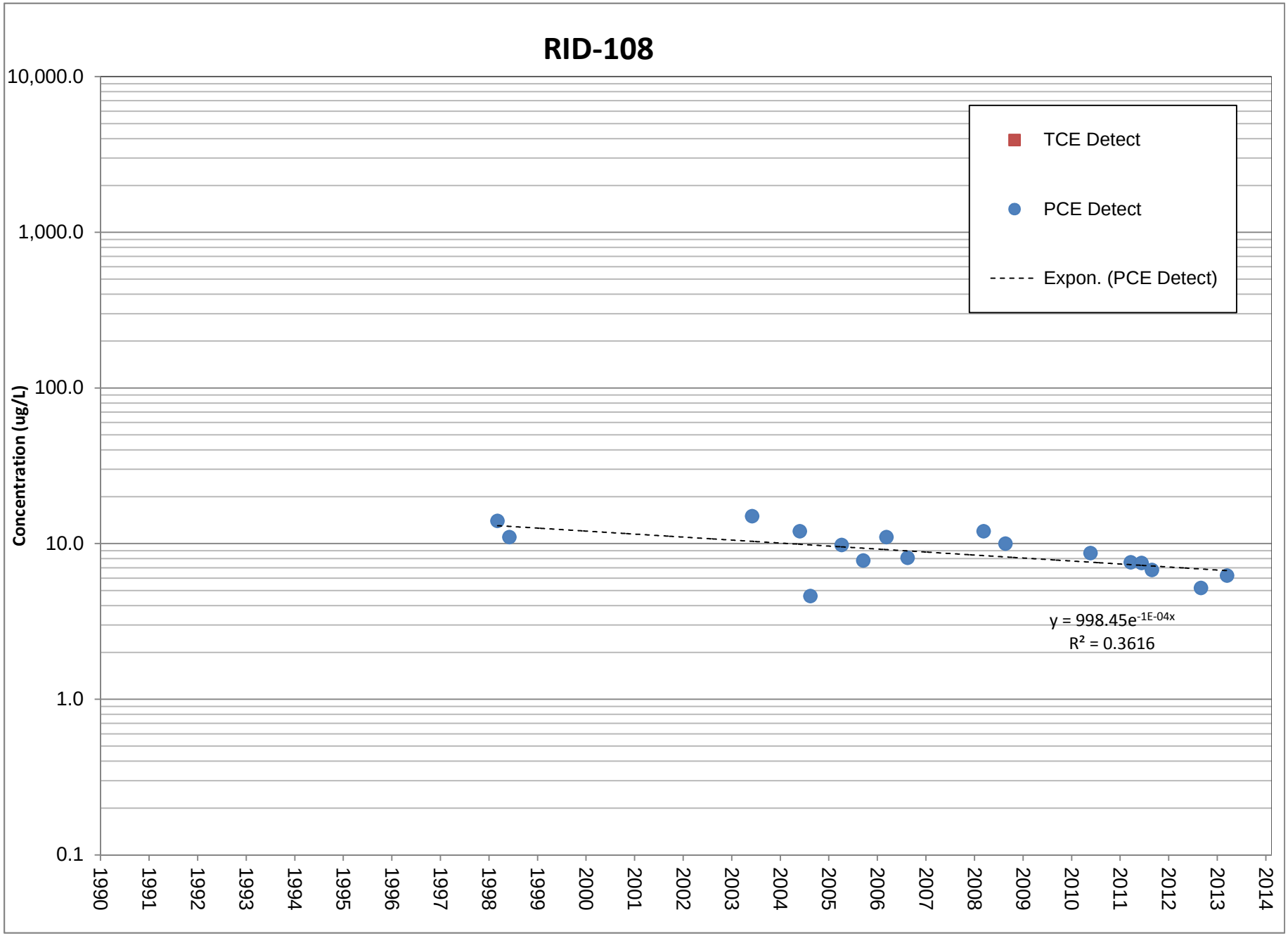
RID-108
10,000.0
1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (PCE Detect)
y = 998.45e-1E-04x
R² = 0.3616
1990
1991
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1993
1994
1995
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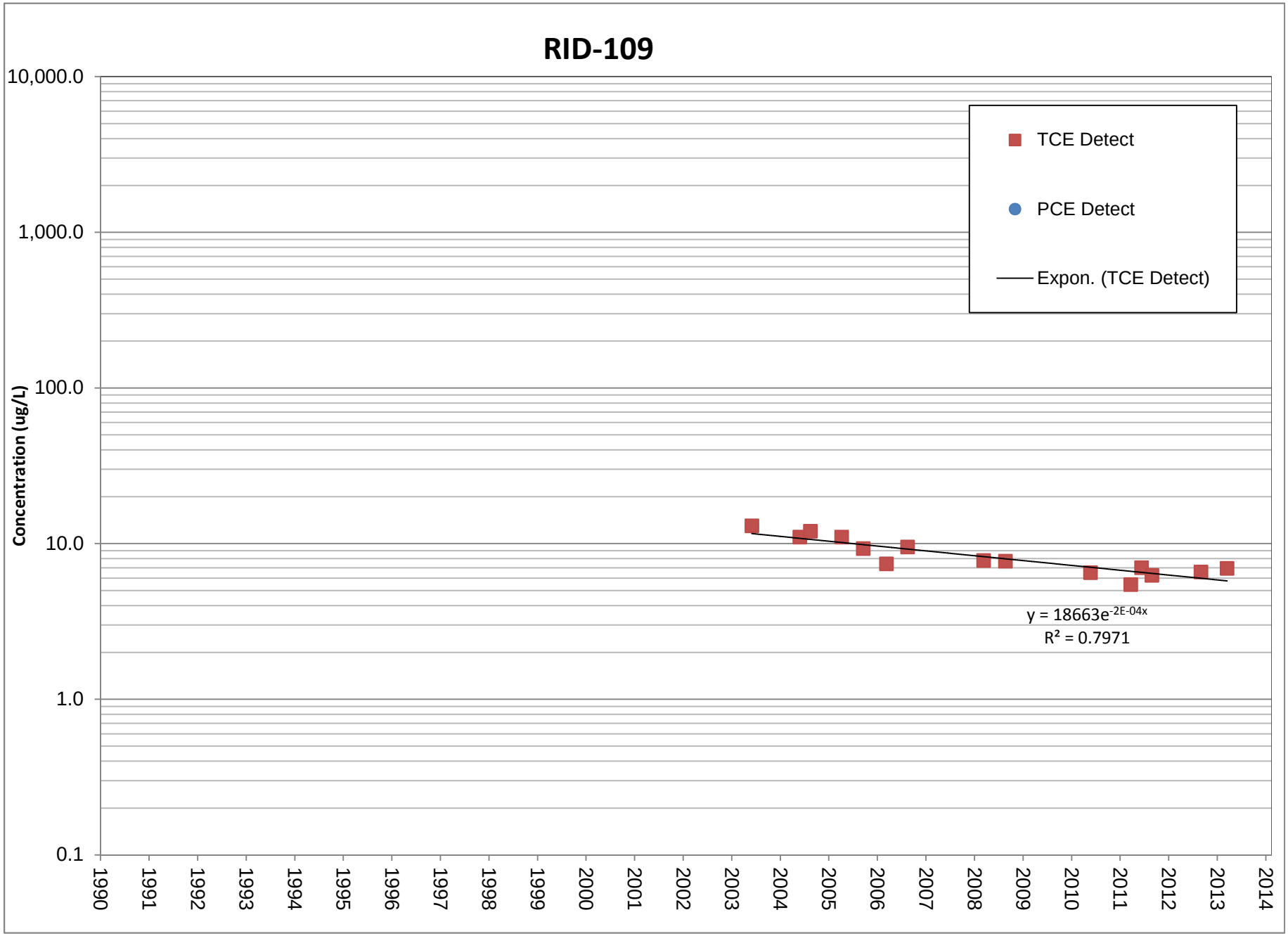
RID-109
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100.0
10.0
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0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 18663e-2E-04x
R² = 0.7971
1990
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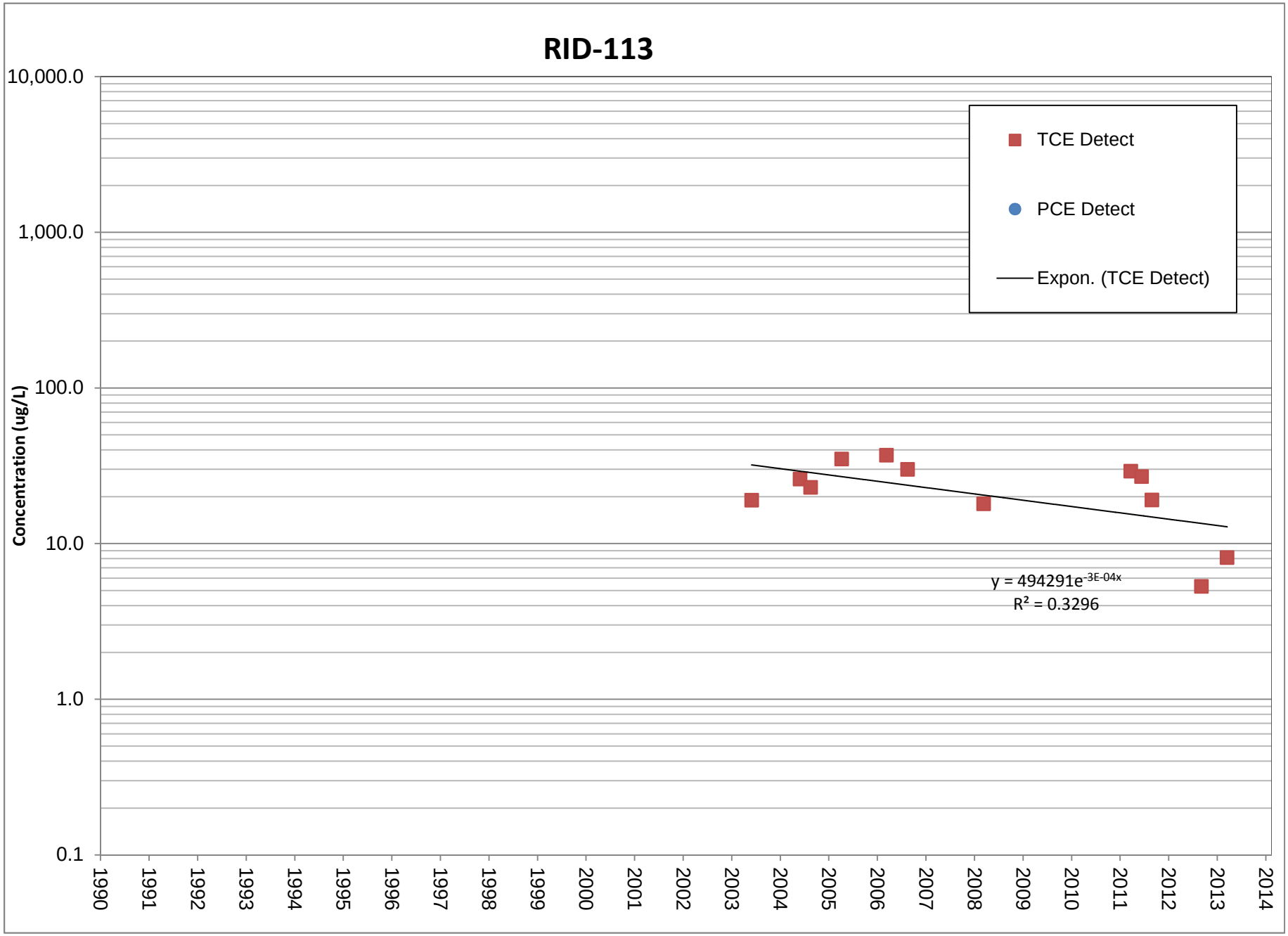
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100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 494291e^-3E-04x
R² = 0.3296
1990
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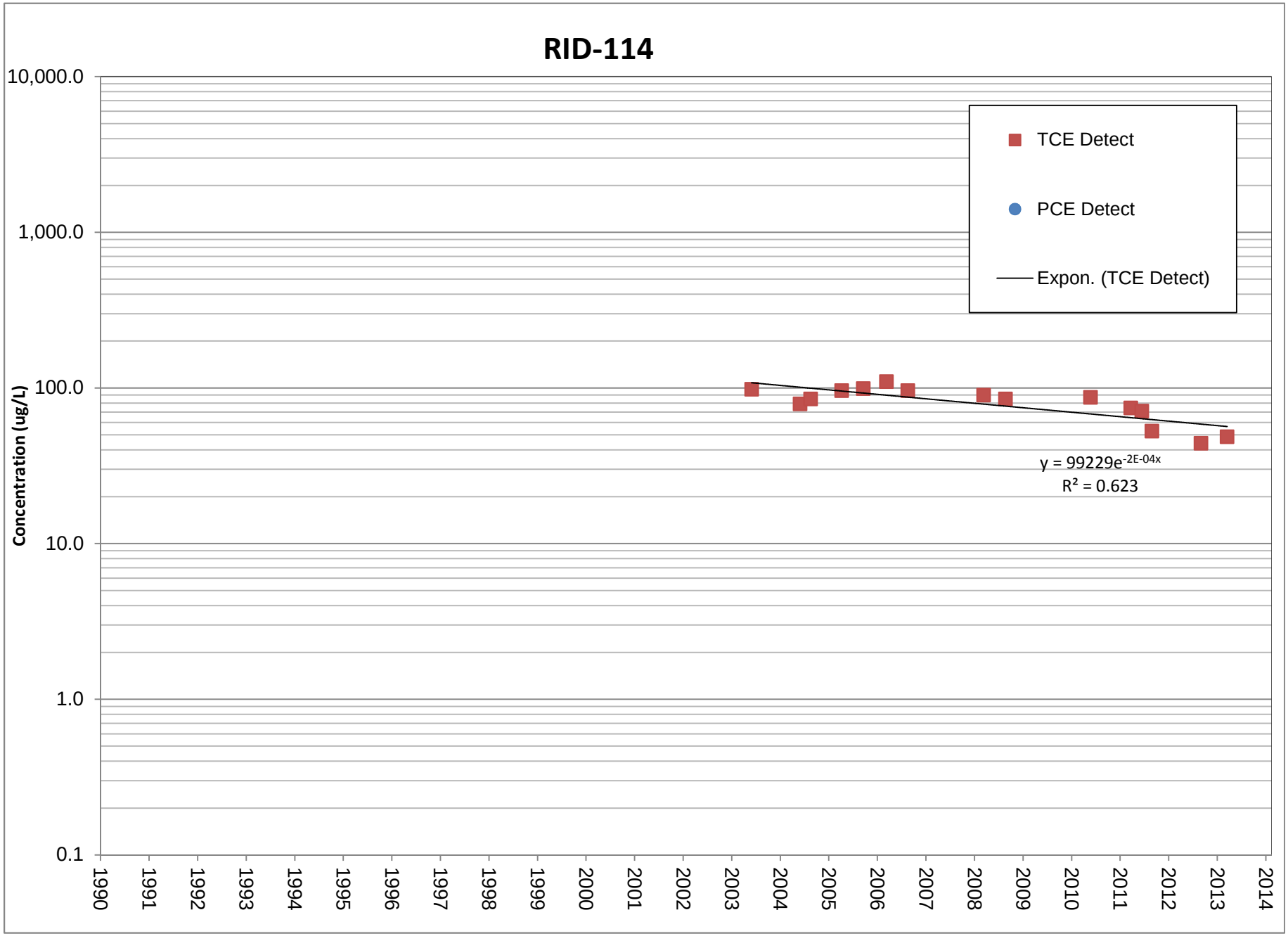
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1,000.0
100.0
10.0
1.0
0.1
Concentration (ug/L)
TCE Detect
PCE Detect
Expon. (TCE Detect)
y = 99229e-2E-04x
R² = 0.623
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APPENDIX B

Water Provider Meeting Information

INTRODUCTION

The Water Quality Assurance Revolving Fund (WQARF) is designed to protect current and reasonably foreseeable end uses of water and to take any actions necessary to address hazardous substance contamination that would interfere with those uses. The following questions are intended to benefit you, the water provider, by helping us to identify necessary actions and timeframes within which those actions must be taken. These questions are being sent to all water providers in the area of the WVB Site. These questions are not intended to be a burden, and you may certainly give estimates or approximations if you do not know the answers to every question. If you do not have certain information, but can direct us to another source for the information, please do so.

There is a reason for every question. For example, questions regarding supplies available to you are intended to help identify whether replacement water supplies might be an option. Questions regarding physical limitations at well sites are intended to identify whether wellhead treatment is an option that could be feasible.

We have attached for your convenience a map of the West Van Buren (WVB) WQARF Site.

Rest assured that this questionnaire is just one mechanism for you to have input into the WQARF remedy. The WQARF program will not design a remedy for your system without your full participation. Thank you for your help in answering these questions.

Water provider name: **City of Phoenix**

Date questionnaire completed: **October 18th 2013**

Name of person completing the questionnaire: **Brandy Kelso, P.E. & Gary Gin, R.G.**

Title: **Deputy Planning Director; Hydrologist**

Address: **200 West Washington Street, 9th Floor, AZ 85003**

Phone number: **602-495-7676; 602-495-5654**

E-mail Address: **brandy.kelso@phoenix.gov; gary.gin@phoenix.gov**

1. PLANNING DOCUMENTS

Please provide copies of any available documents useful in planning for water needs within your service area, including any water resources plans, land use plans, population projections, and capital improvement plans.

Water Services Water Resource Plan 2011:
http://phoenix.gov/webcms/groups/internet/@inter/@dept/@wsd/documents/web_content/wsd2011wrp.pdf;
City of Phoenix General Plan:
http://phoenix.gov/pdd/pz/gp2002.html;
Capital Improvement Plans (Water):
http://phoenix.gov/webcms/groups/internet/@inter/@dept/@budget/documents/capital_budget/c8water.pdf.

2. CURRENT WATER USES

2a. In acre feet per year, how much water do you currently provide to customers within your service area? **Water provided to customers in 2011-2012- 309,700 acre-feet/year**. Please provide a map of your service area. **A map of our Service Area cannot be provided due to security issues.**

2b. In acre feet per year, how much water do you serve within the WVB Site? **The boundary we created is from 7th Ave to 80th Ave to Indian School Road to Lower Buckeye Road. See attached table for 2011 and 2012 water used.**

2c. In either percentage or volume, estimate the amount of water currently put to the following end uses:

- Municipal- **See attached Tables of 2011 and 2012 water usage**
- Industrial **(Non-municipal)- See attached Tables of 2011 and 2012 water usage**
- Agricultural- **23rd Ave Wastewater Treatment Plant (reclaimed water)- 30,000 af/yr to RID, per the three-way agreement between RID/SRP (see 2011 Water Resources Plan).**
- Turf Irrigation-**Not applicable**
- Recreational- **Not applicable**

2d. Do you currently deliver water for potable use? If so, please provide information regarding the quantity delivered and the number of customers and service connections. **~1.4 million customers, 400,000 connections.**

3. CURRENT WATER SOURCES

3a. How much of the water you provide within your service area is groundwater? **-2-5%**

3b. How much of the water you provide within your service area is surface water? **-89-94%**

3c. How much of the water you provide within your service area is reclaimed water? **-4-6%**

3d. Do you serve water from any other sources? **No**

3e. What are other sources of water available to you? **N/A**

3f. Do you have a contract for Central Arizona Project water? **Yes**

3g. How much of the water you provide in your service area is from wells within the WVB Site?- **None. Potable wells impacted by groundwater contamination were shut down, disconnected, capped, and/or abandoned (e.g., COP Well #179 was abandoned). Phoenix operates under a set of long-standing policies, including specific city council direction, which discourages or outright prohibits the introduction of contaminated groundwater through a treatment plant directly into the distribution line.** Please provide well location coordinates and well construction information for these wells. **See attached table. We have a couple of Parks Department wells, but they have not pumped since mid-1990s. Determining the status or absence of these wells is ongoing.**

3h. How much of the water you provide in your service area is from wells within five miles outside of the WVB plume boundary? **None. Potable wells impacted by groundwater contamination were shut down, disconnected, capped, and/or abandoned (e.g., Wells #70 and #71). Phoenix operates under a set of long-standing policies, including specific city council direction, which discourages or outright prohibits the introduction of contaminated groundwater through a treatment plant directly into the distribution line.** Please provide well location coordinates and well construction information for these wells. **See attached table. We have a couple of Parks Department wells, but they have not pumped since mid-1990s. Determining the status or absence of these wells is ongoing.**

3i. In acre feet per year, please provide the groundwater production for each well identified in 3g and 3h above. **Not Applicable**

3j. Please identify your wells within the WVB Site that are screened solely within the lower alluvial aquifer. **None**

3k. Please identify your wells within five miles outside of the WVB plume boundary that are screened solely within the lower alluvial aquifer. **None**

4. IMPAIRED WELLS

4a. Please provide a list of your wells within your service area that currently produce water that contains contaminants. **We do not have any wells that produces contaminates into the distribution system. Wells 70, 71 within the West Osborn Complex have been shut down and capped since the 1980s.**

4b. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are currently within the plume boundary. **See attached map and review table. Any City Parks and Police wells within the plume boundary are capped and last pumped in the 1990s, according to the ADWR database.**

4c. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are downgradient of the WVB plume boundary. **See attached map and review table**

4d. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are within one mile outside the WVB plume boundary. **See attached map and review table**

4e. Please identify any wells that have been shut down due to contamination. For each well, please provide any available information regarding dates and levels of contamination. **Wells 70, 71 within the West Osborn Complex have been shut down and capped since the 1980s. Water quality results in 1982 from Wells 70 and 71 indicate TCE levels of 8.9 and 29 micrograms/liter, respectively.**

5. CURRENT TREATMENT AND DELIVERY SYSTEM

5a. Please describe or provide documents describing any current treatment of the water provided within your service area. **Refer to Water Resources Plan. Conventional methods are used for surface water supplies. Arsenic treatment and chlorination is applied to groundwater supplies.**

5b. Please provide a map of your current system. **Phoenix cannot provide maps due to security issues.**

5c. Are there physical constraints in your system in terms of limited space at well sites or system bottlenecks that would be relevant to well modification, replacement, or treatment? **Physical constraints for well sites include the following: available land, well sites need to be an acre in size to meet Phoenix fire codes, wells need to be proximal to distribution main that are greater than 12-inch diameter, pump to waste systems need to be proximal to a sizeable sewer network, productivity and sustainable supplies of the aquifer are critical, and water quality of the aquifer must be close to Drinking Water Standards.**

6. FUTURE WATER USES

6a. Please describe current land uses in your service area, and any changing land uses that might impact future water needs within your service area. **Review General Plan.**

6b. Please describe any past or current changes in your service area that might be predictive of future changes (for example, urbanization trends, infill initiatives, or planned communities). **Review General Plan.**

6c. Please provide any information about customer growth over time. **Review General Plan.**

6d. Please describe any current plans for modification or additions to your treatment or delivery systems. **By 2020, the Western Canal Well-Field will be constructed. This well-field will consist of 5 to 6 wells located along the southern margin of the Salt River from 35th Ave and 55th Ave. These wells will be screened exclusively in the lower alluvial unit. These wells will pump to**

a Centralized Treatment Facility that will be located at 35th Ave and Broadway Ave. This treatment facility will be used to reduce salinity concentrations in the groundwater.

6e. Do you currently have plans to drill new wells or replace existing wells? Please provide any available information about the planned locations and details of well completion. For each well, please describe whether you plan to screen the wells within one or both of the upper alluvial units, or isolate the wells within the lower alluvial unit? **By 2020, the Western Canal Well-Field will be constructed. This well-field will consist of 5 to 6 wells located along the southern margin of the Salt River from 35th Ave and 55th Ave. These wells will be screened exclusively in the lower alluvial unit. These wells will pump to a Centralized Treatment Facility that will be located at 35th Ave and Broadway Ave. This treatment facility will be used to reduce salinity concentrations in the groundwater.**

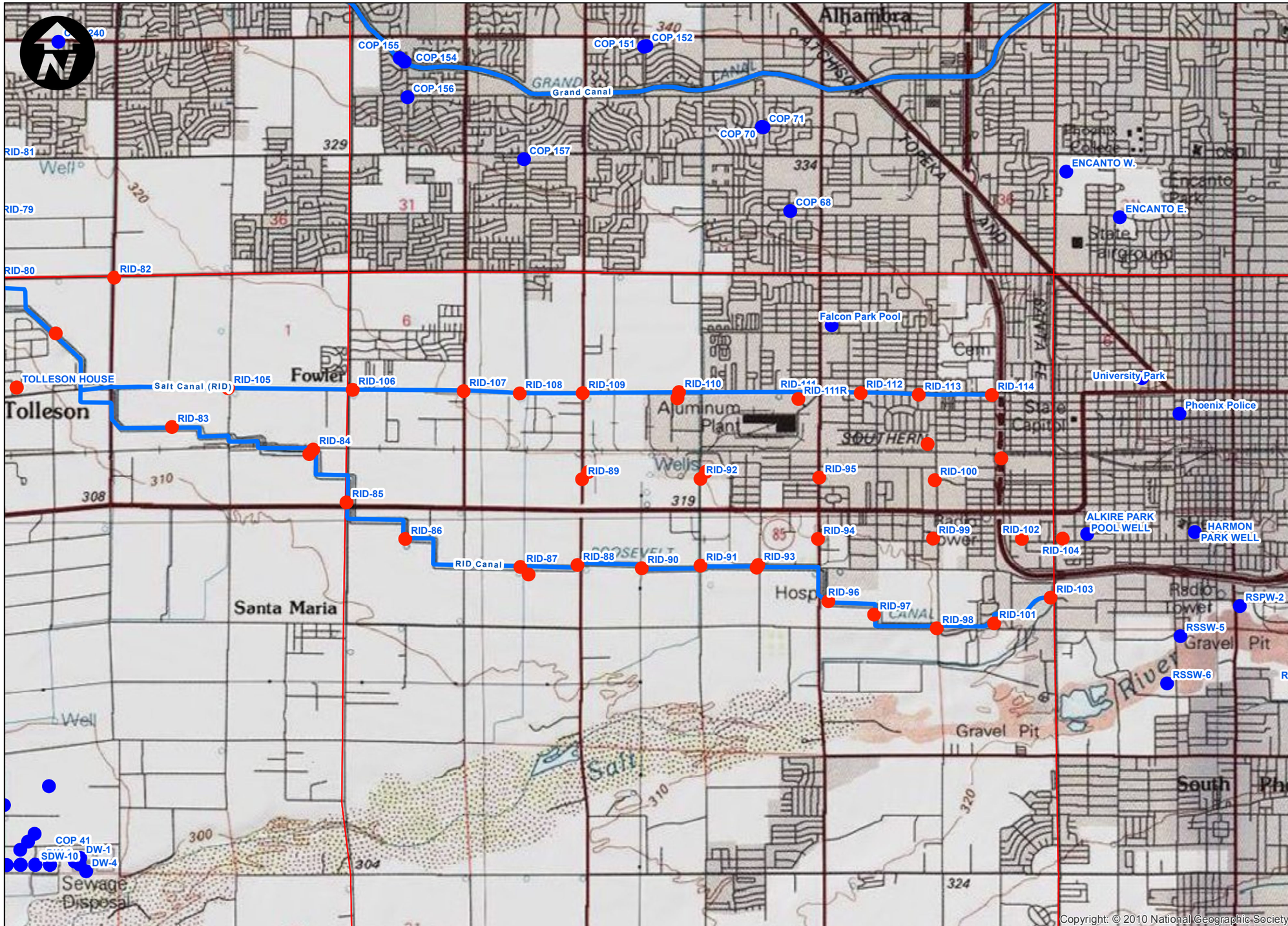
7. WATER PROVIDER SYSTEM REQUIREMENTS

7a. Is your delivery system a transportation or distribution system? Please describe. **We operate and manage a distribution system.**

7b. Are there portions of your service area that are unavailable for location of future wells? Please describe. **Physical constraints for well sites include the following: available land, well sites need to be an acre in size to meet Phoenix fire codes, wells need to be proximal to distribution main that are greater than 12-inch diameter, pump to waste systems need to be proximal to a sizeable sewer network, productivity and sustainable supplies of the aquifer are critical, and water quality of the aquifer must be close to Drinking Water Standards.**

7c. Please provide any additional information about unique system requirements that might constrain use of alternative water supplies or water treatment systems. **None.**

7d. Are you currently regulated as a Public Water System under the Safe Drinking Water Act? **Yes.**



City of Phoenix

Legend

SRV_Well

OWNER

- CITY OF PHOENIX
- ROOSEVELT IRR DIST
- Canals
- Township

CLEAR CREEK ASSOCIATES

carollo

October 2013

CITY OF PHOENIX WELLS NEAR RID

Technical Memorandum No. 6
Western Canal Wellfield Feasibility Study

Figure 2

REGISTRYID	CADASTRAL	OWNER	WELL_NAME	ELEVATION	WELLUSE1	INSTALLED	WELLDEPTH	CASINGDEEP	CASINGWIDE	TOP_SCREEN
626533	A(1-2)02BCC1	CITY OF PHOENIX	Falcon Park Pool	1073.44	CAPPED	12-Oct-60	400	400	16	225
599020	A(1-2)32CDC	CITY OF PHOENIX	LACC-1	1005.99	RECOVERY		500	500	21	48
626530	A(1-3)06DCD	CITY OF PHOENIX	UNIVERSITY PARK	1078.09	WATER PRODUCTION-DISCONNECTED	28-May-65	355	349	20	160
626519	A(1-3)08BBC	CITY OF PHOENIX	Phoenix Police	1082.00	CAPPED	09-Jul-73	252	252	9	231
626532	A(1-3)17BBD	CITY OF PHOENIX	HARMON PARK WELL	1072.05	CAPPED		0	0	0	100
584460	A(1-3)17DCB	CITY OF PHOENIX	RSPW-2	1076.53	RECOVERY	15-Nov-01	220	215	18	90
626524	A(1-3)18BAC	CITY OF PHOENIX	ALKIRE PARK POOL WELL	1059.00	WATER PRODUCTION-DISCONNECTED		0	0	0	190
593127	A(1-3)19ADD	CITY OF PHOENIX	RSSW-6	1062.73	WATER PRODUCTION	23-Jan-03	370	360	18	74
593126	A(1-3)20BBB	CITY OF PHOENIX	RSSW-5	1065.88	WATER PRODUCTION	06-Jan-03	373	360	18	77
626523	A(1-3)21ACC	CITY OF PHOENIX	RIO SALADO PARK WELL	1080.87	WATER PRODUCTION	22-Jun-79	1000	1000	20	730
593124	A(1-3)22BBC	CITY OF PHOENIX	RSSW-3	1090.07	WATER PRODUCTION	06-Jan-03	377	360	18	77
593125	A(1-3)22BCC	CITY OF PHOENIX	RSSW-4	1094.78	WATER PRODUCTION	06-Jan-03	372	360	18	77
626552	A(2-2)27DCB1	CITY OF PHOENIX	COP 70	1102.18	WATER PRODUCTION-CAPPED	01-Apr-55	701	701	16	220
626553	A(2-2)27DCB2	CITY OF PHOENIX	COP 71	1099.20	WATER PRODUCTION-CAPPED	01-May-57	545	545	16	260
626575	A(2-2)28ABB1	CITY OF PHOENIX	COP 151	1113.35	WATER PRODUCTION-CAPPED	01-Jan-62	650	650	12	210
626576	A(2-2)28ABB2	CITY OF PHOENIX	COP 152	1114.97	WATER PRODUCTION-CAPPED	01-Mar-57	630	630	12	270
626577	A(2-2)30BAD1	CITY OF PHOENIX	COP 154	1098.90	WATER PRODUCTION-CAPPED	01-Feb-58	710	708	24	192
626578	A(2-2)30BAD2	CITY OF PHOENIX	COP 155	1097.89	WATER PRODUCTION-CAPPED	01-Mar-58	545	545	20	191
626579	A(2-2)30DBB	CITY OF PHOENIX	COP 156	1090.82	WATER PRODUCTION-DISCONNECTED	01-Aug-60	504	504	20	249
626580	A(2-2)32ABB	CITY OF PHOENIX	COP 157	1086.27	WATER PRODUCTION-DISCONNECTED	01-Feb-62	696	696	20	335
626550	A(2-2)34ADC	CITY OF PHOENIX	COP 68	1084.15	WATER PRODUCTION-CAPPED	01-Feb-53	434	434	12	115
626536	A(2-3)31BCD	CITY OF PHOENIX	ENCANTO W.	1088.04	WATER PRODUCTION		0	0	0	90
626534	A(2-3)31DBB	CITY OF PHOENIX	ENCANTO E.	1086.53	WATER PRODUCTION		180	0	20	90

BOT_SCREEN
395
500
335
251
250
215
260
360
360
990
360
360
685
441
598
450
708
545
470
696
434
620
620

INTRODUCTION

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Water provider name:	**Roosevelt Irrigation District**
Date questionnaire completed:	10/28/2013
Name of person completing the questionnaire:	Donovan Neese
Title:	Superintendent
Address:	103 West Baseline Road, Buckeye, AZ 85326
Phone number:	623.386.7359
E-mail Address:	DNeese@RooseveltIrrigation.org

1. PLANNING DOCUMENTS

Please provide copies of any available documents useful in planning for water needs within your service area, including any water resources plans, land use plans, population projections, and capital improvement plans.

RID does not have any documents related to water resource or capital improvement plans. Plans for municipal land use and water system capital improvements, as well as the associated projections for population growth, should be acquired from the City of Goodyear and the Town of Buckeye, the principal municipalities in which RID lands reside, as well as from the Maricopa Association of Governments.

RID does, however, maintain a written policy regarding the requirements for accepting remediated groundwater into its delivery systems, applicable to both the WVBA and the Phoenix Goodyear Airport remedial actions. This policy is provided at **Attachment 1**.

2. CURRENT WATER USES

2a. In acre feet per year, how much water do you currently provide to customers within your service area? Please provide a map of your service area.

In calendar year 2012, RID provided 129,194 acre-feet from wells located east of the Agua Fria River, (which includes all WVB Site production wells and wells within 5 mile radius of WVB Site plume boundary), to its service area west of the Agua Fria River.

A map of RID's service area is included as **Attachment 2**.

2b. In acre feet per year, how much water do you serve within the WVB Site?

0 acre-feet/year

2c. In either percentage or volume, estimate the amount of water currently put to the following end uses within the WVB Site:

There is no water delivered within the WVB Site.

2d. Do you currently deliver water for potable use? If so, please provide information regarding the quantity delivered and the number of customers and service connections.

RID does not currently deliver water for potable use within the WVB Site.

3. CURRENT WATER SOURCES

3a. How much of the water you provide within your service area is groundwater?

During 2012, approximately 80% of the water provided to RID's service area from east of the Agua Fria River was groundwater. Please refer to **Attachment 3**.

3b. How much of the water you provide within your service area is surface water?

0%.

3c. How much of the water you provide within your service area is reclaimed water?

During 2012, approximately 20% of the water provided to RID's service area from east of the Agua Fria River was reclaimed water (i.e., effluent from City of Phoenix 23rd Avenue Waste Water Treatment Plant). Please refer to **Attachment** 3.

3d. Do you serve water from any other sources?

RID occasionally receives excess water from SRP on the east side of the Agua Fria River. West of the Agua Fria River, RID receives and serves reclaimed water from Litchfield Park Service Company and remediated groundwater from the Phoenix-Goodyear Airport - North Superfund Site.

3e. What are other sources of water available to you?

RID currently has no alternative sources of available water.

3f. Do you have a contract for Central Arizona Project water?

No, RID does not have a contract for CAP water.

3g. How much of the water you provide in your service area is from wells within the WVB Site? Please provide well location coordinates and well construction information for these wells.

There are 33 RID production wells located within the WVB Site (well identifiers RID-82 through RID-114). During 2012, these 33 wells contributed approximately 90,000 acre-feet to RID's service area. Please see the following list of ADWR well numbers.

55-607228	RID-82
55-607227	RID-83
55-607226	RID-84
55-607225	RID-85

55-607224	RID-86
55-607223	RID-87
55-607222	RID-88
55-607221	RID-89
55-607220	RID-90
55-607219	RID-91
55-607218	RID-92
55-607217	RID-93
55-607216	RID-94
55-607215	RID-95
55-607214	RID-96
55-607213	RID-97
55-607212	RID-98
55-607211	RID-99
55-607210	RID-100
55-607209	RID-101
55-607196	RID-102
55-607208	RID-103
55-607207	RID-104
55-607206	RID-105
55-607205	RID-106
55-607204	RID-107
55-607203	RID-108
55-607202	RID-109
55-607201	RID-110
55-220320	RID-111
55-607199	RID-112
55-607198	RID-113
55-607197	RID-114

Available well construction information and location coordinates are provided in **Attachment 4**.

3h. How much of the water you provide in your service area is from wells within five miles outside of the WVB plume boundary? Please provide well location coordinates and well construction information for these wells.

Of the production wells located east of the Agua Fria River, 20 are located outside of the WVB Site plume boundary (well identifiers RID-62 through RID-81). During 2012, these 20 wells contributed approximately 35,000 acre-feet to RID's service area. Please see the following list of ADWR well numbers.

55-607248	RID-62
55-607247	RID-63
55-607246	RID-64
55-607245	RID-65
55-607244	RID-66
55-607243	RID-67

55-607242 RID-68
55-607241 RID-69
55-607240 RID-70
55-607239 RID-71
55-607238 RID-72
55-607237 RID-73
55-607236 RID-74
55-607235 RID-75
55-607234 RID-76
55-607233 RID-77
55-607232 RID-78
55-607231 RID-79
55-607230 RID-80
55-607229 RID-81

3i. In acre feet per year, please provide the groundwater production for each well identified in 3g and 3h above.

2012 groundwater production totals for each well identified in Questions #3g and #3h are included in **Attachment 3**.

3j. Please identify your wells within the WVB Site that are screened solely within the lower alluvial aquifer.

No RID wells are screened solely within the LAU. See the well construction information, provided as **Attachment 4**.

3k. Please identify your wells within five miles outside of the WVB plume boundary that are screened solely within the lower alluvial aquifer.

No RID wells are screened solely within the LAU. See the well construction information, provided as **Attachment 4**.

4. IMPAIRED WELLS

4a. Please provide a list of your wells within your service area that currently produce water that contains contaminants.

The following 25 wells currently produce water that contains contaminants (based on September 2013 data):

55-607228 RID-82
55-607226 RID-84
55-607221 RID-89
55-607220 RID-90

55-607219	RID-91
55-607218	RID-92
55-607217	RID-93
55-607216	RID-94
55-607215	RID-95
55-607211	RID-99
55-607210	RID-100
55-607209	RID-101
55-607196	RID-102
55-607208	RID-103
55-607207	RID-104
55-607206	RID-105
55-607205	RID-106
55-607204	RID-107
55-607203	RID-108
55-607202	RID-109
55-607201	RID-110
55-220320	RID-111
55-607199	RID-112
55-607198	RID-113
55-607197	RID-114

These 25 contaminated wells produced approximately 62,000 AF during 2012.

4b. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are currently within the plume boundary.

The locations of the RID wells indicated above are shown on the map in **Attachment 2**; UTM coordinates of well locations are provided in **Attachment 4**.

4c. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are downgradient of the WVB plume boundary.

The RID production wells in the WVB Site are the easternmost wells in RID's production network. Given the fact that the prevailing direction of groundwater flow in the WVBA is east to west, all of RID's remaining production wells are located to the west (and north-west) of the plume. The vast majority of downgradient RID wells are outside of the contaminant plume. Please refer to **Attachment 2** for the locations of all of the remaining RID production wells.

4d. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are within one mile outside the WVB plume boundary.

The locations of the RID wells are shown on the map in **Attachment 2**

4e. Please identify any wells that have been shut down due to contamination. For each well, please provide any available information regarding dates and levels of contamination.

Due to RID's water demands, none of the contaminated wells have been shut down, thus necessitating the implementation of an Early Response Action.

5. CURRENT TREATMENT AND DELIVERY SYSTEM

5a. Please describe or provide documents describing any current treatment of the water provided within your service area.

The only water treatment currently provided by RID is VOC removal at 4 of the highest contaminated RID wells (RID-89, RID-92, RID-95, and RID-114). There are numerous documents available that describe the development, implementation and continued operation of these treatment systems, available on the ADEQ Project website and/or the West Valley Groundwater Cleanup Coalition website, below:

ADEQ WVBA Regional Remedy Evaluation: http://www.azdeq.gov/environ/waste/sps/wvb.html
West Valley Groundwater Cleanup Coalition: http://www.wvgroundwater.org/

For water treatment information regarding water received by RID from the 23rd Avenue Wastewater Treatment Plant, the Litchfield Park Service Company and the PGA-N Superfund Site, please contact the City of Phoenix, Liberty Water and Crane Company, respectively.

5b. Please provide a map of your current system.

Please see **Attachment 2** for maps of current production wells and water conveyance systems.

5c. Are there physical constraints in your system in terms of limited space at well sites or system bottlenecks that would be relevant to well modification, replacement, or treatment?

Certain well sites could potentially pose physical challenges, however, no insurmountable obstacles exist with regard to limited space or system bottlenecks. Specific site and system configurations should be reviewed as needed during the evaluation of remedial measures and consideration of alternatives.

6. FUTURE WATER USES

6a. Please describe current land uses in your service area, and any changing land uses that might impact future water needs within your service area.

The RID service area resides primarily in the City of Goodyear and the Town of Buckeye. Land use plans can be obtained directly from these municipalities. In general terms, however, RID has communicated their intentions to convert a portion of their water supply into source water for municipal and industrial use. As stated in the Land and Water Use Study Questionnaire submitted by RID on January 7, 2010,

> *"Currently, the wells in the WVB site provide water supply for irrigation but the wells will transition to drinking water supply as residential and commercial development continues in the District. RID is currently in discussions with west valley water providers regarding delivery of*

water for subsequent treatment and supply for municipal use and anticipates continuing interests in this regard in the future."

Furthermore, as stated in the 2012 Land and Water Use Report,

> *On September 23, 2010, the Town of Buckeye submitted a letter to ADEQ indicating that the Town of Buckeye was very interested in the utilization of the treated water from the RID ERA system in the future. On September 24, 2010, the City of Goodyear issued a letter expressing support for the RID remediation effort and indicated that Goodyear was interested in the utilization* [of] *treated water from the RID ERA system in the future."*

6b. Please describe any past or current changes in your service area that might be predictive of future changes (for example, urbanization trends, infill initiatives, or planned communities).

Urbanization of agricultural lands has occurred in the District lands in previous years and is anticipated to continue in the future.

6c. Please provide any information about customer growth over time.

It is anticipated that RID's agricultural customer base will decline in the future as urbanization of District lands continues and the municipal and industrial customer base will increase.

6d. Please describe any current plans for modification or additions to your treatment or delivery systems.

RID's plans for additional wellhead treatment are included in the October 2012 Modified Early Response Action Work Plan, available on the ADEQ "West Van Buren Regional Remedy Evaluation" webpage (http://www.azdeq.gov/environ/waste/sps/wvb.html) and on the West Valley Groundwater Cleanup Coalition website (http://www.wvgroundwater.org/).

RID is also evaluating the design and construction of a water delivery pipeline from the wells in the WVB Site to the west valley, along the RID Main Canal. This pipeline could be used to direct-deliver remediated groundwater to west valley municipalities and other potential end users.

6e. Do you currently have plans to drill new wells or replace existing wells? Please provide any available information about the planned locations and details of well completion. For each well, please describe whether you plan to screen the wells within one or both of the upper alluvial units, or isolate the wells within the lower alluvial unit?

Yes, RID has plans to drill new and replacement wells as necessary and appropriate. No additional detailed information is available at this time.

7. WATER PROVIDER SYSTEM REQUIREMENTS

7a. Is your delivery system a transportation or distribution system? Please describe.

RID pumps groundwater from production wells into its canal systems where it combines with other water and is transported to RID's service area. A network of laterals and smaller pipelines are used to distribute the water from the Main Canal to the various points of delivery. RID does not, however, make a distinction between "transportation" and "distribution" conveyances.

7b. Are there portions of your service area that are unavailable for location of future wells? Please describe.

Availability of locations for future wells are constrained based on well spacing requirements set forth by the Arizona Department of Water Resources.

7c. Please provide any additional information about unique system requirements that might constrain use of alternative water supplies or water treatment systems.

RID water delivery demands require water sources that i) are readily available and can be accessed on an on-demand basis, ii) are reliable in quality and quantity, iii) can provide very high volumes of water during peak water demand, iv) can be "turned down" to lower quantities during off-peak periods, and v) are inexpensive and predictable in cost of production.

7d. Are you currently regulated as a Public Water System under the Safe Drinking Water Act?

No.

ATTACHMENT 1

RID POLICY FOR ACCEPTING REMEDIATED GROUNDWATER

ROOSEVELT IRRIGATION DISTRICT BOARD OF DIRECTORS
STATEMENT OF POLICY REGARDING SUPERFUND SITES

WHEREAS, Roosevelt Irrigation District ("RID") operates water supply wells in portions of the cities of Phoenix and Goodyear, Arizona, that are designated as Federal and State Superfund Sites; and

WHEREAS, the Board of Directors deems it advisable that RID have an established policy concerning water from wells located in or impacted by these Superfund Sites,

THEREFORE, BE IT RESOLVED, that any RID wells located within any Federal or State Superfund Site and that are contaminated by hazardous substances, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") must be remediated pursuant to an appropriate and timely groundwater remedial action plan to mitigate the actual and/or potential harm to public health, welfare, and the environment;

FURTHER RESOLVED that access to all RID wells and associated water distribution systems (canals, pipelines, manholes, etc.) requires the express written authorization of RID and any monitoring or sampling of RID wells or water distribution systems must be conducted by, or under the direct supervision of, RID or RID's designated agents;

FURTHER RESOLVED that the discharge or delivery of remediated groundwater into the RID water distribution system must be approved by the RID Board of Directors and conducted in accordance with a remedial action plan approved by the appropriately authorized governmental entity.

FURTHER RESOLVED that any discharges of remediated groundwater into the RID water distribution system must be of a quality that meets the United States Environmental Protection Agency Maximum Contaminant Levels and the Arizona Aquifer Water Quality Standards for the associated contaminants of concern;

FURTHER RESOLVED that the implementation of a remedial action plan develop to protect RID's wells, water operations, or water supply shall provide for the maximum beneficial use of the water supply and shall not reduce the quantity of water available to RID.

The undersigned certifies that he is the President of the Board of Directors of RID and that the above is a true and correct copy of the resolution that was duly adopted at a properly noticed meeting of the Board of Directors, which was held in accordance with State Law and the By-Laws of the Corporation.

Date: 11-9-10

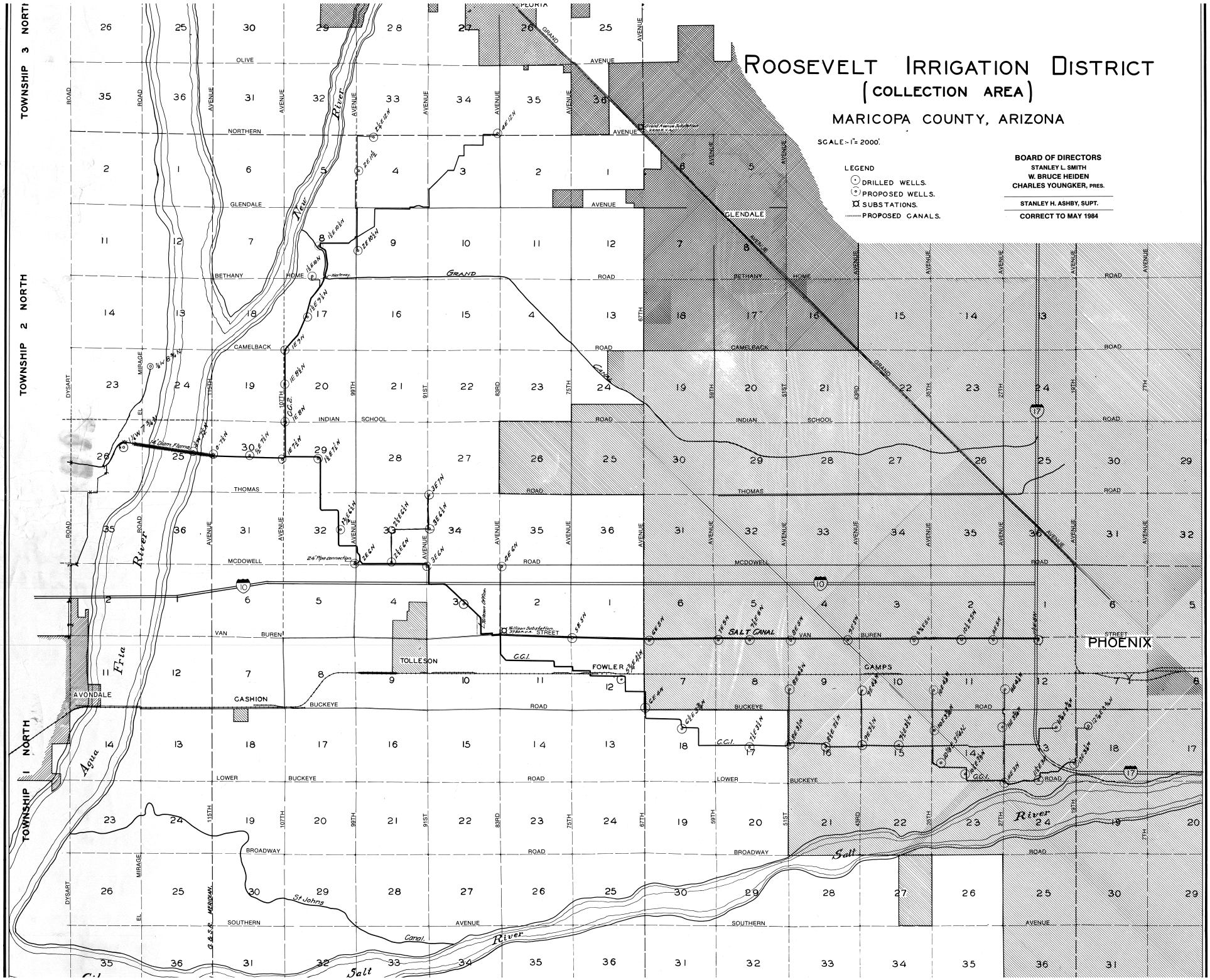
W. Bruce Heiden

W. Bruce Heiden

1316163
9/21/10

ATTACHMENT 2

RID'S SERVICE AREA MAPS


ROOSEVELT IRRIGATION DISTRICT
(COLLECTION AREA)
MARICOPA COUNTY, ARIZONA
SCALE: 1" = 2000'
LEGEND
DRILLED WELLS.
PROPOSED WELLS.
SUBSTATIONS.
PROPOSED CANALS.
BOARD OF DIRECTORS
STANLEY L. SMITH
W. BRUCE HEIDEN
CHARLES YOUNGKER, PRES.
STANLEY H. ASHBY, SUPT.
CORRECT TO MAY 1984
TOWNSHIP 3 NORTH
TOWNSHIP 2 NORTH
TOWNSHIP 1 NORTH
PEORIA
GLENDALE
BETHANY HOME
CAMELBACK
INDIAN SCHOOL
THOMAS
MCDOWELL
VAN BUREN
TOLLESON
FOWLER
AVONDALE
GASHION
BUCKEYE
LOWER BUCKEYE
BROADWAY
SOUTHERN
PHOENIX
SALT CANAL
GRAND CANAL
C.G.I.
Gila River
Salt River
Agua Fria River
New River
St. Johns Canal
G.&S.R. MERIDIAN

MAP OF

ROOSEVELT IRRIGATION DISTRICT

MARICOPA COUNTY, ARIZONA

BOARD OF DIRECTORS

W. BRUCE HEIDEN, PRESIDENT
CHARLES YOUNGKER
DWIGHT B. LEISTER

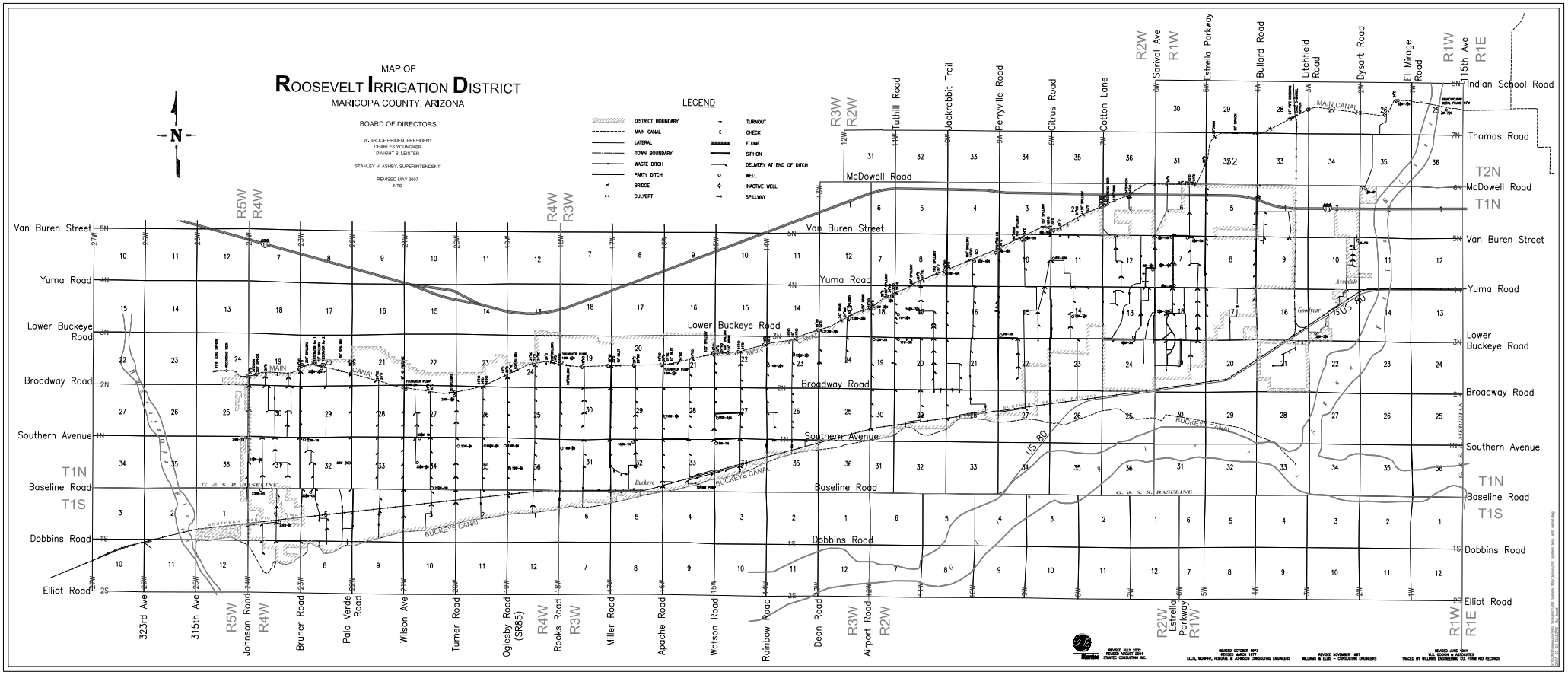
STANLEY K. ASHBY, SUPERINTENDENT

REVISED MAY 2007
NTS

N

LEGEND

DISTRICT BOUNDARY	TURNOUT
MAIN CANAL	CHECK
LATERAL	FLUME
TOWN BOUNDARY	SIPHON
WASTE DITCH	DELIVERY AT END OF DITCH
PARTY DITCH	WELL
BRIDGE	INACTIVE WELL
CULVERT	SPILLWAY



REVISED JULY 2002
REVISED AUGUST 2004
STANTEC CONSULTING INC.

REVISED OCTOBER 1973
REVISED MARCH 1977
ELLIS, MURPHY, HUGHES & JOHNSON CONSULTING ENGINEERS

REVISED NOVEMBER 1947
WILLIAMS & ELLIS – CONSULTING ENGINEERS

REVISED JUNE 1940
M.S. GOOKIN & ASSOCIATES
TRACED BY WILLIAMS ENGINEERING CO. FORM RID RECORDS

ATTACHMENT 3

2012 RID PRODUCTION WELL PUMPING SUMMARY AND SUMMARY OF COP RECLAIMED WATER DISCHARGES TO RID

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607147														
SW NW NW 24 2N 1W									0					0.0
55-607156														
NE SW NE 26 2N 1W									1,480.2					1,480.2
55-607179														
SW SW SW 11 1N 2E									0					0.0
55-607148														
NE NE NW 10 1N 2W									0					0.0
55-607149														
SE SE NE 9 1N 2W									1,340.6					1,340.6
55-607150														
NW NW SE 9 1N 2W									568.1					568.1
55-607146														
NE SE SE 8 1N 2W									0					0.0
55-607151														
NW NW NW 17 1N 2W									960.8					960.8
TOTAL WATER WITHDRAWN (acre-feet)									4,349.8	0.0	0.0	0.0	0.0	**4,349.8**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607152														
SW SW NE 18 1N 2W									391.0					391.0
55-607153														
NW NW SW 19 1N 3W									0					0.0
55-607154														
SE NE NE 27 1N 4W									0					0.0
55-607155														
SE NE NE 27 1N 4W									308.7					308.7
55-607158														
NE NE NE 10 1N 1W									2,747.6					2,747.6
55-607159														
NW SW SW 15 1N 1W									695.9					695.9
55-607160														
NW NW NE 7 1N 1W									0					0.0
55-607162														
SW SE NW 18 1N 1W									134.9					134.9
TOTAL WATER WITHDRAWN (acre-feet)									4,278.1	0.0	0.0	0.0	0.0	**4,278.1**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607163														
NE NE SW 18 1N 1W									1.1					1.1
55-607164														
NE NE SW 7 1N 1W									88.0					88.0
55-607165														
SE NE SE 12 1N 2W									338.6					338.6
55-607166														
SW SW SE 13 1N 2W									771.2					771.2
55-607161														
SW SW SW 1 1N 2W									0					0.0
55-607167														
NW NW SE 14 1N 2W									477.9					477.9
55-607193														
SW SW NW 11 1N 2W									329.6					329.6
55-607168														
SW SW SW 15 1N 2W									92.4					92.4
TOTAL WATER WITHDRAWN (acre-feet)									2,098.7	0.0	0.0	0.0	0.0	**2,098.7**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607192														
NE NE SW 17 1N 2W									0					0.0
55-607169														
NW NW NW 20 1N 2W									372.4					372.4
55-607170														
NE NE SW 17 1N 2W									0					0.0
55-607171														
NW NW NE 19 1N 2W									8.7					8.7
55-607194														
SW NW NE 23 1N 3W									542.3					542.3
55-607195														
NW NW SW 23 1N 3W									438.8					438.8
55-607172														
NW NW NW 34 1N 3W									0					0.0
55-607173														
NW NW SW 27 1N 3W									558.3					558.3
TOTAL WATER WITHDRAWN (acre-feet)									1,920.4	0.0	0.0	0.0	0.0	**1,920.4**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607174														
SW SW SW 28 1N 3W									0					0.0
55-607175														
NW NW SW 28 1N 3W									0					0.0
55-607176														
NE NE NW 32 1N 3W									0					0.0
55-607177														
NW SW NW 31 1N 3W									124.7					124.7
55-607181														
NW SW NE 35 1N 4W									558.6					558.6
55-607182														
SW NW NW 35 1N 4W									0					0.0
55-607183														
NW SE NW 34 1N 4W									506.1					506.1
55-607184														
NW NE NW 34 1N 4W									524.8					524.8
TOTAL WATER WITHDRAWN (acre-feet)									1,714.2	0.0	0.0	0.0	0.0	**1,714.2**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

Note: Pumpage for each well must be shown on the attached well worksheets. Information for up to four wells may be shown on each worksheet.

DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607185														
SE SE NE 32 1N 4W									684.5					684.5
55-607186														
NW NW NW 5 1N 4W									516.4					516.4
55-607187														
NW NW NW 32 1N 4W									0					0.0
55-607188														
SW NW SE 6 1S 4W									25.0					25.0
55-607189														
NE NW NW 6 1N 4W									0					0.0
55-607190														
SE SW NW 31 1N 4W									766.6					766.6
55-607191														
NE NE NE 36 1N 5W									263.9					263.9
55-607248						1/12/2012	143	N						
NW NW SW 4 2N 1E									874.7					874.7
TOTAL WATER WITHDRAWN (acre-feet)									3,131.2	0.0	0.0	0.0	0.0	**3,131.2**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

REPORT OF PUMPING

Owner

ROOSEVELT IRRIGATION DISTRICT

ANNUAL REPORT 2012

RIGHT/PERMIT/BMP Farm Unit NO.

57-002517.0000

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DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607247						1/12/2012	103	N						
NW NW SW 9 2N 1E									2,096.4					2,096.4
55-607246						1/19/2012	66	N						
NE NE SW 8 2N 1E									503.8					503.8
55-607245						1/12/2012	62	N						
SE SE SW 8 2N 1E									1,952.7					1,952.7
55-607244						1/12/2012	95	N						
NE NW SW 17 2N 1E									1,640.7					1,640.7
55-607243						1/12/2012	108	N						
NW NW NW 20 2N 1E									1,431.3					1,431.3
55-607242						1/12/2012	112	N						
NW SW SW 20 2N 1E									1,977.1					1,977.1
55-607241						1/12/2012	116	N						
SW SW SW 20 2N 1E									1,894.8					1,894.8
55-607240						1/19/2012	124	N						
SE SW NE 2 2N 1W									1,918.8					1,918.8
TOTAL WATER WITHDRAWN (acre-feet)									13,415.5	0.0	0.0	0.0	0.0	**13,415.5**

ARIZONA DEPARTMENT OF WATER RESOURCES

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10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607239						1/19/2012	129	N						
SW SW NW 30 2N 1E									1,993.0					1,993.0
55-607238						1/19/2012	123	N						
NE NE SW 30 2N 1E									2,014.7					2,014.7
55-607237						1/17/2012	120	N						
NE NE SE 30 2N 1E									1,612.1					1,612.1
55-607236						1/19/2012	127	N						
NE NE SW 29 2N 1E									1,519.3					1,519.3
55-607235						1/24/2012	123	N						
NW NE SE 32 2N 1E									2,111.7					2,111.7
55-607234						1/19/2012	125	N						
SW SW SW 33 2N 1E									2,352.0					2,352.0
55-607233						1/19/2012	122	N						
SE SE SW 33 2N 1E									2,786.6					2,786.6
55-607232						1/12/2012	136	N						
SW NE NE 33 3N 1E									422.9					422.9
TOTAL WATER WITHDRAWN (acre-feet)									14,812.2	0.0	0.0	0.0	0.0	**14,812.2**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

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10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607231						1/17/2012	133	N						
NW NW SW 34 2N 1E									2,181.6					2,181.6
55-607230						1/19/2012	121	N						
NW NW NW 3 1N 1E									1,176.1					1,176.1
55-607229						1/12/2012	132	N						
NW NW NW 34 2N 1E									2,080.8					2,080.8
55-607228						1/24/2012	118	N						
NW NW NW 2 1N 1E									1,487.2					1,487.2
55-607227						1/19/2012	105	N						
NW SW NE 11 1N 1E									2,240.3					2,240.3
55-607226						1/24/2012	105	N						
NW NW SE 12 1N 1E									3,309.8					3,309.8
55-607225						1/12/2012	98	N						
SW SW SW 7 1N 2E									3,132.1					3,132.1
55-607224						1/24/2012	96	N						
NE SE NW 18 1N 2E									5,957.1					5,957.1
TOTAL WATER WITHDRAWN (acre-feet)									21,565.0	0.0	0.0	0.0	0.0	**21,565.0**

ARIZONA DEPARTMENT OF WATER RESOURCES

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10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607223						1/17/2012	96	N						
NE NE SW 17 1N 2E									2,111.0					2,111.0
55-607222						1/12/2012	95	N						
SE SE NE 17 1N 2E									3,524.9					3,524.9
55-607221						2/17/2012	105	N						
SW NW SW 9 1N 2E									3,766.3					3,766.3
55-607220						2/17/2012	92	N						
SE SE NW 16 1N 2E									3,217.1					3,217.1
55-607219						2/17/2012	97	N						
SW SW NW 15 1N 2E									4,964.4					4,964.4
55-607218						1/12/2012	105	N						
NW SW SW 10 1N 2E									878.0					878.0
55-607217						2/17/2012	95	N						
SW SW NE 15 1N 2E									3,744.9					3,744.9
55-607216						1/30/2012	90	N						
SW NW NW 14 1N 2E									4,005.3					4,005.3
TOTAL WATER WITHDRAWN (acre-feet)									26,211.9	0.0	0.0	0.0	0.0	**26,211.9**

ARIZONA DEPARTMENT OF WATER RESOURCES

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10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607215						1/12/2012	96	N						
SW NW SW 11 1N 2E									1,752.3					1,752.3
55-607214						1/30/2012	85	N						
NW SW SW 14 1N 2E									2,985.3					2,985.3
55-607213						1/30/2012	80	N						
SE SE SW 14 1N 2E									3,633.0					3,633.0
55-607212						1/30/2012	83	N						
NW NW NW 24 1N 2E									4,455.8					4,455.8
55-607211						1/30/2012	90	N						
SE NE NE 14 1N 2E									2,575.7					2,575.7
55-607210						1/17/2012	100	N						
NW SW SW 12 1N 2E									2,147.4					2,147.4
55-607209						1/30/2012	84	N						
SE SE SW 13 1N 2E									4,209.6					4,209.6
55-607196						1/12/2012	84	N						
SE NW NE 13 1N 2E									3,712.8					3,712.8
TOTAL WATER WITHDRAWN (acre-feet)									25,471.7	0.0	0.0	0.0	0.0	**25,471.7**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

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DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-607208						1/12/2012	84	N						
NE SE SE 13 1N 2E									1,427.0					1,427.0
55-607207						1/12/2012	84	N						
SW NW NW 18 1N 3E									2,973.9					2,973.9
55-607206						1/24/2012	108	N						
NW NW NW 12 1N 1E									2,043.3					2,043.3
55-607205						1/24/2012	111	N						
NW NW NW 7 1N 2E									1,419.3					1,419.3
55-607204						1/24/2012	117	N						
NW NW NW 8 1N 2E									1,141.0					1,141.0
55-607203						1/17/2012	119	N						
NE NE NW 8 1N 2E									2,251.2					2,251.2
55-607202						1/17/2012	120	N						
NW NW NW 9 1N 2E									2,055.7					2,055.7
55-607201						1/17/2012	121	N						
NE NE NE 9 1N 2E									2,351.4					2,351.4
TOTAL WATER WITHDRAWN (acre-feet)									15,662.8	0.0	0.0	0.0	0.0	**15,662.8**

ARIZONA DEPARTMENT OF WATER RESOURCES

SCHEDULE A

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ROOSEVELT IRRIGATION DISTRICT

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DWR WELL REGISTRATION NO.						Depth to Static Water Level (Designated Providers Only)			Ground-water Pumped	RECOVERED WATER PUMPED				Total Water Pumped
10 Q	40 Q	160 Q	LOCATION SEC	TWN	RNG	Date #1 / Date #2	Msmt #1 / Msmt #2	Well Running (Y/N)		CAP	SW	EFF/IN	EFF/OUT	
55-220320						1/24/2012	118	N						
NE NE NE 10 1N 2E									1,090.0					1,090.0
55-607199						1/17/2012	107	N						
SW NE NE 11 1N 2E									1,490.2					1,490.2
55-607198						1/17/2012	108	N						
NE NE NE 11 1N 2E									1,036.6					1,036.6
55-607197						1/17/2012	102	N						
NE NE NW 12 1N 2E									2,590.4					2,590.4
TOTAL WATER WITHDRAWN (acre-feet)									6,207.3	0.0	0.0	0.0	0.0	**6,207.3**
TOTAL WATER WITHDRAWN (acre-feet) ALL PAGES									**140,838.9**	**0.0**	**0.0**	**0.0**	**0.0**	**140,838.9**

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607147
Legal Description:	SW NW NW 24 2N 1W
Well #:	1
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070500
Meter #:	M35947
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607156
Legal Description:	NE SW NE 26 2N 1W
Well #:	2
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070510
Meter #:	E86248
Kr:	80
Kh:	3.6
Factor A:	288.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/21/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	82.30
Measurement Date 2:	7/10/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	82.90
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,683
Average Seconds:	82.60
Divider:	405.02
Energy Consumption (kwhr):	599,520
Grndwtr Wthdrwn (AF):	1,480.2

DWR Well Reg. #:	55-607179
Legal Description:	SW SW SW 11 1N 2E
Well #:	3
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070640
Meter #:	A92720
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607148
Legal Description:	NE NE NW 10 1N 2W
Well #:	4
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070650
Meter #:	J74076
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607149
Legal Description:	SE SE NE 9 1N 2W
Well #:	5
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070680
Meter #:	U20832
Kr:	80
Kh:	3.6
Factor A:	288.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/24/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	67.70
Measurement Date 2:	8/14/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	68.60
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,356
Average Seconds:	68.15
Divider:	350.64
Energy Consumption (kwhr):	470,080
Grndwtr Wthdrwn (AF):	1,340.6

DWR Well Reg. #:	55-607150
Legal Description:	NW NW SE 9 1N 2W
Well #:	6
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070660
Meter #:	J41362
Kr:	1
Kh:	43.2
Factor A:	43.2
Inside pipe dia. (in):	8
Measurement Date 1:	5/24/2012
Velocity Head (fps):	6.50
Discharge (gpm):	1,010
# secs for 10 revs:	26.63
Measurement Date 2:	7/17/2012
Velocity Head (fps):	6.25
Discharge (gpm):	987
# secs for 10 revs:	27.00
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	999
Average Seconds:	26.82
Divider:	315.39
Energy Consumption (kwhr):	179,173
Grndwtr Wthdrwn (AF):	568.1

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607146
Legal Description:	NE SE SE 8 1N 2W
Well #:	7
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	-
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607151
Legal Description:	NW NW NW 17 1N 2W
Well #:	8
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070740
Meter #:	U47327
Kr:	80
Kh:	3.6
Factor A:	288.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/24/2012
Velocity Head (fps):	6.25
Discharge (gpm):	1,515
# secs for 10 revs:	107.83
Measurement Date 2:	7/17/2012
Velocity Head (fps):	6.25
Discharge (gpm):	1,515
# secs for 10 revs:	108.37
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,515
Average Seconds:	108.10
Divider:	343.86
Energy Consumption (kwhr):	330,400
Grndwtr Wthdrwn (AF):	960.8

DWR Well Reg. #:	55-607152
Legal Description:	SW SW NE 18 1N 2W
Well #:	9
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070760
Meter #:	F41665
Kr:	1
Kh:	43.2
Factor A:	43.2
Inside pipe dia. (in):	6
Measurement Date 1:	5/24/2012
Velocity Head (fps):	8.50
Discharge (gpm):	741
# secs for 10 revs:	32.83
Measurement Date 2:	7/17/2012
Velocity Head (fps):	8.25
Discharge (gpm):	718
# secs for 10 revs:	33.73
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	729
Average Seconds:	33.28
Divider:	347.95
Energy Consumption (kwhr):	136,045
Grndwtr Wthdrwn (AF):	391.0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607153
Legal Description:	NW NW SW 19 1N 3W
Well #:	11
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070863
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607154
Legal Description:	SE NE NE 27 1N 4W
Well #:	12
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070970
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607155
Legal Description:	SE NE NE 27 1N 4W
Well #:	13
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071070
Meter #:	AJ1789
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/24/2012
Velocity Head (fps):	3.75
Discharge (gpm):	920
# secs for 10 revs:	82.27
Measurement Date 2:	7/17/2012
Velocity Head (fps):	4.00
Discharge (gpm):	987
# secs for 10 revs:	90.40
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	954
Average Seconds:	86.33
Divider:	455.89
Energy Consumption (kwhr):	140,720
Grndwtr Wthdrwn (AF):	308.7

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607158
Legal Description:	NE NE NE 10 1N 1W
Well #:	23
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070530
Meter #:	A00269
Kr:	80
Kh:	3.6
Factor A:	288.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/21/2012
Velocity Head (fps):	8.00
Discharge (gpm):	2,861
# secs for 10 revs:	92.73
Measurement Date 2:	7/10/2012
Velocity Head (fps):	7.75
Discharge (gpm):	2,805
# secs for 10 revs:	92.90
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,833
Average Seconds:	92.82
Divider:	214.12
Energy Consumption (kwhr):	588,320
Grndwtr Wthdrwn (AF):	2,747.6

DWR Well Reg. #:	55-607159
Legal Description:	NW SW SW 15 1N 1W
Well #:	24
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070540
Meter #:	NO4453
Kr:	40
Kh:	3.6
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	7/5/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	114.27
Measurement Date 2:	8/14/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	115.10
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	114.68
Divider:	208.37
Energy Consumption (kwhr):	145,000
Grndwtr Wthdrwn (AF):	695.9

DWR Well Reg. #:	55-607160
Legal Description:	NW NW NE 7 1N 1W
Well #:	25
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070550
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607162
Legal Description:	SW SE NW 18 1N 1W
Well #:	26
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070565
Meter #:	P98628
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	8/31/2012
Velocity Head (fps):	7.00
Discharge (gpm):	1,739
# secs for 10 revs:	133.10
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,739
Average Seconds:	133.10
Divider:	324.32
Energy Consumption (kwhr):	43,760
Grndwtr Wthdrwn (AF):	134.9

DWR Well Reg. #:	55-607163
Legal Description:	NE NE SW 18 1N 1W
Well #:	27
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygage
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070575
Meter #:	J41527
Kr:	40
Kh:	3.6
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	8/9/2011
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	42.40
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	42.40
Divider:	563.59
Energy Consumption (kwhr):	600
Grndwtr Wthdrwn (AF):	1.1

DWR Well Reg. #:	55-607164
Legal Description:	NE NE SW 7 1N 1W
Well #:	28
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070580
Meter #:	J89239
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/19/2012
Velocity Head (fps):	6.00
Discharge (gpm):	1,459
# secs for 10 revs:	103.03
Measurement Date 2:	7/27/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	101.10
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,403
Average Seconds:	102.07
Divider:	262.22
Energy Consumption (kwhr):	23,080
Grndwtr Wthdrwn (AF):	88.0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607165
Legal Description:	SE NE SE 12 1N 2W
Well #:	29
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070600
Meter #:	463466
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	10
Measurement Date 1:	9/8/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	80.93
Measurement Date 2:	10/16/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,234
# secs for 10 revs:	82.70
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,290
Average Seconds:	81.82
Divider:	355.56
Energy Consumption (kwhr):	120,400
Grndwtr Wthdrwn (AF):	338.6

DWR Well Reg. #:	55-607166
Legal Description:	SW SW SE 13 1N 2W
Well #:	30
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070620
Meter #:	F41761
Kr:	80
Kh:	3.6
Factor A:	288.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/29/2012
Velocity Head (fps):	9.00
Discharge (gpm):	2,244
# secs for 10 revs:	93.97
Measurement Date 2:	7/10/2012
Velocity Head (fps):	9.00
Discharge (gpm):	2,244
# secs for 10 revs:	93.53
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,244
Average Seconds:	93.75
Divider:	267.64
Energy Consumption (kwhr):	206,400
Grndwtr Wthdrwn (AF):	771.2

DWR Well Reg. #:	55-607161
Legal Description:	SW SW SW 1 1N 2W
Well #:	31
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070590
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607167
Legal Description:	NW NW SE 14 1N 2W
Well #:	32
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070630
Meter #:	J89240
Kr:	60
Kh:	4.8
Factor A:	288.0
Inside pipe dia. (in):	12
Measurement Date 1:	7/27/2012
Velocity Head (fps):	7.50
Discharge (gpm):	2,693
# secs for 10 revs:	75.70
Measurement Date 2:	8/31/2012
Velocity Head (fps):	7.00
Discharge (gpm):	2,468
# secs for 10 revs:	75.93
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,581
Average Seconds:	75.82
Divider:	287.78
Energy Consumption (kwhr):	137,520
Grndwtr Wthdrwn (AF):	477.9

DWR Well Reg. #:	55-607193
Legal Description:	SW SW NW 11 1N 2W
Well #:	33
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070635
Meter #:	M99736
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/15/2012
Velocity Head (fps):	6.75
Discharge (gpm):	1,627
# secs for 10 revs:	93.93
Measurement Date 2:	7/24/2012
Velocity Head (fps):	6.75
Discharge (gpm):	1,627
# secs for 10 revs:	95.80
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,627
Average Seconds:	94.87
Divider:	486.41
Energy Consumption (kwhr):	160,320
Grndwtr Wthdrwn (AF):	329.6

DWR Well Reg. #:	55-607168
Legal Description:	SW SW SW 15 1N 2W
Well #:	34
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygage
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070690
Meter #:	J89224
Kr:	60
Kh:	4.8
Factor A:	288.0
Inside pipe dia. (in):	10
Measurement Date 1:	4/27/2011
Velocity Head (fps):	8.75
Discharge (gpm):	2,132
# secs for 10 revs:	91.10
Measurement Date 2:	8/22/2011
Velocity Head (fps):	8.75
Discharge (gpm):	2,132
# secs for 10 revs:	90.80
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,132
Average Seconds:	90.95
Divider:	290.40
Energy Consumption (kwhr):	26,820
Grndwtr Wthdrwn (AF):	92.4

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607192
Legal Description:	NE NE SW 17 1N 2W
Well #:	35
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070687
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607169
Legal Description:	NW NW NW 20 1N 2W
Well #:	36
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070710
Meter #:	E23582
Kr:	1
Kh:	57.6
Factor A:	57.6
Inside pipe dia. (in):	10
Measurement Date 1:	6/12/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	38.80
Measurement Date 2:	7/27/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	39.47
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	39.13
Divider:	244.25
Energy Consumption (kwhr):	90,972
Grndwtr Wthdrwn (AF):	372.4

DWR Well Reg. #:	55-607170
Legal Description:	NE NE SW 17 1N 2W
Well #:	37
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070720
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607171
Legal Description:	NW NW NE 19 1N 2W
Well #:	38
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070735
Meter #:	P42205
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	10/17/2012
Velocity Head (fps):	6.00
Discharge (gpm):	1,459
# secs for 10 revs:	121.10
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,459
Average Seconds:	121.10
Divider:	425.01
Energy Consumption (kwhr):	3,680
Grndwtr Wthdrwn (AF):	8.7

DWR Well Reg. #:	55-607194
Legal Description:	SW NW NE 23 1N 3W
Well #:	39
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070775
Meter #:	P98655
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/19/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	92.57
Measurement Date 2:	7/9/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	92.30
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	92.43
Divider:	344.70
Energy Consumption (kwhr):	186,920
Grndwtr Wthdrwn (AF):	542.3

DWR Well Reg. #:	55-607195
Legal Description:	NW NW SW 23 1N 3W
Well #:	40
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070777
Meter #:	H93216
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/23/2012
Velocity Head (fps):	6.00
Discharge (gpm):	1,459
# secs for 10 revs:	124.80
Measurement Date 2:	7/17/2012
Velocity Head (fps):	5.75
Discharge (gpm):	1,403
# secs for 10 revs:	127.90
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,431
Average Seconds:	126.35
Divider:	415.34
Energy Consumption (kwhr):	182,240
Grndwtr Wthdrwn (AF):	438.8

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607172
Legal Description:	NW NW NW 34 1N 3W
Well #:	41
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070790
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607173
Legal Description:	NW NW SW 27 1N 3W
Well #:	42
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070780
Meter #:	P98609
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/12/2012
Velocity Head (fps):	6.25
Discharge (gpm):	1,515
# secs for 10 revs:	155.80
Measurement Date 2:	8/14/2012
Velocity Head (fps):	5.75
Discharge (gpm):	1,403
# secs for 10 revs:	157.60
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,459
Average Seconds:	156.70
Divider:	328.45
Energy Consumption (kwhr):	183,360
Grndwtr Wthdrwn (AF):	558.3

DWR Well Reg. #:	55-607174
Legal Description:	SW SW SW 28 1N 3W
Well #:	43
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	-
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607175
Legal Description:	NW NW SW 28 1N 3W
Well #:	44
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070850
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607176
Legal Description:	NE NE NW 32 1N 3W
Well #:	45
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070830
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607177
Legal Description:	NW SW NW 31 1N 3W
Well #:	46
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070880
Meter #:	H93214
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/29/2012
Velocity Head (fps):	6.00
Discharge (gpm):	1,459
# secs for 10 revs:	79.10
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,459
Average Seconds:	79.10
Divider:	325.34
Energy Consumption (kwhr):	40,560
Grndwtr Wthdrwn (AF):	124.7

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607181
Legal Description:	NW SW NE 35 1N 4W
Well #:	49
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070960
Meter #:	E23655
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/29/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	101.87
Measurement Date 2:	8/31/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	102.20
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	102.03
Divider:	624.53
Energy Consumption (kwhr):	348,880
Grndwtr Wthdrwn (AF):	558.6

DWR Well Reg. #:	55-607182
Legal Description:	SW NW NW 35 1N 4W
Well #:	50
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20070980
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607183
Legal Description:	NW SE NW 34 1N 4W
Well #:	51
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071030
Meter #:	CE8478
Kr:	60
Kh:	4.8
Factor A:	288.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/12/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	172.37
Measurement Date 2:	7/20/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,234
# secs for 10 revs:	171.00
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,290
Average Seconds:	171.68
Divider:	254.17
Energy Consumption (kwhr):	128,640
Grndwtr Wthdrwn (AF):	506.1

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607184
Legal Description:	NW NE NW 34 1N 4W
Well #:	52
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071040
Meter #:	297387
Kr:	1
Kh:	57.6
Factor A:	57.6
Inside pipe dia. (in):	8
Measurement Date 1:	6/12/2012
Velocity Head (fps):	7.75
Discharge (gpm):	1,234
# secs for 10 revs:	46.00
Measurement Date 2:	7/20/2012
Velocity Head (fps):	7.75
Discharge (gpm):	1,234
# secs for 10 revs:	45.90
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,234
Average Seconds:	45.95
Divider:	198.56
Energy Consumption (kwhr):	104,205
Grndwtr Wthdrwn (AF):	524.8

DWR Well Reg. #:	55-607185
Legal Description:	SE SE NE 32 1N 4W
Well #:	53
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071020
Meter #:	J89125
Kr:	40
Kh:	3.6
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/19/2012
Velocity Head (fps):	6.50
Discharge (gpm):	1,627
# secs for 10 revs:	54.10
Measurement Date 2:	7/20/2012
Velocity Head (fps):	6.25
Discharge (gpm):	1,571
# secs for 10 revs:	54.13
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,599
Average Seconds:	54.12
Divider:	325.36
Energy Consumption (kwhr):	222,720
Grndwtr Wthdrwn (AF):	684.5

DWR Well Reg. #:	55-607186
Legal Description:	NW NW NW 5 1N 4W
Well #:	54
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071073
Meter #:	AC4083
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/22/2012
Velocity Head (fps):	4.50
Discharge (gpm):	1,571
# secs for 10 revs:	80.60
Measurement Date 2:	10/15/2012
Velocity Head (fps):	3.50
Discharge (gpm):	1,346
# secs for 10 revs:	79.50
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,459
Average Seconds:	80.05
Divider:	642.95
Energy Consumption (kwhr):	332,000
Grndwtr Wthdrwn (AF):	516.4

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607187
Legal Description:	NW NW NW 32 1N 4W
Well #:	55
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	-
Meter #:	-
Kr:	0
Kh:	0.0
Factor A:	0.0
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

DWR Well Reg. #:	55-607188
Legal Description:	SW NW SE 6 1S 4W
Well #:	56
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygage
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071065
Meter #:	P23226
Kr:	40
Kh:	3.6
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/29/2011
Velocity Head (fps):	4.00
Discharge (gpm):	1,403
# secs for 10 revs:	58.13
Measurement Date 2:	8/23/2011
Velocity Head (fps):	4.00
Discharge (gpm):	1,403
# secs for 10 revs:	59.60
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,403
Average Seconds:	58.87
Divider:	340.99
Energy Consumption (kwhr):	8,520
Grndwtr Wthdrwn (AF):	25.0

DWR Well Reg. #:	55-607189
Legal Description:	NE NW NW 6 1N 4W
Well #:	57
Measuring Device:	-
Make/Model:	-
Size:	-
Installation/Overhaul date:	-
Power Co:	APS
Account #:	-
Meter #:	-
Kr:	-
Kh:	-
Factor A:	-
Inside pipe dia. (in):	-
Measurement Date 1:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	-
Average Seconds:	-
Divider:	-
Energy Consumption (kwhr):	0
Grndwtr Wthdrwn (AF):	0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607190
Legal Description:	SE SW NW 31 1N 4W
Well #:	58
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	20071085
Meter #:	H93861
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/19/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	168.57
Measurement Date 2:	7/9/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,234
# secs for 10 revs:	169.03
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,290
Average Seconds:	168.80
Divider:	344.68
Energy Consumption (kwhr):	264,240
Grndwtr Wthdrwn (AF):	766.6

DWR Well Reg. #:	55-607191
Legal Description:	NE NE NE 36 1N 5W
Well #:	59
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	APS
Account #:	200701080
Meter #:	H93241
Kr:	80
Kh:	4.8
Factor A:	384.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/22/2012
Velocity Head (fps):	3.75
Discharge (gpm):	931
# secs for 10 revs:	151.23
Measurement Date 2:	9/21/2012
Velocity Head (fps):	3.50
Discharge (gpm):	853
# secs for 10 revs:	152.40
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	892
Average Seconds:	151.82
Divider:	554.37
Energy Consumption (kwhr):	146,320
Grndwtr Wthdrwn (AF):	263.9

DWR Well Reg. #:	55-607248
Legal Description:	NW NW SW 4 2N 1E
Well #:	62
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	907401002
Meter #:	2302423
Kr:	1
Kh:	21.6
Factor A:	21.6
Inside pipe dia. (in):	10
Measurement Date 1:	7/30/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	11.35
Measurement Date 2:	9/4/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,178
# secs for 10 revs:	11.55
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,178
Average Seconds:	11.45
Divider:	313.05
Energy Consumption (kwhr):	273,828
Grndwtr Wthdrwn (AF):	874.7

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607247
Legal Description:	NW NW SW 9 2N 1E
Well #:	63
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	957501003
Meter #:	361405
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	7.25
Discharge (gpm):	1,795
# secs for 10 revs:	46.53
Measurement Date 2:	7/30/2012
Velocity Head (fps):	7.50
Discharge (gpm):	1,851
# secs for 10 revs:	46.50
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,823
Average Seconds:	46.52
Divider:	331.94
Energy Consumption (kwhr):	695,858
Grndwtr Wthdrwn (AF):	2,096.4

DWR Well Reg. #:	55-607246
Legal Description:	NE NE SW 8 2N 1E
Well #:	64
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	807401002
Meter #:	394809
Kr:	30
Kh:	1.2
Factor A:	36.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	2.50
Discharge (gpm):	617
# secs for 10 revs:	17.37
Measurement Date 2:	7/30/2012
Velocity Head (fps):	2.50
Discharge (gpm):	617
# secs for 10 revs:	16.90
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	617
Average Seconds:	17.13
Divider:	665.66
Energy Consumption (kwhr):	335,353
Grndwtr Wthdrwn (AF):	503.8

DWR Well Reg. #:	55-607245
Legal Description:	SE SE SW 8 2N 1E
Well #:	65
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	067501003
Meter #:	370209
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	8.50
Discharge (gpm):	2,076
# secs for 10 revs:	46.87
Measurement Date 2:	7/30/2012
Velocity Head (fps):	8.00
Discharge (gpm):	1,964
# secs for 10 revs:	46.63
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,020
Average Seconds:	46.75
Divider:	298.17
Energy Consumption (kwhr):	582,235
Grndwtr Wthdrwn (AF):	1,952.7

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607244
Legal Description:	NE NW SW 17 2N 1E
Well #:	66
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	857501003
Meter #:	394605
Kr:	1
Kh:	21.6
Factor A:	21.6
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	6.75
Discharge (gpm):	1,683
# secs for 10 revs:	10.30
Measurement Date 2:	7/30/2012
Velocity Head (fps):	7.25
Discharge (gpm):	1,795
# secs for 10 revs:	10.45
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,739
Average Seconds:	10.38
Divider:	234.04
Energy Consumption (kwhr):	383,979
Grndwtr Wthdrwn (AF):	1,640.7

DWR Well Reg. #:	55-607243
Legal Description:	NW NW NW 20 2N 1E
Well #:	67
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	707401002
Meter #:	390533
Kr:	30
Kh:	1.2
Factor A:	36.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	6.25
Discharge (gpm):	1,571
# secs for 10 revs:	16.87
Measurement Date 2:	7/30/2012
Velocity Head (fps):	6.50
Discharge (gpm):	1,627
# secs for 10 revs:	17.27
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,599
Average Seconds:	17.07
Divider:	257.90
Energy Consumption (kwhr):	369,123
Grndwtr Wthdrwn (AF):	1,431.3

DWR Well Reg. #:	55-607242
Legal Description:	NW SW SW 20 2N 1E
Well #:	68
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	757501003
Meter #:	356528
Kr:	30
Kh:	1.2
Factor A:	36.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	7.25
Discharge (gpm):	1,795
# secs for 10 revs:	12.55
Measurement Date 2:	7/30/2012
Velocity Head (fps):	7.50
Discharge (gpm):	1,851
# secs for 10 revs:	12.70
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,823
Average Seconds:	12.63
Divider:	305.75
Energy Consumption (kwhr):	604,515
Grndwtr Wthdrwn (AF):	1,977.1

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607241
Legal Description:	SW SW SW 20 2N 1E
Well #:	69
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	607401002
Meter #:	379124
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/22/2012
Velocity Head (fps):	7.25
Discharge (gpm):	1,795
# secs for 10 revs:	27.00
Measurement Date 2:	7/30/2012
Velocity Head (fps):	7.50
Discharge (gpm):	1,851
# secs for 10 revs:	27.10
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,823
Average Seconds:	27.05
Divider:	285.41
Energy Consumption (kwhr):	540,790
Grndwtr Wthdrwn (AF):	1,894.8

DWR Well Reg. #:	55-607240
Legal Description:	SE SW NE 2 2N 1W
Well #:	70
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	696401002
Meter #:	375686
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/22/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	39.37
Measurement Date 2:	9/4/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	39.47
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,683
Average Seconds:	39.42
Divider:	424.37
Energy Consumption (kwhr):	814,280
Grndwtr Wthdrwn (AF):	1,918.8

DWR Well Reg. #:	55-607239
Legal Description:	SW SW NW 30 2N 1E
Well #:	71
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	657501003
Meter #:	375725
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/22/2012
Velocity Head (fps):	7.00
Discharge (gpm):	1,739
# secs for 10 revs:	48.20
Measurement Date 2:	9/4/2012
Velocity Head (fps):	7.00
Discharge (gpm):	1,739
# secs for 10 revs:	49.20
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,739
Average Seconds:	48.70
Divider:	332.40
Energy Consumption (kwhr):	662,450
Grndwtr Wthdrwn (AF):	1,993.0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607238
Legal Description:	NE NE SW 30 2N 1E
Well #:	72
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	507401002
Meter #:	376678
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/22/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,795
# secs for 10 revs:	49.90
Measurement Date 2:	9/4/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,795
# secs for 10 revs:	48.80
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,795
Average Seconds:	49.35
Divider:	317.77
Energy Consumption (kwhr):	640,191
Grndwtr Wthdrwn (AF):	2,014.7

DWR Well Reg. #:	55-607237
Legal Description:	NE NE SE 30 2N 1E
Well #:	73
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	557501003
Meter #:	2300064
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/22/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	24.80
Measurement Date 2:	9/4/2012
Velocity Head (fps):	4.50
Discharge (gpm):	1,627
# secs for 10 revs:	25.43
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,655
Average Seconds:	25.12
Divider:	338.64
Energy Consumption (kwhr):	545,928
Grndwtr Wthdrwn (AF):	1,612.1

DWR Well Reg. #:	55-607236
Legal Description:	NE NE SW 29 2N 1E
Well #:	74
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	407401002
Meter #:	359159
Kr:	40
Kh:	1.2
Factor A:	48.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/22/2012
Velocity Head (fps):	6.50
Discharge (gpm):	1,571
# secs for 10 revs:	16.43
Measurement Date 2:	9/4/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	15.70
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,459
Average Seconds:	16.07
Divider:	400.43
Energy Consumption (kwhr):	608,357
Grndwtr Wthdrwn (AF):	1,519.3

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607235
Legal Description:	NW NE SE 32 2N 1E
Well #:	75
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	457501003
Meter #:	399550
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/22/2012
Velocity Head (fps):	7.00
Discharge (gpm):	1,739
# secs for 10 revs:	24.27
Measurement Date 2:	9/21/2012
Velocity Head (fps):	7.00
Discharge (gpm):	1,739
# secs for 10 revs:	24.37
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,739
Average Seconds:	24.32
Divider:	332.85
Energy Consumption (kwhr):	702,870
Grndwtr Wthdrwn (AF):	2,111.7

DWR Well Reg. #:	55-607234
Legal Description:	SW SW SW 33 2N 1E
Well #:	76
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	307401002
Meter #:	386275
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/8/2012
Velocity Head (fps):	9.25
Discharge (gpm):	3,310
# secs for 10 revs:	23.93
Measurement Date 2:	12/11/2012
Velocity Head (fps):	9.00
Discharge (gpm):	3,198
# secs for 10 revs:	24.17
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,254
Average Seconds:	24.05
Divider:	359.75
Energy Consumption (kwhr):	846,147
Grndwtr Wthdrwn (AF):	2,352.0

DWR Well Reg. #:	55-607233
Legal Description:	SE SE SW 33 2N 1E
Well #:	77
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	357501003
Meter #:	376034
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/8/2012
Velocity Head (fps):	10.00
Discharge (gpm):	2,468
# secs for 10 revs:	36.07
Measurement Date 2:	9/21/2012
Velocity Head (fps):	10.00
Discharge (gpm):	2,468
# secs for 10 revs:	36.17
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,468
Average Seconds:	36.12
Divider:	315.78
Energy Consumption (kwhr):	879,967
Grndwtr Wthdrwn (AF):	2,786.6

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607232
Legal Description:	SW NE NE 33 3N 1E
Well #:	78
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygage
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	207401002
Meter #:	383319
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/13/2011
Velocity Head (fps):	5.25
Discharge (gpm):	1,290
# secs for 10 revs:	75.00
Measurement Date 2:	7/22/2011
Velocity Head (fps):	5.25
Discharge (gpm):	1,290
# secs for 10 revs:	74.17
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,290
Average Seconds:	74.58
Divider:	292.53
Energy Consumption (kwhr):	123,716
Grndwtr Wthdrwn (AF):	422.9

DWR Well Reg. #:	55-607231
Legal Description:	NW NW SW 34 2N 1E
Well #:	79
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	107401002
Meter #:	394800
Kr:	60
Kh:	1.2
Factor A:	72.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/8/2012
Velocity Head (fps):	6.75
Discharge (gpm):	2,412
# secs for 10 revs:	18.20
Measurement Date 2:	9/21/2012
Velocity Head (fps):	6.75
Discharge (gpm):	2,412
# secs for 10 revs:	18.33
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,412
Average Seconds:	18.27
Divider:	319.44
Energy Consumption (kwhr):	696,893
Grndwtr Wthdrwn (AF):	2,181.6

DWR Well Reg. #:	55-607230
Legal Description:	NW NW NW 3 1N 1E
Well #:	80
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	157501003
Meter #:	359154
Kr:	60
Kh:	1.2
Factor A:	72.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/1/2012
Velocity Head (fps):	8.00
Discharge (gpm):	1,964
# secs for 10 revs:	19.57
Measurement Date 2:	9/21/2012
Velocity Head (fps):	2.00
Discharge (gpm):	505
# secs for 10 revs:	19.80
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,234
Average Seconds:	19.68
Divider:	579.42
Energy Consumption (kwhr):	681,471
Grndwtr Wthdrwn (AF):	1,176.1

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607229
Legal Description:	NW NW NW 34 2N 1E
Well #:	81
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	257501003
Meter #:	2315513
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/8/2012
Velocity Head (fps):	6.75
Discharge (gpm):	2,412
# secs for 10 revs:	24.23
Measurement Date 2:	9/21/2012
Velocity Head (fps):	6.25
Discharge (gpm):	2,244
# secs for 10 revs:	24.50
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,328
Average Seconds:	24.37
Divider:	248.13
Energy Consumption (kwhr):	516,302
Grndwtr Wthdrwn (AF):	2,080.8

DWR Well Reg. #:	55-607228
Legal Description:	NW NW NW 2 1N 1E
Well #:	82
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	014151006
Meter #:	391321
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	12
Measurement Date 1:	1/19/2012
Velocity Head (fps):	4.00
Discharge (gpm):	1,403
# secs for 10 revs:	100.30
Measurement Date 2:	6/1/2012
Velocity Head (fps):	4.50
Discharge (gpm):	1,571
# secs for 10 revs:	101.43
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,487
Average Seconds:	100.87
Divider:	281.61
Energy Consumption (kwhr):	418,814
Grndwtr Wthdrwn (AF):	1,487.2

DWR Well Reg. #:	55-607227
Legal Description:	NW SW NE 11 1N 1E
Well #:	83
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	057501003
Meter #:	394756
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/1/2012
Velocity Head (fps):	6.00
Discharge (gpm):	2,132
# secs for 10 revs:	33.47
Measurement Date 2:	12/11/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,300
# secs for 10 revs:	34.30
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,216
Average Seconds:	33.88
Divider:	374.94
Energy Consumption (kwhr):	839,972
Grndwtr Wthdrwn (AF):	2,240.3

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607226
Legal Description:	NW NW SE 12 1N 1E
Well #:	84
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	247501003
Meter #:	375592
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/1/2012
Velocity Head (fps):	6.75
Discharge (gpm):	2,412
# secs for 10 revs:	57.40
Measurement Date 2:	9/21/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	57.40
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,384
Average Seconds:	57.40
Divider:	205.71
Energy Consumption (kwhr):	680,834
Grndwtr Wthdrwn (AF):	3,309.8

DWR Well Reg. #:	55-607225
Legal Description:	SW SW SW 7 1N 2E
Well #:	85
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	196401002
Meter #:	375729
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/5/2012
Velocity Head (fps):	7.25
Discharge (gpm):	2,581
# secs for 10 revs:	43.10
Measurement Date 2:	8/24/2012
Velocity Head (fps):	6.25
Discharge (gpm):	2,244
# secs for 10 revs:	42.97
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,412
Average Seconds:	43.03
Divider:	271.19
Energy Consumption (kwhr):	849,390
Grndwtr Wthdrwn (AF):	3,132.1

DWR Well Reg. #:	55-607224
Legal Description:	NE SE NW 18 1N 2E
Well #:	86
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	147501003
Meter #:	384377
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	13
Measurement Date 1:	5/5/2012
Velocity Head (fps):	10.25
Discharge (gpm):	4,376
# secs for 10 revs:	28.10
Measurement Date 2:	8/24/2012
Velocity Head (fps):	9.50
Discharge (gpm):	3,983
# secs for 10 revs:	27.73
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	4,179
Average Seconds:	27.92
Divider:	241.28
Energy Consumption (kwhr):	1,437,347
Grndwtr Wthdrwn (AF):	5,957.1

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607223
Legal Description:	NE NE SW 17 1N 2E
Well #:	87
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	096401002
Meter #:	2304654
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/5/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,964
# secs for 10 revs:	36.27
Measurement Date 2:	9/27/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,964
# secs for 10 revs:	36.77
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,964
Average Seconds:	36.52
Divider:	392.63
Energy Consumption (kwhr):	828,861
Grndwtr Wthdrwn (AF):	2,111.0

DWR Well Reg. #:	55-607222
Legal Description:	SE SE NE 17 1N 2E
Well #:	88
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	047501003
Meter #:	369600
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/5/2012
Velocity Head (fps):	9.00
Discharge (gpm):	3,198
# secs for 10 revs:	22.80
Measurement Date 2:	8/24/2012
Velocity Head (fps):	8.50
Discharge (gpm):	3,029
# secs for 10 revs:	22.50
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,114
Average Seconds:	22.65
Divider:	399.20
Energy Consumption (kwhr):	1,407,118
Grndwtr Wthdrwn (AF):	3,524.9

DWR Well Reg. #:	55-607221
Legal Description:	SW NW SW 9 1N 2E
Well #:	89
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	496401002
Meter #:	394969
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	14
Measurement Date 1:	6/26/2012
Velocity Head (fps):	7.75
Discharge (gpm):	3,759
# secs for 10 revs:	31.77
Measurement Date 2:	10/3/2012
Velocity Head (fps):	7.25
Discharge (gpm):	3,478
# secs for 10 revs:	32.10
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,618
Average Seconds:	31.93
Divider:	243.64
Energy Consumption (kwhr):	917,599
Grndwtr Wthdrwn (AF):	3,766.3

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607220
Legal Description:	SE SE NW 16 1N 2E
Well #:	90
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	986401002
Meter #:	393559
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/5/2012
Velocity Head (fps):	7.50
Discharge (gpm):	2,693
# secs for 10 revs:	41.67
Measurement Date 2:	8/24/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,300
# secs for 10 revs:	41.87
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,496
Average Seconds:	41.77
Divider:	270.00
Energy Consumption (kwhr):	868,604
Grndwtr Wthdrwn (AF):	3,217.1

DWR Well Reg. #:	55-607219
Legal Description:	SW SW NW 15 1N 2E
Well #:	91
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	937501003
Meter #:	349087
Kr:	80
Kh:	1.2
Factor A:	96.0
Inside pipe dia. (in):	15
Measurement Date 1:	5/5/2012
Velocity Head (fps):	7.00
Discharge (gpm):	3,927
# secs for 10 revs:	22.80
Measurement Date 2:	8/24/2012
Velocity Head (fps):	6.00
Discharge (gpm):	3,366
# secs for 10 revs:	22.50
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,647
Average Seconds:	22.65
Divider:	227.23
Energy Consumption (kwhr):	1,128,071
Grndwtr Wthdrwn (AF):	4,964.4

DWR Well Reg. #:	55-607218
Legal Description:	NW SW SW 10 1N 2E
Well #:	92
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	647501003
Meter #:	398253
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	14
Measurement Date 1:	6/26/2012
Velocity Head (fps):	2.50
Discharge (gpm):	1,201
# secs for 10 revs:	22.70
Measurement Date 2:	10/3/2012
Velocity Head (fps):	2.25
Discharge (gpm):	1,100
# secs for 10 revs:	22.50
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,150
Average Seconds:	22.60
Divider:	541.57
Energy Consumption (kwhr):	475,496
Grndwtr Wthdrwn (AF):	878.0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607217
Legal Description:	SW SW NE 15 1N 2E
Well #:	93
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	886401002
Meter #:	2307602
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/19/2012
Velocity Head (fps):	8.25
Discharge (gpm):	4,600
# secs for 10 revs:	22.07
Measurement Date 2:	8/24/2012
Velocity Head (fps):	7.25
Discharge (gpm):	4,039
# secs for 10 revs:	22.60
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	4,320
Average Seconds:	22.33
Divider:	437.72
Energy Consumption (kwhr):	1,639,210
Grndwtr Wthdrwn (AF):	3,744.9

DWR Well Reg. #:	55-607216
Legal Description:	SW NW NW 14 1N 2E
Well #:	94
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	837501003
Meter #:	2305791
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	4/19/2012
Velocity Head (fps):	10.50
Discharge (gpm):	3,703
# secs for 10 revs:	20.83
Measurement Date 2:	8/24/2012
Velocity Head (fps):	10.00
Discharge (gpm):	3,534
# secs for 10 revs:	20.80
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,618
Average Seconds:	20.82
Divider:	373.75
Energy Consumption (kwhr):	1,496,977
Grndwtr Wthdrwn (AF):	4,005.3

DWR Well Reg. #:	55-607215
Legal Description:	SW NW SW 11 1N 2E
Well #:	95
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	747501003
Meter #:	360258
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	14
Measurement Date 1:	6/26/2012
Velocity Head (fps):	3.50
Discharge (gpm):	1,683
# secs for 10 revs:	50.70
Measurement Date 2:	10/3/2012
Velocity Head (fps):	3.00
Discharge (gpm):	1,459
# secs for 10 revs:	52.00
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,571
Average Seconds:	51.35
Divider:	349.02
Energy Consumption (kwhr):	611,592
Grndwtr Wthdrwn (AF):	1,752.3

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607214
Legal Description:	NW SW SW 14 1N 2E
Well #:	96
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	786401002
Meter #:	360167
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	13
Measurement Date 1:	4/19/2012
Velocity Head (fps):	6.00
Discharge (gpm):	2,525
# secs for 10 revs:	33.17
Measurement Date 2:	7/18/2012
Velocity Head (fps):	5.50
Discharge (gpm):	2,300
# secs for 10 revs:	33.43
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,412
Average Seconds:	33.30
Divider:	350.46
Energy Consumption (kwhr):	1,046,213
Grndwtr Wthdrwn (AF):	2,985.3

DWR Well Reg. #:	55-607213
Legal Description:	SE SE SW 14 1N 2E
Well #:	97
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	737501003
Meter #:	387616
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/19/2012
Velocity Head (fps):	6.00
Discharge (gpm):	3,366
# secs for 10 revs:	35.00
Measurement Date 2:	7/18/2012
Velocity Head (fps):	5.50
Discharge (gpm):	3,086
# secs for 10 revs:	35.73
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,226
Average Seconds:	35.37
Divider:	246.77
Energy Consumption (kwhr):	896,493
Grndwtr Wthdrwn (AF):	3,633.0

DWR Well Reg. #:	55-607212
Legal Description:	NW NW NW 24 1N 2E
Well #:	98
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	686401002
Meter #:	385328
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/17/2012
Velocity Head (fps):	7.75
Discharge (gpm):	4,320
# secs for 10 revs:	35.53
Measurement Date 2:	7/18/2012
Velocity Head (fps):	6.75
Discharge (gpm):	3,759
# secs for 10 revs:	37.50
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	4,039
Average Seconds:	36.52
Divider:	286.30
Energy Consumption (kwhr):	1,275,665
Grndwtr Wthdrwn (AF):	4,455.8

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607211
Legal Description:	SE NE NE 14 1N 2E
Well #:	99
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	947501003
Meter #:	390905
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	4/17/2012
Velocity Head (fps):	7.25
Discharge (gpm):	2,581
# secs for 10 revs:	47.80
Measurement Date 2:	8/24/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	47.30
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,468
Average Seconds:	47.55
Divider:	239.85
Energy Consumption (kwhr):	617,779
Grndwtr Wthdrwn (AF):	2,575.7

DWR Well Reg. #:	55-607210
Legal Description:	NW SW SW 12 1N 2E
Well #:	100
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	596401002
Meter #:	2316171
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	4/17/2012
Velocity Head (fps):	6.75
Discharge (gpm):	2,356
# secs for 10 revs:	32.83
Measurement Date 2:	8/24/2012
Velocity Head (fps):	6.25
Discharge (gpm):	2,240
# secs for 10 revs:	31.97
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,298
Average Seconds:	32.40
Divider:	378.09
Energy Consumption (kwhr):	811,904
Grndwtr Wthdrwn (AF):	2,147.4

DWR Well Reg. #:	55-607209
Legal Description:	SE SE SW 13 1N 2E
Well #:	101
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	637501003
Meter #:	382889
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/17/2012
Velocity Head (fps):	7.75
Discharge (gpm):	4,264
# secs for 10 revs:	36.63
Measurement Date 2:	7/18/2012
Velocity Head (fps):	6.75
Discharge (gpm):	3,759
# secs for 10 revs:	39.10
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	4,011
Average Seconds:	37.87
Divider:	278.02
Energy Consumption (kwhr):	1,170,338
Grndwtr Wthdrwn (AF):	4,209.6

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607196
Legal Description:	SE NW NE 13 1N 2E
Well #:	102
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	537501003
Meter #:	391233
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/17/2012
Velocity Head (fps):	8.00
Discharge (gpm):	4,488
# secs for 10 revs:	33.90
Measurement Date 2:	8/24/2012
Velocity Head (fps):	7.00
Discharge (gpm):	3,927
# secs for 10 revs:	34.67
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	4,208
Average Seconds:	34.28
Divider:	292.75
Energy Consumption (kwhr):	1,086,907
Grndwtr Wthdrwn (AF):	3,712.8

DWR Well Reg. #:	55-607208
Legal Description:	NE SE SE 13 1N 2E
Well #:	103
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	584601002
Meter #:	360636
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/8/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,300
# secs for 10 revs:	60.10
Measurement Date 2:	7/18/2012
Velocity Head (fps):	6.00
Discharge (gpm):	2,132
# secs for 10 revs:	62.60
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,216
Average Seconds:	61.35
Divider:	207.08
Energy Consumption (kwhr):	295,511
Grndwtr Wthdrwn (AF):	1,427.0

DWR Well Reg. #:	55-607207
Legal Description:	SW NW NW 18 1N 3E
Well #:	104
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	017401002
Meter #:	2307627
Kr:	120
Kh:	1.8
Factor A:	216.0
Inside pipe dia. (in):	15
Measurement Date 1:	4/17/2012
Velocity Head (fps):	7.00
Discharge (gpm):	3,927
# secs for 10 revs:	51.23
Measurement Date 2:	7/18/2012
Velocity Head (fps):	5.75
Discharge (gpm):	3,198
# secs for 10 revs:	55.20
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	3,562
Average Seconds:	53.22
Divider:	222.75
Energy Consumption (kwhr):	662,435
Grndwtr Wthdrwn (AF):	2,973.9

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607206
Legal Description:	NW NW NW 12 1N 1E
Well #:	105
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	294601002
Meter #:	2302748
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/14/2012
Velocity Head (fps):	7.50
Discharge (gpm):	1,851
# secs for 10 revs:	45.40
Measurement Date 2:	8/3/2012
Velocity Head (fps):	7.50
Discharge (gpm):	1,851
# secs for 10 revs:	46.57
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,851
Average Seconds:	45.98
Divider:	330.70
Energy Consumption (kwhr):	675,715
Grndwtr Wthdrwn (AF):	2,043.3

DWR Well Reg. #:	55-607205
Legal Description:	NW NW NW 7 1N 2E
Well #:	106
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	347501003
Meter #:	358634
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/14/2012
Velocity Head (fps):	5.50
Discharge (gpm):	1,346
# secs for 10 revs:	77.60
Measurement Date 2:	8/3/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,234
# secs for 10 revs:	78.63
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,290
Average Seconds:	78.12
Divider:	279.30
Energy Consumption (kwhr):	396,406
Grndwtr Wthdrwn (AF):	1,419.3

DWR Well Reg. #:	55-607204
Legal Description:	NW NW NW 8 1N 2E
Well #:	107
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	396401002
Meter #:	2315511
Kr:	40
Kh:	1.8
Factor A:	72.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/14/2012
Velocity Head (fps):	5.25
Discharge (gpm):	1,290
# secs for 10 revs:	36.53
Measurement Date 2:	8/3/2012
Velocity Head (fps):	3.75
Discharge (gpm):	920
# secs for 10 revs:	37.60
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,105
Average Seconds:	37.07
Divider:	343.61
Energy Consumption (kwhr):	392,063
Grndwtr Wthdrwn (AF):	1,141.0

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607203
Legal Description:	NE NE NW 8 1N 2E
Well #:	108
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	447501003
Meter #:	370094
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	5/14/2012
Velocity Head (fps):	8.25
Discharge (gpm):	2,020
# secs for 10 revs:	37.43
Measurement Date 2:	8/3/2012
Velocity Head (fps):	8.25
Discharge (gpm):	2,020
# secs for 10 revs:	37.60
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,020
Average Seconds:	37.52
Divider:	371.57
Energy Consumption (kwhr):	836,485
Grndwtr Wthdrwn (AF):	2,251.2

DWR Well Reg. #:	55-607202
Legal Description:	NW NW NW 9 1N 2E
Well #:	109
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	547501003
Meter #:	357195
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	8/3/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	45.83
Measurement Date 2:	9/27/2012
Velocity Head (fps):	6.50
Discharge (gpm):	2,356
# secs for 10 revs:	45.40
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,356
Average Seconds:	45.62
Divider:	261.92
Energy Consumption (kwhr):	538,440
Grndwtr Wthdrwn (AF):	2,055.7

DWR Well Reg. #:	55-607201
Legal Description:	NE NE NE 9 1N 2E
Well #:	110
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	596401002
Meter #:	348839
Kr:	80
Kh:	1.2
Factor A:	96.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/14/2012
Velocity Head (fps):	7.75
Discharge (gpm):	2,749
# secs for 10 revs:	23.13
Measurement Date 2:	9/27/2012
Velocity Head (fps):	7.75
Discharge (gpm):	2,749
# secs for 10 revs:	23.27
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,749
Average Seconds:	23.20
Divider:	294.29
Energy Consumption (kwhr):	691,972
Grndwtr Wthdrwn (AF):	2,351.4

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-220320
Legal Description:	NE NE NE 10 1N 2E
Well #:	111
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	621884005
Meter #:	2305831
Kr:	40
Kh:	4.8
Factor A:	192.0
Inside pipe dia. (in):	12
Measurement Date 1:	6/20/2012
Velocity Head (fps):	7.50
Discharge (gpm):	2,693
# secs for 10 revs:	37.17
Measurement Date 2:	9/27/2012
Velocity Head (fps):	8.75
Discharge (gpm):	3,086
# secs for 10 revs:	38.03
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,889
Average Seconds:	37.60
Divider:	345.53
Energy Consumption (kwhr):	376,646
Grndwtr Wthdrwn (AF):	1,090.0

DWR Well Reg. #:	55-607199
Legal Description:	SW NE NE 11 1N 2E
Well #:	112
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	796401002
Meter #:	350834
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	12
Measurement Date 1:	5/14/2012
Velocity Head (fps):	4.75
Discharge (gpm):	1,683
# secs for 10 revs:	63.23
Measurement Date 2:	9/27/2012
Velocity Head (fps):	4.00
Discharge (gpm):	1,403
# secs for 10 revs:	64.10
Measurement Date 2:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,543
Average Seconds:	63.67
Divider:	286.62
Energy Consumption (kwhr):	427,121
Grndwtr Wthdrwn (AF):	1,490.2

DWR Well Reg. #:	55-607198
Legal Description:	NE NE NE 11 1N 2E
Well #:	113
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	847501003
Meter #:	375732
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	10
Measurement Date 1:	6/20/2012
Velocity Head (fps):	5.00
Discharge (gpm):	1,234
# secs for 10 revs:	44.00
Measurement Date 2:	9/27/2012
Velocity Head (fps):	3.50
Discharge (gpm):	853
# secs for 10 revs:	48.43
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	1,043
Average Seconds:	46.22
Divider:	583.76
Energy Consumption (kwhr):	605,118
Grndwtr Wthdrwn (AF):	1,036.6

WORKSHEET W-2

Groundwater Right # 57-002517.0000

DWR Well Reg. #:	55-607197
Legal Description:	NE NE NW 12 1N 2E
Well #:	114
Measuring Device:	Manometer
Make/Model:	C.W. Cox
Size:	Piro-Swivel Velocitygauge
Installation/Overhaul date:	-
Power Co:	SRP
Account #:	996401002
Meter #:	387581
Kr:	80
Kh:	1.8
Factor A:	144.0
Inside pipe dia. (in):	14
Measurement Date 1:	6/26/2012
Velocity Head (fps):	5.25
Discharge (gpm):	2,468
# secs for 10 revs:	36.77
Measurement Date 2:	10/3/2012
Velocity Head (fps):	5.00
Discharge (gpm):	2,356
# secs for 10 revs:	35.70
Measurement Date 3:	-
Velocity Head (fps):	-
Discharge (gpm):	-
# secs for 10 revs:	-
Average Discharge:	2,412
Average Seconds:	36.23
Divider:	322.08
Energy Consumption (kwhr):	834,340
Grndwtr Wthdrwn (AF):	2,590.4

2012 COP RECLAIMED WATER DISCHARGES TO RID CANAL

Month	**Duration** (as hours)	**Flow** (as Az Miner's In)	**Volume** (as acre-feet)
January	744	1,150	1,491.00
February	696	1,020	1,395.41
March	720	2,835	1,846.60
April	720	2,465	2,710.62
May	744	3,175	2,821.50
June	720	3,150	2,746.01
July	744	2,975	2,860.16
August	744	4,350	3,055.78
September	720	2,150	2,877.19
October	735	2,125	2,853.06
November	382	1,900	1,102.20
December	744	1,225	1,773.47
		TOTAL:	**27,533**

ATTACHMENT 4

RID WELL CONSTRUCTION INFORMATION AND DRILL LOGS

SUMMARY OF CONSTRUCTION DETAILS FOR ROOSEVELT IRRIGATION DISTRICT WELLS IN WVBA SITE

Well Name	RID Location	ADWR Number	UTM Y NORTHING[a] (meters)	UTM X EASTING[a] (meters)	Land Surface Altitude (feet, msl)	Hole Depth (feet, bls)	Screened Interval(s) (feet, bls)	Year Constructed	Casing Total Depth (feet, bls)	Casing Material	Casing Diameter (inches)	Drilling Method	Reported Pump Capacity (gpm)	Estimated Pumping Rate (gpm)	Pump Setting Depth (feet, bls)
RID-82	4E 6N	55-607228	no data	no data	no data	800	140-782	7/14/51	800	Steel - 10 gauge	20	Cable Tool	1,962	1,600	no data
RID-83	4-1/2E 4-3/4N	55-607227	3,701,539	385,814	1,027.61	790	170-790	1/12/72	790	Steel - 0.375-inch wall	18 16	Rotary	1,940	2,300	260
RID-84	5-3/4E 4-1/2N	55-607226	3,701,110	387,420	1,036.27	600	130-518	2/4/52	532	Steel - 10 gauge	20	no data	2,419	2,400	220
RID-85	6E 4N	55-607225	3,700,499	388,212	1,029.57	700	135-682	4/11/52	700	Steel	20	no data	3,495	2,600	180
RID-86	6-1/2E 3-3/4N	55-607224	3,699,885	388,798	1,030.55	300	55-288	10/22/40; redrill	300	Steel - 8 gauge	24	no data	5,286	3,600	200
RID-87	7-1/2E 3-1/2N	55-607223	3,699,441	390,397	1,034.69	500	75-480	8/7/47; redrill	496	Steel - 8 gauge	20	no data	4,570	2,000	200
RID-88	8E 3-1/2N	55-607222	3,699,621	391,203	1,033.63	1,800	165-820 835-1,485 1,500-1,785	11/29/64	1785	Steel - 8 gauge	24 20 16	Cable Tool	3,718	2,000	290
RID-89	8E 4-1/4N	55-607221	3,700,825	391,427	1,043.47	1,800	180-805 860-1,434 1,465-1,770	4/29/65; redrill	1785	Steel - 8 gauge	20 16 12	Cable Tool	3,853	3,900	200
RID-90	8-1/2E 3-1/2N	55-607220	3,699,620	392,011	1,032.64	460	110-446	5/13/52	446	Steel	20	no data	3,494	2,500	290
RID-91	9E 3-1/2N	55-607219	3,699,621	393,019	1,039.56	449	80-448	3/12/99	449	Steel	20	no data	5,510	3,200	280
RID-92	9E 4-1/4N	55-607218	3,700,619	393,032	1,048.82	500	180-488	2/9/59; redrill	488	Steel - 8 gauge	20	Cable Tool	1,971	1,200	270
RID-93	9-1/2E 3-1/2N	55-607217	3,699,612	393,827	1,038.83	540	110-431	3/9/57	445	Steel - 8 gauge	24	Cable Tool	6,944	4,000	180
RID-94	10E 3-3/4N	55-607216	3,700,003	394,638	1,044.76	425	85-412	6/29/52	425	Steel	24	Cable Tool	6,138	3,300	180
RID-95	10E 4-1/4N	55-607215	3,700,801	394,647	1,054.05	1,800	180-815 836-1,470 1,497-1,775	12/29/64; redrill	1775	Steel - 6 & 8 gauge	24 20 16	Cable Tool	3,875	2,300	180
RID-96	10-1/8E 3-1/4N	55-607214	3,699,002	394,631	1,041.87	800	123-788	5/7/68	788	Steel	24	no data	4,480	3,000	180
RID-97	10-1/2E 3-1/8N	55-607213	3,698,788	395,240	1,042.	1,800	200-824 836-1,490 1,500-1,788	10/26/65	1788	Steel	24 20 16	Cable Tool	5,958	3,200	200
RID-98	11E 3N	55-607212	3,698,560	396,258	1,048.42	1,675	200-785 800-1,480 1,500-1,665	8/28/65; redrill	1675	Steel	24 20 16	Cable Tool	5,286	3,800	200
RID-99	11E 3-3/4N	55-607211	3,699,977	396,058	1,050.55	420	70-400	6/24/52	420	Steel - 8 gauge	24	Cable Tool	2,778	2,400	180
RID-100	11E 4-1/4N	55-607210	3,700,572	396,257	1,061.17	302	55-290	10/10/40	302	Steel - 8 gauge	24	no data	3,136	2,100	230
RID-101	11-1/2E 3N	55-607209	3,698,758	396,860	1,050.	400	110-390	2/28/69; redrill	400	Steel - 8 gauge	24	no data	6,720	4,500	180
RID-102	11-3/4E 3-3/4N	55-607196	3,699,960	397,262	1,055.12	440	85-414	8/4/52	428	Steel - 8 gauge	24	Cable Tool	5,958	3,900	170

SYNERGY ENVIRONMENTAL, LLC

SUMMARY OF CONSTRUCTION DETAILS FOR ROOSEVELT IRRIGATION DISTRICT WELLS IN WVBA SITE

Well Name	RID Location	ADWR Number	UTM Y NORTHING[a] (meters)	UTM X EASTING[a] (meters)	Land Surface Altitude (feet, msl)	Hole Depth (feet, bls)	Screened Interval(s) (feet, bls)	Year Constructed	Casing Total Depth (feet, bls)	Casing Material	Casing Diameter (inches)	Drilling Method	Reported Pump Capacity (gpm)	Estimated Pumping Rate (gpm)	Pump Setting Depth (feet, bls)
RID-103	12E 3-1/4N	55-607208	3,698,948	397,663	1,058.01	440	80-420	8/1/52	440	Steel - 8 gauge	24	Cable Tool	4,614	2,200	220
RID-104	12-1/8E 3-3/4N	55-607207	3,699,953	397,864	1,058.	410	100-370	6/14/57; redrill (new location)	390	Steel - 8 gauge	24	Cable Tool	5,510	3,600	200
RID-105	5E 5N	55-607206	3,701,924	386,623	1,033.61	622	80-508	7/16/42; redrill	622	Steel - 8 gauge	20	no data	2,374	1,900	260
RID-106	6E 5N	55-607205	3,701,890	388,246	1,041.62	790	80-776	5/30/42; redrill	790	Steel - 8 gauge	20	no data	3,000	1,500	200
RID-107	7E 5N	55-607204	3,701,867	389,824	1,049.69	414	200-404	5/27/43; redrill	414	Steel - 10 gauge	24 16	no data	2,195	2,100	220
RID-108	7-1/2E 5N	55-607203	3,701,846	390,432	1,054.6	284	62-270	11/22/40; redrill	276	Steel - 8 gauge	24	no data	1,711	1,900	210
RID-109	8E 5N	55-607202	3,701,830	391,446	1,058.01	500	140-394	5/18/57; redrill	406	Steel - 8 gauge	20	Cable Tool	2,845	2,400	200
RID-110	9E 5N	55-607201	3,701,820	392,849	1,060.3	500	140-465	4/18/57; redrill	480	Steel - 8 gauge	20	no data	3,069	2,900	240
RID-111R	9-3/4E 5N	55-220320	no data	no data	no data	428	100-420	4/25/12	428	HSLA Steel	20	Cable Tool	2,016	2,800	200
RID-112	10-1/2E 5N	55-607199	3,701,571	395,856	1,064.44	650	300-635	9/15/43	650	Steel - 10 gauge	16	no data	3,136	1,700	210
RID-113	11E 5N	55-607198	3,701,765	396,055	1,070.71	415	228-398	1/24/53	398	Steel - 10 gauge	20	no data	3,136	2,300	220
RID-114	11-1/2E 5N	55-607197	3,701,759	396,862	1,070.38	395	205-380	2/11/53	395	Steel - 10 gauge	20	no data	2,240	2,500	220

Notes:

[a]Universal Transverse Mercator Zone 12, North American Datum 1927.

Abbreviations:

msl = above mean sea level
bls = below land surface
gpm = gallons per minute
WVBA = West Van Buren Area

RID-62

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 2E-11½N

Work Started	-	October 16, 1951
Work Completed	-	December 3, 1951
Total Depth	-	800'
Depth of Casing	-	800' - 20" - 10 gauge

LOG OF WELL

0' - 2'	Sandy top soil
2' - 24'	Clay, sand and gravel
24' - 36'	Sandy clay
36' - 130'	Sand and clay
130' - 150'	Soft sandy clay
150' - 206'	Sand and gravel to 4"
206' - 210'	Caliche shell
210' - 320'	Sandy clay and gravel
320' - 480'	Caliche clay
480' - 486'	Sandstone
486' - 492'	Silt
492' - 497'	Caliche shell
497' - 515'	Sandy silt
515' - 518'	Rock shell
518' - 540'	Soft sandy clay
540' - 580'	Hard sandy clay
580' - 584'	Caliche shell
584' - 620'	Hard sandy clay
620' - 720'	Hard brown clay
720' - 732'	Hard white caliche clay
732' - 750'	Brown clay
750' - 762'	Caliche shell
762' - 800'	Hard caliche clay

Perforations

Perforated 140' to 786'
10 holes per 12"
Diameter of Perforations 5/8"
Length of Perforations 4½"

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson

Cost

Drilling and casing 20" well 800' $9,895.00

RID-63

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 2E-10½N

Work started	--	August 18, 1951
Work completed	--	September 30, 1951
Total Depth	--	800'
Depth of Casing	-	800' - 20"

Log of Well

0' - 2'	Top soil
2' - 20'	Clay, sand and gravel
20' - 84'	Clay and boulders
84' - 210'	Sandy clay and gravel
210' - 347'	Sticky clay
347' - 390'	Sandy clay
390' - 394'	Cemented sand and gravel
394' - 448'	Sticky clay and gravel
448' - 501'	Hard clay
501' - 560'	Sticky clay and gravel
560' - 632'	Clay and streaks of cement
632' - 732'	Sticky clay and gravel
732' - 800'	Hard clay

Perforations

Perforated from 150' to 780'
Perforations 5/8" X 4½", 10 holes per 12"

Depth at which water was first found	102'
Standing level before perforating	102'
Standing level after perforating	102'

Remarks

Drilled by:
Roscoe Moss Company
Driller: J. O. Evans

Cost

Drilling and casing 20" No. 10 gauge well 800' - $9,895.00

RID-64

ROOSEVELT IRRIGATION DISTRICT

Redrill

REPORT ON WELL 1½ E - 10½ N

24" 200'

Work started - March 16, 1943
Work completed - May 5, 1943
Total Depth - 1,000'
Depth of casing - 1,000'
200' 24" 8 Ga. & 806' 16" 10 Ga. casing used and left in well
Size of shoe -

LOG OF WELL

0' - 13'	- Sandy clay	
13 - 30	- Rock	
30 - 60	- Gravel and some clay	
60 - 75	- Clay	
75 - 127	- Gravel and some clay	
127 - 160	- Hard clay and caliche	
160 - 162	- Cemented clay	
162 - 185	- Hard clay	
185 - 186	- Cemented sand	
186 - 200	- Hard clay	(24" to here)
200 - 206	- Hard clay	(16" from here)
206 - 214	- Gravel to 1½"	
214 - 402	- Hard clay	
402 - 464	- Hard sandy clay	
464 - 508	- Hard clay	
508 - 510	- Cemented clay	
510 - 515	- Hard clay	
515 - 518	- Cemented sand	
518 - 565	- Hard clay	
565 - 575	- Soft sandy clay	
575 - 590	- Hard sandy clay	
590 - 593	- Cemented sand	
593 - 598	- Hard clay	
598 - 605	- Rock	
605 - 954	- Hard clay	
954 -1000	- Hard sand clay, several thin shells	

Perforations

200' to 988' - 16" - 8 Holes per 10 inches
60' to 190' - 24" -12 Holes per 10 inches
Diam. 16" - 9/16 & 24" - 3/4"
Length 16" - 3½ & 24" - 5 Mills knife used.
Depth at which water was first found - 60'
Standing level before perforating - 50'
Standing level after perforating - 42'

Casing cut 194' from surface - 16" cut - Lap in larger casing 6'
Adapter used -
Well is practically straight

REMARKS Drilled by Roscoe Moss Company - J. N. Olson, Driller
Rig #22

COST

Drilling 24" - 200' @ 4.25 per ft. $850.00	850.00
Drilling 16" - 200' - 1,000 - 800' @ 3.50	2,800.00
1 - 20' - 24" #8 ga. starter with shoe	420.45
180'-20' #8 ga. double well casing @ 7.55¢/ft.	1,359.00
1 - 20' - 16" #10ga. starter with shoe	204.53
784' - 16" #10 ga. casing	3,245.76
For instal. 16" casing in 24" hole, cutting off 16" casing & removing same 200' @ 65¢/ft	130.00
1 - 24" to 16" adapter installed	35.00
Total	$9,044.74

RID-65

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on 1½E-10N

Work started	-	July 2, 1951
Work completed	-	August 17, 1951
Total Depth	-	800'
Depth of Casing	-	800' - 20"

Log of Well

0'	-	2'	Top soil
2'	-	6'	Silt sand gravel and boulders
6'	-	8'	Hard clay
8'	-	20'	Sand gravel and boulders
20'	-	71'	Clay and boulders
71'	-	201'	Sandy clay and gravel
201'	-	340'	Sticky Clay and gravel
340'	-	525'	Sandy clay and gravel
525'	-	582'	Sandy clay
582'	-	592'	Sand
592'	-	625'	Sandy clay
625'	-	716'	Sticky clay
716'	-	800'	Hard sticky clay

Perforations

Perforated from 160' to 780'
Perforations 5/8" X 4" - 10 holes per 12"

Depth at which water was first found	-	125'
Standing level before perforating	-	125'
Standing level after perforating	-	125'

Remarks

J. O. Evans, Driller
for Roscoe Moss Company

COST

Drilling and casing 20" No. 10 gauge well 800' - $9,895.00

RID-66

ROOSEVELT IRRIGATION DISTRICT

Redrill

REPORT ON WELL 1½ E - 9½ N

Work started - December 1, 1943
Work completed - February 21, 1944
Total depth - 720'
300' - 24" - 8 Ga. Casing) Used & left in well
430' - 16" -10 Ga. Casing)

LOG OF WELL - 24 Inch Well

0'	- 6'	- Sandy Clay
6	- 8	- Sand
8	- 10	- Clay and gravel
10	- 102	- Sand and gravel
102	- 130	- Hard clay, some gravel
130	- 140	- Cemented sandy clay
140	- 149	- Hard sandy clay
149	- 158	- Sand and gravel to 2"
158	- 214	- Sandy clay
214	- 224	-Sand and gravel 2"
224	- 256	- Hard sandy clay
256	- 260	- Sand and gravel 3"260
260	- 300	- Clay

Commencement of 16" well

300	- 336	- Hard clay
336	- 340	- Soft sandy clay
340	- 415	- Sandy clay-several soft spots 6" to 2' in thickness
415	- 421	- Soft sandy clay
421	- 454	- Sandy clay
454	- 460	- Soft clay
460	- 472	- Caliche
472	- 486	- Hard clay
486	- 502	- Soft sandy clay
502	- 556	- Hard clay-several soft spots 6" to 1'
556	- 564	- Soft sandy clay
564	- 586	- Sandy clay
586	- 642	- Caliche clay
642	- 650	- Soft sandy clay
650	- 720	- Hard clay

Perforations

24" - 70' to 286' - 12 Holes per 10 inches
16" -300 to 706 - 8 Holes per 10 inches
Diam. of all perforations - 3/4"
Length of perforations 24" - 5" -&- 16" - 3½"
Mills knife used. Depth, water first found - 70'
Standing level before perforating - 58'; After - 58'

Casing cut 290' from surface - 16" casing cut -
Lap in larger casing 10' - Adapter used.
Well practically straight.

REMARKS Drilled by Roscoe Moss Co.; H. C. Cppe, driller; Rig #22

COST

1 - 20' - 24" Starter	$ 420.45
Drilling in 24" starter 2-' @ 3.00 per foot (per ft.	60.00
Drilling & casing 24" well 20' to 300'-280' @ 10.55	2,954.00
1 - 20" - 16" No. 10 ga. starter	204.53
Drilling in 16" starter - 20' @ 2.60/ft. (6.74 per ft.	52.00
Drilling and casing 16" well 320' to 720' - 400' @	2,696.00
10' - 16" No. 10 ga. casing used & left in lap between 24" & 16" - 10' @ $4.14 per ft.	41.40
Installing 16" casing & starter in 24" to 300' & cutting off, removing 16" casing @ 65¢/ft.	195.00
1 - Adapter 24" to 16"	35.00

RID-67

ROOSEVELT IRRIGATION DISTRICT

Redrill

WELL DATA

Report on Well 1 E - 9 N

Work started - May 1, 1947
Work completed - June 29, 1947
Total Depth - 800'
Depth of casing - 800'
514' - 24" - 8 gauge casing used and left in well
298' - 16" -10 gauge casing used and left in well
Size of Shoe - 24 X 16 X 1¼

Log of Well

0'	- 5'	- Caliche
5	- 135	- Tight sand
135	- 160	- Clay and gravel
160	- 176	- Clay
176	- 180	- Shells
180	- 185	- Soft sandy clay
185	- 188	- Shell
188	- 200	- Sandy clay
200	- 205	- Shell
205	- 310	- Soft sandy clay
310	- 340	- Clay
340	- 400	- Hard clay
400	- 404	- Shell
404	- 430	- Soft sandy clay
430	- 432	- Tight sand
432	- 435	- Shell
435	- 443	- Fine sand or silt
443	- 450	- Clay
450	- 454	- Shell
454	- 462	- Sand and gravel 1"
462	- 464	- Shell
464	- 475	- Fine sand and some gravel 1"
475	- 480	- Caliche
480	- 492	- Hard clay
492	- 495	- Shell
495	- 502	- Sand and gravel tight
502	- 503	- Cemented sand and gravel
503	- 510	- Cemented sand
510	- 516	- Shell
516	- 530	- Sand and gravel some tight
530	- 533	- Shell
533	- 536	- Sand and gravel 2"
536	- 538	- Shell
538	- 546	- Clay
546	- 552	- Caliche
552	- 558	- Sand and gravel
558	- 563	- Cemented sand
563	- 573	- Sand
573	- 575	- Sand
575	- 590	- Soft sandy clay

590	- 610	- Sand and gravel
610	- 660	- Clay
660	- 665	- Caliche shell
665	- 790	- Hard clay
790	- 800	- Tough clay

Perforations

Perforated 100' to 500'	12 holes per 12"
504' to 790'	8 holes per 12"
Diameter of Perforations	24" - 3/4"
	16" - 5/8"
Length of Perforations	5½" - 3 3/4"

Depth at which water was first found - 90'
Standing level before perforating -80'
Type of Perforator used - Mills

Remarks

Note below your observation of any change in water level while drilling -

Raised 6 feet 500 to 610

Drilled by Roscoe Moss Company
Driller - J. N. Olson
Rig No. 38

For machinery furnished and wages of men paid by us while drilling and casing your 24" No. 8 gauge well on Sec. 20, Twp. 2 North, Range 1 East., Maricopa County, Arizona, to completion as per contract.

Drilling and casing 24" No. 8 gauge well 800 feet in depth. [redacted]

Less credit for difference in cost of well casing installed due to necessity of reducing hole . . . . . [redacted]

RID-68

ROOSEVELT IRRIGATION DISTRICT

WELL DATE

Redrill

Report on Well 1E - 8½N

Work started - April 21, 1947
Work completed - May 16, 1947
Total Depth - 714'
Depth of casing - 714'
24" - 8 Gauge casing used and left in well
Size of shoe - 24 x 16 x 1¼

Log of Well

0'	- 7'	- Caliche and sandy Lome
7	- 27	- Sand and gravel
27	- 125	- Sand and boulders
125	- 135	- Soft sandy clay
135	- 150	- Hard sandy clay
150	- 230	- Hard caliche clay
230	- 242	- Corse sand
242	- 245	- Caliche shell
245	- 300	- Caliche clay
300	- 322	- Corse sandy gravel
322	- 340	- Caliche clay
340	- 370	- Sandy clay
370	- 425	- Caliche clay and gravel
425	- 430	- Stickly clay
430	- 445	- Caliche clay and gravel
445	- 585	- Clay soft and hard layers
585	- 698	- Sandy clay with hard streaks
698	- 714	- Hard clay

PERFORATIONS

Perforated 100' to 700' 12 holes per 12"
Diameter of Perforations 5¼"
Length of Perforations 3/4"
Standing level before perforating 70'
Type of Perforator used - Mills

Remarks

Drilled by Roscoe Moss Company
Driller - H. C. Cope
Rig No. 39

For machinery furnished and wages of men paid by us while drilling and casing your 24" No. 8 gauge well, (1-E-8½-N), Near Tolleson, Arizona, to completion as per Req. C-1122.

Drilling and casing 24" No. 8 gauge well 800', in depth [redacted]

Less drilling and casing not done 714' to 800', or 86' [redacted]..... [redacted]

RID-69 (*No Log Available*)

RID-70

Redrilled 1946
24"

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 1/4 W - 7 1/2 N

Work started - March 3, 1947
Work completed - April 15, 1947
Total Depth - 750'
Depth of casing - 750'
24" - 8 gauge casing used and left in well
Size of shoe - 24 x 16 x 1 1/4

Log of Well

0'	- 20'	- Dry loose sand
20	- 114	- Sand boulders
114	- 130	- Clay
130	- 155	- Cemented sand and boulders
155	- 160	- Clay and gravel
160	- 167	- Clay
167	- 170	- Clay and gravel
170	- 198	- Sand and gravel
198	- 505	- Clay with sand stks.
505	- 530	- Sticky clay
530	- 590	- Clay and gravel
590	- 675	- Clay hard cemented stks.
675	- 750	- Clay with sand stone stks.

Perforations

Perforated 100' to 735' 12 holes per 12"
Diameter of Perforations 3/4"
Length of Perforations 4 1/2"
Depth at which water was first found - 59'
Standing level before perforating - 59'
Standing level after perforating - 59'
Type of Perforator used - Mills

Remarks

Drilled by Roscoe Moss Company
Driller - H. C. Cope
Rig No. 39

1/4 W - 7 1/2 N

For machinery furnished and wages of men paid by us while drilling your 24" No. 8 gauge well 800 feet in depth, as per contract . . . . . $ 10,293.00

Less drilling and casing not done 750' to 800', or 50' @ 12.55 per lineal foot . . . . . -627.50

$ 9,665.50

June 25, 1947

Invoice No. M-9420

(For extra work and material converting your 20" No. 8 gauge section to a 20' starter)

For drilling, welding and adding 12' - 3 ply material to section . . . . . .$ 75.00

1 - 20" X 14" X 1¼" Shoe attached to starter 107.80

$182.80

RID-71

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 0 W - 7 1/2 N

Work started	-	March 11, 1947
Work completed	-	April 29, 1947
Total Depth	-	680'
Depth of Casing	-	680'

24" - 8 gauge casing used and left in well

Size of shoe	-	24 x 16 x 1 1/4

Log of Well

0' - 6'	-	Clay
6 - 8	-	Sand and gravel
8 - 20	-	Cemented gravel
20 - 24	-	Gravel in hard clay
24 - 142	-	Sand and gravel
142 - 180	-	Caliche
180 - 204	-	Sand and gravel ✓ 'W'
204 - 216	-	Caliche
216 - 224	-	Cemented sand
224 - 228	-	Cemented clay
228 - 240	-	Hard sandy clay
240 - 256	-	Gravel in hard clay
256 - 262	-	Cemented clay
262 - 270	-	Hard clay and gravel
270 - 310	-	Sand, gravel tight
310 - 320	-	Clay
320 - 360	-	Sand and gravel ✓ 46'
360 - 370	-	Hard clay
370 - 392	-	Broken formation water
392 - 400	-	Clay and gravel
400 - 420	-	Cemented sandy clay
420 - 450	-	Hard clay some gravel
450 - 465	-	Hard clay and thin streaks
465 - 532	-	Broken formation
532 - 560	-	Hard caliche and clay
560 - 600	-	Hard clay streaks of sand
600 - 630	-	Hard clay
630 - 632	-	Cemented sand
632 - 650	-	Sand, gravel and sandy clay
650 - 660	-	Hard clay
660 - 663	-	Soft fine sand
663 - 680	-	Hard clay

Perforations

Perforated 100' to 660'	12 Holes per 12"
Diameter of Perforations	5/8"

Length of Perforations 5"
Depth at which water was first found 70'
Standing level before perforating 65'
Standing level after perforating 68'
Type of Perforator used - Mills
156 Feet of Sand and Muck in well after perforating

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson
Rig No. 38

For machinery furnished and wages of men paid by us while drilling and casing your 24 " No. 8 gauge well on Sec. 30, Twp. 2 North, Range 1 East, Maricopa County, Arizona, to completion as per contract.

Drilling and casing 24" No. 8 gauge well 800' in depth	$ 10,293.00
Less drilling and casing not done 680' to 800', or 120' @ 12.55 per lineal foot	-1,506.00
	$ 8,787.00

RID-72

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

March 9, 1951

Report on Well [illegible]-½E - 7½N

Work Started - December 14, 1950
Completed Work - January 23, 1951
Total Depth - 800'
Depth of Casing - 800'

Log of Well

0' - 6' - Hard clay and gravel
6' - 9' - Clay and packed sand
9' - 15' Sand and gravel
15' - 60' Hard clay and gravel
60' - 72' Sandy clay
72' - 81' Hard clay and gravel
81' - 90' Sand gravel and boulders
90' -112' Sandy clay
112' -128' Gravel
128' -184' Sandy clay and gravel
184' -197' Clay and caliche
197' -270' Sandy clay and gravel
270' -340' Stickey clay
340' -405' Hard clay and some fine gravel
405' -516' Stickey clay
516' -712' Sandy clay soft
712' -756' Stickey clay
756' -800' Hard stickey clay

Perforations

Type of Perforator used Mills
Perforated 126' to 780'
Perforations - 10 holes per 12"
Diameter of Perforations 5/8"
Length of Perforations 4½"
Depth at which water was first found - 100'
Standing level before perforating 100'
Standing level after perforating 98'

Remarks

Drilled by Roscoe Moss Company

Cost

Drilling and casing 20" #10 gauge well 800' in depth - $9,895.00

RID-73

Report on Well 1E-7½N

Work started - February 13, 1965
Work completed - September 23, 1965
Total depth - 1350 feet
Depth to water - 210 feet

Log of Well

0 - 6 ft. top soil
6 - 40 clay
40 - 75 sand
75 - 300 ft. sand, gravel, boulders
300 - 370 ft. sand, gravel
370 - 420 ft. clay, some sand
420 - 490 ft. clay
490 - 575 ft. clay, some sand
575 - 710 ft. clay, some gravel
710 - 750 ft. clay
750 - 825 ft. clay, some sand stone
825 - 910 ft. clay, caving
910 - 1185 ft. sticky clay
1185 - 1325 ft. sticky clay, starting to cave
1325 - 1350 ft. caving

Perforations

3/16 to 1/4 louver 8 per 8"
Perforated from 300 to 840 ft. and 858 to 1256 feet

20" casing from 0-858 feet, 16" from 840-1272 feet.

Remarks

Drilled by Weber Well Drilling Co.
Driller - B. H. Weber

December 30, 1965 - perforation added 50'
now perforated from 250 to 840 ft.
Jan. 20, 1970 Perforated 25' - Now 225' to 840' - by R.I.D. Employees
(w/ 1/2" Mill Knife) 10 Holes over 5"

Cost $40,341.24

RID-74

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

April 12, 1951

Report on Well: $1\frac{1}{2}$E-$7\frac{1}{2}$N

Work Started - January 24th, 1951
Completed Work - March 29, 1951
Total Depth - 800'
Depth of Casing 800'

Log of Well

0' - 9'	Hard clay
9' - 15'	Packed sand
15' - 45'	Sandy clay
45' - 90'	Hard clay and gravel
90' -112'	Sandy clay and gravel
112' -152'	Sand gravel and boulders
152' -162'	Sandy clay and gravel
162' -176'	Clay and caliche
176' -286'	Clay and gravel
286' -404'	Hard clay
404' -530'	Sticky clay
530' -536'	Hard clay and cemented sand
536' -605'	Hard clay
605' -686'	Sandy clay with hard streaks
686' -700'	Hard clay
700' -800'	Sticky clay

Perforations

Type of Perforator used - Mills
Perforated 112' to 780'
Perforations - 10 holes per 12"
Diameter of Perforations 5/8"
Length of Perforations $4\frac{1}{2}$"
Depth at which water was first found - 102'
Standing level before perforating 102'
Standing level after perforating - 105'

Remarks

Drilled by Roscoe Moss Company

Cost

Drilling and casing 20" No. 10 gauge well 800' depth $9,895.00

RID-75

ROOSEVELT IRRIGATION DISTRICT

Buckeye, Arizona

Report on Well # 1 3/4 E - 6 1/2 N

Work Started	-	March 30th, 1951
Work completed	-	May 15, 1951
Total Depth	-	775'
Depth of Casing	-	775'

Log of Well

0'	-	3'	Dirt fill
3'	-	15'	Clay and caliche
15'	-	26'	Sandy clay
26'	-	53'	Clay and gravel
53'	-	67'	Gravel and boulders
67'	-	102'	Sandy clay
102'	-	112'	Gravel and boulders
112'	-	151'	Sandy clay and gravel
151'	-	156'	Hard clay
156'	-	291'	Clay and gravel
291'	-	305'	Stickey clay
305'	-	394'	Hard clay
394'	-	404'	Clay and gravel
404'	-	730'	Hard clay
730'	-	775'	Hard sticky clay

Perforations

Perforated from 140' to 750'
Perforations - 5/8" X 4½" - 10 holes per 12"

20" Hole to 775'

Remarks

Drilled by Roscoe Ross Company
J. O. Evans, Driller

Cost

For machinery furnished and wages of men paid by us while drilling and casing 20" No. 10 gauge well # 1 3/4 E- 6 1/2 N of SE¼ Sec 32, Twp 2 N, R 1E,

Drilling and casing 20" No. 10 gauge well 800'	$9,895.00
Less drilling and casing of well not done 775 to 800' or 25' @ $11.48 per foot	287.00
	$9,608.00

RID-76

REPORT ON WELL 2E-6N

Work Started - June 13, 1964
Work Completed - January 1965
Total Depth - 1725 ft. - concrete plug 950' to 900'
Depth of Casing- 900 ft. 20"

LOG OF WELL

0-20	Top soil
20-65	Packed sand & gravel with clay binder
65-190	Clay, sand and gravel
190-215	Sandy Clay
215-325	Sandy Clay & gravel
325-370	Sandy Clay & gravel
370-390	Clay & gravel
390-435	Cement, gravel & sand
435-505	" " "
505-530	Clay
530-600	Sandy clay
600-650	Sandy clay with hard clay streaks
650-710	Clay
710-860	Clay
860-980	Clay

Perforations

Perforated 200' to 875' using 5/16-inch louver perforations. 10 holes to the round, one round for each 5 inches.

REMARKS

Drilling stopped at 1725 ft., pulled 16-inch liner from bottom of hole, cut drive-shoe from 20-inch casing and pulled it back to 900 ft., filled with heavy mud to 950 feet as casing was pulled, placed concrete plug 900 to 950 feet.

Drilled by Weber Well Drilling Co.

Note: October 1967 measured - concrete plug found at 850'

Cost - $54,191.00

CHKD. BY ..... DATE ..... Driller's Log ..... JOB NO. .....

K.I.D. Well 25-6N

0 - 20'	Top Soil
20 - 65'	Packed sand & gravel with clay binder
65 - 190'	Clay, sand & gravel
190 - 215'	Sandy clay
215 - 325	Sandy clay & gravel
325 - 370	Sandy clay & gravel
370 - 390	Clay & gravel
390 - 435	Cement, gravel & sand
435 - 505	Cement, gravel & sand
505 - 530	Clay
530 - 600	Sandy clay
600 - 650	Sandy clay with hard clay streaks
650 - 710	Clay
710 - 860	Clay
860 - 980	Clay

RID-77

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well # 23E-6N

Work started	-	May 5, 1951
Work completed	-	June 15, 1951
Total Depth	-	800'
Depth of Casing	-	800'

Log of Well

0'	-	12'	Sandy clay
12'	-	30'	Caliche
30'	-	90'	Sandy clay
90'	-	94'	Gravel 3"
94'	-	108'	Hard clay
108'	-	135'	Sand
135'	-	155'	Gravel
155'	-	170'	Clay and gravel
170'	-	220'	Clay
220'	-	270'	Sticky clay
270'	-	366'	Hard clay and gravel
366'	-	370'	Caliche shell
370'	-	382'	Sand silt
382'	-	420'	Gravel tight
420'	-	458'	Silt sand and gravel
458'	-	475'	Hard red clay
475'	-	490'	Soft sandy clay
490'	-	608'	Hard clay
608'	-	614'	Sand, gravel
614'	-	640'	Caliche clay
640'	-	710'	Hard clay
710'	-	730'	Cemented clay, blue clay, broken formation
730'	-	800'	Hard clay

Perforations

Perforated from 140' to 786'
Perforations 5/8" X 4½" - 10 holes per 12"
40' of sand and muck after perforating.

20" Hole to 800'

Depth at which water was first found	102'
Standing level before perforating	102'
Standing level after perforating	97'

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson

Cost

Drilling and Casing 20" No. 10 gauge well 800' in depth - $9,895.00

RID-78

ROOSEVELT IRRIGATION DISTRICT

Redrill

REPORT ON WELL 2½ E - 6½ N

Work started - May 29, 1943
Work Completed - July 23, 1943
Total Depth - 1,000'
Depth of casing - 1,000'
20" 8 Ga. casing used and left in well
Size of shoe -

LOG OF WELL

0'	-	2'	- Black top soil
2	-	6	- Clay
6	-	30	- Caliche
30	-	48	- Gravel
48	-	62	- Caliche
62	-	70	- Clay and gravel
70	-	103	- Sand and gravel 3"
103	-	118	- Clay and gravel
118	-	138	- Sand and gravel to 3"
138	-	180	- Sand, gravel several cemented streaks
180	-	230	- Gravel to 4"
230	-	260	- Sandy clay
260	-	266	- Soft sandy clay
266	-	284	- Hard clay
284	-	292	- Soft clay
292	-	308	- Hard sandy clay
308	-	320	- Caliche and gravel
320	-	460	- Partly cemented sandy clay
460	-	470	- Hard clay some gravel
470	-	480	- Quicksand
480	-	570	- Hard clay
570	-	590	- Hard clay and gravel
590	-	614	- Hard sandy clay
614	-	642	- Hard clay
642	-	648	- Pea gravel
648	-	712	- Hard clay
712	-	724	- Hard blue clay
724	-	1000	- Hard clay

Perforations

600' to 986' - 10 Holes per 10 inches
65' to 600' - 10 Holes per 10 inches
Diam. 3/4 "
Lenght 5" Kills knife used. Well practically straight
Depth at which water was first found - 60'
Standing level before perforating - 60'
Standing level after perforating - 52' 6"

Set test pump and ran test on this part of well. Produces approximately 700 G.P.M.

REMARKS Drilled by Roscoe Moss Company - J. H. Olson, Driller Rig # 22

COST

Drilling 20" - 500' @ 3.50 per ft.	$ 1,750.00
Drilling 20" - 500' -1000' - 500' @ 4.00 per ft.	2,000.00
1- 20" x 20' Starter	307.20
980' - 20" Double well casing @ 6.40 per ft.	6,272.00
Cost of Labor installing test pump - 3 men labor	110.40
Plus 40 %	44.16
Plus 15 %	23.17
Total	$10,506.93

RID-79

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 3 E - 6 ½ N

Work Started	-	June 20, 1951
Completed Work	-	August 13, 1951
Total Depth	-	800'
Depth of Casing	-	800' - 20"

Log of Well

0'	-	14'	Sandy clay
14'	-	28'	Caliche
28'	-	35'	Gravel
35'	-	78'	Sandy clay
78'	-	95'	Caliche
95'	-	130'	Sand
130'	-	178'	Sand and gravel
178'	-	220'	Sandy clay
220'	-	232'	Gravel
232'	-	260'	Soft sandy clay
260'	-	350'	Hard sandy clay
350'	-	355'	Cemented sand and gravel
355'	-	380'	Cemented sand
380'	-	410'	Cemented sand and caliche
410'	-	420'	Hard clay
420'	-	450'	Cemented sand
450'	-	462'	Caliche
462'	-	480'	Sand and gravel
480'	-	487'	Soft clay
487'	-	560'	Hard clay
560'	-	575'	Caliche
575'	-	578'	Cemented clay (hard)
578'	-	605'	Soft clay
605'	-	608'	Rock-shell
608'	-	800'	Hard clay

Perforations

Perforated from 140' to 782'
Perforations 5/8" x 4" - 10 holes per 12"

Depth at which water was first found 110'
Standing level before perforating 110'
Standing level after perforating 102'

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson

Removed 80' sand and muck from well after perforating. We worked in 60' more and removed from bottom of hole.

Cost

Drilling and Casing 20" #10 gauge well 800' in Depth - $9,895.00

RID-80

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Dec. 1, 1943

REPORT ON WELL 3 E - 6 H

- Located one mile north of Tolleson, Arizona

Work started - September 20, 1943
Work completed - November 25, 1943
Total Depth - 850'
Depth of Casing - 850'
20" - 8 Ga. casing used and left in well

LOG OF WELL

0 - 10 - Black top soil
10 - 80 - Caliche
80 - 160 - Sandy Clay
160 - 178 - Clay and gravel
178 - 182 - Partly cemented sand
182 - 202 - Hard clay
202 - 218 - Sand and gravel 2" cemented strips
218 - 226 - Cemented sand
226 - 232 - Soft sandy silt
232 - 238 - Hard clay
238 - 245 - Caliche
245 - 250 - Sandy clay
250 - 264 - Clay
264 - 272 - Cemented sand
272 - 290 - Cemented sandy clay
290 - 316 - Hard clay
316 - 326 - Sandy cemented clay
326 - 350 - Sand & gravel 2" cemented streaks
350 - 478 - Hard sandy clay
478 - 480 - Gravel to 2"
480 - 490 - Soft sandy clay
490 - 512 - Sand and gravel 2"
512 - 540 - Hard sandy clay
540 - 625 - Hard clay
625 - 665 - Soft sandy clay
665 - 692 - Hard sandy clay
692 - 715 - Soft sandy clay
715 - 719 - Coarse sand
719 - 774 - Hard clay
774 - 780 - Soft sandy clay
780 - 800 - Hard blue clay
800 - 850 - Hard clay

Perforations

200' to 834' - 10 Holes per 10 inches - Mills knife used
Diameter - 3/4; Length 4½"
Depth at which water was first found - 70'
Standing level before perforating - 50'
Standing level after perforating - 50'

Well practically straight, top to bottom.

Remarks Drilled by Roscoe Ross Company
Driller - J. N. Olson
Rig No. 22

COST	1 - 20" x 20' Starter		$ 307.20
	Drilling in 20" starter @ $2.40 per hr.	hr.	48.00
	Drilling & casing 20" well 20' to 500' (480') @	8.80/	4,224.00
	" " 20" " 500' to 850' (350') @	$0.30/ft.	3,255.00
	TOTAL		$7,834.20

RID-81

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Record on Well 3E-7E

Work started	--	May 16, 1951
Work completed	-	June 20, 1951
Total Depth	-	800'
Depth of Casing	-	800' - 20"

Log of Well

0'	-	3'	Top soil
3'	-	22'	Clay and caliche
22'	-	90'	Sandy clay with hard streaks
90'	-	152'	Clay and gravel
152'	-	172'	Sand and gravel
172'	-	263'	Clay and gravel
263'	-	330'	Hard sticky clay
330'	-	355'	Clay and gravel
355'	-	365'	Hard sticky clay
365'	-	388'	Sticky clay and hard cemented stks
388'	-	408'	Clay and gravel
408'	-	472'	Hard clay
472'	-	480'	Clay and gravel
480'	-	512'	Hard clay
512'	-	524'	Sandy clay and gravel
524'	-	553'	Hard clay
553'	-	566'	Sandy clay and gravel
566'	-	580'	Hard clay
580'	-	800'	Hard sticky clay

Perforations

Perforated from 150' to 780'
Perforations 5/8" X $4\frac{1}{8}$" - 10 holes per 12"

Depth at which water was first found -- 102'
Stanking level before and after perforating - 102'

Remarks

Drilled by Roscoe Moss Company
Driller - J. O. Evans

Cost

As per contract with Roscoe Moss Company under Group 2
Drilling and casing 20" No. 10 gauge well 800' in depth - $9,895.00

RID-82

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 4E-6N

Work started - June 7th, 1951
Work completed - July 14, 1951
Total Depth - 800'
Depth of Casing - 800' - 20"

Log of Well

0'	-	36'	Red Clay
36'	-	76'	Clay
76'	-	100'	Clay
100'	-	110'	Sand and gravel
110'	-	140'	Clay
140'	-	152'	Sand and gravel
152'	-	160'	Clay
160'	-	174'	Sand and gravel
174'	-	180'	Clay and gravel
180'	-	202'	Cemented sand
202'	-	220'	Sand and gravel
220'	-	228'	Red clay
228'	-	270'	Red clay and gravel
270'	-	325'	Red clay
325'	-	360'	Sand and gravel, some cemented sand
360'	-	380'	Sand and gravel
380'	-	490'	Clay and gravel
490'	-	510'	Cemented sand
510'	-	525'	Sand
525'	-	560'	Sand and gravel
560'	-	570'	Clay and gravel
570'	-	595'	Sandy clay
595'	-	660'	Red clay
660'	-	695'	Sandy clay
695'	-	800'	Red clay

Perforations

Perforated from 140' to 782' - Mills Perforator Used
Perforations - 5/8" X 4" - 10 holes per 12"

Standing level after perforating 95'

Remarks

Drilled by Aubrey Lyon, K. I. Bergman, Driller
for Roscoe Moss Company

Cost

Drilling and casing 20" No. 10 gauge well 800' - $9,895.00

RID-83

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 4-1/2E-4-3/4N

Work started January 2, 1972
Work completed January 12, 1972
Total depth 790 feet
Depth of Casing 790 feet 390'-18" and 400'-16"

Log of Well

0-120 Clay & caliche
120-140 Caliche & fine sand
140-180 caliche & fine gravel (1/8"dia.)
180-240 Gravel (1/8"dia.) & some caliche
240-260 Good river gravel (to 1/4" dia.)
260-280 Good river gravel (to 1/2" dia.)
280-400 River sand (to 1/4" gravel)
400-420 Coarse river gravel & some caliche
420-440 Mostly caliche, some coarse gravel (to 1/8" dia.)
440-460 Good river sand (to 1/8" dia.)
460-480 Fine sand some gravel (to 1/8" dia.)
480-540 Fine hard sand
540-580 Sand & gravel (to 1/4" dia.)
580-600 Sand, gravel & some caliche
600-640 Clay & fine sand
640-680 Coarse sand
680-700 Fine sand & some clay
700-790 Fine sand, gravel (to 1/8" dia.) & clay

Perforation

170 ft. - 18" blank
220 ft. - 18"- 3/16 x 3 - 12 rows
400 ft. - 16"- 3/16 x 3 - 10 rows
Perforation rows on 6-inch centers

Remarks

Drilled by L. K. Harder, Buckeye, AZ
Rotary drilled well - dia. of hole 26"

Cost - $10,200.00 — $12.00 per foot

Log per driller - L. K. Harder

started 1-2-72 --- finished 1-12-72

0-20	surface sand
20-40	Clay
40-120	sand & gravel with streaks of clay
120-240	clay with sand and gravel
240-420	sand & gravel with malipas (angular)
420-600	sand & gravel well rounded
600-640	clay & gravel
640-680	well rounded sand and gravel
680-790	clay with streaks of gravel

L. K. "BOOTS" HARDER

Drilling Contractor

Buckeye, Arizona 85326

503 Eason Ave. **386-4309**

Jan. 13.1978

Roosevelt Irrigation District
Buckeye, Arizona 85326

Req. No. C 5200

Well location Sec. 11 Twn. 1 N. Ran. 1 E. (4½ E 4 3/4 N)

Drilled 790 ft. 15 inch hole

316 hrs @ $ 30. $ 9480.00

Reamed 790 ft. 26 inch hole

@ 12.00 per ft

Ran 400 ft. 16 inch .375 wall casing
perforated 3/16 by 3 inch slots
10 rows around.

Ran 390 ft. 13 inch .375 wall casing
bottom 210 ft. perforated 3/16 by 3 inch
slots 10 rows around.

Gravel packed with 85 ton ¾ inch gravel.

Washed well clean.
Swabbing and washing well 24 hrs. @ $ 30. 720.00

Total due $ 10200.00

FORMATION:

0	-	20	Surface sand
20	-	40	Clay
40	-	120	Sand and gravel with streaks of clay
120	-	240	Clay with sand and gravel
240	-	420	Sand and gravel with malipas (angular)
420	-	600	Sand and gravel well rounded
600	-	640	Clay and gravel
640	-	680	Well rounded sand and gravel
680	-	790	Clay with streaks of gravel

RID-84

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 5 3/4 E - 4 ½ N

Work Started	-	December 6, 1951
Work Completed	-	February 4, 1952
Total Depth	-	600'
Depth of Casing	-	532' 20", 10 gauge

Log of Well

0' - 60'	Clay
60' - 162'	Loose gravel
162' - 186'	Clay and gravel
186' - 205'	Sticky clay
205' - 245'	Loose gravel
245' - 265'	Hard clay
265' - 275'	Sandy clay
275' - 280'	Caliche shell
280' - 310'	Sticky clay, soft
310' - 520'	Hard clay
520' - 548'	Hard caliche clay
548' - 600'	Hard caliche clay

Perforations

Perforated from 130' to 518'
Perforations 5/8" X 4" - 10 holes per 12"

Depth to water first found 108'
Standing level before perforating 82'
Standing level after perforating 82'

532 Feet of casing in well. 68 feet of open hole. Six hours sandpumping, filled open hole up to shoe with sand and gravel.

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson

Cost

Drilling 600' hole and 532 ' 20", No 10 gauge casing $8,457.36

RID-85

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on WELL 6E-4N

Work started - February 20th, 1952
Work Completed - April 11th, 1952
Total Depth - 700'
Depth of Casing 700' - 20"

Log of Well

0'	- 16'	Soil
16'	- 220'	Boulders
220'	- 260'	Clay
260'	- 280'	Gravel
280'	- 500'	Soft clay
500'	- 700'	Hard clay

Perforations

Perforated 135' to 682'
Perforations 5/8" X 3½" - 10 holes per 12"

Depth at which water was first found 90'
Standing level before perforating 92'
Standing Level after perforating 92'

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Lard

Cost

Drilling and Casing Well 700' - - - $10,322.00

RID-86

WELL DATA

October 22, 1940

Report on Well - $6\frac{1}{2}$ E - 3 $\frac{3}{4}$ N - Located 8 miles southwest of Phoenix, Arizona

Started Work October 8, 1940
Completed Work October 22, 1940
Depth of Hole - 300 Ft.
Depth of Casing - 300 Ft.
24 Inch 8 Gauge casing used and left in well
Size of Shoe - 24 x $26\frac{1}{2}$" x 16"

Log of Well

0'	-	7'	Soil
7	-	12	Coarse sand
12	-	35	Clay and caliche
35	-	153	Sand, gravel and boulders
135	-	222	Sand and gravel 2" streak clay
222	-	256	Hard clay
256	-	265	Sandy clay and gravel
265	-	280	Hard clay
280	-	300	Sandy clay

Perforations

55 to 288 Ft. 12 holes per 12 inches
Mills knife used
Perforations - 3/4" Diam. - 5" Length
Depth at which water was first found - 52 Ft.
Standing level before perforating - 52 Ft.
Standing level after perforating - 50 Ft.

Well is not straight, top to bottom, Very slight curve starting at approximately 150'

Remarks

Drilled by - Roscoe Moss Co.
Driller - K. Kirkland
Rig used - No. 21

$5.35 for casing - $3.00 for drilling.

RID-87

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 7 1/2E - 3 1/2N

Work started - June 24, 1947
Work completed - August 7, 1947
Total Depth - 500'
Depth of casing - 496'
496' of 20" 8 gauge used casing which belonged to R.I.D.
Size of Shoe - 20 X 14 X 1 1/4

Log of Well

0'	- 10'	- Top Soil
10	- 40	- Clay
40	- 70	- Cemented boulders
70	- 80	- Loose gravel
80	- 95	- Cemented boulders
95	- 212	- Loose gravel and boulders
212	- 246	- Tough Clay
246	- 290	- Sand and small boulders
290	- 500	- Hard brown clay

Perforations

Perforated 75' to 480' 10 holes per 12"
Diameter of Perforations 3/4"
Length of Perforations 4 1/4"
Depth at which water was first found - 65'
Standing level before perforating - 65'

Remarks

Drilled by Roscoe Moss Company
Driller - H. C. Cope
Rig No. 39

For machinery furnished and wages of men paid by us while drilling 20" No. 8 gauge well using your casing to a depth of 500 feet as per your Req. No. C-1122 dated October 21, 1946.

Drilling 20" No. 8 gauge well using your casing 500' @ 4.00 per foot $2,000.00

11 hrs....@ 8.00 per hour time of our men and equipment stripping your casing for use in well..... 88.00

$2,088.00

RID-88

ROOSEVELT IRRIGATION DISTRICT

Report on Well 8 E - 3½ N

Work started - - - May 12, 1964
Work completed - - November 29, 1964
Total depth- - - - 1800'
Depth of casing- - 838' of 24" 8 ga. used and left in well
680' of 20" 8 ga. used and left in well
310' of 16" 8 ga. used and left in well

Log of Well

0 -	2 -	fill
2 -	15 -	clay
15 -	204 -	sand, gravel, some boulders
204 -	218 -	sandy brown clay, some gravel stks
218 -	229 -	caliche
229 -	292 -	sand, gravel embedded in clay 4"
292 -	303 -	sticky sandy grey clay
303 -	374 -	streaks hard brown clay, and sticky grey clay
374 -	610 -	streaks sand, sticky grey and brown clay
610 -	865 -	streaks sticky and hard brown clay
865 -	1050 -	hard brown clay
1050 -	1145 -	hard brown clay, stks sandstone
1145 -	1180 -	sandy brown clay, stks sandstone
1180 -	1272 -	streaks brown clay, siltstone sandy brown clay
1272 -	1295 -	sand and gravel to 3"
1295 -	1373 -	sandy clay and gravel to 5"
1373 -	1395 -	sand and gravel to 3"
1395 -	1440 -	sandy clay and gravel to 1"
1440 -	1510 -	cemented sand and gravel to 1"
1510 -	1637 -	streaks cemented sand and gravel and sandy clay and gravel 3'
1637 -	1710 -	tight sand and gravel to 8"
1710 -	1800 -	hard sandy brown clay and embedded gravel to 4"

Perforations

Moss Hydraulic perforator used
165' to 285' - 12 holes per 5-5/16"
285' to 390' - 12 holes per 5"
390' to 820' - 6 holes per 10"
835' to 900' - 5 holes per 10"
900' to 1250' - 10 holes per 10¼"
1250' to 1485' - 10 holes per 5"
1500' to 1785' - 8 holes per 4"

Remarks

Well drilled by Roscoe Moss Co. - Rig #45
Driller - J. Vervoorn
Cable Tool #45

August 8, 1966

ROOSEVELT IRRIGATION DISTRICT

Well - 8 E - 3-1/2 N

Reperforating May 31, 1966 through August 1, 1966

Cut between old perforation

at 1245-835 feet - 20" casing
10 holes per round

at 825-500 feet - 24" casing
12 holes per round

RID-89

Report on Well 8E-4¼N

Work started - October 19, 1964
Work completed - April 29, 1965
Total depth - 1800 feet

Log of Well

0 - 10 ft. top soil
10 - 40 ft. sand and gravel
40 - 190 ft gravel and boulders
190 - 205 ft. sandy clay and gravel
205 - 275 ft. sand and gravel
275 - 305 ft. sand and gravel, little clay
305 - 335 ft. sandy clay, little gravel
335 - 370 ft. sand and gravel
370 - 410 ft. sand, little clay
410 - 855 ft. sticky clay, hard streaks
855 - 1200 ft. clay
1200- 1365 ft. sandy clay
1365- 1390 ft. sandy clay and gravel
1390- 1400 ft. tight sand, gravel, little clay
1400- 1480 ft. sand, gravel, little clay
1480- 1490 ft. cemented gravel streaks
1490- 1800 ft. sand, gravel, little clay

Perforations

Moss Hydraulic Perforator - ¼" x 2¼"
180 ft. to 805 ft. 10 holes per 5 inches
860 ft. to 1434 ft. 8 holes per 4 inches
1465 ft. to 1770 ft. 6 holes per 4 inches
Water level after perforation - 132 feet

652' of 16" casing installed with the top at 810' having a lap of 50' within the 20" casing. The 16" casing extends to 1462'. 345' of 12" casing installed with the top at 1440 feet having a lap of 22' within the 16" casing. The bottom of the 12" casing is at 1785 feet.

Remarks

Well drilled by Roscoe Moss Company
Driller - Hershel Holmes, Cable Tool #38

Cost - $6,400.19

J. Ave

Log - 8E - 4 Well.

0 - 40	Top soil, sand & gravel
40 - 170	Gravel & boulders
170 - 205	Sandy clay & gravel
205 - 225	Sand & gravel
225 - 272	Sand & gravel
272 - 400	Sand & gravel, some clay
400 - 475	Sand Clay without shells
475 - 610	Sticky Clay without shells
610 - 860	Sticky Clay without shells
860 - 1195	Clay
1195 - 1220	Sandy clay
1220 - 1800	Conglomerate

Static water level = 80 ft.

20" Casing - 0 - 840'
16" " - 780 - 1473
12" 1450 - 1770

Double Casing 780 - 880 No perf.
" 1450 - 1473 No perf.

Perf. 1800' - 1800 Bottom

WELL DATA

October 10, 1940

Drilled by Roscoe Moss Company, 4360 North Street, Los Angeles, Calif.

Report on Well - 8E - 4½ N - Located 4 miles ~~east~~ West, 3/4 mile south of Phoenix, Arizona

Started Work September 18, 1940
Completed Work October 7, 1940
Depth of Hole - 300 Ft.
Depth of Casing - 300 Ft.
24 Inch 8 Gauge casing used and left in well
Size of Shoe - 26½"

Log of Well

0'	-	8'	Soil
8	-	22	Coarse sand
22	-	38	Clay and caliche
38	-	165	Sand, gravel & boulders
165	-	170	Sand, gravel, boulders & clay
170	-	188	Sand, gravel & boulders
188	-	195	Clay and caliche
195	-	218	Muddy sand and gravel 6"
218	-	275	Sand and gravel 6" - streaks clay
275	-	300	Hard clay and gravel

Perforations

60 to 288 Ft. - 12 holes per 12 inches
Mills knife used
Perforations - 3/4" Diam. - 5" length
Depth at which water was first found - 60 Ft.
Standing level before and after perforating - 60 Ft.

Well is straight, top to bottom

Remarks

Drilled by - Roscoe Moss Co.
Driller - K. Kirkland
Rig Used - No. 21
$5.35 for casing - $3.00 for drilling

RID-90

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well $8\frac{1}{2}E-3\frac{1}{2}N$

Work started	-	April 3rd, 1952
Work completed	-	May 13, 1952
Total Depth	-	460'
Depth of Casing	-	460' - 20"

Log of Well

0' - 30'	Hard clay
30' - 90'	Gravel and some clay
90' -190'	Clean gravel to 5"
190' - 215'	Clay
215' - 285'	Gravel to 8"
285' - 315'	Caliche clay
315' - 321'	Caliche shell
321' - 322'	Pea gravel
322' - 332'	Soft clay
332' - 370'	Sandy silt
370' - 460'	Clay

Perforations

Perforated from 110' to 446'
Perforations 5/8" X 4" - 10 holes per 12"

Depth at which water was first found	92'
Standing level before perforating	77'
Standing level after perforating	67'

Remarks

Drilled by Roscoe Moss Company
Driller - J. N. Olson

Cost

Drilling and casing Well 460' - $9,164.40

RID-91 (*No Log Available*)

RID-92

ROOSEVELT IRRIGATION DISTRICT (Redrill)

REPORT ON WELL 9E-4¼N

Work started---------December 19, 1958
Work completed-------February 9, 1959
Total depth----------500'
500' of 20" - 8 Ga. casing used
and left in the well.

LOG OF WELL

0' - 4'----------Brown Clay
4' - 9'----------Brown Clay and gravel
9' - 29'---------Sandy Clay
29' - 107'-------Gravel and boulders
107' - 218'-------Sand, Gravel and boulders
218' - 222'-------Caliche
222' - 238'-------Sandy clay, gravel and boulders
238' - 253'-------Soft brown clay
253' - 293'-------Sand and gravel ½"
293' - 319'-------Soft brown clay
319' - 343'-------Sandy clay and gravel
343' - 346'-------Coarse sand
346' - 500'-------Sandy clay and gravel

PERFORATIONS

Moss Hydraulic perforator used
180' to 488' - 16 holes per 10 inches
Diameter - 3/16" - Length - 2½"
Depth at which water was first found - 113'
Standing level before perforating - 175'
Standing level after perforating - 112'

Well is straight from top to bottom

REMARKS

Drilled by Roscoe Moss Company-Cable Tool #39
Bill Hulsey, Driller

COST

For Drilling - Casing - Perforation
to a depth of 500'----------$ 12,765.00

Cost per foot----------$ 25.53

RID-93

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 9½E - 3½N - Located SW-¼, SW-¼, NE-¼ Sec 15, Twp 1-N, R-2-E - Maricopa County

Started Work - January 16, 1957
Completed Work - March 9, 1957
Depth of Hole - 540 feet
445 Ft. - 24" - 8-gauge casing used and left in well
Size of shoe - 24 x 16 x 1-¼

Log of Well

0'	- 4'	- Top soil
4'	- 12'	- Clay and caliche
12'	- 20'	- Boulders
20'	- 115'	- Clay and boulders
115'	- 214'	- Boulders
214'	- 257'	- Clay and boulders
257'	- 335'	- Sticky clay
335'	- 371'	- Sticky clay-streaks of sand
371'	- -430'	- Sticky clay, streaks of silt
430'	- 540'	- Sticky clay

Perforations

Perforated 110' to 431' - 10 Holes per 5 inches
Moss Hydraulic used
Perforations - ¾" Diam. - 2" length
Depth at which water was first found - 85'
Standing level before perforating 85'
Standing level after perforating 91'

Well is straight - top to bottom

Remarks

18" open hole from 445 to 540 feet. We did not cased 18" test hole. Left for future deepening job as requested by Roosevelt Irrigation District
Drilled by - Roscoe Moss Co.
Driller - J. O. Evans
Rig used - Cable Tool #46

COST

Drilling and Casing $13,523.00

RID-94

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on WELL 10E - 3 3/4N

Work started - June 2, 1952
Work Completed - June 29, 1952
Total Depth - 425'
Depth of Casing - 425 - 24"

Log Of Well:

0' to 12' soil
12' to 224' Boulders
224' to 380' Clay and gravel
380' to 425' Clay

Perforations:

Perforated 85' to 412'
Perforations 5/8" X 5½" - 12 holes per 12"

Depth at which water was first found 70'
Standing level before perforating 70'
Standing level after perforating 70'

Remarks:

Drilled by Roscoe Moss Company
Driller: J. N. Lard
Cable Tool #33

Cost:

Drilling and casing $9,992.50

RID-95

ROOSEVELT IRRIGATION DISTRICT

Redrill

REPORT ON WELL 10E-4¼N

Work started - July 7, 1964
Work Completed - December 29, 1964
Total Depth - 1800 feet
Depth of Casing - 1800 feet

LOG OF WELL

0 - 12 Top soil
12 - 114 sand and boulders
114 - 253 Loose sand and gravel
253 - 280 clay and gravel
280 - 350 caliche, clay and gravel
350 - 360 sand and gravel
360 - 385 sticky clay with hard streaks
385 - 410 sandy clay, coarse gravel
410 - 485 sticky clay, hard streaks
485 - 760 sticky gray clay
760 - 775 sand and gravel
775 - 795 sticky clay
795 - 807 sand and gravel
807 - 915 sticky clay, sandy streaks
915 - 1185 sand and gravel, some clay
1185- 1240 tight gravel, some clay
1240- 1530 granite, rock embedded in clay
1530- 1800 conglomerate, or hill formation.

PERFORATION

24" - 180' to 815' 12 holes per 5 inches
20" - 836' to 1470' 10 holes per 5 inches
16" - 1497' to 1775' 8 holes per 4 inches
Moss Hydraulic perforator used
Diameter of Perforations 5/16"
Length of Perforations 2¼"
Depth at which water first found 135'
Standing level before perforating 71'
Standing level after perforating 89'

836' of 24" 6 & 8 ga. casing used and left in well
678' of 20" 8 ga. casing used and left in well
317' of 16" 8 ga. casing used and left in well

REMARKS

Drilled by Roscoe Moss Company
Drillers - H.C. Cope, J.E. Garner, & M.G. Cope
Cable Tool Rig No. 47

Cost $65,273.88

BY ..... DATE ..... SUBJECT ..... SHEET NO. ..... OF .....

CHKD. BY ..... DATE ..... Drillers Log ..... JOB NO. .....

R.L.D. Well 106 - 4/6/

3 Pawl

0 - 12	Top soil
12 - 135	Sand, gravel & boulders
135 - 253	Loose sand & gravel
253 - 280	Clay & gravel
280 - 330	Caliche, clay & gravel
330 - 350	Tough clay
350 - 360	Sand & gravel
360 - 385	Sticky clay
385 - 410	Sticky clay & gravel
410 - 485	Sticky clay, hard streaks
485 - 560	Gray sticky clay
560 - 760	Brown sticky clay
760 - 775	Sand & gravel
775 - 795	Sticky clay
795 - 807	Sand & gravel
807 - 875	Sticky clay, sand streaks
875 - 915	Hard sandy clay
915 - 1000	Sand & gravel, some clay
1000 - 1130	Tight sand & gravel, some clay
1130 - 1185	Sand & gravel, some clay
1185 - 1240	Tight gravel, some clay
1240 - 1280	Granite & rock, some clay
1280 - 1375	Granite embedded in clay
1375 - 1490	Granite, rock & clay
1490 - 1505	Granite, rock & clay
1505 - 1555	Conglomerate
1555 - 1615	Conglomerate
1615 - 1660	Hard hill formation
1660 - 1750	Conglomerate
1750 - 1800	Conglomerate

1800

1800

RID-96

ROOSEVELT IRRIGATION DISTRICT

REPORT ON WELL 10-1/8E-3-1/4N

Work Started - February 1, 1968
Work Completed - May 7, 1968
Total Depth - 800 feet

LOG OF WELL

0 - 10 Clay
10 - 105 Gravel and boulders
105- 220 Sand, gravel and boulders
220- 245 Sand and gravel
245- 290 Sandy clay
290- 300 Sand and gravel
300- 375 Clay
375- 420 Sandy clay
420- 735 Clay
735- 800 Sandy clay

PERFORATION

Perforated 123 ft to 788 ft. 10 holes per 5 inches
Diamert of Perforations 1/4 inch
Length of Perforations 2-1/2 inches
Moss Hydraulic Perforator Used

Water level when test started - 78 feet
Draw down at completion of test - 41 ft.
No. of gal. per minute at completion of test - 4000

REMARKS

Drilled by Roscoe Moss Company - Weber Drilling Co.
Driller - Julius Vervoorn and H. Holmes
Rig #46

ROSCOE MOSS CO.

4360 Worth St., Los Angeles 63, Calif.

WELL TEST REPORT

Customer ROOSEVELT IRRIGATION DISTRICT, Date June 2, 1968

Address Tolleson, Arizona.

Well No. or Name 10-1/8-E-3-1/4-N., Maricopa County, Arizona.

Location 32nd and Van Buren Streets, Phoenix, Arizona.

TEST RESULTS.

Note: Pump at least one hour or until well has stabilized for each flow.

	Beginning of Development	FINAL TEST				
		High	Second	Third	Fourth	Low
1st Test GPM 2nd"	*400 1850	840 4000	3500	3000	2500	2000
Pumping level	*158' 79'	235' 112'	90	86	82	79
Static level	*78' 71'	78' 71'	71'	71'	71'	71'
Draw-down	*80 8'	157' 41'	19'	15'	11'	8'
Specific yield	*5.0 231.2	5.3 97.5	184.2	200	227.3	250
Pump RPM	*860 800	1025 1800	1600	1400	1175	975

Static Level after completion of test (5 minute recovery) _____ feet.

Total pumping time 111 hours. (1st Test 47 hrs) (2nd Test 64 hrs)

Pumping Equipment used:

Pump Bowls: Nominal Diam 14" inches. R. M. Co. serial no None

Column diam 10" in. Shaft diam. 1 15/16" in. Tubing diam. 3" in.

Depth of setting to top of bowls 310 feet. Pump pulley diam. Gearhead used. in.

Engine: Manufacturer GMC Model no. Twin 6-271 R. M. Co. Serial no. __

Total fuel consumed _____ gallons. Total oil consumed _____ gallons.

REMARKS _____

DAN DARNELL

RID-97

ROOSEVELT IRRIGATION DISTRICT

REPORT ON WELL 10-1/2E-3-1/8N

Work started - March 25, 1965
Work Completed - October 26, 1965
Total Depth - 1800 feet

LOG OF WELL

0 - 9	Top soil
9- 42	Sand and gravel
42- 212	Loose sand, gravel & boulders
212- 225	Very sandy clay & gravel
225- 260	Sandy clay and gravel, sticky stks
260- 271	Caliche
271- 340	Hard brown clay, embedded gravel
340- 645	Streaks hard sandy clay & sticky stks
645- 715	Sticky sandy clay
715- 743	Sticky clay and 1/2" gravel
743- 860	Sticky clay stks conglomerate
860- 942	Tight sand & gravel 3/4" some clay
942- 972	Sandy brown clay and gravel to 3/4"
972- 1028	Sandy red clay and gravel to 1-1/2"
1028- 1050	Sand & gravel to 5" some clay
1050- 1148	Sandy brown clay and gravel 1"
1148- 1206	Sandy clay and gravel to 12"
1206- 1300	Hard sandy clay and gravel 1"
1300- 1372	Hard sandy clay and gravel 6"
1372- 1408	Hard sandy clay and gravel 1"
1408- 1443	Red clay and granite gravel to 12"
1443- 1800	Hard red sandy clay and gravel 2"

PERFORATION

200 ft to 824 ft 12 holes per 5 inches
836 ft to 1490 ft 10 holes per 5 inches
1500 ft to 1788 ft 8 holes per 4 inches
Moss Hydraulic Perforator used
Diameter of Perforations 1/4" x 2-1/2"
Water first found at 89 ft.
Water standing level before perforation 58 ft.
Water standing level after perforation 58 ft.

838 ft. of 24" casing used and left in well
674 ft. of 20" casing used and left in well
310 ft. of 16" casing used and left in well

REMARKS

Drilled by Roscoe Moss Company
Driller - J. Vervoorn
Cable Tool Rig #45

RID-98

ROOSEVELT IRRIGATION DISTRICT

Report on Well 11E-3N

Work started - March 31, 1965
Work completed - August 28, 1965
Total depth - 1675 feet

Log of Well

0-8 top soil
8-158 gravel & boulders, loose
158-190 loose sand and gravel
190-215 boulders, some clay
215-240 loose sand and gravel
240-250 caliche clay and gravel
250-276 sandy clay, streaks of gravel
276-302 sandy clay, cement streaks
302-337 sand, gravel, some clay
337-410 clay and gravel
410-685 sticky clay and hard streaks
685-1050 sandy clay and gravel
1050-1260 gravel
1260-1312 granite formation
1312-1590 red hill formation
1590-1630 brown hill formation
1630-1675 red hill formation

Perforations

Moss Hydraulic Perforator used - $\frac{1}{4}$"x2$\frac{1}{2}$"
200-785 ft. 12 holes per 5 inches
800-1480 ft. 10 holes per 5 inches
1500-1665 ft. 8 holes per 4 inches

Water level 62 ft. both before & after perforation
800 ft. of 24" casing used & left in well
710 ft. of 20" casing used & left in well
193 ft. of 16" casing used & left in well
14' lap of 20" into 24" and 14' lap of 16" into 20"

Sandpumped 20 and 24 inch & brought in 140' of sand.
Top of 20" casing is 786 feet, bottom at 1496'.
Top of 16" casing 1482, bottom 1675 feet.

Remarks

Driller - Roscoe Moss Company
J. E. Garner & H. C. Cope
Cable Tool Rig #47

Cost $61,009.60

RID-99

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 11E-3 3/4N — 11E-3 3/4N

Wrok started	-	May 24, 1952
Work Completed	-	June 24, 1952
Total Depth	-	420'
Depth of Casing	-	420' - 24"

Log of Well:

0' - 11'	Hard clay
11' - 186'	Sand, gravel and boulders to 10"
186' - 208'	Hard clay
208' - 232'	Sand, gravel
232' - 240'	Hard clay
240' - 250'	Soft silt or muck
250' - 257'	Pea gravel
257' - 261'	Clay
261' - 268'	Pea gravel
268' - 296'	Clay, gravel
296' - 378'	Clay
378' - 398'	Hard or partly cemented clay
398' - 420'	Hard clay

Perforaions:

Perforated from 70' to 400'
P erforations 5/8" x 4½", 14 holes per 12"

Depth at which water was first found	- 90'
Standing level before perforating	- 70'
Standing level after perforating	- 70'

Remarks:

40' of sand and muck after perforating worked in 20' of sand.
Drilled by:
Roscoe Moss Company.
Driller: J. N. Olson
Calif Cable Tool #34.

Cost:

Drilling and casing 24" No. 8 gauge, well 420' - $10,306.60

RID-100

WELL DATA

October 10, 1940

Report on Well 11E - 4½N - Located 2 miles west of Phoenix, Arizona, near Tolleson

Started Work September 19, 1940.
Completed Work October 10, 1940
Depth of Hole - 302 Ft.
Depth of Casing - 302 Ft.
24 Inch, 8 Gauge casing used and left in well
Size of Shoe - 26½"

Log of Well

0	-	6'	Soil
6	-	10	Caliche
10	-	12	Coarse sand
12	-	20	Coarse sand and gravel
20	-	40	Sand, gravel, boulders to 10"
40	-	120	Sand, gravel, boulders to 12"
120	-	204	Sand, gravel some 10" boulders
204	-	210	Coarse sand
210	-	230	Sand, gravel to 6"-cemented
230	-	240	Clay
240	-	250	Cemented sand
250	-	294	Hard clay
294	-	300	Sand, gravel very loose
300	-	302	Hard clay

Perforations

55 to 290 Ft. - 12 holes per 12 inches
Mills knife used
Perforations - 3/4 inch Diam. - 5" Length
Depth at which water was first found - 60 Ft.
Standing level before and after perforating - 56 Ft.

Well is straight.

Remarks

Driller by - Roscoe Moss Co. 4360 Worth St., Los Angeles, Calif.
Driller - J. W. Thomas
Rig Used - No. 27

$5.35 for casing - $3.00 for drilling

RID-101

Redrill
April 9, 1969

ROOSEVELT IRRIGATION DISTRICT

Report on Well 11-1/2E-3N

Work started - December 18, 1968
Work completed - February 28, 1969
Depth of Hole - 400 feet
Depth of Casing - 400 feet 8ga.

Log of Well

0 - 223 sand, gravel & boulders
223 - 226 sticky clay
226 - 232 sand, gravel & boulders
232 - 275 clay and gravel
275 - 308 hard clay
308 - 330 sticky clay
330 - 341 sandy clay
341 - 347 hard clay
347 - 358 sticky clay
358 - 374 hard clay
374 - 384 sandy clay
384 - 400 hard clay

Perforations

Perforated 110 feet to 390 feet
26 holes per 12 inches
Moss Hydraulic perforator used
Diameter of perforations 1/4"
length of perforations 2-1/2"

Water first found 66'
standing level after perforating 52'

Remarks

Drilled by A.M. Bright -Roscoe Moss Co. & Weber Drilling Co.

Cost $15,420.00 for drilling & casing

Invoice C1960 dated 3-26-69

65 hr. swabbing @ $25.00 per hr.	1,625.00
18'-28"x5/16 conductor pipe @ $5.00 per ft.	90.00
Drill, case & perforate to 400 ft.	13,705.00
	$15,420.00

RID-102

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 11-3/4-E - 3-3/4-N

Work Started	-	July 2, 1952
Work Completed	-	August 4, 1952
Total Depth	-	440'
Depth of Casing	-	428' 24" 8 guage

Log of Well

0' - 11'	Soil
11' - 224'	Boulders
224 - 380'	Clay and gravel
380' - 440'	Clay

Perforations

Perforated from 85' to 414'
Perforations 5/8" x 5-1/2" - 12 holes per 12"

Depth at which water first found 74'
Standing level before perforating 74'
Standing level after perforating 74'

Drilled by Roscoe Moss Company
Driller: J. N. Lard
Cable Tool #33

Cost

Drilling and Casing $10,622.04

RID-103

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well #12-E-3-1/4-N

Work Started	-	July 2, 1952
Work Completed	-	August 1, 1952
Total Depth	-	440'
Depth of Casing	-	440' 24" 8 guage

Log of Well

0' - 12'	Sandy clay
12' - 180'	Sand, gravel and boulders 10"
180' - 238'	Sand and gravel 4"
238' - 253'	Clay
253' - 270'	Sand and gravel to 4"
270' - 275'	Cemented clay
275' - 300'	Caliche
300' - 315'	Soft clay and small gravel
315' - 340'	Soft sandy clay and silt
340' - 358'	Hard clay
358' - 375'	Soft sandy clay
375' - 390'	Clay and gravel
390' - 440'	Hard clay

Perforations

Perforated from 80' to 420'
Perforations 5/8" x 4-3/4" - 14 holes per 12"

Depth to water first found 110'
Standing level before perforating 80'
Standing level after perforating 80'

Drilled by Roscoe Moss Company
Driller: J. N. Olson
Cable Tool #34

Cost

Drilling and Casing $10,970.20

RID-104

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

REDRILL

Report on Well 12-1/8-E-3-3/4-N

Located, E of Ave. 19

Redrill new location

Work started May 20, 1957
Work completed June 14, 1957
Total depth 410'
Depth of casing 390'
24" - 8 Gauge casing used and left in well

Log of Well

0'	- 6'	- Top soil
6'	- 20'	- Clay, caliche and boulders
20'	- 150'	- Boulders
150'	- 165'	- Hard clay and boulders
165'	- 177'	- Boulders
177'	- 184'	- Sandy clay
184'	- 197'	- Clay and boulders
197'	- 278'	- Sticky clay
278'	- 325'	- Sticky clay and stks of sand
325'	- 410'	- Sticky clay

Perforations

100' to 370' - 11 holes per 12 inches - Mills knife used
Perforations - Diameter - 1/2"; Length - 4 1/2"
Depth at which water was first found - 93'
Standing level before perforating - 93'
Standing level after perforating - 93'

Well is straight, top to bottom

Remarks

Drilled by Roscoe Moss Company
Driller - J. O. Evans
Type and Rig No. used - Cable Tool #46

Drilling, casing and perforating 24" No. 8 gauge well to a depth of 400 feet for	$11,732.00
Drilling, casing and perforating 24" No. 8 gauge well 400 to 410 feet, or 10' @ $27.80 per ft.	278.00
	$12,010.00
Less 24" No. 8 gauge casing not installed 390 to 410 feet, or 20" @ $15.80 per ft.	316.00
	$11,694.00

RID-105

RID-105

ROOSEVELT IRRIGATION DISTRICT

REDRILL

WELL DATA

Report on Well 5 E - 5 N - Located, Lateral 20

Work started - June 3, 1942
Work completed - July 16, 1942
Total Depth - 622'
Depth of casing - 622'
20" - 8 Gauge casing used and left in well
Size of shoe - 20 x 14 x 1¼"

Log of Well

0'	- 4'	- Soil
4	- 28	- Caliche clay
28	- 40	- Sand & gravel
40	- 54	- Hard clay and gravel
54	- 75	- Cemented sand and gravel
75	- 85	- Fine sand
85	- 102	- Hard clay
102	- 140	- Caliche clay
140	- 160	- Soft sticky clay
160	- 170	- Hard clay
170	- 174	- Gravel about 1"
174	- 192	- Cemented gravel
192	- 202	- Fine sand and gravel
202	- 235	- Caliche
235	- 248	- Sticky clay
248	- 286	- Boulders
286	- 320	- Hard clay and shells
320	- 380	- Sandstone
380	- 415	- Sandstone and clay
415	- 422	- Gravel partly cemented
422	- 470	- Hard clay and sandstone
470	- 490	- Gravel 2" partly cemented
490	- 510	- Hard clay
510	- 575	- Hard clay and sandstone
575	- 595	- Soft Clay
595	- 622	- Hard clay and sandstone

Perforations

80' to 508' - 8 Holes per 12 inches - Mills knife used
Perforations - Diam - 3/4"; Length - 5"
Depth at which water was first found - 35'
Standing level before perforating - 30'
Standing level after perforating - 30'

Remarks

Drilled by Roscoe Moss Company
Driller - J. E. Cunningham
Rig No. 24

RID-106

RID-106

ROOSEVELT IRRIGATION DISTRICT

REDRILL

WELL DATA

Report on Well 6 E - 5 N - Located 3 miles east of Tolleson

Work started - April 16, 1942
Work completed - May 30, 1942
Total Depth - 790'
Depth of casing - 790'
20" - 8 Gauge casing used and left in well
Size of shoe - 20 x 14 x 1¼"

Log of Well

0'	To	3'	- Soil
3	-	24	- Caliche and clay
24	-	29	- Sand and gravel
29	-	60	- Caliche and clay
60	-	65	- Gravel 1" diameter
65	-	80	- Sticky clay
80	-	106	- Boulders 10" diameter
106	-	115	- Hard clay
115	-	148	- Boulders 10" diameter
148	-	178	- Hard clay
178	-	220	- Clache clay
220	-	230	- Cemented gravel
230	-	290	- Caliche and clay
290	-	302	- Cemented boulders
302	-	320	- Hard clay
320	-	370	- Sand and gravel 3", partly cemented
370	-	420	- Hard clay
420	-	455	- Hard clay and sandstone
455	-	505	- Cemented clay
505	-	515	- Hard clay and gravel
515	-	540	- Cemented clay
540	-	545	- Hard clay and gravel
545	-	566	- Hard clay and sandstone
566	-	585	- Hard clay and gravel
585	-	790	- Hard clay

Perforations

80' to 776' - 8 Holes per 12 inches - Mills knife used
Perforations - 3/4" Diam. - 5" Length
Depth at which water was first found - 60'
Standing Level before perforating - 45'
Standing level after perforating - 45'

Remarks

Drilled by Roscoe Moss Company
Driller - J. E. Cunningham
Rig No. 24

RID-107

ROOSEVELT IRRIGATION DISTRICT Redrill

RID-107

Report on Well 7 E - 5 N

Work started - May 10, 1943
Work completed - May 27, 1943
Total depth - 414'
Depth of casing - 414' - 234' additional casing (180' 24" - old well)
234' - 16" - 10 gauge casing used & left in well

Log of Well

210' - 230' - Hard clay and gravel
230 - 240 - Soft sandy clay
240 - 258 - Hard clay
258 - 270 - Sand and gravel to 4"
270 - 286 - Clay
286 - 290 - Hard clay
290 - 314 - Gravel to 5"
314 - 320 - Soft sandy clay
320 - 324 - Cemented sand
324 - 332 - Soft clay
332 - 344 - Sand
344 - 348 - Gravel to 4"
348 - 352 - Clay
352 - 402 - Gravel to 4"
402 - 414 - Hard clay

180' lap of 16"

Perforations

Mills knife used
Perforated 200' to 404' - 8 holes per 10 inches
Diam - 5/8" - Length - 4"
Depth at which water was first found - 58'6"
Standing level before perforations - 58'6"
Standing level after perforating - 58'6"

Casing cut 180' from surface - 16" casing cut
30' lap in larger casing - adapter used

175' of sand cleaned out

REMARKS

Drilled by Roscoe Moss Co. Rig No. 22 - J. N. Olson, Driller

COST

16" Well - 210' to 414'- 204' @ $3.50/ft.	$714.00
20' - 16" #10 ga. starter with shoe installed	204.53
214' - 16" #10 ga. casing installed @ $4.14/ft.	885.96
Installing 210' - 16" casing in old well, cutting off casing and removing 180' of 16" casing, 210' @ 65¢/ft	136.50
L - Steel adapter	35.00
TOTAL	$1,975.99

RID-108

REDRILL

WELL DATA

Nov. 22, 1940

RID-108

Report on Well 7½ E - 5 N - Located near Tolleson

Work started - November 2, 1940
Work completed - November 22, 1940
Depth of Hole - 284'
Depth of casing - 276'
24" - 8 Gauge casing used and left in well
Size of shoe -

Log of Well

0'	- 9'	- Soil
9	- 26	- Gravel and sand
26	- 76	- Clay
76	- 82	- Fine hard packed sand
82	- 84	- Gravel
84	- 90	- Hard packed sand
90	- 102	- Coarse gravel to 8"
102	- 104	- Clay
104	- 160	- Gravel to 6"
160	- 190	- Sand and gravel to 6"
190	- 214	- Cemented gravel to 6"
214	- 240	- Hard Clay
240	- 244	- Gravel and clay
244	- 256	- Clay
256	- 270	- Gravel to 4"
270	- 280	- Cemented sand.
280	- 284	- Hard sandstone

Perforations

62' to 270' - 12 Holes per 12 inches
Mills knife used
Perforations - 3/4" Diam - 5" Length
Standing level before perforating - 58'
Standing level after perforating - 60'

Well is practically straight - top to bottom

Remarks

Drilled by - Roscoe Moss Co.
Driller - J. W. Thomas
Rig used - No. 27

$5.35 for casing - $3.00 for drilling

RID-109

RID-109

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

May 29, 1957

Redrill

Report on Well 8 E - 5 N

Work started	-	April 22, 1957
Work completed	-	May 18, 1957
Total Depth	-	500'
Depth of Casing	-	406'

Log of Well

0'	-	6'	-	Top soil
6	-	20	-	Clay and caliche
20	-	50	-	Sand, gravel and caliche
50	-	60	-	Sand and gravel
60	-	84	-	Clay
84	-	130	-	Sand, gravel and caliche
130	-	138	-	Sand and gravel
138	-	220	-	Sand, gravel and caliche
220	-	247	-	Cemented gravel and boulders
247	-	271	-	Sand, gravel and caliche
271	-	313	-	Clay and gravel
313	-	351	-	Cemented gravel and boulders
351	-	380	-	Hard clay and caliche
380	-	390	-	Cemented gravel and boulders
390	-	395	-	Soft clay and fine gravel
395	-	418	-	Cemented gravel and boulders
418	-	430	-	Clay
430	-	455	-	Cemented gravel and boulders
455	-	475	-	Hard clay, embedded gravel
475	-	500	-	Sticky clay

Perforations

Perforated 140' to 394'
10 holes per 12 inches

Depth of Perforations	-	½ inch
Length of Perforations	-	5 inches
Depth at which water was first found	-	133'
Standing level before perforating	-	133'
Standing level after perforating	-	130'

Well is straight from top to bottom
Will be no detrimental effect on pump

Remarks

Drilled by Roscoe Moss Co. - Cable Tool #46
J. O. Evans drilled - Mills Perforator

Cost

For materials furnished, equipment and tools used and wages of men paid by us while drilling, casing a nd perforating 20" No. 8 gauge Well #8 -E-5-N., on NW-¼ of NW-¼ of Sec 9, Twp 1 N, Range 2 E. Maricopa County, Arizona, as per our letter quotation dated December 16, 1956, and your P. O. #C-3191 dated April 29, 1957

(over)

RID-110

RID-110

ROOSEVELT IRRIGATION DISTRICT

April 18, 1957

WELL DATA

Report on Well 9E - 5N

Work Started - March 12, 1957
Work Completed - April 18, 1957
Total Depth - 500'
Depth of Casing - 480'
20" - 8 Gauge casing used and left in Well

Pudriel

Log of Well

0' - 4' - Top soil
4' - 20' - Caliche
20' - 122' - Sand, gravel and caliche
122' - 152' - Cemented sand and gravel
152' - 225' - Sand, gravel and boulders
225' - 237' - Cemented gravel and boulders
237' - 268' - Sand, gravel and caliche
268' - 355' - Clay and gravel
355' - 380' - Cemented conglomerate
380' - 390' - Clay and gravel
390' - 413' - Hard caliche and gravel
413' - 417' - Clay and gravel
417' - 457' - Hard caliche and gravel
457' - 480' - Sticky clay
480' - 500' - Hard caliche and gravel

Perforations

140' to 465' - 10 Holes per 12 Inches
Mills used
Perforations - Diam - 1/2"; Length - 4-1/2"
Depth at which water was first found - 128'
Standing level before perforating - 128'
Standing level after perforating - 131'

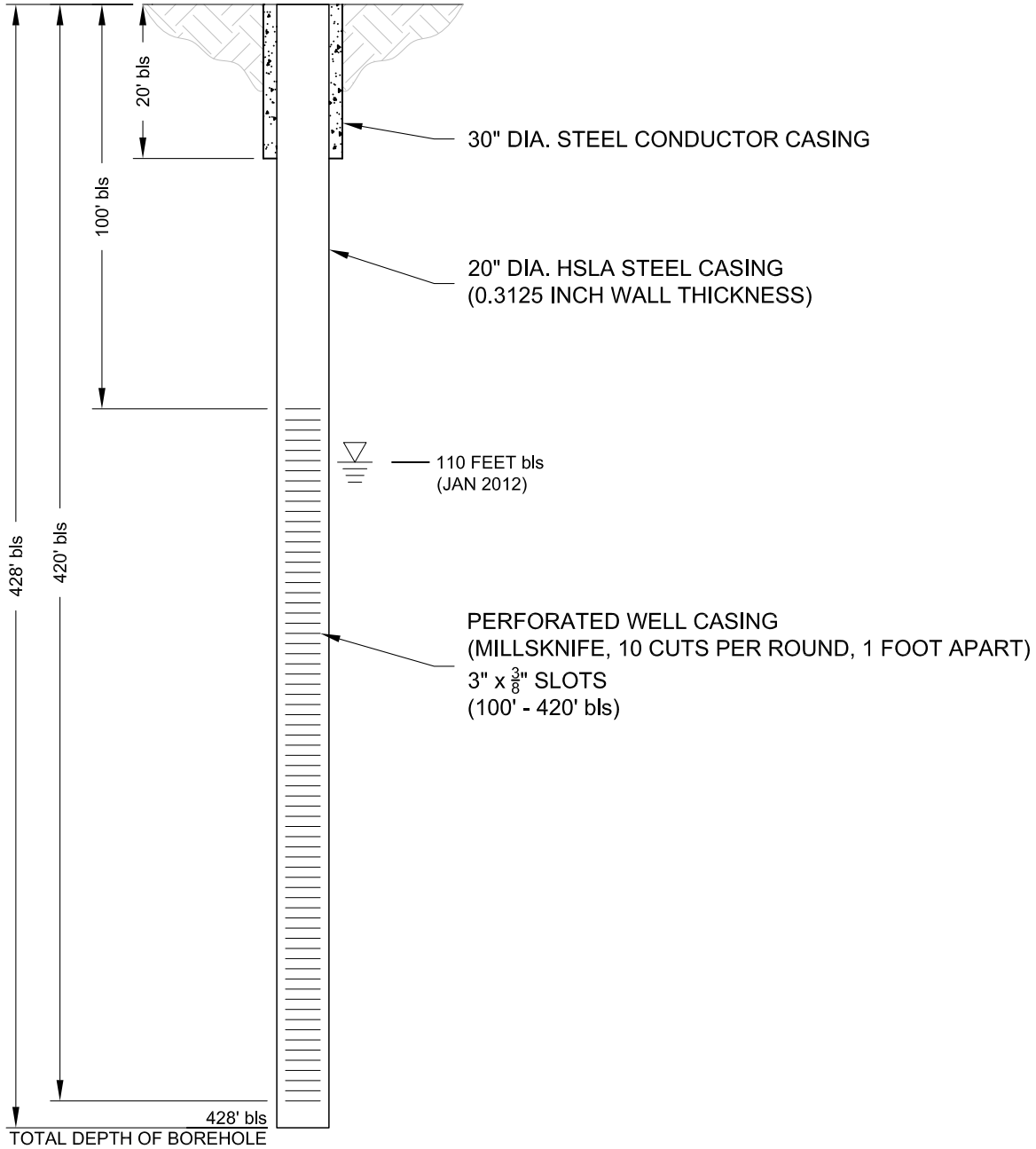
Well is straight, top to bottom
No detrimental effect on pump

Remarks

Drilled by Roscoe Moss Company
Driller - J. O. Evans
Rig No. Used - #46

Cost - $12,322.00

RID-111R



EXPLANATION

bls - BELOW LAND SURFACE

SCHEMATIC DIAGRAM OF
CONSTRUCTION OF WELL RID-111R

By: ld	Date: 06/13/13	Project No. 802.20
SYNERGY ENVIRONMENTAL, LLC 10645 N. Tatum Blvd. Suite 200-437 Phoenix, AZ 85028 602-430-2785		Figure 2

Plot Date: 06/13/13 - 3:49pm, Plotted by: Luke Downing
Drawing Path: N:\Synergy\Roosevelt Irr\Well 111R\, Drawing Name: Synergy RID 111R Well Completion.dwg

Roosevelt Irrigation District Well 111 9 3/4E 5N		
Depth From Surface		
From (feet)	To (feet)	Description - Describe Material, Grain Size, Color, Etc.
0	20	Top Soil
20	40	Clay
40	65	Sand and Boulders
65	75	Sand and Boulders
75	100	Sand and Boulders
100	145	Boulders
145	165	Clay with Gravel
165	185	Clay and Sandstone
185	210	Clay, Gravel and Sand
210	225	Boulders
225	235	Hard Clay with Sandstone
235	275	Hard Sand with Gravel
275	290	Boulders
290	295	Hard Clay with Sandstone
295	300	Hard Sand with Gravel
300	310	Clay with Gravel Little Sand
310	325	Cemented Sand and Gravel Several Boulders
325	355	Cemented Sand and Gravel and Boulders
355	374	Sand and Gravel
374	390	Cemented Sand and Gravel
390	410	Conglomerate
410	420	Hard Clay and Sandstone with Little Gravel
420		Sticky Clay

DEPTH INTERVAL (feet)	DOMINANT COLOR(S) (Munsell Soil Color Charts 1990)	SIZE DISTRIBUTION (percent - estimated)				LITHIFICATION	GRAVEL FRACTION	REACTION TO ACID (10% HCl)	COMMENTS **[DRILLERS LOG]**
		GRAVEL %	SAND		SILT & CLAY				
			ROUNDNESS	SIZE					
SURFACE-10	—	—	—	—	—	—	—	—	**[0-20 FT: TOPSOIL]**
10-25	—	—	—	—	—	—	—	—	NO SAMPLE
25-30	Reddish Yellow 7.5 YR 6/6	20	Sub-Angular	Very Fine to Med Moderate Sorting	30	Friable to Firm	Siltstone; subangular, 4-8mm, max 10	Slight	**[20-40 FT:CLAY]**
30-40	Reddish Yellow 7.5 YR 6/7	20	Sub-Angular	Very Fine Well Sorted	30	Friable to Firm	Siltstone; subangular 4-8mm, max 10mm	Very Slight	—
40-50	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	40	Sub-Angular to Angular	Fine to Coarse Mod-Poor Sorting	20	none	Basalt – 50% Granite & Grus – 40% Quartzite – 10% 2-10mm, max 20mm	none	**[40-100 FT: SAND AND BOULDERS]**
50-60	SAA	50	SAA	SAA	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-10mm, max 15mm	none	—
60-65	SAA	40	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 10mm	none	—
70-80	—	—	—	—	—	—	—	—	NO SAMPLE
80-90	—	—	—	—	—	—	—	—	NO SAMPLE
90-100	—	—	—	—	—	—	—	—	NO SAMPLE

DEPTH INTERVAL (feet)	DOMINANT COLOR(S) (Munsell Soil Color Charts 1990)	SIZE DISTRIBUTION (percent - estimated)				LITHIFICATION	GRAVEL FRACTION	REACTION TO ACID (10% HCl)	COMMENTS **[DRILLERS LOG]**
		GRAVEL %	SAND		SILT & CLAY				
			ROUNDNESS	SIZE					
100-110	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	40	Sub-Angular to Angular	Fine to Coarse Mod-Poor Sorting	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 3-5mm, max 10mm	none	**[100-145 FT: BOULDERS]**
110-120	SAA	60	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 15mm	none	——
120-130	SAA	60	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 15mm	none	——
130-140	SAA	50	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	——
140-150	SAA	50	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 10mm	none	——
150-160	SAA	30	SAA	SAA	30	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-4mm, max 5mm	none	Clayey below 155 ft **[145-165 FT: CLAY WITH GRAVEL]**
160-170	Light Reddish Brown 5YR 6/3-4	10	Sub-Angular	Very Fine to Fine, & Silty. Well Sorted	60	Friable to Firm	Tuff – 80%; bit crushed Remainder as previous	none	
170-180	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	5	Sub-Angular to Angular	Fine to Coarse Mod-Poor Sorting	50	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm	none	Mostly very fine sand and silt **[165-185 FT: CLAY AND SANDSTONE]**
180-190	SAA 170-180	10	SAA 170-180	SAA 170-180	30	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm	none	**[185-210 FT: CLAY, GRAVEL AND SAND]**
190-200	SAA	25	SAA	SAA	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	——

DEPTH INTERVAL (feet)	DOMINANT COLOR(S) (Munsell Soil Color Charts 1990)	SIZE DISTRIBUTION (percent - estimated)				LITHIFICATION	GRAVEL FRACTION	REACTION TO ACID (10% HCl)	COMMENTS **[DRILLERS LOG]**
		GRAVEL %	SAND		SILT & CLAY				
			ROUNDNESS	SIZE					
200-210	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	40	Sub-Angular to Angular	Fine to Coarse Mod-Poor Sorting	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 15mm	none	___
210-220	SAA	40	SAA	SAA	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-10mm, max 12mm	none	**[210-225 FT: BOULDERS]**
220-230	SAA	30	SAA	SAA	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	**[225-235 FT: HARD CLAY WITH SANDSTONE]**
230-240	___	___	___	___	___	___	___	___	**[235-275 FT: HARD SAND WITH GRAVEL]**
240-250	___	___	___	___	___	___	___	___	___
250-260	___	___	___	___	___	___	___	___	___
260-270	___	___	___	___	___	___	___	___	___
270-280	___	___	___	___	___	___	___	___	**[275-290 FT: HARD SAND WITH GRAVEL]**
280-290	___	___	___	___	___	___	___	___	___
290-300	___	___	___	___	___	___	___	___	**[290-295 FT: HARD CLAY WITH SANDSTONE] [295-300 FT: HARD SAND WITH GRAVEL]**

DEPTH INTERVAL (feet)	DOMINANT COLOR(S) (Munsell Soil Color Charts 1990)	SIZE DISTRIBUTION (percent - estimated)				LITHIFICATION	GRAVEL FRACTION	REACTION TO ACID (10% HCl)	COMMENTS [DRILLERS LOG]
		GRAVEL %	SAND		SILT & CLAY				
			ROUNDNESS	SIZE					
300-310	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	40	Sub-Rounded to Sub-Angular	Very Fine to Coarse Poor Sorting	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 10mm	none	**[300-310 FT: CLAY WITH GRAVEL, LITTLE SAND]**
310-320	SAA 300-310	50	SAA 300-310	Fine to Coarse M-Poor Sorting	20	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 10mm	none	**[310-325 FT: CEMENTED SAND AND GRAVEL, SEVERAL BOULDERS]**
320-330	SAA	60	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 10mm	none	**[325-355 FT: CEMENTED SAND AND GRAVEL AND BOULDERS]**
330-340	SAA	30	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	——
340-350	SAA	50	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 10mm	none	——
350-360	SAA	40	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-6mm, max 8mm	none	**[355-374 FT: SAND AND GRAVEL]**
360-370	SAA	20	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 12mm	none	——
370-380	SAA	10	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 10mm	none	**[374-390 FT: CEMENTED SAND AND GRAVEL]**
380-390	SAA	5	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 3-6mm	none	——
390-395 395-400	SAA	90 5	SAA	SAA	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 4-8mm, max 10mm	none	**[390-410 FT: CONGLOMERATE]**

DEPTH INTERVAL (feet)	DOMINANT COLOR(S) (Munsell Soil Color Charts 1990)	SIZE DISTRIBUTION (percent - estimated)				LITHIFICATION	GRAVEL FRACTION	REACTION TO ACID (10% HCl)	COMMENTS **[DRILLERS LOG]**
		GRAVEL %	SAND		SILT & CLAY				
			ROUNDNESS	SIZE					
400-410	Brown 7.5YR 5-4/4 with flecks of Red 10R 4/8 Med-Dark Gray 7.5YR N6-4	20	Sub-Rounded to Sub-Angular	Fine to Medium Well Sorted	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	——
410-415	SAA 400-410	10	SAA	Fine to Medium Well Sorted	10	none	Qtzite / Qtz / Metamorphics– 60% Basalt – 20% Granite & Grus – 20% 2-5mm, max 8mm	none	**[410-420 FT: HARD CLAY AND SANDSTONE WITH LITTLE GRAVEL]**
420	——	——	——	——	——	——	——	——	NO SAMPLE **[420 FT: STICKY CLAY]**

RID-112

WELL DATA October 26, 1943

Report on Well 10½E - 5N - Located 3 miles west of Phoenix, on Van Buren

R1D-112

Started Work - August 21, 1943
Completed Work - September 15, 1943
Depth of Hole - 650 feet.
Depth of Casing- 650 feet.
16" - 10-gauge casing used and left in well
Size of shoe -

Log of Well

300'	- 326'	- Hard clay
326	- 340	- Sand
340	- 348	- Hard clay
348	- 354	- Sand
354	- 362	- Hard clay
362	- 366	- Sand
366	- 650	- Hard clay.

Perforations

Perforated 300' to 635' - 8 Holes per 10 inches
Mills knife used
Perforations - 3/4" Diam. - 4"Length

Casing - Cut 296' from surface
Size of casing cut - 16"
Lap of larger casing - 4 ft.
Adapter used.

Well is practically straight - top to bottom.

Remarks

Drilled by - Roscoe Moss Co.
Driller - J. N. Olson
Rig used - No. 22

Cost

Drilling & casing 16" well 320' to 650' 330' @ $6.74 per ft.	$2,224.20
Starter - 16" x 20'	204.53
Drilling in 16" starter 20' @ $2.60/ft.	52.00
Adapter - 20" to 16"	35.00
Installing 296' - 16" casing @ 65¢ & removing same	192.40
4' - 16" No. 10 gauge between 296' & 300', left in well @ $4.14	16.56
TOTAL	$2,724.69

RID-113

RID-113

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 11 E - 5 N

Work Started	-	December 22, 1952
Work Completed	-	January 24, 1953
Total Depth	-	415'
Depth of Casing	-	20' - 20"

Log of Well

220'	-	227'	Clay
227'	-	267'	Gravel to 4"
267'	-	274'	Caliche
274'	-	293'	Streaks of sand in soft sandy clay
293'	-	415'	Clay

Perforations

Perforated from 228' to 398'
Perforations 5/8" x 4-$\frac{1}{4}$, 10 Holes per 12"

Standing level before perforating 80'
Standing level after perforating 80'

Type of perforator used - Mills

Remarks

Drilled by: Roscoe Moss Company
Driller: J. N. Olson

Cost

Drilling and casing 20' of 20" 10 guage well 415' - $ 2,499.40

30' of sand and muck after perforating

RID-114

RID-114

ROOSEVELT IRRIGATION DISTRICT

WELL DATA

Report on Well 11½ - 5N Deepening Job

Work Started	-	January 26, 1953
Completed Work	-	February 11, 1953
Total Depth	-	395'
Depth of Casing	-	202' - 20"

Log of Well

200'	-	206'	Caliche
206'	-	250'	Sand and gravel
250'	-	270'	Soft sandy clay
270'	-	290'	Clay
290'	-	350'	Sandy clay
350'	-	395'	Hard Clay

Perforations

Perforated from 205' to 380'
Perforations 5/8" x 5", 10 Holes per 12"

Standing level after perforating 85'

Type of perforator used - Mills

Remarks

Drilled by: Roscoe Moss Company
Driller: J. N. Olson

Cost

Drilling and casing 202' of 20" 10 gauge well 395' -$ 2,004.35

Roosevelt Irrigation District furnished 164'20" used Pipe. Roscoe Moss Company furnished starter and drive section

INTRODUCTION

The Water Quality Assurance Revolving Fund (WQARF) is designed to protect current and reasonably foreseeable end uses of water and to take any actions necessary to address hazardous substance contamination that would interfere with those uses. The following questions are intended to benefit you, the water provider, by helping us to identify necessary actions and timeframes within which those actions must be taken. These questions are being sent to all water providers in the area of the WVB Site. These questions are not intended to be a burden, and you may certainly give estimates or approximations if you do not know the answers to every question. If you do not have certain information, but can direct us to another source for the information, please do so.

There is a reason for every question. For example, questions regarding supplies available to you are intended to help identify whether replacement water supplies might be an option. Questions regarding physical limitations at well sites are intended to identify whether wellhead treatment is an option that could be feasible.

We have attached for your convenience a map of the West Van Buren (WVB) WQARF Site.

Rest assured that this questionnaire is just one mechanism for you to have input into the WQARF remedy. The WQARF program will not design a remedy for your system without your full participation. Thank you for your help in answering these questions.

Water provider name: ***Salt River Project***

Date questionnaire completed: ***October 18, 2013***

Name of person completing the questionnaire: ***Greg Kornrumph***

Title: ***Principal Analyst***

Address: ***PO Box 52025, Phoenix AZ 85072-2025***

Phone number: ***602-236-3264***

E-mail Address: ***Greg.Kornrumph@srpnet.com***

1. PLANNING DOCUMENTS

Please provide copies of any available documents useful in planning for water needs within your service area, including any water resources plans, land use plans, population projections, and capital improvement plans.

SRP's completed WVB Land and Water Use Study Questionnaire, dated September 21, 2007 (available on the ADEQ website) provides information on anticipated future groundwater use. As indicated in the Questionnaire, SRP anticipates that its irrigation wells in the WVB area will eventually transition to a drinking water supply in the reasonably foreseeable future by either connecting wells to municipal distribution systems or piping to municipal water treatment plants located on the canal system as a drought supply. Pumping data for 2003-2012 for the SRP wells within a 5-mile radius of the WVB area is provided as Attachment 1.

2. CURRENT WATER USES

2a. In acre feet per year, how much water do you currently provide to customers within your service area? Please provide a map of your service area.

SRP delivers an average of approximately 900,000 acre feet per year to customers within its service area and to meet other contractual obligations.

2b. In acre feet per year, how much water do you serve within the WVB Site?

The WVB Site is located within SRP's water service area. In 2012, SRP delivered 3,418 acre feet to shareholders within the WVBA. This water was delivered to the land for irrigation and landscaping use. In addition, SRP delivers water to the City of Phoenix water treatment plants, which is then treated for potable use and then delivered by COP to the land within the WVB.

2c. In either percentage or volume, estimate the amount of water currently put to the following end uses:

- Municipal
- Industrial
- Agricultural
- Turf Irrigation
- Recreational

Within SRP's service area, for 2012, approximately 64 percent of the water delivered by SRP was for Municipal/Industrial uses, and 36 percent for agricultural, turf irrigation, and recreational use. These percentages have been relatively consistent since 2007.

2d. Do you currently deliver water for potable use? If so, please provide information regarding the quantity delivered and the number of customers and service connections.

No. SRP is a raw water provider.

3. CURRENT WATER SOURCES

3a. How much of the water you provide within your service area is groundwater?

SRP typically delivers a mix of surface water and groundwater in its service area. The percentages of each water source vary from year to year, depending upon surface water availability. Generally, when surface supplies are low, there is a greater percentage of groundwater in the mix.

3b. How much of the water you provide within your service area is surface water? ***See 3a.***

3c. How much of the water you provide within your service area is reclaimed water? ***None***

3d. Do you serve water from any other sources?

SRP also delivers CAP water to entities with CAP subcontracts that have access to SRP's delivery system.

3e. What are other sources of water available to you? ***None***

3f. Do you have a contract for Central Arizona Project water? ***Yes, CAP Excess Water Contract.***

3g. How much of the water you provide in your service area is from wells within the WVB Site? Please provide well location coordinates and well construction information for these wells. ***None.***

3h. How much of the water you provide in your service area is from wells within five miles outside of the WVB plume boundary? Please provide well location coordinates and well construction information for these wells. ***Please see response #1 above. For well construction information, please see Attachment 2.***

3i. In acre feet per year, please provide the groundwater production for each well identified in 3g and 3h above. ***See 3h.***

3j. Please identify your wells within the WVB Site that are screened solely within the lower alluvial aquifer. ***None***

3k. Please identify your wells within five miles outside of the WVB plume boundary that are screened solely within the lower alluvial aquifer. ***For lithologic information, please see Attachment 2.***

4. IMPAIRED WELLS

4a. Please provide a list of your wells within your service area that currently produce water that contains contaminants.

4b. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are currently within the plume boundary.

4c. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are downgradient of the WVB plume boundary.

4d. Using the provided plume map as a guide, please identify and provide a location for all of your wells that are within one mile outside the WVB plume boundary.

4e. Please identify any wells that have been shut down due to contamination. For each well, please provide any available information regarding dates and levels of contamination.

SRP provided, in the WVB Land and Water Use Study Questionnaire, a list of wells near the WVB area that have had detectable concentrations of VOCs. All of the wells are currently operational. Attachment 3 provides sampling results for 2007 through present for the WVB primary contaminants of concern.

5. CURRENT TREATMENT AND DELIVERY SYSTEM

5a. Please describe or provide documents describing any current treatment of the water provided within your service area.

5b. Please provide a map of your current system.

5c. Are there physical constraints in your system in terms of limited space at well sites or system bottlenecks that would be relevant to well modification, replacement, or treatment?

SRP currently accepts VOC treated water from other WQARF and CERCLA superfund sites within the Phoenix area.

6. FUTURE WATER USES

6a. Please describe current land uses in your service area, and any changing land uses that might impact future water needs within your service area. ***See 2c above.***

6b. Please describe any past or current changes in your service area that might be predictive of future changes (for example, urbanization trends, infill initiatives, or planned communities)**.** ***See 2c above.***

6c. Please provide any information about customer growth over time.

See document noted in question 1.

6d. Please describe any current plans for modification or additions to your treatment or delivery systems. ***None planned at this time.***

6e. Do you currently have plans to drill new wells or replace existing wells? Please provide any available information about the planned locations and details of well completion. For each well, please describe whether you plan to screen the wells within one or both of the upper alluvial units, or isolate the wells within the lower alluvial unit? ***None planned in the short term***

(within five years) for the list of wells in Attachment 1. SRP anticipates certain wells will need replacement in the future.

7. WATER PROVIDER SYSTEM REQUIREMENTS

7a. Is your delivery system a transportation or distribution system? Please describe.

7b. Are there portions of your service area that are unavailable for location of future wells? Please describe.

7c. Please provide any additional information about unique system requirements that might constrain use of alternative water supplies or water treatment systems.

7d. Are you currently regulated as a Public Water System under the Safe Drinking Water Act?

SRP's system is used for both transportation and distribution purposes as noted above. SRP considers all land within the Salt River Reservoir District boundaries potentially available for future well locations. SRP is not regulated as a Public Water System or Constructed Conveyance System under the SDWA.

West Van Buren Well Pumping - 2003 to 2012

ADWR	Location	Well Type Code	Well Num	Year 2003	Year 2004	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Total
55201730	010E071N	A	14328	NULL	NULL	NULL	2.08	331.14	488.68	421.53	20.09	285.99	152.24	1,701.75
55203885	060E102N	A	14487	NULL	NULL	NULL	NULL	5.39	-	11.59	-	2.69	-	19.67
55209184	050E089N	A	14527	NULL	NULL	NULL	NULL	NULL	120.83	208.94	44.91	122.03	556.95	1,053.66
55214512	121E089N	A	14679	NULL	NULL	NULL	NULL	NULL	2.03	4.09	-	-	-	6.12
55219124	020E049N	A	14885	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	423.06	423.06
55523773	023E013N	C	14293	3,436.76	3,243.72	3,020.26	4,044.55	3,406.04	3,230.74	3,355.61	3,093.16	3,029.94	2,523.37	32,384.15
55578323	079E010N	C	13930	1,717.42	1,067.63	1,031.21	1,091.21	1,150.77	1,122.85	1,390.38	1,033.50	1,367.92	1,134.66	12,107.55
55578740	060E009N	C	13952	822.92	-	-	55.37	266.20	242.75	304.42	237.88	260.41	266.17	2,456.12
55586184	030E010N	C	14207	2,220.98	3,046.36	821.71	2,313.29	3,054.35	1,070.61	3,973.06	2,353.45	3,271.27	3,272.03	25,397.11
55607674	070E090N	A	10745	439.18	93.79	15.65	0.02	667.49	24.54	5.39	-	0.11	167.91	1,414.08
55607675	075E075N	R	10752	2,032.19	1,318.80	109.68	275.15	1,211.41	86.52	266.13	85.74	391.46	1,305.61	7,082.69
55607694	030E010N	C	10687	117.24	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	117.24
55607697	070E010N	C	10741	3,049.75	3,137.12	2,904.26	3,212.58	3,209.97	2,511.36	3,439.91	3,273.93	3,399.92	3,074.83	31,213.63
55607698	048E000N	C	10706	0.66	2,294.77	2,156.31	1,324.22	758.37	0.05	-	NULL	NULL	NULL	6,534.38
55607715	160E080N	A	10804	93.40	518.80	70.10	61.00	228.40	-	-	-	-	2.20	973.90
55607718	020E050N	A	10680	1,138.23	1,383.44	119.38	174.98	105.50	-	14.80	-	NULL	NULL	2,936.33
55607726	160E068N	A	10802	1,332.19	911.40	54.66	92.53	332.20	55.90	88.59	69.37	237.09	530.04	3,703.97
55607727	070E068N	R	10743	1,383.17	828.48	-	59.63	64.57	-	113.97	50.16	-	200.93	2,700.91
55607728	040E050N	A	10700	2,272.55	1,149.13	0.55	154.96	353.81	74.61	173.66	41.98	841.55	406.09	5,468.89
55607729	130E001S	A	10786	1,135.15	1,001.67	394.72	673.12	1,285.14	402.87	703.00	543.55	740.66	1,335.10	8,214.98
55607731	171E074N	A	10807	512.22	590.82	3.04	0.05	300.51	-	5.62	-	-	-	1,412.26
55607735	035E060N	R	10697	88.80	10.52	1.94	0.97	-	-	6.81	-	0.09	4.70	113.83
55607736	080E065N	R	10756	562.40	403.92	1.20	61.22	169.80	0.76	209.30	109.19	67.91	0.23	1,585.93
55607749	150E093N	R	10801	-	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	-
55608356	020E090N	A	10684	797.34	582.30	11.76	0.67	337.39	-	101.19	-	-	553.36	2,384.01
55608358	030E080N	A	10690	1,052.24	1,134.38	27.18	122.77	376.96	143.73	18.40	5.07	51.59	504.64	3,436.96
55608359	030E095N	A	10692	1,334.62	685.11	11.59	168.70	168.18	132.90	73.43	17.99	60.50	987.12	3,640.14
55608362	040E042N	A	10699	688.53	354.99	51.63	9.46	96.16	-	39.50	-	82.42	412.73	1,735.42
55608368	058E028N	R	10726	343.36	671.89	108.47	93.98	153.63	32.86	42.08	48.42	107.31	26.75	1,628.75
55608369	005E030N	A	10677	133.87	147.39	175.86	147.55	125.78	15.47	54.37	25.77	46.36	26.81	899.23
55608370	010E070N	A	10679	250.16	208.78	-	19.29	9.17	-	0.12	0.83	0.12	233.94	722.41
55608371	050E023N	A	10707	1,111.85	1,148.18	2.84	250.52	919.21	263.64	11.76	3.29	12.68	-	3,723.97
55608372	080E085N	R	10757	1,378.58	1,057.16	49.16	10.42	430.22	-	35.65	-	-	225.74	3,186.93
55608374	085E075N	R	10763	-	6.79	-	-	-	-	10.74	49.37	-	-	66.90
55608375	090E105N	A	10765	1,275.07	879.37	1.18	0.09	499.14	-	8.00	13.71	-	230.74	2,907.30
55608376	100E093N	R	10771	684.67	650.65	6.22	0.14	366.00	16.53	11.95	-	-	21.27	1,757.43
55608377	105E075N	R	10773	-	-	-	-	-	-	0.55	6.10	81.22	-	87.87
55608378	118E020N	A	10777	-	-	-	-	-	0.19	0.10	-	-	2.69	2.98
55608379	130E086N	A	10787	263.00	537.40	0.10	153.30	288.00	-	42.40	-	-	0.10	1,284.30
55608380	169E060N	A	10805	2,194.10	767.90	243.50	388.40	1,103.40	162.50	208.50	52.80	427.10	373.70	5,921.90
55608381	095E077N	R	10769	-	-	-	-	-	-	1.36	14.45	-	-	15.81
55608382	080E096N	A	10758	642.17	606.99	8.10	-	157.90	-	2.89	1.50	0.29	1.10	1,420.94
55608383	075E096N	A	10753	1,796.05	576.05	14.50	-	630.21	-	0.28	-	0.69	1.25	3,019.03
55608384	060E064N	R	10728	823.41	1,700.05	-	22.24	102.60	-	19.80	35.07	95.89	384.86	3,183.92
55608385	060E083N	A	10729	840.71	432.79	33.34	145.44	714.67	57.25	178.59	41.06	136.01	831.33	3,411.19
55608386	070E030N	A	10742	130.31	325.55	1.56	111.01	165.18	1.26	0.45	-	45.16	-	780.48
55608387	070E078N	R	10744	1,697.73	1,338.63	61.48	252.52	1,321.21	81.55	297.45	46.46	195.60	1,376.91	6,669.54
55608388	050E060N	R	10709	942.81	1,641.81	39.42	0.88	12.11	50.95	0.18	0.65	-	143.53	2,832.34
55608389	050E075N	R	10710	1,470.68	1,424.10	106.11	32.98	77.27	36.18	72.76	-	2.58	367.18	3,589.84
55608390	050E100N	A	10713	669.31	1,147.78	425.52	655.37	811.82	1,630.83	134.63	42.45	272.64	89.93	5,880.28
55608391	055E085N	R	10725	1,897.30	1,258.23	160.71	339.54	681.68	90.68	650.17	138.78	538.61	1,860.00	7,615.70
55608392	050E083N	R	10711	1,406.03	1,183.50	75.17	98.95	52.04	-	48.24	-	-	31.22	2,895.15
55608393	040E080N	R	10701	967.10	526.30	86.40	5.10	73.30	-	37.90	0.30	3.50	160.30	1,860.20
55608394	040E091N	R	10702	1,443.86	1,087.63	8.97	109.05	-	-	13.47	-	-	61.99	2,724.97
55608407	020E070N	A	10681	959.86	731.51	23.15	6.62	306.98	61.22	194.58	45.55	186.60	685.61	3,201.68
55608408	050E090N	A	10712	1,452.65	931.92	96.79	NULL	NULL	NULL	NULL	NULL	NULL	NULL	2,481.36
55608409	060E103N	A	10730	192.65	205.87	-	-	NULL	NULL	NULL	NULL	NULL	NULL	398.52
55608410	030E089N	A	10691	1,628.66	1,811.73	2,052.79	1,574.35	1,456.19	162.79	91.22	728.63	148.23	65.40	9,719.99
55608421	150E085N	A	10800	876.81	1,021.52	6.42	-	435.87	-	2.04	0.29	-	48.07	2,391.02
55608422	140E085N	A	10794	447.70	656.53	3.81	-	377.61	-	49.35	0.17	11.18	313.71	1,860.06
55608423	130E091N	A	10789	268.60	256.10	0.10	95.60	122.60	-	46.00	-	-	2.90	791.90
55608424	140E096N	A	10796	1,320.46	8.33	0.52	0.98	32.31	0.35	48.43	0.86	-	20.70	1,432.94
55608425	135E094N	A	10793	516.20	410.20	3.50	-	308.30	-	19.80	-	-	283.30	1,541.30
55608427	030E023N	A	10688	316.34	363.68	-	83.72	210.86	-	100.03	27.59	0.13	11.01	1,113.36
55608428	000E055N	A	10676	469.29	543.67	-	86.87	29.86	48.53	17.75	0.25	59.99	598.15	1,854.36
55608429	125E100N	A	10783	324.45	302.93	1.58	0.07	155.87	-	2.76	-	-	-	787.66
55608430	180E050N	A	10810	703.31	104.82	2.13	0.07	298.35	0.10	5.02	-	-	6.62	1,120.42
55608431	170E080N	A	10806	17.00	617.51	0.36	9.37	339.67	0.20	3.63	0.38	1.33	0.14	989.59
55608436	030E040N	A	10689	1,332.38	864.34	-	-	69.95	-	11.80	110.18	42.36	773.71	3,204.72
55608437	020E085N	R	10683	1,094.70	760.92	0.32	1.75	92.53	-	109.12	-	-	678.69	2,738.03
55617098	042E099N	R	10703	1,075.78	789.75	192.44	303.64	344.56	211.23	795.28	306.99	625.12	1,247.63	5,892.42
55617099	045E095N	R	10704	1,263.00	551.46	158.76	339.11	1,165.65	151.68	519.29	238.64	549.47	1,281.57	6,218.63
55617100	020E080N	A	10682	1,681.45	1,160.12	1.82	5.46	184.46	40.04	156.84	31.99	36.23	757.12	4,055.53
55617112	050E045N	R	10708	1,361.00	1,067.92	27.17	8.32	92.57	-	0.33	45.04	3.37	341.60	2,947.32
55617848	095E010S	A	10768	50.45	71.95	-	3.16	0.13	-	2.87	36.83	7.40	155.67	328.46
55617850	112E077N	R	10774	1,174.24	784.16	58.64	244.36	555.79	110.74	156.12	47.84	106.44	529.07	3,767.40
55617851	125E006S	A	10782	488.50	172.42	26.41	54.82	374.60	24.96	10.03	61.79	49.66	149.51	1,412.70
55619314	010E065N	A	13909	2,094.33	456.11	0.34	242.12	-	-	73.11	0.28	-	680.09	3,546.38
55626563	148E007N	A	10799	482.71	369.81	124.41	34.41	1,096.08	172.20	387.79	290.06	325.55	1,052.47	4,335.49
55626564	128E003N	A	10785	658.66	520.46	285.87	343.35	3.04	265.98	524.52	544.79	626.87	1,483.70	5,257.24
55626567	147E018N	A	10798	805.33	716.47	210.99	212.64	745.81	99.38	14.84	122.75	137.74	681.45	3,747.40
55626587	063E080N	R	10736	718.95	421.62	26.87	68.14	463.02	31.79	97.17	-	29.48	523.39	2,380.43
Total				**72,365.53**	**59,755.90**	**15,720.63**	**20,454.23**	**35,836.95**	**13,532.81**	**20,253.43**	**14,141.88**	**19,126.46**	**36,636.59**	**307,824.41**

SRPCOORDIN	ADWRREGIST	Caddastral	orig_dril_Yr	stts_cd	owner_nm	city_conne	description	X_Harn83	Y_Harn83	Well_Elev	Well_dpth	Prftop_d	Prfbot_d	Prf_Ln	Perf_Comment
00.0E-05.5N	55608428	A(1-1)6CBB	1952	Active	SRP	0	WELL AT 00.0E-05.5N	378596.01	3702683.71	994.55	1230	225	1215	990	
00.5E-03.0N	55608369	A(1-1)19ABB	1924	Active	SRP	0	WELL AT 00.5E-03.0N	379351.31	3698690.85	0.00	151	45	140	90	
01.0E-06.5N	55619314	A(2-1)31DAA	1940	Active	SRP	0	WELL AT 01.0E-06.5N	380116.80	3704332.71	1017.00	413	170	400	230	
01.0E-07.0N	55608370	A(2-1)30DDD	1947	Active	SRP	0	WELL AT 01.0E-07.0N	380137.24	3705145.72	0.00	630	170	616	446	
01.0E-07.1N	55201730	A(2-1)30AAA	2004	Active	SRP	1	WELL AT 01.0E-07.1N	380103.62	3705343.57	1016.90	710	460	668	208	
02.0E-04.9N	55219124	A(1-1)8AAA	2010	Active	SRP	0	WELL AT 02.0E-04.9N	381697.16	3701772.14	0.00	605	300	565	240	no perf 365-385
02.0E-07.0N	55608407	A(2-1)29DDD	1946	Active	SRP	0	WELL AT 02.0E-07.0N	381752.10	3705162.38	1028.32	600	160	580	420	
02.0E-08.0N	55617100	A(2-1)20DDD	1946	Active	SRP	0	WELL AT 02.0E-08.0N	381771.55	3706770.57	1032.79	560	175	548	373	
02.0E-08.5N	55608437	A(2-1)20DAA	1950	Active	SRP	0	WELL AT 02.0E-08.5N	381776.42	3707542.25	1036.04	500	165	485	335	Video indicates perf start at 165 instead of 150 indicated by c-dia
02.0E-09.0N	55608356	A(2-1)17DDD	1946	Active	SRP	0	WELL AT 02.0E-09.0N	381788.69	3708411.89	1043.49	550	150	538	388	
02.3E-01.3N	55523773	A(1-1)28CAC	1990	Active	SRP (C)	0	WELL AT 02.3E-01.3N	382116.48	3695906.90	966.08	175	120	170	50	wire wrap 120-150 & mills knife 150-170
03.0E-01.0N	55586184	A(1-1)33AAA	2002	Active	SRP (C)	0	WELL AT 03.0E-01.0N	383314.83	3695356.01	970.00	520	150	500	350	
03.0E-02.3N	55608427	A(1-1)21DDA	1946	Active	SRP	0	WELL AT 03.0E-02.3N	383264.51	3697336.12	995.66	584	192	572	380	
03.0E-04.0N	55608436	A(1-1)10CCC	1953	Active	SRP	0	WELL AT 03.0E-04.0N	383348.71	3700325.01	1003.95	662	150	662	512	
03.0E-08.0N	55608358	A(2-1)28AAA	1947	Active	SRP	0	WELL AT 03.0E-08.0N	383378.86	3706711.51	1049.16	525	160	512	352	
03.0E-08.9N	55608410	A(2-1)21AAD	1963	Active	SRP	1	WELL AT 03.0E-08.9N	383401.61	3708154.33	0.00	994	350	975	625	
03.0E-09.5N	55608359	A(2-1)15CBB	1947	Active	SRP	0	WELL AT 03.0E-09.5N	383463.13	3709146.94	1060.41	500	155	488	333	
03.5E-06.0N	55607735	A(1-1)3ABB	1949	Active	SRP	0	WELL AT 03.5E-06.0N	384214.42	3703537.65	1032.57	600	200	585	385	
04.0E-04.2N	55608362	A(1-1)11CCB	1973	Active	SRP	0	WELL AT 04.0E-04.2N	384927.40	3700830.10	1019.95	800	325	800	475	Drilling Date missing on c-dia
04.0E-08.0N	55608393	A(2-1)23CCC	1949	Active	SRP	0	WELL AT 04.0E-08.0N	385037.11	3706790.14	1064.45	700	180	685	505	
04.0E-09.1N	55608394	A(2-1)14CCC	1949	Active	SRP	0	WELL AT 04.0E-09.1N	385060.69	3708494.52	1077.50	700	110	684	574	
04.2E-09.9N	55617098	A(2-1)14BBB	1949	Active	SRP	0	WELL AT 04.2E-09.9N	385381.54	3709849.93	1087.26	700	180	685	505	
04.5E-09.5N	55617099	A(2-1)14CDA	1951	Active	SRP	0	WELL AT 04.5E-09.5N	385869.60	3709257.21	1091.63	1600	252	1596	1344	
05.0E-02.3N	55608371	A(1-1)23DDA	1926	Active	SRP	0	WELL AT 05.0E-02.3N	386419.80	3697629.69	0.00	161	50	151	101	
05.0E-04.5N	55617112	A(1-1)11ADD	1957	Active	SRP	0	WELL AT 05.0E-04.5N	386474.51	3701342.61	1030.99	800	300	800	500	
05.0E-06.0N	55608388	A(2-1)35DDD	1949	Active	SRP	0	WELL AT 05.0E-06.0N	386551.74	3703599.93	0.00	700	170	685	515	silted closed 675-TD
05.0E-07.5N	55608389	A(2-1)26DAA	1949	Active	SRP	0	WELL AT 05.0E-07.5N	386589.67	3705972.43	1070.20	700	170	685	515	
05.0E-08.3N	55608392	A(2-1)23DDA	1949	Active	SRP	0	WELL AT 05.0E-08.3N	386605.17	3707176.44	1084.60	700	165	685	520	
05.0E-08.9N	55209184	A(2-1)24bbb	2006	Active	SRP	0	WELL AT 05.0E-08.9N	386727.82	3708253.88	1094.70	620	430	565	135	
05.0E-10.0N	55608390	A(2-1)11DDD	1959	Active	SRP	1	WELL AT 05.0E-10.0N	386637.20	3710006.43	1104.34	1000	350	985	635	
05.5E-08.5N	55608391	A(2-1)24BDD	1951	Active	SRP	0	WELL AT 05.5E-08.5N	387426.30	3707606.79	1093.57	810	252	810	558	
05.8E-02.8N	55608368	A(1-1)24AAA	1949	Active	SRP	0	WELL AT 05.8E-02.8N	387879.78	3698631.37	0.00	586	100	550	450	Fill up to 516' in 2011 video
06.0E-00.9N	55578740	A(1-1)36aad	2000	Active	SRP (C)	0	WELL AT 06.0E-00.9N	388108.77	3695246.16	0.00	500	100	440	340	no perf 250-280
06.0E-06.4N	55608384	A(2-1)36DAA	1949	Active	SRP	0	WELL AT 06.0E-06.4N	388173.17	3704170.04	1065.61	700	180	685	505	
06.0E-08.3N	55608385	A(2-2)19CCB	1951	Active	SRP	0	WELL AT 06.0E-08.3N	388257.43	3707203.25	1099.40	603	216	596	380	
06.0E-10.2N	55203885	A(2-1)12DDA	2005	Active	SRP	0	WELL AT 06.0E-10.2N	388206.39	3710375.56	1125.60	585	310	540	200	no perf 390-420
06.3E-08.0N	55626587	A(2-2)30BAB	1968	Active	SRP	0	WELL AT 06.3E-08.0N	388594.23	3706763.29	0.00	1600	450	1450	875	no perfs from 675-800
07.0E-01.0N	55607697	A(1-2)31AAA	1956	Active	SRP (C)	0	WELL AT 07.0E-01.0N	389726.13	3695345.65	0.00	600	140	572	432	silted closed 490-TD
07.0E-03.0N	55608386	A(1-2)18DDD	1953	Active	SRP	0	WELL AT 07.0E-03.0N	389673.69	3698778.21	1025.86	800	195	780	580	Video indicates perf start of 195 rather than 200 indicated by c-dia
07.0E-06.8N	55607727	A(2-2)31ADA	1949	Active	SRP	0	WELL AT 07.0E-06.8N	389749.89	3704781.13	1079.21	550	175	536	361	
07.0E-07.8N	55608387	A(2-2)29BCB	1949	Active	SRP	0	WELL AT 07.0E-07.8N	389801.79	3706386.12	1099.81	700	180	682	502	
07.0E-09.0N	55607674	A(2-2)18DDD	1929	Active	SRP	0	WELL AT 07.0E-09.0N	389795.59	3708459.01	0.00	390	165	370	205	
07.5E-07.5N	55607675	A(2-2)29ACC	1949	Active	SRP	0	WELL AT 07.5E-07.5N	390604.53	3706026.86	1104.49	700	200	680	480	
07.5E-09.6N	55608383	A(2-2)17ACB	1962	Active	SRP	1	WELL AT 07.5E-09.6N	390684.57	3709489.71	0.00	1570	1000	1560	560	silted closed 1550-TD
07.9E-01.0N	55578323	A(1-2)32AAA	2000	Active	SRP (C)	0	WELL AT 07.9E-01.0N	391129.40	3695319.13	1013.15	500	134	481	304	no perf from 321-364
08.0E-06.5N	55607736	A(2-2)32DAA	1949	Active	SRP	0	WELL AT 08.0E-06.5N	391356.38	3704350.28	1083.58	616	195	600	415	video indicated 195, c-dia indicates 185
08.0E-08.5N	55608372	A(2-2)20ADD	1949	Active	SRP	0	WELL AT 08.0E-08.5N	391415.45	3707585.41	1125.59	700	200	685	485	
08.0E-09.6N	55608382	A(2-2)17ADD	1929	Active	SRP	0	WELL AT 08.0E-09.6N	391445.96	3709378.93	1142.87	454	201	454	253	
08.5E-07.5N	55608374	A(2-2)28CAA	1948	Active	SRP	0	WELL AT 08.5E-07.5N	392199.57	3705999.58	1105.52	700	255	685	430	
09.0E-10.5N	55608375	A(2-2)9ADD	1963	Active	SRP	0	WELL AT 09.0E-10.5N	393023.11	3710834.79	0.00	1002	495	985	490	Sheet says 1963 drill date, drillers log and c-dia say 1992
09.5E-01.0S	55617848	D(1-2)3CDD	1958	Active	SRP	0	WELL AT 09.5E-01.0S	393622.63	3692125.71	0.00	694	103	685	582	silted closed 670-TD
09.5E-07.7N	55608381	A(2-2)27ACB	1948	Active	SRP	0	WELL AT 09.5E-07.7N	393832.47	3706223.16	1109.86	700	220	685	465	
10.0E-09.3N	55608376	A(2-2)14CBC	1948	Active	SRP	0	WELL AT 10.0E-09.3N	394685.16	3708757.90	1144.52	702	300	685	385	Video does not correlate to c-dia
10.5E-07.5N	55608377	A(2-2)26DBB	1949	Active	SRP	0	WELL AT 10.5E-07.5N	395192.13	3706040.55	1113.26	698	210	680	470	
11.2E-07.7N	55617850	A(2-2)25BCD	1950	Active	SRP	0	WELL AT 11.2E-07.7N	396561.43	3706151.93	1114.43	500	200	485	285	
11.8E-02.0N	55608378	A(1-2)24DCD	1956	Active	SRP	0	WELL AT 11.8E-02.0N	397413.85	3696991.58	0.00	600	140	585	445	C-diagram says 200-585 but after looking at video 140-585
12.1E-08.9N	55214512	A(2-3)19BBB	2007	Active	SRP	0	WELL AT 12.1E-08.9N	397928.27	3708219.85	1134.00	640	260	630	350	no perf 350-370
12.5E-00.6S	55617851	D(1-3)6CAA	1973	Active	SRP	0	WELL AT 12.5E-00.6S	398404.94	3692694.34	0.00	363	175	305	130	silted closed 340-TD
12.5E-10.0N	55608429	A(2-3)7DCC	1962	Active	SRP	0	WELL AT 12.5E-10.0N	398707.87	3709957.76	0.00	600	250	600	350	
12.8E-00.3N	55626564	A(1-3)31DDB	1959	Active	SRP	0	WELL AT 12.8E-00.3N	399190.53	3694031.02	1144.57	635	194	635	421	no perfs from 414'-434'
13.0E-00.1S	55607729	D(1-3)6AAA	1972	Active	SRP	0	WELL AT 13.0E-00.1S	399210.49	3693485.73	0.00	452	190	420	230	
13.0E-08.6N	55608379	A(2-3)30BCC	1971	Active	SRP	0	WELL AT 13.0E-08.6N	399479.12	3707623.64	0.00	405	200	405	205	
13.0E-09.1N	55608423	A(2-3)18DDD	1968	Active	SRP	0	WELL AT 13.0E-09.1N	399445.34	3708400.64	0.00	403	155	400	245	
13.5E-09.4N	55608425	A(2-3)17CAA	1971	Active	SRP	0	WELL AT 13.5E-09.4N	400257.88	3708928.34	0.00	405	152	405	253	up to 401' with fill
14.0E-08.5N	55608422	A(2-3)20ADD	1967	Active	SRP	0	WELL AT 14.0E-08.5N	401056.02	3707532.77	0.00	400	150	400	250	
14.0E-09.6N	55608424	A(2-3)17ADD	1964	Active	SRP	0	WELL AT 14.0E-09.6N	401030.42	3709157.06	1149.69	400	192	396	204	
14.7E-01.8N	55626567	A(1-3)28ABB	1959	Active	SRP	0	WELL AT 14.7E-01.8N	402039.79	3696598.42	1090.21	396	157	382	225	C-dia says 162' but video indicates 157'
14.8E-00.7N	55626563	A(1-3)33ADA	1958	Active	SRP	0	WELL AT 14.8E-00.7N	402366.72	3694837.84	1137.78	435	171	411	240	
15.0E-08.5N	55608421	A(2-3)21DAA	1968	Active	SRP	0	WELL AT 15.0E-08.5N	402676.27	3707406.82	0.00	403	150	403	253	Fill up to 386' in video
16.0E-06.8N	55607726	A(2-3)35BBC	1957	Active	SRP	0	WELL AT 16.0E-06.8N	404307.63	3704666.15	0.00	620	175	620	445	mills knife 175-355 & punched horizontal perforations 355-TD
16.0E-08.0N	55607715	A(2-3)22DDD	1920	Active	SRP	0	WELL AT 16.0E-08.0N	404286.97	3706636.07	0.00	246	40	228	188	
16.9E-06.0N	55608380	A(1-3)2AAA	1947	Active	SRP	0	WELL AT 16.9E-06.0N	405639.43	3703357.24	1138.07	250	90	212	122	open hole 218-250
17.0E-08.0N	55608431	A(2-3)25BBB	1964	Active	SRP	0	WELL AT 17.0E-08.0N	405960.99	3706595.58	1186.24	250	142	250	108	no well video
17.1E-07.4N	55607731	A(2-3)25CBB	1962	Active	SRP	0	WELL AT 17.1E-07.4N	405988.61	3705743.09	1172.23	400	150	400	250	
18.0E-05.0N	55608430	A(1-3)1DDD	1925	Active	SRP	0	WELL AT 18.0E-05.0N	407478.31	3701797.90	0.00	155	30	145	115	
02.0E-05.0N	55607718	A(1-1)9BBB	1946	Abandon	SRP	0	WELL AT 02.0E-05.0N	381751.12	3701907.48	1007.93	500	144	488	344	
04.0E-05.0N	55607728	A(1-1)2CCC	1956	Active	ROUSSEAU, I	0	WELL AT 04.0E-05.0N	384974.12	3702124.19	1029.07	910	300	898	598	
06.0E-10.3N	55608409	A(2-1)12DDA	1929	Inactive	SRP	0	WELL AT 06.0E-10.3N	388262.76	3710402.16	1126.00	420	185	410	220	Video indicates perf start at 185 instead of 190 indicated by c-dia
05.0E-09.0N	55608408	A(2-1)13CCC	1953	Abandon	SRP	0	ABANDONED WELL AT	386682.14	3708404.08	1101.25	800	300	780	480	
15.0E-09.3N	55607749	A(2-3)16DDA	1951	Inactive	SRP	0	WELL AT 15.0E-09.3N	402693.82	3708626.65	0.00	348	70	325	255	top perf of 70 reflected in video, c-diagram said 40 but it is clearly 70'
04.8E-00.0N	55607698	A(1-1)35DDC	1936	Inactive	GRIID	0	WELL AT 04.8E-00.0N	386216.17	3693803.17	0.00	500	210	500	290	silted closed 395-TD

SRPCOORDIN	row	column	CellID	LAND_SURF	UAU_BOT	MAU_BOT	LAU_BOT	L1_THICK	L2_THICK	L3_THICK	SED_THICK	VC_12	VC_23	L1_SY	L2_SC	L2_SY	L3_SC	L3_SY
00.0E-05.5N	66	101	14531	997	621	-500	-1951	376	1121	1451	2948	0.003158	0.000712	0.09	0.01	0.07	0.01	0.07
00.5E-03.0N	70	102	15420	984	647	-273	-975	337	920	702	1959	0.001973	0.001158	0.10	0.01	0.07	0.01	0.07
01.0E-06.5N	63	103	13867	1020	630	-473	-1900	390	1103	1427	2920	0.003306	0.000809	0.09	0.01	0.07	0.01	0.07
01.0E-07.0N	62	103	13645	1020	678	-468	-1900	342	1146	1432	2920	0.003268	0.000794	0.09	0.01	0.07	0.01	0.07
01.0E-07.1N	62	102	13644	1017	646	-489	-1900	371	1135	1411	2917	0.003242	0.000882	0.09	0.01	0.07	0.01	0.07
02.0E-04.9N	67	104	14756	1007	610	-494	-1900	397	1104	1406	2907	0.003704	0.001117	0.09	0.01	0.07	0.01	0.07
02.0E-07.0N	62	105	13647	1034	680	-441	-1900	354	1121	1459	2934	0.003315	0.000919	0.09	0.01	0.07	0.01	0.07
02.0E-08.0N	60	105	13203	1040	698	-461	-1900	342	1159	1439	2940	0.002119	0.000519	0.10	0.01	0.07	0.01	0.07
02.0E-08.5N	59	105	12981	1043	716	-471	-1900	327	1187	1429	2943	0.002094	0.000519	0.10	0.01	0.07	0.01	0.07
02.0E-09.0N	58	105	12759	1050	724	-495	-1900	326	1219	1405	2950	0.001640	0.000493	0.10	0.01	0.07	0.01	0.07
02.3E-01.3N	74	105	16311	965	653	-178	-410	312	831	232	1375	0.000730	0.000639	0.20	0.01	0.07	0.01	0.07
03.0E-01.0N	75	106	16534	961	657	-176	-577	304	833	401	1538	0.002907	0.001783	0.20	0.01	0.07	0.01	0.07
03.0E-02.3N	72	106	15868	991	680	-353	-941	311	1033	588	1932	0.001217	0.000715	0.10	0.01	0.07	0.01	0.07
03.0E-04.0N	68	107	14981	1011	641	-479	-1890	370	1120	1411	2901	0.003768	0.001036	0.09	0.01	0.07	0.01	0.07
03.0E-08.0N	61	107	13427	1053	698	-427	-1900	355	1125	1473	2953	0.003229	0.000911	0.09	0.01	0.07	0.01	0.07
03.0E-08.9N	59	107	12983	1060	722	-473	-1900	338	1195	1427	2960	0.002004	0.000518	0.10	0.01	0.07	0.01	0.07
03.0E-09.5N	57	107	12539	1066	758	-500	-1900	308	1258	1400	2966	0.001367	0.000464	0.10	0.01	0.07	0.01	0.07
03.5E-06.0N	64	108	14094	1037	678	-91	-1900	359	769	1809	2937	0.006437	0.001216	0.09	0.01	0.07	0.01	0.07
04.0E-04.2N	68	108	14982	1014	614	-470	-1900	400	1084	1430	2914	0.003778	0.001033	0.09	0.01	0.07	0.01	0.07
04.0E-08.0N	60	109	13207	1073	809	-451	-1900	264	1260	1449	2973	0.001913	0.000797	0.09	0.01	0.07	0.01	0.07
04.0E-09.1N	58	109	12763	1083	830	-499	-1900	253	1329	1401	2983	0.000536	0.000161	0.10	0.01	0.07	0.01	0.07
04.2E-09.9N	57	109	12541	1086	807	-500	-1900	279	1307	1400	2986	0.000544	0.000162	0.10	0.01	0.07	0.01	0.07
04.5E-09.5N	57	110	12542	1096	797	-486	-1900	299	1283	1414	2996	0.000553	0.000161	0.10	0.01	0.07	0.01	0.07
05.0E-02.3N	72	110	15872	997	700	-413	-1889	297	1113	1476	2886	0.002202	0.000869	0.20	0.01	0.07	0.01	0.07
05.0E-04.5N	67	110	14762	1030	690	-499	-1900	340	1189	1401	2930	0.005279	0.001544	0.09	0.01	0.07	0.01	0.07
05.0E-06.0N	64	111	14097	1056	706	-490	-1900	350	1196	1410	2956	0.003325	0.001060	0.09	0.01	0.07	0.01	0.07
05.0E-07.5N	61	111	13431	1079	743	-489	-1900	336	1232	1411	2979	0.002047	0.000839	0.09	0.01	0.07	0.01	0.07
05.0E-08.3N	60	111	13209	1086	766	-483	-1900	320	1249	1417	2986	0.002102	0.000853	0.09	0.01	0.07	0.01	0.07
05.0E-08.9N	59	111	12987	1096	717	-475	-1900	379	1192	1425	2996	0.002156	0.000865	0.09	0.01	0.07	0.01	0.07
05.0E-10.0N	56	111	12321	1109	792	-447	-1876	317	1239	1429	2985	0.000693	0.000171	0.09	0.01	0.07	0.01	0.07
05.5E-08.5N	59	112	12988	1099	763	-439	-1882	336	1202	1443	2981	0.002167	0.000855	0.09	0.01	0.07	0.01	0.07
05.8E-02.8N	71	112	15652	1014	702	-400	-1900	312	1102	1500	2914	0.002207	0.000863	0.20	0.01	0.07	0.01	0.07
06.0E-00.9N	75	112	16540	994	686	-343	-1349	308	1029	1006	2343	0.002842	0.000966	0.20	0.01	0.07	0.01	0.07
06.0E-06.4N	64	113	14099	1063	674	-426	-1900	389	1100	1474	2963	0.002606	0.000903	0.09	0.01	0.07	0.01	0.07
06.0E-08.3N	60	113	13211	1099	718	-417	-1864	381	1135	1447	2963	0.002435	0.000889	0.09	0.01	0.07	0.01	0.07
06.0E-10.2N	56	113	12323	1129	826	-335	-1823	303	1161	1488	2952	0.000711	0.000228	0.09	0.01	0.07	0.01	0.07
06.3E-08.0N	60	113	13211	1099	718	-417	-1864	381	1135	1447	2963	0.002435	0.000889	0.09	0.01	0.07	0.01	0.07
07.0E-01.0N	75	114	16542	1004	700	-303	-1219	304	1003	916	2223	0.001916	0.000818	0.20	0.01	0.07	0.01	0.07
07.0E-03.0N	70	114	15432	1027	737	-356	-1900	290	1093	1544	2927	0.005175	0.001457	0.20	0.01	0.07	0.01	0.07
07.0E-06.8N	63	114	13878	1076	698	-387	-1900	378	1085	1513	2976	0.002660	0.000891	0.09	0.01	0.07	0.01	0.07
07.0E-07.8N	61	115	13435	1099	705	-311	-1661	394	1016	1350	2760	0.003144	0.000678	0.09	0.01	0.07	0.01	0.07
07.0E-09.0N	58	115	12769	1129	860	-190	-1641	269	1050	1451	2770	0.000822	0.000239	0.09	0.01	0.07	0.01	0.07
07.5E-07.5N	61	116	13436	1102	740	-171	-1115	362	911	944	2217	0.003493	0.000923	0.09	0.01	0.07	0.01	0.07
07.5E-09.6N	57	116	12548	1142	836	-67	-1241	306	903	1174	2383	0.000929	0.000290	0.09	0.01	0.07	0.01	0.07
07.9E-01.0N	75	116	16544	1014	714	-95	-925	300	809	830	1939	0.002360	0.000946	0.20	0.01	0.07	0.01	0.07
08.0E-06.5N	63	116	13880	1083	802	-237	-1830	281	1039	1593	2913	0.002906	0.000505	0.09	0.01	0.07	0.01	0.07
08.0E-08.5N	59	117	12993	1129	857	33	-657	272	824	690	1786	0.002872	0.000956	0.09	0.01	0.07	0.01	0.07
08.0E-09.6N	57	117	12549	1148	822	43	-780	326	779	823	1928	0.001096	0.000465	0.09	0.01	0.07	0.01	0.07
08.5E-07.5N	61	118	13438	1109	894	122	-399	215	772	521	1508	0.004045	0.002330	0.09	0.01	0.07	0.01	0.07
09.0E-10.5N	55	119	12107	1171	903	280	5	268	623	275	1166	0.002153	0.001475	0.09	0.01	0.07	0.01	0.07
09.5E-01.0S	79	119	17435	1063	800	750	700	263	50	50	363	0.011314	0.016525	0.10	0.01	0.05	0.01	0.10
09.5E-07.7N	61	120	13440	1112	915	442	-159	197	473	601	1271	0.010871	0.003205	0.08	0.01	0.07	0.01	0.07
10.0E-09.3N	58	121	12775	1145	859	400	285	286	459	115	860	0.003578	0.003428	0.08	0.01	0.07	0.01	0.07
10.5E-07.5N	61	121	13441	1116	914	400	-328	202	514	728	1444	0.009179	0.002262	0.08	0.01	0.07	0.01	0.07
11.2E-07.7N	61	123	13443	1116	904	496	-741	212	408	1237	1857	0.012015	0.000378	0.08	0.01	0.07	0.01	0.07
11.8E-02.0N	73	124	16108	1056	802	554	-145	254	248	699	1201	0.008417	0.001534	0.20	0.01	0.07	0.01	0.07
12.1E-08.9N	59	125	13001	1129	942	663	-12	187	279	675	1141	0.013275	0.000893	0.08	0.01	0.07	0.01	0.07
12.5E-00.6S	78	125	17219	1161	801	751	701	360	50	50	460	0.008018	0.018000	0.10	0.01	0.10	0.01	0.10
12.5E-10.0N	56	126	12336	1158	950	762	662	208	188	100	496	0.010263	0.010651	0.08	0.01	0.07	0.01	0.07
12.8E-00.3N	76	126	16776	1132	802	702	492	330	100	210	640	0.007660	0.003013	0.10	0.01	0.07	0.01	0.07
13.0E-00.1S	77	126	16998	1165	798	698	648	367	100	50	517	0.006204	0.011077	0.10	0.01	0.10	0.01	0.10
13.0E-08.6N	59	127	13003	1129	962	781	291	167	181	490	838	0.023994	0.001557	0.09	0.01	0.07	0.01	0.07
13.0E-09.1N	58	127	12781	1139	971	799	517	168	172	282	622	0.012252	0.005906	0.08	0.01	0.07	0.01	0.07
13.5E-09.4N	58	128	12782	1142	981	853	608	161	128	245	534	0.020152	0.006812	0.08	0.01	0.07	0.01	0.07
14.0E-08.5N	59	129	13005	1135	968	868	592	167	100	276	543	0.030058	0.009875	0.09	0.01	0.07	0.01	0.07
14.0E-09.6N	57	129	12561	1165	999	899	735	166	100	164	430	0.013474	0.005598	0.09	0.01	0.05	0.01	0.07
14.7E-01.8N	73	130	16114	1093	895	758	318	198	137	440	775	0.016395	0.002632	0.20	0.01	0.07	0.01	0.07
14.8E-00.7N	75	130	16558	1122	847	747	607	275	100	140	515	0.006420	0.003931	0.10	0.01	0.07	0.01	0.07
15.0E-08.5N	60	131	13229	1139	991	891	668	148	100	223	471	0.022004	0.004277	0.10	0.01	0.07	0.01	0.07
16.0E-06.8N	63	133	13897	1142	959	859	759	183	100	100	383	0.018728	0.011520	0.10	0.01	0.07	0.01	0.07
16.0E-08.0N	61	133	13453	1161	987	887	787	174	100	100	374	0.021962	0.014400	0.10	0.01	0.07	0.01	0.07
16.9E-06.0N	65	134	14342	1132	923	823	723	209	100	100	409	0.012081	0.014400	0.10	0.01	0.07	0.01	0.07
17.0E-08.0N	61	135	13455	1188	1011	911	811	177	100	100	377	0.017154	0.014400	0.10	0.01	0.07	0.01	0.07
17.1E-07.4N	62	135	13677	1175	982	882	782	193	100	100	393	0.016379	0.014400	0.10	0.01	0.07	0.01	0.07
18.0E-05.0N	67	137	14789	1142	1041	991	941	101	50	50	201	0.027830	0.020093	0.05	0.01	0.08	0.01	0.08
02.0E-05.0N	66	105	14535	1014	626	-451	-1900	388	1077	1449	2914	0.003573	0.000575	0.09	0.01	0.07	0.01	0.07
04.0E-05.0N	66	109	14539	1037	706	-334	-1900	331	1040	1566	2937	0.005644	0.001249	0.09	0.01	0.07	0.01	0.07
06.0E-10.3N	56	113	12323	1129	826	-335	-1823	303	1161	1488	2952	0.000711	0.000228	0.09	0.01	0.07	0.01	0.07
05.0E-09.0N	58	111	12765	1102	703	-463	-1896	399	1166	1433	2998	0.000739	0.000234	0.09	0.01	0.07	0.01	0.07
15.0E-09.3N	58	131	12785	1161	1057	929	821	104	128	108	340	0.013492	0.007448	0.10	0.01	0.07	0.01	0.07
04.8E-00.0N	77	110	16982	984	744	-301	-918	240	1045	617	1902	0.002763	0.001504	0.15	0.01	0.07	0.01	0.07

SRPCOORDIN	L1_KX	L1_KZ	L2_KX	L2_KZ	L3_KX	L3_KZ	L1_T	L2_T	L3_T	Total_T	Aquifer	Aquifer_Comment
00.0E-05.5N	41	3.7	23	1.53	8	0.48	11972	25783	11608	49363	UAU/MAU	
00.5E-03.0N	40	4.0	11	0.99	11	0.88	11120	10120	7722	28962	UAU	
01.0E-06.5N	34	3.4	25	2.25	9	0.72	9520	27575	12843	49938	UAU/MAU	
01.0E-07.0N	42	4.2	24	2.16	9	0.72	9576	27504	12888	49968	UAU/MAU	
01.0E-07.1N	33	3.3	25	2.25	10	0.80	8415	28375	14110	50900	MAU	
02.0E-04.9N	39	3.9	28	2.52	13	1.04	12363	30912	18278	61553	UAU/MAU	
02.0E-07.0N	42	4.2	24	2.16	11	0.88	9912	26904	16049	52865	UAU/MAU	
02.0E-08.0N	40	4.0	15	1.35	6	0.48	8600	17385	8634	34619	UAU/MAU	
02.0E-08.5N	43	4.3	15	1.35	6	0.48	8514	17805	8574	34893	UAU/MAU	
02.0E-09.0N	36	3.6	12	1.08	6	0.48	6876	14628	8430	29934	UAU/MAU	
02.3E-01.3N	139	13.9	3	0.18	7	0.96	40032	2825	1624	44481	UAU	
03.0E-01.0N	137	13.7	14	0.99	11	1.36	39730	11579	4411	55720	UAU/MAU	
03.0E-02.3N	44	4.4	7	0.45	6	0.80	11572	7541	3528	22641	UAU/MAU	
03.0E-04.0N	53	5.3	27	2.43	12	0.96	15900	30240	16932	63072	UAU/MAU	
03.0E-08.0N	36	3.6	24	2.16	11	0.88	8100	27000	16203	51303	UAU/MAU	
03.0E-08.9N	30	3.0	15	1.35	6	0.48	6030	17925	8562	32517	MAU	
03.0E-09.5N	47	4.7	10	0.90	6	0.48	8037	12580	8400	29017	UAU/MAU	
03.5E-06.0N	45	4.5	37	3.33	16	1.28	11565	28453	28944	68962	UAU/MAU	
04.0E-04.2N	48	4.8	27	2.43	12	0.96	15840	29268	17160	62268	UAU/MAU	
04.0E-08.0N	58	5.8	14	1.26	12	0.96	6960	17640	17388	41988	UAU/MAU	
04.0E-09.1N	59	5.9	4	0.36	2	0.16	5900	5316	2802	14018	UAU/MAU	
04.2E-09.9N	59	5.9	4	0.36	2	0.16	7434	5228	2800	15462	UAU/MAU	
04.5E-09.5N	55	5.5	4	0.36	2	0.16	7480	5132	2828	15440	MAU/LAU	
05.0E-02.3N	119	11.9	14	1.26	13	1.04	29988	15582	19188	64758	UAU	
05.0E-04.5N	60	6.0	41	3.69	18	1.44	15540	48749	25218	89507	UAU/MAU	
05.0E-06.0N	50	5.0	25	2.25	13	1.04	11900	29900	18330	60130	UAU/MAU	
05.0E-07.5N	52	5.2	15	1.35	12	0.96	10036	18480	16932	45448	UAU/MAU	
05.0E-08.3N	38	3.8	16	1.44	12	0.96	6384	19984	17004	43372	UAU/MAU	
05.0E-08.9N	38	3.8	16	1.44	12	0.96	8208	19072	17100	44380	MAU	
05.0E-10.0N	24	2.4	5	0.45	2	0.16	3432	6195	2858	12485	MAU	
05.5E-08.5N	38	3.8	16	1.44	12	0.96	6498	19232	17316	43046	UAU/MAU	
05.8E-02.8N	99	9.9	14	1.26	13	1.04	25146	15428	19500	60074	UAU/MAU	
06.0E-00.9N	99	9.9	17	1.53	9	0.72	27621	17493	9054	54168	UAU/MAU	
06.0E-06.4N	44	4.4	18	1.62	12	0.96	12012	19800	17688	49500	UAU/MAU	
06.0E-08.3N	48	4.8	17	1.53	12	0.96	10464	19295	17364	47123	UAU/MAU	
06.0E-10.2N	13	1.3	5	0.45	3	0.24	1404	5805	4464	11673	MAU	
06.3E-08.0N	48	4.8	17	1.53	12	0.96	10464	19295	17364	47123	MAU	
07.0E-01.0N	99	9.9	11	0.99	8	0.64	27126	11033	7328	45487	UAU/MAU	
07.0E-03.0N	99	9.9	34	3.06	19	1.52	22077	37162	29336	88575	UAU/MAU	
07.0E-06.8N	46	4.6	18	1.62	12	0.96	11362	19530	18156	49048	UAU/MAU	
07.0E-07.8N	40	4.0	21	1.89	7	0.56	9440	21336	9450	40226	UAU/MAU	
07.0E-09.0N	27	2.7	5	0.45	3	0.24	2079	5250	4353	11682	UAU/MAU	
07.5E-07.5N	40	4.0	21	1.89	7	0.56	8160	19131	6608	33899	UAU/MAU	
07.5E-09.6N	21	2.1	5	0.45	3	0.24	2142	4515	3522	10179	MAU/LAU	
07.9E-01.0N	99	9.9	11	0.99	8	0.64	26730	8899	6640	42269	UAU/MAU	
08.0E-06.5N	60	6.0	18	1.62	6	0.48	8700	18702	9558	36960	UAU/MAU	
08.0E-08.5N	64	6.4	14	1.26	6	0.48	5632	11536	4140	21308	UAU/MAU	
08.0E-09.6N	35	3.5	5	0.45	4	0.32	4200	3895	3292	11387	UAU/MAU	
08.5E-07.5N	50	5.0	19	1.71	16	1.28	2850	14668	8336	25854	MAU	
09.0E-10.5N	42	4.2	8	0.72	7	0.56	1806	4984	1925	8715	MAU/LAU	
09.5E-01.0S	27	2.7	7	0.63	15	1.20	5508	350	750	6608	UAU/MAU/LAU	Perf bottom deeper than modeled LAU bottom
09.5E-07.7N	67	6.7	34	3.06	16	1.28	3618	16082	9616	29316	MAU/LAU	
10.0E-09.3N	30	3.0	11	0.99	12	0.96	2880	5049	1380	9309	MAU	
10.5E-07.5N	60	6.0	31	2.79	13	1.04	3960	15934	9464	29358	MAU	
11.2E-07.7N	64	6.4	34	3.06	3	0.24	6016	13872	3711	23599	UAU/MAU	
11.8E-02.0N	99	9.9	13	1.17	8	0.64	19800	3224	5592	28616	MAU/LAU	
12.1E-08.9N	87	8.7	24	2.16	4	0.32	6786	6696	2700	16182	MAU/LAU	
12.5E-00.6S	20	2.0	8	0.72	15	1.20	4420	400	750	5570	UAU	
12.5E-10.0N	23	2.9	20	0.63	15	1.20	1311	3760	1500	6571	MAU/LAU	Perf_bottom deeper than modeled LAU bottom
12.8E-00.3N	27	2.7	8	0.72	5	0.40	5913	800	1050	7763	MAU/LAU	
13.0E-00.1S	20	2.0	8	0.72	15	1.20	4520	800	750	6070	UAU/MAU	
13.0E-08.6N	69	6.9	34	3.06	5	0.40	4968	6154	2450	13572	MAU/LAU	
13.0E-09.1N	22	5.9	22	1.71	14	1.12	1210	3784	3948	8942	MAU/LAU	
13.5E-09.4N	66	6.6	19	1.71	14	1.12	3234	2432	3430	9096	MAU/LAU	
14.0E-08.5N	48	3.5	35	4.95	20	1.04	3744	3500	5575	12819	MAU/LAU	
14.0E-09.6N	35	3.5	11	0.99	8	0.64	875	1100	1312	3287	MAU/LAU	
14.7E-01.8N	40	4.0	21	1.89	8	0.64	5560	2877	3520	11957	MAU/LAU	
14.8E-00.7N	18	1.8	7	0.63	5	0.40	3474	700	700	4874	MAU/LAU	
15.0E-08.5N	69	6.9	16	1.44	7	0.56	5244	1600	1561	8405	MAU/LAU	
16.0E-06.8N	49	4.9	16	1.44	12	0.96	5782	1600	1200	8582	UAU/MAU/LAU	Perf bottom deeper than modeled LAU bottom
16.0E-08.0N	49	4.9	20	1.80	15	1.20	5488	2000	1500	8988	UAU/MAU	
16.9E-06.0N	19	1.9	20	1.80	15	1.20	2755	2000	1500	6255	UAU/MAU	
17.0E-08.0N	29	2.9	20	1.80	15	1.20	3770	2000	1500	7270	UAU/MAU	
17.1E-07.4N	29	2.9	20	1.80	15	1.20	4234	2000	1500	7734	UAU/MAU/LAU	Perf bottom deeper than modeled LAU bottom
18.0E-05.0N	29	2.9	15	1.35	10	0.80	1508	750	500	2758	UAU/MAU	
02.0E-05.0N	39	3.90	26	2.34	6	0.48	11817	28002	8694	48513	UAU/MAU	
04.0E-05.0N	57	5.70	39	3.51	15	1.20	13623	40560	23490	77673	UAU/MAU	
06.0E-10.3N	13	1.30	5	0.45	3	0.24	1404	5805	4464	11673	UAU/MAU	
05.0E-09.0N	35	3.50	5	0.45	3	0.24	8050	5830	4299	18179	UAU/MAU	
15.0E-09.3N	35	3.50	12	1.08	9	0.72	0	1356	972	2328	UAU/MAU/LAU	
04.8E-00.0N	65	6.50	17	0.99	12	1.76	14105	17661	7404	39170	UAU/MAU	

Well ID	Sample Collection Date	Contaminant of Concern	Sample Prep	Lab Result	Units	Lab Reporting Limit	Lab Method
03.5E-06.0N	12/21/11	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
03.5E-06.0N	12/21/11	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
03.5E-06.0N	12/21/11	1,1-DICHLOROETHENE		0.5	UG/L	0.5	624
03.5E-06.0N	12/21/11	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
03.5E-06.0N	12/21/11	CHROMIUM	TOTDIG	82	UG/L	10	200.7
03.5E-06.0N	12/21/11	TETRACHLOROETHENE		1.7	UG/L	0.5	624
03.5E-06.0N	12/21/11	TRICHLOROETHENE		BRL	UG/L	0.5	624
03.5E-06.0N	7/22/09	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	524.2
03.5E-06.0N	7/22/09	1,1-DICHLOROETHANE		BRL	UG/L	0.5	524.2
03.5E-06.0N	7/22/09	1,1-DICHLOROETHENE		BRL	UG/L	0.5	524.2
03.5E-06.0N	7/22/09	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	524.2
03.5E-06.0N	7/22/09	CHROMIUM	TOTDIG	18	UG/L	10	200.7
03.5E-06.0N	7/22/09	TETRACHLOROETHENE		2.8	UG/L	0.5	524.2
03.5E-06.0N	7/22/09	TRICHLOROETHENE		BRL	UG/L	0.5	524.2
04.0E-05.0N	4/18/13	CHROMIUM	TOTDIG	22	UG/L	10	200.7
04.0E-05.0N	4/18/13	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
04.0E-05.0N	4/18/13	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	4/18/13	TRICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	4/18/13	TETRACHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	4/18/13	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	9/13/12	1,1,1-TRICHLOROETHANE		BRL	UG/L	2	624
04.0E-05.0N	9/13/12	1,1-DICHLOROETHANE		BRL	UG/L	2	624
04.0E-05.0N	9/13/12	1,1-DICHLOROETHENE		BRL	UG/L	5	624
04.0E-05.0N	9/13/12	C-1,2-DICHLOROETHENE		BRL	UG/L	2	624
04.0E-05.0N	9/13/12	CHROMIUM	TOTDIG	20.2	UG/L	10	200.7
04.0E-05.0N	9/13/12	TETRACHLOROETHENE		BRL	UG/L	2	624
04.0E-05.0N	9/13/12	TRICHLOROETHENE		BRL	UG/L	2	624
04.0E-05.0N	1/24/11	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
04.0E-05.0N	1/24/11	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
04.0E-05.0N	1/24/11	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	1/24/11	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	1/24/11	CHROMIUM	TOTDIG	16	UG/L	10	200.7
04.0E-05.0N	1/24/11	TETRACHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	1/24/11	TRICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	2/16/10	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
04.0E-05.0N	2/16/10	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
04.0E-05.0N	2/16/10	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	2/16/10	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	2/16/10	CHROMIUM	TOTDIG	30	UG/L	10	200.7
04.0E-05.0N	2/16/10	TETRACHLOROETHENE		0.5	UG/L	0.5	624
04.0E-05.0N	2/16/10	TRICHLOROETHENE		BRL	UG/L	0.5	624
04.0E-05.0N	7/21/09	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	524.2
04.0E-05.0N	7/21/09	1,1-DICHLOROETHANE		BRL	UG/L	0.5	524.2
04.0E-05.0N	7/21/09	1,1-DICHLOROETHENE		BRL	UG/L	0.5	524.2
04.0E-05.0N	7/21/09	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	524.2
04.0E-05.0N	7/21/09	CHROMIUM	TOTDIG	20	UG/L	10	200.7
04.0E-05.0N	7/21/09	TETRACHLOROETHENE		0.5	UG/L	0.5	524.2
04.0E-05.0N	7/21/09	TRICHLOROETHENE		BRL	UG/L	0.5	524.2
04.0E-05.0N	3/18/08	CHROMIUM	TOTDIG	26	UG/L	10	200.7
04.0E-05.0N	3/18/08	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	601
04.0E-05.0N	3/18/08	TRICHLOROETHENE		BRL	UG/L	0.5	601
04.0E-05.0N	3/18/08	TETRACHLOROETHENE		BRL	UG/L	0.5	601
04.0E-05.0N	3/18/08	1,1-DICHLOROETHANE		BRL	UG/L	0.5	601
04.0E-05.0N	3/18/08	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	602
04.0E-05.0N	3/18/08	1,1-DICHLOROETHENE		BRL	UG/L	0.5	601
04.0E-05.0N	1/17/07	TETRACHLOROETHENE		BRL	UG/L	0.5	601
04.0E-05.0N	1/17/07	1,1-DICHLOROETHANE		BRL	UG/L	0.5	601
04.0E-05.0N	1/17/07	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	602
04.0E-05.0N	1/17/07	1,1-DICHLOROETHENE		BRL	UG/L	0.5	601
04.0E-05.0N	1/17/07	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	601
04.0E-05.0N	1/17/07	CHROMIUM	TOTDIG	19	UG/L	10	200.7
04.0E-05.0N	1/17/07	TRICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/13	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	3/27/13	CHROMIUM	TOTDIG	11	UG/L	10	200.7
05.0E-04.5N	3/27/13	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	3/27/13	TRICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	3/27/13	TETRACHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	3/27/13	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	8/1/12	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	8/1/12	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	8/1/12	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	8/1/12	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	8/1/12	CHROMIUM	TOTDIG	BRL	UG/L	10	200.7
05.0E-04.5N	8/1/12	TETRACHLOROETHENE		0.5	UG/L	0.5	624
05.0E-04.5N	8/1/12	TRICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	CHROMIUM	TOTDIG	11	UG/L	10	200.7
05.0E-04.5N	2/9/11	TETRACHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	2/9/11	TRICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	CHROMIUM	TOTDIG	BRL	UG/L	10	200.7
05.0E-04.5N	1/18/10	TETRACHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	1/18/10	TRICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-04.5N	6/9/09	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	524.2
05.0E-04.5N	6/9/09	1,1-DICHLOROETHANE		BRL	UG/L	0.5	524.2
05.0E-04.5N	6/9/09	1,1-DICHLOROETHENE		BRL	UG/L	0.5	524.2
05.0E-04.5N	6/9/09	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	524.2
05.0E-04.5N	6/9/09	CHROMIUM	TOTDIG	16	UG/L	10	200.7
05.0E-04.5N	6/9/09	TETRACHLOROETHENE		0.7	UG/L	0.5	524.2
05.0E-04.5N	6/9/09	TRICHLOROETHENE		BRL	UG/L	0.5	524.2
05.0E-04.5N	3/27/07	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	602
05.0E-04.5N	3/27/07	1,1-DICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/07	TRICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/07	1,1-DICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/07	TETRACHLOROETHENE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/07	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-04.5N	3/27/07	CHROMIUM	TOTDIG	BRL	UG/L	10	200.7
05.0E-06.0N	4/30/13	1,1,1-TRICHLOROETHANE		BRL	UG/L	2	624
05.0E-06.0N	4/30/13	CHROMIUM	TOTDIG	18	UG/L	10	200.7
05.0E-06.0N	4/30/13	1,1-DICHLOROETHENE		BRL	UG/L	5	624
05.0E-06.0N	4/30/13	TRICHLOROETHENE		BRL	UG/L	2	624
05.0E-06.0N	4/30/13	TETRACHLOROETHENE		BRL	UG/L	2	624
05.0E-06.0N	4/30/13	C-1,2-DICHLOROETHENE		BRL	UG/L	2	624
05.0E-06.0N	12/14/10	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-06.0N	12/14/10	1,1-DICHLOROETHANE		BRL	UG/L	0.5	624
05.0E-06.0N	12/14/10	1,1-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-06.0N	12/14/10	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	624
05.0E-06.0N	12/14/10	CHROMIUM	TOTDIG	41	UG/L	10	200.7
05.0E-06.0N	12/14/10	TETRACHLOROETHENE		BRL	UG/L	0.5	624
05.0E-06.0N	12/14/10	TRICHLOROETHENE		0.7	UG/L	0.5	624
05.0E-06.0N	11/24/09	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	524.2
05.0E-06.0N	11/24/09	1,1-DICHLOROETHANE		BRL	UG/L	0.5	524.2
05.0E-06.0N	11/24/09	1,1-DICHLOROETHENE		BRL	UG/L	0.5	524.2
05.0E-06.0N	11/24/09	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	524.2
05.0E-06.0N	11/24/09	CHROMIUM	TOTDIG	90	UG/L	10	200.7
05.0E-06.0N	11/24/09	TETRACHLOROETHENE		1.2	UG/L	0.5	524.2
05.0E-06.0N	11/24/09	TRICHLOROETHENE		0.7	UG/L	0.5	524.2
05.0E-06.0N	3/18/08	CHROMIUM	TOTDIG	31	UG/L	10	200.7
05.0E-06.0N	3/18/08	TETRACHLOROETHENE		1	UG/L	0.5	601
05.0E-06.0N	3/18/08	TRICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-06.0N	3/18/08	1,1-DICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-06.0N	3/18/08	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	602
05.0E-06.0N	3/18/08	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-06.0N	3/18/08	1,1-DICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-06.0N	3/22/07	TRICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-06.0N	3/22/07	TETRACHLOROETHENE		0.9	UG/L	0.5	601
05.0E-06.0N	3/22/07	1,1,1-TRICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-06.0N	3/22/07	1,1-DICHLOROETHANE		BRL	UG/L	0.5	601
05.0E-06.0N	3/22/07	C-1,2-DICHLOROETHENE		BRL	UG/L	0.5	602
05.0E-06.0N	3/22/07	1,1-DICHLOROETHENE		BRL	UG/L	0.5	601
05.0E-06.0N	3/22/07	CHROMIUM	TOTDIG	29	UG/L	10	200.7

APPENDIX C

FS Groundwater Flow Modeling

West Van Buren Study Area
Univar Groundwater Flow Model Update

Prepared for

Univar USA Inc.

Nampa, Idaho

Revised June 2014

West Van Buren Study Area:
Univar Groundwater Flow Model Update

Prepared for
Univar USA Inc.
Nampa, Idaho

Original Report Date: December 2013
Revised Report Date: June 2014

Brown and Caldwell Project #: 144774

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Executive Summary

Brown and Caldwell prepared this report for Univar USA Inc. (Univar) to describe the activities conducted to update an existing groundwater flow model developed for Univar in the early 1990's. The original model was for Univar's use in the West Van Buren Study Area (WVBSA) Water Quality Assurance Revolving Fund (WQARF) site. The WVBSA was identified as a study area under WQARF by the Arizona Department of Environmental Quality (ADEQ) in 1987, and various environmental investigations of potential contamination of groundwater with volatile organic compounds (VOCs) and metals (chromium) have occurred within the area since that time.

The existing model was developed by Harding Lawson Associates (HLA) in the early 1990s. Electronic files associated with the original HLA model were tested and updated for use with modern groundwater modeling software. The files were tested using various versions of the United State Geological Survey (USGS) groundwater flow model MODFLOW, and were deemed a suitable tool to assess groundwater flow conditions within the WVBSA.

The original model was designed to simulate groundwater flow conditions from 1972 through 1991. The model was updated to simulate conditions including 1992 through 2009, for a total simulation period covering 38 years of past groundwater flow conditions. Water level, groundwater pumping and aquifer recharge data were collected and evaluated from a variety of public sources, primarily from the ADEQ and the Arizona Department of Water Resources (ADWR). Analyses of water level data related to basin-scale groundwater flow conditions from ADWR's Salt River Valley (SRV) model were used as a base to update the WVBSA model to simulate flow conditions through 2009. The model was updated and model calibration was compared to observed water level conditions obtained from databases from the ADEQ and ADWR.

Minor modifications were made to the WVBSA model during the calibration process to improve the model's overall match to observed conditions. In our professional judgment, current model calibration meets or exceeds industry-standards for long-term, regional scale simulation of transient groundwater flow in a complex, layered aquifer system. The model is a suitable tool for assessing potential future changes to groundwater flow conditions within the WVBSA.

Univar is currently working with other parties as part of the West Van Buren WQARF Site Working Group (WVB Working Group) to develop and implement a Feasibility Study (FS) to identify and assess potential remedial actions to improve groundwater quality in the WVBSA. As part of the FS process, Univar has contributed the updated WVBSA model to the WVB Working Group to aid in assessments of various potential FS alternatives.

Section 1

Introduction

Brown and Caldwell (BC) prepared this report for Univar USA Inc. (Univar) to describe the activities conducted to update an existing groundwater flow model developed for Univar in the early 1990's. The original model was for Univar's use in the West Van Buren Study Area (WVBSA) Water Quality Assurance Revolving Fund (WQARF) site. The WVBSA was identified as a study area under WQARF by the Arizona Department of Environmental Quality (ADEQ) in 1987, and various environmental investigations of potential contamination of groundwater with volatile organic compounds (VOCs) and metals (chromium) have occurred within the area since that time.

The West Van Buren WQARF Site is located in the western portion of Phoenix, Arizona, and is bounded approximately by Interstate 10 to the north, 7th Avenue to the east, West Buckeye Road to the south, and 75th Avenue to the west (Terranext, 2012). Additionally, a narrow plume with an origin to the southeast that appears to merge with the main WVB plume exists between Buckeye Road and Lower Buckeye Road from approximately 7th Avenue to 27th Avenue. The extent of the WVBSA is shown on Figure 1-1. Environmental assessments performed in the late 1980's and early 1990's identified the presence of VOCs and metals (primarily chromium) in groundwater within the study area. The WVBA WQARF Registry Site, originally called the Van Buren Tank Farm Study Area, was placed on the WQARF priority list in November 1987.

A total of approximately 117 monitoring wells have been installed within the WVBSA to provide for delineation of the VOC plume. Groundwater monitoring from these wells has been conducted on generally a semi-annual basis since 2001 under direction of the ADEQ. Additional data have been provided from various facilities as part of ongoing facility-specific remedial activities. The Draft Remedial Investigation (RI) Report was completed for ADEQ in October, 2008, and the Final RI was completed for ADEQ in August, 2012 (Terranext, 2012).

The groundwater flow model described in this report is the updated version of a model originally developed by Harding Lawson Associates (HLA) in the early 1990's for Van Waters & Rogers, Inc., now Univar USA Inc. This report presents a description of updates to the database associated with the original HLA model (1997), including water levels, regional pumping data, and water quality, through 2009. Changes and updates to the model were also made to take advantage of modern modeling software, graphics, and the use of geographic information systems (GIS). Model testing and assessments were performed on the original HLA groundwater flow model by BC staff to bring the model up-to-date through 2009.

Univar is currently working with other parties as part of the West Van Buren WQARF Site Working Group (WVB Working Group) to develop and implement a Feasibility Study (FS) to identify and assess cost-effective alternative remedial actions to improve groundwater quality in the WVBSA. As part of the FS process, Univar has contributed to the WVB Working Group the updated groundwater flow model of the WVBSA to aid in assessments of various FS alternatives.

1.1 Original Groundwater Flow Model

The original model was developed by HLA in the early 1990's with the objective to "enhance understanding of groundwater flow conditions in the WVBSA" (HLA, 1997). A detailed description of the data and assumptions used to develop the original HLA model is provided in the report "Groundwater Flow Modeling, West Van Buren WQARF Study Area" prepared by HLA in January 1997. This document is included as Appendix A to this report.

The following discussion provides a short summary of the HLA model. The original model was developed to simulate the dynamic and complex groundwater flow conditions within the WVBSA. A phased approach was used for model development. The first phase simulated groundwater flow within all three of the primary alluvial units comprising the groundwater system in the WVBSA; the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU), and the Lower Alluvial Unit (LAU). The majority of groundwater production for water supply in the area is derived from pumping in the UAU. However, some pumping occurs from the LAU, typically from deep wells screened across all the geologic units. Therefore, the initial phase of modeling performed by HLA was designed to test and assess the potential for vertical flow from the alluvial units above the LAU that could result from pumping solely within the LAU.

Results from the Phase I model indicated that hydraulic stresses related to regional groundwater extraction for water supply, primarily affect the UAU. Groundwater pumping simulated in the LAU had little to no impact on hydraulic heads in the overlying UAU. The Phase I model runs also employed particle tracking methods to simulate the movement of groundwater within the UAU, MAU, and LAU. Simulated movement of groundwater via tracks from particles placed in the UAU showed no vertical migration over a 30-year simulation that included pumping solely within the underlying LAU. Based on the Phase I results, HLA concluded that modeling of the WVSBA groundwater system should primarily focus on conditions in the UAU.

HLA then developed a second (Phase II) model focusing on groundwater flow within the UAU. The model was developed based on data from publically available sources (primarily from the Arizona Department of Water Resources [ADWR] and the United States Geological Survey [USGS]) and previous modeling efforts by the ADWR. The following sections summarize the general setup and calibration of the HLA Phase II model. An electronic copy of the HLA Groundwater Flow Model Report is contained in Appendix A, which includes a detailed discussion of development of the HLA model.

1.1.1 Model Domain

The Phase II model domain is shown on Figure 1-2. The domain was set with 7th Street forming the eastern model boundary, Camelback Road forming the northern boundary, 99th Avenue forming the western model boundary, and Elliot Road (south of the Salt River) forming the southern boundary. The model boundaries were generally set outside of the WVBSA regulatory boundary to minimize or eliminate effects of boundary flow assumptions on the simulation of the groundwater in the WVBSA.

1.1.2 Model Layer Structure

The model was developed with 4 vertical layers, with the upper 3 layers representing the UAU and the 4th (bottom-most) layer representing the upper portion of the MAU. The model layers were developed with variable thicknesses based on a review of 203 well logs within the area. Considerations used to develop model layer thicknesses included:

- The presence and thickness of high permeability zones noted in well and geologic logs;
- The total interpreted thickness of the UAU; and
- Perforated intervals of large production wells in the model domain.

Model layer 1 was developed to represent a zone of very high permeability alluvium comprised of cobbles, gravels and sands, extending from ground surface to depths of approximately 140 to 200 feet below ground surface (bgs). Model layer 2 was developed to represent additional high-permeability material underlying more permeable shallow sediments, extending to depths of approximately 230 to 350 feet bgs. Model layer 3 represents the base of the UAU, comprising fine-grained sediments at depths extending from approximately 350 to 450 feet bgs. The upper portion of the MAU is represented by model layer 4, and was designed to encompass the deepest perforations of production wells screened through the UAU into the MAU. Cross sections showing the general model layer structure are provided on Figures 1-3 and 1-4.

1.1.3 Model Boundary Conditions

Figure 1-5 presents model boundary conditions used for the Phase II model. General Head Boundaries (GHBs) allow for flow into or out of the model domain based on reference groundwater levels placed adjacent to the model boundary. The model simulates flow across the boundary based on simulated hydraulic gradients between that reference groundwater level and simulated water levels within the model domain. GHBs were used to simulate flow into and out of the model domain along the eastern, northern, and western model boundaries (Figure 1-5). Reference groundwater levels were developed based on water level data near the model boundaries.

No Flow boundaries (i.e., no groundwater can flow into or out of the model in those areas) were set along the southern model boundary to generally represent where the UAU pinches out against bedrock (the southeastern corner of the model) or where groundwater is assumed to flow from east to west and is not affected by changes in flow occurring within the WVBSA (the southwestern portion of the model, Figure 1-5). A few model cells were assigned as Constant Head boundaries, where the model simulates appropriate inflows or outflows to maintain the groundwater level at the assigned level. These cells were added to represent an area in the southeastern portion of the model where groundwater levels were observed to be "consistently high" (HLA, 1997, Appendix A).

1.1.4 Model Simulation Period

The Phase II model was developed to simulate groundwater flow conditions within the WVBSA starting in 1972 through the end of 1991. Each calendar year was split up into three stress periods to simulate seasonal changes in recharge and pumping conditions. The stress period timing was developed based on the average pumping schedule of irrigation wells and how this schedule may impact groundwater flow rates and directions. An analysis of overall irrigation pumping was performed to assess the general timing of pumping during the year. The following three stress periods per year were developed:

- Stress period 1 – 60 days representing January and February;
- Stress period 2 – 215 days representing March through September; and
- Stress period 3 – 90 days representing October through December.

A total of 10 model time steps (i.e., at each time step a model solution is achieved) were used for stress periods 1 and 3, and 15 times steps were used for the longer stress period 2. The model thus includes a total of 60 stress periods and 700 time steps to simulate flow from 1972 through 1991.

1.1.5 Hydraulic Stresses

A hydraulic stress is the addition or subtraction of water to or from the system that results in changes in groundwater levels, flow rates, and flow directions over time. These include sources of recharge to the system and pumping from wells in the model domain.

Recharge

Sources of recharge to the WVBSA groundwater system include irrigated agriculture return flows, leakage from irrigation canals and laterals, and flows in the Salt River. Development of recharge rates for each component is summarized as follows:

Agricultural Recharge – irrigated agriculture occurred over approximately 25 to 35 percent of the model domain in any given year. The location of irrigated fields was developed through a detailed analysis of aerial photographs taken throughout the model period (1972 to 1991). Areas within the model domain were determined to be under cultivation if there was photographic evidence of current crops, plowed furrows, or general clearing in preparation of planting. Using an overlay of the model grid and the aerial photographs, a list of model cells with agricultural activity was prepared for each year. For example, Figure 1-6 presents

model cells with agricultural recharge during 1991. These model cells were given an initial estimate of 2.5 feet per year (ft/yr) of recharge. During calibration, the agricultural recharge rate was reduced to 2 ft/yr for model cells north of the Salt River. The rate remained at 2.5 ft/yr for cells south of Salt River, based on the observation that most of the agriculture was citrus crops, requiring greater water application. Note that although the original HLA model report (Appendix A) gives a value of 1.5 ft/yr for agricultural recharge, data files and model input files from HLA use a value of 2 ft/yr.

Canal Recharge – recharge from unlined portions of irrigation canals and laterals may have local impacts on groundwater flow rates and directions. Canals represented in the model include the Salt River Project (SRP) Grand and Western canals, and the Roosevelt Irrigation District (RID) canals. The locations of model cells that include canal recharge are shown on Figure 1-7. Recharge rates from both unlined and lined portions of canals were obtained based on discussion with ADWR personnel. Rates used in the Phase II model were 0.9 cubic feet per square foot of wetted perimeter per day (ft^3/ft^2/day) for unlined canals and 0.05 ft^3/ft^2/day for lined canals. Wetted perimeters and the history of canal lining projects were developed from information obtained from ADWR.

Salt River Recharge – recharge from the Salt River within the model domain occurs from naturally occurring flood flows, periodic releases from the Granite Reef Dam and waste water treatment plant (WWTP) discharges. The primary contributions to flow in the Salt River local to the WVBSA were determined to be from dam releases and discharges from the 23rd Avenue WWTP. Data for these flows was obtained from SRP and the City of Phoenix (COP). Dam release and WWTP discharge volume data were used to developed annual recharge estimates, and recharge was added to the model domain as annual averages. Model cells representing the Salt River are included on Figure 1-7. Given the uncertainty in short-term changes in flow rates and wetted areas of the Salt River, the model cells with dam release river recharge were kept constant for all simulated flow events (i.e., all river cells were assumed to provide the average annual recharge during any dam release event). Recharge from WWTP flows were added only in model cells representing the Salt River between 27th and 67th Avenues (Figure 1-7).

HLA assumed that other sources of urban runoff recharge were minimal, and did not add this component to the Phase II model.

Pumping

Groundwater pumping represents the primary means of discharge from the model domain, averaging approximately 160,000 acre-feet per year. The Phase II model simulates pumping from a total of 225 wells. Figure 1-8 presents wells simulated in the Phase II model. Pumping rates in the model were developed from four primary sources:

- Arizona Water Commission (AWC, the predecessor agency to ADWR) pumping data from 1980, based on USGS data (pre-1980 data);
- The 1982 ADWR Salt River Valley (SRV) modeling study (pre-1980 data);
- The 1993 ADWR SRV model update study (data from 1978 through 1983); and
- The ADWR Registry of Groundwater Rights (RoGR) database (data from 1984 through 1991).

Pumping data reflects primarily annual pumping totals. HLA reviewed detailed records on seasonal agricultural pumping patterns from RID, and developed the following percentages of annual totals to be used in the model:

- Stress period 1 – January and February – 10 percent of annual pumping;
- Stress period 2 – March through September – 84 percent of annual pumping;
- Stress period 3 – October through December – 6 percent of annual pumping;

These percentages were applied to irrigation wells in the model. Non-irrigation wells (water supply, industrial, and urban) were assigned a constant rate based on total annual pumping volumes.

1.1.6 Aquifer Physical Parameters

HLA reviewed data that provided initial estimates of physical aquifer property data during development of the Phase II model. HLA reviewed aquifer test data, specific capacity test data, and lithologic log data, including estimates of grain size and degree of lithologic sorting of the various alluvial units. These data were used to develop initial estimates of hydraulic conductivity and storage parameters for the model.

Hydraulic Conductivity

Units with larger grain sizes, and a higher degree of sorting (e.g., well-sorted) were assigned higher initial estimates of lateral hydraulic conductivity, while finer-grained, less well-sorted units were assigned lower estimates. The initial estimates of hydraulic conductivity (in feet per day [ft/day]) were tested during preliminary simulations then modified as necessary during calibration to improve the model's ability to simulate observed groundwater levels. The final hydraulic conductivity values used in the model are presented on Figures 1-9 through 1-12, and the ranges for each model layer are summarized as follows:

- Layer 1 – 100 to 1,000 ft/day;
- Layer 2 – 75 to 500 ft/day;
- Layer 3 – 1 to 100 ft/day; and
- Layer 4 – 1 to 25 ft/day.

Lateral hydraulic conductivity estimates are generally higher than vertical conductivity, resulting in predominately lateral groundwater flow. The variation between lateral and vertical hydraulic conductivity was assumed to be greater in units with higher lateral hydraulic conductivity (e.g., the more permeable units have a higher degree of lateral groundwater flow). For units with a lateral hydraulic conductivity (K_h) greater than or equal to 3 ft/day, the vertical hydraulic conductivity (Kv) was assumed to be lower by 15 times (the ratio of K_h to K_v is 15:1) . The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day (K_h:K_v is 1:1).

Aquifer Storage

Aquifer storage properties (specific yield for unconfined flow conditions and specific storage for confined flow conditions) were estimated based on published relationships between the storage properties of geologic units and their permeability, and estimates from the ADWR and USGS. The relationships used in the model were as follows:

- For zones with hydraulic conductivity values greater than 750 ft/day, the specific yield was set to 0.18;
- For zones with hydraulic conductivity values between 500 and 750 ft/day, the specific yield was set to 0.15;
- For zones with hydraulic conductivity values between 250 and 500 ft/day, the specific yield was set to 0.12;
- For zones with hydraulic conductivity values between 100 and 250 ft/day, the specific yield was set to 0.10;
- For zones with hydraulic conductivity values between 25 and 100 ft/day, the specific yield was set to 0.05;
- For zones with hydraulic conductivity values less than 25 ft/day, the specific yield was set to 0.025;

- For zones with hydraulic conductivity values greater than or equal to 3 ft/day, the specific storage was set to 1 x 10^{-6}; and
- For zones with hydraulic conductivity values less than 3 ft/day, the specific storage was set to 1 x 10^{-4}.

Specific yield is the porosity of the material that drains or re-fills during movement of the water table, and thus the values described above were applied only to model layer 1. A value of 0.10 was assigned to model layers 2 through 4, because a value is required in the MODFLOW input file. Because the water table was simulated to fluctuate only in model layer 1, the specific yield assigned to model layers 2 through 4 was not actively used in model calculations.

1.1.7 Model Calibration

The Phase II model was calibrated by comparing predicted water levels to historical observed levels in various wells within the model domain between 1972 and 1991. Minor modifications were made to the model (primarily adjusting hydraulic conductivity values in selected areas) to improve the model's ability to simulate observed water level conditions over time. Assessment of model calibration included both statistical analysis and qualitative review of hydrographs comparing changes in water levels over time. Statistical analysis included the calculation of the average difference between observed and simulated heads, the root mean square error (RMSE, a statistic that applies greater weight to larger differences), and the RMSE divided by the total range in water levels across the entire model domain (a statistic that normalizes model differences related to variations in hydraulic gradients).

Two model simulations were used to assess calibration. The first simulation was the period between 1972 and 1982, and simulated water levels at the end of 1982 were compared to hydrographs in 100 wells for that time period. Model residuals, or the difference between observed and simulated heads, were calculated for each well. The average model residual was 3.9 feet, indicating the model simulated, on average, groundwater levels that were slightly lower than observed (i.e., a positive residual means the simulated head is lower than observed). The RMSE was 7.5 feet, while the RMSE divided by the range in groundwater levels was 5.7 percent. A second simulation, the entire period between 1972 and 1991, and simulated water levels at the end of 1991 were compared to measurements in 139 wells collected at that time. The average difference between simulated and observed heads was - 0.6 feet, with an RMSE of 6.2 feet. The RMSE divided by the range in groundwater levels was again 5.7 percent. It is our professional judgment that these statistics are representative of a good match between simulated and observed groundwater levels consistent with industry standards for calibration (Anderson and Woessner, 1992; ASTM D5490, 2008; Australian Groundwater Modeling Guidelines, 2012).

In addition, simulated versus observed heads were plotted on hydrographs for 20 wells across the model domain, where water level data were available over many years. A qualitative review of these hydrographs showed that the model reasonably simulated changes in water levels over time between 1972 and 1991.

1.2 Initial Model Review and Testing

The Phase II HLA model represented a starting point for Univar for developing a model to simulate current groundwater flow conditions in the WVBSA. Given changes in computer technology and modeling software, it was not clear that the electronic versions of the model files and databases produced in the early to mid-1990s could be updated and used. BC staff performed an initial assessment in 2009 that consisted of a preliminary review of available data, including the original databases and model electronic files, and testing the HLA model with modern software. Over 2,000 digital files used to create the HLA Phase II model were obtained from Univar, including:

- Graphic and digital files related to conceptual model development;
- Data files used to generate numerical input files based on the conceptual model;
- Numerical model input and output files;
- Files of output extracted from the numerical model; and
- Files used in reporting model results.

Files related to the conceptual model included databases, spreadsheets, and images in a variety of electronic file formats. While many of these file formats are relatively old, nearly all could be read or converted to be read by currently available software.

The numerical model utilized the USGS finite-difference groundwater flow modeling software MODFLOW. The original HLA Phase II WVBSA model was run using a proprietary version of MODFLOW provided to HLA by S.S. Papadopoulos and Associates (SSPA). In the SSPA version of MODFLOW, electronic formatting within many of the input files differs from standard USGS MODFLOW input, and the binary format of the output files differs from standard MODFLOW output. As such, original model input files from the archives could not be run directly in the same fashion HLA ran the model using the SSPA version of MODFLOW. The SSPA MODFLOW executable was compiled to run on older computer processor architectures and thus cannot be run on modern computer processors. In addition, the file format of the output files (binary format) is unknown, and they could not be directly read with available modeling software.

Although the original model files in the archive could not be simulated directly as reported by HLA, the numerical model input files are in a standard electronic text format that can be read into any text editing software. The model input files for the Phase II HLA model in the archive were dated August and September 1996. These files were edited for consistency with standard USGS MODFLOW, and were run to generate model output in a standard MODFLOW format that could be read in to modern software for review.

Groundwater Vistas (Version 5) software is designed for pre- and post-processing of MODFLOW files in standard USGS formats. The edited Phase II model input files were imported into the software for use with modern versions of the MODFLOW code. The model was run using various USGS versions of MODFLOW issued since the initial development of the Phase II Model, including MODFLOW-96 (Harbaugh and McDonald, 1996); MODFLOW-2000 (Harbaugh, et. al, 2000); and MODFLOW-2005 (Harbaugh, 2005).

Model calibration statistics were evaluated versus those originally reported by HLA (HLA, 1997). Both the direct simulation of 1996 files and the version of the HLA model created from the 1999 Groundwater Vistas file achieved the same calibration statistics for all versions of MODFLOW, as calculated within the Groundwater Vistas software. HLA reported calibrations to water levels collected in 1982 and 1991, respectively (Tables 10 and 11 in HLA's report, included here as Appendix A). Calibration statistics from the HLA model obtained from the archive are generally within 0.2 feet of those originally reported by HLA, as presented in Table 1-1 below. These minor differences in calibration statistics are likely due to variations in the calculation methodology used in Groundwater Vistas, and from calculating the statistics using residuals carried to a greater number of significant digits.

In addition, visual comparison of simulated groundwater hydrographs presented by HLA (HLA, 1997, Figures 30 through 63) with the updated model results showed very similar model results. Simulated water levels were extracted from the standard MODFLOW output at these same model locations and compared visually to those from the original model. The water level differences were generally insignificant, demonstrating that the HLA Phase II model and the preliminary update using modern software are highly comparable.

Table 1-1.-HLA Model Calibration		
	HLA Phase II Model as reported in HLA, 1996	HLA Model from input files
End of 1982		
Residual Mean	3.95	3.68
Residual Standard Deviation	6.39	6.33
Root Mean Square Error	7.48	7.32
Scaled RMS	0.057	0.058
End of 1991		
Residual Mean	-0.63	-0.73
Residual Standard Deviation	6.24	6.22
Root Mean Square Error	6.25	6.26
Scaled RMS	0.057	0.050

From the analysis described above, it was determined that the Phase II model in the updated electronic format using current groundwater modeling software (i.e., the 1999 version of the HLA model updated to the more recent version of Groundwater Vistas), could be used as a starting point for development of an updated groundwater flow model of the WVBSA. All subsequent updates and modifications to the model were developed from the 1999 Groundwater Vistas version.

Section 2

Groundwater Flow Model Update

The file analysis and model review indicated that the updated HLA model is a suitable tool for continued assessment of groundwater flow conditions within the WVBSA. The updated model will be referred to as the WVBSA Model for the remainder of this report. The objectives of the model update were to:

- Update the model for use with modern software;
- Update model setup as necessary for current application in the WVBSA;
- Update recharge, pumping, and boundary condition data in the model to allow simulation of groundwater flow in the years since the model was completed (1992 through 2009);
- Add calibration targets as necessary to assess ongoing model calibration after 1991; and
- Modify physical parameters, if necessary, to improve model calibration throughout the updated simulation period (1972 through 2009).

As discussed in Section 1.2, the updated model files provided a successful simulation of the original model using modern software. A detailed review of the model setup indicated that previous assumptions related to model layer structure, physical parameters, and model boundary conditions were sufficient as a basis for moving forward with the model update. Modern software and computing power allow for simulation of finer numerical grids than was practical in the 1990's, allowing for simulation of groundwater flow characteristics at a finer spatial resolution. A review of the original model grid indicated that some grid refinement was necessary and desirable to update the model to current industry standards.

In order to develop the WVBSA Model to include conditions occurring after 1991, estimates of surface recharge, well pumping rates, and boundary conditions were developed using primarily data that are publically available from the ADWR and the ADEQ databases and files, including:

- RoGR (ADWR) – includes well location and groundwater pumping rate information;
- GWSI (Groundwater Site Inventory-ADWR) – includes additional well locations for cross-checking with other available information; and
- ADEQ Oracle database - includes water level information for monitoring wells within the WVBSA.

In addition to the public databases, the SRV groundwater flow model developed by ADWR and updated in 2006 includes additional data summaries and assumptions related to groundwater flow conditions that were used in the model update. The following sections discuss the model grid refinement and development of recharge, pumping, and boundary conditions estimates for the 1992 through 2009 period.

2.1 Modifications to the Model Setup

Modifications to the original model configuration included modifications to the model coordinate system, refinements to the model grid, and modification of the manner in which vertical hydraulic conductivity is treated in the model software.

2.1.1 Model Coordinate System

The HLA model used a generalized coordinate system which referenced all locations in the model to the lower left-hand corner of the grid (i.e., the 0,0 location of the model's X, Y coordinate system). This system was typical prior to the development and widespread use of GIS-based mapping and data management in groundwater modeling activities. To bring the model up-to-date, and to be able to use GIS tools to more

easily develop model inputs and view model outputs, the WVBSA Model coordinate system was changed from the original system to a system referenced to real-world spatial coordinates. This was achieved by placing (or offsetting) the upper-left hand corner of the original model grid to a geo-referenced coordinate representing the actual longitude and latitude of the corner of West Camelback Road and North 99th Avenue (i.e., the actual location of that point on the model grid). The upper left-hand corner of the grid was used because there was not an identifiable real-world location representing the original 0,0 point at the lower left-hand corner, as this location represents generally open desert. Conversion of the grid coordinate system now allows the grid to be viewed in relation to maps and aerial imagery of the Phoenix area within the Groundwater Vistas software.

2.1.2 Model Grid Refinement

The 1999 Groundwater Vistas version of the HLA WVBSA model included a relatively coarse model grid consisting of what today would be considered large grid cells (Figure 1-5). Use of large grid cells results in spatial averaging of groundwater flux and head conditions over relatively large areas. Modern computing power allows for simulation of flux and head conditions at a smaller, more focused resolution than was previously achievable. Simulation of smaller grid dimensions allows for more accurate estimates of drawdowns and cones-of-depression around pumping wells. Based on this consideration, the model grid discretization was refined to more accurately reflect near-well hydraulic gradients.

The cell sizes in the central portion of the original model grid were 500 x 500 feet and increased up to 2,000 x 3,400 feet at the edges of the grid (Figure 1-2). For the updated model, grid discretization was refined to 100 x 100 feet in the central portion of the model grid and 1,000 x 1,000 feet at the edges of the grid, as shown on Figure 2-1. The area comprising the finest cell discretization (100 x 100 feet) was focused on the central area of the WVBSA that generally contains the highest observed chemical concentrations in groundwater, and where significant agricultural pumping occurs. The numbers of grid rows and columns increased from 57 x 79 in the original model grid to 196 x 226 in the refined model grid, and the number of active model cells increased from 17,880 to 176,176.

Spatially distributed model parameters assigned to specific model grid cells, including hydraulic conductivity, specific yield, storativity, and recharge, were re-mapped to the refined grid as closely as possible through the use of GIS software. This resulted in the same spatial coverage of these parameters between the two models. Boundary condition reference heads and layer top and bottom elevations were interpolated from the original grid to the refined grid using GIS to achieve a smooth variation between the original and refined values.

Prior to further model additions and updates, the refined grid model was run to simulate the 1972 through 1991 period for comparison with the original model. Model calibration statistics were developed for the 1982 and 1991 time periods and compared to those previously reported by HLA (HLA, 1997). Grid refinement resulted in minor changes to the model calibration statistics, as shown in Table 2-1 below.

For 1982 water levels, the refined grid model resulted in improved calibration statistics over the original model, with the residual mean improving from 3.7 feet to 2.5 feet, and the RMSE improving from 7.3 feet to 6.2 feet. For 1991 water levels, grid refinements resulted in generally similar statistics, with the residual mean moving from -0.7 to -0.9 feet and the RMSE moving from 6.3 to 6.1 feet. These changes in calibration are attributed to refined simulations of groundwater responses from well pumping, along with minor modifications to boundary heads due to grid refinement.

Grid refinement did not affect the overall model calibration, with statistics for the refined grid model being similar to or better than those of the original HLA model. Therefore, the refined grid was included in the model update.

Table 2-1. Refined Grid Model Calibration		
	HLA Model from input files	Refined Grid Model with no other changes
End of 1982		
Residual Mean	3.68	2.45
Residual Standard Deviation	6.33	5.71
Root Mean Square Error	7.32	6.21
Scaled RMS	0.058	0.049
End of 1991		
Residual Mean	-0.73	-0.91
Residual Standard Deviation	6.22	6.07
Root Mean Square Error	6.26	6.14
Scaled RMS	0.050	0.049

2.1.3 Vertical Hydraulic Conductivity

Assumptions related to vertical hydraulic conductivity between model layers can be input into model software in a variety of ways. In MODFLOW, estimates of vertical hydraulic conductivity (in units of length per time) between two model layers are averaged into a single parameter known as the vertical conductance, which is based on both the layer thickness and vertical hydraulic conductivity of both model layers. The vertical conductance parameter is unitless. MODFLOW versions 1988 and 1996 use only the VCONT parameter in the Block-Centered Flow (BCF) Package. The original Groundwater Vistas file from HLA stored only the user-specified vertical conductance values.

Newer versions of MODFLOW (2000 and 2005) allow for the use of a broader range of assumed values through the use of the original BCF Package input structure, or newer input structures of the Layer-Property Flow (LPF) Package or the Hydrologic Unit Flow (HUF) Package. Both the LPF and HUF Packages simply use vertical hydraulic conductivity values as input rather than vertical conductance values. Groundwater Vistas generally uses direct input of vertical hydraulic conductivities, and is then capable of automatically calculating vertical conductance values from the user-specified values.

To provide maximum flexibility in the model update, vertical hydraulic conductivity values were back-calculated from the original model based on the layer thicknesses and vertical conductances. The calculated vertical hydraulic conductivity values for all four model layers were entered into the updated model in Groundwater Vistas, and were tested to ensure that the vertical hydraulic conductivity values entered in the WVBSA Model produced the same vertical conductance values from the original HLA model.

2.2 Groundwater Extraction

Once the modifications to the model setup were completed, the model was then updated to allow for simulation of the time period 1992 through 2008. Publically available datasets were obtained, reviewed, and organized into database formats for processing prior to adding well information to the groundwater model. Individual wells pumping within the WVBSA model domain were identified from records of groundwater pumping wells from the ADWR RoGR database. Wells from the RoGR database were compared to the original HLA database of existing wells in the model using well registration numbers, water right numbers, and cadastral locations (e.g., locations based on Township and Range designations at the center of the nearest quarter-quarter-quarter Section). Matches between the databases for these three independent identifying characteristics of wells were used to develop a final list of individual wells. Additional wells were also identified from the ADWR SRV Groundwater Model (ADWR, 2009). The majority of these

wells were not included in the original model because they had not been drilled or the wells began pumping after 1991.

During the process of adding wells and pumping to the updated model, questions arose over some well locations and available data on the depth of certain well screens. Some wells within the RoGR database did not plot at reasonable map locations, and many wells did not include information related to what depths and geologic units the well was pumping from. The BC modeling team worked closely with members of the WVBSA Working Group to identify additional sources of data for use in the model update.

The COP provided a data set to the WVB Working Group that included details related to well locations and well screen information that were otherwise not readily available in a compiled format from a public source. The COP data set was compiled by Mr. Paul Plato of Clear Creek Associates over a number of years as part of numerous COP projects (COP, 2011, personnel communication). The data set included information compiled from printed material in ADWR and ADEQ files, along with accurate well survey coordinates developed from various COP projects.

The data set provided by COP represented a subset of a geographically larger database which was culled for well information specific to the WVBSA. The COP data set was compared to the publically available information used in the development of the updated WVBSA Model. The focus of the data comparison was to determine if wells were located at the appropriate locations within the model domain, and if wells were simulating pumping from the appropriate model layer as indicated by the well screen information.

2.2.1 Well Locations

The WVBSA Model includes pumping from 534 wells covering the period 1972 to 2009. Locations for these wells are shown on Figure 2-2. The locations of many of the wells were available only as cadastral locations, and thus a number of wells plot at a single location on Figure 2-2. Locations of wells from both the RoGR database and the COP data set were reviewed for consistency and reasonableness in terms of where they plotted on site base maps and GIS-based aerial imagery. A number of pumping well locations from the RoGR database were corrected when it appeared that locations noted for the wells were not consistent or potentially not accurate. Nearly all of these inaccurate locations appeared to be related to an incorrect map datum (NAD27 instead of NAD83) specified in the RoGR database for these wells' coordinates.

Matching of records between the original HLA model and the RoGR database resulted in the addition of 8 wells that were previously missing for the 1972 through 1991 timeframe. The RoGR database also included duplicate pumping values assigned to all groundwater right numbers associated with a single well registry number for 2007 and 2008, when the pumping should have only been assigned to a single water right number. This issue was noted and corrected in the development of wells and pumping rates for the WVBSA Model.

Well locations fixed from the RoGR database were then reviewed versus the COP data set by plotting the locations together in GIS. A visual review of these locations indicated that most of the wells plotted at the exact location as wells fixed in the RoGR database. A small number of wells (31) plotted at slightly different locations, close to the RoGR well locations (within 200 feet). Only 3 wells plotted at locations that differed by over 200 feet It was verified that the RoGR locations for these three wells were correct based on review of maps and aerial imagery. As such, it was determined that additional changes to the modified RoGR well locations were not warranted based on COP data set.

2.2.2 Well Screen Intervals

The COP data set included well screen information that was not readily available in other pubic data sources Well screen data from both the RoGR database and the COP dataset were used in development the WVBSA Model. The WVBSA model includes pumping from a total of 534 wells (Figure 2-2). Of these, 225 wells were

included in the original HLA model. Well screen and layer pumping assumptions for these 225 wells have been retained in the model, and have not been modified.

A total of 309 wells were added to the model during the model update. Information related to these wells was primarily derived from both the version of the RoGR database that was used to develop pumping assumptions for ADWR's SRV groundwater flow model and the COP data set. A total of 207 of the 309 additional wells had sufficient information from the RoGR database and the SRV model to assign pumping from the appropriate layers within the WVBSA Model. The COP data set included well screen information for the other 102 wells that were not available from the RoGR database.

Well screen information was used to determine pumping from the appropriate model layer(s) for each well. The wells were entered into the Groundwater Vistas software using the "analytical element" approach. The wells are shown graphically at their real-world coordinates, and the well screen depths are entered into the software. Groundwater Vista's then creates a MODFLOW input file for the wells that places pumping within the appropriate model cell and layer with per layer pumping rates in each well estimated from the relative transmissivity in each screened model layer.

2.2.3 Pumping Rates

Pumping rates for each well in the model were derived primarily from the RoGR database, which includes an annual total pumping volume in units of acre-feet for each well. Pumping rates used for wells in the original HLA model for 1972 through 1991 were not changed. For existing and additional wells for 1991 through 2009, the annual pumping volume for irrigation wells (e.g., wells whose groundwater rights are labeled "irrigation" in the RoGR database) were divided into three annual stress periods, as described in Section 1.1.5. Wells without an "irrigation" water right designation were not converted to seasonal pumping, but were carried forward with a single, annual pumping volume. A database of pumping volumes by stress period was developed using Microsoft Access, and a database query was developed to convert pumping volumes per stress period (acre-feet) to the appropriate pumping rate in cubic feet per day for use in the model.

The analytical element module in Groundwater Vistas was then used to develop the appropriate pumping rate per model layer. The software calculates a proportional pumping rate for each model layer encountered by the well screen based on a weighting of the hydraulic conductivity values and model layer thickness. This results in greater production from model layers with higher hydraulic conductivity, with less of the total pumping coming from lower conductivity layers.

The complete data set for pumping wells in the WVBSA model is provided in Appendix B, and includes well designations, location coordinates, model layers from which the well pumps, and total annual pumping volumes.

2.3 Groundwater Recharge

Groundwater recharge primarily consists of agricultural return flows (excess irrigation applications) and recharge from surface water features, primarily large canals and the Salt River. Estimates of groundwater recharge were not readily available from publically available databases similar to the RoGR database for pumping wells. However, ADWR has developed detailed assessments of the various recharge sources as part of development of its SRV Groundwater Flow Model (ADWR, 2009). The SRV model simulates groundwater flow for the period 1983 through 2006, and the recharge estimates used in the model are publically available in a GIS format as part of the SRV model data set (http://www.azwater.gov/AzDWR/Hydrology/Modeling/SRV_Home.htm). The recharge estimates from the SRV model were developed by the ADWR based on local knowledge and assumptions related to local hydrogeologic conditions, and it was considered reasonable to use the estimated SRV recharge values for updating the WVBSA model.

Recharge estimates developed for the original HLA model were not modified for the WVBSA Model in order to retain calibration through the 1972 through 1991 simulation period. Although the SRV model covers the period 1983 through 2006, only estimates for conditions after 1991 (1992 through 2006) were used in the WVBSA model. The SRV model includes estimates of recharge from agricultural sources, canals, Salt River flood flows, lakes within the region, artificial recharge facilities, mountain front recharge, and turf/urban recharge. SRV model recharge sources that occur within the WVBSA Model domain include agricultural, canal, Salt River Flood flows, and turf/urban recharge.

The SRV model data set includes estimated recharge by type for each model cell, along with total recharge. The total recharge was then developed into a standard MODFLOW Recharge input file. The initial step for incorporating recharge estimates from the SRV model was to transfer total recharge from the SRV to the WVBSA Model. The cell sizes of the SRV model are 2,640 x 2,640 feet (0.5 x 0.5 mile), much larger than the WVBSA cell sizes, and the model cell boundaries are not coincident between the two models. As such, the recharge rates were transferred to the WVBSA model through GIS-based processes.

In GIS, cells from both the models are considered “polygons.” The polygons of the SRV model cells and the WVBSA model cells were intersected to produce smaller polygons that only correspond to a single overlapping portion of each cell of each model. In each intersected polygon the area of the polygon was multiplied by the areal recharge rates from the SRV model to produce the volumetric recharge rates for each intersected polygon. This process is illustrated on Figure 2-3. For each WVBSA model cell, the corresponding intersected polygon volumetric recharge rates were then summed to provide the total volumetric recharge rates. These total volumetric recharge rates for each WVBSA Model cell were then divided by the area of the model cell to produce the areal recharge rate for the model cell. This process was applied to all recharge estimates that were spread areally throughout the model domain.

Figure 2-4 presents a graph showing total annual recharge applied in the WVBSA Model for the entire simulation period (1972 to 2009). The SRV model simulates variation in recharge through 2006, and thus recharge estimates for the 2007 to 2009 period were not available for the WVBSA model. Total recharge estimates for 2006 were repeated for the final three years of the simulation.

2.3.1 Canal Recharge

Both the original HLA model and the SRV model distributed recharge from canal leakage over individual model cells representing focused areas where canal recharge occurs. The WVSBA Model, with much finer grid spacing, could accommodate a much more accurate spatial representation of canal recharge than the large cell sizes used in the SRV model. To more accurately represent the spatial extent of recharge from the canals within the finer grid structure of the WVBSA Model, both original HLA and SRV canal recharge volumes were mapped using GIS on the model cells of the refined WVBSA grid. WVBSA Model cells representing canal recharge were identified by plotting the grid on site base maps and aerial imagery in GIS. WVBSA Model cells representing canal recharge are shown on Figure 2-5.

The WVBSA canal cells were then visually keyed to the most appropriate HLA or SRV model cell(s) representing that reach. This process is illustrated on Figure 2-6. The total areal recharge for each model cell along with the areal recharge associated with surface-water leakage were imported into a Microsoft Access database and converted to recharge volumes. The portion of leakage recharge volume from each cell away from the surface-water feature were subtracted from the total recharge for the cell and that leakage recharge volume was added to the refined model cell that most accurately represented the canal. After the recharge volumes were transferred in the database the areal recharge rates were calculated, and those rates were re-imported into Groundwater Vistas.

Figure 2-7 presents annual totals of canal recharge applied to the WVBSA Model. Canal recharge assumptions used in the SRV model generally reflect that the majority of canal locations were lined by 1992. Annual recharge from the canals represents on average approximately 9 percent of the total recharge

applied to the model. However, focused recharge from the canals represents localized stress to the groundwater system near the canals which can influence flow rates and directions in these areas.

2.3.2 Salt River Recharge

Conversion of focused recharge related to flood flows in the Salt River was completed in a manner similar to that described above for the canals. Model cells representing the Salt River in the WVBSA model are included on Figure 2-5. In the original HLA model, recharge events from flood flows within the Salt River were estimated separately based on records of releases from the Granite Reef Dam (HLA, 1997). This recharge was added to the model through input in the MODFLOW Recharge package. The SRV model, however, directly simulated recharge from Salt River flows through the use of the MODFLOW Stream package. The stream package simulates recharge from surface flows based on the hydraulic gradient between surface water and underlying groundwater. To extract the SRV model-predicted recharge for Salt River flood flows, this simulated leakage to groundwater was extracted from the MODFLOW cell-by-cell flow output file using a custom code developed by BC staff. These leakage values were then transferred to the WVBSA Model cells through the same GIS process used for the transfer of canal recharge described above.

2.3.3 Agricultural Recharge

Agricultural recharge estimates for the WVBSA model for 1992 through 2006 were taken directly from the SRV model. An issue with agricultural recharge estimates was identified in early 2011 by the COP based on work it was performing with the model. ADWR estimated agricultural recharge prior to 2003 using crop-type data and aerial-photo interpretation. However, recharge from the SRV model representing agricultural irrigation return flows from 2003 onward was estimated by ADWR using a new remote-sensing based methodology. This remote-sensing method uses pixel characteristics in digital aerial photography to automatically identify which areas were under agricultural production and to estimate recharge rates from these data. This methodology resulted in some localized model cells being assigned unrealistically high recharge rates (up to approximately 7.5 ft/yr) within the WVBSA Model domain for 2003 onward.

The WVBSA Technical Working Group requested a meeting with ADWR to discuss the methods and issues related to the data. During this meeting, ADWR agreed that these high cell-by-cell recharge estimates were likely in error due to an unknown problem in their remote-sensing based method. To address these unrealistic recharge rates, cells in the WVBSA Model that were previously assigned agricultural recharge from the SRV model were re-assigned the average agricultural recharge rate for the period 1998 to 2002 for 2003 forward. To account for increasing urbanization after 2002, model cells not assigned agricultural recharge in the SRV model from 2003 onward were not assigned any agricultural recharge even if agricultural recharge had been assigned during the 1998 to 2002 period.

Figure 2-8 presents the annual total agricultural recharge estimates for the entire model domain. The total agricultural recharge volume in the model domain using the average 1998 to 2002 rates was approximately 12.5 percent less than the volume from the remote-sensing based recharge estimates from 2003 onward. Although individual model cells were assigned unrealistically high recharge, it was determined based on discussion with ADWR that the total volume of agricultural recharge for the entire WVBSA model domain was reasonable based on the remote-sensing method. Therefore, to preserve the overall model water balance from 2003 onward, the average 1998 to 2002 agricultural recharge rates were increased by an additional 12.5 percent (Figure 2-8). As previously noted, total recharge for 2006 (including the updated estimate of agricultural recharge) was repeated for the 2007 to 2009 period.

2.4 Model Boundary Conditions

Boundary conditions for the WVBSA Model are consistent with those originally developed by HLA for the Phase II model (Section 1.1.3). The development of the transient reference water levels for the GHBs around the north, east, and west outer boundaries of the model domain was required to update the model to

simulate the period 1992 through 2009. Reference groundwater levels for the GHBs were developed using a two step process. The first step used simulated regional groundwater levels from the SRV model to develop reference heads for the WVBSA Model domain. These reference heads were then modified in specific areas based on water levels observed in various monitoring wells near the model boundary.

2.4.1 SRV Model Simulated Groundwater Levels

The SRV model simulates groundwater flow with the regional Salt River Valley groundwater flow system. SRV model simulations thus include hydraulic gradient, groundwater flow directions, and groundwater levels in areas surrounding the WVBSA Model domain. These simulated groundwater levels, reflecting regional changes in groundwater flow over time, were used to develop GHB reference heads within the WVBSA Model for the period 1992 through 2006. Simulated groundwater levels adjacent to the WVBSA Model domain were extracted from SRV model Layer 1, representing conditions within the UAU. These water levels were mapped to corresponding locations along the outer boundary of the WVBSA model. The simulated SRV model heads were averaged over each calendar year and then added to appropriate WVBSA model boundary cells at locations adjacent to the SRV model cell, as illustrated on Figure 2-9. A linear interpolation method available in the Groundwater Vistas software was then used to fill in appropriate head values in the intervening WVBSA model boundary cells. Similar to the recharge assumptions, the final head values for 2006 head values were repeated for 2007 through 2009.

2.4.2 Adjustments from Observed Groundwater Levels

Measured groundwater elevations from various monitoring wells throughout the WVBSA model domain were available from the ADWR GWSI Database and ADEQ Water Quality Database. The modeled outer boundary transient heads developed from SRV model output were compared with monitoring well data for wells both inside and outside the model domain. Adjustments were made in areas where the SRV simulated heads were either higher or lower than those observed in the monitoring wells.

Figure 2-10 shows the locations of monitoring wells with sufficient data to compare with SRV simulated heads. In areas where the boundary heads extracted from the SRV model differed greatly from the water levels measured in a nearby well, the boundary head at the WVBSA Model cell location nearest the well was adjusted. Boundary heads in other model cells were then interpolated spatially and temporally using distance-weighted averages. An example head adjustment is shown on Figure 2-11. Additional adjustments were made to the boundary heads during the calibration process, as discussed in Section 3.

Section 3

Model Calibration

The original HLA model was calibrated primarily to single time period data from both 1982 and 1991, as described in Section 1.1.7. The model was also qualitatively compared to time-series data (hydrographs) using data from 20 wells. The model is very well calibrated to conditions observed between 1972 and 1991. The WVBSA Model was updated as described in Section 2 and was run for the period between 1972 and 2009. Water level data for the entire time period were reviewed, and an updated calibration data set was developed to assess and improve ongoing model calibration. Modifications to model boundary condition assumptions were also made to improve overall model calibration, along with minor modifications to assumed model storage conditions. Details of the model calibration process are included in the following sections.

3.1 Additional Calibration Targets

Water level data used by HLA for the original model calibration were carried forward to assess ongoing calibration of the updated model. These data included single-time water level measurements from 100 wells in 1982, measurements from 139 wells in 1991, and time-series data collected in 20 wells. The HLA data files from the original model contained electronic water level data for 13 of the 20 wells used to develop the original hydrographs. Hydrographs from the other 7 wells was available only in a picture format, without numeric water levels. Therefore, only the 13 wells with available data were carried forward for use in the updated analysis.

Additional water level records were obtained from the ADWR GWSI Database and ADEQ Water Quality Database. No additional water level data for the original 13 calibration wells were found in these databases. An additional 50 wells were added as calibration targets based on time-series water levels found in the databases. The majority of the newly added water level observations are from the 2000's, but some of these new observation wells have measurements from the 1990's, and a few have measurements from the late 1980's. The 63 wells (13 original and 50 additional) used for assessment of the updated WVBSA Model are summarized in Table 3-1 and shown on Figure 3-1. The number of available water level target values and time range for measurements for each well are also included in the table. A total of 2,176 water level target values were used to assess model calibration.

Table 3-1. Calibration Target Summary

	Calibration Well Designation	Number of Water Levels	Date Range for Water Levels
1	A(1-1)03_ABB	14	1/15/1972 - 11/2/1991
2	A(1-1)04_AAA	34	1/15/1972 - 12/2/1995
3	A(1-1)10_CCC	16	1/18/1972 - 11/1/1991
4	A(1-1)22_BAA	14	1/18/1972 - 1/10/1982
5	A(1-2)09_AAB	28	1/13/1972 - 11/11/1995
6	A(1-2)18_DDD	14	1/13/1972 - 6/12/1994
7	A(1-2)19_BAA	30	1/13/1972 - 11/11/1995

Table 3-1. Calibration Target Summary

	Calibration Well Designation	Number of Water Levels	Date Range for Water Levels
8	A(1-2)24_DDC	37	1/22/1972 - 9/30/1994
9	A(1-2)26_AAA	25	1/12/1972 - 11/11/1995
10	A(2-1)28_AAA	15	1/20/1972 - 9/3/1994
11	A(2-1)35_DAA	8	2/10/1972 - 12/13/1982
12	A(2-2)25_BCA	14	1/21/1972 - 6/23/1994
13	AVB108-02	26	9/30/2002 - 9/4/2008
14	AVB87-01	21	4/2/2001 - 3/6/2008
15	AVB65-01	11	12/13/1999 - 3/8/2007
16	AVB53-01	6	3/2/2005 - 3/4/2008
17	AVB26-01	81	7/8/1993 - 6/19/2008
18	19TH_AVE_LF_DM-5S	17	9/29/2005 - 10/1/2009
19	19TH_AVE_LF_I-4	17	9/29/2005 - 10/1/2009
20	APS_505_MW-4	61	9/5/1997 - 12/4/2009
21	AVB107-01_MW-2	11	12/9/2002 - 3/5/2007
22	AVB111-01_#1652_MW-3	11	12/16/2003 - 12/8/2008
23	AVB113-01	14	12/11/2002 - 12/8/2008
24	AVB115-01	21	12/18/2003 - 12/8/2008
25	AVB116-01	21	12/18/2003 - 12/9/2008
26	AVB117-01	21	12/17/2003 - 12/9/2008
27	AVB120-01	20	12/17/2003 - 12/8/2008
28	AVB121-01	21	12/17/2003 - 12/8/2008
29	AVB125-01	19	6/17/2004 - 12/9/2008
30	AVB127-01	16	6/17/2004 - 12/8/2008
31	AVB129-01	19	6/15/2004 - 12/8/2008
32	AVB132-01	13	12/7/2005 - 12/9/2008
33	AVB137-01	11	6/27/2006 - 12/8/2008
34	AVB139-01	7	6/13/2007 - 12/8/2008
35	AVB20-03	17	9/2/2003 - 9/4/2008
36	AVB47-01_HILTON_WVB-4	17	5/14/1997 - 12/11/2008
37	AVB71-01	30	9/2/2003 - 12/8/2008
38	AVB81-02	21	12/16/2003 - 12/11/2008
39	AVB88-01	21	12/17/2003 - 12/8/2008
40	AVB91-01	21	12/16/2003 - 12/8/2008
41	AVB93-01	20	12/16/2003 - 12/11/2008
42	AVB94-01	17	12/16/2003 - 12/11/2008
43	AVB95-01	21	12/19/2003 - 12/9/2008
44	AVB96-01	21	12/16/2003 - 12/9/2008
45	AVB97-01	21	12/17/2003 - 12/9/2008

Table 3-1. Calibration Target Summary			
	Calibration Well Designation	Number of Water Levels	Date Range for Water Levels
46	AVB98-01	21	12/16/2003 - 12/9/2008
47	AVB99-01	21	12/17/2003 - 12/11/2008
48	DIMW-6A	46	6/21/2000 - 12/19/2007
49	MARICOPA_CO._MC-MW1	17	5/13/1997 - 12/9/2008
50	MOGUL_MW-1	20	11/19/1992 - 12/10/2002
51	OU3-7S	13	9/2/2003 - 9/8/2009
52	OU3-8S	13	9/2/2003 - 9/8/2009
53	PENSKE_MW-1	69	4/13/1990 - 6/5/2003
54	PHOENIX_FUEL_CO_MW-5	29	8/25/1994 - 3/27/2000
55	PHOENIX_FUEL_CO_MW-6	29	8/25/1994 - 3/27/2000
56	SWR_MWB-5	25	7/20/1993 - 10/19/2001
57	TEXACO_MW-2	10	7/29/1999 - 1/15/2002
58	UTE_CITY_BCS-2_AVB15-01	20	5/12/1997 - 12/8/2008
59	WCP-17	21	3/19/1997 - 9/18/2002
60	WCP-204	7	12/14/2001 - 9/17/2007
61	WCP-43	14	10/25/1999 - 6/4/2003
62	WEDGE_ENERGY_MW-1	31	5/31/1990 - 8/6/1996
63	AVB108-01	829	1/23/1991 - 6/18/2008

3.2 Preliminary Model Simulations

The WVBSA model was used to simulate changes in groundwater conditions between 1972 and 2009. As with the original HLA model, the model was set up to simulate three stress periods for every year, simulating seasonal changes to groundwater pumping. Each year included a total of 35 time steps; 10 for Stress Period 1, 15 for Stress Period 2, and 10 for Stress Period 3 (Section 1.1.4). This resulted in a total of 1,330 time steps over 114 stress periods for the 38-year simulation period. Simulated groundwater elevations were saved at each time step.

Groundwater Vistas was used to extract simulated water levels from MODFLOW output head files for each model simulation. The simulated water levels are available at the end of each model time step. Actual water level observations in the 69 calibration wells were not collected at the exact date and time that the model is simulating water levels (i.e., the end of each time step). Calibration statistics would normally be developed by comparing the measured water levels to simulated water levels representing the closest date to date of the measured data. An alternative method to provide more representative calibration statistics is to interpolate the simulated water levels between dates prior to and after the date of the measured water level. A program was developed to interpolate, using a cubic-spline approach, a simulated water level at the same date actual water levels were collected. The program automatically calculates the interpolated simulated value and compares it the actual measured values. Hydrographs for each of the 69 wells are also plotted automatically, and overall model calibration statistics are calculated. The use of an automated program to check model calibration and plot hydrographs greatly enhanced the ability to assess the impact of various model changes on calibration.

A variety of simulations were performed to test model input files and to assess ongoing calibration of the model with the modifications and additions described in Section 2. Reasonable calibrations were generally

achieved with simply running the model with the updated data. Various model modifications were tested to improve calibration in the period between 1992 and 2009. These included modifications to the GHB reference heads and some minor modifications to model parameters, as described in the following sections.

3.3 Model Parameter Changes

Reasonable calibration statistics for the WVBSA Model were achieved for the preliminary simulations with no modifications to the original HLA model's hydraulic conductivity values. Therefore, no changes were made to the hydraulic conductivity values used in the original HLA model. The hydraulic conductivity distributions used in the WVBSA model are shown on Figures 3-2 through 3-5.

As discussed in Section 1.1.6, the original HLA model recognized a general relationship between hydraulic conductivity and the specific yield for alluvial sediments within the WVBSA. The specific yield values affect how the model simulates net changes in water levels over time. The original calibration data set did not include a significant amount of observed water levels representing seasonal changes in groundwater levels, but rather only one or two water levels per well per year. Water level data added to the calibration dataset after 1992 did include monitoring wells with time-series data sufficient to capture details of seasonal water level fluctuations. A review of the calibration results from simulations testing ongoing model calibration indicated that while the model generally matched long-term water level elevations, the model did not always match the full magnitude of observed seasonal fluctuations. This is illustrated on Figure 3-6, which shows simulated versus observed water levels for monitoring well AVB108-01, which is located within the central portion of the WVBSA.

Model calibration statistics were improved by reducing all specific yield values used in the model by a factor of 0.5 (i.e., reducing the drainable/fillable storage by one-half). Figure 3-6 includes simulated water levels for monitoring well AVB108-01 both with the original and modified specific yield values. As shown on the figure, lowering the specific yield values results in greater seasonal variation in groundwater levels and a general improvement in model calibration. The updated storage estimates range from 0.0125 to 0.09 (1.25 to 9 percent) in model layer 1 and 0.05 (5 percent) in model layers 2, 3, and 4. These values are still within a reasonable range of estimates for large-scale, multi-layered alluvial aquifers. The final specific yield values used in the model layer 1 are presented on Figure 3-7.

3.4 Boundary Condition Modifications

Section 2.4.2 includes a discussion on how observed water levels were used to update model boundary conditions. As part of calibration checks during the preliminary model simulations, it was noted that the model was simulating groundwater levels in the northeastern portion of the model domain (north and northeast of the Grand Canal [Figure 2-5]) consistently higher than those observed in local monitoring wells during the late 1990's and early 2000's. Calibration remained reasonable in the central portion of the WVBSA, the primary area of interest for the model.

It was also determined that the GHBs set along the northeastern model boundaries were resulting in a simulated hydraulic gradient that was steeper than observed values within the model domain, resulting in simulation of groundwater heads higher than those observed in local monitoring wells. The groundwater elevation data used to develop the GHBs used at the boundary were reviewed for potential errors in surveyed elevations or database entry errors; no obvious data errors or other measurement issues were found. Additional data and interpretations for groundwater conditions north of the Grand Canal (Figure 2-5) were collected and reviewed, specifically the Final RI Report for the West Central Phoenix (WCP) North Plume Site (LFR, Inc. [LFR] 2009). The following sections discuss the development of WVBSA Model boundary heads, the results of our review of the North Plume RI, and modifications made to the northeastern boundary based on the results of that review.

3.4.1 Model Boundary Development

The WVBSA Model uses GHBs along the northern and eastern boundaries of the model. A GHB is referenced to a time-variant head boundary that is located outside of the active model domain. As such, simulated groundwater levels at the boundary cells are allowed to fluctuate as a function of the referenced water level and the simulated water levels within the model domain. Development of GHBs was a two-step process based on regional output from the SRV model and adjustments based on water levels (Section 2.4). The water levels used to set the reference heads for the GHBs were developed based on a review of available water level data in the appropriate areas. Water levels from a variety of monitoring wells near the northeastern model boundary (i.e., near the corner of 7th Street and Camelback Road) were reviewed, and well ADEQ CC-3 (as designated in the ADEQ database) was chosen as representative for use in development of model boundary heads in this area (Figure 2-10).

Well ADEQ CC-3 was installed in early 2001 to a depth of approximately 110 feet. Groundwater levels measured in the well are shown on Figure 3-8. Groundwater was measured in 2001 at a depth of approximately 47 feet, resulting in a groundwater elevation of approximately 1,083 feet. Water levels in the well were observed to decline between 2001 and 2007 to an elevation of approximately 1,062 feet. The observed groundwater elevations (along with the observed changes in elevations) were used to develop general head reference elevations for the WVBSA Model boundary in this area.

The use of these reference elevations at the boundary resulted in simulated water levels across the northeastern area of the model domain higher than those observed in other local monitoring wells. Figure 3-9 presents groundwater elevations simulated in the vicinity of monitoring well Penske MW-01. As shown on the figure, simulated heads in the late 1990's through 2004 are up to 20 feet higher than those measured in well Penske MW-01. Groundwater elevations for the year 2000 were simulated at approximately 999 feet versus measured elevations of approximately 982 feet. Simulation of higher than measured groundwater elevations was also observed in numerous monitoring wells across the northeastern area of the model domain.

Model testing indicated that significant improvement in model calibration to observed water level conditions was obtained if the reference heads used along the northeastern model boundaries were lowered below the elevations observed in ADEQ CC-3. However, a review of available data from well ADEQ CC-3 did not show any issues related to reported water levels in the well, and the observed water levels are likely representative of water table conditions in this area. In order to improve understanding of groundwater flow conditions, and thus model calibration in the northeastern portion of the WVBSA Model domain, additional publically available data and reports were reviewed in detail for this portion of the groundwater flow system. In particular, the WCP North Plume RI developed by LFR in 2009 provided an enhanced understanding of groundwater flow conditions in this area of the WVBSA Model domain, as discussed in the following section.

3.4.2 West Central Phoenix North Plume Remedial Investigation

The WCP North Plume area is located near East Grand Avenue between Indian School Road to the south and Camelback Road to the north (Figure 3-10). The site is focused around four facilities identified as potential sources for constituents observed in groundwater in that area. The site is located within the north- central portion of the WVBSA groundwater model domain, as shown on Figure 3-10. LFR conducted an RI of the site based on data collected between 1984 and 2005. The study included hydrogeologic characterization and development of a site conceptual model for the area.

The WCP North Plume study hydrogeologic characterization included installation of multi-level groundwater monitoring wells designed by Westbay. These monitoring wells consist of multiple vertically separated monitoring "ports" that allow for depth-specific water level and water quality monitoring. Of particular interest to the WVBSA groundwater flow model, depth-specific water level data collected from the Westbay multi-level monitoring wells at the WCP North Plume site showed significant vertical variations in water levels

between shallow and deeper measurement locations. The WCP North Plume RI interpreted that these vertical variations in water levels were due primarily to the presence of a high-permeability sand unit. The sand unit was observed to be approximately 30 feet thick at depths ranging from 250 to 280 feet bgs. The WCP North Plume RI noted that the sand unit is assumed to be "…very prolific with respect to groundwater production…", and historical groundwater levels within the sand unit indicate that it has been impacted by regional groundwater extraction.

A cross-section showing the sand unit and the vertical variations in water levels measured in the Westbay multi-level monitoring wells during May, 2001, is presented on Figure 3-11. As shown on the figure, the groundwater elevation near the water table as measured in well F&B-1/2 was approximately 1,013 feet, at a depth of approximately 100 feet. Water level elevations measured at the same time in the high permeability sand unit (approximately 250 feet depth) were 970 feet, or 43 feet lower than the water table. Water level elevations measured at a depth of approximately 490 feet were approximately 978 feet. These depth-specific water level elevation data indicate significant downward and upward vertical gradients exist and generate groundwater flow toward the permeable sand unit. Other Westbay wells show similar conditions, as shown on Figure 3-11.

Within the north central and northeastern areas of the WVBSA groundwater model, Model Layer 1 varies between 195 to 270 feet thick. As such, the 30-foot thick permeable sand would be located near the bottom of WVBSA Model Layer 1, and represents only a small portion of the thickness of aquifer being simulated in that layer. The WVBSA Model was developed using MODFLOW, which is based on a finite difference model grid consisting of rectangular grid cells each representing a portion of the aquifer. The model simulates "average" groundwater flow, water level, and permeability conditions within each model cell. As such, the simulated water level in a model cell represents both a horizontal and vertical average water level given the average permeability within the model cell.

The observed groundwater levels at the WCP North Plume site vary by more than 40 feet over the aquifer thickness being simulated by the WVBSA Model in Layer 1. As such, the "average" groundwater level simulated in the model would not be expected to match either the water table or water levels at the base of the unit, but rather an average water level between the two measurements. The significant vertical variation in water levels observed at the WCP North Plume site indicates that care must be taken when choosing boundary condition reference heads and calibration targets, as some observations may not be directly comparable to the "average" groundwater level conditions being simulated in the model. It is clear that some of the well observations north and northeast of the Grand Canal used in the original calibration are likely not representative of average groundwater flow conditions, but rather represent water levels at specific depths within a localized vertically variable system.

3.4.3 Model Boundary Modifications

As noted, water levels observed in well ADEQ CC-3 were initially determined to be a generally accurate representation of the water level conditions near the northeastern model boundary. However, using these water levels to reference the GHBs resulted in a steep hydraulic gradient throughout the northeastern area of the model that did not match observed conditions. Based on the observations at the WCP North Plume site, it is now considered likely that water levels in ADEQ CC-3 are not representative of an average water level condition that would be consistent with model assumptions. Given this revised interpretation, the model was tested using a lower reference head in the northeastern corner of the model. The updated reference head was determined by extending the hydraulic gradient observed in wells located south of the Grand Canal, closer to the central model domain where reasonable calibration was achieved. The updated reference water levels in the vicinity of well ADEQ CC-3 are shown on Figure 3-12.

Using the updated reference heads for the GHBs in the northeast corner of the model resulted in a better match of observed water levels near the Grand Canal and south of the canal. Figure 3-13 shows observed and simulated water levels for monitoring well WCP-43, located just south of the Grand Canal near East

Grand Avenue. As shown on the figure, simulated water levels that were too high prior to updating the boundary now reasonably match the observed water levels in this well.

3.5 Calibration Summary

Final calibration of the WVBSA Model was assessed based both on statistical matches between observed and simulated water levels, and qualitatively through visual matching of long-term hydrographs. Calibration statistics for the WVBSA model and the original HLA model for the 1982 and 1991 time periods are provided in Table 3-2. The updated model has generally similar calibration statistics for these two periods as the original model, reflecting that the limited changes made to the model did not significantly affect simulated water levels for the 1972 through 1991 time period.

Table 3-2. WVBSA Model Calibration Summary

	HLA Model from input files	Final WVBSA Model
End of 1982		
Residual Mean	3.682	-1.302
Residual Standard Deviation	6.331	5.696
Root Mean Square Error	7.324	5.843
Scaled RMS	0.058	0.046
End of 1991		
Residual Mean	-0.731	2.735
Residual Standard Deviation	6.216	6.580
Root Mean Square Error	6.259	7.126
Scaled RMS	0.050	0.057

Calibration statistics based on all 2,176 water level target values, measured within 69 wells, covering the entire simulation period (1972 to 2009) are summarized as follows:

- Average residual = - 4.0 feet
- Absolute average residual = 6.2 feet
- RMSE = 8.8 feet
- Scaled RMSE = 0.049 (4.9 percent)

In our professional judgment, these calibration statistics indicate a very good match between simulated and observed groundwater levels, and meet or exceed widely recognized industry standards for long-term, highly transient flow models (Anderson and Woessner; 1992, ASTM D5490, 2008; Australian Groundwater Modeling Guidelines, 2012).

Model calibration was also assessed qualitatively through visual review of long-term hydrographs for the 69 wells used in the calibration. Example calibration hydrographs are shown on Figures 3-14 through 3-17. All 69 calibration hydrographs are included in Appendix C. A review of calibration hydrographs demonstrates that the WVBSA Model is generally well-calibrated to long-term fluctuations and seasonal changes in water levels. Water levels within the WVBSA were observed to vary by 60 to 70 feet over the 1972 to 2009 time period, with seasonal changes on the order of 15 to 20 feet. The WVBSA Model simulates both the observed long-term changes in water levels and general seasonal fluctuations.

Section 4

Summary and Conclusions

This report summarizes activities conducted to update an existing groundwater flow model originally developed by HLA for Van Waters & Rogers in the early 1990's for use in the WVBSA WQARF site. Electronic files associated with the original HLA model, developed in the early to mid-1990's, were tested and updated for use with modern groundwater modeling software. The files were tested using various versions of the USGS groundwater flow model MODFLOW, and was deemed a suitable tool to assess groundwater flow conditions within the WVBSA.

The original HLA model was designed to simulate groundwater flow conditions from 1972 through 1991. The model was updated to simulate conditions including 1992 through 2009, for a total simulation period covering 38 years of past groundwater flow conditions. Water level, groundwater pumping and aquifer recharge data were collected and evaluated from a variety of public sources, primarily from ADEQ and ADWR. Analyses of water level data related to basin-scale groundwater flow conditions from ADWR's SRV model were used as a base to update the WVBSA Model to simulate flow conditions through 2009. The model was updated and model calibration was compared to observed water level conditions obtained from databases from ADEQ and ADWR.

Minor modifications were made to the WVBSA Model during the calibration process to improve the model's overall match to observed conditions. Model calibration meets or exceeds industry-standard expectations related to long-term, regional-scale simulation of transient groundwater flow in a complex, layered aquifer system. The model is a suitable tool for assessing potential future changes to groundwater flow conditions within the WVBSA.

Univar is currently working with other parties as part of the WVB Working Group to develop and implement a FS to identify and assess potential remedial actions to improve groundwater quality in the WVBSA. As part of the FS process, Univar has contributed the updated WVBSA Model to the WVB Working Group to aid in assessments of various potential FS alternatives. Details on the use of the WVBSA Model for the FS will be provided as part of the FS report.

The original version of this report was transmitted to ADEQ on December 20, 2013. ADEQ provided comments on the WVBSA model, developed by their contractor Terranext, in a letter dated February 27, 2014. The comments provided by ADEQ, along with written responses, are included in Appendix D of this revised report.

Section 5

Limitations

This document was prepared solely for Univar, USA, Inc. in accordance with professional standards at the time the services were performed and in accordance with the contract between Univar and Brown and Caldwell. This document is governed by the specific scope of work authorized by Univar; it is not intended to be relied upon by any other party except for those contemplated by the scope of work. We have relied on information or instructions provided by Univar and various regulatory agencies in the State of Arizona, and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

The WVBSA Model was developed through a detailed process including model testing and calibration subject to independent review and oversight. As such, the model is a well-developed tool for use in assessing current and future groundwater flow conditions within the WVBSA. However, all models have a degree of uncertainty related to model simulations. These uncertainties arise due to the accuracy, nature, timing, and location of field measured conditions, and application of the model is limited based on the range of uncertainty in model inputs and assumptions. The WVBSA Model represents a balance of flows entering the Study Area domain from recharge and underflow, and exiting as pumping and underflow. The balance achieved through calibration represents our best available understanding of groundwater in the vicinity of the WVBSA. The calibrated values produced the best results based on both qualitative and quantitative assessment on the local and regional scales. When considered in combination, the results of both the calibration result in a high level of confidence in the use of the model for simulations of groundwater conditions through time. However, use of the WVBSA Model should be limited to the intended goals that have been identified for the model.

Section 6

References

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Harbaugh, A. W, E.R. Banta, M.C. Hill, and M.G. McDonald,. *MODFLOW-2000, The U.S. Geological Survey Modular Groundwater Model – User Guide to Modularization Concepts and the Groundwater Flow Process*, U.S. Geological Survey Open File Report 00-92, 2000.

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Harding Lawson Associates, *Groundwater Flow Model, West Van Buren WQARF Study Area,* Prepared for Van Waters & Rogers, Inc., 1997.

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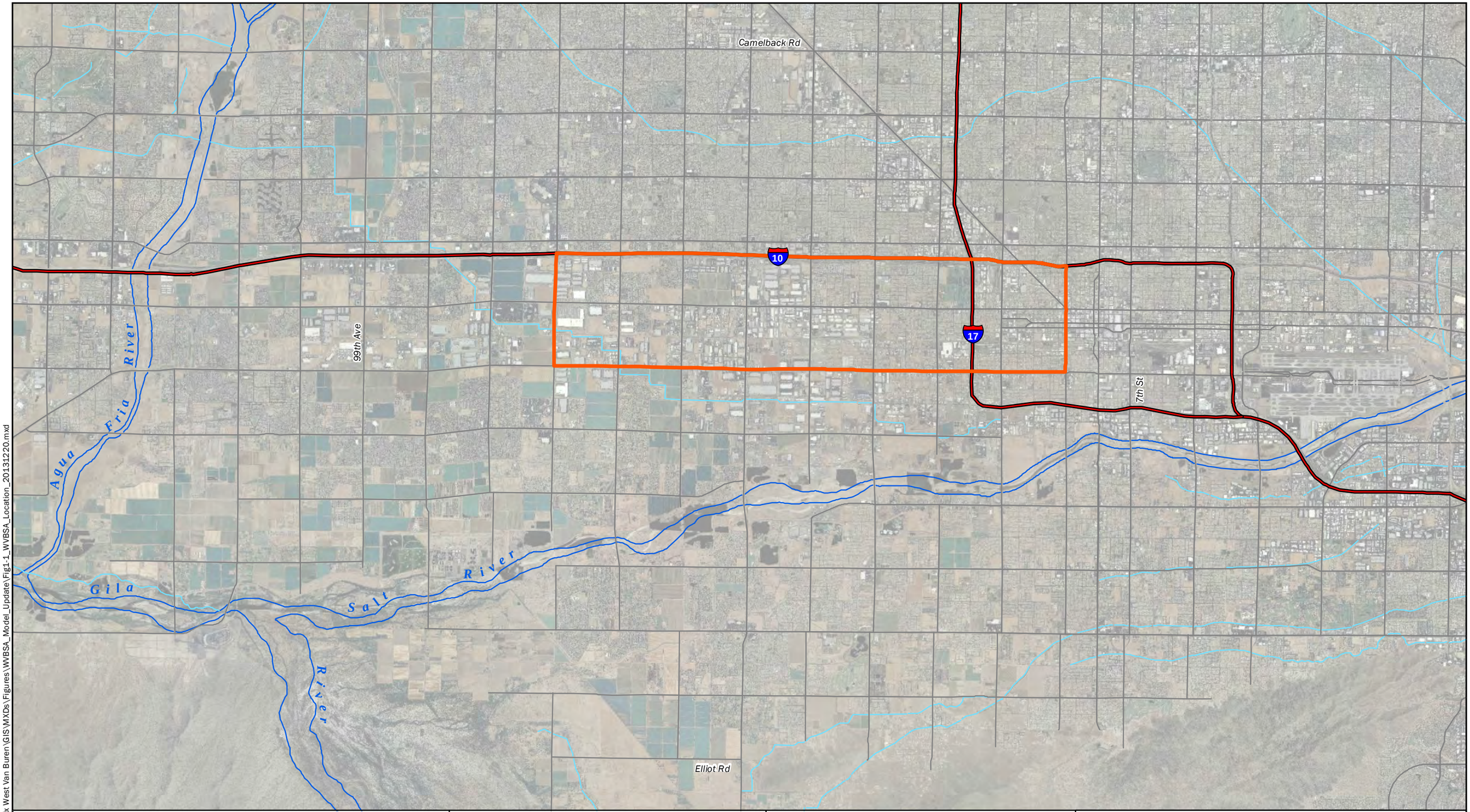


LEGEND

- Approximate WVBSA Boundary (Terranext, 2012)
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
The Final RI (Terranext, 2012) defines the WVBSA as being bounded approximately by Interstate 10 to the north, 7th Avenue to the east, West Buckeye Road to the south, and 75th Avenue to the west. Additionally, a finger-shaped plume exists between Buckeye Road and Lower Buckeye Road from approximately 7th Avenue to 27th Avenue.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
West Van Buren Study Area Extent

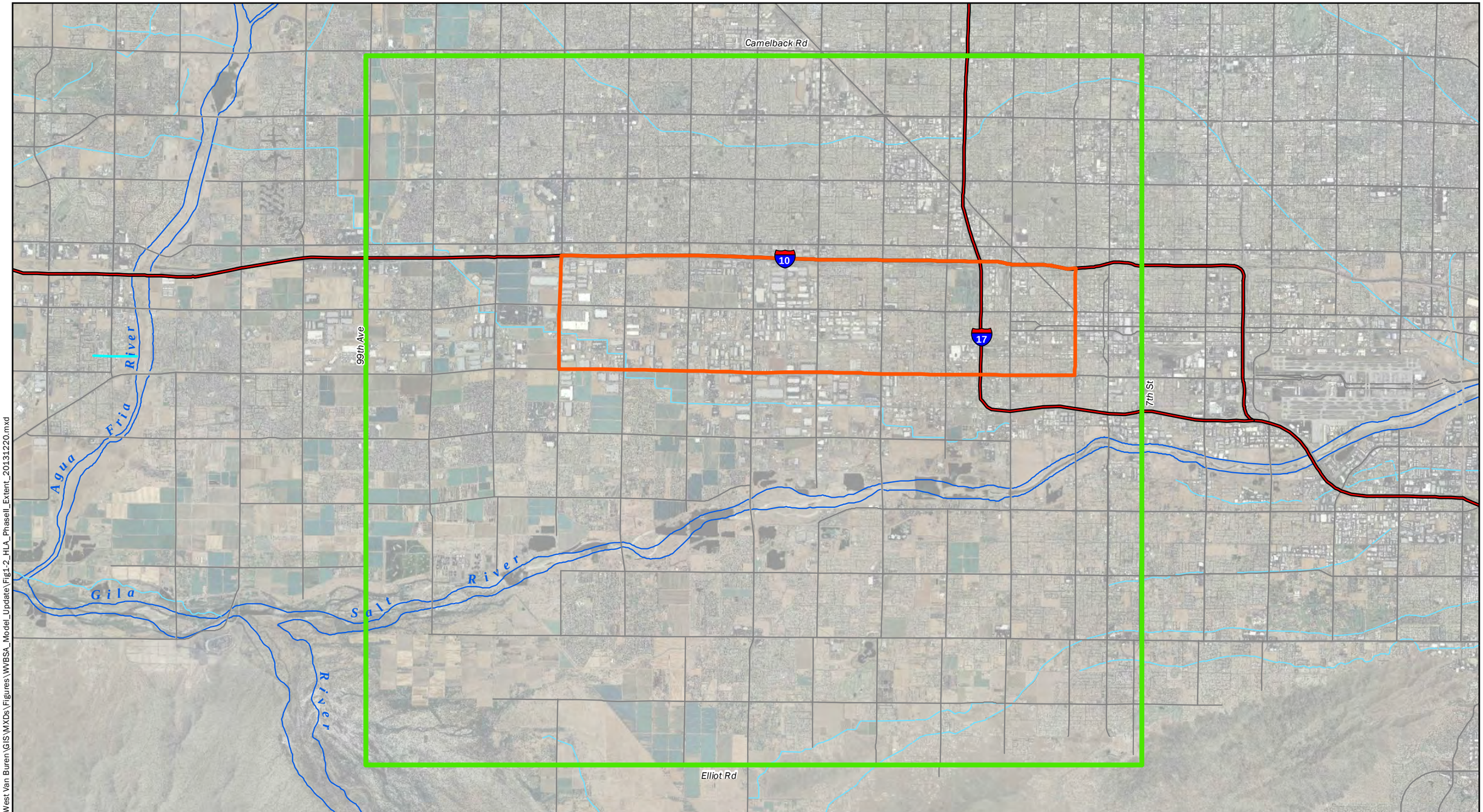
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-1

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-1_WVBSA_Location_20131220.mxd



LEGEND

- Approximate WVBSA Boundary (Terranext, 2012)
- HLA Phase II Model Domain
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
The Final RI (Terranext, 2012) defines the WVBSA as being bounded approximately by Interstate 10 to the north, 7th Avenue to the east, West Buckeye Road to the south, and 75th Avenue to the west. Additionally, a finger-shaped plume exists between Buckeye Road and Lower Buckeye Road from approximately 7th Avenue to 27th Avenue.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model Domain Extent

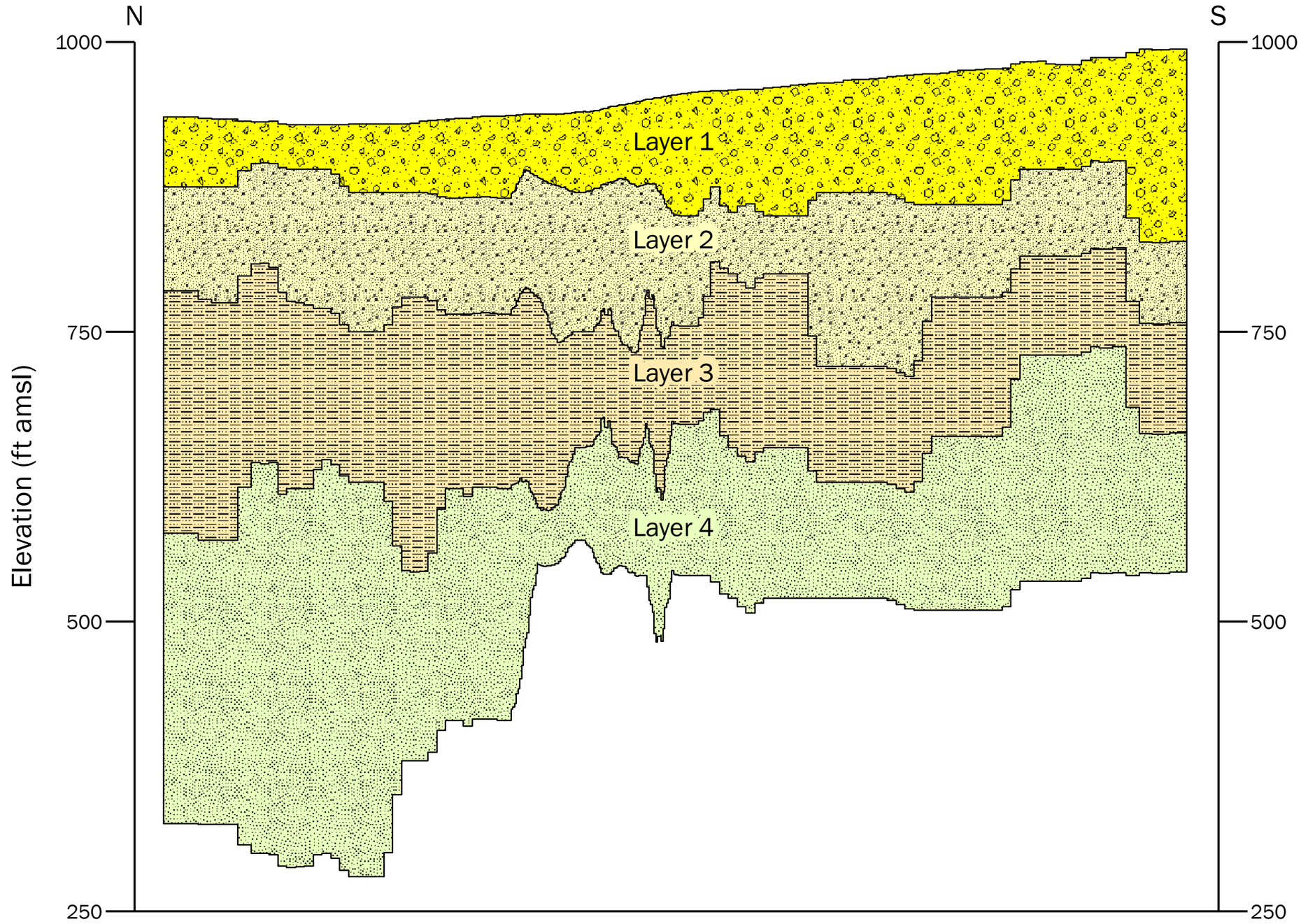
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-2

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-2_HLA_PhaseII_Extent_20131220.mxd



LEGEND

Model Layer Elevations

0 6,000
Feet

N

Notes:
1. Cross section along HLA Phase II Model column 42
2. Vertical exaggeration = 20x
3. Fill symbols are not meant to represent specific lithologic units

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – North-South Cross Section

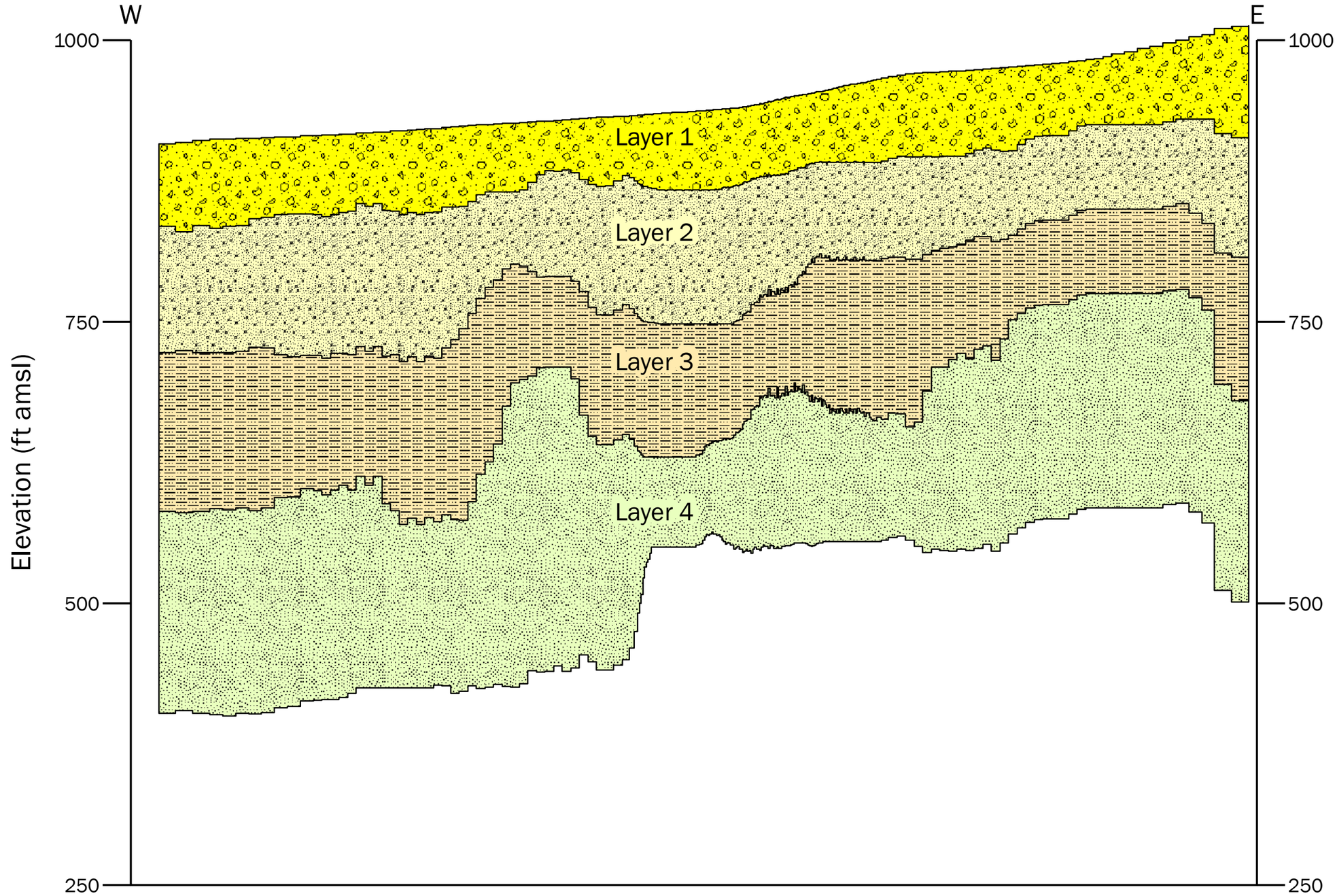
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-3

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-3_HLA_PhaseII_N-S_XSect_20131220.mxd



LEGEND

Model Layer Elevations

0 6,000
Feet

N

Notes:
1. Cross section along HLA Phase II Model row 24
2. Vertical exaggeration = 20x
3. Fill symbols are not meant to represent specific lithologic units

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – East-West Cross Section

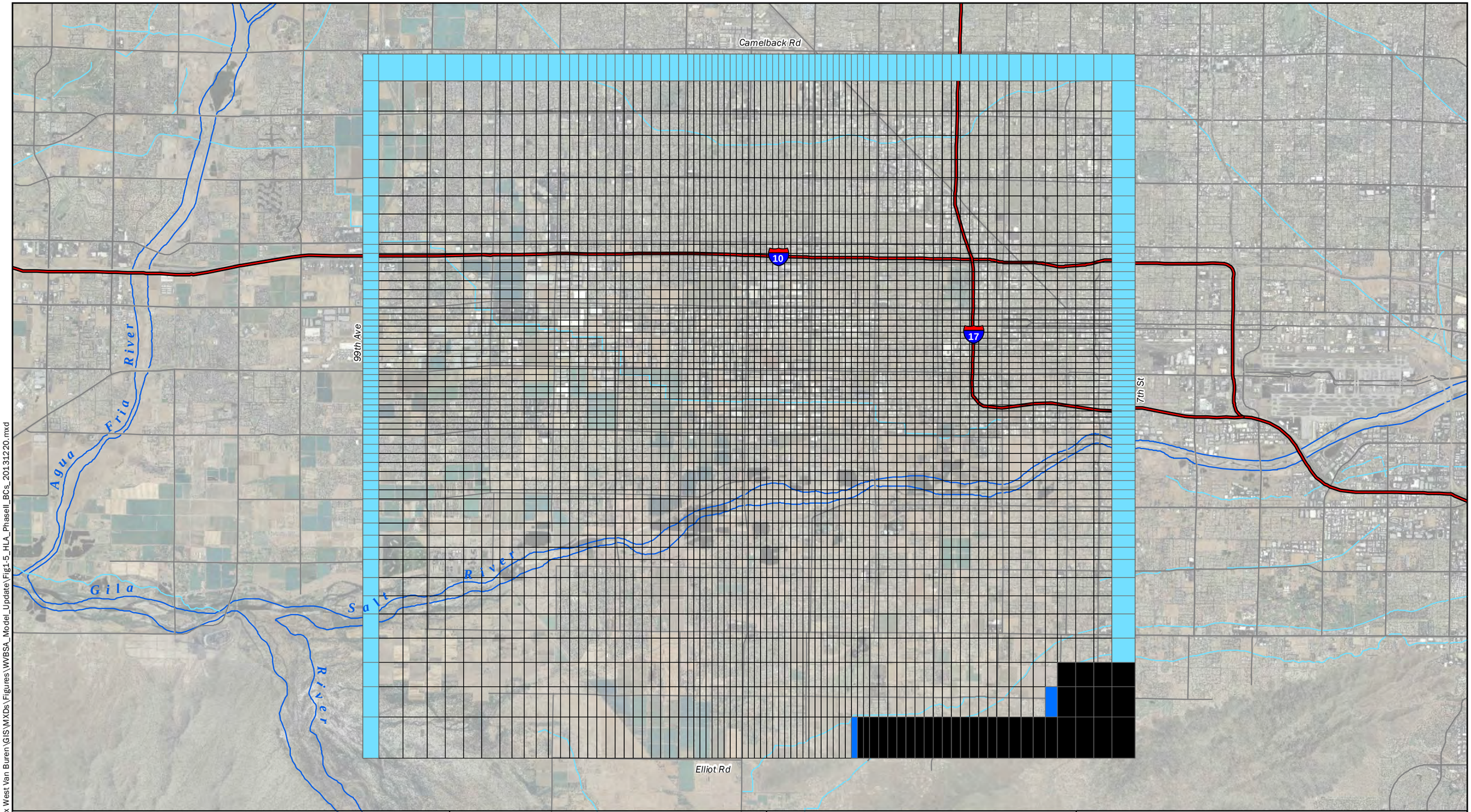
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-4

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-4_HLA_PhaseII_E-W_XSect_20131220.mxd



LEGEND

- Constant Head
- General Head
- No Flow
- HLA Phase II Model Grid
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – Boundary Conditions

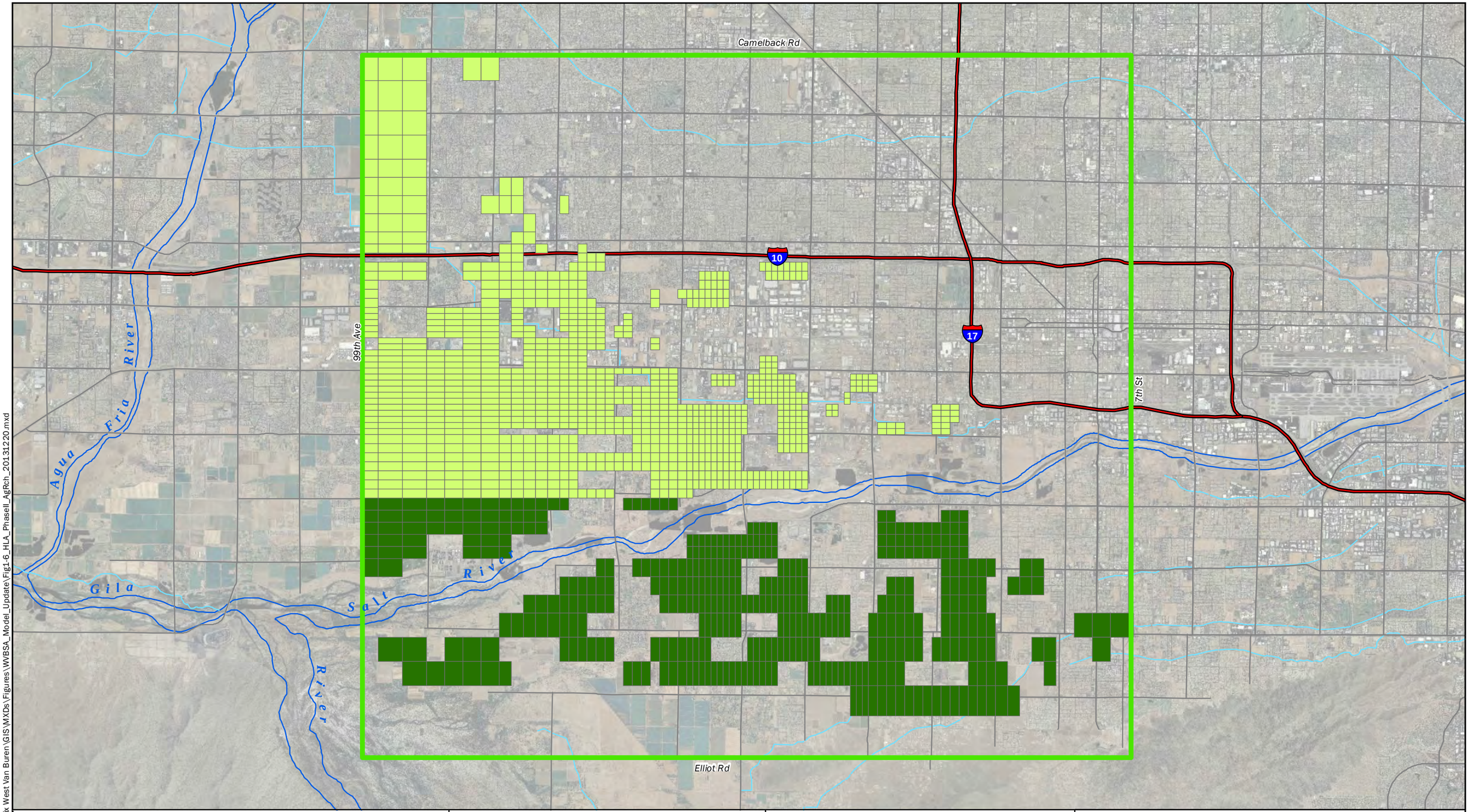
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-5

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-5_HLA_PhaseII_BCs_20131220.mxd



LEGEND

Agricultural Recharge

- 2.0 ft/yr
- 2.5 ft/yr
- Canal
- Surface Water Features
- HLA Phase II Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **HLA Phase II Model – Agricultural Recharge for 1991**

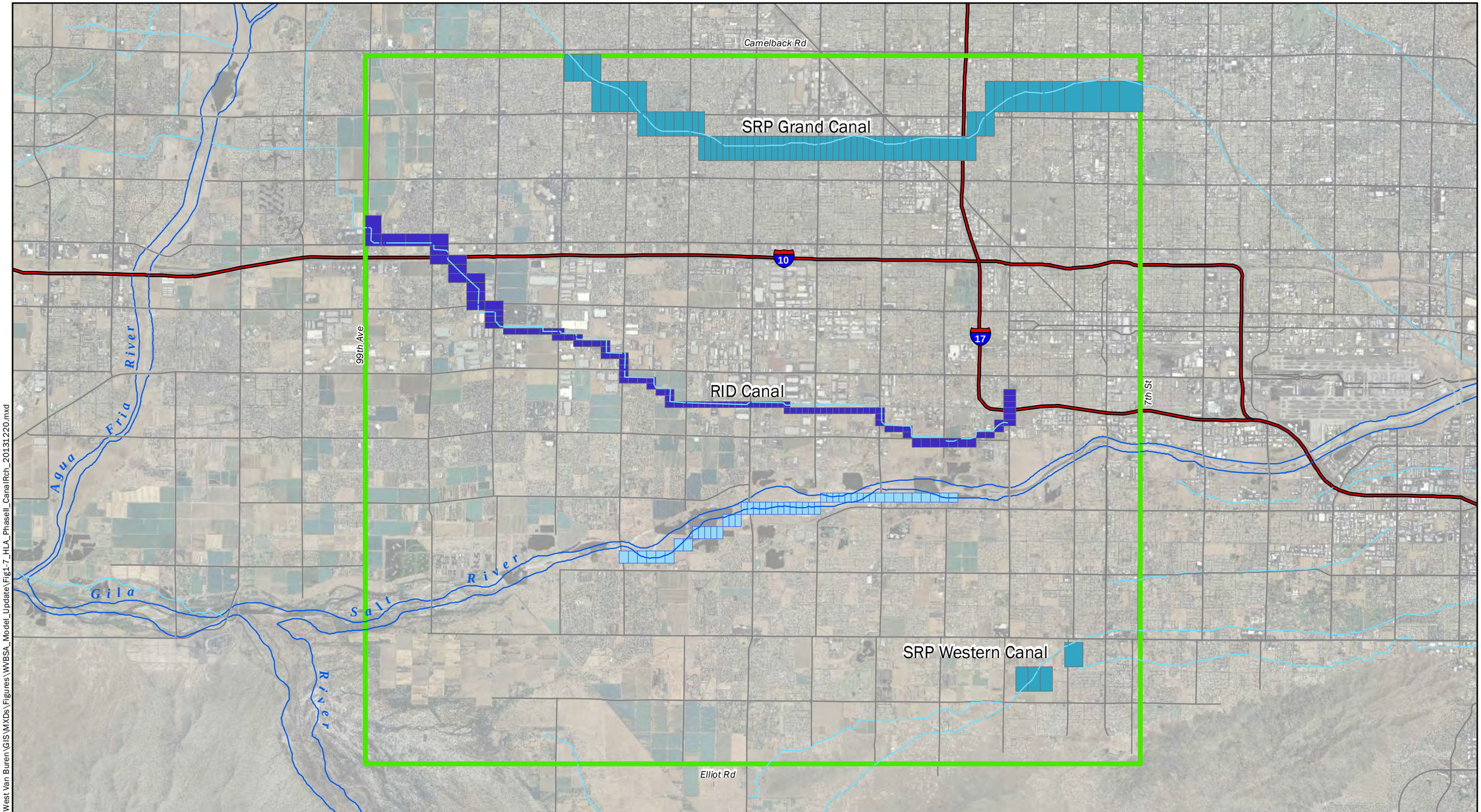
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-6

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-6_HLA_PhaseII_AgRch_20131220.mxd



LEGEND

- Unlined Canal (0.9 $ft^3/ft^2/d$)
- Lined Canal (0.05 $ft^3/ft^2/d$)
- Salt River Cells
- Canal
- Surface Water Features
- HLA Phase II Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE: **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE: **HLA Phase II Model – Canal and Salt River Recharge Locations**

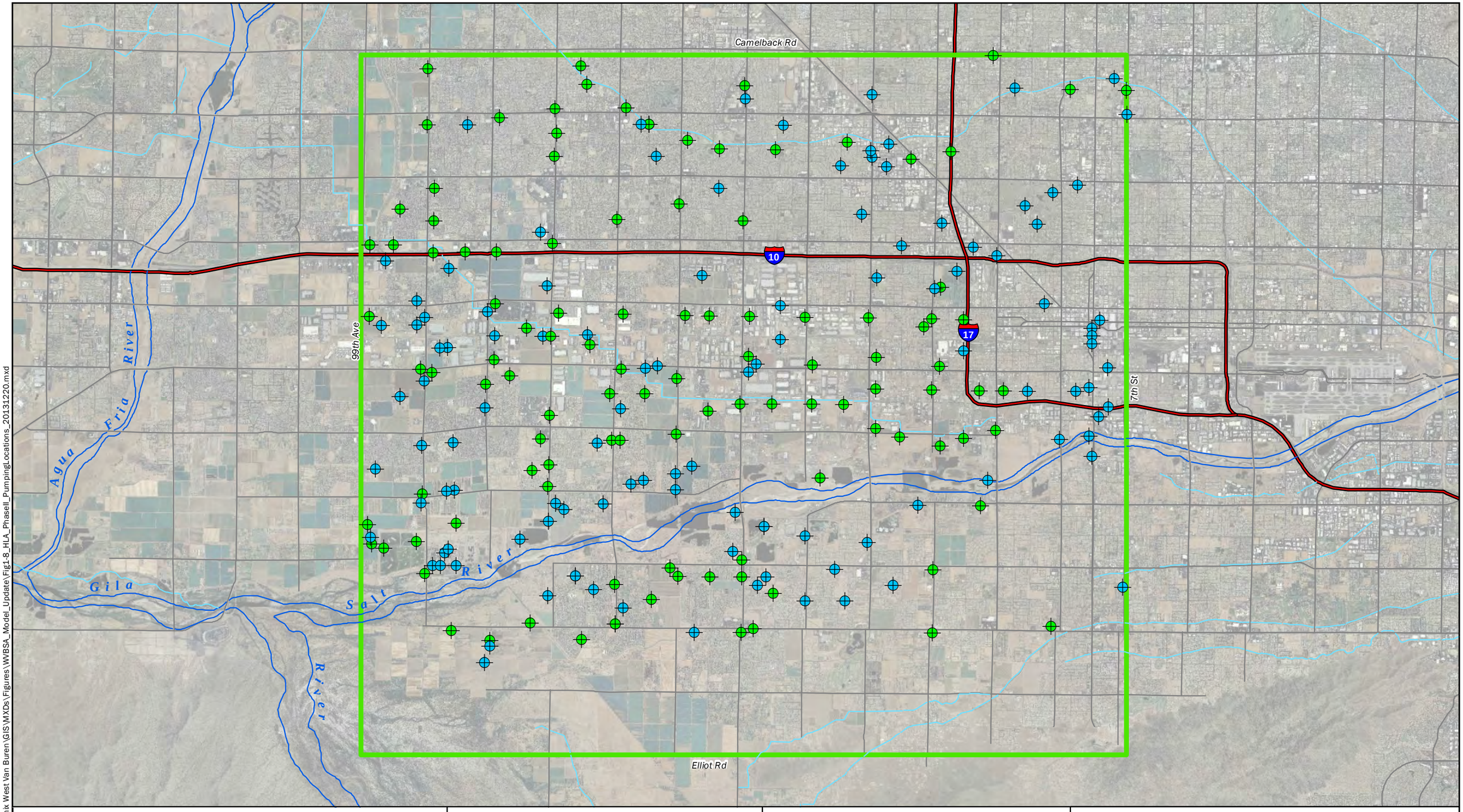
Brown AND Caldwell

PROJECT: 144774-001

DATE: 12/20/2013

Figure 1-7

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-7_HLA_PhaseII_CanalRch_20131220.mxd



LEGEND

Pumping Well Locations

- Agricultural
- Non-Agricultural
- Canal
- Surface Water Features
- HLA Phase II Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – Pumping Well Locations

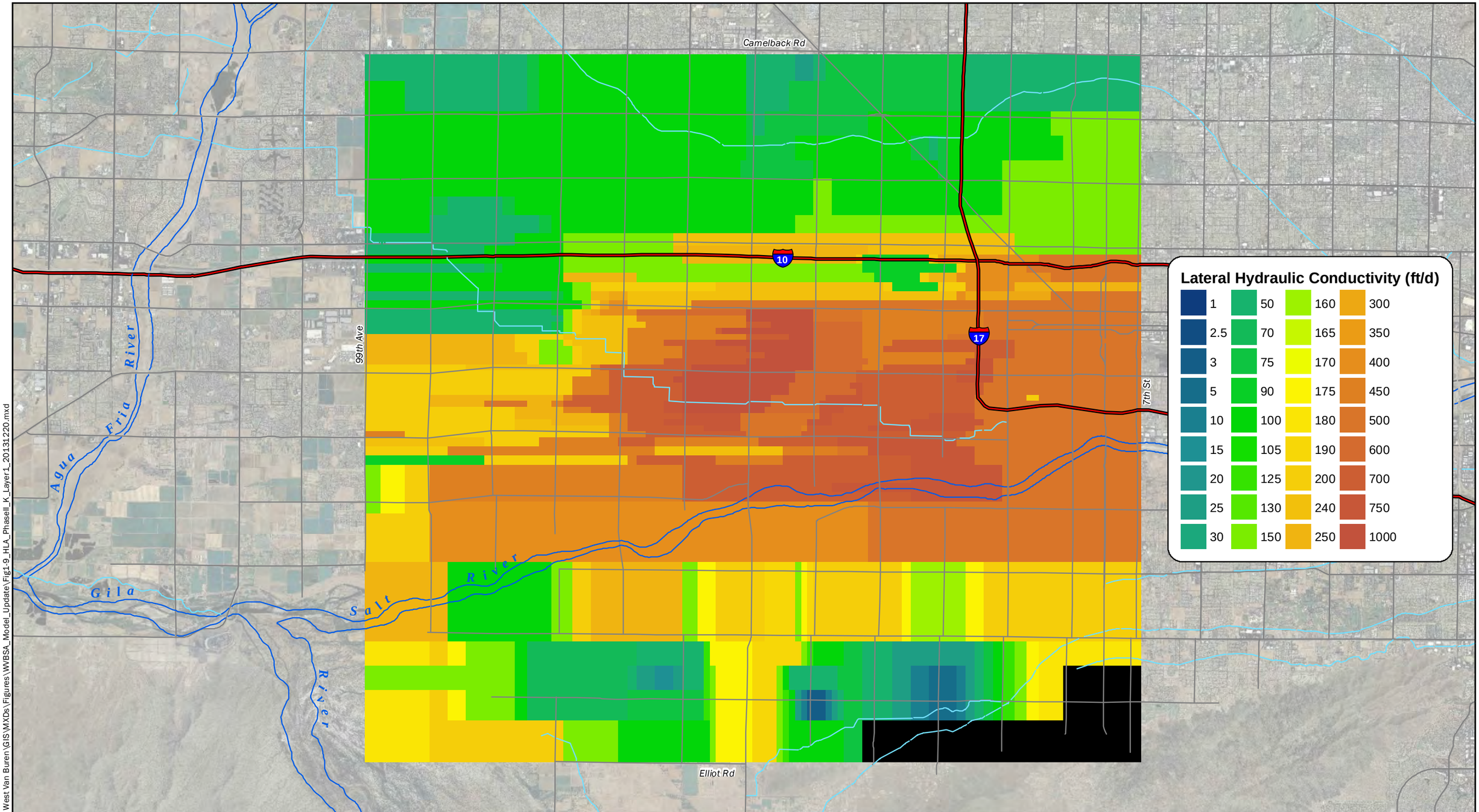
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-8

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-8_HLA_PhaseII_PumpingLocations_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – Hydraulic Conductivity Distribution in Model Layer 1

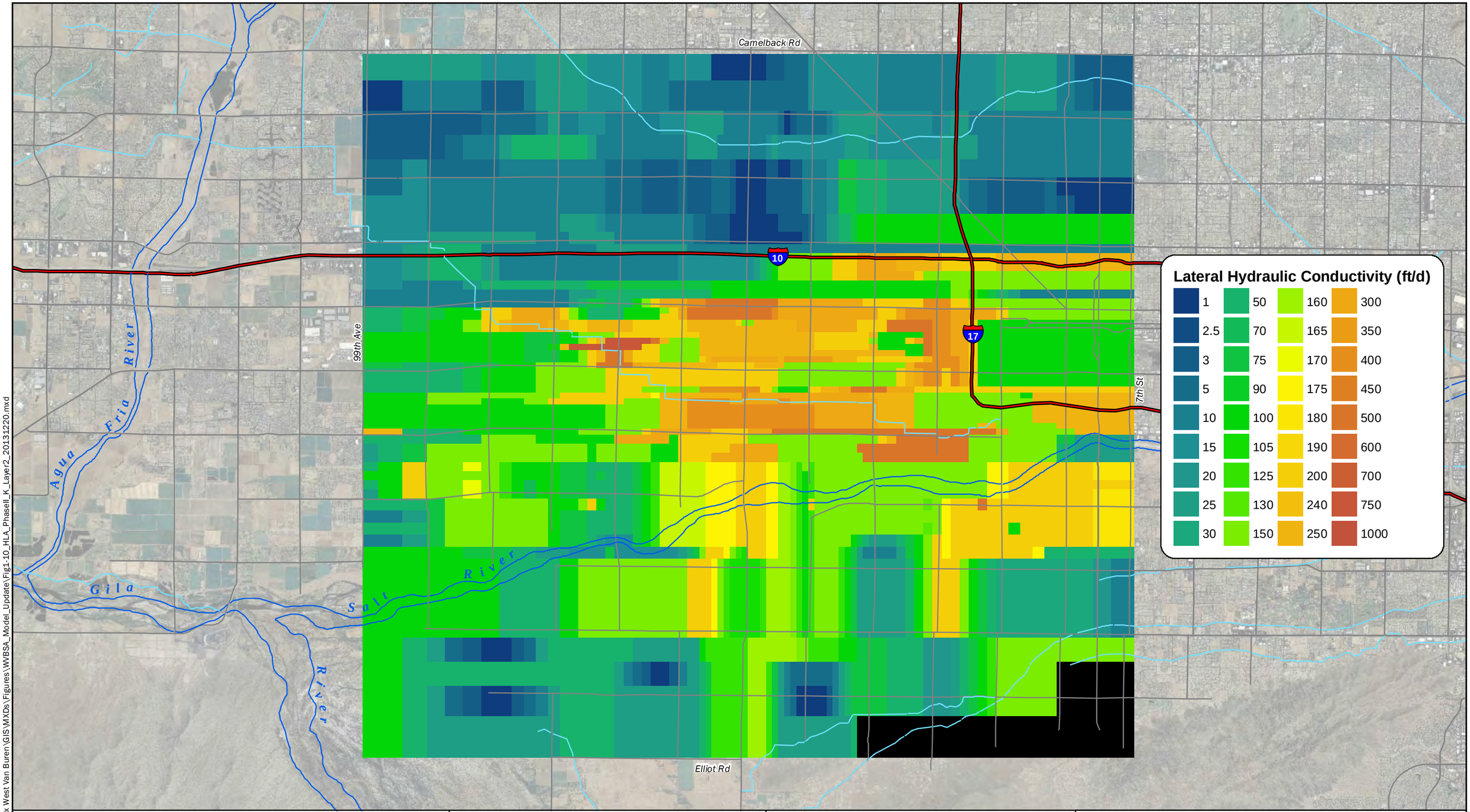
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-9

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-9_HLA_PhaseII_K_Layer1_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **HLA Phase II Model – Hydraulic Conductivity Distribution in Model Layer 2**

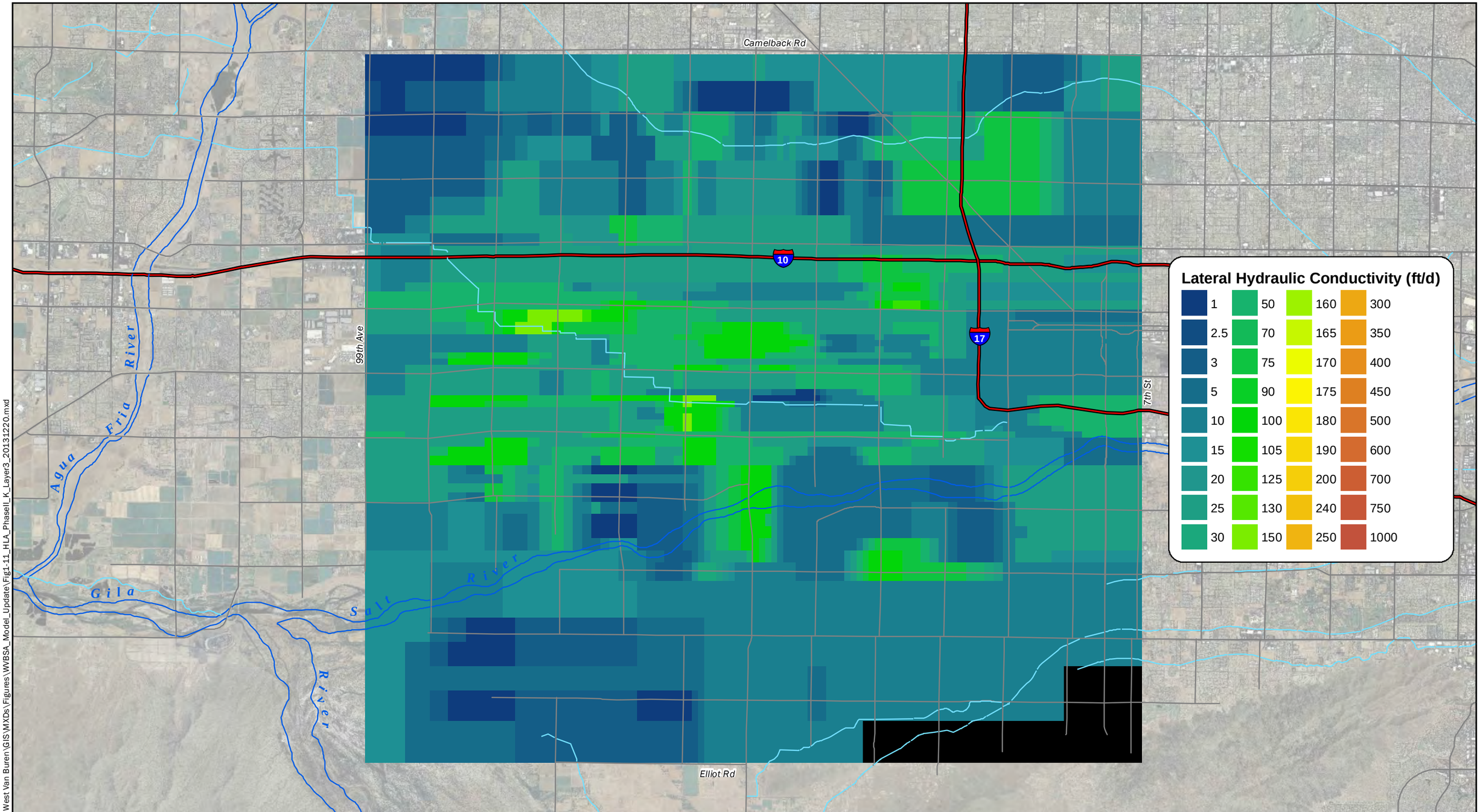
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-10

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-10_HLA_PhaseII_K_Layer2_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – Hydraulic Conductivity Distribution in Model Layer 3

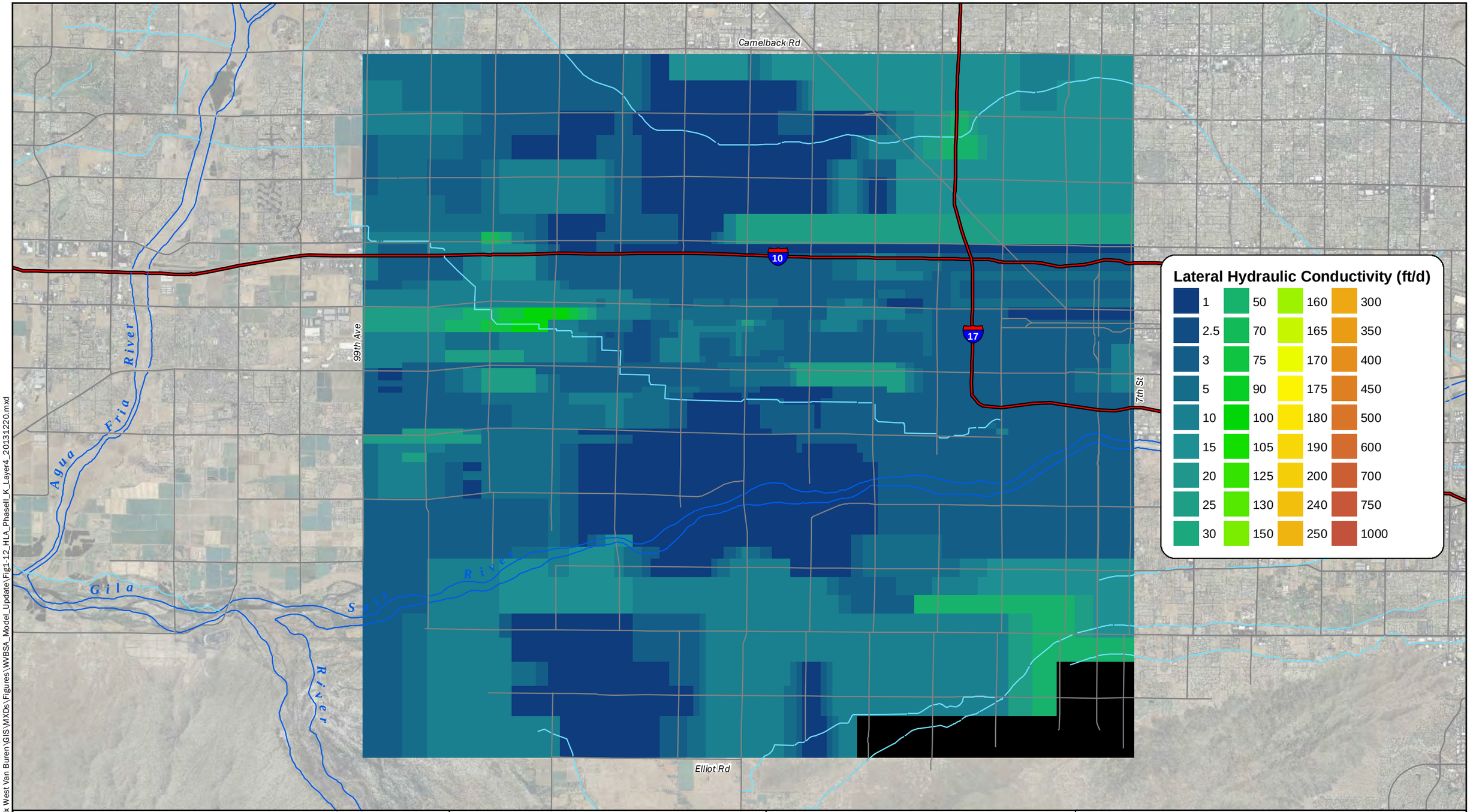
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-11

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-11_HLA_PhaseII_K_Layer3_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
HLA Phase II Model – Hydraulic Conductivity Distribution in Model Layer 4

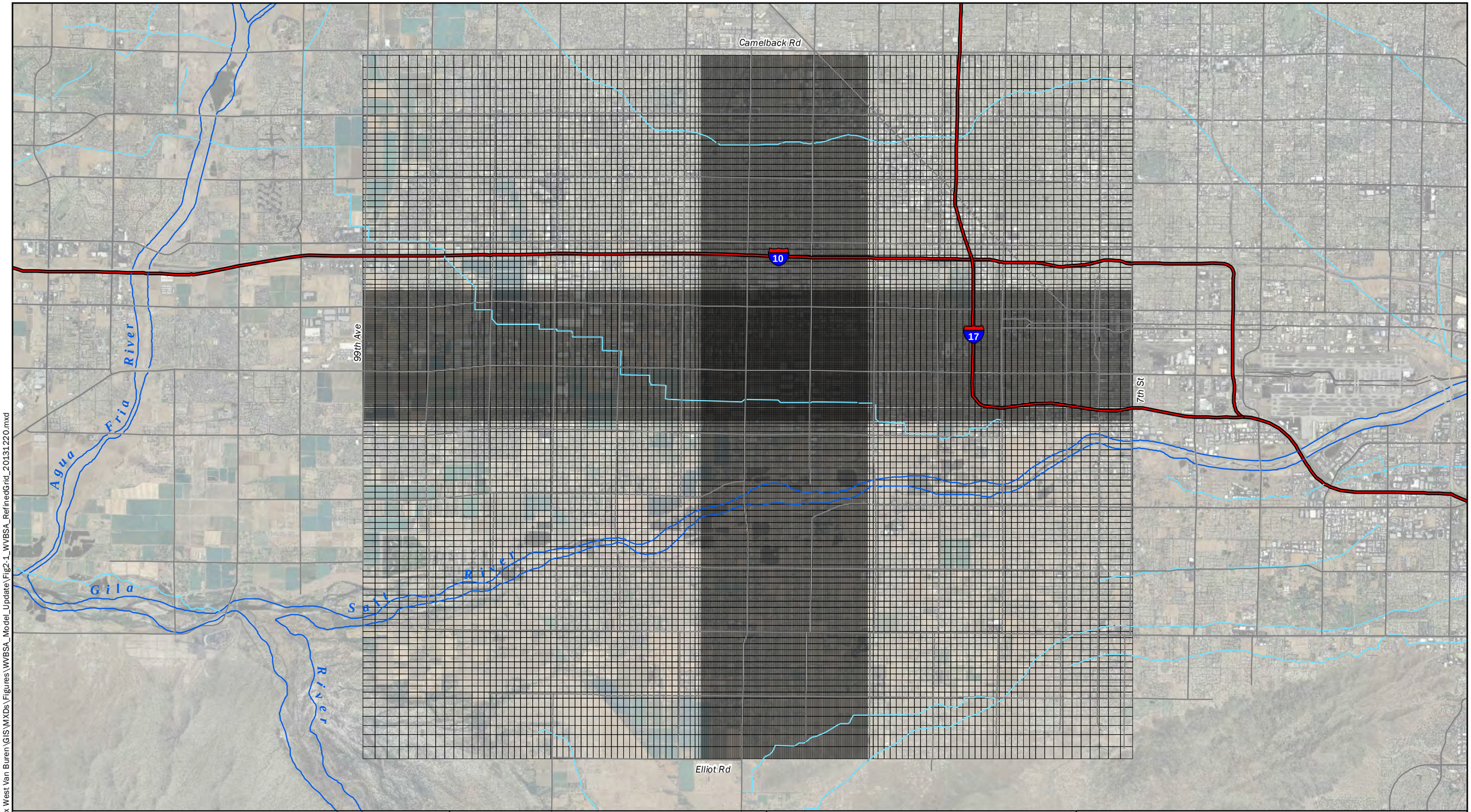
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 1-12

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig1-12_HLA_PhaseII_K_Layer4_20131220.mxd



LEGEND

WVBSA Refined Model Grid

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model – Refined Model Grid

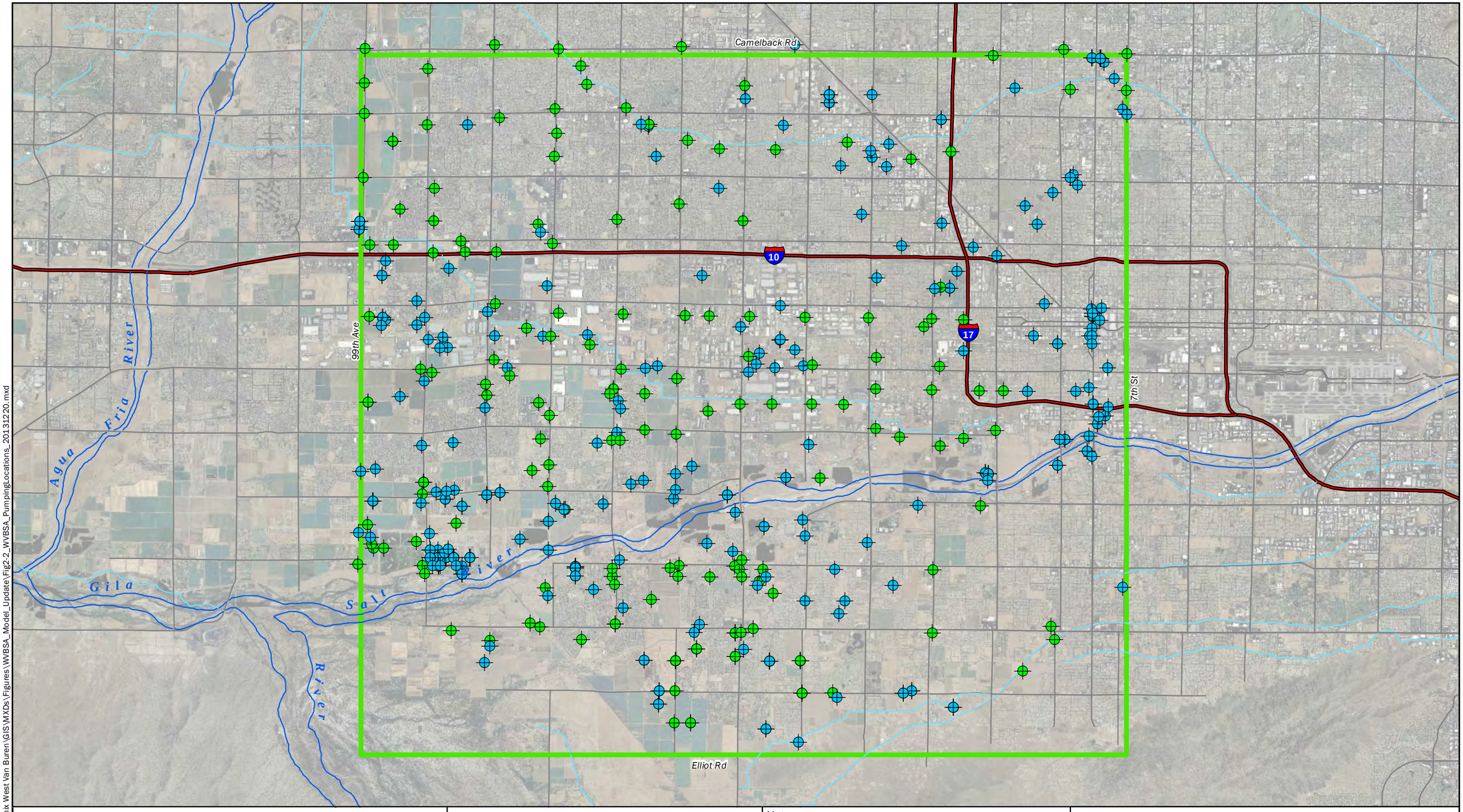
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 2-1

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-1_WVBSA_RefinedGrid_20131220.mxd



LEGEND

Pumping Well Locations

- Agricultural
- Non-Agricultural
- Canal
- Surface Water Features
- WVBSA Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
Wells falling on or near the model boundary were included in the nearest model cell.

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model – Pumping Well Locations

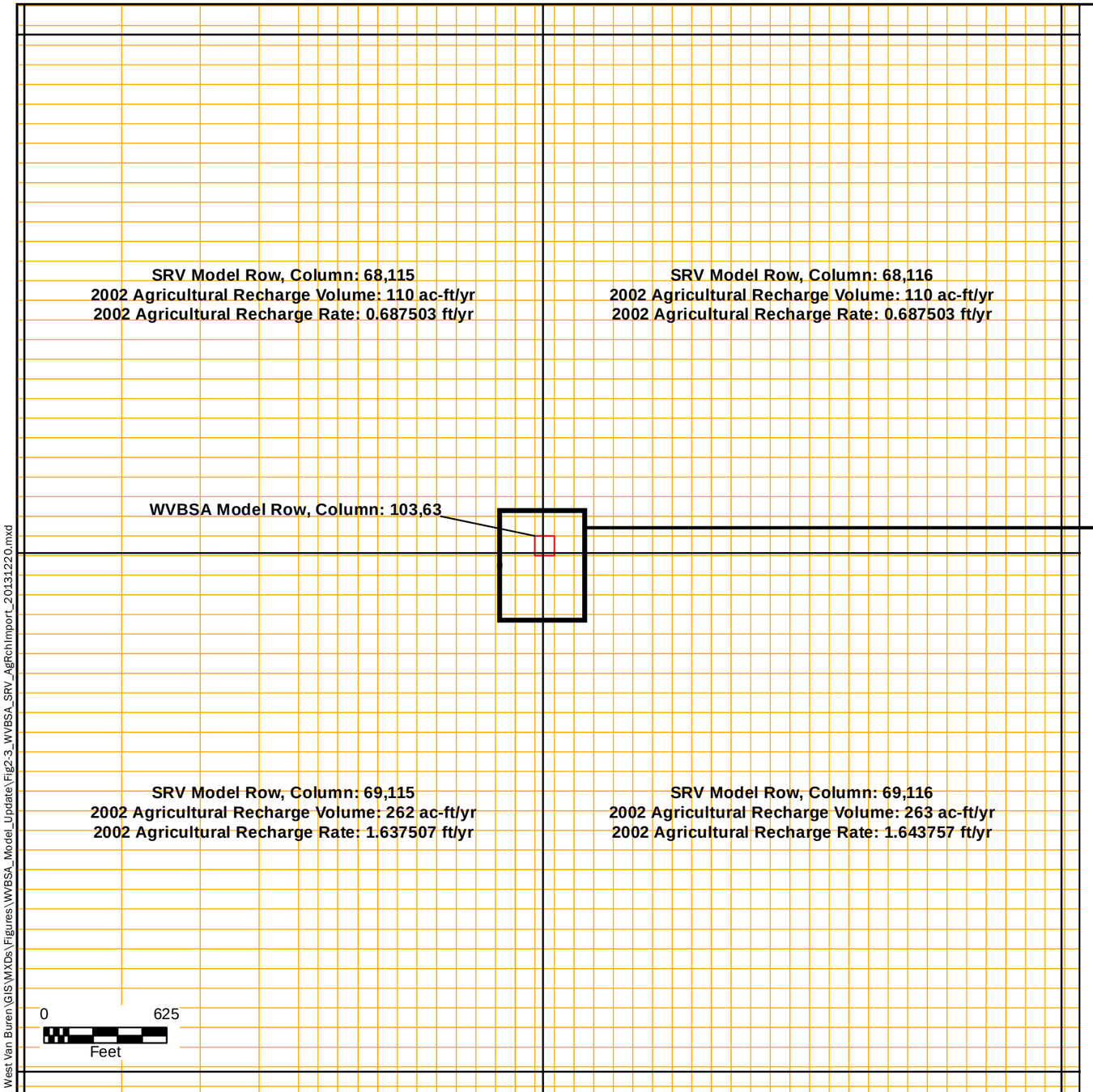
Brown AND Caldwell

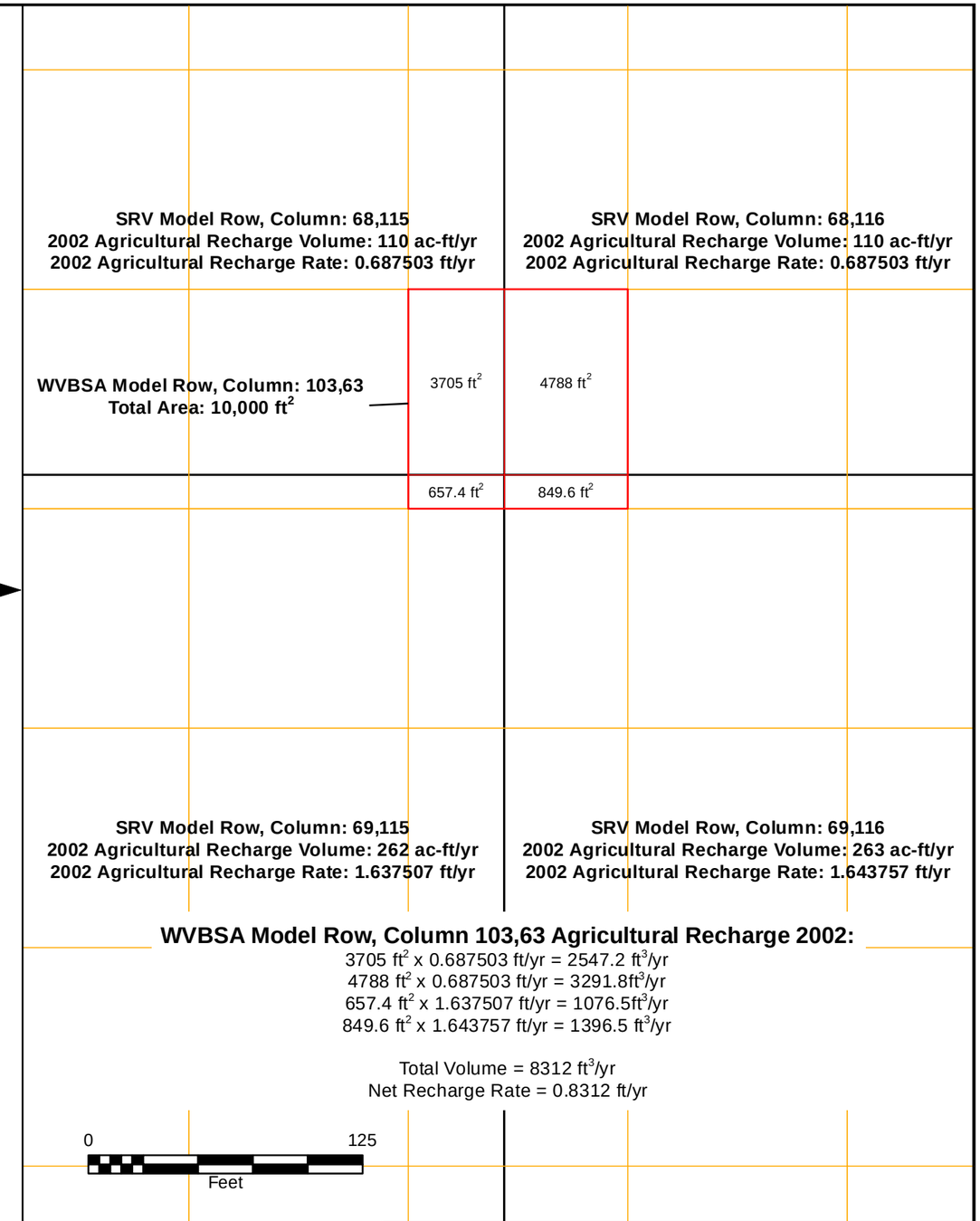
PROJECT 144774-001

DATE 12/20/2013

Figure 2-2

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-2_WVBSA_PumpingLocations_20131220.mxd





WVBSA Model Row, Column 103,63 Agricultural Recharge 2002:

3705 ft^2 x 0.687503 ft/yr = 2547.2 ft^3/yr
4788 ft^2 x 0.687503 ft/yr = 3291.8ft^3/yr
657.4 ft^2 x 1.637507 ft/yr = 1076.5ft^3/yr
849.6 ft^2 x 1.643757 ft/yr = 1396.5 ft^3/yr

Total Volume = 8312 ft^3/yr
Net Recharge Rate = 0.8312 ft/yr

LEGEND

- SRV Model Cells
- WVBSA Model Cells

N

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model – Recharge Imported from SRV Model

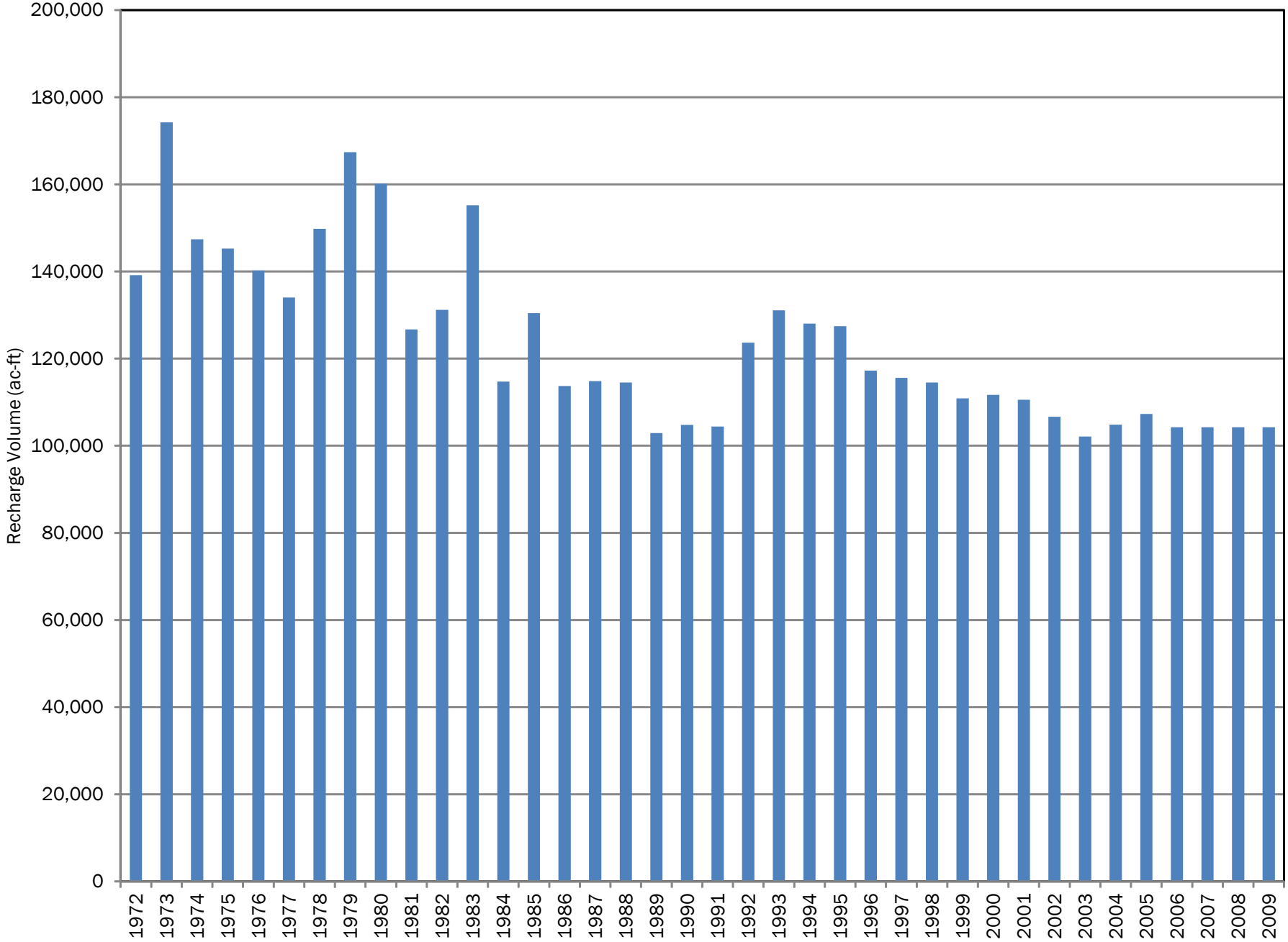
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

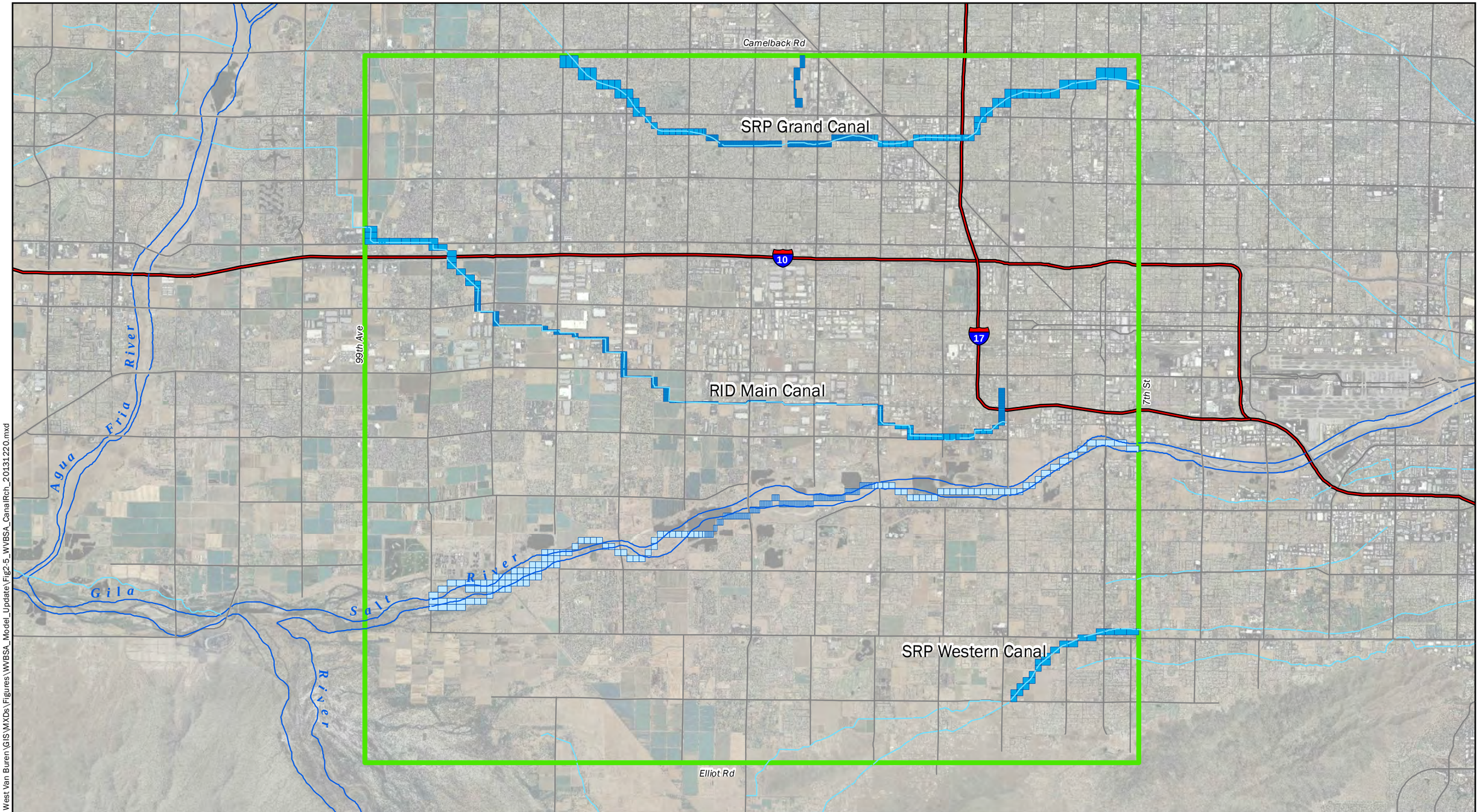
Figure 2-3

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-3_WVBSA_SRV_AgRchImport_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 2-4
TITLE	**WVBSA Model – Annual Total Recharge Volumes**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-4_AnnualRechargeVols_20131220.mxd



LEGEND

- WVBSA Canal Recharge Cells
- WVBSA Salt River Recharge Cells
- Canal
- Surface Water Features
- WVBSA Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model – Canal and Salt River Recharge Locations

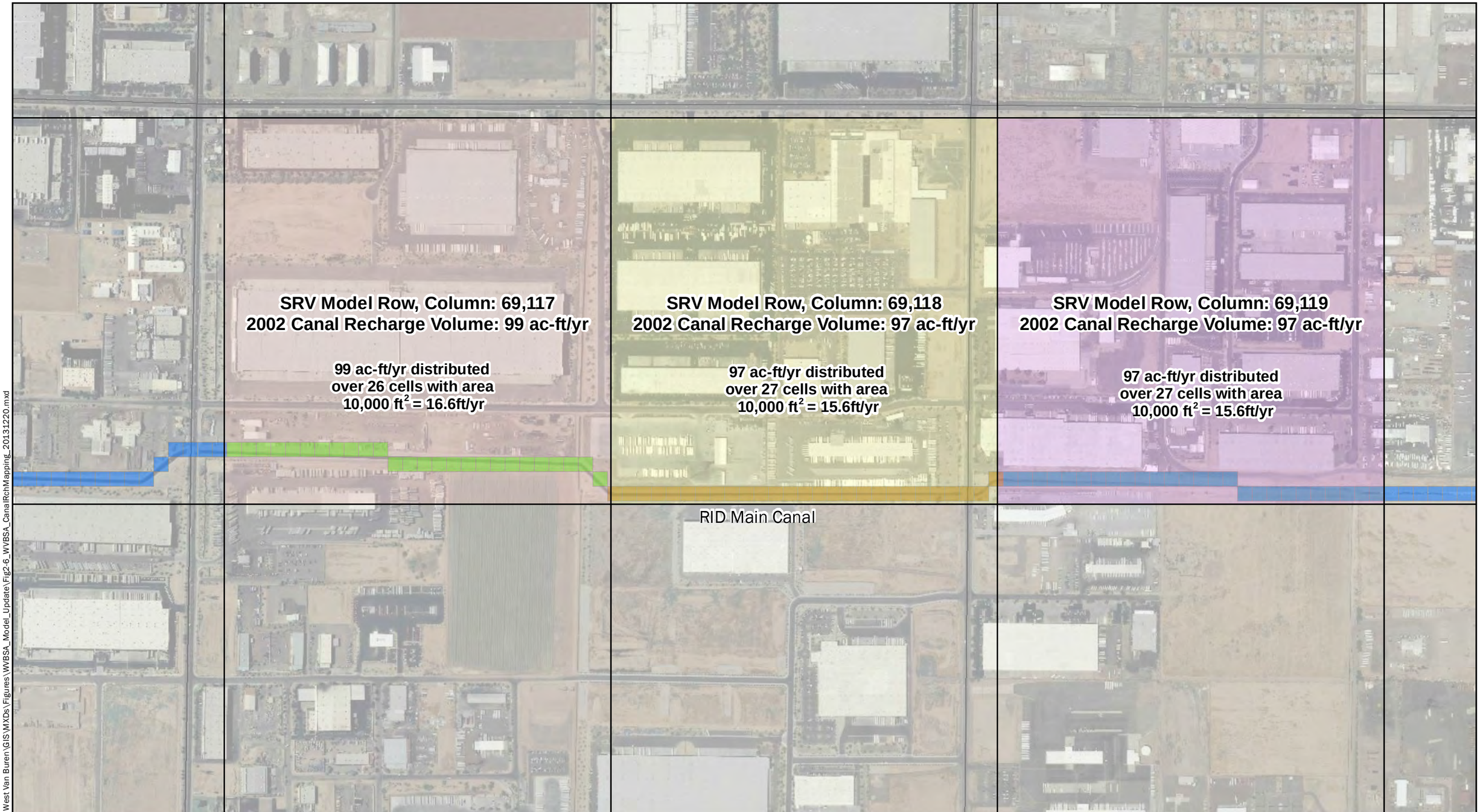
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 2-5

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-5_WVBSA_CanalRch_20131220.mxd



LEGEND

- SRV Model Cells
- SRV Row, Column 69,117
- SRV Row, Column 69,118
- SRV Row, Column 69,119
- Mapped to SRV Row, Column 69,117
- Mapped to SRV Row, Column 69,118
- Mapped to SRV Row, Column 69,119
- WVBSA Canal Recharge Cells

0 625
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model – Canal Recharge Imported from SRV Model

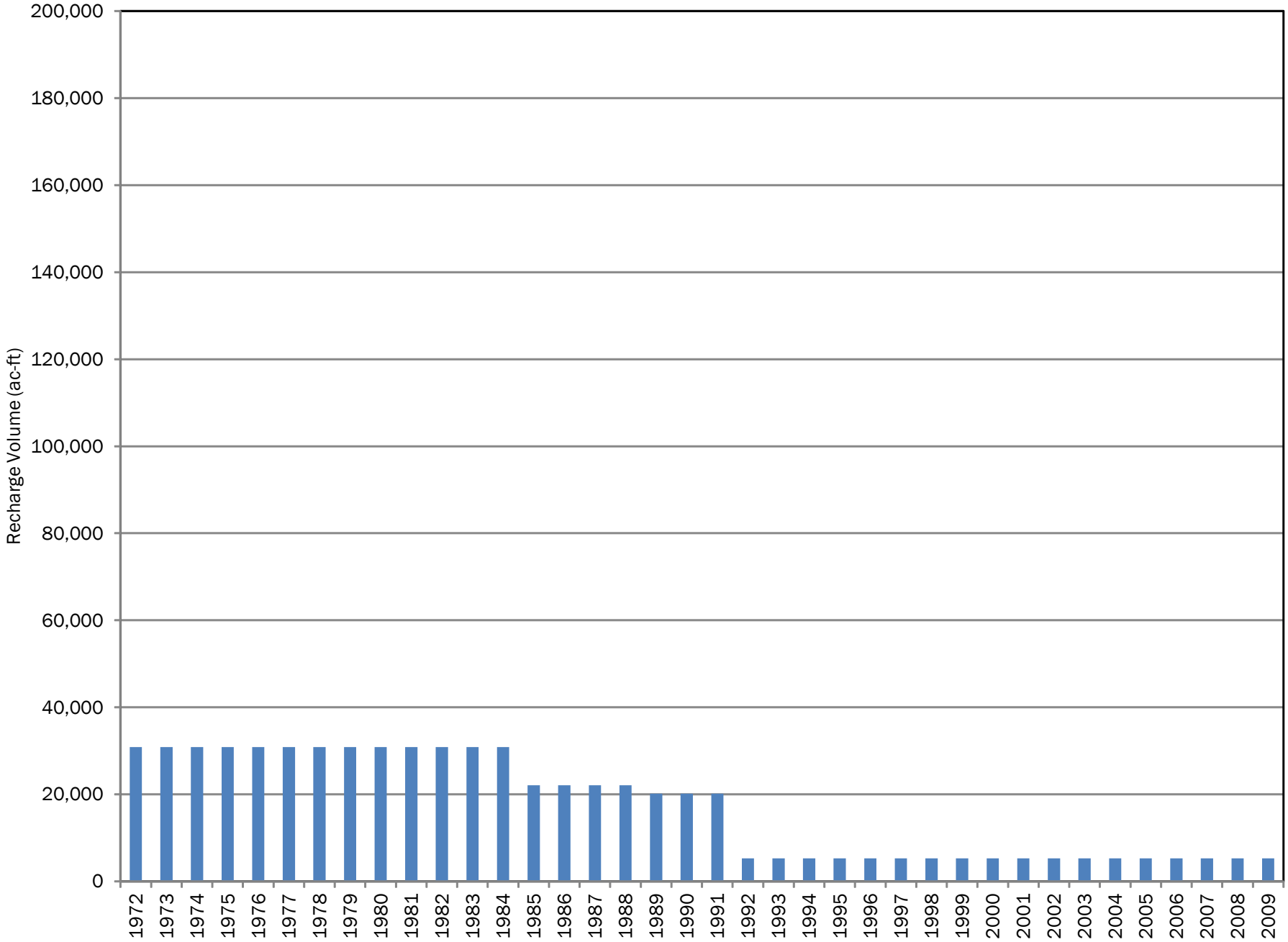
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

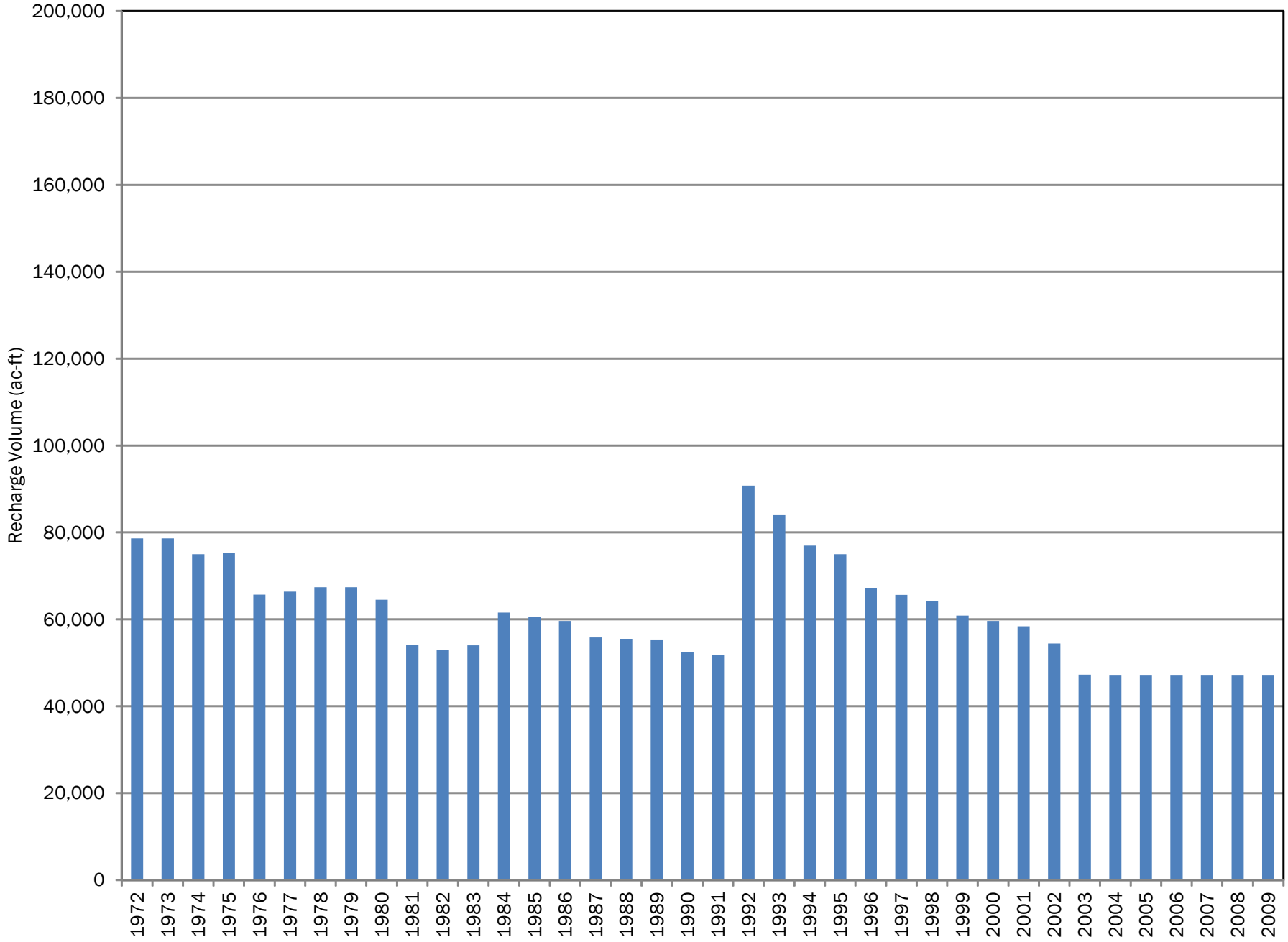
Figure 2-6

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-6_WVBSA_CanalRchMapping_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 2-7
TITLE	**WVBSA Model – Annual Canal Recharge Volumes**		DATE 12/20/2013	

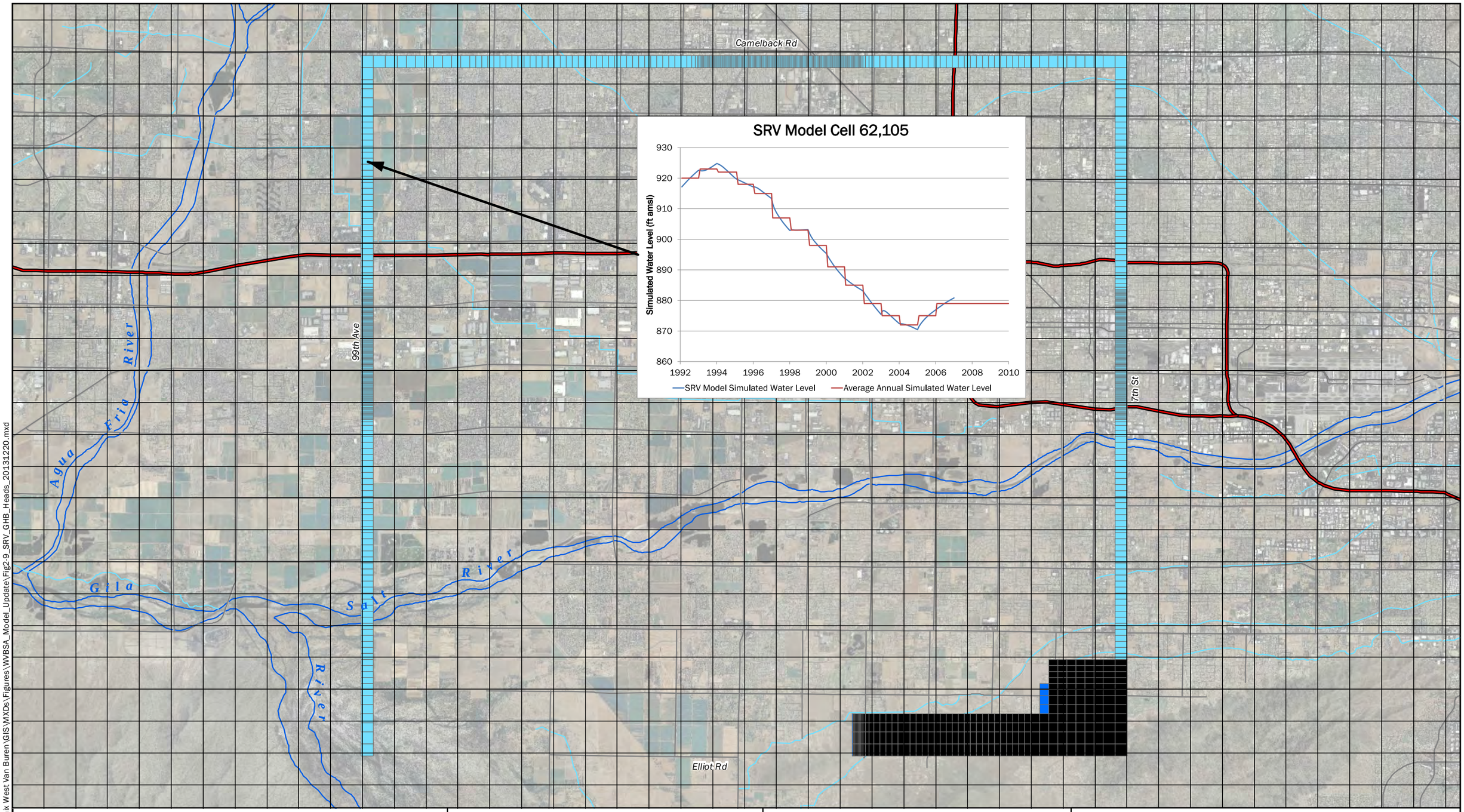
J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-7_CanalRechargeVols_20131220.mxd



SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**		Brown AND Caldwell	PROJECT 144774-001
TITLE **WVBSA Model – Annual Agricultural Recharge Volumes**			DATE 12/20/2013

Figure 2-8

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-8_AgRechargeVols_20131220.mxd



LEGEND

- Constant Head
- General Head
- No Flow
- SRV Model Grid
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
SRV Model Simulated Groundwater Levels for WVBSA Model Boundary Reference Heads

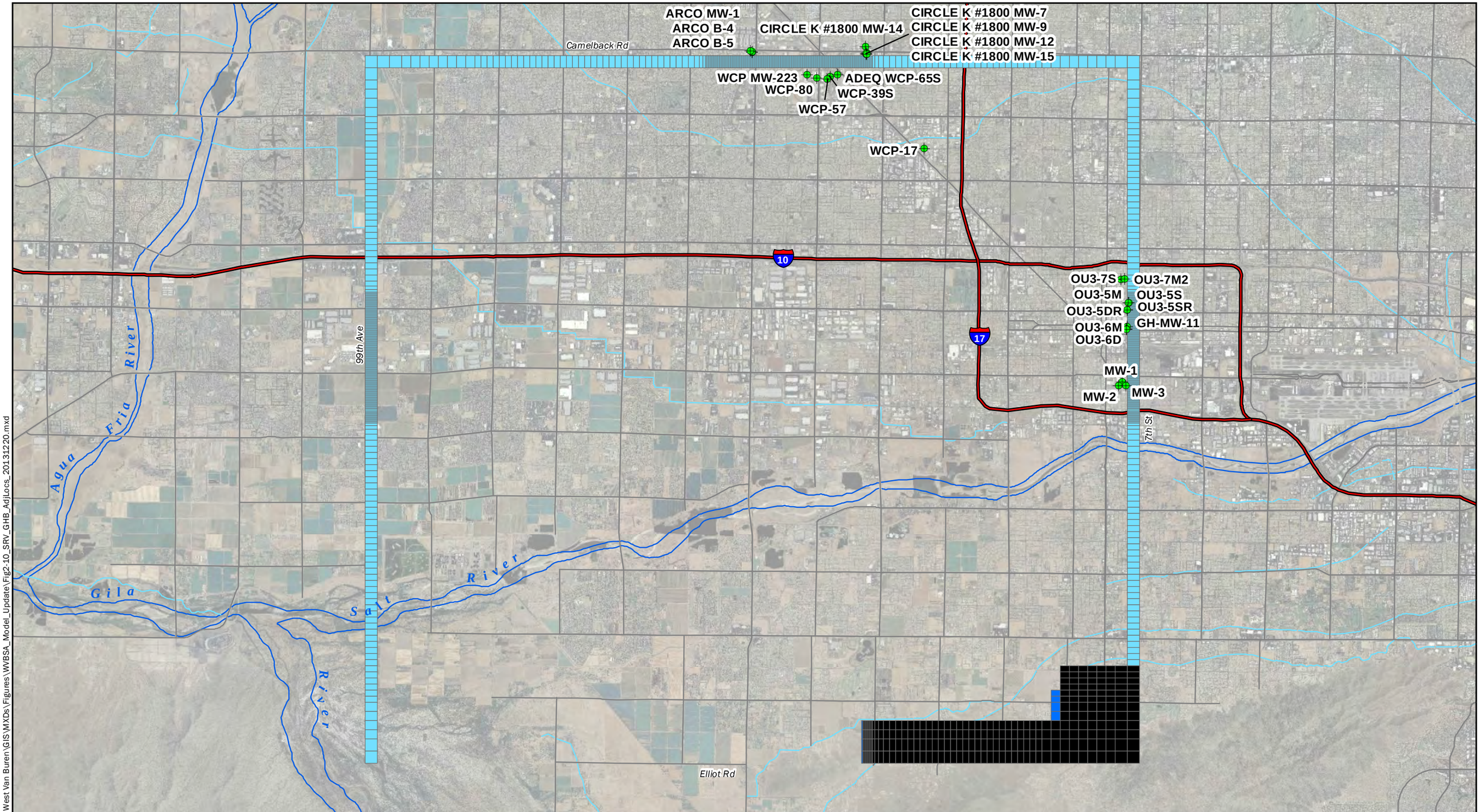
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 2-9

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-9_SRV_GHB_Heads_20131220.mxd



LEGEND

- Monitoring Well Locations
- Constant Head
- General Head
- No Flow
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **Monitoring Well Locations Used in Comparisons with SRV Model Simulated Heads**

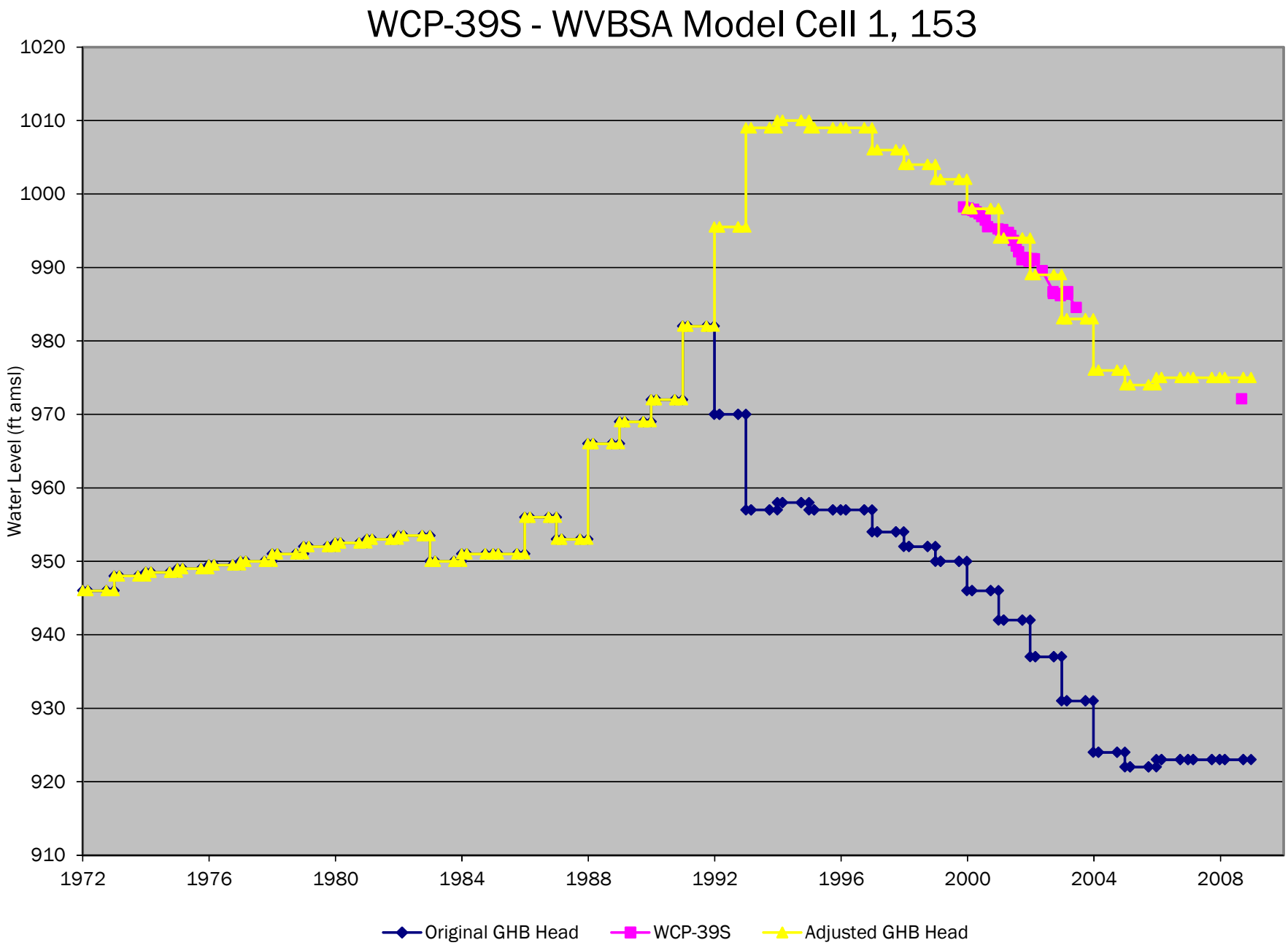
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 2-10

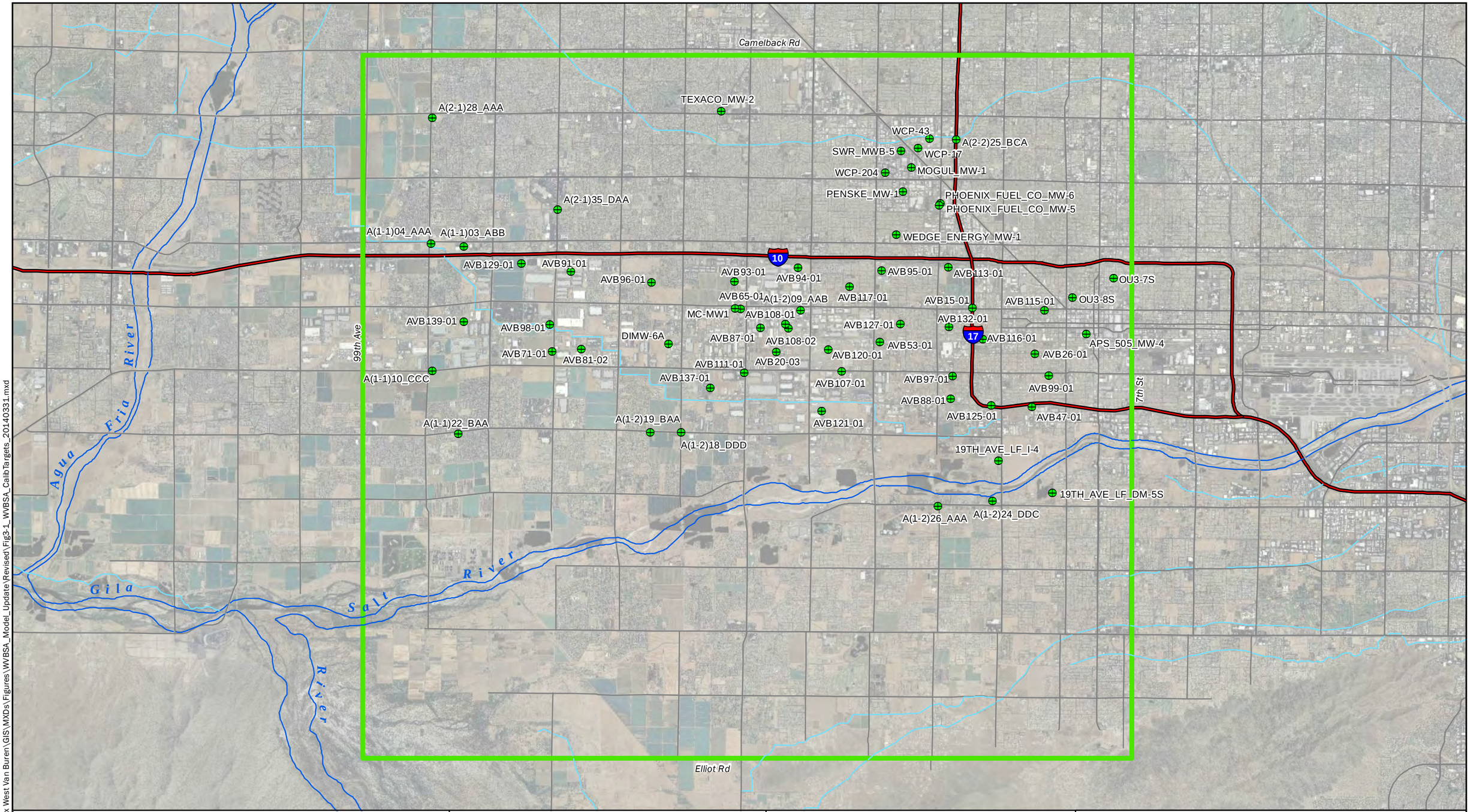
J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-10_SRV_GHB_AdjLocs_20131220.mxd



SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**		Brown AND Caldwell	PROJECT 144774-001
TITLE **Example WVBSA Model Boundary Reference Adjustment**			DATE 12/20/2013

Figure 2-11

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig2-11_Example_GHB_Adjustment_20131220.mxd



LEGEND

- WVBSA Model Calibration Target Locations
- Canal
- Surface Water Features
- WVBSA Model Domain

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
WVBSA Model Calibration Target Well Locations

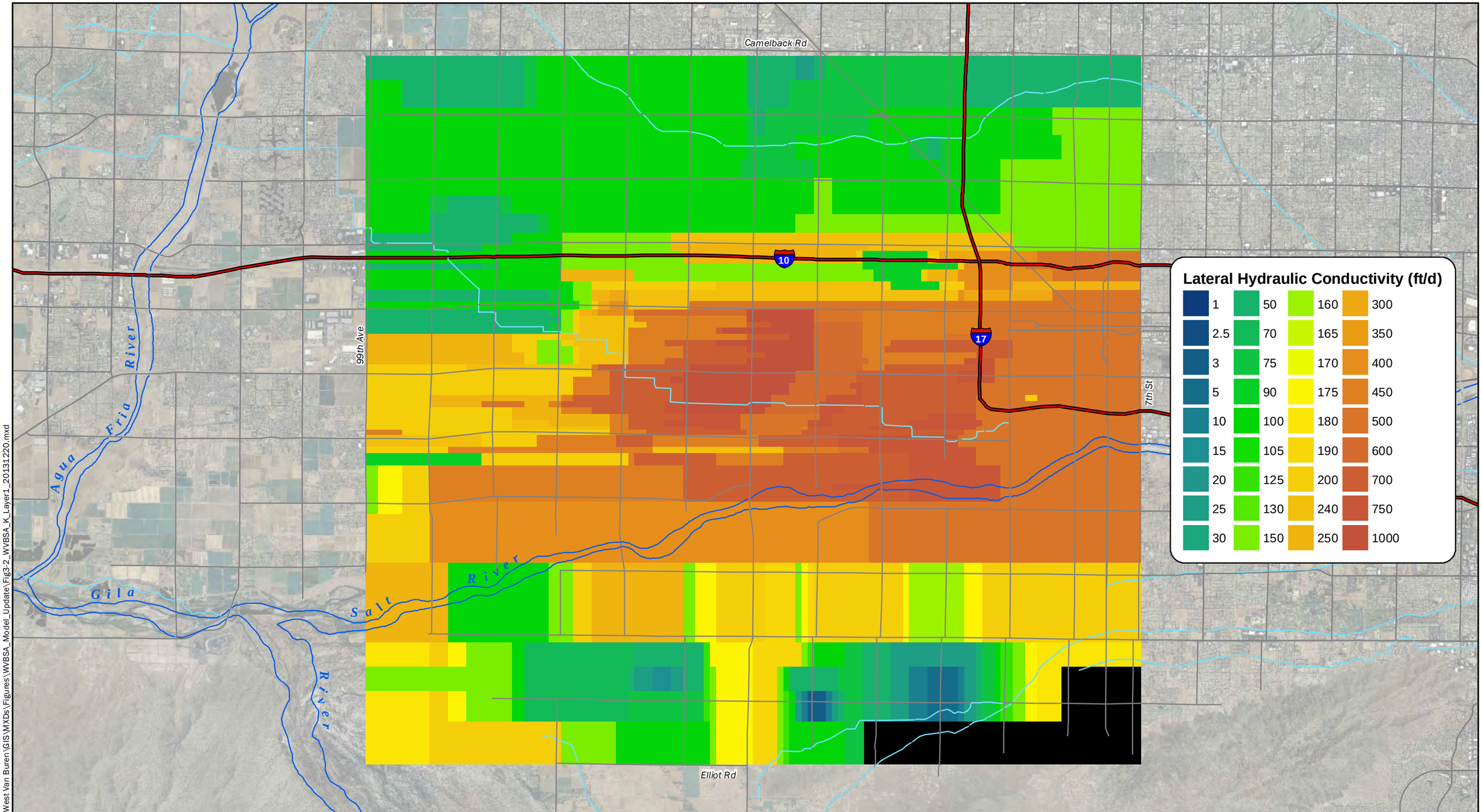
Brown AND Caldwell

PROJECT 144774-001

DATE 04/22/2014

Figure 3-1

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Revised\Fig3-1_WVBSA_CalibTargets_20140331.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **WVBSA Model – Hydraulic Conductivity Distribution in Model Layer 1**

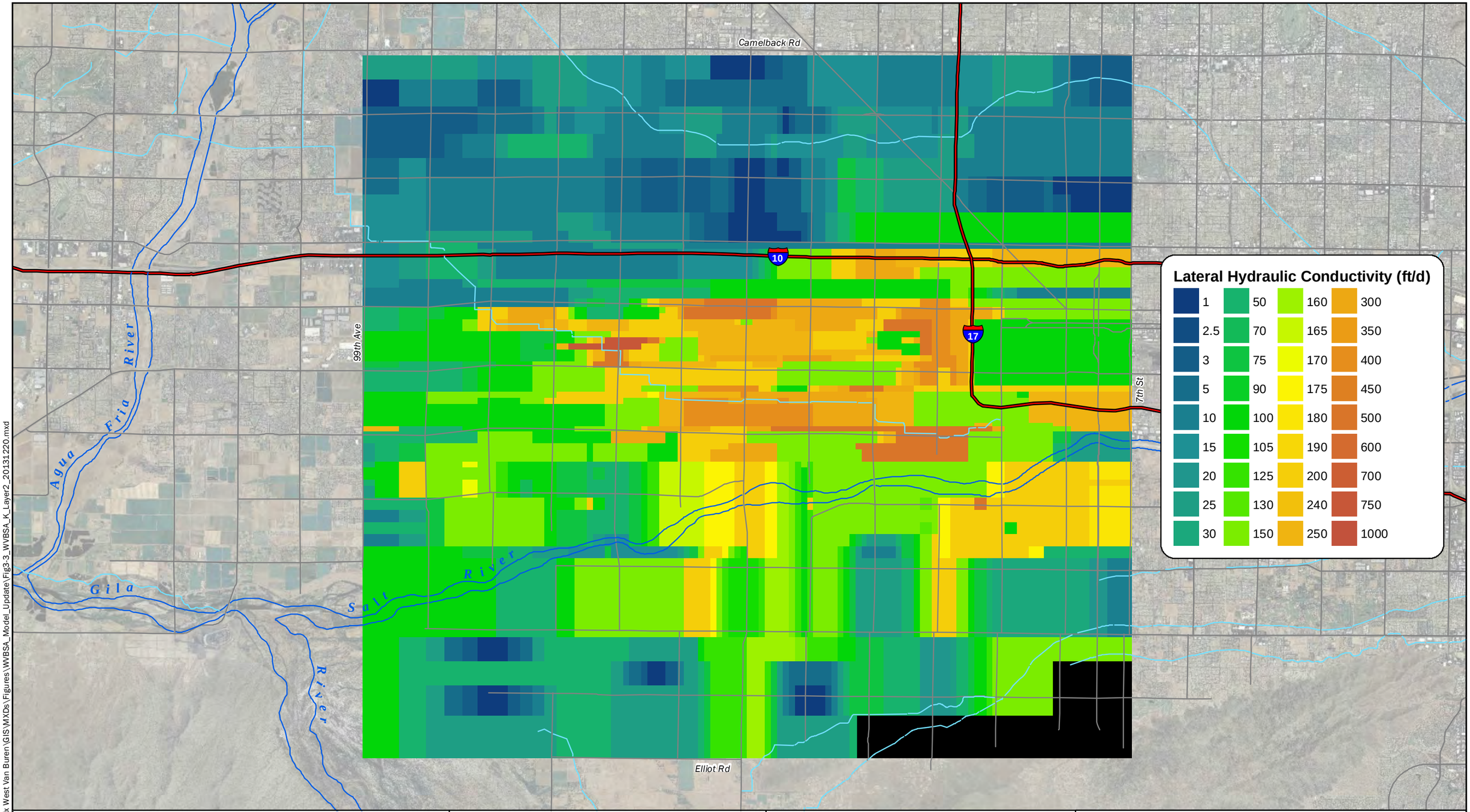
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 3-2

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-2_WVBSA_K_Layer1_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **WVBSA Model – Hydraulic Conductivity Distribution in Model Layer 2**

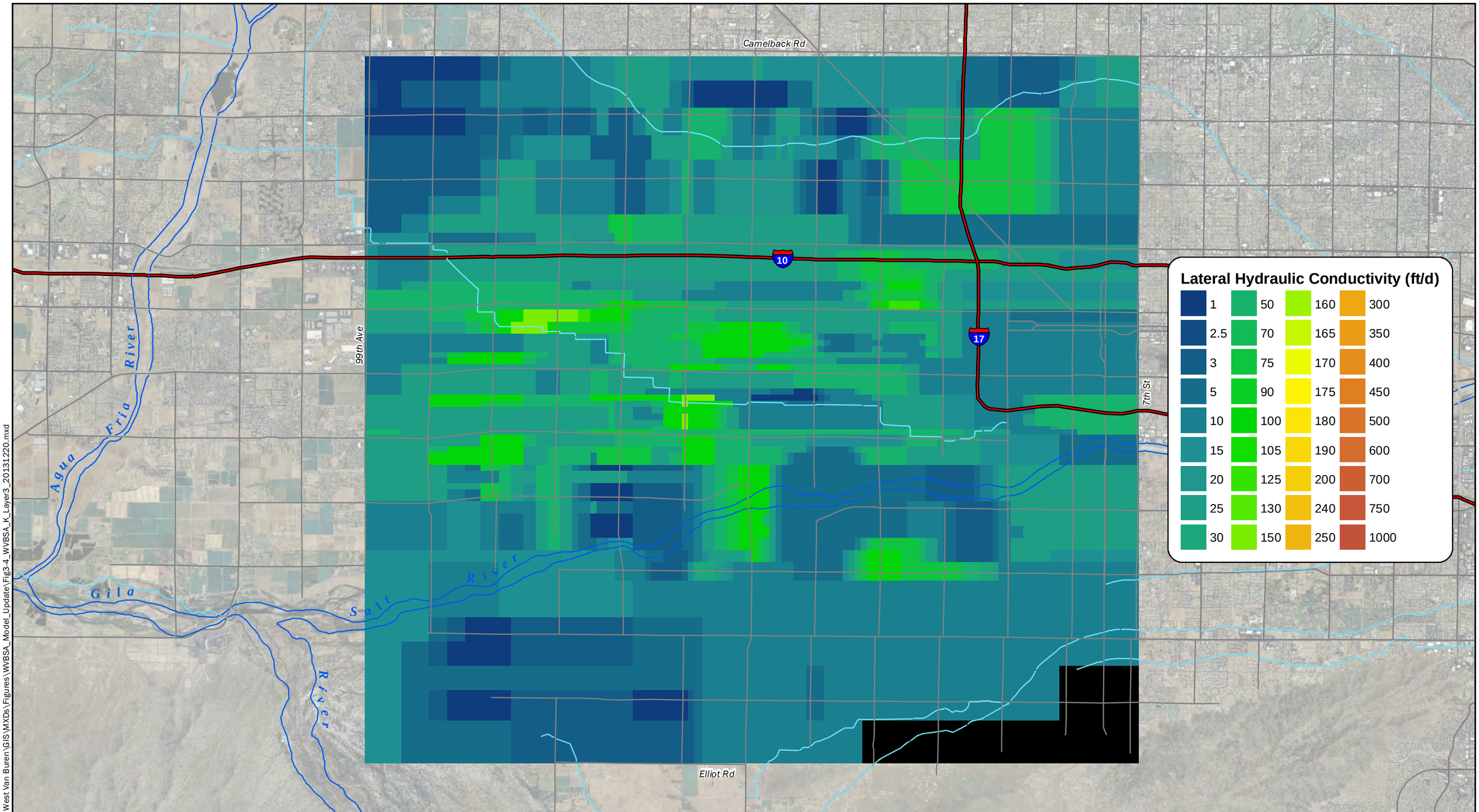
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 3-3

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-3_WVBSA_K_Layer2_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **WVBSA Model – Hydraulic Conductivity Distribution in Model Layer 3**

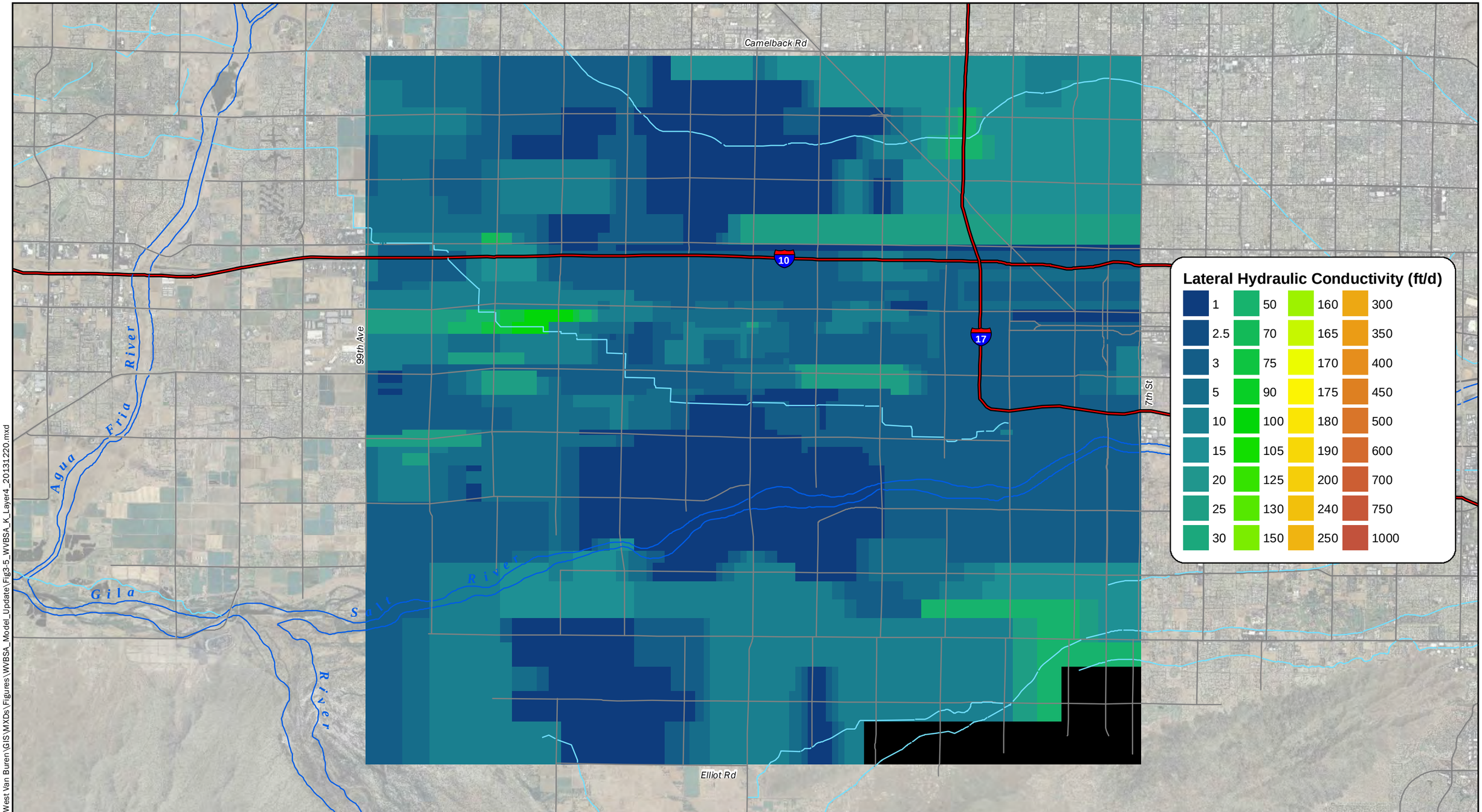
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 3-4

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-4_WVBSA_K_Layer3_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

Note:
For units with a lateral hydraulic conductivity greater than or equal to 3 ft/day, the vertical hydraulic conductivity was assumed to be lower by 15 times. The vertical conductivity was assumed to be the same as the lateral hydraulic conductivity for units with a hydraulic conductivity value less than 3 ft/day.

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **WVBSA Model – Hydraulic Conductivity Distribution in Model Layer 4**

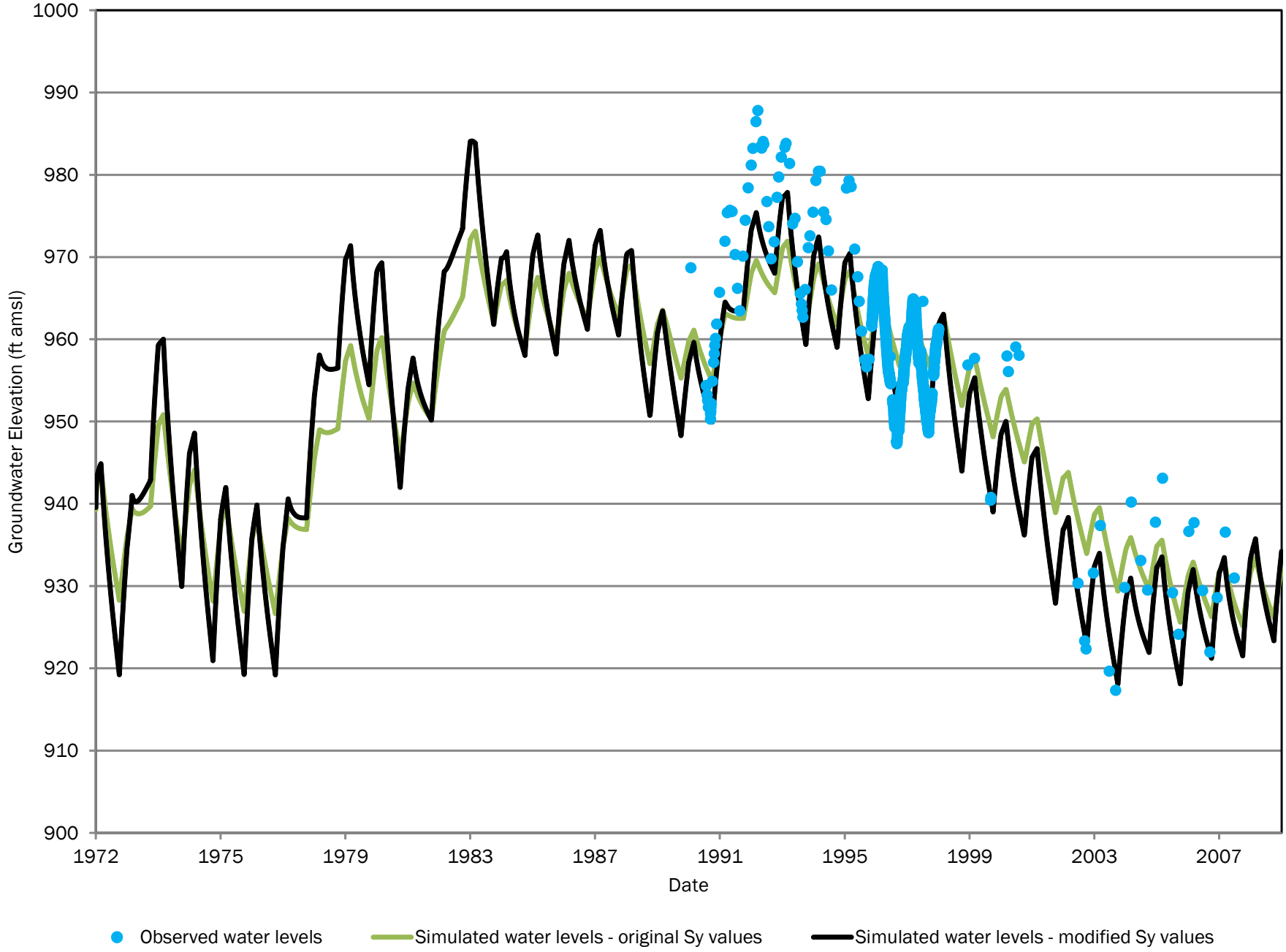
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

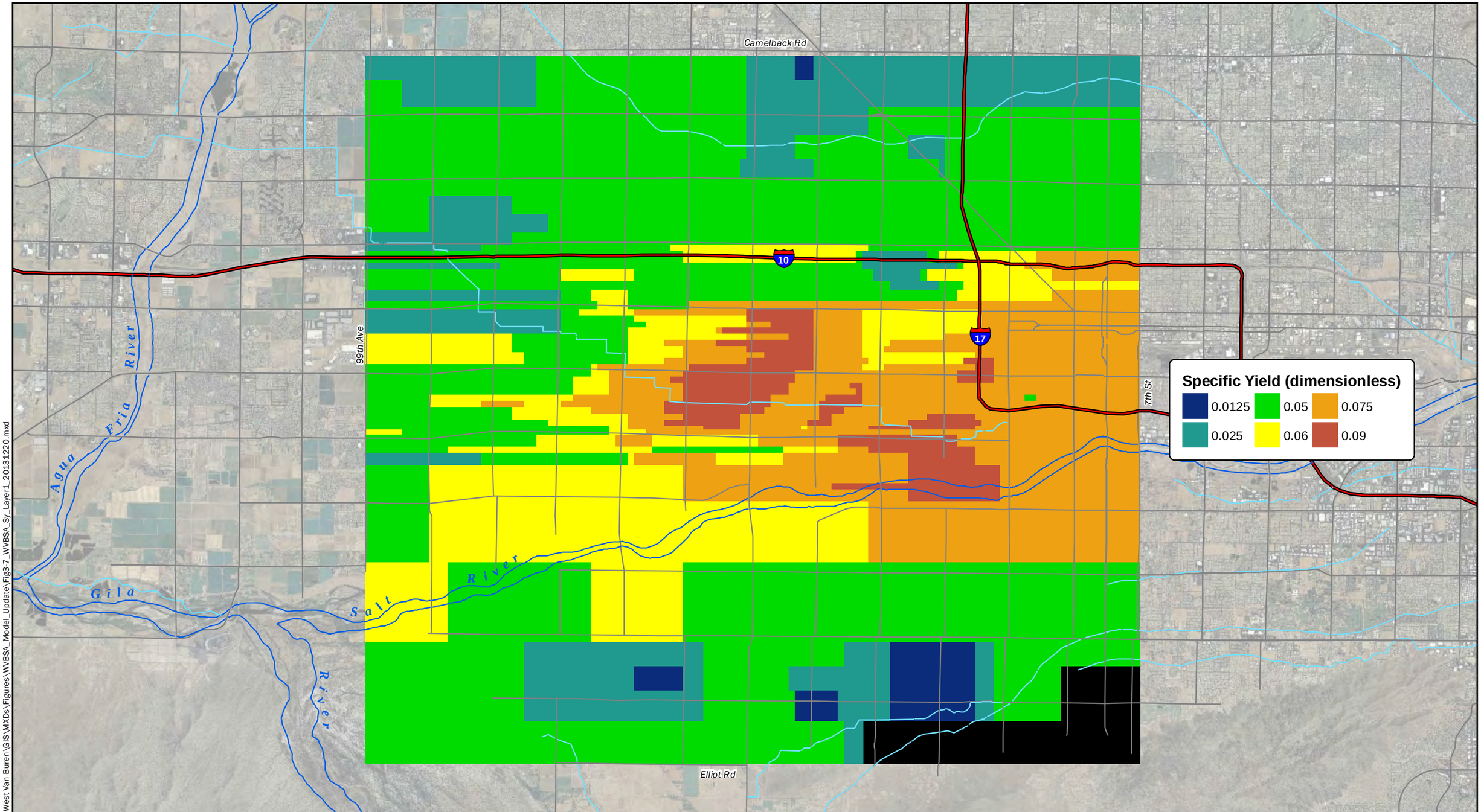
Figure 3-5

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-5_WVBSA_K_Layer4_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-6
TITLE	**WVBSA Model – AVB108-1 Calibration Comparison Hydrograph**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-6_AVB108-01_CalibCompare_20131220.mxd



LEGEND

No Flow Cells

Canal

Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office for the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**

TITLE **WVBSA Model – Specific Yield Distribution in Model Layer 1**

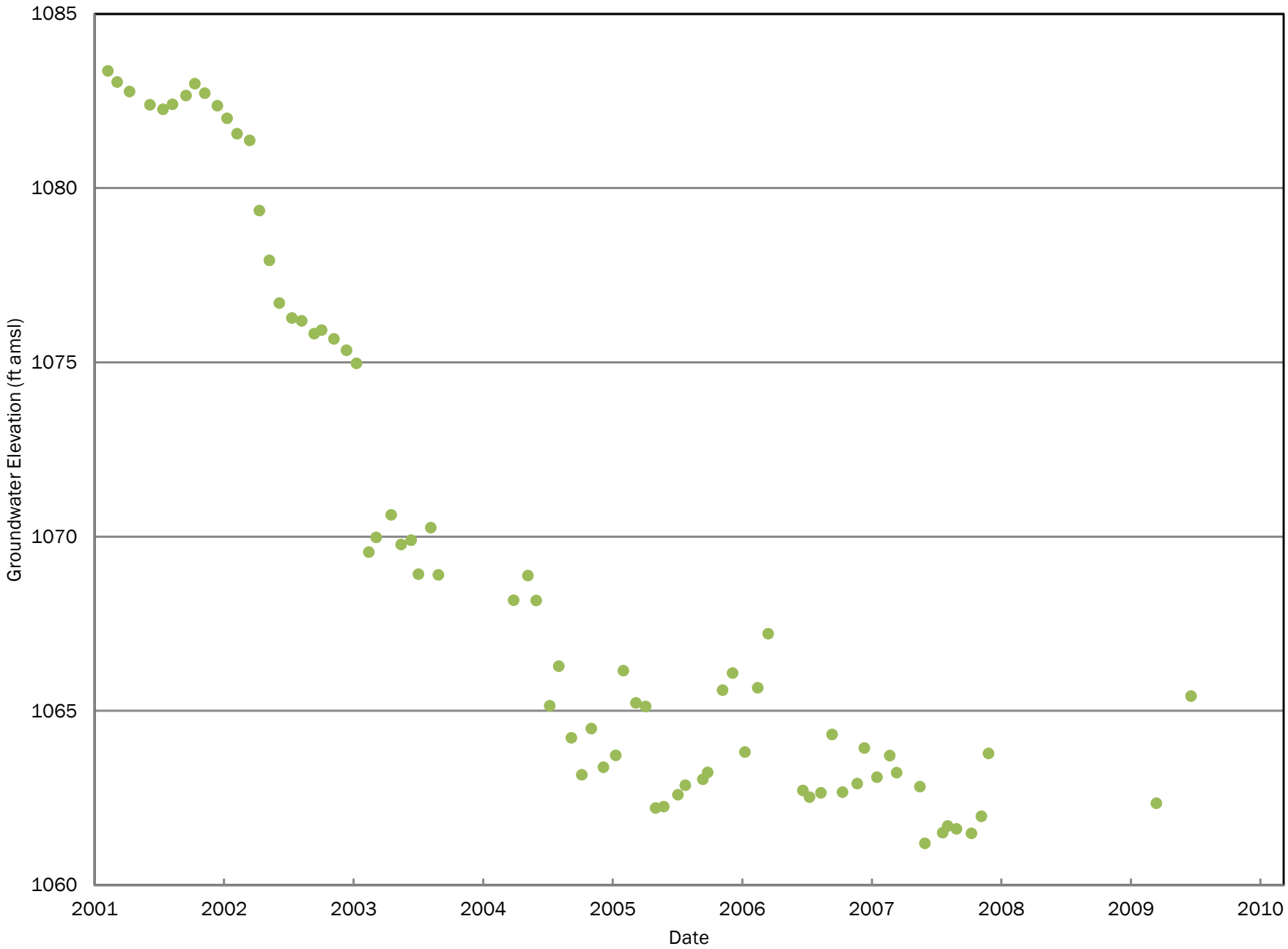
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

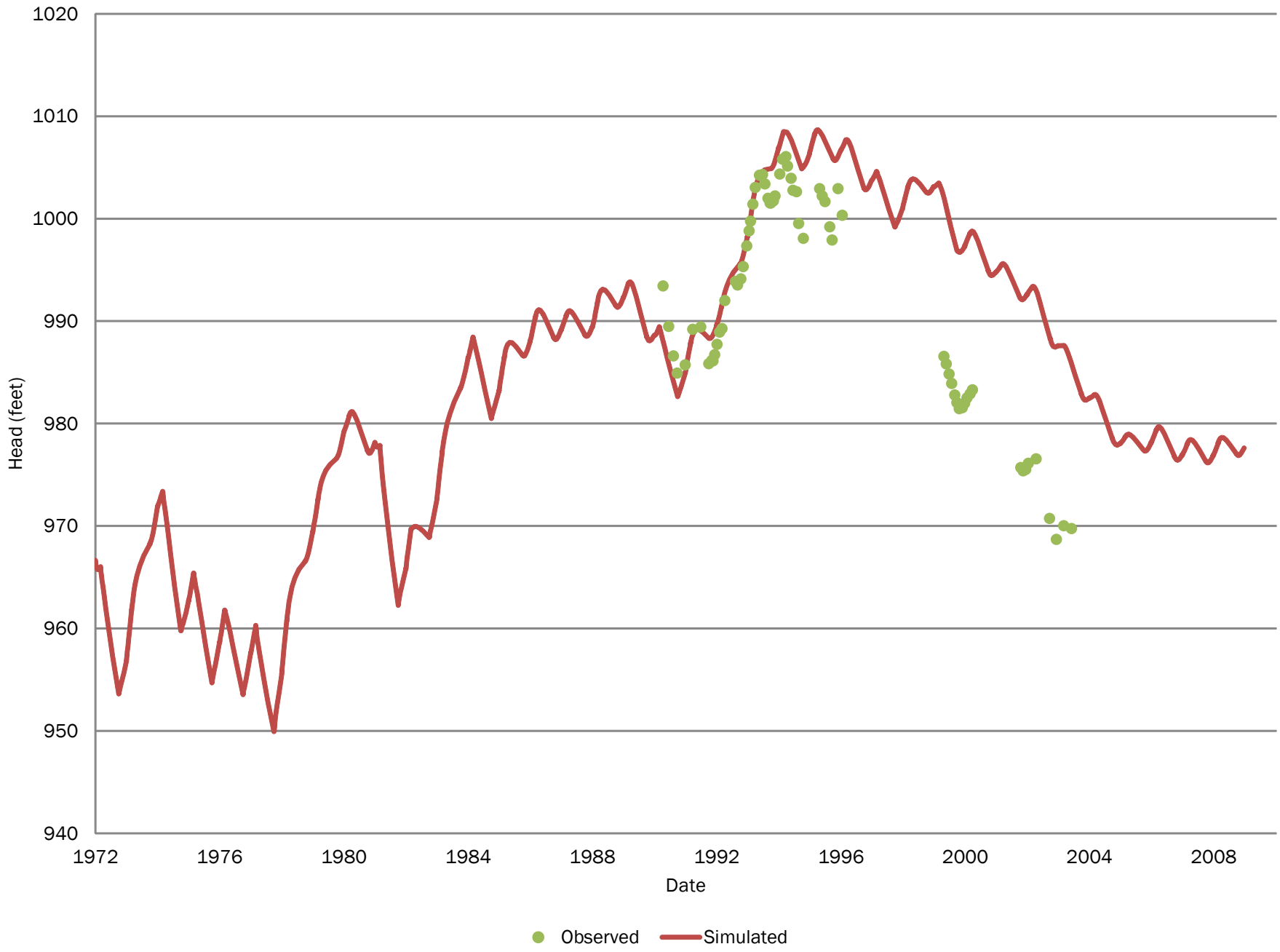
Figure 3-7

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-7_WVBSA_Sy_Layer1_20131220.mxd



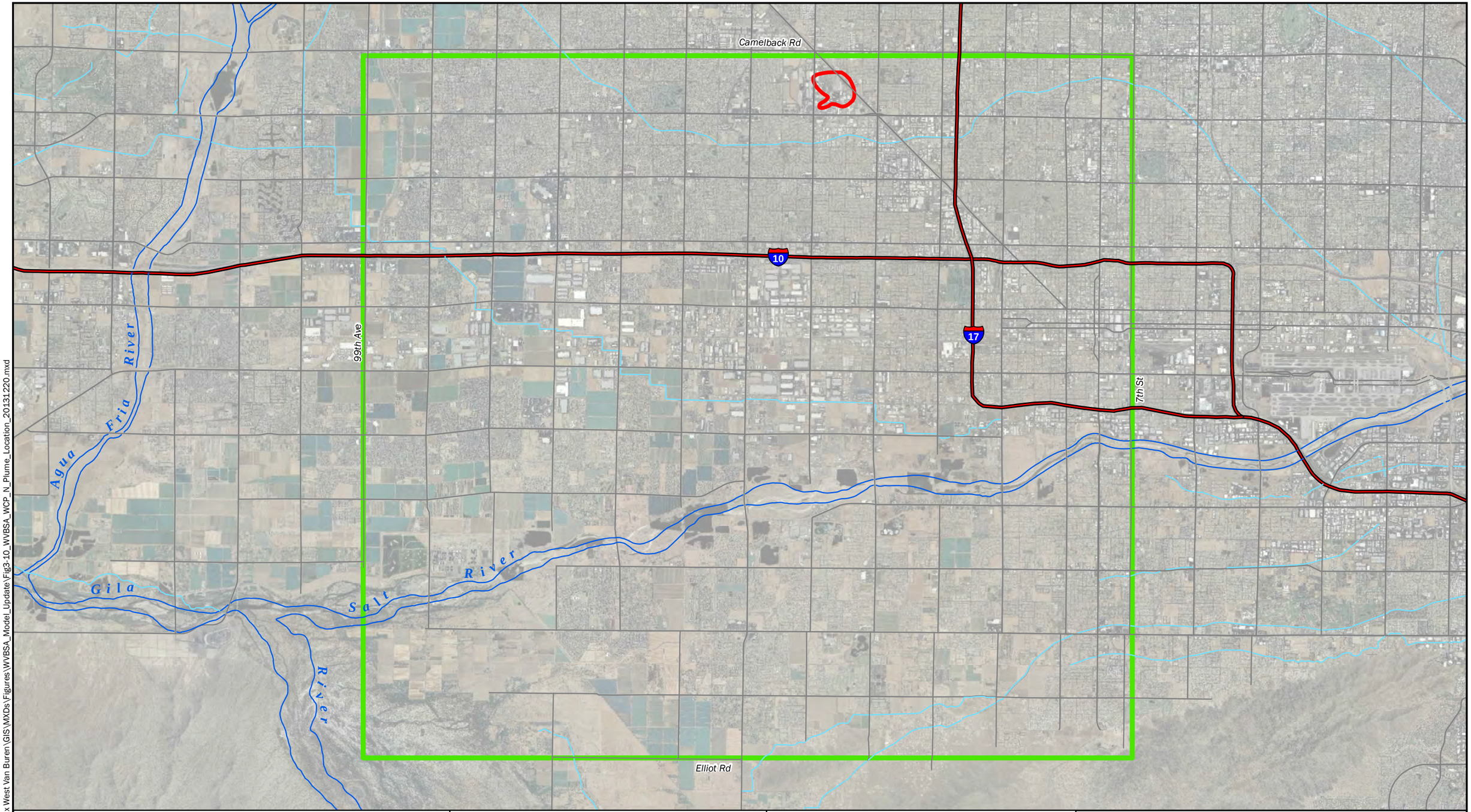
SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-8
TITLE	**ADEQ CC-3 Water Level Hydrograph**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-8_ADEQ_CC-3_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update** **Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-9
TITLE	**WVBSA Model – Penske Well MW-01** **Initial Calibration Hydrograph**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-9_PenskeMW-1_20131220.mxd



LEGEND

- WCP North Plume Area
- WVBSA Model Domain
- Canal
- Surface Water Features

0 7,500
Feet

N

Aerial imagery provided by the Arizona State Cartographer's Office from the U.S. Department of Agriculture National Aerial Imagery Program (2010).

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
West Central Phoenix North Plume Area Location

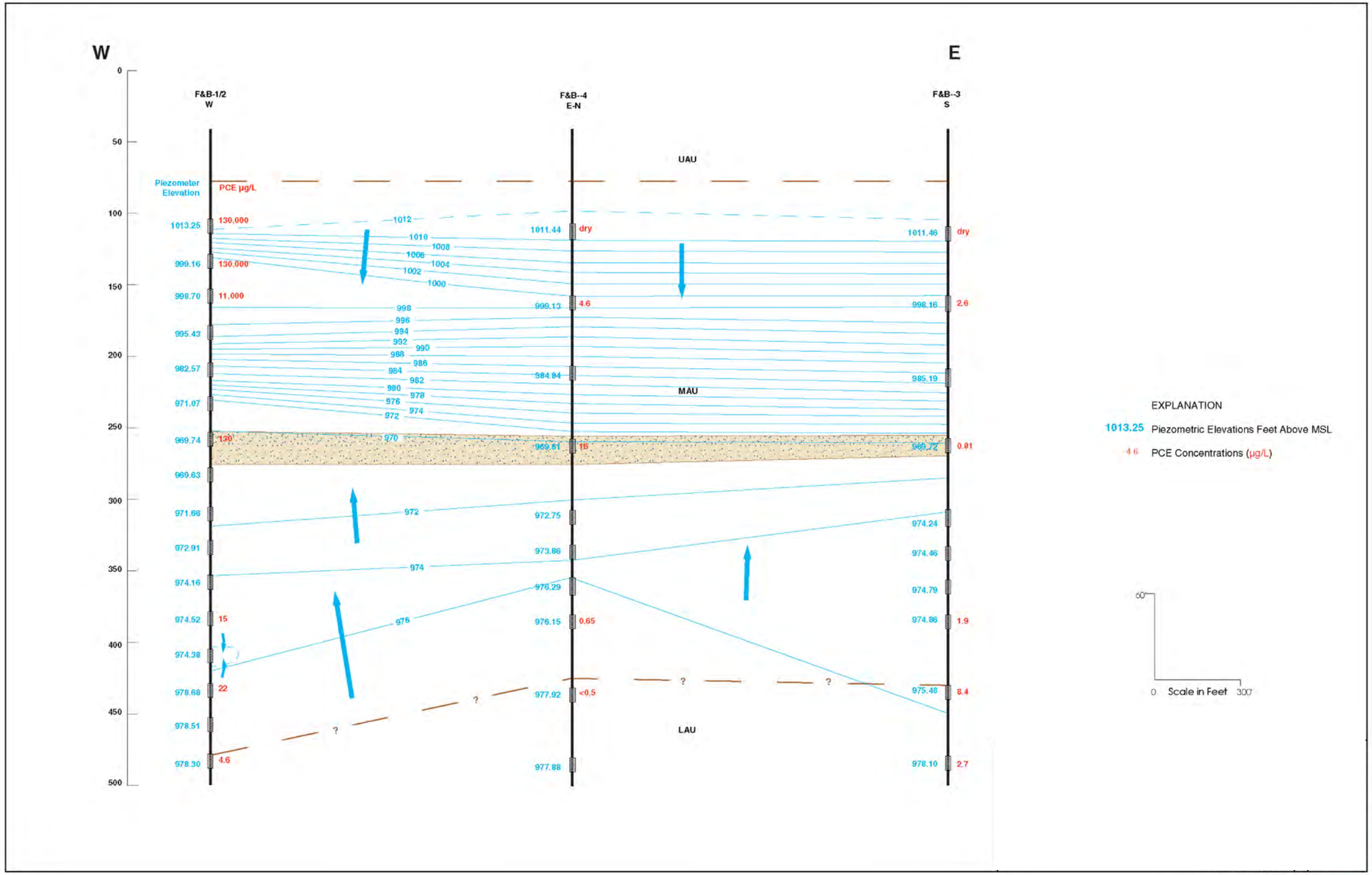
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 3-10

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-10_WVBSA_WCP_N_Plume_Location_20131220.mxd



Note:
After Figure 52 (LFR, 2009)

SITE
WVBSA Univar Groundwater Flow Model Update
Phoenix, Arizona

TITLE
West Central Phoenix North Plume Area Cross Section

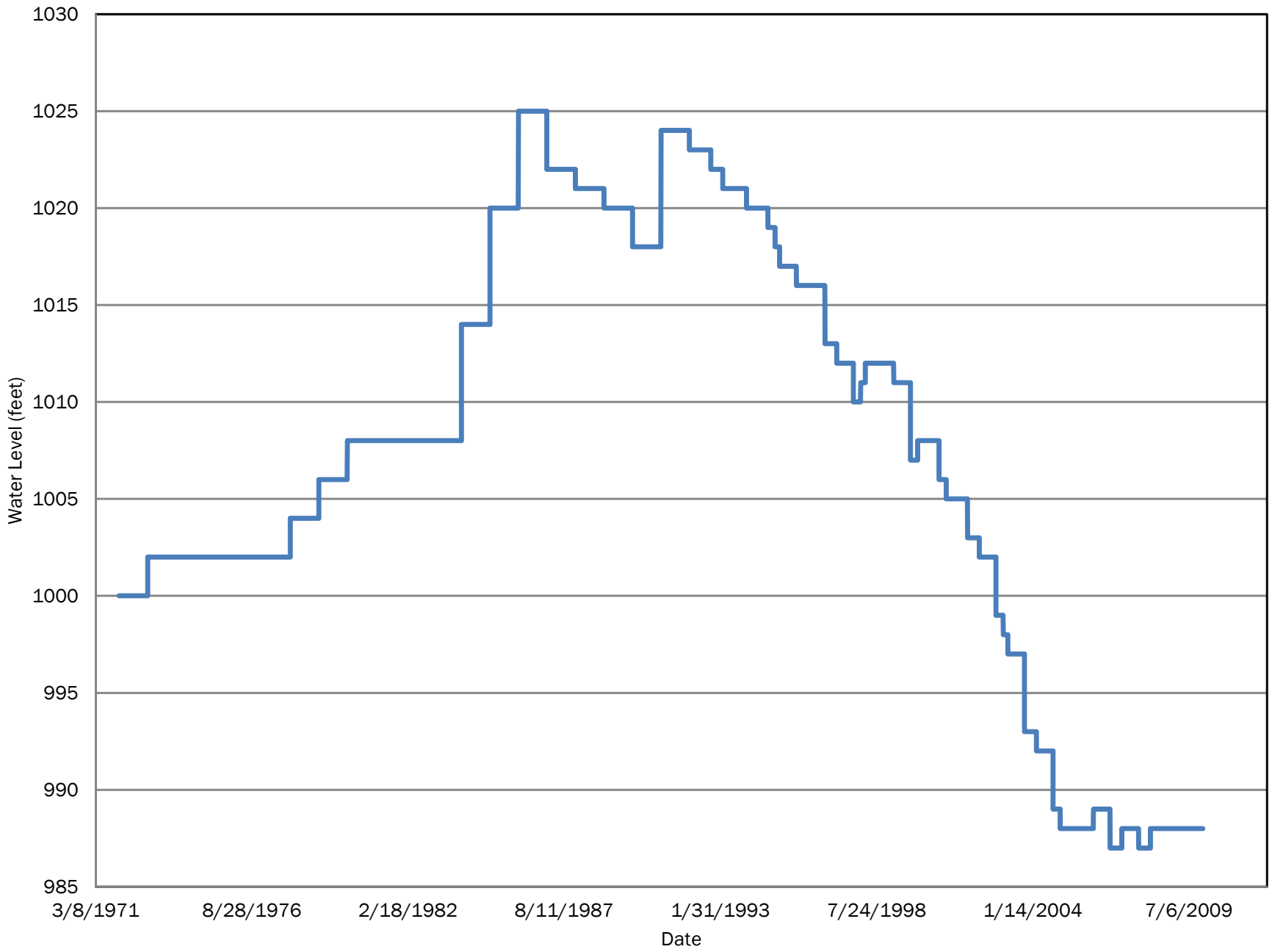
Brown AND Caldwell

PROJECT 144774-001

DATE 12/20/2013

Figure 3-11

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-11_WCP_XSect_20131220.mxd

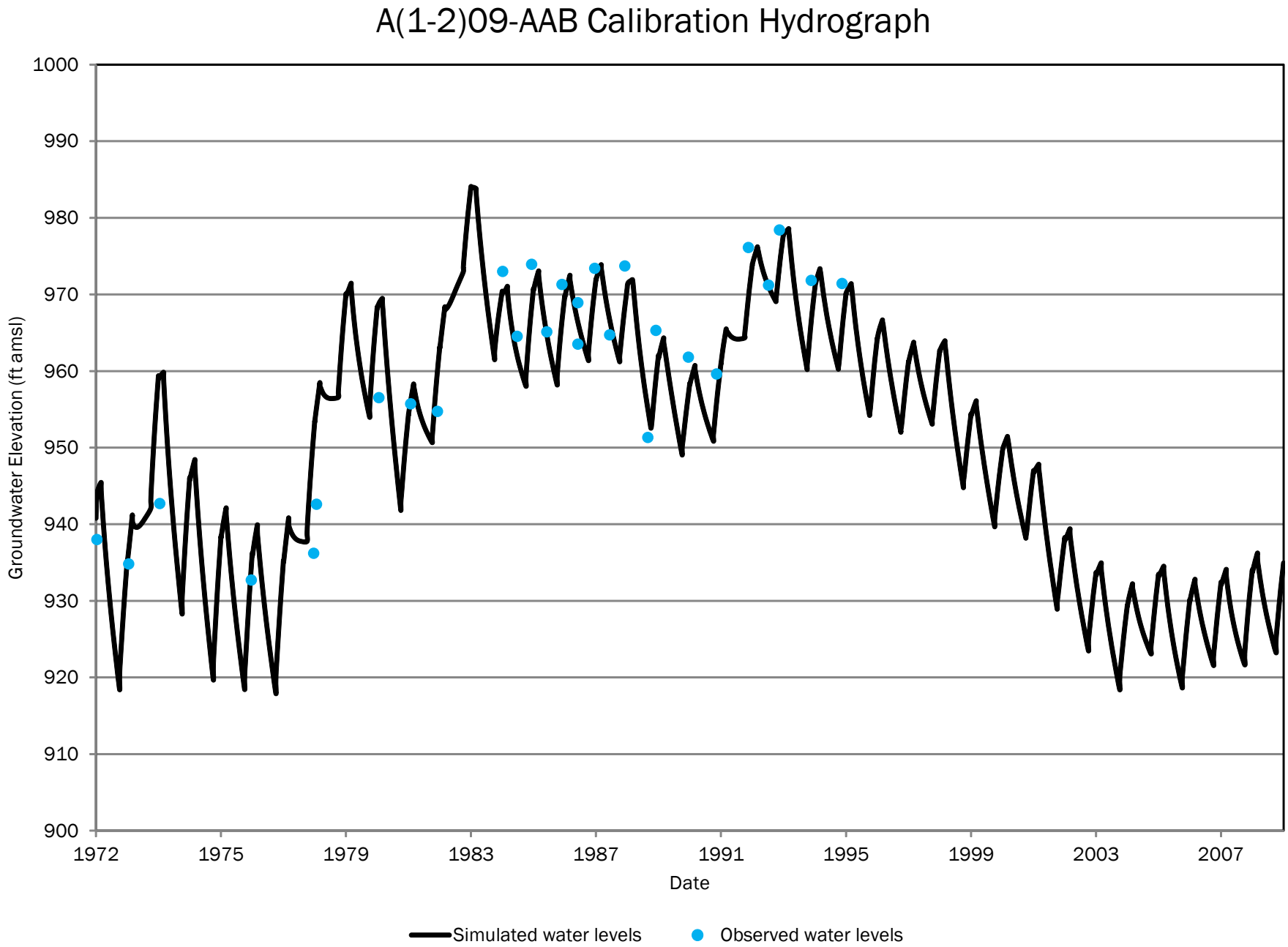


SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-12
TITLE	**WVBSA Model – Northeast Boundary Reference Head Adjustment**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-12_NE_CornerAdjustments_20131220.mxd

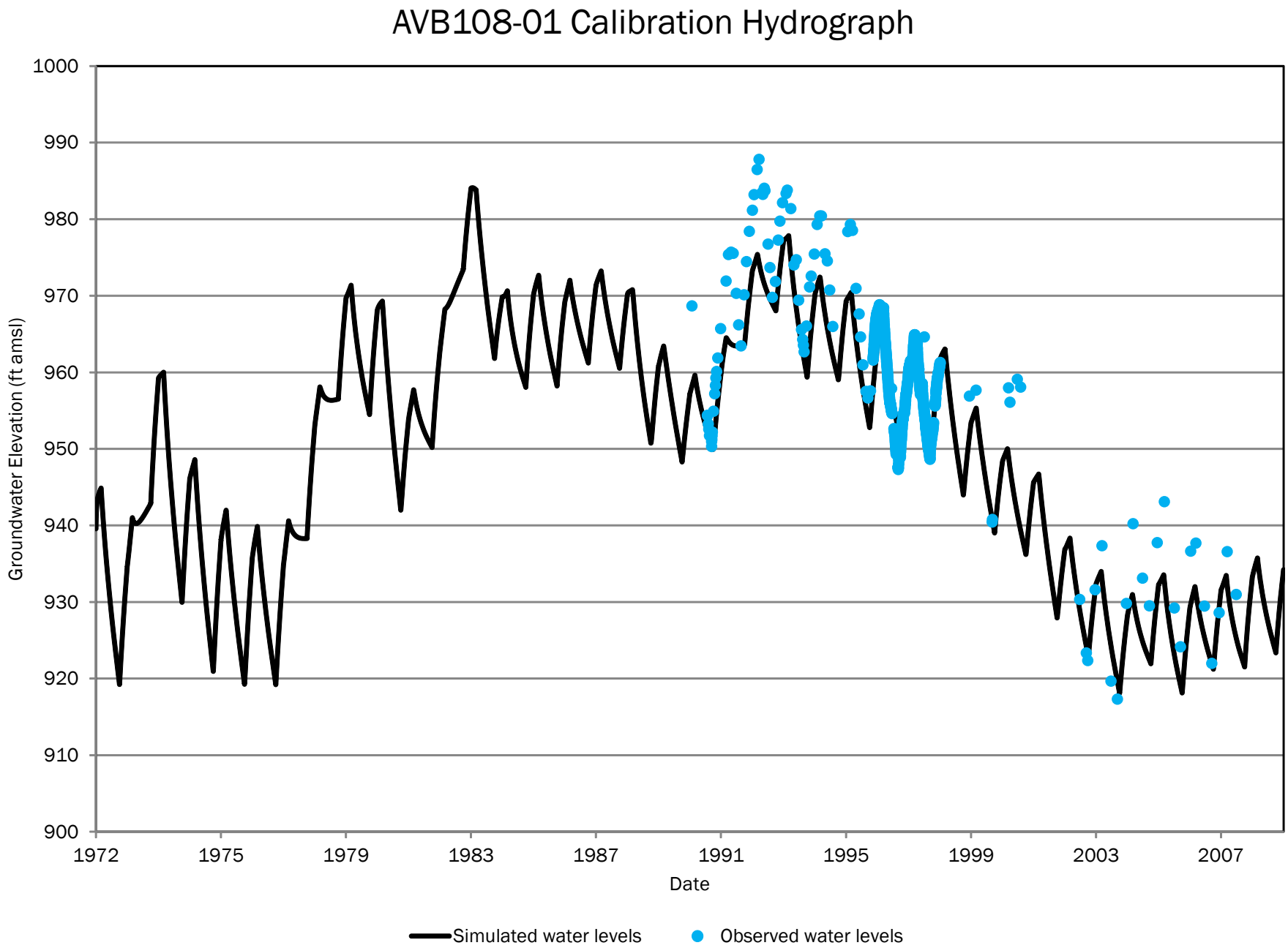
SITE	**WVBSA Univar Groundwater Flow Model Update** **Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-13
TITLE	**WVBSA Model – WCP-43 Comparison** **Calibration Hydrograph**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-13_WCP-43_20131220.mxd



SITE **WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**		PROJECT 144774-001	Figure 3-14
TITLE **WVBSA Model – A(1-2)09_AAB Calibration Hydrograph**	Brown AND Caldwell	DATE 12/20/2013	

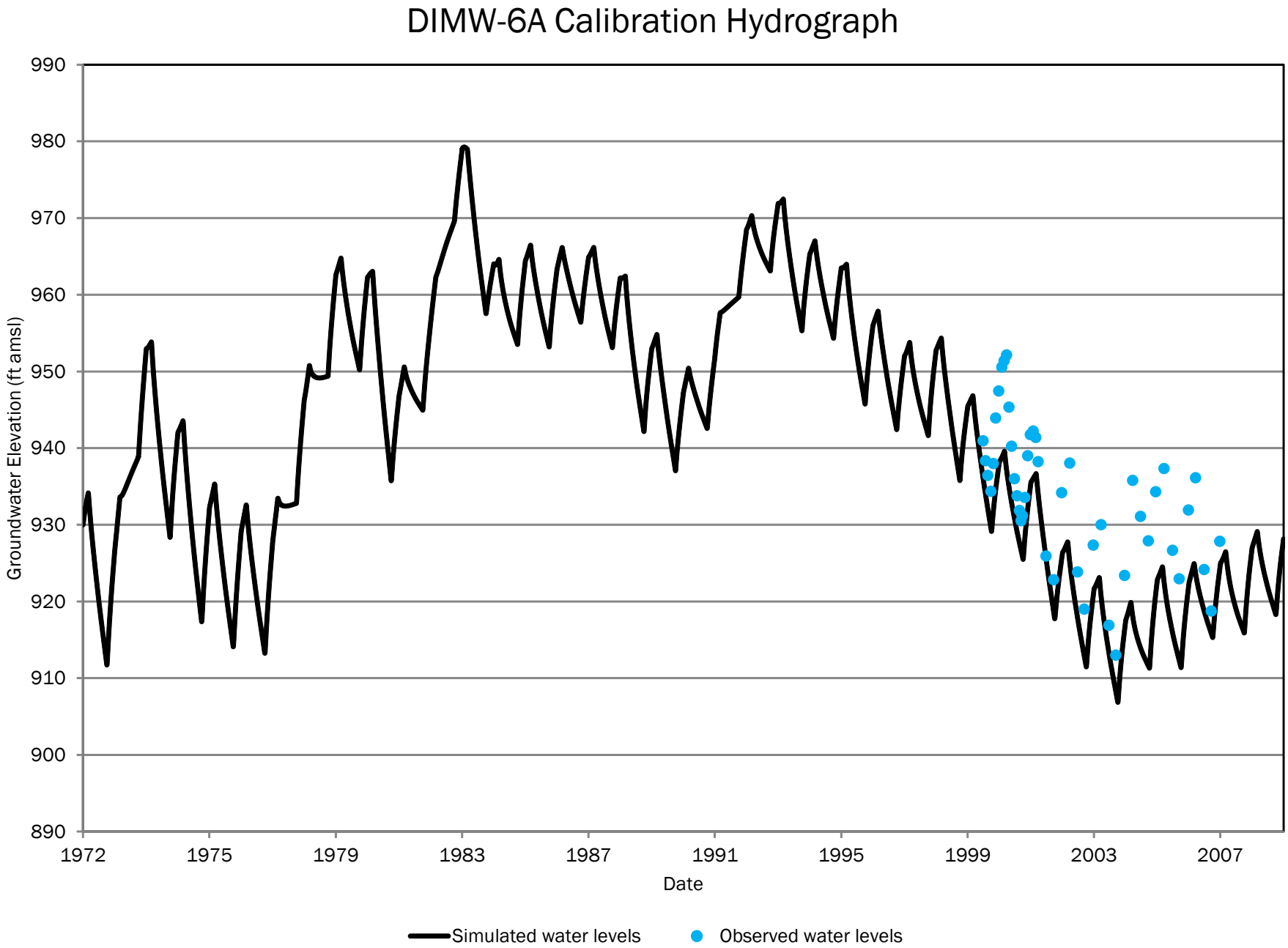
J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-14_A(1-2)09_AAB_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	PROJECT 144774-001	Figure 3-15
TITLE	**WVSBSA Model – AVB108-01 Calbration Hydrograph**	DATE 12/20/2013	

Brown AND Caldwell

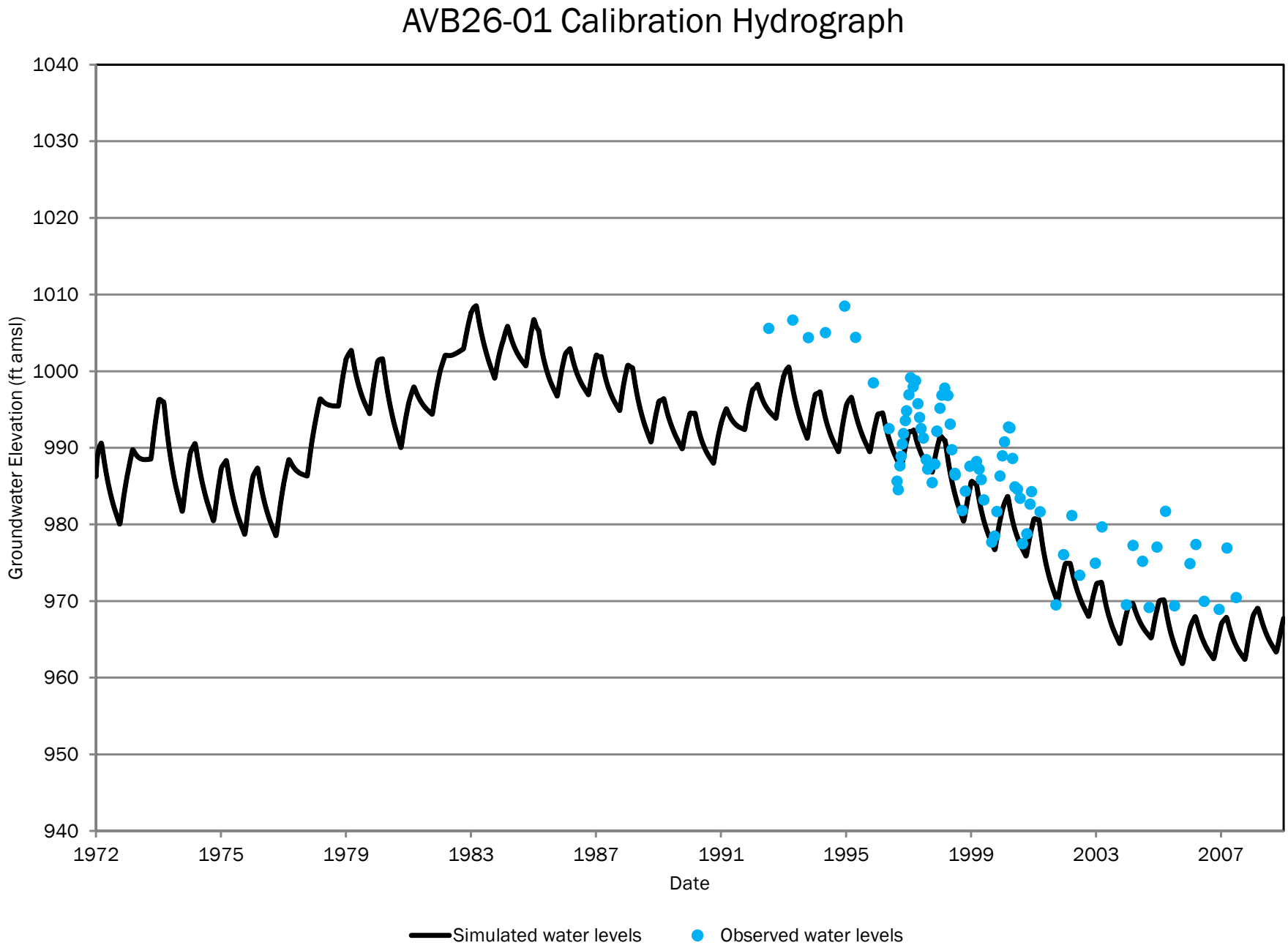
J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-15_AVB108-01_20131220.mxd



SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001
TITLE	**WVBSA Model – DIMW-6A Calibration Hydrograph**		DATE 12/20/2013

Figure 3-16

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-16_DIMW-6A_20131220.mxd

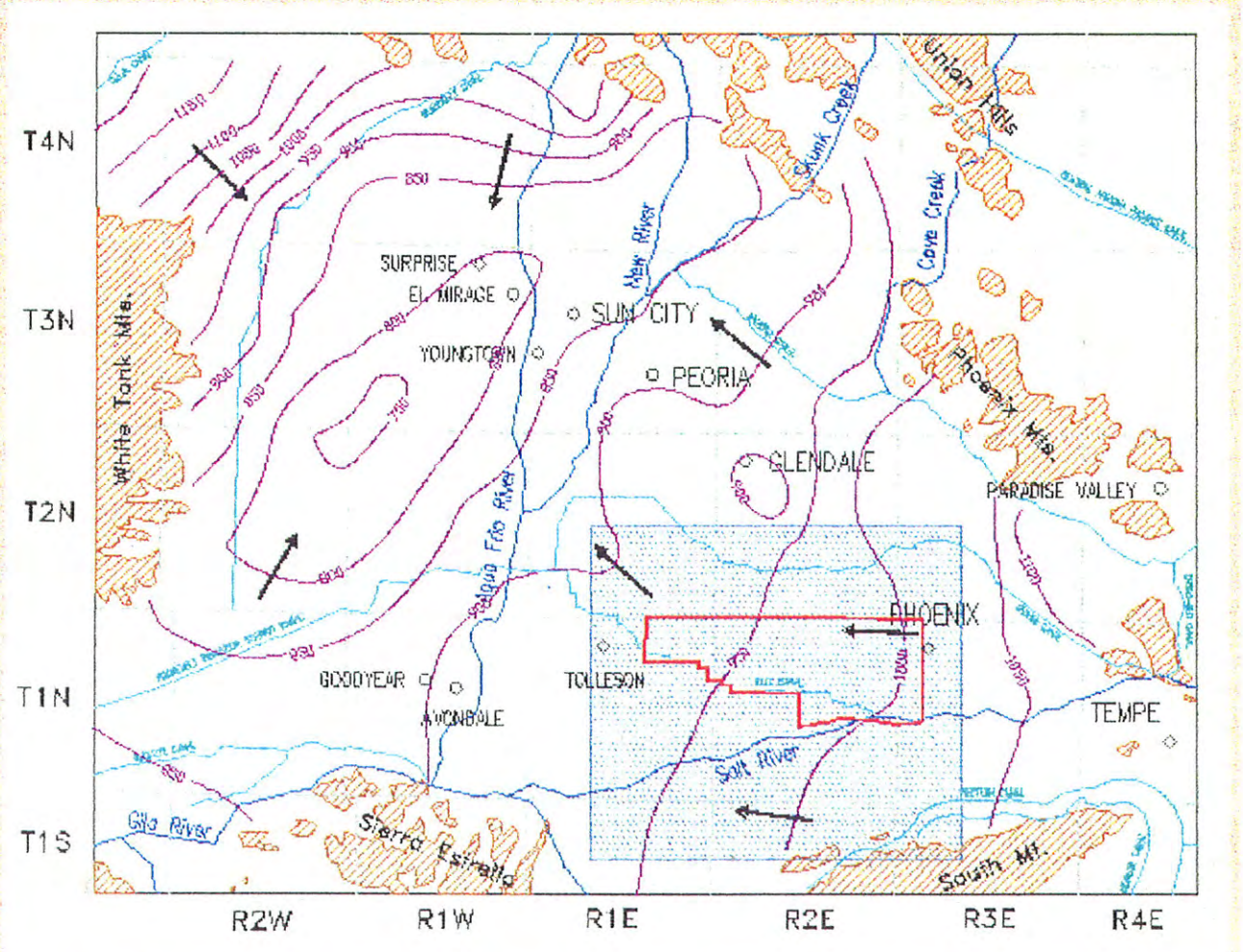


SITE	**WVBSA Univar Groundwater Flow Model Update Phoenix, Arizona**	Brown AND Caldwell	PROJECT 144774-001	Figure 3-17
TITLE	**WVBSA Model – AVB26-01 Calibration Hydrograph**		DATE 12/20/2013	

J:\Quarles and Brady\144774 - Phoenix West Van Buren\GIS\MXDs\Figures\WVBSA_Model_Update\Fig3-17_AVB26-01_20131220.mxd

Appendix A: 1997 HLA Model Report

Provided separately in electronc file
IGW Flow Model, WVB WQARF Study Area – Volume 1.pdf and *GW Flow Model WVB WQARF Study Area Vol. 2.pdf.*



Groundwater Flow Model

West Van Buren WQARF Study Area

Volume 1: Report, Figures and Tables

Prepared for

Van Waters & Rogers Inc.

50 South 45th Avenue
Phoenix, Arizona 85043

January 15, 1997

Harding Lawson Associates
Engineering and Environmental Services
2800 North 44th Street Suite 500
Phoenix, Arizona 85008 - (602) 224-0844

GROUNDWATER FLOW MODELING
West Van Buren WQARF Study Area

Prepared for
Van Waters and Rogers Inc.
50 South 45th Avenue
Phoenix, Arizona 85043

HLA Project No. 11033-218.93

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PLATO
Date Signed 1/16/97
ARIZONA U.S.A.

January 16, 1997

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DISTRIBUTION

1.0 INTRODUCTION

~~This purpose of~~ this report ~~is to~~ discuss the development and present the results of a numerical groundwater flow model for a portion of the west Salt River Valley (WSRV). The area of primary interest within the WSRV is the West Van Buren Study Area (WVBSA)(Figure 1). This groundwater model was constructed for Van Waters & Rogers Inc. (VWR) by Harding Lawson Associates (HLA). The report includes summaries of the regional and local hydrogeology, describes pertinent aquifer stresses in detail, and develops a hydrogeological conceptual model (HCM). The report also describes the transfer of the available hydrogeologic data and the HCM into a discretized numerical groundwater flow model.

The environmental concerns associated with the WVBSA include the presence of volatile organic compounds (VOCs) within the groundwater which appear to originate from a number of sources both within and upgradient of the WVBSA. From an investigative and remediation standpoint, the principal issues are: 1)the source, distribution and extent of the contaminated groundwater within the study area; 2)the effects of recharge and, in particular, groundwater pumpage on the advective transport of groundwater contaminants; and 3)the potential receptors of contaminated groundwater. The development of a computer-based groundwater flow model has been conducted to assist VWR in better understanding these issues, and to assist in the development of a regional contaminant management strategy for the study area.

1.1 Purpose

The purpose of developing a groundwater flow model was to better understand the groundwater flow system within the WVBSA. Because it is known that numerous potential sources of VOCs are present within and upgradient of the WVBSA, and adjacent to it, and that the groundwater system is highly dynamic because of the large-scale pumpage and recharge that occurs, a computer-based groundwater model was the most efficient way to better understand the groundwater flow system and advective VOC migration.

The purpose of this report is to document the development and results of the groundwater flow model and to present observations regarding the groundwater flow system derived from the model.

1.2 Objectives

The objective of the model was to develop a computer-based groundwater flow model which reasonably simulated the dynamic and complex flow system believed to exist in the WVBSA. This tool could then be utilized to evaluate the potential advective movement of contaminated groundwater and, if desired, form the framework for development of a contaminant fate and transport model.

The objective of this report is to provide documentation and support for the HCM which was developed for the model and to develop a hydrogeological understanding such that an optimal approach to addressing the regional groundwater contamination could be developed.

1.3 Scope

The hydrogeologic system within the WSRV in general, and the WVBSA in particular, is a thick sequence of alluvial material ranging in material type from clays and evaporites to cobbles and boulders. Although the total thickness of the alluvium within the WVBSA is at least 2,000 feet, groundwater contamination was believed to be primarily present in the upper portions of the saturated zone. Deeper contamination may be present, but, if present, is likely caused by short-circuiting down deep wells.

This report documents the completion of two models; a Phase 1 and a Phase 2. The Phase 1 model was a simplified model completed to provide quantitative support for the assumption that only the upper part of the saturated zone is of concern for contaminant migration and therefore, only that portion of the hydrogeologic system needs to be included in a numerical simulation. This was considered a concern because it was uncertain what the effects of the highly dynamic hydraulic system (i.e., large-scale pumpage and recharge) has on the vertical migration of contamination within the aquifer. Reducing the depth of the aquifer material of concern was desirable from the standpoint that by concentrating on a smaller portion of the hydrogeologic system, a more detailed Phase 2 model, which could more completely account for the system stresses and aquifer heterogeneities could be generated. In addition, more information is available for the upper portion of the alluvial aquifer, and thus, a more defensible model could be developed.

2.0 STUDY AREA BACKGROUND AND REGULATORY SETTING

Under the authority of the Water Quality Assurance Revolving Fund (WQARF), the Arizona Department of Environmental Quality (ADEQ) has identified several areas of the state for investigation and remediation of contaminated groundwater. The WQARF fund was established in 1986, and one of the WQARF study areas established under the fund was the WVBSA.

The ADEQ and it's predecessor agency, the Arizona Department of Health Services (ADHS), have been conducting an investigation of the WVBSA since approximately 1985. In July, 1989, under contract to the ADEQ, Kleinfelder completed the *Phase I Report, Task Assignment K-2, West Van Buren Area, Phoenix, Arizona*, as an initial investigation of the VOC contamination known to occur in the regional groundwater. That report discussed the results from soil analytical samples, water level, and water quality data for the region bounded by 7th Avenue, 83rd Avenue, McDowell Road and the Salt River (Figure 1). The report included a records review and discussion of the approximately 300 responses to a questionnaire distributed to approximately 850 businesses and industrial facilities related to chemical use and disposal. As a result of this Phase I study, the boundaries of the WVBSA were adjusted to their current configuration as illustrated in Figure 1.

Although ADHS and ADEQ have collected and analyzed groundwater samples from wells across the WVBSA, no comprehensive regional groundwater quality investigation has been conducted. Several of the property owners and site operators have conducted various stages of voluntary site- specific soil and groundwater investigations, as well as some limited site-specific remediation efforts. None of these investigations have addressed regional groundwater quality in a comprehensive manner.

On October 16, 1992, ADEQ sent a notification letter to seven entities with facilities within the WVBSA. The letter invited participation in a November 16, 1992 meeting with ADEQ to discuss potential remedial activities for the WVBSA. During this meeting, ADEQ presented an overview of the WVBSA past and ongoing investigations, including investigations of additional sources, interim remedial actions, review of ADEQ incurred costs, the ADEQ approach to multiple party investigation issues and a schedule for the formulation of and negotiations with a steering committee to investigate the WVBSA.

A second meeting was organized by ADEQ and held on January 27, 1993, to encourage the attending organizations to form a steering committee. During this meeting ADEQ briefly presented an explanation of the work undertaken to identify additional Potentially Responsible Parties (PRP's).

The result of these meetings was the formation of a steering committee known as the West Van Buren Group (WVB Group). The WVB Group initially included the following members: Chem Research, Dolphin, Inc., Maricopa County, Maroney's Cleaners, Maryatt Industries (subsequently known as American Linen Supply Company [ALSCO]), Reynolds Metals Company and VW&R. After formation,

the WVB Group began negotiations with ADEQ to develop a regional groundwater investigation plan. During the course of negotiations with ADEQ, four of the initial members of the group (Chem Research, Maroney's Cleaners, ALSCO, and Maricopa County) withdrew for various reasons. Negotiations were proceeding between the remaining WVB Group members and ADEQ until the passage of House Bill 2114 in 1996. This bill eliminated, for a period of one year, joint liability in the state's WQARF areas. Due to this change in the liability system, the remaining WVB Group members have suspended further negotiations until the outcome of the Groundwater Task Force proposals have been determined. The Groundwater Task Force was created in 1996 as an outgrowth of the Soil Cleanup Task Force, which helped to formulate soil clean up standards. With the passage of House Bill 2114 in 1996, the Groundwater Task Force became a forum to develop an alternative legal and administrative mechanism for investigation and remediation of the state's WQARF areas. The purpose of the Groundwater Task Force is to develop proposals to replace or augment WQARF funding, determine priority for the remediation of WQARF areas, and to hasten the clean up of the WQARF areas through innovative legal and administrative changes. Pending the result of the Groundwater Task Force proposals, the members of the WVB Group are currently involved in their site-specific investigations.

3.0 HYDROGEOLOGIC SETTING AND CONCEPTUAL MODEL

The WVBSA is located in the east-central part of the WSRV which is a broad alluvial basin within the Basin and Range physiographic province. The WSRV is the western half of the larger Salt River Valley (SRV) which also includes the east Salt River Valley. Hydrologically the two sub-basins are connected via surface water flow along the Salt River and via subsurface flow between Bell Butte and the eastern end of South Mountain. Except for the relatively narrow gaps cut by through-flowing drainages, the WSRV basin is completely surrounded by mountains composed primarily of granitic, metamorphic, volcanic, and minor amounts of sedimentary rocks. The valley floor slopes gently to the west-southwest to where the Salt River, which is the primary drainage for the whole valley, exits the basin near Buckeye, Arizona. The land within the WVBSA was formerly predominantly used for agriculture, in particular cotton. Since the 1960's more and more of the land has been converted to industrial or residential. Currently most of the eastern one-third of the WVBSA is composed of office building and light to heavy industrial, the central one-third is a mixture of light industrial and agriculture, and the western one-third is a mixture of agriculture and residential.

Beneath the basin valley floor are unconsolidated to semi-consolidated basinfill deposits. These basinfill deposits consists of alluvial material ranging in grain size from clays and evaporites to cobbles, and are present in thicknesses which range from less than a hundred feet along the basin margins and above buried pediments, to more than 11,000 feet in the central part of the basin. The thickest basinfill deposits are near Luke Air Force Base, where the structure and lithology of the basinfill deposits have been influenced by a massive evaporite deposit referred to as the Luke Salt Body (Corkhill, et al, 1994).

The basinfill deposits consist of interbedded sequences of conglomerate, cobbles/gravel, sand, silt, clay, and evaporites. The depositional environment consisted of sequences of alluvial fan, playa, and fluvial deposits depending upon the stage of the basin development. In general, the deeper basinfill deposits are finer toward the central areas of the basin and tend to coarsen toward the edges. This grain size distribution is typical of a deposition within a closed basin. After the establishment of through flowing drainage, as exists today, the location of fine versus coarse-grained deposits became dependent more on the direction of surface drainage and the location of stream channels.

The geologic material which comprise the deposits in the WSRV have been divided into six units (Brown and Pool, 1989). These are metamorphic and granitic rocks, extrusive or volcanic rocks, the Red Unit, and the upper, middle, and lower alluvial units of the basinfill. Of interest to this model investigation, because of their presence in the WVBSA and their importance as water bearing deposits, are the upper, middle, and lower units of the basinfill. These units were initially described by the United States Bureau of Reclamation (USBR, 1976) and are described in detail in Brown and Pool (Brown and Pool, 1989). They are typically referred to as the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU) and the Lower Alluvial Unit (LAU). In general, the LAU and the much of the

MAU are considered to have been deposited when the basin was closed (i.e., internal drainage) whereas, the upper part of the MAU and the UAU were deposited in the basin when through-flowing drainage was occurring.

A detailed description of the regional geology and hydrogeology is provided in Section 3.2. The following is a summary of the references and data used to develop the detailed HCM for the region and to provide initial inputs in the development of the numerical groundwater flow model.

3.1 Previous Hydrogeologic Studies

The development of the groundwater flow model involved extensive compilation, review and analysis of available data. The list of region or site-specific references and sources of data utilized in preparing this section of the report and in developing the HCM used in the model investigation include the following:

General WSRV

- *Basic Groundwater Data for Western Salt River Valley, Maricopa County, Arizona*, 1966, by William Kam, H.H. Schumann, L.R. Kister, and F.E. Arteaga. Arizona State Land Department, Water-Resources Report Number 27.

- *Infiltration and Recharge from the Flow of April 1965 in the Salt River near Phoenix, Arizona, 1966*, Briggs, P.C. and L.L. Werho, Arizona State Land Department, Water-Resources Report Number 29.

- *Electric Analog Analysis of Groundwater Depletion in Central Arizona, 1968*, T.W. Anderson. U.S. Geological Survey Water Supply Paper 1860.

- *Central Arizona Project - Geology and Groundwater Resources Report, Maricopa and Pinal Counties, Arizona*, 1976, United States Department of the Interior, Bureau of Reclamation, Lower Colorado Region.

- *Estimations of Aquifer Characteristics Using Drillers' Logs, 1981*, K.G. Kisser, and J.S. Haimson, Hydrology and Water Resources in Arizona and the Southwest, Volume 11.

- *Salt River Valley Cooperative Modeling Effort. Prepared by the Arizona Department of Water Resources in Cooperation with the Municipal Water Users Association and Irrigation Districts in the Salt River Valley, 1982*, by M.R. Long, M.A. Niccoli, R. Hollander, and J.L. Watts.

- *Maps Showing Groundwater Conditions in the West Salt River, East Salt River, Lake Pleasant, Carefree and Fountain Hills Sub-Basins of the Phoenix Active Management Area, Maricopa, Pinal*

and Yavapai Counties, Arizona, 1983, by R.W. Reeter and W.H. Remick. Department of Water Resources, Hydrologic Map Series Report No. 12.

- *Hydrogeology of the Western Part of the Salt River Valley area, Maricopa County, Arizona*, 1989, by James G. Brown and D.R. Pool. U.S. Geological Survey (USGS) WRI Report 88-4202.

- *Aquifer-System Compaction, Tucson Basin and Avra Valley, Arizona, 1989*, Hanson, R.T., U.S. Geological Survey, Water Resources Investigations Report 88-4172.

- *A Regional Groundwater Flow Model of the Salt River Valley - Phase I, Phoenix Active Management Area, Hydrogeologic Framework and Basic Data Report*, 1993, by Edwin F. Corkhill, Steven Corell, Bradley M. Hill and David A. Carr. Arizona Department of Water Resources, Modeling Report No. 6.

- *A Regional Groundwater Flow Model of the Salt River Valley - Phase II, Phoenix Active Management Area, Numerical Model, Calibration and Recommendations*, 1994, by Steven Corell and Edwin F. Corkhill. Arizona Department of Water Resources, Modeling Report No. 8.

- *Release Data from Granite Reef Dam*, Salt River Project, obtained in 1994 from Dallas Riegle, Senior Hydrologist, Salt River Project.

- Effluent discharge from the City of Phoenix - 23rd Avenue Wastewater Treatment Plant, obtained in 1992 from Dave Carr of the Arizona Department of Water Resources (ADWR) Modeling Group.

Site or Area-specific Data

The following sources of data were reviewed for information specific to the WBVSA and to the model domain.

Water Level Data

- ADWR Groundwater Site Inventory (GWSI) Water Level Database;

Groundwater Pumpage

- ADWR Registration of Grandfathered Rights (ROGR) reported well pumpage
- Well-specific pumpage obtained from ADWR 1972-1977 model archives

Geologic and Hydrologic Data

- Well logs (drillers, geologist, and grain-size) from the ADWR historic well registration data files, the United States Geological Survey (USGS) and the ADWR 1972-1977 model archives
- Aquifer test data and results from the files of the USGS

Additional information and insight was obtained through numerous conversations with personnel of the ADWR groundwater modeling group and hydrogeologists at the USGS, Water Resources Division in Tucson, Arizona.

3.2 Regional Geology and Hydrostratigraphy

This section describes in greater detail the regional geology, hydrogeology, and develop the preliminary hydrogeologic conceptual model of the WVBSA. This information is being provided prior to the defining of the model domain to provide the reader with the actual path and thought processes that went into decisions on the modeling approach, model domain, and the discretization of the hydrogeologic system.

As stated above, of interest to this model, based on the goals of the modeling, are the alluvial units referred to, in descending order, as the UAU, MAU, and the LAU. These are the sole units of interest because of their water bearing properties and the fact that most every groundwater production well in the WSRV is completed in one or more of these units. For completeness, a geologic description of the hardrock units is also provided.

3.2.1 Upper Alluvial Unit

The UAU is the upper-most basin fill unit, comprising the surface layer throughout much of the model domain. The UAU includes stream channel, floodplain, and alluvial fan deposits that consist largely of boulders, gravel, and sand, with zones locally high in silt and clays. This unit is dominated by sand, gravel, and cobbles in the areas near the present day Salt, Gila, and Agua Fria rivers, with an increasing percentage of sands and silts away from the river. Deeper UAU deposits away from the rivers, in particular the Salt River, can also be predominantly coarse-grained due to channel meandering. Within much of the WVBSA the percent sand and gravel within the UAU is estimated at between 60 to 80 percent (%), whereas, north of the WVBSA the percent sand and gravel declines to 40 to 60% (Brown and Pool, 1989). Within the WVBSA the UAU ranges from approximately 200 to 400 feet in thickness. The UAU was deposited following the establishment of through flowing drainages within the basin.

Hydrologically the UAU is the most productive of the three units with large-scale average horizontal hydraulic conductivity (K_H) values ranging from 150 feet per day (ft/d) to more than 1500 ft/d in coarse sand and gravel zones (Brown and Pool, 1989). Localized zones of fine grained material have been identified throughout the WSRV, and K_H values of less than 10 ft/d within these finer grained zones are likely.

Depth to water in the WVBSA varies both over multi-year trends and seasonally. Over the past 40 years water levels have fluctuated over a range of at least 40 feet but in general the depth to water is approximately 60 to 100 feet below ground surface (bgs). Groundwater in the WSRV is generally under

water table conditions. Areas of semi-confined or confined conditions have been noted, as well as, areas with perched groundwater conditions. These perched conditions are typically found where the infiltration of excess irrigation water or canal leakage has encountered a fine-grained layer with very low permeability. The presence of confined or perched groundwater systems is dependant upon accurate knowledge of a well's completion specifics to confidently interpret water level data. The saturated thickness of the UAU is minimal in many parts of the SRV, but within the WVBSA the UAU has an estimated average saturated thickness of approximately 200 feet. Saturated thickness can exceed 300 feet within the WVBSA.

The UAU was the primary source of pumped groundwater during the initial development of the groundwater resources within the basin. Extensive groundwater pumpage has subsequently dewatered the UAU in the north and northwestern parts of the WSRV. The UAU is currently estimated to provide about 25 percent of pumped groundwater regionally (ADWR, 1994b).

3.2.2 Middle Alluvial Unit

The MAU includes playa, alluvial fan, and fluvial deposits of clay, silt, siltstone, silty sand, and gravel. Most of the unit is considered weakly consolidated with carbonate cement. The contact between the MAU and the UAU is relatively sharp in the southern two-thirds of the WSRV. The contact is characterized by a rapidly fining sequence of gravels into a thick silt and clay unit. To the north of the WVBSA, the sand and gravel zone is much thinner and its contact with the fine-grained deposits is very gradual. Over much of the WVBSA, the percent sand and gravel in the MAU is less than 40% and is typically found in thin stringers or lenses rather than dispersed throughout the unit (D. Pool, personal commun., 1991) Near the basin margins the MAU becomes increasingly coarse grained, and the obvious distinction between units disappears. The MAU is interpreted to have been deposited in a closed drainage basin environment, with coarser grained alluvial fan deposits on the periphery which grade to very fine grained playa and evaporitic deposits near the center of the basin. Near 45th Avenue and Van Buren Street the depth to the base of the MAU is estimated at 650 feet based on driller's logs.

Despite its overall fine-grained nature, the MAU is currently estimated to provide 50% of the groundwater pumped in the WSRV (ADWR, 1994b). This is primarily due to the historic dewatering of the better water producing UAU in the northern and western portions of the basin. Within most of WVBSA, the MAU is considered a poor producer of water and even an aquitard. Large scale average K_H values for the MAU were estimated at 4 to 60 ft/d by Brown and Pool (1989) but may be at least two orders of magnitude lower in areas composed predominantly of silt and clay. Where intercepted by wells, most water production from the MAU is probably from thin zones or lenses of coarser grained material. Near the Luke Sink, an area of significant pumpage and corresponding groundwater decline located northwest of the WVBSA (Figure 2), fine-grained portions of the UAU and MAU have been dewatered to the point that irreversible land subsidence has occurred. This has not occurred within the WVBSA.

3.2.3 Lower Alluvial Unit

Only a few wells are completed into the LAU and as a result much less is known of the LAU's physical properties. The USGS divides the LAU into a lower portion (LLAU) and an upper portion (ULAU) (Brown and Pool, 1989). The unit is generally fine-grained with coarse-grained deposits being more prevalent in the LLAU and the basin margins. The coarse-grained deposits are typically poorly sorted with carbonate cement reducing porosity. The total basin fill thickness within the WVBSA is at least 2,000 feet. A drillers log from an industrial water supply well located at the West Phoenix Power Plant (A [1-2] 9cbc) owned by Arizona Public Service (APS) indicates alluvial material to a depth of at least 1,942 feet. Similar information is provided from three Roosevelt Irrigation District (RID) wells with the study area which are approximately 1,800 feet deep. Based on the data that are available, the LAU generally consists of partially or fully cemented conglomerates, which grade toward finer grained playa and evaporitic deposits toward the center of the basins . The LAU is coarser grained than the MAU, with grain size distributions more like the UAU. Like much of the MAU, the LAU is interpreted to have been deposited in a subsiding closed basin environment, with very coarse grained alluvial fan deposits on the periphery which grade to fine grained playa and evaporite deposits near the center of the basin. The unit may also contain interbedded volcanic rocks. In the western part of the WVBSA, near the Luke Sink, the LAU is as much as 10,000 feet thick.

Hydrologically, the LAU is more homogeneous than the UAU with coarser-grained material predominant. The high degree of cementation found in the LAU lowers its primary porosity and permeability. Good water producing zones may be in areas with well developed secondary permeability (i.e., open fractures). There are only 11 registered wells within the WVBSA that are screened into the LAU (see Section 5.1.1 for a listing). Six of these are irrigation wells which are screened within all the units and five are industrial wells screened solely in the LAU and used to supply cooling water. Specific capacity (SC) data from a 1,789 foot deep well at the West Phoenix Power Plant and screened solely in the LAU suggested a K_H value of approximately 3 ft/d (using the SC x 2000 = transmissivity method). This is expected to be lower than the true aquifer permeability due to the probable low efficiency of the well. Brown and Pool (1989) estimate a range for K_H of 3 to 9 ft/d for LAU sediments which range from 50 to 90% sand and gravel. This low range of values for a coarse-grained material reflects the degree to which cementation lowers the hydraulic conductvity.

3.2.4 Red Unit

The Red Unit has been identified at numerous locations in the SRV and is exposed at numerous locations in the East SRV. The Red Unit is composed of several geologic units that pre-date the formation of the fault block basins. These units locally include the Camelshead Formation, the Tempe Beds, and other unnamed units. Based on geologic core samples, these units may include well-bedded siltstones to claystones; a well-cemented, coarse-grained sandstone; and poorly cemented conglomerates. Because of the Red Unit's adjacent locale in the stratigraphic column and similar hydrogeologic properties, ADWR included the Red Unit as part of the LAU for a large, regional-scale

groundwater flow model developed for longterm water supply evaluations. The unit, in general, is not present in the WSRV and therefore is not considered in this study.

3.2.5 Crystalline Bedrock Unit

The crystalline bedrock is exposed in the basin bounding ranges which surround the SRV and may include volcanic rocks, granitic rocks or schists/phyllites. The low hydraulic conductivity of these rocks makes an effective barrier to groundwater flow. Within the WVBSA there are no locations where crystalline rocks outcrop or are present at a shallow enough depth to be included in the flow system. The closest surface occurrence of crystalline bedrock is in the South Mountains located approximately three miles south of the Salt River.

3.3 Regional Hydrogeology

This section describes the regional changes or trends in groundwater levels and groundwater flow directions. The hydrogeologic stresses which have caused or which drive these changes are discussed in detail in Section 3.4.

3.3.1 Groundwater Levels

Within the WSRV the longterm regional trends in water levels are dependent upon the amount of precipitation received both in the immediate region and in the mountains which drain into the series of lakes along the Salt River to the east of Phoenix. Operated by the Salt River Project (SRP) these lakes are used to generate hydropower and to provide water to agriculture and municipal entities. The relationship between precipitation and groundwater levels occurs because irrigation water for most of the agriculture in the WSRV is provided from three sources; groundwater pumpage, surface water provided from the SRP canal system, or precipitation. Years with high precipitation can reduce the amount of pumpage both by providing a natural source of irrigation water and by ensuring that the maximum amount of surface water is available for delivery by the canal system. An analysis of annual pumpage, in particular by SRP wells, clearly illustrates the inverse relationship between precipitation and pumpage. This is discussed further in Section 6.4.2.

Over much of the WSRV, groundwater levels began a steady decline in the 1950's in response to increased pumpage for irrigated agriculture. This decline continued until the mid-1960's when heavy precipitation resulted in large flows in the Salt River which provided recharge and decreased pumpage. In general, water levels continued to rise until approximately 1970 when a gradual decline began. During the 1970's and early 1980's large river flow events in the Salt River occurred in 1973, 1978, 1979, and 1980, once again providing recharge and generally decreasing pumpage. In the 1970's, pumpage volumes decreased as agricultural land began to be retired and be replaced by industrial and residential uses. A decrease in pumpage was also observed following passage of the Groundwater Management Act in 1980 which placed certain restrictions on pumpage and the drilling of new

irrigation water supply wells. These factors combined to produce an overall water level rise. Overall from the early 1960's to the late 1980's, regional water levels rose from 40 to 60 feet within the WVBSA.

3.3.2 Groundwater Flow Directions

Historically, groundwater flow in the WSRV has flowed to the west toward the basin exit between the Sierra Estrella and White Tanks mountain ranges (Figure 2). Presently, and since the 1960's, the generalized groundwater flow direction is either toward the basin exit or to the northwest toward the Luke Sink. The Luke Sink is an area where extensive groundwater pumping for agriculture since the 1950's has resulted in a deep and regionally extensive groundwater cone of depression (Figure 2). This area of large groundwater level declines is of such a magnitude that it controls regional groundwater gradients for much of the central and northern portions of the WSRV, including the WVBSA. Within the WVBSA, groundwater levels and flow directions can vary widely on a seasonal basis because of the extensive network of wells which pump large quantities of groundwater for agriculture on a seasonal basis. Within the WVBSA, groundwater declines of as much as 25 feet and groundwater flow direction changes of 180 degrees can occur in response to heavy summer pumping. Understanding the impact of pumpage on local groundwater flow directions is a major goal of this modeling work.

3.4 Hydrogeologic Conceptual Model

The regional HCM consists of an alluvial aquifer system composed of three major hydrostratigraphic units, in descending order; the UAU, MAU, and the LAU. On a large-scale these hydrostratigraphic units have relatively distinct characteristics which permit their differentiation. On the more local-scale these units are likely composed of numerous sub-units or zones of widely varying hydrologic properties resulting from different types or episodes of alluvial deposition. Investigators have used different criteria to differentiate between the alluvial units in the WSRV. In general, the approach used for this investigation is similar to that used by the USGS (Brown and Pool, 1989).

As described in Section 3.2, the UAU is predominantly a coarse-grained deposit, the MAU a fine-grained deposit with thin coarse-grained zones or stringers, and the LAU a well-cemented, coarse-grained deposit. Groundwater pumpage in much of the WSRV, and in the WVBSA in particular, is believed to come predominantly from the generally coarse-grained, highly permeable UAU which consists of material composed largely of sand, gravel, and boulders, with minor amounts of silt. Based on available well logs, within the WVBSA this highly productive portion of the UAU extends areally from approximately just north of McDowell Road on the north to at least the present day Salt River on the south. This unit is theorized to have been deposited by the historical Salt River channel as it meandered to the north (and probably south) of its present location. The vertical extent of this predominantly coarse-grained unit is typically associated with the bottom of the UAU and extends to depths of approximately 350 to 500 feet bgs within the WVBSA. Most of the pumpage in the WVBSA is by the RID's large irrigation wells that are typically 400 to 500 feet deep with perforated zones extending from 100 or 150 feet bgs to the bottom of the well. Pumping rates are typically 2,000+

gallons per minute (gpm) and can be as high as 7,000 gpm. Most of the pumping occurs during the summer irrigation season.

Groundwater recharge in the basin is primarily composed of excess applied irrigation water, canal leakage, and river flow, including wastewater effluent which is discharged to the Salt River. The recharge from excess irrigation water and canal leakage has generally declined from historic levels as agricultural land is developed and canals are lined. Irrigated agriculture occurs over a large portion of the western WVBSA. Within the WVBSA, excess irrigation water along with leakage from the major canals and the smaller canal laterals provide a fairly consistent source of recharge. Immediately south of the WVBSA relatively large volumes of recharge are input along the Salt River channel from treated effluent and flood flows. Recharge from treated effluent is smaller in volume but consistent, while, recharge from flood flows can be very large but is sporadic. Detailed information on both recharge and pumpage in the WVBSA is provided in Section 6.4

In the WVBSA north of McDowell Road there is no obvious stratigraphic division between the UAU and the MAU. The depth to the regional water table steadily increases moving north of McDowell Road and is typically 150 to 250 feet bgs. The saturated zone is largely composed of finer-grained deposits and therefore, irrigation supply wells are usually drilled deeper with longer perforated intervals. Most of the groundwater pumped north of the WVBSA is by SRP irrigation wells. A typical SRP well design is 700+ feet deep and has perforations from approximately 250 to 700+ feet bgs. These wells are still capable of pumping more than 1,000 gpm, but water production is considered to be predominantly from thin, coarse-grained zones interlayered with the fine-grained deposits.

Few well logs and limited aquifer property data are available for the LAU. However, this is not considered a major data deficiency regarding development of the HCM because so few wells are completed into the LAU and so little groundwater is extracted from this unit. Available data indicates the LAU to be composed of well-cemented, relatively coarse-grained material.

Based on the available information the total thickness of the alluvial system is at least 2,000 feet thick. However, based on aquifer properties and well completion depths only a small percentage of the groundwater pumpage is believed to come from a depth greater than approximately 500 feet in the WVBSA and greater than 800 feet to the north and west of the WVBSA.

4.0 OVERVIEW OF GROUNDWATER FLOW MODELING

This section provides a brief introduction to the modeling process and how this process was applied to this investigation. This section also discusses the phased approach utilized to reduce the vertical extent of the model domain.

The initial task in developing a groundwater flow model is defining the goals or objectives of the modeling. This decision greatly influences the size and complexity of the model. The primary goal of developing a groundwater flow model for the WVBSA was to evaluate the complex hydraulic (pumpage) and hydrologic (recharge) stresses which were known to occur within the WVBSA and their effect on groundwater gradients, flow direction, and velocities. Upon defining the modeling goals, a review of existing data and the development of the HCM was conducted. Completion of this task greatly influences the model domain and the level of defensibility that the model will contain. In addition, based on the HCM and overall goals of the project, the direction and level of additional site characterization or data collection can be guided.

4.1 Modeling Approach

As described in Section 3.4 very little groundwater pumpage is believed to occur from the LAU and most of the MAU. This, in turn suggests that there is a low likelihood for surface-based groundwater contamination to have migrated into these units. Based on this observation, it was thought desirable to limit the depth of a groundwater flow model to the depths where most of the groundwater is produced from and which are most likely to be impacted by contamination. To provide quantitative backup for this method approach, a two phase modeling program was conducted. Phase 1 was a relatively coarsely discretized, three-dimensional (3-D) steady-state flow model which included only stresses due to pumpage from the LAU. The purpose of this model was to investigate the effect of pumpage from the lower part of the MAU and the LAU on vertical hydraulic gradients within the upper MAU and UAU. It was theorized that the minimal pumpage from the deeper units would not be capable of causing groundwater contamination from the UAU to migrate down into the MAU or LAU. Therefore, any contamination that may be detected in wells completed in the MAU or LAU is presumed to have migrated down a deep well that is perforated across multiple units or through an improper well seal. Based on the results of the Phase 1 modeling effort, the Phase 2 model was developed as a detailed 3-D groundwater flow model of the UAU and upper portion of the MAU. The Phase 2 model could then be developed to evaluate past, present, and possible future groundwater flow conditions. Phase 1 and Phase 2 are described in detail in Sections 5.0 and 6.0, respectively.

Two types of simulations can be employed for modeling groundwater flow, steady-state flow or transient flow. Steady state groundwater flow modeling presumes that water level conditions are static, i.e. not changing over time. This condition, therefore also implies that there is no net change in aquifer storage. If sufficient data are available, and steady state conditions can be identified, it is preferable to

initially conduct a steady state simulation to better define the aquifer's hydraulic conductivity. Under these conditions, aquifer storage terms are not included, so model calibration is confined to adjusting hydraulic conductivities or stresses. Steady-state conditions are assumed to have existed for pre-development conditions in the SRV. However, significant groundwater pumpage began in the WSRV as early as the 1920's with intensive groundwater extraction for agriculture beginning in the 1950's with the post-war agricultural expansion. The absence of static conditions are evident from the substantial net declines in water levels in many parts of the SRV since the 1950's. Because insufficient data are available for the pre-development period, steady state modeling was not possible for the study area. For this reason, the WVBSA modeling was conducted as a series of transient model simulations.

An additional decision regarding the modeling approach is whether to conduct a one (1-D), two (2-D), or 3-D simulation. The groundwater flow systems in the SRV aquifers are known to be both horizontally and vertically heterogeneous. Vertical groundwater gradients are known to exist, caused by hydrogeologic contrasts, groundwater pumpage from different zones within the saturated column, and recharge. This scenario was applicable for both the Phase 1 and Phase 2 modeling. For these reasons the development of 3-D groundwater flow models were determined to be both appropriate and necessary to provide the level of understanding desired for the modeling objectives.

4.2 Groundwater Flow Equation

The mathematical partial differential equation which must be solved to simulate the conceptual groundwater flow system described in Section 2.0 is as follows:

$$\frac{\partial}{\partial x}(K_x \frac{\partial h}{\partial x}) + \frac{\partial}{\partial y}(K_y \frac{\partial h}{\partial y}) + \frac{\partial}{\partial z}(K_z \frac{\partial h}{\partial z}) \pm R = S_S \frac{\partial h}{\partial t}$$

Where: K is hydraulic conductivity

h is hydraulic head

R is sources and sinks (i.e. groundwater pumpage or recharge)

S_s is specific storage

The groundwater flow equation states that the change in hydraulic head and groundwater storage in a specified volume of the aquifer in a specified unit of time is dependent on the 3-D hydraulic conductivity and the 3-D change in hydraulic head of that volume of aquifer in the same period of time plus any groundwater additions or subtractions (e.g., recharge or pumping). With groundwater flow computer models, the equation is rearranged such that the value for hydraulic head at a specific location in the aquifer at a specific time is what is solved for. With regards to this conceptual model, the equation can be restated as: the value for hydraulic head at any point in the aquifer system at a specified point in time is dependent on the aquifer values for storage and for vertical and horizontal hydraulic conductivity, the system inputs from groundwater recharge (from various sources), the

system outputs from pumpage, and the flux of groundwater across the model boundaries. Based on this equation, the input parameters necessary to mathematically represent and simulate the conceptual model for the study area are:

- the horizontal and vertical hydraulic conductivity of the aquifer material;
- the storage properties of the aquifer material;
- the spatial geometry of the aquifer(s);
- the location and magnitude of the aquifer stresses (recharge and pumpage); and
- the flux of groundwater into or out of the model across the model boundaries or the value of hydraulic head at all times along the model boundary.

Because of the inability to ever fully characterize a hydrogeologic system, various simplifying assumptions, in regards to aquifer/aquitard geometry and the degree of aquifer heterogeneity, are necessary to simulate the system. However, the use of a computer-based numerical model greatly reduces the number and type of assumptions needed and allows the hydrogeologist to develop a more realistic mathematical model of the hydrogeologic system.

4.3 Computer Code

The USGS 3-D groundwater flow computer code, MODFLOW, was selected for conducting the groundwater flow modeling. The thick sequence of alluvial deposits in conjunction with the complex groundwater hydraulics caused by the abundance of differentially completed pumping wells in the study area, dictated that a modeling code capable of simulating 3-D groundwater flow be utilized for this project. The MODFLOW code was selected because of its ability to simulate the necessary complexities but also its presence in the public domain and its widespread use and acceptance by both environmental consultants and the regulatory community. Additionally, numerous pre- and post-processing packages which facilitate the construction of model input files and the graphical presentation of output files have been developed for use with MODFLOW. The MODFLOW output files can also be utilized with numerous post-processing software packages to conduct particle tracking and contaminant transport modeling.

4.3.1 Theoretical Basis

The MODFLOW code solves the groundwater flow equation simultaneously for a set of "nodes" or cells. These cells are defined in plan view by a rectilinear grid, which is composed of a number of rows and columns, depending on the requirements of the simulation. Each cell represents a block of aquifer material, with appropriate hydrologic and spatial (area and thickness) parameters assigned. For this reason, cell boundaries are defined such that variations in hydrogeologic parameters can be most effectively simulated. Vertical changes in hydrogeologic properties or system stresses are simulated by defining separate model layers, each composed of an areally identical grid. In this way, an aquifer can be modeled as a series of individual blocks, with hydrogeologic properties and/or aquifer stresses, such

as pumpage or recharge assigned for each block (or cell). Using the MODFLOW code, the value for hydraulic head can then be iteratively solved for each block, based on the stresses applied. Further details regarding flow model simulation can be found in the USGS Water Resource Investigation paper by McDonald and Harbaugh, *A Modular Three-Dimensional Finite-Difference Ground-Water Flow Model, Book 6* (McDonald and Harbaugh, 1982).

4.4 Model Implementation

The MODFLOW code utilized for this investigation employs a series of input files that describe the stress period and time step lengths, aquifer geometry, hydraulic properties, breakdown of aquifer stresses and options for file output. The files or "packages" used in this simulation included the Basic (BAS) package, the Block Centered Flow (BCF) package, the Well (WEL) package, the Recharge (REC) package and the General Head Boundary (GHB) package. The BAS package includes a definition of the model grid (in plan view), time steps and stress periods and initial head values for each cell. The BCF package includes a definition for cell thickness, elevation and hydraulic properties. The REC and WEL packages describe stresses for each stress period for recharge and wells. The GHB package defines the flux of water into and out of portions of the model boundary, with regard to the value of head in these boundary cells. Each package consists of an input file, formatted to be read by the MODFLOW code.

Because of the difficulty and time-consuming nature in constructing large model input files directly, an automated method of file creation was designed. As noted previously, the MODFLOW code requires various input packages to describe the properties of each simulation, which included the BCF, WEL, GHB and REC packages for this project. Each of these files were physically too large to create by direct file editing, so computer programs using FoxPro™ databases were created to build these files. Separate data tables of aquifer properties for each cell, general head boundary parameters for each layer and stress period, well pumpage by stress period (and by layer), and recharge rates for each stress period were constructed. Each of the MODFLOW input files was then created through the use of an associated computer program. These programs copied the relevant data from each data table into files with the correct format for input into MODFLOW. Copies of these programs are provided in Appendix A.

The MODFLOW code utilized for this project was provided by S.S. Papadopulos and Associates as part of the MT3D™ contaminant transport modeling software package. This version of the MODFLOW code was modified by HLA to include the Synthetic Hydrograph (SHY) package (Plato, 1993). This add-on package has no effect on the MODFLOW solution process. This package copies the model calculated hydraulic head value for user-specified row, column and layer nodes to a separate output file. These simulated hydraulic head values can then be compared with measured water levels for wells near these nodes. Further details regarding this MODFLOW add-on package are provided in the article cited above.

5.0 PHASE 1 MODELING

The scope of the Phase 1 model was borne out of the data review for the development of the regional HCM. Because of the presence of pumping wells in the LAU within the WVBSA it was thought that a groundwater flow model designed to evaluate the advective transport of contaminated groundwater may have to extend vertically to include the LAU. In addition, previous water supply models developed by state and federal agencies had always included some portion of the LAU within the model domain (Long et al, 1982, and Corkhill, et al, 1994). However, the initial data review identified various hydrogeologic features that suggested that only the UAU and possibly the upper portion of the MAU were important with regards to the transport of contaminated groundwater. These features included: 1) the UAU was the most permeable portion of the hydrostratigraphic column over the entire WVBSA, and the UAU is the primary unit for groundwater pumpage; 2) over most of the WVBSA the MAU is a fine-grained unit at least 200 feet thick which is regarded by many investigators as an aquitard; 3) most of the production wells within the WVBSA are completed within the UAU or the upper portion of the MAU; and 4) based on the assumed low permeability and the small number of wells screened within the LAU, very little groundwater is extracted from the LAU. Due to these features, a semi-quantitative method to defend the development of a model which did not simulate the LAU and much of the MAU was desirable.

The purpose of the Phase 1 model was to provide quantitative support for limiting the modeled vertical extent of a subsequent Phase 2 model which would be much more complex in its ability to simulate both aquifer properties and aquifer stresses. This was to be accomplished by demonstrating that any hydraulic head decline which has or likely will occur in the deeper alluvial aquifer system (the lower part of the MAU or the LAU), whether from pumpage by wells screened solely in these units or wells whose screened intervals includes these zones, has not nor will not be likely to create a vertical gradient sufficient to move contaminated groundwater from the shallow alluvial aquifer system into the deeper alluvial system. This hypothesis was not designed to account for any groundwater contamination which may have been "short-circuited" into the deeper alluvial system through a wellbore, a well gravel pack, or an improperly sealed well. The Phase 1 modeling was accomplished through the development of a relatively simple, worst case model and simulating a 30 year time period.

5.1 Phase 1 Model Development

In order to examine whether the groundwater pumping which has occurred in the WVBSA for the approximate period of 1960 through 1990 may have induced groundwater movement from the UAU into the LAU, a numerical model which utilizes realistic hydrogeologic data combined with a "worst case" hydrologic scenario was developed. By realistic hydrogeologic data it is meant that hydrogeologic layer thicknesses and aquifer properties were honored based on information obtained from Brown and Pool, (1989), available well logs, and aquifer test data. By a "worst case" hydrologic scenario it is meant that the only aquifer stress considered was groundwater pumpage that was believed to have come from

the LAU. No recharge was included in the simulation and no model boundary subflow was included either into or out of the model. The model boundaries were all made no-flow type boundaries. The model was essentially made a "bathtub" with no groundwater inflow occurring. Only outflow in the form of pumpage from the LAU was simulated. Using this approach, any hydraulic head changes in the upper or middle model layers is attributable to groundwater moving from the upper layer or middle layer into the layer directly below it.

The Phase 1 model domain is presented on Figure 3. This model domain was developed based on the projected Phase 2 HCM and the details surrounding it's areal extent are described in Section 6.2. The model boundary domain was largely determined based on Phase 2 boundary conditions, which are discussed in Section 6.3. For the purposes of the Phase 1 goals, the model domain could have been smaller, but for efficiency in data review and data management, similar model domains were used for both the Phase 1 and 2 simulations. The Phase 1 model was constructed as a three layer model with a finite difference grid consisting of uniform cells one-half mile on a side. The model hydrogeologic properties were based on the four layer alluvial system described in Brown and Pool (1989). This system consisted of the UAU, MAU, and a subdivision of the LAU, the Upper Lower Alluvial Unit (ULAU), and the Lower Lower Alluvial Unit (LLAU). The four layer USGS system was converted into the three layer model system by combining adjacent units where they had generally similar properties based on the percent sand and gravel maps provided in Brown and Pool (1989). Where layers were combined that did not have similar hydrologic properties, a weighted average was computed.

The LAU was only considered to a total depth of 2,000 feet in the model. This maximum depth was selected because the deepest registered well which extracts groundwater on a semi-routine basis is 1,972 feet deep. Ignoring water bearing deposits below 2,000 feet acts to increase the magnitude of drawdown in the LAU and is consistent with the concept of a worse case scenario. The actual thickness used in the model was determined using Figure 3 in Brown and Pool (1989). The data has been tabulated by Township, Range and Section, and is included as Table 1. In general, the model thickness varies from less than 500 feet in the southeast corner to 2,000 feet north of the Salt River.

The thickness and percent sand and gravel of each unit were also determined directly from figures provided in Brown and Pool (1989), and are tabulated in Table 1. As mentioned above, the K_H values for the three model layers were based predominantly on the percent sand and gravel maps provided in Brown and Pool (1989) but also on some limited drillers logs and specific capacity test results. It is clear that solely using percent sand and gravel to estimate K values is very subjective, and what is ideally needed is the total grain size analysis. However, this approach was utilized by the USGS and is

believed to be the best approach available. Estimates of maximum K_H values for each unit, published in Brown and Pool (1989) are as follows:

UAU - 180 to 1,700 ft/d
MAU - 4 to 60 ft/d
ULAU- 3 to 25 ft/d
LLAU - 6 to 9 ft/d

These values are considered large-scale averages as smaller, individual zones could have higher or lower values.

The quantitative relationship between percent sand and gravel and horizontal hydraulic conductivity developed by the USGS were as follows:

UAU - none established due to the small sample size and lack of any definite trend
MAU - K_H ranged from 4 to 60 ft/d for sediments ranging from 28 to 62%. However, the correlation coefficient was too low to develop quantitative relationships.
ULAU - K_H equals 2 to 10 ft/d for sand and gravel <40%, K_H equals 10 to 20 ft/d for sand and gravel ≥40% values.
LLAU - K_H ranged from 6 to 9 ft/d for sediments ranging from 50 to 90% sand and gravel. K_H in this unit appears to be dependent more on secondary permeability than percent sand and gravel.

The values used in the Phase 1 model, in general, fall into the ranges given above. For the UAU, the values utilized were based on a combination of available hydraulic test data, analysis of well logs, and aquifer property data developed by the ADWR for their regional modeling effort (Dave Carr, personal. commun., 1991). Values ranged from 50 to 250 ft/d. For the MAU, a relatively good relationship was developed for K_H being equal to 10 ft/d for material with 20 to 40% sand and gravel. For material with greater than 40% sand and gravel, K_H was uniformly increased to 20 ft/d. For percent sand and gravel less than 20%, no data were available. It was assumed that no wells were completed in this material because of the preponderance of fine-grained material. A K_H value of 0.1 ft/d was assigned to this material. A complete listing of the aquifer properties and layer thicknesses used in the model input files is attached as Appendix B.

The MODFLOW model does not use K_V values directly, but rather a parameter called vertical conductance (VCONT). VCONT is a term which when multiplied by the hydraulic head difference between two vertically adjacent cells determines the rate of groundwater flux between the two cells.

However, VCONT, which must be calculated by the modeler, does incorporate a K_v value through the following formula:

$$VCONT = \frac{2}{\frac{b_u}{K_{vu}} + \frac{b_L}{K_{vL}}}$$

where:

b_u = saturated thickness of the upper cell

b_L = saturated thickness of the lower cell

K_{vu} = vertical hydraulic conductivity of the upper cell

K_{vL} = vertical hydraulic conductivity of the lower cell

Estimates for K_v were determined using a ratio for K_H/K_v. A ratio of 20 to 1 was used for the sand and gravel deposits based on studies conducted on similar material (Bouwer, 1984). A ratio of 1 to 1 was used for the fine-grained deposits based on information in Freeze and Cherry (1979).

Aquifer storage properties were estimated in different ways for the different materials. Cells in model layer 1 were given estimates of specific yield (S_Y). Cells in layers 2 and 3 were given estimated values for storage coefficient (S_C) which is equal to specific storage (S_S) multiplied by the aquifer thickness (b). Both S_Y and S_C are dimensionless parameters. S_S has units of 1/feet (ft^{-1}). A detailed explanation for all of the storage related terms is provided in Section 6.4. Estimates for S_C are commonly obtained from aquifer tests conducted in confined aquifers. These data were either unavailable or the quality of results were questionable. Therefore, estimates for S_C were made using literature based estimates for S_S and the layer thickness. For the coarse-grained material an estimate of 1E-6 ft^{-1} was used. For the fine-grained material an estimate of 1E-4 ft^{-1} was used. These estimates were based on work conducted by the USGS on similar types of material in Avra Valley, Arizona (Hanson, 1989). These values were than multiplied by the layer thickness to obtain an estimate for S_C. An S_Y value of 0.12 was uniformly applied to layer 1 cells. This was based on the results of previous water supply numerical modeling conducted by ADWR (E. Nemecek, personal commun.).

5.1.1 Pumpage

Based on data collected from the ADWR there are a total of eleven registered wells within the WVBSA which are completed into the LAU. A table with the available well completion information is presented below.

Well Location	Owner	Year Drilled	Total Depth (in feet)	Perforated Depth(s)	Estimated Depth in feet to the Top of LAU
A(1-1) 14bab2	B&T Farms	1985	1445	445-518 1133-1445	1275
A(1-2) 9cbc	RID	1966	1800	180-1770	1250
A(1-2) 9cdb	APS	1977	1800	1218-1800	1250
A(1-2) 9dac	APS	1948	1793	unknown (assumed 1130-1793)	1250
A(1-2) 9dbb	APS	1948	1820	1150-1820	1250

Well Location	Owner	Year Drilled	Total Depth (in feet)	Perforated Depth(s)	Estimated Depth in feet to the Top of LAU
A(1-2) 9dcc	APS	1949	1942	1200-1942	1250
A(1-2) 9ddd	APS	1979	1809	1129-1800	1250
A(1-2) 11cbc2	RID	1965	1800	180-1800	1000
A(1-2) 14cda3	RID	1966	1800	unknown (assumed 200-1800)	825
A(1-2) 17add	RID	1965	1800	185-1790	1250
A(1-2) 24bbb	RID	1966	1675	200-1675	800

Pumpage rates for these wells were input into the model based on data submitted to ADWR for the 1984-1990 time period. Starting in 1984, pursuant to the Groundwater Management Act of 1980, well owners were required to submit annual pumpage volumes to the ADWR. The average annual pumpage for this time period for each well is listed below:

Well Location	Average Withdrawal in acre-feet per year	Percent Attributed to the LAU (Model Layer 3*)
A(1-1) 14bab2	4	30
A(1-2) 9cbc	2250	6
A(1-2) 9cdb	276	100
A(1-2) 9dac	52	100
A(1-2) 9dbb	303	100
A(1-2) 9dcc	147	100
A(1-2) 9ddd	232	100
A(1-2) 11cbc2	2011	15
A(1-2) 14cda3	4429	18
A(1-2) 17add	2932	9
A(1-2) 24bbb	3605	12

* - the percent of pumpage attributed to layer 3 was calculated based on the percent of well screen in and the hydraulic conductivity of layer 3 relative to the hydraulic conductivity and well screen length of the entire well.

The average withdrawal, listed above, was assumed to be the withdrawal rate for the entire 30 year (1960 through 1989) simulation period. For wells that were installed after 1960, pumping was initiated at the appropriate time. Because all of the wells located in the "d" quarter section of A(1-2) 9 were in the same model cell, their pumpage was combined in the simulation.

5.2 Phase 1 Results

The pumpage from model layer 3, which represented the LAU, imposed little impact on hydraulic head values in model layer 1. This was expected because of the minimal groundwater extraction from layer 3, relative to storage, and the thick low permeability zone represented by layer 2 around the pumping wells.

The results are most easily shown graphically in looking at the changes in hydraulic head in each of the three model layers. As presented in Figure 3, the pumping from layer 3 resulted in maximum drawdown of seven feet in layer 1. Pumping from layer 3 resulted in maximum drawdown of nine feet in layer 2 (Figure 4), and a maximum drawdown of 18 feet occurred in layer 3 (Figure 5), the layer from

which pumpage was extracted. As can be seen, the area of maximum drawdown was in A(1-2) section 9, which had the greatest concentration of deep pumping wells.

To evaluate the vertical movement of a particle of water in layer 1, in response to the pumping of groundwater in layer 3, a 3-D particle tracking program (PATH-3D by S.S. Papadopoulus Inc.) was used. Using the changes in hydraulic head in conjunction with porosity values, this program calculates groundwater flow velocities and directions. These groundwater flow vectors are then used to evaluate the movement of a particle of groundwater by advective transport. For this exercise, a particle of water was placed 10 feet below the water table at the start of the simulation in the northeast quadrant of Township 1 North, Range 2 east, Section 9 (A(1-2) 9A). The net movement of the particle at the end of the 30 year simulation was 1350 feet to the southeast and approximately 2.5 feet downward. A vertical cross-sectional particle track is displayed as Figure 6.

These results, when considered with the fact that this simulation was set up to be a worst case scenario, indicate that pumpage from the LAU will not cause natural migration of contaminated groundwater from the UAU into the LAU.

6.0 PHASE 2 MODELING

Based on the results of the Phase 1 modeling, the Phase 2 modeling effort was refined to include the detailed analysis of groundwater flow conditions in the UAU and portions of the MAU that are being actively pumped. Although the same model domain was used, the Phase 2 modeling utilized a much more refined model grid and vertical discretization. Details on all facets of the model decision-making process and input parameters are provided in the following sections.

6.1 Sources of Data and Data Quality

A list of regional and site-specific sources of data used in developing the HCM were listed in Section 3.1. Of particular importance in constructing the Phase 2 model were the following:

- ADWR Groundwater Site Inventory (GWSI) Water Level Database;
- ADWR Registration of Grandfathered Rights (ROGR) reported well pumpage;
- Well-specific pumpage obtained from ADWR 1972-1977 modeling effort archives;
- Well logs (drillers, geologist, and grain-size) from the ADWR historic well registration data files, the USGS, and the ADWR 1972-1977 model effort archives;
- Aquifer test data and results from the files of the USGS; and
- Technical memos prepared by members of the ADWR Modeling Group.

Additional information and recommendations regarding the general hydrogeology and computer modeling of the area of concern was provided through numerous conversations with Messers. Dave Carr, Frank Corkhill, and Brad Hill of the ADWR, and Mr. Don Pool of the USGS.

Overall, the quality of the measured and reported data, such as water levels and pumpage volumes are considered good as both the ADWR and the USGS have well documented protocols on data collection and management. However, these data are only accurate to within the accuracy of a measuring device or appurtenant parameters (e.g., if a water level measurement is not referenced to a surveyed elevation, the measured elevation will only be accurate to the level of accuracy that the elevation can be estimated). Calculated data such as aquifer properties and recharge rates are typically subject to greater error and therefore, the level of accuracy is highly dependent on the method of collection and the proficiency of the person conducting the test or calculation. Sources of error can come from inaccurate measurements or inappropriate methods of calculation. Once again, all of these types of data used in developing the model was obtained from agencies or personnel (ADWR, USGS, and SRP) with protocols in place to ensure proper measurement, testing, or calculating of data. Data or parameter estimates made by HLA in the development of the model are described in the individual sections.

6.2 Model Domain

The Phase 1 and Phase 2 model domains which are areally equivalent were previously presented in Section 5.0 (Figure 5). As can be seen on Figure 5, the model domain extends from 7th Street to 99th Avenue, and Camelback Road to Elliot Road. Besides the desire to keep the model domain as small as was technically possible, the initial goals in selecting model boundaries were 1) include all aquifer stresses which may affect groundwater flow within the WVBSA; and 2) utilize hydrologically defensible boundaries (i.e., bedrock or streamline no-flow or constant head) if possible. Details on the model boundary types are discussed in Section 6.2.3. The geographic boundaries were chosen based on the following:

East: The eastern model boundary was chosen at 7th Street because it is one mile east of the eastern boundary of the WVBSA and because it is in a north-south trending zone of minimal groundwater pumping. Being in an area with minimal pumping means water levels are probably relatively static and thus, groundwater fluxes across the boundary will be relatively consistent.

West: The western boundary was chosen at 99th Avenue because of the desire to include the City of Tolleson in the simulation. No easily defensible hydrologic boundaries exist close to the western boundary of the WVBSA. Heavy pumping for agriculture and extensive agricultural recharge occur for many miles. As a result, the model was extended far enough to account for ADEQ's concern for groundwater quality impacts to the City of Tolleson groundwater supply.

North: The northern boundary was selected as Camelback Road. Similar to the western boundary, no easily defensible hydrologic boundary exists close to the northern extent of the WVBSA. The rationale behind selecting Camelback Road was that extending the model this far north would include the series of SRP pumping wells along the Grand Canal and could potentially incorporate groundwater contamination associated with the West Central Phoenix WQARF site. The impact of pumping by the SRP wells along the Grand Canal on groundwater within the WVBSA was unknown.

South: The southern boundary was selected at Elliot Road. Although this distance is much further south than would appear necessary, this was done to include the Salt River along the east-west extent of the model and to incorporate as much of South Mountains as possible as a no flow boundary.

6.2.1 Model Grid and Lateral Discretization

To more accurately simulate the natural heterogeneity of a hydrogeologic system, the aquifer system to be modeled is subdivided into discrete zones (squares and/or rectangles in 2D or cubes in 3D) for which

aquifer properties and stresses are defined. The groundwater flow equation is then simultaneously solved for each of these discrete zones or cells. The discretization of the modeled area is defined horizontally by the model grid and vertically by the model layers. The level of discretization is normally determined by the modeling goals, the amount of field-based (i.e., measured) model input data, and the spatial distance between data points, in particular, water level measurements or pumping wells.

The model grid was aligned in a north-south/east-west orientation. The two factors which determine the grid orientation are the principal horizontal direction of groundwater flow and, if known, the orientation of the principle directions of anisotropy (i.e., the directions in which the overall maximum and minimum values for horizontal hydraulic conductivity (K_h maximum and K_h minimum). The principle direction of groundwater flow in the WSRV is either from east to west or southeast to northwest. The principle directions of K_H anisotropy are thought to be crudely east-west (K_H maximum) and north-south (K_H minimum). These are theorized based on the fact that the east to west flowing Salt River deposited much of the alluvium at the Site.

For this model, the major factors which determined the grid discretization were the spacing of the major pumping wells and the size of PRP facilities and/or potential source areas. The RID wells are typically located approximately every one-half mile along the RID canal; and along Van Buren Street. Using these criteria a minimum cell size of 500 by 500 feet was used. Because the model boundaries had been expanded a relatively large distance outside the WVBSA, an irregular grid, with model cells becoming larger toward the boundaries, was developed to reduce computational time (Figure 7). As Figure 7 illustrates, the zone of finest discretization (500 feet by 500 feet cells) extended from approximately 35th Avenue to 59th Avenue and from Van Buren Street to Lower Buckeye Road. This area was chosen to include most of the WVBSA and the RID wells within the WVBSA. Moving away from this area the grid spacing was gradually increased in all four compass directions. A general rule of thumb when constructing finite difference model grids is that cells should not differ in width or height by more than a factor of 1.5 than an adjacent cell (i.e., if a model cell is 500 feet wide the adjacent cells should not be less than approximately 300 feet or more than approximately 750 feet wide) (Anderson and Woessner, 1992). Following this guideline helps to reduce the numerical dispersion which is inherent in solving the finite difference equation for irregularly spaced grids. This was utilized in the construction of the model grid. The final horizontal grid dimensions of the model grid were 79 columns by 57 rows, resulting in 4503 cells per model layer. The model cells vary in size from 500 feet by 500 feet to 3400 feet by 2500 feet along the boundary. Additional information regarding the construction of finite difference grids can be found in Anderson and Woessner (1992).

6.2.2 Model Thickness and Vertical Discretization

To calculate the cell volume, and ultimately its groundwater storage capacity, the elevation of the bottom of every cell in each model layer must be defined. Using the layer bottom elevation, in conjunction with the hydraulic head, the computer program calculates the saturated thickness of the

water table layer and the transmissivity (transmissivity equals K_H multiplied by layer thickness) of each non-water table layer.

The results of the Phase 1 model were used to limit the depth of the Phase 2 model. The bottom of the model in each area of the model was based on a combination of: 1) the maximum depth of a major production well; and 2) the depth were the MAU appeared to transition from a reasonably good water producing unit to a poor producing unit (i.e., where it became a predominantly fine-grained unit). The depth suggested by these two factors were generally very similar, as well drillers apparently recognized the decreasing water production capability and stopped drilling at these depths. A good quantity and quality of this type of information is available for the area bounded by 19th Avenue, 99th Avenue, Van Buren Road, and Lower Buckeye Road, and the area adjacent to the Grand Canal. These are areas with numerous RID and SRP wells, respectively. Elsewhere in the model domain the quantity of this information is more sporadic and the defining of a model bottom is not as clear cut.

Ignoring the south-southeastern portion of the model near the South Mountains, general model thicknesses are approximately 500 to 600 feet in the eastern portion of the WVBSA, 600 to 750 feet in the western portion of the WVBSA, and 700 to 800 feet in the northern three miles of the model domain. Areas where data were particularly sporadic or where the delineation of hydrostratigraphic units were difficult to interpret was the east and northeastern edges of the model domain.

6.2.2.1 Vertical Discretization

The defining of model layers required the vertical discretization of the hydrogeologic system from the land surface (actually from the water table) to the model bottom. Approaches or considerations in doing this vary among modelers, and are dependent on the system being modeled and the goals of the model. After a thorough review of well logs and well completion data it was decided to discretize the vertical model domain into four layers. Within the WVBSA, the general observations that formed this decision were based on the thickness of an exceptionally high permeability zone of the UAU, the total thickness of the UAU, and the depth to the top of the perforated zones for many of the irrigation wells. Over most of the WVBSA, a zone which extends from about 50 to 80 feet bgs to approximately 150 to 200 feet bgs is composed largely of cobbles, gravel, and sand and is estimated to have extremely high permeabilities. Most of the older water supply wells in the WVBSA were completed largely in this zone and were perforated starting at about 50 feet bgs (depths to water in the pre-1960's were in the range of 40 to 60 feet bgs). Longterm groundwater declines of approximately 40 to 60 feet, brought on by dry conditions and increasing pumping, and gradually degrading shallow water quality, forced the deepening of these older wells or the drilling of new wells. The "newer" wells were typically drilled to approximately 450 to 600 feet and were perforated from about 150 to 200 feet bgs to their total depth. Based on these observations, the bottom of model layer 1, in the area of the WVBSA, was made to approximately 140 to 200 feet bgs. The bottom of layer 2 was then placed at approximately the base of the high permeability zone of the UAU. This ranged from about 230 to 300 feet within the WVBSA.

The bottom of layers 3 and 4 were generally based largely on hydrogeologic properties. The bottom of layer 3 was placed at the bottom of the UAU. The elevations provided in Brown and Pool (1989) were used as a guide, but these were refined, using drillers logs, to generally occur at the last sign of boulders or gravel, or the first sign of an extensive (40+ feet thick) fine-grained unit. This was approximately 300 to 450 feet bgs. The bottom of layer 4 (or the bottom of the model) was then placed near the depth of the "deepest of the shallow wells" (i.e., the wells completed solely in the UAU or MAU).

Outside of the WVBSA, the logic used above was generally not applicable, usually because of the lack of sufficient data. Based on drillers logs the northern extent of coarse-grained deposits in the UAU is approximately McDowell Road. In the northern three miles of the model domain, the hydrogeology is much less well-defined. In this portion of the model, the layer bottoms were based largely on the depth to water, the seasonal and longterm groundwater fluctuations, well design, and if any areally extensive coarse-grained layers of a substantial thickness (generally 20 feet or more) were observed. In this area, the bottom of layer 1 was typically put at 225 to 250 feet bgs. This was designed so that layer 1 would have a sufficient saturated thickness that it would not dewater during the summer pumping. Layers 2, 3, and 4 were all approximately 150 to 175 feet thick. As stated above, the total model thickness in these areas was generally 700 to 800 feet. This was not based directly on hydrostratigraphy determined from well logs. However, because it was related to the maximum depth of pumping wells, which likely were based on water production, the maximum depths are based indirectly on hydrostratigraphy.

In the southern two miles of the model domain, based on available well logs, no real pattern or areally consistent layering was identified. In these areas, model layer bottoms were generally extrapolated out from the areas with data. An attempt was made to change layer thickness very gradually to assist the numerical solution process.

Cross-sections showing the model-based vertical discretization of the alluvial aquifer system are shown on Figures 8 and 9. A three dimensional surface plot of the model base is illustrated in Figure 10. The four model layers times the 4,503 cells per layer results in a model total of 18,012 cells. A table of the cell thicknesses are included as part of table presenting aquifer properties (discussed in Section 6.4). These data are presented in Appendix C.

6.2.3 Boundary Conditions

As discussed in the section on the model domain, the primary area of interest within the model is bounded approximately by 7th Avenue, 83rd Avenue, McDowell Road, and the Salt River. However, because these were hydrologically dynamic boundaries, the model boundaries were extended to either attain hydrologically better boundaries or to reduce the impact of boundary errors on the area of interest.

The following section explains and defines the model cell type designation and the model boundary conditions. A graphical representation of this information for each of the four model layers is presented on Figures 11 and 12.

6.2.3.1 Active versus Inactive Cells

Upon completing the horizontal and vertical discretization of the model domain, the individual model cells were classified as to their status or type. The first step is determining if a particular cell is active or inactive. Active or inactive is defined as whether the groundwater flow equation is solved for that cell or not. Inactive cells are used to allow the creation of non-rectilinear model boundaries. By definition, finite difference model domains are areally square or rectangular in shape. As a result, if the active model domain within the finite difference grid is irregularly shaped, a portion of the model grid will be assigned an inactive status. A typical example of this would be where a model grid includes non-water bearing bedrock outcrops which are not considered a part of the aquifer system. For this model, inactive (bedrock) cells are present along portions of the southern model boundary.

6.2.3.2 Boundary Types

After defining the active portion of the model, the model boundary conditions were assigned. MODFLOW allows for three types of boundary conditions; no-flow (associated with impermeable bedrock, a groundwater divide, or a streamline), constant head (commonly associated with a surface water body at a constant stage), or head dependent flux (referred to as a general head boundary [GHB] by MODFLOW). The model boundary types include all three of these.

From a mathematical standpoint, no-flow and constant head boundaries are much simpler and provide a more stable mathematical solution. For this reason the southern model boundary was extended from Baseline Road south to Elliot Road. This created a bedrock no-flow boundary along the south-southeastern model boundary where the model domain includes part of the South Mountains (Figures 11 and 12). Further west along this boundary (from approximately 37th Avenue to 99th Avenue) was also made a no-flow boundary based on the presence of a groundwater flowlines which are parallel to this boundary.

In the southeast corner of the model, from approximately 91st Avenue and Southern to south of the Salt River, water levels have remained consistently high due to the presence of both the Gila and Salt rivers and, more importantly discharge from the 91st Avenue Waste Water Treatment Plant (WWTP). The constant discharging of treated effluent has created an area of artificially high water levels with little seasonal or yearly fluctuation. Based on this observation, a block of cells in this area of the model have been made constant head cells. The head value was chosen at approximately 20 feet bgs. The constant head value represents a longterm average between the lowest and highest water levels from 1970 through 1990.

No further simplifications to model boundaries were identified, as a result, the remaining boundaries were made a GHB type. Basically, a GHB-type boundary is where groundwater can flow into or out of the model at a volumetric rate dependent on the hydraulic conductivity and the hydraulic head differences between the model boundary node and some specified point in the aquifer immediately outside the boundary. When using GHBs, a model input parameter called conductance (COND), which must be calculated outside of the model, is used. An estimate for COND is calculated using the following formula:

$$COND = \frac{K_H * h * w}{\Delta L}$$

where: K_H = the horizontal hydraulic conductivity of the aquifer material between the model boundary node and the point outside the model where hydraulic head is known

h = the height of the model boundary cell

w = the width of the boundary cell perpendicular to the direction of groundwater flow

L = the distance between the model boundary node and the point outside the model where hydraulic head is known

GHBs are utilized in transient models when the model boundary does not coincide with a hydrologic boundary such as no flow, constant head, or a known flux. This is the case for most of the model domain boundary. To be truly accurate, both the hydraulic conductivity and the hydraulic head difference should be known at some point outside of each active model boundary node. This is rarely the case in reality, and therefore, adjusting these values becomes part of the calibration process. Hydraulic head values outside of the model are estimated by extrapolating from the closest known head value and the longterm water level trend observed in hydrographs. An example of how the boundary heads were changed is demonstrated on the boundary cell hydrographs (Figures 13 through 16). As these figures indicate, the head values were modified for each stress period, with the northern and western boundaries being simulated as much more dynamic. This was attributable to the active groundwater pumping which occurs along these boundaries. Water levels along the eastern and southern boundaries were simulated as much more stable. This was based on the lack of pumpage and the South Mountains, respectively. Further details on the GHB package can be found in the MODFLOW manual (McDonald and Harbaugh, 1982).

6.3 Simulation Period

The initial model transient calibration simulation was conducted for the period of January 1971 through December 1982. Additional calibration simulations, what are commonly referred to as model validation simulations, were also conducted for the periods January 1983 through December 1984, and January 1985 through December 1991. However, for ease of reporting results, and because the total calibration period was uninterrupted from 1971 through 1991, the January 1983 through December 1984

simulation will not be discussed separately. The January 1983 through December 1991 period will be discussed as one continuous additional simulation.

These time periods were selected for the following reasons:

1. There was sufficient water level data coverage for the winter 1970/1971 period to develop an adequate starting head map.

2. There was sufficient water level data coverage during the winter 1982/1983, and winter 1991/1992 period to conduct good comparisons between model results and field measurements of hydraulic head.

3. During these periods there were a series of hydrologic events and land use changes which provided significant changes in local and regional water levels to calibrate the model against. The series of events included major Salt River flood flows accompanied by large reductions in groundwater pumpage, and the lining of canals. The land use changes included substantial reductions in irrigated agriculture as land within the model domain was converted to residential or industrial use. On average, water levels rose an estimated 20 feet during the 1971 to 1991 period.

4. The desire to possibly conduct hindcasting of groundwater conditions into the 1970's.

The water level database used in the above-mentioned simulations is described in detail below.

6.3.1 Water Levels

All of the water level data used in the model development and calibration was obtained from the ADWR GWSI water level database. A listing of the data used to develop the starting head map (January 1972), and the two final calibration periods (December 1982 and December 1991) are presented on Tables 2 through 4. The water level contour maps developed from these data were hand contoured by HLA hydrogeologists and therefore are interpretive and subjective (Figures 17 through 19). Select data in the ADWR database were not used in the development of the contour maps as they were obviously anomalous and would require explanation. Sources of error or uncertainty in the water level data are related to the different dates that they are collected and the accuracy of the measuring point. For purposes of the modeling, the data were contoured as though the measurements were all collected on the same day. In reality, the dates of collection may span a two month period. Typically, most of the data are collected in a one to two week span. The accuracy of the data are dependent on the accuracy to which the wellhead measuring point is known. The wellheads are usually not surveyed but are estimated from the USGS elevation contour maps. Therefore, the accuracy of the water level measurement is estimated at ± one-half the elevation contour interval, typically five feet. Additional complications to be considered in the contouring of the water level data is the effect that the well depth

and completion interval(s) has on the measured water level data. The presence of a vertical groundwater gradients (downward or upward) indicate that to properly contour water level data, the wells should have similar completion specifications. This was not considered in the contouring of this data as, in the absence of pumping wells, large vertical gradients are not typically observed in the WSRV.

Water levels for every active model cell need to be defined at the start of the simulation period. This was accomplished by overlaying the model grid on the January 1972 water level contour map and estimating a starting head elevation for each model node.

6.3.2 Stress Periods and Timesteps

When conducting a transient model calibration, time is divided into discrete quantities that are specified in the model. This dividing of time includes two levels of discretization. The total simulation time is broken down into stress periods which are then further subdivided into time steps. The division of stress periods are usually based on the timing associated with aquifer stresses causing changes to the aquifer system. The frequency with which comparisons between the field data and model results are desired or available may also help to determine stress period designation. For example, if monthly water level data are available, monthly stress periods may be appropriate. With this model, the key consideration in determining stress periods was the pumping schedule of the irrigation wells and how this schedule impacted groundwater levels and flow directions. As is described in detail in Section 6.4.2, an analysis of pumping schedules identified a three stress period per year discretization of time; 60 days representing January and February, 215 days representing March through September, and 90 days representing October through December. The stress periods are then further discretized into time steps. This further discretization is essentially a mathematical optimization step to reduce the change in time, thus the change in hydraulic head, that the groundwater flow equation is solved for. Applied stress rates remain constant during each stress period. The 60 day and 90 day stress periods were subdivided into 10 timesteps, while the 215 day stress period was subdivided into 15 timesteps. The timesteps for each stress period were increased in a geometric fashion using an equation built into MODFLOW. For example; for the 60 day stress period with 10 timesteps, the first timestep length was 0.53 days and the tenth timestep length was 20.35 days. The sum of timesteps 1 through 10 equals the 60 day total. A more detailed discussion of this subject is beyond the scope of this report. Additional information can be found in Anderson and Woessner (1992) and the MODFLOW manual (McDonald and Harbaugh, 1982).

6.4 Aquifer Stresses

Aquifer stresses are defined as any natural or anthropogenic activity that generates a flux of groundwater into or out of the groundwater system. As previously mentioned, the aquifer stresses associated with this model are extremely dynamic and a key element of the model. Aquifer stresses present in the model domain include groundwater pumping, recharge associated with agriculture, river

flow, and canals, and evapotranspiration (ET). An additional groundwater flux that will be described in this section is the boundary subflow that occurs across the GHB-type model boundaries. This phenomenon is also discussed in Section 6.2.3.

Model cells which contain an aquifer stress require the appropriate stress rate be identified. If the particular stress has a known rate (e.g., a pumping rate of x gpm) that is not area dependent, the well package can be used to withdraw water at a fixed rate. However, if a stress has a rate associated with some area, thus becoming a volumetric flux, the rate will have to be modified based on the size of the model cell it is applied to. An example is canal recharge, where the surface area of the canal is much smaller than the model cell area and thus the canal leakage rate would need to be reduced accordingly to match the volumetric flux. These types of stresses are generally simulated using the recharge package, applying a volume per area rate to each cell. Each aquifer stress is discussed in the following sections.

6.4.1 Recharge

A key aquifer stress for the model domain is recharge. Figures 20 and 21 illustrate recharge rates for model cells for the summer stress periods of 1972 and 1991, respectively. Important factors accounted for in simulating the recharge include the rate of recharge, the duration of the recharge, and the surface area over which recharge occurs. These three factors combine to determine the total volume of water input into the system during a particular time. These estimates are complicated by the fact that the rate of recharge and the surface area over which it occurs can change with certain types of recharge. This is particularly true with Salt River recharge as the wetted perimeter and recharge rate can change with flow rate and time. Even with a constant wetted perimeter the recharge rate will typically decrease with time due to sediment plugging of the channel bottom. How these estimates were determined and how they are incorporated into the numerical model are described below. A table summarizing these recharge values is included as Table 5.

6.4.1.1 River Recharge

Within the model domain, recharge from the Salt River occurs from two major sources within the model domain, "naturally occurring" flood flows and the discharge of treated sewage effluent. In terms of a mass balance equation the net recharge into the model from the Salt River could be described as:

> (Releases from Granite Reef Dam (GRD) + inflows from Indian Bend Wash + inflows from storm drains from the stretch of the river from Granite Reef Dam to 91st Avenue + releases from the 23rd Avenue WWTP) - (recharge and ET which occur in the river channel from Granite Reef Dam to 7th Street (eastern boundary of the model) + ET which occurs in the river channel from 7th Street to 91st Avenue).

Estimates for ET were not included in this model because it was believed that the potential error in the estimates of river flows were much larger than ET, and therefore, a detailed analysis of ET was not appropriate. Relatively good estimates for releases at GRD and the 23rd Avenue WWTP were obtained from SRP and the COP, respectively. No gauged data for Indian Bend Wash or the numerous storm drains along the river were available. Based on this level of data uncertainty, only the release volumes at GRD and 23rd Avenue WWTP were used in developing estimates for river recharge. Although basically occurring in the same area, each of these factors are discussed separately below.

6.4.1.1.1 Flood Flows

The estimation of river recharge due to flood flow is complicated by changes in rate and wetted perimeter. Neither of these parameters can be easily or inexpensively measured in the field. To simplify the simulation, the surface area over which river recharge occurs was kept constant for all of the simulated flow events. The total recharge of flood waters was estimated by assuming a mean channel width and a mean recharge rate along with an estimated number of days that flood flows were in the river channel. Using these numbers along with the length of the river channel in the model domain, an annual total volume of flood flow recharge within the model can be calculated. This volume can then be divided by the total surface area of the model cells to which recharge will be applied to obtain the recharge rate used in the model input file. Because of the river's distance from the WVBSA, recharge does not rapidly or greatly affect water levels within the WVBSA, and therefore, the actual timing of recharge was not considered as important as the total volume. To simplify data interpretation and management, the recharge was not just applied over the period that the river was flowing but throughout the entire year. The rate was appropriately modified to maintain the correct volume.

The ability of surface water releases from GRD to reach the model domain are dependent on the size and duration of the release, and on length of time since the river last flowed (antecedent moisture conditions). For the model simulations, releases from GRD were assumed to not have reached the eastern boundary of the model until the monthly release of water exceeded 35,000 acre-feet. This value is based on information provided by the ADWR modeling section in unpublished reports completed for a regional modeling study (Hill, 1989a and 1989b). A listing of GRD releases by month is provided as Table 6, while Table 5 illustrates river recharge by stress period.

Recharge rates of approximately 0.44 to 2.5 feet per day (ft/d) have been determined for different sections of the river channel by previous investigators (Briggs and Werho, 1966, and Mann and Rohne, 1983). These differences are related to the local hydrogeologic conditions, the condition of the river channel (i.e., has it been mined for sand and gravel or has it been a sink where fines have settled and clogged the surface gravels), and to antecedent moisture conditions. An initial rate of 1.0 ft/d was utilized in the model.

6.4.1.1.2 Sewage Effluent

There are two sources of sewage effluent within the model domain, the 23rd Avenue WWTP and the 91st Avenue WWTP. As discussed in Section 6.2.3, the discharges from the 91st Avenue WWTP are represented as a series of constant head cells. The 23rd Avenue WWTP discharges treated effluent into the river channel at approximately 27th Avenue. The volume of wastewater releases for the years 1970 through 1989 were obtained from an ADWR modeling group memo (Hill, 1989c) and are given below:

Year	Volume* (in acre-feet)
1970	22,050
1971	22,860
1972	25,470
1973	34,470
1974	36,090
1975	35,100
1976	37,620
1977	32,580
1978	27,540
1979	32,400
1980	34,200
1981	36,090
1982	30,250
1983	21,793
1984	14,664
1985	13,606
1986	27,720
1987	32,400
1988	32,905
1989	24,651
1990	24,700 (assumed)
1991	24,700 (assumed)

* - these values are all minus 10 percent from those reported by the city because 10 percent of the total was reportedly shipped to 91st Ave. WWTP as waste activated sludge.

As part of the development of a regional groundwater model, ADWR personnel conducted field checks on the recharge of 23rd Avenue releases. For periods when no river flow had occurred for at least six months, all of the water released at the 23rd Avenue WWTP was observed to infiltrate the river channel by 67th Avenue. Based on this, the volume of released effluent water was always made to recharge the model in the river cells between 27th Avenue and 67th Avenue (Figures 20 and 21). It is recognized that during periods when flood flows are occurring this may not occur. During periods when flood flows and effluent releases are occurring, the recharge rate was increased. This was based on the assumption that the wetted perimeter and the hydraulic head of the river were increased. A summary of effluent recharge by stress period is included in Table 5.

6.4.1.2 Agricultural Irrigation

Of the approximately 85,000 acres that comprise the model domain, about 25 to 35% has been used for irrigated agriculture in a given year. With estimates of groundwater recharge due to excess irrigation

water ranging from 1 acre-foot per acre per year (ac-ft/yr) to more than 2 ac-ft/yr this can constitute a major portion of the hydrologic budget. Accurate estimates of agricultural recharge would require the location of the agricultural acreage, the application rate and total amount of water applied, and the evapotranspiration specific to the soil and crop type. This level of effort is not practicable for a groundwater modeling effort of this size because the uncertainty in the other parameters overshadow the relatively small uncertainty in the volumetric estimates of agricultural recharge.

For this model it was decided that it was important to spatially locate irrigated areas in the vicinity of the WVBSA as accurately as possible, but elsewhere, it was more important to approximate the total acreage. To estimate the acreage for agricultural recharge, a determination of which lands were under cultivation was conducted using aerial photographs for the period 1971 through 1991. Aerial photographs that were reviewed were taken by Landis Aerial Photography (now Landiscor) and produced as a set for the entire Phoenix metropolitan area. These aerial photographs were generally taken in November or December for each year and are presented at a scale of 1 inch equals 1,200 feet scale allowing for relatively accurate estimates of acreage (10 acre increments). Lands were determined to be under cultivation if evidence of current crops was present, furrows were visible or land appeared clear for planting. Lands were treated as non-cultivated if native vegetation was present, land was being graded for construction or buildings were present. Because of the large amount of land involved, detailed maps of lands under cultivation were prepared only for the years 1971, 1972, 1976, 1979, 1982, 1984, 1988 and 1991 for the entire model domain. For the intervening years, a detailed evaluation of aerial photographs was conducted for a 32 square mile area in approximately the center of the WVBSA. This area was bounded by 19th Avenue, Thomas Road, 83rd Avenue and Lower Buckeye Road (no aerial photographs were available for 1973). Graphical presentation of where recharge occurred for two representative years (1972 and 1991) are shown on Figures 20 and 21. The summer stress period was selected for these figures because it was when agricultural irrigation is most widely occurring. These figures show the distribution of cultivated lands. Comparison of these figures illustrate the decline in the amount of land under cultivation over the simulation period.

Using an overlay of the model grid and the detailed maps prepared from aerial photographs, a listing of model cells with agricultural activity was prepared for each year. Each cell was determined to be either "on" or "off" depending on the percentage of the cell that was cultivated. For the years where the detailed maps included only the 32 square mile area mentioned above, the previous complete detailed map was used for determining recharge areas outside of the 32 square mile area. The result was a computer database file with an agricultural "flag" of 0 or 1 for each cell in layer 1 of the model for each year. This flag was then multiplied by a recharge rate to construct the recharge input file for the model. The resulting recharge rates were adjusted on an annual basis to reflect the cells with recharge. Rates remained constant for each stress period through an individual year. An initial rate of 2.5 ac-ft/ac/yr, or 2.5 ft/yr, was utilized for the entire applicable model area. This was based on a yearly application of 5

to 7 ft/yr and assuming a 40 to 50% irrigation efficiency. These rates were modified during the calibration. Table 5 summarizes the agricultural recharge by stress period.

6.4.1.3 Canals

A locally important source of groundwater recharge is from irrigation canals and laterals. The canals that were included in the model simulations included the SRP- Grand and Western canals, and the RID canal. Combined these canals are approximately 247,500 feet in length with an average wetted perimeter of 30 feet. This results in approximately 170 acres of surface area of recharge. On a mass balance basis this is a minor volume of water relative to the model as a whole. However, locally the canals can have a major impact on water levels and needed to be included to improve the visual matching of water levels during the calibration. Personnel from the ADWR modeling group developed estimates of leakage for both unlined and concrete lined canals as part of a basin-wide groundwater model (Corell and Corkhill, 1994). These estimates were developed by ADWR after review of a series of studies by the USBR, the University of Arizona (U of A), SRP, and RID. The rates finally selected were 0.9 cubic feet per square feet of wetted perimeter per day ($ft^3/ft^2/d$) for unlined canals and 0.05 $ft^3/ft^2/d$ for concrete lined canals. Information on the wetted perimeter for each of the canals within the model domain and the history of canal lining projects throughout the model period, allowing for changes from unlined to lined status, were also obtained from the ADWR. As with the river recharge, the total volume of recharge was calculated using the rate and the wetted area of each canal. This volume was then divided by the square footage of the model cell to derive a recharge rate in feet per day. As previously noted, the location of the model cells in which canal recharge was applied can be seen on Figures 20 and 21. A summary of recharge rates is provided in Table 5.

A determination of recharge from canal laterals was undertaken but not utilized in the simulations. The total volume was determined to be less than the uncertainty associated with the other sources of recharge.

6.4.1.4 Urban Recharge

Another potential source of groundwater recharge was urban irrigation. Urban irrigation can be defined as non-agricultural irrigation of turf and artificial lakes by golf courses, residential properties or schools and parks. Recharge from urban irrigation was not separately included within the model. Compared with other portions of the valley, urban irrigation is very minimal within the model domain. Few golf courses and cemeteries are present, and no large area of residential irrigation is present. For these reasons urban irrigation was not included in the model.

6.4.2 Pumpage

Groundwater pumpage comprises the primary stress to the aquifer system within the model domain. Groundwater pumpage averaged 160,000 ac-ft/yr over the period 1978 through 1991. This equates to a continuous pumping rate of over 99,000 gpm. With most of this pumpage occurs over a seven month

period (March through September), the continuous pumping rate can be recalculated as 172,000 gpm (assuming 210 days). As stated in the introduction, the development of a groundwater flow model was driven by multiple goals. A primary goal was to better understand the groundwater flow and potential contaminant movement in the study area under the influence of the numerous, large irrigation wells in the area which extract huge volumes of groundwater and cause major seasonal changes in the groundwater system. For this reason, analysis of groundwater pumpage data was a key to the successful development of the WVB groundwater flow model.

The central area of the model lies within an historically "waterlogged" area, which developed during the early part of the century. The high water levels were due to the expansion of irrigated agriculture that occurred after the formation of the SRP, which greatly increased agricultural recharge. The high water levels spurred the formation of the RID in the 1920's, which began pumping groundwater for use in their service area near Buckeye. During the model simulation period total annual RID pumpage in the model domain is normally over 100,000 ac-ft with a range of approximately 50,000 ac-ft (1983) to 145,000 ac-ft (1974) of water annually. The majority of this groundwater is pumped from within the WVBSA, and conveyed, via the RID canal, to agricultural fields to the west and northwest of the model domain.

6.4.2.1 Pumpage Data Sources

Groundwater pumpage data were collected for the period 1957 through 1991. These data were generally derived from four primary data sources: Arizona Water Commission (AWC) (the predecessor agency to the ADWR) pumpage printout from 1980 based on USGS data, cell-by-cell pumpage values used in the 1982 ADWR SRV modeling study (Long et al, 1982), reported pumpage database for the 1978 through 1983 period collected as part of the 1993 ADWR SRV modeling study (Corkhill, et al., 1994) and the ROGR database of reported groundwater pumpage for the period 1984 through 1991 (Corkhill et al., 1994). The following sections discuss each of these data sources.

Well-specific pumpage was not directly available for the period 1957 through 1977, but a comparison between the 1982 SRV Modeling Study pumpage and the AWC printout revealed that approximately 97% of the model cell-by-cell pumpage could be attributed to individual wells within the model domain. These data were utilized in the WVB Modeling Study for the period 1972 through 1977, and are presented as Table 7.

Individual well pumpage data were collected by ADWR directly from individual water providers for the period 1978 through 1983 for the 1993 ADWR SRV Modeling Study (Corkhill, et al., 1994). These data were gathered into a data table which included "large" and "small" groundwater pumpers. Large groundwater pumpers included SRP, RID and large municipal providers, such as the City of Phoenix. Small providers included many of the small municipal water companies, including the City of Tolleson.

These data were developed into a pumpage database by ADWR, which was utilized for their modeling study which encompassed the 1978 through 1988 period, and are presented in Table 8.

Disclosure of individual well pumpage has been required by ADWR as part of the ROGR annual reporting requirements since 1984. These data are compiled into the ROGR database by the Phoenix Active Management Area (Phoenix AMA) each year. As part of the 1993 SRV Modeling Study ADWR developed a well pumpage database. This database was utilized for pumpage data for the period 1984 through 1991, which is presented as Table 9.

6.4.2.2 Development of Pumpage Stress Periods

As previously discussed, the design of model stress periods was based on a detailed analysis of groundwater pumpage patterns within the model domain. Of particular interest was the pumping patterns of the RID wells as they represent the greatest volume of extracted groundwater in the model domain. On a yearly basis more than 80% of the groundwater extracted within the model domain is for irrigated agriculture. Within the WVBSA, more than 80 percent of that total is pumped by RID wells.

The detailed analysis of the monthly pumpage data for the RID wells within the model domain was conducted to determine if monthly or seasonal pumpage patterns were evident and to determine if specific RID wells were preferentially pumped during the pre-irrigation period (January, February and March) and the winter cropping period (October, November and December). Well by well monthly pumpage totals for the RID wells for the years 1974, 1975, 1976, 1977, 1978, 1980 and 1981 were obtained from the 1982 ADWR SRV modeling study files. Monthly pumpage totals were estimated by RID using electrical power consumption for each well and the corresponding power divider calculated by the USGS. Measurements were historically made at each RID well to calculate the amount of power used to pump a specific volume of water. The total monthly power consumption for each well was the used to calculate the total monthly pumpage for each respective RID well.

Calculated monthly pumpage from the RID wells located within the model domain was totaled for each year of record. The monthly percent of the total annual pumpage was then calculated for each year of record. A review of the monthly percentage of the annual total indicated a monthly pattern of pumpage. The primary pumping season occurs from March through September. Minor pumpage occurs during January and February ,primarily as pre-irrigation. Pumpage drops off dramatically in October with minimal pumpage in November and December which is attributable to winter cropping. The pumpage analysis revealed the following average percentages of total pumpage are attributable to the following periods:

- January and February 10 percent
- March through September 84 percent
- October through December 6 percent

These three periods were selected as the stress periods for the model. The annual pumpage for the other agricultural wells in the model domain was apportioned the same percentages and stress periods as were the RID wells. Appendix D includes a breakdown of pumpage by stress period for each pumping well that was included within the model domain. Figures 22 and 23 illustrate the location and type of pumping wells for the 1972 and 1991 model periods, respectively. Only these two years are presented graphically to show the change that occurred over the simulation period.

A review was also conducted using the well by well monthly pumpage data to determine if any set of wells were specifically pumped during the periods January and February , and October through December. No discernible trend in which wells were pumped was apparent.

6.4.3 Evapotranspiration

The only locale within the model domain where significant ET is believed to occur is along the portions of the Salt River with surface flow for large percentage of the year and where relatively extensive areas of phreatophytes have developed. Surface flow is essentially in the Salt River from approximately the 23rd Avenue WWTP to approximately 65th Avenue. Perennial surface flow is also present downstream from the 91st Avenue WWTP. Although these areas are very significant to the local hydrogeology, the volume of water represented by ET in these areas is considered insignificant relative to the total water budget for the model domain and, because of its distance away, is not directly relevant to the area encompassed by the WVBSA.

6.4.4 Boundary Subflow

Subflow is the groundwater which enters or exits the model domain across a model boundary which is not a no flow or constant head boundary. These boundaries are called flux or head-dependent flux boundaries and are described in detail in Section 6.2.3. Boundary subflow calculations are discussed here because of their importance in the hydrologic budget. The calculation of the actual groundwater flux (either into or out of the model) is dependent on the known or assumed value for hydraulic head at some point outside of the model, the model calculated head (after the previous stress period), the cross-sectional area of the model cell perpendicular to groundwater flow (typically horizontal), and the estimated K_H for the material between these two points. All of these values are rarely known to the degree necessary to establish this flux during the initial development of the model. As a result, the modifying of these values become a part of the model calibration. If these "boundary stresses" are present along extensive portions of the model domain, they can have a major influence on groundwater conditions within the model domain. Therefore, the location of these stresses are generally placed as far from the area of concern (i.e., the WVBSA) as possible.

6.5 Aquifer Properties

Very little useable, site-specific aquifer property data are available for the WSRV. The data that are available is generally in the form of transmissivity, which is a depth-averaged value of hydraulic conductivity which is not easily reduced to layer or zone-specific hydraulic conductivity. The estimates for transmissivity either from aquifer pumping tests conducted under very non-ideal conditions (e.g., aquifer tests conducted by the USGS on RID wells with numerous other pumping wells causing interference) or from a relationship derived between well specific capacity and transmissivity. This latter method was done for many of the SRP wells. The values generated from these various sources were reviewed and considered in assigning K_H, and to a lesser degree, storage values, but were not honored specifically. The main criterion in assigning initial aquifer properties was the lithologic description provided from driller's logs, geologist logs, or preferably, grain size analysis logs. Figure 24 illustrates the wells within the model domain with log data, where hydraulic test data are available or wells where both types of data were available. A listing of the individual wells along with the type of log or type of hydraulic test conducted appears in Appendix E.

6.5.1 Horizontal Hydraulic Conductivity

The key aquifer parameter in determining the movement of groundwater is typically the horizontal hydraulic conductivity (K_H). The K_H value is a function of both the fluid (in this case water) and the medium (i.e., the aquifer material) and is defined as the capacity of a porous medium to transmit water. The reason the K_H is considered a key parameter, as opposed to the vertical hydraulic conductivity K_V, is that in most alluvial aquifer systems the K_H is considered to be 10 to 1000 times greater in magnitude than the K_V. This results in groundwater moving predominantly in a horizontal direction. Estimates for K can be obtained through laboratory testing of aquifer samples, undisturbed cores, or through aquifer pumping tests. A laboratory test provides a precise value (typically K_V) for a very small volume of the aquifer (usually from a soil core), whereas an aquifer test provides an average value (typically for K_H) for a much larger volume of aquifer. Because of the scale that computer models are constructed, a properly conducted and interpreted aquifer pumping tests provide much more useful information in regards to aquifer properties.

The more locations within the model domain that aquifer test data are available, the less uncertain, estimates for the distribution of K_H can be. Because of the costs associated with conducting aquifer tests, particularly when pumping contaminated groundwater which must be treated and properly disposed, relationships between grain size distributions and estimates of K_H have been developed. In general, the better sorted and the coarser grained an aquifer is, the greater the value for K_H will be and vice-versa. Degree of sorting is considered the more important of the two. For example, a well sorted, fine-grained sand would most likely have a greater K_H value than a poorly sorted mixture of gravel, sand and silt. An estimate of K_H based on available laboratory grain-size analyses and lithologic logs was used to provide the initial K_H estimates (Kisser and Haimson, 1981). This type of an approach is

commonly used for initially assigning K_H values for numerical models. An evaluation of the initial K_H estimates, and subsequent refinement, are then a part of the model calibration process.

The initial K_H values used in the model ranged from a high of 200 ft/d to 1 ft/d. The higher value was based on K_H estimates for Salt River gravels obtained by HLA at other sites and from a qualitative grain size analysis (Kisser and Haimson, 1981). Additional information on the relative differences in K_H were provided by looking at the water level contours. In much of the WVBSA the concave to the west shape of the regional water level contours, along with the flattened gradient indicates that this was a zone of higher transmissivity. This observation was subsequently supported by other data on pumping rates and during the calibration process. The initial K_H arrays were relatively simple and were subsequently modified during the calibration process. A tabular listing of the final K_H value (and all of the other required aquifer properties) assigned to each model cell is presented in Appendix C.

6.5.2 Vertical Hydraulic Conductivity and Vertical Conductance

To determine the vertical flux of groundwater between two layers in a 3-D model, MODFLOW uses a parameter called the vertical conductance (VCONT). VCONT is a MODFLOW-specific parameter which is a function of the thickness of each layer and their vertical hydraulic conductivity (K_V). This parameter needs to be calculated outside of the model and then inserted into the model input files. This parameter is then used by the model in conjunction with the difference in hydraulic head between the two vertically adjacent layers to calculate the vertical flux or flow of groundwater between model layers.

No published field measurements of vertical hydraulic conductivity (K_V) for the UAU are known to exist. This is largely due to the inability to collect undisturbed samples of the coarse grained alluvium for laboratory permeability testing. In addition, there are no easily conducted aquifer test-type field tests to derive a value for K_V. As a result, estimates for K_V are one of the more uncertain aquifer parameters input into a groundwater flow model. Typically, an estimate within one or two orders of magnitude is considered good. To assist in estimating a value for K_V in the absence of field data, previous hydrogeologists have developed relationships between K_V and the more easily obtainable estimates of K_H. This is commonly referred to as the K_H/K_V ratio or the horizontal to vertical anisotropy. On a small scale, which basically assumes a single soil type (i.e., a sand or a silt, etc.), the K_H/K_V ratio for coarser grained alluvial material is commonly assumed to range between 2 and 20, whereas for a fine grained soil, ratios of 1 to 3 are assumed (Freeze and Cherry, 1979). On a larger scale, which can include numerous types of soil of a wide range of grain sizes, the K_H/K_V ratio can be of the order of 100 or larger. In a laboratory study by Bouwer (1984) on a multilayered system of cobbles and sand, K_V was found to be approximately 17 ft/d. Assuming an anisotropy ratio of 15 would result in a K_H of 255 ft/d which is similar to the starting value for a comparable material in the model. If the model layer includes silts and clays, both the K_H and K_V values will be much lower, however, the K_H/K_V ratio will be greatly affected. Over a thick alluvial sequence in Avra Valley, west of Tucson, Arizona, the USGS estimated the K_H/K_V ratio to

be as much as 100,000 (Hanson, 1989). The higher the anisotropy ratio the more difficult the vertical movement of groundwater will be.

The specific arguments used in the model database were:

if $K_H \geq 3$, then K_H/K_V equals 15
if $K_H < 3$, then K_H/K_V equals 1

Using the assigned value for K_V a value for VCONT can then be calculated. This parameter is part of the equation that MODFLOW uses to calculate the flux of groundwater between layers in vertically adjacent cells. The specific equation used to calculate VCONT depends upon the hydrogeologic system being simulated. More specifically, it depends on if the two model layers represent the same hydrostratigraphic unit (i.e., they both have the same aquifer properties) or if each layer represents a different hydrostratigraphic unit. The equation for the first case is:

$$\text{VCONT} = K_V \,/\, \text{the vertical distance between the center height of each cell}$$

The equation for the second case is:

$$\text{VCONT} = 1 \,/\, ((\tfrac{1}{2}\text{ thickness of layer 1} \,/\, K_{V1}) + (\tfrac{1}{2}\text{ thickness of layer 2} \,/\, K_{V2}))$$

A complete listing of K_V and VCONT values between the layers is provided in Appendix C.

6.5.3 Aquifer Storage

The aquifer storage property is defined differently for an unconfined aquifer and a confined aquifer. For an unconfined aquifer the storage property is referred to as specific yield (S_Y) and is defined as the volume of water released per unit surface area of aquifer per unit decline in hydraulic head. For a confined aquifer the storage property used is specific storage (S_S) and is defined as the volume of water that a unit volume of aquifer releases from storage under a unit decline in hydraulic head. The confined aquifer storage coefficient (S_C) is then S_S multiplied by the layer thickness. For this model layer 1 is the only water table layer throughout the simulation, therefore, S_Y is only applicable to layer 1. Layers 2 through 4 were all assigned a value for S_S, which was then converted to S_C using the layer thickness.

As with hydraulic conductivity, there are different methodologies possible to obtain values for aquifer storage properties. These can either be laboratory tests on samples of the aquifer material which provide a small scale, discrete estimate or aquifer pumping tests which provide a large scale, average estimate for a relatively large volume of aquifer. No laboratory or field based values for S_S were available. As a result, relationships between S_S and K_H were developed using published literature

values. The published values, like hydraulic conductivity, were the result of previous research in which relationships were developed between material properties, such as grain size distributions, and aquifer storage properties.

The physical basis for these relationships is derived from the concept that confined aquifers composed of coarser-grained material are less elastic than fine-grained material and thus release less water due to contraction of the aquifer matrix when a potential gradient is induced. The estimates for S_Y were developed from other modeling efforts in the SRV and discussions with personnel at ADWR and the USGS. The estimates for S_S were developed from data collected from work conducted in alluvial deposits in Avra Valley by the USGS (Hanson, 1989) and from Domenico and Schwartz (1990).

The relationships used for the model were:

for S_Y

if $K_H \geq 750$, then S_Y equals 0.18
if $K_H \geq 500$ and <750, then S_Y equals 0.15
if $K_H \geq 250$ and <500, then S_Y equals 0.12
if $K_H \geq 100$ and <250, then S_Y equals 0.10
if $K_H \geq 25$ and <100, then S_Y equals 0.05
if $K_H < 25$, then S_Y equals 0.025

for S_S

if $K_H \geq 3$, then S_S equals 1E-6
if $K_H < 3$, then S_S equals 1E-4

A complete listing of S_Y, S_S, and S_C values are presented in Appendix C.

7.0 MODEL CALIBRATION

This section presents the details regarding the model calibration process and results. Model calibration is the process of modifying the values of the unknown model input parameters to achieve a more accurate match between a known parameter, such as water level, and the model results for the same parameter for some defined simulation period. With most groundwater flow modeling efforts this entails modifying the aquifer properties, the aquifer stresses, and the model boundary conditions within known or an estimated set of values in an attempt to more closely match field measured water level data. This type of model calibration is referred to as inverse modeling, as you assume you know the value for hydraulic head and solve for the aquifer properties rather than vice-versa.

When trying to model a highly transient groundwater system, like that present in the WVBSA, the desirable calibration sequence is to first conduct a steady-state model calibration to obtain a good estimate for K_H. Conducting a steady-state simulation requires two major conditions; a time period where water levels are not changing (i.e., there is no net change in groundwater storage), and sufficient water level elevation information to produce contour maps to calibrate against. The former condition has not occurred in the WSRV since approximately the 1920's and a satisfactory data set for conducting a steady-state simulation was not available for this area, therefore, a steady-state simulation was not possible.

The difficulty in conducting a transient model calibration is that you are essentially initiating the simulation with a "moving target" (i.e., water levels are changing). Although more difficult to calibrate, this approach is commonly conducted with models developed for environmental investigations in highly stressed (i.e., not at steady-state) urban aquifer systems.

7.1 Calibration Results

Upon completion of the initial model construction, the model calibration work was initiated. The model calibration also initiated a qualitative parameter sensitivity analysis. Through the systematic changing, within pre-set bounds, the aquifer parameters, aquifer stresses, and boundary conditions, the appropriateness of the conceptual model and the relative importance of each parameter to accurately simulate the flow system were evaluated. The more separate transient calibration periods, with different aquifer stresses, that can be successfully simulated, the more confidence that can be attached to the model results. The additional transient calibrations are what is commonly called model validation. Traditionally, if the model successfully simulates the water level changes when the aquifer parameters are left unchanged but a new set of aquifer stresses are imposed, the model parameters and boundary conditions are considered "validated". Recent modeling researchers have expressed an opinion that "validation" is too strong of a word as it denotes a unique solution to the groundwater flow equation (Konikow and Bredehoft, 1992). In actuality, additional model calibration scenarios are just that, additional model calibration or additional history matching. Additional calibration scenarios

increase confidence in the conceptual model and the estimates for the model parameters. The more aquifer stress periods that can be successfully matched, the more accurately the hydrogeologic system is probably being represented. As mentioned in Section 6.3, the total simulation period was from January 1972 through December 1991. The initial calibration, which included all of the aquifer property, stress, and boundary modifications, was conducted for the 1972 through 1982 time period. Additional calibrations were then continued through 1985 and 1991. Each of the ending years were selected for the relatively large database of water level elevations that were available to calibrate against.

Measures of calibration success used for this model include the visual similarity between water level contours developed from model output using contouring software versus the hand contouring of field data and the quantitative comparison of the same. The visual comparisons included a plan view of the measured water levels at the end of the simulation versus the model predicted water levels, and a comparison of the water level changes over the entire simulation period at specific points (monitor wells). In the plan view, the most important measures of transient calibration success are non-quantitative and are the accurate simulation of overall groundwater flow direction and gradient. The measured head values commonly include error so that model modifications to attain exact duplication of the measured head values are not necessary or advisable. A quantitative measure of success is the minimizing of the root mean squared error (RMS) between the measured and the simulated head values. As a rule of thumb, a RMS which is less than 10% of the difference in hydraulic heads across the entire model is considered adequate. At a site-specific location the comparison of measured hydrographs versus model generated hydrographs is a very informative test of the model's ability to represent the real system over time.

A total of nine simulations were completed for the 1972 through 1982 period. This number is small relative to most modeling efforts. This is attributed to the comprehensive collection, processing, and interpretation of the data combined with extensive experience in this and similar hydrogeologic environments. Modifications made during the calibration simulations were made solely to improve the match between measured and simulated water levels. Although localized areas of poor data matching were identified, only relatively large-scale modifications in aquifer properties and aquifer stresses were made. This was considered the proper approach as the level of empirical data, especially with aquifer properties, did not support making localized changes. The major modifications made during the transient calibration are detailed below:

1. Initial problems encountered involved the drying out of layer 1 cells around the high production RID wells. Field information documented that during the summer pumping season, water levels in the central portion of the WVBSA will decline as much as 20 to 25 feet. Although the thickness of layer 1 cells were designed to accommodate declines of that magnitude without desaturating, these values were being exceeded during the simulation. Possible changes included the raising of recharge rates, a decrease in pumping rates, or the modification of aquifer properties. Recharge

rates were not raised because it was thought that they had been initially set high. Because much of the water being pumped by the RID wells is from the portion of the UAU represented by layer 1, initially the S_Y of layer 1 was raised to provide more water, thus lowering water level decline. This was observed to negatively effect the well hydrographs as the increased S_Y caused a muting of the longterm water level changes. As a result, attention was placed on getting water to the wells faster by increasing the K_H values in the area of the wells and area between the wells and the river, which is assumed to be "source" of much of the water ultimately pumped by these wells. The K_H values in those regions, which were initially set at 200 ft/d, were raised as high as 1,000 ft/d to support the pumping rates (some as high as 6,000 to 7,000 gpm) determined for those wells. Although these values of K_H are supported in Brown and Pool (1989), a re-analysis of RID pumping records was conducted. The originally applied pumping rates were well supported and subsequently retained. The region where K_H values needed to be raised, formed a semi-arcuate zone, concave to the south, that extended from the river to approximately McDowell Road across most of the model. The extremely high K_H values in this region are supported by drillers logs which indicate as much as 250 feet of gravel and cobbles in the UAU. This region was conceptualized as a former northerly meandering of the Salt River in which very little fines were deposited to those depths. Based on well logs, only layers 1 and 2 were greatly modified. Outside of this area of the model, the K_H values were not greatly modified. This was partially due to the fact that these areas were typically close to a model boundary and therefore, water levels could also be modified by modifying the boundary conditions, in particular, the estimated head difference across the boundary. The final K_H values for each layer are presented on Figures 25 through 28.

2. The yearly hydrograph responses produced by the model were still observed to have less of a change than what was observed in the field. This was modified by slightly reducing the S_Y values relative to K_H. This finding agrees with previous modeling conducted in the SRV in which the most appropriate storage values were found to be less than that suggested by the grain size distribution.

3. The above two modifications greatly aided the overall the match between groundwater flow direction and gradient. However, a model wide offset of water level contours was still present. The first and most obvious source of this type of problem was that the boundary fluxes required revision. In general, the contour lines were shifted to the east, which suggested that either the groundwater flux was too high across the eastern boundary or too low across the western boundary. Available water level data indicates that the water levels along the eastern boundary are relatively stable, largely due to the lack of irrigation and the absence of irrigation wells in this area. The western edge of the model, as previously discussed, is a very dynamic boundary because of pumpage along the boundary and continuing to the west, and the large amount of irrigated agriculture. As a result, GHB modifications concentrated on the western boundary. Additional boundary condition changes were completed on the way that the hydraulic head values outside of the model, used in the conductance calculation, were modified during the simulations. Originally,

these head values were modified (either raised or lowered depending on regional trends) in only select years but with the magnitude of the change accounting for the whole period since the last change. The modification entailed changing the boundary heads in a more subtle but more frequent manner.

4. Upon completion of the above three calibration modifications the remaining modifications were made based on reducing the RMS and improving the hydrograph comparisons. The major remaining modification involved the changing of the agricultural recharge rates. The recharge rate for the portion of the model north of the river was reduced to 1.5 feet per year (0.004 ft/d). Assuming a water application rate of 5 to 6 feet per year which is typical for cotton and alfalfa, the principal crops in this area, a recharge of 1.5 feet per year equates to an irrigation of efficiency of 25 to 30%. This value is within the range estimated by other researchers. Much of the agriculture south of the river is citrus which can have higher water application rates, therefore the rate of 2.5 feet per year remained. This higher rate was found necessary to support the water levels against the South Mountain no flow boundary.

The contour map of measured versus simulated water levels for model layer 1 is presented on Figure 29. The map compares model simulated head data for December 31, 1982 versus ADWR water level data collected during December 1982 and January 1983. Layer 1 was selected as representative of the system as a whole because large vertical gradients are not believed present during the non-pumping season and is the layer in which most of the pumping is believed to occur in. As Figure 29 indicates, the overall magnitude and gradient of the water table has been reasonably well simulated. Areas that could be improved with localized "tweaking" of aquifer properties or recharge rates are seen but was not conducted in the absence of supporting field data. A series of individual well hydrograph comparisons were also conducted and are presented on Figures 30 through 42. The location of these wells is shown on Figure 29. In general, the wells located in the central portion of the model display a good match. Once again, better matches could have been attained with localized changes to K_H and S_Y, but were not made. A tabular comparison and statistical analysis of the measured versus simulated head values at specific wells/nodes is presented on Table 10. The RMS of 7.48 feet is only 5.7 percent of the 130 foot total head loss across the model. This is considered very good. A scatterplot of measured versus simulated values is shown on Figure 43. The R^2 value (correlation coefficient) of .95 indicates a very high correlation.

The identical aquifer properties with properly modified aquifer stresses were then utilized in the calibration run from January 1983 through December 1991. Water levels during this period generally rose approximately 5 to 10 feet across the model domain. This is partially caused from reduced pumping as more and more portions of the WSRV were taken out of agriculture uses. A similar degree of success to the first calibration period is indicated. Hydrograph comparisons for the entire 1972 through 1991 period are presented on Figures 44 through 63. Well locations are presented on

Figure 64. The measured versus simulated head values for model layer 1 for December 31, 1991 are presented on Figure 64. The tabular presentation and statistical comparison of this data is seen on Table 11. The RMS of 6.25 feet is only 5.7 percent of the 110 feet of total head loss. The scatterplot of measured versus simulated values is presented on Figure 65. The very similar level of success between the two calibrations suggests a suggests a good representation of the aquifer system and stresses.

An obvious shortcoming of the calibration results are the absence of water level comparisons during the summer pumping season. A sufficient database of water level data was not available during the model simulation period. To evaluate what might be occurring, a map of the simulated drawdowns at the end of the summer pumping season for 1991 is presented on Figure 66. This figure was prepared by evaluating the change in water levels from the start of summer pumping season (made March 1, 1991 in the model simulation) to the end (September 30, 1991). The figure indicates that for this particular year, a maximum of approximately 14 feet of drawdown is observed within the model domain. This area corresponds with the area of greatest concentration of RID wells and those with the greatest pumping rates. Drawdowns near an actual well would be higher because the model averages out the drawdown over the entire cell area. A plot of the water level elevation contours for this same time period are presented on Figure 67. As Figure 67 indicates, during the summer pumping season, the essentially simultaneous pumping of the RID wells results in a large groundwater cone of depression which effectively prohibits the migration of groundwater outside of the WVBSA.

8.0 SENSITIVITY ANALYSIS

To properly evaluate the model calibration a sensitivity analysis was performed. The purpose for a sensitivity analysis is to determine the relative sensitivity of various input parameters to the simulated contours and to evaluate the degree of confidence in model results and conclusions. Since a groundwater flow modeling solution is non-unique, a number of different combinations of stresses can produce the same head output. By varying each of the stresses and running the model, the impact of changes in individual parameters can be evaluated. This analysis utilized the first calibration period (1972 through 1982) and included adjustment of specific yield, horizontal hydraulic conductivity, vertical hydraulic conductivity, agricultural recharge, river recharge and general head boundary conductance. Table 12 includes a statistical summary comparing the base calibrated model with measured heads. The following sections discuss the impact on model results for each of the listed parameters.

8.1 Specific Yield

Model runs were executed which examined a 50% increase and 50% decrease in specific yield across the model domain. Sensitivity Run 1 entailed a 50% increased specific yield while Sensitivity Run 2 entailed a 50% decrease. Table 13 includes a comparison of model simulated heads for Sensitivity Run No. 1 with the measured heads used previously. The RMS error for run 1 was 7.42 feet compared with 5.97 feet for the base calibrated run. Table 14 includes a comparison of model simulated heads for Sensitivity Run No. 2 with the measured heads used previously. The RMS error for run 2 was 5.99 feet compared with 5.97 feet for the base calibrated run. Generally, the model was moderately sensitive to this parameter, showing a 4 foot decline to a 6 foot rise in different areas of the model domain. The sensitivity analysis suggested that localized changes to specific yield could be implemented to improve the match with measured heads.

8.2 Horizontal Hydraulic Conductivity

Model runs were executed which examined a 50% increase/decrease in K_H for layer 1 across the model domain. Sensitivity Run 3 included a 50% increased K_H while Sensitivity Run 4 included a 50% decrease in K_H. Table 15 includes a comparison of model simulated heads for Sensitivity Run 3 with the measured heads used previously. The RMS error for this run was 6.80 feet compared with 5.97 feet for the base calibrated run. Table 16 includes a comparison of model simulated heads for Sensitivity Run 4 with the measured heads used previously. The RMS error for this run was 8.47 feet compared with 5.97 feet for the base calibrated run. Generally, the model was moderately sensitive to this parameter, showing a 8 foot rise/7 foot decline in the central areas of the model domain. The moderate sensitivity to these changes was not unexpected as it was also seen during the model calibration.

8.3 Vertical Hydraulic Conductivity

Model runs were executed which examined a 50% increase/decrease in K_V for layer 1 across the model domain. K_V is not used directly in the model, but is included as part of the VCONT term previously defined. For this reason, a 50% increase in K_V will not result in a 50% increase in VCONT. Sensitivity Run 5 included a 50% increased K_V for layer1 while Sensitivity Run 6 included a 50% decrease. Table 17 includes a comparison of model simulated heads for Sensitivity Run 5 with the measured heads used previously. The RMS error for this run was 5.97 feet compared with 5.97 feet for the base calibrated run. Table 18 includes a comparison of model simulated heads for Sensitivity Run 6 with the measured heads used previously. The RMS error for this run was 5.97 feet compared with 5.97 feet for the base calibrated run. Generally, the model was insensitive to this parameter, showing a 1.6 foot rise/ 0.5 foot decline in the central areas of the model domain.

8.4 Agricultural Recharge

Model runs were executed which examined a 50% increase/decrease in agricultural recharge rates across the model domain. Sensitivity Run 7 included a 50% increased agricultural recharge while Sensitivity Run 8 included a 50% decrease. Table 19 includes a comparison of model simulated heads for Sensitivity Run 7 with the measured heads used previously. The RMS error for this run was 9.62 feet compared with 5.97 feet for the base calibrated run. Table 20 includes a comparison of model simulated heads for Sensitivity Run No. 8 with the measured heads used previously. The RMS error for this run was 13.96 feet compared with 5.97 feet for the base calibrated run. Generally, the model was very sensitive to this parameter, showing a 14 foot rise/ 16 foot decline in the central areas of the model domain. Although the model is very sensitive to this parameter, the sensitivity analysis does not suggest that the current values need to be adjusted substantially.

8.5 River Recharge

A model run was executed which examined a 50% increase in river recharge used in the model. Sensitivity Run 9 included a 50% increased river recharge rate. Table 21 includes a comparison of model simulated heads for Sensitivity Run 9 with the measured heads used previously. The RMS error for this run was 5.73 compared with 5.97 feet for the base calibrated run. Generally, the model was moderately sensitive to this parameter, showing a 7 foot rise in the area near the river. The sensitivity analysis suggested that an increase in river recharge rate could be implemented to improve the match with measured heads.

8.6 Mean Conductance for General Head Boundary Cells

Model runs were executed which examined a 50% increase/decrease in mean conductance for general head boundary cells for Layer 1. Sensitivity Run 10 included a 50% increase in mean conductance while Sensitivity Run 11 included a 50% decrease. Table 22 includes a comparison of model simulated heads for Sensitivity Run 10 with the measured heads used previously. The RMS error for this run was 5.70 feet compared with 5.97 feet for the base calibrated run. Table 23 includes a comparison of model

simulated heads for Sensitivity Run 11 with the measured heads used previously. The RMS error for this run was 6.76 feet compared with 5.97 feet for the base calibrated run. Additionally, model runs were executed where the increase/decrease was applied to mean conductances in all layers. Very little difference was noted between these sets of results (RMS errors of 5.65 feet and 7.36 feet, respectively). Generally, the model was moderately sensitive to this parameter, showing a 2.5 foot rise/ 5 foot decline in the central areas of the model domain. The sensitivity analysis suggested that some increase in conductance may be desirable to improve the match with measured heads.

8.7 Results and Conclusions

Generally, the model was found to be most sensitive to the agricultural recharge rate, and less sensitive to changes in the other primary parameters. A number of minor calibration adjustments were suggested by these results, including slight lowering of specific yield, and increased river recharge. The main conclusion would be that the model could use additional water to better match observed heads. This was illustrated by the improved RMS error values for the cases where additional fluxes into the model were included through river recharge or boundary fluxes (Runs 9 and 10). Table 24 summarizes the results of the sensitivity analysis conducted.

9.0 CONCLUSIONS

A transient calibration of a 3-D groundwater flow model of an approximately 132 square mile area around and including the WVBSA has been completed. The goals of the model development and calibration were to gain a better understanding of the groundwater flow system, in particular groundwater flowlines across the WVBSA and their changes during the summer pumping season.

The model has been shown to reasonably simulate the hydrogeologic system both areally, at a specific time, and temporally at specific locations. The shallow (upper 150 to 250 feet) groundwater flow system within the WVBSA is highly dynamic. This is caused by both the large volume of groundwater extraction and recharge which occurs. The shallow groundwater system undergoes radical changes in water levels and flow directions both in the short term due to very large seasonal pumping and in the longterm due to major inputs of recharge. Recharge from excess applied irrigation water has been a relatively consistent source of recharge in much of the WVBSA for over 40 years. However, as the area is transformed from agricultural uses to commercial, industrial, and residential uses, this source of recharge is diminishing. The presence of extremely high hydraulic conductivities allows large quantities of groundwater to move through the system in response to pumping and recharge. In 1991 (the last year of the model simulation) 32 RID irrigation wells pumped approximately 74,000 ac-ft of water (assuming 2,500 gpm each) from within the bounds of the WVBSA. During the summer pumping season (assuming 210 days) this equates to a continuous groundwater extraction rate of approximately 80,000 gpm.

The large magnitude of the aquifer stresses appear to make these stresses the key to adequately understanding the groundwater flow system. Sensitivity simulations identified agricultural recharge as the most important of the input parameters for which adequately documented values are not available. Based on the model simulations, the groundwater flow system is relatively insensitive to the extremely high K_H values present in the areas with most of the large pumping wells.

Uncertainties regarding the model calibration are largely caused by the absence of summertime water level data to compare the model predictions against. These data are believed to be more readily available at this time, at least for parts of the model domain, because of the large number of environmental investigations underway in the WVBSA and the installation and monitoring of groundwater monitor wells. An updating of the model to 1996 may allow this additional calibration. Additional data deficiencies involve field verification data of aquifer parameters and 3-D hydraulic head data. Information on these two topics would allow a more defensible assignation of pumpage resulting in a better understanding of the vertical movement of contaminated groundwater. Although the groundwater flow system has been modeled as 3-D, only limited 3-D hydraulic head data are available.

The model results indicate that the HCM is fairly accurate. The model as developed can be used to rapidly evaluate minor modifications in the conceptual model, groundwater flow lines, aquifer/aquitard geometry, and aquifer parameters. Update of the model to 1996 would allow the user to develop and compare various groundwater containment options, review different areas as to their potential impact to existing or future groundwater production wells, provide the basis to expand the model to other areas, and provide the basis to convert the groundwater flow model to a solute transport model.

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TABLES

Table 1 - Phase 1 Model Initial Estimates of Hydrogeologic Properties[1]

Township Range Section	Total Alluvial Thickness (in feet)	Upper Unit (UAU) Layer 1 Thickness (in feet)	Upper Unit (UAU) Percent Sand and Gravel	Upper Unit (UAU) K1 (ft/d)	Middle Unit (MAU) Layer 2 Thickness (in feet)	Middle Unit (MAU) Percent Sand and Gravel	Middle Unit (MAU) K2 (ft/d)	Upper Part of Lower Unit (ULAU) Layer 3 Thickness (in feet)	Upper Part of Lower Unit (ULAU) Percent Sand and Gravel	Upper Part of Lower Unit (ULAU) K3 (ft/d)	Lower Part of Lower Unit (LLAU) Layer 3 Thickness (in feet)	Lower Part of Lower Unit (LLAU) Percent Sand and Gravel	Lower Part of Lower Unit (LLAU) K4 (ft/d)
A(1-1) 1	2000	350	50	150	350	50	20	625	5	0.1	675	30	3
2	2000	350	50	100	350	50	20	625	5	0.1	675	20	3
3	2000	350	50	100	400	50	20	500	5	0.1	750	10	0.1
4	2000	350	50	50	350	50	20	500	5	0.1	800	10	0.1
9	2000	350	60	50	300	40	10	625	5	0.1	725	20	3
10	2000	350	60	50	350	50	20	625	5	0.1	675	20	3
11	2000	350	60	100	350	50	20	625	5	0.1	675	25	3
12	2000	350	50	150	300	40	10	625	5	0.1	725	25	3
13	2000	350	70	150	250	30	10	625	10	0.1	775	50	6
14	2000	350	80	100	300	30	10	625	10	0.1	725	50	6
15	2000	350	80	100	300	30	10	625	10	3	725	40	6
16	2000	350	70	50	250	30	10	625	15	3	775	40	6
21	2000	300	80	100	300	30	10	625	15	3	775	?	9
22	2000	300	80	100	300	30	10	625	15	3	775	?	9
23	2000	300	80	100	300	30	10	625	15	3	775	?	9
24	2000	300	80	150	300	30	10	700	15	3	700	?	9
25	2000	275	80	150	325	50	20	700	15	3	700	?	9
26	2000	275	80	150	325	40	10	625	15	3	775	?	9
27	2000	275	80	100	325	40	10	550	15	3	850	?	9
28	2000	275	80	100	325	40	10	550	15	3	850	?	9
33	2000	250	80	150	350	50	20	450	15	3	950	?	9
34	2000	250	80	150	350	50	20	375	15	3	1025	?	9
35	2000	250	80	150	350	50	20	500	15	3	900	?	9
36	2000	250	70	100	350	50	20	700	15	3	700	?	9

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

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A(1-2) 1	2000	250	50	150	250	30	10	500	15	3	1000	60	6
2	2000	250	50	150	250	30	10	600	5	0.1	900	50	6
3	2000	300	50	150	300	10	0.1	625	5	0.1	775	50	6
4	2000	300	50	150	300	10	0.1	625	5	0.1	775	40	6
5	2000	300	50	150	325	30	10	625	5	0.1	750	30	3
6	2000	350	50	150	275	50	20	625	5	0.1	750	30	3
7	2000	350	50	250	275	30	10	700	5	0.1	675	30	3
8	2000	300	50	250	325	10	0.1	750	5	0.1	625	40	6
9	2000	350	60	250	200	10	0.1	700	10	0.1	750	50	6
10	2000	250	70	250	250	30	10	550	10	3	950	60	9
11	2000	250	70	250	250	30	10	500	10	3	1000	60	9
12	2000	250	70	150	200	30	10	450	15	3	1100	70	9
13	2000	250	70	150	200	30	10	300	20	3	1250	80	9
14	2000	250	70	250	200	30	10	375	15	3	1175	80	9
15	2000	250	70	250	200	30	10	450	15	3	1100	80	9
16	2000	300	70	250	200	10	0.1	500	10	0.1	1000	80	9
17	2000	300	70	250	200	10	0.1	750	5	0.1	750	70	9
18	2000	300	70	250	300	30	10	750	10	0.1	650	70	6
19	2000	300	80	250	325	30	10	750	15	3	625	?	9
20	2000	300	80	250	300	40	10	750	15	3	650	?	9
21	2000	250	80	250	300	50	20	500	15	3	950	?	9
22	2000	250	80	250	300	50	20	375	15	3	1075	?	9
23	1500	250	80	250	300	40	10	250	20	3	700	?	9
24	1500	250	70	150	300	30	10	250	30	5	700	?	9
25	1000	250	80	150	375	50	20	200	40	5	175	?	9
26	1250	250	80	150	375	50	20	200	30	5	425	?	9

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

Table 1 - Phase 1 Model Initial Estimates of Hydrogeologic Properties[1]

Township Range Section	Total Alluvial Thickness (in feet)	Upper Unit (UAU) Layer 1 Thickness (in feet)	Upper Unit (UAU) Percent Sand and Gravel	Upper Unit (UAU) K1 (ft/d)	Middle Unit (MAU) Layer 2 Thickness (in feet)	Middle Unit (MAU) Percent Sand and Gravel	Middle Unit (MAU) K2 (ft/d)	Upper Part of Lower Unit (ULAU) Layer 3 Thickness (in feet)	Upper Part of Lower Unit (ULAU) Percent Sand and Gravel	Upper Part of Lower Unit (ULAU) K3 (ft/d)	Lower Part of Lower Unit (LLAU) Layer 3 Thickness (in feet)	Lower Part of Lower Unit (LLAU) Percent Sand and Gravel	Lower Part of Lower Unit (LLAU) K4 (ft/d)
27	1500	250	80	150	375	50	20	250	20	5	625	?	9
28	2000	250	80	150	375	50	20	250	20	3	1125	?	9
29	2000	250	80	150	375	50	20	500	20	3	875	?	9
30	2000	250	80	150	375	50	20	750	20	3	625	?	9
31	2000	250	70	150	375	60	20	700	25	6	675	?	9
32	2000	250	70	150	375	50	20	500	25	6	875	?	9
33	1500	250	70	150	375	50	20	250	25	6	825	?	9
34	1000	250	70	150	350	50	20	200	35	6	200	?	9
35	1000	200	70	150	300	50	20	200	45	6	300	?	9
36	1000	200	70	150	300	50	20	200	60	6	300	?	9

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

Table 1 - Phase 1 Model Initial Estimates of Hydrogeologic Properties[1]

Township Range Section	Total Alluvial Thickness (in feet)	Upper Unit (UAU) Layer 1 Thickness (in feet)	Upper Unit (UAU) Percent Sand and Gravel	Upper Unit (UAU) K1 (ft/d)	Middle Unit (MAU) Layer 2 Thickness (in feet)	Middle Unit (MAU) Percent Sand and Gravel	Middle Unit (MAU) K2 (ft/d)	Upper Part of Lower Unit (ULAU) Layer 3 Thickness (in feet)	Upper Part of Lower Unit (ULAU) Percent Sand and Gravel	Upper Part of Lower Unit (ULAU) K3 (ft/d)	Lower Part of Lower Unit (LLAU) Layer 3 Thickness (in feet)	Lower Part of Lower Unit (LLAU) Percent Sand and Gravel	Lower Part of Lower Unit (LLAU) K4 (ft/d)
A(1-3) 5	2000	250	60	150	200	50	20	375	30	6	1175	70	9
6	2000	250	50	150	250	50	20	375	25	6	1125	70	9
7	2000	250	70	150	125	50	20	375	35	6	1250	70	9
8	2000	250	70	150	125	60	20	375	30	6	1250	70	9
17	2000	250	70	150	125	60	20	250	35	6	1125	70	9
18	2000	250	70	150	125	50	20	250	30	6	1125	?	9
19	1500	250	70	150	250	50	20	200	40	6	800	?	9
20	1500	250	80	150	250	60	20	200	45	6	800	?	9
29	1000	250	80	150	250	60	20	125	50	10	375	?	9
30	1000	250	80	150	250	50	20	125	45	10	375	?	9
31	500	200	70	150	200	50	20	100	0	10	0	0	0
32	500	200	70	150	200	50	20	100	0	10	0	0	0
A(2-1) 21	2000	250	70	100	500	40	10	600	15	1	650	10	0.1
22	2000	250	70	100	500	40	10	600	15	1	650	10	0.1
23	2000	250	70	100	500	40	20	600	15	1	650	20	3
24	2000	250	70	100	500	50	20	500	15	1	750	30	3
25	2000	300	70	100	450	50	20	500	10	0.1	750	30	3
26	2000	300	70	100	450	50	20	600	10	1	650	30	3
27	2000	300	70	100	450	50	20	600	15	1	650	10	0.1
28	2000	300	70	100	450	50	20	600	15	1	650	10	0.1
33	2000	300	50	75	450	50	20	500	15	1	750	10	0.1
34	2000	300	50	75	450	50	20	600	10	1	650	10	0.1
35	2000	300	50	75	450	50	20	600	5	0.1	650	20	3
36	2000	300	50	75	400	50	20	600	5	0.1	750	30	3

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

Table 1 - Phase 1 Model Initial Estimates of Hydrogeologic Properties[1]

Township Range Section	Total Alluvial Thickness (in feet)	Upper Unit (UAU) Layer 1 Thickness (in feet)	Upper Unit (UAU) Percent Sand and Gravel	Upper Unit (UAU) K1 (ft/d)	Middle Unit (MAU) Layer 2 Thickness (in feet)	Middle Unit (MAU) Percent Sand and Gravel	Middle Unit (MAU) K2 (ft/d)	Upper Part of Lower Unit (ULAU) Layer 3 Thickness (in feet)	Upper Part of Lower Unit (ULAU) Percent Sand and Gravel	Upper Part of Lower Unit (ULAU) K3 (ft/d)	Lower Part of Lower Unit (LLAU) Layer 3 Thickness (in feet)	Lower Part of Lower Unit (LLAU) Percent Sand and Gravel	Lower Part of Lower Unit (LLAU) K4 (ft/d)
A(2-2) 19	2000	200	50	50	500	30	10	500	10	1	800	30	3
20	2000	200	50	50	425	10	10	500	5	0.1	875	40	6
21	2000	150	50	50	475	10	0.1	500	5	0.1	875	50	6
22	2000	150	50	50	475	10	"	500	5	0.1	875	50	6
23	1500	150	40	50	475	30	"	450	10	0.1	425	50	6
24	1500	150	40	50	400	30	10	400	15	1	550	60	9
25	2000	200	50	50	425	30	10	450	15	1	925	60	9
26	2000	200	50	50	425	10	0.1	500	10	0.1	875	50	6
27	2000	200	50	50	425	10	0.1	550	5	0.1	825	50	6
28	2000	200	50	50	425	10	0.1	625	5	0.1	750	40	6
29	2000	200	50	50	425	30	10	500	5	0.1	875	40	3
30	2000	200	50	50	425	30	10	500	5	0.1	875	30	3
31	2000	300	50	50	325	40	20	625	5	0.1	750	30	3
32	2000	300	50	50	325	30	10	625	5	0.1	750	30	3
33	2000	300	50	50	325	10	0.1	625	5	0.1	750	40	3
34	2000	250	50	50	375	10	0.1	625	5	0.1	750	50	6
35	2000	250	50	50	375	30	10	550	5	0.1	825	50	6
36	2000	250	50	50	375	30	10	500	15	1	875	50	6
A(2-3) 19	1500	150	50	50	350	40	10	375	30	6	625	70	9
20	1000	150	50	50	350	40	10	300	40	6	200	70	9
29	1500	150	50	50	350	50	20	375	35	6	625	70	9
30	2000	150	50	75	350	40	10	300	25	6	1200	70	9
31	2000	200	50	75	350	40	10	375	25	6	1075	70	9
32	2000	200	50	75	300	50	20	375	25	6	1125	70	9

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

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D(1-1)	1	2000	250	70	100	375	50	20	375	15	3	1000	?	9
	2	2000	250	70	100	375	50	20	375	15	3	1000	?	9
	3	2000	250	70	100	375	50	20	300	15	3	1075	?	9
	4	2000	250	70	100	375	50	20	300	15	3	1075	?	9
	9	2000	250	70	50	375	50	20	300	15	3	1075	?	9
	10	2000	250	70	50	375	50	20	300	15	3	1075	?	9
	11	2000	250	70	50	375	50	20	375	15	3	1075	?	9
	12	2000	250	70	50	375	50	20	375	15	3	1075	?	9
D(1-2)	1	500	150	60	50	350	50	20	0	0	0	0	0	0
	2	750	200	60	50	300	50	20	100	60	5	150	?	9
	3	1000	200	60	50	300	50	20	100	50	5	400	?	9
	4	1000	200	60	50	300	50	20	200	35	5	300	?	9
	5	1500	250	70	50	300	50	20	225	30	5	725	?	9
	6	2000	250	70	50	350	50	20	375	20	5	1025	?	9
	7	2000	250	60	50	350	50	20	300	20	5	1100	?	9
	8	1500	200	50	50	300	40	10	200	35	5	800	?	9
D(1-3)	5	400	150	60	50	250	50	20	0	0	0	0	0	0
	6	300	150	60	50	150	50	20	0	0	0	0	0	0

ft/d - feet per day
K1 represents the K of layer 1, etc....
? - Percent sand gravel is unknown, a value of 9 ft/day was automatically assigned to K4.
1 - Unit breakdowns are based on Brown and Pool (1989)

Table 2 - ADWR Measured Water Level Data for Winter 1971/1972
(used in model starting head map)

Well Id.	Water Level Elevation (feet amsl)
A(1-1) 3ABB	870
A(1-1) 4AAA	865
A(1-1) 9BBB	886
A(1-1) 10CCC	920
A(1-1) 12BBB	925
A(1-1) 14DAA	920
A(1-1) 22BAA	922
A(1-1) 36AAD	956
A(1-2) 4BAB	934
A(1-2) 7BBB	922
A(1-2) 7CCC	929
A(1-2) 8BAA	934
A(1-2) 9AAB	960
A(1-2) 9CBC	960
A(1-2) 10CCB	952
A(1-2) 11AAA	977
A(1-2) 11CBC	971
A(1-2) 12BAA	964
A(1-2) 12CBC	967
A(1-2) 13CDD	978
A(1-2) 14AAD	974
A(1-2) 14BBC	965
A(1-2) 14CDD	970
A(1-2) 16BCC	950
A(1-2) 16DBB	951
A(1-2) 18ACB	930
A(1-2) 18DDD	949
A(1-2) 19BAA	943
A(1-2) 24DDC	992
A(1-2) 25DDD	1010
A(1-2) 28AAA	986
A(1-2) 26DDD	996
A(1-2) 32DDD	977
A(1-2) 35DDD	1002
A(1-3) 5ABD	1007
A(1-3) 18BBC	975
A(2-1) 21AAA	871
A(2-1) 28AAA	870
A(2-1) 33ACC	872
A(2-1) 33CCC	876
A(2-1) 33CDD	876
A(2-1) 34BBB	873
A(2-1) 34DAA	879
A(2-1) 35DDD	892
A(2-2) 24AAA	1064
A(2-2) 25BCA	975
A(2-2) 26BDC	972
A(2-2) 27ACB	913
A(2-2) 29ACC	882
A(2-2) 29DBB	881
A(2-2) 32DAA	901
A(2-3) 20ADD	1035
D(1-2) 3CDD	1019
D(1-2) 5AAA2	976
D(1-2) 6ADD1	967

amsl - above mean sea level

Table 3 - ADWR Measured Water Level Data for Winter 1982/1983
(used in model comparison)

Well Id.	Water Level Elevation (feet amsl)
A(1-1) 2 CCC	940
A(1-1) 3 ABB	928
A(1-1) 4 AAA	928
A(1-1) 9 BBB	927
A(1-1) 9 CCC	940
A(1-1) 10 CCC	943
A(1-1) 11 ADD	950
A(1-1) 11 CBC	947
A(1-1) 12 BBB	953
A(1-1) 14 DAB	950
A(1-1) 15 DAA	946
A(1-1) 21 AAA	946
A(1-1) 22 CDA	941
A(1-1) 23 AAB	954
A(1-1) 23 DDA	958
A(1-1) 24 AAA	961
A(1-1) 26 AAA	957
A(1-1) 26 CAA	962
A(1-1) 28 DAA	949
A(1-1) 35 DDC	960
A(1-1) 36 AAD	969
A(1-1) 36 DDA	973
A(1-2) 1 CAC	985
A(1-2) 2 BCC	971
A(1-2) 7 BBB	952
A(1-2) 7 CCC	954
A(1-2) 8 BAA	955
A(1-2) 8 DAA	958
A(1-2) 9 AAB	955
A(1-2) 9 CCC	952
A(1-2) 10 ABA	961
A(1-2) 10 CCB	961
A(1-2) 11 AAA	976
A(1-2) 11 CBC	985
A(1-2) 12 BAA	981
A(1-2) 12 CBC	975
A(1-2) 13 ABD	990
A(1-2) 13 CCC	989
A(1-2) 13 CDD	985
A(1-2) 13 DAD	986
A(1-2) 14 AAD	983
A(1-2) 14 BBC	978
A(1-2) 14 CDD	979
A(1-2) 15 ACC	975
A(1-2) 16 DBB	965
A(1-2) 17 CAA	956
A(1-2) 18 DDD	954
A(1-2) 19 BAA	965
A(1-2) 19 BCB	960
A(1-2) 20 BCD	970
A(1-2) 24 BBB	988

Well Id.	Water Level Elevation (feet amsl)
A(1-2) 24 DAB	1002
A(1-2) 24 DDC2	1001
A(1-2) 26 AAA	992
A(1-2) 26 DDD	1002
A(1-2) 29 DDA	985
A(1-2) 30 AAB	974
A(1-2) 31 AAA	972
A(1-2) 32 BAA	980
A(1-2) 32 DDD	984
A(1-2) 34 ACC	994
A(1-2) 35 BAB	997
A(1-3) 5 BAA	1011
A(1-3) 6 DCD	1000
A(1-3) 18 BAC	1001
A(1-3) 18 BBC	989
A(1-3) 30 CDA	1027
A(1-3) 32 AAD	1025
A(2-1) 23 DDA	919
A(2-1) 24 DBA	919
A(2-1) 25 BCA	922
A(2-1) 26 DAA	927
A(2-1) 27 ABB	923
A(2-1) 28 AAA	916
A(2-1) 33 CCC	920
A(2-1) 34 BBB	920
A(2-1) 35 DAA	943
A(2-1) 36 DAD	937
A(2-2) 18 DDD	924
A(2-2) 19 CCB	915
A(2-2) 20 ADD	935
A(2-2) 22 DAA	971
A(2-2) 25 BCA	989
A(2-2) 27 ACB	960
A(2-2) 27 DCB	966
A(2-2) 28 ABB	951
A(2-2) 28 BDD	949
A(2-2) 29 ACC	938
A(2-2) 29 BCB	928
A(2-2) 30 BAD	923
A(2-2) 31 ADA	937
A(2-2) 32 DAA	948
A(2-3) 31 BCD	989
D(1-1) 3 ADD	903
D(1-2) 3 CBA	999
D(1-2) 4 ADD	1005
D(1-2) 5 ADD	985
D(1-2) 6 DDD	977
D(1-2) 7 CBA	972
D(1-2) 7 DCC	976
D(1-2) 10 BBB	1017
D(1-3) 6 AAA	1042

amsl - above mean sea level

Table 4 - ADWR Measured Water Level Data for Winter 1991/1992
(used for model comparison)

Well Id.		Water Level Elevation (feet amsl)
A(1-1)	2 BBB	937
A(1-1)	2 CCC	933
A(1-1)	3 ABB	919
A(1-1)	3 BBB	924
A(1-1)	3 BDB	929
A(1-1)	4 AAA	927
A(1-1)	9 BAC	930
A(1-1)	9 BBB	927
A(1-1)	9 DAD	938
A(1-1)	10 AAA	942
A(1-1)	10 CCC	943
A(1-1)	11 ACB	948
A(1-1)	11 ADD	949
A(1-1)	11 CBC	943
A(1-1)	12 BBB	952
A(1-1)	12 DBA	955
A(1-1)	13 ADA	955
A(1-1)	14 BAB	947
A(1-1)	14 DAB	952
A(1-1)	14 DDA	953
A(1-1)	15 AAA	945
A(1-1)	15 DAA	947
A(1-1)	16 AAA	928
A(1-1)	21 DDA	946
A(1-1)	22 CDA	942
A(1-1)	23 AAB	968
A(1-1)	23 DBA	953
A(1-1)	23 DDA	957
A(1-1)	24 AAA	960
A(1-1)	25 BAB	966
A(1-1)	25 BBA	960
A(1-1)	25 BBB	950
A(1-1)	26 CAA	959
A(1-1)	28 CAC	944
A(1-1)	35 DDC	953
A(1-1)	36 AAD	962
A(1-1)	36 DDA	970
A(1-2)	1 CAC	987
A(1-2)	2 BCC	972
A(1-2)	7 BBB	954
A(1-2)	7 CCC	955
A(1-2)	7 DCD	931
A(1-2)	8 BAA	957
A(1-2)	8 BBB	958
A(1-2)	8 DAA	961
A(1-2)	9 AAB	960
A(1-2)	9 BBB	961

Well Id.		Water Level Elevation (feet amsl)
A(1-2)	9 CBC	960
A(1-2)	9 CCC	952
A(1-2)	9 CDB	981
A(1-2)	9 DAC	990
A(1-2)	9 DCC	981
A(1-2)	9 DDD	988
A(1-2)	10 ABA	966
A(1-2)	10 CCB	962
A(1-2)	11 AAA	976
A(1-2)	11 BAB	976
A(1-2)	11 CBC	983
A(1-2)	12 BAA	982
A(1-2)	12 CBC	974
A(1-2)	13 ABD	988
A(1-2)	13 CDD	985
A(1-2)	13 DAD	989
A(1-2)	14 AAD	981
A(1-2)	14 BBC	975
A(1-2)	14 CCB	978
A(1-2)	14 CDD	977
A(1-2)	15 ACC	973
A(1-2)	15 BCC	969
A(1-2)	16 CCC	968
A(1-2)	16 DBB	964
A(1-2)	17 ADD	961
A(1-2)	17 CAA	955
A(1-2)	18 ACB	954
A(1-2)	18 DDD	926
A(1-2)	19 BAA	966
A(1-2)	19 CAD	963
A(1-2)	19 DDA	966
A(1-2)	22 BDD	965
A(1-2)	22 DAB	985
A(1-2)	24 BBB	986
A(1-2)	24 DAB	989
A(1-2)	24 DDC	984
A(1-2)	26 AAA	992
A(1-2)	26 DDD	998
A(1-2)	29 BBB	967
A(1-2)	29 DDA	980
A(1-2)	31 AAA	964
A(1-2)	32 AAA	978
A(1-2)	32 BAA	977
A(1-2)	32 CCD	965
A(1-2)	32 DDD	981
A(1-2)	33 CBD	979
A(1-2)	35 BAB	994

amsl - above mean sea level

Table 4 - ADWR Measured Water Level Data for Winter 1991/1992
(used for model comparison)

Well Id.	Water Level Elevation (feet amsl)
A(1-2) 35 DDD	1034
A(1-3) 5 BAA	1008
A(1-3) 5 ABD	1012
A(1-3) 6 DCD	995
A(1-3) 8 ABB	1012
A(1-3) 16 CCB	1006
A(1-3) 18 BBC	988
A(1-3) 20 BAD	1013
A(1-3) 31 DDA	1018
A(2-1) 14 CCC	935
A(2-1) 20 DDD	920
A(2-1) 21 AAA	927
A(2-1) 23 CCC	930
A(2-1) 23 DDA	935
A(2-1) 24 DBA	938
A(2-1) 25 BCA	935
A(2-1) 26 DAA	938
A(2-1) 27 ABB	929
A(2-1) 28 AAA	915
A(2-1) 29 DDD	915
A(2-1) 32 DDA	909
A(2-1) 33 ACC	918
A(2-1) 33 CCC	885
A(2-1) 33 CDD	918
A(2-1) 34 BBB	920
A(2-1) 34 BCC	919
A(2-1) 35 DDD	938
A(2-1) 36 DAD	944
A(2-2) 19 CCB	936
A(2-2) 20 ADD	962
A(2-2) 22 DAA	994
A(2-2) 25 BCA	1004
A(2-2) 27 ACB	980
A(2-2) 27 DCB	984
A(2-2) 28 ABB	974
A(2-2) 29 ACC	963
A(2-2) 30 BAB	937
A(2-2) 30 BAD	944
A(2-2) 30 DBB	943
A(2-2) 31 ADA	951
A(2-2) 32 ABB	957
A(2-2) 32 DAA	960
A(2-3) 20 BCC	1059
D(1-2) 1 DBA	1030
D(1-2) 3 CBA	994
D(1-2) 3 CDD	1019
D(1-2) 4 ADD	1002

Well Id.	Water Level Elevation (feet amsl)
D(1-2) 5 ADD	982
D(1-2) 6 DDD	975
D(1-2) 7 DCC	975
D(1-2) 9 DDA	1025
D(1-2) 10 BBB	1015
D(1-3) 6 AAA	1018
D(1-3) 6 BAD	1032
D(1-3) 6 DBB	1033

amsl - above mean sea level

Table 5

Recharge Volume Totals by Stress Period

Year	Stress Period	Effluent Recharge (cubic-feet)	Canal Recharge (cubic-feet)	River Recharge (cubic-feet)	Agricultural Recharge (cubic-feet)	Total Recharge (cubic-feet)	Total Annual Recharge (cubic-feet)
71	1	1.65E+08	2.21E+08	0.00E+00	5.71E+08	9.57E+08	
71	2	5.90E+08	7.93E+08	0.00E+00	2.05E+09	3.43E+09	
71	3	2.47E+08	3.32E+08	0.00E+00	8.57E+08	1.44E+09	5.82E+09
72	1	1.95E+08	2.21E+08	0.00E+00	5.63E+08	9.79E+08	
72	2	6.97E+08	7.93E+08	0.00E+00	2.02E+09	3.51E+09	
72	3	2.92E+08	3.32E+08	0.00E+00	8.45E+08	1.47E+09	5.95E+09
73	1	2.54E+08	2.21E+08	1.75E+08	5.63E+08	1.21E+09	
73	2	9.11E+08	7.93E+08	6.28E+08	2.02E+09	4.35E+09	
73	3	3.82E+08	3.32E+08	2.63E+08	8.45E+08	1.82E+09	7.38E+09
74	1	2.69E+08	2.21E+08	0.00E+00	5.37E+08	1.03E+09	
74	2	9.65E+08	7.93E+08	0.00E+00	1.92E+09	3.68E+09	
74	3	4.04E+08	3.32E+08	0.00E+00	8.05E+08	1.54E+09	6.25E+09
75	1	2.54E+08	2.21E+08	0.00E+00	5.39E+08	1.01E+09	
75	2	9.11E+08	7.93E+08	0.00E+00	1.93E+09	3.64E+09	
75	3	3.82E+08	3.32E+08	0.00E+00	8.09E+08	1.52E+09	6.17E+09
76	1	2.84E+08	2.21E+08	0.00E+00	4.70E+08	9.76E+08	
76	2	1.02E+09	7.93E+08	0.00E+00	1.69E+09	3.50E+09	
76	3	4.26E+08	3.32E+08	0.00E+00	7.06E+08	1.46E+09	5.94E+09
77	1	2.39E+08	2.21E+08	0.00E+00	4.75E+08	9.36E+08	
77	2	8.58E+08	7.93E+08	0.00E+00	1.70E+09	3.35E+09	
77	3	3.59E+08	3.32E+08	0.00E+00	7.13E+08	1.40E+09	5.69E+09
78	1	2.09E+08	2.21E+08	1.33E+08	4.83E+08	1.05E+09	
78	2	7.51E+08	7.93E+08	4.77E+08	1.73E+09	3.75E+09	
78	3	3.14E+08	3.32E+08	2.00E+08	7.24E+08	1.57E+09	6.37E+09
79	1	2.39E+08	2.21E+08	2.21E+08	4.83E+08	1.16E+09	
79	2	8.58E+08	7.93E+08	7.91E+08	1.73E+09	4.17E+09	
79	3	3.59E+08	3.32E+08	3.31E+08	7.24E+08	1.75E+09	7.08E+09
80	1	2.54E+08	2.21E+08	1.75E+08	4.62E+08	1.11E+09	
80	2	9.11E+08	7.93E+08	6.28E+08	1.65E+09	3.99E+09	
80	3	3.82E+08	3.32E+08	2.63E+08	6.93E+08	1.67E+09	6.77E+09
81	1	2.69E+08	2.21E+08	0.00E+00	3.88E+08	8.78E+08	
81	2	9.65E+08	7.93E+08	0.00E+00	1.39E+09	3.15E+09	
81	3	4.04E+08	3.32E+08	0.00E+00	5.82E+08	1.32E+09	5.34E+09
82	1	2.24E+08	2.21E+08	8.76E+07	3.80E+08	9.13E+08	
82	2	8.04E+08	7.93E+08	3.14E+08	1.36E+09	3.27E+09	
82	3	3.37E+08	3.32E+08	1.31E+08	5.69E+08	1.37E+09	5.55E+09
83	1	1.65E+08	2.21E+08	3.08E+08	3.87E+08	1.08E+09	
83	2	5.90E+08	7.93E+08	1.11E+09	1.39E+09	3.87E+09	
83	3	2.47E+08	3.32E+08	4.63E+08	5.80E+08	1.62E+09	6.58E+09
84	1	1.05E+08	2.21E+08	4.56E+07	4.41E+08	8.12E+08	
84	2	3.75E+08	7.93E+08	1.63E+08	1.58E+09	2.91E+09	
84	3	1.57E+08	3.32E+08	6.84E+07	6.61E+08	1.22E+09	4.94E+09
85	1	1.05E+08	1.58E+08	2.21E+08	4.34E+08	9.18E+08	
85	2	3.75E+08	5.68E+08	7.91E+08	1.55E+09	3.29E+09	
85	3	1.57E+08	2.38E+08	3.31E+08	6.51E+08	1.38E+09	5.58E+09
86	1	2.09E+08	1.58E+08	0.00E+00	4.27E+08	7.95E+08	
86	2	7.51E+08	5.68E+08	0.00E+00	1.53E+09	2.85E+09	
86	3	3.14E+08	2.38E+08	0.00E+00	6.41E+08	1.19E+09	4.84E+09
87	1	2.39E+08	1.58E+08	0.00E+00	4.00E+08	7.98E+08	
87	2	8.58E+08	5.68E+08	0.00E+00	1.43E+09	2.86E+09	
87	3	3.59E+08	2.38E+08	0.00E+00	6.00E+08	1.20E+09	4.85E+09
88	1	2.39E+08	1.58E+08	0.00E+00	3.97E+08	7.95E+08	
88	2	8.58E+08	5.68E+08	0.00E+00	1.42E+09	2.85E+09	
88	3	3.59E+08	2.38E+08	0.00E+00	5.96E+08	1.19E+09	4.84E+09
89	1	1.80E+08	1.45E+08	0.00E+00	3.96E+08	7.20E+08	
89	2	6.43E+08	5.18E+08	0.00E+00	1.42E+09	2.58E+09	
89	3	2.69E+08	2.17E+08	0.00E+00	5.93E+08	1.08E+09	4.38E+09
90	1	2.09E+08	1.45E+08	0.00E+00	3.75E+08	7.29E+08	
90	2	7.51E+08	5.18E+08	0.00E+00	1.35E+09	2.61E+09	
90	3	3.14E+08	2.17E+08	0.00E+00	5.63E+08	1.09E+09	4.44E+09
91	1	2.09E+08	1.45E+08	0.00E+00	3.72E+08	7.26E+08	
91	2	7.51E+08	5.18E+08	0.00E+00	1.33E+09	2.60E+09	
91	3	3.14E+08	2.17E+08	0.00E+00	5.58E+08	1.09E+09	4.42E+09

Table 6
Granite Reef Spill Data - 1965 through 1995
(acre-feet)
Page 1 of 2

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Jan	0	333,228	0	0	0	0	0	0	12,762	0	0	0	0	351	901,114	19,389
Feb	0	34,386	0	57,900	0	0	0	0	32,357	0	0	928	0	456	155,614	1,829,570
Mar	0	8,172	0	23,863	180	0	0	0	428,250	0	0	0	0	591,006	600,245	107,710
Apr	19,982	0	0	24,703	0	0	0	0	549,596	0	0	214	0	954	323,935	78,775
May	0	0	0	0	0	0	0	0	216,541	0	0	0	0	0	16,179	25,238
Jun	0	0	0	0	0	0	0	0	292	0	0	0	0	0	30	91
Jul	0	0	897	0	0	0	0	0	1,061	32	246	173	0	319	0	450
Aug	0	692	56	0	0	0	79	0	129	783	0	186	0	587	0	0
Sep	0	3,894	18	0	0	10,967	0	0	77	0	151	81	0	0	0	38
Oct	0	0	0	0	0	0	0	39,795	8	0	0	516	0	0	0	0
Nov	0	0	0	0	0	0	0	3,346	161	0	0	0	0	0	0	93
Dec	175,718	0	10,749	0	0	0	0	32,238	0	0	0	0	0	795,582	0	0
Annual Total	195,700	380,372	11,720	106,466	180	10,967	79	75,379	1,241,232	815	397	2,098	0	1,389,255	1,997,117	2,061,354

Table 6
Granite Reef Spill Data - 1965 through 1995
(acre-feet)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Jan	0	0	17,836	36,118	168,137	135	0	127	0	0	0	71,339	2,050,031	0	32,111
Feb	99	0	417,194	0	117,560	224	857	4,336	0	0	0	188,969	1,159,051	0	353,878
Mar	0	81,038	480,301	0	327,529	1,696	27,706	1,236	458	0	52,707	331,212	501,216	0	556,182
Apr	0	8	249,308	0	74,815	5,137	472	13,846	0	0	24,339	109,103	202,796	0	26,325
May	0	0	26,553	0	29,594	0	0	0	0	0	0	43,939	158,923	0	2
Jun	0	0	139	0	0	0	0	0	0	0	0	9,394	12	0	0
Jul	0	0	0	286	0	123	0	0	0	0	0	0	0	0	0
Aug	0	0	785	0	81	123	0	0	0	598	0	82,781	0	0	0
Sep	0	26	716	0	389	0	0	0	0	0	410	23,197	0	0	0
Oct	0	0	465,773	1,047	442	490	0	1,035	0	0	298	79	0	0	0
Nov	2	107	319	0	359	228	419	0	0	0	34	78	0	0	0
Dec	0	97,122	105,512	233,797	54,760	220	325	0	0	0	6,751	20,856	0	0	0
Annual Total	101	178,301	1,744,436	271,248	773,446	8,376	29,779	20,380	458	598	84,539	880,947	4,072,029	0	968,498

Table 7

ADWR SRV Model Pumpage for 1972-77

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
72	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	1849.00
73	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	1572.00
74	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	1809.00
75	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	2097.00
76	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	1754.00
77	(A-1-1)02BBB2	607228	RID	N	A	10	7	718	1736.00
72	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	1822.00
73	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	225.00
74	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	1180.00
75	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	1630.00
76	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	1347.00
77	(A-1-1)02CCC	607728	SRP	N	BA	16	7	1192	1772.00
72	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	1802.00
73	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	268.00
74	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	883.00
75	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	945.00
76	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	802.00
77	(A-1-1)03ABB	607692	SRP	N	AB	10	6	717	1390.00
72	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1474.00
73	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1488.00
74	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1511.00
75	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1468.00
76	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1669.00
77	(A-1-1)03BBB	607230	RID	N	A	10	4	715	1246.00
72	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	1335.00
73	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	78.00
74	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	1031.00
75	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	1336.00
76	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	1153.00
77	(A-1-1)09BBB2	607718	SRP	N	BA	17	1	1265	1287.00
72	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	1647.00
73	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	300.00
74	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	1012.00
75	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	1527.00
76	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	998.00
77	(A-1-1)10CCC2	608436	SRP	N	BA	27	4	2058	686.00
72	(A-1-1)11ACB	607227	RID	N	A	19	10	1432	3557.00
73	(A-1-1)11ACB	607227	RID	N	A	19	10	1432	1814.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
75	(A-1-1)11ACB	607227	RID	N	A	19	10	1432	3739.00
76	(A-1-1)11ACB	607227	RID	N	A	19	10	1432	3405.00
77	(A-1-1)11ACB	607227	RID	N	A	19	10	1432	3085.00
72	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	1420.00
73	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	234.00
74	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	1043.00
75	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	1406.00
76	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	1226.00
77	(A-1-1)11ADD	617112	SRP	N	A	21	12	1592	1477.00
72	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	31.00
73	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	25.00
74	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	44.00
75	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	33.00
76	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	49.00
77	(A-1-1)11BCC	626594	COP	N	E	20	7	1508	59.00
74	(A-1-1)11CCB	608362	SRP	N	BA	24	7	1824	72.00
75	(A-1-1)11CCB	608362	SRP	N	BA	24	7	1824	1027.00
76	(A-1-1)11CCB	608362	SRP	N	BA	24	7	1824	1179.00
77	(A-1-1)11CCB	608362	SRP	N	BA	24	7	1824	394.00
72	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	2189.00
73	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	1400.00
74	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	2148.00
75	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	2430.00
76	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	1847.00
77	(A-1-1)12BBB	607206	RID	N	A	16	12	1197	2332.00
72	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	2831.00
73	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	1587.00
74	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	2614.00
75	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	2853.00
76	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	3514.00
77	(A-1-1)12DBB	607226	RID	N	A	22	17	1676	2344.00
72	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	1931.00
73	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	313.00
74	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	998.00
75	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	1025.00
76	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	1205.00
77	(A-1-1)21DDA1	608427	SRP	N	AB	43	3	3321	1531.00
72	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	1502.00
73	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	695.00
74	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	1499.00
75	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	1784.00
76	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	1434.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
77	(A-1-1)23DDA	608371	SRP	N	AB	43	12	3330	1475.00
72	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	1985.00
73	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	341.00
74	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	1423.00
75	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	2750.00
76	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	1883.00
77	(A-1-1)24AAA	608368	SRP	N	AB	38	18	2941	1438.00
72	(A-1-1)24ABD					39	17	3019	56.00
73	(A-1-1)24ABD					39	17	3019	18.00
72	(A-1-1)28AAA					45	3	3479	38.00
73	(A-1-1)28AAA					45	3	3479	27.00
74	(A-1-1)28AAA					45	3	3479	73.00
75	(A-1-1)28AAA					45	3	3479	47.00
72	(A-1-1)28CDB	607695	SRP			49	2	3794	5372.00
73	(A-1-1)28CDB	607695	SRP			49	2	3794	5624.00
74	(A-1-1)28CDB	607695	SRP			49	2	3794	5129.00
75	(A-1-1)28CDB	607695	SRP			49	2	3794	6481.00
76	(A-1-1)28CDB	607695	SRP			49	2	3794	6256.00
77	(A-1-1)28CDB	607695	SRP			49	2	3794	5574.00
72	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	3842.00
73	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	2614.00
74	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	2752.00
75	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	2924.00
76	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	2676.00
77	(A-1-1)33AAA	607694	SRP	N	AB	50	3	3874	2520.00
72	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	3694.00
73	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	5006.00
74	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	3972.00
75	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	4446.00
76	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	4918.00
77	(A-1-1)35DCD2	10006	GILA IND/SRP			53	10	4118	3428.00
72	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	1691.00
73	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	1389.00
74	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	1761.00
75	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	1671.00
76	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	1961.00
77	(A-1-1)36AAD	626267	SRP	N	A	53	19	4127	2386.00
72	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	148.00
73	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	143.00
74	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	146.00
75	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	365.00
76	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	536.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
77	(A-1-2)01CBB	629584	Az Cemeteries	E	A	14	64	1091	672.00
72	(A-1-2)01CBC					14	64	1091	444.00
73	(A-1-2)01CBC					14	64	1091	426.00
74	(A-1-2)01CBC					14	64	1091	435.00
75	(A-1-2)01CBC					14	64	1091	255.00
76	(A-1-2)01CBC					14	64	1091	218.00
77	(A-1-2)01CBC					14	64	1091	431.00
72	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	2463.00
73	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	1206.00
74	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	2277.00
75	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	2486.00
76	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	2458.00
77	(A-1-2)07BBB	607205	RID	N	A	17	19	1283	2541.00
72	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	4160.00
73	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	2323.00
74	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	4056.00
75	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	4198.00
76	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	4054.00
77	(A-1-2)07CCC2	607225	RID	N	A	26	19	1994	4330.00
73	(A-1-2)07DCD	639889	F.L. Sharon Owen			26	23	1998	1.00
72	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	1833.00
73	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	1462.00
74	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	1722.00
75	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	1541.00
76	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	1897.00
77	(A-1-2)08BAA1	631099	RID	E	F	17	31	1295	2170.00
72	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	2376.00
73	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	1228.00
74	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	2512.00
75	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	2490.00
76	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	2497.00
77	(A-1-2)08BBB	607204	RID	N	A	17	26	1290	2006.00
72	(A-1-2)09AAB2	607201	RID			17	45	1309	3303.00
73	(A-1-2)09AAB2	607201	RID			17	45	1309	2656.00
74	(A-1-2)09AAB2	607201	RID			17	45	1309	3589.00
75	(A-1-2)09AAB2	607201	RID			17	45	1309	3447.00
76	(A-1-2)09AAB2	607201	RID			17	45	1309	2875.00
77	(A-1-2)09AAB2	607201	RID			17	45	1309	3300.00
72	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	3218.00
73	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	2435.00
74	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	3362.00
75	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	3664.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
76	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	3606.00
77	(A-1-2)09BBB2	607202	RID	N	A	17	37	1301	2239.00
72	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	4550.00
73	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	2352.00
74	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	4667.00
75	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	4748.00
76	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	3750.00
77	(A-1-2)09CBC2	607221	RID	N	A	25	37	1933	5033.00
72	(A-1-2)10ABA	607200	RID			17	54	1318	2095.00
73	(A-1-2)10ABA	607200	RID			17	54	1318	1108.00
74	(A-1-2)10ABA	607200	RID			17	54	1318	2421.00
75	(A-1-2)10ABA	607200	RID			17	54	1318	1956.00
76	(A-1-2)10ABA	607200	RID			17	54	1318	1769.00
77	(A-1-2)10ABA	607200	RID			17	54	1318	2233.00
72	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	1855.00
73	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	1855.00
74	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	1627.00
75	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	2538.00
76	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	1690.00
77	(A-1-2)10CCB	607218	RID	N	A	25	47	1943	1564.00
72	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	2776.00
73	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	2454.00
74	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	3354.00
75	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	2579.00
76	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	2914.00
77	(A-1-2)11AAA	607198	RID	N	A	17	64	1328	2257.00
72	(A-1-2)11BAB	607199	RID			17	59	1323	2967.00
73	(A-1-2)11BAB	607199	RID			17	59	1323	1784.00
74	(A-1-2)11BAB	607199	RID			17	59	1323	3496.00
75	(A-1-2)11BAB	607199	RID			17	59	1323	2812.00
76	(A-1-2)11BAB	607199	RID			17	59	1323	2879.00
77	(A-1-2)11BAB	607199	RID			17	59	1323	2681.00
73	(A-1-2)11CBC	607215	RID	N	A	24	57	1874	1793.00
74	(A-1-2)11CBC	607215	RID	N	A	24	57	1874	3316.00
75	(A-1-2)11CBC	607215	RID	N	A	24	57	1874	3407.00
76	(A-1-2)11CBC	607215	RID	N	A	24	57	1874	3042.00
77	(A-1-2)11CBC	607215	RID	N	A	24	57	1874	1975.00
72	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	3266.00
73	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	1693.00
74	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	3657.00
75	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	3191.00
76	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	3012.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
77	(A-1-2)12BAA	607197	RID	N	A	18	67	1410	3284.00
72	(A-1-2)12CBC	607210	RID			25	64	1960	2045.00
73	(A-1-2)12CBC	607210	RID			25	64	1960	2045.00
74	(A-1-2)12CBC	607210	RID			25	64	1960	4290.00
75	(A-1-2)12CBC	607210	RID			25	64	1960	3656.00
76	(A-1-2)12CBC	607210	RID			25	64	1960	3786.00
77	(A-1-2)12CBC	607210	RID			25	64	1960	3420.00
72	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	5463.00
73	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	3232.00
74	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	5825.00
75	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	4862.00
76	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	5929.00
77	(A-1-2)13ABD2	607196	RID	N	A	30	69	2360	5237.00
72	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	5728.00
73	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	4995.00
74	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	5411.00
75	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	6035.00
76	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	5914.00
77	(A-1-2)13CDD2	607209	RID	N	A	38	67	2990	5551.00
72	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	3636.00
73	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	3169.00
74	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	4334.00
75	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	3366.00
76	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	3346.00
77	(A-1-2)13DDA	607208	RID	N	A	36	71	2836	3496.00
72	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	2293.00
73	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	1888.00
74	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	2906.00
75	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	1994.00
76	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	2281.00
77	(A-1-2)14AAD	607211	RID	N	A	30	64	2355	1992.00
72	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	6680.00
73	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	3000.00
74	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	7355.00
75	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	7243.00
76	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	6629.00
77	(A-1-2)14BBC	607216	RID	N	A	30	57	2348	5445.00
72	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	4983.00
73	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	2501.00
74	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	5743.00
75	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	5084.00
76	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	4715.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
77	(A-1-2)14CCB	607214	RID	N	A	35	58	2744	4389.00
72	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	6614.00
73	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	5615.00
74	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	7019.00
75	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	6915.00
76	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	6472.00
77	(A-1-2)14CDD2	607213	RID	N	A	38	60	2983	6052.00
72	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	5417.00
73	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	5417.00
74	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	7053.00
75	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	7253.00
76	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	7635.00
77	(A-1-2)15ACC	607217	RID	N	A	32	53	2502	5991.00
72	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	6235.00
73	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	3133.00
74	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	6266.00
75	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	7248.00
76	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	6170.00
77	(A-1-2)15BCC	607219	RID	N	A	32	47	2496	5257.00
72	(A-1-2)16DBB2	607220	RID			33	42	2570	4094.00
73	(A-1-2)16DBB2	607220	RID			33	42	2570	2437.00
74	(A-1-2)16DBB2	607220	RID			33	42	2570	4177.00
75	(A-1-2)16DBB2	607220	RID			33	42	2570	4447.00
76	(A-1-2)16DBB2	607220	RID			33	42	2570	4379.00
77	(A-1-2)16DBB2	607220	RID			33	42	2570	3372.00
72	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	4703.00
73	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	2409.00
74	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	6578.00
75	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	4190.00
76	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	4440.00
77	(A-1-2)17CAA2	607223	RID	N	A	32	30	2479	3605.00
72	(A-1-2)18BAA					27	22	2076	16.00
72	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	7285.00
73	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	3967.00
74	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	8142.00
75	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	8180.00
76	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	6551.00
77	(A-1-2)18BDA	607224	RID	N	A	29	22	2234	6862.00
72	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	2539.00
73	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	802.00
74	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	1464.00
75	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	1967.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
76	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	1850.00
77	(A-1-2)18DDD2	608386	SRP	N	AB	36	25	2790	2009.00
72	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	6401.00
73	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	3564.00
74	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	7507.00
75	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	7046.00
76	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	4833.00
77	(A-1-2)24BBB2	607212	RID	N	A	38	64	2987	6218.00
72	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	351.00
73	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	229.00
74	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	1265.00
75	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	708.00
76	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	799.00
77	(A-1-2)24DCD2	608378	SRP	N	AB	45	69	3545	1025.00
72	(A-1-2)27DAD					48	57	3770	40.00
73	(A-1-2)27DAD					48	57	3770	28.00
74	(A-1-2)27DAD					48	57	3770	11.00
72	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	3663.00
73	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	3333.00
74	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	3476.00
75	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	3521.00
76	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	4606.00
77	(A-1-2)31AAA1	626269	SRP	N	A	50	26	3897	3692.00
72	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	2144.00
73	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	2267.00
74	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	2122.00
75	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	2003.00
76	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	2476.00
77	(A-1-2)32AAA2	626271	SRP	N	A	50	36	3907	1947.00
72	(A-1-2)34BAA					50	51	3922	135.00
73	(A-1-2)34BAA					50	51	3922	53.00
74	(A-1-2)34BAA					50	51	3922	31.00
72	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	3775.00
73	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	3774.00
74	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	4098.00
75	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	3658.00
76	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	3997.00
77	(A-1-3)18BBC	607207	RID	N	A	30	72	2363	3348.00
72	(A-2-1)21AAA	608410	SRP			1	3	3	998.00
73	(A-2-1)21AAA	608410	SRP			1	3	3	31.00
74	(A-2-1)21AAA	608410	SRP			1	3	3	671.00
75	(A-2-1)21AAA	608410	SRP			1	3	3	1153.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
76	(A-2-1)21AAA	608410	SRP			1	3	3	1043.00
77	(A-2-1)21AAA	608410	SRP			1	3	3	1325.00
72	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	1139.00
73	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	74.00
74	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	744.00
75	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	293.00
76	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	1096.00
77	(A-2-1)23CCC	608393	SRP	N	AB	3	7	165	258.00
72	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	1378.00
73	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	127.00
74	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	938.00
75	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	1328.00
76	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	1398.00
77	(A-2-1)23DDA	608392	SRP	N	AB	2	12	91	1643.00
72	(A-2-1)24BAD					1	15	15	569.00
73	(A-2-1)24BAD					1	15	15	164.00
74	(A-2-1)24BAD					1	15	15	348.00
75	(A-2-1)24BAD					1	15	15	333.00
76	(A-2-1)24BAD					1	15	15	300.00
72	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	1699.00
73	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	247.00
74	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	1493.00
75	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	2155.00
76	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	1752.00
77	(A-2-1)24BDD	608391	SRP	N	AB	1	15	15	1847.00
72	(A-2-1)25BCB1					3	12	170	1807.00
73	(A-2-1)25BCB1					3	12	170	1167.00
74	(A-2-1)25BCB1					3	12	170	2334.00
75	(A-2-1)25BCB1					3	12	170	1618.00
76	(A-2-1)25BCB1					3	12	170	2725.00
77	(A-2-1)25BCB1					3	12	170	1290.00
72	(A-2-1)26DAA	608389	SRP	N	AB	4	12	249	2237.00
74	(A-2-1)26DAA	608389	SRP	N	AB	4	12	249	1724.00
75	(A-2-1)26DAA	608389	SRP	N	AB	4	12	249	1952.00
76	(A-2-1)26DAA	608389	SRP	N	AB	4	12	249	2050.00
77	(A-2-1)26DAA	608389	SRP	N	AB	4	12	249	2537.00
77	(A-2-1)27ABB	626630	COP	N	E	3	6	164	399.00
72	(A-2-1)28AAA1	608358	SRP	N	AB	3	3	161	1064.00
73	(A-2-1)28AAA1	608358	SRP	N	AB	3	3	161	54.00
74	(A-2-1)28AAA1	608358	SRP	N	AB	3	3	161	778.00
75	(A-2-1)28AAA1	608358	SRP	N	AB	3	3	161	1067.00
72	(A-2-1)33ACC2	607234	RID			7	2	476	776.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
73	(A-2-1)33ACC2	607234	RID			7	2	476	1131.00
74	(A-2-1)33ACC2	607234	RID			7	2	476	834.00
75	(A-2-1)33ACC2	607234	RID			7	2	476	992.00
76	(A-2-1)33ACC2	607234	RID			7	2	476	343.00
77	(A-2-1)33ACC2	607234	RID			7	2	476	936.00
72	(A-2-1)33CCC	607234	RID	N	A	9	1	633	3098.00
73	(A-2-1)33CCC	607234	RID	N	A	9	1	633	1540.00
74	(A-2-1)33CCC	607234	RID	N	A	9	1	633	3494.00
75	(A-2-1)33CCC	607234	RID	N	A	9	1	633	2948.00
76	(A-2-1)33CCC	607234	RID	N	A	9	1	633	3251.00
77	(A-2-1)33CCC	607234	RID	N	A	9	1	633	2700.00
72	(A-2-1)33CDD	607233	RID	N	A	9	2	634	1904.00
73	(A-2-1)33CDD	607233	RID	N	A	9	2	634	1741.00
74	(A-2-1)33CDD	607233	RID	N	A	9	2	634	2151.00
75	(A-2-1)33CDD	607233	RID	N	A	9	2	634	2163.00
76	(A-2-1)33CDD	607233	RID	N	A	9	2	634	1161.00
77	(A-2-1)33CDD	607233	RID	N	A	9	2	634	2139.00
72	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	1291.00
73	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	869.00
74	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	1365.00
75	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	1305.00
76	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	1318.00
77	(A-2-1)34BBB1	607229	RID	N	A	6	4	399	1177.00
72	(A-2-1)34CBB	607231	RID	N	A	8	4	557	1530.00
73	(A-2-1)34CBB	607231	RID	N	A	8	4	557	991.00
74	(A-2-1)34CBB	607231	RID	N	A	8	4	557	2127.00
75	(A-2-1)34CBB	607231	RID	N	A	8	4	557	701.00
76	(A-2-1)34CBB	607231	RID	N	A	8	4	557	1800.00
77	(A-2-1)34CBB	607231	RID	N	A	8	4	557	1490.00
72	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	3389.00
73	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	326.00
74	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	1463.00
75	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	2225.00
76	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	2063.00
77	(A-2-1)35DDD	608388	SRP	N	AB	9	12	644	2971.00
72	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	3036.00
73	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	35.00
74	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	2019.00
75	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	3176.00
76	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	3060.00
77	(A-2-1)36DAA	608384	SRP	N	AB	8	19	572	3375.00
72	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	976.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
73	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	59.00
74	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	854.00
75	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	1108.00
76	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	781.00
77	(A-2-2)19CCB	608385	SRP	N	AB	2	19	98	584.00
72	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	2979.00
73	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	1815.00
74	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	3025.00
75	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	1258.00
76	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	1054.00
77	(A-2-2)20ADD1	608372	SRP	N	A	1	36	36	1431.00
72	(A-2-2)21CCB					2	37	116	157.00
73	(A-2-2)21CCB					2	37	116	59.00
74	(A-2-2)21CCB					2	37	116	72.00
72	(A-2-2)22DAA	626551	COP	N	E	2	57	136	286.00
73	(A-2-2)22DAA	626551	COP	N	E	2	57	136	101.00
74	(A-2-2)22DAA	626551	COP	N	E	2	57	136	265.00
75	(A-2-2)22DAA	626551	COP	N	E	2	57	136	221.00
76	(A-2-2)22DAA	626551	COP	N	E	2	57	136	217.00
77	(A-2-2)22DAA	626551	COP	N	E	2	57	136	233.00
72	(A-2-2)24AAA		SRP			1	71	71	190.00
74	(A-2-2)24AAA		SRP			1	71	71	188.00
75	(A-2-2)24AAA		SRP			1	71	71	40.00
72	(A-2-2)25BCA	617850	SRP			4	66	303	948.00
73	(A-2-2)25BCA	617850	SRP			4	66	303	2.00
74	(A-2-2)25BCA	617850	SRP			4	66	303	636.00
75	(A-2-2)25BCA	617850	SRP			4	66	303	947.00
76	(A-2-2)25BCA	617850	SRP			4	66	303	817.00
77	(A-2-2)25BCA	617850	SRP			4	66	303	1162.00
72	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	2589.00
73	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	112.00
74	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	2659.00
75	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	2844.00
76	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	2352.00
77	(A-2-2)26DBB	608377	SRP	N	AB	4	61	298	3581.00
72	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	2440.00
73	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	177.00
74	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	2293.00
75	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	2603.00
76	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	2817.00
77	(A-2-2)27ACB	608381	SRP	N	AB	4	54	291	3047.00
72	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	764.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
73	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	95.00
74	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	695.00
75	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	593.00
76	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	581.00
77	(A-2-2)27DCB1	626575	COP/CON WATER			5	53	369	663.00
72	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	1262.00
73	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	462.00
74	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	963.00
75	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	444.00
76	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	649.00
77	(A-2-2)28ABB1	626576	COP/CON WATER	N	E	3	43	201	632.00
72	(A-2-2)28BDD	608374	SRP	N	AB	4	41	278	2013.00
73	(A-2-2)28BDD	608374	SRP	N	AB	4	41	278	137.00
74	(A-2-2)28BDD	608374	SRP	N	AB	4	41	278	179.00
75	(A-2-2)28BDD	608374	SRP	N	AB	4	41	278	1071.00
76	(A-2-2)28BDD	608374	SRP	N	AB	4	41	278	9.00
72	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	1843.00
73	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	93.00
74	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	1497.00
75	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	1892.00
76	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	1965.00
77	(A-2-2)29ACC	607675	SRP	N	AB	4	32	269	2153.00
72	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	1798.00
73	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	111.00
74	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	1724.00
75	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	1962.00
76	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	2068.00
77	(A-2-2)29BCB	608387	SRP	N	AB	3	26	184	2137.00
72	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	2836.00
73	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	1570.00
74	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	2225.00
75	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	1495.00
76	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	927.00
77	(A-2-2)30BAA1	626578	COP	N	E	3	22	180	1205.00
72	(A-2-2)30BAA2	626578		N	E	3	22	180	1387.00
73	(A-2-2)30BAA2	626578		N	E	3	22	180	890.00
74	(A-2-2)30BAA2	626578		N	E	3	22	180	1205.00
75	(A-2-2)30BAA2	626578		N	E	3	22	180	632.00
76	(A-2-2)30BAA2	626578		N	E	3	22	180	510.00
77	(A-2-2)30BAA2	626578		N	E	3	22	180	706.00
72	(A-2-2)30BAB	626587	COP	N	E	3	21	179	438.00
73	(A-2-2)30BAB	626587	COP	N	E	3	21	179	257.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
74	(A-2-2)30BAB	626587	COP	N	E	3	21	179	449.00
75	(A-2-2)30BAB	626587	COP	N	E	3	21	179	319.00
76	(A-2-2)30BAB	626587	COP	N	E	3	21	179	547.00
77	(A-2-2)30BAB	626587	COP	N	E	3	21	179	563.00
72	(A-2-2)30DBB	626579	COP	N	E	4	23	260	867.00
73	(A-2-2)30DBB	626579	COP	N	E	4	23	260	257.00
74	(A-2-2)30DBB	626579	COP	N	E	4	23	260	395.00
75	(A-2-2)30DBB	626579	COP	N	E	4	23	260	330.00
76	(A-2-2)30DBB	626579	COP	N	E	4	23	260	163.00
77	(A-2-2)30DBB	626579	COP	N	E	4	23	260	92.00
72	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	2367.00
73	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	111.00
74	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	1533.00
75	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	2252.00
76	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	1983.00
77	(A-2-2)31ADA	607727	SRP	N	AB	7	26	500	2433.00
72	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1614.00
73	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1124.00
74	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1539.00
75	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1355.00
76	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1376.00
77	(A-2-2)32ABB1	626580	COP	N	E	6	32	427	1372.00
72	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	2005.00
73	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	88.00
74	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	1143.00
75	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	1380.00
76	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	1212.00
77	(A-2-2)32DAA	607736	SRP	N	AB	7	36	510	1897.00
72	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	375.00
73	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	145.00
74	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	343.00
75	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	283.00
76	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	341.00
77	(A-2-2)34ADC	626550	COP/CON WATER	N	E	7	55	529	403.00
72	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	429.00
73	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	126.00
74	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	337.00
75	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	239.00
76	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	237.00
77	(A-2-2)35DCC	626561	COP/SUB WATER			9	61	693	218.00
72	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	1041.00
73	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	450.00

Year	Well Location	ADWR No.	Well Owner	Well Type	Water Use	Model Row	Model Col	Cell No.	Pumpage (acre-feet)
74	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	1054.00
75	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	1072.00
76	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	1310.00
77	(A-2-3)19BCD	626565	COP/MARIPOSA WA	N	E	2	72	151	607.00
72	(A-2-3)20ADD2	608422	SRP	N	AB	2	79	158	720.00
74	(A-2-3)20ADD2	608422	SRP	N	AB	2	79	158	660.00
75	(A-2-3)20ADD2	608422	SRP	N	AB	2	79	158	657.00
76	(A-2-3)20ADD2	608422	SRP	N	AB	2	79	158	822.00
77	(A-2-3)20ADD2	608422	SRP	N	AB	2	79	158	847.00
72	(A-2-3)20BCC2	608379	SRP	N	AB	2	76	155	549.00
74	(A-2-3)20BCC2	608379	SRP	N	AB	2	76	155	586.00
75	(A-2-3)20BCC2	608379	SRP	N	AB	2	76	155	722.00
76	(A-2-3)20BCC2	608379	SRP	N	AB	2	76	155	897.00
77	(A-2-3)20BCC2	608379	SRP	N	AB	2	76	155	771.00
72	(A-2-3)31					7	73	547	850.00
73	(A-2-3)31					7	73	547	913.00
74	(A-2-3)31					7	73	547	950.00
75	(A-2-3)31					7	73	547	1007.00

Notes:
Some well locations are corrected from ADWR data to field verified locations
RID = Roosevelt Irrigation District
SRP = Salt River Project
COP = City of Phoenix
GILA IND = Gila River Indian Community

Well Type:

D=Domestic/Stock
E=Exempt
N=Non-Exempt
O=Non-Domestic
P=P-Permit
Q=Q-Permit
S=Q-Service
T=Q-Non-Service
X=Monitor
Z=Exploration

Water Use:

A=Irrigation
B=Utility Company
C=Unused
D=Domestic
E=Municipal
F=Industrial
G=Recreation
H=Subdivision
I=Mining
J=Stock
K=Other Mineral Expl
L=Drainage
M=Monitoring
N=Test
O=Other Non-Production

Table 8
ADWR SRV Model Pumpage for 1978-83

ADWR No.	Well Location	Data Source	ROGR Right No.	Owner's Name	Pumpage Totals (acre feet) 1978	1979	1980	1981	1982	1983
	A-01-01 02BBB	RL		RID(TOLL)	1574.00	1949.00	1449.00	2268.00	540.00	0.00
	A-01-01 02CCC	RL		SRP	21.00	320.00	483.00	2022.00	295.00	473.00
620583	A-01-01 02DA	E8	58102946	BROOKS JR	5.00	4.00	4.00	6.00	4.00	2.00
	A-01-01 03ABB2	RL		SRP	210.00	3.00	393.00	523.00	18.00	91.00
	A-01-01 03BCA	RS			98.00	95.00	101.00	105.00	107.00	107.00
	A-01-01 03BCA	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
606101	A-01-01 04BAC	E8	58104145	MAUGHAN, REX	47.00	43.00	45.00	60.00	45.00	19.00
	A-01-01 04DDB	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
	A-01-01 09AAA	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
	A-01-01 09AAC	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
	A-01-01 09BBB2	RL		SRP	37.00	18.00	362.00	710.00	99.00	104.00
	A-01-01 09BDB	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
600620	A-01-01 09DD	E8	58103354	HARBOR FINICAL GROUP	1299.00	1186.00	1245.00	1658.00	1230.00	523.00
	A-01-01 10AAA	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
618807	A-01-01 10CAB	E8	58100177	SUN LAND BEEF CO.	943.00	861.00	904.00	1204.00	893.00	380.00
	A-01-01 10CCC2	RL		SRP	0.00	14.00	0.00	670.00	43.00	17.00
	A-01-01 11ACB	RL		RID(TOLL)	1818.00	1990.00	2534.00	2586.00	1618.00	693.00
607624	A-01-01 11ADC	E8	58105687	SOUTHWEST MILLING CO	24.00	22.00	23.00	30.00	22.00	10.00
	A-01-01 11ADD	RL		SRP	75.00	91.00	250.00	904.00	149.00	111.00
	A-01-01 11BCC	RL		PHX	61.00	75.00	57.00	76.00	74.00	76.00
	A-01-01 11CBC	RL		SRP	21.00	34.00	186.00	914.00	155.00	36.00
	A-01-01 12BBB	RL		RID(TOLL)	1391.00	1687.00	2033.00	2372.00	1501.00	737.00
	A-01-01 12DAB	RL		RID(TOLL)	1608.00	2044.00	2543.00	2357.00	1330.00	415.00
619746	A-01-01 13ADD	E8	58130150	L D S	13.00	12.00	12.00	16.00	12.00	5.00
625474	A-01-01 14DAD	E8	58111641	LBR FARMS	120.00	110.00	115.00	154.00	114.00	48.00
624350	A-01-01 15DAA	E8	58105488	LAYTON,L.R.	110.00	101.00	106.00	141.00	104.00	44.00
624825	A-01-01 16AAA	E8	58111647	GOULD	60.00	55.00	58.00	77.00	57.00	24.00
	A-01-01 16ACB	RS		CITY OF TOLLESON	98.00	95.00	101.00	105.00	107.00	107.00
619468	A-01-01 21AAA	E8	58110585	ACCOMAZZO, J.	351.00	320.00	336.00	448.00	332.00	141.00
617512	A-01-01 21BCD	E8	58115836	TRES AMIGOS DAIRY	96.00	88.00	92.00	123.00	91.00	39.00
	A-01-01 21DDA	RL		SRP	202.00	259.00	523.00	918.00	265.00	62.00
607470	A-01-01 21DDA	E8	58107756	BARKER	1108.00	1012.00	1063.00	1415.00	1050.00	446.00
804665	A-01-01 22BAA	E8	58108234	HURLEY, PATRICK	354.00	324.00	340.00	453.00	336.00	143.00
619469	A-01-01 22CDA	E8	58114548	ACCOMAZZO, J.M.	396.00	361.00	380.00	505.00	375.00	159.00
505481	A-01-01 22CDB	E8	58111861	BOSCHMA, EDWARD	88.00	80.00	84.00	112.00	83.00	35.00
619467	A-01-01 23AAB	E8	58110595	ACCOMAZZO, MARK	741.00	676.00	710.00	946.00	702.00	298.00
	A-01-01 23DAA	RL		SRP	658.00	572.00	887.00	1367.00	253.00	690.00
618120	A-01-01 23DBA	E8	58110593	ACCOMAZZO	535.00	488.00	513.00	683.00	507.00	215.00
	A-01-01 24AAC	RL		SRP	207.00	79.00	230.00	1352.00	265.00	90.00
633843	A-01-01 25B	E8	58130622	VISS FAMILY TRUST	102.00	93.00	98.00	130.00	97.00	41.00
633843	A-01-01 25B	E8	58130662	VISS FAMILY TRUST	103.00	94.00	98.00	131.00	97.00	41.00
	A-01-01 25DDD	RS		RIGBY WATER CO.	33.00	30.00	34.00	36.00	36.00	36.00
606371	A-01-01 26ADA	E8	58110602	LUKE, BILL - RANCHES	88.00	81.00	85.00	113.00	84.00	36.00
606370	A-01-01 26CAA	E8	58110602	LIKE, BILL - RANCHES	148.00	135.00	142.00	189.00	140.00	60.00
603440	A-01-01 28BCB	E8	58101539	BOSCHMA, EDWARD	318.00	291.00	305.00	407.00	302.00	128.00
617511	A-01-01 28CB	E8	58112199	TRES AMIGOS DAIRY	407.00	371.00	390.00	519.00	385.00	164.00
	A-01-01 28CDB	RL		SRP	3358.00	3038.00	2013.00	4533.00	3668.00	3524.00
604967	A-01-01 28DAB	E8	58110077	PHOENIX, CITY OF	1016.00	927.00	974.00	1297.00	962.00	409.00
	A-01-01 33AAA	RL		SRP	389.00	3031.00	1785.00	3495.00	2317.00	2423.00
10006	A-01-01 35DCD	IN			2003.00	2006.00	2199.00	2867.00	2467.00	1602.00
	A-01-01 35DCD	RL		SRP	2732.00	3318.00	3536.00	4118.00	2259.00	1000.00

ADWR No.	Well Location	Data Source	ROGR Right No.	Owner's Name	Pumpage Totals (acre feet) 1978	1979	1980	1981	1982	1983
	A-01-01 36AAD	RL		SRP	1654.00	1948.00	2231.00	1871.00	1728.00	579.00
	A-01-01 36AC	RS		RIGBY WATER CO.	33.00	30.00	34.00	36.00	36.00	36.00
	A-01-01 36BAA	RS		PENINSULA DITCH CO. (LA	1533.00	1533.00	1533.00	1533.00	1533.00	1533.00
636009	A-01-01 36BAB	E8	58117215	HERSETH FEEDLOTS INC	23.00	21.00	22.00	29.00	21.00	9.00
636010	A-01-01 36BAB	E8	58117215	HERSETH FEEDLOTS INC	6.00	5.00	6.00	8.00	6.00	2.00
636011	A-01-01 36BAB	E8	58117215	HERSETH FEEDLOTS INC	4.00	4.00	4.00	5.00	4.00	2.00
617310	A-01-02 01AAA	E8	58112445	SOUTHEASTERN PUBLIC	199.00	182.00	191.00	254.00	189.00	80.00
629584	A-01-02 01CBB	E8	58103048	AZ CEMETERIES	20.00	18.00	19.00	25.00	19.00	8.00
	A-01-02 07BBB	RL		RID(TOLL)	1205.00	1499.00	2065.00	3002.00	1526.00	998.00
	A-01-02 07CCC	RL		RID(TOLL)	2333.00	3135.00	3894.00	4600.00	3451.00	1874.00
639889	A-01-02 07DC	E8	58111160	OWEN	78.00	71.00	74.00	99.00	74.00	31.00
	A-01-02 08BAA	RL		RID(TOLL)	1231.00	831.00	1349.00	1369.00	1039.00	634.00
	A-01-02 08BBB	RL		RID(TOLL)	1201.00	2214.00	2091.00	2385.00	1448.00	607.00
	A-01-02 09AAB	RL		RID(TOLL)	2785.00	1769.00	2640.00	2456.00	1301.00	1730.00
	A-01-02 09BBB	RL		RID(TOLL)	2456.00	1561.00	2010.00	2151.00	1833.00	42.00
	A-01-02 09BBB2	RL		PHX	51.00	0.00	0.00	0.00	0.00	0.00
	A-01-02 09CBC	RL		RID(TOLL)	2348.00	2825.00	3773.00	3753.00	4079.00	2324.00
626784	A-01-02 09CCA	E8	58113978	ANDERSON-CLAYTON CO	1190.00	1087.00	1141.00	1520.00	1127.00	479.00
613079	A-01-02 09CDB	E8	58114046	AZ PUBLIC SERVICE	631.00	576.00	605.00	806.00	598.00	254.00
613084	A-01-02 09DAC	E8	58114046	AZ PUBLIC SERVICE	330.00	301.00	316.00	421.00	312.00	133.00
613083	A-01-02 09DBB	E8	58114046	AZ PUBLIC SERVICE	27.00	24.00	25.00	34.00	25.00	11.00
613082	A-01-02 09DCC	E8	58114046	AZ PUBLIC SERVICE CO	423.00	386.00	405.00	540.00	401.00	170.00
	A-01-02 09DDB	RL		PHX	17.00	10.00	2.00	0.00	13.00	8.00
613081	A-01-02 09DDD	E8	58114046	AZ PUBLIC SERVICE CO	915.00	835.00	877.00	1168.00	867.00	368.00
	A-01-02 10ABB	RL		RID(TOLL)	1228.00	1242.00	1544.00	1576.00	1238.00	877.00
	A-01-02 10CBB	RL		RID(TOLL)	739.00	831.00	1627.00	1616.00	1104.00	464.00
	A-01-02 11AAA	RL		RID(TOLL)	2457.00	1936.00	2309.00	2271.00	1947.00	1661.00
	A-01-02 11BAB	RL		RID(TOLL)	1623.00	1448.00	2366.00	2161.00	1902.00	1441.00
	A-01-02 11CBC	RL		RID(TOLL)	1781.00	1837.00	3067.00	3360.00	2311.00	1663.00
	A-01-02 12BAA	RL		RID(TOLL)	1809.00	1600.00	1711.00	1490.00	1253.00	201.00
800748	A-01-02 12CAA	E8	58102109	HOLSUM BAKERY INC	44.00	40.00	42.00	56.00	41.00	18.00
	A-01-02 12CCB	RL		RID(TOLL)	2058.00	1613.00	2036.00	2414.00	1434.00	1524.00
	A-01-02 13ABD	RL		RID(TOLL)	2989.00	3081.00	4737.00	4160.00	3399.00	2224.00
	A-01-02 13CDD	RL		RID(TOLL)	5032.00	3066.00	4953.00	6524.00	3994.00	2089.00
	A-01-02 13DDA	RL		RID(TOLL)	3123.00	2544.00	3340.00	3809.00	2984.00	1798.00
	A-01-02 14AAD	RL		RID(TOLL)	1888.00	1685.00	1909.00	2195.00	929.00	1547.00
	A-01-02 14BCB	RL		RID(TOLL)	2979.00	3370.00	5566.00	6576.00	4487.00	2870.00
	A-01-02 14CCB	RL		RID(TOLL)	2896.00	2601.00	3339.00	3933.00	2624.00	1962.00
	A-01-02 14CDD	RL		RID(TOLL)	3595.00	3774.00	4473.00	5495.00	4582.00	2807.00
	A-01-02 15ACC	RL		RID(TOLL)	5295.00	4822.00	6866.00	8298.00	3665.00	3278.00
	A-01-02 15BCC	RL		RID(TOLL)	3096.00	3199.00	5616.00	5955.00	4353.00	1943.00
	A-01-02 16BCC	RL		RID(TOLL)	3704.00	3863.00	2558.00	4156.00	1813.00	1111.00
	A-01-02 16DBB	RL		RID(TOLL)	2447.00	2841.00	3198.00	3416.00	3092.00	1990.00
	A-01-02 17CAA	RL		RID(TOLL)	2399.00	2927.00	3690.00	5143.00	3902.00	2831.00
619745	A-01-02 18AAA	E8	58109257	L D S	136.00	124.00	130.00	174.00	129.00	55.00
	A-01-02 18ADD2	RL		SRP	478.00	76.00	1349.00	1844.00	248.00	41.00
	A-01-02 18BDA	RL		RID(TOLL)	4040.00	4815.00	4419.00	5357.00	3349.00	1807.00
629043	A-01-02 18CB	E8	58103994	TRUOG FAMILY PRTRSHP	21.00	19.00	20.00	27.00	20.00	9.00
609961	A-01-02 19BBB	E8	58130322	HAWPE	28.00	26.00	27.00	36.00	27.00	11.00
609960	A-01-02 19BBB	E8	58130252	MASTIN	468.00	427.00	449.00	598.00	443.00	188.00
605714	A-01-02 19CAD	E8	58113305	GUSTAFSON	17.00	16.00	16.00	22.00	16.00	7.00
613468	A-01-02 20BCD	E8	58105772	KING, ALGIA	587.00	536.00	563.00	749.00	556.00	236.00
612845	A-01-02 22CBA	E8	58111219	VALENTE	968.00	884.00	928.00	1236.00	917.00	390.00
601546	A-01-02 23DCD	E8	58104234	TANNER LAND CO INC	71.00	64.00	68.00	90.00	67.00	28.00
	A-01-02 24BBB	RL		RID(TOLL)	3212.00	2897.00	4461.00	3975.00	3046.00	1390.00

ADWR No.	Well Location	Data Source	ROGR Right No.	Owner's Name	Pumpage Totals (acre feet) 1978	1979	1980	1981	1982	1983
605117	A-01-02 24DAB	E8	58115464	TANNER CO	315.00	288.00	302.00	402.00	298.00	127.00
605118	A-01-02 24DAB	E8	58115464	TANNER CO	462.00	422.00	443.00	590.00	438.00	186.00
	A-01-02 24DDC	RL		SRP	96.00	0.00	56.00	182.00	32.00	63.00
617602	A-01-02 26DDD	E8	58115207	MANZANITA ACRES	569.00	519.00	545.00	726.00	539.00	229.00
600468	A-01-02 29DDA	E8	58113285	LINCOLN	662.00	605.00	635.00	846.00	628.00	267.00
	A-01-02 31AAA	RL		SRP	1517.00	94.00	4653.00	4675.00	4045.00	1475.00
	A-01-02 31DBB	RS		PENINSULA DITCH CO. (LA	1533.00	1533.00	1533.00	1533.00	1533.00	1533.00
	A-01-02 32AAA	RL		SRP	1471.00	1740.00	1904.00	2449.00	1821.00	566.00
624173	A-01-02 32CCD	E8	58106937	POHLCAT MOUNTAINVIEW	24.00	22.00	23.00	31.00	23.00	10.00
625400	A-01-02 33BDA	E8	58130069	WILLIAMS, CHET	1091.00	996.00	1046.00	1394.00	1034.00	440.00
619396	A-01-02 35BAC	E8	58103684	HERSETH FEEDLOTS INC	6.00	5.00	5.00	7.00	5.00	2.00
604323	A-01-02 35DDD	E8	58107869	ROBT M BUTLER ESTATE	238.00	218.00	228.00	304.00	226.00	96.00
610166	A-01-03 08ABB	E8	58104638	KAUFMAN, JAMES	227.00	207.00	218.00	290.00	215.00	91.00
610165	A-01-03 08ABB	E8	58104638	KAUFMAN, JAMES	227.00	207.00	218.00	290.00	215.00	91.00
623510	A-01-03 08BAA	E8	58109621	KORET TRUSTEE	287.00	262.00	276.00	367.00	272.00	116.00
624386	A-01-03 08BAA	E8	58111353	MELIKIAN, GREGORY	370.00	338.00	355.00	472.00	350.00	149.00
624810	A-01-03 08BAA	E8	58112393	SECURITY CENTER CO	176.00	161.00	169.00	225.00	167.00	71.00
619307	A-01-03 08BAD	E8	58111665	FIRST INTERSTATE BK	127.00	116.00	122.00	163.00	121.00	51.00
801051	A-01-03 08DCA	E8	58108805	PHOENIX ELEMENTARY	67.00	61.00	65.00	86.00	64.00	27.00
800819	A-01-03 18	E8	58110742	MARICOPA PACKING CO	129.00	118.00	124.00	165.00	122.00	52.00
	A-01-03 18BBC	RL		RID(TOLL)	3335.00	2764.00	4115.00	4192.00	2567.00	1306.00
604163	A-01-03 20BAD	E8	58105296	UNION ROCK & MAT COR	1046.00	955.00	1003.00	1335.00	991.00	421.00
604164	A-01-03 20BAD	E8	58105296	UNION ROCK & MAT COR	123.00	113.00	118.00	158.00	117.00	50.00
	A-02-01 21AAA	RL		SRP	597.00	548.00	985.00	346.00	219.00	63.00
	A-02-01 23CCC	RL		SRP	70.00	7.00	182.00	918.00	249.00	134.00
	A-02-01 23DDA	RL		SRP	50.00	121.00	325.00	1628.00	97.00	32.00
	A-02-01 24DBC	RL		SRP	9.00	8.00	43.00	2244.00	652.00	18.00
	A-02-01 25BCB1	RL		PHX	989.00	518.00	85.00	0.00	0.00	0.00
	A-02-01 25BCB2	RL		PHX	514.00	286.00	53.00	0.00	0.00	0.00
	A-02-01 26DAA	RL		SRP	50.00	219.00	218.00	1450.00	266.00	281.00
	A-02-01 27ABB	RL		PHX	850.00	783.00	1008.00	1124.00	804.00	383.00
	A-02-01 28AAA1	RL		SRP	0.00	12.00	67.00	494.00	165.00	24.00
	A-02-01 33ACC	RL		RID(TOLL)	1169.00	913.00	999.00	1283.00	717.00	407.00
	A-02-01 33CCC	RL		RID(TOLL)	1560.00	2649.00	2810.00	3766.00	1876.00	566.00
	A-02-01 33CDD	RL		RID(TOLL)	1767.00	2286.00	2005.00	2210.00	1195.00	631.00
	A-02-01 34BBB	RL		RID(TOLL)	896.00	1715.00	1201.00	1814.00	982.00	642.00
	A-02-01 34BCC	RL		RID(TOLL)	968.00	1423.00	1755.00	2543.00	1190.00	747.00
624200	A-02-01 35D	E8	58103314	JOHN F LONG HOMES	156.00	143.00	150.00	200.00	148.00	63.00
	A-02-01 35DDD	RL		SRP	12.00	306.00	144.00	2128.00	123.00	41.00
	A-02-01 36DAD	RL		SRP	113.00	75.00	296.00	3219.00	69.00	192.00
	A-02-02 19CCB	RL		SRP	3.00	6.00	66.00	990.00	243.00	7.00
	A-02-02 20ADD	RL		SRP	0.00	9.00	4.00	779.00	120.00	7.00
	A-02-02 22DAA	RL		PHX	92.00	226.00	293.00	246.00	204.00	145.00
	A-02-02 25BCA	RL		SRP	44.00	6.00	6.00	1208.00	555.00	6.00
	A-02-02 26CBC	RL		PHX	0.00	0.00	1498.00	2697.00	2403.00	1386.00
800680	A-02-02 26CBD	E8	58100542	CRYSTAL BOTTLED WTR	48.00	44.00	46.00	61.00	45.00	19.00
	A-02-02 26DBB	RL		SRP	62.00	36.00	25.00	3544.00	1485.00	14.00
	A-02-02 27DBB	RL		SRP	55.00	12.00	9.00	2638.00	1116.00	10.00
	A-02-02 27DCB1	RL		PHX	396.00	318.00	499.00	358.00	255.00	0.00
	A-02-02 27DCB2	RL		PHX	332.00	269.00	469.00	368.00	125.00	0.00
	A-02-02 28ABB1	RL		PHX	330.00	332.00	334.00	138.00	192.00	270.00
	A-02-02 28ABB2	RL		PHX	402.00	438.00	445.00	340.00	350.00	484.00
	A-02-02 28CAA2	RL		SRP	8.00	8.00	72.00	1086.00	627.00	8.00
	A-02-02 29BCB	RL		SRP	78.00	37.00	110.00	1910.00	606.00	24.00
	A-02-02 29DBB2	RL		SRP	32.00	40.00	43.00	1939.00	503.00	12.00

ADWR No.	Well Location	Data Source	ROGR Right No.	Owner's Name	Pumpage Totals (acre feet) 1978	1979	1980	1981	1982	1983
	A-02-02 30BAA1	RL		PHX	942.00	463.00	127.00	235.00	238.00	32.00
	A-02-02 30BAA2	RL		PHX	882.00	447.00	134.00	222.00	143.00	15.00
	A-02-02 30BAB	RL		PHX	787.00	959.00	71.00	1103.00	1042.00	0.00
	A-02-02 30DBB	RL		PHX	584.00	246.00	465.00	469.00	388.00	254.00
	A-02-02 31ADA	RL		SRP	89.00	160.00	85.00	2262.00	372.00	43.00
	A-02-02 32ABB	RL		PHX	768.00	642.00	197.00	266.00	156.00	373.00
	A-02-02 32DAA	RL		SRP	0.00	55.00	11.00	698.00	60.00	103.00
	A-02-02 34ADC	RL		PHX	461.00	454.00	533.00	442.00	391.00	259.00
	A-02-02 35CDD	RL		PHX	327.00	409.00	436.00	408.00	299.00	141.00
603550	A-02-02 36CB8	E8	58102419	SHAMROCK FARMS CO	136.00	124.00	131.00	174.00	129.00	55.00
617312	A-02-02 36DCC	E8	58112447	SOUTHEASTERN P.S.C.	180.00	164.00	172.00	230.00	170.00	72.00
	A-02-03 19BCD	RL		PHX	960.00	1452.00	750.00	1426.00	1416.00	1457.00
	A-02-03 20ADD2	RL		SRP	35.00	4.00	4.00	819.00	46.00	11.00
	A-02-03 20BCC2	RL		SRP	30.00	1.00	3.00	590.00	73.00	4.00
800735	A-02-03 20DDA	E8	58116105	V A MEDICAL CENTER	11.00	10.00	10.00	14.00	10.00	4.00
800734	A-02-03 20DDA	E8	58116105	V A MEDICAL CENTER	11.00	10.00	10.00	14.00	10.00	4.00
618034	A-02-03 29CCD	E8	58109274	PARK CENTRAL	528.00	482.00	506.00	674.00	500.00	213.00
621150	A-02-03 29CCD	E8	58111856	ST JOSEPH HOSPITAL	2401.00	2192.00	2302.00	3065.00	2274.00	967.00
618775	D-01-01 01BAA	E8	58102282	KNAPPLE	38.00	35.00	37.00	49.00	36.00	15.00
10008	D-01-01 02BBC	IN			1057.00	1058.00	1160.00	1512.00	1301.00	845.00
10225	D-01-01 02BCB	IN			145.00	145.00	145.00	145.00	145.00	145.00
10007	D-01-01 03BAA	IN			1585.00	1587.00	1740.00	2269.00	1952.00	1267.00
10009	D-01-01 03DAA	IN			1887.00	1890.00	2072.00	2701.00	2324.00	1509.00
610684	D-01-02 02DCC	E8	58107847	LA SALVIA, J. & P	139.00	127.00	133.00	178.00	132.00	56.00
610683	D-01-02 02DCD	E8	58107847	LA SALVIA, J. & P.	139.00	127.00	133.00	178.00	132.00	56.00
610682	D-01-02 02DDD	E8	58106969	LA SALVIA	63.00	58.00	60.00	80.00	60.00	25.00
610682	D-01-02 02DDD	E8	58106968	LA SALVIA	32.00	29.00	31.00	41.00	30.00	13.00
	D-01-02 03CDD	RL		SRP	11.00	10.00	115.00	527.00	26.00	40.00
626450	D-01-02 04ADD	E8	58114173	CHEATHAM, L.F. & A.D	81.00	74.00	78.00	104.00	77.00	33.00
626450	D-01-02 04ADD	E8	58114174	CHEATHAM, L.F. & A.D	13.00	12.00	12.00	16.00	12.00	5.00
626450	D-01-02 04ADD	E8	58114179	CHEATHAM, L.F. & A.D	586.00	535.00	562.00	749.00	556.00	236.00
626450	D-01-02 04ADD	E8	58114167	CHEATHAM, L.F. & A.D	65.00	60.00	63.00	83.00	62.00	26.00
626450	D-01-02 04ADD	E8	58130381	CHEATHAM, L.F. & A.D	84.00	76.00	80.00	107.00	79.00	34.00
626452	D-01-02 04BBC	E8	58114180	CHEATHAM, L.F. & A.D	70.00	64.00	67.00	89.00	66.00	28.00
624171	D-01-02 05AAD	E8	58106941	DEWITT, WILLIAM	725.00	662.00	695.00	926.00	687.00	292.00
624171	D-01-02 05AAD	E8	58106940	DEWITT, WILLIAM	176.00	161.00	169.00	225.00	167.00	71.00
601560	D-01-02 05B	E8	58100155	SOUTHWEST LOOP 59TH	909.00	830.00	872.00	1161.00	862.00	366.00
601559	D-01-02 06A	E8	58100155	SOUTHWEST LOOP 59TH	222.00	203.00	213.00	283.00	210.00	89.00
	D-01-02 06BBA	RS		PENINSULA DITCH CO. (LA	1533.00	1533.00	1533.00	1533.00	1533.00	1533.00
605872	D-01-02 06BDD	E8	58100366	SCHLOSSER	66.00	60.00	63.00	84.00	62.00	26.00
605870	D-01-02 06BDD	E8	58130609	SCHLOSSER	71.00	65.00	68.00	91.00	67.00	29.00
621135	D-01-02 06DC	E8	58113850	VANDERWEY, JOHN	13.00	12.00	13.00	17.00	13.00	5.00
625040	D-01-02 06DDD	E8	58130138	WILLIAMS	987.00	901.00	946.00	1260.00	935.00	398.00
10010	D-01-02 07BBC	IN			1069.00	1070.00	1174.00	1530.00	1316.00	855.00
10012	D-01-02 07DCD	IN			377.00	378.00	414.00	540.00	465.00	302.00
10011	D-01-02 07DCD	IN			1876.00	1878.00	2060.00	2685.00	2310.00	1500.00
801739	D-01-02 08BCD	E8	58106815	TYSON	195.00	178.00	187.00	249.00	184.00	78.00
626440	D-01-02 09CAA	E8	58114168	CHEATHAM DAIRY INC	3.00	3.00	3.00	4.00	3.00	1.00
624778	D-01-02 10BBB	E8	58113412	LONG, JOHN F PROP	829.00	757.00	795.00	1059.00	786.00	334.00
618749	D-01-02 10CBD	E8	58102815	RAWLINGS	28.00	25.00	27.00	35.00	26.00	11.00
	D-01-03 06AAA	RL		SRP	235.00	96.00	159.00	1969.00	1193.00	121.00
	D-01-03 06DBB	RL		SRP	27.00	5.00	10.00	618.00	133.00	3.00

Data Sources:
RL = Reported Large Pumpers, RS = Reported Small Pumpers, E8 = Estimated from Reported 1984 Pumpage, IN = Reported Gila River Indian Community Pumpage

Table 9
ADWR SRV Model Pumpage for 1984-91

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-01 02BBB	607228	57002517	ROOSEVELT IRR DIST	N	A	W	1037.63	1445.19	1420.49	1554.09	2328.04	2565.48	2213.39	1442.33
A-01-01 02CCC	607728	57002520	SALT RIVER PROJECT	N	BA	W	1796.50	256.79	155.80	164.34	104.93	112.96	2948.64	53.20
A-01-01 02DA	620583	58102946	BROOKS JR	N	JD	W	4.00	6.80	0.00	7.70	8.40	8.20	11.06	0.00
A-01-01 02DA	620583	58102820	BROOKS JR	N	JD	W	0.00	0.00	8.09	0.00	0.00	0.00	0.00	8.25
A-01-01 03ABB	607692	57002520	SALT RIVER PROJECT	N	AB	W	334.97	86.06	44.90	187.14	201.17	17.42	244.14	38.91
A-01-01 03BBB	607230	57002517	ROOSEVELT IRR DIST	N	A	W	1247.04	1371.53	1878.44	2273.72	2305.13	2009.22	2228.89	1815.86
A-01-01 03BDB	519437	56002044	TOLLESON, CITY OF	N	E	W	0.00	0.00	0.00	0.00	52.25	417.64	202.62	0.00
A-01-01 04BAC	606101	58104145	MAUGHAN, REX	N	A	W	41.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 04DDB	609149	56002044	TOLLESON, CITY OF	N	E	W	217.49	193.15	197.24	298.07	218.34	318.74	302.60	194.35
A-01-01 09AAA	609146	56002044	TOLLESON, CITY OF	N	E	W	362.04	318.42	389.45	400.10	179.88	236.26	229.57	389.31
A-01-01 09AAC	609148	56002044	TOLLESON, CITY OF	N	E	W	255.61	225.61	199.80	148.05	139.53	0.00	0.00	0.00
A-01-01 09BAC	504249	56002044	TOLLESON, CITY OF	Q	E	W	109.06	244.48	279.84	266.23	464.48	262.77	264.40	457.89
A-01-01 09BBB	607718	57002520	SALT RIVER PROJECT	N	BA	W	1117.86	192.43	19.66	159.50	300.11	46.15	843.38	79.21
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	0.00	10.20	0.00	0.00	0.00	0.00
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	1133.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	352.85
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	106.70	10.20	0.00	0.00	0.00	0.00
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	0.00	10.20	0.00	0.00	0.00	0.00
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	0.00	0.00	137.75	0.00	0.00	0.00
A-01-01 09DD	600620	58103354	HARBOR FINICAL GROUP	N	A	W	0.00	0.00	0.00	0.00	0.00	363.84	994.61	0.00
A-01-01 10AAA	518899	56002044	TOLLESON, CITY OF	S	E	W	0.00	0.00	0.00	0.00	0.63	159.87	453.99	654.86
A-01-01 10CAB	618807	58100177	SUN LAND BEEF CO.	N	N	U	823.00	690.00	639.00	532.00	527.00	0.00	0.00	0.00
A-01-01 10CBA	500078	58100177	SUNLAND BEEF CO.	N	F	W	0.00	0.00	0.00	0.00	0.00	535.00	529.00	556.00
A-01-01 10CCC	608436	57002520	SALT RIVER PROJECT	N	BA	W	420.74	68.19	37.49	93.41	134.51	123.77	1474.94	217.81
A-01-01 11ACB	607227	57002517	ROOSEVELT IRR DIST	N	A	W	1641.24	1632.84	1551.16	2242.52	2381.69	3202.44	2588.66	2587.20
A-01-01 11ADC	607624	59512085	SOUTHWEST MILLING CO	N	FJ	W	0.00	6.54	12.23	7.79	9.56	7.52	12.47	11.08
A-01-01 11ADC	607624	58105687	SOUTHWEST MILLING CO	N	FJ	W	20.60	16.16	15.85	15.18	15.95	15.64	14.83	14.06
A-01-01 11ADD	617112	57002520	SALT RIVER PROJECT	N	A	W	847.12	167.59	157.70	158.36	131.46	5.07	1318.64	173.56
A-01-01 11BCC	626594	56002030	PHOENIX, CITY OF	N	E	W	61.96	22.80	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 11CCB	608362	57002520	SALY RIVER PROJECT	N	BA	W	789.04	64.87	295.71	124.29	95.97	187.63	818.55	178.79
A-01-01 12BBB	607206	57002517	ROOSEVELT IRR DIST	N	A	W	1509.92	1643.32	1245.16	1079.04	915.80	1433.77	997.61	1135.37
A-01-01 12DBB	607226	57002517	ROOSEVELT IRR DIST	N	A	W	1760.94	2127.05	1890.13	2684.29	2240.80	3047.25	1632.14	3053.13
A-01-01 13ADD	619746	58130150	L D S	N	A	W	11.11	0.00	0.00	0.00	0.00	95.00	1105.48	22.00
A-01-01 14BAB	618655	59507636	B & T ENTERPRISES	N	D	W	0.00	0.00	0.00	7.92	3.66	3.84	0.00	0.06
A-01-01 14BAB	507637	59507636	B & T ENTERPRISES	T	FD	W	0.00	1.76	10.91	0.00	0.00	0.00	0.00	0.00
A-01-01 14DAD	625474	58111641	LBR FARMS	N	A	W	105.00	0.00	0.00	9.00	50.55	333.31	417.00	0.00
A-01-01 15AAD	626416	58104050	HOMRIGHAUSEN-BELL	N	A	W	0.00	0.00	0.00	44.78	389.18	0.00	0.00	0.00
A-01-01 15AAD	626416	58104050	HOMRIGHAUSEN-BELL	N	A	W	0.00	384.30	0.00	0.00	0.00	0.00	0.00	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-01 15AAD	626416	58104050	HOMRIGHAUSEN-BELL	N	A	W	0.00	0.00	0.00	0.00	0.00	386.00	617.33	170.05
A-01-01 15DAA	624350	58105488	LAYTON,L.R.	N	A	W	96.21	48.19	0.00	126.29	232.45	1270.74	1375.17	80.79
A-01-01 16AAA	624825	58111647	GOULD	N	A	W	52.50	40.82	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 16ACB	800926	56002044	TOLLESON , CITY OF	N	E	W	0.00	0.00	0.00	0.00	0.00	14.09	23.40	6.58
A-01-01 21AAA	619468	58110585	ACCOMAZZO, J.	N	A	W	306.10	0.00	4.30	8.02	79.74	522.85	408.15	28.20
A-01-01 21BCD	617512	58115836	TRES AMIGOS DAIRY	N	J	W	83.80	102.00	100.90	104.57	65.56	53.61	99.49	90.53
A-01-01 21DDA	608427	57002520	SALT RIVER PROJECT	N	AB	W	539.49	140.30	0.00	220.84	0.00	0.00	1110.36	461.63
A-01-01 21DDA	607470	58107756	BARKER	N	A	W	967.50	0.00	0.00	0.00	0.00	277.20	741.25	353.18
A-01-01 22BAA	804665	58108234	HURLEY, PATRICK	N	A	W	309.47	308.41	40.00	394.94	794.78	1058.00	541.81	476.46
A-01-01 22CDA	619469	58114548	ACCOMAZZO, J.M.	N	A	W	345.60	0.00	42.20	0.00	109.40	459.68	469.97	76.97
A-01-01 22CDB	505481	58103443	BOSCHMA, EDWARD	Q	F	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.17
A-01-01 22CDB	505481	58111861	BOSCHMA, EDWARD	Q	F	W	76.69	77.00	81.86	84.01	84.34	93.73	99.57	0.00
A-01-01 22CDB	505481	58111861	BOSCHMA, EDWARD	Q	F	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.00
A-01-01 23AAB	619467	58110595	ACCOMAZZO, MARK	N	A	W	646.50	0.00	48.85	8.40	64.20	352.20	433.35	212.02
A-01-01 23DBA	618120	58110593	ACCOMAZZO	N	A	W	467.00	0.00	0.00	0.00	100.19	458.15	0.00	196.10
A-01-01 23DDA	608371	58110593	SALT RIVER PROJECT	N	AB	W	0.00	0.00	0.00	0.00	0.00	0.00	776.86	0.00
A-01-01 23DDA	608371	57002520	SALT RIVER PROJECT	N	AB	W	726.15	324.08	305.85	35.71	106.55	233.94	459.63	108.54
A-01-01 24AAA	608368	57002520	SALT RIVER PROJECT	N	AB	W	969.65	164.83	149.62	118.01	66.53	61.96	421.51	135.55
A-01-01 25AAB	805626	58130662	VISS FAMILY TRUST	N	FJ	W	0.00	0.00	0.00	0.00	0.00	43.66	20.91	0.00
A-01-01 25AAB	805626	58130662	VISS FAMILY TRUST	N	FJ	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.61
A-01-01 25B	633843	58130662	VISS FAMILY TRUST	N	DJ	W	89.60	9.28	14.78	15.27	0.00	0.00	0.00	0.00
A-01-01 25B	633843	58130622	VISS FAMILY TRUST	N	DJ	W	89.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 25BBB	512987	58130662	VISS, NEIL	N	FD	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72
A-01-01 25BBB	512987	58130662	VISS, NEIL	N	FD	W	0.00	0.00	0.00	0.00	14.78	10.42	3.97	0.00
A-01-01 25CCD	605873	58100367	SCHLOSSER, RONALD	N	AJD	W	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00
A-01-01 26ADA	606371	58110602	LUKE, BILL - RANCHES	N	A	W	77.20	18.55	0.00	0.00	24.00	0.00	0.00	0.00
A-01-01 26ADA	606371	58110602	LUKE, BILL - RANCHES	N	A	W	0.00	0.00	0.00	0.00	24.00	101.00	0.00	0.00
A-01-01 26CAA	606370	58110602	LIKE, BILL - RANCHES	N	A	W	129.33	8.53	0.78	0.00	0.07	0.00	0.00	0.00
A-01-01 26CAA	606370	58110602	LIKE, BILL - RANCHES	N	A	W	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
A-01-01 27BDA	612452	58106659	STUMP FARMS	N	A	W	0.00	0.00	0.00	0.00	0.00	152.29	61.00	73.60
A-01-01 27BDA	612452	58106659	STUMP FARMS	N	A	W	0.00	0.00	147.24	91.71	158.65	0.00	0.00	0.00
A-01-01 27C	510285	59519424	PHOENIX, CITY OF	T	L	U	0.00	0.00	0.00	0.00	841.70	0.00	0.00	0.00
A-01-01 27CAC	518181	59514594	PHOENIX, CITY OF	N	L	D	0.00	0.00	0.00	0.00	0.00	0.00	2537.88	328.86
A-01-01 27CCC	514595	59514594	PHOENIX, CITY OF	N	L	W	0.00	0.00	0.00	2030.00	0.00	0.00	0.00	0.00
A-01-01 27CCC	514596	59514594	PHOENIX, CITY OF	N	L	W	0.00	0.00	0.00	1370.00	0.00	0.00	0.00	0.00
A-01-01 27CCC	514597	59514594	PHOENIX, CITY OF	N	L	W	0.00	0.00	0.00	1920.00	33.00	0.00	0.00	0.00
A-01-01 27CCC	514598	59514594	PHOENIX, CITY OF	N	L	W	0.00	0.00	0.00	2550.00	138.60	0.00	0.00	0.00
A-01-01 27CCD	514848	59514594	PHOENIX, CITY OF	N	L	W	0.00	0.00	0.00	2090.00	122.80	0.00	614.76	0.00
A-01-01 27CDD	803560	59513639	PHOENIX, CITY OF	N	F	W	0.00	0.00	187.59	0.00	0.00	0.00	0.00	0.00
A-01-01 27CDD	513639	59513639	PHOENIX, CITY OF	N	L	D	0.00	0.00	187.58	0.00	0.00	0.00	0.00	0.00
A-01-01 27CDD	513639	59519424	PHOENIX, CITY OF	N	L	D	0.00	0.00	0.00	0.00	575.10	0.00	0.00	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-01 27CDD	803560	59514594	PHOENIX, CITY OF	N	F	W	0.00	0.00	0.00	2020.00	288.20	0.00	0.00	0.00
A-01-01 27CDD	803558	59514594	PHOENIX, CITY OF	N	F	W	0.00	0.00	0.00	3400.00	2001.00	0.00	0.00	1694.84
A-01-01 27CDD	803558	59513639	PHOENIX, CITY OF	N	F	W	0.00	0.00	187.58	0.00	0.00	0.00	0.00	0.00
A-01-01 27CDD	803559	59519424	PHOENIX, CITY OF	N	F	W	0.00	0.00	0.00	0.00	746.80	0.00	0.00	0.00
A-01-01 27CDD	803559	59513639	PHOENIX, CITY OF	N	F	W	0.00	0.00	187.59	0.00	0.00	0.00	0.00	0.00
A-01-01 28BCB	603440	58101539	BOSCHMA, EDWARD	N	A	W	277.94	0.00	776.00	0.00	0.00	255.18	291.00	0.00
A-01-01 28CAC	607695	57002520	SALT RIVER PROJECT	N	AB	W	4016.30	45.30	3492.91	3452.78	4130.88	3395.27	3732.51	3408.06
A-01-01 28CB	617511	58112199	TRES AMIGOS DAIRY	N	AJ	W	354.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 28CBC	514891	57002520	SALT RIVER PROJECT	Q	B	W	0.00	0.00	0.00	220.84	0.00	0.00	0.00	0.00
A-01-01 28DAB	604967	58110077	PHOENIX, CITY OF	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	744.84	489.72
A-01-01 28DAB	604967	58110077	PHOENIX, CITY OF	N	A	W	886.70	919.60	945.20	900.90	732.07	376.00	0.00	0.00
A-01-01 33AAA	607694	57002520	SALT RIVER PROJECT	N	AB	W	1358.34	63.34	1889.28	823.09	3047.55	3775.93	2953.90	2684.42
A-01-01 35AD	639890	58112299	COBB	E	D	W	0.00	0.00	0.00	0.00	15.04	21.00	12.59	11.26
A-01-01 35AD	640003	58106280	WILLEY	E	D	W	0.00	44.60	35.07	32.63	30.74	36.70	33.06	38.37
A-01-01 35DCD	10006		GILA RIVER INDIAN COMMUNIT				1621.00	979.00	845.00	694.00	795.00	0.00	0.00	0.00
A-01-01 36AAD	617817	57002520	SALT RIVER PROJECT	N	A	W	1576.77	1526.76	1237.27	1430.79	1824.19	1304.09	1220.96	1130.23
A-01-01 36BAB	636010	58117216	HERSETH FEEDLOTS INC	N	A	W	0.00	0.00	0.00	7.37	0.00	0.00	0.00	0.00
A-01-01 36BAB	636011	58103684	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	0.00	0.00	8.80	6.80	0.00	0.00
A-01-01 36BAB	636011	58117215	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	0.00	0.00	0.00	0.00	7.49	1.26
A-01-01 36BAB	636011	58117215	HERSETH FEEDLOTS INC	N	JDF	W	3.66	2.95	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 36BAB	636010	58103684	HERSETH FEEDLOTS INC	N	A	W	0.00	0.00	5.35	0.00	0.00	0.00	0.00	0.00
A-01-01 36BAB	636011	58103684	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	6.42	0.00	0.00	0.00	0.00	0.00
A-01-01 36BAB	636010	58117215	HERSETH FEEDLOTS INC	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	3.52	0.00
A-01-01 36BAB	636010	58117215	HERSETH FEEDLOTS INC	N	A	W	5.25	4.67	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 36BAB	636010	58103684	HERSETH FEEDLOTS INC	N	A	W	0.00	0.00	0.00	0.00	9.00	14.80	0.00	0.00
A-01-01 36BAB	636009	58117215	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	0.00	0.00	0.00	0.00	6.33	0.15
A-01-01 36BAB	636009	58117215	HERSETH FEEDLOTS INC	N	JDF	W	19.67	13.18	0.00	0.00	0.00	0.00	0.00	0.00
A-01-01 36BAB	636009	58103684	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	0.00	0.00	8.20	6.70	0.00	0.00
A-01-01 36BAB	636009	58103684	HERSETH FEEDLOTS INC	N	JDF	W	0.00	0.00	15.51	10.75	0.00	0.00	0.00	0.00
A-01-01 36DDA	626266	57002514	PENINSULA-HOROWITZ	N	A	W	1397.20	1424.72	1376.87	873.83	899.36	1743.54	1445.79	1264.50
A-01-02 01AAA	617310	58112445	SOUTHEASTERN PUBLIC	N	C	W	0.00	0.00	35.00	147.00	212.00	20.00	221.00	276.00
A-01-02 01AAA	617310	58112445	SOUTHEASTERN PUBLIC	N	C	W	174.00	27.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 01AAA	617310	58112447	SOUTHEASTERN PUBLIC	N	C	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
A-01-02 01BDB	801094	58106886	IFS ARIZONA INC	N	A	W	0.00	93.21	128.58	279.17	145.65	0.00	0.00	0.00
A-01-02 01BDB	801094	58106886	IFS ARIZONA INC	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.47
A-01-02 01CAC	801093	58106886	IFS ARIZONA INC	N	A	W	0.00	242.51	278.64	226.72	245.02	0.00	0.00	0.00
A-01-02 01CAC	801093	58106886	IFS ARIZONA INC	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	271.56
A-01-02 01CBB	629584	58103048	AZ CEMETERIES	E	A	W	17.27	119.07	105.70	94.92	106.27	149.77	0.00	121.81
A-01-02 02BCC	626533	56002030	PHOENIX, CITY OF	N	E	W	18.40	18.09	18.00	28.00	11.00	150.00	0.00	27.00
A-01-02 05BDC	629596	56002030	OLNHAUSEN	N	D	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.83
A-01-02 05BDC	629596	56002293	OLNHAUSEN	N	D	W	0.00	0.00	22.46	21.45	24.00	0.00	0.00	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-02 07BBB	607205	57002517	ROOSEVELT IRR DIST	N	A	W	2253.98	1232.18	1398.94	1333.86	1283.63	1484.03	1038.39	1151.15
A-01-02 07CCC	607225	57002517	ROOSEVELT IRR DIST	N	A	W	2280.10	3139.22	3890.53	2683.81	3840.53	4340.80	3193.10	2317.23
A-01-02 07DC	639889	58111160	OWEN	E	DJ	W	67.80	85.22	92.45	84.50	88.29	86.05	88.29	117.70
A-01-02 08BAA	607203	57002517	ROOSEVELT IRR DIST	N	A	W	1408.61	1162.76	1420.36	1132.91	1010.33	1414.60	937.05	1523.80
A-01-02 08BBB	607204	57002517	ROOSEVELT IRR DIST	N	A	W	1150.80	2182.29	1291.73	1468.03	1225.18	1903.01	2540.69	1465.40
A-01-02 09AAA	607201	57002517	ROOSEVELT IRR DIST	N	A	W	2516.84	2387.29	2467.39	2219.22	1758.18	0.00	2099.95	1750.10
A-01-02 09BBB	607202	57002517	ROOSEVELT IRR DIST	N	A	W	2361.27	1939.23	2486.21	1415.80	1071.47	1622.13	2076.58	1583.54
A-01-02 09CBC	607221	57002517	ROOSEVELT IRR DIST	N	A	W	2299.39	2964.46	1021.59	2771.00	3036.14	2808.93	845.01	2496.02
A-01-02 09CCA	626784	58113978	ANDERSON-CLAYTON CO	N	DJ	W	1038.96	1465.00	1012.23	744.72	1372.99	1470.35	1451.11	1195.99
A-01-02 09CCC	626785	58113978	ANDERSON-CLAYTON CO	N	DF	W	0.00	16.00	0.00	12.91	18.25	10.87	14.84	8.84
A-01-02 09CDB	613079	58114046	AZ PUBLIC SERVICE	N	F	W	550.90	771.39	349.20	9.54	143.00	0.00	109.50	127.80
A-01-02 09DAC	613084	58114046	AZ PUBLIC SERVICE	N	F	W	287.78	6.10	25.70	18.32	6.30	0.00	23.10	3.90
A-01-02 09DBB	613083	58114046	AZ PUBLIC SERVICE	N	F	W	23.18	553.22	449.10	420.27	222.80	0.00	455.40	162.90
A-01-02 09DCC	613082	58114046	AZ PUBLIC SERVICE CO	N	F	W	369.22	432.77	20.30	60.77	121.50	0.00	26.60	305.60
A-01-02 09DDD	613081	58114046	AZ PUBLIC SERVICE CO	N	F	W	798.76	328.98	104.20	142.31	215.70	0.00	37.50	120.90
A-01-02 10AAA	607200	57002517	ROOSEVELT IRR DIST	N	A	W	1534.42	1585.63	1321.86	90.47	0.00	2861.23	0.00	0.00
A-01-02 10CCB	607218	57002517	ROOSEVELT IRR DIST	N	A	W	1042.86	1358.89	1307.37	1064.29	991.44	1009.77	945.73	1048.27
A-01-02 11AAA	607198	57002517	ROOSEVELT IRR DIST	N	A	W	2369.84	2036.38	1732.71	1583.96	1193.94	2102.13	1681.90	1314.59
A-01-02 11AAC	607199	57002517	ROOSEVELT IRR DIST	N	A	W	2726.25	1603.60	1533.28	1146.21	1411.48	1836.70	1456.34	1144.27
A-01-02 11CBC	607215	57002517	ROOSEVELT IRR DIST	N	A	W	2135.45	1400.66	2300.26	2151.41	2125.07	2195.53	1771.45	1725.74
A-01-02 12BAA	607197	57002517	ROOSEVELT IRR DIST	N	A	W	1542.53	1387.18	1298.67	949.24	1410.39	1502.51	1539.78	1160.96
A-01-02 12CAA	800748	58102109	HOLSUM BAKERY INC	N	F	W	38.00	38.00	38.00	38.00	7.88	0.00	0.00	0.00
A-01-02 12CCB	607210	57002517	ROOSEVELT IRR DIST	N	A	W	1886.21	2684.15	3071.48	2303.42	3016.86	2852.62	2428.89	1691.62
A-01-02 13ABD	607196	57002517	ROOSEVELT IRR DIST	N	A	W	4526.67	3067.68	2120.27	2720.51	3306.49	3500.83	3382.85	3695.47
A-01-02 13CDD	607209	57002517	ROOSEVELT IRR DIST	N	A	W	3612.22	2812.63	4684.50	4638.86	3626.91	3313.24	3007.51	4161.36
A-01-02 13DDA	607208	57002517	ROOSEVELT IRR DIST	N	A	W	2712.83	3182.09	3136.50	2486.93	3765.05	3687.89	2865.05	3352.45
A-01-02 14AAD	607211	57002517	ROOSEVELT IRR DIST	N	A	W	1860.83	2289.18	1948.70	1781.35	1854.71	2283.28	844.05	1303.87
A-01-02 14BBC	607216	57002517	ROOSEVELT IRR DIST	N	A	W	3513.10	4515.58	1941.60	4057.31	4136.61	3824.94	3971.36	3245.31
A-01-02 14CCB	607214	57002517	ROOSEVELT IRR DIST	N	A	W	2375.34	3562.35	2344.38	3509.80	1115.20	6506.78	3355.03	3283.99
A-01-02 14CDD	607213	57002517	ROOSEVELT IRR DIST	N	A	W	4011.44	5398.16	5302.42	4459.80	4045.97	4095.50	3689.53	3169.79
A-01-02 15ACC	607217	57002517	ROOSEVELT IRR DIST	N	A	W	4238.11	2647.78	4726.87	3518.72	2990.13	5525.53	4634.96	4090.38
A-01-02 15BCC	607219	57002517	ROOSEVELT IRR DIST	N	A	W	3492.16	4371.24	5480.18	4161.07	4711.83	4770.65	4111.41	4132.70
A-01-02 16BDD	607220	57002517	ROOSEVELT IRR DIST	N	A	W	2366.13	2255.94	2504.76	2440.98	2212.95	2279.63	1762.09	2037.31
A-01-02 17ADD	607222	57002517	ROOSEVELT IRR DIST	N	A	W	1968.75	2353.03	2296.13	2768.10	3214.38	5530.71	2389.52	1974.64
A-01-02 17CAA	607223	57002517	ROOSEVELT IRR DIST	N	A	W	2906.40	2990.85	3405.56	2996.42	3400.47	3651.82	2603.48	1977.89
A-01-02 18AAA	619745	58109257	L D S	N	A	W	118.77	0.00	0.00	0.00	0.00	862.70	1492.52	0.13
A-01-02 18BDA	607224	57002517	ROOSEVELT IRR DIST	N	A	W	2926.47	5224.45	6310.58	2703.57	4131.63	5663.36	4640.34	3040.45
A-01-02 18CB	629043	58103994	TRUOG FAMILY PRTRSHP	E	AJD	W	18.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 18DDD	608386	57002520	SALT RIVER PROJECT	N	AB	W	927.52	93.25	21.79	21.37	41.42	34.70	578.98	45.37
A-01-02 19BBB	609960	58130252	MASTIN	N	A	W	408.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 19BBB	609961	58130322	HAWPE	N	JD	W	24.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-02 19C	638631	58115024	MAC MILLAN	E	D	W	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 19CAD	605714	56002176	GUSTAFSON	N	DAJ	W	0.00	9.00	11.00	4.22	5.32	6.70	2.62	0.00
A-01-02 19CAD	605714	58113305	GUSTAFSON	N	DAJ	W	15.00	0.00	0.00	0.00	0.00	0.00	2.42	6.45
A-01-02 19DAA	622272	56002180	KING	N	JD	W	2.65	3.15	10.70	9.10	8.17	8.78	6.33	7.05
A-01-02 19DDA	622273	56002180	KING	N	F	W	1.32	1.02	4.24	4.19	6.42	2.37	1.21	1.94
A-01-02 20BCD	613468	58105772	KING, ALGIA	N	A	W	512.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 20BCD	613468	58105772	KING, ALGIA	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	42.80	470.12
A-01-02 22CBA	612845	59512708	VALENTE	N	F	W	0.00	0.00	634.50	506.30	456.20	0.00	399.10	456.00
A-01-02 22CBA	612845	58111219	VALENTE	N	F	W	845.00	591.50	634.50	0.00	119.92	0.00	118.10	105.10
A-01-02 23DCD	601546	58104234	TANNER LAND CO INC	N	F	W	0.00	0.00	0.10	12.07	0.00	0.00	0.00	0.00
A-01-02 23DCD	601546	58104234	TANNER LAND CO INC	N	F	W	61.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 24BBB	607212	57002517	ROOSEVELT IRR DIST	N	A	W	2268.47	3887.12	4587.40	3944.92	4349.78	3005.33	3192.23	3889.51
A-01-02 24DAB	517289	58115464	TANNER COMPANIES	Q	I	W	0.00	0.00	0.00	0.00	93.45	0.00	83.51	577.53
A-01-02 24DAB	605117	58115464	TANNER CO	N	F	W	274.96	235.10	165.70	0.00	0.00	0.00	0.00	0.00
A-01-02 24DAB	605118	58115464	TANNER CO	N	F	W	0.00	0.00	0.00	0.00	569.13	0.00	330.13	138.62
A-01-02 24DAB	517289	58115464	TANNER COMPANIES	Q	I	W	0.00	0.00	0.00	74.97	0.00	0.00	0.00	0.00
A-01-02 24DAB	605118	58115464	TANNER CO	N	F	W	403.40	400.30	384.40	622.77	0.00	0.00	0.00	0.00
A-01-02 24DCD	608378	57002520	SALT RIVER PROJECT	N	AB	W	137.94	36.20	56.71	63.04	27.45	9.90	93.48	13.01
A-01-02 26DDD	617602	58115207	MANZANITA ACRES	N	A	W	496.40	77.46	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 28ADD	609588	58111284	STANLEY STRUCTURES	N	F	C	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
A-01-02 28BDB	628465	58113665	CALMAT CO	N	L	W	0.00	17.22	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 28BDB	628465	59512549	CALMAT CO	N	L	W	0.00	0.00	118.29	1297.98	2075.93	0.00	474.40	482.38
A-01-02 29AA	507729	59507729	TEX-STRUCT INC	T	L	U	4949.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 29DAC	600469	58113286	LINCOLN	E	JD	W	0.00	4.64	13.35	8.55	4.74	13.24	10.09	6.31
A-01-02 29DDA	600468	58113285	LINCOLN	N	A	W	578.29	177.43	904.47	564.54	423.75	720.30	358.04	289.24
A-01-02 30DDC	626268	57002514	PENINSULA-HOROWITZ	N	A	W	1313.79	987.74	411.92	602.13	827.08	884.85	1147.70	943.27
A-01-02 31AAA	607697	57002520	SALT RIVER PROJECT	N	BA	W	2537.91	270.45	3891.82	3305.42	3457.12	3246.34	2663.12	3031.63
A-01-02 31AAA	626269	56002201	PENINSULA-HOROWITZ	N	A	W	0.00	24.00	33.00	36.08	61.25	0.00	0.00	0.00
A-01-02 31CBB	623534	56002030	MORRIS, KEITH	N	D	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.39
A-01-02 31CBB	623534	56002201	MORRIS, KEITH	N	D	W	0.00	60.00	60.00	60.01	29.78	0.00	0.00	0.00
A-01-02 31DBB	623537	56002030	PENINSULA	N	D	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.08
A-01-02 32AAA	607696	57002520	SALT RIVER PROJECT	N	AB	W	1377.44	1760.91	1704.08	1475.71	1553.16	1793.60	2841.38	2649.89
A-01-02 32BAA	626270	57002514	PENINSULA-HOROWITZ	N	A	W	1909.88	1708.57	1417.59	1938.16	2139.40	462.04	1028.89	861.67
A-01-02 32CCD	624173	58106937	POHLCAT MOUNTAINVIEW	N	D	W	21.10	148.30	13.29	0.00	7.92	1.69	1.38	5.95
A-01-02 32DDD	804008	58108706	VALLEY NATIONAL BANK	N	A	W	0.00	0.00	5.40	0.00	0.00	0.00	0.00	0.00
A-01-02 32DDD	804008	58106942	VALLEY NATIONAL BANK	N	A	W	0.00	0.00	25.20	89.00	150.60	100.50	128.63	0.00
A-01-02 32DDD	804008	58106942	VALLEY NATIONAL BANK	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	137.17
A-01-02 33ADD	625399	58130069	BASELINE & 51ST AVE	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	660.00	0.00
A-01-02 33ADD	625399	58130069	BASELINE & 51ST AVE	N	A	W	0.00	701.50	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 33B	802293	58108706	RAMPEY, LULA	N	A	W	0.00	190.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 33BAB	603876	58115000	TRYON	N	AJ	W	0.00	2.80	8.40	8.43	17.00	17.61	27.00	17.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-01-02 33BBD	626786	58113977	ANDERSON-CLAYTON CO	N	DJ	W	0.00	2.50	0.00	0.00	0.00	2.50	0.00	2.50
A-01-02 33BDA	625400	58108706	WILLIAMS, CHET	N	A	W	0.00	0.00	40.50	0.00	0.00	0.00	0.00	0.00
A-01-02 33BDA	625400	58106942	WILLIAMS, CHET	N	A	W	0.00	0.00	285.10	831.60	1400.00	1603.60	1154.07	0.00
A-01-02 33BDA	625400	58130069	WILLIAMS, CHET	N	A	W	952.82	1370.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 33BDA	625400	58106942	WILLIAMS, CHET	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1129.70
A-01-02 33BDA	625400	58103837	WILLIAMS, CHET	N	A	W	0.00	0.00	74.90	0.00	0.00	0.00	0.00	0.00
A-01-02 33CC	625439	58130069	TEMPE ASSOCIATES	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	787.00
A-01-02 34ACC	803485	58100176	RAWLINGS, DONALD ROE	N	JAD	W	0.00	0.00	4.76	0.00	0.00	0.00	0.00	0.00
A-01-02 34CCC	800916	58111195	SHELTON, CLIFFORD	E	AJD	W	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.57
A-01-02 35BAC	619396	58103684	HERSETH FEEDLOTS INC	N	D	W	4.85	4.56	0.00	0.00	0.00	0.00	0.00	0.00
A-01-02 35BAC	619396	58117215	HERSETH FEEDLOTS INC	N	D	W	0.00	0.00	21.30	0.00	0.00	0.00	0.00	0.00
A-01-02 35DDD	604323	58107869	ROBT M BUTLER ESTATE	N	A	W	208.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 05DD	629280	58112462	PHOENIX NEWSPAPERS	N	F	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.90
A-01-03 06DCD	626530	56002030	PHOENIX, CITY OF	N	E	W	1.40	0.98	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 08ABB	610166	58104638	KAUFMAN, JAMES	N	F	W	0.00	0.00	0.00	0.00	6.78	0.00	0.00	0.00
A-01-03 08ABB	610166	58104638	KAUFMAN, JAMES	N	F	W	198.06	123.89	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 08ABB	610165	58104638	KAUFMAN, JAMES	N	F	W	0.00	0.00	0.00	0.00	108.80	0.00	0.00	0.00
A-01-03 08ABB	610165	58104638	KAUFMAN, JAMES	N	F	W	198.06	123.89	282.20	272.15	0.00	0.00	0.00	0.00
A-01-03 08BAA	624810	58112393	SECURITY CENTER CO	N	D	W	154.00	154.00	206.48	29.10	90.74	76.23	51.83	71.83
A-01-03 08BAA	624386	58111353	MELIKIAN, GREGORY	N	D	W	0.00	0.00	323.00	291.00	144.07	0.00	182.32	0.00
A-01-03 08BAA	624386	58111353	MELIKIAN, GREGORY	N	D	W	323.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 08BAA	623510	58109621	KORET TRUSTEE	N	F	W	251.00	288.00	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 08BAA	624386	58111353	MELIKIAN, GREGORY	N	D	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	148.34
A-01-03 08BAD	619307	58111665	FIRST INTERSTATE BK	N	F	W	111.30	62.54	126.05	90.79	0.00	0.00	0.00	0.00
A-01-03 08BDA	629587	58100060	JEFFERSON SQUARE LTD	N		W	0.00	873.00	966.00	652.47	604.00	566.00	508.00	550.00
A-01-03 08BDD	517721	59522335	MARICOPA COUNTY	X	M	O	0.00	0.00	0.00	0.00	0.00	28.96	23.89	21.91
A-01-03 08DCA	801051	58108805	PHOENIX ELEMENTARY	N	FA	W	58.80	117.85	59.00	70.00	69.12	95.54	0.00	40.43
A-01-03 17	510183	59510183	SHANK-ARTUKOVICH	T	L	D	0.00	0.00	307.00	358.00	0.00	0.00	0.00	0.00
A-01-03 17	510184	59510184	SHANK-ARTUKOVICH	T	L	D	0.00	0.00	4564.70	0.00	0.00	0.00	0.00	0.00
A-01-03 17BBD	626532	56002030	PHOENIX, CITY OF	N	E	W	0.56	0.36	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 17DBD	518345	59526770	HERTZ PENSKE TRUCK	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.91
A-01-03 18	800819	58110742	MARICOPA PACKING CO	N	JDF	W	112.72	37.14	5.67	0.09	0.66	1.39	0.50	0.73
A-01-03 18BAD	626524	56002030	PHOENIX, CITY OF	N	E	W	0.55	0.50	0.00	0.00	0.00	0.00	0.00	0.00
A-01-03 18BBC	607207	57002517	ROOSEVELT IRR DIST	N	A	W	3466.74	4018.89	3918.17	3256.19	4169.61	3458.64	2904.04	3228.30
A-01-03 20BAD	604163	58105296	UNION ROCK & MAT COR	N	F	W	912.95	1269.60	1071.90	0.00	1246.10	0.00	844.56	1042.73
A-01-03 20BAD	604164	58105296	UNION ROCK & MAT COR	N	F	W	107.75	165.00	148.40	0.00	128.80	0.00	193.24	213.32
A-01-03 31DDB	626564	57002520	SALT RIVER PROJECT	N	E	C	938.18	13.13	12.19	5.89	7.51	106.74	397.44	256.32
A-01-03 32AAD	626531	56002030	PHOENIX, CITY OF	N	N	U	1.40	0.95	0.00	0.00	0.00	0.00	0.00	0.00
A-02-01 21AAD	608410	57002520	SALT RIVER PROJECT	N	EAB	W	903.87	46.02	54.89	129.56	20.67	16.31	1357.41	170.11
A-02-01 23CCC	608393	57002520	SALT RIVER PROJECT	N	AB	W	792.22	15.01	16.52	0.00	0.00	0.00	0.00	0.00
A-02-01 23DDA	608392	57002520	SALT RIVER PROJECT	N	AB	W	1052.06	52.67	247.53	58.31	187.03	34.52	2140.76	52.38

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-02-01 24BDD	608391	57002520	SALT RIVER PROJECT	N	AB	W	1492.23	20.45	0.00	14.07	0.00	0.00	2731.48	431.24
A-02-01 26DAA	608389	57002520	SALT RIVER PROJECT	N	AB	W	1275.17	20.16	167.38	120.39	41.44	12.71	2322.15	392.39
A-02-01 27ABB	626630	56002030	PHOENIX, CITY OF	N	E	W	996.90	692.77	1100.04	1216.86	1377.06	1012.29	0.00	450.11
A-02-01 28AAA	608358	57002520	SALT RIVER PROJECT	N	AB	W	409.00	20.13	61.18	12.29	14.25	3.46	640.79	49.99
A-02-01 33CCC	607234	57002517	ROOSEVELT IRR DIST	N	A	W	1398.21	2943.84	3267.27	3202.50	4026.59	3729.41	3170.88	2435.68
A-02-01 33CDD	607233	57002517	ROOSEVELT IRRIG DIST	N	A	W	1543.75	1456.40	890.95	1973.42	2388.66	2271.24	1201.72	1958.30
A-02-01 34BBB	607229	57002517	ROOSEVELT IRR DIST	N	A	W	732.86	1355.66	1600.48	1507.09	1780.90	2127.88	1299.22	1413.29
A-02-01 34CBB	607231	57002517	ROOSEVELT IRR DIST	N	A	W	1192.24	675.02	1516.12	854.42	1976.46	2311.04	2049.22	1485.52
A-02-01 35D	624200	58103314	JOHN F LONG HOMES	N	A	W	136.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-02-01 35DDD	608388	57002520	SALT RIVER PROJECT	N	AB	W	1907.07	412.65	227.51	156.57	99.67	13.64	2015.75	246.67
A-02-01 36DAA	608384	57002520	SALT RIVER PROJECT	N	AB	W	1624.45	19.43	276.32	61.57	91.81	27.40	2944.10	428.32
A-02-02 19CCB	608385	57002520	SALT RIVER PROJECT	N	AB	W	615.41	5.01	13.11	16.53	8.01	19.27	1317.86	227.46
A-02-02 20ADD	608372	57002520	SALT RIVER PROJECT	N	A	W	296.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-02-02 22CAC	518077	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.36	0.40	0.00	0.00	0.00
A-02-02 22CAC	516110	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	2.77	2.37	0.00	2.57	2.97
A-02-02 22CAC	522163	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00
A-02-02 22CAC	522164		GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	7.15	0.00
A-02-02 22CAC	522163		GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00
A-02-02 22CAC	516111	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	3.62	2.34	0.00	6.42	9.77
A-02-02 22CAC	522164	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	7.15	4.83
A-02-02 22CAC	515979	59515979	GROUNDWATER TECH INC	N	M	TU	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
A-02-02 22CAC	522165	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	3.20	9.46
A-02-02 22CAC	522165		GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00
A-02-02 22CDB	514905	59515979	GROUNDWATER TECH INC	X	M	O	0.00	0.00	0.00	1.09	0.45	0.00	0.97	1.27
A-02-02 22CDB	516109	59515979	GROUNDWATER TECH INC	X	M	Q	0.00	0.00	0.00	2.39	1.99	0.00	1.72	1.74
A-02-02 22DAA	626551	56002030	PHOENIX, CITY OF	N	E	W	271.42	326.43	254.90	180.30	13.37	0.00	0.00	0.00
A-02-02 25BCD	617850	57002520	SALT RIVER PROJECT	N	A	W	875.58	52.17	77.93	22.95	6.21	196.63	1326.91	301.21
A-02-02 26AAA	533399	59533160	MOBIL OIL CORP	P	T	T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
A-02-02 26BDC	618512	56002196	OSBORN INVESTORS	N	D	W	12.37	7.10	9.54	10.92	24.27	20.05	25.06	23.84
A-02-02 26CBD	800680	58100542	CRYSTAL BOTTLED WTR	N	D	W	41.88	50.66	61.39	65.99	63.91	79.37	64.40	60.88
A-02-02 26DBB	608377	57002520	SALT RIVER PROJECT	N	AB	W	2015.80	19.35	22.48	26.93	0.00	195.69	1274.80	30.50
A-02-02 27ACB	608381	57002520	SALT RIVER PROJECT	N	AB	W	1606.25	10.52	47.46	21.03	0.00	102.09	1899.56	418.81
A-02-02 27ADD	603866	58104090	PINCUS, LENORE	N	A	W	0.00	7.00	3.00	0.00	0.00	0.00	0.00	0.00
A-02-02 27ADD	603866	58104090	PINCUS, LENORE	N	A	W	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00
A-02-02 27ADD	603866	58104090	PINCUS, LENORE	N	A	W	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
A-02-02 28ABB	626576	56002030	PHOENIX, CITY OF	N	E	W	1088.48	723.89	728.28	457.15	623.80	83.51	0.00	0.00
A-02-02 28ABB	626575	56002030	PHOENIX, CITY OF	N	E	W	642.37	508.66	689.07	590.50	591.69	80.09	0.00	0.00
A-02-02 28BDD	608374	57002520	SALT RIVER PROJECT	N	AB	W	825.20	6.98	29.15	16.85	149.33	153.76	1283.35	0.47
A-02-02 29ACC	607675	57002520	SALT RIVER PROJECT	N	AB	W	1637.63	20.17	32.13	27.94	11.05	82.92	1575.03	290.89
A-02-02 29BCB	608387	57002520	SALT RIVER PROJECT	N	AB	W	143.26	9.71	26.23	23.89	39.97	240.92	2286.87	298.14
A-02-02 30BAA	626578	56002030	PHOENIX, CITY OF	N	E	W	8.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
A-02-02 30BAA	626577	56002030	PHOENIX, CITY OF	N	E	W	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-02-02 30BAB	626587	57002520	SALT RIVER PROJECT	N	E	U	575.58	247.04	200.26	16.32	234.27	78.94	1032.09	154.44
A-02-02 30DBB	626579	56002030	PHOENIX, CITY OF	N	E	W	533.55	458.63	106.26	879.52	25.96	0.00	0.00	0.00
A-02-02 31ADA	607727	57002520	SALT RIVER PROJECT	N	AB	W	1924.71	61.77	95.20	226.72	120.25	37.67	2288.49	160.05
A-02-02 32ABB	626580	56002030	PHOENIX, CITY OF	N	E	W	503.32	761.20	1041.98	617.40	35.56	0.00	0.00	0.00
A-02-02 32DAA	607736	57002520	SALT RIVER PROJECT	N	AB	W	388.28	12.07	12.84	18.69	15.21	5.35	670.07	55.62
A-02-02 34ADC	626550	56002030	PHOENIX, CITY OF	N	E	W	465.26	382.92	125.52	0.00	0.00	0.00	0.00	0.00
A-02-02 35CDD	626561	56002030	PHOENIX, CITY OF	N	E	W	104.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-02-02 36CBB	603550	58102416	SHAMROCK FARMS CO	N	F	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.50
A-02-02 36CBB	603550	58102419	SHAMROCK FARMS CO	N	F	W	119.00	121.00	118.00	107.30	114.70	119.60	121.20	123.00
A-02-02 36DCC	617312	58112447	SOUTHEASTERN P.S.C.	N	C	W	157.00	140.00	0.00	0.00	0.00	0.00	0.00	0.00
A-02-02 36DCC	617312	58112447	SOUTHEASTERN P.S.C.	N	C	W	0.00	0.00	0.00	82.00	54.00	56.00	39.00	0.00
A-02-02 36DCC	617312	58112447	SOUTHEASTERN P.S.C.	N	C	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
A-02-03 19BCD	626565	56002030	PHOENIX, CITY OF	N	E	W	1375.28	1241.16	1228.57	1209.40	514.91	59.03	0.00	0.00
A-02-03 20A	800731	56002160	BROPHY COLLEGE	N	D	W	17.91	21.74	33.33	0.00	0.00	0.00	53.56	43.57
A-02-03 20ADD	608422	57002520	SALT RIVER PROJECT	N	AB	W	688.37	2.89	27.80	2.94	5.68	11.42	278.44	7.52
A-02-03 20BCC	608379	57002520	SALT RIVER PROJECT	N	AB	W	389.96	0.00	1.92	5.54	3.70	7.68	57.53	0.14
A-02-03 20DDA	800734	58116105	V A MEDICAL CENTER	N	AD	W	9.40	5.50	6.00	3.97	0.00	3.00	2.90	3.13
A-02-03 20DDA	800735	58116105	V A MEDICAL CENTER	N	AD	W	9.40	5.50	6.00	3.97	9.37	3.00	2.90	3.13
A-02-03 29CCD	621151	58111856	ST JOSEPH HOSPITAL	N	F	W	0.00	0.00	0.00	0.00	0.00	700.00	0.00	131.00
A-02-03 29CCD	618034	58109274	PARK CENTRAL	N	F	W	460.92	486.56	524.00	0.00	0.00	0.00	0.00	0.00
A-02-03 29CCD	618034	58109274	PARK CENTRAL	N	F	W	0.00	0.00	0.00	458.30	464.50	507.00	345.00	396.00
A-02-03 29CCD	621150	58111856	ST JOSEPH HOSPITAL	N	F	W	2095.93	2095.50	1384.00	1584.13	1497.55	777.00	0.00	1503.00
A-02-03 31AAB	626536	56002030	PHOENIX, CITY OF	N	E	W	30.30	0.50	62.71	209.00	21.00	5.00	0.00	54.00
A-02-03 31DBB	626534	56002030	PHOENIX, CITY OF	N	E	W	12.34	3.11	0.01	0.00	100.00	100.00	0.00	44.00
D-01-01 01BAA	618775	58102282	KNAPPLE	N	A	W	33.50	119.10	120.31	47.63	0.00	0.00	0.00	0.00
D-01-01 01BAA	618775	57002514	KNAPPLE	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	88.44	296.14
D-01-01 02BBC	10008		GILA RIVER INDIAN COMMUNIT				855.00	516.00	446.00	366.00	419.00	0.00	0.00	0.00
D-01-01 02BCB	10225		GILA RIVER INDIAN COMMUNIT				145.00	145.00	145.00	145.00	145.00	0.00	0.00	0.00
D-01-01 03BAA	10007		GILA RIVER INDIAN COMMUNIT				1283.00	775.00	669.00	549.00	629.00	0.00	0.00	0.00
D-01-01 03DAA	10009		GILA RIVER INDIAN COMMUNIT				1527.00	922.00	796.00	654.00	749.00	0.00	0.00	0.00
D-01-02 02DCC	610684	58107847	LA SALVIA, J. & P	N	DJ	W	121.50	111.00	71.51	78.87	51.70	0.00	0.00	0.00
D-01-02 02DCC	610664	58107847	LA SALVIA, J. & P	N	DJ	W	0.00	0.00	0.00	0.00	0.00	63.38	54.57	40.47
D-01-02 02DCD	610683	58107847	LA SALVIA, J. & P.	N	DJ	W	0.00	0.00	0.00	0.00	0.00	45.36	52.00	62.89
D-01-02 02DCD	610683	58107847	LA SALVIA, J. & P.	N	DJ	W	121.50	111.00	13.59	9.78	25.57	0.00	0.00	0.00
D-01-02 02DDD	610682	58106968	LA SALVIA	N	DJ	W	28.00	28.00	19.26	35.69	68.00	0.00	0.00	24.39
D-01-02 02DDD	610682	58107847	LA SALVIA	N	DJ	W	0.00	0.00	0.00	0.00	16.72	0.00	0.00	0.00
D-01-02 02DDD	610682	58106969	LA SALVIA	N	DJ	W	54.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 02DDD	610682	58107847	LA SALVIA	N	DJ	W	0.00	0.00	0.00	0.00	0.00	17.77	17.47	0.00
D-01-02 03CDD	617848	57002520	SALT RIVER PROJECT	N	A	W	594.90	0.00	9.93	39.06	34.70	112.75	970.15	58.35
D-01-02 04ADD	626450	58114179	CHEATHAM, L.F. & A.D	N	A	W	512.00	141.00	460.00	73.00	0.00	287.67	891.83	0.00

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991
D-01-02 04ADD	626450	58114174	CHEATHAM, L.F. & A.D	N	A	W	11.00	3.00	10.00	2.00	0.00	6.07	0.00	0.00
D-01-02 04ADD	626450	58114173	CHEATHAM, L.F. & A.D	N	A	W	71.00	20.00	64.00	10.00	0.00	40.05	0.00	0.00
D-01-02 04ADD	626450	58114167	CHEATHAM, L.F. & A.D	N	A	W	57.00	16.00	51.00	0.00	0.00	0.00	0.00	0.00
D-01-02 04ADD	626450	58108621	CHEATHAM, L.F. & A.D	N	A	W	0.00	0.00	0.00	8.00	0.00	29.54	0.00	0.00
D-01-02 04ADD	626450	58130381	CHEATHAM, L.F. & A.D	N	A	W	73.00	20.00	66.00	10.00	0.00	41.27	0.00	0.00
D-01-02 04BBC	626452	58114180	CHEATHAM, L.F. & A.D	N	DJF	W	61.00	61.00	61.00	61.00	63.00	47.89	38.49	0.00
D-01-02 05AAA	804009	58106941	DEWITT, WILLIAM	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.17
D-01-02 05AAA	804009	58106941	DEWITT, WILLIAM	N	A	W	0.00	0.00	73.00	0.00	0.00	287.83	0.00	0.00
D-01-02 05AAD	624171	58106940	DEWITT, WILLIAM	N	DJ	W	154.00	63.45	61.37	48.13	3.50	31.47	0.00	0.00
D-01-02 05AAD	624171	58106940	DEWITT, WILLIAM	N	DJ	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.03
D-01-02 05AAD	624171	58106941	DEWITT, WILLIAM	N	DJ	W	633.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 05ADD	804010	58106941	VANDERWEY, JOHN	N	A	W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.06
D-01-02 05ADD	804010	58106941	VANDERWEY, JOHN	N	A	W	0.00	0.00	508.00	473.00	555.60	0.00	502.11	0.00
D-01-02 05B	601560	58100155	SOUTHWEST LOOP 59TH	N	A	W	0.00	526.70	125.07	187.09	856.57	790.29	382.64	845.80
D-01-02 05B	601560	58100155	SOUTHWEST LOOP 59TH	N	A	W	793.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 06A	601559	58100155	SOUTHWEST LOOP 59TH	N	A	W	193.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 06A	601559	58100155	SOUTHWEST LOOP 59TH	N	A	W	0.00	364.10	316.80	306.12	564.91	351.54	571.49	604.00
D-01-02 06A	601559	58100155	SOUTHWEST LOOP 59TH	N	A	W	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00
D-01-02 06BDD	605872	58100366	SCHLOSSER	N	AJD	W	57.22	58.11	67.56	71.52	71.64	59.76	36.47	33.02
D-01-02 06BDD	605870	58130609	SCHLOSSER	N	AJD	W	62.15	57.98	68.79	74.38	72.24	57.54	54.77	55.60
D-01-02 06DC	621135	58113850	VANDERWEY, JOHN	N	JD	W	11.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 06DC	621135	58113850	VANDERWEY, JOHN	N	JD	W	0.00	0.00	0.00	0.00	16.50	16.68	16.69	16.40
D-01-02 06DDD	625040	58130138	WILLIAMS	N	A	W	861.80	0.00	0.00	0.00	0.00	371.00	1018.00	255.00
D-01-02 07BBC	10010		GILA RIVER INDIAN COMMUNIT				865.00	522.00	451.00	370.00	424.00	0.00	0.00	0.00
D-01-02 07DCD	10011		GILA RIVER INDIAN COMMUNIT				1518.00	917.00	791.00	650.00	744.00	0.00	0.00	0.00
D-01-02 07DCD	10012		GILA RIVER INDIAN COMMUNIT				305.00	184.00	159.00	131.00	150.00	0.00	0.00	0.00
D-01-02 08BCD	801739	58106815	TYSON	N	A	W	170.00	33.95	237.74	0.00	252.45	133.81	208.14	48.03
D-01-02 09CAA	626440	58114168	CHEATHAM DAIRY INC	N	DJF	W	3.00	3.00	3.00	3.00	3.00	3.00	7.00	0.00
D-01-02 09DDA	626597	56002030	PHOENIX, CITY OF	N	E	W	12.31	19.21	21.53	25.33	61.75	59.05	0.00	0.00
D-01-02 10ABB	617223	58107975	DOBBINS DOUBLE XX	N	D	W	0.00	2.20	0.00	2.20	0.00	2.20	2.20	0.00
D-01-02 10BBB	624778	58113412	LONG, JOHN F PROP	N	A	W	723.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D-01-02 10CBD	618749	58102815	RAWLINGS	N	AFJ	W	24.26	19.44	19.96	37.84	30.08	61.41	30.52	39.52
D-01-03 06AAA	607729	57002520	SALT RIVER PROJECT	N	AB	W	1521.39	38.31	30.22	19.15	189.58	169.83	1740.72	40.69
D-01-03 06CAA	617851	57002520	SALT RIVER PROJECT	N	A	W	419.66	3.60	3.22	3.47	34.22	17.02	7.89	36.53

Well Location	ADWR No.	ROGR Right No.	Owner's Name	Well Type	Water Use	Well Use	Well Pumpage (acre feet) 1984	1985	1986	1987	1988	1989	1990	1991

NOTES:

ADWR = Arizona Department of Water Resources
ROGR = Registry of Groundwater Rights

Well Type:

D=Domestic/Stock
E=Exempt
N=Non-Exempt
O=Non-Domestic
P=P-Permit
Q=Q-Permit
S=Q-Service
T=Q-Non-Service
X=Monitor
Z=Exploration

Water Use:	Well Use:
A=Irrigation	A=Anode or Cathode
B=Utility Company	B=Drainage
C=Unused	C=Capped
D=Domestic	G=Seismic
E=Municipal	H=Heat
F=Industrial	M=Mineral Exploration
G=Recreation	O=Observation
H=Subdivision	P=Oil and Gas
I=Mining	Q=Water Quality
J=Stock	T=Test
K=Other Mineral Expl	U=Abandoned
L=Drainage	W=Water Production
M=Monitoring	X=Waste Disposal
N=Test	Z=Destroyed
O=Other Non-Production	

Table 10

Statistical Analysis of Measured vs. Model Predicted Heads for 1982

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 02CCC	7	16	1	940	940.59	0.590
A(01-01) 03ABB	5	10	1	928	932.65	4.651
A(01-01) 04AAA	4	10	1	928	931.20	3.198
A(01-01) 09BBB	1	17	1	927	933.13	6.126
A(01-01) 09CCC	1	27	1	940	937.81	-2.190
A(01-01) 10CCC	4	27	1	943	940.14	-2.856
A(01-01) 11ADD	12	20	1	950	942.92	-7.083
A(01-01) 11CBC	7	23	1	947	942.02	-4.978
A(01-01) 12BBB	12	17	1	953	941.65	-11.354
A(01-01) 14DAB	11	33	1	950	947.29	-2.713
A(01-01) 15DAA	7	32	1	946	944.59	-1.406
A(01-01) 21AAA	3	38	1	946	940.46	-5.539
A(01-01) 22CDA	5	41	1	941	944.49	3.491
A(01-01) 23AAB	11	37	1	954	948.56	-5.440
A(01-01) 23DDA	12	43	1	958	951.85	-6.148
A(01-01) 24AAA	18	38	1	961	952.72	-8.277
A(01-01) 26AAA	12	45	1	957	952.69	-4.306
A(01-01) 26CAA	9	48	1	962	950.88	-11.120
A(01-01) 28DAA	3	48	1	949	941.96	-7.038
A(01-01) 35DDC	11	53	1	956	952.74	-3.255
A(01-01) 36AAD	19	51	1	969	963.50	-5.499
A(01-01) 36DDA	19	53	1	973	962.71	-10.286
A(01-02) 01CAC	66	15	1	985	974.95	-10.054
A(01-02) 02BCC	58	13	1	971	963.08	-7.919
A(01-02) 07BBB	19	17	1	952	942.81	-9.191
A(01-02) 07CCC	19	26	1	954	946.44	-7.556
A(01-02) 08BAA	31	17	1	955	948.23	-6.770
A(01-02) 08DAA	37	22	1	958	951.44	-6.563
A(01-02) 09AAB	45	17	1	955	953.40	-1.602
A(01-02) 09CCC	36	26	1	952	952.35	0.350
A(01-02) 10ABA	53	17	1	961	958.20	-2.798
A(01-02) 10CCB	47	25	1	961	955.98	-5.017
A(01-02) 11AAA	63	17	1	976	969.59	-6.412
A(01-02) 11CBC	57	25	1	985	962.99	-22.009
A(01-02) 12BAA	67	18	1	981	975.73	-5.271
A(01-02) 12CBC	64	25	1	975	972.28	-2.718
A(01-02) 13ABD	69	29	1	990	980.91	-9.094
A(01-02) 13CCC	64	37	1	989	978.74	-10.265
A(01-02) 13CDD	67	38	1	985	982.91	-2.094
A(01-02) 13DAD	71	36	1	986	989.57	3.571
A(01-02) 14AAD	64	30	1	983	974.01	-8.987
A(01-02) 14BBC	57	30	1	978	964.59	-13.407
A(01-02) 14CDD	60	37	1	979	973.83	-5.170
A(01-02) 15ACC	52	32	1	975	962.98	-12.024
A(01-02) 16DBB	42	33	1	965	958.25	-6.747
A(01-02) 17CAA	30	33	1	956	954.02	-1.975
A(01-02) 18DDD	25	37	1	954	955.31	1.305
A(01-02) 19BAA	22	37	1	965	954.07	-10.926
A(01-02) 19BCB	19	39	1	960	953.81	-6.194
A(01-02) 20BCD	27	41	1	970	961.14	-8.857
A(01-02) 24BBB	64	38	1	988	979.41	-8.587
A(01-02) 24DAB	70	42	1	1002	993.42	-8.577
A(01-02) 24DDC	70	45	1	1001	996.80	-4.197
A(01-02) 26AAA	64	45	1	992	988.91	-3.086
A(01-02) 26DDD	64	50	1	1002	996.50	-5.499
A(01-02) 29DDA	35	49	1	985	972.89	-12.110
A(01-02) 30AAB	25	50	1	974	968.74	-5.258
A(01-02) 31AAA	26	50	1	972	968.68	-3.319
A(01-02) 32BAA	31	50	1	980	972.21	-7.788

Table 10

Statistical Analysis of Measured vs. Model Predicted Heads for 1982

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-02) 32DDD	36	53	1	984	979.03	-4.970
A(01-02) 34AAC	55	51	1	994	987.28	-6.717
A(01-02) 35BAB	59	51	1	997	992.59	-4.411
A(01-03) 05BAA	78	11	1	1011	1005.10	-5.934
A(01-03) 06DCD	75	16	1	1000	995.83	-4.167
A(01-03) 18BAC	73	30	1	1001	993.70	-7.299
A(01-03) 18BBC	72	30	1	989	989.54	0.544
A(01-03) 30CDA	73	49	1	1027	1007.20	-19.807
A(01-03) 32AAD	79	51	1	1025	1032.40	7.425
A(02-01) 23DDA	12	2	2	919	921.43	2.427
A(02-01) 24DBA	17	2	2	919	927.61	8.613
A(02-01) 25BCA	14	4	1	922	925.74	3.744
A(02-01) 26DAA	12	4	1	927	924.09	-2.910
A(02-01) 27ABB	6	3	1	923	916.18	-6.824
A(02-01) 28AAA	4	3	1	916	916.22	0.216
A(02-01) 33CCC	1	10	2	920	921.69	1.687
A(02-01) 34BBB	4	6	1	920	919.05	-0.950
A(02-01) 36DAD	19	8	1	937	935.60	-1.397
A(02-02) 18DDD	26	1	1	924	930.66	6.657
A(02-02) 19CCB	19	2	1	915	929.85	14.846
A(02-02) 20ADD	36	2	1	935	939.36	4.359
A(02-02) 22DAA	57	2	1	971	968.10	-2.903
A(02-02) 25BCA	66	4	2	989	982.89	-6.107
A(02-02) 27ACB	52	4	2	960	963.81	3.808
A(02-02) 27DCB	52	5	1	966	962.20	-3.802
A(02-02) 28ABB	42	3	1	951	951.01	0.012
A(02-02) 28BDD	41	4	1	949	953.23	4.230
A(02-02) 29ACC	31	4	1	938	941.97	3.966
A(02-02) 29BCB	27	3	1	928	937.47	9.471
A(02-02) 30BAD	22	3	1	923	932.16	9.156
A(02-02) 31ADA	26	6	1	937	937.83	0.828
A(02-02) 32DAA	36	8	1	948	947.00	-1.000
A(02-03) 31BCD	72	7	1	989	988.92	-0.079
D(01-02) 03CBA	48	55	1	999	993.86	-5.139
D(01-02) 04ADD	46	55	1	1005	989.95	-15.049
D(01-02) 05ADD	35	55	1	985	982.41	-2.590
D(01-02) 06DDD	25	56	1	977	974.91	-2.087
D(01-02) 07CBA	20	57	1	972	965.18	-6.820
D(01-02) 07DCC	22	57	1	976	969.01	-6.987
D(01-02) 10BBB	46	56	1	1017	992.93	-24.071
D(01-03) 06AAA	76	54	1	1042	1031.40	-10.622

No. of Active Observation Points:	100
Mean of Residuals:	-3.949
Standard Deviation of Residuals:	6.385
RMS of Residuals:	7.480

Layer-byLayer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	95	-4.267	7.581
2	5	2.086	5.191
3	0	0.000	0.000
4	0	0.000	0.000

Table 11

Statistical Analysis of Measured vs. Model Predicted Heads for 1991

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 02BBB	7	10	1	937	931.89	-5.11
A(01-01) 02CCC	7	16	1	933	939.19	6.19
A(01-01) 03ABB	5	10	1	919	927.11	8.11
A(01-01) 03BBB	4	10	1	924	923.71	-0.29
A(01-01) 03BDB	5	11	1	929	928.16	-0.84
A(01-01) 04AAA	4	10	1	927	923.71	-3.29
A(01-01) 09BAC	2	19	1	930	928.97	-1.03
A(01-01) 09BBB	1	17	1	927	925.00	-2.00
A(01-01) 09DAD	3	24	1	938	935.11	-2.89
A(01-01) 10AAA	7	16	1	942	939.19	-2.81
A(01-01) 10CCC	4	27	1	943	939.60	-3.40
A(01-01) 11ACB	9	20	1	948	943.66	-4.34
A(01-01) 11ADD	12	20	1	949	946.40	-2.60
A(01-01) 11CBC	7	23	1	943	943.27	0.27
A(01-01) 12BBB	12	17	1	952	945.29	-6.71
A(01-01) 12DBA	17	22	1	955	950.24	-4.76
A(01-01) 13ADA	18	30	1	955	955.75	0.75
A(01-01) 14BAB	8	27	1	947	946.76	-0.24
A(01-01) 14DAB	11	33	1	952	952.87	0.87
A(01-01) 14DDA	12	35	1	953	954.63	1.63
A(01-01) 15AAA	7	27	1	945	945.54	0.54
A(01-01) 15DAA	7	32	1	947	948.11	1.11
A(01-01) 16AAA	3	27	1	928	936.85	8.85
A(01-01) 21DDA	3	44	1	946	946.27	0.27
A(01-01) 22CDA	5	41	1	942	949.39	7.39
A(01-01) 23DBA	10	41	1	953	955.69	2.69
A(01-01) 23DDA	12	43	1	957	958.26	1.26
A(01-01) 24AAA	18	38	1	960	959.94	-0.06
A(01-01) 25BAB	13	50	1	966	962.88	-3.12
A(01-01) 25BBA	13	50	1	960	962.88	2.88
A(01-01) 25BBB	12	45	1	950	958.90	8.90
A(01-01) 26CAA	9	48	1	959	956.42	-2.58
A(01-01) 28CAC	2	49	1	944	942.59	-1.41
A(01-01) 35DDC	11	53	1	953	961.81	8.81
A(01-01) 36AAD	19	51	1	962	969.29	7.29
A(01-01) 36DDA	19	53	1	970	968.34	-1.66
A(01-02) 01CAC	66	15	1	987	981.85	-5.15
A(01-02) 02BCC	58	13	1	972	974.13	2.13
A(01-02) 07BBB	19	17	1	954	950.30	-3.70
A(01-02) 07CCC	19	26	1	955	953.79	-1.21
A(01-02) 08BAA	31	17	1	957	958.18	1.18
A(01-02) 08BBB	26	17	1	958	956.05	-1.95
A(01-02) 08DAA	36	22	1	961	960.91	-0.09
A(01-02) 09AAB	45	17	1	960	963.59	3.59
A(01-02) 09BBB	36	17	1	961	960.30	-0.70
A(01-02) 09CBC	36	25	1	960	961.36	1.36
A(01-02) 09CCC	36	26	1	952	961.64	9.64
A(01-02) 10ABA	53	17	1	966	968.42	2.42
A(01-02) 10CCB	47	25	1	962	964.95	2.95
A(01-02) 11AAA	63	17	1	976	977.00	1.00
A(01-02) 11BAB	60	17	1	976	973.91	-2.09
A(01-02) 12BAA	67	18	1	982	981.24	-0.76

Table 11

Statistical Analysis of Measured vs. Model Predicted Heads for 1991

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-02) 12CBC	64	25	1	974	976.76	2.76
A(01-02) 13ABD	69	29	1	988	981.75	-6.25
A(01-02) 13CDD	67	38	1	985	982.65	-2.35
A(01-02) 13DAD	71	36	1	989	986.84	-2.16
A(01-02) 14AAD	64	30	1	981	977.25	-3.75
A(01-02) 14BBC	57	30	1	975	970.95	-4.05
A(01-02) 14CCB	58	36	1	978	974.80	-3.20
A(01-02) 14CDD	60	37	1	977	977.14	0.14
A(01-02) 15ACC	52	32	1	973	969.43	-3.57
A(01-02) 15BCC	46	32	1	969	967.11	-1.89
A(01-02) 16CCC	36	38	1	968	967.94	-0.06
A(01-02) 16DBB	42	33	1	964	966.12	2.12
A(01-02) 17ADD	35	32	1	961	963.52	2.52
A(01-02) 17CAA	30	33	1	955	962.52	7.52
A(01-02) 18ACB	22	30	1	954	957.57	3.57
A(01-02) 19BAA	22	37	1	966	961.67	-4.33
A(01-02) 19CAD	22	42	1	963	965.57	2.57
A(01-02) 19DDA	26	43	1	966	969.49	3.49
A(01-02) 22BDD	48	41	1	965	976.03	11.03
A(01-02) 22DAB	56	42	1	985	980.50	-4.50
A(01-02) 24BBB	64	38	1	986	980.55	-5.45
A(01-02) 24DAB	70	42	1	989	990.98	1.98
A(01-02) 24DDC	70	45	1	984	994.19	10.19
A(01-02) 26AAA	64	45	1	992	989.23	-2.77
A(01-02) 26DDD	64	50	1	998	997.01	-0.99
A(01-02) 29BBB	26	45	1	967	971.29	4.29
A(01-02) 29DDA	35	49	1	980	978.09	-1.91
A(01-02) 31AAA	26	50	1	964	974.18	10.18
A(01-02) 32AAA	36	50	1	978	978.53	0.53
A(01-02) 32BAA	31	50	1	977	977.21	0.21
A(01-02) 32CCD	28	53	1	965	978.71	13.71
A(01-02) 32DDD	36	53	1	981	983.68	2.68
A(01-02) 33CBD	38	53	1	979	984.77	5.77
A(01-02) 35BAB	59	51	1	994	994.94	0.94
A(01-02) 35DDD	64	53	1	1034	1007.10	-26.89
A(01-03) 05BAA	78	11	1	1008	1006.70	-1.33
A(01-03) 05ABD	78	11	1	1012	1006.70	-5.33
A(01-03) 06DCD	75	16	1	995	997.17	2.17
A(01-03) 08ABB	78	18	1	1012	1005.20	-6.83
A(01-03) 16CCB	79	36	1	1006	1006.70	0.68
A(01-03) 18BBC	72	30	1	988	987.16	-0.84
A(01-03) 20BAD	77	40	1	1013	1003.90	-9.10
A(01-03) 31DDA	76	53	1	1018	1023.70	5.74
A(02-01) 14CCC	7	1	1	935	930.53	-4.47
A(02-01) 20DDD	1	3	1	920	922.59	2.59
A(02-01) 21AAA	4	1	1	927	924.26	-2.74
A(02-01) 23CCC	7	2	1	930	930.14	0.14
A(02-01) 23DDA	12	2	2	935	938.33	3.33
A(02-01) 24DBA	17	2	2	938	946.00	8.00
A(02-01) 25BCA	14	4	1	935	939.54	4.54
A(02-01) 26DAA	12	4	1	938	936.94	-1.06
A(02-01) 27ABB	6	3	1	929	927.22	-1.78

Table 11

Statistical Analysis of Measured vs. Model Predicted Heads for 1991

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 28AAA	4	3	1	915	925.00	10.00
A(02-01) 29DDD	1	6	1	915	919.58	4.58
A(02-01) 32DDA	1	28	1	909	930.76	21.76
A(02-01) 33ACC	2	7	1	918	919.32	1.32
A(02-01) 33CDD	2	9	1	918	916.96	-1.04
A(02-01) 34BBB	4	6	1	920	920.80	0.80
A(02-01) 34BCC	4	7	1	919	921.11	2.11
A(02-01) 35DDD	12	9	1	938	939.74	1.74
A(02-01) 36DAD	19	8	1	944	945.84	1.84
A(02-02) 19CCB	19	2	1	936	949.07	13.07
A(02-02) 20ADD	36	2	1	962	965.13	3.13
A(02-02) 22DAA	57	2	1	994	991.92	-2.08
A(02-02) 25BCA	66	4	2	1004	1001.70	-2.34
A(02-02) 27ACB	52	4	2	980	987.46	7.46
A(02-02) 27DCB	52	5	1	984	983.69	-0.31
A(02-02) 28ABB	42	3	1	974	976.37	2.37
A(02-02) 29ACC	31	4	1	963	963.30	0.30
A(02-02) 30BAB	21	3	1	937	951.70	14.70
A(02-02) 30BAD	22	3	1	944	953.20	9.20
A(02-02) 30DBB	23	4	1	943	952.92	9.92
A(02-02) 31ADA	26	6	1	951	954.84	3.84
A(02-02) 32ABB	31	6	1	957	959.90	2.90
A(02-02) 32DAA	36	8	1	960	961.92	1.92
D(01-02) 01DBA	68	55	1	1030	1025.20	-4.83
D(01-02) 03CBA	48	55	1	994	997.48	3.48
D(01-02) 03CDD	51	56	1	1019	1008.90	-10.08
D(01-02) 04ADD	46	55	1	1002	993.99	-8.01
D(01-02) 05ADD	35	55	1	982	987.01	5.01
D(01-02) 06DDD	25	56	1	975	980.58	5.58
D(01-02) 07DCC	22	57	1	975	975.31	0.31
D(01-02) 09DDA	45	57	1	1025	999.76	-25.24
D(01-02) 10BBB	46	56	1	1015	996.48	-18.52
D(01-03) 06AAA	76	54	1	1018	1027.10	9.08
D(01-03) 06BAD	73	54	1	1032	1025.40	-6.56
D(01-03) 06DBB	73	55	1	1033	1029.40	-3.61

No. of Active Observation Points:	139
Mean of Residuals:	0.625
Standard Deviation of Residuals:	6.240
RMS of Residuals:	6.249

Layer-byLayer Summary:

Layer	Observations	Mean Value	Root Mean Square Value
1	135	0.522	6.261
2	4	4.113	5.837
3	0	0.000	0.000
4	0	0.000	0.000

Table 12

Statistical Analysis of Measured vs. Model Predicted Heads for 1982 Base Calibration Period

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	921.12	2.119
A(02-01) 24DBA	16	2	2	919	926.17	7.167
A(02-02) 19CCB	19	2	1	915	929.78	14.777
A(02-02) 20ADD	36	1	1	935	934.27	-0.734
A(02-02) 22DAA	56	2	1	971	967.55	-3.449
A(02-01) 28AAA	3	3	1	916	913.84	-2.156
A(02-01) 27ABB	6	3	1	923	915.39	-7.613
A(02-01) 26DAA	12	4	1	927	924.38	-2.622
A(02-02) 30BAD	22	4	1	923	932.93	9.926
A(02-02) 29BCB	26	3	1	928	937.69	9.693
A(02-02) 29ACC	32	4	1	938	944.23	6.229
A(02-02) 28BDD	40	4	1	949	954.21	5.214
A(02-02) 27ACB	54	4	2	960	967.55	7.547
A(02-02) 25BCA	66	3	2	989	985.02	-3.980
A(02-01) 33CCC	1	9	2	920	920.79	0.791
A(02-01) 34BBB	4	6	1	920	920.27	0.268
A(02-01) 35DAA	11	8	1	943	933.09	-9.913
A(02-01) 36DAD	19	8	1	937	936.62	-0.381
A(02-02) 31ADA	25	7	1	937	939.36	2.365
A(02-02) 32DAB	35	8	1	948	947.69	-0.314
A(02-03) 31BCD	72	7	1	989	990.57	1.573
A(01-01) 04AAA	3	10	1	928	929.68	1.682
A(01-01) 02CCC	7	16	1	940	942.03	2.032
A(01-02) 02BCC	57	13	1	971	964.65	-6.354
A(01-02) 01CAC	66	15	1	985	978.31	-6.689
A(01-01) 10CCC	4	27	1	943	940.9	-2.096
A(01-01) 11ACB	10	19	1	950	944.12	-5.883
A(01-02) 07BBB	19	17	1	952	945.86	-6.138
A(01-02) 08BAA	31	17	1	955	951.28	-3.722
A(01-02) 08DAA	35	23	1	958	954.36	-3.635
A(01-02) 09AAB	45	17	1	955	956.79	1.789
A(01-02) 10ABA	54	17	1	961	962.47	1.469
A(01-02) 10CCB	47	25	1	961	959.9	-1.105
A(01-02) 11AAA	64	17	1	976	975	-0.995
A(01-02) 11CBC	57	24	1	985	967.29	-17.707
A(01-02) 12BAA	67	18	1	981	979.75	-1.254
A(01-02) 12CBC	64	25	1	975	977.07	2.066
A(01-01) 15DAA	7	33	1	946	945.68	-0.319
A(01-01) 14DAB	11	33	1	950	948.72	-1.278
A(01-02) 18DDD	25	36	1	954	957.03	3.030
A(01-02) 17CAA	30	32	1	956	956.7	0.696
A(01-02) 16DBB	42	33	1	965	962.39	-2.614
A(01-02) 15ACC	53	32	1	975	968.61	-6.392
A(01-02) 14BBC	57	30	1	978	970.44	-7.557
A(01-02) 14AAD	64	30	1	983	978.92	-4.081
A(01-02) 14CDD	60	38	1	979	979.68	0.676
A(01-02) 13ABD	69	30	1	990	986.86	-3.143
A(01-02) 13CDD	67	38	1	985	988.54	3.541
A(01-03) 18BBC	72	30	1	989	994.9	5.896

Table 12

Statistical Analysis of Measured vs. Model Predicted Heads for 1982 Base Calibration Period

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	950.73	-3.268
A(01-01) 24AAA	18	38	1	961	954.57	-6.427
A(01-02) 19BAA	22	38	1	965	956.6	-8.398
A(01-02) 20BCD	28	41	1	970	963.42	-6.581
A(01-02) 24BBB	64	38	1	988	984.51	-3.490
A(01-02) 24DCD	69	45	1	1001	998.75	-2.248
A(01-01) 28DDD	3	48	1	949	943.95	-5.054
A(01-01) 26AAA	11	45	1	957	952.84	-4.158
A(01-02) 30AAB	24	45	1	974	965.2	-8.799
A(01-02) 29DAA	36	49	1	985	975.65	-9.352
A(01-02) 26DDD	63	50	1	1002	998.16	-3.842
A(01-03) 30CDA	73	49	1	1027	1010.8	-16.218

No. of Active Observation Points:	61
Mean of Residuals:	-1.63
Standard Deviation of Residuals:	5.794
RMS of Residuals:	5.973

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	2.019	6.046
2	5	2.729	5.085
3	0	0.000	0.000
4	0	0.000	0.000

Table 13

Statistical Analysis of Sensitivity Run 1 - Specific Yield Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	919.31	0.307
A(02-01) 24DBA	16	2	2	919	924.36	5.355
A(02-02) 19CCB	19	2	1	915	927.96	12.965
A(02-02) 20ADD	36	1	1	935	933.68	-1.320
A(02-02) 22DAA	56	2	1	971	966.49	-4.510
A(02-01) 28AAA	3	3	1	916	912.40	-3.602
A(02-01) 27ABB	6	3	1	923	913.23	-9.769
A(02-01) 26DAA	12	4	1	927	921.47	-5.533
A(02-02) 30BAD	22	4	1	923	930.06	7.057
A(02-02) 29BCB	26	3	1	928	935.22	7.223
A(02-02) 29ACC	32	4	1	938	941.57	3.573
A(02-02) 28BDD	40	4	1	949	952.03	3.030
A(02-02) 27ACB	54	4	2	960	965.58	5.578
A(02-02) 25BCA	66	3	2	989	983.77	-5.227
A(02-01) 33CCC	1	9	2	920	919.50	-0.498
A(02-01) 34BBB	4	6	1	920	917.18	-2.817
A(02-01) 35DAA	11	8	1	943	929.37	-13.628
A(02-01) 36DAD	19	8	1	937	933.04	-3.963
A(02-02) 31ADA	25	7	1	937	936.11	-0.888
A(02-02) 32DAB	35	8	1	948	944.78	-3.219
A(02-03) 31BCD	72	7	1	989	989.58	0.581
A(01-01) 04AAA	3	10	1	928	926.54	-1.463
A(01-01) 02CCC	7	16	1	940	938.52	-1.481
A(01-02) 02BCC	57	13	1	971	961.45	-9.548
A(01-02) 01CAC	66	15	1	985	975.71	-9.290
A(01-01) 10CCC	4	27	1	943	938.88	-4.124
A(01-01) 11ACB	10	19	1	950	940.44	-9.565
A(01-02) 07BBB	19	17	1	952	941.70	-10.295
A(01-02) 08BAA	31	17	1	955	947.23	-7.772
A(01-02) 08DAA	35	23	1	958	950.28	-7.718
A(01-02) 09AAB	45	17	1	955	952.82	-2.184
A(01-02) 10ABA	54	17	1	961	958.66	-2.340
A(01-02) 10CCB	47	25	1	961	955.77	-5.232
A(01-02) 11AAA	64	17	1	976	971.91	-4.091
A(01-02) 11CBC	57	24	1	985	963.28	-21.720
A(01-02) 12BAA	67	18	1	981	977.01	-3.991
A(01-02) 12CBC	64	25	1	975	973.59	-1.406
A(01-01) 15DAA	7	33	1	946	943.14	-2.859
A(01-01) 14DAB	11	33	1	950	945.70	-4.298
A(01-02) 18DDD	25	36	1	954	953.59	-0.411
A(01-02) 17CAA	30	32	1	956	952.95	-3.050
A(01-02) 16DBB	42	33	1	965	958.55	-6.446
A(01-02) 15ACC	53	32	1	975	964.63	-10.366
A(01-02) 14BBC	57	30	1	978	966.46	-11.544
A(01-02) 14AAD	64	30	1	983	975.39	-7.609
A(01-02) 14CDD	60	38	1	979	976.30	-2.702
A(01-02) 13ABD	69	30	1	990	984.00	-5.998
A(01-02) 13CDD	67	38	1	985	985.73	0.725
A(01-03) 18BBC	72	30	1	989	992.78	3.777

Table 13

Statistical Analysis of Sensitivity Run 1 - Specific Yield Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	947.88	-6.117
A(01-01) 24AAA	18	38	1	961	951.45	-9.545
A(01-02) 19BAA	22	38	1	965	953.37	-11.634
A(01-02) 20BCD	28	41	1	970	960.39	-9.605
A(01-02) 24BBB	64	38	1	988	981.40	-6.598
A(01-02) 24DCD	69	45	1	1001	996.94	-4.057
A(01-01) 28DDD	3	48	1	949	942.42	-6.579
A(01-01) 26AAA	11	45	1	957	950.48	-6.520
A(01-02) 30AAB	24	45	1	974	962.49	-11.506
A(01-02) 29DAA	36	49	1	985	973.20	-11.798
A(01-02) 26DDD	63	50	1	1002	996.63	-5.371
A(01-03) 30CDA	73	49	1	1027	1009.80	-17.234

No. of Active Observation Points:	61
Mean of Residuals:	-4.408
Standard Deviation of Residuals:	6.014
RMS of Residuals:	7.417

Layer by Layer Summary

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-4.900	7.639
2	5	1.103	4.182
3	0	0.000	0.000
4	0	0.000	0.000

Table 14

Statistical Analysis of Sensitivity Run 2 - Specific Yield Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	923.34	4.340
A(02-01) 24DBA	16	2	2	919	928.34	9.340
A(02-02) 19CCB	19	2	1	915	931.94	16.940
A(02-02) 20ADD	36	1	1	935	934.97	-0.030
A(02-02) 22DAA	56	2	1	971	968.84	-2.160
A(02-01) 28AAA	3	3	1	916	915.98	-0.020
A(02-01) 27ABB	6	3	1	923	918.33	-4.670
A(02-01) 26DAA	12	4	1	927	927.91	0.910
A(02-02) 30BAD	22	4	1	923	936.07	13.070
A(02-02) 29BCB	26	3	1	928	940.41	12.410
A(02-02) 29ACC	32	4	1	938	947.03	9.030
A(02-02) 28BDD	40	4	1	949	956.47	7.470
A(02-02) 27ACB	54	4	2	960	969.84	9.840
A(02-02) 25BCA	66	3	2	989	986.54	-2.460
A(02-01) 33CCC	1	9	2	920	922.45	2.450
A(02-01) 34BBB	4	6	1	920	924.45	4.450
A(02-01) 35DAA	11	8	1	943	937.85	-5.150
A(02-01) 36DAD	19	8	1	937	940.88	3.880
A(02-02) 31ADA	25	7	1	937	942.94	5.940
A(02-02) 32DAB	35	8	1	948	951.37	3.370
A(02-03) 31BCD	72	7	1	989	991.98	2.980
A(01-01) 04AAA	3	10	1	928	933.79	5.790
A(01-01) 02CCC	7	16	1	940	946.83	6.830
A(01-02) 02BCC	57	13	1	971	969.65	-1.350
A(01-02) 01CAC	66	15	1	985	982.45	-2.550
A(01-01) 10CCC	4	27	1	943	943.75	0.750
A(01-01) 11ACB	10	19	1	950	949.15	-0.850
A(01-02) 07BBB	19	17	1	952	951.55	-0.450
A(01-02) 08BAA	31	17	1	955	957.28	2.280
A(01-02) 08DAA	35	23	1	958	960.54	2.540
A(01-02) 09AAB	45	17	1	955	962.91	7.910
A(01-02) 10ABA	54	17	1	961	968.37	7.370
A(01-02) 10CCB	47	25	1	961	966.21	5.210
A(01-02) 11AAA	64	17	1	976	979.84	3.840
A(01-02) 11CBC	57	24	1	985	973.37	-11.630
A(01-02) 12BAA	67	18	1	981	984.06	3.060
A(01-02) 12CBC	64	25	1	975	982.32	7.320
A(01-01) 15DAA	7	33	1	946	949.38	3.380
A(01-01) 14DAB	11	33	1	950	953.12	3.120
A(01-02) 18DDD	25	36	1	954	962.25	8.250
A(01-02) 17CAA	30	32	1	956	962.37	6.370
A(01-02) 16DBB	42	33	1	965	968.26	3.260
A(01-02) 15ACC	53	32	1	975	974.60	-0.400
A(01-02) 14BBC	57	30	1	978	976.43	-1.570
A(01-02) 14AAD	64	30	1	983	984.19	1.190
A(01-02) 14CDD	60	38	1	979	984.78	5.780
A(01-02) 13ABD	69	30	1	990	991.15	1.150
A(01-02) 13CDD	67	38	1	985	992.78	7.780
A(01-03) 18BBC	72	30	1	989	998.15	9.150

Table 14

Statistical Analysis of Sensitivity Run 2 - Specific Yield Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	954.98	0.980
A(01-01) 24AAA	18	38	1	961	959.26	-1.740
A(01-02) 19BAA	22	38	1	965	961.50	-3.500
A(01-02) 20BCD	28	41	1	970	968.10	-1.900
A(01-02) 24BBB	64	38	1	988	989.18	1.180
A(01-02) 24DCD	69	45	1	1001	1001.60	0.600
A(01-01) 28DDD	3	48	1	949	945.98	-3.020
A(01-01) 26AAA	11	45	1	957	956.46	-0.540
A(01-02) 30AAB	24	45	1	974	969.32	-4.680
A(01-02) 29DAA	36	49	1	985	979.31	-5.690
A(01-02) 26DDD	63	50	1	1002	1000.50	-1.500
A(01-03) 30CDA	73	49	1	1027	1012.40	-14.600

No. of Active Observation Points:	61
Mean of Residuals:	2.312
Standard Deviation of Residuals:	5.576
RMS of Residuals:	5.994

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	2.099	5.941
2	5	4.702	6.556
3	0	0.000	0.000
4	0	0.000	0.000

Table 15

Statistical Analysis of Sensitivity Run 3 - Layer 1 Horizontal Hydraulic Conductivity Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	924.26	5.260
A(02-01) 24DBA	16	2	2	919	928.89	9.893
A(02-02) 19CCB	19	2	1	915	932.29	17.294
A(02-02) 20ADD	36	1	1	935	936.63	1.627
A(02-02) 22DAA	56	2	1	971	969.87	-1.127
A(02-01) 28AAA	3	3	1	916	915.63	-0.366
A(02-01) 27ABB	6	3	1	923	919.02	-3.984
A(02-01) 26DAA	12	4	1	927	929.01	2.011
A(02-02) 30BAD	22	4	1	923	938.24	15.242
A(02-02) 29BCB	26	3	1	928	941.44	13.438
A(02-02) 29ACC	32	4	1	938	948.68	10.679
A(02-02) 28BDD	40	4	1	949	957.97	8.971
A(02-02) 27ACB	54	4	2	960	971.37	11.373
A(02-02) 25BCA	66	3	2	989	987.09	-1.908
A(02-01) 33CCC	1	9	2	920	921.98	1.977
A(02-01) 34BBB	4	6	1	920	923.16	3.163
A(02-01) 35DAA	11	8	1	943	938.35	-4.654
A(02-01) 36DAD	19	8	1	937	943.59	6.587
A(02-02) 31ADA	25	7	1	937	946.46	9.455
A(02-02) 32DAB	35	8	1	948	955.40	7.397
A(02-03) 31BCD	72	7	1	989	993.54	4.542
A(01-01) 04AAA	3	10	1	928	931.55	3.547
A(01-01) 02CCC	7	16	1	940	945.85	5.851
A(01-02) 02BCC	57	13	1	971	972.59	1.590
A(01-02) 01CAC	66	15	1	985	985.08	0.079
A(01-01) 10CCC	4	27	1	943	943.50	0.503
A(01-01) 11ACB	10	19	1	950	949.21	-0.795
A(01-02) 07BBB	19	17	1	952	953.27	1.273
A(01-02) 08BAA	31	17	1	955	959.93	4.929
A(01-02) 08DAA	35	23	1	958	962.97	4.973
A(01-02) 09AAB	45	17	1	955	965.70	10.697
A(01-02) 10ABA	54	17	1	961	971.15	10.152
A(01-02) 10CCB	47	25	1	961	968.48	7.482
A(01-02) 11AAA	64	17	1	976	982.44	6.438
A(01-02) 11CBC	57	24	1	985	975.65	-9.355
A(01-02) 12BAA	67	18	1	981	986.49	5.490
A(01-02) 12CBC	64	25	1	975	984.29	9.287
A(01-01) 15DAA	7	33	1	946	949.38	3.385
A(01-01) 14DAB	11	33	1	950	953.50	3.504
A(01-02) 18DDD	25	36	1	954	963.19	9.194
A(01-02) 17CAA	30	32	1	956	963.86	7.857
A(01-02) 16DBB	42	33	1	965	969.65	4.647
A(01-02) 15ACC	53	32	1	975	976.06	1.056
A(01-02) 14BBC	57	30	1	978	978.05	0.047
A(01-02) 14AAD	64	30	1	983	985.73	2.728
A(01-02) 14CDD	60	38	1	979	985.34	6.341
A(01-02) 13ABD	69	30	1	990	992.30	2.296
A(01-02) 13CDD	67	38	1	985	993.19	8.194

Table 15

Statistical Analysis of Sensitivity Run 3 - Layer 1 Horizontal Hydraulic Conductivity Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-03) 18BBC	72	30	1	989	998.75	9.747
A(01-01) 23AAA	12	37	1	954	955.31	1.307
A(01-01) 24AAA	18	38	1	961	959.85	-1.152
A(01-02) 19BAA	22	38	1	965	962.17	-2.833
A(01-02) 20BCD	28	41	1	970	968.14	-1.861
A(01-02) 24BBB	64	38	1	988	989.65	1.647
A(01-02) 24DCD	69	45	1	1001	1001.00	0.020
A(01-01) 28DDD	3	48	1	949	945.78	-3.218
A(01-01) 26AAA	11	45	1	957	956.16	-0.837
A(01-02) 30AAB	24	45	1	974	968.40	-5.598
A(01-02) 29DAA	36	49	1	985	977.69	-7.308
A(01-02) 26DDD	63	50	1	1002	999.11	-2.893
A(01-03) 30CDA	73	49	1	1027	1011.40	-15.553

No. of Active Observation Points:	61
Mean of Residuals:	3.274
Standard Deviation of Residuals:	6.013
RMS of Residuals:	6.803

Layer by Layer Summary:

Layer	Number of Observation	Mean Value	Root Mean Square Value
1	56	3.092	6.763
2	5	5.319	7.245
3	0	0.000	0.000
4	0	0.000	0.000

Table 16

Statistical Analysis of Sensitivity Run 4 - Layer 1 Horizontal Hydraulic Conductivity Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	919.18	0.177
A(02-01) 24DBA	16	2	2	919	924.57	5.567
A(02-02) 19CCB	19	2	1	915	928.37	13.372
A(02-02) 20ADD	36	1	1	935	933.11	-1.889
A(02-02) 22DAA	56	2	1	971	965.96	-5.037
A(02-01) 28AAA	3	3	1	916	912.95	-3.047
A(02-01) 27ABB	6	3	1	923	912.91	-10.089
A(02-01) 26DAA	12	4	1	927	921.06	-5.936
A(02-02) 30BAD	22	4	1	923	929.01	6.006
A(02-02) 29BCB	26	3	1	928	935.09	7.095
A(02-02) 29ACC	32	4	1	938	940.95	2.952
A(02-02) 28BDD	40	4	1	949	951.44	2.443
A(02-02) 27ACB	54	4	2	960	964.51	4.509
A(02-02) 25BCA	66	3	2	989	983.27	-5.726
A(02-01) 33CCC	1	9	2	920	920.15	0.153
A(02-01) 34BBB	4	6	1	920	918.18	-1.817
A(02-01) 35DAA	11	8	1	943	929.12	-13.878
A(02-01) 36DAD	19	8	1	937	931.18	-5.824
A(02-02) 31ADA	25	7	1	937	933.76	-3.238
A(02-02) 32DAB	35	8	1	948	941.55	-6.452
A(02-03) 31BCD	72	7	1	989	988.08	-0.925
A(01-01) 04AAA	3	10	1	928	928.28	0.282
A(01-01) 02CCC	7	16	1	940	938.98	-1.019
A(01-02) 02BCC	57	13	1	971	957.99	-13.008
A(01-02) 01CAC	66	15	1	985	972.39	-12.606
A(01-01) 10CCC	4	27	1	943	938.97	-4.028
A(01-01) 11ACB	10	19	1	950	940.10	-9.896
A(01-02) 07BBB	19	17	1	952	939.92	-12.076
A(01-02) 08BAA	31	17	1	955	944.15	-10.849
A(01-02) 08DAA	35	23	1	958	947.20	-10.797
A(01-02) 09AAB	45	17	1	955	949.33	-5.670
A(01-02) 10ABA	54	17	1	961	955.10	-5.896
A(01-02) 10CCB	47	25	1	961	952.60	-8.402
A(01-02) 11AAA	64	17	1	976	968.50	-7.500
A(01-02) 11CBC	57	24	1	985	960.00	-24.999
A(01-02) 12BAA	67	18	1	981	973.76	-7.237
A(01-02) 12CBC	64	25	1	975	970.58	-4.423
A(01-01) 15DAA	7	33	1	946	942.90	-3.104
A(01-01) 14DAB	11	33	1	950	945.06	-4.944
A(01-02) 18DDD	25	36	1	954	952.16	-1.844
A(01-02) 17CAA	30	32	1	956	950.90	-5.099
A(01-02) 16DBB	42	33	1	965	956.34	-8.659
A(01-02) 15ACC	53	32	1	975	962.13	-12.873
A(01-02) 14BBC	57	30	1	978	963.75	-14.252
A(01-02) 14AAD	64	30	1	983	972.72	-10.277
A(01-02) 14CDD	60	38	1	979	974.65	-4.345
A(01-02) 13ABD	69	30	1	990	981.86	-8.145
A(01-02) 13CDD	67	38	1	985	984.27	-0.727
A(01-03) 18BBC	72	30	1	989	991.32	2.316

Table 16

Statistical Analysis of Sensitivity Run 4 - Layer 1 Horizontal Hydraulic Conductivity Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	947.26	-6.743
A(01-01) 24AAA	18	38	1	961	950.49	-10.506
A(01-02) 19BAA	22	38	1	965	952.27	-12.733
A(01-02) 20BCD	28	41	1	970	959.78	-10.217
A(01-02) 24BBB	64	38	1	988	979.88	-8.123
A(01-02) 24DCD	69	45	1	1001	996.69	-4.310
A(01-01) 28DDD	3	48	1	949	942.61	-6.392
A(01-01) 26AAA	11	45	1	957	950.45	-6.548
A(01-02) 30AAB	24	45	1	974	962.96	-11.042
A(01-02) 29DAA	36	49	1	985	974.33	-10.671
A(01-02) 26DDD	63	50	1	1002	997.41	-4.585
A(01-03) 30CDA	73	49	1	1027	1010.00	-17.032

No. of Active Observation Points:	61
Mean of Residuals:	-5.583
Standard Deviation of Residuals:	6.424
RMS of Residuals:	8.472

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-6.165	8.756
2	5	0.936	4.103
3	0	0.000	0.000
4	0	0.000	0.000

Table 17

Statistical Analysis of Sensitivity Run 5 - Layer 1 Vertical Hydraulic Conductivity Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	921.12	2.117
A(02-01) 24DBA	16	2	2	919	926.18	7.177
A(02-02) 19CCB	19	2	1	915	929.77	14.768
A(02-02) 20ADD	36	1	1	935	934.26	-0.738
A(02-02) 22DAA	56	2	1	971	967.55	-3.455
A(02-01) 28AAA	3	3	1	916	913.84	-2.162
A(02-01) 27ABB	6	3	1	923	915.38	-7.619
A(02-01) 26DAA	12	4	1	927	924.38	-2.622
A(02-02) 30BAD	22	4	1	923	932.92	9.923
A(02-02) 29BCB	26	3	1	928	937.69	9.691
A(02-02) 29ACC	32	4	1	938	944.22	6.221
A(02-02) 28BDD	40	4	1	949	954.21	5.207
A(02-02) 27ACB	54	4	2	960	967.55	7.552
A(02-02) 25BCA	66	3	2	989	985.02	-3.985
A(02-01) 33CCC	1	9	2	920	920.81	0.814
A(02-01) 34BBB	4	6	1	920	920.26	0.263
A(02-01) 35DAA	11	8	1	943	933.09	-9.912
A(02-01) 36DAD	19	8	1	937	936.62	-0.377
A(02-02) 31ADA	25	7	1	937	939.37	2.368
A(02-02) 32DAB	35	8	1	948	947.69	-0.310
A(02-03) 31BCD	72	7	1	989	990.57	1.569
A(01-01) 04AAA	3	10	1	928	929.68	1.682
A(01-01) 02CCC	7	16	1	940	942.02	2.020
A(01-02) 02BCC	57	13	1	971	964.66	-6.338
A(01-02) 01CAC	66	15	1	985	978.31	-6.687
A(01-01) 10CCC	4	27	1	943	940.90	-2.098
A(01-01) 11ACB	10	19	1	950	944.09	-5.906
A(01-02) 07BBB	19	17	1	952	945.87	-6.131
A(01-02) 08BAA	31	17	1	955	951.28	-3.717
A(01-02) 08DAA	35	23	1	958	954.37	-3.631
A(01-02) 09AAB	45	17	1	955	956.79	1.794
A(01-02) 10ABA	54	17	1	961	962.48	1.475
A(01-02) 10CCB	47	25	1	961	959.90	-1.101
A(01-02) 11AAA	64	17	1	976	975.01	-0.991
A(01-02) 11CBC	57	24	1	985	967.30	-17.702
A(01-02) 12BAA	67	18	1	981	979.75	-1.252
A(01-02) 12CBC	64	25	1	975	977.07	2.071
A(01-01) 15DAA	7	33	1	946	945.68	-0.322
A(01-01) 14DAB	11	33	1	950	948.72	-1.280
A(01-02) 18DDD	25	36	1	954	957.03	3.031
A(01-02) 17CAA	30	32	1	956	956.70	0.699
A(01-02) 16DBB	42	33	1	965	962.39	-2.611
A(01-02) 15ACC	53	32	1	975	968.61	-6.389
A(01-02) 14BBC	57	30	1	978	970.45	-7.553
A(01-02) 14AAD	64	30	1	983	978.92	-4.078
A(01-02) 14CDD	60	38	1	979	979.68	0.680
A(01-02) 13ABD	69	30	1	990	986.86	-3.141
A(01-02) 13CDD	67	38	1	985	988.54	3.537
A(01-03) 18BBC	72	30	1	989	994.90	5.898

Table 17

Statistical Analysis of Sensitivity Run 5 - Layer 1 Vertical Hydraulic Conductivity Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	950.73	-3.270
A(01-01) 24AAA	18	38	1	961	954.57	-6.428
A(01-02) 19BAA	22	38	1	965	956.60	-8.398
A(01-02) 20BCD	28	41	1	970	963.42	-6.582
A(01-02) 24BBB	64	38	1	988	984.51	-3.488
A(01-02) 24DCD	69	45	1	1001	998.75	-2.248
A(01-01) 28DDD	3	48	1	949	943.94	-5.055
A(01-01) 26AAA	11	45	1	957	952.84	-4.160
A(01-02) 30AAB	24	45	1	974	965.20	-8.799
A(01-02) 29DAA	36	49	1	985	975.65	-9.352
A(01-02) 26DDD	63	50	1	1002	998.16	-3.841
A(01-03) 30CDA	73	49	1	1027	1010.80	-16.219

No. of Active Observation Points:	61
Mean of Residuals:	-1.629
Standard Deviation of Residuals:	5.794
RMS of Residuals:	5.973

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-2.019	6.045
2	5	2.735	5.091
3	0	0	0
4	0	0	0

Table 18

Statistical Analysis of Sensitivity Run 6 - Layer 1 Vertical Hydraulic Conductivity Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	921.13	2.125
A(02-01) 24DBA	16	2	2	919	926.14	7.138
A(02-02) 19CCB	19	2	1	915	929.80	14.802
A(02-02) 20ADD	36	1	1	935	934.28	-0.723
A(02-02) 22DAA	56	2	1	971	967.57	-3.434
A(02-01) 28AAA	3	3	1	916	913.86	-2.138
A(02-01) 27ABB	6	3	1	923	915.40	-7.595
A(02-01) 26DAA	12	4	1	927	924.38	-2.624
A(02-02) 30BAD	22	4	1	923	932.93	9.934
A(02-02) 29BCB	26	3	1	928	937.70	9.698
A(02-02) 29ACC	32	4	1	938	944.25	6.252
A(02-02) 28BDD	40	4	1	949	954.23	5.232
A(02-02) 27ACB	54	4	2	960	967.53	7.528
A(02-02) 25BCA	66	3	2	989	985.03	-3.972
A(02-01) 33CCC	1	9	2	920	920.73	0.730
A(02-01) 34BBB	4	6	1	920	920.28	0.283
A(02-01) 35DAA	11	8	1	943	933.08	-9.915
A(02-01) 36DAD	19	8	1	937	936.60	-0.396
A(02-02) 31ADA	25	7	1	937	939.35	2.354
A(02-02) 32DAB	35	8	1	948	947.67	-0.328
A(02-03) 31BCD	72	7	1	989	990.58	1.583
A(01-01) 04AAA	3	10	1	928	929.69	1.686
A(01-01) 02CCC	7	16	1	940	942.07	2.068
A(01-02) 02BCC	57	13	1	971	964.60	-6.397
A(01-02) 01CAC	66	15	1	985	978.31	-6.694
A(01-01) 10CCC	4	27	1	943	940.91	-2.089
A(01-01) 11ACB	10	19	1	950	944.17	-5.826
A(01-02) 07BBB	19	17	1	952	945.84	-6.157
A(01-02) 08BAA	31	17	1	955	951.26	-3.740
A(01-02) 08DAA	35	23	1	958	954.35	-3.648
A(01-02) 09AAB	45	17	1	955	956.77	1.773
A(01-02) 10ABA	54	17	1	961	962.45	1.451
A(01-02) 10CCB	47	25	1	961	959.88	-1.119
A(01-02) 11AAA	64	17	1	976	974.99	-1.008
A(01-02) 11CBC	57	24	1	985	967.28	-17.720
A(01-02) 12BAA	67	18	1	981	979.74	-1.259
A(01-02) 12CBC	64	25	1	975	977.05	2.052
A(01-01) 15DAA	7	33	1	946	945.69	-0.314
A(01-01) 14DAB	11	33	1	950	948.73	-1.273
A(01-02) 18DDD	25	36	1	954	957.02	3.025
A(01-02) 17CAA	30	32	1	956	956.69	0.687
A(01-02) 16DBB	42	33	1	965	962.37	-2.626
A(01-02) 15ACC	53	32	1	975	968.60	-6.401
A(01-02) 14BBC	57	30	1	978	970.43	-7.571
A(01-02) 14AAD	64	30	1	983	978.91	-4.088
A(01-02) 14CDD	60	38	1	979	979.67	0.666
A(01-02) 13ABD	69	30	1	990	986.85	-3.152
A(01-02) 13CDD	67	38	1	985	988.55	3.547
A(01-03) 18BBC	72	30	1	989	994.89	5.892

Table 18

Statistical Analysis of Sensitivity Run 6 - Layer 1 Vertical Hydraulic Conductivity Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	950.74	-3.263
A(01-01) 24AAA	18	38	1	961	954.57	-6.429
A(01-02) 19BAA	22	38	1	965	956.60	-8.402
A(01-02) 20BCD	28	41	1	970	963.42	-6.577
A(01-02) 24BBB	64	38	1	988	984.50	-3.497
A(01-02) 24DCD	69	45	1	1001	998.75	-2.250
A(01-01) 28DDD	3	48	1	949	943.95	-5.052
A(01-01) 26AAA	11	45	1	957	952.85	-4.154
A(01-02) 30AAB	24	45	1	974	965.20	-8.799
A(01-02) 29DAA	36	49	1	985	975.65	-9.354
A(01-02) 26DDD	63	50	1	1002	998.15	-3.847
A(01-03) 30CDA	73	49	1	1027	1010.80	-16.215

No. of Active Observation Points:	61
Mean of Residuals:	-1.632
Standard Deviation of Residuals:	5.796
RMS of Residuals:	5.975

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-2.019	6.050
2	5	2.710	5.068
3	0	0.000	0.000
4	0	0.000	0.000

Table 19

Statistical Analysis of Sensitivity Run 7 - Agricultural Recharge Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	926.43	7.427
A(02-01) 24DBA	16	2	2	919	931.25	12.254
A(02-02) 19CCB	19	2	1	915	934.72	19.720
A(02-02) 20ADD	36	1	1	935	936.09	1.091
A(02-02) 22DAA	56	2	1	971	970.10	-0.898
A(02-01) 28AAA	3	3	1	916	920.23	4.226
A(02-01) 27ABB	6	3	1	923	923.23	0.226
A(02-01) 26DAA	12	4	1	927	933.77	6.767
A(02-02) 30BAD	22	4	1	923	941.87	18.866
A(02-02) 29BCB	26	3	1	928	944.60	16.597
A(02-02) 29ACC	32	4	1	938	952.23	14.231
A(02-02) 28BDD	40	4	1	949	961.25	12.248
A(02-02) 27ACB	54	4	2	960	972.80	12.797
A(02-02) 25BCA	66	3	2	989	987.90	-1.102
A(02-01) 33CCC	1	9	2	920	923.93	3.931
A(02-01) 34BBB	4	6	1	920	929.44	9.445
A(02-01) 35DAA	11	8	1	943	946.56	3.561
A(02-01) 36DAD	19	8	1	937	950.00	13.000
A(02-02) 31ADA	25	7	1	937	951.47	14.474
A(02-02) 32DAB	35	8	1	948	959.44	11.436
A(02-03) 31BCD	72	7	1	989	993.66	4.656
A(01-01) 04AAA	3	10	1	928	937.92	9.923
A(01-01) 02CCC	7	16	1	940	954.58	14.581
A(01-02) 02BCC	57	13	1	971	973.97	2.966
A(01-02) 01CAC	66	15	1	985	984.97	-0.027
A(01-01) 10CCC	4	27	1	943	949.75	6.747
A(01-01) 11ACB	10	19	1	950	957.88	7.883
A(01-02) 07BBB	19	17	1	952	960.51	8.507
A(01-02) 08BAA	31	17	1	955	964.97	9.967
A(01-02) 08DAA	35	23	1	958	967.81	9.807
A(01-02) 09AAB	45	17	1	955	969.05	14.051
A(01-02) 10ABA	54	17	1	961	973.07	12.071
A(01-02) 10CCB	47	25	1	961	972.09	11.094
A(01-02) 11AAA	64	17	1	976	982.65	6.652
A(01-02) 11CBC	57	24	1	985	977.53	-7.473
A(01-02) 12BAA	67	18	1	981	986.43	5.429
A(01-02) 12CBC	64	25	1	975	985.11	10.112
A(01-01) 15DAA	7	33	1	946	957.47	11.466
A(01-01) 14DAB	11	33	1	950	962.14	12.136
A(01-02) 18DDD	25	36	1	954	970.96	16.957
A(01-02) 17CAA	30	32	1	956	970.44	14.441
A(01-02) 16DBB	42	33	1	965	975.06	10.062
A(01-02) 15ACC	53	32	1	975	979.66	4.662
A(01-02) 14BBC	57	30	1	978	980.75	2.748
A(01-02) 14AAD	64	30	1	983	987.15	4.146
A(01-02) 14CDD	60	38	1	979	988.96	9.959
A(01-02) 13ABD	69	30	1	990	993.32	3.318
A(01-02) 13CDD	67	38	1	985	995.82	10.815
A(01-03) 18BBC	72	30	1	989	999.79	10.786

Table 19

Statistical Analysis of Sensitivity Run 7 - Agricultural Recharge Increased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 23AAA	12	37	1	954	964.05	10.047
A(01-01) 24AAA	18	38	1	961	968.50	7.504
A(01-02) 19BAA	22	38	1	965	970.57	5.568
A(01-02) 20BCD	28	41	1	970	976.87	6.866
A(01-02) 24BBB	64	38	1	988	992.70	4.700
A(01-02) 24DCD	69	45	1	1001	1005.20	4.161
A(01-01) 28DDD	3	48	1	949	949.60	0.600
A(01-01) 26AAA	11	45	1	957	965.04	8.045
A(01-02) 30AAB	24	45	1	974	978.61	4.606
A(01-02) 29DAA	36	49	1	985	988.66	3.664
A(01-02) 26DDD	63	50	1	1002	1006.90	4.937
A(01-03) 30CDA	73	49	1	1027	1015.50	-11.453

No. of Active Observation Points:	61
Mean of Residuals:	7.672
Standard Deviation of Residuals:	5.854
RMS of Residuals:	9.621

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	7.726	9.692
2	5	7.061	8.783
3	0	0.000	0.000
4	0	0.000	0.000

Table 20

Statistical Analysis of Sensitivity Run 8 - Agricultural Recharge Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	915.84	-3.159
A(02-01) 24DBA	16	2	2	919	921.16	2.159
A(02-02) 19CCB	19	2	1	915	924.95	9.955
A(02-02) 20ADD	36	1	1	935	932.56	-2.437
A(02-02) 22DAA	56	2	1	971	965.05	-5.951
A(02-01) 28AAA	3	3	1	916	907.27	-8.733
A(02-01) 27ABB	6	3	1	923	907.26	-15.744
A(02-01) 26DAA	12	4	1	927	914.61	-12.389
A(02-02) 30BAD	22	4	1	923	923.82	0.822
A(02-02) 29BCB	26	3	1	928	930.80	2.802
A(02-02) 29ACC	32	4	1	938	936.13	-1.867
A(02-02) 28BDD	40	4	1	949	947.13	-1.867
A(02-02) 27ACB	54	4	2	960	962.27	2.270
A(02-02) 25BCA	66	3	2	989	982.15	-6.852
A(02-01) 33CCC	1	9	2	920	917.60	-2.395
A(02-01) 34BBB	4	6	1	920	910.56	-9.444
A(02-01) 35DAA	11	8	1	943	918.52	-24.479
A(02-01) 36DAD	19	8	2	937	922.52	-14.483
A(02-02) 31ADA	25	7	1	937	926.58	-10.421
A(02-02) 32DAB	35	8	1	948	935.19	-12.805
A(02-03) 31BCD	72	7	1	989	987.50	-1.498
A(01-01) 04AAA	3	10	1	928	920.97	-7.034
A(01-01) 02CCC	7	16	1	940	928.47	-11.532
A(01-02) 02BCC	57	13	1	971	954.84	-16.159
A(01-02) 01CAC	66	15	1	985	971.45	-13.552
A(01-01) 10CCC	4	27	1	943	931.53	-11.467
A(01-01) 11ACB	10	19	1	950	929.12	-20.877
A(01-02) 07BBB	19	17	1	952	929.75	-22.253
A(01-02) 08BAA	31	17	1	955	936.27	-18.732
A(01-02) 08DAA	35	23	1	958	939.64	-18.365
A(01-02) 09AAB	45	17	1	955	943.52	-11.483
A(01-02) 10ABA	54	17	1	961	951.17	-9.832
A(01-02) 10CCB	47	25	1	961	946.67	-14.326
A(01-02) 11AAA	64	17	1	976	967.05	-8.947
A(01-02) 11CBC	57	24	1	985	956.39	-28.608
A(01-02) 12BAA	67	18	1	981	972.86	-8.139
A(01-02) 12CBC	64	25	1	975	968.68	-6.322
A(01-01) 15DAA	7	33	1	946	932.99	-13.009
A(01-01) 14DAB	11	33	1	950	934.14	-15.865
A(01-02) 18DDD	25	36	1	954	941.81	-12.186
A(01-02) 17CAA	30	32	1	956	941.66	-14.343
A(01-02) 16DBB	42	33	1	965	948.63	-16.373
A(01-02) 15ACC	53	32	1	975	956.76	-18.243
A(01-02) 14BBC	57	30	1	978	959.46	-18.539
A(01-02) 14AAD	64	30	1	983	970.33	-12.671
A(01-02) 14CDD	60	38	1	979	969.92	-9.076
A(01-02) 13ABD	69	30	1	990	980.25	-9.750
A(01-02) 13CDD	67	38	1	985	981.05	-3.950
A(01-03) 18BBC	72	30	1	989	989.99	0.994
A(01-01) 23AAA	12	37	1	954	936.27	-17.727
A(01-01) 24AAA	18	38	1	961	939.37	-21.626

Table 20

Statistical Analysis of Sensitivity Run 8 - Agricultural Recharge Decreased 50 Percent

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-02) 19BAA	22	38	1	965	941.36	-23.641
A(01-02) 20BCD	28	41	1	970	948.82	-21.177
A(01-02) 24BBB	64	38	1	988	976.00	-12.003
A(01-02) 24DCD	69	45	1	1001	992.24	-8.764
A(01-01) 28DDD	3	48	1	949	938.12	-10.881
A(01-01) 26AAA	11	45	1	957	939.71	-17.285
A(01-02) 30AAB	24	45	1	974	950.70	-23.302
A(01-02) 29DAA	36	49	1	985	961.63	-23.372
A(01-02) 26DDD	63	50	1	1002	989.04	-12.957
A(01-03) 30CDA	73	49	1	1027	1006.00	-21.000

No. of Active Observation Points:	61
Mean of Residuals:	-11.49
Standard Deviation of Residuals:	8.002
RMS of Residuals:	13.964

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	55	-12.335	14.531
2	6	-3.743	6.858
3	0	0.000	0.000
4	0	0.000	0.000

Table 21

Statistical Analysis of Sensitivity Run 9 - River Recharge Increased by 50%

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	922.27	3.267
A(02-01) 24DBA	16	2	2	919	927.37	8.370
A(02-02) 19CCB	19	2	1	915	931.04	16.036
A(02-02) 20ADD	36	1	1	935	934.84	-0.165
A(02-02) 22DAA	56	2	1	971	968.60	-2.400
A(02-01) 28AAA	3	3	1	916	914.53	-1.466
A(02-01) 27ABB	6	3	1	923	916.64	-6.357
A(02-01) 26DAA	12	4	1	927	926.51	-0.490
A(02-02) 30BAD	22	4	1	923	935.53	12.530
A(02-02) 29BCB	26	3	1	928	939.84	11.842
A(02-02) 29ACC	32	4	1	938	946.96	8.962
A(02-02) 28BDD	40	4	1	949	956.83	7.827
A(02-02) 27ACB	54	4	2	960	969.77	9.766
A(02-02) 25BCA	66	3	2	989	986.33	-2.670
A(02-01) 33CCC	1	9	2	920	921.24	1.244
A(02-01) 34BBB	4	6	1	920	921.61	1.612
A(02-01) 35DAA	11	8	1	943	936.32	-6.679
A(02-01) 36DAD	19	8	1	937	940.67	3.674
A(02-02) 31ADA	25	7	1	937	943.38	6.377
A(02-02) 32DAB	35	8	1	948	952.16	4.156
A(02-03) 31BCD	72	7	1	989	992.04	3.040
A(01-01) 04AAA	3	10	1	928	931.15	3.154
A(01-01) 02CCC	7	16	1	940	945.36	5.357
A(01-02) 02BCC	57	13	1	971	968.88	-2.119
A(01-02) 01CAC	66	15	1	985	981.59	-3.407
A(01-01) 10CCC	4	27	1	943	943.37	0.366
A(01-01) 11ACB	10	19	1	950	948.18	-1.817
A(01-02) 07BBB	19	17	1	952	950.97	-1.032
A(01-02) 08BAA	31	17	1	955	956.83	1.830
A(01-02) 06DAA	35	23	1	958	960.06	2.062
A(01-02) 09AAB	45	17	1	955	962.12	7.120
A(01-02) 10ABA	54	17	1	961	967.31	6.306
A(01-02) 10CCB	47	25	1	961	965.39	4.387
A(01-02) 11AAA	64	17	1	976	978.76	2.763
A(01-02) 11CBC	57	24	1	985	972.20	-12.798
A(01-02) 12BAA	67	18	1	981	983.10	2.104
A(01-02) 12CBC	64	25	1	975	981.18	6.179
A(01-01) 15DAA	7	33	1	946	949.62	3.619
A(01-01) 14DAB	11	33	1	950	953.57	3.566
A(01-02) 18DDD	25	36	1	954	963.01	9.006
A(01-02) 17CAA	30	32	1	956	962.60	6.604
A(01-02) 16DBB	42	33	1	965	968.21	3.208
A(01-02) 15ACC	53	32	1	975	974.01	-0.987
A(01-02) 14BBC	57	30	1	978	975.55	-2.449
A(01-02) 14AAD	64	30	1	983	983.23	0.229
A(01-02) 14CDD	60	38	1	979	984.68	5.685
A(01-02) 13ABD	69	30	1	990	990.40	0.399
A(01-02) 13CDD	67	38	1	985	992.73	7.730
A(01-03) 18BBC	72	30	1	989	997.72	8.716
A(01-01) 23AAA	12	37	1	954	955.95	1.954

Table 21

Statistical Analysis of Sensitivity Run 9 - River Recharge Increased by 50%

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 24AAA	18	38	1	961	960.39	-0.607
A(01-02) 19BAA	22	38	1	965	962.58	-2.417
A(01-02) 20BCD	28	41	1	970	969.77	-0.225
A(01-02) 24BBB	64	38	1	988	989.08	1.080
A(01-02) 24DCD	69	45	1	1001	1002.80	1.780
A(01-01) 28DDD	3	48	1	949	946.71	-2.294
A(01-01) 26AAA	11	45	1	957	958.62	1.620
A(01-02) 30AAB	24	45	1	974	971.80	-2.199
A(01-02) 29DAA	36	49	1	985	982.06	-2.943
A(01-02) 26DDD	63	50	1	1002	1002.30	0.259
A(01-03) 30CDA	73	49	1	1027	1013.60	-13.410

No. of Active Observation Points:	61
Mean of Residuals:	2.080
Standard Deviation of Residuals:	5.379
RMS of Residuals:	5.725

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	1.909	5.693
2	5	3.995	6.079
3	0	0.000	0.000
4	0	0.000	0.000

Table 22

Statistical Analysis of Sensitivity Run 10 - GHB Mean Conductance Increased 50 Percent (Layer 1)

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	920.73	1.732
A(02-01) 24DBA	16	2	2	919	925.81	6.806
A(02-02) 19CCB	19	2	1	915	929.48	14.481
A(02-02) 20ADD	36	1	1	935	933.68	-1.315
A(02-02) 22DAA	56	2	1	971	967.77	-3.230
A(02-01) 28AAA	3	3	1	916	913.17	-2.829
A(02-01) 27ABB	6	3	1	923	915.01	-7.990
A(02-01) 26DAA	12	4	1	927	924.28	-2.722
A(02-02) 30BAD	22	4	1	923	933.00	10.005
A(02-02) 29BCB	26	3	1	928	937.73	9.726
A(02-02) 29ACC	32	4	1	938	944.42	6.419
A(02-02) 28BDD	40	4	1	949	954.49	5.485
A(02-02) 27ACB	54	4	2	960	968.00	7.999
A(02-02) 25BCA	66	3	2	989	985.42	-3.576
A(02-01) 33CCC	1	9	2	920	920.04	0.043
A(02-01) 34BBB	4	6	1	920	919.88	-0.122
A(02-01) 35DAA	11	8	1	943	933.24	-9.756
A(02-01) 36DAD	19	8	1	937	936.96	-0.038
A(02-02) 31ADA	25	7	1	937	939.76	2.756
A(02-02) 32DAB	35	8	1	948	948.29	0.289
A(02-03) 31BCD	72	7	1	989	991.19	2.188
A(01-01) 04AAA	3	10	1	928	929.51	1.512
A(01-01) 02CCC	7	16	1	940	942.26	2.262
A(01-02) 02BCC	57	13	1	971	965.57	-5.434
A(01-02) 01CAC	66	15	1	985	979.33	-5.668
A(01-01) 10CCC	4	27	1	943	941.00	-1.998
A(01-01) 11ACB	10	19	1	950	944.45	-5.549
A(01-02) 07BBB	19	17	1	952	946.40	-5.597
A(01-02) 08BAA	31	17	1	955	952.03	-2.971
A(01-02) 08DAA	35	23	1	958	955.17	-2.829
A(01-02) 09AAB	45	17	1	955	957.67	2.673
A(01-02) 10ABA	54	17	1	961	963.44	2.438
A(01-02) 10CCB	47	25	1	961	960.82	-0.177
A(01-02) 11AAA	64	17	1	976	976.07	0.069
A(01-02) 11CBC	57	24	1	985	968.35	-16.650
A(01-02) 12BAA	67	18	1	981	980.82	-0.175
A(01-02) 12CBC	64	25	1	975	978.23	3.228
A(01-01) 15DAA	7	33	1	946	945.93	-0.071
A(01-01) 14DAB	11	33	1	950	949.11	-0.892
A(01-02) 18DDD	25	36	1	954	957.69	3.693
A(01-02) 17CAA	30	32	1	956	957.43	1.434
A(01-02) 16DBB	42	33	1	965	963.26	-1.741
A(01-02) 15ACC	53	32	1	975	969.64	-5.362
A(01-02) 14BBC	57	30	1	978	971.53	-6.474
A(01-02) 14AAD	64	30	1	983	980.12	-2.879
A(01-02) 14CDD	60	38	1	979	980.83	1.832
A(01-02) 13ABD	69	30	1	990	988.12	-1.882
A(01-02) 13CDD	67	38	1	985	989.85	4.846
A(01-03) 18BBC	72	30	1	989	996.19	7.192
A(01-01) 23AAA	12	37	1	954	951.14	-2.859
A(01-01) 24AAA	18	38	1	961	955.11	-5.889

Table 22

Statistical Analysis of Sensitivity Run 10 - GHB Mean Conductance Increased 50 Percent (Layer 1)

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-02) 19BAA	22	38	1	965	957.21	-7.794
A(01-02) 20BCD	28	41	1	970	964.10	-5.902
A(01-02) 24BBB	64	38	1	988	985.75	-2.250
A(01-02) 24DCD	69	45	1	1001	1000.20	-0.827
A(01-01) 28DDD	3	48	1	949	943.96	-5.043
A(01-01) 26AAA	11	45	1	957	953.20	-3.799
A(01-02) 30AAB	24	45	1	974	965.80	-8.202
A(01-02) 29DAA	36	49	1	985	976.35	-8.654
A(01-02) 26DDD	63	50	1	1002	999.31	-2.690
A(01-03) 30CDA	73	49	1	1027	1012.40	-14.554

No. of Active Observation Points:	61
Mean of Residuals:	-1.103
Standard Deviation of Residuals:	5.635
RMS of Residuals:	5.696

Layer by Layer Summary:

Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-1.434	5.753
2	5	2.601	5.022
3	0	0.000	0.000
4	0	0.000	0.000

Table 23

Statistical Analysis of Sensitivity Run 11 - GHB Mean Conductance Decreased 50 Percent (Layer 1)

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(02-01) 23DDA	12	2	2	919	921.61	2.607
A(02-01) 24DBA	16	2	2	919	926.59	7.592
A(02-02) 19CCB	19	2	1	915	930.10	15.097
A(02-02) 20ADD	36	1	1	935	934.96	-0.039
A(02-02) 22DAA	56	2	1	971	966.99	-4.011
A(02-01) 28AAA	3	3	1	916	914.98	-1.019
A(02-01) 27ABB	6	3	1	923	915.97	-7.035
A(02-01) 26DAA	12	4	1	927	924.41	-2.587
A(02-02) 30BAD	22	4	1	923	932.61	9.610
A(02-02) 29BCB	26	3	1	928	937.45	9.454
A(02-02) 29ACC	32	4	1	938	943.69	5.688
A(02-02) 28BDD	40	4	1	949	953.51	4.508
A(02-02) 27ACB	54	4	2	960	966.51	6.510
A(02-02) 25BCA	66	3	2	989	984.06	-4.941
A(02-01) 33CCC	1	9	2	920	921.89	1.890
A(02-01) 34BBB	4	6	1	920	920.89	0.893
A(02-01) 35DAA	11	8	1	943	932.67	-10.327
A(02-01) 36DAD	19	8	1	937	935.83	-1.173
A(02-02) 31ADA	25	7	1	937	938.46	1.465
A(02-02) 32DAB	35	8	1	948	946.37	-1.629
A(02-03) 31BCD	72	7	1	989	989.17	0.174
A(01-01) 04AAA	3	10	1	928	929.90	1.902
A(01-01) 02CCC	7	16	1	940	941.51	1.506
A(01-02) 02BCC	57	13	1	971	962.70	-8.301
A(01-02) 01CAC	66	15	1	985	976.14	-8.865
A(01-01) 10CCC	4	27	1	943	940.63	-2.371
A(01-01) 11ACB	10	19	1	950	943.38	-6.622
A(01-02) 07BBB	19	17	1	952	944.70	-7.295
A(01-02) 08BAA	31	17	1	955	949.70	-5.304
A(01-02) 08DAA	35	23	1	958	952.68	-5.322
A(01-02) 09AAB	45	17	1	955	954.94	-0.064
A(01-02) 10ABA	54	17	1	961	960.44	-0.563
A(01-02) 10CCB	47	25	1	961	957.96	-3.038
A(01-02) 11AAA	64	17	1	976	972.76	-3.244
A(01-02) 11CBC	57	24	1	985	965.09	-19.906
A(01-02) 12BAA	67	18	1	981	977.46	-3.541
A(01-02) 12CBC	64	25	1	975	974.65	-0.354
A(01-01) 15DAA	7	33	1	946	945.11	-0.893
A(01-01) 14DAB	11	33	1	950	947.88	-2.115
A(01-02) 18DDD	25	36	1	954	955.65	1.646
A(01-02) 17CAA	30	32	1	956	955.16	-0.842
A(01-02) 16DBB	42	33	1	965	960.58	-4.422
A(01-02) 15ACC	53	32	1	975	966.48	-8.517
A(01-02) 14BBC	57	30	1	978	968.20	-9.795
A(01-02) 14AAD	64	30	1	983	976.43	-6.565
A(01-02) 14CDD	60	38	1	979	977.32	-1.680
A(01-02) 13ABD	69	30	1	990	984.25	-5.755
A(01-02) 13CDD	67	38	1	985	985.89	0.893
A(01-03) 18BBC	72	30	1	989	992.20	3.203
A(01-01) 23AAA	12	37	1	954	949.85	-4.149

Table 23

Statistical Analysis of Sensitivity Run 11 - GHB Mean Conductance Decreased 50 Percent (Layer 1)

Well Location	Column	Row	Layer	Observed Head Value (feet above msl)	Calculated Head Value (feet above msl)	Calculated minus Observed
A(01-01) 24AAA	18	38	1	961	953.44	-7.562
A(01-02) 19BAA	22	38	1	965	955.34	-9.663
A(01-02) 20BCD	28	41	1	970	962.01	-7.986
A(01-02) 24BBB	64	38	1	988	981.99	-6.010
A(01-02) 24DCD	69	45	1	1001	995.94	-5.061
A(01-01) 28DDD	3	48	1	949	943.82	-5.182
A(01-01) 26AAA	11	45	1	957	952.06	-4.941
A(01-02) 30AAB	24	45	1	974	963.96	-10.037
A(01-02) 29DAA	36	49	1	985	974.22	-10.777
A(01-02) 26DDD	63	50	1	1002	995.89	-6.110
A(01-03) 30CDA	73	49	1	1027	1007.60	-19.436

No. of Active Observation Points:	61
Mean of Residuals:	-2.794
Standard Deviation of Residuals:	6.209
RMS of Residuals:	6.762

Layer by Layer Summary:

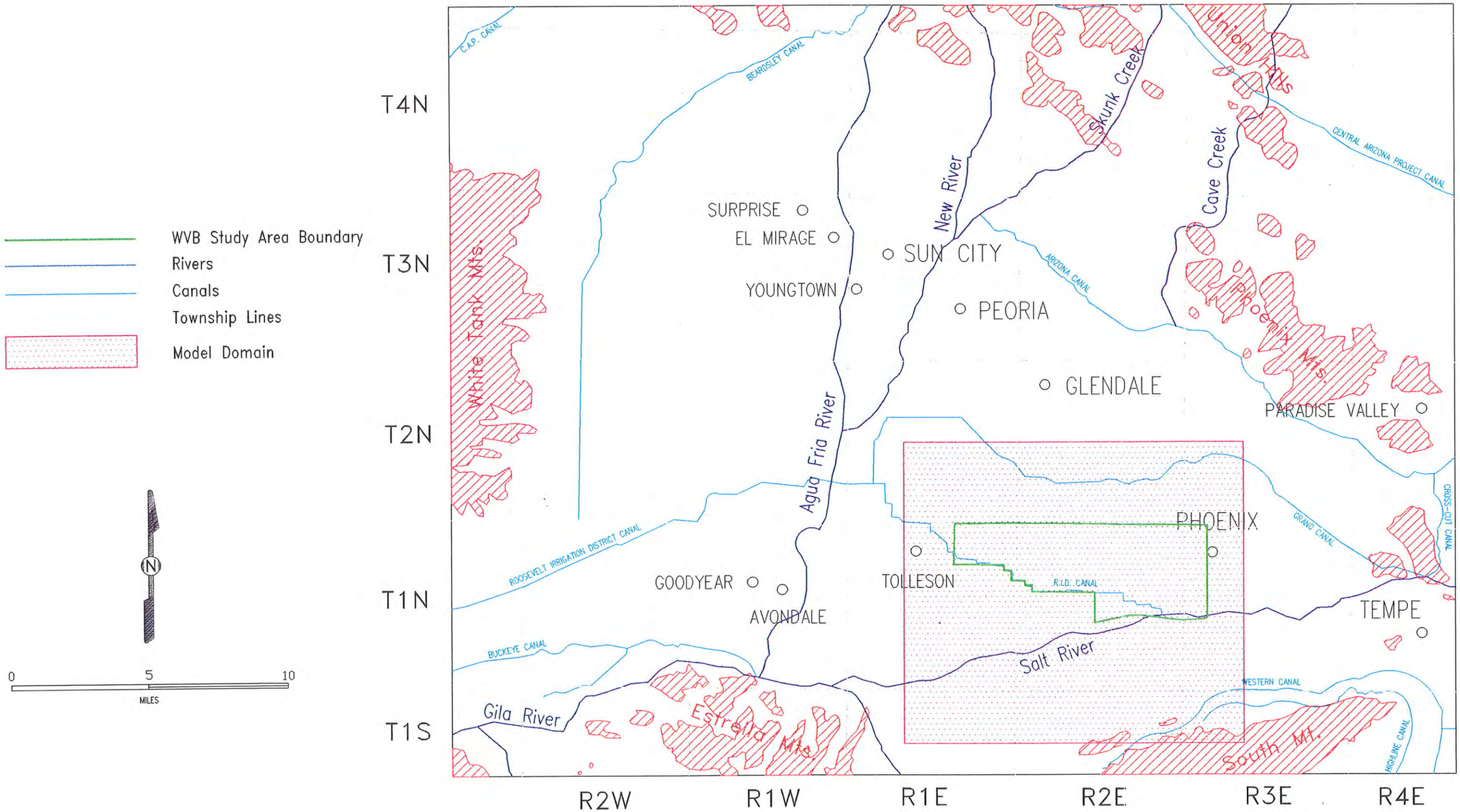
Layer	Number of Observations	Mean Value	Root Mean Square Value
1	56	-3.287	6.884
2	5	2.731	5.192
3	0	0.000	0.000
4	0	0.000	0.000

Table 24

Summary of Sensitivity Analysis Results

Sensitivity Run	Change Implemented	RMS Error	Comments
Base Calib.	None	5.973	
1	Increase Specific Yield 50%	7.417	Moderate sensitivity, lower values appear to be preferable
2	Decrease Specific Yield 50%	5.994	Some localized lowering of specific yield may be benificial
3	Increase Layer 1 Horizontal Hydraulic Conductivity 50	6.803	No large scale changes appear to be beneficial
4	Decrease Layer 1 Horizontal Hydraulic Conductivity 50	8.472	No large scale changes appear to be beneficial
5	Increase Layer 1 Vertical Hydraulic Conductivity 50%	5.973	Model is not very sensitive to changes in vertical hydraulic conductivity
6	Decrease Layer 1 Vertical Hydraulic Conductivity 50%	5.975	Model is not very sensitive to changes in vertical hydraulic conductivity
7	Increase Agricultural Recharge 50%	9.621	Very sensitive to agricultural recharge, only small scale changes desirable
8	Decrease Agricultural Recharge 50%	13.964	Very sensitive to agricultural recharge, and higher rate is better
9	Increase River Recharge 50%	5.725	Model appears to need more water, recharge rate could be increased
10	Increase Layer 1 GHB Mean Conductance 50%	5.696	Model appears to need more water, boundary flux could be increased
10 (total)	Increase All Layers GHB Mean Conductance 50%	5.650	Model appears to need more water, boundary flux could be increased
11	Decrease Layer 1 GHB Mean Conductance 50%	6.762	Less flux causes poorer result
11 (total)	Decrease All Layers GHB Mean Conductance 50%	7.360	Less flux causes poorer result

FIGURES

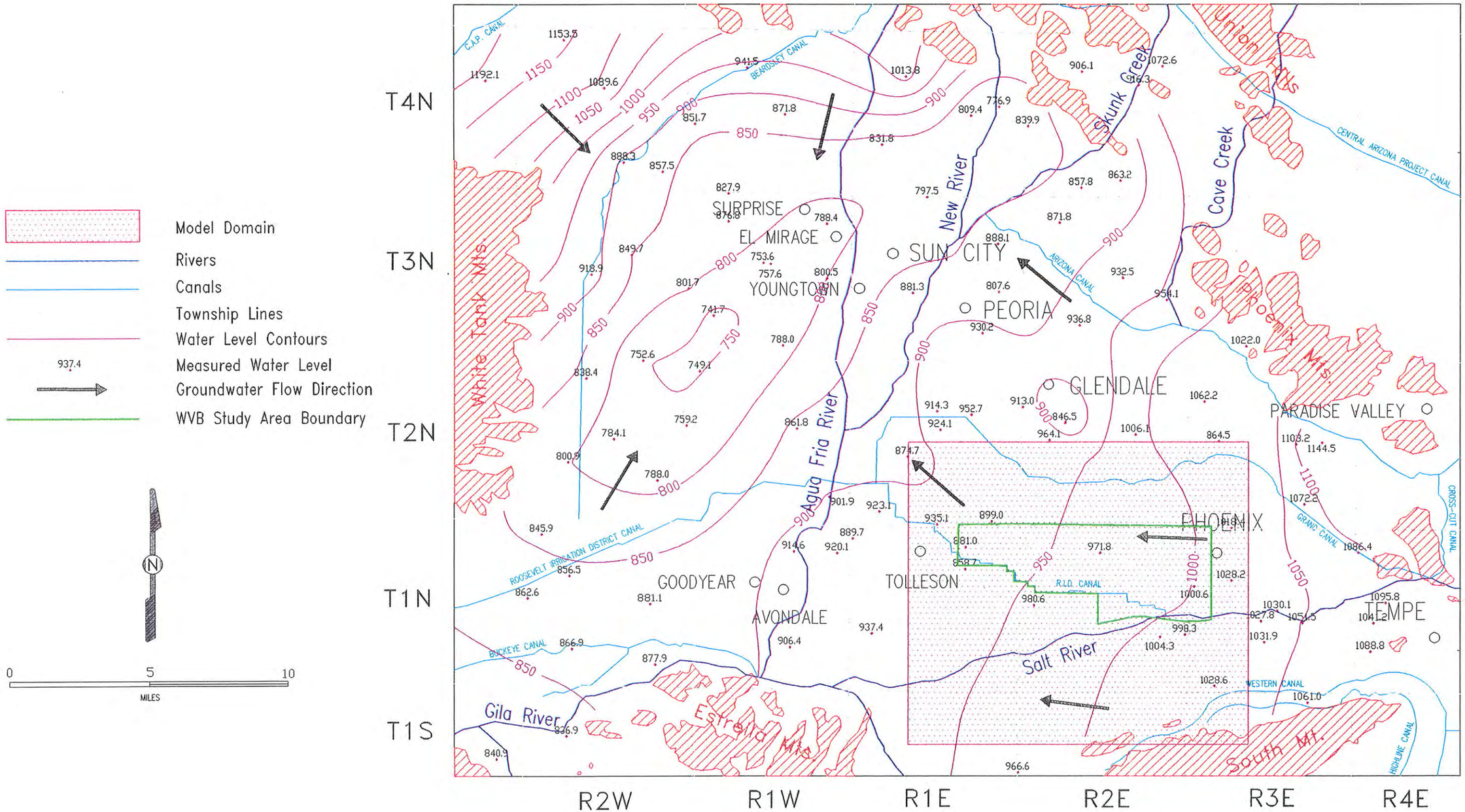


Harding Lawson Associates
Engineering and Environmental Services

Regional Hydrogeologic Features
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **1**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PKP	12/96	



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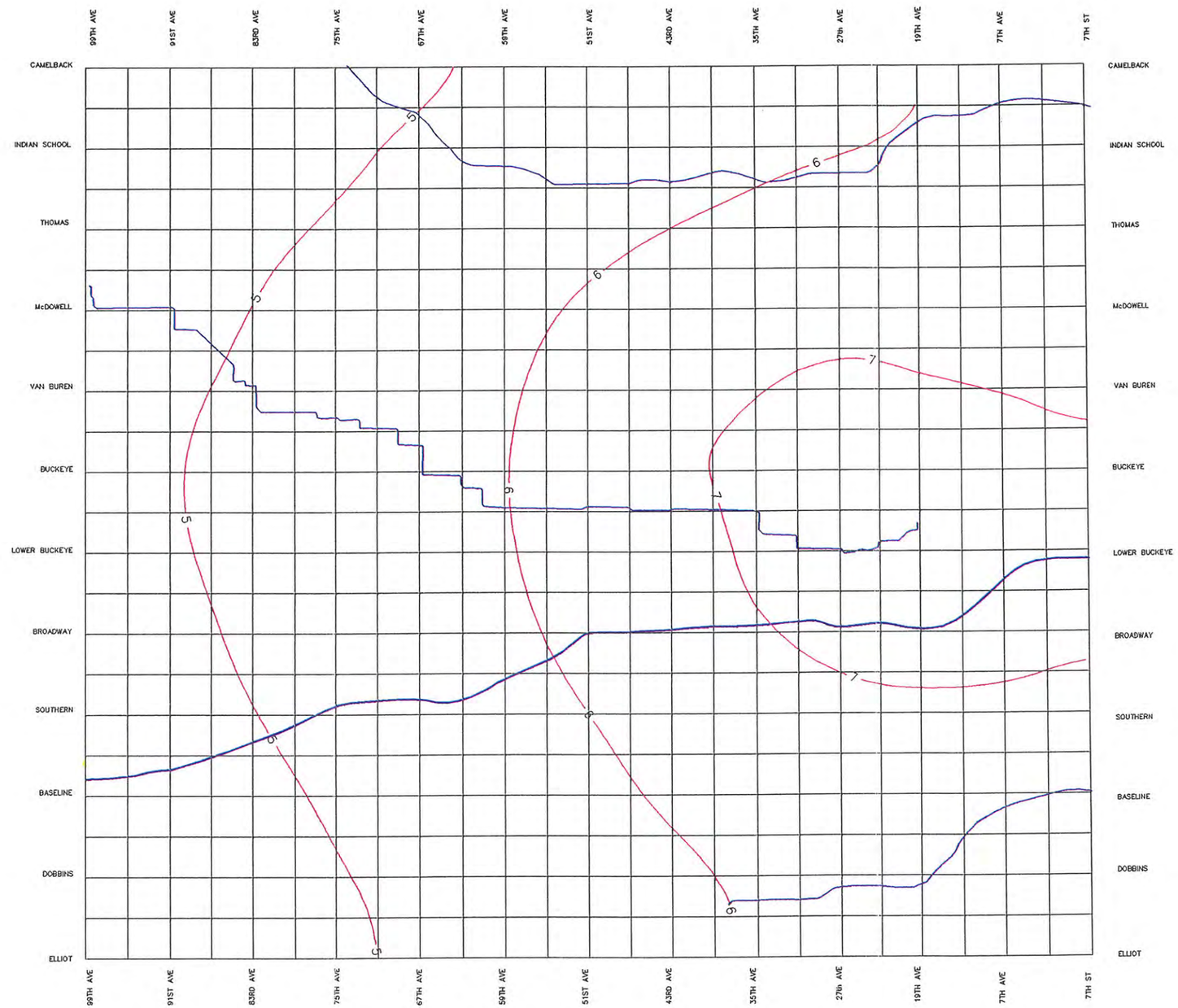
Regional Water Levels for Winter 1994
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **2**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	12/96	

vwrfig03

Drawdown Contour (feet)



N

8000 0 8000

SCALE IN FEET

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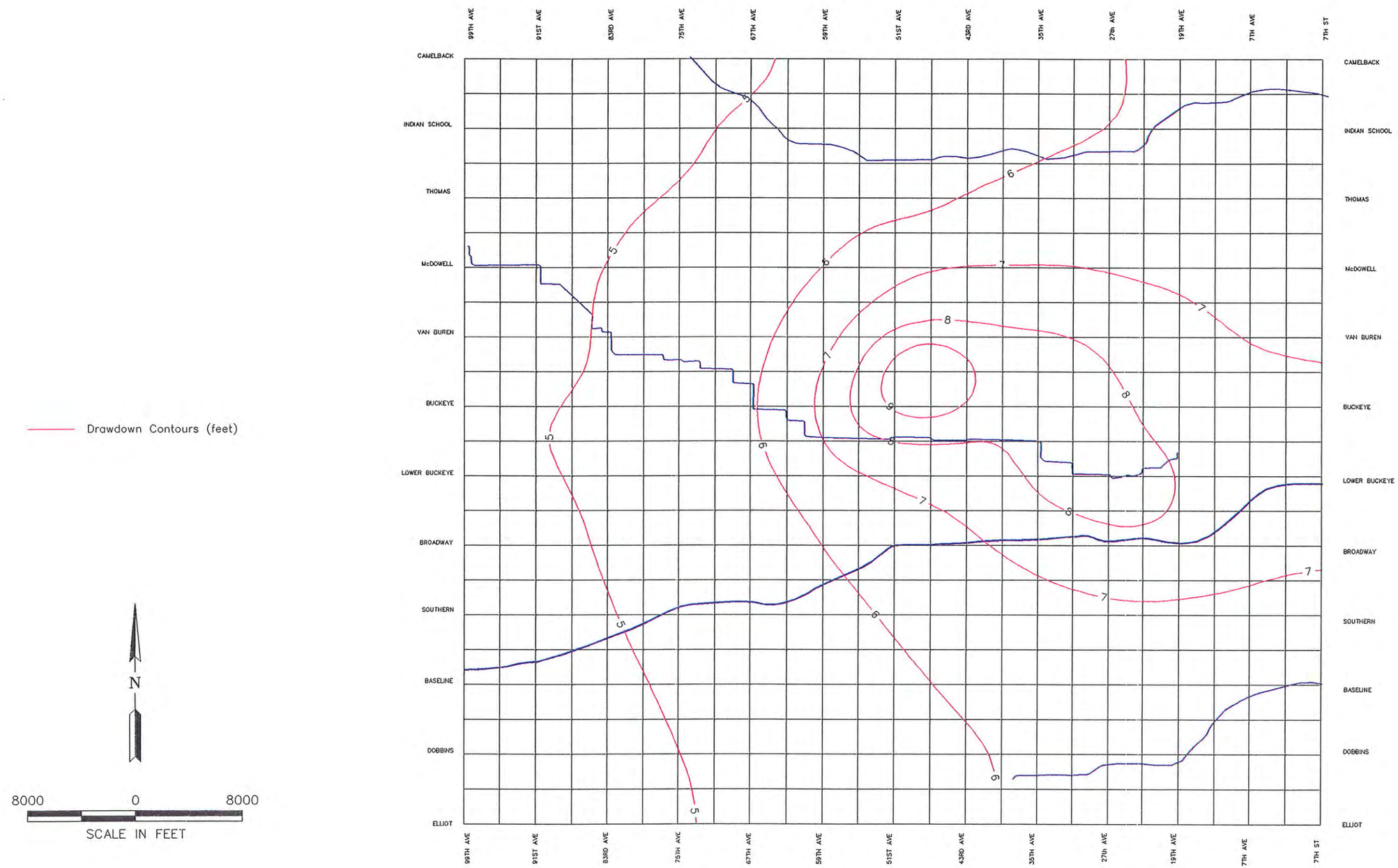
PHASE 1 DRAWDOWNS - LAYER 1

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE 3

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

vwrfig04



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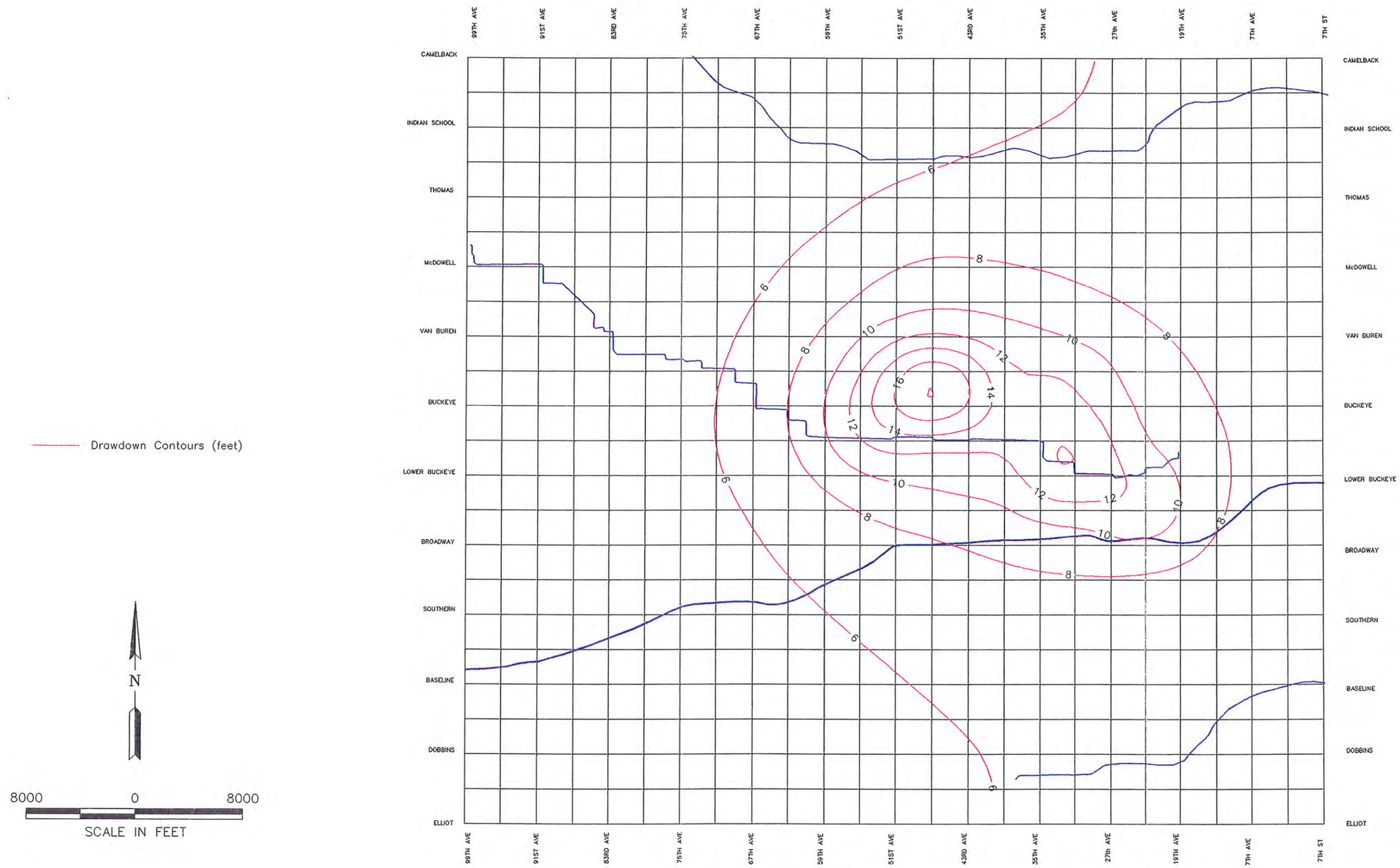
PHASE 1 DRAWDOWNS - LAYER 2

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **4**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

vwrfig05



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Engineering and Environmental Services

PHASE 1 DRAWDOWNS - LAYER 3

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **5**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	12/96	

vwrfig06

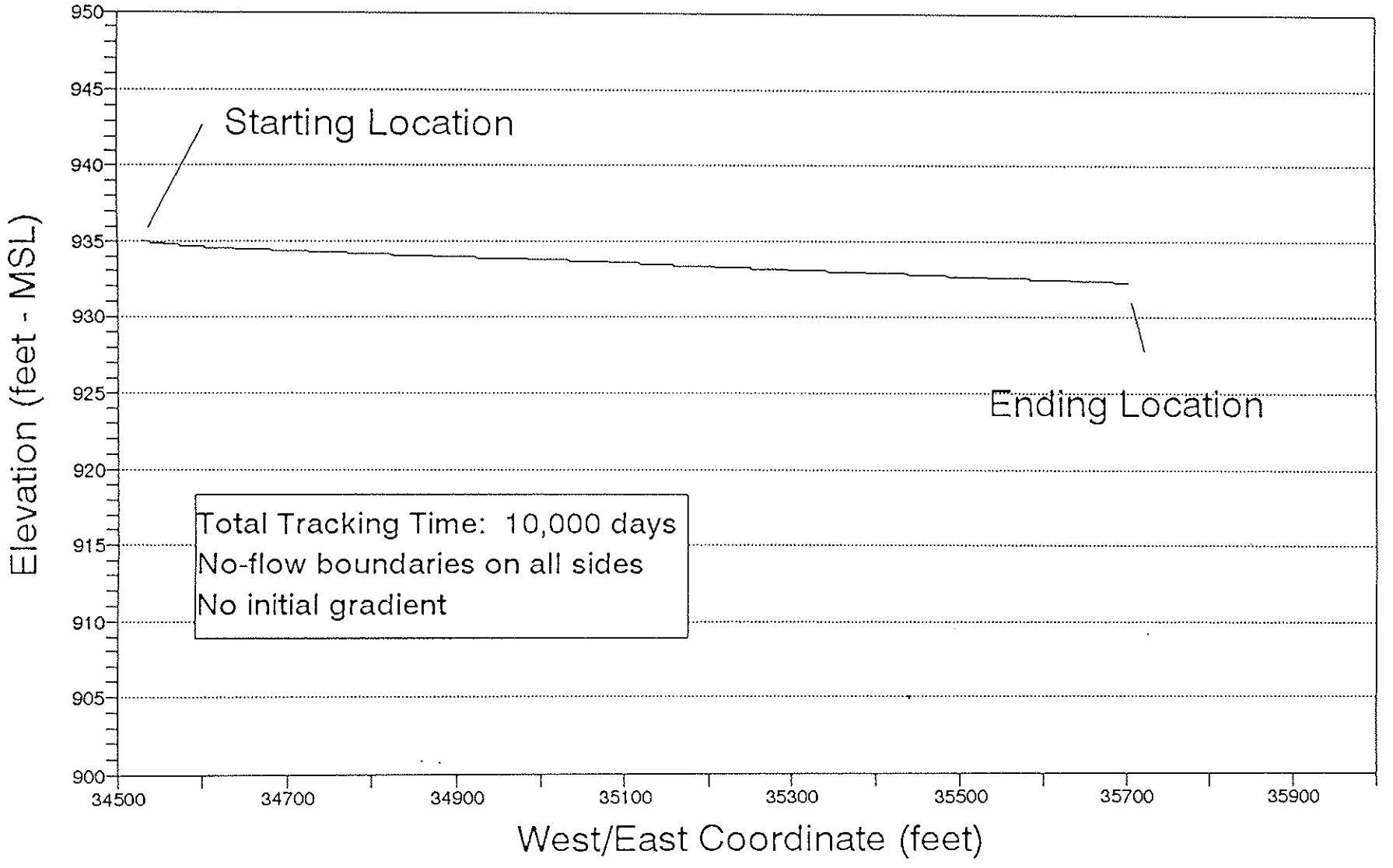

FIGURE 9

Harding Lawson Associates
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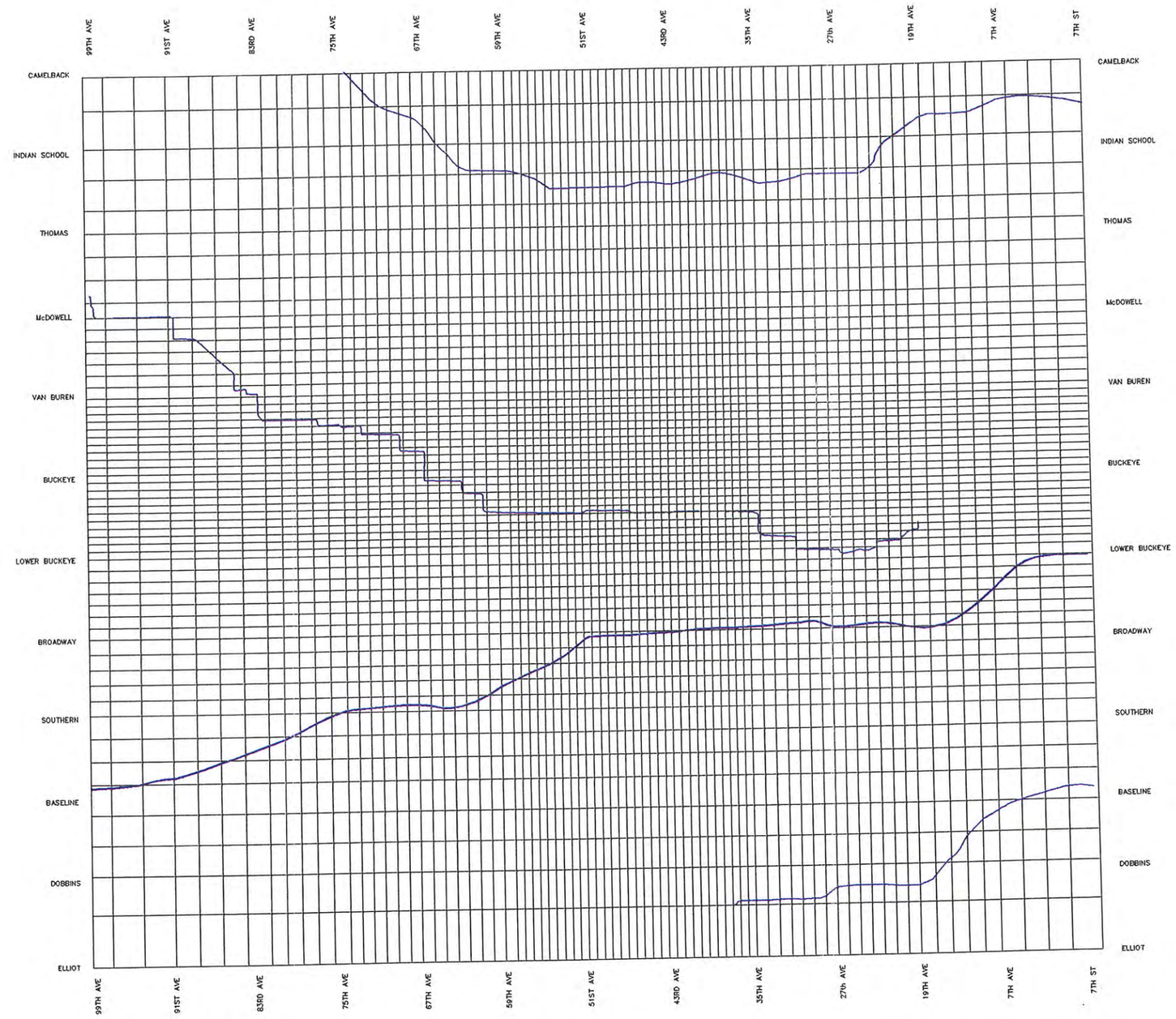
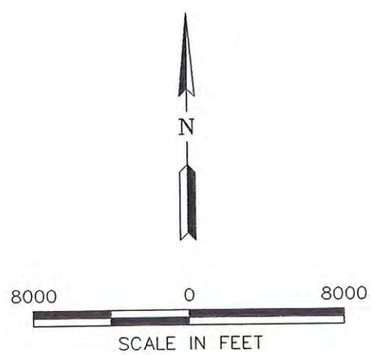
PHASE I MODEL - Vertical Particle Tracking
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MAP	12/96	

vwrfig07





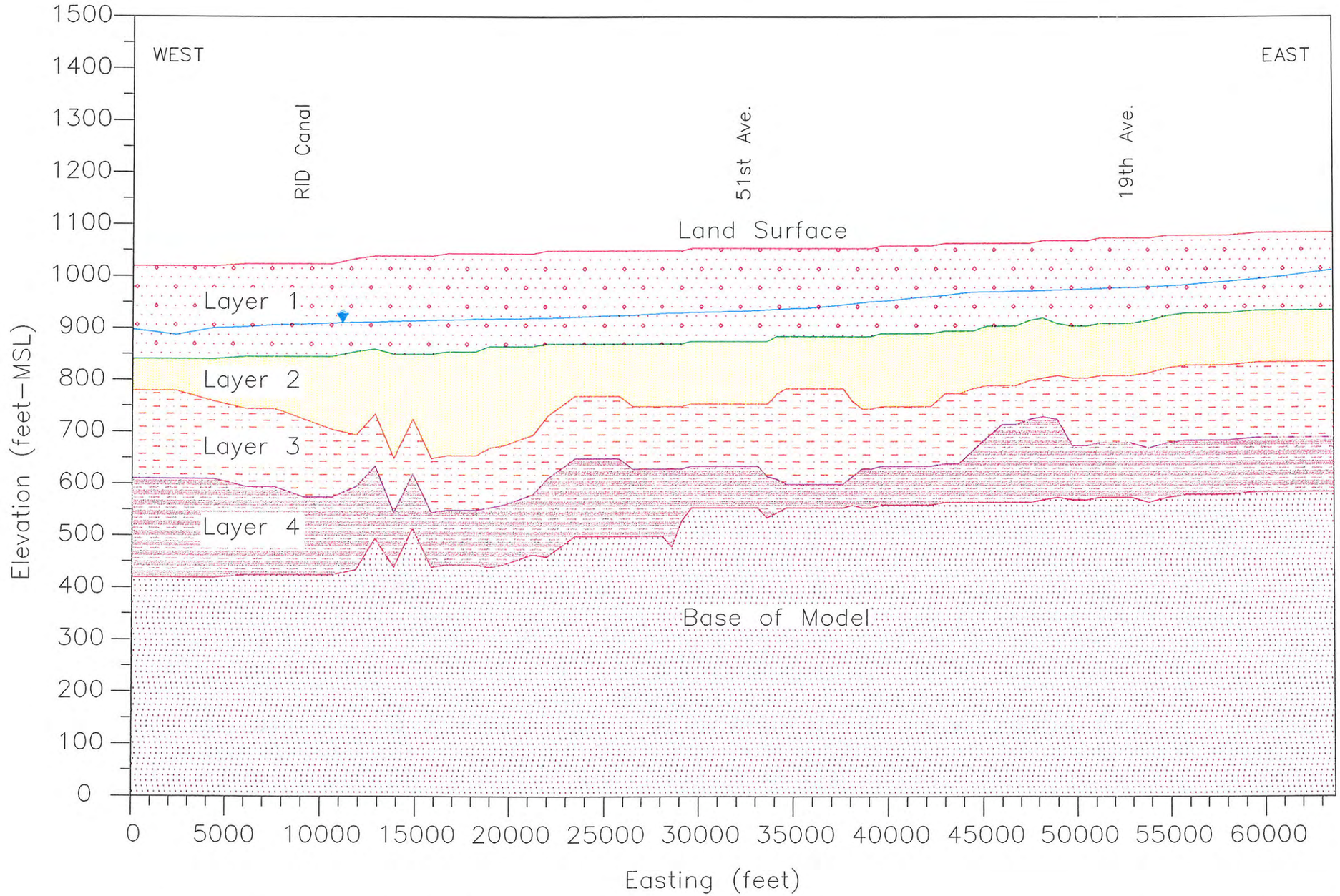
Harding Lawson Associates
Engineering and
Environmental Services

PHASE 2 MODEL GRID

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
7

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	



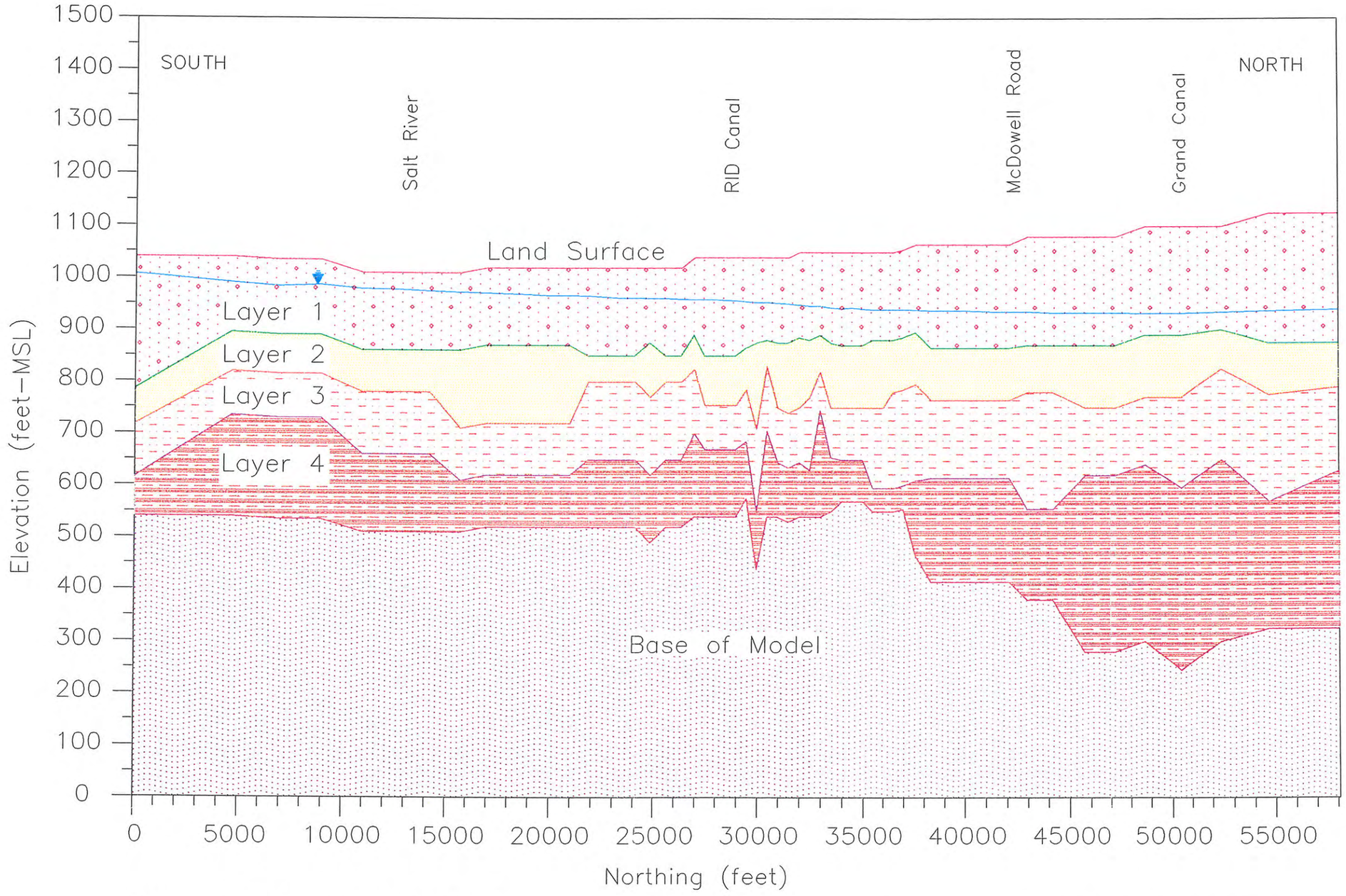
Water level data are starting head values for 1972.

Harding Lawson Associates
Engineering and Environmental Services

MODEL CROSS SECTION - ROW 17
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **8**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	



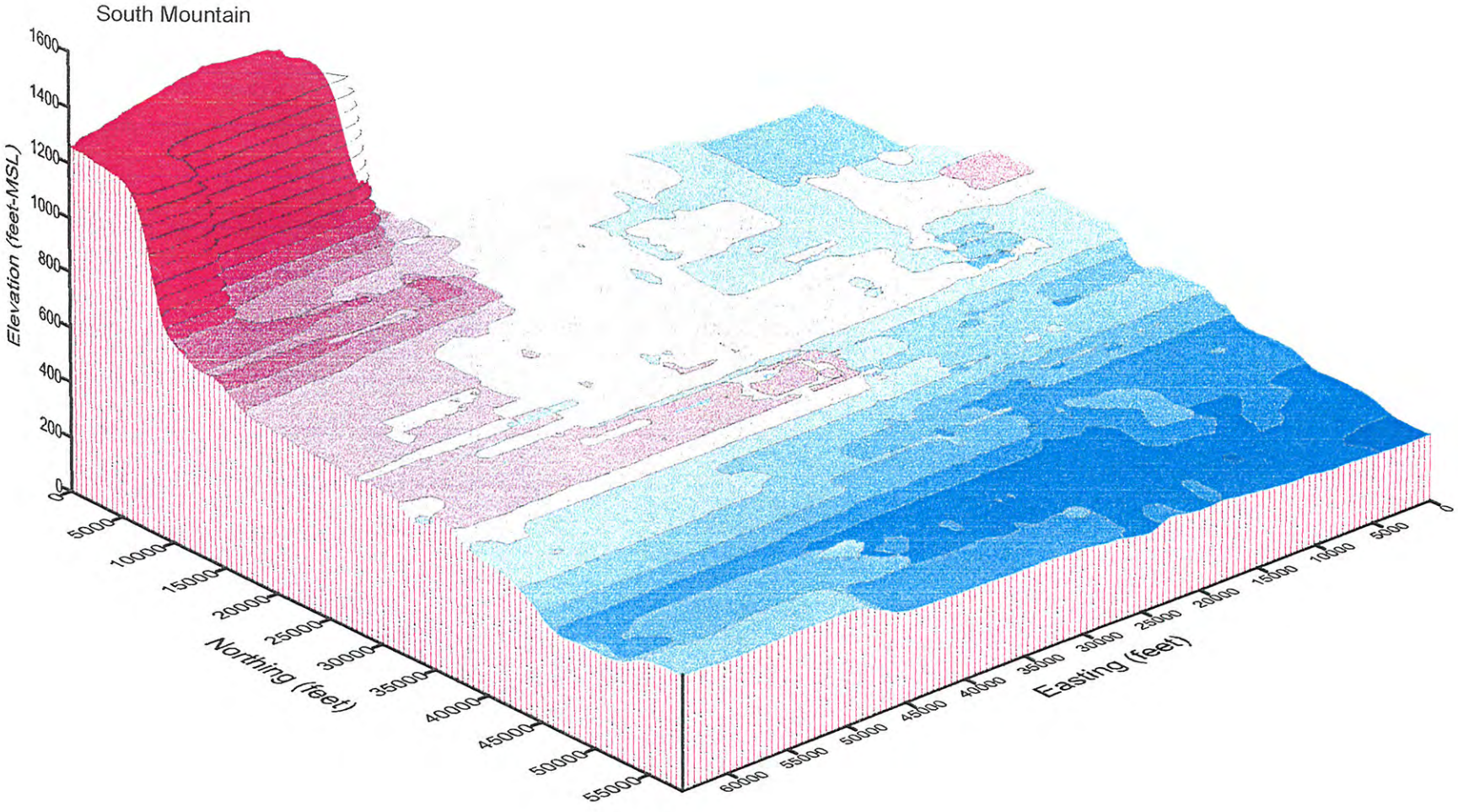
Water Level data are starting head values for 1972.

Harding Lawson Associates
Engineering and Environmental Services

MODEL CROSS SECTION - COLUMN 43
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE 9

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

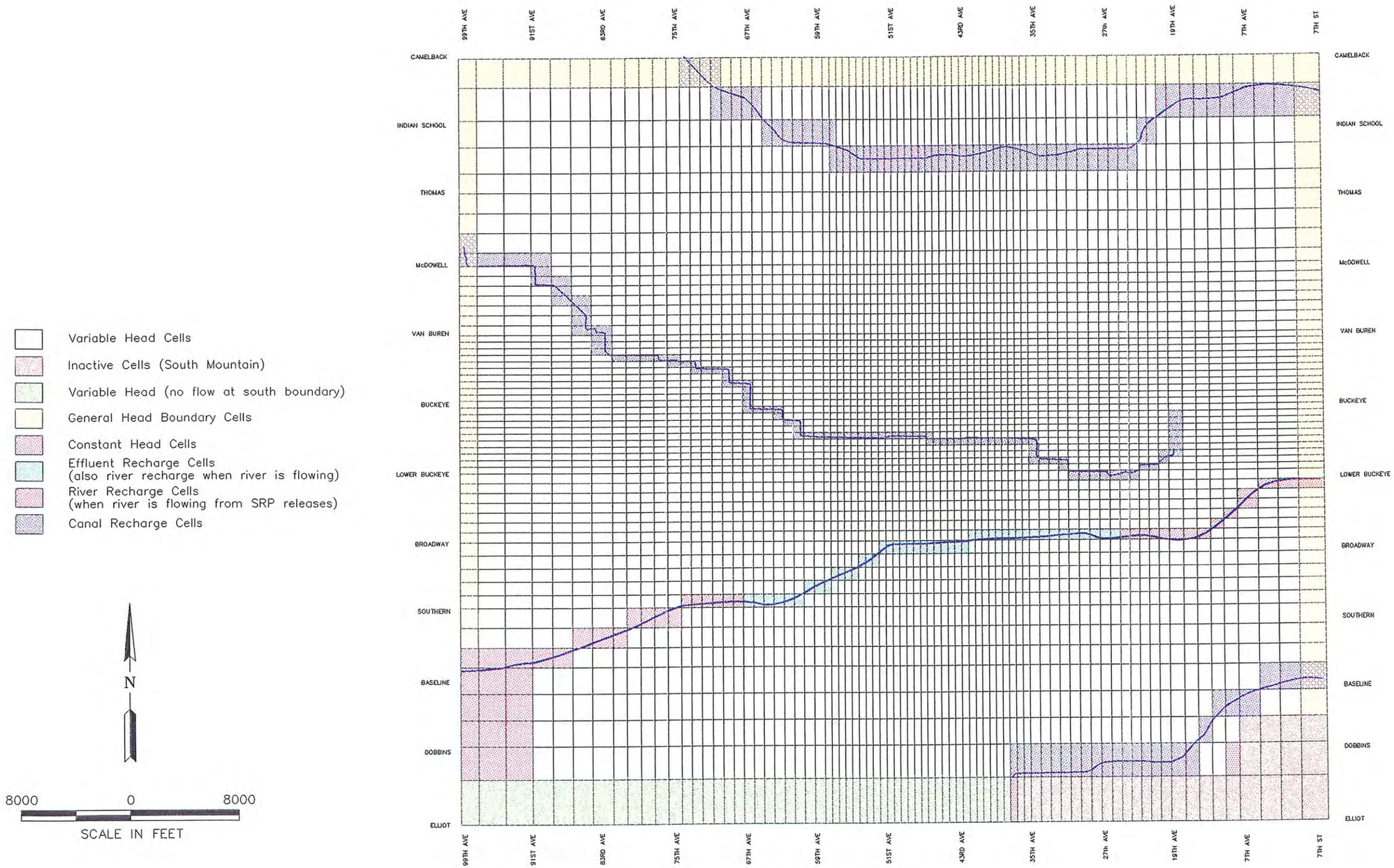


View from northeast corner of model looking southwest

Harding Lawson Associates
Engineering and Environmental Services

Bottom of Flow Model
West Van Buren Groundwater Flow Model

FIGURE 10



Variable Head Cells

Inactive Cells (South Mountain)

Variable Head (no flow at south boundary)

General Head Boundary Cells

Constant Head Cells

Effluent Recharge Cells
(also river recharge when river is flowing)

River Recharge Cells
(when river is flowing from SRP releases)

Canal Recharge Cells

N

8000 0 8000

SCALE IN FEET

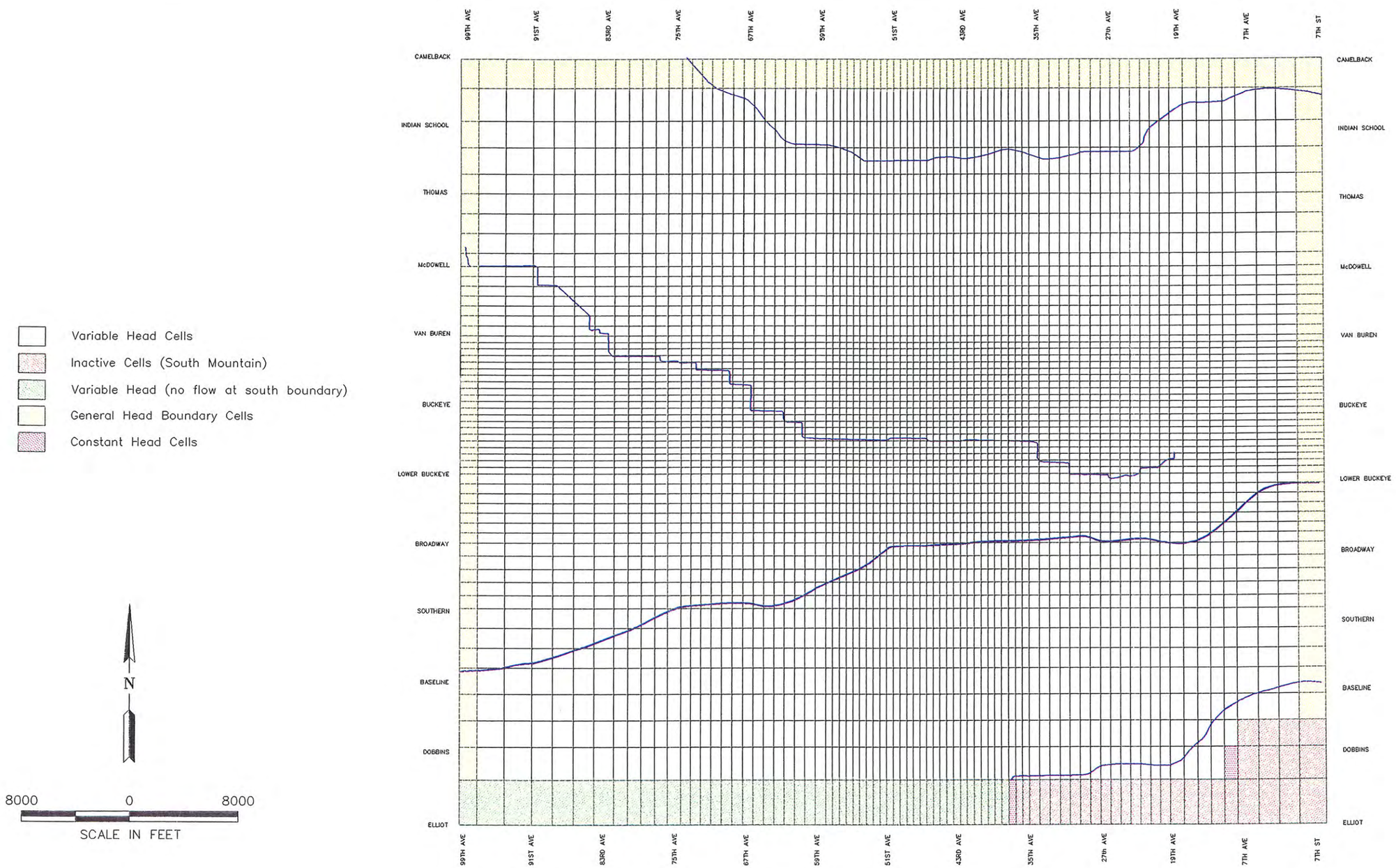
Harding Lawson Associates
Engineering and
Environmental Services

MODEL CELL TYPES - LAYER 1

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **11**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	



Harding Lawson Associates
Engineering and
Environmental Services

MODEL CELL TYPES - LAYERS 2-4

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **12**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	12/96	

vwrfig13

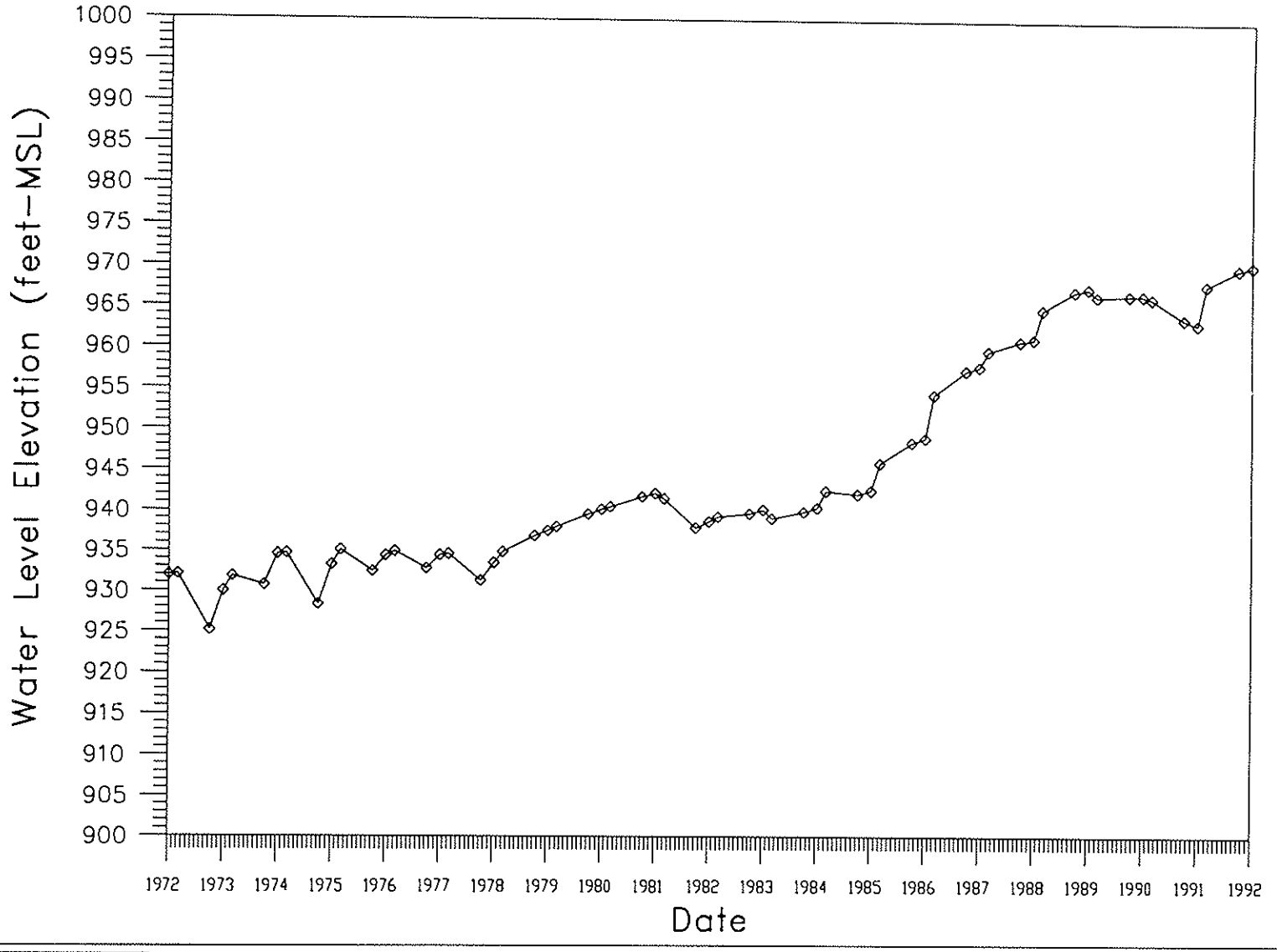


FIGURE 13

Harding Lawson Associates
Engineering and
Environmental Services

Boundary Cell Hydrograph for Row 1 Column 40
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MRP	10/96	

vwrfig14

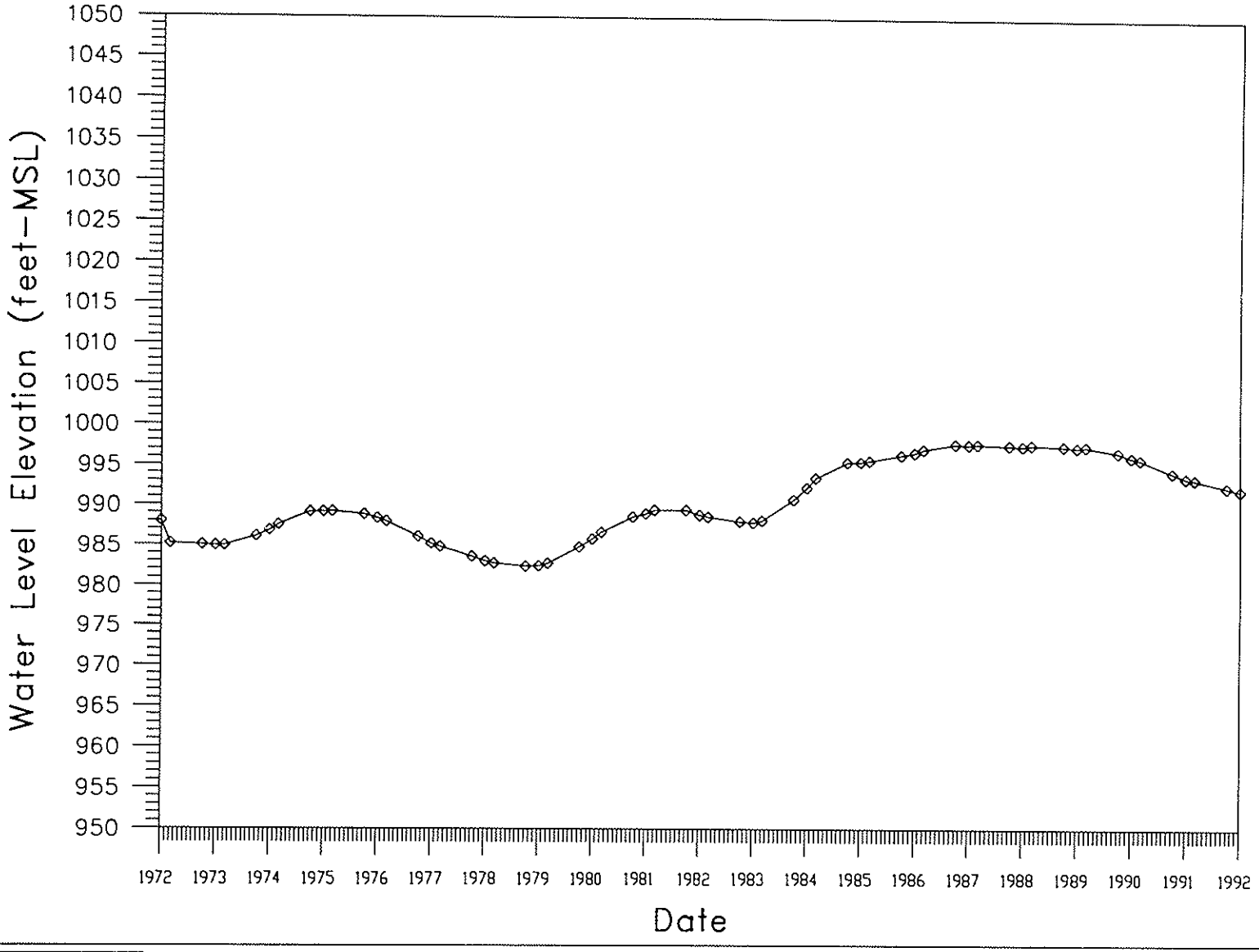


FIGURE 14

Hording Lawson Associates
Engineering and Environmental Services

Boundary Cell Hydrograph for Row 57 Column 40
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MLM	10/96	

vwrfig15

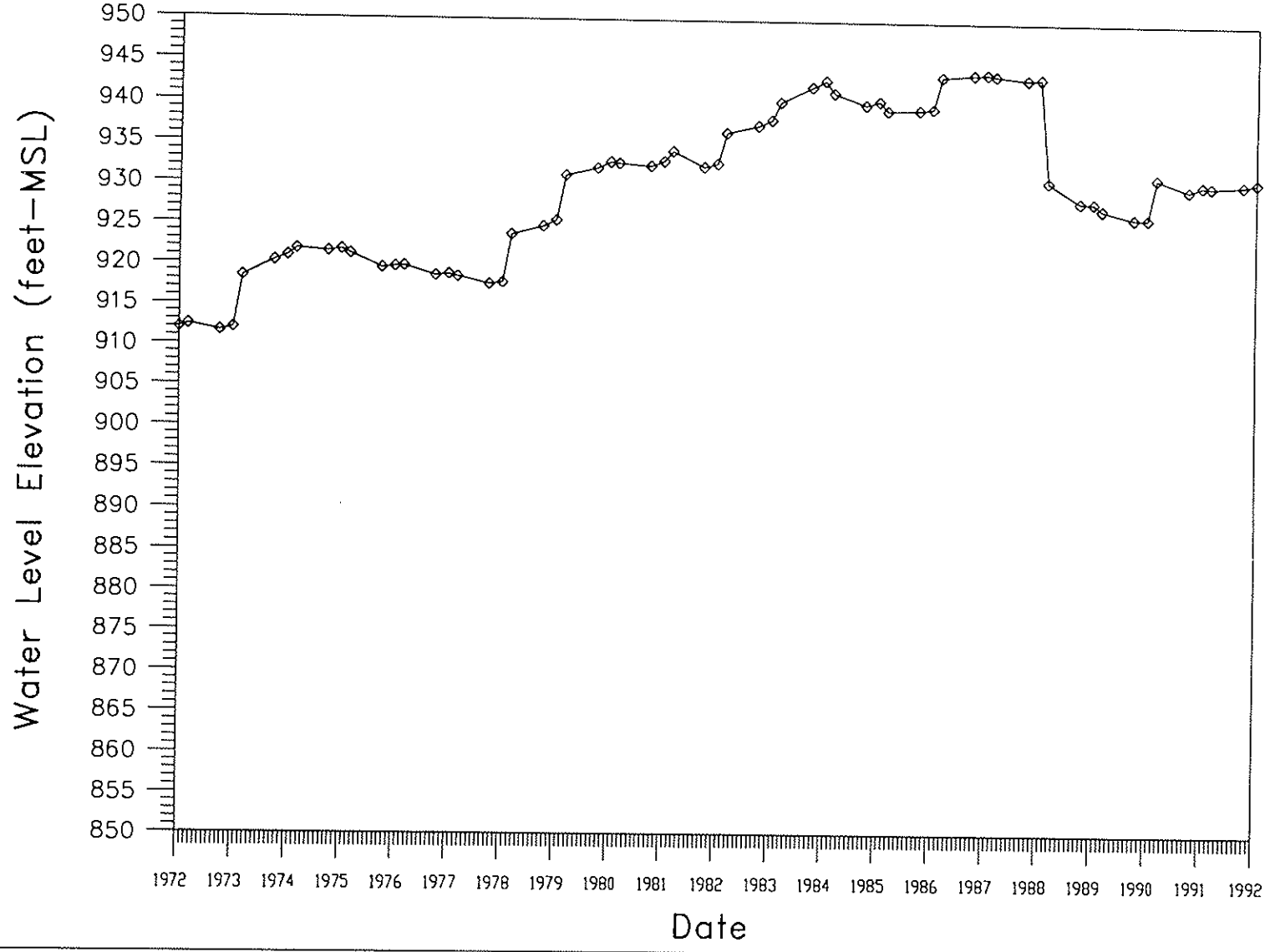


FIGURE 15

Harding Lawson Associates
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Boundary Cell Hydrograph for Row 28 Column 1
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MRP	10/96	

vwrfig16

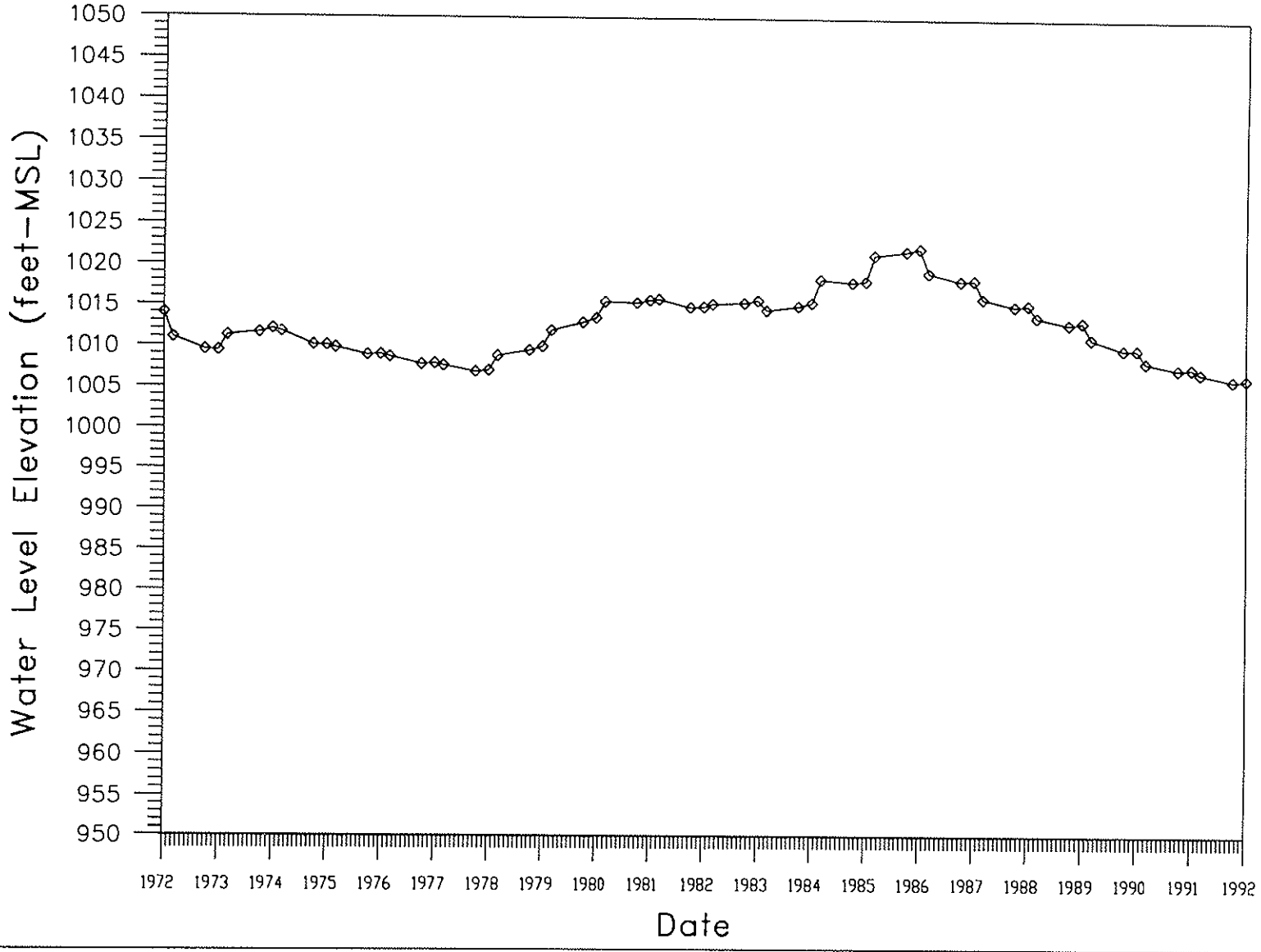

FIGURE 16

Harding Lawson Associates
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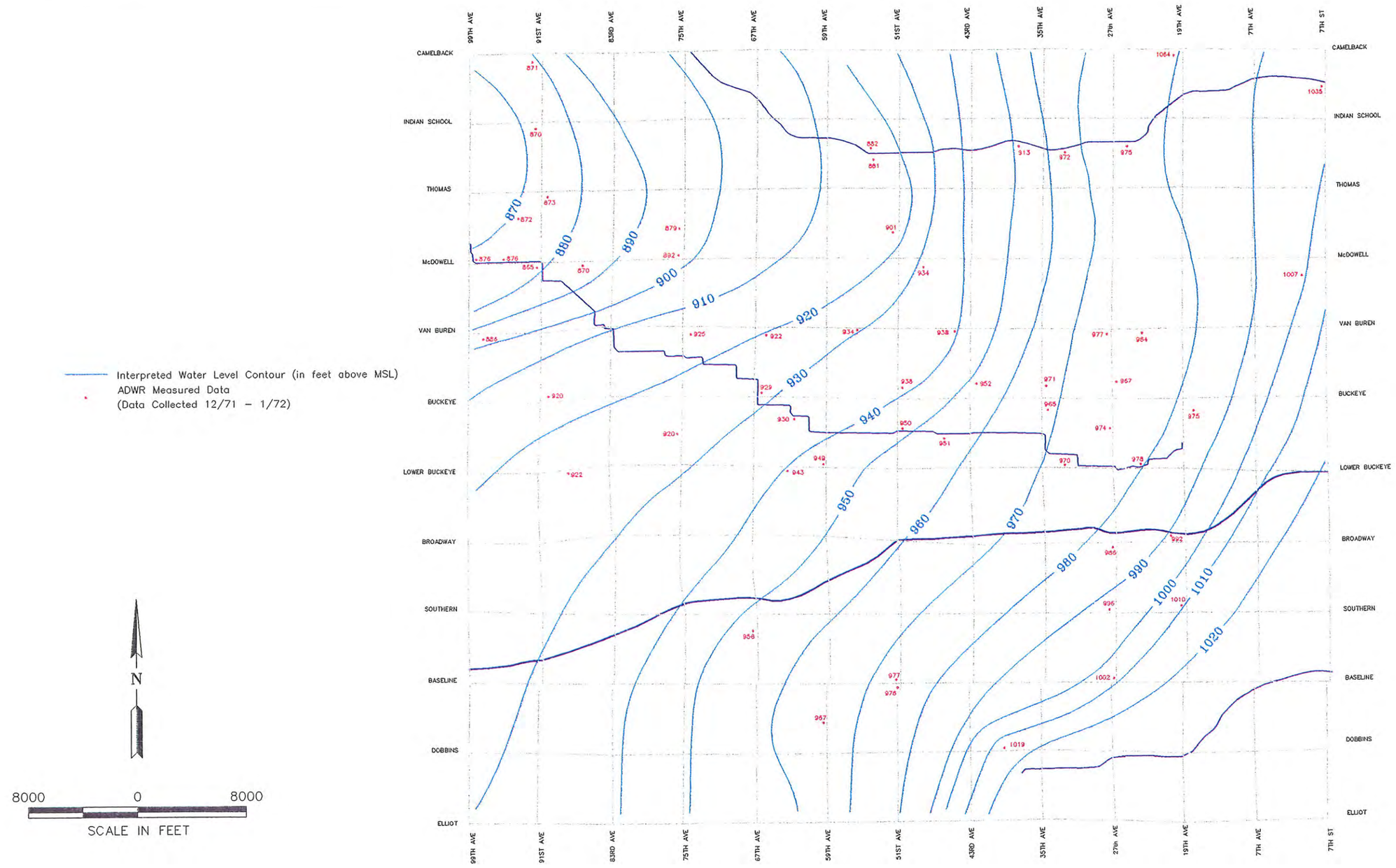
Boundary Cell Hydrograph for Row 28 Column 79
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	10/96	

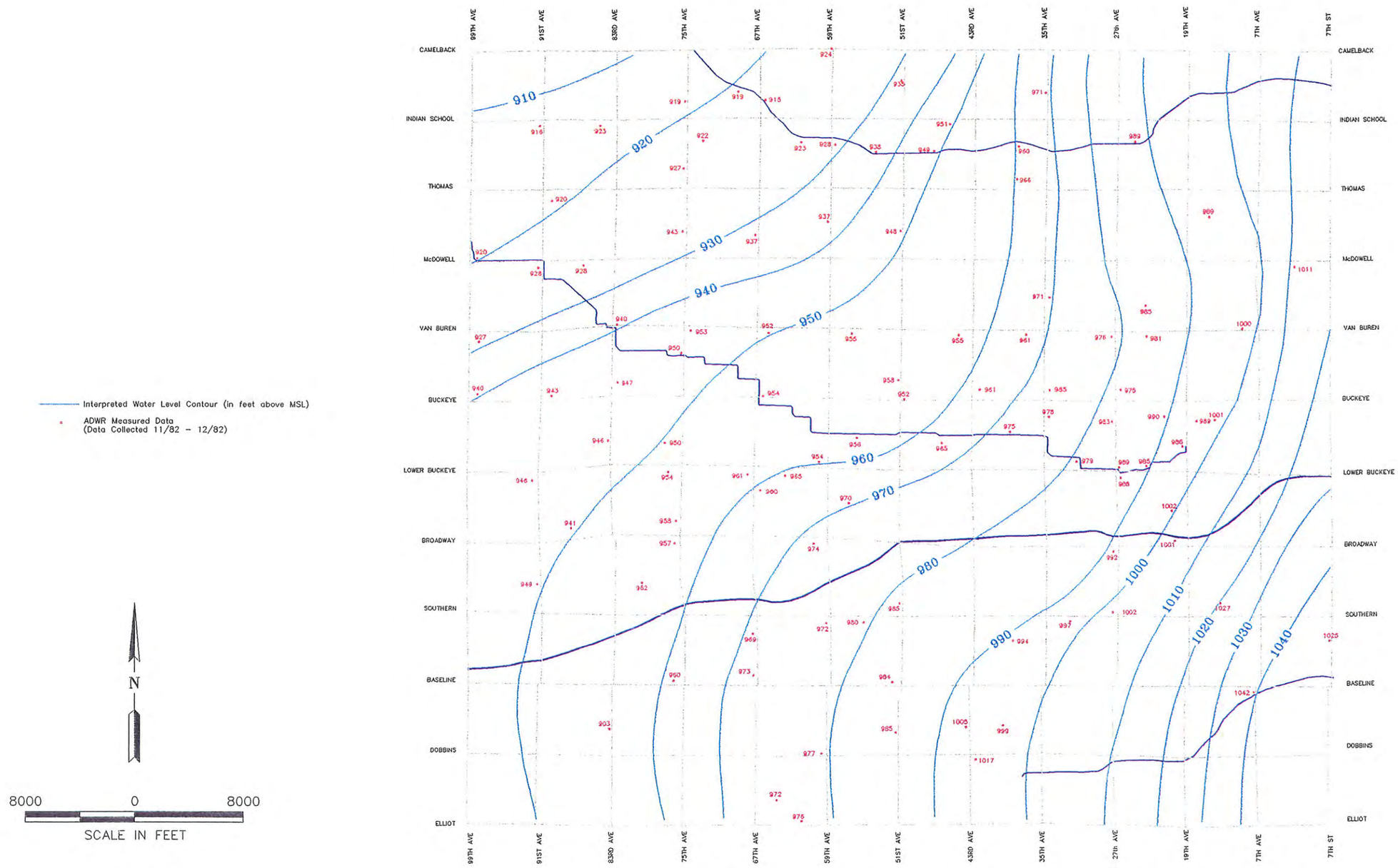


Harding Lawson Associates
Engineering and
Environmental Services

Interpreted Water Level Contours
January 1972
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **17**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

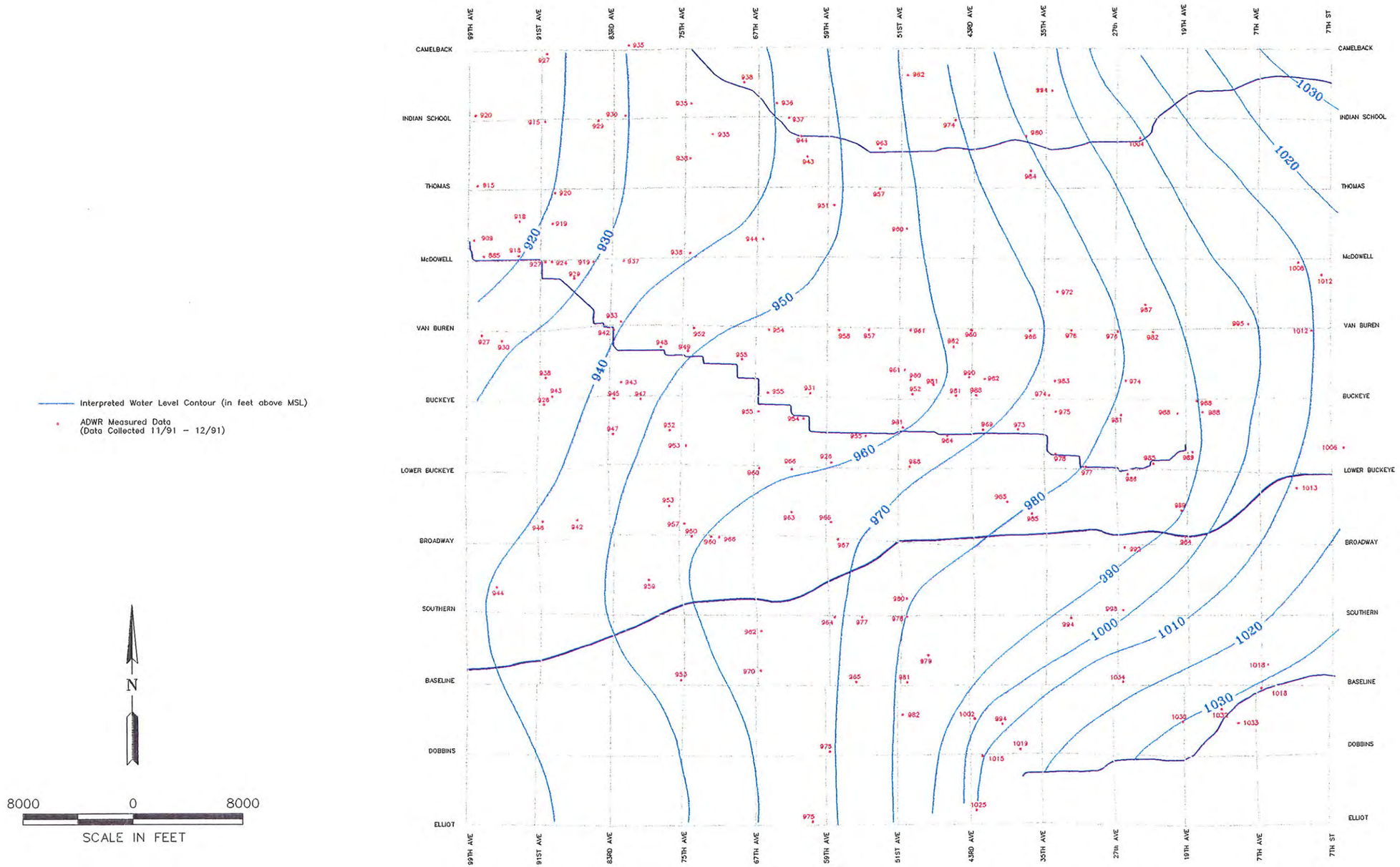


Harding Lawson Associates
Engineering and
Environmental Services

Interpreted Water Level Contours
January 1983
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
18

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

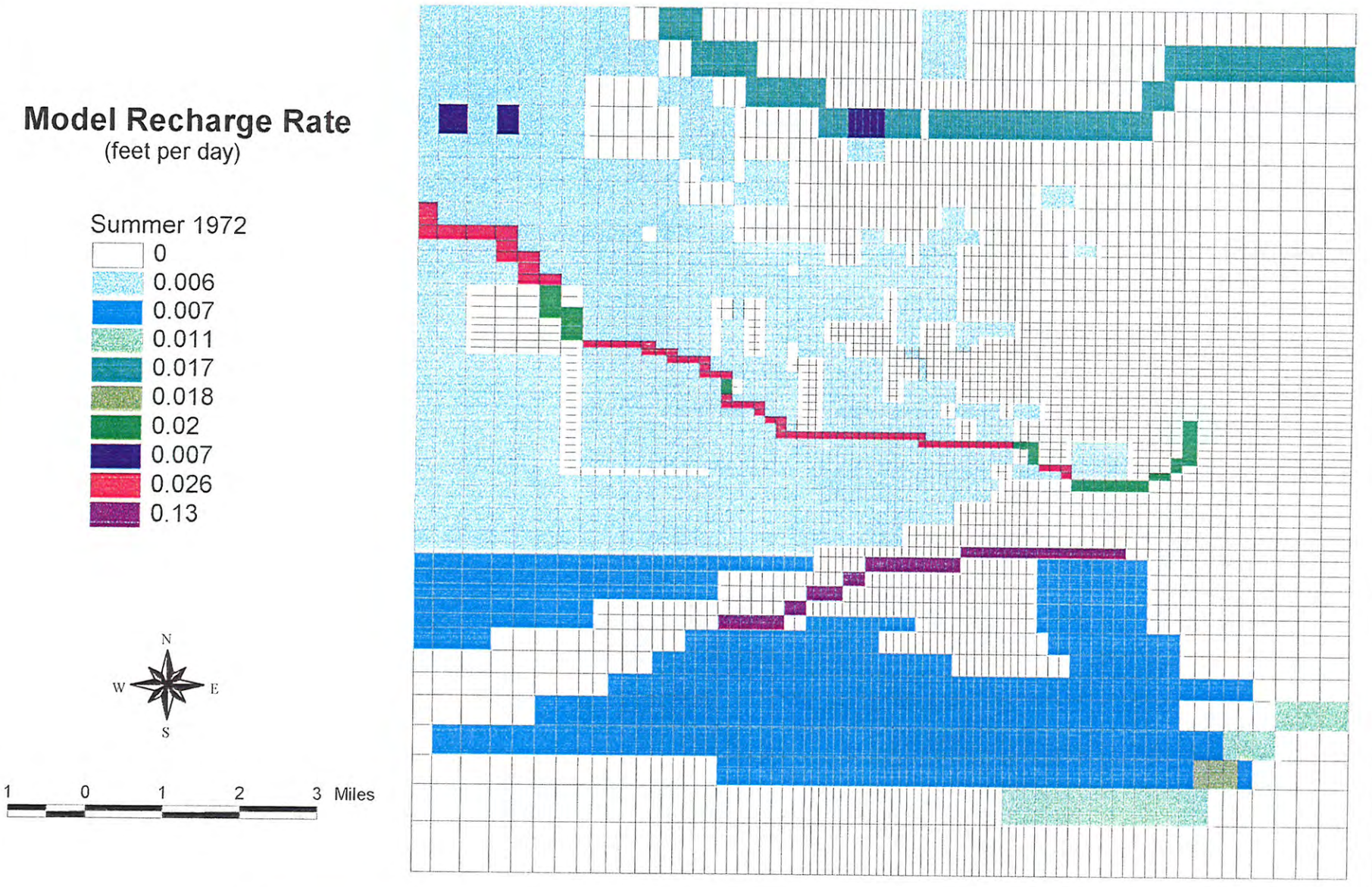


Harding Lawson Associates
Engineering and
Environmental Services

Interpreted Water Level Contours
January 1992
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
19

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	



Harding Lawson Associates

Engineering and
Environmental Services

Model Recharge Rate
Summer 1972
West Van Buren Groundwater Flow Model

FIGURE

20

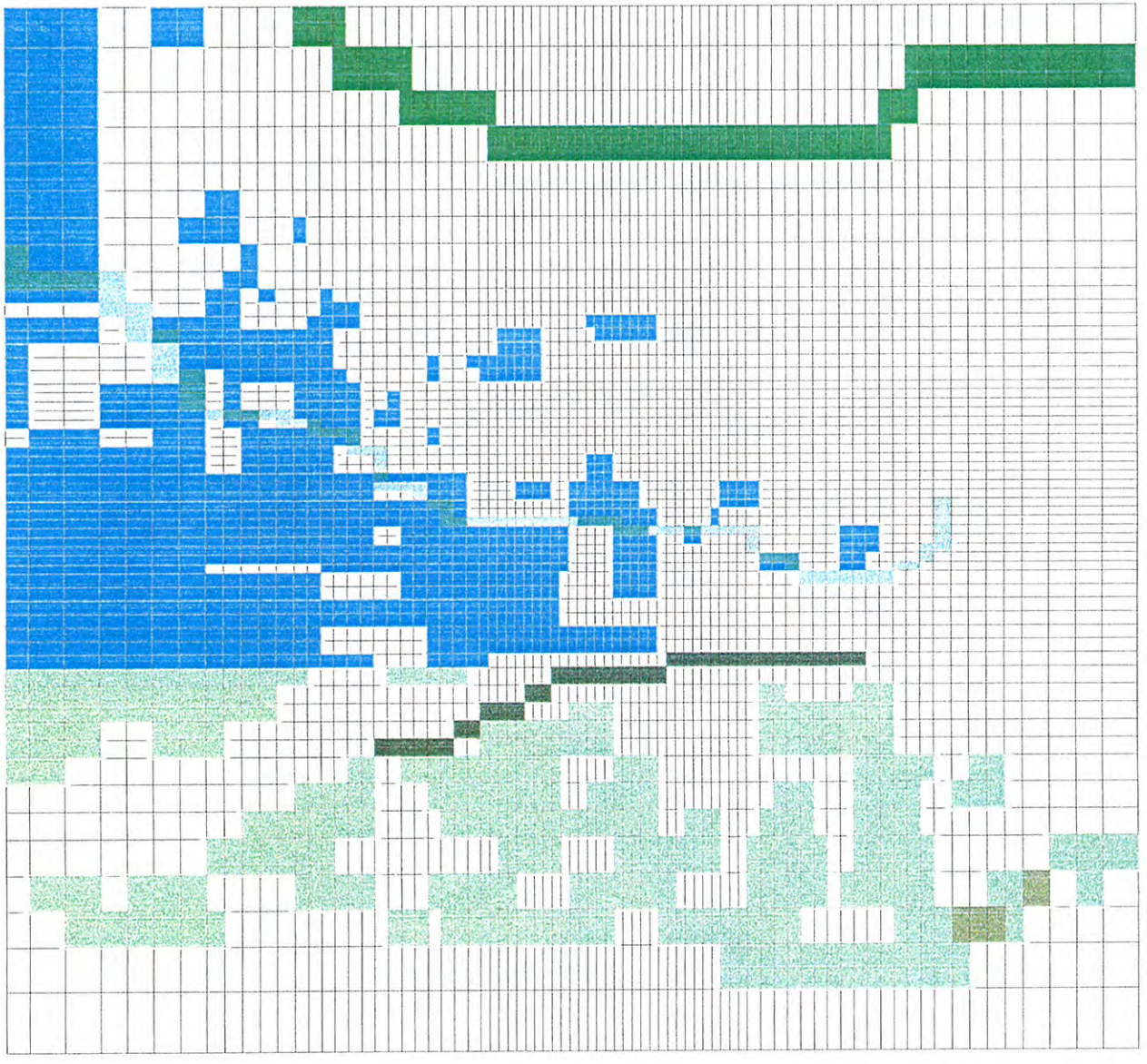
Model Recharge Rate
(feet per day)

Summer 1991

- 0
- 0.002
- 0.006
- 0.007
- 0.008
- 0.014
- 0.017
- 0.14

N
W E
S

1 0 1 2 3 Miles



Harding Lawson Associates

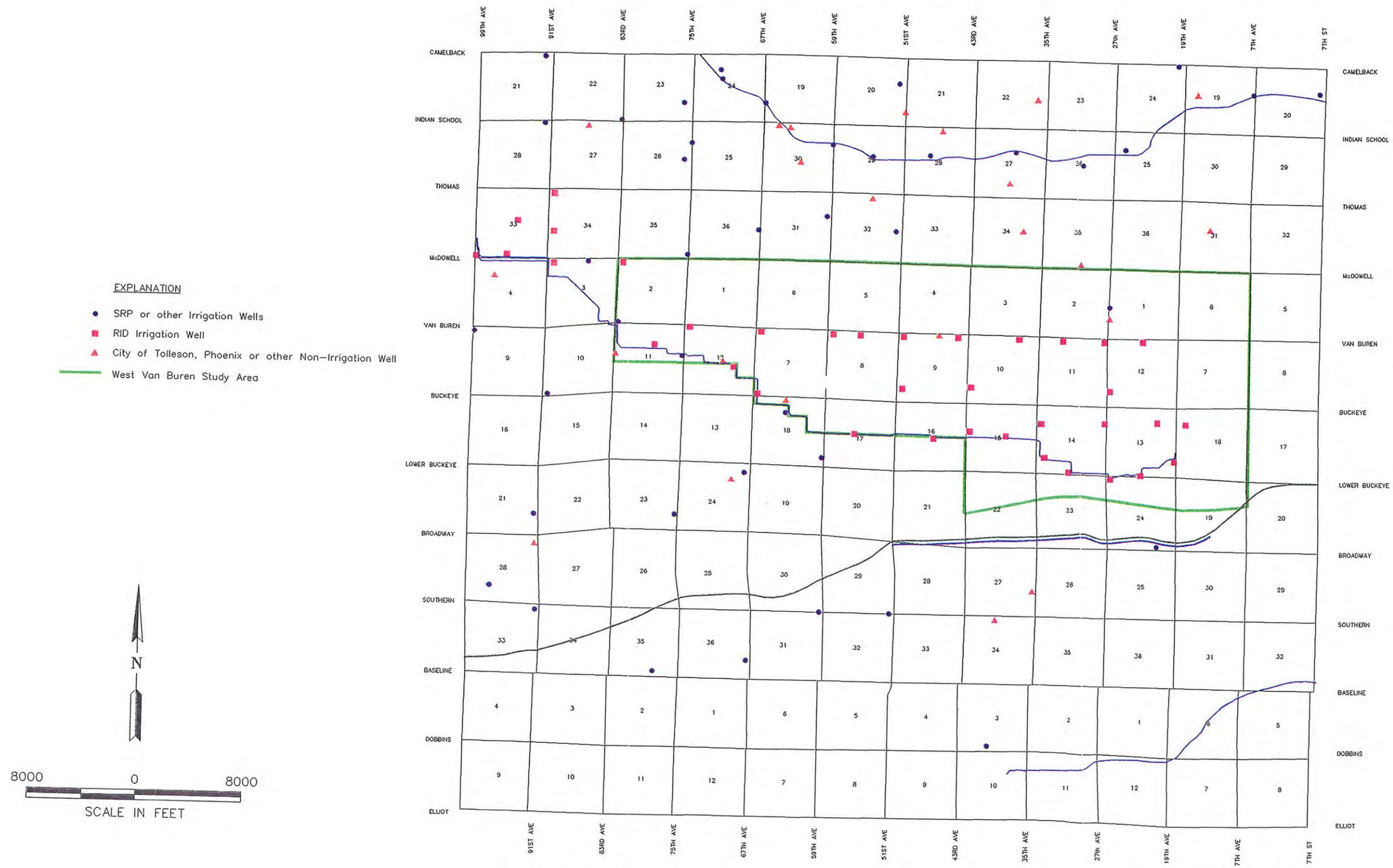
Engineering and
Environmental Services

Model Recharge Rate
Summer 1991
West Van Buren Groundwater Flow Model

FIGURE

21

vwrfig22



Harding Lawson Associates
Engineering and
Environmental Services

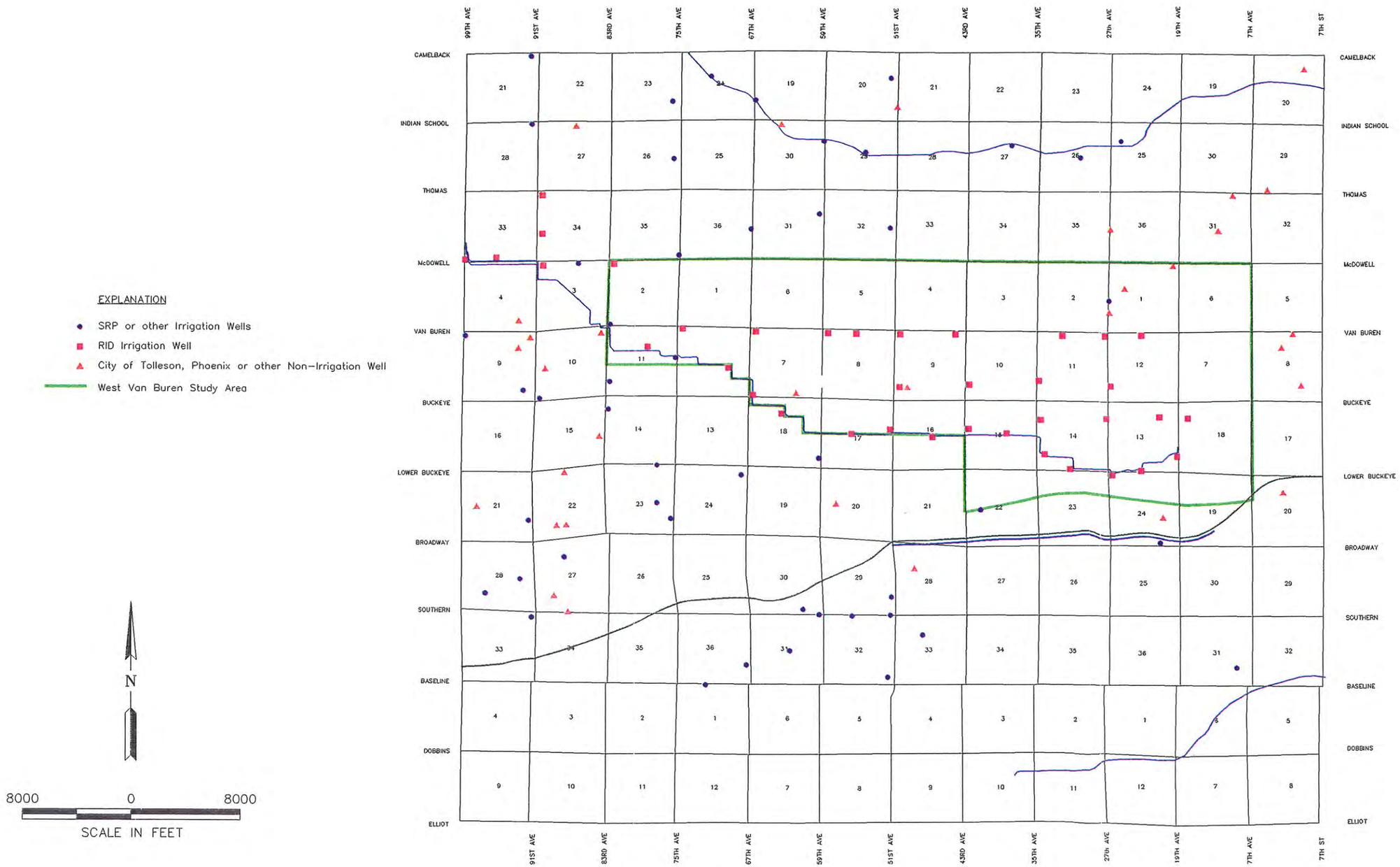
Pumping Wells for 1972 Model Period

West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
22

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

vwrfig23



Harding Lawson Associates
Engineering and
Environmental Services

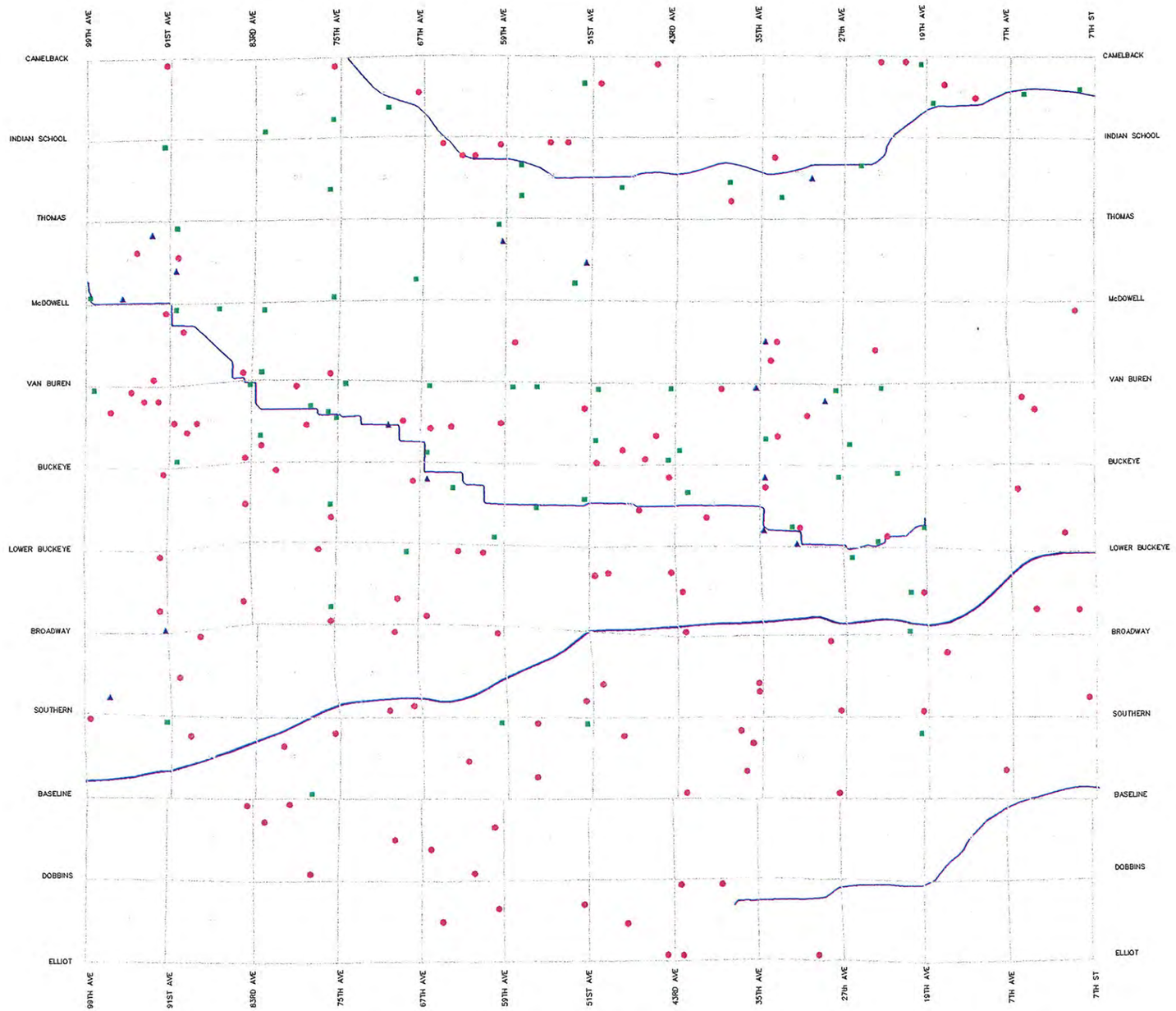
Pumping Wells for 1991 Model Period

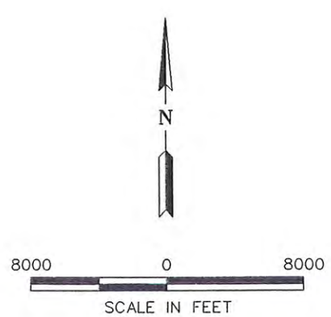
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
23

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

- Well with Log Available
- Well with Hydraulic Test Data
- Well with Log and Hydraulic Test Data



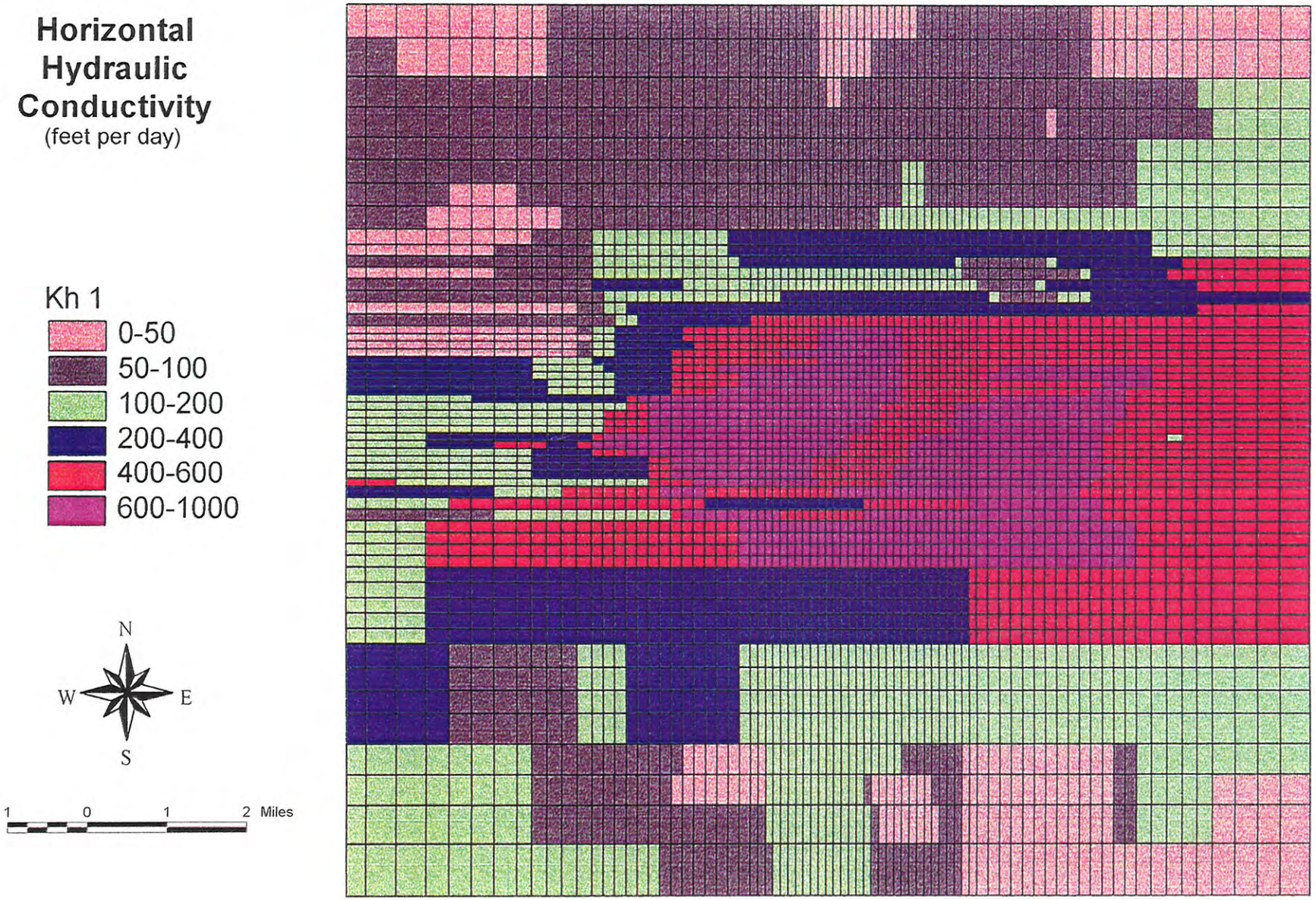


Harding Lawson Associates
Engineering and Environmental Services

Location Map for Well Logs and Hydraulic Test Data
West Van Buren Groundwater Model
Van Waters and Rogers, Inc.
Phoenix, Arizona

FIGURE
24

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	11/96	

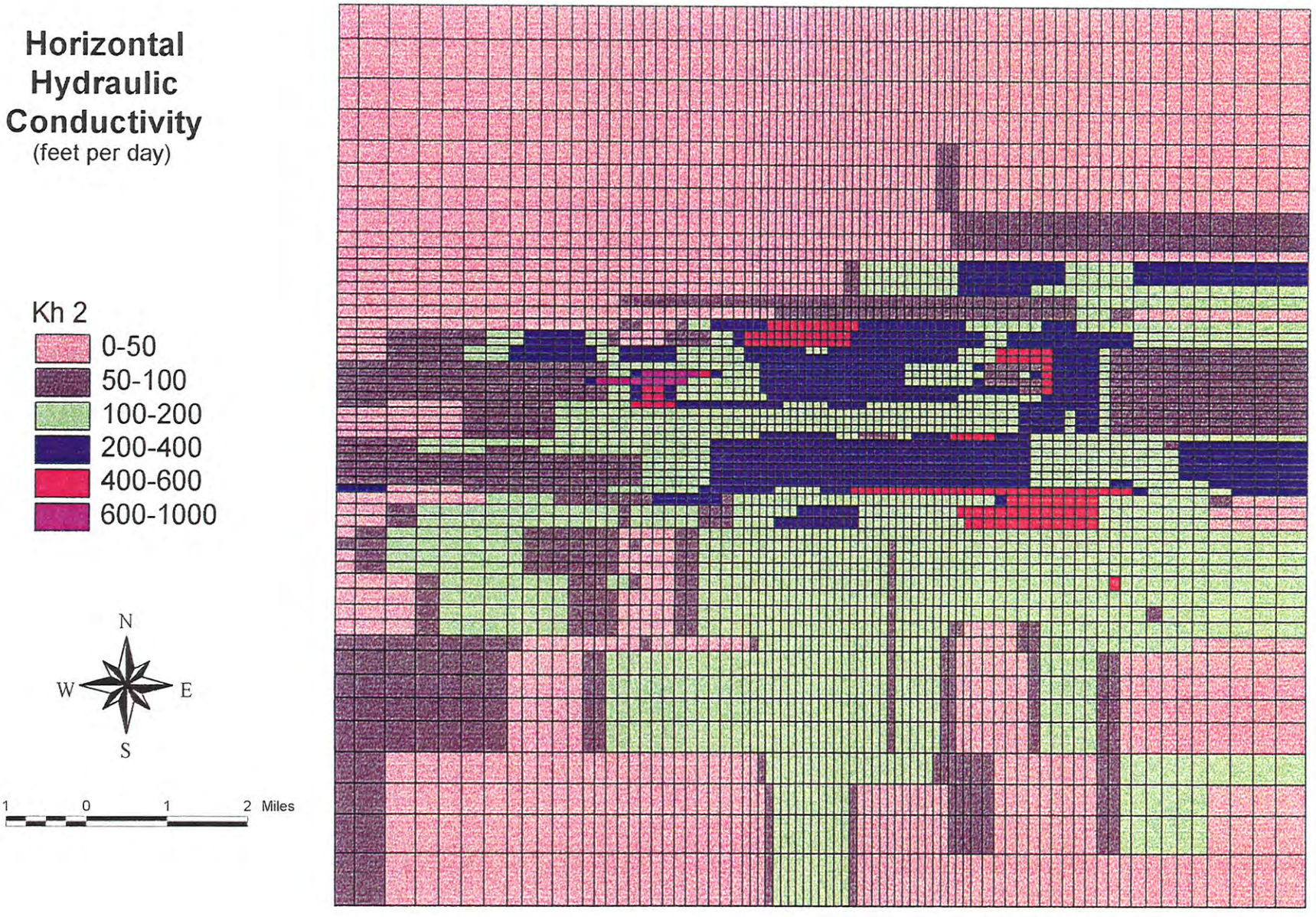


Harding Lawson Associates

Engineering and
Environmental Services

Horizontal Hydraulic Conductivity - Layer 1
West Van Buren Groundwater Flow Model

FIGURE
25

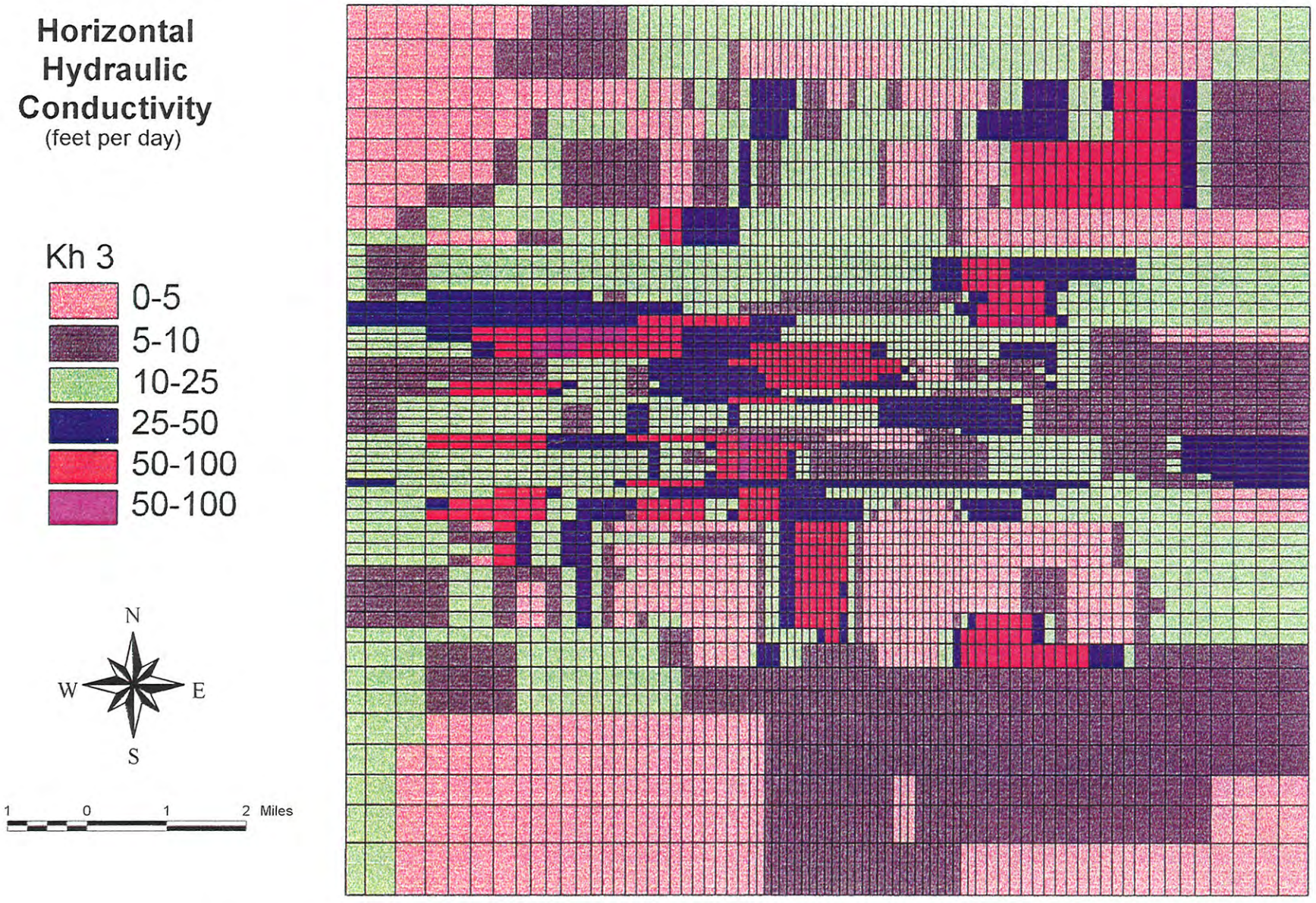


Harding Lawson Associates

Engineering and
Environmental Services

Horizontal Hydraulic Conductivity - Layer 2
West Van Buren Groundwater Flow Model

FIGURE
26

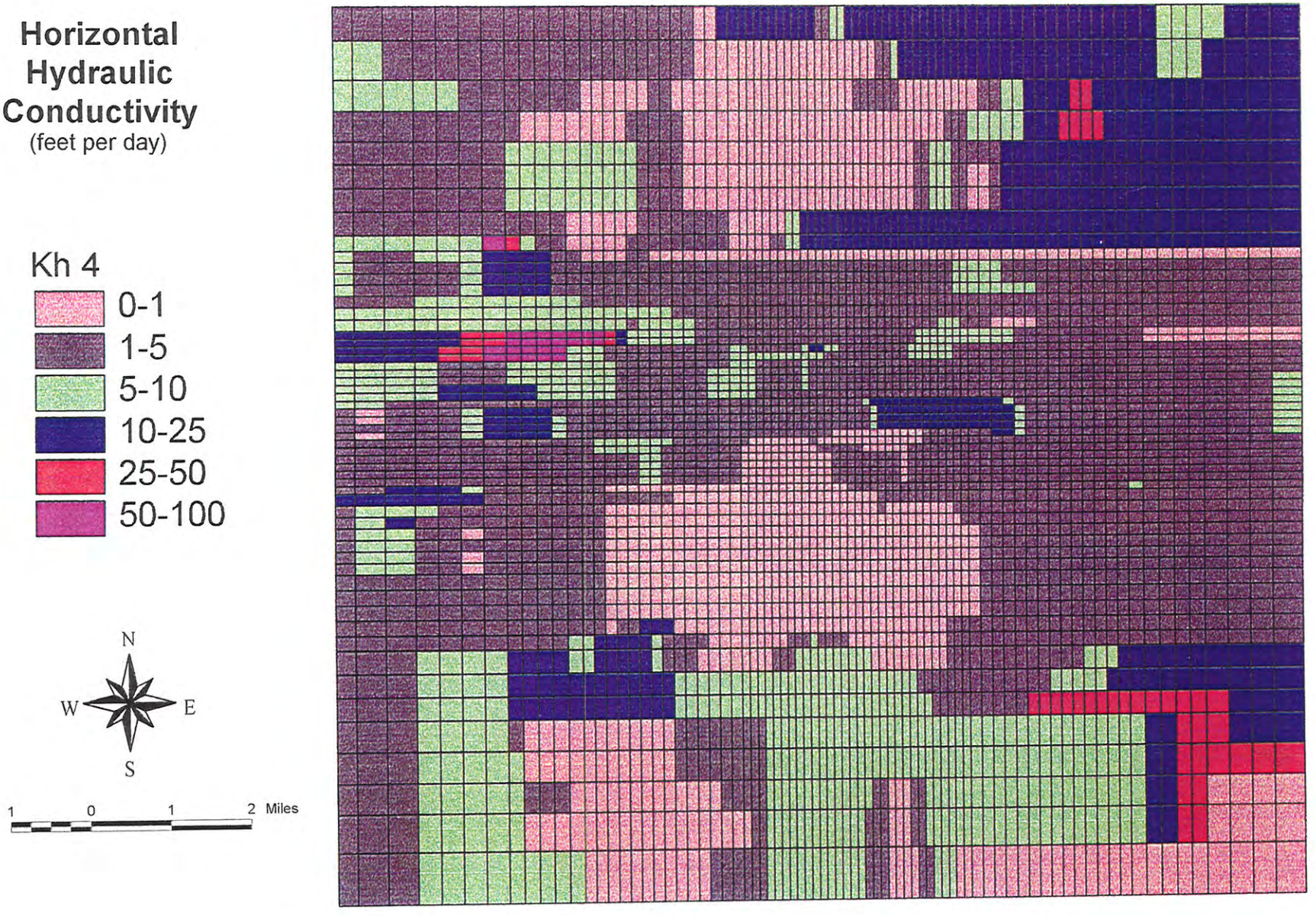


Harding Lawson Associates

Engineering and
Environmental Services

Horizontal Hydraulic Conductivity - Layer 3
West Van Buren Groundwater Flow Model

FIGURE
27

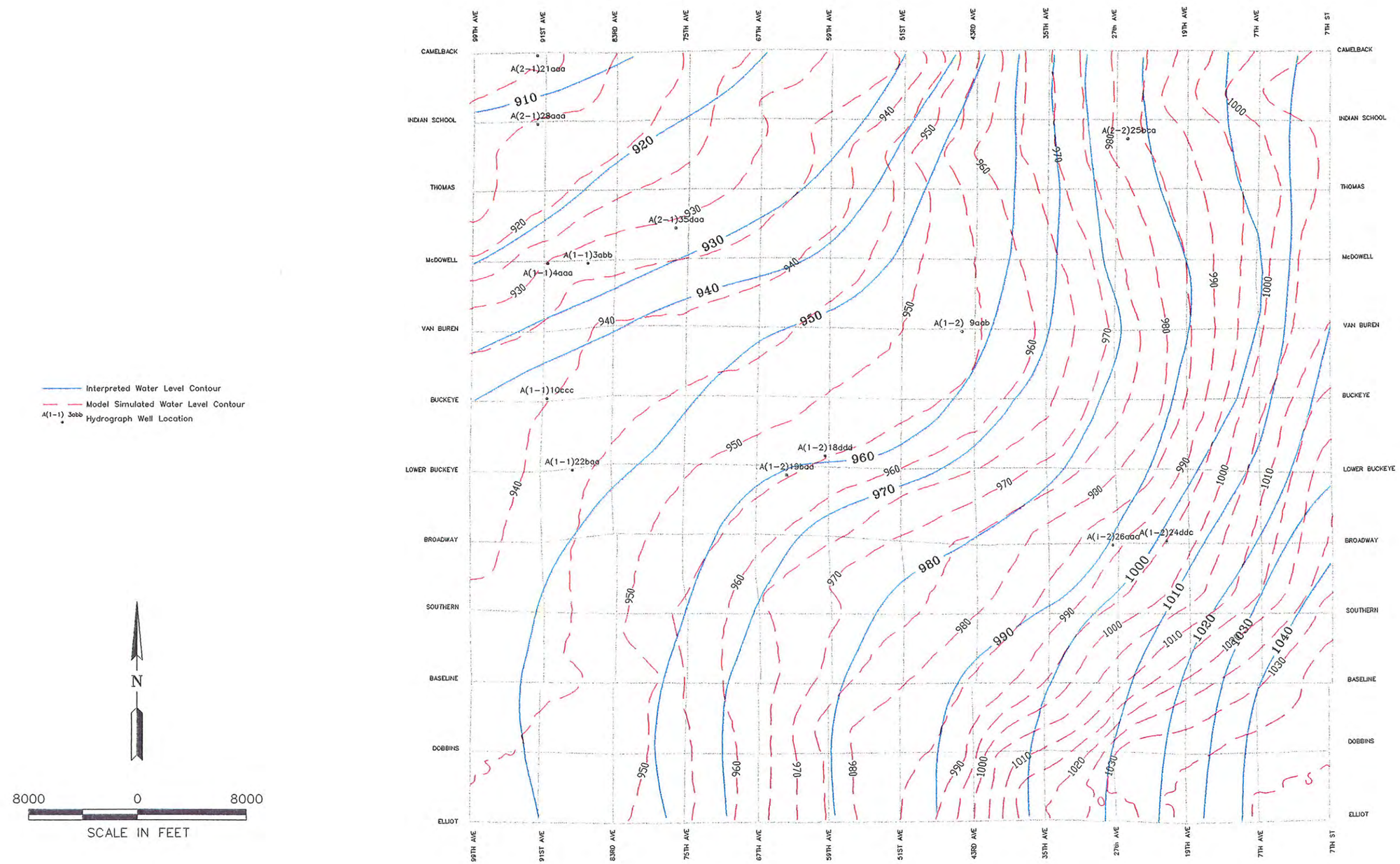


Harding Lawson Associates

Engineering and
Environmental Services

Horizontal Hydraulic Conductivity - Layer 4
West Van Buren Groundwater Flow Model

FIGURE
28



Interpreted Water Level Contour

Model Simulated Water Level Contour

A(1-1) 3abb Hydrograph Well Location

N

8000 0 8000

SCALE IN FEET

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Layer 1 Simulated Heads
December 1982
West Van Buren Groundwater Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
29

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

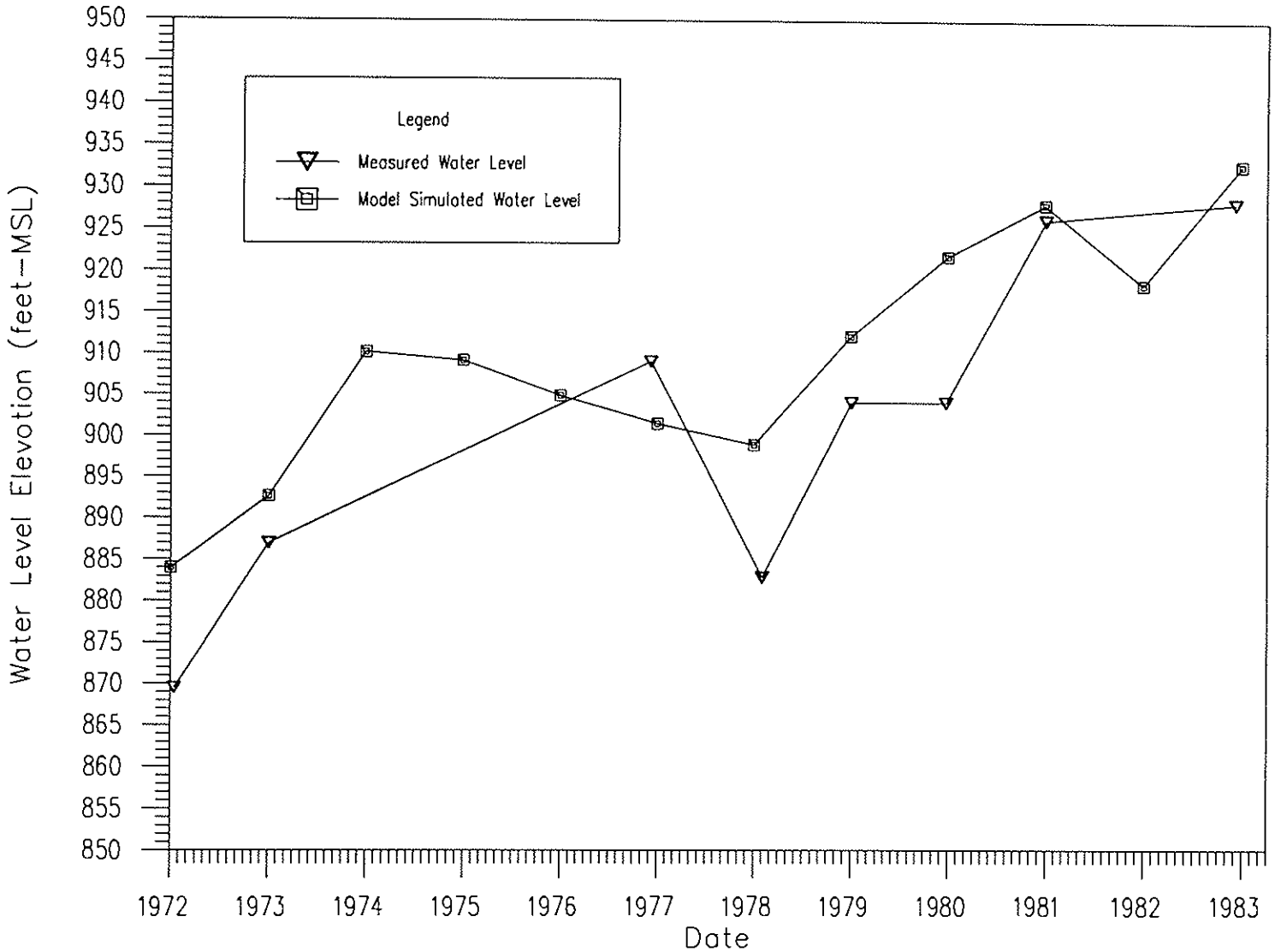


FIGURE 30

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1) 3ABB
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	10/96	

vwrfig31

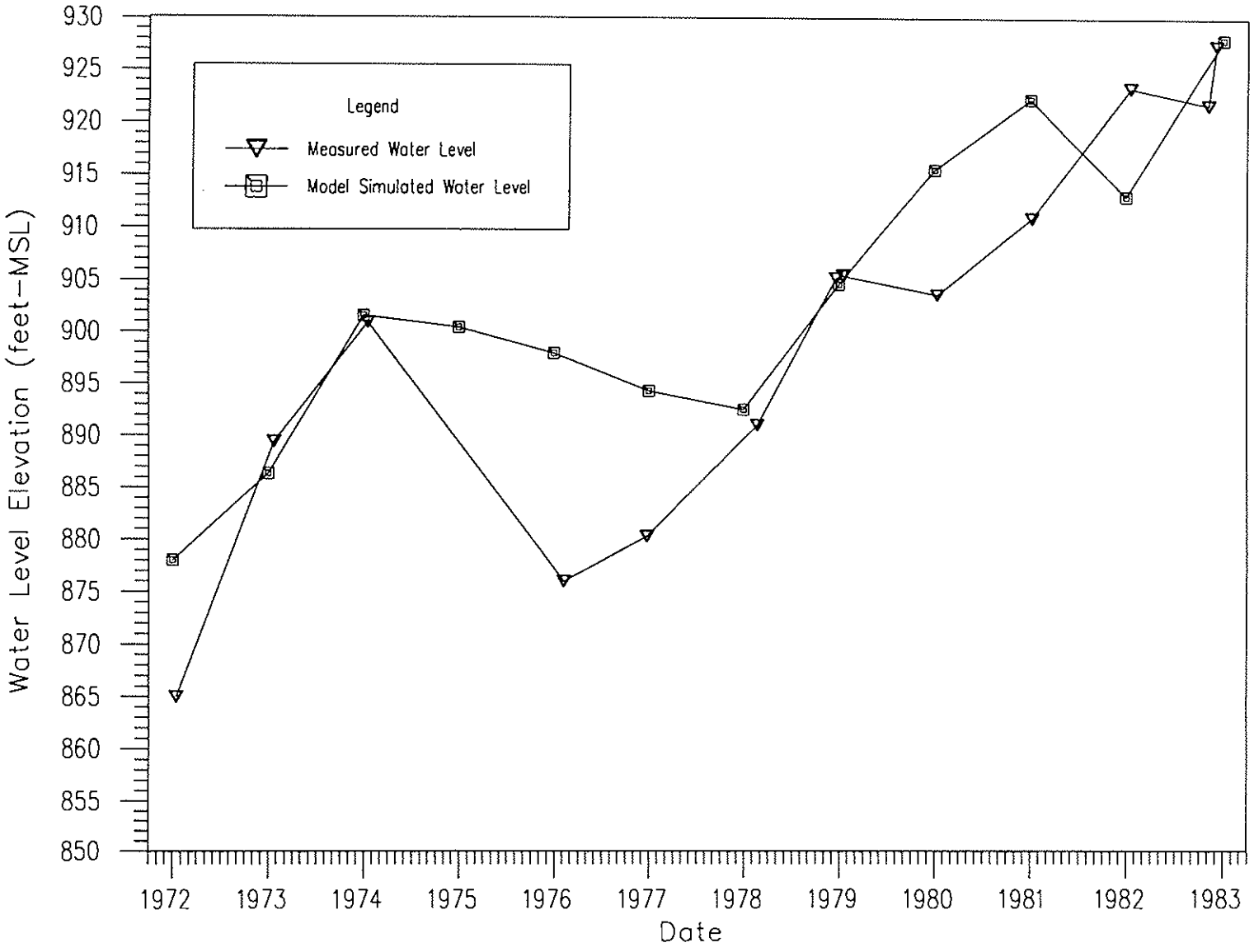


FIGURE 31

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1) 4AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MKD	10/96	

vwrfig32

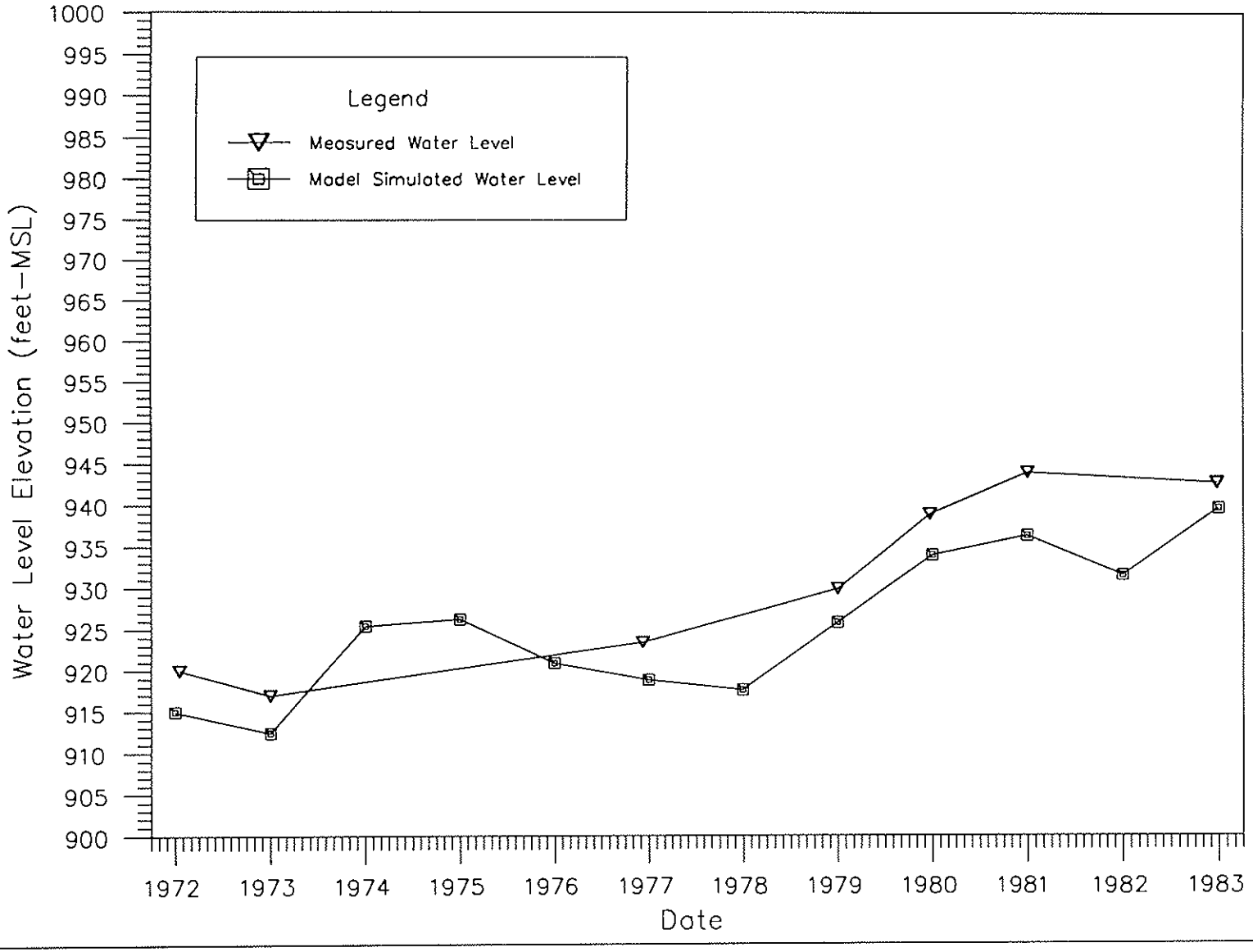


FIGURE 32

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)10CCC
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	10/96	

vwrfig33

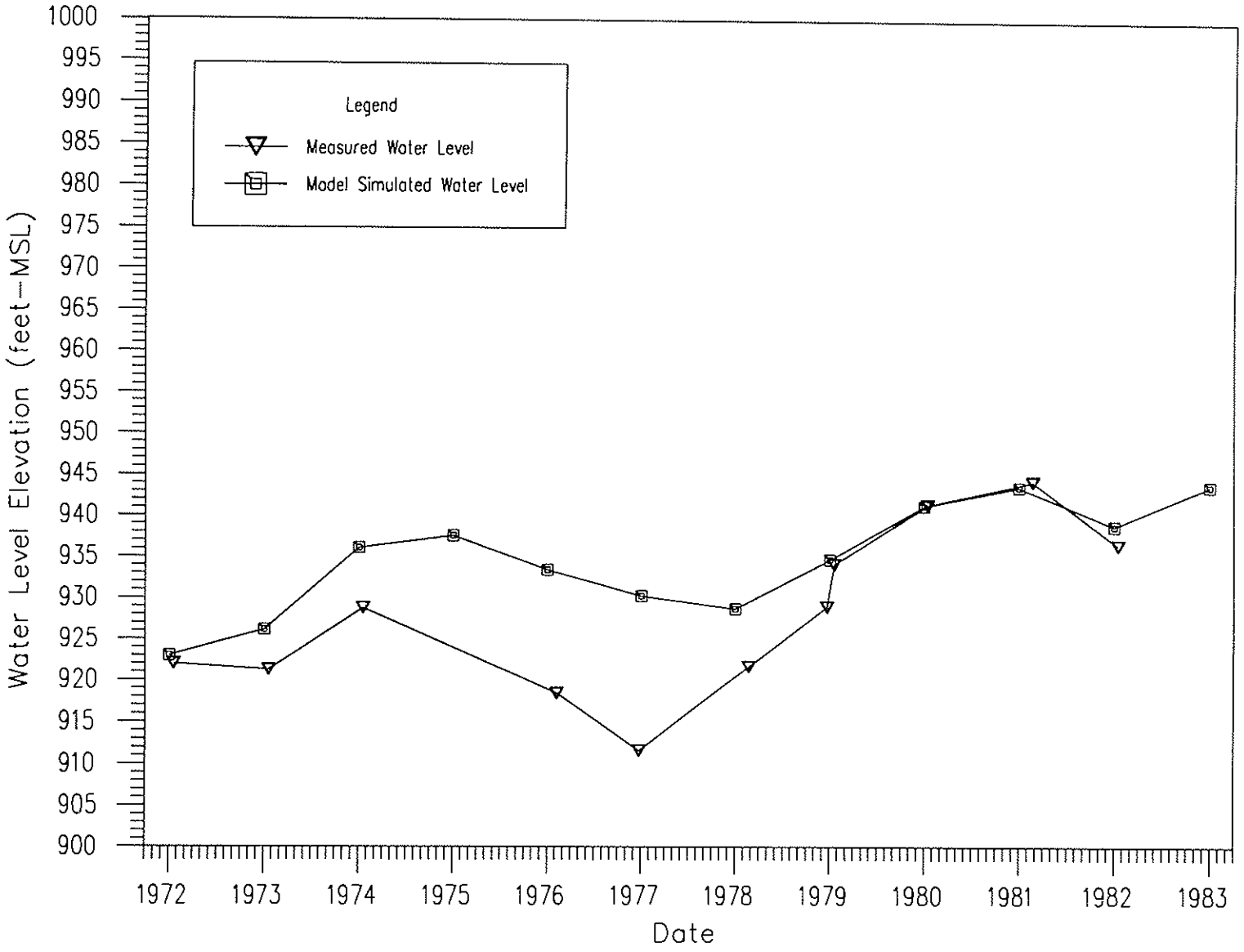


FIGURE 33

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)22BAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	10/96	

vwrfig34

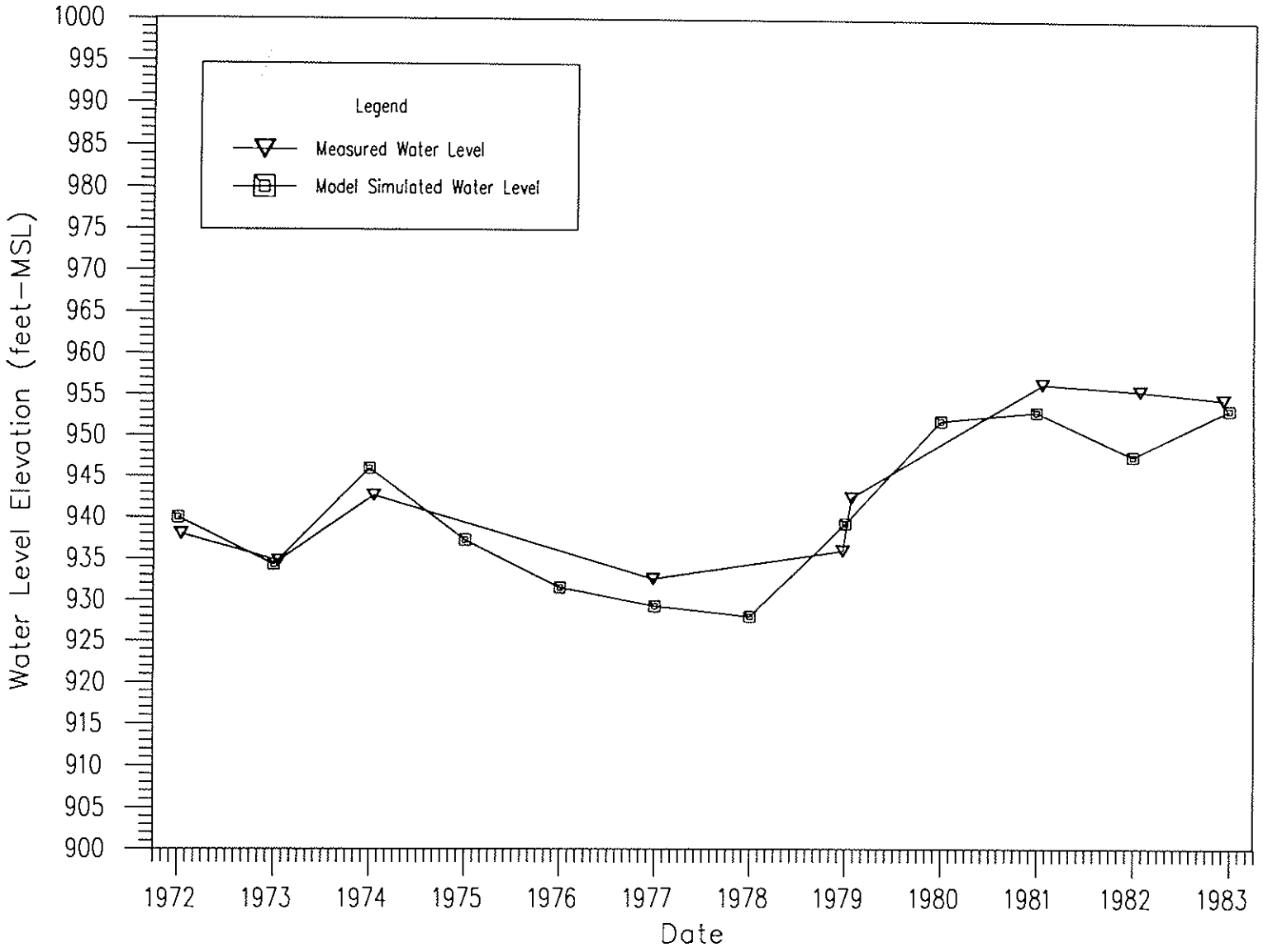


FIGURE 34

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)9AAB
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	10/96	

vwrfig35

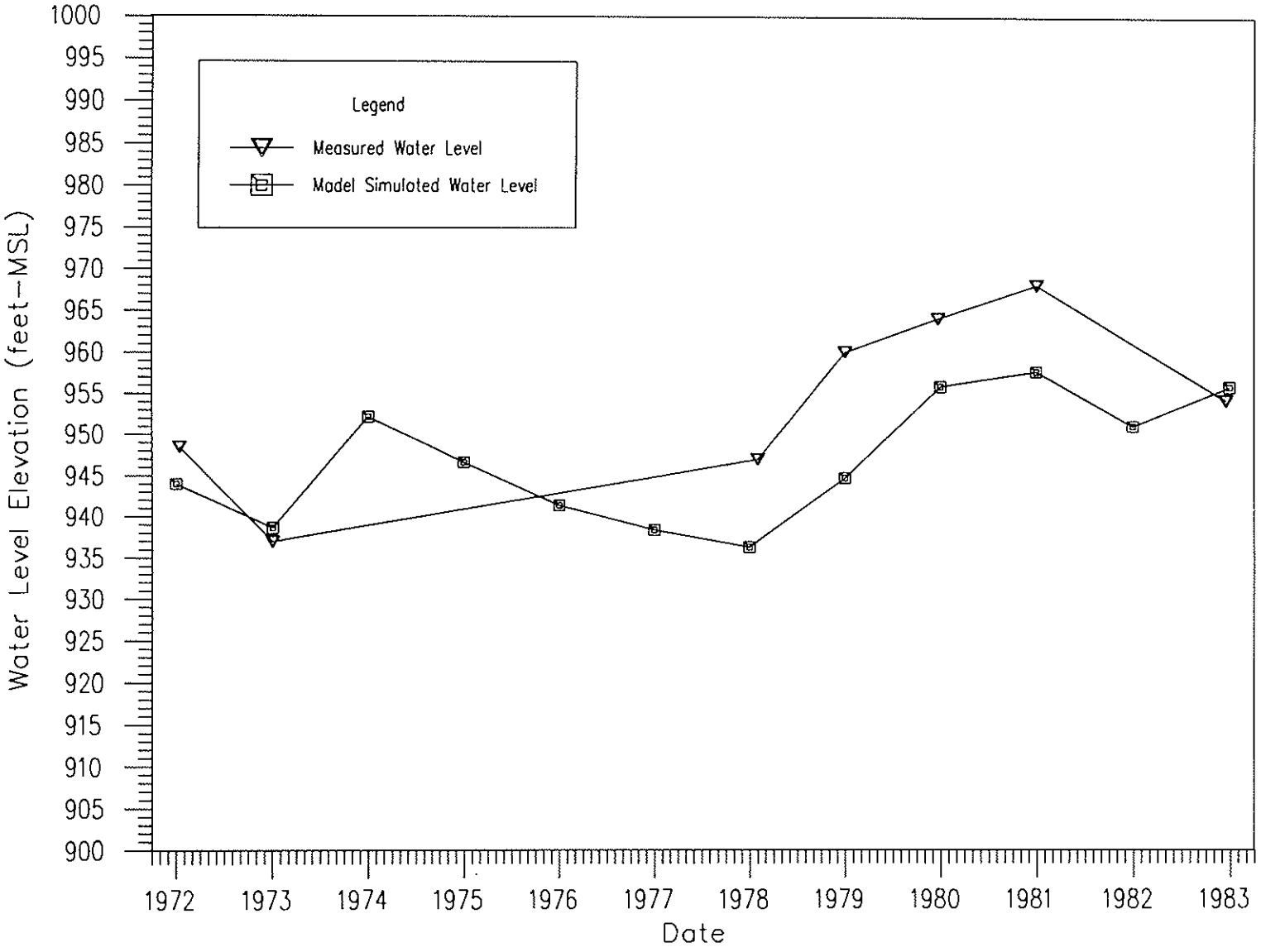


FIGURE 35

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)18DDD
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MKP	10/96	

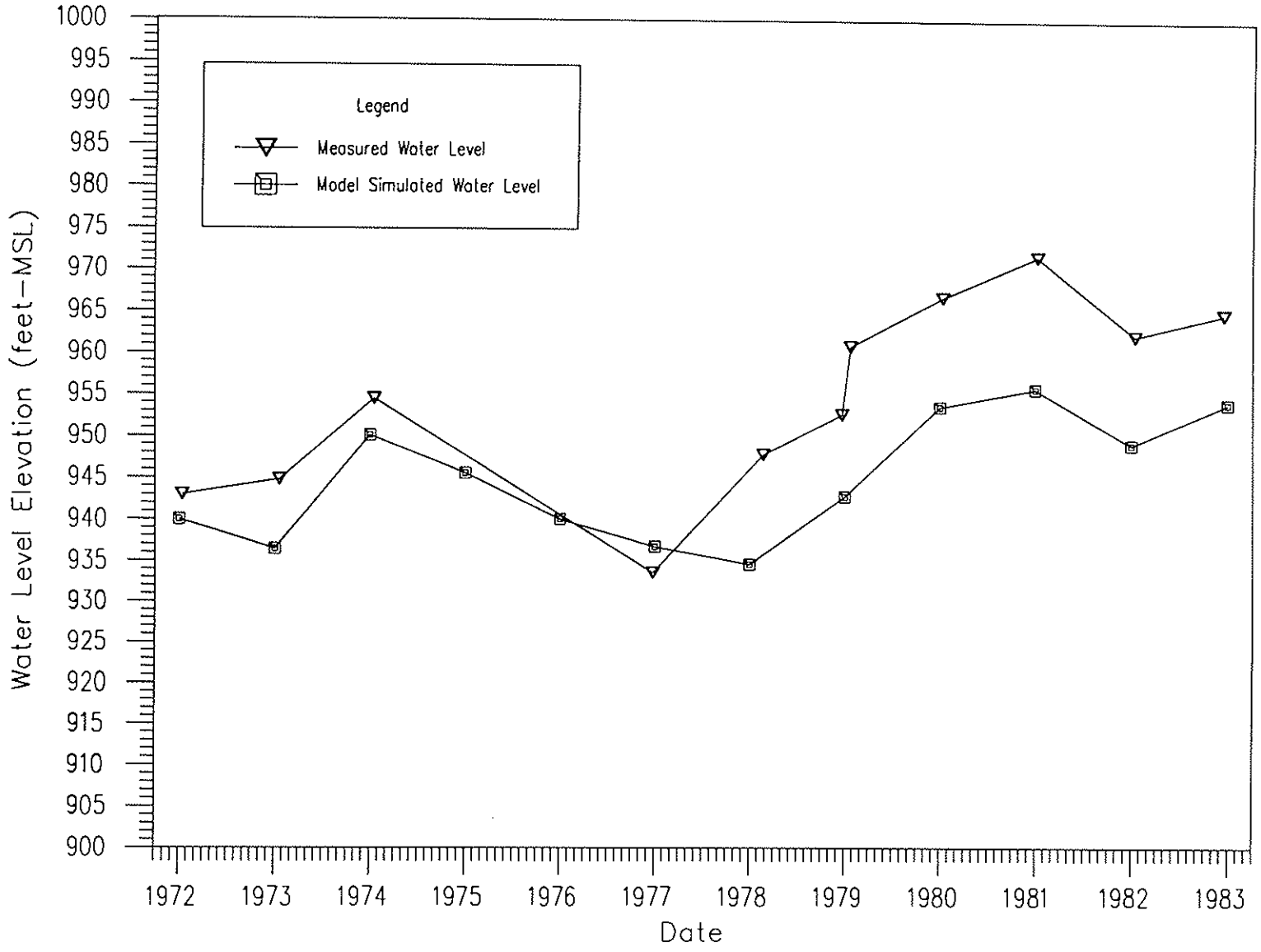


FIGURE 36

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)19BAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

vwrfig37

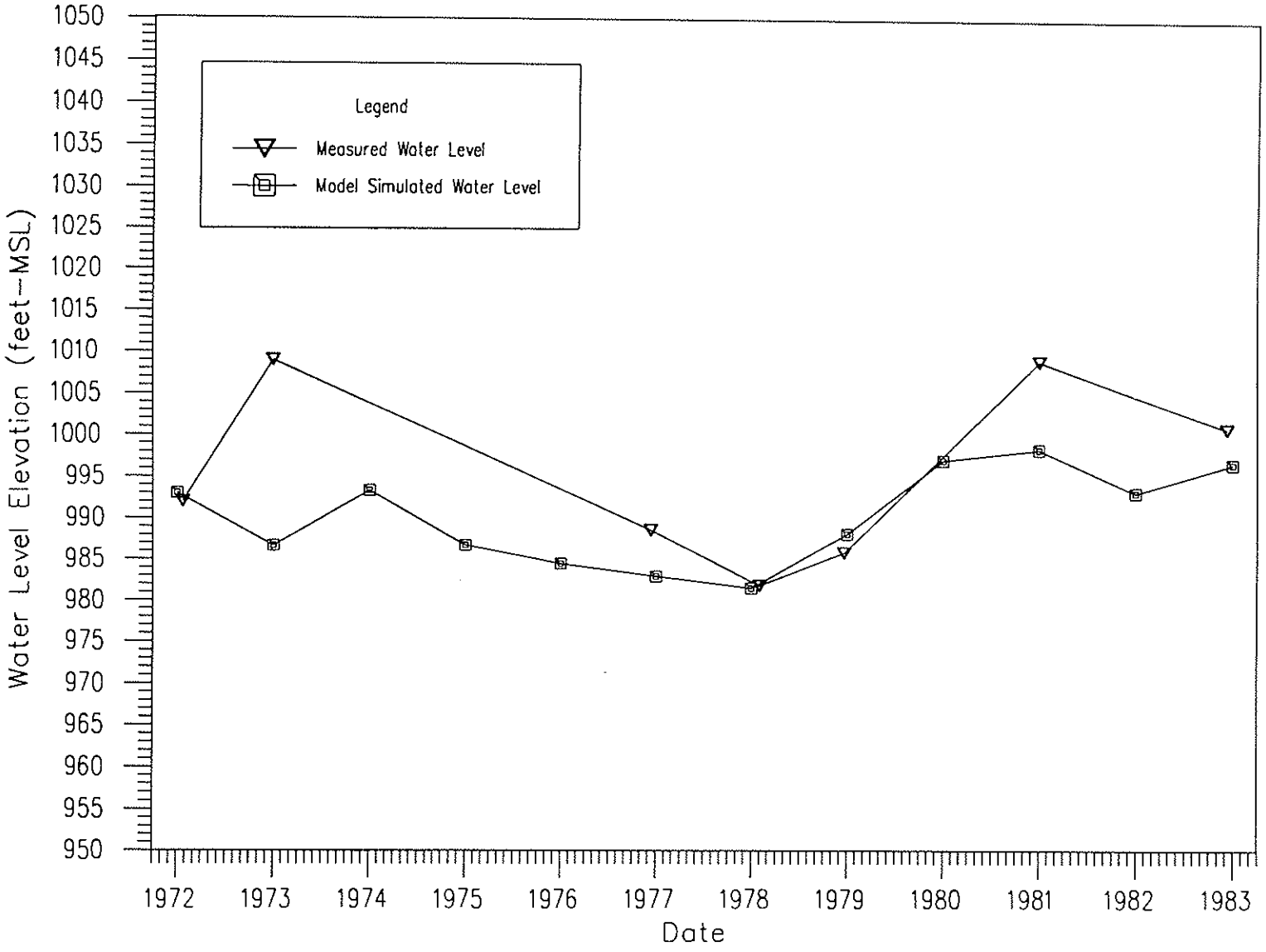


FIGURE 37

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)24DDC
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

vwrfig38

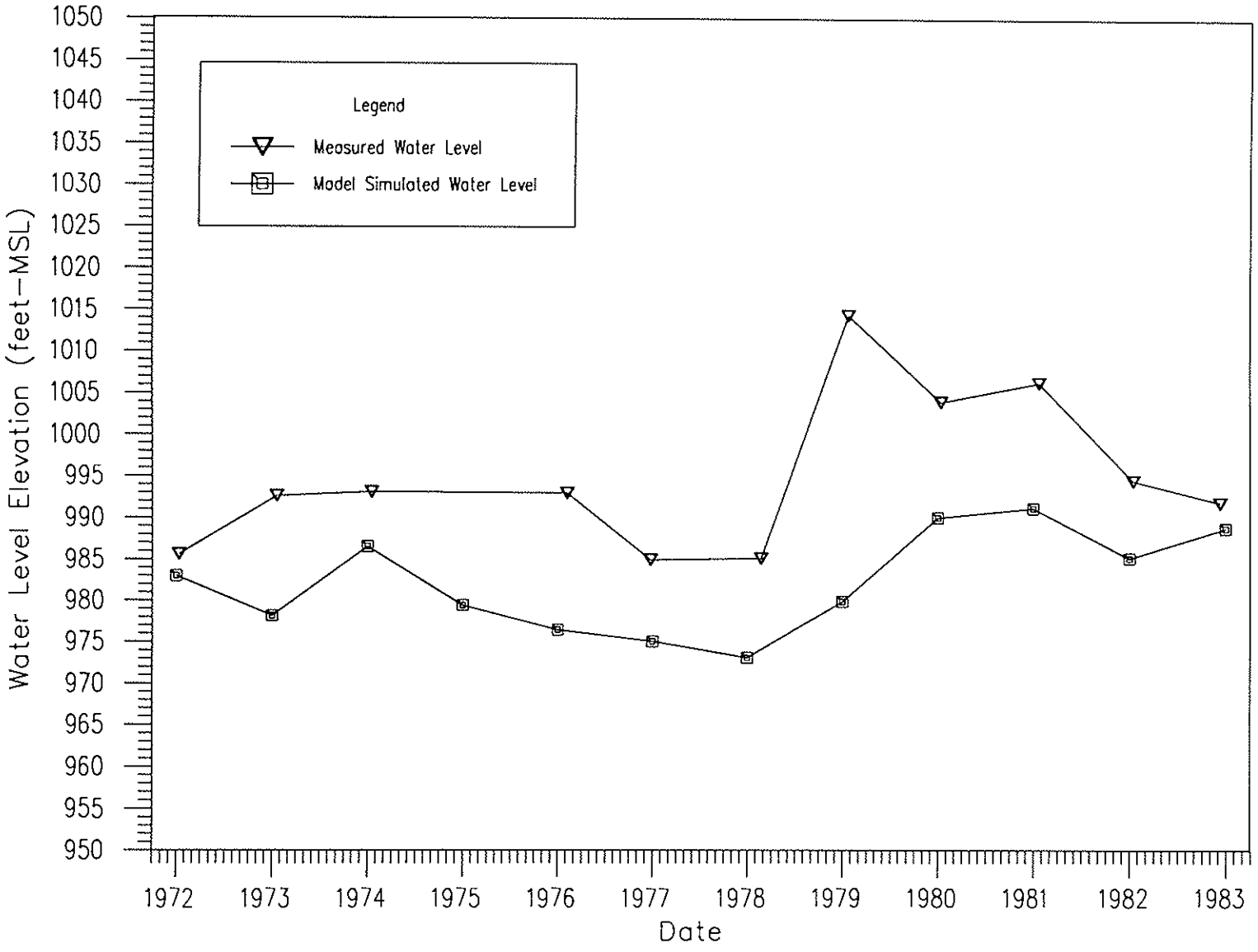


FIGURE 38

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)26AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

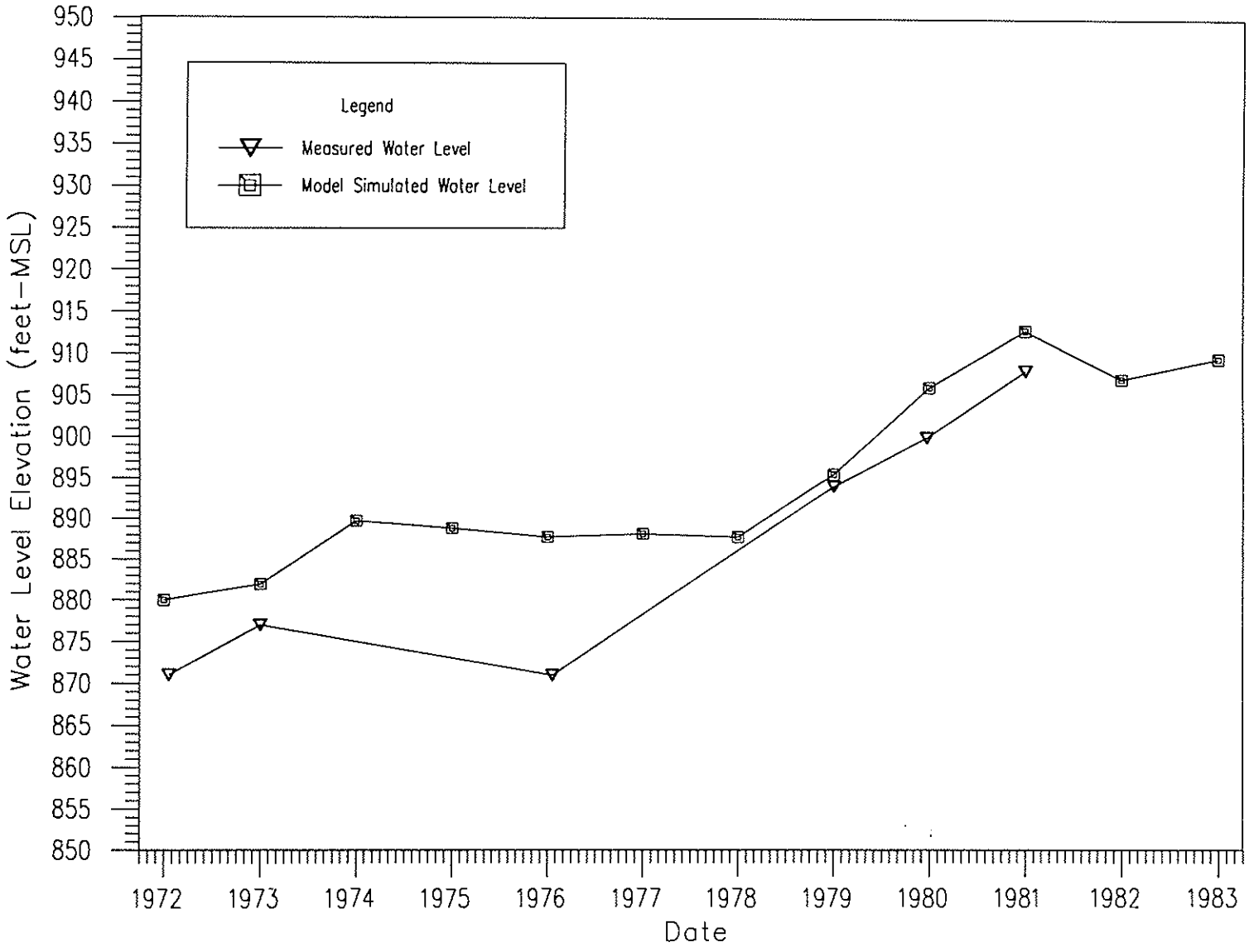


FIGURE 39

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)21AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig40

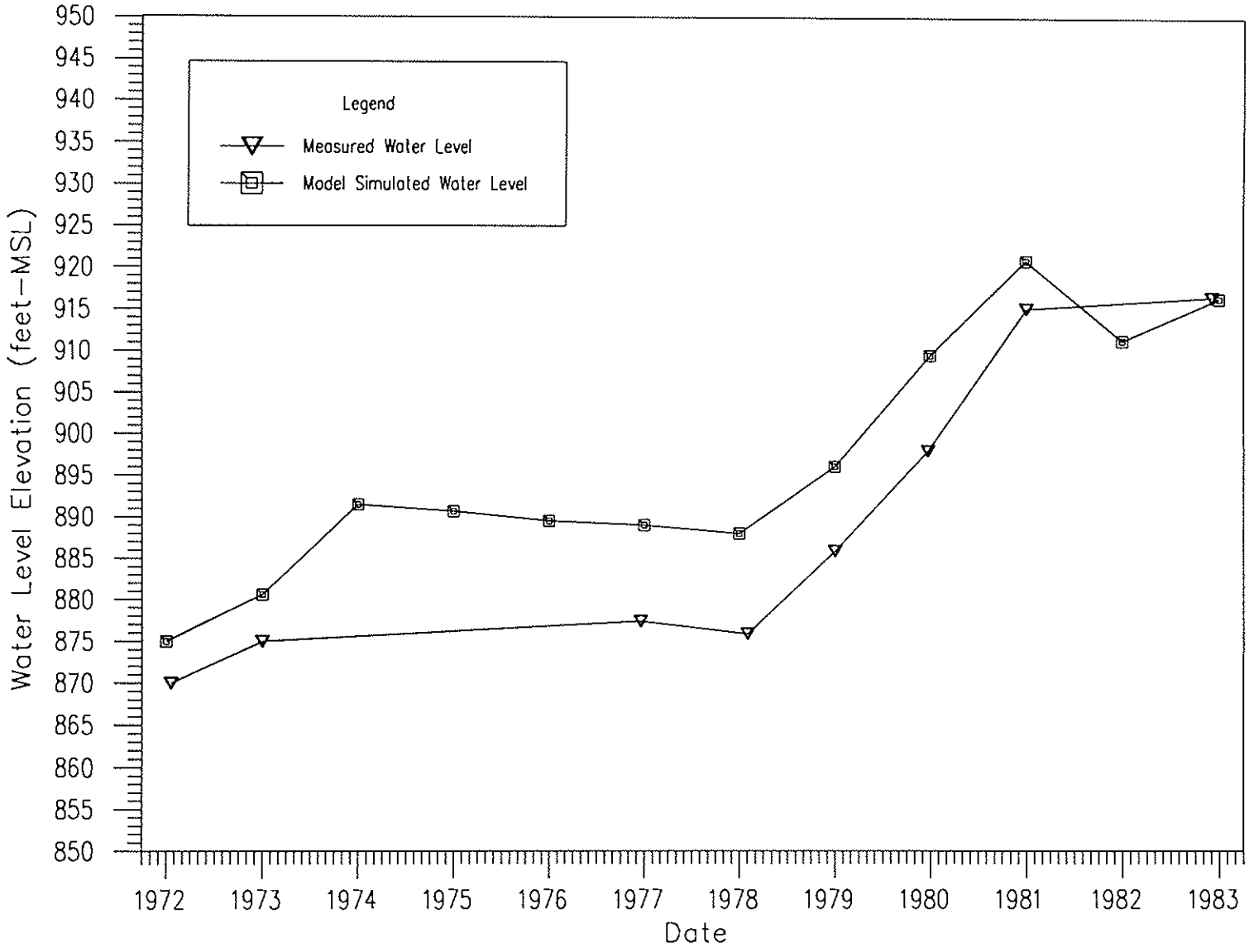


FIGURE 40

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)28AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig41

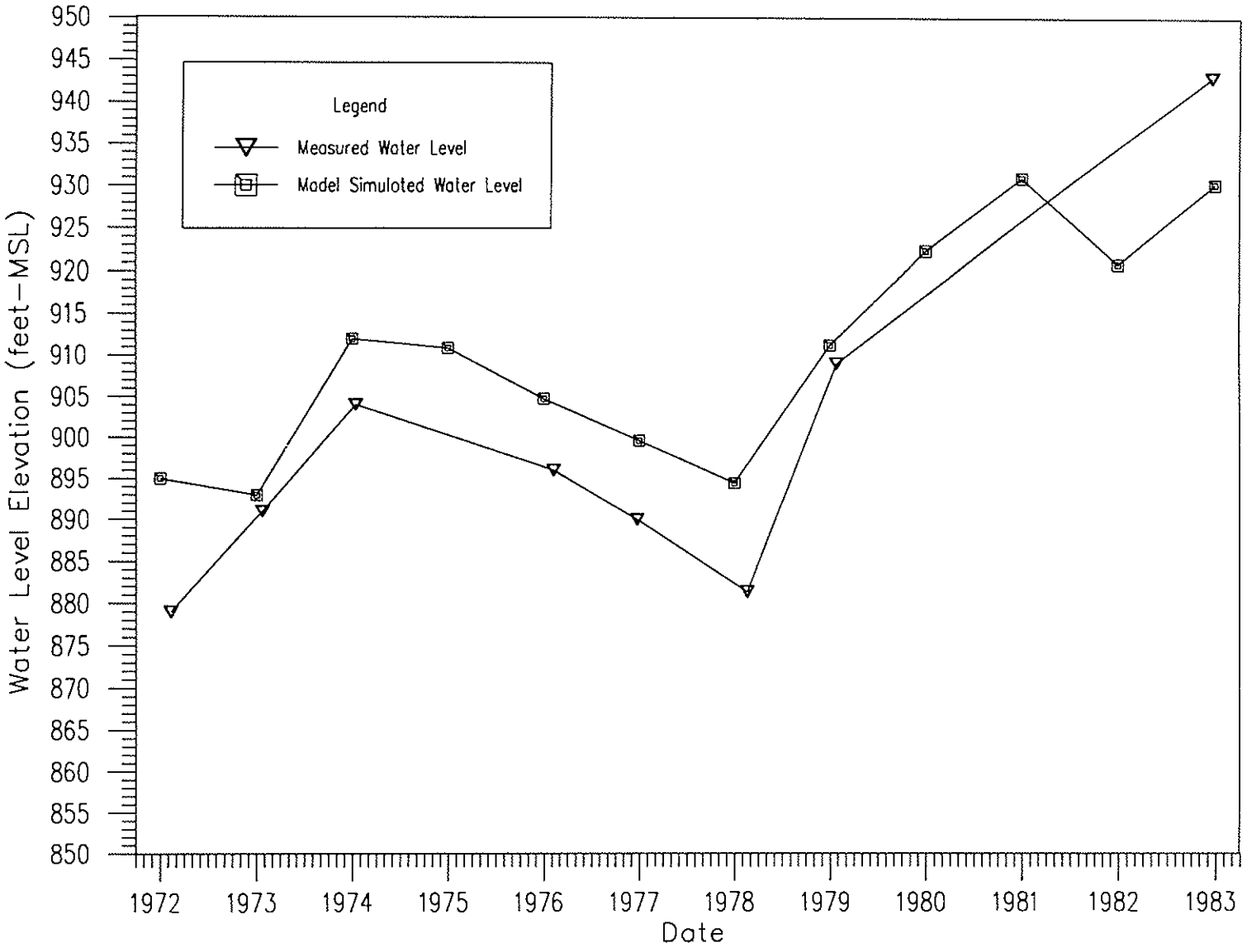


FIGURE 41

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)35DAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig42

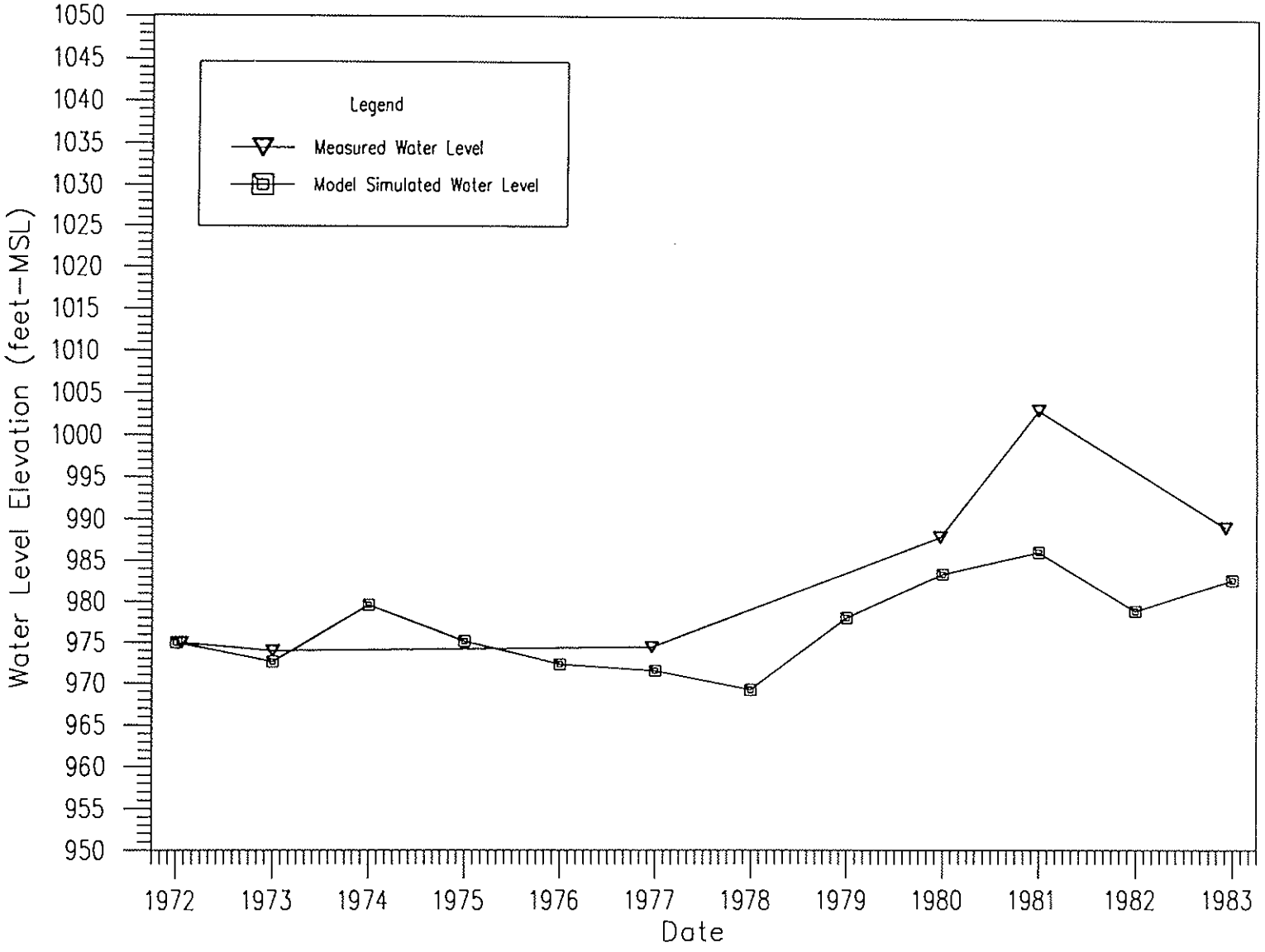


FIGURE 42

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-2)25BCA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

vwrflg43

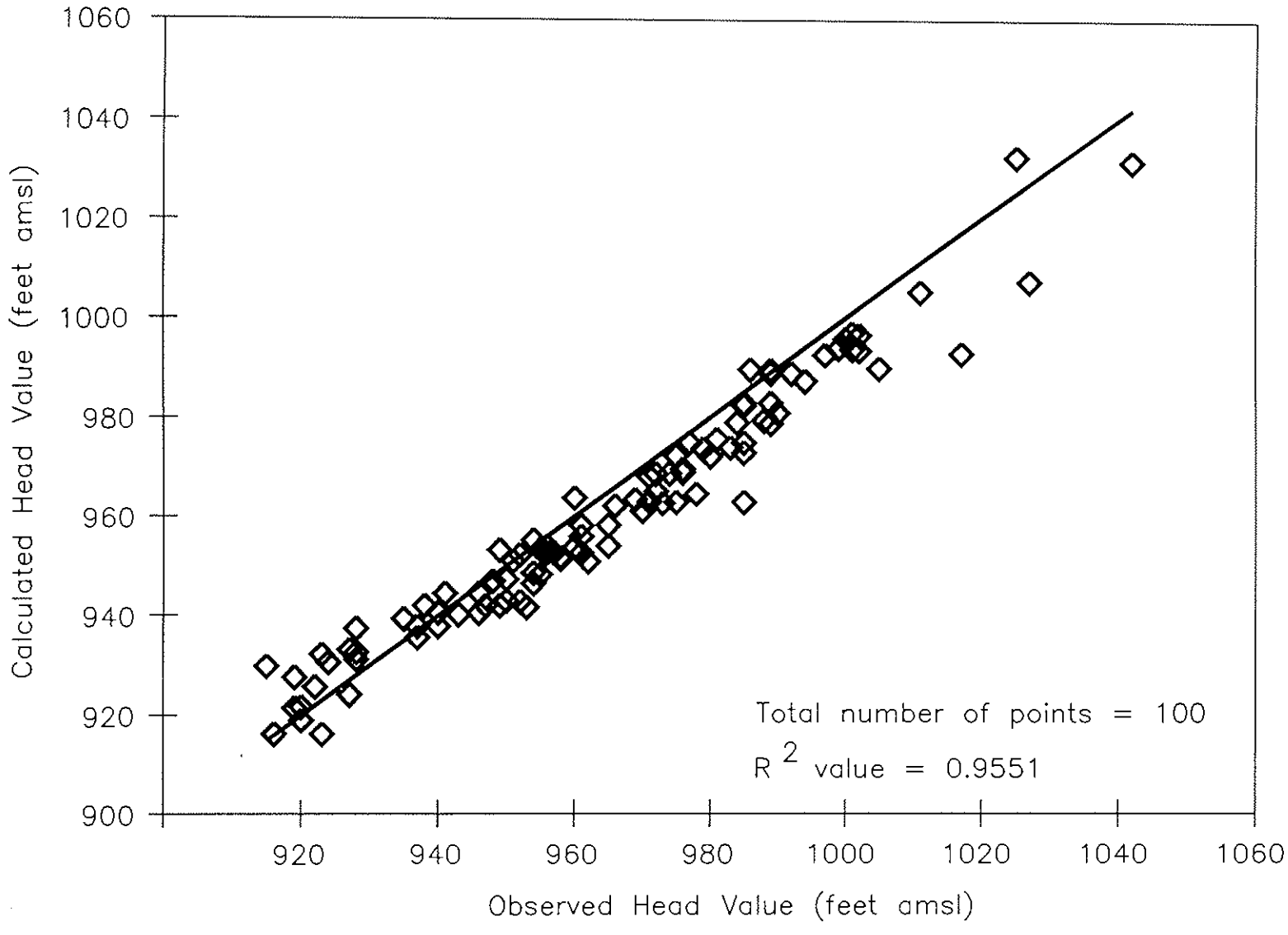


FIGURE 43

Harding Lawson Associates
Engineering and Environmental Services

Scatterplot of Measured vs. Model Calculated Heads (December 1982)
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	

vwrfig44

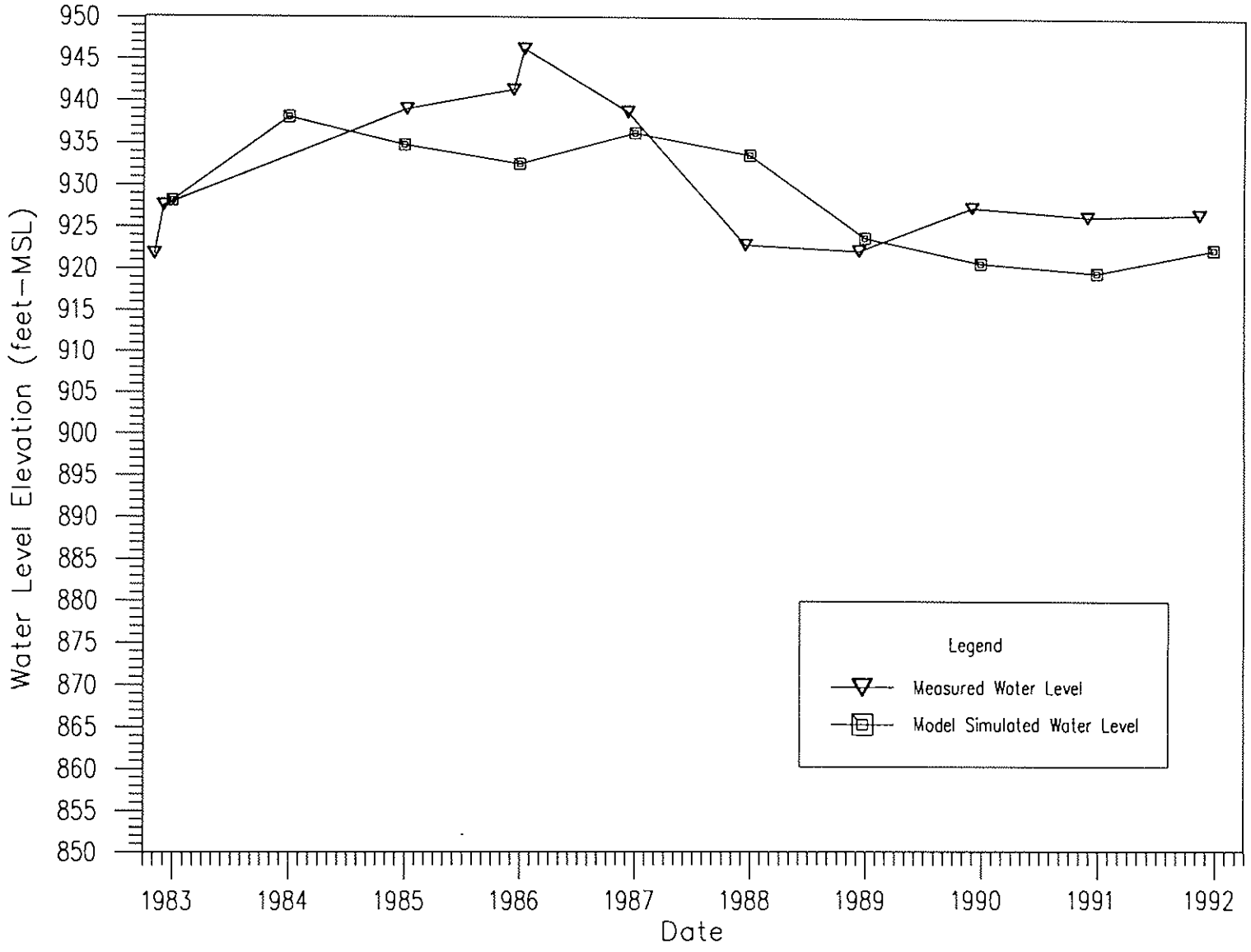


FIGURE 44

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)4AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

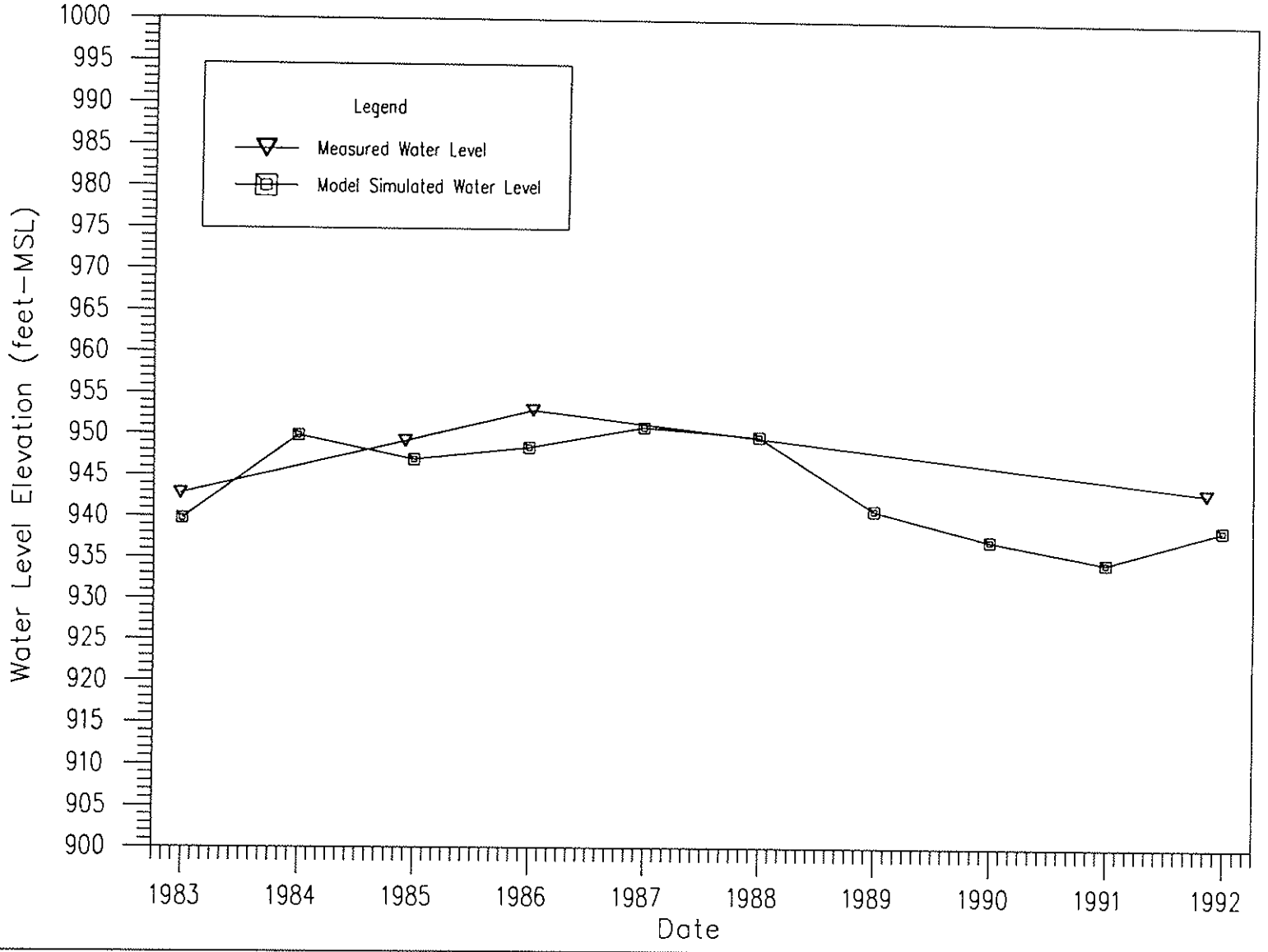


FIGURE 45

Hording Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)10CCC
West Van Buren Groundwater Flow Model
Von Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

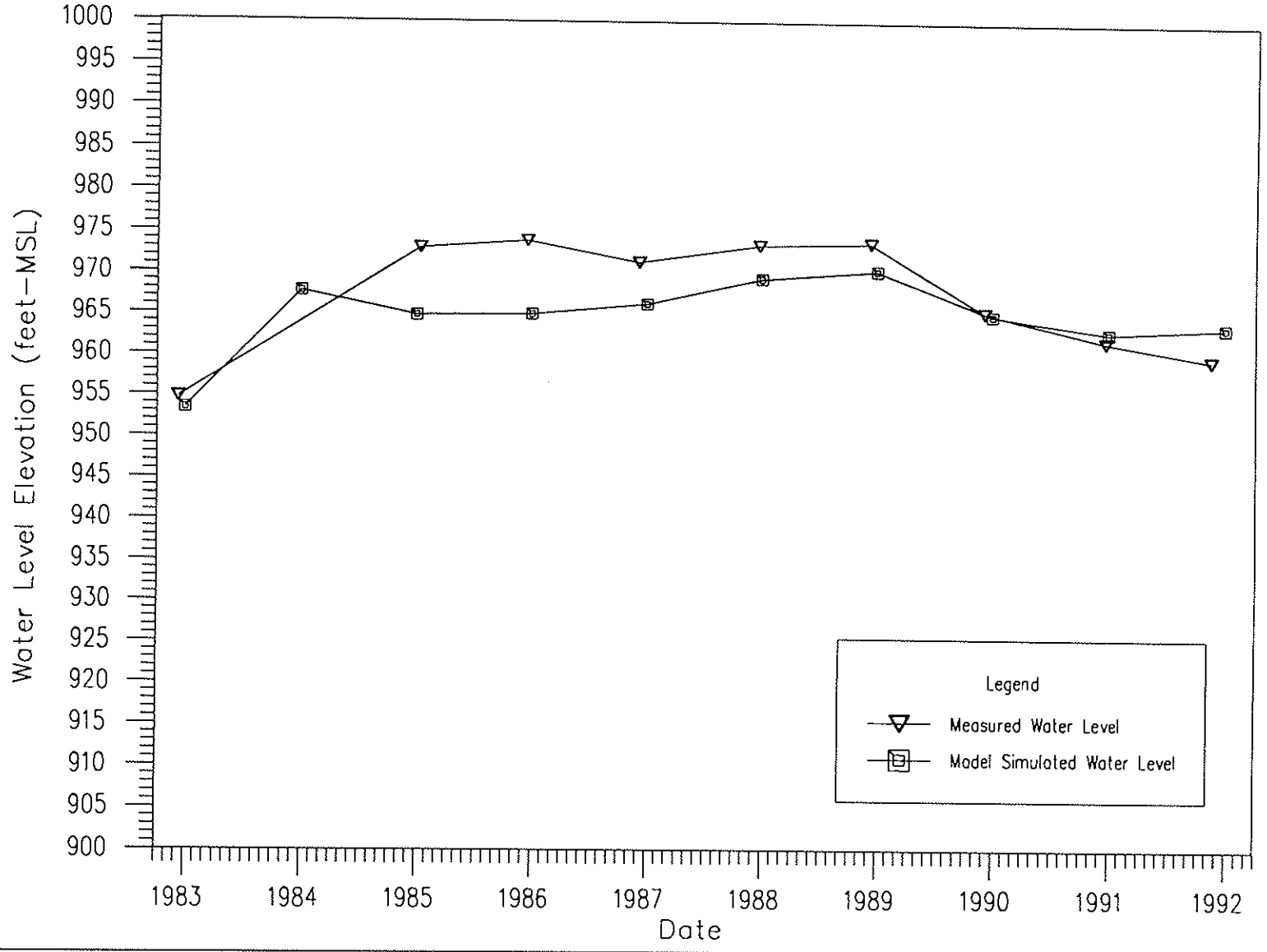


FIGURE 46

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)9AAB
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

vwrfig47

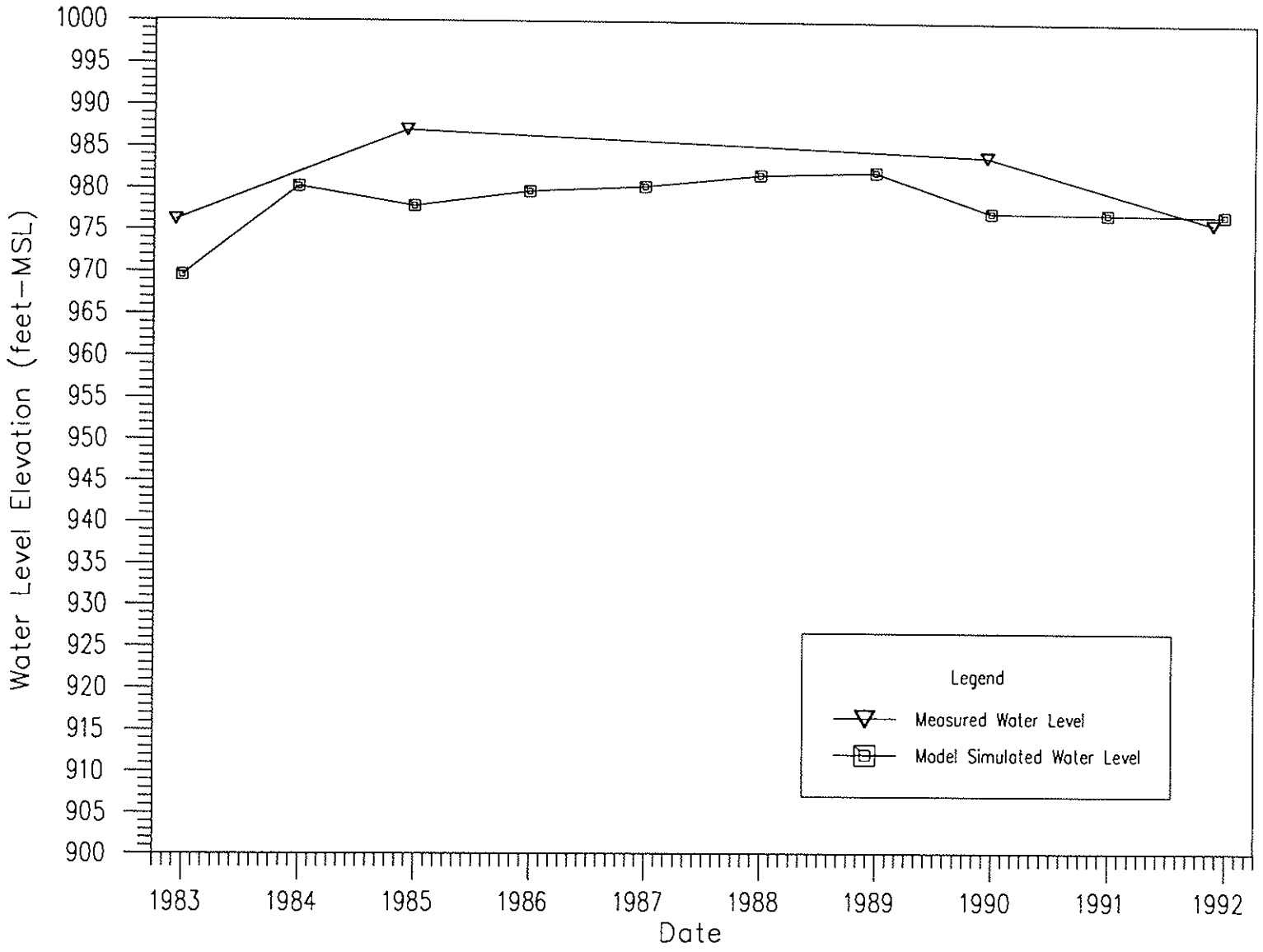


FIGURE 47

Harding Lawson Associates
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Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)11AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig48

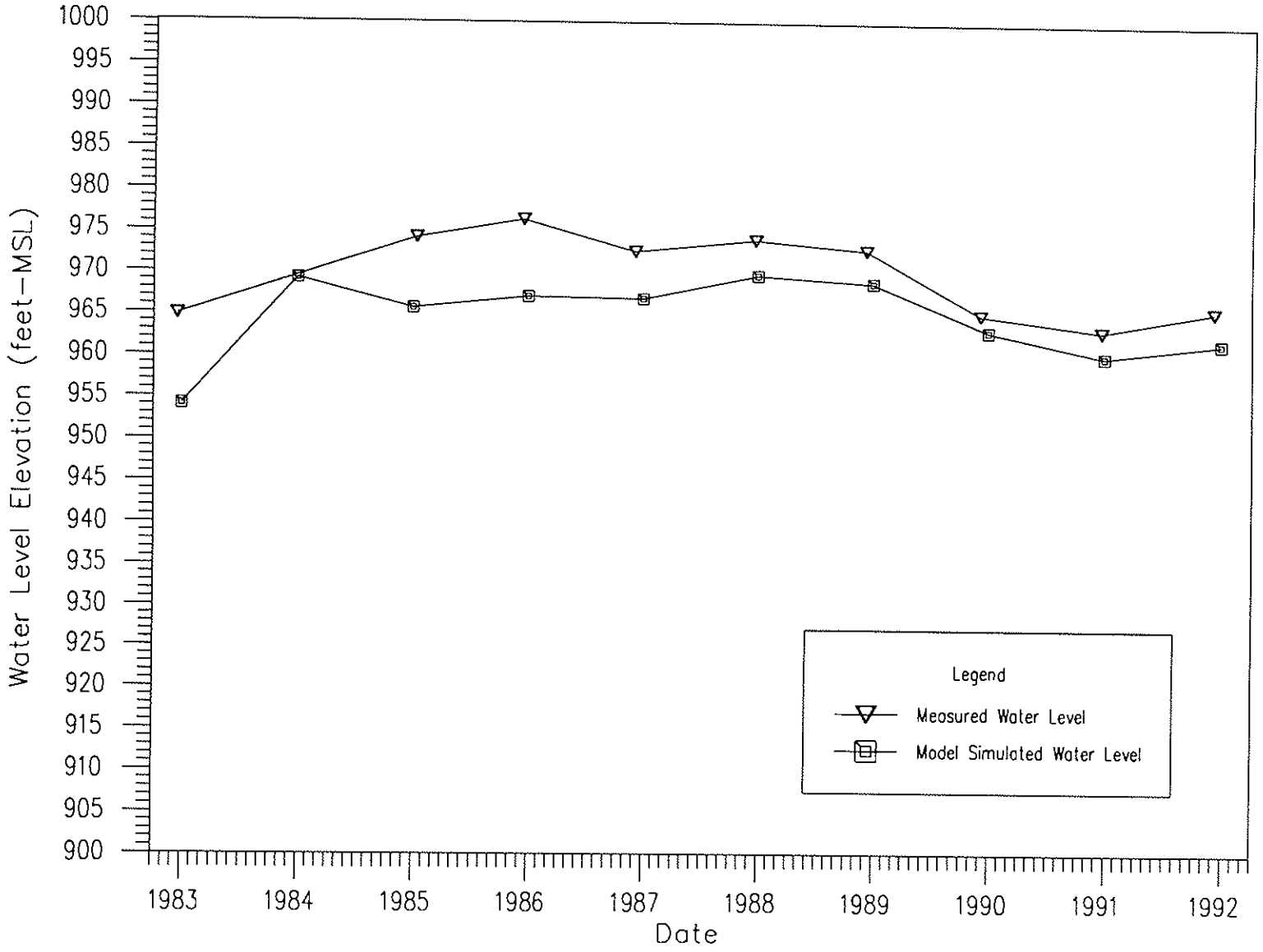

FIGURE 48

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)19BAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93		10/96	

vwrfig49

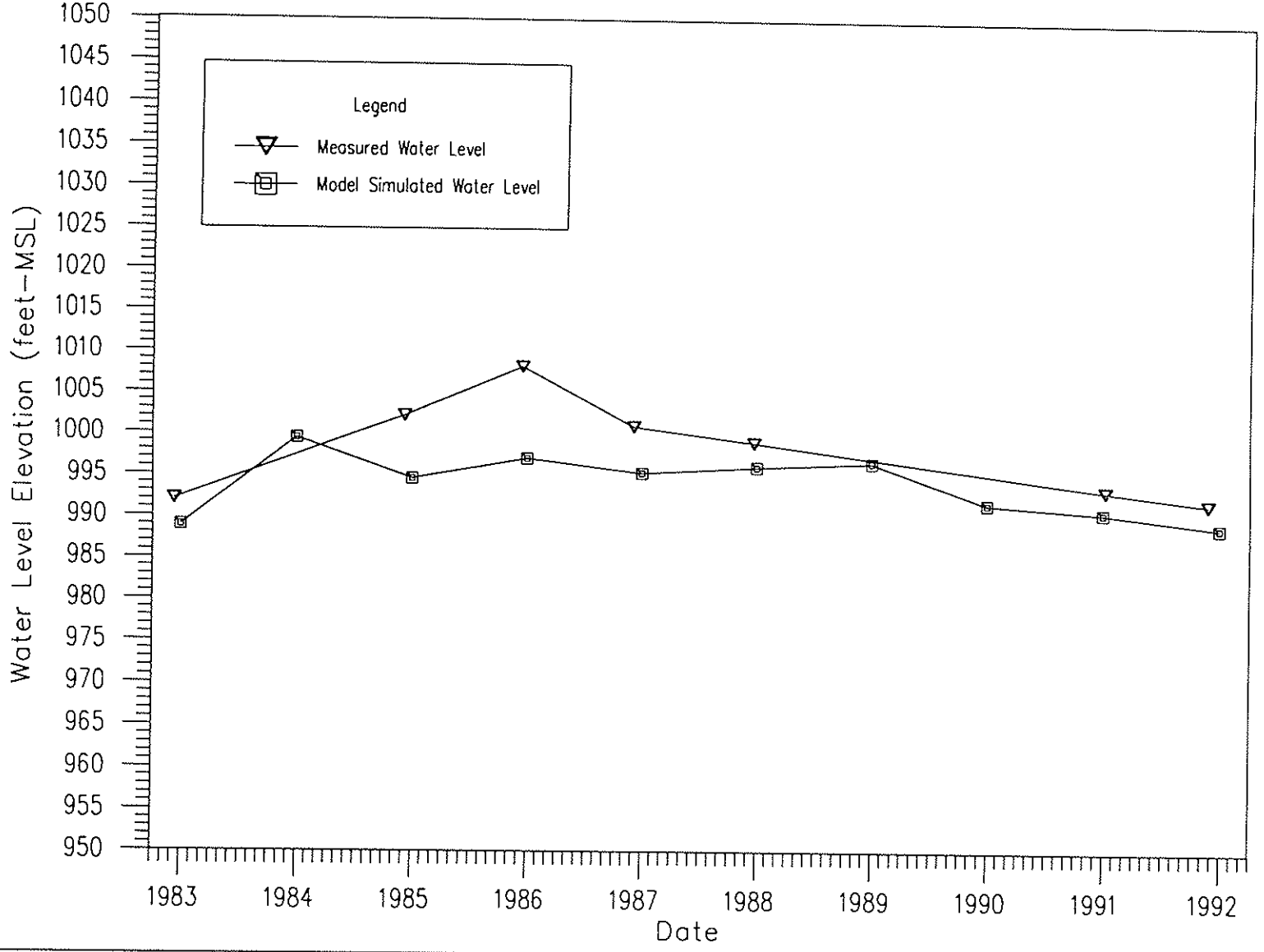

FIGURE 49

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)26AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig50

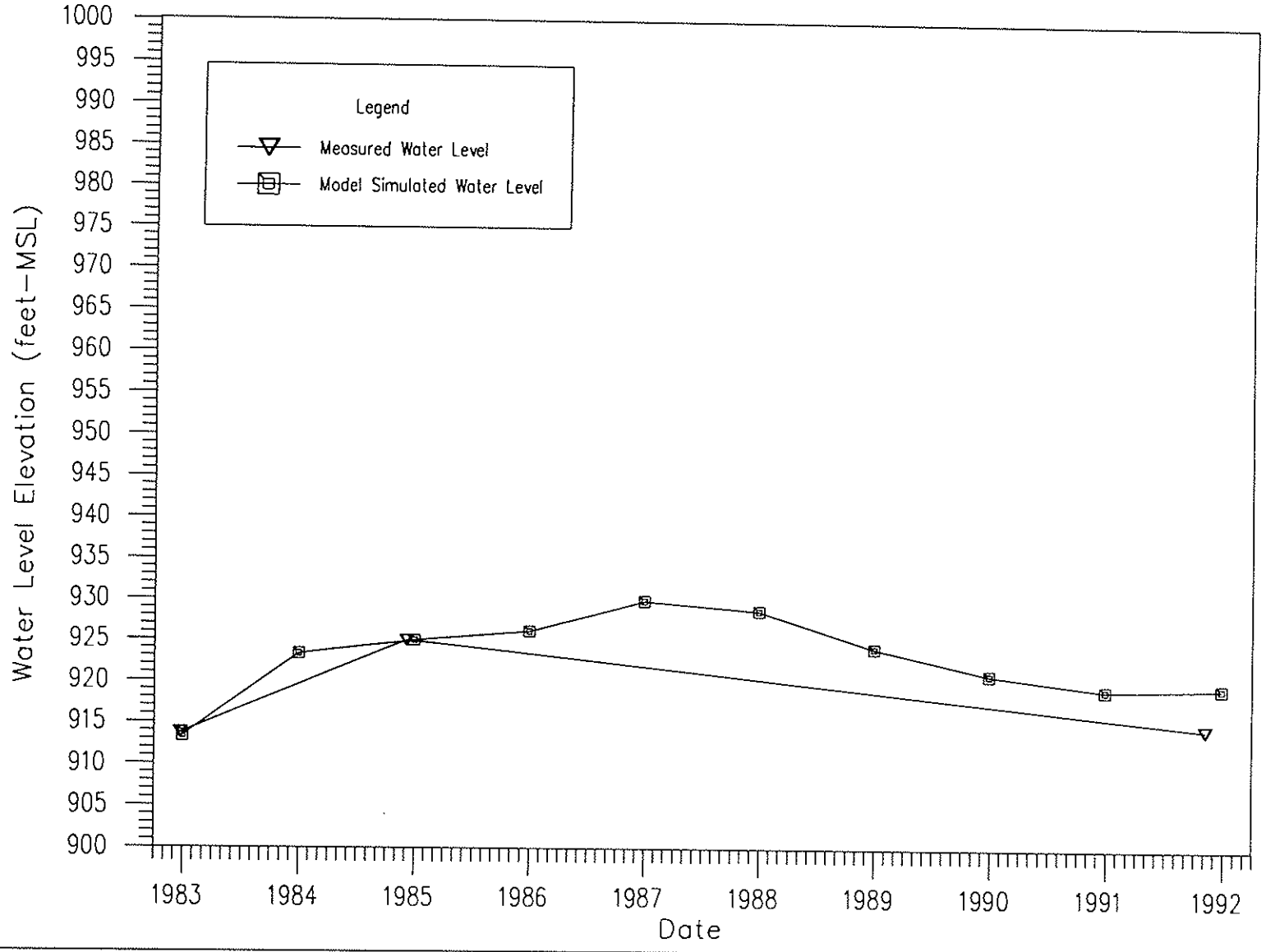

FIGURE 50

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)29DDD
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig51

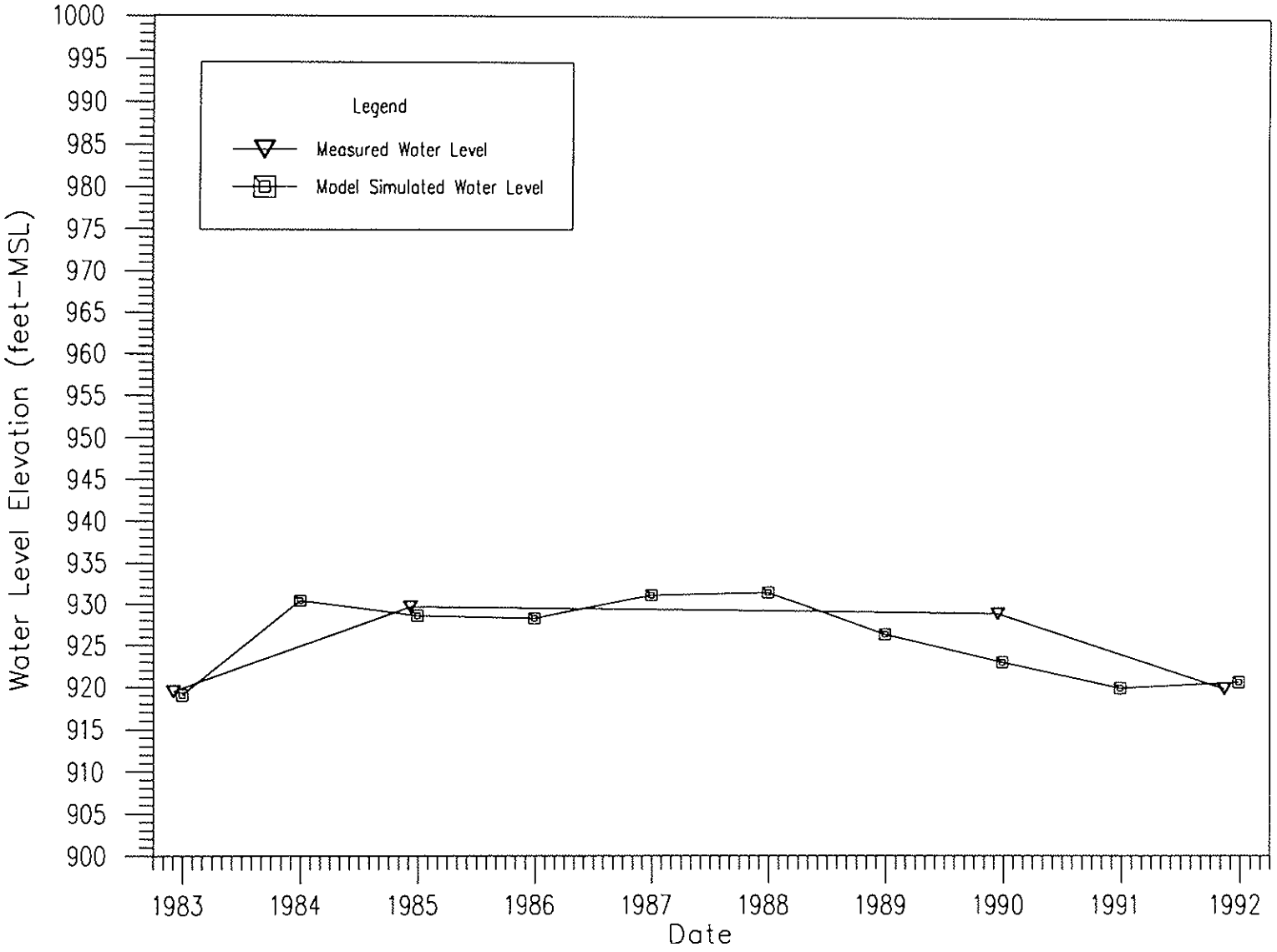

FIGURE 51

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)34BBB
West Van Buren Groundwater Flow Model
Von Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	BRP	10/96	

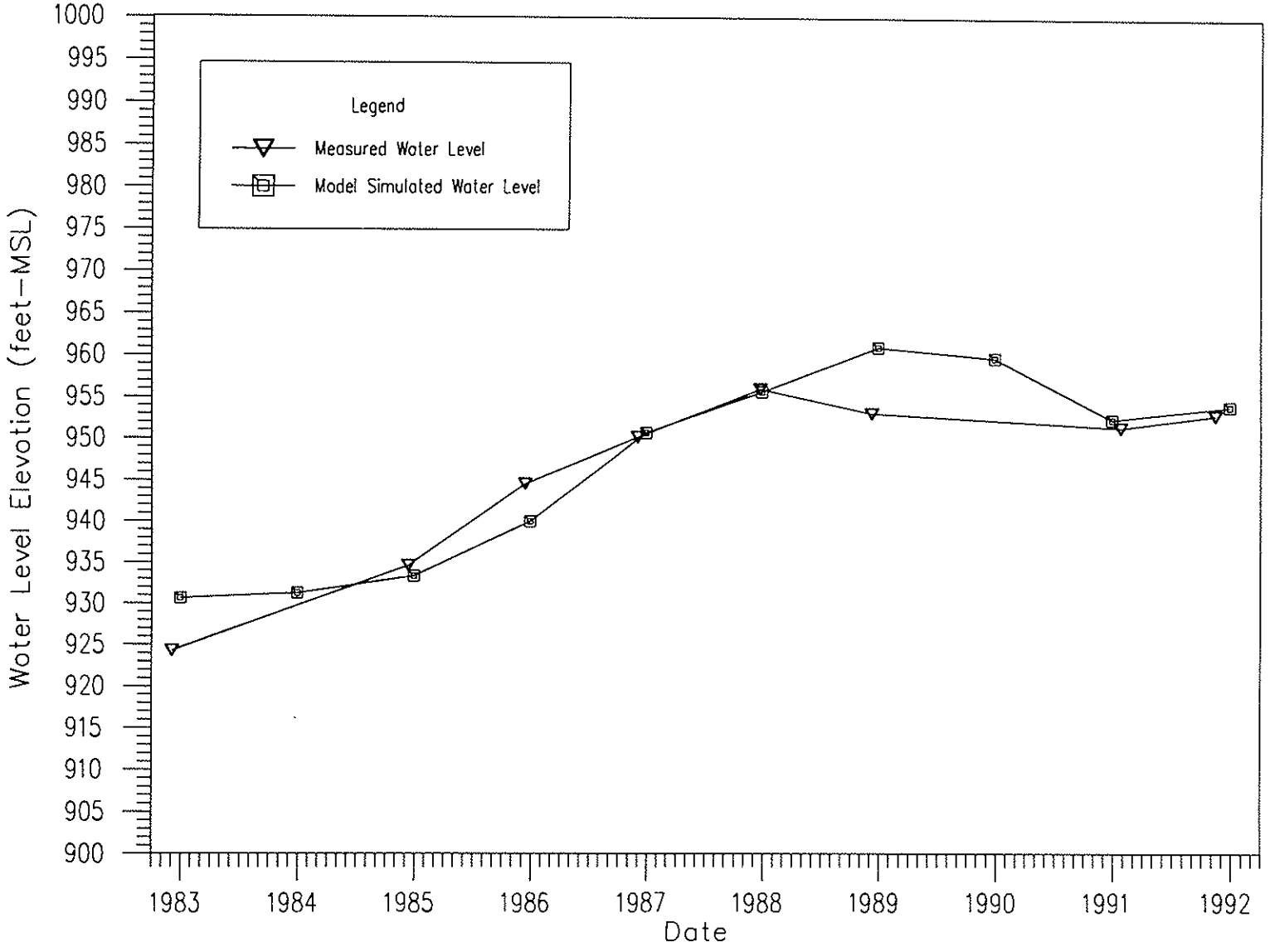

FIGURE 52

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-2)18DDD
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig53

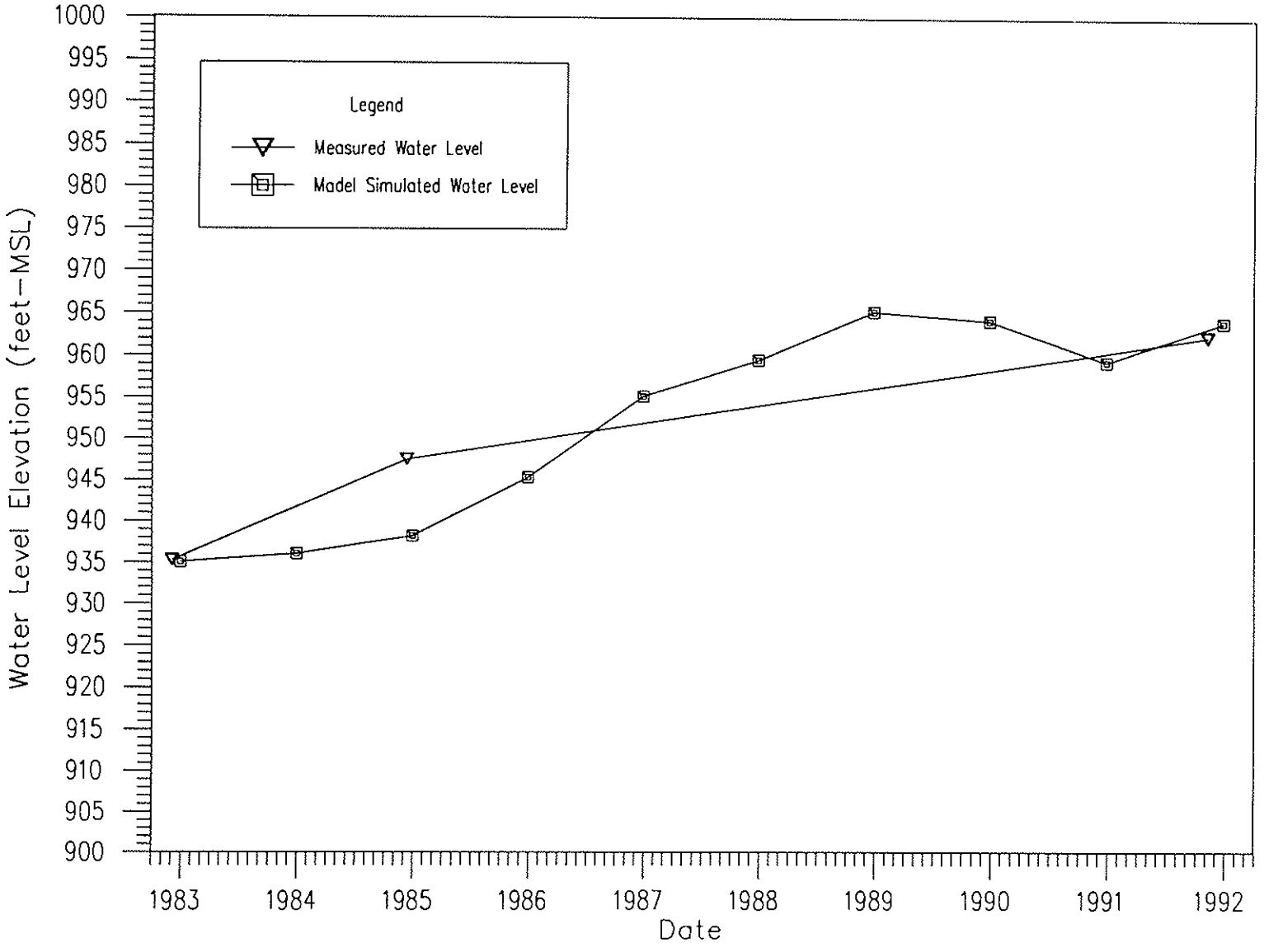

FIGURE 53

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-2)20ADD
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrFig54

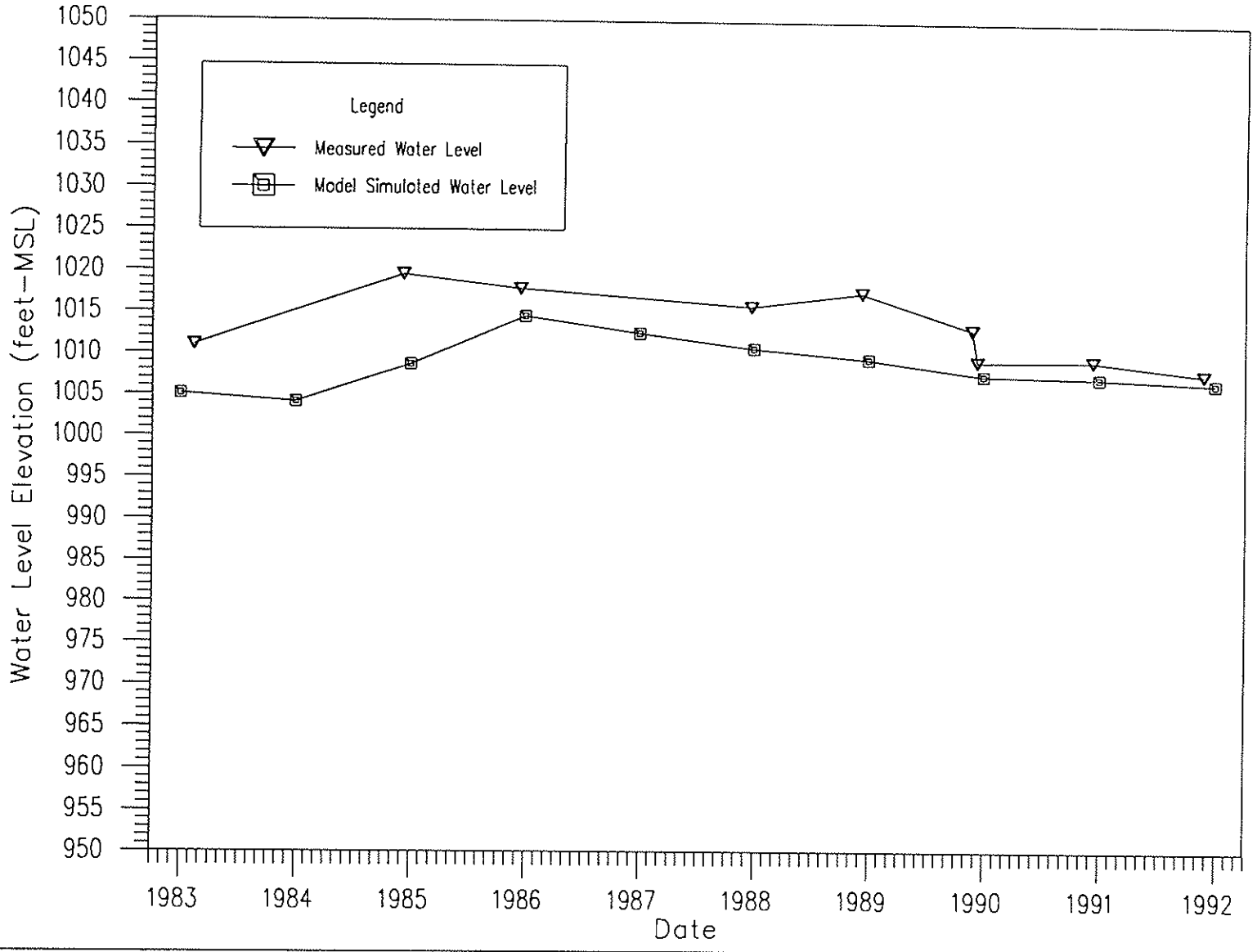

FIGURE 54

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-3)5BAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig55

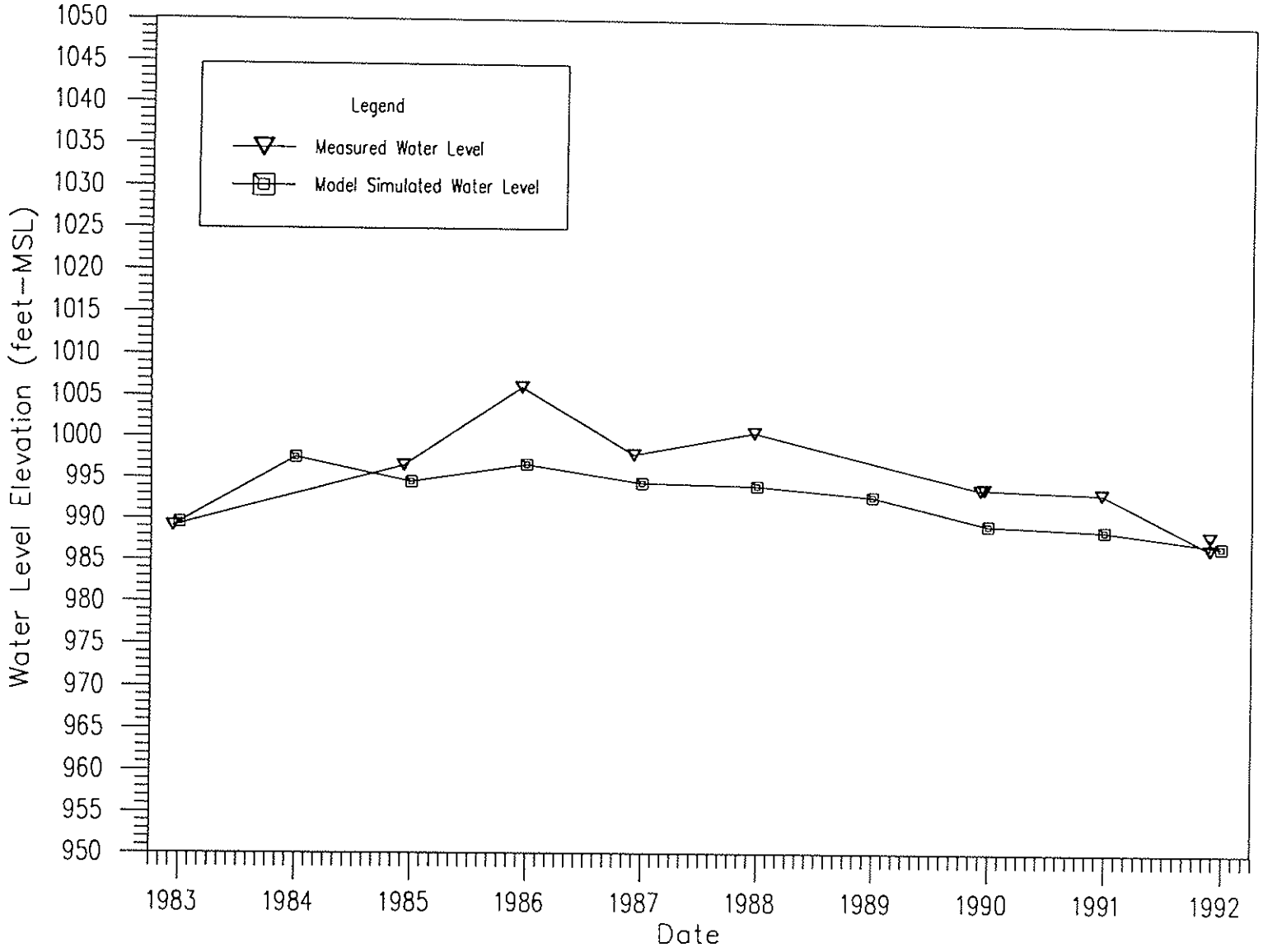

FIGURE 55

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-3)18BBC
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig56

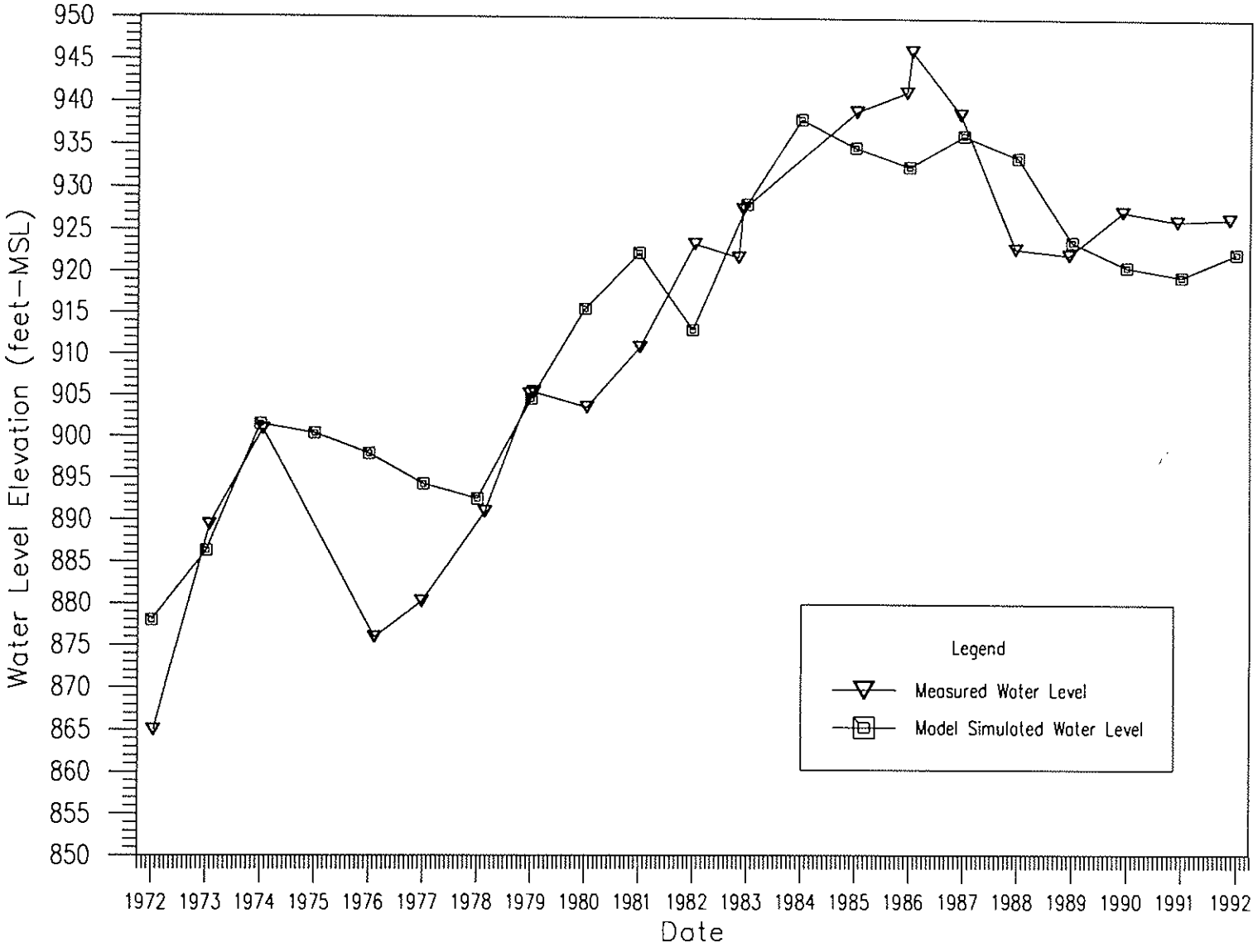

FIGURE 56

Harding Lawson Associates
Engineering and
Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)4AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	RPP	10/96	

vwr fig57

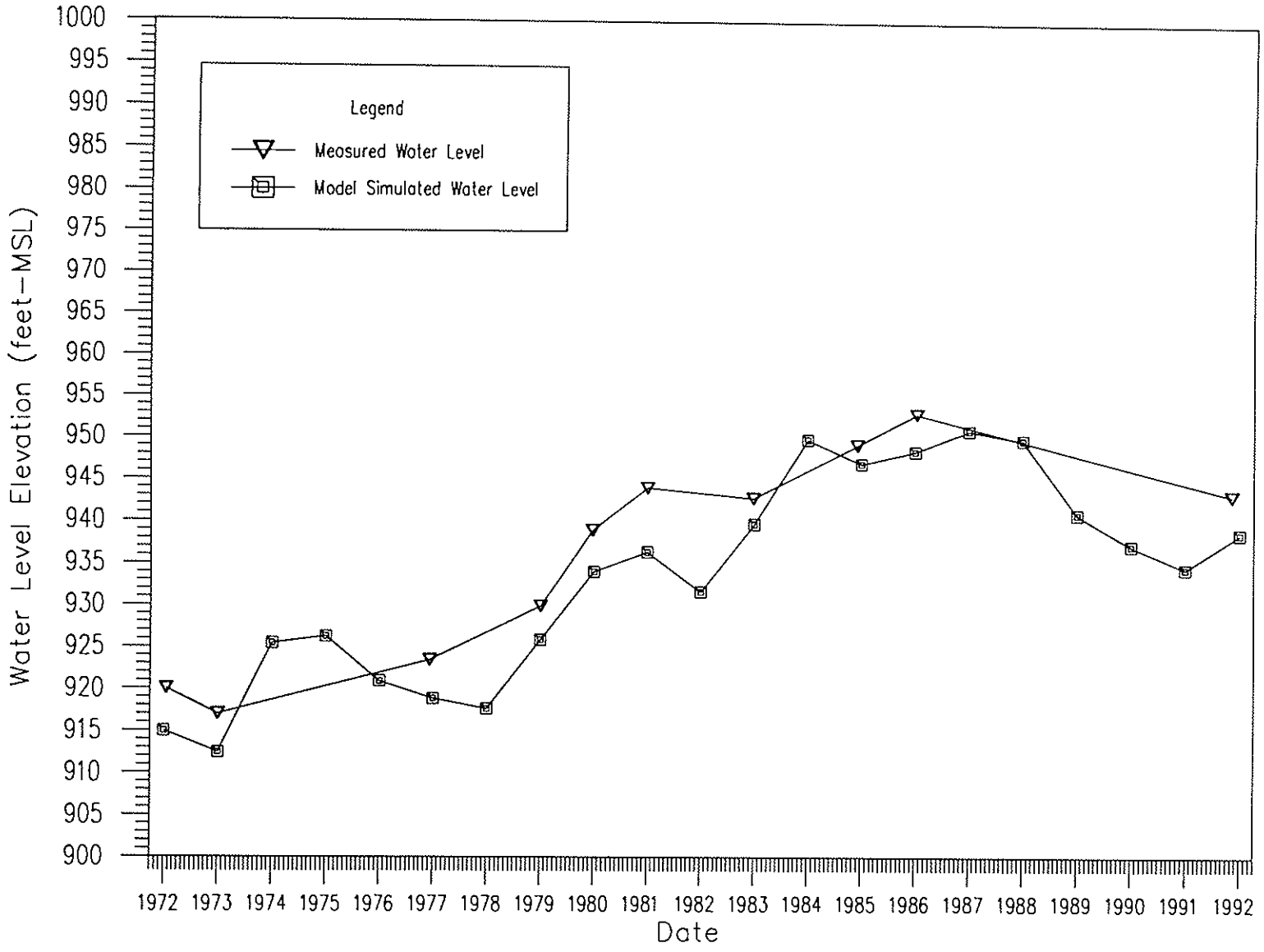

FIGURE 57

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-1)10CCC
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig58

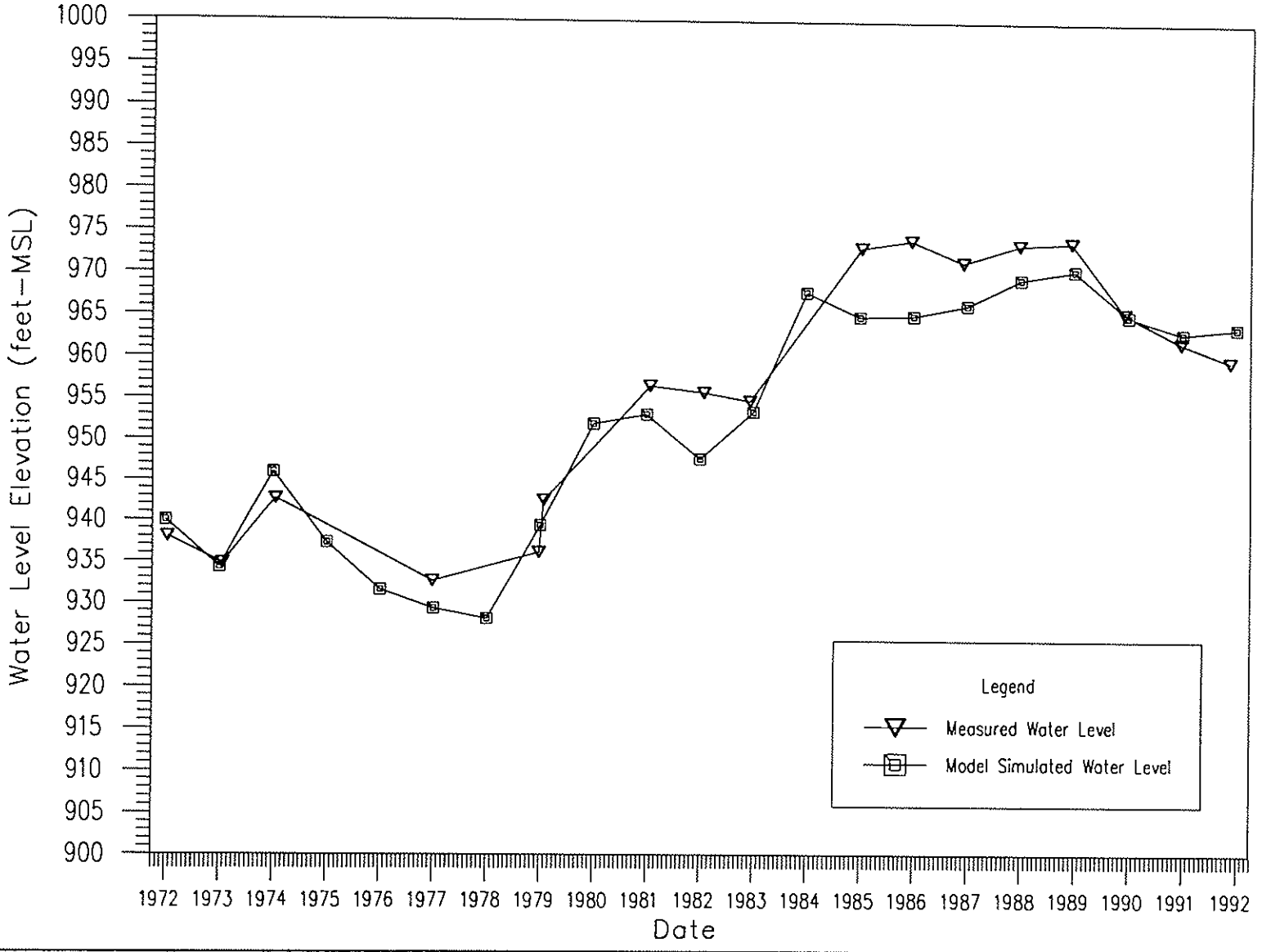

FIGURE 58

Harding Lawson Associates
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Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)9AAB
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig59

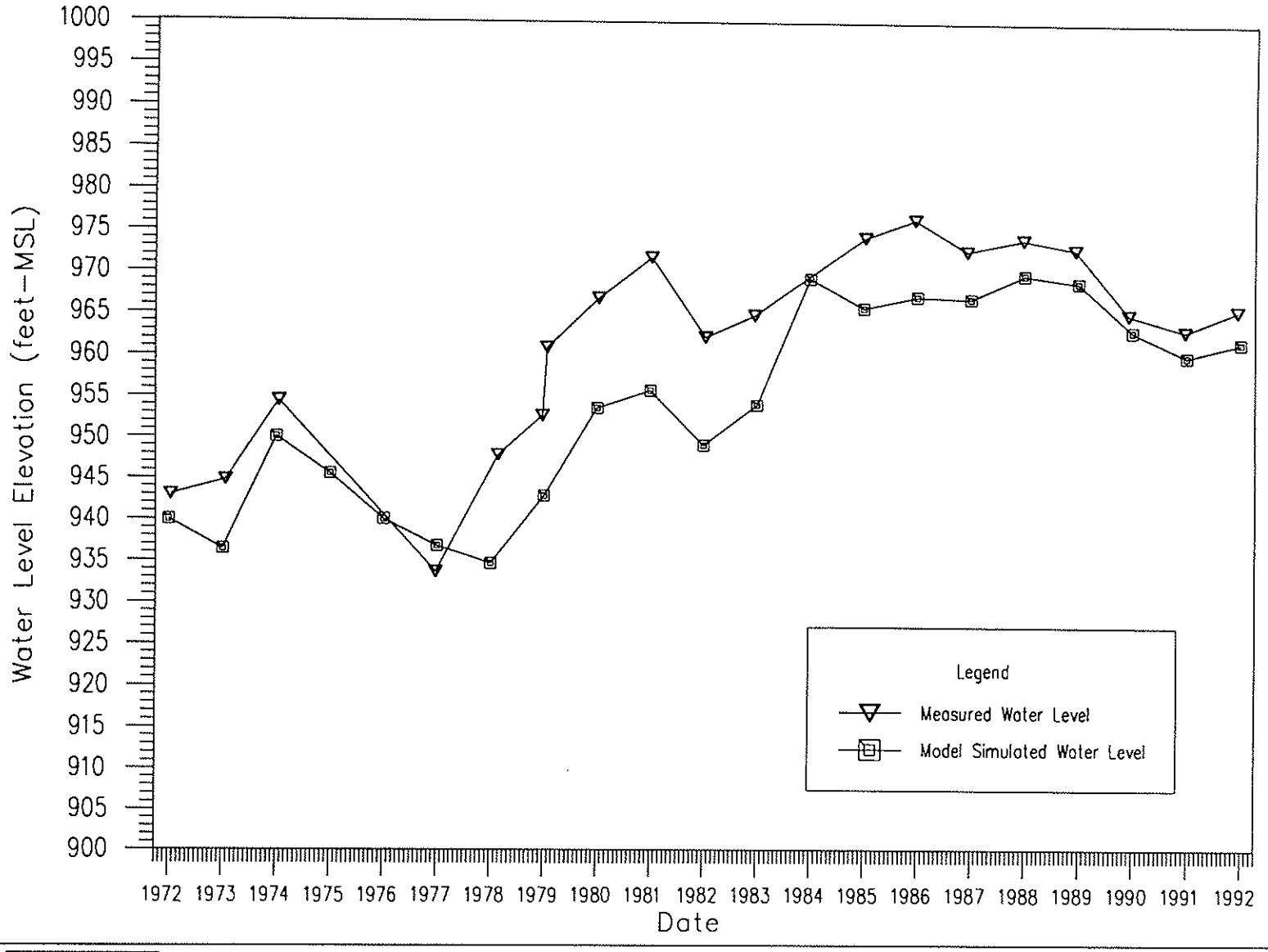

FIGURE 59

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)19BAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

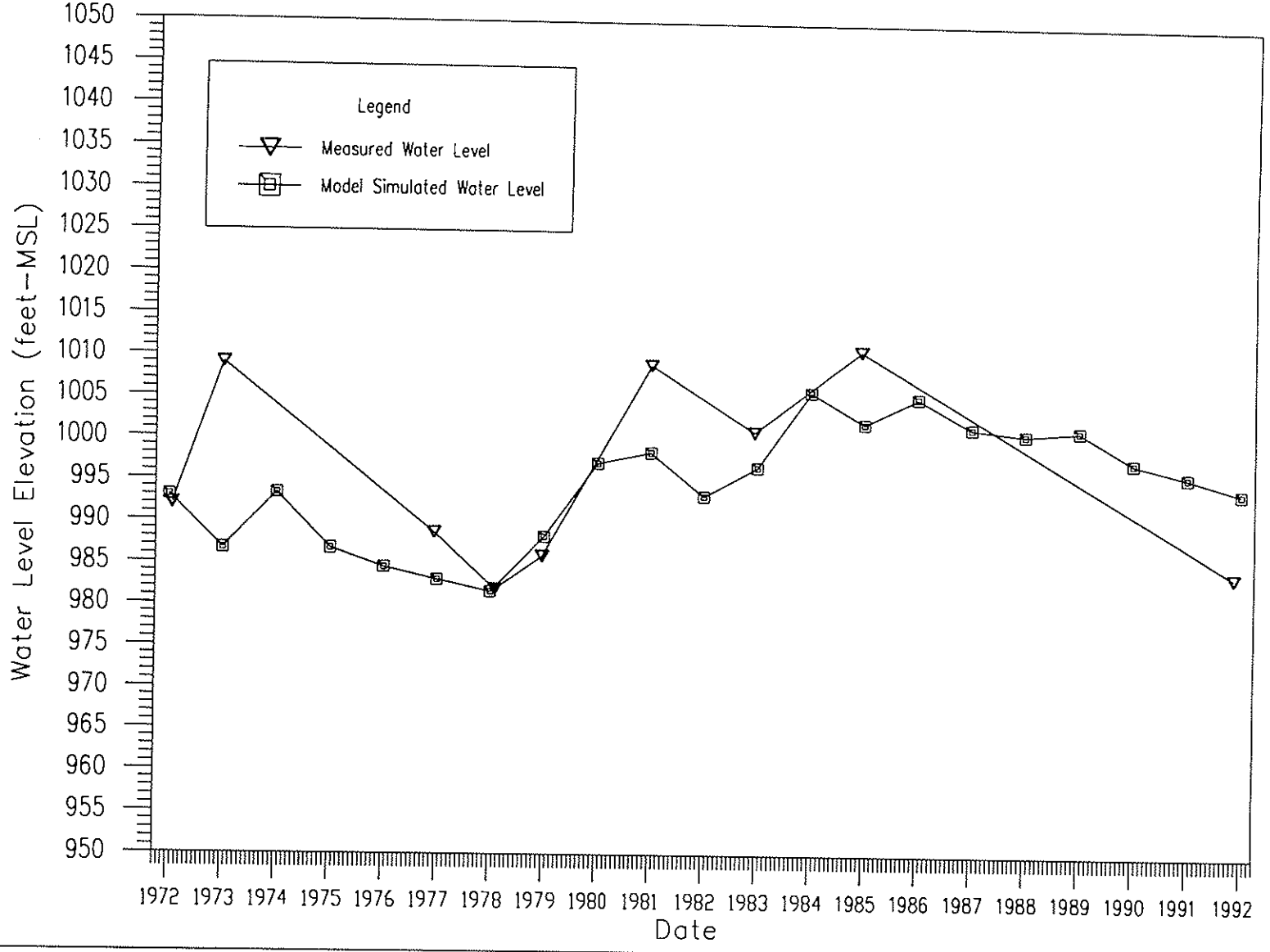

FIGURE 60

Harding Lawson Associates
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Measured vs. Simulated Hydrograph for Well A(1-2)24DDC
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig61

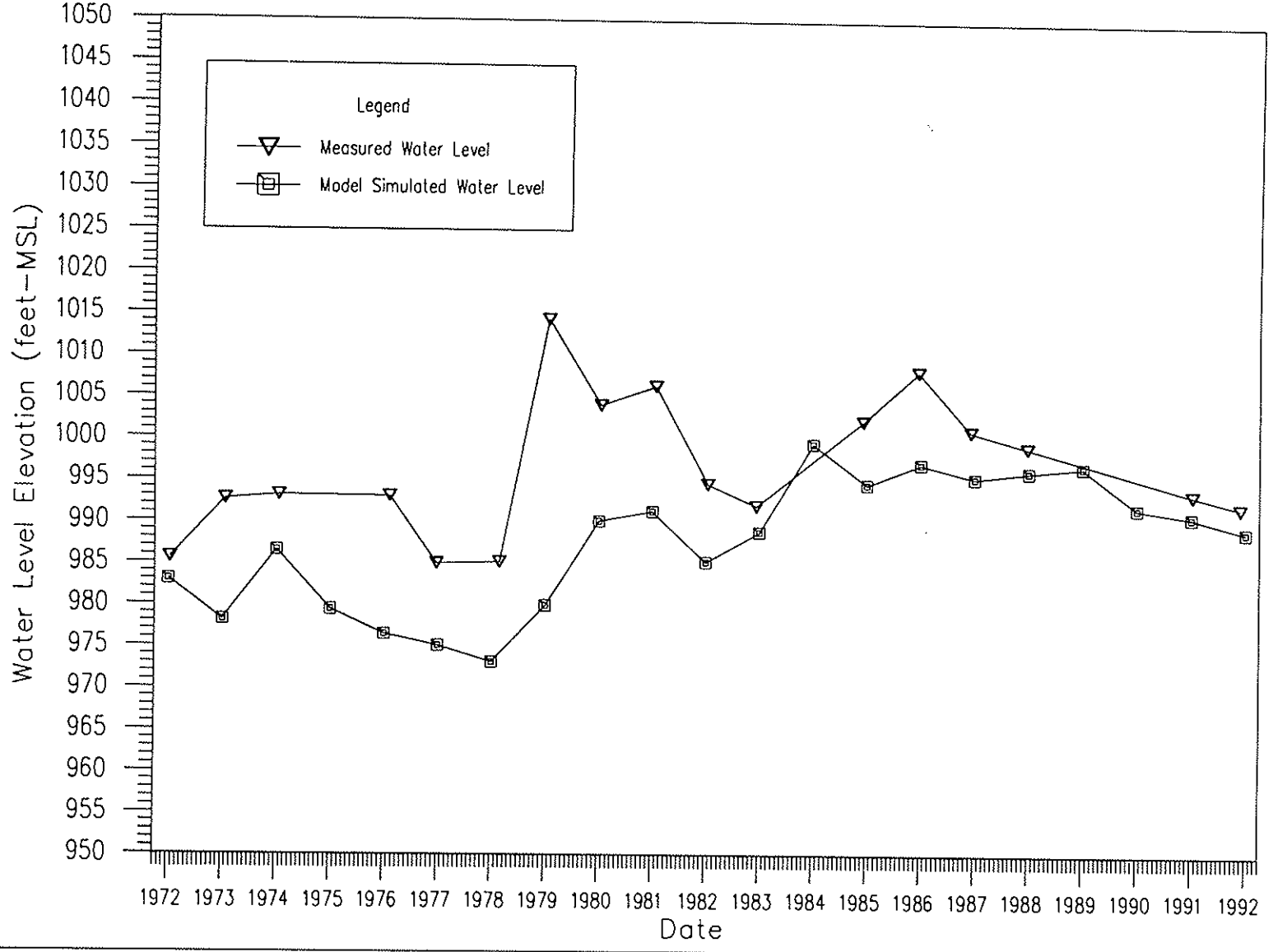


FIGURE 61

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(1-2)26AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig62

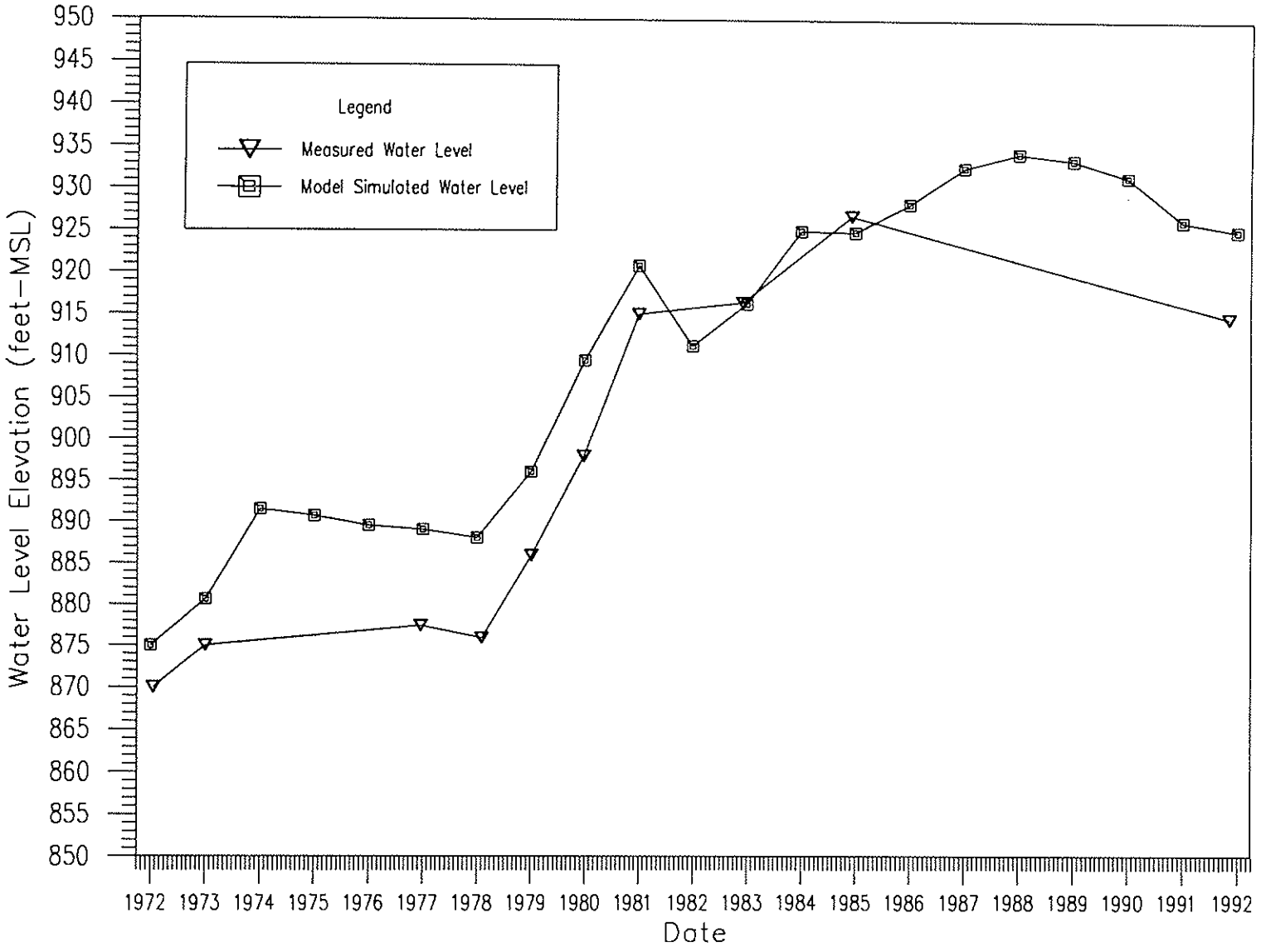


FIGURE 62

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-1)28AAA
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	

vwrfig63

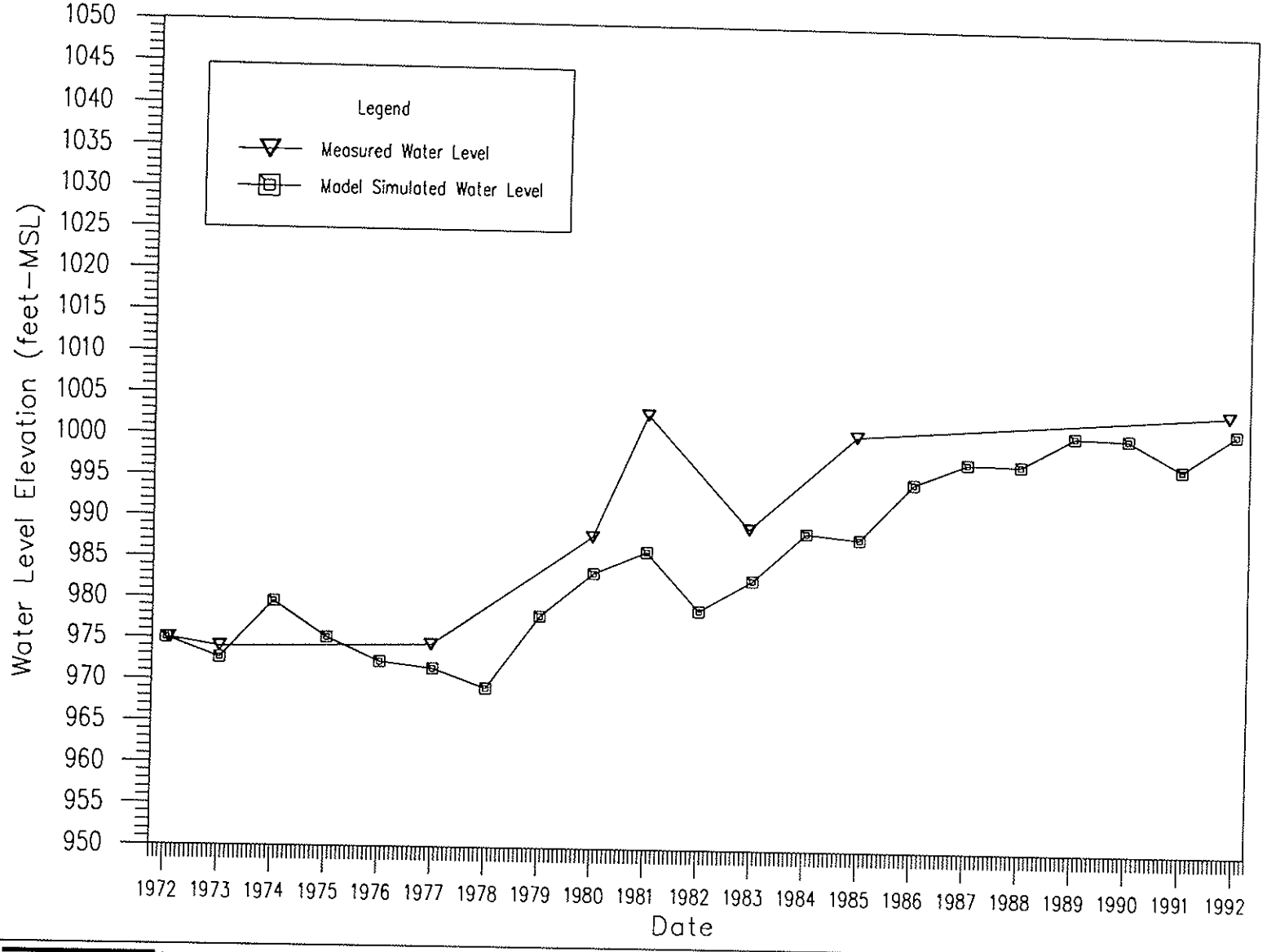
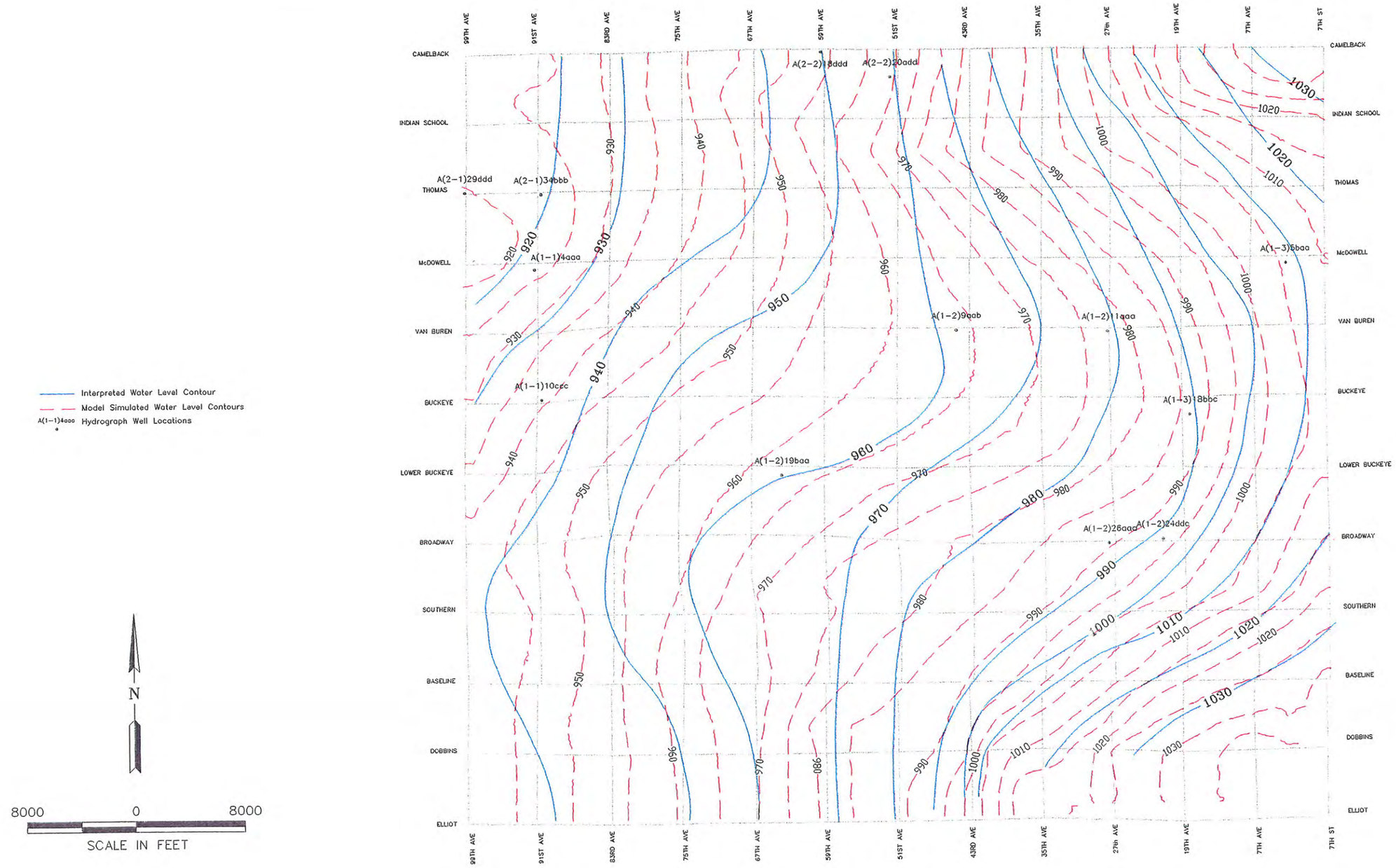


FIGURE 63

Harding Lawson Associates
Engineering and Environmental Services

Measured vs. Simulated Hydrograph for Well A(2-2)25BCA
West Van Buren Groundwater Flow Model
Van Waters and Rogers, Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	10/96	



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Measured vs. Layer 1 Simulated Heads
December 1991
West Van Buren Groundwater Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE **64**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MP	12/96	

vwrfig65

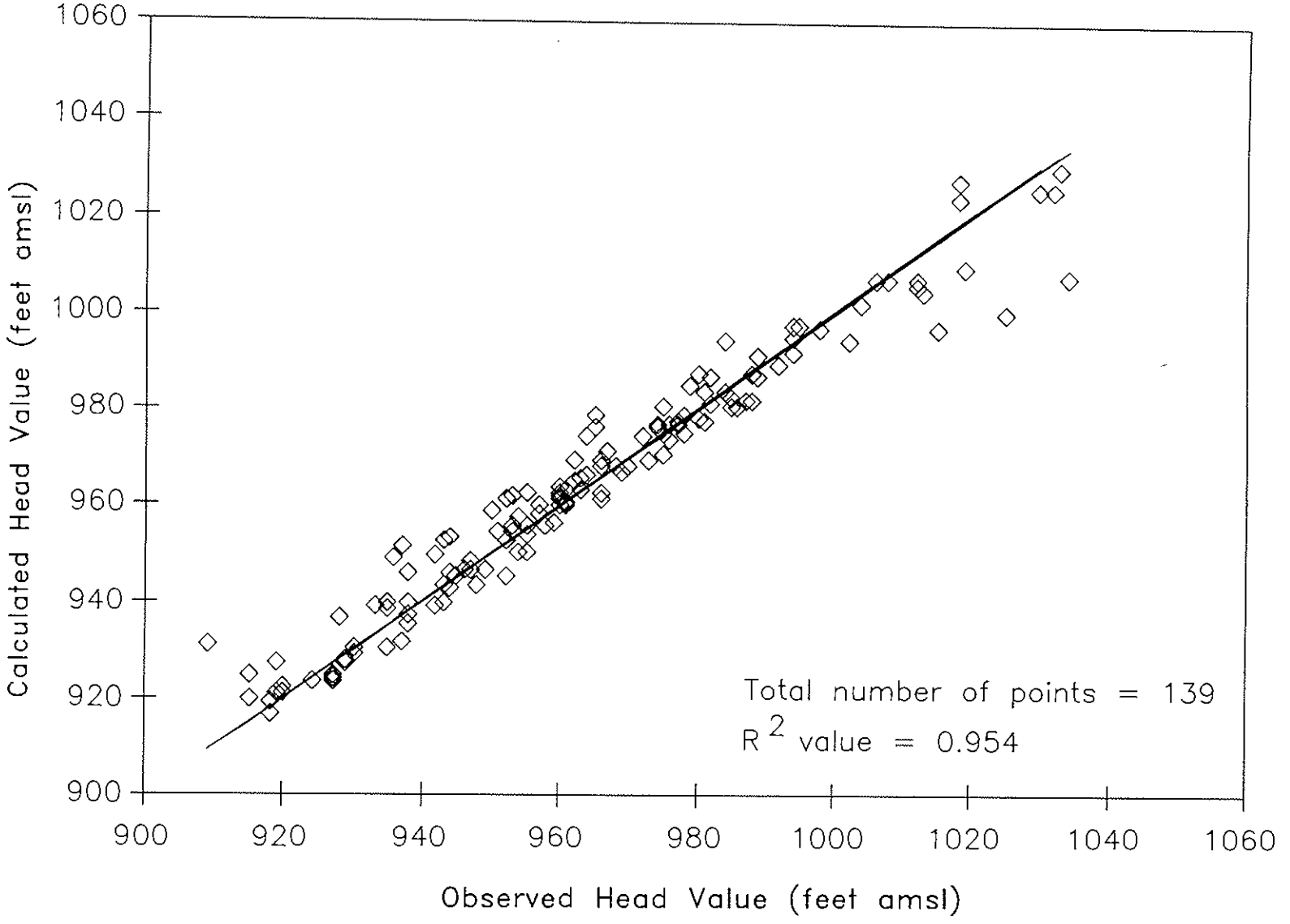

FIGURE 65

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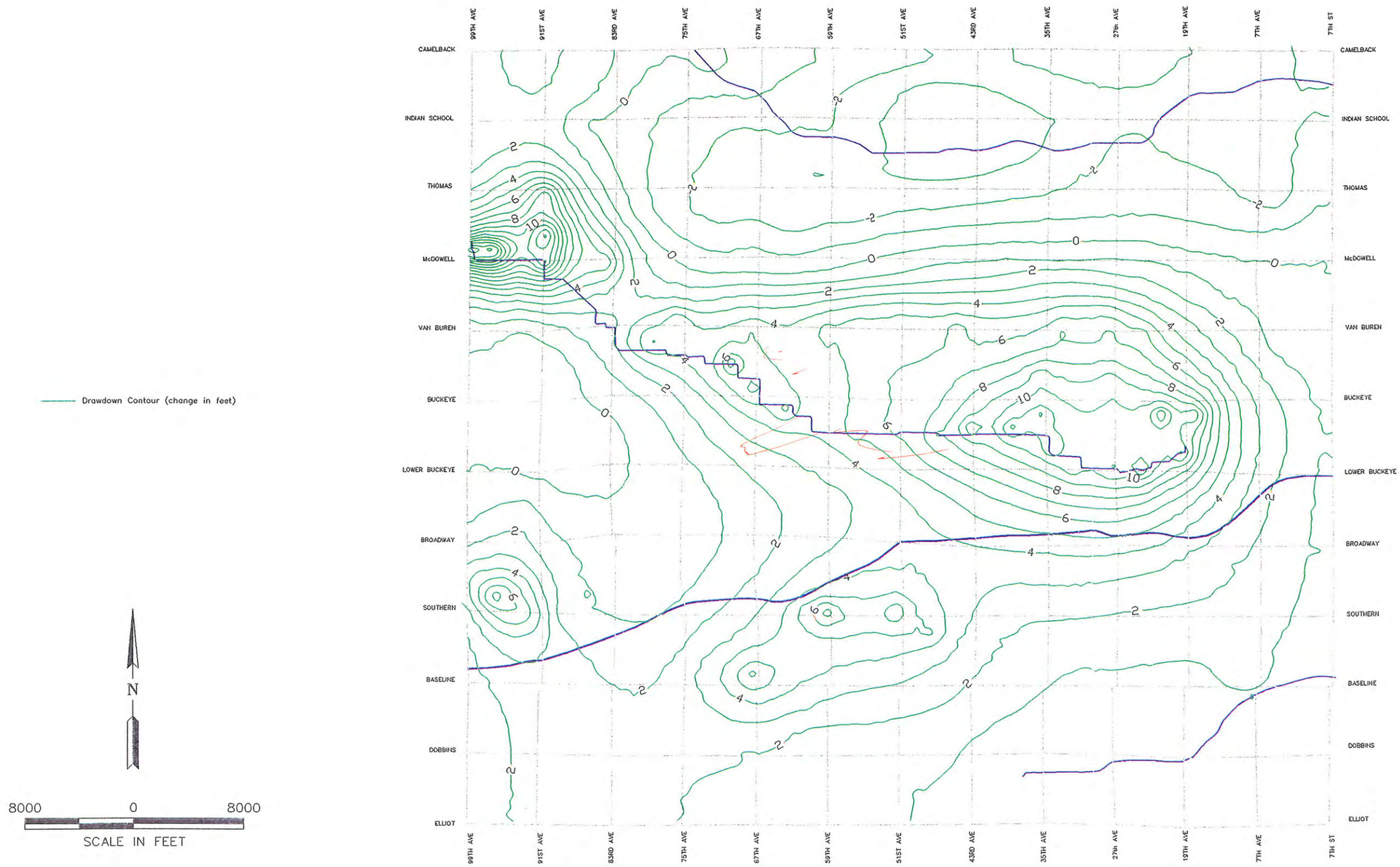
Scatterplot of Measured vs. Model Calculated Heads (December 1991)
West Van Buren Groundwater Flow Model
Van Waters and Rogers Inc.
Phoenix, Arizona

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	PRP	12/96	



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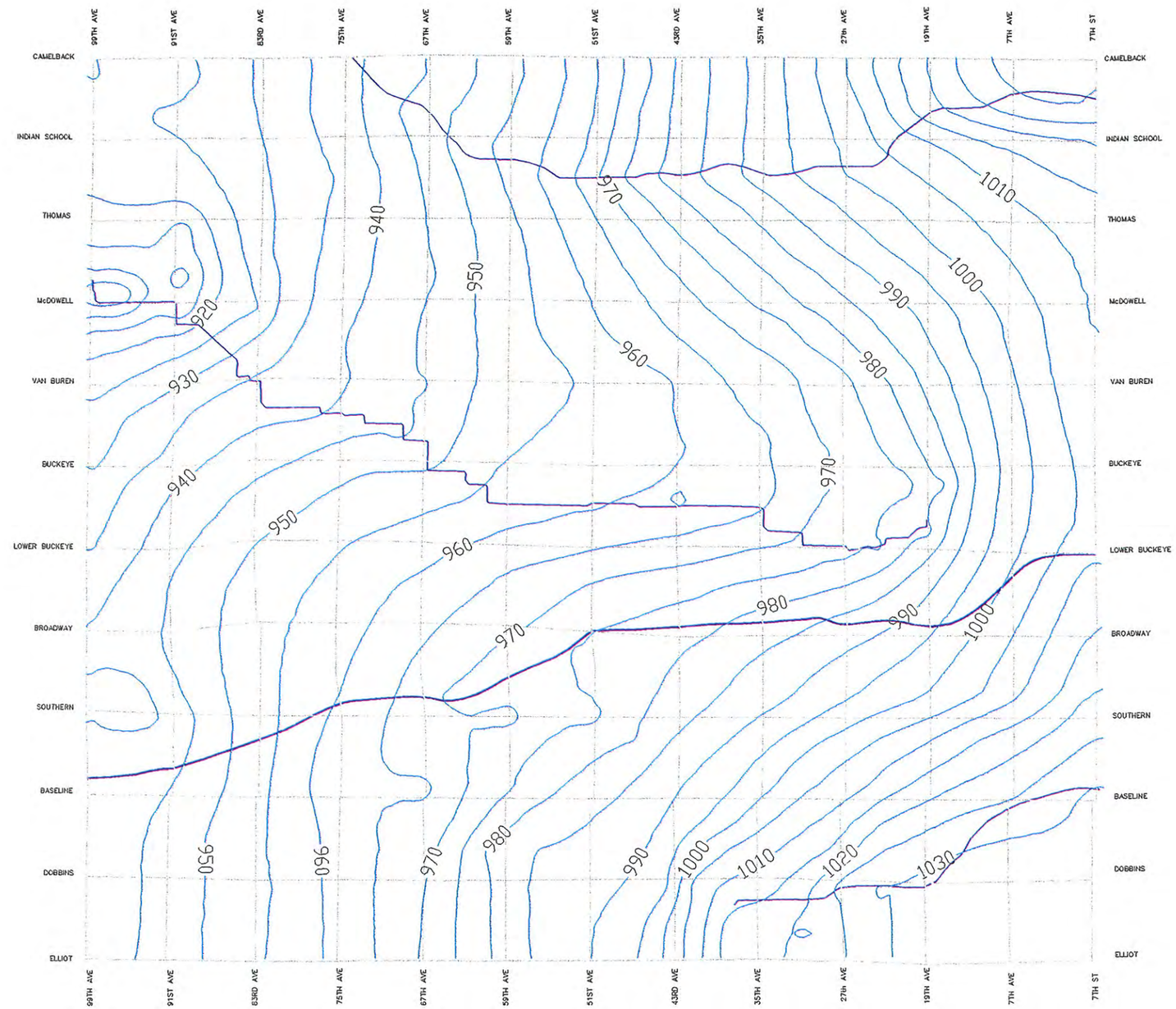
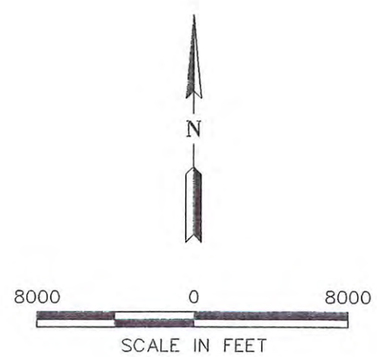
Simulated Drawdown Map 1991
March to September 1991
West Van Buren Groundwater Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
66

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
PRP	11033-218.93	MRP	12/96	





Harding Lawson Associates
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Simulated Layer 1 Heads
September 1991
West Van Buren Groundwater Model
Van Waters and Rogers Inc.
Phoenix, Arizona

FIGURE
67

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
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Groundwater Flow Modeling Report
West Van Buren WQARF Study Area.

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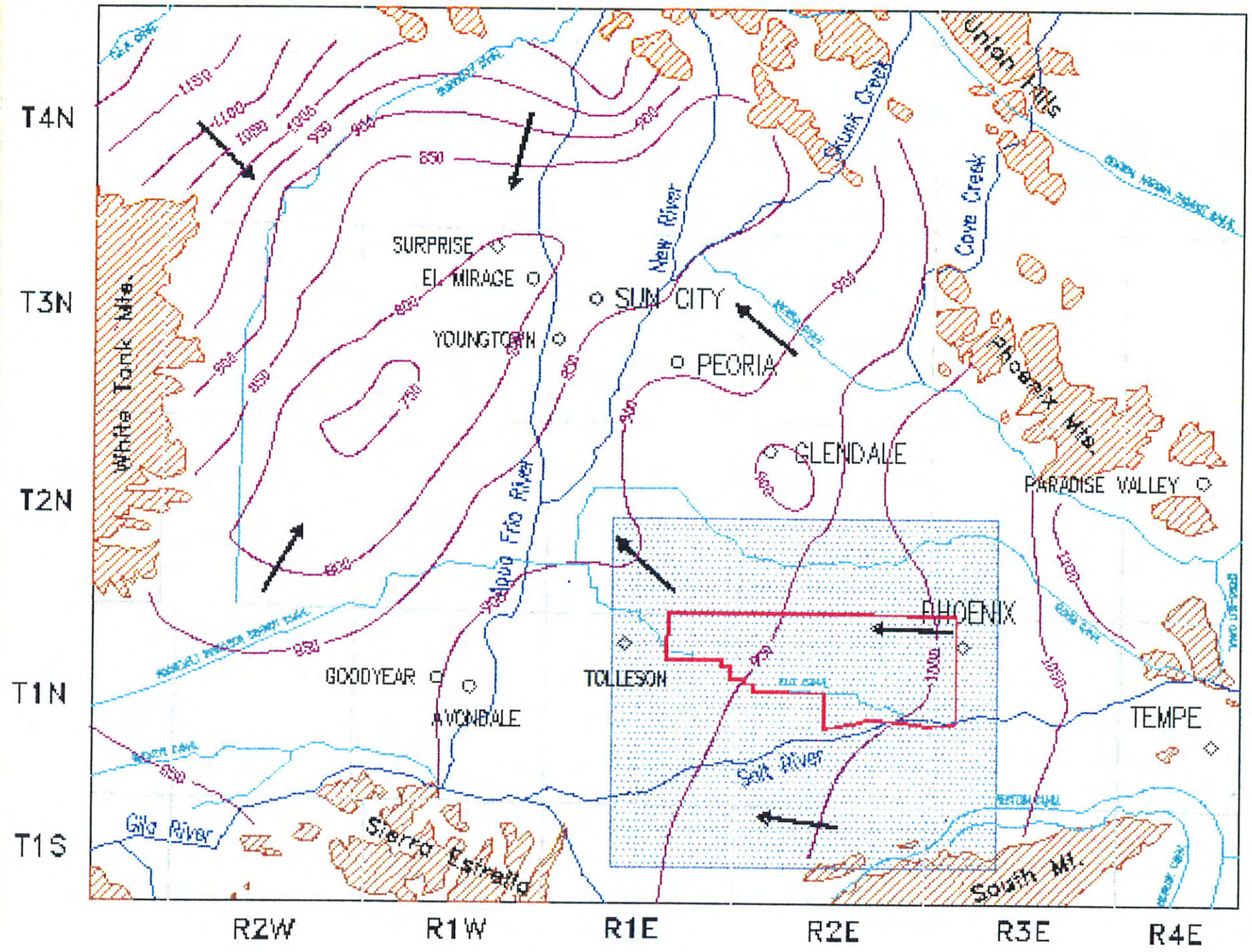
Groundwater Flow Model

West Van Buren WQARF Study Area

Volume 2: Appendices

Prepared for
Van Waters & Rogers Inc.
50 South 45th Avenue
Phoenix, Arizona 85043

January 15, 1997



Harding Lawson Associates
Engineering and Environmental Services
2800 North 44th Street Suite 500
Phoenix, Arizona 85008 - (602) 224-0844

GROUNDWATER FLOW MODELING
West Van Buren WQARF Study Area

APPENDICES

Prepared for
Van Waters and Rogers Inc.
50 South 45th Avenue
Phoenix, Arizona 85043

HLA Project No. 11033-218.93

January 15, 1997

Harding Lawson Associates
Engineering and Environmental Services
2800 North 44th Street, Suite 500
Phoenix, AZ 85008 - (602) 224-0844

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APPENDICES

A FoxPro Database Programs used for Model Development
B Phase 1 Conceptual Model Aquifer Properties
C Phase 2 Model Cell Thickness and Aquifer Properties
D West Van Buren Groundwater Flow Model Pumpage Database
E Available Well Logs and Wells with Hydraulic Testing

APPENDIX A

FoxPro Database Programs used for Model Development

APPENDIX A FoxPro Database Programs Used for Model Development

MEMORANDUM:

DATE: January 24, 1993

TO: Steve Brooks

FROM: Paul R. Plato

SUBJECT: Background Information for FoxPro modeling programs.

As part of the development of the Phase II model I have written a number of FoxPro programs that write the Modflow input packages directly from databases. These programs utilize FoxPro's low level file I/O commands to read cell data and write the files. The following is a list these programs:

BCFMAKE.PRG — This program writes the BCF package from a database specified by the user. The database should contain all the aquifer parameters necessary to write the file. The database is indexed on cell number and individual layer data is included as a separate fields (KH1, KH2...). Copies of the individual database structures are attached to this memo. The program allows no operator control of FORMAT lines or field names. The name of the output file is fixed as BCFOUT.DAT.

WELMAKE.PRG — This program reads a user specifed Pumpage database and creates the Modflow WEL package. No provision is made to eliminate wells with no pumpage for a given year, and wells are not totalled for each cell. The user is asked to provide the name of the file and the years to be simulated. The output file name is fixed as WELLOUT.DAT.

GHBMAKE.PRG — This program reads a database called GHBFILE.DBF which contains the general head boundary data for each year. The program writes the Modflow GHB package with changes specified for each year (every third stress period). The user specifies the years to be simulated and the output file is fixed as GHBOUT.DAT.

RECMAKE.PGR — This program reads a user specified recharge database and writes a Modflow REC package. The program sets filters for each year specified and further filters the data based on the field STRESS (60, 215 or 90). The user provides the database name and years to be written. The output file is fixed as RECOUT.DAT.

Each program is geared to this specific model and would require modification if used for any other projects. Attached are copies of the latest versions and database structures.

```
      *BCFMAKE.PRG --- 06 JANUARY 1993 --- PAUL R. PLATO
*
*THIS PROGRAM READS THE DATABASE CONTAINING HYDROGEOLOGY
*PARAMETERS AND WRITES THE MODFLOW BCF PACKAGE.  IT WAS DESIGNED
*TO CREATE THE BCF1 FOR THE PHASE TWO GROUNDWATER FLOW MODEL
*DESIGNED BY HARDING LAWSON.  THE DATA ARE READ FROM THE FIELDS
*IN THE DATABASE AND WRITTEN USING LOW LEVEL FILE OPERATIONS IN
*FOXPRO2.  THE OUTPUT FILE IS "BCFOUT.DAT" AND ANY PREVIOUS
*VERSION DETECTED IS COPIED TO "BCFOUT.BAK".  FIELD NAMES ARE
*HIGHLIGHTED ABOVE EACH SECTION WHERE WRITTEN AS THE PROGRAM
*OPERATES.  THE PROGRAM PROMPTS FOR THE NAME OF THE HYDROGOELOGY
*DATABASE AND ALSO REQUIRES TWO OTHER DATABASES, DELR AND DELC.
*
SET TALK OFF
SET SAFETY OFF
ACCEPT "ENTER HYDROGEOLOGY DATABASE NAME: " TO DBF
USE &DBF                    && HYDROGEO DATABASE NAME
INDEX ON CELL TO BCFIDX
   IF FILE("BCFOUT.DAT")
   !COPY BCFOUT.DAT BCFOUT.BAK
   !DEL BCFOUT.DAT
   ENDIF
F1=FCREATE("BCFOUT.DAT")
*
***************  HEADER INFORMATION ************
*
H01="          0          0"
H02=" 1 3 3 3"
H03="         11         1.        (4F5.0)                0"
H04="   1.   1.   1.   1."
=FPUTS(F1,H01)
=FPUTS(F1,H02)
=FPUTS(F1,H03)
=FPUTS(F1,H04)
*
**************  WRITE DELR  *******************
*
SELE 2
USE DELR
H05="         11         1.        (79F5.0)               0"
VAR="DELR"
L01=""
GO TOP
FOR K=1 TO 79
  L01=L01+STR(&VAR,5)
  SKIP
ENDFOR
=FPUTS(F1,H05)
=FPUTS(F1,L01)
*
*************  WRITE DELC  *******************
*
USE DELC
H06="         11         1.        (57F5.0)               0"
VAR="DELC"
L01=""
GO TOP
FOR K=1 TO 57
  L01=L01+STR(&VAR,5)
  SKIP
```

```
ENDFOR
=FPUTS(F1,H06)
=FPUTS(F1,L01)
USE
*
*************  WRITE SY  ********************
*
SELE 1
H07="        11        1.(3(20F6.3/),19F6.3)        10"
=FPUTS(F1,H07)
VAR="SY"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,6,3)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,6,3)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE KH1 *****************
*
H07="        11        1.(3(20F6.0/),19F6.0)        3"
=FPUTS(F1,H07)
VAR="KH1"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,6,1)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,6,1)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE BOT1 *****************
*
H07="        11        1.(3(20F5.0/),19F5.0)        7"
=FPUTS(F1,H07)
VAR="BOT1"
L01=""
```

```
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE VC12 *****************
*
H07="         11         1.(3(20F9.0/),19F9.0)          2"
=FPUTS(F1,H07)
VAR="VC12"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,9,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SC2 *****************
*
H07="         11         1.(3(20F9.0/),19F9.0)          6"
=FPUTS(F1,H07)
VAR="SC2"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,9,5)
```

```
      SKIP
    ENDFOR
    =FPUTS(F1,L01)
    L01=""
  ENDFOR
  *
  ***************  WRITE KH2 *****************
  *
  H07="         11         1.(3(20F6.0/),19F6.0)          3"
  =FPUTS(F1,H07)
  VAR="KH2"
  L01=""
  GO TOP
  FOR M = 1 TO 57
    FOR KK = 1 TO 3
      FOR K = 1 TO 20
        L01=L01+STR(&VAR,6,1)
        SKIP
      ENDFOR
    =FPUTS(F1,L01)
    L01=""
    ENDFOR
    FOR K = 1 TO 19
      L01=L01+STR(&VAR,6,1)
      SKIP
    ENDFOR
    =FPUTS(F1,L01)
    L01=""
  ENDFOR
  *
  ***************  WRITE BOT2 *****************
  *
  H07="         11         1.(3(20F5.0/),19F5.0)          7"
  =FPUTS(F1,H07)
  VAR="BOT2"
  L01=""
  GO TOP
  FOR M = 1 TO 57
    FOR KK = 1 TO 3
      FOR K = 1 TO 20
        L01=L01+STR(&VAR,5)
        SKIP
      ENDFOR
    =FPUTS(F1,L01)
    L01=""
    ENDFOR
    FOR K = 1 TO 19
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
    =FPUTS(F1,L01)
    L01=""
  ENDFOR
  *
  ***************  WRITE VC23 *****************
  *
  H07="         11         1.(3(20F9.0/),19F9.0)          2"
  =FPUTS(F1,H07)
  VAR="VC23"
  L01=""
```

```
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,9,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SY2 *****************
*
H07="          0        0.1"
=FPUTS(F1,H07)
*
***************  WRITE TOP2/BOT1 *****************
*
H07="         11         1.(3(20F5.0/),19F5.0)          7"
=FPUTS(F1,H07)
VAR="BOT1"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SC3 *****************
*
H07="         11         1.(3(20F9.0/),19F9.0)          6"
=FPUTS(F1,H07)
VAR="SC3"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
```

```
   =FPUTS(F1,L01)
   L01=""
   ENDFOR
   FOR K = 1 TO 19
     L01=L01+STR(&VAR,9,5)
     SKIP
   ENDFOR
   =FPUTS(F1,L01)
   L01=""
 ENDFOR
 *
 ***************  WRITE KH3 *****************
 *
 H07="        11        1.(3(20F6.0/),19F6.0)          3"
 =FPUTS(F1,H07)
 VAR="KH3"
 L01=""
 GO TOP
 FOR M = 1 TO 57
   FOR KK = 1 TO 3
     FOR K = 1 TO 20
       L01=L01+STR(&VAR,6,1)
       SKIP
     ENDFOR
   =FPUTS(F1,L01)
   L01=""
   ENDFOR
   FOR K = 1 TO 19
     L01=L01+STR(&VAR,6,1)
     SKIP
   ENDFOR
   =FPUTS(F1,L01)
   L01=""
 ENDFOR
 *
 ***************  WRITE BOT3 *****************
 *
 H07="        11        1.(3(20F5.0/),19F5.0)          7"
 =FPUTS(F1,H07)
 VAR="BOT3"
 L01=""
 GO TOP
 FOR M = 1 TO 57
   FOR KK = 1 TO 3
     FOR K = 1 TO 20
       L01=L01+STR(&VAR,5)
       SKIP
     ENDFOR
   =FPUTS(F1,L01)
   L01=""
   ENDFOR
   FOR K = 1 TO 19
     L01=L01+STR(&VAR,5)
     SKIP
   ENDFOR
   =FPUTS(F1,L01)
   L01=""
 ENDFOR
 *
 ***************  WRITE VC34 *****************
```

```
*
H07="          11          1.(3(20F9.0/),19F9.0)          2"
=FPUTS(F1,H07)
VAR="VC34"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,9,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SY3 *****************
*
H07="           0        0.1"
=FPUTS(F1,H07)
*
***************  WRITE TOP3/BOT2 *****************
*
H07="          11          1.(3(20F5.0/),19F5.0)          7"
=FPUTS(F1,H07)
VAR="BOT2"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SC4  *****************
*
H07="          11          1.(3(20F9.0/),19F9.0)          6"
=FPUTS(F1,H07)
VAR="SC4"
L01=""
GO TOP
FOR M = 1 TO 57
```

```
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,9,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,9,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE KH4  *****************
*
H07="        11        1.(3(20F6.0/),19F6.0)          3"
=FPUTS(F1,H07)
VAR="KH4"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,6,1)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,6,1)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE BOT4  *****************
*
H07="        11        1.(3(20F5.0/),19F5.0)          7"
=FPUTS(F1,H07)
VAR="BOT4"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,5)
    SKIP
  ENDFOR
```

```
  =FPUTS(F1,L01)
  L01=""
ENDFOR
*
***************  WRITE SY4   *****************
*
H07="          0        0.1"
=FPUTS(F1,H07)
*
***************  WRITE TOP4/BOT3   *****************
*
H07="         11         1.(3(20F5.0/),19F5.0)          7"
=FPUTS(F1,H07)
VAR="BOT3"
L01=""
GO TOP
FOR M = 1 TO 57
  FOR KK = 1 TO 3
    FOR K = 1 TO 20
      L01=L01+STR(&VAR,5)
      SKIP
    ENDFOR
  =FPUTS(F1,L01)
  L01=""
  ENDFOR
  FOR K = 1 TO 19
    L01=L01+STR(&VAR,5)
    SKIP
  ENDFOR
  =FPUTS(F1,L01)
  L01=""
ENDFOR
=FCLOSE(F1)
SET TALK ON
SET SAFETY ON
RETURN
```

```
*==== WELMAKE.PRG == PAUL R. PLATO == LAST EDIT 8/26/96
*
* This program is designed to create a MODFLOW pumpage package from a
* pumpage database.  The database is indexed on CELL_NO and is specifically
* designed for use with a four layer three stress period per year model.
* The individual layer pumpage has already been broken out in this database.
* The output well package file is fixed as WELLOUT.DAT, and the program will
* automatically rename an existing WELLOUT.DAT to WELLOUT.BAK.
*
* VARIABLES:
*   ROW = Row number
*   COL = Column number
*   MXWELL = Maximum number of wells in this simulation
*   MXW = Counter to establish maximum well count
*   YR1 = First year of simulation (Numeric)
*   YR2 = Ending year of simulation (Numeric)
*   ITMP = Well count for current stress period
*   IT = Counter to establish ITMP
*   KSP = Stress Period counter
*   VAR = L1S1 = Layer 1 stress period 1 pumpage
*   VAR = L2S1 = Layer 2 .....etc  VAR is reset for each layer/SP.
*   L = Layer counter
*
*          NOTE:  The pumpage variables are assembled as strings from L and KSP
*
*(8/26/96) NOTE:  Pumpage is now totalled by cell to vwrwell.dbf
*
ACCEPT "ENTER PUMPAGE DATABASE NAME (FULL PATH IF NEEDED):" TO DBF
USE &DBF
SET TALK ON
SET SAFETY OFF
INDEX ON CELL_NO TO WELLIDX
index on str(cell_no)+str(year) to vwrwell
total on str(year)+str(cell_no) to vwrwell fields ql1,l1s1,l1s2,l1s3,ql2,l2s1,l
use vwrwell
delete all for total=0
pack
IF FILE("WELLOUT.DAT")
   !COPY WELLOUT.DAT WELLOUT.BAK
ENDIF
F1=FCREATE("WELLOUT.DAT")                    && Creates WELLOUT.DAT (overwrites)
MXWELL=0
ROW="ROW"
COL="COL"
YR1=0                                        && Assures YR1 and YR2 are numeric v
YR2=0
INPUT "ENTER BEGINNING YEAR (eg. 72):" TO YR1
INPUT "ENTER ENDING YEAR:" TO YR2
FOR K=YR1 TO YR2
SET FILTER TO YEAR=K
COUNT TO MXW
IF MXW>=MXWELL                               && Finds MXWELL by testing
   MXWELL=MXW
ENDIF
ENDFOR
MXWELL=MXWELL*4                              && MXWELL is record count time four
L01=STR(MXWELL,10)+"         0"
=FPUTS(F1,L01)
FOR K = YR1 TO YR2
  FOR KSP = 1 TO 3                           && Stress period loop
```

```
  SPN=STR(KSP)
  A1="L1S"+SPN
  A2="L2S"+SPN
  A3="L3S"+SPN
  A4="L4S"+SPN
  SET FILTER TO YEAR=K
  COUNT TO IT                                && IT is current active wells
  ITMP=4*IT
  GO TOP
  L01=STR(ITMP,10)
  =FPUTS(F1,L01)
    FOR L = 1 TO 4                           && Layer loop
      GO TOP
      VAR="L"+STR(L,1)+"S"+STR(KSP,1)
      FOR I=1 TO IT
        VAL=-1*&VAR                          && Discharge wells have negative rat
        L01=STR(L,10)+STR(&ROW,10)+STR(&COL,10)+STR(VAL,10,1)
        =FPUTS(F1,L01)                       && Write pumpage
        SKIP
      ENDFOR
    ENDFOR
  ENDFOR
ENDFOR
=FCLOSE(F1)
CLOSE ALL                                    && This assures all files closed
SET SAFETY ON
RETURN
```

```
* === GHBMAKE.PRG == Paul R. Plato == Last Edit 1/13/93
*
* This program writes a general head boundary file that changes
* values yearly, but covers three stress periods (a -1 signifies that
* array will be reused two additional times).  The user is asked to
* specify the database containing the boundary head data that will
* be used along with the starting and ending year of the simulation.
* The LAYER, ROW, COL, BH (boundary head), and MEAN_COND (mean conductance)
* are written to the file for each year.  The output file is GHBOUT.DAT
* and a backup copy is generated called GHBOUT.BAK for an existing
* GHB output file.
*
* VARIABLES:
* DBF = GHB database
* LAY = Layer number
* ROW = Row number
* COL = Column number
* VAR1 = BH1, BH2 ... etc = Boundary Head value
* VAR2 = MEAN_COND = Mean conductance
*
ACCEPT "ENTER GHBFILE NAME (eg. GHBFIL1C.DBF):" TO DBF
USE &DBF
SET TALK ON
SET SAFETY OFF
INDEX ON STR(LAYER)+STR(ROW)+STR(COL) TO GHBFILE
IF FILE("GHBOUT.DAT")
  !COPY GHBOUT.DAT GHBOUT.BAK
ENDIF
F1=FCREATE("GHBOUT.DAT")
LAY="LAYER"
ROW="ROW"
COL="COL"
BH="BH"
VAR2="MEAN_COND"
COUNT TO MXBND
IGHBCB=0
H01=STR(MXBND,10)+STR(IGHBCB,10)
H02=STR(MXBND,10)
H03=STR(-1,10)
YR1=0
YR2=0
INPUT "ENTER STARTING YEAR:" TO YR1
INPUT "ENTER ENDING YEAR:" TO YR2
=FPUTS(F1,H01)
  FOR KK=YR1 TO YR2
  VAR1=BH+STR(KK,2)
  =FPUTS(F1,H02)
  GO TOP
    FOR I = 1 TO MXBND
*
* The following 4 lines were added 7/13/93 to allow for sensitivity analysis.
* R10 was created by multiplying MC by 1.5.  R11 was created by dividing
* MC by 2.0.
    MC=&VAR2
    IF &LAY=1
    MC=MC/2.0
    ENDIF
    L01=STR(&LAY,10)+STR(&ROW,10)+STR(&COL,10)+STR(&VAR1,10,2)+STR(MC,10,2)
    =FPUTS(F1,L01)
    SKIP
```

```
    ENDFOR
  =FPUTS(F1,H03)
  =FPUTS(F1,H03)
  GO TOP
ENDFOR
=FCLOSE(F1)
CLOSE ALL
SET SAFETY ON
SET TALK ON
RETURN
```

```
*===  RECMAKE.PRG  ===  10 JANUARY 1993  ===  PAUL R. PLATO
*
*This program is designed to write a MODFLOW RECHARGE package
*with three stress periods.  The program interactively requests
*the user to specify which years are to be included in the
*simulation.  The stress period specific recharge values are
*separated out by a field called STRESS which contains the length of the
*stress period in days (60, 215 and 90).  A filter is set for
*each year and stress period so that the TOTAL_RATE field for
*only that year and stress period is available to be written.
*The key field is CELL_NO for the index, insuring the array is
*written in the proper order.  The program opens a file
*"RECOUT.DAT" and writes a backup file "RECOUT.BAK" of the
*previous output file version.
*
* VARIABLES:
* DBF = Recharge Database name
* YR1 = Starting year of simulation (Numeric)
* YR2 = Ending Year of simulation (Numeric)
* ROW = Row counter
* KK = Counter for first three lines
* K = Counter for number of values per line (3X20 then 19 for 79 columns)
* YR = Running year counter (from YR1 to YR2)
* STRESS = Stress period length in days for filter setting (90, 215, 60)
* VAR = Current recharge value for each record
*
ACCEPT "ENTER RECHARGE DATABASE NAME (eg. TOT7283.DBF)" TO DBF
USE &DBF
SET SAFETY OFF
SET TALK OFF
INDEX ON CELL_NO TO RECIDX
GO TOP
IF FILE("RECOUT.DAT")
  !COPY RECOUT.DAT RECOUT.BAK
ENDIF
F1=FCREATE("RECOUT.DAT")
L01="          1          0"
=FPUTS(F1,L01)
VAR="TOTAL_RATE"
H02="          1"
H01="         18        1.0 (3(20F7.5/),19F7.5)         11"
YR1=0
YR2=0
INPUT "ENTER STARTING YEAR (eg. 72):" TO YR1
INPUT "ENTER ENDING YEAR:" TO YR2
  FOR YR = YR1 TO YR2
  =FPUTS(F1,H02)
  =FPUTS(F1,H01)
  SET FILTER TO YEAR=YR .AND. STRESS=60
  GO TOP
  L01=""
    FOR ROW = 1 TO 57
      FOR KK = 1 TO 3
        FOR K = 1 TO 20
        L01=L01+STR(&VAR,7,5)
        SKIP
        ENDFOR
      =FPUTS(F1,L01)
      L01=""
      ENDFOR
```

```
        FOR K = 1 TO 19
        L01=L01+STR(&VAR,7,5)
        SKIP
        ENDFOR
    =FPUTS(F1,L01)
    L01=""
    ENDFOR
  =FPUTS(F1,H02)
  =FPUTS(F1,H01)
  SET FILTER TO YEAR=YR .AND. STRESS=215
  GO TOP
  L01=""
    FOR ROW = 1 TO 57
      FOR KK = 1 TO 3
        FOR K = 1 TO 20
        L01=L01+STR(&VAR,7,5)
        SKIP
        ENDFOR
      =FPUTS(F1,L01)
      L01=""
      ENDFOR
      FOR K = 1 TO 19
      L01=L01+STR(&VAR,7,5)
      SKIP
      ENDFOR
    =FPUTS(F1,L01)
    L01=""
    ENDFOR
  =FPUTS(F1,H02)
  =FPUTS(F1,H01)
  SET FILTER TO YEAR=YR .AND. STRESS=90
  GO TOP
  L01=""
    FOR ROW = 1 TO 57
      FOR KK = 1 TO 3
        FOR K = 1 TO 20
        L01=L01+STR(&VAR,7,5)
        SKIP
        ENDFOR
      =FPUTS(F1,L01)
      L01=""
      ENDFOR
      FOR K = 1 TO 19
      L01=L01+STR(&VAR,7,5)
      SKIP
      ENDFOR
    =FPUTS(F1,L01)
    L01=""
    ENDFOR
ENDFOR
SET SAFETY ON
SET TALK ON
SET FILTER TO
=FCLOSE(F1)
RETURN
```

APPENDIX B

Phase 1 Conceptual Model Aquifer Properties

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
1,1	A–2–1 21	1045	250	795	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
1,2	A–2–1 21	1045	250	795	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
1,3	A–2–1 22	1060	250	810	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
1,4	A–2–1 22	1060	250	810	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
1,5	A–2–1 23	1080	250	830	100	0.12	0.00364	500	20	10000	0.05	0.00004	1250	0.5	625	0.00125
1,6	A–2–1 23	1080	250	830	100	0.12	0.00364	500	20	10000	0.05	0.00023	1250	3	3750	0.00125
1,7	A–2–1 24	1090	250	840	100	0.12	0.00364	500	20	10000	0.05	0.00023	1250	3	3750	0.00125
1,8	A–2–1 24	1090	250	840	100	0.12	0.00364	500	20	10000	0.05	0.00023	1250	3	3750	0.00125
1,9	A–2–2 19	1105	200	905	50	0.12	0.00185	500	10	5000	0.05	0.00021	1300	3	3900	0.0013
1,10	A–2–2 19	1105	200	905	50	0.12	0.00185	500	10	5000	0.05	0.00021	1300	3	3900	0.0013
1,11	A–2–2 20	1120	625	495	23	0.05	0.00311	500	5	2500	0.05	0.00066	875	6	5250	0.000875
1,12	A–2–2 20	1120	625	495	23	0.05	0.00192	500	1	500	0.05	0.00059	875	6	5250	0.000875
1,13	A–2–2 21	1125	150	975	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
1,14	A–2–2 21	1125	150	975	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
1,15	A–2–2 22	1130	150	980	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
1,16	A–2–2 22	1130	150	980	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
1,17	A–2–2 23	1130	150	980	25	0.12	0.00021	925	0.1	92.5	0.0925	0.00019	425	6	2550	0.000425
1,18	A–2–2 23	1130	150	980	25	0.12	0.00102	925	0.5	462.5	0.0925	0.00061	425	6	2550	0.000425
1,19	A–2–2 24	1125	150	975	25	0.12	0.00012	800	1	800	0.08	0.00012	550	9	4950	0.00055
1,20	A–2–2 24	1125	150	975	25	0.12	0.00066	800	5.5	4400	0.08	0.00048	550	9	4950	0.00055
1,21	A–2–3 19	1110	150	960	50	0.12	0.00263	350	10	3500	0.035	0.00068	1000	9	9000	0.001
1,22	A–2–3 19	1110	150	960	50	0.12	0.00263	350	10	3500	0.035	0.00068	1000	9	9000	0.001
1,23	A–2–3 20	1120	150	970	50	0.12	0.00263	350	10	3500	0.035	0.0011	500	9	4500	0.0005
1,24	A–2–3 20	1120	150	970	50	0.12	0.00263	350	10	3500	0.035	0.00035	500	2	1000	0.0005
2,1	A–2–1 21	1045	250	795	100	0.12	0.00046	1100	5.1	5610	0.11	0.00036	650	0.5	325	0.00065
2,2	A–2–1 21	1045	250	795	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
2,3	A–2–1 22	1060	250	810	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
2,4	A–2–1 22	1060	250	810	100	0.12	0.00046	1100	5.1	5610	0.11	0.00018	650	0.1	65	0.00065
2,5	A–2–1 23	1080	250	830	100	0.12	0.00364	500	20	10000	0.05	0.00002	1250	0.25	312.5	0.00125
2,6	A–2–1 23	1080	250	830	100	0.12	0.00364	500	20	10000	0.05	0.00008	1250	1	1250	0.00125

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

		Average	Layer 1					Layer 2					Layer 3			
Row, Column	Location T – R – S	Surface Elevation	Thickness	Bottom Elevation	K (ft/d)	Sy	Vcont (/day)	Thickness	K (ft/d)	T (ft2/d)	Sc	Vcont (/day)	Thickness	K (ft/d)	T (ft2/d)	Sc
2,7	A–2–1 24	1090	250	840	100	0.12	0.00364	500	20	10000	0.05	0.00023	1250	3	3750	0.00125
2,8	A–2–1 24	1090	250	840	100	0.12	0.00364	500	20	10000	0.05	0.00023	1250	3	3750	0.00125
2,9	A–2–2 19	1105	200	905	50	0.12	0.00185	500	10	5000	0.05	0.00021	1300	3	3900	0.0013
2,10	A–2–2 19	1105	200	905	50	0.12	0.00185	500	10	5000	0.05	0.00021	1300	3	3900	0.0013
2,11	A–2–2 20	1120	625	495	23	0.05	0.00252	500	2	1000	0.05	0.00063	875	6	5250	0.000875
2,12	A–2–2 20	1120	625	495	23	0.05	0.0013	500	0.5	250	0.05	0.00051	875	6	5250	0.000875
2,13	A–2–2 21	1125	150	975	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
2,14	A–2–2 21	1125	150	975	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
2,15	A–2–2 22	1130	150	980	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
2,16	A–2–2 22	1130	150	980	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	875	6	5250	0.000875
2,17	A–2–2 23	1130	150	980	25	0.12	0.00021	925	0.1	92.5	0.0925	0.00019	425	6	2550	0.000425
2,18	A–2–2 23	1130	150	980	25	0.12	0.00102	925	0.5	462.5	0.0925	0.00061	425	6	2550	0.000425
2,19	A–2–2 24	1125	150	975	25	0.12	0.00025	800	2	1600	0.08	0.00022	550	9	4950	0.00055
2,20	A–2–2 24	1125	150	975	25	0.12	0.00066	800	5.5	4400	0.08	0.00048	550	9	4950	0.00055
2,21	A–2–3 19	1110	150	960	50	0.12	0.00263	350	10	3500	0.035	0.00068	1000	9	9000	0.001
2,22	A–2–3 19	1110	150	960	50	0.12	0.00263	350	10	3500	0.035	0.00068	1000	9	9000	0.001
2,23	A–2–3 20	1120	150	970	50	0.12	0.00263	350	10	3500	0.035	0.0011	500	9	4500	0.0005
2,24	A–2–3 20	1120	150	970	50	0.12	0.00263	350	10	3500	0.035	0.00035	500	2	1000	0.0005
3,1	A–2–1 28	1040	300	740	100	0.12	0.00085	1050	9.14	9597	0.105	0.00056	650	0.5	325	0.00065
3,2	A–2–1 28	1040	300	740	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
3,3	A–2–1 27	1050	300	750	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
3,4	A–2–1 27	1050	300	750	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
3,5	A–2–1 26	1070	300	770	100	0.12	0.00392	450	20	9000	0.045	0.00002	1250	0.25	312.5	0.00125
3,6	A–2–1 26	1070	300	770	100	0.12	0.00392	450	20	9000	0.045	0.00008	1250	1	1250	0.00125
3,7	A–2–1 25	1075	750	325	52	0.085	0.00515	500	5	2500	0.05	0.00039	750	3	2250	0.00075
3,8	A–2–1 25	1075	750	325	52	0.085	0.00254	500	1	500	0.05	0.00036	750	3	2250	0.00075
3,9	A–2–2 30	1090	625	465	34	0.05	0.00146	500	0.5	250	0.05	0.00029	875	3	2625	0.000875
3,10	A–2–2 30	1090	625	465	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875
3,11	A–2–2 29	1095	625	470	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875
3,12	A–2–2 29	1095	625	470	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
3,13	A–2–2 28	1100	200	900	50	0.12	0.00019	1050	0.1	105	0.105	0.00015	750	6	4500	0.00075
3,14	A–2–2 28	1100	200	900	50	0.12	0.00019	1050	0.1	105	0.105	0.00015	750	6	4500	0.00075
3,15	A–2–2 27	1100	200	900	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	825	6	4950	0.000825
3,16	A–2–2 27	1100	200	900	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	825	6	4950	0.000825
3,17	A–2–2 26	1110	200	910	50	0.12	0.00021	925	0.1	92.5	0.0925	0.00016	875	6	5250	0.000875
3,18	A–2–2 26	1110	200	910	50	0.12	0.00104	925	0.5	462.5	0.0925	0.00042	875	6	5250	0.000875
3,19	A–2–2 25	1110	200	910	50	0.12	0.00023	875	2	1750	0.0875	0.00019	925	9	8325	0.000925
3,20	A–2–2 25	1110	200	910	50	0.12	0.0006	875	5.37	4698.75	0.0875	0.00038	925	9	8325	0.000925
3,21	A–2–3 30	1110	150	960	75	0.12	0.0027	350	10	3500	0.035	0.0005	1500	9	13500	0.0015
3,22	A–2–3 30	1110	150	960	75	0.12	0.0027	350	10	3500	0.035	0.0005	1500	9	13500	0.0015
3,23	A–2–3 29	1100	150	950	50	0.12	0.00488	350	20	7000	0.035	0.00029	1000	3	3000	0.001
3,24	A–2–3 29	1100	150	950	50	0.12	0.00488	350	20	7000	0.035	0.00005	1000	0.5	500	0.001
4,1	A–2–1 28	1040	300	740	100	0.12	0.00085	1050	9.14	9597	0.105	0.00041	650	0.25	162.5	0.00065
4,2	A–2–1 28	1040	300	740	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
4,3	A–2–1 27	1050	300	750	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
4,4	A–2–1 27	1050	300	750	100	0.12	0.00085	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
4,5	A–2–1 26	1070	300	770	100	0.12	0.00392	450	20	9000	0.045	0.00002	1250	0.25	312.5	0.00125
4,6	A–2–1 26	1070	300	770	100	0.12	0.00392	450	20	9000	0.045	0.00008	1250	1	1250	0.00125
4,7	A–2–1 25	1075	750	325	52	0.085	0.00515	500	5	2500	0.05	0.00039	750	3	2250	0.00075
4,8	A–2–1 25	1075	750	325	52	0.085	0.00254	500	1	500	0.05	0.00036	750	3	2250	0.00075
4,9	A–2–2 30	1090	625	465	34	0.05	0.00146	500	0.5	250	0.05	0.00029	875	3	2625	0.000875
4,10	A–2–2 30	1090	625	465	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875
4,11	A–2–2 29	1095	625	470	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875
4,12	A–2–2 29	1095	625	470	34	0.05	0.00037	500	0.1	50	0.05	0.00018	875	3	2625	0.000875
4,13	A–2–2 28	1100	200	900	50	0.12	0.00019	1050	0.1	105	0.105	0.00015	750	6	4500	0.00075
4,14	A–2–2 28	1100	200	900	50	0.12	0.00019	1050	0.1	105	0.105	0.00015	750	6	4500	0.00075
4,15	A–2–2 27	1100	200	900	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	825	6	4950	0.000825
4,16	A–2–2 27	1100	200	900	50	0.12	0.0002	975	0.1	97.5	0.0975	0.00016	825	6	4950	0.000825
4,17	A–2–2 26	1110	200	910	50	0.12	0.00021	925	0.1	92.5	0.0925	0.00016	875	6	5250	0.000875
4,18	A–2–2 26	1110	200	910	50	0.12	0.00104	925	0.5	462.5	0.0925	0.00042	875	6	5250	0.000875

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

		Average	Layer 1					Layer 2					Layer 3			
Row, Column	Location T – R – S	Surface Elevation	Thickness	Bottom Elevation	K (ft/d)	Sy	Vcont (/day)	Thickness	K (ft/d)	T (ft2/d)	Sc	Vcont (/day)	Thickness	K (ft/d)	T (ft2/d)	Sc
4,19	A–2–2 25	1110	200	910	50	0.12	0.00023	875	2	1750	0.0875	0.00019	925	9	8325	0.000925
4,20	A–2–2 25	1110	200	910	50	0.12	0.0006	875	5.37	4698.75	0.0875	0.00038	925	9	8325	0.000925
4,21	A–2–3 30	1110	150	960	75	0.12	0.0027	350	10	3500	0.035	0.0005	1500	9	13500	0.0015
4,22	A–2–3 30	1110	150	960	75	0.12	0.0027	350	10	3500	0.035	0.0005	1500	9	13500	0.0015
4,23	A–2–3 29	1100	150	950	50	0.12	0.00488	350	20	7000	0.035	0.00029	1000	3	3000	0.001
4,24	A–2–3 29	1100	150	950	50	0.12	0.00488	350	20	7000	0.035	0.00005	1000	0.5	500	0.001
5,1	A–2–1 33	1030	300	730	75	0.12	0.00101	950	10	9500	0.095	0.00041	750	0.25	187.5	0.00075
5,2	A–2–1 33	1030	300	730	75	0.12	0.00101	950	10	9500	0.095	0.00021	750	0.1	75	0.00075
5,3	A–2–1 34	1035	300	735	75	0.12	0.00084	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
5,4	A–2–1 34	1035	300	735	75	0.12	0.00084	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
5,5	A–2–1 35	1050	750	300	42	0.085	0.00419	600	5	3000	0.06	0.00004	650	0.25	162.5	0.00065
5,6	A–2–1 35	1050	750	300	42	0.085	0.00209	600	1	600	0.06	0.00015	650	1	650	0.00065
5,7	A–2–1 36	1060	700	360	44	0.085	0.00132	600	0.5	300	0.06	0.00034	700	3	2100	0.0007
5,8	A–2–1 36	1060	700	360	44	0.085	0.00032	600	0.1	60	0.06	0.00019	700	3	2100	0.0007
5,9	A–2–2 31	1070	625	445	34	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
5,10	A–2–2 31	1070	625	445	34	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
5,11	A–2–2 32	1075	625	450	29	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
5,12	A–2–2 32	1075	625	450	29	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
5,13	A–2–2 33	1080	300	780	50	0.12	0.00021	950	0.1	95	0.095	0.00014	750	3	2250	0.00075
5,14	A–2–2 33	1080	300	780	50	0.12	0.00021	950	0.1	95	0.095	0.00014	750	3	2250	0.00075
5,15	A–2–2 34	1085	250	835	50	0.12	0.0002	1000	0.1	100	0.1	0.00016	750	6	4500	0.00075
5,16	A–2–2 34	1085	250	835	50	0.12	0.0002	1000	0.1	100	0.1	0.00016	750	6	4500	0.00075
5,17	A–2–2 35	1085	625	460	26	0.05	0.00127	550	0.5	275	0.055	0.00052	825	6	4950	0.000825
5,18	A–2–2 35	1085	625	460	26	0.05	0.00265	550	2	1100	0.055	0.00066	825	6	4950	0.000825
5,19	A–2–2 36	1090	250	840	50	0.12	0.00054	875	4.86	4252.5	0.0875	0.00031	875	6	5250	0.000875
5,20	A–2–2 36	1090	250	840	50	0.12	0.00054	875	4.86	4252.5	0.0875	0.00031	875	6	5250	0.000875
5,21	A–2–3 31	1090	200	890	75	0.12	0.00265	350	10	3500	0.035	0.00051	1450	9	13050	0.00145
5,22	A–2–3 31	1090	200	890	75	0.12	0.00265	350	10	3500	0.035	0.00051	1450	9	13050	0.00145
5,23	A–2–3 32	1090	200	890	75	0.12	0.00566	300	20	6000	0.03	0.00019	1500	3	4500	0.0015
5,24	A–2–3 32	1090	200	890	75	0.12	0.00566	300	20	6000	0.03	0.00007	1500	1	1500	0.0015

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (ft/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (ft/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (ft/d)	Layer 3 T (ft2/d)	Layer 3 Sc
6,1	A–2–1 33	1030	300	730	75	0.12	0.00101	950	10	9500	0.095	0.00059	750	0.5	375	0.00075
6,2	A–2–1 33	1030	300	730	75	0.12	0.00101	950	10	9500	0.095	0.00021	750	0.1	75	0.00075
6,3	A–2–1 34	1035	300	735	75	0.12	0.00084	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
6,4	A–2–1 34	1035	300	735	75	0.12	0.00084	1050	9.14	9597	0.105	0.00023	650	0.1	65	0.00065
6,5	A–2–1 35	1050	750	300	42	0.085	0.00419	600	5	3000	0.06	0.00008	650	0.5	325	0.00065
6,6	A–2–1 35	1050	750	300	42	0.085	0.00209	600	1	600	0.06	0.00015	650	1	650	0.00065
6,7	A–2–1 36	1060	700	360	44	0.085	0.00132	600	0.5	300	0.06	0.00034	700	3	2100	0.0007
6,8	A–2–1 36	1060	700	360	44	0.085	0.00032	600	0.1	60	0.06	0.00019	700	3	2100	0.0007
6,9	A–2–2 31	1070	625	445	34	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
6,10	A–2–2 31	1070	625	445	34	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
6,11	A–2–2 32	1075	625	450	29	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
6,12	A–2–2 32	1075	625	450	29	0.05	0.0003	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
6,13	A–2–2 33	1080	300	780	50	0.12	0.00021	950	0.1	95	0.095	0.00014	750	3	2250	0.00075
6,14	A–2–2 33	1080	300	780	50	0.12	0.00021	950	0.1	95	0.095	0.00014	750	3	2250	0.00075
6,15	A–2–2 34	1085	250	835	50	0.12	0.0002	1000	0.1	100	0.1	0.00016	750	6	4500	0.00075
6,16	A–2–2 34	1085	250	835	50	0.12	0.0002	1000	0.1	100	0.1	0.00016	750	6	4500	0.00075
6,17	A–2–2 35	1085	625	460	26	0.05	0.00127	550	0.5	275	0.055	0.00052	825	6	4950	0.000825
6,18	A–2–2 35	1085	625	460	26	0.05	0.00194	550	1	550	0.055	0.00061	825	6	4950	0.000825
6,19	A–2–2 36	1090	250	840	50	0.12	0.00054	875	4.86	4252.5	0.0875	0.00031	875	6	5250	0.000875
6,20	A–2–2 36	1090	250	840	50	0.12	0.00054	875	4.86	4252.5	0.0875	0.00031	875	6	5250	0.000875
6,21	A–2–3 31	1090	200	890	75	0.12	0.00265	350	10	3500	0.035	0.00051	1450	9	13050	0.00145
6,22	A–2–3 31	1090	200	890	75	0.12	0.00265	350	10	3500	0.035	0.00051	1450	9	13050	0.00145
6,23	A–2–3 32	1090	200	890	75	0.12	0.00566	300	20	6000	0.03	0.00055	1500	9	13500	0.0015
6,24	A–2–3 32	1090	200	890	75	0.12	0.00566	300	20	6000	0.03	0.00019	1500	3	4500	0.0015
7,1	A–1–1 4	1020	700	320	50	0.12	0.00256	500	20	10000	0.05	0.00111	1300	1	1300	0.0013
7,2	A–1–1 4	1020	700	320	50	0.12	0.00256	500	20	10000	0.05	0.00065	1300	0.5	650	0.0013
7,3	A–1–1 3	1025	750	275	100	0.12	0.00308	500	20	10000	0.05	0.00015	1250	0.1	125	0.00125
7,4	A–1–1 3	1025	750	275	100	0.12	0.00308	500	20	10000	0.05	0.00015	1250	0.1	125	0.00125
7,5	A–1–1 2	1040	700	340	60	0.085	0.00558	625	5	3125	0.0625	0.00015	675	1	675	0.000675
7,6	A–1–1 2	1040	700	340	60	0.085	0.00233	625	1	625	0.0625	0.00039	675	3	2025	0.000675

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

		Average	Layer 1					Layer 2					Layer 3			
Row, Column	Location T – R – S	Surface Elevation	Thickness	Bottom Elevation	K (f/d)	Sy	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc
7,7	A–1–1 1	1045	700	345	85	0.085	0.00141	625	0.5	312.5	0.0625	0.00035	675	3	2025	0.000675
7,8	A–1–1 1	1045	700	345	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
7,9	A–1–2 6	1055	625	430	93	0.1	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
7,10	A–1–2 6	1055	625	430	93	0.1	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
7,11	A–1–2 5	1060	625	435	77	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
7,12	A–1–2 5	1060	625	435	77	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
7,13	A–1–2 4	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
7,14	A–1–2 4	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
7,15	A–1–2 3	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
7,16	A–1–2 3	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
7,17	A–1–2 2	1070	500	570	80	0.085	0.00151	600	0.5	300	0.06	0.00048	900	6	5400	0.0009
7,18	A–1–2 2	1070	500	570	80	0.085	0.00276	600	1	600	0.06	0.00056	900	6	5400	0.0009
7,19	A–1–2 1	1080	500	580	80	0.085	0.00058	500	3	1500	0.05	0.0003	1000	6	6000	0.001
7,20	A–1–2 1	1080	500	580	80	0.085	0.00058	500	3	1500	0.05	0.0003	1000	6	6000	0.001
7,21	A–1–3 6	1080	250	830	150	0.12	0.00706	250	20	5000	0.025	0.00056	1500	9	13500	0.0015
7,22	A–1–3 6	1080	250	830	150	0.12	0.00706	250	20	5000	0.025	0.00056	1500	9	13500	0.0015
7,23	A–1–3 5	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00054	1550	9	13950	0.00155
7,24	A–1–3 5	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00013	1550	2	3100	0.00155
8,1	A–1–1 4	1020	700	320	50	0.12	0.00256	500	20	10000	0.05	0.00065	1300	0.5	650	0.0013
8,2	A–1–1 4	1020	700	320	50	0.12	0.00256	500	20	10000	0.05	0.00015	1300	0.1	130	0.0013
8,3	A–1–1 3	1025	750	275	100	0.12	0.00308	500	20	10000	0.05	0.00015	1250	0.1	125	0.00125
8,4	A–1–1 3	1025	750	275	100	0.12	0.00093	500	5	2500	0.05	0.00014	1250	0.1	125	0.00125
8,5	A–1–1 2	1040	700	340	60	0.085	0.00233	625	1	625	0.0625	0.00014	675	1	675	0.000675
8,6	A–1–1 2	1040	700	340	60	0.085	0.00135	625	0.5	312.5	0.0625	0.00035	675	3	2025	0.000675
8,7	A–1–1 1	1045	700	345	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
8,8	A–1–1 1	1045	700	345	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
8,9	A–1–2 6	1055	625	430	93	0.1	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
8,10	A–1–2 6	1055	625	430	93	0.1	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
8,11	A–1–2 5	1060	625	435	77	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075
8,12	A–1–2 5	1060	625	435	77	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	750	3	2250	0.00075

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
8,13	A–1–2 4	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
8,14	A–1–2 4	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
8,15	A–1–2 3	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
8,16	A–1–2 3	1065	300	765	150	0.12	0.00022	925	0.1	92.5	0.0925	0.00017	775	6	4650	0.000775
8,17	A–1–2 2	1070	500	570	80	0.085	0.00033	600	0.1	60	0.06	0.00022	900	6	5400	0.0009
8,18	A–1–2 2	1070	500	570	80	0.085	0.00151	600	0.5	300	0.06	0.00048	900	6	5400	0.0009
8,19	A–1–2 1	1080	500	580	80	0.085	0.00058	500	3	1500	0.05	0.0003	1000	6	6000	0.001
8,20	A–1–2 1	1080	500	580	80	0.085	0.00058	500	3	1500	0.05	0.0003	1000	6	6000	0.001
8,21	A–1–3 6	1080	250	830	150	0.12	0.00706	250	20	5000	0.025	0.00056	1500	9	13500	0.0015
8,22	A–1–3 6	1080	250	830	150	0.12	0.00706	250	20	5000	0.025	0.00056	1500	9	13500	0.0015
8,23	A–1–3 5	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00054	1550	9	13950	0.00155
8,24	A–1–3 5	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00054	1550	9	13950	0.00155
9,1	A–1–1 9	1005	650	355	32	0.085	0.00376	625	5	3125	0.0625	0.00066	725	5	3625	0.000725
9,2	A–1–1 9	1005	650	355	32	0.085	0.00194	625	1	625	0.0625	0.00037	725	3	2175	0.000725
9,3	A–1–1 10	1015	700	315	35	0.085	0.00121	625	0.5	312.5	0.0625	0.00035	675	3	2025	0.000675
9,4	A–1–1 10	1015	700	315	35	0.085	0.0003	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
9,5	A–1–1 11	1025	700	325	60	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
9,6	A–1–1 11	1025	700	325	60	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
9,7	A–1–1 12	1030	650	380	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	725	3	2175	0.000725
9,8	A–1–1 12	1030	650	380	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	725	3	2175	0.000725
9,9	A–1–2 7	1040	625	415	144	0.1	0.00028	700	0.1	70	0.07	0.00017	675	3	2025	0.000675
9,10	A–1–2 7	1040	625	415	144	0.1	0.00028	700	0.1	70	0.07	0.00017	675	3	2025	0.000675
9,11	A–1–2 8	1050	300	750	250	0.12	0.00019	1075	0.1	107.5	0.1075	0.00016	625	6	3750	0.000625
9,12	A–1–2 8	1050	300	750	250	0.12	0.00019	1075	0.1	107.5	0.1075	0.00016	625	6	3750	0.000625
9,13	A–1–2 9	1050	350	700	250	0.12	0.00022	900	0.1	90	0.09	0.00017	750	6	4500	0.00075
9,14	A–1–2 9	1050	350	700	250	0.12	0.00109	900	0.5	450	0.09	0.00047	750	6	4500	0.00075
9,15	A–1–2 10	1055	250	805	250	0.12	0.00025	800	2	1600	0.08	0.0002	950	9	8550	0.00095
9,16	A–1–2 10	1055	250	805	250	0.12	0.00064	800	5.19	4152	0.08	0.00039	950	9	8550	0.00095
9,17	A–1–2 11	1060	250	810	250	0.12	0.00071	750	5.33	3997.5	0.075	0.0004	1000	9	9000	0.001
9,18	A–1–2 11	1060	250	810	250	0.12	0.00071	750	5.33	3997.5	0.075	0.0004	1000	9	9000	0.001

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
9,19	A–1–2 12	1065	250	815	150	0.12	0.00078	650	5.15	3347.5	0.065	0.0004	1100	9	9900	0.0011
9,20	A–1–2 12	1065	250	815	150	0.12	0.00078	650	5.15	3347.5	0.065	0.0004	1100	9	9900	0.0011
9,21	A–1–3 7	1075	250	825	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
9,22	A–1–3 7	1075	250	825	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
9,23	A–1–3 8	1080	250	830	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
9,24	A–1–3 8	1080	250	830	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
10,1	A–1–1 9	1005	650	355	32	0.085	0.00376	625	5	3125	0.0625	0.00079	725	6	4350	0.000725
10,2	A–1–1 9	1005	650	355	32	0.085	0.00194	625	1	625	0.0625	0.00037	725	3	2175	0.000725
10,3	A–1–1 10	1015	700	315	35	0.085	0.00121	625	0.5	312.5	0.0625	0.00035	675	3	2025	0.000675
10,4	A–1–1 10	1015	700	315	35	0.085	0.0003	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
10,5	A–1–1 11	1025	700	325	60	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
10,6	A–1–1 11	1025	700	325	60	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	675	3	2025	0.000675
10,7	A–1–1 12	1030	650	380	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	725	3	2175	0.000725
10,8	A–1–1 12	1030	650	380	85	0.085	0.00031	625	0.1	62.5	0.0625	0.00018	725	3	2175	0.000725
10,9	A–1–2 7	1040	625	415	144	0.1	0.00028	700	0.1	70	0.07	0.00017	675	3	2025	0.000675
10,10	A–1–2 7	1040	625	415	144	0.1	0.00028	700	0.1	70	0.07	0.00017	675	3	2025	0.000675
10,11	A–1–2 8	1050	300	750	250	0.12	0.00019	1075	0.1	107.5	0.1075	0.00016	625	6	3750	0.000625
10,12	A–1–2 8	1050	300	750	250	0.12	0.00019	1075	0.1	107.5	0.1075	0.00016	625	6	3750	0.000625
10,13	A–1–2 9	1050	350	700	250	0.12	0.00022	900	0.1	90	0.09	0.00017	750	6	4500	0.00075
10,14	A–1–2 9	1050	350	700	250	0.12	0.00109	900	0.5	450	0.09	0.00047	750	6	4500	0.00075
10,15	A–1–2 10	1055	250	805	250	0.12	0.00012	800	1	800	0.08	0.00011	950	9	8550	0.00095
10,16	A–1–2 10	1055	250	805	250	0.12	0.00064	800	5.19	4152	0.08	0.00039	950	9	8550	0.00095
10,17	A–1–2 11	1060	250	810	250	0.12	0.00071	750	5.33	3997.5	0.075	0.0004	1000	9	9000	0.001
10,18	A–1–2 11	1060	250	810	250	0.12	0.00071	750	5.33	3997.5	0.075	0.0004	1000	9	9000	0.001
10,19	A–1–2 12	1065	250	815	150	0.12	0.00078	650	5.15	3347.5	0.065	0.0004	1100	9	9900	0.0011
10,20	A–1–2 12	1065	250	815	150	0.12	0.00078	650	5.15	3347.5	0.065	0.0004	1100	9	9900	0.0011
10,21	A–1–3 7	1075	250	825	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
10,22	A–1–3 7	1075	250	825	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
10,23	A–1–3 8	1080	250	830	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625
10,24	A–1–3 8	1080	250	830	150	0.12	0.01263	125	20	2500	0.0125	0.00054	1625	9	14625	0.001625

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Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
11,1	A–1–1 16	990	350	640	50	0.12	0.00313	250	10	2500	0.025	0.00039	1400	6	8400	0.0014
11,2	A–1–1 16	990	350	640	50	0.12	0.00313	250	10	2500	0.025	0.00039	1400	6	8400	0.0014
11,3	A–1–1 15	1000	350	650	100	0.12	0.00299	300	10	3000	0.03	0.00039	1350	6	8100	0.00135
11,4	A–1–1 15	1000	350	650	100	0.12	0.00065	300	2	600	0.03	0.00027	1350	6	8100	0.00135
11,5	A–1–1 14	1010	650	360	58	0.085	0.00136	625	0.5	312.5	0.0625	0.00035	1350	6	8100	0.00135
11,6	A–1–1 14	1010	650	360	58	0.085	0.00031	625	0.1	62.5	0.0625	0.00019	1350	6	8100	0.00135
11,7	A–1–1 13	1020	600	420	92	0.085	0.00031	625	0.1	62.5	0.0625	0.00023	775	6	4650	0.000775
11,8	A–1–1 13	1020	600	420	92	0.085	0.00031	625	0.1	62.5	0.0625	0.00023	775	6	4650	0.000775
11,9	A–1–2 18	1025	600	425	130	0.1	0.00026	750	0.1	75	0.075	0.00021	650	6	3900	0.00065
11,10	A–1–2 18	1025	600	425	130	0.1	0.00026	750	0.1	75	0.075	0.00021	650	6	3900	0.00065
11,11	A–1–2 17	1030	300	730	250	0.12	0.00021	950	0.1	95	0.095	0.00018	750	9	6750	0.00075
11,12	A–1–2 17	1030	300	730	250	0.12	0.00021	950	0.1	95	0.095	0.00018	750	9	6750	0.00075
11,13	A–1–2 16	1040	300	740	250	0.12	0.00028	700	0.1	70	0.07	0.00022	1000	9	9000	0.001
11,14	A–1–2 16	1040	300	740	250	0.12	0.0014	700	0.5	350	0.07	0.00055	1000	9	9000	0.001
11,15	A–1–2 15	1040	250	790	250	0.12	0.00015	650	1	650	0.065	0.00013	1100	9	9900	0.0011
11,16	A–1–2 15	1040	250	790	250	0.12	0.00079	650	5.15	3347.5	0.065	0.0004	1100	9	9900	0.0011
11,17	A–1–2 14	1045	250	795	250	0.12	0.00094	575	5.43	3122.25	0.0575	0.00042	1175	9	10575	0.001175
11,18	A–1–2 14	1045	250	795	250	0.12	0.00094	575	5.43	3122.25	0.0575	0.00042	1175	9	10575	0.001175
11,19	A–1–2 13	1055	250	805	150	0.12	0.00114	500	5.8	2900	0.05	0.00044	1250	9	11250	0.00125
11,20	A–1–2 13	1055	250	805	150	0.12	0.00114	500	5.8	2900	0.05	0.00044	1250	9	11250	0.00125
11,21	A–1–3 18	1060	250	810	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
11,22	A–1–3 18	1060	250	810	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
11,23	A–1–3 17	1070	250	820	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
11,24	A–1–3 17	1070	250	820	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
12,1	A–1–1 16	990	350	640	50	0.12	0.00313	250	10	2500	0.025	0.00039	1400	6	8400	0.0014
12,2	A–1–1 16	990	350	640	50	0.12	0.00313	250	10	2500	0.025	0.00039	1400	6	8400	0.0014
12,3	A–1–1 15	1000	350	650	100	0.12	0.00299	300	10	3000	0.03	0.00039	1350	6	8100	0.00135
12,4	A–1–1 15	1000	350	650	100	0.12	0.00299	300	10	3000	0.03	0.00039	1350	6	8100	0.00135
12,5	A–1–1 14	1010	650	360	58	0.085	0.00373	625	2	1250	0.0625	0.00042	1350	6	8100	0.00135
12,6	A–1–1 14	1010	650	360	58	0.085	0.00136	625	0.5	312.5	0.0625	0.00035	1350	6	8100	0.00135

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Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (ft/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (ft/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (ft/d)	Layer 3 T (ft2/d)	Layer 3 Sc
12,7	A–1–1 13	1020	600	420	92	0.085	0.00031	625	0.1	62.5	0.0625	0.00023	775	6	4650	0.000775
12,8	A–1–1 13	1020	600	420	92	0.085	0.00031	625	0.1	62.5	0.0625	0.00023	775	6	4650	0.000775
12,9	A–1–2 18	1025	600	425	130	0.1	0.00026	750	0.1	75	0.075	0.00021	650	6	3900	0.00065
12,10	A–1–2 18	1025	600	425	130	0.1	0.00026	750	0.1	75	0.075	0.00021	650	6	3900	0.00065
12,11	A–1–2 17	1030	300	730	250	0.12	0.00021	950	0.1	95	0.095	0.00018	750	9	6750	0.00075
12,12	A–1–2 17	1030	300	730	250	0.12	0.00021	950	0.1	95	0.095	0.00018	750	9	6750	0.00075
12,13	A–1–2 16	1040	300	740	250	0.12	0.00028	700	0.1	70	0.07	0.00022	1000	9	9000	0.001
12,14	A–1–2 16	1040	300	740	250	0.12	0.00028	700	0.1	70	0.07	0.00022	1000	9	9000	0.001
12,15	A–1–2 15	1040	250	790	250	0.12	0.00008	650	0.5	325	0.065	0.00007	1100	9	9900	0.0011
12,16	A–1–2 15	1040	250	790	250	0.12	0.00015	650	1	650	0.065	0.00013	1100	9	9900	0.0011
12,17	A–1–2 14	1045	250	795	250	0.12	0.00094	575	5.43	3122.25	0.0575	0.00042	1175	9	10575	0.001175
12,18	A–1–2 14	1045	250	795	250	0.12	0.00094	575	5.43	3122.25	0.0575	0.00042	1175	9	10575	0.001175
12,19	A–1–2 13	1055	250	805	150	0.12	0.00114	500	5.8	2900	0.05	0.00044	1250	9	11250	0.00125
12,20	A–1–2 13	1055	250	805	150	0.12	0.00114	500	5.8	2900	0.05	0.00044	1250	9	11250	0.00125
12,21	A–1–3 18	1060	250	810	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
12,22	A–1–3 18	1060	250	810	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
12,23	A–1–3 17	1070	250	820	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
12,24	A–1–3 17	1070	250	820	150	0.12	0.01263	125	20	2500	0.0125	0.00076	1125	9	10125	0.001125
13,1	A–1–1 21	985	300	685	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,2	A–1–1 21	985	300	685	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,3	A–1–1 22	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,4	A–1–1 22	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,5	A–1–1 23	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,6	A–1–1 23	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
13,7	A–1–1 24	1005	300	705	150	0.12	0.0005	1000	5.1	5100	0.1	0.00037	700	9	6300	0.0007
13,8	A–1–1 24	1005	300	705	150	0.12	0.0005	1000	5.1	5100	0.1	0.00037	700	9	6300	0.0007
13,9	A–1–2 19	1015	300	715	250	0.12	0.00047	1075	5.12	5504	0.1075	0.00036	625	9	5625	0.000625
13,10	A–1–2 19	1015	300	715	250	0.12	0.00047	1075	5.12	5504	0.1075	0.00036	625	9	5625	0.000625
13,11	A–1–2 20	1015	300	715	250	0.12	0.00047	1050	5	5250	0.105	0.00035	650	9	5850	0.00065
13,12	A–1–2 20	1015	300	715	250	0.12	0.00047	1050	5	5250	0.105	0.00035	650	9	5850	0.00065

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
13,13	A–1–2 21	1020	250	770	250	0.12	0.00116	800	9.38	7504	0.08	0.00052	950	9	8550	0.00095
13,14	A–1–2 21	1020	250	770	250	0.12	0.00116	800	9.38	7504	0.08	0.00052	950	9	8550	0.00095
13,15	A–1–2 22	1030	250	780	250	0.12	0.00154	675	10.56	7128	0.0675	0.00055	1075	9	9675	0.001075
13,16	A–1–2 22	1030	250	780	250	0.12	0.00154	675	10.56	7128	0.0675	0.00055	1075	9	9675	0.001075
13,17	A–1–2 23	1040	250	790	250	0.12	0.00122	550	6.82	3751	0.055	0.00063	700	9	6300	0.0007
13,18	A–1–2 23	1040	250	790	250	0.12	0.00122	550	6.82	3751	0.055	0.00063	700	9	6300	0.0007
13,19	A–1–2 24	1050	250	800	150	0.12	0.00106	550	5.91	3250.5	0.055	0.00059	700	9	6300	0.0007
13,20	A–1–2 24	1050	250	800	150	0.12	0.00106	550	5.91	3250.5	0.055	0.00059	700	9	6300	0.0007
13,21	A–1–3 19	1050	250	800	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
13,22	A–1–3 19	1050	250	800	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
13,23	A–1–3 20	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
13,24	A–1–3 20	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
14,1	A–1–1 21	985	300	685	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,2	A–1–1 21	985	300	685	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,3	A–1–1 22	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,4	A–1–1 22	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,5	A–1–1 23	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,6	A–1–1 23	995	300	695	100	0.12	0.00056	925	5.27	4874.75	0.0925	0.00038	775	9	6975	0.000775
14,7	A–1–1 24	1005	300	705	150	0.12	0.0005	1000	5.1	5100	0.1	0.00037	700	9	6300	0.0007
14,8	A–1–1 24	1005	300	705	150	0.12	0.0005	1000	5.1	5100	0.1	0.00037	700	9	6300	0.0007
14,9	A–1–2 19	1015	300	715	250	0.12	0.00047	1075	5.12	5504	0.1075	0.00036	625	9	5625	0.000625
14,10	A–1–2 19	1015	300	715	250	0.12	0.00047	1075	5.12	5504	0.1075	0.00036	625	9	5625	0.000625
14,11	A–1–2 20	1015	300	715	250	0.12	0.00047	1050	5	5250	0.105	0.00035	650	9	5850	0.00065
14,12	A–1–2 20	1015	300	715	250	0.12	0.00047	1050	5	5250	0.105	0.00035	650	9	5850	0.00065
14,13	A–1–2 21	1020	250	770	250	0.12	0.00116	800	9.38	7504	0.08	0.00052	950	9	8550	0.00095
14,14	A–1–2 21	1020	250	770	250	0.12	0.00116	800	9.38	7504	0.08	0.00052	950	9	8550	0.00095
14,15	A–1–2 22	1030	250	780	250	0.12	0.00154	675	10.56	7128	0.0675	0.00055	1075	9	9675	0.001075
14,16	A–1–2 22	1030	250	780	250	0.12	0.00154	675	10.56	7128	0.0675	0.00055	1075	9	9675	0.001075
14,17	A–1–2 23	1040	250	790	250	0.12	0.00122	550	6.82	3751	0.055	0.00063	700	9	6300	0.0007
14,18	A–1–2 23	1040	250	790	250	0.12	0.00122	550	6.82	3751	0.055	0.00063	700	9	6300	0.0007

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
14,19	A–1–2 24	1050	250	800	150	0.12	0.00106	550	5.91	3250.5	0.055	0.00059	700	9	6300	0.0007
14,20	A–1–2 24	1050	250	800	150	0.12	0.00106	550	5.91	3250.5	0.055	0.00059	700	9	6300	0.0007
14,21	A–1–3 19	1050	250	800	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
14,22	A–1–3 19	1050	250	800	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
14,23	A–1–3 20	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
14,24	A–1–3 20	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00081	1000	9	9000	0.001
15,1	A–1–1 28	970	275	695	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
15,2	A–1–1 28	970	275	695	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
15,3	A–1–1 27	980	275	705	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
15,4	A–1–1 27	980	275	705	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
15,5	A–1–1 26	985	275	710	150	0.12	0.00056	950	5.39	5120.5	0.095	0.00038	775	9	6975	0.000775
15,6	A–1–1 26	985	275	710	150	0.12	0.00056	950	5.39	5120.5	0.095	0.00038	775	9	6975	0.000775
15,7	A–1–1 25	1000	275	725	150	0.12	0.00081	1025	8.39	8599.75	0.1025	0.0005	700	9	6300	0.0007
15,8	A–1–1 25	1000	275	725	150	0.12	0.00081	1025	8.39	8599.75	0.1025	0.0005	700	9	6300	0.0007
15,9	A–1–2 30	990	250	740	150	0.12	0.00076	1125	8.67	9753.75	0.1125	0.0005	625	9	5625	0.000625
15,10	A–1–2 30	990	250	740	150	0.12	0.00076	1125	8.67	9753.75	0.1125	0.0005	625	9	5625	0.000625
15,11	A–1–2 29	1005	250	755	150	0.12	0.00115	875	10.29	9003.75	0.0875	0.00055	875	9	7875	0.000875
15,12	A–1–2 29	1005	250	755	150	0.12	0.00115	875	10.29	9003.75	0.0875	0.00055	875	9	7875	0.000875
15,13	A–1–2 28	1020	250	770	150	0.12	0.00204	625	13.2	8250	0.0625	0.00058	1125	9	10125	0.001125
15,14	A–1–2 28	1020	250	770	150	0.12	0.00204	625	13.2	8250	0.0625	0.00058	1125	9	10125	0.001125
15,15	A–1–2 27	1030	250	780	150	0.12	0.00216	625	14	8750	0.0625	0.00088	625	9	5625	0.000625
15,16	A–1–2 27	1030	250	780	150	0.12	0.00216	625	14	8750	0.0625	0.00088	625	9	5625	0.000625
15,17	A–1–2 26	1040	250	790	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00116	425	9	3825	0.000425
15,18	A–1–2 26	1040	250	790	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00116	425	9	3825	0.000425
15,19	A–1–2 25	1055	250	805	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00171	175	9	1575	0.000175
15,20	A–1–2 25	1055	250	805	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00171	175	9	1575	0.000175
15,21	A–1–3 30	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
15,22	A–1–3 30	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
15,23	A–1–3 29	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
15,24	A–1–3 29	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
16,1	A–1–1 28	970	275	695	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
16,2	A–1–1 28	970	275	695	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
16,3	A–1–1 27	980	275	705	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
16,4	A–1–1 27	980	275	705	100	0.12	0.00063	875	5.6	4900	0.0875	0.0004	850	9	7650	0.00085
16,5	A–1–1 26	985	275	710	150	0.12	0.00056	950	5.39	5120.5	0.095	0.00038	775	9	6975	0.000775
16,6	A–1–1 26	985	275	710	150	0.12	0.00056	950	5.39	5120.5	0.095	0.00038	775	9	6975	0.000775
16,7	A–1–1 25	1000	275	725	150	0.12	0.00081	1025	8.39	8599.75	0.1025	0.0005	700	9	6300	0.0007
16,8	A–1–1 25	1000	275	725	150	0.12	0.00081	1025	8.39	8599.75	0.1025	0.0005	700	9	6300	0.0007
16,9	A–1–2 30	990	250	740	150	0.12	0.00076	1125	8.67	9753.75	0.1125	0.0005	625	9	5625	0.000625
16,10	A–1–2 30	990	250	740	150	0.12	0.00076	1125	8.67	9753.75	0.1125	0.0005	625	9	5625	0.000625
16,11	A–1–2 29	1005	250	755	150	0.12	0.00115	875	10.29	9003.75	0.0875	0.00055	875	9	7875	0.000875
16,12	A–1–2 29	1005	250	755	150	0.12	0.00115	875	10.29	9003.75	0.0875	0.00055	875	9	7875	0.000875
16,13	A–1–2 28	1020	250	770	150	0.12	0.00204	625	13.2	8250	0.0625	0.00058	1125	9	10125	0.001125
16,14	A–1–2 28	1020	250	770	150	0.12	0.00204	625	13.2	8250	0.0625	0.00058	1125	9	10125	0.001125
16,15	A–1–2 27	1030	250	780	150	0.12	0.00216	625	14	8750	0.0625	0.00088	625	9	5625	0.000625
16,16	A–1–2 27	1030	250	780	150	0.12	0.00216	625	14	8750	0.0625	0.00088	625	9	5625	0.000625
16,17	A–1–2 26	1040	250	790	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00116	425	9	3825	0.000425
16,18	A–1–2 26	1040	250	790	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00116	425	9	3825	0.000425
16,19	A–1–2 25	1055	250	805	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00171	175	9	1575	0.000175
16,20	A–1–2 25	1055	250	805	150	0.12	0.00246	575	14.78	8498.5	0.0575	0.00171	175	9	1575	0.000175
16,21	A–1–3 30	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
16,22	A–1–3 30	1070	250	820	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
16,23	A–1–3 29	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
16,24	A–1–3 29	1085	250	835	150	0.12	0.00706	250	20	5000	0.025	0.00147	500	9	4500	0.0005
17,1	A–1–1 33	950	250	700	150	0.12	0.00128	800	10.44	8352	0.08	0.00055	950	9	8550	0.00095
17,2	A–1–1 33	950	250	700	150	0.12	0.00128	800	10.44	8352	0.08	0.00055	950	9	8550	0.00095
17,3	A–1–1 34	960	250	710	150	0.12	0.00151	725	11.21	8127.25	0.0725	0.00056	1025	9	9225	0.001025
17,4	A–1–1 34	960	250	710	150	0.12	0.00151	725	11.21	8127.25	0.0725	0.00056	1025	9	9225	0.001025
17,5	A–1–1 35	980	250	730	150	0.12	0.00115	850	10	8500	0.085	0.00054	900	9	8100	0.0009
17,6	A–1–1 35	980	250	730	150	0.12	0.00115	850	10	8500	0.085	0.00054	900	9	8100	0.0009

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row,	Location	Average Surface	Layer 1					Layer 2					Layer 3			
Column	T – R – S	Elevation	Thickness	Bottom Elevation	K (f/d)	Sy	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc
17,7	A–1–1 36	990	250	740	100	0.12	0.00081	1050	8.67	9103.5	0.105	0.0005	700	9	6300	0.0007
17,8	A–1–1 36	990	250	740	100	0.12	0.00081	1050	8.67	9103.5	0.105	0.0005	700	9	6300	0.0007
17,9	A–1–2 31	1000	250	750	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
17,10	A–1–2 31	1000	250	750	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
17,11	A–1–2 32	1005	250	755	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
17,12	A–1–2 32	1005	250	755	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
17,13	A–1–2 33	1010	250	760	150	0.12	0.0049	375	20	7500	0.0375	0.00086	875	9	7875	0.000875
17,14	A–1–2 33	1010	250	760	150	0.12	0.0049	375	20	7500	0.0375	0.00086	875	9	7875	0.000875
17,15	A–1–2 34	1040	250	790	150	0.12	0.00522	350	20	7000	0.035	0.00161	400	9	3600	0.0004
17,16	A–1–2 34	1040	250	790	150	0.12	0.00522	350	20	7000	0.035	0.00161	400	9	3600	0.0004
17,17	A–1–2 35	1065	200	865	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
17,18	A–1–2 35	1065	200	865	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
17,19	A–1–2 36	1090	200	890	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
17,20	A–1–2 36	1090	200	890	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
17,21	A–1–3 31	1125	200	925	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
17,22	A–1–3 31	1125	200	925	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
17,23	A–1–3 32	1130	200	930	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
17,24	A–1–3 32	1130	200	930	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
18,1	A–1–1 33	950	250	700	150	0.12	0.00128	800	10.44	8352	0.08	0.00038	950	5	4750	0.00095
18,2	A–1–1 33	950	250	700	150	0.12	0.00128	800	10.44	8352	0.08	0.00055	950	9	8550	0.00095
18,3	A–1–1 34	960	250	710	150	0.12	0.00151	725	11.21	8127.25	0.0725	0.00056	1025	9	9225	0.001025
18,4	A–1–1 34	960	250	710	150	0.12	0.00151	725	11.21	8127.25	0.0725	0.00056	1025	9	9225	0.001025
18,5	A–1–1 35	980	250	730	150	0.12	0.00115	850	10	8500	0.085	0.00054	900	9	8100	0.0009
18,6	A–1–1 35	980	250	730	150	0.12	0.00115	850	10	8500	0.085	0.00054	900	9	8100	0.0009
18,7	A–1–1 36	990	250	740	100	0.12	0.00081	1050	8.67	9103.5	0.105	0.0005	700	9	6300	0.0007
18,8	A–1–1 36	990	250	740	100	0.12	0.00081	1050	8.67	9103.5	0.105	0.0005	700	9	6300	0.0007
18,9	A–1–2 31	1000	250	750	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
18,10	A–1–2 31	1000	250	750	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
18,11	A–1–2 32	1005	250	755	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375
18,12	A–1–2 32	1005	250	755	150	0.12	0.0049	375	20	7500	0.0375	0.00058	1375	9	12375	0.001375

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
18,13	A–1–2 33	1010	250	760	150	0.12	0.0049	375	20	7500	0.0375	0.00086	875	9	7875	0.000875
18,14	A–1–2 33	1010	250	760	150	0.12	0.0049	375	20	7500	0.0375	0.00086	875	9	7875	0.000875
18,15	A–1–2 34	1040	250	790	150	0.12	0.00522	350	20	7000	0.035	0.00161	400	9	3600	0.0004
18,16	A–1–2 34	1040	250	790	150	0.12	0.00522	350	20	7000	0.035	0.00161	400	9	3600	0.0004
18,17	A–1–2 35	1065	200	865	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
18,18	A–1–2 35	1065	200	865	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
18,19	A–1–2 36	1090	200	890	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
18,20	A–1–2 36	1090	200	890	150	0.12	0.00612	300	20	6000	0.03	0.00142	500	9	4500	0.0005
18,21	A–1–3 31	1125	200	925	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
18,22	A–1–3 31	1125	200	925	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
18,23	A–1–3 32	1130	200	930	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
18,24	A–1–3 32	1130	200	930	150	0.12	0.00882	200	20	4000	0.02	0.00474	100	9	900	0.0001
19,1	D–1–1 4	960	250	710	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
19,2	D–1–1 4	960	250	710	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
19,3	D–1–1 3	970	250	720	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
19,4	D–1–1 3	970	250	720	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
19,5	D–1–1 2	980	250	730	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
19,6	D–1–1 2	980	250	730	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
19,7	D–1–1 1	990	250	740	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
19,8	D–1–1 1	990	250	740	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
19,9	D–1–2 6	1000	250	750	50	0.12	0.00156	725	12.24	8874	0.0725	0.00058	1025	9	9225	0.001025
19,10	D–1–2 6	1000	250	750	50	0.12	0.00156	725	12.24	8874	0.0725	0.00058	1025	9	9225	0.001025
19,11	D–1–2 5	1020	250	770	50	0.12	0.00229	525	13.57	7124.25	0.0525	0.00084	725	9	6525	0.000725
19,12	D–1–2 5	1020	250	770	50	0.12	0.00229	525	13.57	7124.25	0.0525	0.00084	725	9	6525	0.000725
19,13	D–1–2 4	1035	200	835	50	0.12	0.00236	500	13	6500	0.05	0.00139	300	9	2700	0.0003
19,14	D–1–2 4	1035	200	835	50	0.12	0.00236	500	13	6500	0.05	0.00139	300	9	2700	0.0003
19,15	D–1–2 3	1060	200	860	50	0.12	0.00349	400	16.25	6500	0.04	0.00145	400	9	3600	0.0004
19,16	D–1–2 3	1060	200	860	50	0.12	0.00349	400	16.25	6500	0.04	0.00145	400	9	3600	0.0004
19,17	D–1–2 2	1090	150	940	50	0.12	0.00362	400	16.25	6500	0.04	0.00242	150	9	1350	0.00015
19,18	D–1–2 2	1090	150	940	50	0.12	0.00362	400	16.25	6500	0.04	0.00242	150	9	1350	0.00015

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

Row, Column	Location T – R – S	Average Surface Elevation	Layer 1 Thickness	Layer 1 Bottom Elevation	Layer 1 K (f/d)	Layer 1 Sy	Layer 1 Vcont (/day)	Layer 2 Thickness	Layer 2 K (f/d)	Layer 2 T (ft2/d)	Layer 2 Sc	Layer 2 Vcont (/day)	Layer 3 Thickness	Layer 3 K (f/d)	Layer 3 T (ft2/d)	Layer 3 Sc
19,19	D-1-2 1	1110	100	1010	50	0.12	0.00513	350	20	7000	0.035		----	----	----	0
19,20	D-1-2 1	1110	100	1010	50	0.12	0.00513	350	20	7000	0.035		----	----	----	0
19,21	D-1-3 6	1160	150	1010	50	0.12	0.00952	150	20	3000	0.015		----	----	----	0
19,22	D-1-3 6	1160	150	1010	50	0.12	0.00952	150	20	3000	0.015		----	----	----	0
19,23	D-1-3 5	1220	150	1070	50	0.12	0.00645	250	20	5000	0.025		----	----	----	0
19,24	D-1-3 5	1220	150	1070	50	0.12	0.00645	250	20	5000	0.025		----	----	----	0
20,1	D-1-1 4	960	250	710	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
20,2	D-1-1 4	960	250	710	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
20,3	D-1-1 3	970	250	720	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
20,4	D-1-1 3	970	250	720	100	0.12	0.00181	675	12.78	8626.5	0.0675	0.00058	1075	9	9675	0.001075
20,5	D-1-1 2	980	250	730	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
20,6	D-1-1 2	980	250	730	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
20,7	D-1-1 1	990	250	740	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
20,8	D-1-1 1	990	250	740	100	0.12	0.00148	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
20,9	D-1-2 6	1000	250	750	50	0.12	0.00156	725	12.24	8874	0.0725	0.00058	1025	9	9225	0.001025
20,10	D-1-2 6	1000	250	750	50	0.12	0.00156	725	12.24	8874	0.0725	0.00058	1025	9	9225	0.001025
20,11	D-1-2 5	1020	250	770	50	0.12	0.00229	525	13.57	7124.25	0.0525	0.00084	725	9	6525	0.000725
20,12	D-1-2 5	1020	250	770	50	0.12	0.00229	525	13.57	7124.25	0.0525	0.00084	725	9	6525	0.000725
20,13	D-1-2 4	1035	200	835	50	0.12	0.00236	500	13	6500	0.05	0.00139	300	9	2700	0.0003
20,14	D-1-2 4	1035	200	835	50	0.12	0.00236	500	13	6500	0.05	0.00139	300	9	2700	0.0003
20,15	D-1-2 3	1060	200	860	50	0.12	0.00349	400	16.25	6500	0.04	0.00145	400	9	3600	0.0004
20,16	D-1-2 3	1060	200	860	50	0.12	0.00349	400	16.25	6500	0.04	0.00145	400	9	3600	0.0004
20,17	D-1-2 2	1090	150	940	50	0.12	0.00362	400	16.25	6500	0.04	0.00242	150	9	1350	0.00015
20,18	D-1-2 2	1090	150	940	50	0.12	0.00362	400	16.25	6500	0.04	0.00242	150	9	1350	0.00015
20,19	D-1-2 1	1110	100	1010	50	0.12	0.00513	350	20	7000	0.035		----	----	----	0
20,20	D-1-2 1	1110	100	1010	50	0.12	0.00513	350	20	7000	0.035		----	----	----	0
20,21	D-1-3 6	1160	150	1010	50	0.12	0.00952	150	20	3000	0.015		----	----	----	0
20,22	D-1-3 6	1160	150	1010	50	0.12	0.00952	150	20	3000	0.015		----	----	----	0
20,23	D-1-3 5	1220	150	1070	50	0.12	0.00645	250	20	5000	0.025		----	----	----	0
20,24	D-1-3 5	1220	150	1070	50	0.12	0.00645	250	20	5000	0.025		----	----	----	0

Appendix B - Phase 1 Conceptual Model Aquifer Properties
Adapted from Brown and Pool (1989)
(lower unit thickness was determined based on a maximum model thickness of 2,000 feet)

			Layer 1					Layer 2					Layer 3			
Row, Column	Location T - R - S	Average Surface Elevation	Thickness	Bottom Elevation	K (f/d)	Sy	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc	Vcont (/day)	Thickness	K (f/d)	T (ft2/d)	Sc
22,7	D-1-1 12	1010	250	760	50	0.12	0.00142	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
22,8	D-1-1 12	1010	250	760	50	0.12	0.00142	750	11.5	8625	0.075	0.00057	1000	9	9000	0.001
22,9	D-1-2 7	1015	250	765	50	0.12	0.00183	650	13.08	8502	0.065	0.00058	1100	9	9900	0.0011
22,10	D-1-2 7	1015	250	765	50	0.12	0.00183	650	13.08	8502	0.065	0.00058	1100	9	9900	0.0011
22,11	D-1-2 8	1025	200	825	50	0.12	0.0015	500	8	4000	0.05	0.00066	800	9	7200	0.0008
22,12	D-1-2 8	1025	200	825	50	0.12	0.0015	500	8	4000	0.05	0.00066	800	9	7200	0.0008
22,13	D-1-2 9	INACTIVE														
22,14	D-1-2 9	INACTIVE														
22,15	D-1-2 10	INACTIVE														
22,16	D-1-2 10	INACTIVE														
22,17	D-1-2 11	INACTIVE														
22,18	D-1-2 11	INACTIVE														
22,19	D-1-2 12	INACTIVE														
22,20	D-1-2 12	INACTIVE														
22,21	D-1-3 7	INACTIVE														
22,22	D-1-3 7	INACTIVE														
22,23	D-1-3 8	INACTIVE														
22,24	D-1-3 8	INACTIVE														

APPENDIX C

Phase 2 Model Cell Thickness and Aquifer Properties

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
1	1	1045	225	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01606	0.00559	0.00258
1	2	1045	225	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01606	0.00559	0.00258
1	3	1050	225	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01606	0.00559	0.00258
1	4	1055	225	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01606	0.00559	0.00258
1	5	1060	225	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01606	0.00559	0.00258
1	6	1060	235	130	280	165	50	25	1	5	3.33	1.67	1.00	0.33	0.05	0.000001	0.000100	0.000001	0.00013	0.02800	0.00017	0.01569	0.00559	0.00258
1	7	1060	240	105	225	210	50	15	3	3	3.33	1.00	3.00	3.00	0.05	0.000001	0.000100	0.000100	0.00011	0.02250	0.02100	0.01282	0.01111	0.01379
1	8	1065	260	105	225	210	50	15	5	3	3.33	1.00	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00011	0.00023	0.02100	0.01235	0.00256	0.00268
1	9	1070	260	105	225	210	50	15	10	3	3.33	1.00	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00011	0.00023	0.02100	0.01235	0.00452	0.00491
1	10	1075	250	125	195	230	75	15	10	3	5.00	1.00	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00013	0.00020	0.02300	0.01242	0.00479	0.00542
1	11	1080	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
1	12	1085	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
1	13	1090	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
1	14	1090	250	160	130	250	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00013	0.02500	0.01626	0.00687	0.00719
1	15	1090	250	175	110	250	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00018	0.00011	0.02500	0.01515	0.00741	0.00805
1	16	1090	250	185	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00019	0.00009	0.02650	0.00943	0.00727	0.01121
1	17	1090	250	195	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00702	0.01121
1	18	1090	250	195	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00702	0.01121
1	19	1095	250	195	90	265	100	15	25	3	6.67	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00803	0.01405
1	20	1100	250	180	90	265	100	15	25	5	6.67	1.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00018	0.00009	0.00027	0.00966	0.00855	0.00236
1	21	1105	250	160	90	265	100	15	25	5	6.67	1.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00016	0.00009	0.00027	0.01070	0.00935	0.00236
1	22	1105	250	140	135	290	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00014	0.02900	0.00844	0.00687	0.01126
1	23	1105	250	120	170	310	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00017	0.03100	0.00966	0.00709	0.00485
1	24	1105	250	100	170	310	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00017	0.03100	0.01130	0.00794	0.00485
1	25	1105	250	70	180	300	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00018	0.00030	0.02062	0.00800	0.00417
1	26	1105	250	70	190	290	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00019	0.00029	0.02062	0.00769	0.00417
1	27	1110	255	70	200	280	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00020	0.00028	0.02046	0.00741	0.00417
1	28	1115	255	70	210	270	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00021	0.00027	0.02046	0.00714	0.00417
1	29	1120	255	70	220	260	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00022	0.00026	0.02046	0.00690	0.00417
1	30	1120	255	70	230	250	100	15	15	15	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00023	0.00025	0.02046	0.00667	0.00417
1	31	1120	255	70	245	230	100	1	15	15	6.67	1.00	1.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.02046	0.00635	0.00421
1	32	1120	255	70	245	230	100	1	15	15	6.67	1.00	1.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.02046	0.00635	0.00421
1	33	1120	255	70	245	230	100	1	15	15	6.67	1.00	1.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.02046	0.00635	0.00421
1	34	1120	255	70	245	230	100	1	15	15	6.67	1.00	1.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.02046	0.00635	0.00421
1	35	1120	255	70	245	230	100	1	15	15	6.67	1.00	1.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.02046	0.00635	0.00421
1	36	1120	255	70	245	230	50	1	15	15	3.33	1.00	1.00	1.00	0.05	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.01594	0.00635	0.00421
1	37	1120	255	70	245	230	50	1	25	5	3.33	1.00	1.67	0.33	0.05	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.01594	0.00922	0.00239
1	38	1125	255	70	245	230	50	1	25	5	3.33	1.00	1.67	0.33	0.05	0.000100	0.000001	0.000001	0.00700	0.00025	0.00023	0.01594	0.00922	0.00239
1	39	1125	250	80	215	245	50	1	15	10	3.33	1.00	1.00	0.67	0.05	0.000100	0.000001	0.000001	0.00800	0.00022	0.00025	0.01493	0.00678	0.00343
1	40	1125	250	90	215	245	50	3	15	10	3.33	3.00	1.00	0.67	0.05	0.000100	0.000001	0.000001	0.00900	0.00022	0.00025	0.02381	0.00816	0.00343
1	41	1125	250	90	215	245	50	3	15	15	3.33	3.00	1.00	1.00	0.05	0.000100	0.000001	0.000001	0.00900	0.00022	0.00025	0.02381	0.00816	0.00435

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
1	42	1125	250	90	215	245	50	3	15	15	3.33	3.00	1.00	1.00	0.05	0.000100	0.000001	0.000001	0.00900	0.00022	0.00025	0.02381	0.00816	0.00435
1	43	1125	250	90	175	285	50	5	15	15	3.33	0.33	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00009	0.00018	0.00029	0.00617	0.00449	0.00435
1	44	1125	250	95	220	235	25	5	15	15	1.67	0.33	1.00	1.00	0.025	0.000001	0.000001	0.000001	0.00010	0.00022	0.00024	0.00509	0.00396	0.00440
1	45	1125	250	95	220	235	25	5	15	15	1.67	0.33	1.00	1.00	0.025	0.000001	0.000001	0.000001	0.00010	0.00022	0.00024	0.00509	0.00396	0.00440
1	46	1125	250	95	220	235	25	5	15	15	1.67	0.33	1.00	1.00	0.025	0.000001	0.000001	0.000001	0.00010	0.00022	0.00024	0.00509	0.00396	0.00440
1	47	1125	250	100	205	245	50	15	15	15	3.33	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01299	0.00656	0.00444
1	48	1130	250	100	205	245	50	15	15	15	3.33	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01299	0.00656	0.00444
1	49	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	50	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	51	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	52	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	53	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	54	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	55	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	56	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	57	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
1	58	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
1	59	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
1	60	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
1	61	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
1	62	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
1	63	1130	250	100	205	195	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00020	0.01075	0.00563	0.00500
1	64	1130	250	100	205	195	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00020	0.01075	0.00563	0.00500
1	65	1125	235	90	195	190	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00009	0.00020	0.00019	0.01190	0.00606	0.00519
1	66	1125	225	90	195	190	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00009	0.00020	0.00019	0.01205	0.00606	0.00519
1	67	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
1	68	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
1	69	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
1	70	1120	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
1	71	1115	225	90	205	180	50	25	3	15	3.33	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000001	0.00009	0.02050	0.00018	0.01990	0.01635	0.00805
1	72	1110	215	90	205	180	50	25	3	15	3.33	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000001	0.00009	0.02050	0.00018	0.02051	0.01635	0.00805
1	73	1110	220	90	185	200	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01850	0.00020	0.02020	0.01729	0.00553
1	74	1110	220	90	160	225	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01600	0.00023	0.02020	0.01863	0.00512
1	75	1110	220	90	135	250	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01350	0.00025	0.02020	0.02020	0.00476
1	76	1115	210	80	105	310	50	10	5	10	3.33	0.67	0.33	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00011	0.00031	0.01235	0.00460	0.00256
1	77	1120	210	70	80	355	50	3	15	15	3.33	3.00	1.00	1.00	0.05	0.000100	0.000001	0.000001	0.00700	0.00008	0.00036	0.03061	0.01935	0.00460
1	78	1120	195	100	80	335	50	3	25	15	3.33	3.00	1.67	1.00	0.05	0.000100	0.000001	0.000001	0.01000	0.00008	0.00034	0.02824	0.02459	0.00522
1	79	1120	180	105	80	335	50	3	25	15	3.33	3.00	1.67	1.00	0.05	0.000100	0.000001	0.000001	0.01050	0.00008	0.00034	0.02941	0.02410	0.00522
2	1	1045	245	115	250	190	100	1	2.5	10	6.67	1.00	2.50	0.67	0.1	0.000100	0.000100	0.000001	0.01150	0.02500	0.00019	0.01416	0.00930	0.00519
2	2	1045	245	115	250	190	100	1	1	10	6.67	1.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01150	0.02500	0.00019	0.01416	0.00548	0.00374
2	3	1050	245	115	250	190	50	10	3	5	3.33	0.67	3.00	0.33	0.05	0.000001	0.000100	0.000001	0.00012	0.02500	0.00019	0.00889	0.00782	0.00306

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
2	4	1055	245	115	250	190	50	10	3	5	3.33	0.67	3.00	0.33	0.05	0.000001	0.000100	0.000001	0.00012	0.02500	0.00019	0.00889	0.00782	0.00306
2	5	1060	245	115	250	190	50	10	3	5	3.33	0.67	3.00	0.33	0.05	0.000001	0.000100	0.000001	0.00012	0.02500	0.00019	0.00889	0.00782	0.00306
2	6	1065	245	115	250	190	50	10	3	5	3.33	0.67	3.00	0.33	0.05	0.000001	0.000100	0.000001	0.00012	0.02500	0.00019	0.00889	0.00782	0.00306
2	7	1070	260	105	225	210	50	3	10	3	3.33	3.00	0.67	3.00	0.05	0.000100	0.000001	0.000100	0.01050	0.00023	0.02100	0.02174	0.00537	0.00491
2	8	1075	260	105	225	210	50	3	10	3	3.33	3.00	0.67	3.00	0.05	0.000100	0.000001	0.000100	0.01050	0.00023	0.02100	0.02174	0.00537	0.00491
2	9	1080	260	105	225	210	50	3	10	3	3.33	3.00	0.67	3.00	0.05	0.000100	0.000001	0.000100	0.01050	0.00023	0.02100	0.02174	0.00537	0.00491
2	10	1080	250	125	195	230	75	10	10	3	5.00	0.67	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00013	0.00020	0.02300	0.00895	0.00417	0.00542
2	11	1080	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
2	12	1085	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
2	13	1090	250	145	170	235	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00017	0.02350	0.01754	0.00585	0.00600
2	14	1090	250	160	130	250	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00013	0.02500	0.01626	0.00687	0.00719
2	15	1090	250	175	110	250	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00018	0.00011	0.02500	0.01515	0.00741	0.00805
2	16	1090	250	195	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00702	0.01121
2	17	1090	250	195	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00702	0.01121
2	18	1090	250	195	90	265	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00702	0.01121
2	19	1095	250	195	90	265	100	15	25	3	6.67	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00020	0.00009	0.02650	0.00901	0.00803	0.01405
2	20	1100	250	185	110	265	100	15	25	5	6.67	1.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00019	0.00011	0.00027	0.00943	0.00797	0.00232
2	21	1105	250	165	130	265	100	15	25	5	6.67	1.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00017	0.00013	0.00027	0.01042	0.00823	0.00229
2	22	1105	250	150	130	290	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00013	0.02900	0.00794	0.00660	0.01145
2	23	1105	250	130	150	310	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00015	0.03100	0.00901	0.00702	0.00500
2	24	1105	250	165	120	310	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00012	0.03100	0.00729	0.00626	0.00524
2	25	1105	250	165	90	265	100	5	10	1	6.67	0.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00009	0.02650	0.00383	0.00317	0.00500
2	26	1110	250	165	90	265	100	5	5	1	6.67	0.33	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00009	0.02650	0.00383	0.00261	0.00374
2	27	1115	255	135	125	230	100	5	3	1	6.67	0.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00014	0.01250	0.02300	0.00462	0.00448	0.00736
2	28	1120	255	100	155	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.01550	0.02300	0.00610	0.00440	0.00519
2	29	1120	255	70	180	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.01800	0.02300	0.00841	0.00513	0.00488
2	30	1120	255	70	200	300	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02000	0.03000	0.00841	0.00488	0.00400
2	31	1120	255	70	245	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00841	0.00440	0.00421
2	32	1120	255	70	245	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00841	0.00440	0.00421
2	33	1120	255	70	245	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00841	0.00440	0.00421
2	34	1120	255	70	245	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00841	0.00440	0.00421
2	35	1120	255	70	245	230	100	5	1	1	6.67	0.33	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00841	0.00440	0.00421
2	36	1120	255	70	245	230	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00753	0.00440	0.00421
2	37	1120	250	70	245	230	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00007	0.02450	0.02300	0.00758	0.00440	0.00421
2	38	1125	250	100	205	245	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.02050	0.02450	0.00565	0.00396	0.00444
2	39	1125	250	100	205	245	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.02050	0.02450	0.00565	0.00396	0.00444
2	40	1125	250	100	205	245	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.02050	0.02450	0.00565	0.00396	0.00444
2	41	1125	250	100	205	245	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.02050	0.02450	0.00565	0.00396	0.00444
2	42	1125	250	100	205	245	50	5	1	1	3.33	0.33	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.02050	0.02450	0.00565	0.00396	0.00444
2	43	1125	250	100	205	245	75	5	5	1	5.00	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00021	0.02450	0.00595	0.00219	0.00233
2	44	1125	250	100	205	245	75	5	5	1	5.00	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00021	0.02450	0.00595	0.00219	0.00233

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
2	45	1125	250	100	205	245	75	5	5	3	5.00	0.33	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00021	0.02450	0.00595	0.00219	0.00287
2	46	1125	250	100	205	245	75	5	5	5	5.00	0.33	0.33	0.33	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.00595	0.00219	0.00148
2	47	1125	250	100	205	245	75	15	15	10	5.00	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00349
2	48	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	49	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	50	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	51	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	52	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	53	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	54	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	55	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	56	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	57	1130	250	100	205	245	75	15	15	15	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01471	0.00656	0.00444
2	58	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
2	59	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
2	60	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
2	61	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
2	62	1130	250	100	205	245	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00025	0.01075	0.00563	0.00444
2	63	1130	250	100	205	195	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00020	0.01075	0.00563	0.00500
2	64	1130	250	100	205	195	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00010	0.00021	0.00020	0.01075	0.00563	0.00500
2	65	1125	235	90	195	190	75	10	15	15	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00009	0.00020	0.00019	0.01190	0.00606	0.00519
2	66	1125	225	90	195	190	75	10	10	15	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000001	0.00009	0.00020	0.00019	0.01205	0.00468	0.00415
2	67	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
2	68	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
2	69	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
2	70	1125	225	75	190	210	50	15	5	15	3.33	1.00	0.33	1.00	0.05	0.000001	0.000001	0.000001	0.00008	0.00019	0.00021	0.01646	0.00310	0.00256
2	71	1120	225	90	190	195	50	25	3	15	3.33	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000001	0.00009	0.01900	0.00020	0.01990	0.01705	0.00774
2	72	1115	215	90	190	195	50	25	3	15	3.33	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000001	0.00009	0.01900	0.00020	0.02051	0.01705	0.00774
2	73	1110	220	90	185	200	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01850	0.00020	0.02020	0.01729	0.00553
2	74	1110	225	90	160	225	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01600	0.00023	0.01990	0.01863	0.00512
2	75	1110	225	90	100	285	50	25	3	10	3.33	1.67	3.00	0.67	0.05	0.000001	0.000100	0.000001	0.00009	0.01000	0.00029	0.01990	0.02290	0.00434
2	76	1115	205	70	65	370	50	10	15	15	3.33	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00007	0.00007	0.00037	0.01375	0.01176	0.00460
2	77	1120	205	70	65	370	50	5	15	15	3.33	0.33	1.00	1.00	0.05	0.000001	0.000001	0.000001	0.00007	0.00007	0.00037	0.00798	0.00727	0.00460
2	78	1120	190	100	70	345	50	3	25	15	3.33	3.00	1.67	1.00	0.05	0.000100	0.000001	0.000001	0.01000	0.00007	0.00035	0.02885	0.02655	0.00517
2	79	1120	180	105	70	345	50	3	25	15	3.33	3.00	1.67	1.00	0.05	0.000100	0.000001	0.000001	0.01050	0.00007	0.00035	0.02941	0.02597	0.00517
3	1	1040	245	105	175	225	100	3	1	10	6.67	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.00952	0.00390
3	2	1040	245	105	175	225	100	3	1	10	6.67	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.00952	0.00390
3	3	1040	245	105	175	225	100	3	1	10	6.67	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.00952	0.00390
3	4	1045	245	105	175	225	100	3	1	10	6.67	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.00952	0.00390
3	5	1050	245	105	175	225	100	3	1	10	6.67	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.00952	0.00390
3	6	1050	245	105	175	225	100	3	3	5	6.67	3.00	3.00	0.33	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.02143	0.00273

All units of length are in feet.
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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
3	7	1050	245	105	175	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.00586	0.00536	0.01500
3	8	1055	255	130	225	225	100	5	5	3	6.67	0.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00023	0.02250	0.00479	0.00188	0.00267
3	9	1060	240	155	165	225	100	5	5	3	6.67	0.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00017	0.02250	0.00408	0.00208	0.00351
3	10	1065	225	175	165	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00018	0.01650	0.02250	0.00365	0.00345	0.01538
3	11	1070	225	175	165	225	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00018	0.01650	0.02250	0.00700	0.00630	0.01538
3	12	1070	225	175	165	225	100	25	5	3	6.67	1.67	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00018	0.00017	0.02250	0.01559	0.00333	0.00351
3	13	1075	225	185	165	225	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00665	0.00602	0.00714
3	14	1075	225	185	165	225	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00665	0.00602	0.00714
3	15	1075	225	185	165	225	100	15	3	1	6.67	1.00	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00960	0.00833	0.00714
3	16	1075	225	185	165	225	100	15	5	1	6.67	1.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00019	0.00017	0.02250	0.00960	0.00294	0.00278
3	17	1075	225	170	165	240	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02400	0.01035	0.00597	0.00494
3	18	1075	225	160	165	250	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00016	0.01650	0.02500	0.00760	0.00678	0.00656
3	19	1080	225	140	165	270	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00014	0.01650	0.02700	0.00857	0.00755	0.01379
3	20	1085	240	120	165	265	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00012	0.01650	0.02650	0.00973	0.00851	0.01395
3	21	1090	250	90	165	295	100	10	10	1	6.67	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00017	0.02950	0.01235	0.00523	0.00369
3	22	1090	250	80	165	305	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00017	0.03050	0.01361	0.00913	0.00495
3	23	1090	250	70	170	310	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00017	0.03100	0.01515	0.00966	0.00485
3	24	1090	250	70	150	330	100	15	10	1	6.67	1.00	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00015	0.03300	0.02062	0.00678	0.00360
3	25	1090	250	70	120	360	100	15	10	1	6.67	1.00	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00012	0.03600	0.02062	0.00800	0.00370
3	26	1090	240	70	100	390	100	15	25	1	6.67	1.00	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.03900	0.02094	0.01538	0.00444
3	27	1095	235	70	100	400	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.04000	0.02996	0.02778	0.00465
3	28	1095	230	70	100	400	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.04000	0.03030	0.02778	0.00465
3	29	1095	230	70	100	400	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.04000	0.03030	0.02778	0.00465
3	30	1095	230	90	150	350	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00015	0.03500	0.02564	0.02020	0.00506
3	31	1095	230	70	100	400	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.04000	0.03030	0.02778	0.00465
3	32	1095	230	70	100	400	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.04000	0.03030	0.02778	0.00465
3	33	1095	230	85	150	320	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00015	0.03200	0.01320	0.00920	0.00488
3	34	1095	230	100	150	320	100	10	10	1	6.67	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.03200	0.01149	0.00533	0.00367
3	35	1095	230	100	150	320	100	10	10	1	6.67	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.03200	0.01149	0.00533	0.00367
3	36	1095	230	100	150	320	75	10	10	1	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00015	0.03200	0.01099	0.00533	0.00367
3	37	1100	220	100	130	360	50	10	5	1	3.33	0.67	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.01026	0.00370	0.00267
3	38	1100	210	100	130	360	50	10	5	1	3.33	0.67	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.01042	0.00370	0.00267
3	39	1100	210	100	130	360	75	10	5	1	5.00	0.67	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.01124	0.00370	0.00267
3	40	1100	210	100	130	360	75	10	10	1	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.01124	0.00580	0.00360
3	41	1100	210	100	200	290	75	10	25	1	5.00	0.67	1.67	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00020	0.02900	0.01124	0.00741	0.00488
3	42	1100	200	75	175	350	75	5	25	3	5.00	0.33	1.67	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00018	0.03500	0.00797	0.00606	0.00902
3	43	1100	200	75	175	350	75	1	25	3	5.00	1.00	1.67	3.00	0.05	0.000100	0.000001	0.000100	0.00750	0.00018	0.03500	0.01980	0.01111	0.00902
3	44	1100	200	75	175	350	75	3	25	3	5.00	3.00	1.67	3.00	0.05	0.000100	0.000001	0.000100	0.00750	0.00018	0.03500	0.03922	0.01538	0.00902
3	45	1100	210	100	130	360	75	5	10	3	5.00	0.33	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.00610	0.00404	0.00635
3	46	1100	210	100	130	360	75	5	10	3	5.00	0.33	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.00610	0.00404	0.00635
3	47	1100	210	100	130	360	75	5	5	3	5.00	0.33	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00013	0.03600	0.00610	0.00290	0.00392

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
3	48	1100	220	100	90	390	75	5	5	1	5.00	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00009	0.03900	0.00606	0.00351	0.00303
3	49	1100	220	100	90	390	75	5	3	1	5.00	0.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00900	0.03900	0.00606	0.00606	0.00476
3	50	1100	220	100	90	390	75	10	3	1	5.00	0.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00900	0.03900	0.01111	0.01111	0.00476
3	51	1100	220	100	90	390	75	15	1	1	5.00	1.00	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00900	0.03900	0.01538	0.01053	0.00417
3	52	1100	220	100	90	390	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00900	0.03900	0.02222	0.01333	0.00417
3	53	1100	220	80	90	340	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00900	0.03400	0.02564	0.01449	0.00465
3	54	1100	220	80	90	340	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00900	0.03400	0.02564	0.01449	0.00465
3	55	1100	220	80	125	305	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.01250	0.03050	0.02564	0.01156	0.00465
3	56	1100	220	80	125	305	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00008	0.01250	0.03050	0.02837	0.02230	0.00577
3	57	1100	220	80	125	305	100	25	5	1	6.67	1.67	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00013	0.03050	0.02837	0.00473	0.00294
3	58	1105	240	70	155	275	100	15	10	3	6.67	1.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00016	0.02750	0.02094	0.00661	0.00617
3	59	1110	250	70	155	225	100	15	25	5	6.67	1.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00023	0.02062	0.01227	0.00260
3	60	1110	250	70	155	275	100	15	25	10	6.67	1.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02062	0.01227	0.00396
3	61	1110	250	70	155	275	100	15	50	10	6.67	1.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02062	0.01717	0.00436
3	62	1110	250	70	155	275	100	15	50	15	6.67	1.00	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02062	0.01717	0.00622
3	63	1110	250	70	155	275	100	15	50	15	6.67	1.00	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02062	0.01717	0.00622
3	64	1110	250	70	155	275	100	10	50	15	6.67	0.67	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01320	0.00622
3	65	1110	250	70	155	275	100	15	25	25	6.67	1.00	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02062	0.01227	0.00775
3	66	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
3	67	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
3	68	1110	250	70	155	275	100	10	50	25	6.67	0.67	3.33	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01320	0.00946
3	69	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
3	70	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
3	71	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
3	72	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
3	73	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
3	74	1110	250	70	155	275	100	10	50	15	6.67	0.67	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01320	0.00622
3	75	1110	250	70	155	275	150	10	25	15	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01010	0.00543
3	76	1105	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
3	77	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
3	78	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
3	79	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
4	1	1040	245	105	175	225	100	3	3	3	6.67	3.00	3.00	3.00	0.1	0.000100	0.000100	0.000100	0.01050	0.01750	0.02250	0.03265	0.02143	0.01500
4	2	1040	245	105	175	225	100	3	3	5	6.67	3.00	3.00	0.33	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.02143	0.00273
4	3	1040	245	105	175	225	100	3	3	5	6.67	3.00	3.00	0.33	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.02143	0.00273
4	4	1050	245	105	175	225	100	3	3	5	6.67	3.00	3.00	0.33	0.1	0.000100	0.000100	0.000001	0.01050	0.01750	0.00023	0.03265	0.02143	0.00273
4	5	1050	245	105	175	225	100	5	3	5	6.67	0.33	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00011	0.01750	0.00023	0.00586	0.00536	0.00273
4	6	1050	245	105	175	225	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.01088	0.00927	0.01500
4	7	1050	245	130	175	225	100	10	5	3	6.67	0.67	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00018	0.02250	0.00904	0.00278	0.00333
4	8	1060	240	125	165	225	100	25	5	3	6.67	1.67	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00017	0.02250	0.01990	0.00351	0.00351
4	9	1070	240	170	165	225	100	50	10	1	6.67	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00670	0.00423

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
4	10	1070	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	11	1070	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	12	1070	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	13	1075	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	14	1075	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	15	1075	240	170	165	225	100	50	15	1	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00017	0.02250	0.02614	0.00926	0.00513
4	16	1075	240	185	165	210	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02100	0.01465	0.01205	0.00755
4	17	1075	230	150	165	260	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01650	0.02600	0.00803	0.00714	0.01412
4	18	1075	235	125	165	285	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00013	0.01650	0.02850	0.00942	0.00825	0.01333
4	19	1075	235	110	165	310	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01650	0.03100	0.01054	0.00909	0.01263
4	20	1090	250	100	165	285	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00010	0.01650	0.02850	0.01130	0.00976	0.01333
4	21	1090	250	90	165	285	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00009	0.01650	0.02850	0.01235	0.01053	0.01333
4	22	1090	250	70	165	315	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.01650	0.03150	0.01515	0.01250	0.00541
4	23	1090	250	70	150	330	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00015	0.03300	0.01515	0.01026	0.00476
4	24	1090	250	70	100	380	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.03800	0.01515	0.01212	0.00455
4	25	1090	250	70	100	380	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.03800	0.01515	0.01212	0.00455
4	26	1090	240	70	100	390	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.03900	0.01533	0.01212	0.00444
4	27	1095	235	70	80	420	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00008	0.04200	0.02996	0.03030	0.00450
4	28	1095	230	70	80	420	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00008	0.04200	0.03030	0.03030	0.00450
4	29	1095	230	70	80	420	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00008	0.04200	0.03030	0.03030	0.00450
4	30	1095	230	115	125	350	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.02151	0.01878	0.00516
4	31	1095	230	70	80	420	100	25	50	1	6.67	1.67	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00008	0.04200	0.03030	0.03030	0.00450
4	32	1095	240	75	85	400	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00009	0.04000	0.01449	0.01223	0.00443
4	33	1095	240	75	85	400	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00009	0.04000	0.01449	0.01223	0.00443
4	34	1095	230	75	100	395	100	10	10	1	6.67	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00010	0.03950	0.01465	0.00762	0.00367
4	35	1095	230	75	100	395	100	10	10	1	6.67	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00010	0.03950	0.01465	0.00762	0.00367
4	36	1095	230	75	100	395	75	10	10	1	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00010	0.03950	0.01384	0.00762	0.00367
4	37	1100	220	75	125	390	75	10	10	1	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00013	0.03900	0.01404	0.00667	0.00346
4	38	1100	210	75	125	390	75	10	10	1	5.00	0.67	0.67	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00013	0.03900	0.01423	0.00667	0.00346
4	39	1100	210	75	150	365	75	10	15	1	5.00	0.67	1.00	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00015	0.03650	0.01423	0.00762	0.00388
4	40	1100	210	100	175	315	75	15	15	1	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00018	0.03150	0.01563	0.00727	0.00408
4	41	1100	210	120	200	270	75	25	25	1	5.00	1.67	1.67	1.00	0.05	0.000001	0.000001	0.000100	0.00012	0.00020	0.02700	0.02000	0.01042	0.00513
4	42	1100	210	120	130	350	75	15	15	1	5.00	1.00	1.00	1.00	0.05	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.01351	0.00800	0.00417
4	43	1100	210	120	175	350	75	15	25	1	5.00	1.00	1.67	1.00	0.05	0.000001	0.000001	0.000100	0.00012	0.00018	0.03500	0.01351	0.00889	0.00440
4	44	1100	210	120	130	350	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.01418	0.00800	0.00417
4	45	1100	210	120	130	350	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.01418	0.00800	0.00417
4	46	1100	210	120	130	350	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.01418	0.00800	0.00417
4	47	1100	210	120	130	350	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00013	0.03500	0.01418	0.00800	0.00417
4	48	1100	220	110	90	380	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.01509	0.01000	0.00426
4	49	1100	220	110	90	380	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.01509	0.01000	0.00426
4	50	1100	220	110	90	380	100	15	15	1	6.67	1.00	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.01509	0.01000	0.00426

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
4	51	1100	220	110	90	380	100	15	5	1	6.67	1.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.01509	0.00526	0.00308
4	52	1100	220	110	90	380	100	15	5	1	6.67	1.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.01509	0.00526	0.00308
4	53	1100	220	110	90	380	100	25	5	1	6.67	1.67	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.02260	0.00595	0.00308
4	54	1100	220	110	90	380	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00009	0.03800	0.02260	0.00995	0.00764
4	55	1100	220	110	90	380	100	25	25	5	6.67	1.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00011	0.00009	0.00038	0.02260	0.01667	0.00168
4	56	1100	220	110	90	380	100	25	25	5	6.67	1.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00011	0.00009	0.00038	0.02260	0.01667	0.00168
4	57	1100	230	70	120	225	100	15	50	10	6.67	1.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00023	0.02128	0.01887	0.00535
4	58	1105	240	70	155	225	100	15	50	10	6.67	1.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00023	0.02094	0.01717	0.00521
4	59	1110	250	70	155	225	100	15	50	10	6.67	1.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00023	0.02062	0.01717	0.00521
4	60	1110	250	70	155	225	100	15	50	10	6.67	1.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00023	0.02062	0.01717	0.00521
4	61	1110	250	70	155	225	75	15	50	10	5.00	1.00	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00016	0.00023	0.01887	0.01717	0.00521
4	62	1110	250	70	155	275	75	15	50	15	5.00	1.00	3.33	1.00	0.05	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01887	0.01717	0.00622
4	63	1110	250	70	155	275	50	15	50	25	3.33	1.00	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01613	0.01717	0.00946
4	64	1110	250	70	155	275	75	15	50	25	5.00	1.00	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01887	0.01717	0.00946
4	65	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
4	66	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
4	67	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
4	68	1110	250	70	155	275	100	25	25	50	6.67	1.67	1.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.01481	0.01140
4	69	1110	250	70	155	275	100	10	75	25	6.67	0.67	5.00	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.01020
4	70	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
4	71	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
4	72	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
4	73	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
4	74	1110	250	70	155	275	100	10	50	15	6.67	0.67	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01320	0.00622
4	75	1110	250	70	155	275	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01010	0.00543
4	76	1110	255	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01619	0.00593	0.00394
4	77	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
4	78	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
4	79	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
5	1	1040	245	105	175	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.00586	0.00536	0.01500
5	2	1040	245	105	175	225	100	5	3	5	6.67	0.33	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00011	0.01750	0.00023	0.00586	0.00536	0.00273
5	3	1040	245	90	170	225	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00009	0.01700	0.00023	0.01720	0.01364	0.00273
5	4	1050	245	90	170	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00009	0.01700	0.02250	0.00675	0.00612	0.01519
5	5	1050	245	105	175	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.00586	0.00536	0.01500
5	6	1050	245	105	175	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.00586	0.00536	0.01500
5	7	1050	240	105	175	225	100	5	10	5	6.67	0.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00011	0.00018	0.00023	0.00587	0.00346	0.00213
5	8	1060	235	125	165	185	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00017	0.00019	0.00942	0.00698	0.00531
5	9	1070	235	150	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00013	0.00801	0.00617	0.00698
5	10	1070	225	185	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00531	0.00698
5	11	1070	225	185	165	125	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00381	0.00460
5	12	1070	225	175	165	185	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00019	0.00700	0.00392	0.00381

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
5	13	1075	225	175	165	235	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00024	0.00700	0.00392	0.00333
5	14	1075	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
5	15	1075	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
5	16	1075	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
5	17	1075	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
5	18	1075	225	185	165	225	100	5	10	5	6.67	0.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00346	0.00249	0.00217
5	19	1075	225	185	165	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00346	0.00328	0.01538
5	20	1090	245	150	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02500	0.00420	0.00400	0.01500
5	21	1090	250	150	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02500	0.00419	0.00400	0.01500
5	22	1090	250	125	125	300	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00013	0.03000	0.02913	0.00873	0.00410
5	23	1090	250	125	100	325	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00010	0.03250	0.02913	0.01043	0.00421
5	24	1090	250	125	75	350	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01297	0.00432
5	25	1090	250	125	75	350	100	3	15	1	6.67	3.00	1.00	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01714	0.00471
5	26	1090	240	115	55	405	100	5	50	1	6.67	0.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.04050	0.00540	0.00553	0.00474
5	27	1095	230	125	75	370	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03700	0.03046	0.02308	0.00482
5	28	1095	230	140	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01400	0.00010	0.03200	0.02830	0.01017	0.00426
5	29	1095	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
5	30	1095	230	140	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01400	0.00010	0.03200	0.02830	0.01017	0.00426
5	31	1095	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
5	32	1095	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
5	33	1095	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
5	34	1095	230	150	100	320	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01600	0.00506
5	35	1095	230	150	100	320	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01099	0.00889	0.00506
5	36	1095	230	150	100	320	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01099	0.00889	0.00506
5	37	1100	220	135	130	340	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01350	0.00013	0.03400	0.01212	0.00860	0.00457
5	38	1100	210	120	130	340	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01351	0.00920	0.00457
5	39	1100	210	120	130	340	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01351	0.00920	0.00457
5	40	1100	210	120	130	340	75	3	20	1	5.00	3.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.02941	0.01455	0.00457
5	41	1100	210	120	130	340	75	3	20	1	5.00	3.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.02941	0.01455	0.00457
5	42	1100	210	120	130	340	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01351	0.00920	0.00457
5	43	1100	210	120	130	340	75	1	20	1	5.00	1.00	1.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01351	0.00920	0.00457
5	44	1100	210	120	130	340	75	3	10	1	5.00	3.00	0.67	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.02941	0.00851	0.00374
5	45	1100	210	120	130	340	75	3	5	1	5.00	3.00	0.33	1.00	0.05	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.02941	0.00465	0.00274
5	46	1100	210	120	130	340	75	10	3	1	5.00	0.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00012	0.01300	0.03400	0.00962	0.00896	0.00522
5	47	1100	210	120	130	340	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00012	0.01300	0.03400	0.00995	0.00896	0.00522
5	48	1100	220	135	150	280	100	10	1	1	6.67	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00014	0.01500	0.02800	0.00889	0.00567	0.00465
5	49	1100	220	150	150	280	100	10	1	1	6.67	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.00808	0.00533	0.00465
5	50	1100	220	150	150	280	100	15	1	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.01159	0.00667	0.00822
5	51	1100	220	150	150	280	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00015	0.01500	0.00028	0.01159	0.01000	0.00225
5	52	1100	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
5	53	1100	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
5	54	1100	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
5	55	1100	220	150	90	340	100	50	5	5	6.67	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00034	0.02963	0.00635	0.00155
5	56	1100	220	120	90	340	100	50	3	3	6.67	3.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00012	0.00900	0.03400	0.03419	0.03030	0.01395
5	57	1100	220	100	90	340	100	50	3	3	6.67	3.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00900	0.03400	0.03810	0.03333	0.01395
5	58	1110	240	85	155	275	100	50	5	3	6.67	3.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00016	0.02750	0.03922	0.00408	0.00359
5	59	1110	250	70	155	275	100	25	25	3	6.67	1.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00016	0.02750	0.02899	0.01481	0.01083
5	60	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	61	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	62	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	63	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	64	1110	250	70	155	275	75	25	75	15	5.00	1.67	5.00	1.00	0.05	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02564	0.02740	0.00654
5	65	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	66	1110	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
5	67	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
5	68	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
5	69	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
5	70	1110	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
5	71	1110	250	70	155	275	150	10	75	15	10.00	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01471	0.00654
5	72	1110	250	70	155	275	150	10	75	15	10.00	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01471	0.00654
5	73	1110	250	70	155	275	150	10	75	15	10.00	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01471	0.00654
5	74	1110	250	70	155	275	150	10	50	15	10.00	0.67	3.33	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01320	0.00622
5	75	1110	250	70	155	275	150	10	25	15	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.01010	0.00543
5	76	1110	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
5	77	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
5	78	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
5	79	1100	250	70	155	275	150	10	10	15	10.00	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01626	0.00593	0.00394
6	1	1030	245	105	175	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.00586	0.00536	0.01500
6	2	1030	245	105	175	225	100	5	3	5	6.67	0.33	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00011	0.01750	0.00023	0.00586	0.00536	0.00273
6	3	1030	245	90	170	225	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00009	0.01700	0.00023	0.01720	0.01364	0.00273
6	4	1035	245	90	170	225	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00009	0.01700	0.02250	0.01240	0.01043	0.01519
6	5	1035	245	105	175	225	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.01088	0.00927	0.01500
6	6	1035	245	105	175	225	100	10	3	3	6.67	0.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00011	0.01750	0.02250	0.01088	0.00927	0.01500
6	7	1035	245	105	175	225	100	10	10	5	6.67	0.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00011	0.00018	0.00023	0.01088	0.00476	0.00213
6	8	1045	235	125	165	185	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00017	0.00019	0.00942	0.00698	0.00531
6	9	1050	225	155	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00017	0.00013	0.00782	0.00603	0.00698
6	10	1050	225	185	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00531	0.00698
6	11	1050	225	185	165	125	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00381	0.00460
6	12	1050	225	175	165	185	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00019	0.00700	0.00392	0.00381
6	13	1060	225	175	165	235	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00024	0.00700	0.00392	0.00333
6	14	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
6	15	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
6	16	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
6	17	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
6	18	1060	225	185	165	225	100	5	10	5	6.67	0.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00346	0.00249	0.00217
6	19	1060	225	185	165	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00346	0.00328	0.01538
6	20	1070	240	160	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00016	0.01500	0.02500	0.00396	0.00377	0.01500
6	21	1070	250	150	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02500	0.00419	0.00400	0.01500
6	22	1070	250	125	125	300	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00013	0.03000	0.02913	0.00873	0.00410
6	23	1070	250	125	100	325	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00010	0.03250	0.02913	0.01043	0.00421
6	24	1070	250	125	75	350	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01297	0.00432
6	25	1070	250	125	75	350	100	3	15	1	6.67	3.00	1.00	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01714	0.00471
6	26	1070	235	115	55	405	100	5	50	1	6.67	0.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.04050	0.00541	0.00553	0.00474
6	27	1075	230	125	75	370	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03700	0.03046	0.02308	0.00482
6	28	1075	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
6	29	1075	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
6	30	1085	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
6	31	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
6	32	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
6	33	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
6	34	1075	230	150	100	320	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01600	0.00506
6	35	1075	230	150	100	320	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01149	0.00889	0.00506
6	36	1075	230	150	100	320	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01149	0.00889	0.00506
6	37	1080	220	135	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01350	0.00013	0.03400	0.01270	0.00860	0.00457
6	38	1080	210	120	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01418	0.00920	0.00457
6	39	1080	210	120	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01418	0.00920	0.00457
6	40	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
6	41	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
6	42	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
6	43	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
6	44	1080	210	120	130	340	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.00851	0.00374
6	45	1080	210	120	130	340	100	3	5	1	6.67	3.00	0.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.00465	0.00274
6	46	1080	210	120	130	340	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00012	0.01300	0.03400	0.00995	0.00896	0.00522
6	47	1080	210	135	130	340	150	10	3	1	10.00	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00014	0.01300	0.03400	0.00924	0.00814	0.00522
6	48	1085	220	150	150	280	150	10	1	1	10.00	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.00833	0.00533	0.00465
6	49	1085	220	150	150	280	150	10	1	1	10.00	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.00833	0.00533	0.00465
6	50	1085	220	150	150	280	100	15	1	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.01159	0.00667	0.00822
6	51	1085	220	150	150	280	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00015	0.01500	0.00028	0.01159	0.01000	0.00225
6	52	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
6	53	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
6	54	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
6	55	1085	220	150	90	340	100	50	5	5	6.67	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00034	0.02963	0.00635	0.00155
6	56	1085	220	150	90	340	100	50	3	3	6.67	3.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.00900	0.03400	0.02963	0.02667	0.01395

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
6	57	1085	225	130	90	340	100	50	3	1	6.67	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00013	0.00900	0.03400	0.03213	0.02899	0.00541
6	58	1085	230	100	155	275	100	50	5	1	6.67	3.33	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00016	0.02750	0.03704	0.00404	0.00270
6	59	1085	240	70	155	275	100	25	25	3	6.67	1.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00016	0.02750	0.02963	0.01481	0.01083
6	60	1085	245	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02930	0.02740	0.00654
6	61	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	62	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	63	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	64	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	65	1090	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	66	1090	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
6	67	1090	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
6	68	1090	250	70	155	275	100	5	75	15	6.67	0.33	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.00844	0.00830	0.00654
6	69	1090	250	70	155	275	100	5	75	15	6.67	0.33	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.00844	0.00830	0.00654
6	70	1090	250	70	155	275	100	3	75	15	6.67	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.03974	0.03681	0.00654
6	71	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
6	72	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
6	73	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
6	74	1090	250	70	155	275	150	3	50	15	10.00	3.00	3.33	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.02864	0.00622
6	75	1090	250	70	155	275	150	5	25	15	10.00	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.00877	0.00660	0.00543
6	76	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
6	77	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
6	78	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
6	79	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
7	1	1030	230	80	170	220	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00008	0.01700	0.00022	0.01923	0.01463	0.00279
7	2	1030	230	80	170	220	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00008	0.01700	0.00022	0.01923	0.01463	0.00279
7	3	1030	230	80	170	220	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00008	0.01700	0.00022	0.01923	0.01463	0.00279
7	4	1035	230	100	150	220	75	10	10	5	5.00	0.67	0.67	0.33	0.05	0.000001	0.000001	0.000001	0.00010	0.00015	0.00022	0.01099	0.00533	0.00226
7	5	1035	230	100	150	220	50	10	10	3	3.33	0.67	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00015	0.02200	0.01010	0.00533	0.00670
7	6	1035	230	100	150	220	50	10	10	3	3.33	0.67	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00015	0.02200	0.01010	0.00533	0.00670
7	7	1035	220	125	150	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00013	0.00015	0.00022	0.00860	0.00721	0.00267
7	8	1050	225	125	165	185	75	10	25	10	5.00	0.67	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00013	0.00017	0.00019	0.00915	0.00698	0.00531
7	9	1050	225	150	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00013	0.00806	0.00617	0.00698
7	10	1050	225	185	165	125	100	10	25	10	6.67	0.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00531	0.00698
7	11	1050	225	185	165	125	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00013	0.00665	0.00381	0.00460
7	12	1050	225	175	165	185	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00019	0.00700	0.00392	0.00381
7	13	1060	225	175	165	235	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00017	0.00024	0.00700	0.00392	0.00333
7	14	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
7	15	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
7	16	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
7	17	1060	225	185	165	225	100	10	10	10	6.67	0.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00665	0.00381	0.00342
7	18	1060	225	185	165	225	100	5	10	5	6.67	0.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00019	0.00017	0.00023	0.00346	0.00249	0.00217

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
7	19	1060	230	185	165	225	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00019	0.01650	0.02250	0.00345	0.00328	0.01538
7	20	1065	240	150	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02500	0.00421	0.00400	0.01500
7	21	1070	250	150	150	250	100	5	3	3	6.67	0.33	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02500	0.00419	0.00400	0.01500
7	22	1070	250	125	125	300	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00013	0.03000	0.02913	0.00873	0.00410
7	23	1070	250	125	100	325	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00010	0.03250	0.02913	0.01043	0.00421
7	24	1070	250	125	75	350	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01297	0.00432
7	25	1070	250	125	75	350	100	3	15	1	6.67	3.00	1.00	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03500	0.02913	0.01714	0.00471
7	26	1070	235	115	55	405	100	5	50	1	6.67	0.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.04050	0.00541	0.00553	0.00474
7	27	1075	235	125	75	370	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.01250	0.00008	0.03700	0.03011	0.02308	0.00482
7	28	1075	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
7	29	1075	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
7	30	1075	230	150	100	320	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01000	0.00426
7	31	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
7	32	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
7	33	1075	230	150	100	320	100	5	20	1	6.67	0.33	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.03200	0.00422	0.00381	0.00506
7	34	1075	230	150	100	320	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.02703	0.01600	0.00506
7	35	1075	230	150	100	320	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01149	0.00889	0.00506
7	36	1075	225	150	100	320	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01500	0.00010	0.03200	0.01154	0.00889	0.00506
7	37	1080	220	135	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01350	0.00013	0.03400	0.01270	0.00860	0.00457
7	38	1080	210	120	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01418	0.00920	0.00457
7	39	1080	210	120	130	340	100	1	20	1	6.67	1.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.01418	0.00920	0.00457
7	40	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
7	41	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
7	42	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
7	43	1080	210	120	130	340	100	3	20	1	6.67	3.00	1.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.01455	0.00457
7	44	1080	210	120	130	340	100	3	10	1	6.67	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.00851	0.00374
7	45	1080	210	120	130	340	100	3	5	1	6.67	3.00	0.33	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.03400	0.03279	0.00465	0.00274
7	46	1080	210	120	130	340	100	10	3	1	6.67	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00012	0.01300	0.03400	0.00995	0.00896	0.00522
7	47	1080	210	135	130	340	150	10	3	1	10.00	0.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00014	0.01300	0.03400	0.00924	0.00814	0.00522
7	48	1085	220	150	150	280	150	10	1	1	10.00	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.00833	0.00533	0.00465
7	49	1085	220	150	150	280	150	10	1	1	10.00	0.67	1.00	1.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.00833	0.00533	0.00465
7	50	1085	220	150	150	280	100	15	1	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000100	0.000100	0.00015	0.01500	0.02800	0.01159	0.00667	0.00822
7	51	1085	220	150	150	280	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00015	0.01500	0.00028	0.01159	0.01000	0.00225
7	52	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
7	53	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
7	54	1085	220	150	170	260	100	75	10	10	6.67	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00017	0.00026	0.03810	0.00702	0.00310
7	55	1085	220	150	90	340	100	50	5	5	6.67	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00034	0.02963	0.00635	0.00155
7	56	1085	220	150	90	340	100	50	5	3	6.67	3.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.03400	0.02963	0.00635	0.00522
7	57	1085	220	135	90	340	100	50	5	1	6.67	3.33	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00009	0.03400	0.03175	0.00644	0.00328
7	58	1085	235	115	155	275	100	50	10	1	6.67	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00016	0.02750	0.03376	0.00749	0.00394
7	59	1085	240	95	155	275	100	25	25	3	6.67	1.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00016	0.02750	0.02424	0.01333	0.01083

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
7	60	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	61	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	62	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	63	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	64	1085	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	65	1090	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.02899	0.02740	0.00654
7	66	1090	250	70	155	275	100	25	75	15	6.67	1.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.01515	0.01471	0.00654
7	67	1090	250	70	155	275	100	10	75	15	6.67	0.67	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.00844	0.00830	0.00654
7	68	1090	250	70	155	275	100	5	75	15	6.67	0.33	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.00844	0.00830	0.00654
7	69	1090	250	70	155	275	100	5	75	15	6.67	0.33	5.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00016	0.00028	0.03974	0.03681	0.00654
7	70	1090	250	70	155	275	100	3	75	15	6.67	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
7	71	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
7	72	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.03681	0.00654
7	73	1090	250	70	155	275	150	3	75	15	10.00	3.00	5.00	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.02864	0.00622
7	74	1090	250	70	155	275	150	3	50	15	10.00	3.00	3.33	1.00	0.1	0.000100	0.000001	0.000001	0.00007	0.00016	0.00028	0.00877	0.00660	0.00543
7	75	1090	250	70	155	275	150	5	25	15	10.00	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00700	0.00016	0.00028	0.04839	0.00782	0.00394
7	76	1090	250	70	155	275	150	3	10	15	10.00	3.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
7	77	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
7	78	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
7	79	1090	250	70	155	275	150	1	10	15	10.00	1.00	0.67	1.00	0.1	0.000100	0.000001	0.000001	0.00700	0.00016	0.00028	0.02273	0.00661	0.00394
8	1	1030	230	80	170	220	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00008	0.01700	0.00022	0.01923	0.01463	0.00279
8	2	1030	230	80	170	220	100	15	3	5	6.67	1.00	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00008	0.01700	0.00022	0.01923	0.01463	0.00279
8	3	1030	230	100	150	220	100	15	10	5	6.67	1.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00022	0.01613	0.00615	0.00226
8	4	1035	230	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00877	0.00775	0.00271
8	5	1035	230	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00877	0.00775	0.00271
8	6	1035	230	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00877	0.00775	0.00271
8	7	1035	230	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00877	0.00775	0.00271
8	8	1040	225	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00883	0.00775	0.00271
8	9	1050	220	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00889	0.00775	0.00271
8	10	1050	220	120	130	220	50	10	25	5	3.33	0.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00013	0.00022	0.00889	0.00775	0.00271
8	11	1050	220	120	150	200	75	10	25	3	5.00	0.67	1.67	3.00	0.05	0.000001	0.000001	0.000100	0.00012	0.00015	0.02000	0.00952	0.00741	0.01277
8	12	1050	220	100	190	140	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00019	0.01400	0.01159	0.00758	0.00787
8	13	1055	215	150	90	300	100	25	20	1	6.67	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.03000	0.01790	0.01270	0.00544
8	14	1060	215	150	90	300	100	25	20	1	6.67	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.03000	0.01790	0.01270	0.00544
8	15	1060	215	95	90	300	100	25	20	1	6.67	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00009	0.03000	0.02540	0.01606	0.00544
8	16	1060	215	150	90	300	100	25	20	1	6.67	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.03000	0.01790	0.01270	0.00544
8	17	1060	215	125	90	300	100	15	20	1	6.67	1.00	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.01363	0.01039	0.00544
8	18	1060	220	175	90	300	100	10	75	3	6.67	0.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00018	0.00009	0.03000	0.00702	0.00713	0.01695
8	19	1060	220	125	90	300	100	10	75	3	6.67	0.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.00952	0.00973	0.01695
8	20	1070	220	100	90	300	100	10	75	3	6.67	0.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00009	0.03000	0.01159	0.01190	0.01695
8	21	1070	225	115	55	305	100	10	50	3	6.67	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01022	0.01058	0.01693

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
8	22	1070	225	115	55	305	100	10	50	3	6.67	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01022	0.01058	0.01693
8	23	1070	225	115	55	305	100	10	50	3	6.67	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01022	0.01058	0.01693
8	24	1070	225	115	75	285	100	10	50	3	6.67	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00008	0.02850	0.01022	0.01026	0.01702
8	25	1070	225	115	100	260	100	10	50	3	6.67	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00010	0.02600	0.01022	0.00988	0.01714
8	26	1070	225	115	150	210	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00015	0.02100	0.01022	0.00762	0.00667
8	27	1075	220	90	175	225	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00018	0.02250	0.01270	0.00833	0.00606
8	28	1075	210	90	250	100	100	5	25	1	6.67	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00025	0.01000	0.00687	0.00476	0.00800
8	29	1075	210	90	300	100	100	5	25	1	6.67	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00030	0.01000	0.00687	0.00444	0.00714
8	30	1075	220	120	125	250	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.01200	0.00013	0.02500	0.03200	0.01739	0.00615
8	31	1075	210	90	300	100	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.00900	0.00030	0.01000	0.03922	0.00952	0.00714
8	32	1075	210	90	300	100	100	3	25	1	6.67	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.00900	0.00030	0.01000	0.03922	0.00952	0.00714
8	33	1075	210	90	300	100	100	3	25	10	6.67	3.00	1.67	0.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.03922	0.00952	0.00606
8	34	1075	210	90	300	100	100	1	25	10	6.67	1.00	1.67	0.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.01802	0.00741	0.00606
8	35	1075	210	90	300	100	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.01802	0.00741	0.00833
8	36	1075	210	90	300	100	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.01802	0.00741	0.00833
8	37	1080	210	90	300	100	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.01802	0.00741	0.00833
8	38	1080	210	90	300	100	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.01802	0.00741	0.00833
8	39	1080	210	90	250	150	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.01802	0.00833	0.00833
8	40	1080	210	90	250	150	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.01802	0.00833	0.00833
8	41	1080	210	90	250	150	100	1	25	25	6.67	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.01802	0.00833	0.00833
8	42	1080	210	90	225	175	100	3	25	25	6.67	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.03922	0.01212	0.00833
8	43	1080	210	90	225	175	100	3	25	25	6.67	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.03922	0.01212	0.00833
8	44	1080	210	90	225	175	150	3	25	25	10.00	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.04545	0.01212	0.00833
8	45	1080	210	90	200	200	150	3	25	25	10.00	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00020	0.00020	0.04545	0.01333	0.00833
8	46	1080	210	90	200	200	150	3	25	25	10.00	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00020	0.00020	0.04545	0.01333	0.00833
8	47	1080	210	90	200	200	150	5	25	25	10.00	0.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00020	0.00020	0.00704	0.00513	0.00833
8	48	1085	210	105	170	195	150	10	25	25	10.00	0.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00017	0.00020	0.01166	0.00771	0.00913
8	49	1085	210	105	125	220	150	10	25	25	10.00	0.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00013	0.00022	0.01166	0.00860	0.00966
8	50	1085	210	105	70	265	150	25	25	25	10.00	1.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.02597	0.01905	0.00995
8	51	1085	210	105	70	265	150	25	25	25	10.00	1.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.02597	0.01905	0.00995
8	52	1085	210	105	70	265	150	50	25	25	10.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.04396	0.02721	0.00995
8	53	1085	210	105	70	265	150	50	10	25	10.00	3.33	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.04396	0.01465	0.00758
8	54	1085	210	105	70	265	150	75	10	25	10.00	5.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.05714	0.01587	0.00758
8	55	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	56	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	57	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	58	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	59	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	60	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	61	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	62	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
8	63	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	64	1085	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	65	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	66	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	67	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	68	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	69	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	70	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	71	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	72	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	73	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	74	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	75	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	76	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	77	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	78	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
8	79	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	1	1030	250	120	160	170	50	15	15	10	3.33	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00012	0.00016	0.00017	0.01149	0.00714	0.00482
9	2	1030	230	120	160	170	50	15	15	10	3.33	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00012	0.00016	0.00017	0.01190	0.00714	0.00482
9	3	1030	215	120	160	170	50	15	15	10	3.33	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00012	0.00016	0.00017	0.01223	0.00714	0.00482
9	4	1035	215	130	170	170	50	25	5	10	3.33	1.67	0.33	0.67	0.05	0.000001	0.000001	0.000001	0.00013	0.00017	0.00017	0.01646	0.00340	0.00261
9	5	1035	230	130	170	160	50	25	5	10	3.33	1.67	0.33	0.67	0.05	0.000001	0.000001	0.000001	0.00013	0.00017	0.00016	0.01587	0.00340	0.00267
9	6	1035	230	140	170	160	50	25	5	10	3.33	1.67	0.33	0.67	0.05	0.000001	0.000001	0.000001	0.00014	0.00017	0.00016	0.01515	0.00337	0.00267
9	7	1035	230	140	170	160	50	25	5	60	3.33	1.67	0.33	4.00	0.05	0.000001	0.000001	0.000001	0.00014	0.00017	0.00016	0.01515	0.00337	0.00364
9	8	1045	230	150	180	150	50	25	10	30	3.33	1.67	0.67	2.00	0.05	0.000001	0.000001	0.000001	0.00015	0.00018	0.00015	0.01449	0.00556	0.00580
9	9	1050	225	150	180	150	100	25	10	10	6.67	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00018	0.00015	0.01766	0.00556	0.00404
9	10	1050	220	150	180	150	100	25	10	5	6.67	1.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00018	0.00015	0.01778	0.00556	0.00278
9	11	1050	220	150	190	140	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00019	0.01400	0.00808	0.00590	0.01245
9	12	1050	220	150	190	140	100	10	25	1	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00019	0.01400	0.00808	0.00590	0.00787
9	13	1060	220	120	190	140	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00019	0.01400	0.01026	0.00680	0.00787
9	14	1060	215	125	90	300	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.02235	0.01404	0.00544
9	15	1060	215	95	90	300	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00009	0.03000	0.02797	0.01606	0.00544
9	16	1060	215	125	90	300	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.02235	0.01404	0.00544
9	17	1060	215	125	90	300	150	25	20	3	10.00	1.67	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.02235	0.01404	0.01194
9	18	1060	215	125	90	300	150	25	20	3	10.00	1.67	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00009	0.03000	0.02235	0.01404	0.01194
9	19	1060	215	90	90	300	150	10	75	3	10.00	0.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00009	0.03000	0.01338	0.01307	0.01695
9	20	1070	215	90	90	300	150	10	75	3	10.00	0.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00009	0.03000	0.01338	0.01307	0.01695
9	21	1070	225	115	55	305	150	10	50	3	10.00	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01064	0.01058	0.01693
9	22	1070	225	115	55	305	150	10	50	3	10.00	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01064	0.01058	0.01693
9	23	1070	225	115	55	305	150	10	50	3	10.00	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01064	0.01058	0.01693
9	24	1070	225	115	55	305	150	10	50	3	10.00	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01064	0.01058	0.01693

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
9	25	1070	225	115	55	305	240	10	50	3	16.00	0.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00006	0.03050	0.01098	0.01058	0.01693
9	26	1070	225	115	100	250	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00010	0.02500	0.01098	0.00860	0.00645
9	27	1075	220	100	150	200	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01255	0.00833	0.00690
9	28	1075	210	90	200	150	240	5	25	1	16.00	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00020	0.01500	0.00717	0.00513	0.00741
9	29	1075	210	90	300	100	240	5	25	1	16.00	0.33	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00030	0.01000	0.00717	0.00444	0.00714
9	30	1075	210	110	150	200	240	3	25	1	16.00	3.00	1.67	1.00	0.1	0.000100	0.000001	0.000100	0.01100	0.00015	0.02000	0.04404	0.01579	0.00690
9	31	1075	210	90	300	100	240	3	25	3	16.00	3.00	1.67	3.00	0.1	0.000100	0.000001	0.000100	0.00900	0.00030	0.01000	0.05161	0.00952	0.00938
9	32	1075	210	90	300	100	240	3	25	5	16.00	3.00	1.67	0.33	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.05161	0.00952	0.00417
9	33	1075	210	90	300	100	240	3	25	10	16.00	3.00	1.67	0.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.05161	0.00952	0.00606
9	34	1075	210	90	300	100	240	1	25	10	16.00	1.00	1.67	0.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.02025	0.00741	0.00606
9	35	1075	210	90	300	100	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.02025	0.00741	0.00833
9	36	1075	210	90	300	100	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.02025	0.00741	0.00833
9	37	1080	210	90	300	100	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.02025	0.00741	0.00833
9	38	1080	210	90	300	100	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00030	0.00010	0.02025	0.00741	0.00833
9	39	1080	210	90	250	150	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.02025	0.00833	0.00833
9	40	1080	210	90	250	150	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.02025	0.00833	0.00833
9	41	1080	210	90	250	150	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00025	0.00015	0.02025	0.00833	0.00833
9	42	1080	210	90	225	175	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.02025	0.00889	0.00833
9	43	1080	210	90	225	175	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.02025	0.00889	0.00833
9	44	1080	210	90	225	175	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00023	0.00018	0.02025	0.00889	0.00833
9	45	1080	210	90	200	200	240	1	25	25	16.00	1.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00020	0.00020	0.02025	0.00952	0.00833
9	46	1080	210	90	200	200	240	3	25	25	16.00	3.00	1.67	1.67	0.1	0.000100	0.000001	0.000001	0.00900	0.00020	0.00020	0.05161	0.01333	0.00833
9	47	1080	210	90	200	200	240	5	25	25	16.00	0.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00020	0.00020	0.00717	0.00513	0.00833
9	48	1085	210	105	170	195	240	10	25	25	16.00	0.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00017	0.00020	0.01203	0.00771	0.00913
9	49	1085	210	105	125	220	240	10	25	25	16.00	0.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00013	0.00022	0.01203	0.00860	0.00966
9	50	1085	210	105	70	265	240	25	25	25	16.00	1.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.02787	0.01905	0.00995
9	51	1085	210	105	70	265	240	25	25	25	16.00	1.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.02787	0.01905	0.00995
9	52	1085	210	105	70	265	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.04969	0.02721	0.00995
9	53	1085	210	105	70	265	240	50	10	25	16.00	3.33	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.04969	0.01465	0.00758
9	54	1085	210	105	70	265	240	75	10	25	16.00	5.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00007	0.00027	0.06723	0.01587	0.00758
9	55	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	56	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	57	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	58	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	59	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	60	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	61	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	62	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	63	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	64	1085	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	65	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
9	66	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	67	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	68	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	69	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	70	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	71	1090	200	115	70	265	240	100	5	25	16.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.07882	0.00880	0.00542
9	72	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	73	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	74	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	75	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	76	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	77	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	78	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
9	79	1090	200	115	70	265	150	100	5	25	10.00	6.67	0.33	1.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00007	0.00027	0.06612	0.00880	0.00542
10	1	1020	200	170	185	145	50	15	15	10	3.33	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00019	0.00015	0.00957	0.00563	0.00497
10	2	1020	200	170	210	145	50	15	10	3	3.33	1.00	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00957	0.00412	0.00550
10	3	1020	180	170	210	145	50	25	10	3	3.33	1.67	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01481	0.00480	0.00550
10	4	1025	180	170	210	140	50	50	25	10	3.33	3.33	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00021	0.00014	0.02381	0.01130	0.00595
10	5	1025	180	170	210	145	50	50	25	10	3.33	3.33	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00021	0.00015	0.02381	0.01130	0.00582
10	6	1025	180	170	210	140	50	50	25	10	3.33	3.33	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00021	0.00014	0.02381	0.01130	0.00595
10	7	1025	190	140	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00014	0.00020	0.00018	0.00877	0.00606	0.00678
10	8	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
10	9	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
10	10	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
10	11	1040	200	125	200	175	100	10	25	5	6.67	0.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00310
10	12	1040	200	125	200	175	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00020	0.01750	0.00966	0.00650	0.01121
10	13	1045	200	125	200	175	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00020	0.01750	0.00998	0.00650	0.00678
10	14	1045	200	125	200	175	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00020	0.01750	0.00998	0.00650	0.00678
10	15	1045	200	125	200	175	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00020	0.01750	0.00998	0.00650	0.00678
10	16	1045	210	115	200	175	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00020	0.01750	0.01072	0.00684	0.00678
10	17	1045	215	150	200	225	150	25	20	3	10.00	1.67	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00020	0.02250	0.01914	0.00833	0.00889
10	18	1045	210	150	200	145	150	25	20	3	10.00	1.67	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00020	0.01450	0.01923	0.00833	0.01008
10	19	1045	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	20	1055	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	21	1055	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	22	1055	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	23	1055	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	24	1055	200	95	200	145	150	25	20	1	10.00	1.67	1.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.02857	0.00966	0.00678
10	25	1055	200	95	200	145	250	25	20	1	16.67	1.67	1.33	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00020	0.01450	0.03086	0.00966	0.00678
10	26	1055	200	95	225	200	250	25	20	1	16.67	1.67	1.33	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00023	0.02000	0.03086	0.00886	0.00542
10	27	1060	205	90	250	150	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00025	0.01500	0.01398	0.00702	0.00667

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
10	28	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	29	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	30	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	31	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	32	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	33	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	34	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	35	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	36	1060	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	37	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	38	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	39	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	40	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	41	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	42	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	43	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	44	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	45	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	46	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	47	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	48	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	49	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	50	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	51	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	52	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	53	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	54	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	55	1065	200	100	150	200	250	10	25	1	16.67	0.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01267	0.00833	0.00690
10	56	1065	200	100	150	200	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01265	0.00833	0.00690
10	57	1065	190	100	150	200	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.01270	0.00833	0.00690
10	58	1070	185	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01407	0.01111	0.00667
10	59	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	60	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	61	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	62	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	63	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	64	1070	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	65	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	66	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	67	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	68	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
10	69	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	70	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	71	1080	180	90	75	255	240	10	25	1	16.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01410	0.01111	0.00667
10	72	1080	180	90	75	255	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01370	0.01111	0.00667
10	73	1080	180	90	75	255	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01370	0.01111	0.00667
10	74	1080	180	90	75	255	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01370	0.01111	0.00667
10	75	1080	180	90	75	255	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01370	0.01111	0.00667
10	76	1080	180	90	75	255	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.01370	0.01111	0.00667
10	77	1085	200	60	105	200	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.01942	0.01307	0.00760
10	78	1085	215	60	105	200	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.01914	0.01307	0.00760
10	79	1085	230	60	105	200	150	10	25	1	10.00	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.01887	0.01307	0.00760
11	1	1020	200	170	185	145	100	15	15	10	6.67	1.00	1.00	0.67	0.1	0.000001	0.000001	0.000001	0.00017	0.00019	0.00015	0.01055	0.00563	0.00497
11	2	1020	185	170	210	145	100	15	10	3	6.67	1.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01068	0.00412	0.00550
11	3	1020	175	170	210	145	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01699	0.00480	0.00550
11	4	1025	175	170	210	145	100	50	25	3	6.67	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02996	0.01130	0.01147
11	5	1025	175	170	210	145	100	50	25	3	6.67	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02996	0.01130	0.01147
11	6	1025	180	170	210	140	100	50	25	10	6.67	3.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00017	0.00021	0.00014	0.02963	0.01130	0.00595
11	7	1030	190	135	200	175	100	25	25	15	6.67	1.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00014	0.00020	0.00018	0.02020	0.00995	0.00678
11	8	1040	205	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00963	0.00650	0.00678
11	9	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
11	10	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
11	11	1040	200	125	200	175	100	10	25	5	6.67	0.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00310
11	12	1040	200	125	200	175	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00020	0.01750	0.00966	0.00650	0.01121
11	13	1045	190	155	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00021	0.01450	0.00818	0.00558	0.01147
11	14	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	15	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	16	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	17	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	18	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	19	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	20	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	21	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	22	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	23	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
11	24	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00021	0.01900	0.00907	0.00595	0.01056
11	25	1055	175	140	210	190	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01787	0.00833	0.01026
11	26	1055	185	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	27	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	28	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	29	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00018	0.01800	0.01783	0.00939	0.01190
11	30	1060	190	105	180	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00018	0.01800	0.01783	0.00939	0.01190

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
11	31	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	32	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	33	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	34	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	35	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	36	1060	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	37	1065	190	105	225	180	250	15	25	3	16.67	1.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01783	0.00833	0.01026
11	38	1065	190	105	225	180	250	25	25	3	16.67	1.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.02849	0.01010	0.01026
11	39	1065	190	105	225	180	250	50	25	3	16.67	3.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.05168	0.01201	0.01026
11	40	1065	190	105	225	180	250	75	25	3	16.67	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.07092	0.01282	0.01026
11	41	1065	200	100	150	200	250	100	25	3	16.67	6.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08772	0.01905	0.01277
11	42	1065	200	100	150	200	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.11236	0.02000	0.01277
11	43	1065	200	100	150	200	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.11236	0.02000	0.01277
11	44	1065	200	100	150	200	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.11236	0.02000	0.01277
11	45	1065	200	100	150	200	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.11236	0.02000	0.01277
11	46	1065	200	100	150	200	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.11236	0.02000	0.01277
11	47	1065	200	100	125	225	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11236	0.02353	0.01333
11	48	1065	200	100	125	225	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11236	0.02353	0.01333
11	49	1065	200	100	125	225	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11236	0.02353	0.01333
11	50	1065	200	100	125	225	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11236	0.02353	0.01333
11	51	1065	200	100	100	250	250	200	50	5	16.67	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.13072	0.05333	0.00256
11	52	1065	200	100	100	250	250	200	50	5	16.67	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.13072	0.05333	0.00256
11	53	1065	200	100	100	250	250	200	50	5	16.67	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.13072	0.05333	0.00256
11	54	1065	200	100	100	250	200	200	50	5	13.33	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.11594	0.05333	0.00256
11	55	1065	190	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08000	0.10000	0.00523
11	56	1065	180	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08571	0.10000	0.00523
11	57	1065	180	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08571	0.10000	0.00523
11	58	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
11	59	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
11	60	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
11	61	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
11	62	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
11	63	1070	180	90	75	255	200	250	50	5	13.33	16.67	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.14652	0.07168	0.00254
11	64	1070	180	90	75	255	300	250	50	5	20.00	16.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.18349	0.07168	0.00254
11	65	1080	180	90	75	255	300	200	50	3	20.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.16327	0.06838	0.01860
11	66	1080	180	90	75	255	300	200	50	3	20.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.16327	0.06838	0.01860
11	67	1080	180	90	75	255	300	200	50	3	20.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.16327	0.06838	0.01860
11	68	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
11	69	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
11	70	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
11	71	1080	170	90	150	200	400	250	25	3	26.67	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.21858	0.02096	0.01277

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
11	72	1080	160	90	150	200	400	250	25	3	26.67	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.22792	0.02096	0.01277
11	73	1080	160	90	150	200	400	250	25	3	26.67	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.22792	0.02096	0.01277
11	74	1080	160	90	150	200	500	250	25	3	33.33	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.02096	0.01277
11	75	1080	160	90	150	200	500	250	25	3	33.33	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.02096	0.01277
11	76	1080	160	90	150	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.01287	0.00923
11	77	1085	155	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26144	0.01176	0.00863
11	78	1085	150	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26667	0.01176	0.00863
11	79	1085	150	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26667	0.01176	0.00863
12	1	1020	200	170	185	145	50	15	15	10	3.33	1.00	1.00	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00019	0.00015	0.00957	0.00563	0.00497
12	2	1020	185	170	210	145	50	15	10	3	3.33	1.00	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00978	0.00412	0.00550
12	3	1020	175	170	210	145	50	25	10	3	3.33	1.67	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01498	0.00480	0.00550
12	4	1025	175	170	210	145	50	50	25	3	3.33	3.33	1.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02424	0.01130	0.01147
12	5	1025	175	170	210	145	50	50	25	3	3.33	3.33	1.67	3.00	0.05	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02424	0.01130	0.01147
12	6	1025	180	160	210	140	50	50	25	10	3.33	3.33	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00016	0.00021	0.00014	0.02469	0.01149	0.00595
12	7	1025	190	135	200	175	75	25	25	15	5.00	1.67	1.67	1.00	0.05	0.000001	0.000001	0.000001	0.00014	0.00020	0.00018	0.01905	0.00995	0.00678
12	8	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
12	9	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
12	10	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
12	11	1040	200	125	200	175	100	10	25	5	6.67	0.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00310
12	12	1040	200	135	200	175	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00020	0.01750	0.00901	0.00620	0.01121
12	13	1045	190	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00749	0.00525	0.01147
12	14	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	15	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	16	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	17	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	18	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	19	1045	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	20	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	21	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	22	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	23	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
12	24	1055	175	160	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00021	0.01450	0.00798	0.00546	0.01147
12	25	1055	175	135	210	190	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00021	0.01900	0.00939	0.00609	0.01056
12	26	1055	180	115	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00023	0.01800	0.01587	0.00800	0.01026
12	27	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	28	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	29	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	30	1060	190	105	200	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00020	0.01800	0.01709	0.00889	0.01111
12	31	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	32	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	33	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
12	34	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	35	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	36	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	37	1065	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
12	38	1065	190	105	225	180	150	25	25	3	10.00	1.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.02667	0.01010	0.01026
12	39	1065	190	105	225	180	150	50	25	3	10.00	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.04598	0.01201	0.01026
12	40	1065	190	105	225	180	150	75	25	3	10.00	5.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.06061	0.01282	0.01026
12	41	1065	200	100	150	200	150	100	25	3	10.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.07143	0.01905	0.01277
12	42	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
12	43	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
12	44	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
12	45	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
12	46	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
12	47	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
12	48	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
12	49	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
12	50	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
12	51	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
12	52	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
12	53	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
12	54	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
12	55	1065	190	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08000	0.10000	0.00523
12	56	1065	180	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08571	0.10000	0.00523
12	57	1065	180	100	75	245	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00008	0.00025	0.08571	0.10000	0.00523
12	58	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
12	59	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
12	60	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
12	61	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
12	62	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
12	63	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
12	64	1070	180	90	75	255	90	250	50	5	6.00	16.67	3.33	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08427	0.07168	0.00254
12	65	1080	180	90	75	255	90	200	50	3	6.00	13.33	3.33	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.07973	0.06838	0.01860
12	66	1080	180	90	75	255	200	200	50	3	13.33	13.33	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.13333	0.06838	0.01860
12	67	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
12	68	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
12	69	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
12	70	1080	180	90	75	255	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.18391	0.06838	0.01860
12	71	1080	170	90	150	200	400	250	25	3	26.67	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.21858	0.02096	0.01277
12	72	1080	160	90	150	200	400	250	25	3	26.67	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.22792	0.02096	0.01277
12	73	1080	160	90	150	200	500	250	25	3	33.33	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.02096	0.01277
12	74	1080	160	90	150	200	500	250	25	3	33.33	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.02096	0.01277

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
12	75	1080	160	90	150	200	500	250	25	3	33.33	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.02096	0.01277
12	76	1080	160	90	150	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02000	0.24691	0.01287	0.00923
12	77	1085	155	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26144	0.01176	0.00863
12	78	1085	150	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26667	0.01176	0.00863
12	79	1085	150	85	165	200	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00017	0.02000	0.26667	0.01176	0.00863
13	1	1020	200	170	185	145	100	15	15	10	6.67	1.00	1.00	0.67	0.1	0.000001	0.000001	0.000001	0.00017	0.00019	0.00015	0.01055	0.00563	0.00497
13	2	1020	185	170	210	145	100	15	10	3	6.67	1.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01068	0.00412	0.00550
13	3	1020	175	170	210	145	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.01699	0.00480	0.00550
13	4	1025	175	170	210	145	100	50	25	3	6.67	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02996	0.01130	0.01147
13	5	1025	175	170	210	145	100	50	25	3	6.67	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.02996	0.01130	0.01147
13	6	1025	180	150	210	140	100	50	25	10	6.67	3.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00021	0.00014	0.03252	0.01170	0.00595
13	7	1025	190	135	200	175	100	25	25	15	6.67	1.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00014	0.00020	0.00018	0.02020	0.00995	0.00678
13	8	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
13	9	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
13	10	1040	200	125	200	175	100	10	25	15	6.67	0.67	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00678
13	11	1040	200	125	200	175	100	10	25	5	6.67	0.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00020	0.00018	0.00966	0.00650	0.00310
13	12	1040	200	135	200	175	100	10	25	3	6.67	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00020	0.01750	0.00901	0.00620	0.01121
13	13	1045	190	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00763	0.00525	0.01147
13	14	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	15	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	16	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	17	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	18	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	19	1045	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	20	1055	175	170	210	145	250	10	25	3	16.67	0.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00765	0.00525	0.01147
13	21	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
13	22	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
13	23	1055	175	170	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.00753	0.00525	0.01147
13	24	1055	175	155	210	145	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00021	0.01450	0.00823	0.00558	0.01147
13	25	1055	175	135	210	190	150	10	25	3	10.00	0.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00021	0.01900	0.00939	0.00609	0.01056
13	26	1055	180	115	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00023	0.01800	0.01587	0.00800	0.01026
13	27	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	28	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	29	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	30	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	31	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	32	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	33	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	34	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	35	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	36	1060	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
13	37	1065	190	105	225	180	150	15	25	3	10.00	1.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.01709	0.00833	0.01026
13	38	1065	190	105	225	180	150	25	25	3	10.00	1.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.02667	0.01010	0.01026
13	39	1065	190	105	225	180	150	50	25	3	10.00	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.04598	0.01201	0.01026
13	40	1065	190	105	225	180	150	75	25	3	10.00	5.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00023	0.01800	0.06061	0.01282	0.01026
13	41	1065	195	100	150	200	150	100	25	3	10.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.07273	0.01905	0.01277
13	42	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
13	43	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
13	44	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
13	45	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
13	46	1065	200	100	150	200	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08696	0.02000	0.01277
13	47	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
13	48	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
13	49	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
13	50	1065	200	100	125	225	150	150	25	3	10.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.08696	0.02353	0.01333
13	51	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
13	52	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
13	53	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
13	54	1065	200	100	100	250	150	200	50	5	10.00	13.33	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00025	0.09756	0.05333	0.00256
13	55	1065	190	100	125	245	150	300	75	10	10.00	20.00	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00025	0.11765	0.06667	0.00510
13	56	1065	190	100	100	200	150	300	75	10	10.00	20.00	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00020	0.11765	0.08000	0.00625
13	57	1065	185	100	100	200	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00010	0.00020	0.08276	0.08000	0.00625
13	58	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
13	59	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
13	60	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
13	61	1070	180	90	75	255	90	300	75	10	6.00	20.00	5.00	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.08759	0.10256	0.00503
13	62	1070	180	90	75	255	200	200	75	10	13.33	13.33	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.13333	0.09195	0.00503
13	63	1070	180	90	75	255	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.12821	0.06349	0.00254
13	64	1070	180	90	75	255	250	150	50	3	16.67	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.06349	0.01860
13	65	1080	180	90	75	255	250	150	25	3	16.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.03704	0.01538
13	66	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	67	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	68	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	69	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	70	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	71	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	72	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	73	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	74	1080	180	90	75	255	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.15238	0.03704	0.00247
13	75	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
13	76	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
13	77	1085	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
13	78	1085	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
13	79	1085	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
14	1	1020	190	85	285	40	100	15	15	3	6.67	1.00	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00029	0.00400	0.01942	0.00541	0.00670
14	2	1020	190	85	285	40	100	15	10	3	6.67	1.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00029	0.00400	0.01942	0.00390	0.00454
14	3	1020	190	85	285	40	100	10	25	5	6.67	0.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00670	0.00687
14	4	1025	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
14	5	1025	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
14	6	1025	190	130	285	40	100	25	50	10	6.67	1.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00029	0.00004	0.02083	0.01223	0.01375
14	7	1025	190	100	285	40	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.04167	0.01732	0.01375
14	8	1035	190	85	285	40	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.04598	0.01802	0.01375
14	9	1040	190	85	285	40	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.04598	0.01802	0.01375
14	10	1040	190	100	285	40	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.04167	0.01732	0.01375
14	11	1040	190	95	285	40	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.04301	0.01754	0.01375
14	12	1040	190	115	215	80	100	50	50	10	6.67	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00022	0.00008	0.03810	0.02020	0.01084
14	13	1045	185	135	210	145	100	50	25	5	6.67	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00014	0.00021	0.00015	0.03463	0.01201	0.00357
14	14	1045	175	170	210	145	150	50	10	3	10.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.03252	0.00546	0.00550
14	15	1045	175	170	210	145	150	50	10	3	10.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.03252	0.00546	0.00550
14	16	1045	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	17	1045	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	18	1045	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	19	1045	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	20	1055	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	21	1055	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	22	1055	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	23	1055	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	24	1055	175	170	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.04776	0.01044	0.00972
14	25	1055	175	155	210	145	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00021	0.01450	0.05145	0.01061	0.00972
14	26	1055	190	125	150	200	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00015	0.02000	0.05882	0.01455	0.01116
14	27	1060	200	100	150	200	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.06723	0.01509	0.01116
14	28	1060	200	100	150	200	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.06723	0.01509	0.01116
14	29	1060	200	100	150	200	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.06723	0.01509	0.01116
14	30	1060	200	100	200	200	200	75	20	3	13.33	5.00	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00020	0.02000	0.06723	0.01176	0.00923
14	31	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	32	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	33	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	34	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	35	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	36	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	37	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	38	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	39	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
14	40	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	41	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	42	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	43	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	44	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	45	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	46	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	47	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	48	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	49	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	50	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	51	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	52	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	53	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
14	54	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.01905	0.01277
14	55	1065	200	100	150	200	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.03333	0.01791
14	56	1065	200	100	150	200	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08939	0.03376	0.01791
14	57	1065	200	95	150	200	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08939	0.03376	0.01791
14	58	1070	190	95	100	230	200	100	75	3	13.33	6.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.02300	0.08602	0.05839	0.02069
14	59	1070	180	90	75	255	90	100	100	3	6.00	6.67	6.67	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.06283	0.08081	0.02078
14	60	1070	180	90	75	255	90	100	100	3	6.00	6.67	6.67	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.06283	0.08081	0.02078
14	61	1070	180	90	75	255	90	100	100	3	6.00	6.67	6.67	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.06283	0.08081	0.02078
14	62	1070	180	90	75	255	90	100	75	3	6.00	6.67	5.00	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.06283	0.07018	0.02000
14	63	1070	180	90	75	255	90	100	50	3	6.00	6.67	3.33	3.00	0.05	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.06283	0.05556	0.01860
14	64	1070	180	90	75	255	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.09195	0.03419	0.01538
14	65	1080	180	90	75	255	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.09195	0.03419	0.01538
14	66	1080	180	90	75	255	200	150	25	5	13.33	10.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.11594	0.03704	0.00247
14	67	1080	180	90	75	255	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.15238	0.02381	0.01250
14	68	1080	180	90	75	255	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.15238	0.02381	0.01250
14	69	1080	180	90	75	255	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.15238	0.02381	0.01250
14	70	1080	180	90	75	255	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.15238	0.02381	0.01250
14	71	1080	180	90	75	255	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.15238	0.02381	0.01250
14	72	1080	180	90	75	255	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.02381	0.01250
14	73	1080	180	90	75	255	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.02381	0.01250
14	74	1080	180	90	75	255	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.02381	0.01250
14	75	1080	180	90	75	255	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.02381	0.01250
14	76	1080	180	90	75	255	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02550	0.12821	0.02381	0.01250
14	77	1085	200	75	105	200	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02000	0.13072	0.01778	0.01165
14	78	1085	215	60	105	200	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.13605	0.01802	0.01165
14	79	1085	225	60	105	200	250	150	15	3	16.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.13072	0.01802	0.01165
15	1	1020	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
15	2	1020	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	3	1020	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	4	1025	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	5	1025	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	6	1025	190	110	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00011	0.00029	0.00014	0.00995	0.00798	0.00677
15	7	1025	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	8	1035	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	9	1040	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	10	1040	190	125	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00013	0.00029	0.00014	0.00895	0.00733	0.00677
15	11	1040	190	85	285	140	50	10	50	10	3.33	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01223	0.00939	0.00677
15	12	1040	190	85	285	140	75	10	50	10	5.00	0.67	3.33	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.01320	0.00939	0.00677
15	13	1045	190	100	285	140	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00014	0.01190	0.00849	0.00677
15	14	1045	190	150	285	140	150	25	50	10	10.00	1.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00029	0.00014	0.01961	0.01140	0.00677
15	15	1045	190	100	285	140	150	25	50	10	10.00	1.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00014	0.02778	0.01375	0.00677
15	16	1045	190	85	285	140	250	25	50	10	16.67	1.67	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.03436	0.01465	0.00677
15	17	1045	190	175	285	140	250	50	50	10	16.67	3.33	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00018	0.00029	0.00014	0.03350	0.01449	0.00677
15	18	1045	190	85	285	140	300	50	50	10	20.00	3.33	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00009	0.00029	0.00014	0.06349	0.01802	0.00677
15	19	1045	190	100	285	140	300	50	50	10	20.00	3.33	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00029	0.00014	0.05556	0.01732	0.00677
15	20	1055	190	120	285	140	240	50	50	10	16.00	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00029	0.00014	0.04598	0.01646	0.00677
15	21	1055	180	140	240	145	240	50	20	3	16.00	3.33	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00024	0.01450	0.04092	0.00901	0.00876
15	22	1055	175	170	210	145	240	50	20	3	16.00	3.33	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.03474	0.00959	0.00972
15	23	1055	175	170	210	145	240	50	20	3	16.00	3.33	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.03474	0.00959	0.00972
15	24	1055	175	170	210	145	240	50	20	3	16.00	3.33	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00021	0.01450	0.03474	0.00959	0.00972
15	25	1055	175	155	210	145	240	50	20	3	16.00	3.33	1.33	3.00	0.1	0.000001	0.000001	0.000100	0.00016	0.00021	0.01450	0.03769	0.00980	0.00972
15	26	1055	185	125	150	200	240	50	10	3	16.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00015	0.02000	0.04476	0.00762	0.00686
15	27	1060	200	100	150	200	240	50	10	3	16.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.05246	0.00784	0.00686
15	28	1060	200	100	150	200	240	50	10	3	16.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.05246	0.00784	0.00686
15	29	1060	200	100	150	200	240	50	10	3	16.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.05246	0.00784	0.00686
15	30	1060	200	100	175	200	240	50	10	3	16.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00018	0.02000	0.05246	0.00684	0.00608
15	31	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	32	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	33	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	34	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	35	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	36	1060	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	37	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	38	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	39	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	40	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	41	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	42	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
15	43	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	44	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	45	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	46	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	47	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	48	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	49	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	50	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	51	1065	200	100	150	200	240	100	10	3	16.00	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.00833	0.00686
15	52	1065	200	100	150	200	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.01905	0.01277
15	53	1065	200	100	150	200	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.01905	0.01277
15	54	1065	200	100	150	200	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.03333	0.01791
15	55	1065	200	100	150	200	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.03333	0.01791
15	56	1065	200	100	150	200	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.03333	0.01791
15	57	1065	200	100	150	200	240	100	75	3	16.00	6.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.02000	0.08649	0.04444	0.02069
15	58	1070	190	100	100	230	240	100	75	5	16.00	6.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00023	0.08889	0.05714	0.00282
15	59	1070	180	90	100	230	240	100	75	5	16.00	6.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00010	0.00023	0.09816	0.05970	0.00282
15	60	1070	180	90	100	230	240	100	75	5	16.00	6.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00010	0.00023	0.09816	0.05970	0.00282
15	61	1070	180	90	100	230	240	100	75	3	16.00	6.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.09816	0.05970	0.02069
15	62	1070	180	90	100	230	240	100	75	3	16.00	6.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.09816	0.05970	0.02069
15	63	1070	180	90	100	230	240	100	50	3	16.00	6.67	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.09816	0.04598	0.01875
15	64	1070	180	90	100	230	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.09816	0.02721	0.01463
15	65	1080	180	90	100	230	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.09816	0.02721	0.01463
15	66	1080	180	90	100	230	400	150	25	5	26.67	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00010	0.00023	0.15238	0.02899	0.00267
15	67	1080	180	90	100	230	300	150	15	3	20.00	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.13793	0.01835	0.01132
15	68	1080	180	90	100	230	300	125	15	3	20.00	8.33	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.12270	0.01805	0.01132
15	69	1080	180	90	100	230	300	100	15	3	20.00	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.10526	0.01762	0.01132
15	70	1080	180	90	100	230	300	75	15	3	20.00	5.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.08511	0.01695	0.01132
15	71	1080	180	90	100	230	300	50	15	3	20.00	3.33	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.06154	0.01575	0.01132
15	72	1080	180	90	100	230	300	25	15	3	20.00	1.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.03361	0.01299	0.01132
15	73	1080	180	90	100	230	300	10	15	3	20.00	0.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.01423	0.00851	0.01132
15	74	1080	180	90	100	230	300	10	15	3	20.00	0.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.01423	0.00851	0.01132
15	75	1080	180	90	100	230	500	10	15	3	33.33	0.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.01446	0.00851	0.01132
15	76	1080	180	90	100	230	500	10	15	3	33.33	0.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00010	0.02300	0.01446	0.00851	0.01132
15	77	1085	200	75	105	200	500	10	15	3	33.33	0.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00011	0.02000	0.01718	0.00920	0.01165
15	78	1085	215	60	105	200	500	10	15	3	33.33	0.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.02120	0.01026	0.01165
15	79	1085	235	60	105	200	500	10	15	3	33.33	0.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.02106	0.01026	0.01165
16	1	1020	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	2	1020	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	3	1020	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	4	1025	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
16	5	1025	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	6	1025	190	100	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.01190	0.00849	0.01375
16	7	1025	190	100	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.01190	0.00849	0.01375
16	8	1035	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	9	1040	190	100	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00029	0.00004	0.01190	0.00849	0.01375
16	10	1040	190	150	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00029	0.00004	0.00823	0.00644	0.01375
16	11	1040	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	12	1040	190	85	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00029	0.00004	0.01375	0.00939	0.01375
16	13	1045	190	150	285	40	100	10	50	10	6.67	0.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00029	0.00004	0.00823	0.00644	0.01375
16	14	1045	190	175	285	40	100	25	50	10	6.67	1.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00029	0.00004	0.01626	0.01050	0.01375
16	15	1045	190	110	285	40	150	50	50	10	10.00	3.33	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00029	0.00004	0.04444	0.01688	0.01375
16	16	1045	190	140	285	40	200	75	50	10	13.33	5.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00014	0.00029	0.00004	0.05405	0.01762	0.01375
16	17	1045	180	175	110	110	300	75	75	5	20.00	5.00	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00018	0.00011	0.00011	0.04938	0.03509	0.00568
16	18	1045	180	190	115	115	400	50	100	10	26.67	3.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03272	0.02694	0.01054
16	19	1045	180	190	115	115	400	50	100	10	26.67	3.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03272	0.02694	0.01054
16	20	1055	180	190	115	115	240	50	100	10	16.00	3.33	6.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03131	0.02694	0.01054
16	21	1055	175	170	110	145	240	100	100	10	16.00	6.67	6.67	0.67	0.1	0.000001	0.000001	0.000001	0.00017	0.00011	0.00015	0.06238	0.04762	0.00855
16	22	1055	175	170	110	145	240	150	75	10	16.00	10.00	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00017	0.00011	0.00015	0.08488	0.05128	0.00835
16	23	1055	175	170	110	145	240	200	75	5	16.00	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00017	0.00011	0.00015	0.10356	0.05755	0.00438
16	24	1055	175	170	110	145	240	300	75	5	16.00	20.00	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00017	0.00011	0.00015	0.13278	0.06557	0.00438
16	25	1055	175	140	140	145	240	300	75	3	16.00	20.00	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00014	0.01450	0.14747	0.05714	0.02620
16	26	1055	180	120	150	150	240	300	75	3	16.00	20.00	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00015	0.01500	0.15534	0.05556	0.02500
16	27	1060	180	120	150	150	500	400	50	3	33.33	26.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00015	0.01500	0.25641	0.04040	0.02105
16	28	1060	180	120	150	150	500	400	50	5	33.33	26.67	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00015	0.00015	0.25641	0.04040	0.00404
16	29	1060	180	130	120	170	500	400	50	5	33.33	26.67	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00012	0.00017	0.24465	0.04893	0.00366
16	30	1060	190	120	150	180	500	500	50	5	33.33	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00015	0.00018	0.27778	0.04115	0.00342
16	31	1060	180	120	120	180	500	500	50	5	33.33	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00018	0.28986	0.05051	0.00347
16	32	1060	180	120	120	180	500	500	50	5	33.33	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00018	0.28986	0.05051	0.00347
16	33	1060	180	100	150	170	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01700	0.31746	0.02151	0.01364
16	34	1060	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	35	1060	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	36	1060	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	37	1065	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	38	1065	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	39	1065	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	40	1065	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	41	1065	180	100	150	170	500	500	25	5	33.33	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.31746	0.02151	0.00333
16	42	1065	170	100	170	160	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00017	0.01600	0.25000	0.01869	0.01288
16	43	1065	170	100	185	145	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.01450	0.25000	0.01724	0.01255
16	44	1065	170	100	185	145	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.01450	0.25000	0.01724	0.01255
16	45	1065	170	100	185	145	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.01450	0.25000	0.01724	0.01255

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
16	46	1065	170	120	160	150	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00016	0.01500	0.22222	0.01961	0.01370
16	47	1065	170	130	150	150	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00013	0.00015	0.01500	0.21053	0.02073	0.01429
16	48	1065	170	130	150	150	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00013	0.00015	0.01500	0.21053	0.02073	0.01429
16	49	1065	170	130	150	150	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00013	0.00015	0.01500	0.21053	0.02073	0.01429
16	50	1065	170	130	150	150	500	300	25	5	33.33	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.21053	0.02073	0.00370
16	51	1065	170	130	150	150	500	300	25	5	33.33	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.21053	0.02073	0.00370
16	52	1065	170	130	150	150	500	300	25	5	33.33	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.21053	0.02073	0.00370
16	53	1065	170	140	130	160	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00013	0.00016	0.20000	0.02353	0.00629
16	54	1065	170	140	115	175	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00018	0.20000	0.02632	0.00603
16	55	1065	170	140	115	175	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00018	0.20000	0.02632	0.00603
16	56	1065	170	120	125	185	500	200	50	5	33.33	13.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00013	0.00019	0.16667	0.04301	0.00338
16	57	1065	170	120	125	185	500	200	100	5	33.33	13.33	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00013	0.00019	0.16667	0.07207	0.00349
16	58	1070	170	110	100	220	500	200	100	3	33.33	13.33	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00010	0.02200	0.17778	0.08602	0.02264
16	59	1070	170	110	100	220	500	200	125	1	33.33	13.33	8.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00010	0.02200	0.17778	0.09877	0.00862
16	60	1070	170	115	95	220	500	200	125	1	33.33	13.33	8.33	1.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00010	0.02200	0.17204	0.09988	0.00864
16	61	1070	170	115	95	220	500	200	125	1	33.33	13.33	8.33	1.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00010	0.02200	0.17204	0.09988	0.00864
16	62	1070	170	115	95	220	500	200	100	1	33.33	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00010	0.02200	0.17204	0.08743	0.00854
16	63	1070	170	115	95	220	500	400	75	3	33.33	26.67	5.00	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00010	0.02200	0.27350	0.08579	0.02166
16	64	1070	170	95	95	240	500	400	50	3	33.33	26.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.02400	0.30476	0.06238	0.01843
16	65	1075	175	95	95	240	500	400	25	3	33.33	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.02400	0.29795	0.03302	0.01460
16	66	1080	180	90	75	255	500	200	25	5	33.33	13.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.19900	0.03865	0.00247
16	67	1080	180	90	75	255	500	200	25	5	33.33	13.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.19900	0.03865	0.00247
16	68	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	69	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	70	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	71	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	72	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	73	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	74	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	75	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	76	1080	180	90	75	255	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00008	0.00026	0.16260	0.03704	0.00247
16	77	1085	200	60	105	200	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00011	0.00020	0.20202	0.02899	0.00302
16	78	1085	215	60	105	200	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00011	0.00020	0.19324	0.02899	0.00302
16	79	1085	235	60	105	200	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00011	0.00020	0.18265	0.02899	0.00302
17	1	1020	180	60	170	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00006	0.00017	0.00019	0.03922	0.01667	0.00926
17	2	1020	180	60	170	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00006	0.00017	0.00019	0.03922	0.01667	0.00926
17	3	1020	180	80	150	190	50	75	25	25	3.33	5.00	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.04082	0.01887	0.00980
17	4	1025	180	100	150	170	50	75	50	25	3.33	5.00	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.03774	0.03077	0.01361
17	5	1025	180	100	150	170	50	100	50	25	3.33	6.67	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.04167	0.03333	0.01361
17	6	1025	180	120	150	150	50	100	75	50	3.33	6.67	5.00	3.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00015	0.00015	0.03922	0.04167	0.02667
17	7	1025	180	140	130	150	50	200	75	50	3.33	13.33	5.00	3.33	0.05	0.000001	0.000001	0.000001	0.00014	0.00013	0.00015	0.04598	0.05479	0.02817

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
17	8	1035	180	160	100	160	50	200	100	75	3.33	13.33	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00016	0.00010	0.00016	0.04444	0.07407	0.04255
17	9	1040	180	125	100	140	50	300	100	75	3.33	20.00	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00013	0.00010	0.00014	0.05096	0.09412	0.04651
17	10	1040	190	200	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.04348	0.09756	0.07619
17	11	1040	190	125	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00013	0.00011	0.00011	0.04734	0.11940	0.07619
17	12	1040	190	200	105	105	75	300	150	100	5.00	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.05882	0.09756	0.07619
17	13	1045	190	200	105	105	150	200	150	100	10.00	13.33	10.00	6.67	0.1	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.07407	0.07843	0.07619
17	14	1045	190	200	105	105	200	150	150	75	13.33	10.00	10.00	5.00	0.1	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.06897	0.06557	0.06349
17	15	1045	190	200	105	105	250	100	125	50	16.67	6.67	8.33	3.33	0.12	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.05376	0.04695	0.04535
17	16	1045	180	195	115	115	300	50	100	25	20.00	3.33	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00020	0.00012	0.00012	0.03125	0.02640	0.02319
17	17	1045	180	190	115	115	400	50	100	10	26.67	3.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03272	0.02694	0.01054
17	18	1045	180	180	115	115	400	50	100	10	26.67	3.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00018	0.00012	0.00012	0.03441	0.02807	0.01054
17	19	1045	180	170	115	115	400	50	100	10	26.67	3.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00017	0.00012	0.00012	0.03628	0.02930	0.01054
17	20	1050	180	140	120	150	400	100	75	10	26.67	6.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00015	0.07960	0.04444	0.00803
17	21	1050	180	120	120	150	600	100	50	10	40.00	6.67	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00015	0.09639	0.03704	0.00766
17	22	1050	180	100	120	150	600	100	50	10	40.00	6.67	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.11268	0.03922	0.00766
17	23	1050	180	100	120	150	600	100	50	5	40.00	6.67	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.11268	0.03922	0.00412
17	24	1050	180	100	120	150	600	150	50	5	40.00	10.00	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.15686	0.04348	0.00412
17	25	1050	180	100	120	150	600	200	50	5	40.00	13.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.19512	0.04598	0.00412
17	26	1050	180	120	120	130	600	300	50	5	40.00	20.00	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.22857	0.04762	0.00469
17	27	1050	180	120	120	130	600	500	50	5	40.00	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.31496	0.05051	0.00469
17	28	1050	180	120	120	130	600	500	50	5	40.00	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.31496	0.05051	0.00469
17	29	1050	180	120	120	130	600	500	50	5	40.00	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.31496	0.05051	0.00469
17	30	1050	180	120	120	150	600	500	50	5	40.00	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00015	0.31496	0.05051	0.00412
17	31	1050	180	120	120	100	600	500	25	5	40.00	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00010	0.31496	0.02646	0.00538
17	32	1055	180	120	120	80	600	500	25	5	40.00	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.31496	0.02646	0.00641
17	33	1055	180	120	120	80	600	500	25	5	40.00	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.31496	0.02646	0.00641
17	34	1055	180	120	120	80	600	500	25	5	40.00	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.31496	0.02646	0.00641
17	35	1055	180	120	120	80	600	500	25	5	40.00	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.31496	0.02646	0.00641
17	36	1055	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
17	37	1055	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
17	38	1055	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
17	39	1055	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
17	40	1055	180	120	140	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00014	0.00008	0.38095	0.02283	0.00617
17	41	1055	170	110	165	65	1000	400	25	3	66.67	26.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00017	0.00650	0.35556	0.01939	0.01657
17	42	1055	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
17	43	1055	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
17	44	1055	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
17	45	1055	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
17	46	1055	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
17	47	1055	170	100	185	45	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.25000	0.01724	0.01587
17	48	1055	170	100	185	45	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.25000	0.01724	0.01587

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
17	49	1055	170	125	145	55	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00013	0.00015	0.00550	0.21622	0.02145	0.01899
17	50	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
17	51	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
17	52	1060	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
17	53	1060	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
17	54	1060	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
17	55	1060	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
17	56	1060	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
17	57	1060	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
17	58	1065	170	120	135	75	450	200	25	10	30.00	13.33	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00014	0.00008	0.16216	0.02222	0.01034
17	59	1065	170	120	135	75	450	200	25	10	30.00	13.33	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00014	0.00008	0.16216	0.02222	0.01034
17	60	1065	170	110	120	100	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00012	0.00010	0.22642	0.02581	0.00901
17	61	1065	160	115	100	125	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00010	0.01250	0.27350	0.03110	0.01967
17	62	1065	160	115	75	150	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.01500	0.27350	0.04056	0.02105
17	63	1065	160	115	75	150	450	400	25	5	30.00	26.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00008	0.00015	0.27350	0.04056	0.00404
17	64	1065	150	115	75	160	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.01600	0.28657	0.04056	0.02034
17	65	1070	150	115	75	160	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.01600	0.28657	0.04056	0.02034
17	66	1070	160	100	85	150	450	300	25	3	30.00	20.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00009	0.01500	0.25000	0.03571	0.01980
17	67	1070	165	100	130	105	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.24490	0.01000	0.00870
17	68	1070	165	100	130	105	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.24490	0.01000	0.00870
17	69	1075	165	100	130	105	500	300	10	3	33.33	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.25478	0.01000	0.00870
17	70	1075	165	100	130	105	500	300	10	3	33.33	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.25478	0.01000	0.00870
17	71	1075	165	100	130	105	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.19324	0.00988	0.00870
17	72	1075	160	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.15748	0.00449	0.00370
17	73	1080	155	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.15936	0.00449	0.00370
17	74	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
17	75	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
17	76	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
17	77	1085	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
17	78	1085	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
17	79	1085	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	1	1005	180	60	170	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00006	0.00017	0.00019	0.03922	0.01667	0.00926
18	2	1005	180	60	170	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00006	0.00017	0.00019	0.03922	0.01667	0.00926
18	3	1005	180	80	150	190	50	75	25	25	3.33	5.00	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.04082	0.01887	0.00980
18	4	1015	180	100	150	170	50	75	50	25	3.33	5.00	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.03774	0.03077	0.01361
18	5	1015	180	100	150	170	50	100	50	25	3.33	6.67	3.33	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00015	0.00017	0.04167	0.03333	0.01361
18	6	1015	180	120	150	150	50	100	75	50	3.33	6.67	5.00	3.33	0.05	0.000001	0.000001	0.000001	0.00012	0.00015	0.00015	0.03922	0.04167	0.02667
18	7	1015	180	140	130	150	50	200	75	50	3.33	13.33	5.00	3.33	0.05	0.000001	0.000001	0.000001	0.00014	0.00013	0.00015	0.04598	0.05479	0.02817
18	8	1025	180	160	100	160	50	200	100	75	3.33	13.33	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00016	0.00010	0.00016	0.04444	0.07407	0.04255
18	9	1025	180	150	100	140	50	300	100	75	3.33	20.00	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00015	0.00010	0.00014	0.04938	0.08889	0.04651
18	10	1025	190	190	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00019	0.00011	0.00011	0.04396	0.10000	0.07619

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
18	11	1025	190	175	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00018	0.00011	0.00011	0.04469	0.10390	0.07619
18	12	1025	190	200	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.04348	0.09756	0.07619
18	13	1030	190	200	105	105	150	200	150	100	10.00	13.33	10.00	6.67	0.1	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.07407	0.07843	0.07619
18	14	1030	190	200	105	105	200	150	150	75	13.33	10.00	10.00	5.00	0.1	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.06897	0.06557	0.06349
18	15	1030	190	200	105	105	240	100	125	50	16.00	6.67	8.33	3.33	0.1	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.05333	0.04695	0.04535
18	16	1030	180	195	115	115	240	50	100	25	16.00	3.33	6.67	1.67	0.1	0.000001	0.000001	0.000001	0.00020	0.00012	0.00012	0.03059	0.02640	0.02319
18	17	1030	180	190	115	115	240	50	100	10	16.00	3.33	6.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03131	0.02694	0.01054
18	18	1030	180	190	115	115	240	50	100	10	16.00	3.33	6.67	0.67	0.1	0.000001	0.000001	0.000001	0.00019	0.00012	0.00012	0.03131	0.02694	0.01054
18	19	1030	180	175	115	115	240	50	100	10	16.00	3.33	6.67	0.67	0.1	0.000001	0.000001	0.000001	0.00018	0.00012	0.00012	0.03368	0.02867	0.01054
18	20	1040	180	150	120	150	240	100	75	10	16.00	6.67	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00012	0.00015	0.06809	0.04301	0.00803
18	21	1040	180	125	120	150	450	100	50	10	30.00	6.67	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00012	0.00015	0.08922	0.03653	0.00766
18	22	1040	180	100	120	150	450	100	50	10	30.00	6.67	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.10714	0.03922	0.00766
18	23	1040	180	100	120	150	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.10714	0.03922	0.00412
18	24	1040	180	100	120	150	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.17910	0.04598	0.00412
18	25	1040	180	100	120	150	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.17910	0.04598	0.00412
18	26	1040	180	120	120	130	450	300	50	5	30.00	20.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.20690	0.04762	0.00469
18	27	1050	180	120	120	130	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.27523	0.05051	0.00469
18	28	1050	180	120	120	130	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.27523	0.05051	0.00469
18	29	1050	180	120	120	130	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.27523	0.05051	0.00469
18	30	1050	180	120	120	150	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00015	0.27523	0.05051	0.00412
18	31	1050	180	120	120	80	450	500	25	5	30.00	33.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.27523	0.02646	0.00641
18	32	1050	180	120	120	80	450	500	25	5	30.00	33.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.27523	0.02646	0.00641
18	33	1050	180	120	120	80	450	500	25	5	30.00	33.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.27523	0.02646	0.00641
18	34	1050	180	120	120	80	450	500	25	5	30.00	33.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.27523	0.02646	0.00641
18	35	1050	180	120	120	80	450	500	25	5	30.00	33.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.27523	0.02646	0.00641
18	36	1050	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
18	37	1050	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
18	38	1050	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
18	39	1050	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
18	40	1050	180	120	120	80	1000	500	25	5	66.67	33.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.38095	0.02646	0.00641
18	41	1050	170	110	185	45	1000	400	25	3	66.67	26.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00019	0.00450	0.35556	0.01737	0.01587
18	42	1050	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
18	43	1050	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
18	44	1050	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
18	45	1050	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
18	46	1050	170	100	185	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.30769	0.01724	0.01587
18	47	1055	170	100	185	45	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.25000	0.01724	0.01587
18	48	1055	170	100	185	45	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00019	0.00450	0.25000	0.01724	0.01587
18	49	1055	170	120	145	55	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00015	0.00550	0.22222	0.02151	0.01899
18	50	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
18	51	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
18	52	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
18	53	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
18	54	1055	170	140	115	75	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20000	0.02632	0.01102
18	55	1055	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
18	56	1055	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
18	57	1055	170	140	115	75	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.19355	0.02632	0.01102
18	58	1060	170	120	135	75	450	200	25	10	30.00	13.33	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00014	0.00008	0.16216	0.02222	0.01034
18	59	1060	170	120	135	75	450	200	25	10	30.00	13.33	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00014	0.00008	0.16216	0.02222	0.01034
18	60	1060	170	110	120	100	450	300	25	10	30.00	20.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00012	0.00010	0.22642	0.02581	0.00901
18	61	1060	160	115	100	125	450	400	25	5	30.00	26.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00013	0.27350	0.03110	0.00460
18	62	1060	160	115	75	150	450	400	25	5	30.00	26.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00008	0.00015	0.27350	0.04056	0.00404
18	63	1060	160	115	75	150	450	400	25	5	30.00	26.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00008	0.00015	0.27350	0.04056	0.00404
18	64	1060	150	115	75	160	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.01600	0.28657	0.04056	0.02034
18	65	1065	150	115	75	160	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.01600	0.28657	0.04056	0.02034
18	66	1065	160	100	85	150	450	300	25	3	30.00	20.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00009	0.01500	0.25000	0.03571	0.01980
18	67	1065	165	100	130	105	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.24490	0.01000	0.00870
18	68	1065	165	100	130	105	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.24490	0.01000	0.00870
18	69	1065	165	100	130	105	500	300	10	3	33.33	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.25478	0.01000	0.00870
18	70	1065	165	100	130	105	500	300	10	3	33.33	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.25478	0.01000	0.00870
18	71	1065	165	100	130	105	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01050	0.19324	0.00988	0.00870
18	72	1070	155	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.15936	0.00449	0.00370
18	73	1075	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	74	1075	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	75	1075	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	76	1075	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	77	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	78	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
18	79	1080	150	100	145	105	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01050	0.16129	0.00449	0.00370
19	1	1005	180	80	150	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.03509	0.01754	0.00980
19	2	1005	180	80	150	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.03509	0.01754	0.00980
19	3	1005	180	80	150	190	50	75	25	25	3.33	5.00	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.04082	0.01887	0.00980
19	4	1015	180	100	155	165	50	100	25	25	3.33	6.67	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00016	0.00017	0.04167	0.01852	0.01042
19	5	1015	180	125	150	145	50	100	25	50	3.33	6.67	1.67	3.33	0.05	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.03865	0.01839	0.01498
19	6	1015	180	125	150	145	50	150	50	50	3.33	10.00	3.33	3.33	0.05	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.04396	0.03478	0.02260
19	7	1015	180	150	150	130	50	200	75	75	3.33	13.33	5.00	5.00	0.05	0.000001	0.000001	0.000001	0.00015	0.00015	0.00013	0.04520	0.04848	0.03571
19	8	1020	185	170	125	125	50	250	100	75	3.33	16.67	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00017	0.00013	0.00013	0.04474	0.06908	0.04571
19	9	1025	190	185	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00019	0.00011	0.00011	0.04420	0.10127	0.07619
19	10	1025	190	200	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.04348	0.09756	0.07619
19	11	1025	190	200	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.04348	0.09756	0.07619
19	12	1025	180	150	125	125	75	250	100	10	5.00	16.67	6.67	0.67	0.05	0.000001	0.000001	0.000001	0.00015	0.00013	0.00013	0.06452	0.07207	0.00970
19	13	1030	180	125	150	150	150	250	75	10	10.00	16.67	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.10811	0.05333	0.00784

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
19	14	1030	180	100	170	175	200	200	75	10	13.33	13.33	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00018	0.12698	0.04819	0.00675
19	15	1030	180	100	170	175	240	200	75	5	16.00	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00018	0.13913	0.04819	0.00358
19	16	1030	170	80	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00013	0.00023	0.18100	0.06711	0.00286
19	17	1030	170	150	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00013	0.00023	0.13115	0.05882	0.00286
19	18	1030	170	150	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00013	0.00023	0.13115	0.05882	0.00286
19	19	1030	170	125	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00023	0.14545	0.06154	0.00286
19	20	1040	170	125	125	175	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00018	0.14545	0.06154	0.00364
19	21	1040	170	100	120	160	240	200	50	2	16.00	13.33	3.33	2.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.14545	0.04598	0.01724
19	22	1040	170	100	120	160	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.18462	0.04598	0.01724
19	23	1040	170	100	120	160	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.18462	0.04598	0.02239
19	24	1040	180	100	120	150	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01500	0.17910	0.04598	0.02326
19	25	1040	180	100	120	150	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.17910	0.04598	0.00412
19	26	1040	170	115	115	150	450	200	50	10	30.00	13.33	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00015	0.16725	0.04638	0.00771
19	27	1050	180	120	100	150	450	250	75	10	30.00	16.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00816
19	28	1050	180	120	100	150	450	250	75	5	30.00	16.67	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00426
19	29	1050	180	120	100	150	450	250	75	5	30.00	16.67	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00426
19	30	1050	180	120	100	150	450	250	75	5	30.00	16.67	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00426
19	31	1050	180	120	120	80	450	250	75	5	30.00	16.67	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.06410	0.00758
19	32	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
19	33	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
19	34	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
19	35	1050	180	145	120	55	450	200	100	10	30.00	13.33	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.13754	0.06926	0.01990
19	36	1050	180	145	100	75	700	150	100	25	46.67	10.00	6.67	1.67	0.15	0.000001	0.000001	0.000001	0.00015	0.00010	0.00008	0.11864	0.06780	0.03333
19	37	1050	180	145	100	75	700	150	100	25	46.67	10.00	6.67	1.67	0.15	0.000001	0.000001	0.000001	0.00015	0.00010	0.00008	0.11864	0.06780	0.03333
19	38	1050	180	145	115	60	700	250	100	10	46.67	16.67	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.18088	0.07707	0.01865
19	39	1050	180	145	115	60	700	250	100	10	46.67	16.67	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.18088	0.07707	0.01865
19	40	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
19	41	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
19	42	1050	170	130	155	45	1000	250	75	5	66.67	16.67	5.00	0.33	0.18	0.000001	0.000001	0.000001	0.00013	0.00016	0.00005	0.21505	0.05155	0.01205
19	43	1050	170	130	155	45	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.21505	0.03683	0.03252
19	44	1050	170	130	155	45	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.21505	0.03683	0.03252
19	45	1050	170	120	165	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00017	0.00450	0.26667	0.01905	0.01754
19	46	1050	170	130	155	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.25000	0.02010	0.01852
19	47	1055	170	130	155	45	600	300	25	5	40.00	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00016	0.00005	0.22222	0.02010	0.00877
19	48	1055	170	140	115	75	600	300	25	5	40.00	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.00680
19	49	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
19	50	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
19	51	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
19	52	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
19	53	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
19	54	1055	170	120	100	110	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00011	0.23529	0.03030	0.00889

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
19	55	1055	170	115	100	115	450	200	25	5	30.00	13.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00012	0.16725	0.02914	0.00494
19	56	1055	170	115	100	115	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00010	0.01150	0.16725	0.02914	0.02034
19	57	1055	170	115	100	115	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00010	0.01150	0.16725	0.02914	0.02034
19	58	1060	170	100	100	130	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01300	0.18462	0.02963	0.01935
19	59	1060	170	75	100	155	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00010	0.00016	0.35821	0.06202	0.00404
19	60	1060	170	75	75	180	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00008	0.00018	0.35821	0.08081	0.00356
19	61	1060	170	60	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00006	0.00005	0.00023	0.38961	0.11905	0.00284
19	62	1060	170	50	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00005	0.00005	0.00023	0.41379	0.12121	0.00284
19	63	1060	170	50	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00005	0.00005	0.00023	0.41379	0.12121	0.00284
19	64	1060	160	65	75	200	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.36782	0.04216	0.01791
19	65	1065	160	75	75	190	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34409	0.04183	0.01846
19	66	1065	165	75	75	190	450	300	25	3	30.00	20.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.04103	0.01846
19	67	1065	165	75	75	190	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.01720	0.01137
19	68	1065	155	75	75	190	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.23645	0.01693	0.01137
19	69	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	70	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	71	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	78	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
19	79	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	1	1005	180	80	150	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.03509	0.01754	0.00980
20	2	1005	180	80	150	190	50	50	25	25	3.33	3.33	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.03509	0.01754	0.00980
20	3	1005	180	80	150	190	50	75	25	25	3.33	5.00	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00015	0.00019	0.04082	0.01887	0.00980
20	4	1015	180	100	155	165	50	100	25	25	3.33	6.67	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00010	0.00016	0.00017	0.04167	0.01852	0.01042
20	5	1015	180	125	150	145	50	100	25	50	3.33	6.67	1.67	3.33	0.05	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.03865	0.01839	0.01498
20	6	1015	180	125	150	145	50	150	50	50	3.33	10.00	3.33	3.33	0.05	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.04396	0.03478	0.02260
20	7	1015	180	150	150	130	50	200	75	75	3.33	13.33	5.00	5.00	0.05	0.000001	0.000001	0.000001	0.00015	0.00015	0.00013	0.04520	0.04848	0.03571
20	8	1025	180	170	125	125	50	250	100	75	3.33	16.67	6.67	5.00	0.05	0.000001	0.000001	0.000001	0.00017	0.00013	0.00013	0.04630	0.06908	0.04571
20	9	1025	190	185	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00019	0.00011	0.00011	0.04420	0.10127	0.07619
20	10	1025	190	200	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00020	0.00011	0.00011	0.04348	0.09756	0.07619
20	11	1025	190	185	105	105	50	300	150	100	3.33	20.00	10.00	6.67	0.05	0.000001	0.000001	0.000001	0.00019	0.00011	0.00011	0.04420	0.10127	0.07619
20	12	1025	180	165	125	125	75	250	100	10	5.00	16.67	6.67	0.67	0.05	0.000001	0.000001	0.000001	0.00017	0.00013	0.00013	0.06270	0.06981	0.00970
20	13	1030	180	135	150	150	150	250	75	10	10.00	16.67	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00014	0.00015	0.00015	0.10471	0.05249	0.00784
20	14	1030	180	115	170	175	200	200	75	10	13.33	13.33	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00018	0.11852	0.04692	0.00675
20	15	1030	180	100	170	175	240	200	75	5	16.00	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00018	0.13913	0.04819	0.00358
20	16	1030	170	80	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00013	0.00023	0.18100	0.06711	0.00286

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
20	17	1030	170	115	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00012	0.00013	0.00023	0.15209	0.06270	0.00286
20	18	1030	170	115	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00012	0.00013	0.00023	0.15209	0.06270	0.00286
20	19	1030	170	80	125	225	240	250	75	5	16.00	16.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00013	0.00023	0.18100	0.06711	0.00286
20	20	1040	170	80	125	175	450	250	75	5	30.00	16.67	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00013	0.00018	0.24590	0.06711	0.00364
20	21	1040	170	100	120	160	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.18462	0.04598	0.01724
20	22	1040	170	100	120	160	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.18462	0.04598	0.01724
20	23	1040	170	100	120	160	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01600	0.18462	0.04598	0.02239
20	24	1040	180	100	120	150	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00012	0.01500	0.17910	0.04598	0.02326
20	25	1040	180	100	120	150	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00012	0.00015	0.17910	0.04598	0.00412
20	26	1040	170	115	115	150	450	200	50	10	30.00	13.33	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00015	0.16725	0.04638	0.00771
20	27	1050	180	120	100	150	450	250	75	10	30.00	16.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00816
20	28	1050	180	120	100	150	450	250	75	10	30.00	16.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00816
20	29	1050	180	120	100	150	450	250	75	10	30.00	16.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00816
20	30	1050	180	120	100	150	450	250	75	10	30.00	16.67	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00015	0.18405	0.07353	0.00816
20	31	1050	180	120	120	80	700	250	75	10	46.67	16.67	5.00	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.06410	0.01389
20	32	1050	180	120	120	80	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.01449
20	33	1050	180	120	120	80	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.01449
20	34	1050	180	120	120	80	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.01449
20	35	1050	180	120	120	55	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00006	0.22599	0.07937	0.01990
20	36	1050	180	135	120	80	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.20513	0.07663	0.01449
20	37	1050	180	145	115	60	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01865
20	38	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
20	39	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
20	40	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
20	41	1050	180	145	115	60	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00012	0.00006	0.19324	0.07707	0.01014
20	42	1050	170	130	155	45	1000	250	75	5	66.67	16.67	5.00	0.33	0.18	0.000001	0.000001	0.000001	0.00013	0.00016	0.00005	0.21505	0.05155	0.01205
20	43	1050	170	130	155	45	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.21505	0.03683	0.03252
20	44	1050	170	130	155	45	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.21505	0.03683	0.03252
20	45	1050	170	120	165	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00017	0.00450	0.26667	0.01905	0.01754
20	46	1050	170	130	155	45	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00016	0.00450	0.25000	0.02010	0.01852
20	47	1055	170	130	155	45	600	300	25	5	40.00	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00016	0.00005	0.22222	0.02010	0.00877
20	48	1055	170	140	115	75	600	300	25	5	40.00	20.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.00680
20	49	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
20	50	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
20	51	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
20	52	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
20	53	1055	170	140	115	75	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00014	0.00012	0.00008	0.21053	0.02632	0.01102
20	54	1055	170	120	100	110	600	300	25	10	40.00	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00011	0.23529	0.03030	0.00889
20	55	1055	170	115	100	115	450	200	25	5	30.00	13.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00010	0.00012	0.16725	0.02914	0.00494
20	56	1055	170	115	100	115	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00010	0.01150	0.16725	0.02914	0.02034
20	57	1055	170	115	100	115	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00010	0.01150	0.16725	0.02914	0.02034

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
20	58	1060	170	100	100	130	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01300	0.18462	0.02963	0.01935
20	59	1060	170	85	100	155	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00010	0.00016	0.33994	0.06144	0.00404
20	60	1060	170	75	75	180	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00008	0.00018	0.35821	0.08081	0.00356
20	61	1060	170	65	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00005	0.00023	0.37855	0.11799	0.00284
20	62	1060	170	50	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00005	0.00005	0.00023	0.41379	0.12121	0.00284
20	63	1060	170	50	50	230	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00005	0.00005	0.00023	0.41379	0.12121	0.00284
20	64	1060	160	65	75	200	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.36782	0.04216	0.01791
20	65	1065	160	75	75	190	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34409	0.04183	0.01846
20	66	1065	165	75	75	190	450	300	25	3	30.00	20.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.04103	0.01846
20	67	1065	165	75	75	190	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.01720	0.01137
20	68	1065	150	75	75	190	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.24121	0.01693	0.01137
20	69	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	70	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	71	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	78	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
20	79	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	1	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
21	2	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
21	3	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
21	4	1015	175	110	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00017	0.00017	0.08772	0.00758	0.00404
21	5	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
21	6	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
21	7	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
21	8	1025	180	125	145	150	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07890	0.00847	0.00452
21	9	1025	180	125	145	150	200	100	10	10	13.33	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07407	0.00847	0.00452
21	10	1025	180	130	145	145	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.01770	0.00657
21	11	1025	180	130	145	145	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.01770	0.00657
21	12	1025	180	130	145	145	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.01770	0.00657
21	13	1030	180	130	145	145	240	100	25	10	16.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07583	0.01878	0.00657
21	14	1030	180	115	170	150	240	100	25	10	16.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00015	0.08290	0.01677	0.00612
21	15	1030	175	100	170	155	240	150	25	10	16.00	10.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00016	0.12075	0.01786	0.00598
21	16	1030	165	90	155	200	240	150	25	5	16.00	10.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00016	0.00020	0.13389	0.01961	0.00289
21	17	1030	165	80	155	200	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00016	0.02000	0.14350	0.01980	0.01253
21	18	1030	165	70	155	200	240	150	50	2	16.00	10.00	3.33	2.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00016	0.02000	0.15459	0.03738	0.01365
21	19	1030	165	70	135	230	240	200	50	3	16.00	13.33	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00014	0.02300	0.17877	0.04372	0.01707

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
21	20	1040	170	85	125	155	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01550	0.20601	0.04558	0.01739
21	21	1040	170	100	125	155	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01550	0.18462	0.04444	0.01739
21	22	1040	170	100	125	155	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01550	0.18462	0.04444	0.01739
21	23	1040	170	100	125	155	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01550	0.18462	0.04444	0.02243
21	24	1040	170	100	125	155	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01550	0.18462	0.04444	0.02243
21	25	1040	170	100	125	155	450	200	75	3	30.00	13.33	5.00	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01550	0.18462	0.06154	0.02609
21	26	1040	170	100	125	155	450	200	75	10	30.00	13.33	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00013	0.00016	0.18462	0.06154	0.00777
21	27	1050	180	110	120	130	450	200	75	10	30.00	13.33	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00012	0.00013	0.16783	0.06202	0.00913
21	28	1050	180	120	120	130	450	200	75	10	30.00	13.33	5.00	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.15789	0.06061	0.00913
21	29	1050	180	120	120	130	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.18405	0.07937	0.00490
21	30	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
21	31	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
21	32	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
21	33	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.00775
21	34	1050	180	120	120	80	450	250	100	5	30.00	16.67	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.18405	0.07937	0.01449
21	35	1050	180	120	120	80	450	250	100	10	30.00	16.67	6.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.00775
21	36	1050	180	120	120	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	37	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	38	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	39	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	40	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	41	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
21	42	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00800	0.22599	0.07353	0.04286
21	43	1050	180	120	100	80	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00010	0.00800	0.22599	0.07353	0.04286
21	44	1050	180	120	100	80	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00013	0.00950	0.22989	0.06211	0.03529
21	45	1050	170	120	125	95	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00013	0.00950	0.24691	0.06329	0.03529
21	46	1050	170	110	125	95	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00013	0.01100	0.22284	0.02451	0.01791
21	47	1055	165	110	125	110	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
21	48	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
21	49	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
21	50	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
21	51	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
21	52	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
21	53	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
21	54	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
21	55	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
21	56	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.21818	0.02469	0.01791
21	57	1055	165	100	125	110	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11009	0.01111	0.00968
21	58	1060	165	100	110	125	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11009	0.01111	0.00968
21	59	1060	165	100	110	125	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00009	0.01650	0.13187	0.01361	0.01053
21	60	1060	165	80	90	165	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100						

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
21	61	1060	165	80	75	180	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01800	0.13187	0.01606	0.01159
21	62	1060	165	75	75	185	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01850	0.13873	0.01616	0.01148
21	63	1060	165	75	75	185	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00008	0.00019	0.36923	0.08081	0.00346
21	64	1060	160	65	75	200	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.36782	0.04216	0.01791
21	65	1065	160	75	75	190	500	400	25	3	33.33	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.36281	0.04183	0.01846
21	66	1065	165	75	75	190	500	300	25	3	33.33	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.30303	0.04103	0.01846
21	67	1065	165	75	75	190	500	300	10	3	33.33	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.30303	0.01720	0.01137
21	68	1065	155	75	75	190	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.24465	0.01693	0.01137
21	69	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	70	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	71	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	78	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
21	79	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	1	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
22	2	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
22	3	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
22	4	1015	175	105	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00017	0.00017	0.09070	0.00760	0.00404
22	5	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
22	6	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
22	7	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
22	8	1025	180	125	145	150	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07890	0.00847	0.00452
22	9	1025	180	125	145	150	200	100	10	10	13.33	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07407	0.00847	0.00452
22	10	1025	180	130	145	145	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.01770	0.00657
22	11	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
22	12	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
22	13	1030	180	130	145	145	200	100	25	10	13.33	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07207	0.01878	0.00657
22	14	1030	180	115	170	150	240	100	25	10	16.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00015	0.08290	0.01677	0.00612
22	15	1030	175	100	170	155	240	150	25	10	16.00	10.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00016	0.12075	0.01786	0.00598
22	16	1030	165	95	155	200	240	200	10	5	16.00	13.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00016	0.00020	0.15311	0.00835	0.00240
22	17	1030	165	80	155	200	240	250	10	3	16.00	16.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00016	0.02000	0.18626	0.00843	0.00669
22	18	1030	165	60	105	270	240	750	50	3	16.00	50.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02700	0.28021	0.06116	0.01646
22	19	1030	165	70	105	270	240	750	50	3	16.00	50.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00011	0.02700	0.27257	0.06079	0.01646
22	20	1040	155	95	80	270	450	750	50	2	30.00	50.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.42254	0.07722	0.01258
22	21	1040	155	95	80	270	450	750	50	2	30.00	50.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.42254	0.07722	0.01258
22	22	1040	155	95	80	270	450	750	50	2	30.00	50.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.42254	0.07722	0.01258

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
22	23	1040	155	105	80	270	450	500	50	3	30.00	33.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00008	0.02700	0.33426	0.07366	0.01754
22	24	1040	165	115	115	200	700	250	50	10	46.67	16.67	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.22382	0.04831	0.00598
22	25	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
22	26	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
22	27	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
22	28	1050	170	115	115	200	700	150	75	10	46.67	10.00	5.00	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.05797	0.00619
22	29	1050	180	120	120	130	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.01300	0.20927	0.07937	0.03261
22	30	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
22	31	1050	180	120	120	80	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.22599	0.07937	0.04478
22	32	1050	180	120	120	80	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.22599	0.07937	0.04478
22	33	1050	180	120	120	80	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.22599	0.07937	0.04478
22	34	1050	180	120	120	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.00775
22	35	1050	180	120	120	80	1000	250	100	10	66.67	16.67	6.67	0.67	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.01449
22	36	1050	180	120	120	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.00775
22	37	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	38	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	39	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	40	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	41	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	42	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
22	43	1050	180	120	100	80	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00010	0.00800	0.22599	0.09009	0.04800
22	44	1050	180	120	100	80	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00010	0.00800	0.22599	0.09009	0.04800
22	45	1050	170	120	125	95	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00013	0.00950	0.22989	0.07707	0.03967
22	46	1050	170	110	125	95	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00013	0.00950	0.24691	0.06329	0.03529
22	47	1055	165	100	125	110	600	250	50	3	40.00	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.23881	0.04598	0.02697
22	48	1055	165	100	125	110	600	200	25	3	40.00	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.02424	0.01791
22	49	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
22	50	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
22	51	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
22	52	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
22	53	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
22	54	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
22	55	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
22	56	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
22	57	1055	165	100	125	110	450	150	10	3	30.00	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.15190	0.01013	0.00892
22	58	1060	165	100	110	125	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11009	0.01111	0.00968
22	59	1060	165	100	110	125	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11740	0.01111	0.00968
22	60	1060	165	80	90	165	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00009	0.01650	0.14249	0.01361	0.01053
22	61	1060	165	80	75	180	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01800	0.24889	0.01688	0.01159
22	62	1060	165	75	75	185	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01850	0.34568	0.04103	0.01875
22	63	1060	165	75	75	185	700	500	50	5	46.67	33.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00008	0.00019	0.46667	0.08081	0.00346

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
22	64	1060	160	65	75	200	700	400	25	3	46.67	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.45808	0.04216	0.01791
22	65	1065	160	75	75	190	700	400	25	3	46.67	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.42185	0.04183	0.01846
22	66	1065	165	75	75	190	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34568	0.04103	0.01846
22	67	1065	165	75	75	190	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34568	0.01720	0.01137
22	68	1065	150	75	75	190	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.27251	0.01693	0.01137
22	69	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
22	70	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
22	71	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
22	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	78	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
22	79	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	1	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
23	2	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
23	3	1005	175	95	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00017	0.00017	0.09732	0.00764	0.00404
23	4	1015	175	105	165	165	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00017	0.00017	0.09070	0.00760	0.00404
23	5	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
23	6	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
23	7	1015	175	115	150	160	250	100	10	5	16.67	6.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00015	0.00016	0.08493	0.00826	0.00284
23	8	1025	180	125	145	150	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07890	0.00847	0.00452
23	9	1025	180	125	145	150	200	100	10	10	13.33	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.07407	0.00847	0.00452
23	10	1025	180	130	145	145	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.01770	0.00657
23	11	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
23	12	1025	180	130	145	145	150	100	25	10	10.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.06557	0.01878	0.00657
23	13	1030	180	130	145	145	150	250	25	10	10.00	16.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.10638	0.02110	0.00657
23	14	1030	180	115	170	150	200	750	25	10	13.33	50.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00015	0.18957	0.01918	0.00612
23	15	1030	175	100	170	155	240	750	25	10	16.00	50.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00016	0.23358	0.01923	0.00598
23	16	1030	165	80	155	200	240	750	10	5	16.00	50.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00016	0.00020	0.26534	0.00854	0.00240
23	17	1030	165	80	155	200	240	750	10	3	16.00	50.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00016	0.02000	0.26534	0.00854	0.00669
23	18	1030	165	60	105	270	240	750	50	3	16.00	50.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02700	0.28021	0.06116	0.01646
23	19	1030	165	60	105	270	240	750	50	3	16.00	50.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02700	0.28021	0.06116	0.01646
23	20	1035	155	95	80	270	450	750	50	2	30.00	50.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.42254	0.07722	0.01258
23	21	1040	155	95	80	270	450	750	50	2	30.00	50.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.42254	0.07722	0.01258
23	22	1040	155	95	80	270	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01258
23	23	1040	155	95	80	270	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01754
23	24	1040	165	105	115	200	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00012	0.00020	0.14634	0.04444	0.00598
23	25	1040	170	115	115	200	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.13483	0.04348	0.00598

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
23	26	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
23	27	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
23	28	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
23	29	1050	180	120	120	130	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.01300	0.20927	0.07937	0.03261
23	30	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
23	31	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
23	32	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
23	33	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
23	34	1050	180	120	120	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.00775
23	35	1050	180	120	120	80	700	250	100	10	46.67	16.67	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.01449
23	36	1050	180	120	120	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.22599	0.07937	0.00775
23	37	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	38	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	39	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	40	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	41	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	42	1050	180	120	100	80	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.22599	0.09009	0.00784
23	43	1050	180	120	100	80	1000	250	75	3	66.67	16.67	5.00	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00010	0.00800	0.22599	0.07353	0.04286
23	44	1050	180	120	100	80	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00010	0.00800	0.22599	0.05376	0.03529
23	45	1050	170	120	125	95	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00013	0.00950	0.22989	0.04474	0.02892
23	46	1050	170	110	125	95	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00013	0.00950	0.24691	0.04535	0.02892
23	47	1055	165	110	125	110	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00013	0.01100	0.22284	0.02451	0.01791
23	48	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
23	49	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
23	50	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
23	51	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
23	52	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
23	53	1055	165	100	125	110	600	200	5	3	40.00	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.00523	0.00486
23	54	1055	165	100	125	110	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.20253	0.01026	0.00892
23	55	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
23	56	1055	165	100	125	110	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.18750	0.01026	0.00892
23	57	1055	165	100	125	110	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.01100	0.21818	0.02469	0.01791
23	58	1060	165	100	110	125	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11740	0.01111	0.00968
23	59	1060	165	100	110	125	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00011	0.01250	0.11740	0.01111	0.00968
23	60	1060	165	90	90	165	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00009	0.01650	0.12874	0.01347	0.01053
23	61	1060	165	80	75	180	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01800	0.14249	0.01606	0.01159
23	62	1060	165	75	75	185	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01850	0.15054	0.01616	0.01148
23	63	1060	165	75	75	185	700	500	25	5	46.67	33.33	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00008	0.00019	0.46667	0.04233	0.00333
23	64	1060	160	65	75	200	700	400	25	3	46.67	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.45808	0.04216	0.01791
23	65	1065	160	75	75	190	700	400	25	3	46.67	26.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.42185	0.04183	0.01846
23	66	1065	165	75	75	190	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34568	0.04103	0.01846

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
23	67	1065	165	75	75	190	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34568	0.01720	0.01137
23	68	1065	155	75	75	190	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.26859	0.01693	0.01137
23	69	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
23	70	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
23	71	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
23	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	78	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
23	79	1080	165	110	135	180	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.10336	0.00913	0.00423
24	1	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
24	2	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
24	3	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
24	4	1015	175	120	135	180	250	100	25	10	16.67	6.67	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00014	0.00018	0.08230	0.02020	0.00570
24	5	1015	170	130	110	190	250	100	75	25	16.67	6.67	5.00	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.04819	0.01471
24	6	1015	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
24	7	1015	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
24	8	1025	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
24	9	1025	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
24	10	1025	180	130	145	145	200	75	75	10	13.33	5.00	5.00	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.03636	0.00811
24	11	1025	180	130	145	145	150	75	50	10	10.00	5.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.02878	0.00766
24	12	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
24	13	1030	180	130	145	145	150	100	25	10	10.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.06557	0.01878	0.00657
24	14	1030	180	115	170	150	200	100	25	10	13.33	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00015	0.07843	0.01677	0.00612
24	15	1030	175	100	170	155	240	150	25	10	16.00	10.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00016	0.12075	0.01786	0.00598
24	16	1030	165	90	155	200	240	200	10	5	16.00	13.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00016	0.00020	0.15764	0.00836	0.00240
24	17	1030	165	80	155	200	240	250	10	3	16.00	16.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00016	0.02000	0.18626	0.00843	0.00669
24	18	1030	165	70	105	270	240	500	25	3	16.00	33.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00011	0.02700	0.24883	0.03072	0.01307
24	19	1030	165	60	105	270	240	500	50	3	16.00	33.33	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02700	0.25848	0.06006	0.01646
24	20	1040	165	85	80	270	450	300	50	2	30.00	20.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02700	0.26966	0.07080	0.01258
24	21	1040	155	95	80	270	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01258
24	22	1040	155	95	80	270	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01258
24	23	1040	155	95	80	270	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01754
24	24	1040	165	105	115	200	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00012	0.00020	0.14634	0.04444	0.00598
24	25	1040	170	115	115	200	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.13483	0.04348	0.00598
24	26	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
24	27	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
24	28	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
24	29	1050	180	120	120	130	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.01300	0.20927	0.07937	0.03261
24	30	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
24	31	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
24	32	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
24	33	1050	180	120	120	80	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.07937	0.04478
24	34	1050	180	120	120	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.00775
24	35	1050	180	120	120	80	700	250	100	10	46.67	16.67	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.01449
24	36	1050	180	120	120	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00008	0.20927	0.07937	0.00775
24	37	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
24	38	1050	180	120	100	80	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00010	0.00008	0.20927	0.09009	0.00784
24	39	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	40	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	41	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	42	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	43	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	44	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	45	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	46	1050	175	125	95	105	1000	250	50	3	66.67	16.67	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.22039	0.05556	0.03150
24	47	1055	175	125	95	105	600	250	50	3	40.00	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00013	0.00010	0.01050	0.19753	0.05556	0.03150
24	48	1055	175	110	110	105	600	250	50	3	40.00	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00011	0.01050	0.21680	0.05051	0.02941
24	49	1055	165	100	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00016	0.00900	0.23881	0.02020	0.01626
24	50	1055	165	90	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.25723	0.02033	0.01626
24	51	1055	165	90	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.25723	0.02033	0.01626
24	52	1055	165	90	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.25723	0.02033	0.01626
24	53	1055	165	90	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.25723	0.02033	0.01626
24	54	1055	165	90	155	90	600	250	25	3	40.00	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.25723	0.02033	0.01626
24	55	1055	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	56	1055	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	57	1055	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	58	1060	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	59	1060	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	60	1060	165	90	155	90	450	250	25	3	30.00	16.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00016	0.00900	0.23346	0.02033	0.01626
24	61	1060	165	80	75	180	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01800	0.13187	0.01606	0.01159
24	62	1060	165	75	75	185	450	100	10	3	30.00	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01850	0.13873	0.01616	0.01148
24	63	1060	165	75	75	185	450	500	50	5	30.00	33.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00008	0.00019	0.36923	0.08081	0.00346
24	64	1060	160	65	75	200	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.02000	0.36782	0.04216	0.01791
24	65	1065	160	75	75	190	450	400	25	3	30.00	26.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34409	0.04183	0.01846
24	66	1065	165	75	75	190	450	300	25	3	30.00	20.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.04103	0.01846
24	67	1065	165	75	75	190	450	300	10	3	30.00	20.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.28916	0.01720	0.01137
24	68	1065	155	75	75	190	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.26859	0.01693	0.01137
24	69	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
24	70	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
24	71	1065	150	75	75	190	700	100	10	3	46.67	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15427	0.01616	0.01137
24	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
24	78	1080	150	100	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00008	0.01900	0.11494	0.01569	0.01137
24	79	1080	175	110	135	180	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.10178	0.00913	0.00423
25	1	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
25	2	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
25	3	1005	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
25	4	1015	175	110	135	180	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.08772	0.00913	0.00423
25	5	1015	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
25	6	1015	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
25	7	1015	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
25	8	1025	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
25	9	1025	170	130	110	190	250	100	100	25	16.67	6.67	6.67	1.67	0.12	0.000001	0.000001	0.000001	0.00013	0.00011	0.00019	0.07843	0.05556	0.01533
25	10	1025	180	130	145	145	200	75	50	10	13.33	5.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05839	0.02878	0.00766
25	11	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
25	12	1025	180	130	145	145	150	75	25	10	10.00	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.05405	0.01770	0.00657
25	13	1030	180	130	145	145	150	100	25	10	10.00	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00015	0.00015	0.06557	0.01878	0.00657
25	14	1030	180	115	170	150	200	100	25	10	13.33	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00012	0.00017	0.00015	0.07843	0.01677	0.00612
25	15	1030	175	100	170	155	240	150	25	10	16.00	10.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00016	0.12075	0.01786	0.00598
25	16	1030	165	90	155	200	240	200	10	5	16.00	13.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00016	0.00020	0.15764	0.00836	0.00240
25	17	1030	165	80	155	200	240	250	10	3	16.00	16.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00016	0.02000	0.18626	0.00843	0.00669
25	18	1030	165	60	105	270	240	500	50	3	16.00	33.33	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00011	0.02700	0.25848	0.06006	0.01646
25	19	1030	165	70	105	270	240	500	50	3	16.00	33.33	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00011	0.02700	0.24883	0.05952	0.01646
25	20	1035	160	85	80	270	450	300	50	2	30.00	20.00	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00008	0.02700	0.27586	0.07080	0.01258
25	21	1040	155	95	80	270	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01258
25	22	1040	155	95	80	270	450	200	50	2	30.00	13.33	3.33	2.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01258
25	23	1040	155	95	80	270	450	200	50	3	30.00	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00008	0.02700	0.20084	0.06426	0.01754
25	24	1040	170	100	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00020	0.16471	0.04494	0.00598
25	25	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
25	26	1040	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
25	27	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
25	28	1050	170	115	115	200	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00020	0.14660	0.04348	0.00598
25	29	1050	180	120	120	130	700	200	50	5	46.67	13.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00012	0.00012	0.00013	0.17610	0.04444	0.00469
25	30	1050	180	120	120	80	700	250	50	3	46.67	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.20927	0.04630	0.03191
25	31	1050	190	115	115	80	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.24034	0.02676	0.02091

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
25	32	1050	190	115	115	80	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.24034	0.02676	0.02091
25	33	1050	190	115	115	80	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.24034	0.02676	0.02091
25	34	1050	190	115	115	80	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.24034	0.02676	0.02091
25	35	1050	190	115	115	80	700	300	25	3	46.67	20.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.24034	0.02676	0.02091
25	36	1050	190	115	115	80	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.26490	0.02676	0.02091
25	37	1050	190	115	115	80	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.26490	0.02676	0.02091
25	38	1050	190	115	115	80	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.26490	0.02676	0.02091
25	39	1050	190	115	115	80	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.26490	0.02676	0.02091
25	40	1050	190	115	115	80	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00012	0.00012	0.00800	0.26490	0.02676	0.02091
25	41	1050	180	105	95	140	1000	300	25	3	66.67	20.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00011	0.00010	0.01400	0.28986	0.03213	0.01929
25	42	1050	170	90	95	160	1000	250	25	5	66.67	16.67	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00009	0.00010	0.00016	0.28986	0.03205	0.00372
25	43	1050	160	70	75	205	1000	350	25	3	66.67	23.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00008	0.02050	0.45977	0.04167	0.01765
25	44	1050	160	60	75	205	1000	350	25	3	66.67	23.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.51002	0.04204	0.01765
25	45	1050	160	60	75	205	1000	350	25	3	66.67	23.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.51002	0.04204	0.01765
25	46	1050	160	60	75	205	1000	350	25	3	66.67	23.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.51002	0.04204	0.01765
25	47	1055	160	60	75	205	600	350	25	3	40.00	23.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.41481	0.04204	0.01765
25	48	1055	160	60	75	205	600	350	25	3	40.00	23.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.41481	0.04204	0.01765
25	49	1055	160	60	75	205	600	350	25	3	40.00	23.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.41481	0.04204	0.01765
25	50	1055	160	60	75	205	600	350	25	3	40.00	23.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02050	0.41481	0.04204	0.01765
25	51	1055	160	75	100	165	600	250	10	3	40.00	16.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01650	0.29630	0.01294	0.00976
25	52	1055	160	75	100	165	600	250	10	3	40.00	16.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01650	0.29630	0.01294	0.00976
25	53	1055	160	75	100	165	600	250	10	3	40.00	16.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01650	0.29630	0.01294	0.00976
25	54	1055	160	75	100	165	600	250	10	3	40.00	16.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01650	0.29630	0.01294	0.00976
25	55	1055	160	75	100	165	600	200	10	3	40.00	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01650	0.25397	0.01285	0.00976
25	56	1055	160	75	125	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00013	0.01400	0.23188	0.01036	0.00854
25	57	1055	160	75	125	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00013	0.01400	0.23188	0.01036	0.00854
25	58	1060	160	75	125	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00013	0.01400	0.23188	0.01036	0.00854
25	59	1060	160	90	150	100	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.20513	0.00863	0.00774
25	60	1060	160	90	150	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.20513	0.00863	0.00736
25	61	1060	160	90	150	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.20513	0.00863	0.00736
25	62	1060	160	90	150	140	450	200	10	3	30.00	13.33	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.20513	0.00863	0.00736
25	63	1060	160	90	150	140	450	250	10	3	30.00	16.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.23810	0.00868	0.00736
25	64	1060	160	90	150	140	450	400	10	3	30.00	26.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.31373	0.00876	0.00736
25	65	1065	160	90	150	140	450	400	10	3	30.00	26.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.31373	0.00876	0.00736
25	66	1065	160	90	150	140	450	400	10	3	30.00	26.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.31373	0.00876	0.00736
25	67	1065	165	75	75	190	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.35398	0.01720	0.01137
25	68	1065	155	75	75	190	750	200	10	3	50.00	13.33	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.27304	0.01693	0.01137
25	69	1065	150	75	75	190	750	100	10	3	50.00	6.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15564	0.01616	0.01137
25	70	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	71	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
25	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
25	78	1080	150	95	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00008	0.01900	0.12012	0.01578	0.01137
25	79	1080	165	110	135	180	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.10336	0.00913	0.00423
26	1	1005	155	130	135	180	200	75	10	10	13.33	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00014	0.00018	0.06178	0.00875	0.00423
26	2	1005	155	130	135	180	200	75	10	10	13.33	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00014	0.00018	0.06178	0.00875	0.00423
26	3	1005	155	130	125	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00013	0.02150	0.04408	0.01754	0.01364
26	4	1015	155	130	150	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00015	0.02150	0.04408	0.01550	0.01237
26	5	1015	155	130	150	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00015	0.02150	0.04408	0.01550	0.01237
26	6	1015	160	110	125	215	240	75	25	3	16.00	5.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00013	0.02150	0.07240	0.02062	0.01364
26	7	1015	160	100	125	215	240	75	25	3	16.00	5.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.07805	0.02105	0.01364
26	8	1025	160	100	125	215	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.09697	0.02222	0.01364
26	9	1025	160	100	125	215	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.09697	0.02222	0.01364
26	10	1025	160	100	125	215	240	100	25	3	16.00	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.09697	0.02222	0.01364
26	11	1025	160	100	125	215	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.12800	0.02353	0.01364
26	12	1025	160	100	125	215	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.12800	0.02353	0.01364
26	13	1030	160	100	125	215	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.12800	0.02353	0.01364
26	14	1030	160	100	125	215	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.12800	0.02353	0.01364
26	15	1030	160	100	125	215	240	150	25	3	16.00	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.12800	0.02353	0.01364
26	16	1030	160	100	125	215	450	200	25	3	30.00	13.33	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.19048	0.02424	0.01364
26	17	1030	160	75	155	225	700	500	25	3	46.67	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02250	0.47863	0.02100	0.01190
26	18	1030	160	60	155	225	700	500	25	3	46.67	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.53640	0.02110	0.01190
26	19	1030	160	60	155	225	700	500	25	3	46.67	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.53640	0.02110	0.01190
26	20	1040	160	60	155	175	700	500	25	3	46.67	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.53640	0.02110	0.01322
26	21	1040	170	80	80	220	700	300	50	3	46.67	20.00	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.02200	0.32558	0.07143	0.02055
26	22	1040	170	80	80	220	700	250	50	3	46.67	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.02200	0.28807	0.06944	0.02055
26	23	1040	170	80	80	220	700	250	50	3	46.67	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.02200	0.28807	0.06944	0.02055
26	24	1040	170	80	150	150	700	250	50	3	46.67	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01500	0.28807	0.04016	0.02105
26	25	1040	170	80	150	150	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01500	0.28807	0.07326	0.02759
26	26	1040	170	95	150	150	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01500	0.25501	0.07092	0.02759
26	27	1050	170	130	100	150	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01500	0.21505	0.08772	0.03077
26	28	1050	170	130	100	150	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01500	0.21505	0.08772	0.03077
26	29	1050	170	130	100	150	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01500	0.21505	0.08772	0.03077
26	30	1050	170	130	120	100	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00012	0.01000	0.21505	0.07752	0.03896
26	31	1050	170	130	100	100	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00010	0.01000	0.21505	0.08772	0.04138
26	32	1050	160	150	95	95	1000	200	75	5	66.67	13.33	5.00	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.06612	0.00658
26	33	1050	160	150	95	95	1000	200	50	5	66.67	13.33	3.33	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.05031	0.00638
26	34	1050	160	150	95	95	1000	200	50	5	66.67	13.33	3.33	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.05031	0.00638

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
26	35	1050	160	150	95	95	1000	200	50	5	66.67	13.33	3.33	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.05031	0.00638
26	36	1050	160	150	95	95	1000	200	50	5	66.67	13.33	3.33	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.05031	0.00638
26	37	1050	160	150	95	95	1000	200	50	5	66.67	13.33	3.33	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.15873	0.05031	0.00638
26	38	1050	170	135	105	90	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00009	0.20833	0.08386	0.00700
26	39	1050	170	135	105	90	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00009	0.20833	0.08386	0.00700
26	40	1050	170	135	105	90	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00009	0.20833	0.08386	0.00700
26	41	1050	170	135	105	90	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00009	0.20833	0.08386	0.00700
26	42	1050	170	135	105	90	1000	250	100	5	66.67	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00009	0.20833	0.08386	0.00700
26	43	1050	170	110	140	90	1000	150	75	10	66.67	10.00	5.00	0.67	0.18	0.000001	0.000001	0.000001	0.00011	0.00014	0.00009	0.16000	0.05128	0.01227
26	44	1050	170	100	140	90	1000	150	50	25	66.67	10.00	3.33	1.67	0.18	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.17391	0.03846	0.02083
26	45	1050	170	100	140	90	1000	150	50	25	66.67	10.00	3.33	1.67	0.18	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.17391	0.03846	0.02083
26	46	1050	170	100	140	90	1000	150	50	25	66.67	10.00	3.33	1.67	0.18	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.17391	0.03846	0.02083
26	47	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	48	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	49	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	50	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	51	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	52	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	53	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	54	1055	170	100	140	90	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16000	0.03846	0.02083
26	55	1055	170	100	140	90	450	150	50	25	30.00	10.00	3.33	1.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.15000	0.03846	0.02083
26	56	1055	170	100	140	90	450	150	50	25	30.00	10.00	3.33	1.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.15000	0.03846	0.02083
26	57	1055	170	100	140	90	450	150	50	25	30.00	10.00	3.33	1.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.15000	0.03846	0.02083
26	58	1060	170	100	140	90	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16471	0.03846	0.02083
26	59	1060	170	100	140	90	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16471	0.03846	0.02083
26	60	1060	170	100	140	90	700	150	25	10	46.67	10.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00014	0.00009	0.16471	0.02128	0.00913
26	61	1060	160	90	150	100	700	250	25	5	46.67	16.67	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.27290	0.02096	0.00513
26	62	1060	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
26	63	1060	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
26	64	1060	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
26	65	1065	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
26	66	1065	160	90	150	140	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01400	0.37710	0.00876	0.00736
26	67	1065	165	75	75	190	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.34568	0.01720	0.01137
26	68	1065	155	75	75	190	750	200	10	3	50.00	13.33	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.27304	0.01693	0.01137
26	69	1065	150	75	75	190	750	100	10	3	50.00	6.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.15564	0.01616	0.01137
26	70	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	71	1065	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	72	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	73	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	74	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	75	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
26	76	1075	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	77	1080	150	75	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00008	0.01900	0.14652	0.01616	0.01137
26	78	1080	150	100	75	190	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00008	0.01900	0.11494	0.01569	0.01137
26	79	1080	170	110	135	180	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00014	0.00018	0.10256	0.00913	0.00423
27	1	1005	130	165	125	215	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00772
27	2	1005	130	165	125	215	200	50	10	1	13.33	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00497
27	3	1005	130	165	125	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.01606	0.01364
27	4	1010	130	150	150	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00015	0.02150	0.04040	0.01481	0.01237
27	5	1015	135	150	150	215	200	50	25	5	13.33	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00015	0.00022	0.04010	0.01481	0.00272
27	6	1015	145	155	140	140	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.05461	0.01739	0.00680
27	7	1015	150	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06838	0.01865	0.01190
27	8	1025	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
27	9	1025	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
27	10	1025	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
27	11	1025	160	135	130	195	200	150	10	3	13.33	10.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.01950	0.09877	0.00959	0.00769
27	12	1025	160	125	130	195	200	150	10	3	13.33	10.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00013	0.00013	0.01950	0.10390	0.00964	0.00769
27	13	1030	160	110	125	225	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00013	0.02250	0.11268	0.02326	0.01333
27	14	1030	160	100	125	225	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11940	0.02353	0.01333
27	15	1030	160	80	105	255	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.13559	0.02817	0.01351
27	16	1030	160	80	105	255	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.05063	0.01717
27	17	1030	160	70	125	245	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00013	0.02450	0.20000	0.04494	0.01678
27	18	1030	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
27	19	1030	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
27	20	1040	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
27	21	1040	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
27	22	1040	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
27	23	1040	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
27	24	1040	160	75	140	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01750	0.26478	0.02232	0.01405
27	25	1040	165	75	70	240	700	200	50	3	46.67	13.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00007	0.02400	0.26107	0.07512	0.01980
27	26	1040	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
27	27	1050	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
27	28	1050	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
27	29	1050	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
27	30	1050	165	125	125	130	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00013	0.01300	0.18519	0.02370	0.01690
27	31	1050	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
27	32	1050	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
27	33	1050	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
27	34	1050	165	125	120	90	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00013	0.00012	0.00009	0.18519	0.02458	0.00585
27	35	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	36	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	37	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
27	38	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	39	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	40	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	41	1050	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
27	42	1050	165	145	95	95	1000	150	25	5	66.67	10.00	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.12559	0.02797	0.00585
27	43	1050	165	135	105	105	1000	150	25	5	66.67	10.00	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00011	0.13400	0.02614	0.00529
27	44	1050	165	125	105	105	600	150	50	10	40.00	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00013	0.00011	0.00011	0.13445	0.04545	0.01058
27	45	1050	165	105	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00012	0.00012	0.15534	0.04301	0.01852
27	46	1050	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	47	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	48	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	49	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	50	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	51	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	52	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	53	1055	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
27	54	1055	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	55	1055	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	56	1055	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	57	1055	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	58	1060	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	59	1060	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
27	60	1060	165	95	120	120	700	200	50	25	46.67	13.33	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.21832	0.04638	0.01852
27	61	1060	160	90	150	100	700	250	25	10	46.67	16.67	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.27290	0.02096	0.00833
27	62	1060	160	90	150	100	700	300	10	5	46.67	20.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.31111	0.00871	0.00381
27	63	1060	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
27	64	1060	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
27	65	1065	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
27	66	1065	160	90	150	100	750	400	10	3	50.00	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.38647	0.00876	0.00774
27	67	1065	155	75	125	145	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.36697	0.01046	0.00848
27	68	1065	155	75	125	145	750	200	10	3	50.00	13.33	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.27304	0.01036	0.00848
27	69	1065	155	75	125	145	750	100	10	3	50.00	6.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.15444	0.01006	0.00848
27	70	1065	155	75	125	145	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.14493	0.01006	0.00848
27	71	1065	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	72	1075	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	73	1075	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	74	1075	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	75	1075	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	76	1075	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
27	77	1080	150	75	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.14652	0.01240	0.00296
27	78	1080	150	75	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.14652	0.01240	0.00296

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
27	79	1080	150	100	100	150	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00010	0.00015	0.11494	0.01212	0.00533
28	1	990	130	165	125	215	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00772
28	2	990	130	165	125	215	200	50	10	1	13.33	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00497
28	3	990	130	165	125	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.01606	0.01364
28	4	1000	130	165	150	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00015	0.02150	0.03704	0.01434	0.01237
28	5	1000	130	165	150	215	200	50	25	5	13.33	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00017	0.00015	0.00022	0.03704	0.01434	0.00272
28	6	1000	145	155	140	140	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.05461	0.01739	0.00680
28	7	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
28	8	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
28	9	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
28	10	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
28	11	1010	160	135	130	195	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00014	0.00013	0.00020	0.09877	0.00959	0.00410
28	12	1010	160	125	130	195	200	150	10	5	13.33	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00020	0.10390	0.00964	0.00256
28	13	1020	160	100	125	225	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11940	0.02353	0.01333
28	14	1020	160	100	125	225	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.15385	0.02353	0.01333
28	15	1020	160	80	105	255	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.02817	0.01351
28	16	1020	160	80	105	255	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.05063	0.01717
28	17	1020	160	70	125	245	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00013	0.02450	0.20000	0.04494	0.01678
28	18	1020	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
28	19	1025	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
28	20	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
28	21	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
28	22	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
28	23	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
28	24	1025	160	75	140	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01750	0.26478	0.02232	0.01405
28	25	1025	165	75	70	240	1000	200	50	3	66.67	13.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00007	0.02400	0.28369	0.07512	0.01980
28	26	1025	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
28	27	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
28	28	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
28	29	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
28	30	1040	165	100	125	130	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00013	0.01300	0.22409	0.02424	0.01690
28	31	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
28	32	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
28	33	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
28	34	1030	165	125	120	90	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00013	0.00012	0.00009	0.18519	0.02458	0.00585
28	35	1030	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	36	1030	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	37	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	38	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	39	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	40	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
28	41	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
28	42	1040	165	145	95	95	1000	150	25	5	66.67	10.00	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.12559	0.02797	0.00585
28	43	1040	165	135	105	105	1000	150	25	5	66.67	10.00	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00014	0.00011	0.00011	0.13400	0.02614	0.00529
28	44	1040	165	125	105	105	600	150	50	10	40.00	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00013	0.00011	0.00011	0.13445	0.04545	0.01058
28	45	1040	165	105	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00012	0.00012	0.15534	0.04301	0.01852
28	46	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	47	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	48	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	49	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	50	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	51	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	52	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	53	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
28	54	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	55	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	56	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	57	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	58	1045	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	59	1045	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
28	60	1045	165	95	120	120	700	200	50	25	46.67	13.33	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.21832	0.04638	0.01852
28	61	1045	160	90	150	100	700	250	25	10	46.67	16.67	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.27290	0.02096	0.00833
28	62	1045	160	90	150	100	700	300	10	5	46.67	20.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.31111	0.00871	0.00381
28	63	1045	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
28	64	1045	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
28	65	1055	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
28	66	1055	160	90	150	100	750	400	10	3	50.00	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.38647	0.00876	0.00774
28	67	1055	155	75	125	145	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.36697	0.01046	0.00848
28	68	1055	155	75	125	145	750	200	10	3	50.00	13.33	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.27304	0.01036	0.00848
28	69	1055	155	75	125	145	750	100	10	3	50.00	6.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.15444	0.01006	0.00848
28	70	1055	155	75	125	145	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.14493	0.01006	0.00848
28	71	1055	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	72	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	73	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	74	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	75	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	76	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
28	77	1070	150	75	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.14652	0.01240	0.00296
28	78	1070	150	85	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00010	0.00018	0.13201	0.01229	0.00296
28	79	1070	150	100	100	150	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00010	0.00015	0.11494	0.01212	0.00533
29	1	990	130	165	125	215	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00772
29	2	990	130	165	125	215	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.00844	0.00772

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
29	3	990	130	165	125	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00013	0.02150	0.03704	0.01606	0.01364
29	4	1000	130	165	150	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00017	0.00015	0.02150	0.03704	0.01434	0.01237
29	5	1000	130	165	150	215	200	50	25	5	13.33	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00017	0.00015	0.00022	0.03704	0.01434	0.00272
29	6	1000	145	155	140	140	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.05461	0.01739	0.00680
29	7	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
29	8	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
29	9	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
29	10	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
29	11	1010	160	135	130	195	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00014	0.00013	0.00020	0.09877	0.00959	0.00410
29	12	1010	160	125	130	195	200	150	10	5	13.33	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00020	0.10390	0.00964	0.00256
29	13	1020	160	100	125	225	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.11940	0.02353	0.01333
29	14	1020	160	100	125	225	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02250	0.15385	0.02353	0.01333
29	15	1020	160	80	105	255	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.02817	0.01351
29	16	1020	160	80	105	255	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.05063	0.01717
29	17	1020	160	70	125	245	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00013	0.02450	0.20000	0.04494	0.01678
29	18	1020	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
29	19	1025	160	60	155	225	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.02250	0.31111	0.02051	0.01190
29	20	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
29	21	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
29	22	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
29	23	1025	160	60	155	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00016	0.01750	0.31111	0.02051	0.01322
29	24	1025	160	75	140	175	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01750	0.26478	0.02232	0.01405
29	25	1025	165	75	70	240	700	200	50	3	46.67	13.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00007	0.02400	0.26107	0.07512	0.01980
29	26	1025	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
29	27	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
29	28	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
29	29	1030	165	100	80	205	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00008	0.02050	0.22409	0.03604	0.01719
29	30	1030	165	75	125	130	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01300	0.28369	0.02481	0.01690
29	31	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
29	32	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
29	33	1030	165	125	150	60	1000	200	25	3	66.67	13.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00013	0.00015	0.00600	0.18519	0.02013	0.01818
29	34	1030	165	125	120	90	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00013	0.00012	0.00009	0.18519	0.02458	0.00585
29	35	1030	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	36	1030	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	37	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	38	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	39	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	40	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	41	1040	165	145	95	95	1000	200	25	5	66.67	13.33	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.16260	0.02947	0.00585
29	42	1040	165	145	95	95	1000	150	25	5	66.67	10.00	1.67	0.33	0.18	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.12559	0.02797	0.00585
29	43	1040	165	125	105	105	600	150	25	5	40.00	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00011	0.00011	0.13445	0.02649	0.00529

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
29	44	1040	165	125	105	105	600	150	50	10	40.00	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00013	0.00011	0.00011	0.13445	0.04545	0.01058
29	45	1040	165	105	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00011	0.00012	0.00012	0.15534	0.04301	0.01852
29	46	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	47	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	48	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	49	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	50	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	51	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	52	1040	165	95	120	120	600	150	50	25	40.00	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.16842	0.04396	0.01852
29	53	1040	165	95	120	120	750	150	50	25	50.00	10.00	3.33	1.67	0.18	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17544	0.04396	0.01852
29	54	1040	165	95	120	120	750	150	50	25	50.00	10.00	3.33	1.67	0.18	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17544	0.04396	0.01852
29	55	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
29	56	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
29	57	1040	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
29	58	1045	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
29	59	1045	165	95	120	120	700	150	50	25	46.67	10.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.17337	0.04396	0.01852
29	60	1045	165	95	120	120	700	200	50	25	46.67	13.33	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.21832	0.04638	0.01852
29	61	1045	160	90	150	100	700	250	25	10	46.67	16.67	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.27290	0.02096	0.00833
29	62	1045	160	90	150	100	700	300	10	5	46.67	20.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.31111	0.00871	0.00381
29	63	1045	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
29	64	1045	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
29	65	1055	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
29	66	1055	160	90	150	100	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.37710	0.00876	0.00774
29	67	1055	155	85	125	145	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01450	0.32941	0.01043	0.00848
29	68	1055	155	75	125	145	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.26859	0.01036	0.00848
29	69	1055	155	75	125	145	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.14493	0.01006	0.00848
29	70	1055	155	75	125	145	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.14493	0.01006	0.00848
29	71	1055	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	72	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	73	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	74	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	75	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	76	1060	150	75	100	175	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.14652	0.01240	0.00960
29	77	1070	150	75	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.14652	0.01240	0.00296
29	78	1070	150	75	100	175	500	100	10	5	33.33	6.67	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.14652	0.01240	0.00296
29	79	1070	150	100	100	150	500	100	10	10	33.33	6.67	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00010	0.00015	0.11494	0.01212	0.00533
30	1	990	160	135	125	215	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.04233	0.00877	0.00772
30	2	990	160	135	125	215	200	50	10	1	13.33	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.04233	0.00877	0.00497
30	3	990	160	135	125	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.04233	0.01732	0.01364
30	4	1000	145	140	120	215	200	50	25	3	13.33	3.33	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00012	0.02150	0.04199	0.01754	0.01392
30	5	1000	160	140	120	215	200	50	25	5	13.33	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00014	0.00012	0.00022	0.04103	0.01754	0.00279

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
30	6	1000	165	155	140	140	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.05246	0.01739	0.00680
30	7	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
30	8	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
30	9	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
30	10	1010	165	155	140	140	200	100	25	25	13.33	6.67	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00016	0.00014	0.00014	0.06584	0.01865	0.01190
30	11	1010	160	125	130	185	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00019	0.10390	0.00964	0.00423
30	12	1010	160	125	130	185	200	150	10	5	13.33	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00013	0.00019	0.10390	0.00964	0.00267
30	13	1020	160	100	125	215	200	150	25	3	13.33	10.00	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.11940	0.02353	0.01364
30	14	1020	160	100	125	215	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00013	0.02150	0.15385	0.02353	0.01364
30	15	1020	160	80	105	255	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.02817	0.01351
30	16	1020	160	80	105	255	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.02550	0.18182	0.05063	0.01717
30	17	1020	160	70	100	270	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00010	0.02700	0.20000	0.05405	0.01667
30	18	1020	160	60	100	280	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.02800	0.31111	0.03101	0.01304
30	19	1025	160	60	100	280	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.02800	0.31111	0.03101	0.01304
30	20	1025	160	60	100	230	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.02300	0.31111	0.03101	0.01463
30	21	1025	160	60	100	230	700	200	25	3	46.67	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.02300	0.31111	0.03101	0.01463
30	22	1025	160	65	90	220	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.23729	0.01413	0.00252
30	23	1025	160	65	90	220	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.23729	0.01413	0.00252
30	24	1025	160	65	90	220	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.23729	0.01413	0.00252
30	25	1025	160	65	90	220	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.23729	0.01413	0.00252
30	26	1025	160	65	90	220	1000	150	10	5	66.67	10.00	0.67	0.33	0.18	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.25478	0.01413	0.00252
30	27	1030	160	65	90	220	1000	150	10	5	66.67	10.00	0.67	0.33	0.18	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.25478	0.01413	0.00252
30	28	1030	160	65	90	220	1000	150	10	5	66.67	10.00	0.67	0.33	0.18	0.000001	0.000001	0.000001	0.00007	0.00009	0.00022	0.25478	0.01413	0.00252
30	29	1030	165	40	90	260	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02600	0.68376	0.01465	0.00902
30	30	1030	165	60	105	200	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00011	0.02000	0.54422	0.01252	0.00892
30	31	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	32	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	33	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	34	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	35	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	36	1030	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	37	1040	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	38	1040	165	40	90	205	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00009	0.02050	0.68376	0.01465	0.00984
30	39	1040	160	50	125	165	1000	200	10	1	66.67	13.33	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00005	0.00013	0.01650	0.39216	0.01046	0.00567
30	40	1040	160	50	125	165	1000	200	5	1	66.67	13.33	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00005	0.00013	0.01650	0.39216	0.00528	0.00370
30	41	1040	160	50	125	165	1000	150	5	1	66.67	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00005	0.00013	0.01650	0.31496	0.00526	0.00370
30	42	1040	160	50	125	165	1000	100	5	1	66.67	6.67	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00005	0.00013	0.01650	0.22599	0.00523	0.00370
30	43	1040	160	50	125	165	600	100	5	1	40.00	6.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00013	0.01650	0.20513	0.00523	0.00370
30	44	1040	160	50	125	165	600	100	1	1	40.00	6.67	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00005	0.01250	0.01650	0.20513	0.01509	0.00690
30	45	1040	160	50	125	165	600	100	1	1	40.00	6.67	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00005	0.01250	0.01650	0.20513	0.01509	0.00690
30	46	1040	150	165	185	110	600	100	1	1	40.00	6.67	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01850	0.01100	0.07477	0.00954	0.00678

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
30	47	1040	150	145	205	100	600	200	3	1	40.00	13.33	3.00	1.00	0.15	0.000001	0.000100	0.000100	0.00015	0.02050	0.01000	0.15534	0.02525	0.01188
30	48	1040	150	145	205	100	600	200	5	1	40.00	13.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.15534	0.00320	0.00280
30	49	1040	150	145	205	100	600	250	10	1	40.00	16.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.18692	0.00633	0.00491
30	50	1040	150	145	205	100	600	250	10	1	40.00	16.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.18692	0.00633	0.00491
30	51	1040	150	145	205	100	600	250	10	3	40.00	16.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.18692	0.00633	0.00587
30	52	1040	150	120	135	125	600	300	10	3	40.00	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00012	0.00014	0.01250	0.25000	0.00959	0.00819
30	53	1040	150	100	135	125	600	300	10	3	40.00	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00014	0.01250	0.28571	0.00964	0.00819
30	54	1040	150	75	155	120	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.51948	0.02100	0.01504
30	55	1040	150	75	155	120	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.50450	0.04103	0.02312
30	56	1040	150	75	155	120	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.50450	0.04103	0.02312
30	57	1040	150	75	155	120	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.50450	0.04103	0.02312
30	58	1045	155	75	155	120	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.49123	0.04103	0.02312
30	59	1045	165	95	120	120	700	300	50	25	46.67	20.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.29474	0.04908	0.01852
30	60	1045	165	95	120	120	700	300	50	25	46.67	20.00	3.33	1.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00012	0.00012	0.29474	0.04908	0.01852
30	61	1045	160	90	150	100	700	300	25	10	46.67	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.31111	0.02116	0.00833
30	62	1045	160	90	150	100	700	200	10	5	46.67	13.33	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00010	0.23045	0.00863	0.00381
30	63	1045	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
30	64	1045	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
30	65	1055	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
30	66	1055	160	90	150	100	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01000	0.23045	0.00863	0.00774
30	67	1055	155	80	125	145	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.25571	0.01034	0.00848
30	68	1055	155	75	125	145	700	200	10	3	46.67	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.26859	0.01036	0.00848
30	69	1055	155	75	125	145	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.24465	0.01036	0.00848
30	70	1055	155	75	125	145	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01450	0.24465	0.01036	0.00848
30	71	1055	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	72	1060	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	73	1060	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	74	1060	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	75	1060	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	76	1060	150	75	100	175	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01750	0.24922	0.01285	0.00960
30	77	1070	150	75	100	175	500	200	10	5	33.33	13.33	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00010	0.00018	0.24922	0.01285	0.00296
30	78	1070	150	85	100	175	500	200	10	5	33.33	13.33	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00010	0.00018	0.22792	0.01279	0.00296
30	79	1070	150	100	100	150	500	200	10	10	33.33	13.33	0.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00010	0.00015	0.20202	0.01270	0.00533
31	1	990	160	135	125	215	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.07407	0.02100	0.01364
31	2	990	160	135	125	215	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.07407	0.02100	0.01364
31	3	990	160	135	125	215	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.02150	0.07407	0.02100	0.01364
31	4	1000	160	140	120	215	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00014	0.00012	0.02150	0.10309	0.06250	0.02230
31	5	1000	160	140	120	215	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00014	0.00012	0.02150	0.10309	0.06250	0.02230
31	6	1000	160	115	75	205	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00008	0.02050	0.11834	0.08791	0.02513
31	7	1010	175	125	70	280	250	150	100	5	16.67	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00007	0.00028	0.10638	0.08696	0.00235
31	8	1010	175	125	70	280	250	150	100	5	16.67	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00007	0.00028	0.10638	0.08696	0.00235

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
31	9	1010	175	125	70	280	250	150	100	5	16.67	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00007	0.00028	0.10638	0.08696	0.00235
31	10	1010	160	125	130	250	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00013	0.00025	0.11173	0.03883	0.00253
31	11	1010	150	70	130	250	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00013	0.00025	0.16949	0.04348	0.00253
31	12	1010	150	70	105	275	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00011	0.00028	0.16949	0.05195	0.00234
31	13	1020	150	70	105	275	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00011	0.00028	0.25263	0.05442	0.00234
31	14	1020	150	70	105	275	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00011	0.00028	0.28718	0.05442	0.00450
31	15	1020	150	70	105	275	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00011	0.00028	0.28718	0.05442	0.00450
31	16	1020	150	70	85	295	700	200	100	10	46.67	13.33	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00030	0.28718	0.11111	0.00439
31	17	1020	150	70	85	295	700	200	100	10	46.67	13.33	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00030	0.28718	0.11111	0.00439
31	18	1020	150	70	85	295	700	200	100	10	46.67	13.33	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00030	0.28718	0.11111	0.00439
31	19	1025	150	70	80	300	700	200	100	10	46.67	13.33	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00008	0.00030	0.28718	0.11594	0.00433
31	20	1025	150	70	80	300	700	200	100	10	46.67	13.33	6.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00008	0.00030	0.28718	0.11594	0.00433
31	21	1025	150	70	80	300	700	200	100	5	46.67	13.33	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00008	0.00030	0.28718	0.11594	0.00219
31	22	1025	150	80	80	300	700	200	100	5	46.67	13.33	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00008	0.00030	0.25926	0.11111	0.00219
31	23	1025	165	90	70	260	700	175	100	5	46.67	11.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00007	0.00026	0.20513	0.10980	0.00253
31	24	1025	175	90	70	260	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00007	0.00026	0.26144	0.12579	0.00253
31	25	1025	175	90	70	260	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.02600	0.26144	0.12579	0.02058
31	26	1025	160	60	80	310	1000	250	150	3	66.67	16.67	10.00	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.03100	0.40404	0.17241	0.01796
31	27	1030	155	60	80	310	1000	250	150	3	66.67	16.67	10.00	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.03100	0.41026	0.17241	0.01796
31	28	1030	150	60	80	310	1000	250	150	1	66.67	16.67	10.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.03100	0.41667	0.17241	0.00629
31	29	1030	150	60	80	310	1000	250	150	1	66.67	16.67	10.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.03100	0.41667	0.17241	0.00629
31	30	1030	155	60	80	225	1000	250	150	1	66.67	16.67	10.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02250	0.41026	0.17241	0.00858
31	31	1030	160	40	235	160	1000	250	10	1	66.67	16.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00024	0.01600	0.53333	0.00564	0.00390
31	32	1030	165	40	235	160	1000	250	10	1	66.67	16.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00024	0.01600	0.52288	0.00564	0.00390
31	33	1030	165	40	235	160	1000	250	10	1	66.67	16.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00024	0.01600	0.52288	0.00564	0.00390
31	34	1030	165	40	235	160	1000	250	10	1	66.67	16.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00004	0.00024	0.01600	0.52288	0.00564	0.00390
31	35	1030	165	65	235	160	1000	250	10	1	66.67	16.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00024	0.01600	0.37559	0.00561	0.00390
31	36	1030	165	90	90	305	1000	400	10	3	66.67	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00009	0.03050	0.41667	0.01445	0.00845
31	37	1040	165	125	160	110	1000	300	1	1	66.67	20.00	1.00	1.00	0.18	0.000001	0.000100	0.000100	0.00013	0.01600	0.01100	0.26059	0.01203	0.00741
31	38	1040	165	155	160	110	1000	300	1	1	66.67	20.00	1.00	1.00	0.18	0.000001	0.000100	0.000100	0.00016	0.01600	0.01100	0.21798	0.01192	0.00741
31	39	1040	165	165	160	110	1000	300	1	1	66.67	20.00	1.00	1.00	0.18	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.20672	0.01189	0.00741
31	40	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	41	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	42	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	43	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	44	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	45	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	46	1040	165	165	160	110	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00017	0.01600	0.01100	0.18824	0.01189	0.00741
31	47	1040	155	155	205	100	600	300	1	1	40.00	20.00	1.00	1.00	0.15	0.000001	0.000100	0.000100	0.00016	0.02050	0.01000	0.20253	0.00940	0.00656
31	48	1040	150	145	205	100	600	300	3	1	40.00	20.00	3.00	1.00	0.15	0.000001	0.000100	0.000100	0.00015	0.02050	0.01000	0.21622	0.02646	0.01188
31	49	1040	150	145	205	100	750	300	5	1	50.00	20.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00321	0.00280

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
31	50	1040	150	145	205	100	750	300	10	1	50.00	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00635	0.00491
31	51	1040	150	145	205	100	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00635	0.00587
31	52	1040	150	145	205	100	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00635	0.00587
31	53	1040	150	145	205	100	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00635	0.00587
31	54	1040	150	145	205	100	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22599	0.00635	0.00587
31	55	1040	150	145	205	100	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00015	0.00021	0.01000	0.22311	0.00635	0.00587
31	56	1040	150	135	205	100	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00014	0.00021	0.01000	0.23629	0.00636	0.00587
31	57	1040	150	100	155	220	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00016	0.02200	0.25926	0.02020	0.01202
31	58	1045	150	85	155	220	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00016	0.02200	0.29350	0.02039	0.01202
31	59	1045	150	75	155	220	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.32184	0.02051	0.01202
31	60	1045	150	75	155	220	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.32184	0.02051	0.01202
31	61	1045	150	75	155	220	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.32184	0.02051	0.01202
31	62	1045	150	75	155	220	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.21705	0.01990	0.01202
31	63	1045	150	75	155	220	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.21705	0.01990	0.01202
31	64	1045	150	75	155	220	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.02200	0.21705	0.01990	0.01202
31	65	1055	150	65	185	200	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.02000	0.24348	0.01044	0.00795
31	66	1055	150	65	185	200	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.02000	0.24348	0.01044	0.00795
31	67	1055	150	65	185	200	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.02000	0.24348	0.01044	0.00795
31	68	1055	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
31	69	1055	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
31	70	1055	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
31	71	1055	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
31	72	1060	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
31	73	1060	150	90	150	210	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.10256	0.01932	0.01250
31	74	1060	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
31	75	1060	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
31	76	1060	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
31	77	1070	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
31	78	1070	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
31	79	1070	150	65	100	190	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01900	0.31746	0.05900	0.02143
32	1	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
32	2	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
32	3	990	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
32	4	1000	170	125	75	130	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00008	0.01300	0.10811	0.08421	0.03664
32	5	1000	170	125	75	130	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00008	0.01300	0.10811	0.08421	0.03664
32	6	1000	170	125	75	130	250	150	100	3	16.67	10.00	6.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00008	0.01300	0.10811	0.08421	0.03664
32	7	1010	190	105	45	160	500	100	75	5	33.33	6.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00011	0.00005	0.00016	0.10336	0.08081	0.00409
32	8	1010	185	105	45	160	500	100	75	5	33.33	6.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00011	0.00005	0.00016	0.10417	0.08081	0.00409
32	9	1010	175	105	60	160	500	100	75	5	33.33	6.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00011	0.00006	0.00016	0.10582	0.07207	0.00407
32	10	1010	165	125	75	195	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00008	0.00020	0.10989	0.05714	0.00329
32	11	1010	155	70	90	190	250	150	50	5	16.67	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.16529	0.05882	0.00335

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
32	12	1010	150	70	90	190	450	200	50	5	30.00	13.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.25263	0.06202	0.00335
32	13	1020	150	70	90	190	700	200	50	5	46.67	13.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.28718	0.06202	0.00335
32	14	1020	150	70	90	190	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.28718	0.06202	0.00641
32	15	1020	150	70	90	190	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.28718	0.06202	0.00641
32	16	1020	150	70	85	195	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00020	0.28718	0.06504	0.00629
32	17	1020	150	70	85	195	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00020	0.28718	0.06504	0.00629
32	18	1020	150	70	85	195	700	200	50	10	46.67	13.33	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00020	0.28718	0.06504	0.00629
32	19	1025	150	70	85	195	700	200	25	10	46.67	13.33	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00020	0.28718	0.03556	0.00582
32	20	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
32	21	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
32	22	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
32	23	1025	160	65	90	185	700	150	50	5	46.67	10.00	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.05970	0.00344
32	24	1025	160	60	70	210	750	250	75	5	50.00	16.67	5.00	0.33	0.18	0.000001	0.000001	0.000001	0.00006	0.00007	0.00021	0.37037	0.11364	0.00311
32	25	1025	160	60	70	210	750	250	100	3	50.00	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.37037	0.14184	0.02484
32	26	1025	150	60	80	210	1000	250	150	3	66.67	16.67	10.00	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.41667	0.17241	0.02564
32	27	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	28	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	29	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	30	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	31	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	32	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	33	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
32	34	1030	165	75	100	160	1000	300	10	1	66.67	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.38647	0.01301	0.00645
32	35	1030	165	75	100	160	1000	300	10	1	66.67	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.38647	0.01301	0.00645
32	36	1030	165	75	100	160	1000	300	10	1	66.67	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.38647	0.01301	0.00645
32	37	1035	165	90	100	160	1000	300	10	3	66.67	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00010	0.01600	0.33755	0.01294	0.00984
32	38	1040	175	100	100	125	1000	300	10	3	66.67	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00010	0.01250	0.30418	0.01290	0.01043
32	39	1040	175	100	100	125	1000	300	10	3	66.67	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00010	0.01250	0.30418	0.01290	0.01043
32	40	1040	175	100	100	125	600	300	10	3	40.00	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.01250	0.26230	0.01290	0.01043
32	41	1040	185	95	85	130	600	300	10	3	40.00	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.26230	0.01512	0.01171
32	42	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
32	43	1040	175	80	100	110	600	400	5	1	40.00	26.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01100	0.35556	0.00660	0.00488
32	44	1040	170	70	100	110	600	300	5	1	40.00	20.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01100	0.33333	0.00659	0.00488
32	45	1040	170	70	100	110	600	300	5	1	40.00	20.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01100	0.33333	0.00659	0.00488
32	46	1040	170	70	100	110	600	300	5	1	40.00	20.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00010	0.01100	0.33333	0.00659	0.00488
32	47	1040	170	70	125	100	600	300	5	1	40.00	20.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.33333	0.00528	0.00421
32	48	1040	170	70	125	100	750	300	5	1	50.00	20.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.36364	0.00528	0.00421
32	49	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
32	50	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
32	51	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
32	52	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
32	53	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
32	54	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
32	55	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
32	56	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
32	57	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
32	58	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
32	59	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
32	60	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
32	61	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
32	62	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
32	63	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
32	64	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
32	65	1055	150	75	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00019	0.01000	0.21705	0.01039	0.00916
32	66	1055	150	65	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24348	0.01044	0.00916
32	67	1055	150	65	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24348	0.01044	0.00916
32	68	1055	150	80	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01100	0.19231	0.00858	0.00764
32	69	1055	150	85	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18349	0.00857	0.00764
32	70	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
32	71	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
32	72	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
32	73	1060	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
32	74	1060	150	90	150	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.25641	0.03968	0.02449
32	75	1060	175	90	125	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01100	0.23392	0.04662	0.02697
32	76	1060	195	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.20513	0.05556	0.03333
32	77	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
32	78	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
32	79	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
33	1	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
33	2	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
33	3	990	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	4	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	5	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	6	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	7	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	8	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
33	9	1010	170	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07843	0.02516	0.00580
33	10	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
33	11	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
33	12	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
33	13	1020	175	130	100	95	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.08696	0.02516	0.00580
33	14	1020	175	130	100	95	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.08696	0.02516	0.00580

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
33	15	1020	175	130	100	95	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.08696	0.02516	0.00580
33	16	1020	175	130	100	95	700	100	25	5	46.67	6.67	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.09195	0.02516	0.00580
33	17	1020	175	100	100	95	700	100	25	5	46.67	6.67	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00010	0.00010	0.00010	0.11594	0.02667	0.00580
33	18	1020	165	100	85	155	700	150	50	10	46.67	10.00	3.33	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.16617	0.05634	0.00775
33	19	1025	160	100	85	155	700	150	25	10	46.67	10.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.16766	0.03279	0.00705
33	20	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
33	21	1025	160	65	90	185	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.01413	0.00290
33	22	1025	160	65	90	185	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.01413	0.00290
33	23	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
33	24	1025	160	60	70	210	750	250	100	5	50.00	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00006	0.00007	0.00021	0.37037	0.14184	0.00312
33	25	1025	160	60	70	210	750	250	100	3	50.00	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.37037	0.14184	0.02484
33	26	1025	160	60	70	210	1000	250	100	3	66.67	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.40404	0.14184	0.02484
33	27	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
33	28	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
33	29	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
33	30	1030	155	60	75	210	1000	400	100	1	66.67	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.14815	0.00904
33	31	1030	155	60	75	210	1000	400	75	1	66.67	26.67	5.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.11594	0.00889
33	32	1030	155	60	75	210	1000	400	50	1	66.67	26.67	3.33	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.08081	0.00860
33	33	1030	155	60	75	210	1000	400	25	1	66.67	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.56738	0.04233	0.00784
33	34	1030	165	75	100	160	1000	400	25	1	66.67	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.47198	0.03184	0.00909
33	35	1030	165	75	100	160	1000	400	10	1	66.67	26.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.47198	0.01309	0.00645
33	36	1030	165	75	100	160	1000	400	10	1	66.67	26.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.47198	0.01309	0.00645
33	37	1040	165	75	100	160	1000	400	10	1	66.67	26.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.47198	0.01309	0.00645
33	38	1040	165	75	100	160	1000	400	10	1	66.67	26.67	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.47198	0.01309	0.00645
33	39	1040	175	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.32323	0.01526	0.01171
33	40	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	41	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	42	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	43	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	44	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	45	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	46	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	47	1040	190	95	85	130	600	400	10	3	40.00	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.30476	0.01526	0.01171
33	48	1040	180	70	125	100	750	300	10	1	50.00	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.35088	0.01047	0.00696
33	49	1040	165	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33898	0.00969	0.00819
33	50	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
33	51	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
33	52	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
33	53	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
33	54	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
33	55	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
33	56	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
33	57	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
33	58	1045	155	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.31638	0.02051	0.01504
33	59	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
33	60	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
33	61	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
33	62	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
33	63	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
33	64	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
33	65	1055	150	65	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24348	0.01044	0.00916
33	66	1055	150	65	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24348	0.01044	0.00916
33	67	1055	150	65	185	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24348	0.01044	0.00916
33	68	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	69	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	70	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	71	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	72	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	73	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
33	74	1060	150	90	150	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.25641	0.03968	0.02449
33	75	1060	165	90	125	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01100	0.24242	0.04662	0.02697
33	76	1060	180	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.21505	0.05556	0.03333
33	77	1070	200	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.20202	0.05556	0.03333
33	78	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
33	79	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
34	1	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
34	2	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
34	3	990	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
34	4	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
34	5	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
34	6	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
34	7	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
34	8	1010	165	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07306	0.02492	0.02105
34	9	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	10	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	11	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	12	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	13	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	14	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	15	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	16	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
34	17	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
34	18	1020	165	100	85	155	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15190	0.05634	0.00775
34	19	1025	160	100	85	155	450	150	25	10	30.00	10.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15385	0.03279	0.00705
34	20	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
34	21	1025	160	65	90	185	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.01413	0.00290
34	22	1025	160	65	90	185	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.01413	0.00290
34	23	1025	160	65	90	185	700	150	10	5	46.67	10.00	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.01413	0.00290
34	24	1025	160	60	70	210	700	250	100	5	46.67	16.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00007	0.00021	0.36176	0.14184	0.00312
34	25	1025	160	60	70	210	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.36176	0.14184	0.02484
34	26	1025	160	60	70	210	750	250	150	3	50.00	16.67	10.00	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.37037	0.18868	0.02597
34	27	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
34	28	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
34	29	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
34	30	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
34	31	1030	155	60	75	210	750	400	75	1	50.00	26.67	5.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.11594	0.00889
34	32	1030	155	60	75	210	750	400	50	1	50.00	26.67	3.33	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.08081	0.00860
34	33	1030	155	60	75	210	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.04233	0.00784
34	34	1030	165	75	100	160	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.42440	0.03184	0.00909
34	35	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
34	36	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
34	37	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
34	38	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
34	39	1040	180	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.29144	0.01526	0.01171
34	40	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	41	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	42	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	43	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	44	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	45	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	46	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	47	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
34	48	1040	180	70	125	100	750	300	10	1	50.00	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.35088	0.01047	0.00696
34	49	1040	170	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33333	0.00969	0.00819
34	50	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	51	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	52	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	53	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	54	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	55	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	56	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	57	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
34	58	1045	155	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.31638	0.02051	0.01504

All units of length are in feet.
All units of time are in days.

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See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
34	59	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
34	60	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
34	61	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
34	62	1045	150	75	155	120	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21705	0.01990	0.01504
34	63	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
34	64	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
34	65	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
34	66	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
34	67	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
34	68	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
34	69	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
34	70	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
34	71	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
34	72	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
34	73	1060	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
34	74	1060	150	90	150	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.25641	0.03968	0.02449
34	75	1060	165	90	125	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01100	0.24242	0.04662	0.02697
34	76	1060	180	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.21505	0.05556	0.03333
34	77	1070	200	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.20202	0.05556	0.03333
34	78	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
34	79	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
35	1	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
35	2	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
35	3	990	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	4	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	5	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	6	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	7	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	8	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
35	9	1010	170	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07767	0.02516	0.00580
35	10	1010	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
35	11	1010	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
35	12	1010	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	13	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	14	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	15	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	16	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	17	1020	175	130	100	95	250	100	25	5	16.67	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07752	0.02516	0.00580
35	18	1020	165	100	85	155	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15190	0.05634	0.00775
35	19	1025	160	100	85	155	450	150	25	10	30.00	10.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15385	0.03279	0.00705
35	20	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
35	21	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
35	22	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
35	23	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
35	24	1025	160	60	70	210	750	250	100	5	50.00	16.67	6.67	0.33	0.18	0.000001	0.000001	0.000001	0.00006	0.00007	0.00021	0.37037	0.14184	0.00312
35	25	1025	160	60	70	210	750	250	100	3	50.00	16.67	6.67	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.37037	0.14184	0.02484
35	26	1025	160	60	70	210	750	250	150	3	50.00	16.67	10.00	3.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.37037	0.18868	0.02597
35	27	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
35	28	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
35	29	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
35	30	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
35	31	1030	155	60	75	210	750	400	75	1	50.00	26.67	5.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.11594	0.00889
35	32	1030	155	60	75	210	750	400	50	1	50.00	26.67	3.33	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.08081	0.00860
35	33	1030	155	60	75	210	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.04233	0.00784
35	34	1030	165	75	100	160	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.42440	0.03184	0.00909
35	35	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
35	36	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
35	37	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
35	38	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
35	39	1040	180	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.29144	0.01526	0.01171
35	40	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	41	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	42	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	43	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	44	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	45	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
35	46	1040	190	95	85	130	750	400	10	3	50.00	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.33543	0.01526	0.01171
35	47	1040	190	95	85	130	750	400	10	3	50.00	26.67	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.33543	0.01526	0.01171
35	48	1040	175	70	125	100	750	300	10	1	50.00	20.00	0.67	1.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.35714	0.01047	0.00696
35	49	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
35	50	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	51	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	52	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	53	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	54	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	55	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	56	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	57	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
35	58	1045	155	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.31638	0.02051	0.01504
35	59	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
35	60	1045	150	75	155	120	700	250	25	3	46.67	16.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32184	0.02051	0.01504
35	61	1045	150	75	155	120	750	250	25	3	50.00	16.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32787	0.02051	0.01504

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
35	62	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
35	63	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
35	64	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
35	65	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
35	66	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
35	67	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
35	68	1055	150	90	150	110	750	150	10	3	50.00	10.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00855	0.00764
35	69	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
35	70	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
35	71	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
35	72	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
35	73	1060	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
35	74	1060	150	90	150	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.25641	0.03968	0.02449
35	75	1060	170	90	125	110	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01100	0.23810	0.04662	0.02697
35	76	1060	190	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.20833	0.05556	0.03333
35	77	1070	200	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.20202	0.05556	0.03333
35	78	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
35	79	1070	210	100	100	90	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00010	0.00900	0.19608	0.05556	0.03333
36	1	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
36	2	990	160	135	125	80	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00013	0.00800	0.07407	0.02100	0.01967
36	3	990	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	4	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	5	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	6	1000	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	7	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	8	1010	160	135	100	105	200	100	25	3	13.33	6.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00010	0.01050	0.07407	0.02492	0.02105
36	9	1010	170	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07767	0.02516	0.00580
36	10	1010	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	11	1010	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	12	1010	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	13	1020	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	14	1020	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	15	1020	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	16	1020	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	17	1020	175	130	100	95	240	100	25	5	16.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00010	0.07674	0.02516	0.00580
36	18	1020	165	100	85	155	450	150	50	10	30.00	10.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15190	0.05634	0.00775
36	19	1025	160	100	85	155	450	150	25	10	30.00	10.00	1.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00009	0.00016	0.15385	0.03279	0.00705
36	20	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
36	21	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
36	22	1025	160	65	90	185	700	150	25	5	46.67	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.03306	0.00328
36	23	1025	160	65	90	185	700	150	50	5	46.67	10.00	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00019	0.23729	0.05970	0.00344

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
36	24	1025	160	60	70	210	700	250	75	5	46.67	16.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00007	0.00021	0.36176	0.11364	0.00311
36	25	1025	160	60	70	210	700	250	100	3	46.67	16.67	6.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.36176	0.14184	0.02484
36	26	1025	160	60	70	210	700	250	150	3	46.67	16.67	10.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00007	0.02100	0.36176	0.18868	0.02597
36	27	1030	155	60	75	210	700	400	100	1	46.67	26.67	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.49123	0.14815	0.00904
36	28	1030	155	60	75	210	700	400	100	1	46.67	26.67	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.49123	0.14815	0.00904
36	29	1030	155	60	75	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.14815	0.00904
36	30	1030	155	75	85	210	750	400	100	1	50.00	26.67	6.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00009	0.02100	0.44321	0.12851	0.00898
36	31	1030	155	60	75	210	750	400	75	1	50.00	26.67	5.00	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.11594	0.00889
36	32	1030	155	60	75	210	750	400	50	1	50.00	26.67	3.33	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.08081	0.00860
36	33	1030	155	60	75	210	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00006	0.00008	0.02100	0.50633	0.04233	0.00784
36	34	1030	165	75	100	160	750	400	25	1	50.00	26.67	1.67	1.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.42440	0.03184	0.00909
36	35	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
36	36	1030	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
36	37	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
36	38	1040	165	75	100	160	500	400	10	1	33.33	26.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.35320	0.01309	0.00645
36	39	1040	175	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.29795	0.01526	0.01171
36	40	1040	185	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.28520	0.01526	0.01171
36	41	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
36	42	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
36	43	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
36	44	1040	190	95	85	130	500	400	10	3	33.33	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.27923	0.01526	0.01171
36	45	1040	190	95	85	130	450	400	10	3	30.00	26.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.26446	0.01526	0.01171
36	46	1040	190	95	85	130	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.32606	0.01526	0.01171
36	47	1040	190	95	85	130	700	400	10	3	46.67	26.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00009	0.01300	0.32606	0.01526	0.01171
36	48	1040	175	70	125	100	700	300	10	1	46.67	20.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01000	0.34783	0.01047	0.00696
36	49	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	50	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	51	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	52	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	53	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	54	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	55	1040	160	80	135	125	700	300	10	3	46.67	20.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.33735	0.00969	0.00819
36	56	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
36	57	1040	160	80	135	125	750	300	10	3	50.00	20.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00014	0.01250	0.34483	0.00969	0.00819
36	58	1045	155	75	155	120	750	250	25	3	50.00	16.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32258	0.02051	0.01504
36	59	1045	150	75	155	120	750	250	25	3	50.00	16.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32787	0.02051	0.01504
36	60	1045	150	75	155	120	750	250	25	3	50.00	16.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32787	0.02051	0.01504
36	61	1045	150	75	155	120	750	250	25	3	50.00	16.67	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.32787	0.02051	0.01504
36	62	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
36	63	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504
36	64	1045	150	75	155	120	750	150	25	3	50.00	10.00	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00016	0.01200	0.21978	0.01990	0.01504

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
36	65	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
36	66	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
36	67	1055	150	65	185	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00019	0.01000	0.24691	0.01044	0.00916
36	68	1055	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
36	69	1055	150	90	150	210	500	250	15	3	33.33	16.67	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.25641	0.01287	0.00909
36	70	1055	150	90	150	210	500	250	15	5	33.33	16.67	1.00	0.33	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00021	0.25641	0.01287	0.00256
36	71	1055	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
36	72	1060	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
36	73	1060	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
36	74	1060	150	90	150	210	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.00855	0.00678
36	75	1060	150	90	150	210	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.02100	0.17544	0.02020	0.01250
36	76	1060	145	70	150	210	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00015	0.02100	0.31008	0.04065	0.01739
36	77	1070	150	60	150	210	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.02100	0.33333	0.04115	0.01739
36	78	1070	150	60	150	210	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.02100	0.33333	0.04115	0.01739
36	79	1070	150	60	150	210	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.02100	0.33333	0.04115	0.01739
37	1	990	165	65	120	150	450	250	50	3	30.00	16.67	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00012	0.01500	0.28302	0.05013	0.02326
37	2	990	165	65	120	150	450	250	50	3	30.00	16.67	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00012	0.01500	0.28302	0.05013	0.02326
37	3	990	165	65	120	150	200	50	25	25	13.33	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07512	0.02186	0.01235
37	4	1000	165	65	120	150	200	50	25	25	13.33	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07512	0.02186	0.01235
37	5	1000	165	65	150	120	200	50	25	25	13.33	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00015	0.00012	0.07512	0.01826	0.01235
37	6	1000	170	100	170	85	200	100	25	10	13.33	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00017	0.00009	0.08889	0.01709	0.00871
37	7	1010	170	115	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00012	0.00019	0.00005	0.08081	0.01524	0.00803
37	8	1010	170	115	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00012	0.00019	0.00005	0.08081	0.01524	0.00803
37	9	1010	170	95	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.09195	0.01559	0.00803
37	10	1010	170	95	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.09195	0.01559	0.00803
37	11	1010	170	95	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.09195	0.01559	0.00803
37	12	1010	170	95	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.09195	0.01559	0.00803
37	13	1020	170	95	190	45	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.09195	0.01559	0.00803
37	14	1020	170	95	150	90	200	100	25	5	13.33	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00009	0.09195	0.01918	0.00556
37	15	1020	170	70	125	155	200	150	50	1	13.33	10.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.13793	0.04494	0.01039
37	16	1020	170	100	100	160	200	150	75	1	13.33	10.00	5.00	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01600	0.11429	0.06667	0.01111
37	17	1020	170	110	80	180	200	150	75	1	13.33	10.00	5.00	1.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00008	0.01800	0.10811	0.07407	0.01020
37	18	1020	170	70	80	180	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.01800	0.19355	0.08696	0.01020
37	19	1025	170	70	80	180	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.01800	0.19355	0.08696	0.01020
37	20	1025	170	70	80	180	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.01800	0.19355	0.08696	0.01020
37	21	1025	170	70	80	180	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00008	0.01800	0.19355	0.08696	0.01020
37	22	1025	170	70	80	180	700	200	75	1	46.67	13.33	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00008	0.01800	0.27053	0.09412	0.01020
37	23	1025	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	24	1025	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	25	1025	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	26	1025	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
37	27	1030	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	28	1030	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	29	1030	180	90	65	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00007	0.01650	0.29167	0.08333	0.01084
37	30	1030	170	85	95	165	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00010	0.01650	0.31285	0.06107	0.01034
37	31	1030	170	75	100	160	700	200	50	1	46.67	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.25747	0.05614	0.01053
37	32	1030	165	75	100	160	700	200	50	1	46.67	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.26107	0.05614	0.01053
37	33	1030	165	75	100	160	700	200	50	1	46.67	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00010	0.01600	0.26107	0.05614	0.01053
37	34	1030	165	40	125	170	700	200	50	1	46.67	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00004	0.00013	0.01700	0.39716	0.04938	0.00964
37	35	1030	165	40	125	170	700	200	50	1	46.67	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00004	0.00013	0.01700	0.39716	0.04938	0.00964
37	36	1030	165	40	125	170	500	200	50	1	33.33	13.33	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00004	0.00013	0.01700	0.34188	0.04938	0.00964
37	37	1040	170	60	150	130	500	300	50	1	33.33	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
37	38	1040	160	60	150	130	500	300	50	1	33.33	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.35088	0.04167	0.01143
37	39	1040	160	60	150	130	500	300	50	1	33.33	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.35088	0.04167	0.01143
37	40	1040	160	60	150	130	500	300	50	1	33.33	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.35088	0.04167	0.01143
37	41	1040	150	65	125	160	500	500	50	3	33.33	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.45977	0.05070	0.02202
37	42	1040	150	65	125	160	500	500	50	3	33.33	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.45977	0.05070	0.02202
37	43	1040	150	65	125	160	500	500	50	3	33.33	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.45977	0.05070	0.02202
37	44	1040	150	65	125	160	500	500	50	3	33.33	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.45977	0.05070	0.02202
37	45	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	46	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	47	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	48	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	49	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	50	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	51	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	52	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	53	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	54	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	55	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	56	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	57	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	58	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	59	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	60	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	61	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	62	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	63	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	64	1045	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	65	1055	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	66	1055	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
37	67	1055	150	75	125	150	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.43011	0.02589	0.01600

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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
37	68	1055	150	75	125	150	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.43011	0.02589	0.01600
37	69	1055	150	75	125	150	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.43011	0.02589	0.01600
37	70	1055	150	75	125	150	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.43011	0.02589	0.01600
37	71	1055	150	90	150	110	500	300	25	10	33.33	20.00	1.67	0.67	0.15	0.000001	0.000001	0.000001	0.00009	0.00015	0.00011	0.28986	0.02116	0.00784
37	72	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
37	73	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
37	74	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
37	75	1060	150	90	150	110	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.00855	0.00764
37	76	1060	150	70	150	130	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00015	0.01300	0.21277	0.00862	0.00745
37	77	1070	155	60	150	140	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01400	0.32520	0.04115	0.02182
37	78	1070	150	60	150	140	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01400	0.33333	0.04115	0.02182
37	79	1070	150	60	150	140	500	250	50	3	33.33	16.67	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01400	0.33333	0.04115	0.02182
38	1	985	165	65	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07862	0.02186	0.01235
38	2	985	165	65	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07862	0.02186	0.01235
38	3	985	165	65	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07862	0.02186	0.01235
38	4	995	165	65	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07862	0.02186	0.01235
38	5	995	165	65	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00012	0.00015	0.07862	0.02186	0.01235
38	6	995	165	90	120	150	240	50	25	25	16.00	3.33	1.67	1.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.06072	0.02020	0.01235
38	7	995	170	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.05263	0.01223
38	8	995	170	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.05263	0.01223
38	9	995	170	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.05263	0.01223
38	10	995	170	95	190	45	200	150	50	5	13.33	10.00	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.03008	0.01042
38	11	995	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	12	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	13	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	14	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	15	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	16	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	17	1005	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
38	18	1005	170	95	160	75	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00016	0.00008	0.11374	0.01814	0.00623
38	19	1015	180	90	130	100	700	300	50	3	46.67	20.00	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.29167	0.04598	0.02765
38	20	1015	180	90	130	100	700	300	50	3	46.67	20.00	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.29167	0.04598	0.02765
38	21	1015	180	90	130	100	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.29167	0.04598	0.01439
38	22	1015	180	90	130	100	700	300	50	1	46.67	20.00	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.29167	0.04598	0.01439
38	23	1015	180	90	130	100	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.24490	0.04598	0.01439
38	24	1015	180	90	130	100	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.24490	0.04598	0.01439
38	25	1015	180	90	130	100	450	100	50	1	30.00	6.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.11650	0.03810	0.01439
38	26	1015	180	90	130	100	450	200	100	1	30.00	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19200	0.07619	0.01674
38	27	1015	180	90	130	100	450	200	100	1	30.00	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19200	0.07619	0.01674
38	28	1015	180	90	130	100	450	200	100	1	30.00	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19200	0.07619	0.01674
38	29	1015	180	90	130	100	450	200	100	1	30.00	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19200	0.07619	0.01674

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See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
38	30	1025	180	90	115	100	450	200	100	1	30.00	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00012	0.01000	0.19200	0.08333	0.01706
38	31	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	32	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	33	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	34	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	35	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	36	1015	170	50	150	130	450	200	50	1	30.00	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28235	0.04103	0.01143
38	37	1020	170	50	150	130	450	150	25	1	30.00	10.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24000	0.02105	0.00909
38	38	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	39	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	40	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	41	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	42	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	43	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	44	1020	170	50	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.00909
38	45	1020	170	50	150	130	700	150	25	3	46.67	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.02105	0.01500
38	46	1020	160	50	150	130	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28866	0.01290	0.01034
38	47	1025	150	100	150	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.01250	0.01091
38	48	1030	150	100	150	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.01250	0.01091
38	49	1030	150	100	150	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.01250	0.01091
38	50	1030	150	100	150	100	700	150	15	3	46.67	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.01250	0.01091
38	51	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	52	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	53	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	54	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	55	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	56	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	57	1030	150	100	150	100	750	150	15	3	50.00	10.00	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.01250	0.01091
38	58	1040	150	100	150	100	750	200	15	3	50.00	13.33	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.21978	0.01270	0.01091
38	59	1040	150	65	150	100	750	250	15	3	50.00	16.67	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00015	0.01000	0.36364	0.01300	0.01091
38	60	1040	150	65	125	260	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.02600	0.56338	0.02599	0.01237
38	61	1040	150	65	125	260	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.02600	0.56338	0.05070	0.01611
38	62	1040	150	70	125	255	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.02550	0.54054	0.05051	0.01633
38	63	1040	150	70	125	255	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.02550	0.54054	0.05051	0.01633
38	64	1040	150	70	125	255	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.02550	0.54054	0.02594	0.01250
38	65	1050	150	75	125	250	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.02500	0.51948	0.02589	0.01263
38	66	1050	150	75	125	250	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.02500	0.43011	0.02589	0.01263
38	67	1050	150	75	125	250	500	500	25	3	33.33	33.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00013	0.02500	0.43011	0.02589	0.01263
38	68	1050	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
38	69	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071
38	70	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
38	71	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
38	72	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
38	73	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
38	74	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
38	75	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
38	76	1050	150	60	140	150	500	75	5	3	33.33	5.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.13889	0.00463	0.00426
38	77	1060	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
38	78	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
38	79	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
39	1	985	150	85	115	150	200	25	25	5	13.33	1.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.03509	0.01667	0.00385
39	2	985	150	85	115	150	200	50	25	10	13.33	3.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.06349	0.02116	0.00680
39	3	985	150	85	115	150	200	75	25	10	13.33	5.00	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.08696	0.02326	0.00680
39	4	995	140	90	110	260	200	150	50	10	13.33	10.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.14035	0.04762	0.00473
39	5	995	140	90	110	260	450	150	100	5	30.00	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.17647	0.07843	0.00251
39	6	995	140	90	110	260	450	150	100	5	30.00	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.17647	0.07843	0.00251
39	7	995	170	95	190	45	450	150	100	5	30.00	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.15584	0.05263	0.01223
39	8	995	170	95	190	45	450	150	100	5	30.00	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.15584	0.05263	0.01223
39	9	995	170	95	190	45	450	150	100	5	30.00	10.00	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.15584	0.05263	0.01223
39	10	995	170	95	190	45	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.15584	0.01619	0.00803
39	11	995	170	95	190	45	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.15584	0.01619	0.00803
39	12	1005	180	120	110	90	450	150	50	5	30.00	10.00	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.12766	0.04444	0.00660
39	13	1005	180	120	110	90	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.12766	0.04444	0.03175
39	14	1005	180	120	110	90	450	150	50	3	30.00	10.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.12766	0.04444	0.03175
39	15	1005	180	120	110	90	450	150	50	1	30.00	10.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.12766	0.04444	0.01626
39	16	1005	180	140	110	90	450	100	50	1	30.00	6.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00014	0.00011	0.00900	0.08108	0.03704	0.01626
39	17	1005	180	120	110	90	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.12766	0.05882	0.01786
39	18	1005	180	120	110	90	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.12766	0.05882	0.01786
39	19	1015	180	90	130	100	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.15789	0.05714	0.01587
39	20	1015	180	90	130	100	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.15789	0.05714	0.01587
39	21	1015	180	90	130	100	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.15789	0.05714	0.01587
39	22	1015	180	90	130	100	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.15789	0.05714	0.01587
39	23	1015	180	90	130	100	240	100	25	1	16.00	6.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.09816	0.02186	0.01124
39	24	1015	180	90	130	100	240	100	25	1	16.00	6.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.09816	0.02186	0.01124
39	25	1015	180	90	130	100	240	100	25	1	16.00	6.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.09816	0.02186	0.01124
39	26	1015	180	90	130	100	240	200	100	1	16.00	13.33	6.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.14679	0.07619	0.01674
39	27	1015	180	90	130	100	240	200	100	1	16.00	13.33	6.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.14679	0.07619	0.01674
39	28	1015	180	90	130	100	240	200	100	1	16.00	13.33	6.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.14679	0.07619	0.01674
39	29	1015	180	90	130	100	240	200	100	1	16.00	13.33	6.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.14679	0.07619	0.01674
39	30	1015	180	90	130	100	240	200	100	1	16.00	13.33	6.67	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.14679	0.07619	0.01674
39	31	1015	170	50	150	130	240	200	50	1	16.00	13.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.20000	0.04103	0.01143
39	32	1015	170	50	150	130	240	200	50	1	16.00	13.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.20000	0.04103	0.01143

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
39	33	1015	170	50	150	130	240	200	50	1	16.00	13.33	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.20000	0.04103	0.01143
39	34	1015	165	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.22378	0.04167	0.01143
39	35	1015	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	36	1015	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	37	1020	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	38	1020	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	39	1020	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	40	1020	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	41	1020	160	60	150	130	240	300	50	1	16.00	20.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.23188	0.04167	0.01143
39	42	1020	170	50	150	130	450	150	25	1	30.00	10.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24000	0.02105	0.00909
39	43	1020	170	50	150	130	450	150	25	1	30.00	10.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24000	0.02105	0.00909
39	44	1020	170	50	150	130	450	150	25	1	30.00	10.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24000	0.02105	0.00909
39	45	1020	170	50	150	130	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24000	0.02105	0.01500
39	46	1020	160	85	150	130	450	150	10	1	30.00	10.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17391	0.00857	0.00563
39	47	1030	160	85	150	130	450	150	5	1	30.00	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17391	0.00436	0.00345
39	48	1030	160	85	150	130	450	150	5	1	30.00	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17391	0.00436	0.00345
39	49	1030	160	85	150	130	450	150	5	1	30.00	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17391	0.00436	0.00345
39	50	1030	160	85	150	130	450	150	5	1	30.00	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17391	0.00436	0.00345
39	51	1030	160	85	150	130	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17857	0.00436	0.00345
39	52	1030	160	85	150	130	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17857	0.00436	0.00345
39	53	1030	160	85	150	130	500	150	10	1	33.33	10.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17857	0.00857	0.00563
39	54	1030	160	85	150	130	500	150	25	1	33.33	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.17857	0.02030	0.00909
39	55	1030	150	65	125	160	500	500	50	3	33.33	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.45977	0.05070	0.02202
39	56	1030	150	65	125	160	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56338	0.05070	0.02202
39	57	1030	150	65	125	160	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56338	0.05070	0.02202
39	58	1040	150	65	125	160	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56338	0.05070	0.02202
39	59	1040	150	65	125	160	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56338	0.05070	0.02202
39	60	1040	150	65	125	160	750	500	50	3	50.00	33.33	3.33	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56338	0.05070	0.02202
39	61	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
39	62	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
39	63	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
39	64	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
39	65	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
39	66	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
39	67	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
39	68	1050	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
39	69	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071
39	70	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071
39	71	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
39	72	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
39	73	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
39	74	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
39	75	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
39	76	1050	150	60	140	150	500	50	5	3	33.33	3.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.09804	0.00457	0.00426
39	77	1070	160	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05168	0.00439	0.00426
39	78	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
39	79	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
40	1	985	150	85	115	150	90	25	25	5	6.00	1.67	1.67	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.03109	0.01667	0.00385
40	2	985	150	85	115	150	90	50	25	10	6.00	3.33	1.67	0.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.05150	0.02116	0.00680
40	3	985	150	85	115	150	90	75	25	25	6.00	5.00	1.67	1.67	0.05	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.06593	0.02326	0.01258
40	4	995	150	90	110	260	90	150	100	5	6.00	10.00	6.67	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.08955	0.07843	0.00251
40	5	995	140	90	110	260	90	150	100	5	6.00	10.00	6.67	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.09677	0.07843	0.00251
40	6	995	140	90	110	260	90	150	100	5	6.00	10.00	6.67	0.33	0.05	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.09677	0.07843	0.00251
40	7	995	155	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.12598	0.05263	0.01223
40	8	995	170	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.05263	0.01223
40	9	995	170	95	190	45	200	150	100	5	13.33	10.00	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.05263	0.01223
40	10	995	170	95	190	45	200	150	25	5	13.33	10.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.01619	0.00803
40	11	995	170	95	190	45	200	150	25	5	13.33	10.00	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11765	0.01619	0.00803
40	12	1005	180	120	110	90	200	150	50	5	13.33	10.00	3.33	0.33	0.1	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.09877	0.04444	0.00660
40	13	1005	180	120	110	90	200	150	50	3	13.33	10.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.09877	0.04444	0.03175
40	14	1005	180	120	110	90	200	150	50	3	13.33	10.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.09877	0.04444	0.03175
40	15	1005	180	120	110	90	200	150	50	1	13.33	10.00	3.33	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.09877	0.04444	0.01626
40	16	1005	180	140	110	90	200	100	10	1	13.33	6.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00014	0.00011	0.00900	0.06838	0.01075	0.00784
40	17	1005	180	120	110	90	200	150	75	1	13.33	10.00	5.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.09877	0.05882	0.01786
40	18	1005	180	120	110	90	200	150	75	1	13.33	10.00	5.00	1.00	0.1	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.09877	0.05882	0.01786
40	19	1015	180	90	130	100	200	150	75	1	13.33	10.00	5.00	1.00	0.1	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.11594	0.05714	0.01587
40	20	1015	180	90	130	100	450	150	75	1	30.00	10.00	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.15789	0.05714	0.01587
40	21	1015	180	90	130	100	700	150	75	1	46.67	10.00	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.17610	0.05714	0.01587
40	22	1015	180	90	130	100	700	150	75	1	46.67	10.00	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.17610	0.05714	0.01587
40	23	1015	180	90	130	100	700	100	25	1	46.67	6.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.12613	0.02186	0.01124
40	24	1015	180	90	130	100	700	100	25	1	46.67	6.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.12613	0.02186	0.01124
40	25	1015	180	90	130	100	700	100	50	1	46.67	6.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.12613	0.03810	0.01439
40	26	1015	180	90	130	100	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.21961	0.07619	0.01674
40	27	1015	180	90	130	100	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.21961	0.07619	0.01674
40	28	1015	180	90	130	100	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.21961	0.07619	0.01674
40	29	1015	180	90	130	100	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.21961	0.07619	0.01674
40	30	1015	180	90	130	100	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.21961	0.07619	0.01674
40	31	1015	170	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.31579	0.04167	0.01143
40	32	1015	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	33	1015	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	34	1015	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	35	1015	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
40	36	1015	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	37	1020	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	38	1020	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	39	1020	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	40	1020	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	41	1020	160	60	150	130	450	300	50	1	30.00	20.00	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.33333	0.04167	0.01143
40	42	1020	155	90	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01300	0.18482	0.02020	0.00909
40	43	1020	145	105	150	130	700	150	10	1	46.67	10.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16519	0.00849	0.00563
40	44	1020	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	45	1020	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	46	1020	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	47	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	48	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	49	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	50	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	51	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	52	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	53	1030	140	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00434	0.00345
40	54	1030	140	105	150	130	700	150	10	1	46.67	10.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.00849	0.00563
40	55	1030	140	105	150	130	700	150	25	1	46.67	10.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16667	0.01990	0.00909
40	56	1030	145	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.56225	0.05070	0.02202
40	57	1030	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
40	58	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
40	59	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
40	60	1040	150	65	125	160	700	500	50	3	46.67	33.33	3.33	3.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00013	0.01600	0.54581	0.05070	0.02202
40	61	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
40	62	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
40	63	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
40	64	1040	150	70	125	155	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00007	0.00013	0.01550	0.54054	0.02594	0.01579
40	65	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
40	66	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
40	67	1050	150	75	125	150	750	500	25	3	50.00	33.33	1.67	3.00	0.18	0.000001	0.000001	0.000100	0.00008	0.00013	0.01500	0.51948	0.02589	0.01600
40	68	1050	150	90	150	110	500	150	25	3	33.33	10.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.02020	0.01579
40	69	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071
40	70	1050	150	90	150	110	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.17544	0.01258	0.01071
40	71	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
40	72	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
40	73	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
40	74	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
40	75	1050	150	60	140	150	500	150	15	3	33.33	10.00	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.23810	0.01370	0.01053
40	76	1050	150	60	140	150	500	50	5	3	33.33	3.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.09804	0.00457	0.00426

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
40	77	1060	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
40	78	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
40	79	1070	150	60	140	150	500	25	5	3	33.33	1.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.05208	0.00439	0.00426
41	1	985	150	85	115	150	150	50	25	5	10.00	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.05970	0.02116	0.00385
41	2	985	150	85	115	150	175	100	25	10	11.67	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.10200	0.02446	0.00680
41	3	985	150	85	115	150	200	200	25	10	13.33	13.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.16162	0.02653	0.00680
41	4	995	140	90	110	260	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.17647	0.02667	0.00236
41	5	995	140	90	110	260	450	150	10	3	30.00	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.17647	0.01149	0.00795
41	6	995	140	90	110	260	450	170	5	1	30.00	11.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.19466	0.00592	0.00339
41	7	995	155	95	190	45	450	150	75	5	30.00	10.00	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.16216	0.04211	0.01156
41	8	995	170	95	190	45	450	125	50	5	30.00	8.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.13575	0.02924	0.01042
41	9	995	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
41	10	995	170	95	190	45	450	100	15	5	30.00	6.67	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.00979	0.00615
41	11	995	170	95	190	45	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.02807	0.01042
41	12	1005	180	120	110	90	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.09231	0.03922	0.00660
41	13	1005	180	120	110	90	450	75	25	3	30.00	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.02083
41	14	1005	180	120	110	90	450	75	10	3	30.00	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.01058	0.01026
41	15	1005	180	120	110	90	450	75	5	1	30.00	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.00565	0.00476
41	16	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
41	17	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
41	18	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
41	19	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
41	20	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
41	21	1015	180	90	130	100	450	75	3	1	30.00	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.09231	0.03261	0.01395
41	22	1015	180	90	130	100	450	100	3	1	30.00	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.11650	0.03519	0.01395
41	23	1015	180	90	130	100	450	125	3	1	30.00	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.13825	0.03695	0.01395
41	24	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
41	25	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
41	26	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
41	27	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
41	28	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
41	29	1015	180	90	130	100	700	165	25	1	46.67	11.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.02321	0.01124
41	30	1015	180	90	130	100	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19858	0.02333	0.01124
41	31	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
41	32	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
41	33	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
41	34	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
41	35	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
41	36	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
41	37	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
41	38	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
41	39	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
41	40	1020	170	50	150	130	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.02121	0.00909
41	41	1020	170	50	150	130	700	175	10	1	46.67	11.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.00872	0.00563
41	42	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
41	43	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
41	44	1020	170	50	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.00440	0.00345
41	45	1020	170	50	150	130	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24561	0.00439	0.00345
41	46	1020	155	105	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00011	0.00015	0.01300	0.16232	0.00434	0.00345
41	47	1030	150	100	150	100	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.14583	0.00433	0.00364
41	48	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	49	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	50	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	51	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	52	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	53	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	54	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	55	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	56	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	57	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
41	58	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
41	59	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
41	60	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
41	61	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
41	62	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
41	63	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
41	64	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
41	65	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
41	66	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
41	67	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
41	68	1050	150	90	150	110	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00436	0.00411
41	69	1050	150	90	150	110	750	150	10	3	50.00	10.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00855	0.00764
41	70	1050	150	90	150	110	750	175	15	3	50.00	11.67	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.21472	0.01268	0.01071
41	71	1050	150	60	140	150	500	175	25	3	33.33	11.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.26515	0.02244	0.01493
41	72	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
41	73	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
41	74	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
41	75	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
41	76	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
41	77	1070	160	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27778	0.02260	0.01493
41	78	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493
41	79	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
42	1	985	150	85	115	150	150	100	25	5	10.00	6.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.09639	0.02446	0.00385
42	2	985	150	85	115	150	175	100	25	10	11.67	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.10200	0.02446	0.00680
42	3	985	150	85	115	150	200	200	25	10	13.33	13.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.16162	0.02653	0.00680
42	4	995	150	90	110	160	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00016	0.17143	0.02667	0.00366
42	5	995	140	90	130	140	450	150	10	3	30.00	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01400	0.17647	0.00980	0.00828
42	6	995	140	90	160	110	450	150	10	5	30.00	10.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00016	0.00011	0.17647	0.00803	0.00351
42	7	995	140	90	160	110	450	150	10	5	30.00	10.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00016	0.00011	0.17647	0.00803	0.00351
42	8	995	150	95	190	45	450	125	50	5	30.00	8.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.14218	0.02924	0.01042
42	9	995	160	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11594	0.01559	0.00803
42	10	995	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
42	11	995	160	95	190	45	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11594	0.02807	0.01042
42	12	1005	180	120	110	90	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.09231	0.03922	0.00660
42	13	1005	180	120	110	90	450	75	25	3	30.00	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.02083
42	14	1005	180	120	110	90	450	75	25	3	30.00	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.02083
42	15	1005	180	120	110	90	450	75	25	1	30.00	5.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.01282
42	16	1005	180	120	110	90	450	50	25	1	30.00	3.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.05042	0.01961	0.01282
42	17	1005	180	100	110	90	450	75	25	1	30.00	5.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00011	0.00900	0.08451	0.02326	0.01282
42	18	1005	180	120	110	90	450	50	25	1	30.00	3.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.05042	0.01961	0.01282
42	19	1015	180	90	130	100	450	50	25	1	30.00	3.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.06522	0.01905	0.01124
42	20	1015	180	90	130	100	450	50	10	1	30.00	3.33	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.06522	0.00901	0.00678
42	21	1015	180	90	130	100	450	75	10	1	30.00	5.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.09231	0.00939	0.00678
42	22	1015	180	90	130	100	450	100	10	1	30.00	6.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.11650	0.00959	0.00678
42	23	1015	180	90	130	100	450	125	10	1	30.00	8.33	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.13825	0.00972	0.00678
42	24	1015	180	90	130	100	450	165	10	1	30.00	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.16880	0.00984	0.00678
42	25	1015	180	90	130	100	450	165	10	1	30.00	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.16880	0.00984	0.00678
42	26	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
42	27	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
42	28	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
42	29	1015	180	90	130	100	700	165	25	1	46.67	11.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.02321	0.01124
42	30	1015	180	90	130	100	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19858	0.02333	0.01124
42	31	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
42	32	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
42	33	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
42	34	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
42	35	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
42	36	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
42	37	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
42	38	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
42	39	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
42	40	1020	170	50	150	130	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.02121	0.00909
42	41	1020	170	50	150	130	700	175	10	1	46.67	11.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.00872	0.00563

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
42	42	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
42	43	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
42	44	1020	170	50	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.00440	0.00345
42	45	1020	170	50	150	130	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24561	0.00439	0.00345
42	46	1020	170	50	150	130	700	100	5	1	46.67	6.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.20741	0.00437	0.00345
42	47	1025	160	100	150	100	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.14359	0.00433	0.00364
42	48	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	49	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	50	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	51	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	52	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	53	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	54	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	55	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	56	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	57	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
42	58	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
42	59	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
42	60	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
42	61	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
42	62	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
42	63	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
42	64	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
42	65	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
42	66	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
42	67	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
42	68	1050	150	90	150	110	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00436	0.00411
42	69	1050	150	90	150	110	750	150	10	3	50.00	10.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00855	0.00764
42	70	1050	150	90	150	110	750	175	15	3	50.00	11.67	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.21472	0.01268	0.01071
42	71	1050	150	60	140	150	500	175	25	3	33.33	11.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.26515	0.02244	0.01493
42	72	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	73	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	74	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	75	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	76	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	77	1060	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
42	78	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493
42	79	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493
43	1	985	150	85	115	150	150	50	25	5	10.00	3.33	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.05970	0.02116	0.00385
43	2	985	150	85	115	150	175	100	25	10	11.67	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.10200	0.02446	0.00680
43	3	985	150	85	115	150	200	200	25	10	13.33	13.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.16162	0.02653	0.00680

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
43	4	990	145	90	110	260	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.17391	0.02667	0.00236
43	5	995	140	90	110	260	450	150	25	3	30.00	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.17647	0.02667	0.01310
43	6	995	140	90	110	260	450	170	25	1	30.00	11.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.19466	0.02705	0.00613
43	7	995	155	95	190	45	450	150	75	5	30.00	10.00	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.16216	0.04211	0.01156
43	8	995	165	95	190	45	450	125	50	5	30.00	8.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.13730	0.02924	0.01042
43	9	995	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
43	10	995	170	95	190	45	450	70	15	5	30.00	4.67	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.08442	0.00951	0.00615
43	11	995	150	95	190	45	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11823	0.02807	0.01042
43	12	1005	180	120	110	90	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.09231	0.03922	0.00660
43	13	1005	180	120	110	90	450	75	25	3	30.00	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.02083
43	14	1005	180	120	110	90	450	75	10	3	30.00	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.01058	0.01026
43	15	1005	180	120	110	90	450	75	5	1	30.00	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.00565	0.00476
43	16	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
43	17	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
43	18	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
43	19	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
43	20	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
43	21	1015	180	90	130	100	450	75	3	1	30.00	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.09231	0.03261	0.01395
43	22	1015	180	90	130	100	450	100	3	1	30.00	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.11650	0.03519	0.01395
43	23	1015	180	90	130	100	450	125	3	1	30.00	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.13825	0.03695	0.01395
43	24	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
43	25	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
43	26	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
43	27	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
43	28	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
43	29	1015	180	90	130	100	700	165	25	1	46.67	11.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.02321	0.01124
43	30	1015	180	90	130	100	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19858	0.02333	0.01124
43	31	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
43	32	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
43	33	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
43	34	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
43	35	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
43	36	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
43	37	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
43	38	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
43	39	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
43	40	1020	170	50	150	130	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.02121	0.00909
43	41	1020	170	50	150	130	700	175	10	1	46.67	11.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.00872	0.00563
43	42	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
43	43	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
43	44	1020	170	50	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.00440	0.00345

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All units of time are in days.

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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
43	45	1020	170	50	150	130	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24561	0.00439	0.00345
43	46	1020	170	50	150	130	700	100	5	1	46.67	6.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.20741	0.00437	0.00345
43	47	1025	160	100	150	100	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.14359	0.00433	0.00364
43	48	1030	155	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.16918	0.00435	0.00364
43	49	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
43	50	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	51	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	52	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	53	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	54	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	55	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	56	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	57	1030	150	100	150	100	750	150	5	1	50.00	10.00	0.33	1.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00364
43	58	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
43	59	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
43	60	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
43	61	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
43	62	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
43	63	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
43	64	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
43	65	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
43	66	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
43	67	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
43	68	1050	150	90	150	110	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00436	0.00411
43	69	1050	150	90	150	110	750	150	10	3	50.00	10.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00855	0.00764
43	70	1050	150	90	150	110	750	175	15	3	50.00	11.67	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.21472	0.01268	0.01071
43	71	1050	150	60	140	150	500	175	25	3	33.33	11.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.26515	0.02244	0.01493
43	72	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
43	73	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
43	74	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
43	75	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
43	76	1050	140	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.30303	0.02260	0.01493
43	77	1060	145	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.29630	0.02260	0.01493
43	78	1070	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
43	79	1070	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	1	985	150	85	115	150	150	25	25	5	10.00	1.67	1.67	0.33	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.03390	0.01667	0.00385
44	2	985	150	85	115	150	175	100	25	10	11.67	6.67	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.10200	0.02446	0.00680
44	3	985	150	85	115	150	200	200	25	10	13.33	13.33	1.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00012	0.00015	0.16162	0.02653	0.00680
44	4	995	140	90	110	260	450	150	25	5	30.00	10.00	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00026	0.17647	0.02667	0.00236
44	5	995	140	90	110	260	450	150	10	3	30.00	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.17647	0.01149	0.00795
44	6	995	140	90	110	260	450	170	5	1	30.00	11.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.02600	0.19466	0.00592	0.00339

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
44	7	995	155	95	190	45	450	150	75	5	30.00	10.00	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.16216	0.04211	0.01156
44	8	995	165	95	190	45	450	125	50	5	30.00	8.33	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.13730	0.02924	0.01042
44	9	995	170	95	190	45	450	100	25	5	30.00	6.67	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.01559	0.00803
44	10	995	170	95	190	45	450	70	15	5	30.00	4.67	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.08442	0.00951	0.00615
44	11	995	170	95	190	45	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00019	0.00005	0.11374	0.02807	0.01042
44	12	1005	180	120	110	90	450	100	50	5	30.00	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00012	0.00011	0.00009	0.09231	0.03922	0.00660
44	13	1005	180	120	110	90	450	75	25	3	30.00	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.02222	0.02083
44	14	1005	180	120	110	90	450	75	10	3	30.00	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.01058	0.01026
44	15	1005	180	120	110	90	450	75	5	1	30.00	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00012	0.00011	0.00900	0.07229	0.00565	0.00476
44	16	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
44	17	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
44	18	1005	180	120	110	90	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00012	0.01100	0.00900	0.05042	0.01370	0.01000
44	19	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
44	20	1015	180	90	130	100	450	50	1	1	30.00	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.06522	0.01274	0.00870
44	21	1015	180	90	130	100	450	75	3	1	30.00	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.09231	0.03261	0.01395
44	22	1015	180	90	130	100	450	100	3	1	30.00	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.11650	0.03519	0.01395
44	23	1015	180	90	130	100	450	125	3	1	30.00	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.13825	0.03695	0.01395
44	24	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
44	25	1015	180	90	130	100	450	165	3	1	30.00	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00009	0.01300	0.01000	0.16880	0.03882	0.01395
44	26	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
44	27	1015	180	90	130	100	700	165	5	1	46.67	11.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00502	0.00408
44	28	1015	180	90	130	100	700	165	10	1	46.67	11.00	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.00984	0.00678
44	29	1015	180	90	130	100	700	165	25	1	46.67	11.00	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.18977	0.02321	0.01124
44	30	1015	180	90	130	100	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00009	0.00013	0.01000	0.19858	0.02333	0.01124
44	31	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
44	32	1015	170	50	150	130	700	175	50	1	46.67	11.67	3.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.04058	0.01143
44	33	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
44	34	1015	170	50	150	130	700	175	75	1	46.67	11.67	5.00	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.05833	0.01250
44	35	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
44	36	1015	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
44	37	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
44	38	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
44	39	1020	170	50	150	130	700	200	100	1	46.67	13.33	6.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.33939	0.07619	0.01311
44	40	1020	170	50	150	130	700	175	25	1	46.67	11.67	1.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.02121	0.00909
44	41	1020	170	50	150	130	700	175	10	1	46.67	11.67	0.67	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.31111	0.00872	0.00563
44	42	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
44	43	1020	170	50	150	130	700	160	5	1	46.67	10.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.29281	0.00440	0.00345
44	44	1020	170	50	150	130	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.28000	0.00440	0.00345
44	45	1020	170	50	150	130	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.24561	0.00439	0.00345
44	46	1020	160	50	150	130	700	100	5	1	46.67	6.67	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00005	0.00015	0.01300	0.21212	0.00437	0.00345
44	47	1025	155	100	150	100	700	125	5	1	46.67	8.33	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.14470	0.00433	0.00364

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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
44	48	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	49	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	50	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	51	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	52	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	53	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	54	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	55	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	56	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	57	1030	150	100	150	100	700	150	5	1	46.67	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00364
44	58	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
44	59	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
44	60	1040	150	100	150	100	700	150	5	3	46.67	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17073	0.00435	0.00414
44	61	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
44	62	1040	150	100	150	100	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.17241	0.00435	0.00414
44	63	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
44	64	1040	150	100	150	100	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00010	0.01500	0.01000	0.17241	0.03333	0.02400
44	65	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
44	66	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
44	67	1050	150	90	150	110	750	150	3	3	50.00	10.00	3.00	3.00	0.18	0.000001	0.000100	0.000100	0.00009	0.01500	0.01100	0.18868	0.03390	0.02308
44	68	1050	150	90	150	110	750	150	5	3	50.00	10.00	0.33	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00436	0.00411
44	69	1050	150	90	150	110	750	150	10	3	50.00	10.00	0.67	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.18868	0.00855	0.00764
44	70	1050	150	90	150	110	750	175	15	3	50.00	11.67	1.00	3.00	0.18	0.000001	0.000001	0.000100	0.00009	0.00015	0.01100	0.21472	0.01268	0.01071
44	71	1050	150	60	140	150	500	175	25	3	33.33	11.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.26515	0.02244	0.01493
44	72	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	73	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	74	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	75	1050	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	76	1055	145	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.29630	0.02260	0.01493
44	77	1070	150	60	140	150	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.28986	0.02260	0.01493
44	78	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493
44	79	1070	150	60	140	150	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00014	0.01500	0.27027	0.02247	0.01493
45	1	970	180	40	60	120	150	50	10	3	10.00	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.08696	0.01961	0.01538
45	2	970	180	40	60	120	175	50	10	3	11.67	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.09333	0.01961	0.01538
45	3	970	180	40	60	120	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.09877	0.01961	0.01538
45	4	975	155	90	110	100	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.09440	0.01093	0.01008
45	5	980	160	80	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00011	0.01000	0.17582	0.01695	0.01395
45	6	980	160	90	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16162	0.01681	0.01395
45	7	980	160	100	110	100	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00011	0.01000	0.14953	0.01143	0.01008
45	8	985	170	125	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12308	0.01290	0.01096
45	9	985	180	125	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12030	0.01290	0.01096

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
45	10	985	190	95	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01200	0.14286	0.01316	0.01096
45	11	985	200	70	95	120	400	150	25	3	26.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.16842	0.03125	0.02062
45	12	995	190	80	120	135	400	100	50	5	26.67	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.12121	0.04167	0.00454
45	13	1000	175	80	120	135	400	100	25	3	26.67	6.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.12549	0.02381	0.01709
45	14	1000	165	80	120	135	400	100	10	3	26.67	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.12851	0.01042	0.00889
45	15	1000	165	80	120	135	400	150	10	1	26.67	10.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.17297	0.01064	0.00635
45	16	1000	165	100	100	135	400	200	25	1	26.67	13.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.18079	0.02963	0.01026
45	17	1000	165	80	120	135	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.12851	0.00538	0.00404
45	18	1000	165	80	120	135	400	50	5	1	26.67	3.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.07256	0.00521	0.00404
45	19	990	165	80	120	135	400	50	5	1	26.67	3.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.07256	0.00521	0.00404
45	20	990	165	80	120	135	400	50	5	1	26.67	3.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.07256	0.00521	0.00404
45	21	990	165	80	120	135	400	75	3	1	26.67	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.10224	0.03571	0.01143
45	22	990	165	80	120	135	400	100	3	1	26.67	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.12851	0.03846	0.01143
45	23	990	165	80	120	135	400	125	3	1	26.67	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.15195	0.04032	0.01143
45	24	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
45	25	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
45	26	1000	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
45	27	1005	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
45	28	1005	165	80	120	135	400	165	10	1	26.67	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.01068	0.00635
45	29	1005	165	80	120	135	400	165	25	1	26.67	11.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.02523	0.00966
45	30	1005	165	80	125	135	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00013	0.01350	0.19195	0.02443	0.00952
45	31	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
45	32	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
45	33	1005	155	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12465	0.06087	0.01667
45	34	1005	150	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.06087	0.01667
45	35	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
45	36	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
45	37	1015	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
45	38	1020	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
45	39	1020	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
45	40	1020	150	150	100	100	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.01250
45	41	1020	150	150	100	100	400	175	10	1	26.67	11.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.01228	0.00800
45	42	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
45	43	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
45	44	1020	150	150	100	100	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.00635	0.00500
45	45	1020	150	150	100	100	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.09524	0.00629	0.00500
45	46	1020	150	150	100	100	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.07843	0.00620	0.00500
45	47	1020	145	90	85	185	400	200	5	1	26.67	13.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00009	0.01850	0.20915	0.00764	0.00455
45	48	1025	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	49	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	50	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455

All units of length are in feet.
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See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
45	51	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	52	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	53	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	54	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	55	1030	140	70	85	185	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.20779	0.00763	0.00455
45	56	1030	140	70	85	185	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.21978	0.00763	0.00455
45	57	1030	150	70	85	185	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.01850	0.21277	0.00763	0.00455
45	58	1035	165	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.22599	0.00654	0.00571
45	59	1040	180	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.21505	0.00654	0.00571
45	60	1040	190	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.20833	0.00654	0.00571
45	61	1040	175	75	150	125	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.18779	0.00860	0.00750
45	62	1040	160	75	150	125	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.19608	0.00860	0.00750
45	63	1040	150	75	150	125	500	130	10	3	33.33	8.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.18093	0.00856	0.00750
45	64	1040	150	75	150	125	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.20202	0.00860	0.00750
45	65	1055	150	75	150	125	500	175	5	3	33.33	11.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.22654	0.00438	0.00407
45	66	1055	150	75	150	125	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01250	0.24922	0.03596	0.02182
45	67	1055	150	75	150	125	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01250	0.24922	0.03596	0.02182
45	68	1055	150	75	150	125	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01250	0.24922	0.03596	0.02182
45	69	1055	150	75	150	125	500	500	3	3	33.33	33.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01250	0.43011	0.03828	0.02182
45	70	1055	150	75	150	125	500	200	5	3	33.33	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01250	0.24922	0.00439	0.00407
45	71	1055	150	100	150	100	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.00860	0.00774
45	72	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
45	73	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
45	74	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
45	75	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
45	76	1070	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
45	77	1085	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
45	78	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
45	79	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
46	1	970	180	40	60	120	200	10	10	3	13.33	0.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.02930	0.01333	0.01538
46	2	970	180	40	60	120	200	10	10	3	13.33	0.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.02930	0.01333	0.01538
46	3	970	180	40	60	120	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.06202	0.01754	0.01538
46	4	975	165	90	110	100	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.09275	0.01093	0.01008
46	5	980	150	90	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01681	0.01395
46	6	980	150	90	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01681	0.01395
46	7	980	150	90	110	100	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01149	0.01008
46	8	985	160	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.00672	0.00615
46	9	985	160	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.00672	0.00615
46	10	985	160	125	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.01290	0.01096
46	11	985	160	125	95	120	400	150	25	3	26.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.02878	0.02062
46	12	1000	165	80	120	135	400	100	50	5	26.67	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.12851	0.04167	0.00454

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
46	13	1000	165	80	120	135	400	75	25	3	26.67	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.02273	0.01709
46	14	1000	165	80	120	135	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.01020	0.00889
46	15	1000	165	80	120	135	400	75	5	1	26.67	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.00532	0.00404
46	16	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
46	17	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
46	18	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
46	19	990	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
46	20	990	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
46	21	990	165	80	120	135	400	75	3	1	26.67	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.10224	0.03571	0.01143
46	22	990	165	80	120	135	400	100	3	1	26.67	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.12851	0.03846	0.01143
46	23	990	165	80	120	135	400	125	3	1	26.67	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.15195	0.04032	0.01143
46	24	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
46	25	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
46	26	1000	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
46	27	1005	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
46	28	1005	165	80	120	135	400	165	10	1	26.67	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.01068	0.00635
46	29	1005	165	80	120	135	400	165	25	1	26.67	11.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.02523	0.00966
46	30	1005	165	80	120	135	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.02536	0.00966
46	31	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
46	32	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
46	33	1005	155	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12465	0.06087	0.01667
46	34	1005	150	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.06087	0.01667
46	35	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
46	36	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
46	37	1015	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
46	38	1020	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
46	39	1020	150	150	100	100	400	200	50	1	26.67	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.04848	0.01538
46	40	1020	150	150	100	100	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.01250
46	41	1020	150	150	100	100	400	175	10	1	26.67	11.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.01228	0.00800
46	42	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
46	43	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
46	44	1020	150	150	100	100	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.00635	0.00500
46	45	1020	150	150	100	100	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.09524	0.00629	0.00500
46	46	1020	150	150	100	100	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.07843	0.00620	0.00500
46	47	1020	140	70	85	205	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.18141	0.00759	0.00435
46	48	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	49	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	50	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	51	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	52	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	53	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
46	54	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	55	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
46	56	1030	140	70	85	205	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.21978	0.00763	0.00435
46	57	1030	160	70	85	205	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20619	0.00763	0.00435
46	58	1040	175	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.21858	0.00654	0.00571
46	59	1040	190	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.20833	0.00654	0.00571
46	60	1040	175	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.21858	0.00654	0.00571
46	61	1040	160	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.18692	0.00858	0.00755
46	62	1040	150	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.19231	0.00858	0.00755
46	63	1040	150	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.19231	0.00858	0.00755
46	64	1040	150	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.19231	0.00858	0.00755
46	65	1050	150	80	150	120	500	175	5	3	33.33	11.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.21605	0.00438	0.00408
46	66	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
46	67	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
46	68	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
46	69	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
46	70	1055	150	80	150	120	500	200	5	3	33.33	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.23810	0.00439	0.00408
46	71	1055	150	100	150	100	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.00860	0.00774
46	72	1065	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
46	73	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
46	74	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
46	75	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
46	76	1070	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
46	77	1085	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
46	78	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
46	79	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
47	1	970	180	60	90	90	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00009	0.00900	0.07619	0.01307	0.01212
47	2	970	180	60	90	90	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00009	0.00900	0.07619	0.01307	0.01212
47	3	970	180	60	90	90	200	50	10	3	13.33	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00006	0.00009	0.00900	0.07619	0.01307	0.01212
47	4	980	180	60	110	100	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.01000	0.12403	0.01130	0.01008
47	5	980	180	60	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.01000	0.19753	0.01724	0.01395
47	6	980	180	60	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.01000	0.19753	0.01724	0.01395
47	7	980	180	60	110	100	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00011	0.01000	0.19753	0.01170	0.01008
47	8	985	170	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12308	0.00672	0.00615
47	9	985	160	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.00672	0.00615
47	10	985	160	125	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.01290	0.01096
47	11	985	160	125	95	120	400	150	25	3	26.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.02878	0.02062
47	12	1000	165	80	120	135	400	100	50	5	26.67	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.12851	0.04167	0.00454
47	13	1000	165	80	120	135	400	75	25	3	26.67	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.02273	0.01709
47	14	1000	165	80	120	135	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.01020	0.00889
47	15	1000	165	80	120	135	400	75	5	1	26.67	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.00532	0.00404

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
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Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
47	16	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
47	17	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
47	18	1000	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
47	19	990	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
47	20	990	165	80	120	135	400	50	1	1	26.67	3.33	1.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.07256	0.01389	0.00784
47	21	990	165	80	120	135	400	75	3	1	26.67	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.10224	0.03571	0.01143
47	22	990	165	80	120	135	400	100	3	1	26.67	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.12851	0.03846	0.01143
47	23	990	165	80	120	135	400	125	3	1	26.67	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.15195	0.04032	0.01143
47	24	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
47	25	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
47	26	1000	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
47	27	1005	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
47	28	1005	165	80	120	135	400	165	10	1	26.67	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.01068	0.00635
47	29	1005	165	80	120	135	400	165	25	1	26.67	11.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.02523	0.00966
47	30	1005	165	80	120	135	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.02536	0.00966
47	31	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
47	32	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
47	33	1005	155	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12465	0.06087	0.01667
47	34	1005	150	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.06087	0.01667
47	35	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
47	36	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
47	37	1015	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
47	38	1020	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
47	39	1020	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
47	40	1020	150	150	100	100	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.01250
47	41	1020	150	150	100	100	400	175	10	1	26.67	11.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.01228	0.00800
47	42	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
47	43	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
47	44	1020	150	150	100	100	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.00635	0.00500
47	45	1020	150	150	100	100	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.09524	0.00629	0.00500
47	46	1020	150	150	100	100	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.07843	0.00620	0.00500
47	47	1020	140	70	85	205	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.18141	0.00759	0.00435
47	48	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	49	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	50	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	51	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	52	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	53	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	54	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	55	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
47	56	1030	150	70	85	205	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.21277	0.00763	0.00435

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
47	57	1030	165	70	85	205	500	150	5	1	33.33	10.00	0.33	1.00	0.15	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20305	0.00763	0.00435
47	58	1040	180	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.21505	0.00654	0.00571
47	59	1040	190	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.20833	0.00654	0.00571
47	60	1040	180	60	100	150	500	150	5	3	33.33	10.00	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00010	0.01500	0.21505	0.00654	0.00571
47	61	1040	165	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.18433	0.00858	0.00755
47	62	1040	150	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.19231	0.00858	0.00755
47	63	1040	150	80	150	120	500	130	10	3	33.33	8.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.17196	0.00854	0.00755
47	64	1040	150	80	150	120	500	150	10	3	33.33	10.00	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.19231	0.00858	0.00755
47	65	1055	150	80	150	120	500	175	5	3	33.33	11.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.21605	0.00438	0.00408
47	66	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
47	67	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
47	68	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
47	69	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
47	70	1055	150	80	150	120	500	200	5	3	33.33	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.23810	0.00439	0.00408
47	71	1055	150	100	150	100	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.00860	0.00774
47	72	1070	150	100	150	100	500	100	10	3	33.33	6.67	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.11494	0.00833	0.00774
47	73	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
47	74	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
47	75	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
47	76	1075	150	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.28986	0.02116	0.01500
47	77	1080	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
47	78	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
47	79	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
48	1	970	180	40	60	120	200	10	10	3	13.33	0.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.02930	0.01333	0.01538
48	2	970	180	40	60	120	200	10	10	3	13.33	0.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.02930	0.01333	0.01538
48	3	970	180	40	60	120	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.06202	0.01754	0.01538
48	4	980	165	90	110	100	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.09275	0.01093	0.01008
48	5	980	150	90	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01681	0.01395
48	6	980	150	90	110	100	400	150	15	3	26.67	10.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01681	0.01395
48	7	980	150	90	110	100	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.16667	0.01149	0.01008
48	8	985	160	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.00672	0.00615
48	9	985	160	125	95	120	400	150	5	3	26.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.00672	0.00615
48	10	985	160	125	95	120	400	150	10	3	26.67	10.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.01290	0.01096
48	11	985	160	125	95	120	400	150	25	3	26.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.12598	0.02878	0.02062
48	12	990	165	80	120	135	400	100	50	5	26.67	6.67	3.33	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.12851	0.04167	0.00454
48	13	990	165	80	120	135	400	75	25	3	26.67	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.02273	0.01709
48	14	990	165	80	120	135	400	75	10	3	26.67	5.00	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.01020	0.00889
48	15	990	165	80	120	135	400	75	5	1	26.67	5.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.00532	0.00404
48	16	990	165	80	120	135	400	50	5	3	26.67	3.33	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.07256	0.00521	0.00494
48	17	990	165	80	120	135	400	25	10	5	26.67	1.67	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.03879	0.00877	0.00342
48	18	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784

All units of length are in feet.
All units of time are in days.

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See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
48	19	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
48	20	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
48	21	990	165	80	120	135	400	75	3	1	26.67	5.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.10224	0.03571	0.01143
48	22	990	165	80	120	135	400	100	3	1	26.67	6.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.12851	0.03846	0.01143
48	23	990	165	80	120	135	400	125	3	1	26.67	8.33	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.15195	0.04032	0.01143
48	24	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
48	25	990	165	80	120	135	400	165	3	1	26.67	11.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.18458	0.04231	0.01143
48	26	1000	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
48	27	1005	165	80	120	135	400	165	5	1	26.67	11.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.00545	0.00404
48	28	1005	165	80	120	135	400	165	10	1	26.67	11.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.01068	0.00635
48	29	1005	165	80	120	135	400	165	25	1	26.67	11.00	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.18458	0.02523	0.00966
48	30	1005	165	80	120	135	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.02536	0.00966
48	31	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
48	32	1005	165	80	120	135	400	175	50	1	26.67	11.67	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.19195	0.04667	0.01170
48	33	1005	155	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12465	0.06087	0.01667
48	34	1005	150	150	100	100	400	175	75	1	26.67	11.67	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.06087	0.01667
48	35	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
48	36	1005	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
48	37	1015	150	150	100	100	400	200	100	1	26.67	13.33	6.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.07619	0.01739
48	38	1020	150	150	100	100	400	200	75	1	26.67	13.33	5.00	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.06400	0.01667
48	39	1020	150	150	100	100	400	200	50	1	26.67	13.33	3.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.04848	0.01538
48	40	1020	150	150	100	100	400	175	25	1	26.67	11.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.01250
48	41	1020	150	150	100	100	400	175	10	1	26.67	11.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.01228	0.00800
48	42	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
48	43	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
48	44	1020	150	150	100	100	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.00635	0.00500
48	45	1020	150	150	100	100	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.09524	0.00629	0.00500
48	46	1020	150	150	100	100	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.07843	0.00620	0.00500
48	47	1020	140	70	85	205	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.18141	0.00759	0.00435
48	48	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	49	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	50	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	51	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	52	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	53	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
48	54	1030	140	70	85	205	400	100	10	3	26.67	6.67	0.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.15238	0.01449	0.01021
48	55	1030	140	70	85	205	400	75	25	3	26.67	5.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.12030	0.03077	0.01676
48	56	1030	150	70	85	205	500	50	50	5	33.33	3.33	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.08547	0.04301	0.00312
48	57	1030	160	70	85	205	500	25	75	5	33.33	1.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.04474	0.03390	0.00316
48	58	1040	175	60	100	150	500	25	75	5	33.33	1.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.05109	0.03571	0.00426
48	59	1040	190	60	100	150	500	25	75	5	33.33	1.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.05051	0.03571	0.00426

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
48	60	1040	175	60	100	150	500	50	75	5	33.33	3.33	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.09456	0.05263	0.00426
48	61	1040	160	80	150	120	500	75	75	5	33.33	5.00	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.10695	0.04348	0.00513
48	62	1040	150	80	150	120	500	100	50	5	33.33	6.67	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.13889	0.03509	0.00494
48	63	1040	150	80	150	120	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.19231	0.02041	0.00444
48	64	1040	150	80	150	120	500	200	10	5	33.33	13.33	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.23810	0.00866	0.00342
48	65	1055	150	80	150	120	500	175	5	3	33.33	11.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.21605	0.00438	0.00408
48	66	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
48	67	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
48	68	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
48	69	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
48	70	1055	150	80	150	120	500	200	5	3	33.33	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.23810	0.00439	0.00408
48	71	1055	150	100	150	100	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.00860	0.00774
48	72	1065	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
48	73	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
48	74	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
48	75	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
48	76	1070	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
48	77	1080	160	60	150	130	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.27778	0.02116	0.01500
48	78	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
48	79	1085	160	60	150	130	500	180	25	3	33.33	12.00	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.25974	0.02105	0.01500
49	1	970	180	40	60	120	200	100	15	3	13.33	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.14035	0.03030	0.02000
49	2	970	180	40	60	120	200	100	15	3	13.33	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.14035	0.03030	0.02000
49	3	970	180	40	60	120	200	100	15	3	13.33	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00004	0.00006	0.01200	0.14035	0.03030	0.02000
49	4	980	150	90	110	100	400	100	15	3	26.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.12121	0.01619	0.01395
49	5	980	150	90	110	100	400	100	15	3	26.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.12121	0.01619	0.01395
49	6	980	150	90	110	100	400	75	15	3	26.67	5.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.09524	0.01563	0.01395
49	7	980	150	90	110	100	400	75	15	3	26.67	5.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00009	0.00011	0.01000	0.09524	0.01563	0.01395
49	8	985	160	125	95	120	400	75	15	3	26.67	5.00	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00013	0.00010	0.01200	0.07048	0.01667	0.01481
49	9	985	160	125	95	120	400	50	15	5	26.67	3.33	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.04893	0.01509	0.00440
49	10	985	160	125	95	120	400	50	15	5	26.67	3.33	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.04893	0.01509	0.00440
49	11	985	160	125	95	120	400	25	15	5	26.67	1.67	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.02552	0.01176	0.00440
49	12	990	165	80	120	135	400	25	15	10	26.67	1.67	1.00	0.67	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.03879	0.01190	0.00620
49	13	990	165	80	120	135	400	25	15	10	26.67	1.67	1.00	0.67	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.03879	0.01190	0.00620
49	14	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
49	15	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
49	16	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
49	17	990	165	80	120	135	400	15	15	15	26.67	1.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.01000	0.00784
49	18	990	150	100	100	125	400	75	15	15	26.67	5.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.08696	0.01667	0.00889
49	19	990	165	80	120	135	400	15	10	10	26.67	1.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.00769	0.00523
49	20	990	165	80	120	135	400	15	10	5	26.67	1.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.00769	0.00342
49	21	990	165	80	120	135	400	15	10	5	26.67	1.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.02393	0.00769	0.00342

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
49	22	990	165	80	120	135	400	15	5	3	26.67	1.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.02393	0.00455	0.00494
49	23	990	165	80	120	135	400	15	5	3	26.67	1.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.02393	0.00455	0.00494
49	24	990	165	80	120	135	400	15	3	1	26.67	1.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.02393	0.01667	0.01143
49	25	990	165	80	120	135	400	15	3	1	26.67	1.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.02393	0.01667	0.01143
49	26	1005	165	80	120	135	400	25	3	1	26.67	1.67	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00008	0.01200	0.01350	0.03879	0.02273	0.01143
49	27	1005	165	80	120	135	400	50	5	1	26.67	3.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.07256	0.00521	0.00404
49	28	1005	165	80	120	135	400	75	10	1	26.67	5.00	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.10224	0.01020	0.00635
49	29	1005	165	80	120	135	400	150	15	1	26.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.17297	0.01563	0.00784
49	30	1005	165	80	125	135	400	200	25	1	26.67	13.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00013	0.01350	0.20915	0.02469	0.00952
49	31	1005	165	80	120	135	400	200	25	1	26.67	13.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.20915	0.02564	0.00966
49	32	1005	165	80	120	135	400	200	25	1	26.67	13.33	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00008	0.00012	0.01350	0.20915	0.02564	0.00966
49	33	1005	150	150	100	100	400	175	25	3	26.67	11.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.02143
49	34	1005	150	150	100	100	400	150	25	3	26.67	10.00	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.02667	0.02143
49	35	1005	150	150	100	100	400	125	25	5	26.67	8.33	1.67	0.33	0.12	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.09524	0.02564	0.00556
49	36	1005	150	150	100	100	400	105	50	10	26.67	7.00	3.33	0.67	0.12	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.08187	0.03889	0.01111
49	37	1020	150	150	100	100	400	200	100	5	26.67	13.33	6.67	0.33	0.12	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.14035	0.07619	0.00635
49	38	1020	150	150	100	100	400	200	75	5	26.67	13.33	5.00	0.33	0.12	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.14035	0.06400	0.00625
49	39	1020	150	150	100	100	400	200	50	3	26.67	13.33	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.14035	0.04848	0.03158
49	40	1020	150	150	100	100	400	175	25	3	26.67	11.67	1.67	3.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.02745	0.02143
49	41	1020	150	150	100	100	400	175	10	1	26.67	11.67	0.67	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.12613	0.01228	0.00800
49	42	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
49	43	1020	150	150	100	100	400	160	5	1	26.67	10.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11722	0.00637	0.00500
49	44	1020	150	150	100	100	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.11111	0.00635	0.00500
49	45	1020	150	150	100	100	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.09524	0.00629	0.00500
49	46	1020	150	150	100	100	400	100	5	1	26.67	6.67	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.07843	0.00620	0.00500
49	47	1020	140	70	85	205	400	125	5	1	26.67	8.33	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.18141	0.00759	0.00435
49	48	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
49	49	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
49	50	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
49	51	1030	140	70	85	205	400	150	5	1	26.67	10.00	0.33	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.20779	0.00763	0.00435
49	52	1030	140	70	85	205	400	125	15	1	26.67	8.33	1.00	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.18141	0.02141	0.00690
49	53	1030	140	70	85	205	400	100	25	1	26.67	6.67	1.67	1.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.15238	0.03252	0.00781
49	54	1030	140	70	85	205	400	75	50	3	26.67	5.00	3.33	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.12030	0.05063	0.02131
49	55	1030	140	70	85	205	400	25	75	3	26.67	1.67	5.00	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.04482	0.03390	0.02344
49	56	1030	150	70	85	205	500	10	100	5	33.33	0.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.01862	0.01699	0.00319
49	57	1030	160	70	85	205	500	10	100	5	33.33	0.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.01857	0.01699	0.00319
49	58	1035	175	60	100	150	500	10	100	5	33.33	0.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.02147	0.01905	0.00430
49	59	1040	190	60	100	150	500	10	100	5	33.33	0.67	6.67	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.02137	0.01905	0.00430
49	60	1040	180	60	100	150	500	25	75	5	33.33	1.67	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.05089	0.03571	0.00426
49	61	1040	165	80	150	120	500	75	75	5	33.33	5.00	5.00	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.10610	0.04348	0.00513
49	62	1040	150	80	150	120	500	100	50	5	33.33	6.67	3.33	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.13889	0.03509	0.00494

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
49	63	1040	150	80	150	120	500	150	25	5	33.33	10.00	1.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.19231	0.02041	0.00444
49	64	1040	150	80	150	120	500	200	10	5	33.33	13.33	0.67	0.33	0.15	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.23810	0.00866	0.00342
49	65	1055	150	80	150	120	500	175	5	3	33.33	11.67	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.21605	0.00438	0.00408
49	66	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
49	67	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
49	68	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
49	69	1055	150	80	150	120	500	200	3	3	33.33	13.33	3.00	3.00	0.15	0.000001	0.000100	0.000100	0.00008	0.01500	0.01200	0.23810	0.03571	0.02222
49	70	1055	150	80	150	120	500	200	5	3	33.33	13.33	0.33	3.00	0.15	0.000001	0.000001	0.000100	0.00008	0.00015	0.01200	0.23810	0.00439	0.00408
49	71	1055	150	100	150	100	500	200	10	3	33.33	13.33	0.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.00860	0.00774
49	72	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
49	73	1070	150	100	150	100	500	200	25	3	33.33	13.33	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.20202	0.02051	0.01622
49	74	1070	150	100	150	100	500	175	25	3	33.33	11.67	1.67	3.00	0.15	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.18229	0.02029	0.01622
49	75	1070	160	60	150	130	500	50	15	3	33.33	3.33	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.09662	0.01190	0.01034
49	76	1070	160	60	150	130	500	50	15	3	33.33	3.33	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.09662	0.01190	0.01034
49	77	1085	165	60	150	130	500	50	15	3	33.33	3.33	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.09592	0.01190	0.01034
49	78	1085	160	60	150	130	500	50	15	3	33.33	3.33	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.09662	0.01190	0.01034
49	79	1085	160	60	150	130	500	50	15	3	33.33	3.33	1.00	3.00	0.15	0.000001	0.000001	0.000100	0.00006	0.00015	0.01300	0.09662	0.01190	0.01034
50	1	950	155	65	110	120	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00011	0.01200	0.13468	0.01670	0.01333
50	2	950	155	65	110	120	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00011	0.01200	0.13468	0.01670	0.01333
50	3	950	190	65	110	120	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00007	0.00011	0.01200	0.11799	0.01670	0.01333
50	4	960	150	90	110	100	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00009	0.00011	0.00010	0.10929	0.01120	0.00635
50	5	960	150	90	110	100	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00011	0.00010	0.07843	0.01120	0.00635
50	6	960	150	90	110	100	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00011	0.00010	0.07843	0.01120	0.00635
50	7	960	150	90	110	100	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00009	0.00011	0.00010	0.07843	0.01120	0.00635
50	8	980	160	125	95	120	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.03922	0.01509	0.00930
50	9	980	160	125	95	120	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.03922	0.01509	0.00930
50	10	980	160	125	95	120	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.03922	0.01509	0.00930
50	11	980	160	125	95	120	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00013	0.00010	0.00012	0.03922	0.01509	0.00930
50	12	980	165	100	105	125	150	50	15	10	10.00	3.33	1.00	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00011	0.00013	0.05063	0.01481	0.00684
50	13	990	165	80	120	135	150	100	15	10	10.00	6.67	1.00	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.09302	0.01515	0.00620
50	14	990	165	80	120	135	200	100	15	15	13.33	6.67	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00014	0.10458	0.01515	0.00784
50	15	990	165	95	105	135	200	150	15	15	13.33	10.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00011	0.00014	0.12030	0.01747	0.00833
50	16	990	165	100	100	135	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01818	0.00851
50	17	990	165	100	100	135	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01818	0.00851
50	18	990	165	100	100	135	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01818	0.00851
50	19	990	165	100	100	135	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01250	0.00567
50	20	1000	165	100	100	135	250	150	10	5	16.67	10.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01250	0.00360
50	21	1000	165	100	100	135	250	150	10	5	16.67	10.00	0.67	0.33	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.12739	0.01250	0.00360
50	22	1000	165	100	100	135	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.12739	0.00645	0.00580
50	23	1000	165	100	100	135	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01350	0.12739	0.04615	0.01188
50	24	1000	165	100	100	135	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01350	0.12739	0.04615	0.01188

All units of length are in feet.
All units of time are in days.

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See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
50	25	1000	165	100	100	135	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01350	0.12739	0.04615	0.01188
50	26	1000	165	100	100	135	150	150	5	1	10.00	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.10256	0.00645	0.00460
50	27	1005	165	100	100	135	150	200	15	1	10.00	13.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.11765	0.01860	0.00851
50	28	1005	165	100	100	135	175	200	30	1	11.67	13.33	2.00	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.12785	0.03478	0.01081
50	29	1005	165	100	100	135	175	200	30	1	11.67	13.33	2.00	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.12785	0.03478	0.01081
50	30	1005	165	100	130	135	175	200	30	1	11.67	13.33	2.00	1.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00013	0.01350	0.12785	0.02759	0.01000
50	31	1005	165	100	100	135	200	175	25	3	13.33	11.67	1.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00010	0.01350	0.12742	0.02917	0.01905
50	32	1005	165	100	100	135	200	150	20	5	13.33	10.00	1.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00014	0.11679	0.02353	0.00417
50	33	1005	155	150	100	100	200	125	15	5	13.33	8.33	1.00	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.08205	0.01695	0.00500
50	34	1005	150	150	100	100	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.07292	0.01167	0.00667
50	35	1005	150	150	100	100	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.07292	0.01167	0.00667
50	36	1005	150	150	100	100	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.07292	0.01167	0.00667
50	37	1010	150	150	100	100	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.07292	0.01167	0.00667
50	38	1010	150	150	100	100	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.07292	0.01167	0.00667
50	39	1010	150	150	100	100	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.08225	0.01190	0.00667
50	40	1010	150	150	100	100	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.09814	0.01219	0.00667
50	41	1010	150	150	100	100	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.09814	0.01219	0.00667
50	42	1010	150	150	100	100	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.09814	0.01219	0.00667
50	43	1010	150	150	100	100	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00010	0.00010	0.09814	0.01219	0.00667
50	44	1010	150	150	100	100	150	150	5	1	10.00	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.08696	0.00635	0.00500
50	45	1020	150	150	100	100	175	125	5	1	11.67	8.33	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.08046	0.00629	0.00500
50	46	1020	150	150	100	100	190	100	5	1	12.67	6.67	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00010	0.01000	0.06941	0.00620	0.00500
50	47	1020	140	70	85	205	200	125	5	1	13.33	8.33	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.14652	0.00759	0.00435
50	48	1020	140	70	85	205	200	150	5	1	13.33	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.16327	0.00763	0.00435
50	49	1030	140	70	85	205	200	150	5	1	13.33	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.16327	0.00763	0.00435
50	50	1030	140	70	85	205	200	150	5	1	13.33	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.16327	0.00763	0.00435
50	51	1030	140	70	85	205	200	150	5	1	13.33	10.00	0.33	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.16327	0.00763	0.00435
50	52	1040	140	70	85	205	200	125	15	1	13.33	8.33	1.00	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.14652	0.02141	0.00690
50	53	1040	140	70	85	205	200	100	25	1	13.33	6.67	1.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.12698	0.03252	0.00781
50	54	1040	140	70	85	205	200	75	50	3	13.33	5.00	3.33	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.10390	0.05063	0.02131
50	55	1040	140	70	85	205	200	25	75	3	13.33	1.67	5.00	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00009	0.02050	0.04233	0.03390	0.02344
50	56	1040	140	70	85	205	200	25	100	5	13.33	1.67	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.04233	0.03653	0.00319
50	57	1040	140	70	85	205	200	25	100	5	13.33	1.67	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00009	0.00021	0.04233	0.03653	0.00319
50	58	1055	165	60	100	150	200	25	100	5	13.33	1.67	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.04638	0.03922	0.00430
50	59	1065	180	60	100	150	200	25	100	5	13.33	1.67	6.67	0.33	0.1	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.04520	0.03922	0.00430
50	60	1065	190	60	100	150	175	25	75	5	11.67	1.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00006	0.00010	0.00015	0.04321	0.03571	0.00426
50	61	1065	175	80	150	120	160	50	75	5	10.67	3.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.05910	0.03704	0.00513
50	62	1065	160	80	150	120	160	100	75	5	10.67	6.67	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.09786	0.04762	0.00513
50	63	1065	150	80	150	120	160	150	75	5	10.67	10.00	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.12903	0.05263	0.00513
50	64	1065	150	80	150	120	160	200	75	5	10.67	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.14815	0.05556	0.00513
50	65	1090	150	80	150	120	160	200	75	5	10.67	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.14815	0.05556	0.00513

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
50	66	1090	150	80	150	120	160	200	75	5	10.67	13.33	5.00	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.14815	0.05556	0.00513
50	67	1090	150	80	150	120	175	150	50	10	11.67	10.00	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.13462	0.03774	0.00889
50	68	1090	150	80	150	120	175	100	50	10	11.67	6.67	3.33	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.10606	0.03509	0.00889
50	69	1090	150	80	150	120	200	75	30	10	13.33	5.00	2.00	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.09091	0.02198	0.00784
50	70	1090	150	80	150	120	200	50	25	15	13.33	3.33	1.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00015	0.00012	0.06667	0.01754	0.00952
50	71	1095	150	100	150	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.03571	0.00727	0.00615
50	72	1110	150	100	150	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.03571	0.00727	0.00615
50	73	1125	150	100	150	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.03571	0.00727	0.00615
50	74	1125	150	100	150	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.03571	0.00727	0.00615
50	75	1125	150	100	150	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.03571	0.00727	0.00615
50	76	1125	160	60	150	130	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00006	0.00015	0.00013	0.05442	0.00784	0.00563
50	77	1130	160	60	150	130	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00006	0.00015	0.00013	0.05442	0.00784	0.00563
50	78	1130	160	60	150	130	200	20	10	15	13.33	1.33	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00006	0.00015	0.00013	0.03865	0.00741	0.00563
50	79	1130	160	60	150	130	200	10	10	15	13.33	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00006	0.00015	0.00013	0.02067	0.00635	0.00563
51	1	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
51	2	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
51	3	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
51	4	960	175	100	125	80	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.09390	0.00988	0.00650
51	5	960	145	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07619	0.00988	0.00650
51	6	960	145	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07619	0.00988	0.00650
51	7	960	145	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07619	0.00988	0.00650
51	8	980	150	100	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00005	0.00023	0.04762	0.02500	0.00727
51	9	980	150	100	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00005	0.00023	0.04762	0.02500	0.00727
51	10	980	150	75	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.05797	0.02759	0.00727
51	11	980	150	75	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.05797	0.02759	0.00727
51	12	980	150	75	50	225	150	50	15	15	10.00	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.06557	0.02759	0.00727
51	13	990	140	100	100	130	150	100	15	15	10.00	6.67	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.09091	0.01739	0.00870
51	14	990	140	100	100	130	200	100	15	15	13.33	6.67	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.09877	0.01739	0.00870
51	15	990	140	100	100	130	200	150	15	15	13.33	10.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.13115	0.01818	0.00870
51	16	990	140	100	100	130	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01818	0.00870
51	17	990	140	100	100	130	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01818	0.00870
51	18	990	140	100	100	130	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01818	0.00870
51	19	990	140	100	100	130	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01818	0.00870
51	20	1000	140	100	100	130	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01818	0.00870
51	21	1000	140	100	100	130	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01250	0.00580
51	22	1000	140	100	100	130	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01250	0.00580
51	23	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
51	24	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
51	25	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
51	26	1000	140	110	140	110	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.11111	0.00905	0.00533
51	27	1005	140	110	140	110	150	200	10	10	10.00	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13115	0.00916	0.00533

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
51	28	1005	140	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00533
51	29	1005	140	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00533
51	30	1005	150	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13239	0.00916	0.00533
51	31	1005	150	80	120	150	200	175	10	10	13.33	11.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.15556	0.01070	0.00494
51	32	1005	150	80	120	150	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14286	0.01064	0.00494
51	33	1005	150	80	120	150	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12821	0.01055	0.00494
51	34	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
51	35	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
51	36	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
51	37	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
51	38	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
51	39	1010	150	80	120	150	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12566	0.01055	0.00494
51	40	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
51	41	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
51	42	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
51	43	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
51	44	1010	150	80	120	150	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12500	0.01064	0.00494
51	45	1020	150	80	120	150	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12153	0.01055	0.00494
51	46	1020	150	80	120	150	190	100	10	10	12.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.10920	0.01042	0.00494
51	47	1020	150	100	150	100	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.11111	0.00844	0.00533
51	48	1020	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
51	49	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
51	50	1030	150	100	150	100	200	150	10	5	13.33	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00381
51	51	1030	150	100	150	100	200	150	10	5	13.33	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00381
51	52	1040	150	100	150	100	200	125	10	3	13.33	8.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00015	0.01000	0.11111	0.00844	0.00774
51	53	1040	150	95	70	95	200	100	10	3	13.33	6.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.09877	0.01677	0.01463
51	54	1040	150	95	70	95	200	75	10	3	13.33	5.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.08000	0.01613	0.01463
51	55	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
51	56	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
51	57	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
51	58	1065	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
51	59	1065	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
51	60	1065	150	95	70	95	175	25	10	5	11.67	1.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03132	0.01235	0.00513
51	61	1065	150	95	70	95	160	50	10	5	10.67	3.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.05556	0.01498	0.00513
51	62	1065	150	95	70	95	160	100	10	5	10.67	6.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.09195	0.01677	0.00513
51	63	1065	150	95	70	95	160	150	10	5	10.67	10.00	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.11765	0.01747	0.00513
51	64	1065	165	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.13763	0.01693	0.00762
51	65	1090	180	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.12549	0.01693	0.00762
51	66	1090	180	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.12549	0.01693	0.00762
51	67	1090	180	75	75	100	175	150	10	10	11.67	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.11814	0.01667	0.00762
51	68	1090	180	75	75	100	175	100	10	10	11.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.09672	0.01616	0.00762

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
51	69	1090	180	75	75	100	200	75	10	15	13.33	5.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.08602	0.01569	0.00941
51	70	1090	180	75	75	100	200	50	10	15	13.33	3.33	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.06504	0.01481	0.00941
51	71	1090	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	72	1125	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	73	1125	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	74	1125	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	75	1125	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	76	1125	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	77	1130	180	75	75	100	200	30	10	15	13.33	2.00	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00941
51	78	1130	180	75	75	100	200	20	10	15	13.33	1.33	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.03101	0.01185	0.00941
51	79	1130	180	75	75	100	200	10	10	15	13.33	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.01656	0.00889	0.00941
52	1	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
52	2	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
52	3	950	200	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11905	0.03125	0.02069
52	4	960	175	100	125	80	250	100	10	10	16.67	6.67	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.09390	0.00988	0.00650
52	5	960	155	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07207	0.00988	0.00650
52	6	960	145	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07619	0.00988	0.00650
52	7	960	145	100	125	80	100	100	10	10	6.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.07619	0.00988	0.00650
52	8	980	150	75	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.05797	0.02759	0.00727
52	9	980	150	100	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00010	0.00005	0.00023	0.04762	0.02500	0.00727
52	10	980	150	75	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.05797	0.02759	0.00727
52	11	980	150	75	50	225	100	50	15	15	6.67	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.05797	0.02759	0.00727
52	12	980	150	75	50	225	150	50	15	15	10.00	3.33	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00005	0.00023	0.06557	0.02759	0.00727
52	13	990	140	70	75	185	150	100	15	15	10.00	6.67	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00019	0.11429	0.02339	0.00769
52	14	990	140	70	100	160	200	100	15	15	13.33	6.67	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.12698	0.01810	0.00769
52	15	990	140	70	100	160	200	150	15	15	13.33	10.00	1.00	1.00	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.16327	0.01869	0.00769
52	16	990	140	70	100	160	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.17857	0.01869	0.00769
52	17	990	140	70	100	160	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.17857	0.01869	0.00769
52	18	990	140	70	100	160	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.17857	0.01869	0.00769
52	19	990	140	70	100	160	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.17857	0.01869	0.00769
52	20	1000	140	70	100	160	250	150	15	15	16.67	10.00	1.00	1.00	0.12	0.000001	0.000001	0.000001	0.00007	0.00010	0.00016	0.17857	0.01869	0.00769
52	21	1000	140	100	100	130	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01250	0.00580
52	22	1000	140	100	100	130	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00010	0.00013	0.14085	0.01250	0.00580
52	23	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
52	24	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
52	25	1000	140	110	140	110	250	150	10	10	16.67	10.00	0.67	0.67	0.12	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13158	0.00905	0.00533
52	26	1000	140	110	140	110	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.11111	0.00905	0.00533
52	27	1005	140	110	140	110	150	200	10	10	10.00	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.13115	0.00916	0.00533
52	28	1005	140	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00533
52	29	1005	140	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00533
52	30	1005	140	110	140	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00533

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
52	31	1005	150	80	120	150	200	175	10	10	13.33	11.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.15556	0.01070	0.00494
52	32	1005	150	80	120	150	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14286	0.01064	0.00494
52	33	1005	150	80	120	150	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12821	0.01055	0.00494
52	34	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
52	35	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
52	36	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
52	37	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
52	38	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
52	39	1010	150	80	120	150	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12566	0.01055	0.00494
52	40	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
52	41	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
52	42	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
52	43	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
52	44	1010	150	80	120	150	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12500	0.01064	0.00494
52	45	1020	150	80	120	150	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12153	0.01055	0.00494
52	46	1020	150	80	120	150	190	100	10	10	12.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.10920	0.01042	0.00494
52	47	1020	150	100	150	100	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.11111	0.00844	0.00533
52	48	1020	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
52	49	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
52	50	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
52	51	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
52	52	1040	150	100	150	100	200	125	10	5	13.33	8.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.11111	0.00844	0.00381
52	53	1040	150	95	70	95	200	100	10	5	13.33	6.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.09877	0.01677	0.00513
52	54	1040	150	95	70	95	200	75	10	3	13.33	5.00	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.08000	0.01613	0.01463
52	55	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
52	56	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
52	57	1040	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
52	58	1065	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
52	59	1065	150	95	70	95	200	25	10	3	13.33	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03175	0.01235	0.01463
52	60	1065	150	95	70	95	175	25	10	3	11.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.03132	0.01235	0.01463
52	61	1065	150	95	70	95	160	50	10	3	10.67	3.33	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00010	0.00007	0.00950	0.05556	0.01498	0.01463
52	62	1065	150	95	70	185	160	100	10	50	10.67	6.67	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00019	0.09195	0.01677	0.01246
52	63	1065	150	95	70	185	160	150	10	50	10.67	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00019	0.11765	0.01747	0.01246
52	64	1065	165	75	75	170	160	200	10	50	10.67	13.33	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.13763	0.01693	0.01223
52	65	1090	180	75	75	170	160	200	10	50	10.67	13.33	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.12549	0.01693	0.01223
52	66	1090	180	75	75	170	160	200	10	50	10.67	13.33	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.12549	0.01693	0.01223
52	67	1090	180	75	75	170	175	150	10	50	11.67	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.11814	0.01667	0.01223
52	68	1090	180	75	75	170	175	100	10	50	11.67	6.67	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.09672	0.01616	0.01223
52	69	1090	180	75	75	170	200	75	10	50	13.33	5.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.08602	0.01569	0.01223
52	70	1090	180	75	75	170	200	50	10	50	13.33	3.33	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.06504	0.01481	0.01223
52	71	1090	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
52	72	1105	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223
52	73	1125	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223
52	74	1125	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223
52	75	1125	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223
52	76	1125	180	75	75	170	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.01223
52	77	1130	180	75	75	170	200	30	10	25	13.33	2.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.04372	0.01333	0.00932
52	78	1130	180	75	75	170	200	20	10	15	13.33	1.33	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.03101	0.01185	0.00708
52	79	1130	180	75	75	170	200	10	10	15	13.33	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00017	0.01656	0.00889	0.00708
53	1	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
53	2	950	220	60	55	125	250	100	15	3	16.67	6.67	1.00	3.00	0.12	0.000001	0.000001	0.000100	0.00006	0.00006	0.01250	0.11111	0.03125	0.02069
53	3	950	200	60	55	125	250	100	15	5	16.67	6.67	1.00	0.33	0.12	0.000001	0.000001	0.000001	0.00006	0.00006	0.00013	0.11905	0.03125	0.00465
53	4	960	175	100	125	80	250	100	5	10	16.67	6.67	0.33	0.67	0.12	0.000001	0.000001	0.000001	0.00010	0.00013	0.00008	0.09390	0.00513	0.00404
53	5	960	145	100	125	80	100	100	3	10	6.67	6.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.01250	0.00008	0.07619	0.03529	0.01237
53	6	960	145	125	125	80	100	100	1	10	6.67	6.67	1.00	0.67	0.1	0.000001	0.000100	0.000001	0.00013	0.01250	0.00008	0.06667	0.01391	0.00816
53	7	960	145	100	125	80	100	100	1	10	6.67	6.67	1.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.01250	0.00008	0.07619	0.01429	0.00816
53	8	980	150	75	50	225	100	50	1	3	6.67	3.33	1.00	3.00	0.1	0.000001	0.000100	0.000100	0.00008	0.00500	0.02250	0.05797	0.02759	0.01600
53	9	980	150	100	50	225	100	50	3	1	6.67	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00500	0.02250	0.04762	0.04286	0.00828
53	10	980	150	75	50	225	100	50	3	1	6.67	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00008	0.00500	0.02250	0.05797	0.05106	0.00828
53	11	980	150	75	50	225	100	50	3	1	6.67	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00008	0.00500	0.02250	0.05797	0.05106	0.00828
53	12	980	150	75	50	225	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00008	0.00500	0.02250	0.06557	0.05106	0.00828
53	13	990	140	100	100	130	150	100	3	1	10.00	6.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.09091	0.04138	0.01224
53	14	990	140	100	100	130	200	100	3	1	13.33	6.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.09877	0.04138	0.01224
53	15	990	140	100	100	130	200	150	3	1	13.33	10.00	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.13115	0.04615	0.01224
53	16	990	140	100	100	130	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.14085	0.04615	0.01224
53	17	990	140	100	100	130	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.14085	0.04615	0.01224
53	18	990	140	100	100	130	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.14085	0.04615	0.01224
53	19	990	140	100	100	130	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.14085	0.04615	0.01224
53	20	1000	140	100	100	130	250	150	3	1	16.67	10.00	3.00	1.00	0.12	0.000001	0.000100	0.000100	0.00010	0.01000	0.01300	0.14085	0.04615	0.01224
53	21	1000	140	100	100	130	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01300	0.14085	0.00645	0.00583
53	22	1000	140	100	100	130	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00010	0.00010	0.01300	0.14085	0.00645	0.00583
53	23	1000	140	110	140	110	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.13158	0.00464	0.00438
53	24	1000	140	110	140	110	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.13158	0.00464	0.00438
53	25	1000	140	110	140	110	250	150	5	3	16.67	10.00	0.33	3.00	0.12	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.13158	0.00464	0.00438
53	26	1000	140	110	140	110	150	150	5	3	10.00	10.00	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.11111	0.00464	0.00438
53	27	1005	140	110	140	110	150	200	5	3	10.00	13.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.13115	0.00467	0.00438
53	28	1005	140	110	140	110	175	200	5	3	11.67	13.33	0.33	3.00	0.1	0.000001	0.000001	0.000100	0.00011	0.00014	0.01100	0.14035	0.00467	0.00438
53	29	1005	140	110	140	110	175	200	10	5	11.67	13.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00011	0.00014	0.00011	0.14035	0.00916	0.00370
53	30	1005	140	100	125	110	175	200	10	10	11.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00013	0.00011	0.14815	0.01026	0.00567
53	31	1005	150	80	120	150	200	175	10	10	13.33	11.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.15556	0.01070	0.00494
53	32	1005	150	80	120	150	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14286	0.01064	0.00494
53	33	1005	150	80	120	150	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12821	0.01055	0.00494

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
53	34	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
53	35	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
53	36	1005	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
53	37	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
53	38	1010	150	80	120	150	200	105	10	10	13.33	7.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.11475	0.01045	0.00494
53	39	1010	150	80	120	150	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12566	0.01055	0.00494
53	40	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
53	41	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
53	42	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
53	43	1010	150	80	120	150	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.14476	0.01067	0.00494
53	44	1010	150	80	120	150	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12500	0.01064	0.00494
53	45	1020	150	80	120	150	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.12153	0.01055	0.00494
53	46	1020	150	80	120	150	190	100	10	10	12.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00012	0.00015	0.10920	0.01042	0.00494
53	47	1020	150	100	150	100	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.11111	0.00844	0.00533
53	48	1020	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
53	49	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
53	50	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
53	51	1030	150	100	150	100	200	150	10	10	13.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.12500	0.00851	0.00533
53	52	1040	150	100	150	100	200	125	10	10	13.33	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00015	0.00010	0.11111	0.00844	0.00533
53	53	1040	150	95	70	95	200	100	10	10	13.33	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.09877	0.01677	0.00808
53	54	1040	150	95	70	95	200	75	10	10	13.33	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.08000	0.01613	0.00808
53	55	1040	150	95	70	95	200	25	10	10	13.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03175	0.01235	0.00808
53	56	1040	150	95	70	95	200	25	10	10	13.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03175	0.01235	0.00808
53	57	1040	150	95	70	95	200	25	10	10	13.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03175	0.01235	0.00808
53	58	1065	150	95	70	95	200	25	10	10	13.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03175	0.01235	0.00808
53	59	1065	150	95	70	95	200	25	10	10	13.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03175	0.01235	0.00808
53	60	1065	150	95	70	95	175	25	10	10	11.67	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.03132	0.01235	0.00808
53	61	1065	150	95	70	95	160	50	10	10	10.67	3.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.05556	0.01498	0.00808
53	62	1065	200	95	70	95	160	100	10	10	10.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.07565	0.01677	0.00808
53	63	1065	150	95	70	95	160	150	10	10	10.67	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00007	0.00010	0.11765	0.01747	0.00808
53	64	1065	180	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.12549	0.01693	0.00762
53	65	1090	180	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.12549	0.01693	0.00762
53	66	1090	180	75	75	100	160	200	10	10	10.67	13.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.12549	0.01693	0.00762
53	67	1090	180	75	75	100	175	150	10	10	11.67	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.11814	0.01667	0.00762
53	68	1090	180	75	75	100	175	100	10	10	11.67	6.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.09672	0.01616	0.00762
53	69	1090	180	75	75	100	200	75	10	10	13.33	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.08602	0.01569	0.00762
53	70	1090	180	75	75	100	200	50	10	10	13.33	3.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.06504	0.01481	0.00762
53	71	1090	180	75	75	100	200	30	10	10	13.33	2.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.00762
53	72	1115	180	75	75	100	200	30	10	25	13.33	2.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01159
53	73	1125	180	75	75	100	200	30	10	25	13.33	2.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01159
53	74	1125	180	75	75	100	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01404

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
53	75	1125	180	75	75	100	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01404
53	76	1125	180	75	75	100	200	30	10	50	13.33	2.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01404
53	77	1130	180	75	75	100	200	30	10	25	13.33	2.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.04372	0.01333	0.01159
53	78	1130	180	75	75	100	200	20	10	15	13.33	1.33	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.03101	0.01185	0.00941
53	79	1130	180	75	75	100	200	10	10	15	13.33	0.67	0.67	1.00	0.1	0.000001	0.000001	0.000001	0.00008	0.00008	0.00010	0.01656	0.00889	0.00941
54	1	960	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690
54	2	960	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690
54	3	960	215	145	85	100	180	50	5	5	12.00	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03598	0.00670	0.00360
54	4	970	215	145	85	100	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00015	0.00850	0.00010	0.02043	0.01734	0.01121
54	5	970	215	145	85	100	175	5	1	10	11.67	0.33	1.00	0.67	0.1	0.000001	0.000100	0.000001	0.00015	0.00850	0.00010	0.00447	0.00385	0.00851
54	6	970	175	145	85	100	150	3	1	10	10.00	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01450	0.00850	0.00010	0.03399	0.01500	0.00851
54	7	970	215	145	85	100	150	1	1	10	10.00	1.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01450	0.00850	0.00010	0.01254	0.00870	0.00851
54	8	980	205	100	95	100	150	1	1	10	10.00	1.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01000	0.00950	0.00010	0.01762	0.01026	0.00816
54	9	980	205	100	95	100	100	3	3	1	6.67	3.00	3.00	1.00	0.1	0.000100	0.000100	0.000100	0.01000	0.00950	0.01000	0.03733	0.03077	0.01519
54	10	980	205	100	95	100	70	5	3	1	4.67	0.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.00608	0.00603	0.01519
54	11	980	205	100	95	100	70	25	3	1	4.67	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.02249	0.02182	0.01519
54	12	980	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	13	990	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	14	990	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	15	990	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	16	990	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	17	990	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
54	18	995	190	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03590	0.03243	0.01519
54	19	1000	170	75	85	195	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.04553	0.03934	0.00896
54	20	1000	145	75	85	195	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.05185	0.03934	0.00896
54	21	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	22	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	23	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	24	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	25	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	26	1000	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	27	1020	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	28	1020	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
54	29	1020	145	75	85	195	125	100	10	5	8.33	6.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01441	0.00281
54	30	1020	145	95	100	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00020	0.11218	0.01239	0.00452
54	31	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
54	32	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
54	33	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
54	34	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
54	35	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
54	36	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
54	37	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	38	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	39	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	40	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	41	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	42	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	43	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	44	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
54	45	1035	145	75	85	195	150	150	10	10	10.00	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.13333	0.01481	0.00476
54	46	1035	145	75	85	195	125	150	10	10	8.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12121	0.01481	0.00476
54	47	1035	145	75	85	195	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01465	0.00476
54	48	1060	145	75	85	195	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01465	0.00476
54	49	1060	145	75	85	195	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01465	0.00476
54	50	1060	145	75	85	195	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01465	0.00476
54	51	1060	145	75	85	195	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.09877	0.01465	0.00476
54	52	1060	145	75	85	195	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.07619	0.01441	0.00476
54	53	1060	145	75	85	195	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.07619	0.01441	0.00476
54	54	1060	145	75	85	195	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.07619	0.01441	0.00476
54	55	1060	160	75	85	195	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.04762	0.01404	0.00476
54	56	1060	175	75	85	140	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00014	0.04301	0.01404	0.00593
54	57	1060	190	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.04000	0.01493	0.00741
54	58	1090	210	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.03571	0.01493	0.00741
54	59	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
54	60	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
54	61	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
54	62	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
54	63	1090	200	70	80	100	25	20	10	10	1.67	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01533	0.01159	0.00741
54	64	1090	250	70	80	100	25	20	10	10	1.67	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01246	0.01159	0.00741
54	65	1110	250	70	80	100	25	20	10	10	1.67	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01246	0.01159	0.00741
54	66	1110	250	70	80	100	25	25	10	10	1.67	1.67	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01333	0.01235	0.00741
54	67	1110	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
54	68	1110	250	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.02941	0.01493	0.00741
54	69	1110	250	70	80	100	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.04301	0.01533	0.00741
54	70	1110	250	70	80	100	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.05650	0.01558	0.00741
54	71	1110	250	70	80	100	125	150	10	10	8.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.06993	0.01575	0.00741
54	72	1130	250	70	80	100	150	150	10	25	10.00	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08000	0.01575	0.01111
54	73	1140	250	70	80	100	175	150	10	25	11.67	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08917	0.01575	0.01111
54	74	1150	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
54	75	1170	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
54	76	1180	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
54	77	1190	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
54	78	1190	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
54	79	1190	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
55	1	960	215	145	85	100	150	100	15	3	10.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05517	0.01874	0.01690
55	2	960	215	145	85	100	150	100	15	3	10.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05517	0.01874	0.01690
55	3	960	215	145	85	100	150	50	5	5	10.00	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03448	0.00670	0.00360
55	4	970	215	145	85	100	150	50	5	10	10.00	3.33	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03448	0.00670	0.00494
55	5	970	215	145	85	100	150	50	5	10	10.00	3.33	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03448	0.00670	0.00494
55	6	970	215	145	85	100	150	50	5	10	10.00	3.33	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03448	0.00670	0.00494
55	7	970	215	145	85	100	150	50	5	10	10.00	3.33	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03448	0.00670	0.00494
55	8	980	205	100	95	100	150	50	5	10	10.00	3.33	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00010	0.04598	0.00635	0.00460
55	9	980	205	100	95	100	100	50	5	5	6.67	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00010	0.03980	0.00635	0.00342
55	10	980	205	100	95	100	70	50	5	5	4.67	3.33	0.33	0.33	0.05	0.000001	0.000001	0.000001	0.00010	0.00010	0.00010	0.03394	0.00635	0.00342
55	11	980	205	100	95	100	70	50	5	3	4.67	3.33	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00628
55	12	980	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	13	990	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	14	990	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	15	990	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	16	990	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	17	990	205	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03394	0.00635	0.00519
55	18	990	185	100	95	100	70	50	5	1	4.67	3.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00010	0.00010	0.01000	0.03660	0.00635	0.00519
55	19	1000	165	75	85	195	70	25	5	1	4.67	1.67	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.03060	0.00667	0.00444
55	20	1000	145	75	85	195	50	10	5	1	3.33	0.67	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.01481	0.00544	0.00444
55	21	1000	145	75	85	195	25	5	5	1	1.67	0.33	0.33	1.00	0.025	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00741	0.00417	0.00444
55	22	1000	145	75	85	195	25	3	5	1	1.67	3.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.02857	0.00714	0.00444
55	23	1000	145	75	85	195	15	1	5	1	1.00	1.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.01333	0.00606	0.00444
55	24	1000	145	75	85	195	15	1	5	1	1.00	1.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.01333	0.00606	0.00444
55	25	1000	145	75	85	195	25	3	5	3	1.67	3.00	0.33	3.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.02857	0.00714	0.00625
55	26	1000	145	75	85	195	50	10	5	3	3.33	0.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.01481	0.00544	0.00625
55	27	1020	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
55	28	1020	145	75	85	195	50	25	5	3	3.33	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.02963	0.00667	0.00625
55	29	1020	145	75	85	195	125	50	10	5	8.33	3.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.06349	0.01333	0.00281
55	30	1020	145	75	85	195	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.08889	0.01404	0.00476
55	31	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	32	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	33	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	34	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	35	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	36	1020	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
55	37	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
55	38	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
55	39	1035	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
55	40	1035	145	75	85	195	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.13404	0.01465	0.00476
55	41	1035	145	75	85	195	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.08889	0.01404	0.00476
55	42	1035	145	75	85	195	100	25	10	10	6.67	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.03556	0.01159	0.00476
55	43	1035	145	75	85	195	50	10	10	10	3.33	0.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.01481	0.00833	0.00476
55	44	1035	145	75	85	195	50	5	10	5	3.33	0.33	0.67	0.33	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.00808	0.00567	0.00281
55	45	1035	145	75	85	195	50	5	10	3	3.33	0.33	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00808	0.00567	0.01039
55	46	1035	145	75	85	195	50	5	5	1	3.33	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00808	0.00417	0.00444
55	47	1035	145	75	85	195	50	5	5	1	3.33	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00808	0.00417	0.00444
55	48	1050	145	75	85	195	50	5	5	1	3.33	0.33	0.33	1.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00808	0.00417	0.00444
55	49	1060	145	75	85	195	50	5	10	3	3.33	0.33	0.67	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.00808	0.00567	0.01039
55	50	1060	145	75	85	195	50	5	10	5	3.33	0.33	0.67	0.33	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.00808	0.00567	0.00281
55	51	1060	145	75	85	195	75	10	10	10	5.00	0.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.01569	0.00833	0.00476
55	52	1060	145	75	85	195	75	25	10	10	5.00	1.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.03333	0.01159	0.00476
55	53	1060	145	75	85	195	75	50	10	10	5.00	3.33	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.05333	0.01333	0.00476
55	54	1060	145	75	85	195	75	75	10	10	5.00	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.06667	0.01404	0.00476
55	55	1060	160	75	85	195	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.04762	0.01404	0.00476
55	56	1060	180	75	85	140	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00014	0.04167	0.01404	0.00593
55	57	1060	210	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.03571	0.01493	0.00741
55	58	1070	230	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.03226	0.01493	0.00741
55	59	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
55	60	1090	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
55	61	1090	250	70	80	100	10	50	10	10	0.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00687	0.01418	0.00741
55	62	1090	250	70	80	100	10	50	10	10	0.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00687	0.01418	0.00741
55	63	1090	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
55	64	1090	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
55	65	1110	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
55	66	1110	250	70	80	100	10	25	10	10	0.67	1.67	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00641	0.01235	0.00741
55	67	1110	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
55	68	1110	250	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.02941	0.01493	0.00741
55	69	1110	250	70	80	100	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.04301	0.01533	0.00741
55	70	1110	250	70	80	100	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.05650	0.01558	0.00741
55	71	1110	250	70	80	100	125	150	10	10	8.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.06993	0.01575	0.00741
55	72	1130	250	70	80	100	150	150	10	25	10.00	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08000	0.01575	0.01111
55	73	1140	250	70	80	100	175	150	10	25	11.67	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08917	0.01575	0.01111
55	74	1150	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
55	75	1170	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
55	76	1160	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	77	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	78	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	79	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
56	1	970	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
56	2	970	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690
56	3	970	215	145	85	100	180	50	5	5	12.00	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03598	0.00670	0.00360
56	4	970	215	145	85	100	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00015	0.00850	0.00010	0.02043	0.01734	0.01121
56	5	970	215	145	85	100	175	5	1	10	11.67	0.33	1.00	0.67	0.1	0.000001	0.000100	0.000001	0.00015	0.00850	0.00010	0.00447	0.00385	0.00851
56	6	970	215	145	85	100	150	3	1	10	10.00	3.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01450	0.00850	0.00010	0.03183	0.01500	0.00851
56	7	970	215	145	85	100	150	1	1	10	10.00	1.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01450	0.00850	0.00010	0.01254	0.00870	0.00851
56	8	990	205	100	95	100	150	1	1	10	10.00	1.00	1.00	0.67	0.1	0.000100	0.000100	0.000001	0.01000	0.00950	0.00010	0.01762	0.01026	0.00816
56	9	990	205	100	95	100	100	3	3	1	6.67	3.00	3.00	1.00	0.1	0.000100	0.000100	0.000100	0.01000	0.00950	0.01000	0.03733	0.03077	0.01519
56	10	990	205	100	95	100	70	5	3	1	4.67	0.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.00608	0.00603	0.01519
56	11	990	205	100	95	100	70	10	3	1	4.67	0.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.01118	0.01101	0.01519
56	12	990	205	100	95	100	70	25	3	1	4.67	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.02249	0.02182	0.01519
56	13	1010	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
56	14	1010	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
56	15	1010	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
56	16	1010	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03394	0.03243	0.01519
56	17	1010	205	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00010	0.00950	0.01000	0.03590	0.03243	0.01519
56	18	1010	190	100	95	100	70	50	3	1	4.67	3.33	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.02963	0.02727	0.00896
56	19	1010	175	75	85	195	70	25	3	1	4.67	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03279	0.02727	0.00896
56	20	1015	150	75	85	195	75	25	3	1	5.00	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	21	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	22	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	23	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	24	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	25	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.01538	0.00714
56	26	1015	145	75	85	195	75	25	1	1	5.00	1.67	1.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.02727	0.00896
56	27	1025	145	75	85	195	75	25	3	1	5.00	1.67	3.00	1.00	0.05	0.000001	0.000100	0.000100	0.00008	0.00850	0.01950	0.03333	0.00667	0.00625
56	28	1025	145	75	85	195	75	25	5	3	5.00	1.67	0.33	3.00	0.05	0.000001	0.000001	0.000100	0.00008	0.00009	0.01950	0.03333	0.00667	0.00625
56	29	1025	145	75	85	195	125	50	10	5	8.33	3.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.06349	0.01333	0.00281
56	30	1025	175	75	85	195	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.07843	0.01404	0.00476
56	31	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	32	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	33	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	34	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	35	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	36	1025	145	75	85	195	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.12963	0.01465	0.00476
56	37	1040	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
56	38	1040	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
56	39	1040	145	75	85	195	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.15441	0.01487	0.00476
56	40	1040	145	75	85	195	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.13404	0.01465	0.00476
56	41	1040	145	75	85	195	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.08889	0.01404	0.00476
56	42	1040	145	75	85	195	125	25	10	10	8.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.03704	0.01159	0.00476

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
56	43	1040	145	75	85	195	100	10	10	5	6.67	0.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.01616	0.00833	0.00281
56	44	1060	145	75	85	195	25	5	10	5	1.67	0.33	0.67	0.33	0.025	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.00741	0.00567	0.00281
56	45	1060	145	75	85	195	10	1	10	3	0.67	1.00	0.67	3.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.01067	0.00988	0.01039
56	46	1060	145	75	85	195	3	1	5	1	3.00	1.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.02000	0.00606	0.00444
56	47	1060	145	75	85	195	3	1	5	1	3.00	1.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.02000	0.00606	0.00444
56	48	1060	145	75	85	195	3	1	5	1	3.00	1.00	0.33	1.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.02000	0.00606	0.00444
56	49	1060	145	75	85	195	10	1	10	3	0.67	1.00	0.67	3.00	0.025	0.000100	0.000001	0.000100	0.00750	0.00009	0.01950	0.01067	0.00988	0.01039
56	50	1060	145	75	85	195	25	3	10	5	1.67	3.00	0.67	0.33	0.025	0.000100	0.000001	0.000001	0.00750	0.00009	0.00020	0.02857	0.01311	0.00281
56	51	1080	145	75	85	195	50	10	10	10	3.33	0.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.01481	0.00833	0.00476
56	52	1080	145	75	85	195	75	25	10	10	5.00	1.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.03333	0.01159	0.00476
56	53	1080	145	75	85	195	75	50	10	10	5.00	3.33	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.05333	0.01333	0.00476
56	54	1080	145	75	85	195	75	75	10	10	5.00	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.06667	0.01404	0.00476
56	55	1100	145	75	85	195	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00020	0.05333	0.01404	0.00476
56	56	1140	200	75	85	140	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00008	0.00009	0.00014	0.03704	0.01404	0.00593
56	57	1175	225	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.03306	0.01493	0.00741
56	58	1200	250	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.02941	0.01493	0.00741
56	59	1200	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
56	60	1200	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
56	61	1200	250	70	80	100	10	50	10	10	0.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00687	0.01418	0.00741
56	62	1200	250	70	80	100	10	50	10	10	0.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00687	0.01418	0.00741
56	63	1220	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
56	64	1220	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
56	65	1220	250	70	80	100	5	20	10	10	0.33	1.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00338	0.01159	0.00741
56	66	1220	250	70	80	100	10	25	10	10	0.67	1.67	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.00641	0.01235	0.00741
56	67	1220	250	70	80	100	25	50	10	10	1.67	3.33	0.67	0.67	0.025	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.01550	0.01418	0.00741
56	68	1220	250	70	80	100	50	75	10	10	3.33	5.00	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.02941	0.01493	0.00741
56	69	1220	250	70	80	100	75	100	10	10	5.00	6.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.04301	0.01533	0.00741
56	70	1240	250	70	80	100	100	125	10	10	6.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.05650	0.01558	0.00741
56	71	1240	250	70	80	100	125	150	10	10	8.33	10.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.06993	0.01575	0.00741
56	72	1240	250	70	80	100	150	150	10	25	10.00	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08000	0.01575	0.01111
56	73	1240	250	70	80	100	175	150	10	25	11.67	10.00	0.67	1.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.08917	0.01575	0.01111
56	74	1240	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
56	75	1260	250	70	80	100	180	150	10	50	12.00	10.00	0.67	3.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00008	0.00010	0.09091	0.01575	0.01333
56	76	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
56	77	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
56	78	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
56	79	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.025	0.000100	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	1	970	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690
57	2	970	215	145	85	100	180	100	15	3	12.00	6.67	1.00	3.00	0.1	0.000001	0.000001	0.000100	0.00015	0.00009	0.01000	0.05911	0.01874	0.01690
57	3	970	215	145	85	100	180	50	5	5	12.00	3.33	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.03598	0.00670	0.00360
57	4	970	215	145	85	100	200	25	5	10	13.33	1.67	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.02043	0.00585	0.00494

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
57	5	970	215	145	85	100	200	25	5	10	13.33	1.67	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.02043	0.00585	0.00494
57	6	970	215	145	85	100	200	25	5	10	13.33	1.67	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.02043	0.00585	0.00494
57	7	970	215	145	85	100	200	25	5	10	13.33	1.67	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00015	0.00009	0.00010	0.02043	0.00585	0.00494
57	8	990	205	100	95	100	200	25	5	10	13.33	1.67	0.33	0.67	0.1	0.000001	0.000001	0.000001	0.00010	0.00010	0.00010	0.02852	0.00580	0.00460
57	9	990	205	100	95	100	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.00950	0.00010	0.02852	0.02182	0.01101
57	10	990	205	100	95	100	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.00950	0.00010	0.02852	0.02182	0.01101
57	11	990	205	100	95	100	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.00950	0.00010	0.02852	0.02182	0.01101
57	12	990	200	100	75	125	200	25	3	10	13.33	1.67	3.00	0.67	0.1	0.000001	0.000100	0.000001	0.00010	0.00750	0.00013	0.02867	0.02353	0.00941
57	13	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	14	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	15	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	16	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	17	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	18	1010	200	100	75	125	150	50	3	1	10.00	3.33	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.04651	0.03636	0.01333
57	19	1010	200	100	75	125	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00010	0.00750	0.01250	0.02516	0.02353	0.01333
57	20	1015	215	70	95	120	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.01319
57	21	1015	215	70	95	120	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.01319
57	22	1015	215	70	95	120	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.01319
57	23	1015	215	70	95	120	100	25	3	1	6.67	1.67	3.00	1.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.01319
57	24	1015	215	70	95	120	100	25	3	3	6.67	1.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.02791
57	25	1015	215	70	95	120	100	25	3	3	6.67	1.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.02791
57	26	1015	215	70	95	120	100	25	3	3	6.67	1.67	3.00	3.00	0.1	0.000001	0.000100	0.000100	0.00007	0.00950	0.01200	0.03137	0.02715	0.02791
57	27	1025	215	70	95	120	100	25	3	5	6.67	1.67	3.00	0.33	0.1	0.000001	0.000100	0.000001	0.00007	0.00950	0.00012	0.03137	0.02715	0.00511
57	28	1025	215	70	95	120	100	25	5	5	6.67	1.67	0.33	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.03137	0.00612	0.00310
57	29	1025	215	70	95	120	100	50	10	5	6.67	3.33	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.04678	0.01223	0.00398
57	30	1025	215	70	95	120	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.07018	0.01278	0.00620
57	31	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	32	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	33	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	34	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	35	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	36	1025	215	70	95	120	175	125	10	10	11.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.09602	0.01325	0.00620
57	37	1040	215	70	95	120	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.11105	0.01342	0.00620
57	38	1040	215	70	95	120	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.11105	0.01342	0.00620
57	39	1040	215	70	95	120	190	160	10	10	12.67	10.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.11105	0.01342	0.00620
57	40	1040	215	70	95	120	190	125	10	10	12.67	8.33	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.10077	0.01325	0.00620
57	41	1040	215	70	95	120	150	75	10	10	10.00	5.00	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.07018	0.01278	0.00620
57	42	1040	215	70	95	120	125	25	10	10	8.33	1.67	0.67	0.67	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.03367	0.01084	0.00620
57	43	1040	215	70	95	120	100	25	10	5	6.67	1.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.03137	0.01084	0.00398
57	44	1060	215	70	95	120	100	25	10	5	6.67	1.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.03137	0.01084	0.00398
57	45	1060	215	70	95	120	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.01096

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

Appendix C - Phase 2 Model Cell Thickness and Aquifer Properties

Model Row	Model Col	Surface Elevation	b1	b2	b3	b4	Kh1	Kh2	Kh3	Kh4	Kv1	Kv2	Kv3	Kv4	Sy	Ss2	Ss3	Ss4	Sc2	Sc3	Sc4	Vcon12	Vcon23	Vcon34
57	46	1060	215	70	95	120	100	25	10	1	6.67	1.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.00762
57	47	1060	215	70	95	120	100	25	10	1	6.67	1.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.00762
57	48	1060	215	70	95	120	100	25	10	1	6.67	1.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.00762
57	49	1060	215	70	95	120	100	25	10	1	6.67	1.67	0.67	1.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.00762
57	50	1060	215	70	95	120	100	25	10	3	6.67	1.67	0.67	3.00	0.1	0.000001	0.000001	0.000100	0.00007	0.00010	0.01200	0.03137	0.01084	0.01096
57	51	1080	215	70	95	120	100	25	10	5	6.67	1.67	0.67	0.33	0.1	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.03137	0.01084	0.00398
57	52	1080	215	70	95	120	75	25	10	10	5.00	1.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.02817	0.01084	0.00620
57	53	1080	215	70	95	120	75	25	10	10	5.00	1.67	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.02817	0.01084	0.00620
57	54	1080	215	70	95	120	75	50	10	10	5.00	3.33	0.67	0.67	0.05	0.000001	0.000001	0.000001	0.00007	0.00010	0.00012	0.04000	0.01223	0.00620
57	55	1080	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000100	0.000100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	56	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	57	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	58	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	59	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	60	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	61	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	62	1200	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	63	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	64	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	65	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	66	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	67	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	68	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	69	1220	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	70	1240	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	71	1240	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	72	1240	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	73	1240	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	74	1240	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	75	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	76	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	77	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	78	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
57	79	1260	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

The number after each parameter refers to the applicable layer.

Vcont12 refers to the vertical conductance between layer 1 and layer 2.

b = layer thickness

Kh = horizontal hydraulic conductivity

Kv = vertical hydraulic conductiivty

Sy = specific yield

Ss = specific storage

Sc = Ss x b

Vcont = (see text for an explanation)

All units of length are in feet.
All units of time are in days.

See the last page for parameter definitions and units.
See text for details on parameter derivations.

APPENDIX D

West Van Buren Groundwater Flow Model Pumpage Database

West Van Buren Groundwater Flow Model Pumpage Database

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
72	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1849.00	0.20	0.15	0.45	0.20	369.8	16108.5	62935.5	17898.3	277.4	12081.4	47201.6	13423.7	832.1	36244.1	141604.8	40271.2	369.8	16108.5	62935.5	17898.3
73	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1572.00	0.20	0.15	0.45	0.20	314.4	13695.3	53507.1	15217.0	235.8	10271.4	40130.3	11412.7	707.4	30814.3	120390.9	34238.2	314.4	13695.3	53507.1	15217.0
74	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1809.00	0.20	0.15	0.45	0.20	361.8	15760.0	61574.0	17511.1	271.4	11820.0	46180.5	13133.3	814.1	35460.0	138541.5	39400.0	361.8	15760.0	61574.0	17511.1
75	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	2097.00	0.20	0.15	0.45	0.20	419.4	18269.1	71376.8	20299.0	314.6	13701.8	53532.6	15224.2	943.7	41105.4	160597.8	45672.7	419.4	18269.1	71376.8	20299.0
76	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1754.00	0.20	0.15	0.45	0.20	350.8	15280.8	59701.9	16978.7	263.1	11460.6	44776.4	12734.0	789.3	34381.9	134329.3	38202.1	350.8	15280.8	59701.9	16978.7
77	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1736.00	0.20	0.15	0.45	0.20	347.2	15124.0	59089.2	16804.5	260.4	11343.0	44316.9	12603.4	781.2	34029.1	132950.8	37810.1	347.2	15124.0	59089.2	16804.5
78	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1574.00	0.20	0.15	0.45	0.20	314.8	13712.7	53575.2	15236.3	236.1	10284.5	40181.4	11427.2	708.3	30853.5	120544.1	34281.7	314.8	13712.7	53575.2	15236.3
79	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1949.00	0.20	0.15	0.45	0.20	389.8	16979.7	66339.2	18866.3	292.4	12734.8	49754.4	14149.7	877.1	38204.3	149263.3	42449.2	389.8	16979.7	66339.2	18866.3
80	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1449.00	0.20	0.15	0.45	0.20	289.8	12623.7	49320.5	14026.3	217.4	9467.8	36990.3	10519.7	652.1	28403.3	110971.0	31559.2	289.8	12623.7	49320.5	14026.3
81	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	2268.00	0.20	0.15	0.45	0.20	453.6	19758.8	77197.2	21954.2	340.2	14819.1	57897.9	16465.7	1020.6	44457.3	173693.8	49397.0	453.6	19758.8	77197.2	21954.2
82	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	540.00	0.20	0.15	0.45	0.20	108.0	4704.5	18380.3	5227.2	81.0	3528.4	13785.2	3920.4	243.0	10585.1	41355.7	11761.2	108.0	4704.5	18380.3	5227.2
83	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	0.00	0.20	0.15	0.45	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1038.00	0.20	0.15	0.45	0.20	207.6	9043.1	35331.0	10047.8	155.7	6782.3	26498.3	7535.9	467.1	20346.9	79494.8	22607.6	207.6	9043.1	35331.0	10047.8
85	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1445.00	0.20	0.15	0.45	0.20	289.0	12588.8	49184.3	13987.6	216.8	9441.6	36888.2	10490.7	650.3	28324.9	110664.7	31472.1	289.0	12588.8	49184.3	13987.6
86	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1420.00	0.20	0.15	0.45	0.20	284.0	12371.0	48333.4	13745.6	213.0	9278.3	36250.0	10309.2	639.0	27834.8	108750.1	30927.6	284.0	12371.0	48333.4	13745.6
87	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1554.00	0.20	0.15	0.45	0.20	310.8	13538.4	52894.4	15042.7	233.1	10153.8	39670.8	11282.0	699.3	30461.5	119012.4	33846.1	310.8	13538.4	52894.4	15042.7
88	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	2328.00	0.20	0.15	0.45	0.20	465.6	20281.5	79239.5	22535.0	349.2	15211.2	59429.6	16901.3	1047.6	45633.5	178288.9	50703.8	465.6	20281.5	79239.5	22535.0
89	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	2565.00	0.20	0.15	0.45	0.20	513.0	22346.3	87306.4	24829.2	384.8	16759.7	65479.8	18621.9	1154.3	50279.1	196439.4	55865.7	513.0	22346.3	87306.4	24829.2
90	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	2213.00	0.20	0.15	0.45	0.20	442.6	19279.7	75325.2	21421.8	332.0	14459.7	56493.9	16066.4	995.9	43379.2	169481.6	48199.1	442.6	19279.7	75325.2	21421.8
91	(A-1-1)02BBB2	607228	RID	11019	42236	10	7	718	1442.00	0.20	0.15	0.45	0.20	288.4	12562.7	49082.2	13958.6	216.3	9422.0	36811.6	10468.9	648.9	28266.1	110434.9	31406.8	288.4	12562.7	49082.2	13958.6
72	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1822.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	182.2	7936.6	31008.2	8818.5	728.8	31746.5	124032.9	35273.9	728.8	31746.5	124032.9	35273.9
73	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	225.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	22.5	980.1	3829.2	1089.0	90.0	3920.4	15316.9	4356.0	90.0	3920.4	15316.9	4356.0
74	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1180.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	118.0	5140.1	20082.2	5711.2	472.0	20560.3	80328.7	22844.8	472.0	20560.3	80328.7	22844.8
75	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1630.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	163.0	7100.3	27740.6	7889.2	652.0	28401.1	110962.5	31556.8	652.0	28401.1	110962.5	31556.8
76	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1347.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	134.7	5867.5	22924.3	6519.5	538.8	23470.1	91697.2	26077.9	538.8	23470.1	91697.2	26077.9
77	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1772.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	177.2	7718.8	30157.3	8576.5	708.8	30875.3	120629.2	34305.9	708.8	30875.3	120629.2	34305.9
78	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	21.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	2.1	91.5	357.4	101.6	8.4	365.9	1429.6	406.6	8.4	365.9	1429.6	406.6
79	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	320.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	32.0	1393.9	5446.0	1548.8	128.0	5575.7	21784.1	6195.2	128.0	5575.7	21784.1	6195.2
80	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	483.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	48.3	2103.9	8220.1	2337.7	193.2	8415.8	32880.3	9350.9	193.2	8415.8	32880.3	9350.9
81	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	2022.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	202.2	8807.8	34412.0	9786.5	808.8	35231.3	137648.0	39145.9	808.8	35231.3	137648.0	39145.9
82	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	295.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	29.5	1285.0	5020.5	1427.8	118.0	5140.1	20082.2	5711.2	118.0	5140.1	20082.2	5711.2
83	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	473.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	47.3	2060.4	8049.9	2289.3	189.2	8241.6	32199.6	9157.3	189.2	8241.6	32199.6	9157.3
84	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	1797.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	179.7	7827.7	30582.8	8697.5	718.8	31310.9	122331.1	34789.9	718.8	31310.9	122331.1	34789.9
85	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	257.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	25.7	1119.5	4373.8	1243.9	102.8	4478.0	17495.3	4975.5	102.8	4478.0	17495.3	4975.5
86	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	156.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	15.6	679.5	2654.9	755.0	62.4	2718.1	10619.7	3020.2	62.4	2718.1	10619.7	3020.2
87	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	164.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	16.4	714.4	2791.1	793.8	65.6	2857.5	11164.3	3175.0	65.6	2857.5	11164.3	3175.0
88	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	105.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	10.5	457.4	1787.0	508.2	42.0	1829.5	7147.9	2032.8	42.0	1829.5	7147.9	2032.8
89	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	113.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	11.3	492.2	1923.1	546.9	45.2	1968.9	7692.5	2187.7	45.2	1968.9	7692.5	2187.7
90	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	2949.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	294.9	12845.8	50188.4	14273.2	1179.6	51383.4	200753.7	57092.6	1179.6	51383.4	200753.7	57092.6
91	(A-1-1)02CCC	607728	SRP	10853	37711	16	7	1192	53.00	0.00	0.10	0.40	0.40	0.0	0.0	0.0	0.0	5.3	230.9	902.0	256.5	21.2	923.5	3608.0	1026.1	21.2	923.5	3608.0	1026.1
78	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	5.00	0.10	0.15	0.70	0.05	0.5	58.1	17.2	24.2	0.8	87.1	25.8	36.3	3.5	406.6	120.5	169.4	0.3	29.0	8.6	12.1
79	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	4.00	0.10	0.15	0.70	0.05	0.4	46.5	13.8	19.4	0.6	69.7	20.7	29.0	2.8	325.2	96.4	135.5	0.2	23.2	6.9	9.7
80	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	4.00	0.10	0.15	0.70	0.05	0.4	46.5	13.8	19.4	0.6	69.7	20.7	29.0	2.8	325.2	96.4	135.5	0.2	23.2	6.9	9.7
81	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	6.00	0.10	0.15	0.70	0.05	0.6	69.7	20.7	29.0	0.9	104.5	31.0	43.6	4.2	487.9	144.7	203.3	0.3	34.8	10.3	14.5
82	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	4.00	0.10	0.15	0.70	0.05	0.4	46.5	13.8	19.4	0.6	69.7	20.7	29.0	2.8	325.2	96.4	135.5	0.2	23.2	6.9	9.7
83	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	2.00	0.10	0.15	0.70	0.05	0.2	23.2	6.9	9.7	0.3	34.8	10.3	14.5	1.4	162.6	48.2	67.8	0.1	11.6	3.4	4.8
84	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	4.00	0.10	0.15	0.70	0.05	0.4	46.5	13.8	19.4	0.6	69.7	20.7	29.0	2.8	325.2	96.4	135.5	0.2	23.2	6.9	9.7
85	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	7.00	0.10	0.15	0.70	0.05	0.7	81.3	24.1	33.9	1.1	122.0	36.2	50.8	4.9	569.2	168.8	237.2	0.4	40.7	12.1	16.9
86	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959		0.10	0.15	0.70	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	8.00	0.10	0.15	0.70	0.05	0.8	92.9	27.6	38.7	1.2	139.4	41.3	58.1	5.6	650.5	192.9	271.0	0.4	46.5	13.8	19.4

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	8.00	0.10	0.15	0.70	0.05	0.8	92.9	27.6	38.7	1.2	139.4	41.3	58.1	5.6	650.5	192.9	271.0	0.4	46.5	13.8	19.4
89	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	8.00	0.10	0.15	0.70	0.05	0.8	92.9	27.6	38.7	1.2	139.4	41.3	58.1	5.6	650.5	192.9	271.0	0.4	46.5	13.8	19.4
90	(A-1-1)02DA	620583	BROOKS	15000	39600	13	11	959	11.00	0.10	0.15	0.70	0.05	1.1	127.8	37.9	53.2	1.7	191.7	56.8	79.9	7.7	894.4	265.2	372.7	0.6	63.9	18.9	26.6
72	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	1802.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	810.9	35322.8	138005.4	39247.6	810.9	35322.8	138005.4	39247.6	180.2	7849.5	30667.9	8721.7
73	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	268.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	120.6	5253.3	20524.7	5837.0	120.6	5253.3	20524.7	5837.0	26.8	1167.4	4561.0	1297.1
74	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	883.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	397.4	17308.6	67624.2	19231.7	397.4	17308.6	67624.2	19231.7	88.3	3846.3	15027.6	4273.7
75	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	945.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	425.3	18523.9	72372.4	20582.1	425.3	18523.9	72372.4	20582.1	94.5	4116.4	16082.8	4573.8
76	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	802.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	360.9	15720.8	61420.8	17467.6	360.9	15720.8	61420.8	17467.6	80.2	3493.5	13649.1	3881.7
77	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	1390.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	625.5	27246.8	106452.5	30274.2	625.5	27246.8	106452.5	30274.2	139.0	6054.8	23656.1	6727.6
78	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	210.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	94.5	4116.4	16082.8	4573.8	94.5	4116.4	16082.8	4573.8	21.0	914.8	3573.9	1016.4
79	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	3.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	1.4	58.8	229.8	65.3	1.4	58.8	229.8	65.3	0.3	13.1	51.1	14.5
80	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	393.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	176.9	7703.6	30097.7	8559.5	176.9	7703.6	30097.7	8559.5	39.3	1711.9	6688.4	1902.1
81	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	523.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	235.4	10251.8	40053.7	11390.9	235.4	10251.8	40053.7	11390.9	52.3	2278.2	8900.8	2531.3
82	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	18.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	8.1	352.8	1378.5	392.0	8.1	352.8	1378.5	392.0	1.8	78.4	306.3	87.1
83	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	91.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	41.0	1783.8	6969.2	1982.0	41.0	1783.8	6969.2	1982.0	9.1	396.4	1548.7	440.4
84	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	335.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	150.8	6566.7	25655.8	7296.3	150.8	6566.7	25655.8	7296.3	33.5	1459.3	5701.3	1621.4
85	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	86.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	38.7	1685.8	6586.3	1873.1	38.7	1685.8	6586.3	1873.1	8.6	374.6	1463.6	416.2
86	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	45.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	20.3	882.1	3446.3	980.1	20.3	882.1	3446.3	980.1	4.5	196.0	765.8	217.8
87	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	187.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	84.2	3665.6	14321.3	4072.9	84.2	3665.6	14321.3	4072.9	18.7	814.6	3182.5	905.1
88	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	201.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	90.5	3940.0	15393.5	4377.8	90.5	3940.0	15393.5	4377.8	20.1	875.6	3420.8	972.8
89	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	17.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	7.7	333.2	1301.9	370.3	7.7	333.2	1301.9	370.3	1.7	74.1	289.3	82.3
90	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	244.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	109.8	4782.9	18686.6	5314.3	109.8	4782.9	18686.6	5314.3	24.4	1062.9	4152.6	1181.0
91	(A-1-1)03ABB	607692	SRP	8654	42238	10	6	717	39.00	0.00	0.45	0.45	0.10	0.0	0.0	0.0	0.0	17.6	764.5	2986.8	849.4	17.6	764.5	2986.8	849.4	3.9	169.9	663.7	188.8
72	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1474.00	0.10	0.45	0.35	0.10	147.4	6420.7	25085.7	7134.2	663.3	28893.3	112885.6	32103.7	515.9	22472.6	87799.9	24969.6	147.4	6420.7	25085.7	7134.2
73	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1488.00	0.10	0.45	0.35	0.10	148.8	6481.7	25324.0	7201.9	669.6	29167.8	113957.8	32408.6	520.8	22686.0	88633.9	25206.7	148.8	6481.7	25324.0	7201.9
74	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1511.00	0.10	0.45	0.35	0.10	151.1	6581.9	25715.4	7313.2	680.0	29618.6	115719.3	32909.6	528.9	23036.7	90003.9	25596.3	151.1	6581.9	25715.4	7313.2
75	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1468.00	0.10	0.45	0.35	0.10	146.8	6394.6	24983.6	7105.1	660.6	28775.7	112426.1	31973.0	513.8	22381.1	87442.5	24867.9	146.8	6394.6	24983.6	7105.1
76	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1669.00	0.10	0.45	0.35	0.10	166.9	7270.2	28404.4	8078.0	751.1	32715.7	127819.6	36350.8	584.2	25445.6	99415.3	28272.9	166.9	7270.2	28404.4	8078.0
77	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1246.00	0.10	0.45	0.35	0.10	124.6	5427.6	21205.4	6030.6	560.7	24424.1	95424.4	27137.9	436.1	18996.5	74218.9	21107.2	124.6	5427.6	21205.4	6030.6
78	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1488.00	0.10	0.45	0.35	0.10	148.8	6481.7	25324.0	7201.9	669.6	29167.8	113957.8	32408.6	520.8	22686.0	88633.9	25206.7	148.8	6481.7	25324.0	7201.9
79	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1781.00	0.10	0.45	0.35	0.10	178.1	7758.0	30310.5	8620.0	801.5	34911.2	136397.1	38790.2	623.3	27153.1	106086.6	30170.1	178.1	7758.0	30310.5	8620.0
80	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	2112.00	0.10	0.45	0.35	0.10	211.2	9199.9	35943.7	10222.1	950.4	41399.4	161746.6	45999.4	739.2	32199.6	125802.9	35777.3	211.2	9199.9	35943.7	10222.1
81	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1966.00	0.10	0.45	0.35	0.10	196.6	8563.9	33458.9	9515.4	884.7	38537.5	150565.2	42819.5	688.1	29973.6	117106.3	33304.0	196.6	8563.9	33458.9	9515.4
82	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1065.00	0.10	0.45	0.35	0.10	106.5	4639.1	18125.0	5154.6	479.3	20876.1	81562.6	23195.7	372.8	16237.0	63437.5	18041.1	106.5	4639.1	18125.0	5154.6
83	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	84.00	0.10	0.45	0.35	0.10	8.4	365.9	1429.6	406.6	37.8	1646.6	6433.1	1829.5	29.4	1280.7	5003.5	1423.0	8.4	365.9	1429.6	406.6
84	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1247.00	0.10	0.45	0.35	0.10	124.7	5431.9	21222.4	6035.5	561.2	24443.7	95500.9	27159.7	436.5	19011.8	74278.5	21124.2	124.7	5431.9	21222.4	6035.5
85	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1372.00	0.10	0.45	0.35	0.10	137.2	5976.4	23349.8	6640.5	617.4	26893.9	105074.0	29882.2	480.2	20917.5	81724.2	23241.7	137.2	5976.4	23349.8	6640.5
86	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1878.00	0.10	0.45	0.35	0.10	187.8	8180.6	31961.3	9089.5	845.1	36812.6	143825.8	40902.8	657.3	28632.0	111864.5	31813.3	187.8	8180.6	31961.3	9089.5
87	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	2274.00	0.10	0.45	0.35	0.10	227.4	9905.5	38700.7	11006.2	1023.3	44574.9	174153.3	49527.7	795.9	34669.4	135452.6	38521.6	227.4	9905.5	38700.7	11006.2
88	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	2305.00	0.10	0.45	0.35	0.10	230.5	10040.6	39228.3	11156.2	1037.3	45182.6	176527.4	50202.9	806.8	35142.0	137299.1	39046.7	230.5	10040.6	39228.3	11156.2
89	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	2009.00	0.10	0.45	0.35	0.10	200.9	8751.2	34190.8	9723.6	904.1	39380.4	153858.4	43756.0	703.2	30629.2	119667.6	34032.5	200.9	8751.2	34190.8	9723.6
90	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	2229.00	0.10	0.45	0.35	0.10	222.9	9709.5	37934.9	10788.4	1003.1	43692.9	170707.0	48547.6	780.2	33983.3	132772.1	37759.3	222.9	9709.5	37934.9	10788.4
91	(A-1-1)03BBB	607230	RID	5809	42195	10	4	715	1816.00	0.10	0.45	0.35	0.10	181.6	7910.5	30906.1	8789.4	817.2	35597.2	139077.6	39552.5	635.6	27686.7	108171.4	30763.0	181.6	7910.5	30906.1	8789.4
78	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	98.00	0.20	0.60	0.20	0.00	19.6	2276.7	675.1	948.6	58.8	6830.2	2025.2	2845.9	19.6	2276.7	675.1	948.6	0.0	0.0	0.0	0.0
79	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	95.00	0.20	0.60	0.20	0.00	19.0	2207.0	654.4	919.6	57.0	6621.1	1963.2	2758.8	19.0	2207.0	654.4	919.6	0.0	0.0	0.0	0.0
80	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	101.00	0.20	0.60	0.20	0.00	20.2	2346.4	695.7	977.7	60.6	7039.3	2087.2	2933.0	20.2	2346.4	695.7	977.7	0.0	0.0	0.0	0.0
81	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	105.00	0.20	0.60	0.20	0.00	21.0	2439.4	723.3	1016.4	63.0	7318.1	2169.9	3049.2	21.0	2439.4	723.3	1016.4	0.0	0.0	0.0	0.0
82	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	107.00	0.20	0.60	0.20	0.00	21.4	2485.8	737.1	1035.8	64.2	7457.5	2211.2	3107.3	21.4	2485.8	737.1	1035.8	0.0	0.0	0.0	0.0
83	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	107.00	0.20	0.60	0.20	0.00	21.4	2485.8	737.1	1035.8	64.2	7457.5	2211.2	3107.3	21.4	2485.8	737.1	1035.8	0.0	0.0	0.0	0.0
84	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	52.00	0.20	0.60	0.20	0.00	10.4	1208.1	358.2	503.4	31.2	3624.2	1074.6	1510.1	10.4	1208.1	358.2	503.4	0.0	0.0	0.0	0.0
89	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	418.00	0.20	0.60	0.20	0.00	83.6	9711.0	2879.4	4046.2	250.8	29132.9	8638.3	12138.7	83.6	9711.0	2879.4	4046.2	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)				Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
90	(A-1-1)03BDB	519437	COT	7240	40960	11	5	795	203.00	0.20	0.60	0.20	0.00	40.6	4716.1	1398.4	1965.0	121.8	14148.3	4195.1	5895.1	40.6	4716.1	1398.4	1965.0	0.0	0.0	0.0	0.0
72	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	47.00	0.10	0.40	0.40	0.10	4.7	546.0	161.9	227.5	18.8	2183.8	647.5	909.9	18.8	2183.8	647.5	909.9	4.7	546.0	161.9	227.5
79	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	43.00	0.10	0.40	0.40	0.10	4.3	499.5	148.1	208.1	17.2	1998.0	592.4	832.5	17.2	1998.0	592.4	832.5	4.3	499.5	148.1	208.1
80	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	45.00	0.10	0.40	0.40	0.10	4.5	522.7	155.0	217.8	18.0	2090.9	620.0	871.2	18.0	2090.9	620.0	871.2	4.5	522.7	155.0	217.8
81	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	60.00	0.10	0.40	0.40	0.10	6.0	697.0	206.7	290.4	24.0	2787.8	826.6	1161.6	24.0	2787.8	826.6	1161.6	6.0	697.0	206.7	290.4
82	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	45.00	0.10	0.40	0.40	0.10	4.5	522.7	155.0	217.8	18.0	2090.9	620.0	871.2	18.0	2090.9	620.0	871.2	4.5	522.7	155.0	217.8
83	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	19.00	0.10	0.40	0.40	0.10	1.9	220.7	65.4	92.0	7.6	882.8	261.8	367.8	7.6	882.8	261.8	367.8	1.9	220.7	65.4	92.0
84	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792	41.00	0.10	0.40	0.40	0.10	4.1	476.3	141.2	198.4	16.4	1905.0	564.9	793.8	16.4	1905.0	564.9	793.8	4.1	476.3	141.2	198.4
85	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)04BAC	606101	TRISTAN	1760	41160	11	2	792		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	98.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.2	10245.3	3037.9	4268.9	9.8	1138.4	337.5	474.3
79	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	95.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.5	9931.7	2944.9	4138.2	9.5	1103.5	327.2	459.8
80	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	101.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.9	10558.9	3130.8	4399.6	10.1	1173.2	347.9	488.8
81	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	105.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.5	10977.1	3254.8	4573.8	10.5	1219.7	361.6	508.2
82	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	107.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.3	11186.2	3316.8	4660.9	10.7	1242.9	368.5	517.9
83	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	107.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.3	11186.2	3316.8	4660.9	10.7	1242.9	368.5	517.9
84	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	217.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	195.3	22686.0	6726.7	9452.5	21.7	2520.7	747.4	1050.3
85	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	193.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	173.7	20177.0	5982.7	8407.1	19.3	2241.9	664.7	934.1
86	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	197.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	177.3	20595.2	6106.7	8581.3	19.7	2288.4	678.5	953.5
87	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	298.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	268.2	31154.1	9237.6	12980.9	29.8	3461.6	1026.4	1442.3
88	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	218.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	196.2	22790.6	6757.7	9496.1	21.8	2532.3	750.9	1055.1
89	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	319.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	287.1	33349.5	9888.5	13895.6	31.9	3705.5	1098.7	1544.0
90	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	303.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	272.7	31676.8	9392.5	13198.7	30.3	3519.6	1043.6	1466.5
91	(A-1-1)04DDB	609149	COT	4240	38120	15	3	1109	194.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	174.6	20281.5	6013.7	8450.6	19.4	2253.5	668.2	939.0
78	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	98.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	9.8	1138.4	337.5	474.3	58.8	6830.2	2025.2	2845.9	29.4	3415.1	1012.6	1423.0
79	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	95.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	9.5	1103.5	327.2	459.8	57.0	6621.1	1963.2	2758.8	28.5	3310.6	981.6	1379.4
80	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	101.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	10.1	1173.2	347.9	488.8	60.6	7039.3	2087.2	2933.0	30.3	3519.6	1043.6	1466.5
81	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	105.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	10.5	1219.7	361.6	508.2	63.0	7318.1	2169.9	3049.2	31.5	3659.0	1084.9	1524.6
82	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	107.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	10.7	1242.9	368.5	517.9	64.2	7457.5	2211.2	3107.3	32.1	3728.7	1105.6	1553.6
83	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	107.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	10.7	1242.9	368.5	517.9	64.2	7457.5	2211.2	3107.3	32.1	3728.7	1105.6	1553.6
84	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	362.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	36.2	4205.0	1246.8	1752.1	217.2	25230.0	7481.0	10512.5	108.6	12615.0	3740.5	5256.2
85	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	318.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	31.8	3693.9	1095.3	1539.1	190.8	22163.3	6571.7	9234.7	95.4	11081.7	3285.8	4617.4
86	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	389.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	38.9	4518.6	1339.8	1882.8	233.4	27111.7	8038.9	11296.6	116.7	13555.9	4019.5	5648.3
87	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	400.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	40.0	4646.4	1377.7	1936.0	240.0	27878.4	8266.3	11616.0	120.0	13939.2	4133.1	5808.0
88	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	180.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	18.0	2090.9	620.0	871.2	108.0	12545.3	3719.8	5227.2	54.0	6272.6	1859.9	2613.6
89	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	236.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	23.6	2741.4	812.8	1142.2	141.6	16448.3	4877.1	6853.4	70.8	8224.1	2438.5	3426.7
90	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	230.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	23.0	2671.7	792.2	1113.2	138.0	16030.1	4753.1	6679.2	69.0	8015.0	2376.6	3339.6
91	(A-1-1)09AAA	609146	COT	5040	36840	17	3	1267	389.00	0.00	0.10	0.60	0.30	0.0	0.0	0.0	0.0	38.9	4518.6	1339.8	1882.8	233.4	27111.7	8038.9	11296.6	116.7	13555.9	4019.5	5648.3
78	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	98.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	19.6	2276.7	675.1	948.6	29.4	3415.1	1012.6	1423.0	49.0	5691.8	1687.7	2371.6
79	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	95.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	19.0	2207.0	654.4	919.6	28.5	3310.6	981.6	1379.4	47.5	5517.6	1636.0	2299.0
80	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	101.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	20.2	2346.4	695.7	977.7	30.3	3519.6	1043.6	1466.5	50.5	5866.1	1739.4	2444.2
81	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	105.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	21.0	2439.4	723.3	1016.4	31.5	3659.0	1084.9	1524.6	52.5	6098.4	1808.2	2541.0
82	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	107.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	21.4	2485.8	737.1	1035.8	32.1	3728.7	1105.6	1553.6	53.5	6214.6	1842.7	2589.4
83	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	107.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	21.4	2485.8	737.1	1035.8	32.1	3728.7	1105.6	1553.6	53.5	6214.6	1842.7	2589.4

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
84	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	256.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	51.2	5947.4	1763.5	2478.1	76.8	8921.1	2645.2	3717.1	128.0	14868.5	4408.7	6195.2
85	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	226.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	45.2	5250.4	1556.8	2187.7	67.8	7875.6	2335.2	3281.5	113.0	13126.1	3892.0	5469.2
86	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	200.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	40.0	4646.4	1377.7	1936.0	60.0	6969.6	2066.6	2904.0	100.0	11616.0	3444.3	4840.0
87	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	148.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	29.6	3438.3	1019.5	1432.6	44.4	5157.5	1529.3	2149.0	74.0	8595.8	2548.8	3581.6
88	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	140.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	28.0	3252.5	964.4	1355.2	42.0	4878.7	1446.6	2032.8	70.0	8131.2	2411.0	3388.0
89	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425		0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425		0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-1)09AAC	609148	COT	4160	35960	19	3	1425	458.00	0.00	0.20	0.30	0.50	0.0	0.0	0.0	0.0	91.6	10640.3	3155.0	4433.4	137.4	15960.4	4732.4	6650.2	229.0	26600.6	7887.4	11083.6
72	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1335.00	0.40	0.45	0.10	0.05	534.0	23261.0	90880.3	25845.6	600.8	26168.7	102240.4	29076.3	133.5	5815.3	22720.1	6461.4	66.8	2907.6	11360.0	3230.7
73	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	78.00	0.40	0.45	0.10	0.05	31.2	1359.1	5309.9	1510.1	35.1	1529.0	5973.6	1698.8	7.8	339.8	1327.5	377.5	3.9	169.9	663.7	188.8
74	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1031.00	0.40	0.45	0.10	0.05	412.4	17964.1	70185.5	19960.2	464.0	20209.7	78958.7	22455.2	103.1	4491.0	17546.4	4990.0	51.6	2245.5	8773.2	2495.0
75	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1336.00	0.40	0.45	0.10	0.05	534.4	23278.5	90948.4	25865.0	601.2	26188.3	102317.0	29098.1	133.6	5819.6	22737.1	6466.2	66.8	2909.8	11368.6	3233.1
76	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1153.00	0.40	0.45	0.10	0.05	461.2	20089.9	78490.7	22322.1	518.9	22601.1	88302.0	25112.3	115.3	5022.5	19622.7	5580.5	57.7	2511.2	9811.3	2790.3
77	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1287.00	0.40	0.45	0.10	0.05	514.8	22424.7	87612.7	24916.3	579.2	25227.8	98564.3	28030.9	128.7	5606.2	21903.2	6229.1	64.4	2803.1	10951.6	3114.5
78	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	37.00	0.40	0.45	0.10	0.05	14.8	644.7	2518.8	716.3	16.7	725.3	2833.6	805.9	3.7	161.2	629.7	179.1	1.9	80.6	314.8	89.5
79	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	18.00	0.40	0.45	0.10	0.05	7.2	313.6	1225.4	348.5	8.1	352.8	1378.5	392.0	1.8	78.4	306.3	87.1	0.9	39.2	153.2	43.6
80	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	362.00	0.40	0.45	0.10	0.05	144.8	6307.5	24643.2	7008.3	162.9	7095.9	27723.6	7884.4	36.2	1576.9	6160.8	1752.1	18.1	788.4	3080.4	876.0
81	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	710.00	0.40	0.45	0.10	0.05	284.0	12371.0	48333.4	13745.6	319.5	13917.4	54375.0	15463.8	71.0	3092.8	12083.3	3436.4	35.5	1546.4	6041.7	1718.2
82	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	99.00	0.40	0.45	0.10	0.05	39.6	1725.0	6739.4	1916.6	44.6	1940.6	7581.9	2156.2	9.9	431.2	1684.9	479.2	5.0	215.6	842.4	239.6
83	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	104.00	0.40	0.45	0.10	0.05	41.6	1812.1	7079.8	2013.4	46.8	2038.6	7964.8	2265.1	10.4	453.0	1770.0	503.4	5.2	226.5	885.0	251.7
84	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	1118.00	0.40	0.45	0.10	0.05	447.2	19480.0	76108.0	21644.5	503.1	21915.0	85621.5	24350.0	111.8	4870.0	19027.0	5411.1	55.9	2435.0	9513.5	2705.6
85	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	192.00	0.40	0.45	0.10	0.05	76.8	3345.4	13070.4	3717.1	86.4	3763.6	14704.2	4181.8	19.2	836.4	3267.6	929.3	9.6	418.2	1633.8	464.6
86	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	20.00	0.40	0.45	0.10	0.05	8.0	348.5	1361.5	387.2	9.0	392.0	1531.7	435.6	2.0	87.1	340.4	96.8	1.0	43.6	170.2	48.4
87	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	160.00	0.40	0.45	0.10	0.05	64.0	2787.8	10892.0	3097.6	72.0	3136.3	12253.5	3484.8	16.0	697.0	2723.0	774.4	8.0	348.5	1361.5	387.2
88	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	300.00	0.40	0.45	0.10	0.05	120.0	5227.2	20422.5	5808.0	135.0	5880.6	22975.4	6534.0	30.0	1306.8	5105.6	1452.0	15.0	653.4	2552.8	726.0
89	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	46.00	0.40	0.45	0.10	0.05	18.4	801.5	3131.5	890.6	20.7	901.7	3522.9	1001.9	4.6	200.4	782.9	222.6	2.3	100.2	391.4	111.3
90	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	843.00	0.40	0.45	0.10	0.05	337.2	14688.4	57387.4	16320.5	379.4	16524.5	64560.8	18360.5	84.3	3672.1	14346.8	4080.1	42.2	1836.1	7173.4	2040.1
91	(A-1-1)09BBB2	607718	SRP	240	36800	17	1	1265	79.00	0.40	0.45	0.10	0.05	31.6	1376.5	5377.9	1529.4	35.6	1548.6	6050.2	1720.6	7.9	344.1	1344.5	382.4	4.0	172.1	672.2	191.2
78	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	98.00	0.45	0.35	0.15	0.05	44.1	5122.7	1518.9	2134.4	34.3	3984.3	1181.4	1660.1	14.7	1707.6	506.3	711.5	4.9	569.2	168.8	237.2
79	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	95.00	0.45	0.35	0.15	0.05	42.8	4965.8	1472.4	2069.1	33.3	3862.3	1145.2	1609.3	14.3	1655.3	490.8	689.7	4.8	551.8	163.6	229.9
80	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	101.00	0.45	0.35	0.15	0.05	45.5	5279.5	1565.4	2199.8	35.3	4106.3	1217.6	1710.9	15.2	1759.8	521.8	733.3	5.1	586.6	173.9	244.4
81	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	105.00	0.45	0.35	0.15	0.05	47.3	5488.6	1627.4	2286.9	36.8	4268.9	1265.8	1778.7	15.8	1829.5	542.5	762.3	5.3	609.8	180.8	254.1
82	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	107.00	0.45	0.35	0.15	0.05	48.2	5593.1	1658.4	2330.5	37.5	4350.2	1289.9	1812.6	16.1	1864.4	552.8	776.8	5.4	621.5	184.3	258.9
83	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	107.00	0.45	0.35	0.15	0.05	48.2	5593.1	1658.4	2330.5	37.5	4350.2	1289.9	1812.6	16.1	1864.4	552.8	776.8	5.4	621.5	184.3	258.9
84	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	109.00	0.45	0.35	0.15	0.05	49.1	5697.6	1689.4	2374.0	38.2	4431.5	1314.0	1846.5	16.4	1899.2	563.1	791.3	5.5	633.1	187.7	263.8
85	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	244.00	0.45	0.35	0.15	0.05	109.8	12754.4	3781.8	5314.3	85.4	9920.1	2941.4	4133.4	36.6	4251.5	1260.6	1771.4	12.2	1417.2	420.2	590.5
86	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	280.00	0.45	0.35	0.15	0.05	126.0	14636.2	4339.8	6098.4	98.0	11383.7	3375.4	4743.2	42.0	4878.7	1446.6	2032.8	14.0	1626.2	482.2	677.6
87	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	266.00	0.45	0.35	0.15	0.05	119.7	13904.4	4122.8	5793.5	93.1	10814.5	3206.6	4506.0	39.9	4634.8	1374.3	1931.2	13.3	1544.9	458.1	643.7
88	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	464.00	0.45	0.35	0.15	0.05	208.8	24254.2	7191.7	10105.9	162.4	18864.4	5593.5	7860.2	69.6	8084.7	2397.2	3368.6	23.2	2694.9	799.1	1122.9
89	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	263.00	0.45	0.35	0.15	0.05	118.4	13747.5	4076.3	5728.1	92.1	10692.5	3170.5	4455.2	39.5	4582.5	1358.8	1909.4	13.2	1527.5	452.9	636.5
90	(A-1-1)09BDB	503822	COT	1680	35560	20	2	1503	264.00	0.45	0.35	0.15	0.05	118.8	13799.8	4091.8	5749.9	92.4	10733.2	3182.5	4472.2	39.6	4599.9	1363.9	1916.6	13.2	1533.3	454.6	638.9
78	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1299.00	0.60	0.20	0.15	0.05	779.4	33950.7	132644.5	37723.0	259.8	11316.9	44214.8	12574.3	194.9	8487.7	33161.1	9430.7	65.0	2829.2	11053.7	3143.6
79	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1186.00	0.60	0.20	0.15	0.05	711.6	30997.3	121105.7	34441.4	237.2	10332.4	40368.6	11480.5	177.9	7749.3	30276.4	8610.4	59.3	2583.1	10092.1	2870.1
80	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1245.00	0.60	0.20	0.15	0.05	747.0	32539.3	127130.4	36154.8	249.0	10846.4	42376.8	12051.6	186.8	8134.8	31782.6	9038.7	62.3	2711.6	10594.2	3012.9
81	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1658.00	0.60	0.20	0.15	0.05	994.8	43333.5	169302.9	48148.3	331.6	14444.5	56434.3	16049.4	248.7	10833.4	42325.7	12037.1	82.9	3611.1	14108.6	4012.4
82	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1230.00	0.60	0.20	0.15	0.05	738.0	32147.3	125598.7	35719.2	246.0	10715.8	41866.2	11906.4	184.5	8036.8	31399.7	8929.8	61.5	2678.9	10466.6	2976.6
83	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	523.00	0.60	0.20	0.15	0.05	313.8	13669.1	53405.0	15187.9	104.6	4556.4	17801.7	5062.6	78.5	3417.3	13351.2	3797.0	26.2	1139.1	4450.4	1265.7
84	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	1134.00	0.60	0.20	0.15	0.05	680.4	29638.2	115795.9	32931.4	226.8	9879.4	38598.6	10977.1	170.1	7409.6	28949.0	8232.8	56.7	2469.9	9649.7	2744.3
86	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	107.00	0.60	0.20	0.15	0.05	64.2	2796.6	10926.1	3107.3	21.4	932.2	3642.0	1035.8	16.1	699.1	2731.5	776.8	5.4	233.0	910.5	258.9
87	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	31.00	0.60	0.20	0.15	0.05	18.6	810.2	3165.5	900.2	6.2	270.1	1055.2	300.1	4.6	202.6	791.4	225.1	1.6	67.5	263.8	75.0
88	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	138.00	0.60	0.20	0.15	0.05	82.8	3606.8	14091.6	4007.5	27.6	1202.3	4697.2	1335.8	20.7	901.7	3522.9	1001.9	6.9	300.6	1174.3	334.0
89	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	364.00	0.60	0.20	0.15	0.05	218.4	9513.5	37169.0	10570.6	72.8	3171.2	12389.7	3523.5	54.6	2378.4	9292.3	2642.6	18.2	792.8	3097.4	880.9
90	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	995.00	0.60	0.20	0.15	0.05	597.0	26005.3	101602.2	28894.8	199.0	8668.4	33867.4	9631.6	149.3	6501.3	25400.5	7223.7	49.8	2167.1	8466.8	2407.9
91	(A-1-1)09DD	600620	HARBOR FIN.	4560	32600	26	3	1978	353.00	0.60	0.20	0.15	0.05	211.8	9226.0	36045.8	10251.1	70.6	3075.3	12015.3	3417.0	53.0	2306.5	9011.4	2562.8	17.7	768.8	3003.8	854.3

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
78	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	98.00	0.50	0.40	0.10	0.00	49.0	5691.8	1687.7	2371.6	39.2	4553.5	1350.2	1897.3	9.8	1138.4	337.5	474.3	0.0	0.0	0.0	0.0
79	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	95.00	0.50	0.40	0.10	0.00	47.5	5517.6	1636.0	2299.0	38.0	4414.1	1308.8	1839.2	9.5	1103.5	327.2	459.8	0.0	0.0	0.0	0.0
80	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	101.00	0.50	0.40	0.10	0.00	50.5	5866.1	1739.4	2444.2	40.4	4692.9	1391.5	1955.4	10.1	1173.2	347.9	488.8	0.0	0.0	0.0	0.0
81	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	105.00	0.50	0.40	0.10	0.00	52.5	6098.4	1808.2	2541.0	42.0	4878.7	1446.6	2032.8	10.5	1219.7	361.6	508.2	0.0	0.0	0.0	0.0
82	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	107.00	0.50	0.40	0.10	0.00	53.5	6214.6	1842.7	2589.4	42.8	4971.6	1474.2	2071.5	10.7	1242.9	368.5	517.9	0.0	0.0	0.0	0.0
83	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	107.00	0.50	0.40	0.10	0.00	53.5	6214.6	1842.7	2589.4	42.8	4971.6	1474.2	2071.5	10.7	1242.9	368.5	517.9	0.0	0.0	0.0	0.0
84	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	118.00	0.50	0.40	0.10	0.00	59.0	6853.4	2032.1	2855.6	47.2	5482.8	1625.7	2284.5	11.8	1370.7	406.4	571.1	0.0	0.0	0.0	0.0
89	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	160.00	0.50	0.40	0.10	0.00	80.0	9292.8	2755.4	3872.0	64.0	7434.2	2204.3	3097.6	16.0	1858.6	551.1	774.4	0.0	0.0	0.0	0.0
90	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	454.00	0.50	0.40	0.10	0.00	227.0	26368.3	7818.5	10986.8	181.6	21094.7	6254.8	8789.4	45.4	5273.7	1563.7	2197.4	0.0	0.0	0.0	0.0
91	(A-1-1)10AAA	518899	COT	10160	37120	17	7	1271	655.00	0.50	0.40	0.10	0.00	327.5	38042.4	11280.0	15851.0	262.0	30433.9	9024.0	12680.8	65.5	7608.5	2256.0	3170.2	0.0	0.0	0.0	0.0
78	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	943.00	0.50	0.30	0.15	0.05	471.5	54769.4	16239.8	22820.6	282.9	32861.7	9743.9	13692.4	141.5	16430.8	4871.9	6846.2	47.2	5476.9	1624.0	2282.1
79	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	861.00	0.50	0.30	0.15	0.05	430.5	50006.9	14827.6	20836.2	258.3	30004.1	8896.6	12501.7	129.2	15002.1	4448.3	6250.9	43.1	5000.7	1482.8	2083.6
80	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	904.00	0.50	0.30	0.15	0.05	452.0	52504.3	15568.1	21876.8	271.2	31502.6	9340.9	13126.1	135.6	15751.3	4670.4	6563.0	45.2	5250.4	1556.8	2187.7
81	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	1204.00	0.50	0.30	0.15	0.05	602.0	69928.3	20734.6	29136.8	361.2	41957.0	12440.7	17482.1	180.6	20978.5	6220.4	8741.0	60.2	6992.8	2073.5	2913.7
82	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	893.00	0.50	0.30	0.15	0.05	446.5	51865.4	15378.7	21610.6	267.9	31119.3	9227.2	12966.4	134.0	15559.6	4613.6	6483.2	44.7	5186.5	1537.9	2161.1
83	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	380.00	0.50	0.30	0.15	0.05	190.0	22070.4	6544.1	9196.0	114.0	13242.2	3926.5	5517.6	57.0	6621.1	1963.2	2758.8	19.0	2207.0	654.4	919.6
84	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	823.00	0.50	0.30	0.15	0.05	411.5	47799.8	14173.2	19916.6	246.9	28679.9	8503.9	11950.0	123.5	14340.0	4252.0	5975.0	41.2	4780.0	1417.3	1991.7
85	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	690.00	0.50	0.30	0.15	0.05	345.0	40075.2	11882.8	16698.0	207.0	24045.1	7129.7	10018.8	103.5	12022.6	3564.8	5009.4	34.5	4007.5	1188.3	1669.8
86	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	639.00	0.50	0.30	0.15	0.05	319.5	37113.1	11004.5	15463.8	191.7	22267.9	6602.7	9278.3	95.8	11133.9	3301.3	4639.1	32.0	3711.3	1100.4	1546.4
87	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	532.00	0.50	0.30	0.15	0.05	266.0	30898.6	9161.8	12874.4	159.6	18539.1	5497.1	7724.6	79.8	9269.6	2748.5	3862.3	26.6	3089.9	916.2	1287.4
88	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664	527.00	0.50	0.30	0.15	0.05	263.5	30608.2	9075.7	12753.4	158.1	18364.9	5445.4	7652.0	79.1	9182.4	2722.7	3826.0	26.4	3060.8	907.6	1275.3
89	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664		0.50	0.30	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)10CAB	618807	SUNLAND BEEF	6960	34440	22	5	1664		0.50	0.30	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)10CBA	87254		6200	34400	22	4	1663	535.00	0.20	0.50	0.30	0.00	107.0	12429.1	3685.4	5178.8	267.5	31072.8	9213.4	12947.0	160.5	18643.7	5528.1	7768.2	0.0	0.0	0.0	0.0
90	(A-1-1)10CBA	87254		6200	34400	22	4	1663	529.00	0.20	0.50	0.30	0.00	105.8	12289.7	3644.0	5120.7	264.5	30724.3	9110.1	12801.8	158.7	18434.6	5466.1	7681.1	0.0	0.0	0.0	0.0
91	(A-1-1)10CBA	87254		6200	34400	22	4	1663	556.00	0.20	0.50	0.30	0.00	111.2	12917.0	3830.0	5382.1	278.0	32292.5	9575.1	13455.2	166.8	19375.5	5745.1	8073.1	0.0	0.0	0.0	0.0
72	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	1647.00	0.10	0.60	0.25	0.05	164.7	7174.3	28029.9	7971.5	988.2	43046.0	168179.7	47828.9	411.8	17935.8	70074.9	19928.7	82.4	3587.2	14015.0	3985.7
73	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	300.00	0.10	0.60	0.25	0.05	30.0	1306.8	5105.6	1452.0	180.0	7840.8	30633.8	8712.0	75.0	3267.0	12764.1	3630.0	15.0	653.4	2552.8	726.0
74	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	1012.00	0.10	0.60	0.25	0.05	101.2	4408.3	17223.0	4898.1	607.2	26449.6	103338.1	29388.5	253.0	11020.7	43057.5	12245.2	50.6	2204.1	8611.5	2449.0
75	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	1527.00	0.10	0.60	0.25	0.05	152.7	6651.6	25987.7	7390.7	916.2	39909.7	155926.2	44344.1	381.8	16629.0	64969.2	18476.7	76.4	3325.8	12993.8	3695.3
76	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	998.00	0.10	0.60	0.25	0.05	99.8	4347.3	16984.8	4830.3	598.8	26083.7	101908.5	28981.9	249.5	10868.2	42461.9	12075.8	49.9	2173.6	8492.4	2415.2
77	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	686.00	0.10	0.60	0.25	0.05	68.6	2988.2	11674.9	3320.2	411.6	17929.3	70049.3	19921.4	171.5	7470.5	29187.2	8300.6	34.3	1494.1	5837.4	1660.1
78	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	4.00	0.10	0.60	0.25	0.05	0.4	17.4	68.1	19.4	2.4	104.5	408.5	116.2	1.0	43.6	170.2	48.4	0.2	8.7	34.0	9.7
79	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	14.00	0.10	0.60	0.25	0.05	1.4	61.0	238.3	67.8	8.4	365.9	1429.6	406.6	3.5	152.5	595.7	169.4	0.7	30.5	119.1	33.9
80	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	4.00	0.10	0.60	0.25	0.05	0.4	17.4	68.1	19.4	2.4	104.5	408.5	116.2	1.0	43.6	170.2	48.4	0.2	8.7	34.0	9.7
81	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	670.00	0.10	0.60	0.25	0.05	67.0	2918.5	11402.6	3242.8	402.0	17511.1	68415.5	19456.8	167.5	7296.3	28506.5	8107.0	33.5	1459.3	5701.3	1621.4
82	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	43.00	0.10	0.60	0.25	0.05	4.3	187.3	731.8	208.1	25.8	1123.8	4390.8	1248.7	10.8	468.3	1829.5	520.3	2.2	93.7	365.9	104.1
83	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	17.00	0.10	0.60	0.25	0.05	1.7	74.1	289.3	82.3	10.2	444.3	1735.9	493.7	4.3	185.1	723.3	205.7	0.9	37.0	144.7	41.1
84	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	421.00	0.10	0.60	0.25	0.05	42.1	1833.9	7164.9	2037.6	252.6	11003.3	42989.5	12225.8	105.3	4584.7	17912.3	5094.1	21.1	916.9	3582.5	1018.8
85	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	68.00	0.10	0.60	0.25	0.05	6.8	296.2	1157.3	329.1	40.8	1777.2	6943.7	1974.7	17.0	740.5	2893.2	822.8	3.4	148.1	578.6	164.6
86	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	37.00	0.10	0.60	0.25	0.05	3.7	161.2	629.7	179.1	22.2	967.0	3778.2	1074.5	9.3	402.9	1574.2	447.7	1.9	80.6	314.8	89.5
87	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	93.00	0.10	0.60	0.25	0.05	9.3	405.1	1582.7	450.1	55.8	2430.6	9496.5	2700.7	23.3	1012.8	3956.9	1125.3	4.7	202.6	791.4	225.1
88	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	135.00	0.10	0.60	0.25	0.05	13.5	588.1	2297.5	653.4	81.0	3528.4	13785.2	3920.4	33.8	1470.2	5743.8	1633.5	6.8	294.0	1148.8	326.7
89	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	124.00	0.10	0.60	0.25	0.05	12.4	540.1	2110.3	600.2	74.4	3240.9	12662.0	3601.0	31.0	1350.4	5275.8	1500.4	6.2	270.1	1055.2	300.1
90	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	1475.00	0.10	0.60	0.25	0.05	147.5	6425.1	25102.7	7139.0	885.0	38550.6	150616.3	42834.0	368.8	16062.8	62756.8	17847.5	73.8	3212.6	12551.4	3569.5
91	(A-1-1)10CCC2	608436	SRP	5712	32006	27	4	2058	218.00	0.10	0.60	0.25	0.05	21.8	949.6	3710.1	1055.1	130.8	5697.6	22260.6	6330.7	54.5	2374.0	9275.2	2637.8	10.9	474.8	1855.0	527.6
72	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	3557.00	0.05	0.70	0.15	0.10	177.9	7747.1	30267.9	8607.9	2489.9	108460.0	423750.9	120511.2	533.6	23241.4	90803.8	25823.8	355.7	15494.3	60535.8	17215.9
73	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1814.00	0.05	0.70	0.15	0.10	90.7	3950.9	15436.0	4389.9	1269.8	55312.5	216104.6	61458.3	272.1	11852.7	46308.1	13169.6	181.4	7901.8	30872.1	8779.8
74	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432		0.05	0.70	0.15	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	3739.00	0.05	0.70	0.15	0.10	187.0	8143.5	31816.6	9048.4	2617.3	114009.6	445432.8	126677.3	560.9	24430.6	95449.9	27145.1	373.9	16287.1	63633.3	18096.8
76	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	3405.00	0.05	0.70	0.15	0.10	170.3	7416.1	28974.5	8240.1	2383.5	103825.3	405642.9	115361.4	510.8	22248.3	86923.5	24720.3	340.5	14832.2	57949.0	16480.2
77	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	3085.00	0.05	0.70	0.15	0.10	154.3	6719.1	26251.5	7465.7	2159.5	94067.8	367520.8	104519.8	462.8	20157.4	78754.5	22397.1	308.5	13438.3	52503.0	14931.4
78	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1818.00	0.05	0.70	0.15	0.10	90.9	3959.6	15470.1	4399.6	1272.6	55434.5	216581.1	61593.8	272.7	11878.8	46410.2	13198.7	181.8	7919.2	30940.2	8799.1
79	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1990.00	0.05	0.70	0.15	0.10	99.5	4334.2	16933.7	4815.8	1393.0	60679.1	237071.8	67421.2	298.5	13002.7	50801.1	14447.4	199.0	8668.4	33867.4	9631.6

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
80	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2534.00	0.05	0.70	0.15	0.10	126.7	5519.1	21562.8	6132.3	1773.8	77266.7	301879.3	85851.9	380.1	16557.2	64688.4	18396.8	253.4	11038.1	43125.6	12264.6
81	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2586.00	0.05	0.70	0.15	0.10	129.3	5632.3	22005.3	6258.1	1810.2	78852.3	308074.1	87613.7	387.9	16896.9	66015.9	18774.4	258.6	11264.6	44010.6	12516.2
82	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1618.00	0.05	0.70	0.15	0.10	80.9	3524.0	13768.2	3915.6	1132.6	49336.1	192754.8	54817.8	242.7	10572.0	41304.6	11746.7	161.8	7048.0	27536.4	7831.1
83	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	693.00	0.05	0.70	0.15	0.10	34.7	1509.4	5897.0	1677.1	485.1	21131.0	82558.2	23478.8	104.0	4528.1	17691.0	5031.2	69.3	3018.7	11794.0	3354.1
84	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1641.00	0.05	0.70	0.15	0.10	82.1	3574.1	13963.9	3971.2	1148.7	50037.4	195494.8	55597.1	246.2	10722.3	41891.8	11913.7	164.1	7148.2	27927.8	7942.4
85	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1633.00	0.05	0.70	0.15	0.10	81.7	3556.7	13895.8	3951.9	1143.1	49793.4	194541.8	55326.0	245.0	10670.0	41687.5	11855.6	163.3	7113.3	27791.7	7903.7
86	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	1551.00	0.05	0.70	0.15	0.10	77.6	3378.1	13198.1	3753.4	1085.7	47293.1	184773.0	52547.9	232.7	10134.2	39594.2	11260.3	155.1	6756.2	26396.1	7506.8
87	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2243.00	0.05	0.70	0.15	0.10	112.2	4885.3	19086.6	5428.1	1570.1	68393.6	267212.0	75992.8	336.5	14655.8	57259.7	16284.2	224.3	9770.5	38173.1	10856.1
88	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2382.00	0.05	0.70	0.15	0.10	119.1	5188.0	20269.4	5764.4	1667.4	72631.9	283771.3	80702.2	357.3	15564.0	60808.1	17293.3	238.2	10376.0	40538.8	11528.9
89	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	3202.00	0.05	0.70	0.15	0.10	160.1	6974.0	27247.1	7748.8	2241.4	97635.4	381459.2	108483.8	480.3	20921.9	81741.3	23246.5	320.2	13947.9	54494.2	15497.7
90	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2589.00	0.05	0.70	0.15	0.10	129.5	5638.8	22030.8	6265.4	1812.3	78943.8	308431.5	87715.3	388.4	16916.5	66092.5	18796.1	258.9	11277.7	44061.6	12530.8
91	(A-1-1)11ACB	607227	RID	13668	35764	19	10	1432	2587.00	0.05	0.70	0.15	0.10	129.4	5634.5	22013.8	6260.5	1810.9	78882.8	308193.3	87647.6	388.1	16903.5	66041.4	18781.6	258.7	11269.0	44027.6	12521.1
78	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	24.00	0.10	0.20	0.40	0.30	2.4	278.8	82.7	116.2	4.8	557.6	165.3	232.3	9.6	1115.1	330.7	464.6	7.2	836.4	248.0	348.5
79	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	22.00	0.10	0.20	0.40	0.30	2.2	255.6	75.8	106.5	4.4	511.1	151.5	213.0	8.8	1022.2	303.1	425.9	6.6	766.7	227.3	319.4
80	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	23.00	0.10	0.20	0.40	0.30	2.3	267.2	79.2	111.3	4.6	534.3	158.4	222.6	9.2	1068.7	316.9	445.3	6.9	801.5	237.7	334.0
81	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	30.00	0.10	0.20	0.40	0.30	3.0	348.5	103.3	145.2	6.0	697.0	206.7	290.4	12.0	1393.9	413.3	580.8	9.0	1045.4	310.0	435.6
82	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	22.00	0.10	0.20	0.40	0.30	2.2	255.6	75.8	106.5	4.4	511.1	151.5	213.0	8.8	1022.2	303.1	425.9	6.6	766.7	227.3	319.4
83	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	10.00	0.10	0.20	0.40	0.30	1.0	116.2	34.4	48.4	2.0	232.3	68.9	96.8	4.0	464.6	137.8	193.6	3.0	348.5	103.3	145.2
84	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	21.00	0.10	0.20	0.40	0.30	2.1	243.9	72.3	101.6	4.2	487.9	144.7	203.3	8.4	975.7	289.3	406.6	6.3	731.8	217.0	304.9
85	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	23.00	0.10	0.20	0.40	0.30	2.3	267.2	79.2	111.3	4.6	534.3	158.4	222.6	9.2	1068.7	316.9	445.3	6.9	801.5	237.7	334.0
86	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	28.00	0.10	0.20	0.40	0.30	2.8	325.2	96.4	135.5	5.6	650.5	192.9	271.0	11.2	1301.0	385.8	542.1	8.4	975.7	289.3	406.6
87	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	23.00	0.10	0.20	0.40	0.30	2.3	267.2	79.2	111.3	4.6	534.3	158.4	222.6	9.2	1068.7	316.9	445.3	6.9	801.5	237.7	334.0
88	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	26.00	0.10	0.20	0.40	0.30	2.6	302.0	89.6	125.8	5.2	604.0	179.1	251.7	10.4	1208.1	358.2	503.4	7.8	906.0	268.7	377.5
89	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	23.00	0.10	0.20	0.40	0.30	2.3	267.2	79.2	111.3	4.6	534.3	158.4	222.6	9.2	1068.7	316.9	445.3	6.9	801.5	237.7	334.0
90	(A-1-1)11ADC	607624	SW Feed & Seed Co.	14520	35040	21	11	1591	27.00	0.10	0.20	0.40	0.30	2.7	313.6	93.0	130.7	5.4	627.3	186.0	261.4	10.8	1254.5	372.0	522.7	8.1	940.9	279.0	392.0
72	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1420.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	142.0	6185.5	24166.7	6872.8	568.0	24742.1	96666.7	27491.2	639.0	27834.8	108750.1	30927.6
73	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	234.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	23.4	1019.3	3982.4	1132.6	93.6	4077.2	15929.6	4530.2	105.3	4586.9	17920.8	5096.5
74	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1043.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	104.3	4543.3	17750.6	5048.1	417.2	18173.2	71002.4	20192.5	469.4	20444.9	79877.7	22716.5
75	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1406.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	140.6	6124.5	23928.4	6805.0	562.4	24498.1	95713.7	27220.2	632.7	27560.4	107677.9	30622.7
76	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1226.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	122.6	5340.5	20865.0	5933.8	490.4	21361.8	83460.1	23735.4	551.7	24032.1	93892.7	26702.3
77	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1477.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	147.7	6433.8	25136.8	7148.7	590.8	25735.2	100547.0	28594.7	664.7	28952.2	113115.4	32169.1
78	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	75.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	7.5	326.7	1276.4	363.0	30.0	1306.8	5105.6	1452.0	33.8	1470.2	5743.8	1633.5
79	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	91.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	9.1	396.4	1548.7	440.4	36.4	1585.6	6194.8	1761.8	41.0	1783.8	6969.2	1982.0
80	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	250.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	25.0	1089.0	4254.7	1210.0	100.0	4356.0	17018.8	4840.0	112.5	4900.5	19146.1	5445.0
81	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	904.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	90.4	3937.8	15385.0	4375.4	361.6	15751.3	61539.9	17501.4	406.8	17720.2	69232.4	19689.1
82	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	149.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	14.9	649.0	2535.8	721.2	59.6	2596.2	10143.2	2884.6	67.1	2920.7	11411.1	3245.2
83	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	111.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	11.1	483.5	1889.1	537.2	44.4	1934.1	7556.3	2149.0	50.0	2175.8	8500.9	2417.6
84	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	847.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	84.7	3689.5	14414.9	4099.5	338.8	14758.1	57659.7	16397.9	381.2	16602.9	64867.1	18447.7
85	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	168.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	16.8	731.8	2859.2	813.1	67.2	2927.2	11436.6	3252.5	75.6	3293.1	12866.2	3659.0
86	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	158.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	15.8	688.2	2689.0	764.7	63.2	2753.0	10755.9	3058.9	71.1	3097.1	12100.4	3441.2
87	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	158.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	15.8	688.2	2689.0	764.7	63.2	2753.0	10755.9	3058.9	71.1	3097.1	12100.4	3441.2
88	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	131.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	13.1	570.6	2229.5	634.0	52.4	2282.5	8917.8	2536.2	59.0	2567.9	10032.6	2853.2
89	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	5.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	0.5	21.8	85.1	24.2	2.0	87.1	340.4	96.8	2.3	98.0	382.9	108.9
90	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	1319.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	131.9	5745.6	22447.8	6384.0	527.6	22982.3	89791.1	25535.8	593.6	25855.0	101015.0	28727.8
91	(A-1-1)11ADD	617112	SRP	15808	35033	21	12	1592	174.00	0.00	0.10	0.40	0.45	0.0	0.0	0.0	0.0	17.4	757.9	2961.3	842.2	69.6	3031.8	11845.1	3368.6	78.3	3410.7	13325.7	3789.7
72	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	31.00	0.50	0.30	0.20	0.00	15.5	1800.5	533.9	750.2	9.3	1080.3	320.3	450.1	6.2	720.2	213.5	300.1	0.0	0.0	0.0	0.0
73	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	25.00	0.50	0.30	0.20	0.00	12.5	1452.0	430.5	605.0	7.5	871.2	258.3	363.0	5.0	580.8	172.2	242.0	0.0	0.0	0.0	0.0
74	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	44.00	0.50	0.30	0.20	0.00	22.0	2555.5	757.7	1064.8	13.2	1533.3	454.6	638.9	8.8	1022.2	303.1	425.9	0.0	0.0	0.0	0.0
75	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	33.00	0.50	0.30	0.20	0.00	16.5	1916.6	568.3	798.6	9.9	1150.0	341.0	479.2	6.6	766.7	227.3	319.4	0.0	0.0	0.0	0.0
76	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	49.00	0.50	0.30	0.20	0.00	24.5	2845.9	843.8	1185.8	14.7	1707.6	506.3	711.5	9.8	1138.4	337.5	474.3	0.0	0.0	0.0	0.0
77	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	59.00	0.50	0.30	0.20	0.00	29.5	3426.7	1016.1	1427.8	17.7	2056.0	609.6	856.7	11.8	1370.7	406.4	571.1	0.0	0.0	0.0	0.0
78	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	61.00	0.50	0.30	0.20	0.00	30.5	3542.9	1050.5	1476.2	18.3	2125.7	630.3	885.7	12.2	1417.2	420.2	590.5	0.0	0.0	0.0	0.0
79	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	75.00	0.50	0.30	0.20	0.00	37.5	4356.0	1291.6	1815.0	22.5	2613.6	775.0	1089.0	15.0	1742.4	516.6	726.0	0.0	0.0	0.0	0.0
80	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	57.00	0.50	0.30	0.20	0.00	28.5	3310.6	981.6	1379.4	17.1	1986.3	589.0	827.6	11.4	1324.2	392.6	551.8	0.0	0.0	0.0	0.0
81	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	76.00	0.50	0.30	0.20	0.00	38.0	4414.1	1308.8	1839.2	22.8	2648.4	785.3	1103.5	15.2	1765.6	523.5	735.7	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
82	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	74.00	0.50	0.30	0.20	0.00	37.0	4297.9	1274.4	1790.8	22.2	2578.8	764.6	1074.5	14.8	1719.2	509.8	716.3	0.0	0.0	0.0	0.0
83	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	76.00	0.50	0.30	0.20	0.00	38.0	4414.1	1308.8	1839.2	22.8	2648.4	785.3	1103.5	15.2	1765.6	523.5	735.7	0.0	0.0	0.0	0.0
84	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	92.00	0.50	0.30	0.20	0.00	46.0	5343.4	1584.4	2226.4	27.6	3206.0	950.6	1335.8	18.4	2137.3	633.7	890.6	0.0	0.0	0.0	0.0
85	(A-1-1)11BCC	626594	COP	10680	35360	20	7	1508	23.00	0.50	0.30	0.20	0.00	11.5	1335.8	396.1	556.6	6.9	801.5	237.7	334.0	4.6	534.3	158.4	222.6	0.0	0.0	0.0	0.0
74	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	72.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	7.2	313.6	1225.4	348.5	54.0	2352.2	9190.1	2613.6	7.2	313.6	1225.4	348.5
75	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	1027.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	102.7	4473.6	17478.3	4970.7	770.3	33552.1	131087.2	37280.1	102.7	4473.6	17478.3	4970.7
76	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	1179.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	117.9	5135.7	20065.2	5706.4	884.3	38517.9	150488.7	42797.7	117.9	5135.7	20065.2	5706.4
77	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	394.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	39.4	1716.3	6705.4	1907.0	295.5	12872.0	50290.5	14302.2	39.4	1716.3	6705.4	1907.0
78	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	21.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	2.1	91.5	357.4	101.6	15.8	686.1	2680.5	762.3	2.1	91.5	357.4	101.6
79	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	34.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	3.4	148.1	578.6	164.6	25.5	1110.8	4339.8	1234.2	3.4	148.1	578.6	164.6
80	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	186.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	18.6	810.2	3165.5	900.2	139.5	6076.6	23741.2	6751.8	18.6	810.2	3165.5	900.2
81	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	914.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	91.4	3981.4	15555.2	4423.8	685.5	29860.4	116663.8	33178.2	91.4	3981.4	15555.2	4423.8
82	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	155.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	15.5	675.2	2637.9	750.2	116.3	5063.9	19784.3	5626.5	15.5	675.2	2637.9	750.2
83	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	36.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	3.6	156.8	612.7	174.2	27.0	1176.1	4595.1	1306.8	3.6	156.8	612.7	174.2
84	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	789.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	78.9	3436.9	13427.8	3818.8	591.8	25776.6	100708.7	28640.7	78.9	3436.9	13427.8	3818.8
85	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	65.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	6.5	283.1	1106.2	314.6	48.8	2123.6	8296.7	2359.5	6.5	283.1	1106.2	314.6
86	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	296.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	29.6	1289.4	5037.6	1432.6	222.0	9670.3	37781.7	10744.8	29.6	1289.4	5037.6	1432.6
87	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	124.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	12.4	540.1	2110.3	600.2	93.0	4051.1	15827.5	4501.2	12.4	540.1	2110.3	600.2
88	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	96.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	9.6	418.2	1633.8	464.6	72.0	3136.3	12253.5	3484.8	9.6	418.2	1633.8	464.6
89	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	188.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	18.8	818.9	3199.5	909.9	141.0	6142.0	23996.5	6824.4	18.8	818.9	3199.5	909.9
90	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	819.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	81.9	3567.6	13938.4	3964.0	614.3	26756.7	104537.9	29729.7	81.9	3567.6	13938.4	3964.0
91	(A-1-1)11CCB	608362	SRP	10838	33309	24	7	1824	179.00	0.00	0.10	0.75	0.10	0.0	0.0	0.0	0.0	17.9	779.7	3046.4	866.4	134.3	5847.9	22847.7	6497.7	17.9	779.7	3046.4	866.4
72	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-1)12ACC			18800	34800	20	16	1517	0.00	0.40	0.40	0.20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2189.00	0.30	0.05	0.60	0.05	656.7	28605.9	111762.4	31784.3	109.5	4767.6	18627.1	5297.4	1313.4	57211.7	223524.8	63568.6	109.5	4767.6	18627.1	5297.4
73	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1400.00	0.30	0.05	0.60	0.05	420.0	18295.2	71478.9	20328.0	70.0	3049.2	11913.2	3388.0	840.0	36590.4	142957.8	40656.0	70.0	3049.2	11913.2	3388.0
74	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2148.00	0.30	0.05	0.60	0.05	644.4	28070.1	109669.1	31189.0	107.4	4678.3	18278.2	5198.2	1288.8	56140.1	219338.2	62377.9	107.4	4678.3	18278.2	5198.2
75	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2430.00	0.30	0.05	0.60	0.05	729.0	31755.2	124067.0	35283.6	121.5	5292.5	20677.8	5880.6	1458.0	63510.5	248134.0	70567.2	121.5	5292.5	20677.8	5880.6
76	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1847.00	0.30	0.05	0.60	0.05	554.1	24136.6	94301.1	26818.4	92.4	4022.8	15716.9	4469.7	1108.2	48273.2	188602.2	53636.9	92.4	4022.8	15716.9	4469.7
77	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2332.00	0.30	0.05	0.60	0.05	699.6	30474.6	119063.5	33860.6	116.6	5079.1	19843.9	5643.4	1399.2	60949.2	238126.9	67721.3	116.6	5079.1	19843.9	5643.4
78	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1391.00	0.30	0.05	0.60	0.05	417.3	18177.6	71019.4	20197.3	69.6	3029.6	11836.6	3366.2	834.6	36355.2	142038.8	40394.6	69.6	3029.6	11836.6	3366.2
79	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1687.00	0.30	0.05	0.60	0.05	506.1	22045.7	86132.1	24495.2	84.4	3674.3	14355.3	4082.5	1012.2	44091.4	172264.2	48990.5	84.4	3674.3	14355.3	4082.5
80	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2033.00	0.30	0.05	0.60	0.05	609.9	26567.2	103797.6	29519.2	101.7	4427.9	17299.6	4919.9	1219.8	53134.5	207595.2	59038.3	101.7	4427.9	17299.6	4919.9
81	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	2372.00	0.30	0.05	0.60	0.05	711.6	30997.3	121105.7	34441.4	118.6	5166.2	20184.3	5740.2	1423.2	61994.6	242211.4	68882.9	118.6	5166.2	20184.3	5740.2
82	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1501.00	0.30	0.05	0.60	0.05	450.3	19615.1	76635.6	21794.5	75.1	3269.2	12772.6	3632.4	900.6	39230.1	153271.2	43589.0	75.1	3269.2	12772.6	3632.4
83	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	737.00	0.30	0.05	0.60	0.05	221.1	9631.1	37628.5	10701.2	36.9	1605.2	6271.4	1783.5	442.2	19262.2	75257.1	21402.5	36.9	1605.2	6271.4	1783.5
84	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1510.00	0.30	0.05	0.60	0.05	453.0	19732.7	77095.1	21925.2	75.5	3288.8	12849.2	3654.2	906.0	39465.4	154190.2	43850.4	75.5	3288.8	12849.2	3654.2
85	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1643.00	0.30	0.05	0.60	0.05	492.9	21470.7	83885.6	23856.4	82.2	3578.5	13980.9	3976.1	985.8	42941.4	167771.2	47712.7	82.2	3578.5	13980.9	3976.1
86	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1245.00	0.30	0.05	0.60	0.05	373.5	16269.7	63565.2	18077.4	62.3	2711.6	10594.2	3012.9	747.0	32539.3	127130.4	36154.8	62.3	2711.6	10594.2	3012.9
87	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1079.00	0.30	0.05	0.60	0.05	323.7	14100.4	55089.8	15667.1	54.0	2350.1	9181.6	2611.2	647.4	28200.7	110179.7	31334.2	54.0	2350.1	9181.6	2611.2
88	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	916.00	0.30	0.05	0.60	0.05	274.8	11970.3	46767.6	13300.3	45.8	1995.0	7794.6	2216.7	549.6	23940.6	93535.3	26600.6	45.8	1995.0	7794.6	2216.7
89	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1434.00	0.30	0.05	0.60	0.05	430.2	18739.5	73214.8	20821.7	71.7	3123.3	12202.5	3470.3	860.4	37479.0	146429.7	41643.4	71.7	3123.3	12202.5	3470.3
90	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	998.00	0.30	0.05	0.60	0.05	299.4	13041.9	50954.3	14491.0	49.9	2173.6	8492.4	2415.2	598.8	26083.7	101908.5	28981.9	49.9	2173.6	8492.4	2415.2
91	(A-1-1)12BBB	607206	RID	16139	37337	16	12	1197	1135.00	0.30	0.05	0.60	0.05	340.5	14832.2	57949.0	16480.2	56.8	2472.0	9658.2	2746.7	681.0	29664.4	115898.0	32960.4	56.8	2472.0	9658.2	2746.7
72	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2831.00	0.25	0.65	0.05	0.05	707.8	30829.6	120450.5	34255.1	1840.2	80156.9	313171.3	89063.3	141.6	6165.9	24090.1	6851.0	141.6	6165.9	24090.1	6851.0
73	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1587.00	0.25	0.65	0.05	0.05	396.8	17282.4	67522.1	19202.7	1031.6	44934.3	175557.3	49927.0	79.4	3456.5	13504.4	3840.5	79.4	3456.5	13504.4	3840.5
74	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2614.00	0.25	0.65	0.05	0.05	653.5	28466.5	111217.8	31629.4	1699.1	74012.8	289166.3	82236.4	130.7	5693.3	22243.6	6325.9	130.7	5693.3	22243.6	6325.9
75	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2853.00	0.25	0.65	0.05	0.05	713.3	31069.2	121386.5	34521.3	1854.5	80779.8	315605.0	89755.4	142.7	6213.8	24277.3	6904.3	142.7	6213.8	24277.3	6904.3
76	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	3514.00	0.25	0.65	0.05	0.05	878.5	38267.5	149510.1	42519.4	2284.1	99495.4	388726.2	110550.4	175.7	7653.5	29902.0	8503.9	175.7	7653.5	29902.0	8503.9
77	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2344.00	0.25	0.65	0.05	0.05	586.0	25526.2	99730.1	28362.4	1523.6	66368.0	259298.3	73742.2	117.2	5105.2	19946.0	5672.5	117.2	5105.2	19946.0	5672.5

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
78	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1608.00	0.25	0.65	0.05	0.05	402.0	17511.1	68415.5	19456.8	1045.2	45528.9	177880.4	50587.7	80.4	3502.2	13683.1	3891.4	80.4	3502.2	13683.1	3891.4
79	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2044.00	0.25	0.65	0.05	0.05	511.0	22259.2	86966.0	24732.4	1328.6	57873.8	226111.7	64304.2	102.2	4451.8	17393.2	4946.5	102.2	4451.8	17393.2	4946.5
80	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2543.00	0.25	0.65	0.05	0.05	635.8	27693.3	108197.0	30770.3	1653.0	72002.5	281312.1	80002.8	127.2	5538.7	21639.4	6154.1	127.2	5538.7	21639.4	6154.1
81	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2357.00	0.25	0.65	0.05	0.05	589.3	25667.7	100283.2	28519.7	1532.1	66736.1	260736.4	74151.2	117.9	5133.5	20056.6	5703.9	117.9	5133.5	20056.6	5703.9
82	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1330.00	0.25	0.65	0.05	0.05	332.5	14483.7	56587.5	16093.0	864.5	37657.6	147127.4	41841.8	66.5	2896.7	11317.5	3218.6	66.5	2896.7	11317.5	3218.6
83	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	415.00	0.25	0.65	0.05	0.05	103.8	4519.4	17657.0	5021.5	269.8	11750.3	45908.2	13055.9	20.8	903.9	3531.4	1004.3	20.8	903.9	3531.4	1004.3
84	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1761.00	0.25	0.65	0.05	0.05	440.3	19177.3	74925.2	21308.1	1144.7	49861.0	194805.6	55401.1	88.1	3835.5	14985.0	4261.6	88.1	3835.5	14985.0	4261.6
85	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2127.00	0.25	0.65	0.05	0.05	531.8	23163.0	90497.4	25736.7	1382.6	60223.9	235293.3	66915.4	106.4	4632.6	18099.5	5147.3	106.4	4632.6	18099.5	5147.3
86	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1890.00	0.25	0.65	0.05	0.05	472.5	20582.1	80413.8	22869.0	1228.5	53513.5	209075.8	59459.4	94.5	4116.4	16082.8	4573.8	94.5	4116.4	16082.8	4573.8
87	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1684.00	0.25	0.65	0.05	0.05	421.0	18338.8	71649.1	20376.4	1094.6	47680.8	186287.7	52978.6	84.2	3667.8	14329.8	4075.3	84.2	3667.8	14329.8	4075.3
88	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	2241.00	0.25	0.65	0.05	0.05	560.3	24404.5	95347.8	27116.1	1456.7	63451.7	247904.2	70501.9	112.1	4880.9	19069.6	5423.2	112.1	4880.9	19069.6	5423.2
89	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	3047.00	0.25	0.65	0.05	0.05	761.8	33181.8	129640.6	36868.7	1980.6	86272.8	337065.7	95858.6	152.4	6636.4	25928.1	7373.7	152.4	6636.4	25928.1	7373.7
90	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	1632.00	0.25	0.65	0.05	0.05	408.0	17772.5	69436.7	19747.2	1060.8	46208.4	180535.3	51342.7	81.6	3554.5	13887.3	3949.4	81.6	3554.5	13887.3	3949.4
91	(A-1-1)12DBB	607226	RID	19666	34325	22	17	1676	3053.00	0.25	0.65	0.05	0.05	763.3	33247.2	129895.9	36941.3	1984.5	86442.6	337729.4	96047.4	152.7	6649.4	25979.2	7388.3	152.7	6649.4	25979.2	7388.3
78	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	13.00	0.10	0.40	0.40	0.10	1.3	56.6	221.2	62.9	5.2	226.5	885.0	251.7	5.2	226.5	885.0	251.7	1.3	56.6	221.2	62.9
79	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	12.00	0.10	0.40	0.40	0.10	1.2	52.3	204.2	58.1	4.8	209.1	816.9	232.3	4.8	209.1	816.9	232.3	1.2	52.3	204.2	58.1
80	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	12.00	0.10	0.40	0.40	0.10	1.2	52.3	204.2	58.1	4.8	209.1	816.9	232.3	4.8	209.1	816.9	232.3	1.2	52.3	204.2	58.1
81	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	16.00	0.10	0.40	0.40	0.10	1.6	69.7	272.3	77.4	6.4	278.8	1089.2	309.8	6.4	278.8	1089.2	309.8	1.6	69.7	272.3	77.4
82	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	12.00	0.10	0.40	0.40	0.10	1.2	52.3	204.2	58.1	4.8	209.1	816.9	232.3	4.8	209.1	816.9	232.3	1.2	52.3	204.2	58.1
83	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	5.00	0.10	0.40	0.40	0.10	0.5	21.8	85.1	24.2	2.0	87.1	340.4	96.8	2.0	87.1	340.4	96.8	0.5	21.8	85.1	24.2
84	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	11.00	0.10	0.40	0.40	0.10	1.1	47.9	187.2	53.2	4.4	191.7	748.8	213.0	4.4	191.7	748.8	213.0	1.1	47.9	187.2	53.2
89	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	95.00	0.10	0.40	0.40	0.10	9.5	413.8	1616.8	459.8	38.0	1655.3	6467.1	1839.2	38.0	1655.3	6467.1	1839.2	9.5	413.8	1616.8	459.8
90	(A-1-1)13ADD	619768	LDS	20640	29920	31	18	2388	1105.00	0.10	0.40	0.40	0.10	110.5	4813.4	18805.8	5348.2	442.0	19253.5	75223.1	21392.8	442.0	19253.5	75223.1	21392.8	110.5	4813.4	18805.8	5348.2
84	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	10.00	0.20	0.60	0.20	0.00	2.0	87.1	340.4	96.8	6.0	261.4	1021.1	290.4	2.0	87.1	340.4	96.8	0.0	0.0	0.0	0.0
87	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	7.00	0.20	0.60	0.20	0.00	1.4	61.0	238.3	67.8	4.2	183.0	714.8	203.3	1.4	61.0	238.3	67.8	0.0	0.0	0.0	0.0
88	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	3.00	0.20	0.60	0.20	0.00	0.6	26.1	102.1	29.0	1.8	78.4	306.3	87.1	0.6	26.1	102.1	29.0	0.0	0.0	0.0	0.0
89	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	3.00	0.20	0.60	0.20	0.00	0.6	26.1	102.1	29.0	1.8	78.4	306.3	87.1	0.6	26.1	102.1	29.0	0.0	0.0	0.0	0.0
90	(A-1-1)14BAB	618655	B&T FARMS	18920	32000	27	9	2063	0.00	0.20	0.60	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	120.00	0.25	0.35	0.30	0.10	30.0	1306.8	5105.6	1452.0	42.0	1829.5	7147.9	2032.8	36.0	1568.2	6126.8	1742.4	12.0	522.7	2042.3	580.8
79	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	110.00	0.25	0.35	0.30	0.10	27.5	1197.9	4680.2	1331.0	38.5	1677.1	6552.2	1863.4	33.0	1437.5	5616.2	1597.2	11.0	479.2	1872.1	532.4
80	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	115.00	0.25	0.35	0.30	0.10	28.8	1252.4	4892.9	1391.5	40.3	1753.3	6850.1	1948.1	34.5	1502.8	5871.5	1669.8	11.5	500.9	1957.2	556.6
81	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	154.00	0.25	0.35	0.30	0.10	38.5	1677.1	6552.2	1863.4	53.9	2347.9	9173.1	2608.8	46.2	2012.5	7862.7	2236.1	15.4	670.8	2620.9	745.4
82	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	114.00	0.25	0.35	0.30	0.10	28.5	1241.5	4850.4	1379.4	39.9	1738.0	6790.5	1931.2	34.2	1489.8	5820.4	1655.3	11.4	496.6	1940.1	551.8
83	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	48.00	0.25	0.35	0.30	0.10	12.0	522.7	2042.3	580.8	16.8	731.8	2859.2	813.1	14.4	627.3	2450.7	697.0	4.8	209.1	816.9	232.3
84	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	105.00	0.25	0.35	0.30	0.10	26.3	1143.5	4467.4	1270.5	36.8	1600.8	6254.4	1778.7	31.5	1372.1	5360.9	1524.6	10.5	457.4	1787.0	508.2
85	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	0.00	0.25	0.35	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	0.00	0.25	0.35	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	9.00	0.25	0.35	0.30	0.10	2.3	98.0	382.9	108.9	3.2	137.2	536.1	152.5	2.7	117.6	459.5	130.7	0.9	39.2	153.2	43.6
88	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	50.00	0.25	0.35	0.30	0.10	12.5	544.5	2127.3	605.0	17.5	762.3	2978.3	847.0	15.0	653.4	2552.8	726.0	5.0	217.8	850.9	242.0
89	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	333.00	0.25	0.35	0.30	0.10	83.3	3626.4	14168.1	4029.3	116.6	5076.9	19835.4	5641.0	99.9	4351.6	17001.8	4835.2	33.3	1450.5	5667.3	1611.7
90	(A-1-1)14DAB		LBR FARMS	14800	28800	33	11	2539	417.00	0.25	0.35	0.30	0.10	104.3	4541.1	17742.1	5045.7	146.0	6357.6	24838.9	7064.0	125.1	5449.4	21290.5	6054.8	41.7	1816.5	7096.8	2018.3
85	(A-1-1)15AAD	626416		10800	31200	29	6	2218	384.00	0.30	0.50	0.20		115.2	5018.1	19605.6	5575.7	192.0	8363.5	32676.1	9292.8	76.8	3345.4	13070.4	3717.1	0.0	0.0	0.0	0.0
87	(A-1-1)15AAD	626416		10800	31200	29	6	2218	45.00	0.30	0.50	0.20		13.5	588.1	2297.5	653.4	22.5	980.1	3829.2	1089.0	9.0	392.0	1531.7	435.6	0.0	0.0	0.0	0.0
88	(A-1-1)15AAD	626416		10800	31200	29	6	2218	389.00	0.30	0.50	0.20		116.7	5083.5	19860.9	5648.3	194.5	8472.4	33101.5	9413.8	77.8	3389.0	13240.6	3765.5	0.0	0.0	0.0	0.0
89	(A-1-1)15AAD	626416		10800	31200	29	6	2218	386.00	0.30	0.50	0.20		115.8	5044.2	19707.8	5604.7	193.0	8407.1	32846.3	9341.2	77.2	3362.8	13138.5	3736.5	0.0	0.0	0.0	0.0
90	(A-1-1)15AAD	626416		10800	31200	29	6	2218	617.00	0.30	0.50	0.20		185.1	8063.0	31501.8	8958.8	308.5	13438.3	52503.0	14931.4	123.4	5375.3	21001.2	5972.6	0.0	0.0	0.0	0.0
91	(A-1-1)15AAD	626416		10800	31200	29	6	2218	170.00	0.30	0.50	0.20		51.0	2221.6	8679.6	2468.4	85.0	3702.6	14466.0	4114.0	34.0	1481.0	5786.4	1645.6	0.0	0.0	0.0	0.0
78	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	110.00	0.20	0.40	0.30	0.10	22.0	2555.5	757.7	1064.8	44.0	5111.0	1515.5	2129.6	33.0	3833.3	1136.6	1597.2	11.0	1277.8	378.9	532.4
79	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	101.00	0.20	0.40	0.30	0.10	20.2	2346.4	695.7	977.7	40.4	4692.9	1391.5	1955.4	30.3	3519.6	1043.6	1466.5	10.1	1173.2	347.9	488.8
80	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	106.00	0.20	0.40	0.30	0.10	21.2	2462.6	730.2	1026.1	42.4	4925.2	1460.4	2052.2	31.8	3693.9	1095.3	1539.1	10.6	1231.3	365.1	513.0
81	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	141.00	0.20	0.40	0.30	0.10	28.2	3275.7	971.3	1364.9	56.4	6551.4	1942.6	2729.8	42.3	4913.6	1456.9	2047.3	14.1	1637.9	485.6	682.4
82	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	104.00	0.20	0.40	0.30	0.10	20.8	2416.1	716.4	1006.7	41.6	4832.3	1432.8	2013.4	31.2	3624.2	1074.6	1510.1	10.4	1208.1	358.2	503.4

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
83	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	44.00	0.20	0.40	0.30	0.10	8.8	1022.2	303.1	425.9	17.6	2044.4	606.2	851.8	13.2	1533.3	454.6	638.9	4.4	511.1	151.5	213.0
84	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	96.00	0.20	0.40	0.30	0.10	19.2	2230.3	661.3	929.3	38.4	4460.5	1322.6	1858.6	28.8	3345.4	992.0	1393.9	9.6	1115.1	330.7	464.6
85	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	48.00	0.20	0.40	0.30	0.10	9.6	1115.1	330.7	464.6	19.2	2230.3	661.3	929.3	14.4	1672.7	496.0	697.0	4.8	557.6	165.3	232.3
86	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456		0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	126.00	0.20	0.40	0.30	0.10	25.2	2927.2	868.0	1219.7	50.4	5854.5	1735.9	2439.4	37.8	4390.8	1301.9	1829.5	12.6	1463.6	434.0	609.8
88	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	232.00	0.20	0.40	0.30	0.10	46.4	5389.8	1598.1	2245.8	92.8	10779.6	3196.3	4491.5	69.6	8084.7	2397.2	3368.6	23.2	2694.9	799.1	1122.9
89	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	1271.00	0.20	0.40	0.30	0.10	254.2	29527.9	8755.4	12303.3	508.4	59055.7	17510.7	24606.6	381.3	44291.8	13133.0	18454.9	127.1	14763.9	4377.7	6151.6
90	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	1375.00	0.20	0.40	0.30	0.10	275.0	31944.0	9471.8	13310.0	550.0	63888.0	18943.5	26620.0	412.5	47916.0	14207.7	19965.0	137.5	15972.0	4735.9	6655.0
91	(A-1-1)15DAA	626511	LAYTON	10080	29320	32	7	2456	81.00	0.20	0.40	0.30	0.10	16.2	1881.8	558.0	784.1	32.4	3763.6	1115.9	1568.2	24.3	2822.7	837.0	1176.1	8.1	940.9	279.0	392.0
78	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	60.00	0.10	0.20	0.50	0.10	6.0	697.0	206.7	290.4	12.0	1393.9	413.3	580.8	30.0	3484.8	1033.3	1452.0	6.0	697.0	206.7	290.4
79	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	55.00	0.10	0.20	0.50	0.10	5.5	638.9	189.4	266.2	11.0	1277.8	378.9	532.4	27.5	3194.4	947.2	1331.0	5.5	638.9	189.4	266.2
80	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	58.00	0.10	0.20	0.50	0.10	5.8	673.7	199.8	280.7	11.6	1347.5	399.5	561.4	29.0	3368.6	998.8	1403.6	5.8	673.7	199.8	280.7
81	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	77.00	0.10	0.20	0.50	0.10	7.7	894.4	265.2	372.7	15.4	1788.9	530.4	745.4	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7
82	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	57.00	0.10	0.20	0.50	0.10	5.7	662.1	196.3	275.9	11.4	1324.2	392.6	551.8	28.5	3310.6	981.6	1379.4	5.7	662.1	196.3	275.9
83	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	24.00	0.10	0.20	0.50	0.10	2.4	278.8	82.7	116.2	4.8	557.6	165.3	232.3	12.0	1393.9	413.3	580.8	2.4	278.8	82.7	116.2
84	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	53.00	0.10	0.20	0.50	0.10	5.3	615.6	182.5	256.5	10.6	1231.3	365.1	513.0	26.5	3078.2	912.7	1282.6	5.3	615.6	182.5	256.5
85	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136	41.00	0.10	0.20	0.50	0.10	4.1	476.3	141.2	198.4	8.2	952.5	282.4	396.9	20.5	2381.3	706.1	992.2	4.1	476.3	141.2	198.4
86	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136		0.10	0.20	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136		0.10	0.20	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136		0.10	0.20	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136		0.10	0.20	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)16AAA	624825	RATLIFF-MILLER	5000	31480	28	3	2136		0.10	0.20	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	98.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	24.5	2845.9	843.8	1185.8	63.7	7399.4	2194.0	3083.1	9.8	1138.4	337.5	474.3
79	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	95.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	23.8	2758.8	818.0	1149.5	61.8	7172.9	2126.8	2988.7	9.5	1103.5	327.2	459.8
80	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	101.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	25.3	2933.0	869.7	1222.1	65.7	7625.9	2261.2	3177.5	10.1	1173.2	347.9	488.8
81	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	105.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	26.3	3049.2	904.1	1270.5	68.3	7927.9	2350.7	3303.3	10.5	1219.7	361.6	508.2
82	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	107.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	26.8	3107.3	921.3	1294.7	69.6	8078.9	2395.5	3366.2	10.7	1242.9	368.5	517.9
83	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	107.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	26.8	3107.3	921.3	1294.7	69.6	8078.9	2395.5	3366.2	10.7	1242.9	368.5	517.9
84	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	118.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	29.5	3426.7	1016.1	1427.8	76.7	8909.5	2641.8	3712.3	11.8	1370.7	406.4	571.1
85	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293		0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293		0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293		0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293		0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	14.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	3.5	406.6	120.5	169.4	9.1	1057.1	313.4	440.4	1.4	162.6	48.2	67.8
90	(A-1-1)16ACB	800926	COT	3240	30160	30	2	2293	23.00	0.00	0.25	0.65	0.10	0.0	0.0	0.0	0.0	5.8	667.9	198.0	278.3	15.0	1736.6	514.9	723.6	2.3	267.2	79.2	111.3
78	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	315.00	0.20	0.60	0.10	0.10	63.0	7318.1	2169.9	3049.2	189.0	21954.2	6509.7	9147.6	31.5	3659.0	1084.9	1524.6	31.5	3659.0	1084.9	1524.6
79	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	320.00	0.20	0.60	0.10	0.10	64.0	7434.2	2204.3	3097.6	192.0	22302.7	6613.0	9292.8	32.0	3717.1	1102.2	1548.8	32.0	3717.1	1102.2	1548.8
80	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	336.00	0.20	0.60	0.10	0.10	67.2	7806.0	2314.6	3252.5	201.6	23417.9	6943.7	9757.4	33.6	3903.0	1157.3	1626.2	33.6	3903.0	1157.3	1626.2
81	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	448.00	0.20	0.60	0.10	0.10	89.6	10407.9	3086.1	4336.6	268.8	31223.8	9258.2	13009.9	44.8	5204.0	1543.0	2168.3	44.8	5204.0	1543.0	2168.3
82	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	332.00	0.20	0.60	0.10	0.10	66.4	7713.0	2287.0	3213.8	199.2	23139.1	6861.0	9641.3	33.2	3856.5	1143.5	1606.9	33.2	3856.5	1143.5	1606.9
83	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	141.00	0.20	0.60	0.10	0.10	28.2	3275.7	971.3	1364.9	84.6	9827.1	2913.9	4094.6	14.1	1637.9	485.6	682.4	14.1	1637.9	485.6	682.4
84	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	306.00	0.20	0.60	0.10	0.10	61.2	7109.0	2107.9	2962.1	183.6	21327.0	6323.7	8886.2	30.6	3554.5	1053.9	1481.0	30.6	3554.5	1053.9	1481.0
85	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926		0.20	0.60	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	4.00	0.20	0.60	0.10	0.10	0.8	92.9	27.6	38.7	2.4	278.8	82.7	116.2	0.4	46.5	13.8	19.4	0.4	46.5	13.8	19.4
87	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	8.00	0.20	0.60	0.10	0.10	1.6	185.9	55.1	77.4	4.8	557.6	165.3	232.3	0.8	92.9	27.6	38.7	0.8	92.9	27.6	38.7
88	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	80.00	0.20	0.60	0.10	0.10	16.0	1858.6	551.1	774.4	48.0	5575.7	1653.3	2323.2	8.0	929.3	275.5	387.2	8.0	929.3	275.5	387.2
89	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	523.00	0.20	0.60	0.10	0.10	104.6	12150.3	3602.7	5062.6	313.8	36451.0	10808.1	15187.9	52.3	6075.2	1801.4	2531.3	52.3	6075.2	1801.4	2531.3
90	(A-1-1)21AAA	619468	ACCOMAZZU	4920	26200	38	3	2926	408.00	0.20	0.60	0.10	0.10	81.6	9478.7	2810.5	3949.4	244.8	28436.0	8431.6	11848.3	40.8	4739.3	1405.3	1974.7	40.8	4739.3	1405.3	1974.7
78	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	96.00	0.30	0.40	0.15	0.15	28.8	3345.4	992.0	1393.9	38.4	4460.5	1322.6	1858.6	14.4	1672.7	496.0	697.0	14.4	1672.7	496.0	697.0
79	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	88.00	0.30	0.40	0.15	0.15	26.4	3066.6	909.3	1277.8	35.2	4088.8	1212.4	1703.7	13.2	1533.3	454.6	638.9	13.2	1533.3	454.6	638.9
80	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	92.00	0.30	0.40	0.15	0.15	27.6	3206.0	950.6	1335.8	36.8	4274.7	1267.5	1781.1	13.8	1603.0	475.3	667.9	13.8	1603.0	475.3	667.9
81	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	123.00	0.30	0.40	0.15	0.15	36.9	4286.3	1270.9	1786.0	49.2	5715.1	1694.6	2381.3	18.5	2143.2	635.5	893.0	18.5	2143.2	635.5	893.0
82	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	91.00	0.30	0.40	0.15	0.15	27.3	3171.2	940.3	1321.3	36.4	4228.2	1253.7	1761.8	13.7	1585.6	470.1	660.7	13.7	1585.6	470.1	660.7
83	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	39.00	0.30	0.40	0.15	0.15	11.7	1359.1	403.0	566.3	15.6	1812.1	537.3	755.0	5.9	679.5	201.5	283.1	5.9	679.5	201.5	283.1

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
84	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	84.00	0.30	0.40	0.15	0.15	25.2	2927.2	868.0	1219.7	33.6	3903.0	1157.3	1626.2	12.6	1463.6	434.0	609.8	12.6	1463.6	434.0	609.8
85	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	102.00	0.30	0.40	0.15	0.15	30.6	3554.5	1053.9	1481.0	40.8	4739.3	1405.3	1974.7	15.3	1777.2	527.0	740.5	15.3	1777.2	527.0	740.5
86	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	101.00	0.30	0.40	0.15	0.15	30.3	3519.6	1043.6	1466.5	40.4	4692.9	1391.5	1955.4	15.2	1759.8	521.8	733.3	15.2	1759.8	521.8	733.3
87	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	105.00	0.30	0.40	0.15	0.15	31.5	3659.0	1084.9	1524.6	42.0	4878.7	1446.6	2032.8	15.8	1829.5	542.5	762.3	15.8	1829.5	542.5	762.3
88	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	66.00	0.30	0.40	0.15	0.15	19.8	2300.0	682.0	958.3	26.4	3066.6	909.3	1277.8	9.9	1150.0	341.0	479.2	9.9	1150.0	341.0	479.2
89	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	54.00	0.30	0.40	0.15	0.15	16.2	1881.8	558.0	784.1	21.6	2509.1	744.0	1045.4	8.1	940.9	279.0	392.0	8.1	940.9	279.0	392.0
90	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	99.00	0.30	0.40	0.15	0.15	29.7	3450.0	1023.0	1437.5	39.6	4599.9	1363.9	1916.6	14.9	1725.0	511.5	718.7	14.9	1725.0	511.5	718.7
91	(A-1-1)21BCD	617512	T.A. DAIRY	1200	23960	41	1	3161	90.00	0.30	0.40	0.15	0.15	27.0	3136.3	930.0	1306.8	36.0	4181.8	1239.9	1742.4	13.5	1568.2	465.0	653.4	13.5	1568.2	465.0	653.4
72	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1931.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	386.2	16822.9	65726.6	18692.1	965.5	42057.2	164316.4	46730.2	579.3	25234.3	98589.9	28038.1
73	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	313.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	62.6	2726.9	10653.8	3029.8	156.5	6817.1	26634.4	7574.6	93.9	4090.3	15980.6	4544.8
74	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	998.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	199.6	8694.6	33969.5	9660.6	499.0	21736.4	84923.8	24151.6	299.4	13041.9	50954.3	14491.0
75	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1025.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	205.0	8929.8	34888.5	9922.0	512.5	22324.5	87221.3	24805.0	307.5	13394.7	52332.8	14883.0
76	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1205.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	241.0	10498.0	41015.3	11664.4	602.5	26244.9	102538.2	29161.0	361.5	15746.9	61522.9	17496.6
77	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1531.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	306.2	13338.1	52111.5	14820.1	765.5	33345.2	130278.8	37050.2	459.3	20007.1	78167.3	22230.1
78	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1310.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	262.0	11412.7	44589.2	12680.8	655.0	28531.8	111473.1	31702.0	393.0	17119.1	66883.8	19021.2
79	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1271.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	254.2	11073.0	43261.8	12303.3	635.5	27682.4	108154.4	30758.2	381.3	16609.4	64892.6	18454.9
80	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1586.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	317.2	13817.2	53983.6	15352.5	793.0	34543.1	134959.0	38381.2	475.8	20725.8	80975.4	23028.7
81	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	2333.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	466.6	20325.1	79409.7	22583.4	1166.5	50812.7	198524.2	56458.6	699.9	30487.6	119114.5	33875.2
82	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1315.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	263.0	11456.3	44759.4	12729.2	657.5	28640.7	111898.5	31823.0	394.5	17184.4	67139.1	19093.8
83	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	508.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	101.6	4425.7	17291.1	4917.4	254.0	11064.2	43227.7	12293.6	152.4	6638.5	25936.6	7376.2
84	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1507.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	301.4	13129.0	51294.6	14587.8	753.5	32822.5	128236.6	36469.4	452.1	19693.5	76942.0	21881.6
85	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	140.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	28.0	1219.7	4765.3	1355.2	70.0	3049.2	11913.2	3388.0	42.0	1829.5	7147.9	2032.8
86	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321		0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321		0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321		0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321		0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	1851.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	370.2	16125.9	63003.6	17917.7	925.5	40314.8	157508.9	44794.2	555.3	24188.9	94505.3	26876.5
91	(A-1-1)21DDA1	608427	SRP	5000	22680	43	3	3321	815.00	0.00	0.20	0.50	0.30	0.0	0.0	0.0	0.0	163.0	7100.3	27740.6	7889.2	407.5	17750.7	69351.6	19723.0	244.5	10650.4	41610.9	11833.8
78	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	354.00	0.30	0.30	0.30	0.10	106.2	12336.2	3657.8	5140.1	106.2	12336.2	3657.8	5140.1	106.2	12336.2	3657.8	5140.1	35.4	4112.1	1219.3	1713.4
79	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	324.00	0.30	0.30	0.30	0.10	97.2	11290.8	3347.8	4704.5	97.2	11290.8	3347.8	4704.5	97.2	11290.8	3347.8	4704.5	32.4	3763.6	1115.9	1568.2
80	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	340.00	0.30	0.30	0.30	0.10	102.0	11848.3	3513.2	4936.8	102.0	11848.3	3513.2	4936.8	102.0	11848.3	3513.2	4936.8	34.0	3949.4	1171.1	1645.6
81	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	453.00	0.30	0.30	0.30	0.10	135.9	15786.1	4680.8	6577.6	135.9	15786.1	4680.8	6577.6	135.9	15786.1	4680.8	6577.6	45.3	5262.0	1560.3	2192.5
82	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	336.00	0.30	0.30	0.30	0.10	100.8	11708.9	3471.8	4878.7	100.8	11708.9	3471.8	4878.7	100.8	11708.9	3471.8	4878.7	33.6	3903.0	1157.3	1626.2
83	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	143.00	0.30	0.30	0.30	0.10	42.9	4983.3	1477.6	2076.4	42.9	4983.3	1477.6	2076.4	42.9	4983.3	1477.6	2076.4	14.3	1661.1	492.5	692.1
84	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	309.00	0.30	0.30	0.30	0.10	92.7	10768.0	3192.8	4486.7	92.7	10768.0	3192.8	4486.7	92.7	10768.0	3192.8	4486.7	30.9	3589.3	1064.3	1495.6
85	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	308.00	0.30	0.30	0.30	0.10	92.4	10733.2	3182.5	4472.2	92.4	10733.2	3182.5	4472.2	92.4	10733.2	3182.5	4472.2	30.8	3577.7	1060.8	1490.7
86	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	40.00	0.30	0.30	0.30	0.10	12.0	1393.9	413.3	580.8	12.0	1393.9	413.3	580.8	12.0	1393.9	413.3	580.8	4.0	464.6	137.8	193.6
87	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	395.00	0.30	0.30	0.30	0.10	118.5	13765.0	4081.5	5735.4	118.5	13765.0	4081.5	5735.4	118.5	13765.0	4081.5	5735.4	39.5	4588.3	1360.5	1911.8
88	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	795.00	0.30	0.30	0.30	0.10	238.5	27704.2	8214.6	11543.4	238.5	27704.2	8214.6	11543.4	238.5	27704.2	8214.6	11543.4	79.5	9234.7	2738.2	3847.8
89	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	1058.00	0.30	0.30	0.30	0.10	317.4	36869.2	10932.1	15362.2	317.4	36869.2	10932.1	15362.2	317.4	36869.2	10932.1	15362.2	105.8	12289.7	3644.0	5120.7
90	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	542.00	0.30	0.30	0.30	0.10	162.6	18887.6	5600.4	7869.8	162.6	18887.6	5600.4	7869.8	162.6	18887.6	5600.4	7869.8	54.2	6295.9	1866.8	2623.3
91	(A-1-1)22BAA	804665	P. HURLEY	7560	26560	38	5	2928	476.00	0.30	0.30	0.30	0.10	142.8	16587.6	4918.4	6911.5	142.8	16587.6	4918.4	6911.5	142.8	16587.6	4918.4	6911.5	47.6	5529.2	1639.5	2303.8
78	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	484.00	0.30	0.50	0.10	0.10	145.2	16866.4	5001.1	7027.7	242.0	28110.7	8335.2	11712.8	48.4	5622.1	1667.0	2342.6	48.4	5622.1	1667.0	2342.6
79	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	441.00	0.30	0.50	0.10	0.10	132.3	15368.0	4556.8	6403.3	220.5	25613.3	7594.6	10672.2	44.1	5122.7	1518.9	2134.4	44.1	5122.7	1518.9	2134.4
80	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	464.00	0.30	0.50	0.10	0.10	139.2	16169.5	4794.4	6737.3	232.0	26949.1	7990.7	11228.8	46.4	5389.8	1598.1	2245.8	46.4	5389.8	1598.1	2245.8
81	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	617.00	0.30	0.50	0.10	0.10	185.1	21501.2	6375.4	8958.8	308.5	35835.4	10625.6	14931.4	61.7	7167.1	2125.1	2986.3	61.7	7167.1	2125.1	2986.3
82	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	458.00	0.30	0.50	0.10	0.10	137.4	15960.4	4732.4	6650.2	229.0	26600.6	7887.4	11083.6	45.8	5320.1	1577.5	2216.7	45.8	5320.1	1577.5	2216.7
83	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	194.00	0.30	0.50	0.10	0.10	58.2	6760.5	2004.6	2816.9	97.0	11267.5	3341.0	4694.8	19.4	2253.5	668.2	939.0	19.4	2253.5	668.2	939.0
84	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	423.00	0.30	0.50	0.10	0.10	126.9	14740.7	4370.8	6142.0	211.5	24567.8	7284.7	10236.6	42.3	4913.6	1456.9	2047.3	42.3	4913.6	1456.9	2047.3
85	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	77.00	0.30	0.50	0.10	0.10	23.1	2683.3	795.6	1118.0	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
86	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	124.00	0.30	0.50	0.10	0.10	37.2	4321.2	1281.3	1800.5	62.0	7201.9	2135.5	3000.8	12.4	1440.4	427.1	600.2	12.4	1440.4	427.1	600.2
87	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	84.00	0.30	0.50	0.10	0.10	25.2	2927.2	868.0	1219.7	42.0	4878.7	1446.6	2032.8	8.4	975.7	289.3	406.6	8.4	975.7	289.3	406.6
88	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	193.00	0.30	0.50	0.10	0.10	57.9	6725.7	1994.2	2802.4	96.5	11209.4	3323.7	4670.6	19.3	2241.9	664.7	934.1	19.3	2241.9	664.7	934.1
89	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	554.00	0.30	0.50	0.10	0.10	166.2	19305.8	5724.4	8044.1	277.0	32176.3	9540.7	13406.8	55.4	6435.3	1908.1	2681.4	55.4	6435.3	1908.1	2681.4
90	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	570.00	0.30	0.50	0.10	0.10	171.0	19863.4	5889.7	8276.4	285.0	33105.6	9816.2	13794.0	57.0	6621.1	1963.2	2758.8	57.0	6621.1	1963.2	2758.8

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
91	(A-1-1)22CDA	619469	ACCOMAZZO	7680	22560	43	5	3323	77.00	0.30	0.50	0.10	0.10	23.1	2683.3	795.6	1118.0	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
78	(A-1-1)22CDB	505481		7000	22560	43	5	3323	88.00	0.30	0.50	0.10	0.10	26.4	3066.6	909.3	1277.8	44.0	5111.0	1515.5	2129.6	8.8	1022.2	303.1	425.9	8.8	1022.2	303.1	425.9
79	(A-1-1)22CDB	505481		7000	22560	43	5	3323	80.00	0.30	0.50	0.10	0.10	24.0	2787.8	826.6	1161.6	40.0	4646.4	1377.7	1936.0	8.0	929.3	275.5	387.2	8.0	929.3	275.5	387.2
80	(A-1-1)22CDB	505481		7000	22560	43	5	3323	84.00	0.30	0.50	0.10	0.10	25.2	2927.2	868.0	1219.7	42.0	4878.7	1446.6	2032.8	8.4	975.7	289.3	406.6	8.4	975.7	289.3	406.6
81	(A-1-1)22CDB	505481		7000	22560	43	5	3323	112.00	0.30	0.50	0.10	0.10	33.6	3903.0	1157.3	1626.2	56.0	6505.0	1928.8	2710.4	11.2	1301.0	385.8	542.1	11.2	1301.0	385.8	542.1
82	(A-1-1)22CDB	505481		7000	22560	43	5	3323	83.00	0.30	0.50	0.10	0.10	24.9	2892.4	857.6	1205.2	41.5	4820.6	1429.4	2008.6	8.3	964.1	285.9	401.7	8.3	964.1	285.9	401.7
83	(A-1-1)22CDB	505481		7000	22560	43	5	3323	35.00	0.30	0.50	0.10	0.10	10.5	1219.7	361.6	508.2	17.5	2032.8	602.7	847.0	3.5	406.6	120.5	169.4	3.5	406.6	120.5	169.4
84	(A-1-1)22CDB	505481		7000	22560	43	5	3323	77.00	0.30	0.50	0.10	0.10	23.1	2683.3	795.6	1118.0	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
85	(A-1-1)22CDB	505481		7000	22560	43	5	3323	77.00	0.30	0.50	0.10	0.10	23.1	2683.3	795.6	1118.0	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
86	(A-1-1)22CDB	505481		7000	22560	43	5	3323	82.00	0.30	0.50	0.10	0.10	24.6	2857.5	847.3	1190.6	41.0	4762.6	1412.2	1984.4	8.2	952.5	282.4	396.9	8.2	952.5	282.4	396.9
87	(A-1-1)22CDB	505481		7000	22560	43	5	3323	84.00	0.30	0.50	0.10	0.10	25.2	2927.2	868.0	1219.7	42.0	4878.7	1446.6	2032.8	8.4	975.7	289.3	406.6	8.4	975.7	289.3	406.6
88	(A-1-1)22CDB	505481		7000	22560	43	5	3323	84.00	0.30	0.50	0.10	0.10	25.2	2927.2	868.0	1219.7	42.0	4878.7	1446.6	2032.8	8.4	975.7	289.3	406.6	8.4	975.7	289.3	406.6
89	(A-1-1)22CDB	505481		7000	22560	43	5	3323	94.00	0.30	0.50	0.10	0.10	28.2	3275.7	971.3	1364.9	47.0	5459.5	1618.8	2274.8	9.4	1091.9	323.8	455.0	9.4	1091.9	323.8	455.0
90	(A-1-1)22CDB	505481		7000	22560	43	5	3323	100.00	0.30	0.50	0.10	0.10	30.0	3484.8	1033.3	1452.0	50.0	5808.0	1722.1	2420.0	10.0	1161.6	344.4	484.0	10.0	1161.6	344.4	484.0
91	(A-1-1)22CDB	505481		7000	22560	43	5	3323	77.00	0.30	0.50	0.10	0.10	23.1	2683.3	795.6	1118.0	38.5	4472.2	1326.0	1863.4	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
78	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	741.00	0.20	0.40	0.30	0.10	148.2	6455.6	25221.8	7172.9	296.4	12911.2	50443.7	14345.8	222.3	9683.4	37832.8	10759.3	74.1	3227.8	12610.9	3586.4
79	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	676.00	0.20	0.40	0.30	0.10	135.2	5889.3	23009.4	6543.7	270.4	11778.6	46018.8	13087.4	202.8	8834.0	34514.1	9815.5	67.6	2944.7	11504.7	3271.8
80	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	710.00	0.20	0.40	0.30	0.10	142.0	6185.5	24166.7	6872.8	284.0	12371.0	48333.4	13745.6	213.0	9278.3	36250.0	10309.2	71.0	3092.8	12083.3	3436.4
81	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	946.00	0.20	0.40	0.30	0.10	189.2	8241.6	32199.6	9157.3	378.4	16483.1	64399.1	18314.6	283.8	12362.3	48299.3	13735.9	94.6	4120.8	16099.8	4578.6
82	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	702.00	0.20	0.40	0.30	0.10	140.4	6115.8	23894.4	6795.4	280.8	12231.6	47788.8	13590.7	210.6	9173.7	35841.6	10193.0	70.2	3057.9	11947.2	3397.7
83	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	298.00	0.20	0.40	0.30	0.10	59.6	2596.2	10143.2	2884.6	119.2	5192.4	20286.4	5769.3	89.4	3894.3	15214.8	4327.0	29.8	1298.1	5071.6	1442.3
84	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	646.00	0.20	0.40	0.30	0.10	129.2	5628.0	21988.3	6253.3	258.4	11255.9	43976.6	12506.6	193.8	8441.9	32982.4	9379.9	64.6	2814.0	10994.1	3126.6
85	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	0.00	0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	48.00	0.20	0.40	0.30	0.10	9.6	418.2	1633.8	464.6	19.2	836.4	3267.6	929.3	14.4	627.3	2450.7	697.0	4.8	209.1	816.9	232.3
87	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	8.00	0.20	0.40	0.30	0.10	1.6	69.7	272.3	77.4	3.2	139.4	544.6	154.9	2.4	104.5	408.5	116.2	0.8	34.8	136.2	38.7
88	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	64.00	0.20	0.40	0.30	0.10	12.8	557.6	2178.4	619.5	25.6	1115.1	4356.8	1239.0	19.2	836.4	3267.6	929.3	6.4	278.8	1089.2	309.8
89	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	352.00	0.20	0.40	0.30	0.10	70.4	3066.6	11981.2	3407.4	140.8	6133.2	23962.5	6814.7	105.6	4599.9	17971.8	5111.0	35.2	1533.3	5990.6	1703.7
90	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	433.00	0.20	0.40	0.30	0.10	86.6	3772.3	14738.3	4191.4	173.2	7544.6	29476.5	8382.9	129.9	5658.4	22107.4	6287.2	43.3	1886.1	7369.1	2095.7
91	(A-1-1)23AAB	619467	J. ACCOMAZZO	14440	26960	37	11	2855	212.00	0.20	0.40	0.30	0.10	42.4	1846.9	7216.0	2052.2	84.8	3693.9	14431.9	4104.3	63.6	2770.4	10824.0	3078.2	21.2	923.5	3608.0	1026.1
90	(A-1-1)23DAA			15600	24000	41	11	3171	777.00	0.40	0.40	0.20		310.8	13538.4	52894.4	15042.7	310.8	13538.4	52894.4	15042.7	155.4	6769.2	26447.2	7521.4	0.0	0.0	0.0	0.0
78	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	535.00	0.20	0.40	0.30	0.10	107.0	4660.9	18210.1	5178.8	214.0	9321.8	36420.2	10357.6	160.5	6991.4	27315.2	7768.2	53.5	2330.5	9105.1	2589.4
79	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	488.00	0.20	0.40	0.30	0.10	97.6	4251.5	16610.3	4723.8	195.2	8502.9	33220.7	9447.7	146.4	6377.2	24915.5	7085.8	48.8	2125.7	8305.2	2361.9
80	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	513.00	0.20	0.40	0.30	0.10	102.6	4469.3	17461.3	4965.8	205.2	8938.5	34922.6	9931.7	153.9	6703.9	26191.9	7448.8	51.3	2234.6	8730.6	2482.9
81	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	683.00	0.20	0.40	0.30	0.10	136.6	5950.3	23247.7	6611.4	273.2	11900.6	46495.3	13222.9	204.9	8925.4	34871.5	9917.2	68.3	2975.1	11623.8	3305.7
82	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	507.00	0.20	0.40	0.30	0.10	101.4	4417.0	17257.1	4907.8	202.8	8834.0	34514.1	9815.5	152.1	6625.5	25885.6	7361.6	50.7	2208.5	8628.5	2453.9
83	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	215.00	0.20	0.40	0.30	0.10	43.0	1873.1	7318.1	2081.2	86.0	3746.2	14636.2'	4162.4	64.5	2809.6	10977.1	3121.8	21.5	936.5	3659.0	1040.6
84	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	467.00	0.20	0.40	0.30	0.10	93.4	4068.5	15895.6	4520.6	186.8	8137.0	31791.1	9041.1	140.1	6102.8	23843.3	6780.8	46.7	2034.3	7947.8	2260.3
85	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171		0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171		0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171		0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	100.00	0.20	0.40	0.30	0.10	20.0	871.2	3403.8	968.0	40.0	1742.4	6807.5	1936.0	30.0	1306.8	5105.6	1452.0	10.0	435.6	1701.9	484.0
89	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	458.00	0.20	0.40	0.30	0.10	91.6	3990.1	15589.2	4433.4	183.2	7980.2	31178.4	8866.9	137.4	5985.1	23383.8	6650.2	45.8	1995.0	7794.6	2216.7
90	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171		0.20	0.40	0.30	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-1)23DBA	618120	WESTERN FARMS	14440	24040	41	11	3171	196.00	0.20	0.40	0.30	0.10	39.2	1707.6	6671.4	1897.3	78.4	3415.1	13342.7	3794.6	58.8	2561.3	10007.0	2845.9	19.6	853.8	3335.7	948.6
72	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1502.00	0.60	0.30	0.10	0.00	901.2	39256.3	153373.3	43618.1	450.6	19628.1	76686.7	21809.0	150.2	6542.7	25562.2	7269.7	0.0	0.0	0.0	0.0
73	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	695.00	0.60	0.30	0.10	0.00	417.0	18164.5	70968.4	20182.8	208.5	9082.3	35484.2	10091.4	69.5	3027.4	11828.1	3363.8	0.0	0.0	0.0	0.0
74	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1499.00	0.60	0.30	0.10	0.00	899.4	39177.9	153067.0	43531.0	449.7	19588.9	76533.5	21765.5	149.9	6529.6	25511.2	7255.2	0.0	0.0	0.0	0.0
75	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1784.00	0.60	0.30	0.10	0.00	1070.4	46626.6	182169.1	51807.4	535.2	23313.3	91084.6	25903.7	178.4	7771.1	30361.5	8634.6	0.0	0.0	0.0	0.0
76	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1434.00	0.60	0.30	0.10	0.00	860.4	37479.0	146429.7	41643.4	430.2	18739.5	73214.8	20821.7	143.4	6246.5	24404.9	6940.6	0.0	0.0	0.0	0.0
77	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1475.00	0.60	0.30	0.10	0.00	885.0	38550.6	150616.3	42834.0	442.5	19275.3	75308.1	21417.0	147.5	6425.1	25102.7	7139.0	0.0	0.0	0.0	0.0
78	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	658.00	0.60	0.30	0.10	0.00	394.8	17197.5	67190.2	19108.3	197.4	8598.7	33595.1	9554.2	65.8	2866.2	11198.4	3184.7	0.0	0.0	0.0	0.0
79	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	572.00	0.60	0.30	0.10	0.00	343.2	14949.8	58408.5	16610.9	171.6	7474.9	29204.2	8305.4	57.2	2491.6	9734.7	2768.5	0.0	0.0	0.0	0.0
80	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	887.00	0.60	0.30	0.10	0.00	532.2	23182.6	90574.0	25758.5	266.1	11591.3	45287.0	12879.2	88.7	3863.8	15095.7	4293.1	0.0	0.0	0.0	0.0
81	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1367.00	0.60	0.30	0.10	0.00	820.2	35727.9	139588.1	39697.7	410.1	17864.0	69794.1	19848.8	136.7	5954.7	23264.7	6616.3	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
82	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	253.00	0.60	0.30	0.10	0.00	151.8	6612.4	25834.5	7347.1	75.9	3306.2	12917.3	3673.6	25.3	1102.1	4305.8	1224.5	0.0	0.0	0.0	0.0
83	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	690.00	0.60	0.30	0.10	0.00	414.0	18033.8	70457.8	20037.6	207.0	9016.9	35228.9	10018.8	69.0	3005.6	11743.0	3339.6	0.0	0.0	0.0	0.0
84	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	726.00	0.60	0.30	0.10	0.00	435.6	18974.7	74133.9	21083.0	217.8	9487.4	37066.9	10541.5	72.6	3162.5	12355.6	3513.8	0.0	0.0	0.0	0.0
85	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	324.00	0.60	0.30	0.10	0.00	194.4	8468.1	33084.5	9409.0	97.2	4234.0	16542.3	4704.5	32.4	1411.3	5514.1	1568.2	0.0	0.0	0.0	0.0
86	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	306.00	0.60	0.30	0.10	0.00	183.6	7997.6	31246.5	8886.2	91.8	3998.8	15623.2	4443.1	30.6	1332.9	5207.7	1481.0	0.0	0.0	0.0	0.0
87	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	16.00	0.60	0.30	0.10	0.00	9.6	418.2	1633.8	464.6	4.8	209.1	816.9	232.3	1.6	69.7	272.3	77.4	0.0	0.0	0.0	0.0
88	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	107.00	0.60	0.30	0.10	0.00	64.2	2796.6	10926.1	3107.3	32.1	1398.3	5463.0	1553.6	10.7	466.1	1821.0	517.9	0.0	0.0	0.0	0.0
89	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	234.00	0.60	0.30	0.10	0.00	140.4	6115.8	23894.4	6795.4	70.2	3057.9	11947.2	3397.7	23.4	1019.3	3982.4	1132.6	0.0	0.0	0.0	0.0
90	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	1237.00	0.60	0.30	0.10	0.00	742.2	32330.2	126313.5	35922.5	371.1	16165.1	63156.7	17961.2	123.7	5388.4	21052.2	5987.1	0.0	0.0	0.0	0.0
91	(A-1-1)23DDA	608371	SRP	15400	22840	43	12	3330	109.00	0.60	0.30	0.10	0.00	65.4	2848.8	11130.3	3165.4	32.7	1424.4	5565.1	1582.7	10.9	474.8	1855.0	527.6	0.0	0.0	0.0	0.0
72	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	1985.00	0.35	0.55	0.10	0.00	694.8	30263.3	118238.0	33625.9	1091.8	47556.6	185802.6	52840.7	198.5	8646.7	33782.3	9607.4	0.0	0.0	0.0	0.0
73	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	341.00	0.35	0.55	0.10	0.00	119.4	5198.9	20311.9	5776.5	187.6	8169.7	31918.7	9077.4	34.1	1485.4	5803.4	1650.4	0.0	0.0	0.0	0.0
74	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	1423.00	0.35	0.55	0.10	0.00	498.1	21695.1	84762.1	24105.6	782.7	34092.2	133197.6	37880.3	142.3	6198.6	24217.7	6887.3	0.0	0.0	0.0	0.0
75	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	2750.00	0.35	0.55	0.10	0.00	962.5	41926.5	163805.9	46585.0	1512.5	65884.5	257409.2	73205.0	275.0	11979.0	46801.7	13310.0	0.0	0.0	0.0	0.0
76	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	1883.00	0.35	0.55	0.10	0.00	659.1	28708.2	112162.3	31898.0	1035.7	45112.9	176255.1	50125.5	188.3	8202.3	32046.4	9113.7	0.0	0.0	0.0	0.0
77	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	1438.00	0.35	0.55	0.10	0.00	503.3	21923.7	85655.6	24359.7	790.9	34451.6	134601.6	38279.6	143.8	6263.9	24473.0	6959.9	0.0	0.0	0.0	0.0
78	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	207.00	0.35	0.55	0.10	0.00	72.4	3155.9	12330.1	3506.6	113.9	4959.3	19375.9	5510.3	20.7	901.7	3522.9	1001.9	0.0	0.0	0.0	0.0
79	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	79.00	0.35	0.55	0.10	0.00	27.7	1204.4	4705.7	1338.3	43.5	1892.7	7394.7	2103.0	7.9	344.1	1344.5	382.4	0.0	0.0	0.0	0.0
80	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	230.00	0.35	0.55	0.10	0.00	80.5	3506.6	13700.1	3896.2	126.5	5510.3	21528.8	6122.6	23.0	1001.9	3914.3	1113.2	0.0	0.0	0.0	0.0
81	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	1352.00	0.35	0.55	0.10	0.00	473.2	20612.6	80532.9	22902.9	743.6	32391.2	126551.7	35990.2	135.2	5889.3	23009.4	6543.7	0.0	0.0	0.0	0.0
82	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	265.00	0.35	0.55	0.10	0.00	92.8	4040.2	15784.9	4489.1	145.8	6348.9	24804.9	7054.3	26.5	1154.3	4510.0	1282.6	0.0	0.0	0.0	0.0
83	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	90.00	0.35	0.55	0.10	0.00	31.5	1372.1	5360.9	1524.6	49.5	2156.2	8424.3	2395.8	9.0	392.0	1531.7	435.6	0.0	0.0	0.0	0.0
84	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	670.00	0.35	0.55	0.10	0.00	234.5	10214.8	39909.1	11349.8	368.5	16051.9	62714.2	17835.4	67.0	2918.5	11402.6	3242.8	0.0	0.0	0.0	0.0
85	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	165.00	0.35	0.55	0.10	0.00	57.7	2515.6	9828.4	2795.1	90.8	3953.1	15444.6	4392.3	16.5	718.7	2808.1	798.6	0.0	0.0	0.0	0.0
86	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	150.00	0.35	0.55	0.10	0.00	52.5	2286.9	8934.9	2541.0	82.5	3593.7	14040.5	3993.0	15.0	653.4	2552.8	726.0	0.0	0.0	0.0	0.0
87	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	118.00	0.35	0.55	0.10	0.00	41.3	1799.0	7028.8	1998.9	64.9	2827.0	11045.2	3141.2	11.8	514.0	2008.2	571.1	0.0	0.0	0.0	0.0
88	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	67.00	0.35	0.55	0.10	0.00	23.5	1021.5	3990.9	1135.0	36.9	1605.2	6271.4	1783.5	6.7	291.9	1140.3	324.3	0.0	0.0	0.0	0.0
89	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	62.00	0.35	0.55	0.10	0.00	21.7	945.3	3693.1	1050.3	34.1	1485.4	5803.4	1650.4	6.2	270.1	1055.2	300.1	0.0	0.0	0.0	0.0
90	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	422.00	0.35	0.55	0.10	0.00	147.7	6433.8	25136.8	7148.7	232.1	10110.3	39500.6	11233.6	42.2	1838.2	7181.9	2042.5	0.0	0.0	0.0	0.0
91	(A-1-1)24AAA	608368	SRP	20525	26263	38	18	2941	136.00	0.35	0.55	0.10	0.00	47.6	2073.5	8100.9	2303.8	74.8	3258.3	12730.1	3620.3	13.6	592.4	2314.6	658.2	0.0	0.0	0.0	0.0
72	(A-1-1)24ABD			19600	25800	39	17	3019	56.00	0.75	0.25	0.00	0.00	42.0	4878.7	1446.6	2032.8	14.0	1626.2	482.2	677.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	(A-1-1)24ABD			19600	25800	39	17	3019	18.00	0.75	0.25	0.00	0.00	13.5	1568.2	465.0	653.4	4.5	522.7	155.0	217.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)25AAB	805626		19600	21600	45	17	3493	44.00	0.50	0.50			22.0	2555.5	757.7	1064.8	22.0	2555.5	757.7	1064.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)25AAB	805626		19600	21600	45	17	3493	21.00	0.50	0.50			10.5	1219.7	361.6	508.2	10.5	1219.7	361.6	508.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)25B1		VISS	16840	20320	13	46	994	102.00	0.50	0.30	0.20	0.00	51.0	5924.2	1756.6	2468.4	30.6	3554.5	1053.9	1481.0	20.4	2369.7	702.6	987.4	0.0	0.0	0.0	0.0
79	(A-1-1)25B1		VISS	16840	20320	13	46	994	93.00	0.50	0.30	0.20	0.00	46.5	5401.4	1601.6	2250.6	27.9	3240.9	961.0	1350.4	18.6	2160.6	640.6	900.2	0.0	0.0	0.0	0.0
80	(A-1-1)25B1		VISS	16840	20320	13	46	994	98.00	0.50	0.30	0.20	0.00	49.0	5691.8	1687.7	2371.6	29.4	3415.1	1012.6	1423.0	19.6	2276.7	675.1	948.6	0.0	0.0	0.0	0.0
81	(A-1-1)25B1		VISS	16840	20320	13	46	994	130.00	0.50	0.30	0.20	0.00	65.0	7550.4	2238.8	3146.0	39.0	4530.2	1343.3	1887.6	26.0	3020.2	895.5	1258.4	0.0	0.0	0.0	0.0
82	(A-1-1)25B1		VISS	16840	20320	13	46	994	97.00	0.50	0.30	0.20	0.00	48.5	5633.8	1670.5	2347.4	29.1	3380.3	1002.3	1408.4	19.4	2253.5	668.2	939.0	0.0	0.0	0.0	0.0
83	(A-1-1)25B1		VISS	16840	20320	13	46	994	41.00	0.50	0.30	0.20	0.00	20.5	2381.3	706.1	992.2	12.3	1428.8	423.6	595.3	8.2	952.5	282.4	396.9	0.0	0.0	0.0	0.0
84	(A-1-1)25B1		VISS	16840	20320	13	46	994	90.00	0.50	0.30	0.20	0.00	45.0	5227.2	1549.9	2178.0	27.0	3136.3	930.0	1306.8	18.0	2090.9	620.0	871.2	0.0	0.0	0.0	0.0
85	(A-1-1)25B1		VISS	16840	20320	13	46	994	9.00	0.50	0.30	0.20	0.00	4.5	522.7	155.0	217.8	2.7	313.6	93.0	130.7	1.8	209.1	62.0	87.1	0.0	0.0	0.0	0.0
86	(A-1-1)25B1		VISS	16840	20320	13	46	994	15.00	0.50	0.30	0.20	0.00	7.5	871.2	258.3	363.0	4.5	522.7	155.0	217.8	3.0	348.5	103.3	145.2	0.0	0.0	0.0	0.0
87	(A-1-1)25B1		VISS	16840	20320	13	46	994	15.00	0.50	0.30	0.20	0.00	7.5	871.2	258.3	363.0	4.5	522.7	155.0	217.8	3.0	348.5	103.3	145.2	0.0	0.0	0.0	0.0
88	(A-1-1)25B1		VISS	16840	20320	13	46	994		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)25B1		VISS	16840	20320	13	46	994		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)25B1		VISS	16840	20320	13	46	994		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)25BBB	512987		15800	21600	45	12	3488	15.00	0.50	0.50	0.00	0.00	7.5	871.2	258.3	363.0	7.5	871.2	258.3	363.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)25BBB	512987		15800	21600	45	12	3488	10.00	0.50	0.50	0.00	0.00	5.0	580.8	172.2	242.0	5.0	580.8	172.2	242.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)25BBB	512987		15800	21600	45	12	3488	3.00	0.50	0.50	0.00	0.00	1.5	174.2	51.7	72.6	1.5	174.2	51.7	72.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	88.00	0.50	0.30	0.10	0.10	44.0	5111.0	1515.5	2129.6	26.4	3066.6	909.3	1277.8	8.8	1022.2	303.1	425.9	8.8	1022.2	303.1	425.9
79	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	81.00	0.50	0.30	0.10	0.10	40.5	4704.5	1394.9	1960.2	24.3	2822.7	837.0	1176.1	8.1	940.9	279.0	392.0	8.1	940.9	279.0	392.0
80	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	85.00	0.50	0.30	0.10	0.10	42.5	4936.8	1463.8	2057.0	25.5	2962.1	878.3	1234.2	8.5	987.4	292.8	411.4	8.5	987.4	292.8	411.4
81	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	113.00	0.50	0.30	0.10	0.10	56.5	6563.0	1946.0	2734.6	33.9	3937.8	1167.6	1640.8	11.3	1312.6	389.2	546.9	11.3	1312.6	389.2	546.9

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
82	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	84.00	0.50	0.30	0.10	0.10	42.0	4878.7	1446.6	2032.8	25.2	2927.2	868.0	1219.7	8.4	975.7	289.3	406.6	8.4	975.7	289.3	406.6
83	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	36.00	0.50	0.30	0.10	0.10	18.0	2090.9	620.0	871.2	10.8	1254.5	372.0	522.7	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2
84	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	77.00	0.50	0.30	0.10	0.10	38.5	4472.2	1326.0	1863.4	23.1	2683.3	795.6	1118.0	7.7	894.4	265.2	372.7	7.7	894.4	265.2	372.7
85	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	19.00	0.50	0.30	0.10	0.10	9.5	1103.5	327.2	459.8	5.7	662.1	196.3	275.9	1.9	220.7	65.4	92.0	1.9	220.7	65.4	92.0
86	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566		0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566		0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	48.00	0.50	0.30	0.10	0.10	24.0	2787.8	826.6	1161.6	14.4	1672.7	496.0	697.0	4.8	557.6	165.3	232.3	4.8	557.6	165.3	232.3
89	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566	101.00	0.50	0.30	0.10	0.10	50.5	5866.1	1739.4	2444.2	30.3	3519.6	1043.6	1466.5	10.1	1173.2	347.9	488.8	10.1	1173.2	347.9	488.8
90	(A-1-1)26ADA	606371	BILL LUKE	15280	19560	46	11	3566		0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	148.00	0.40	0.40	0.10	0.10	59.2	6876.7	2039.0	2865.3	59.2	6876.7	2039.0	2865.3	14.8	1719.2	509.8	716.3	14.8	1719.2	509.8	716.3
79	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	135.00	0.40	0.40	0.10	0.10	54.0	6272.6	1859.9	2613.6	54.0	6272.6	1859.9	2613.6	13.5	1568.2	465.0	653.4	13.5	1568.2	465.0	653.4
80	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	142.00	0.40	0.40	0.10	0.10	56.8	6597.9	1956.4	2749.1	56.8	6597.9	1956.4	2749.1	14.2	1649.5	489.1	687.3	14.2	1649.5	489.1	687.3
81	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	189.00	0.40	0.40	0.10	0.10	75.6	8781.7	2603.9	3659.0	75.6	8781.7	2603.9	3659.0	18.9	2195.4	651.0	914.8	18.9	2195.4	651.0	914.8
82	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	140.00	0.40	0.40	0.10	0.10	56.0	6505.0	1928.8	2710.4	56.0	6505.0	1928.8	2710.4	14.0	1626.2	482.2	677.6	14.0	1626.2	482.2	677.6
83	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	60.00	0.40	0.40	0.10	0.10	24.0	2787.8	826.6	1161.6	24.0	2787.8	826.6	1161.6	6.0	697.0	206.7	290.4	6.0	697.0	206.7	290.4
84	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	129.00	0.40	0.40	0.10	0.10	51.6	5993.9	1777.2	2497.4	51.6	5993.9	1777.2	2497.4	12.9	1498.5	444.3	624.4	12.9	1498.5	444.3	624.4
85	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	9.00	0.40	0.40	0.10	0.10	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2	0.9	104.5	31.0	43.6	0.9	104.5	31.0	43.6
86	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	1.00	0.40	0.40	0.10	0.10	0.4	46.5	13.8	19.4	0.4	46.5	13.8	19.4	0.1	11.6	3.4	4.8	0.1	11.6	3.4	4.8
87	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722		0.40	0.40	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722	0.00	0.40	0.40	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722		0.40	0.40	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)26CAA	606370	BILL LUKE	12680	18320	48	9	3722		0.40	0.40	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	147.00	0.40	0.40	0.20	0.00	58.8	2561.3	10007.0	2845.9	58.8	2561.3	10007.0	2845.9	29.4	1280.7	5003.5	1423.0	0.0	0.0	0.0	0.0
87	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	92.00	0.40	0.40	0.20	0.00	36.8	1603.0	6262.9	1781.1	36.8	1603.0	6262.9	1781.1	18.4	801.5	3131.5	890.6	0.0	0.0	0.0	0.0
88	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	159.00	0.40	0.40	0.20	0.00	63.6	2770.4	10824.0	3078.2	63.6	2770.4	10824.0	3078.2	31.8	1385.2	5412.0	1539.1	0.0	0.0	0.0	0.0
89	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	152.00	0.40	0.40	0.20	0.00	60.8	2648.4	10347.4	2942.7	60.8	2648.4	10347.4	2942.7	30.4	1324.2	5173.7	1471.4	0.0	0.0	0.0	0.0
90	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	61.00	0.40	0.40	0.20	0.00	24.4	1062.9	4152.6	1181.0	24.4	1062.9	4152.6	1181.0	12.2	531.4	2076.3	590.5	0.0	0.0	0.0	0.0
91	(A-1-1)27BDA	612452	STUMP	7600	20000	46	5	3560	74.00	0.40	0.40	0.20	0.00	29.6	1289.4	5037.6	1432.6	29.6	1289.4	5037.6	1432.6	14.8	644.7	2518.8	716.3	0.0	0.0	0.0	0.0
88	(A-1-1)27C	510285	COP	6800	17200	48	4	3717	842.00	0.40	0.40	0.20	0.00	336.8	39122.7	11600.3	16301.1	336.8	39122.7	11600.3	16301.1	168.4	19561.3	5800.2	8150.6	0.0	0.0	0.0	0.0
89	(A-1-1)27C	510285	COP	6800	17200	48	4	3717		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)27C	510285	COP	6800	17200	48	4	3717		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)27CAC	518181	COP	6800	17200	48	5	3718	2538.00	0.40	0.40	0.20	0.00	1015.2	117925.6	34966.3	49135.7	1015.2	117925.6	34966.3	49135.7	507.6	58962.8	17483.2	24567.8	0.0	0.0	0.0	0.0
91	(A-1-1)27CAC	518181	COP	6800	17200	48	5	3718	329.00	0.40	0.40	0.20	0.00	131.6	15286.7	4532.7	6369.4	131.6	15286.7	4532.7	6369.4	65.8	7643.3	2266.3	3184.7	0.0	0.0	0.0	0.0
87	(A-1-1)27CCC	514598	COP	5600	16000	50	4	3875	7870.00	0.40	0.40	0.20	0.00	3148.0	365671.7	108425.9	152363.2	3148.0	365671.7	108425.9	152363.2	1574.0	182835.8	54213.0	76181.6	0.0	0.0	0.0	0.0
88	(A-1-1)27CCC	514598	COP	5600	16000	50	4	3875	172.00	0.40	0.40	0.20	0.00	68.8	7991.8	2369.7	3329.9	68.8	7991.8	2369.7	3329.9	34.4	3995.9	1184.8	1665.0	0.0	0.0	0.0	0.0
87	(A-1-1)27CCD	514848	COP	6800	16000	49	4	3796	2090.00	0.40	0.40	0.20	0.00	836.0	97109.8	28794.2	40462.4	836.0	97109.8	28794.2	40462.4	418.0	48554.9	14397.1	20231.2	0.0	0.0	0.0	0.0
88	(A-1-1)27CCD	514848	COP	6800	16000	49	4	3796	123.00	0.40	0.40	0.20	0.00	49.2	5715.1	1694.6	2381.3	49.2	5715.1	1694.6	2381.3	24.6	2857.5	847.3	1190.6	0.0	0.0	0.0	0.0
89	(A-1-1)27CCD	514848	COP	6800	16000	49	4	3796		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)27CCD	514848	COP	6800	16000	49	4	3796	615.00	0.40	0.40	0.20	0.00	246.0	28575.4	8472.9	11906.4	246.0	28575.4	8472.9	11906.4	123.0	14287.7	4236.5	5953.2	0.0	0.0	0.0	0.0
84	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	187.00	0.40	0.40	0.20	0.00	74.8	8688.8	2576.3	3620.3	74.8	8688.8	2576.3	3620.3	37.4	4344.4	1288.2	1810.2	0.0	0.0	0.0	0.0
87	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	5420.00	0.40	0.40	0.20	0.00	2168.0	251834.9	74672.0	104931.2	2168.0	251834.9	74672.0	104931.2	1084.0	125917.4	37336.0	52465.6	0.0	0.0	0.0	0.0
88	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	3610.00	0.40	0.40	0.20	0.00	1444.0	167735.0	49735.4	69889.6	1444.0	167735.0	49735.4	69889.6	722.0	83867.5	24867.7	34944.8	0.0	0.0	0.0	0.0
89	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-1)27CDD	803560	SLETTON CONST.	7800	16000	50	5	3876	1695.00	0.40	0.40	0.20	0.00	678.0	78756.5	23352.2	32815.2	678.0	78756.5	23352.2	32815.2	339.0	39378.2	11676.1	16407.6	0.0	0.0	0.0	0.0
72	(A-1-1)28AAA			5000	20840	45	3	3479	38.00	0.70	0.20	0.10	0.00	26.6	3089.9	916.2	1287.4	7.6	882.8	261.8	367.8	3.8	441.4	130.9	183.9	0.0	0.0	0.0	0.0
73	(A-1-1)28AAA			5000	20840	45	3	3479	27.00	0.70	0.20	0.10	0.00	18.9	2195.4	651.0	914.8	5.4	627.3	186.0	261.4	2.7	313.6	93.0	130.7	0.0	0.0	0.0	0.0
74	(A-1-1)28AAA			5000	20840	45	3	3479	73.00	0.70	0.20	0.10	0.00	51.1	5935.8	1760.0	2473.2	14.6	1695.9	502.9	706.6	7.3	848.0	251.4	353.3	0.0	0.0	0.0	0.0
75	(A-1-1)28AAA			5000	20840	45	3	3479	47.00	0.70	0.20	0.10	0.00	32.9	3821.7	1133.2	1592.4	9.4	1091.9	323.8	455.0	4.7	546.0	161.9	227.5	0.0	0.0	0.0	0.0
76	(A-1-1)28AAA			5000	20840	45	3	3479	0.00	0.70	0.20	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-1)28AAA			5000	20840	45	3	3479	0.00	0.70	0.20	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
78	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	318.00	0.10	0.40	0.40	0.10	31.8	1385.2	5412.0	1539.1	127.2	5540.8	21647.9	6156.5	127.2	5540.8	21647.9	6156.5	31.8	1385.2	5412.0	1539.1
79	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	291.00	0.10	0.40	0.40	0.10	29.1	1267.6	4952.5	1408.4	116.4	5070.4	19809.9	5633.8	116.4	5070.4	19809.9	5633.8	29.1	1267.6	4952.5	1408.4
80	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	305.00	0.10	0.40	0.40	0.10	30.5	1328.6	5190.7	1476.2	122.0	5314.3	20762.9	5904.8	122.0	5314.3	20762.9	5904.8	30.5	1328.6	5190.7	1476.2
81	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	407.00	0.10	0.40	0.40	0.10	40.7	1772.9	6926.6	1969.9	162.8	7091.6	27706.6	7879.5	162.8	7091.6	27706.6	7879.5	40.7	1772.9	6926.6	1969.9
82	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	302.00	0.10	0.40	0.40	0.10	30.2	1315.5	5139.7	1461.7	120.8	5262.0	20558.7	5846.7	120.8	5262.0	20558.7	5846.7	30.2	1315.5	5139.7	1461.7
83	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	128.00	0.10	0.40	0.40	0.10	12.8	557.6	2178.4	619.5	51.2	2230.3	8713.6	2478.1	51.2	2230.3	8713.6	2478.1	12.8	557.6	2178.4	619.5
84	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	278.00	0.10	0.40	0.40	0.10	27.8	1211.0	4731.2	1345.5	111.2	4843.9	18924.9	5382.1	111.2	4843.9	18924.9	5382.1	27.8	1211.0	4731.2	1345.5
85	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	776.00	0.10	0.40	0.40	0.10	77.6	3380.3	13206.6	3755.8	310.4	13521.0	52826.3	15023.4	310.4	13521.0	52826.3	15023.4	77.6	3380.3	13206.6	3755.8
87	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	255.00	0.10	0.40	0.40	0.10	25.5	1110.8	4339.8	1234.2	102.0	4443.1	17359.2	4936.8	102.0	4443.1	17359.2	4936.8	25.5	1110.8	4339.8	1234.2
90	(A-1-1)28BCB	603440	P.H. BRUMMET	400	19400	47	1	3635	291.00	0.10	0.40	0.40	0.10	29.1	1267.6	4952.5	1408.4	116.4	5070.4	19809.9	5633.8	116.4	5070.4	19809.9	5633.8	29.1	1267.6	4952.5	1408.4
78	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	407.00	0.10	0.40	0.40	0.10	40.7	1772.9	6926.6	1969.9	162.8	7091.6	27706.6	7879.5	162.8	7091.6	27706.6	7879.5	40.7	1772.9	6926.6	1969.9
79	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	371.00	0.10	0.40	0.40	0.10	37.1	1616.1	6314.0	1795.6	148.4	6464.3	25255.9	7182.6	148.4	6464.3	25255.9	7182.6	37.1	1616.1	6314.0	1795.6
80	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	390.00	0.10	0.40	0.40	0.10	39.0	1698.8	6637.3	1887.6	156.0	6795.4	26549.3	7550.4	156.0	6795.4	26549.3	7550.4	39.0	1698.8	6637.3	1887.6
81	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	519.00	0.10	0.40	0.40	0.10	51.9	2260.8	8832.8	2512.0	207.6	9043.1	35331.0	10047.8	207.6	9043.1	35331.0	10047.8	51.9	2260.8	8832.8	2512.0
82	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	385.00	0.10	0.40	0.40	0.10	38.5	1677.1	6552.2	1863.4	154.0	6708.2	26208.9	7453.6	154.0	6708.2	26208.9	7453.6	38.5	1677.1	6552.2	1863.4
83	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	164.00	0.10	0.40	0.40	0.10	16.4	714.4	2791.1	793.8	65.6	2857.5	11164.3	3175.0	65.6	2857.5	11164.3	3175.0	16.4	714.4	2791.1	793.8
84	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714	355.00	0.10	0.40	0.40	0.10	35.5	1546.4	6041.7	1718.2	142.0	6185.5	24166.7	6872.8	142.0	6185.5	24166.7	6872.8	35.5	1546.4	6041.7	1718.2
85	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)28CB	617511	HEAVYSIDE	800	17720	48	1	3714		0.10	0.40	0.40	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-1)28CBC	514891		800	18000	48	1	3714	220.00	0.40	0.40	0.20	0.00	88.0	10222.1	3031.0	4259.2	88.0	10222.1	3031.0	4259.2	44.0	5111.0	1515.5	2129.6	0.0	0.0	0.0	0.0
88	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)28CBC	514891		800	18000	48	1	3714	0.00	0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	5372.00	0.50	0.20	0.20	0.10	2686.0	117002.2	457124.7	130002.4	1074.4	46800.9	182849.9	52001.0	1074.4	46800.9	182849.9	52001.0	537.2	23400.4	91424.9	26000.5
73	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	5624.00	0.50	0.20	0.20	0.10	2812.0	122490.7	478568.4	136100.8	1124.8	48996.3	191427.4	54440.3	1124.8	48996.3	191427.4	54440.3	562.4	24498.1	95713.7	27220.2
74	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	5129.00	0.50	0.20	0.20	0.10	2564.5	111709.6	436446.9	124121.8	1025.8	44683.8	174578.8	49648.7	1025.8	44683.8	174578.8	49648.7	512.9	22341.9	87289.4	24824.4
75	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	6481.00	0.50	0.20	0.20	0.10	3240.5	141156.2	551493.9	156840.2	1296.2	56462.5	220597.6	62736.1	1296.2	56462.5	220597.6	62736.1	648.1	28231.2	110298.8	31368.0
76	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	6256.00	0.50	0.20	0.20	0.10	3128.0	136255.7	532347.8	151395.2	1251.2	54502.3	212939.1	60558.1	1251.2	54502.3	212939.1	60558.1	625.6	27251.1	106469.6	30279.0
77	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	5574.00	0.50	0.20	0.20	0.10	2787.0	121401.7	474313.7	134890.8	1114.8	48560.7	189725.5	53956.3	1114.8	48560.7	189725.5	53956.3	557.4	24280.3	94862.7	26978.2
78	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3358.00	0.50	0.20	0.20	0.10	1679.0	73137.2	285745.5	81263.6	671.6	29254.9	114298.2	32505.4	671.6	29254.9	114298.2	32505.4	335.8	14627.4	57149.1	16252.7
79	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3038.00	0.50	0.20	0.20	0.10	1519.0	66167.6	258515.4	73519.6	607.6	26467.1	103406.2	29407.8	607.6	26467.1	103406.2	29407.8	303.8	13233.5	51703.1	14703.9
80	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	2013.00	0.50	0.20	0.20	0.10	1006.5	43843.1	171294.1	48714.6	402.6	17537.3	68517.7	19485.8	402.6	17537.3	68517.7	19485.8	201.3	8768.6	34258.8	9742.9
81	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	4533.00	0.50	0.20	0.20	0.10	2266.5	98728.7	385730.9	109698.6	906.6	39491.5	154292.4	43879.4	906.6	39491.5	154292.4	43879.4	453.3	19745.7	77146.2	21939.7
82	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3668.00	0.50	0.20	0.20	0.10	1834.0	79889.0	312124.6	88765.6	733.6	31955.6	124849.8	35506.2	733.6	31955.6	124849.8	35506.2	366.8	15977.8	62424.9	17753.1
83	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3524.00	0.50	0.20	0.20	0.10	1762.0	76752.7	299871.1	85280.8	704.8	30701.1	119948.4	34112.3	704.8	30701.1	119948.4	34112.3	352.4	15350.5	59974.2	17056.2
84	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	4016.00	0.50	0.20	0.20	0.10	2008.0	87468.5	341737.3	97187.2	803.2	34987.4	136694.9	38874.9	803.2	34987.4	136694.9	38874.9	401.6	17493.7	68347.5	19437.4
85	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	45.00	0.50	0.20	0.20	0.10	22.5	980.1	3829.2	1089.0	9.0	392.0	1531.7	435.6	9.0	392.0	1531.7	435.6	4.5	196.0	765.8	217.8
86	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3493.00	0.50	0.20	0.20	0.10	1746.5	76077.5	297233.2	84530.6	698.6	30431.0	118893.3	33812.2	698.6	30431.0	118893.3	33812.2	349.3	15215.5	59446.6	16906.1
87	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	221.00	0.50	0.20	0.20	0.10	110.5	4813.4	18805.8	5348.2	44.2	1925.4	7522.3	2139.3	44.2	1925.4	7522.3	2139.3	22.1	962.7	3761.2	1069.6
88	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	4131.00	0.50	0.20	0.20	0.10	2065.5	89973.2	351523.1	99970.2	826.2	35989.3	140609.2	39988.1	826.2	35989.3	140609.2	39988.1	413.1	17994.6	70304.6	19994.0
89	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3395.00	0.50	0.20	0.20	0.10	1697.5	73943.1	288894.0	82159.0	679.0	29577.2	115557.6	32863.6	679.0	29577.2	115557.6	32863.6	339.5	14788.6	57778.8	16431.8
90	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3733.00	0.50	0.20	0.20	0.10	1866.5	81304.7	317655.7	90338.6	746.6	32521.9	127062.3	36135.4	746.6	32521.9	127062.3	36135.4	373.3	16260.9	63531.1	18067.7
91	(A-1-1)28CDB	607695	SRP	1760	17280	49	2	3794	3408.00	0.50	0.20	0.20	0.10	1704.0	74226.2	290000.2	82473.6	681.6	29690.5	116000.1	32989.4	681.6	29690.5	116000.1	32989.4	340.8	14845.2	58000.0	16494.7
78	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	1016.00	0.30	0.50	0.15	0.05	304.8	13277.1	51873.3	14752.3	508.0	22128.5	86455.5	24587.2	152.4	6638.5	25936.6	7376.2	50.8	2212.8	8645.5	2458.7

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
79	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	927.00	0.30	0.50	0.15	0.05	278.1	12114.0	47329.3	13460.0	463.5	20190.1	78882.1	22433.4	139.1	6057.0	23664.6	6730.0	46.4	2019.0	7888.2	2243.3
80	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	974.00	0.30	0.50	0.15	0.05	292.2	12728.2	49728.9	14142.5	487.0	21213.7	82881.5	23570.8	146.1	6364.1	24864.5	7071.2	48.7	2121.4	8288.2	2357.1
81	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	1297.00	0.30	0.50	0.15	0.05	389.1	16949.2	66220.1	18832.4	648.5	28248.7	110366.9	31387.4	194.6	8474.6	33110.1	9416.2	64.9	2824.9	11036.7	3138.7
82	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	962.00	0.30	0.50	0.15	0.05	288.6	12571.4	49116.2	13968.2	481.0	20952.4	81860.4	23280.4	144.3	6285.7	24558.1	6984.1	48.1	2095.2	8186.0	2328.0
83	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	409.00	0.30	0.50	0.15	0.05	122.7	5344.8	20882.1	5938.7	204.5	8908.0	34803.4	9897.8	61.3	2672.4	10441.0	2969.3	20.5	890.8	3480.3	989.8
84	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	887.00	0.30	0.50	0.15	0.05	266.1	11591.3	45287.0	12879.2	443.5	19318.9	75478.3	21465.4	133.1	5795.7	22643.5	6439.6	44.4	1931.9	7547.8	2146.5
85	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	920.00	0.30	0.50	0.15	0.05	276.0	12022.6	46971.9	13358.4	460.0	20037.6	78286.4	22264.0	138.0	6011.3	23485.9	6679.2	46.0	2003.8	7828.6	2226.4
86	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	945.00	0.30	0.50	0.15	0.05	283.5	12349.3	48248.3	13721.4	472.5	20582.1	80413.8	22869.0	141.8	6174.6	24124.1	6860.7	47.3	2058.2	8041.4	2286.9
87	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	901.00	0.30	0.50	0.15	0.05	270.3	11774.3	46001.8	13082.5	450.5	19623.8	76669.7	21804.2	135.2	5887.1	23000.9	6541.3	45.1	1962.4	7667.0	2180.4
88	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	732.00	0.30	0.50	0.15	0.05	219.6	9565.8	37373.3	10628.6	366.0	15943.0	62288.8	17714.4	109.8	4782.9	18686.6	5314.3	36.6	1594.3	6228.9	1771.4
89	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	376.00	0.30	0.50	0.15	0.05	112.8	4913.6	19197.2	5459.5	188.0	8189.3	31995.3	9099.2	56.4	2456.8	9598.6	2729.8	18.8	818.9	3199.5	909.9
90	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	745.00	0.30	0.50	0.15	0.05	223.5	9735.7	38037.0	10817.4	372.5	16226.1	63395.0	18029.0	111.8	4867.8	19018.5	5408.7	37.3	1622.6	6339.5	1802.9
91	(A-1-1)28DAB1	604967	HASH	4400	18320	48	3	3716	490.00	0.30	0.50	0.15	0.05	147.0	6403.3	25017.6	7114.8	245.0	10672.2	41696.0	11858.0	73.5	3201.7	12508.8	3557.4	24.5	1067.2	4169.6	1185.8
72	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	3842.00	0.35	0.40	0.15	0.10	1344.7	58575.1	228851.7	65083.5	1536.8	66943.0	261544.8	74381.1	576.3	25103.6	98079.3	27892.9	384.2	16735.8	65386.2	18595.3
73	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2614.00	0.35	0.40	0.15	0.10	914.9	39853.0	155704.9	44281.2	1045.6	45546.3	177948.5	50607.0	392.1	17079.9	66730.7	18977.6	261.4	11386.6	44487.1	12651.8
74	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2752.00	0.35	0.40	0.15	0.10	963.2	41957.0	163925.0	46618.9	1100.8	47950.8	187342.8	53278.7	412.8	17981.6	70253.6	19979.5	275.2	11987.7	46835.7	13319.7
75	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2924.00	0.35	0.40	0.15	0.10	1023.4	44579.3	174170.3	49532.6	1169.6	50947.8	199051.8	56608.6	438.6	19105.4	74644.4	21228.2	292.4	12736.9	49762.9	14152.2
76	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2676.00	0.35	0.40	0.15	0.10	936.6	40798.3	159398.0	45331.4	1070.4	46626.6	182169.1	51807.4	401.4	17485.0	68313.4	19427.8	267.6	11656.7	45542.3	12951.8
77	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2520.00	0.35	0.40	0.15	0.10	882.0	38419.9	150105.7	42688.8	1008.0	43908.5	171549.4	48787.2	378.0	16465.7	64331.0	18295.2	252.0	10977.1	42887.4	12196.8
78	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	389.00	0.35	0.40	0.15	0.10	136.2	5930.7	23171.1	6589.7	155.6	6777.9	26481.2	7531.0	58.3	2541.7	9930.5	2824.1	38.9	1694.5	6620.3	1882.8
79	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	3031.00	0.35	0.40	0.15	0.10	1060.9	46210.6	180543.8	51345.1	1212.4	52812.1	206335.8	58680.2	454.7	19804.6	77375.9	22005.1	303.1	13203.0	51584.0	14670.0
80	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	1785.00	0.35	0.40	0.15	0.10	624.8	27214.1	106324.9	30237.9	714.0	31101.8	121514.2	34557.6	267.8	11663.2	45567.8	12959.1	178.5	7775.5	30378.5	8639.4
81	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	3495.00	0.35	0.40	0.15	0.10	1223.3	53284.8	208182.4	59205.3	1398.0	60896.9	237922.7	67663.2	524.3	22836.3	89221.0	25373.7	349.5	15224.2	59480.7	16915.8
82	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2317.00	0.35	0.40	0.15	0.10	810.9	35325.0	138013.9	39250.0	926.8	40371.4	157730.2	44857.1	347.6	15139.3	59148.8	16821.4	231.7	10092.9	39432.5	11214.3
83	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2423.00	0.35	0.40	0.15	0.10	848.1	36941.1	144327.9	41045.6	969.2	42218.4	164946.1	46909.3	363.5	15831.9	61854.8	17591.0	242.3	10554.6	41236.5	11727.3
84	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	1358.00	0.35	0.40	0.15	0.10	475.3	20704.1	80890.3	23004.5	543.2	23661.8	92446.1	26290.9	203.7	8873.2	34667.3	9859.1	135.8	5915.4	23111.5	6572.7
85	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	63.00	0.35	0.40	0.15	0.10	22.1	960.5	3752.6	1067.2	25.2	1097.7	4288.7	1219.7	9.4	411.6	1608.3	457.4	6.3	274.4	1072.2	304.9
86	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	1889.00	0.35	0.40	0.15	0.10	661.2	28799.7	112519.7	31999.7	755.6	32913.9	128594.0	36571.0	283.4	12342.7	48222.7	13714.1	188.9	8228.5	32148.5	9142.8
87	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	823.00	0.35	0.40	0.15	0.10	288.1	12547.5	49022.6	13941.6	329.2	14340.0	56025.9	15933.3	123.5	5377.5	21009.7	5975.0	82.3	3585.0	14006.5	3983.3
88	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	3048.00	0.35	0.40	0.15	0.10	1066.8	46469.8	181556.5	51633.1	1219.2	53108.4	207493.1	59009.3	457.2	19915.6	77809.9	22128.5	304.8	13277.1	51873.3	14752.3
89	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	3776.00	0.35	0.40	0.15	0.10	1321.6	57568.9	224920.3	63965.4	1510.4	65793.0	257051.8	73103.4	566.4	24672.4	96394.4	27413.8	377.6	16448.3	64263.0	18275.8
90	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2954.00	0.35	0.40	0.15	0.10	1033.9	45036.7	175957.3	50040.8	1181.6	51470.5	201094.0	57189.4	443.1	19301.4	75410.3	21446.0	295.4	12867.6	50273.5	14297.4
91	(A-1-1)33AAA	607694	SRP	5200	15520	50	3	3874	2684.00	0.35	0.40	0.15	0.10	939.4	40920.3	159874.5	45467.0	1073.6	46766.0	182713.7	51962.2	402.6	17537.3	68517.7	19485.8	268.4	11691.5	45678.4	12990.6
85	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	45.00	0.40	0.40	0.20	0.00	18.0	2090.9	620.0	871.2	18.0	2090.9	620.0	871.2	9.0	1045.4	310.0	435.6	0.0	0.0	0.0	0.0
86	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	35.00	0.40	0.40	0.20	0.00	14.0	1626.2	482.2	677.6	14.0	1626.2	482.2	677.6	7.0	813.1	241.1	338.8	0.0	0.0	0.0	0.0
87	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	33.00	0.40	0.40	0.20	0.00	13.2	1533.3	454.6	638.9	13.2	1533.3	454.6	638.9	6.6	766.7	227.3	319.4	0.0	0.0	0.0	0.0
88	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	31.00	0.40	0.40	0.20	0.00	12.4	1440.4	427.1	600.2	12.4	1440.4	427.1	600.2	6.2	720.2	213.5	300.1	0.0	0.0	0.0	0.0
89	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	37.00	0.40	0.40	0.20	0.00	14.8	1719.2	509.8	716.3	14.8	1719.2	509.8	716.3	7.4	859.6	254.9	358.2	0.0	0.0	0.0	0.0
90	(A-1-1)35AD	640003	WILLEY	15400	13800	51	12	3962	33.00	0.40	0.40	0.20	0.00	13.2	1533.3	454.6	638.9	13.2	1533.3	454.6	638.9	6.6	766.7	227.3	319.4	0.0	0.0	0.0	0.0
72	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	3694.00	0.10	0.60	0.25	0.05	369.4	16091.1	62867.4	17879.0	2216.4	96546.4	377204.5	107273.8	923.5	40227.7	157168.5	44697.4	184.7	8045.5	31433.7	8939.5
73	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	5006.00	0.10	0.60	0.25	0.05	500.6	21806.1	85196.1	24229.0	3003.6	130836.8	511176.4	145374.2	1251.5	54515.3	212990.2	60572.6	250.3	10903.1	42598.0	12114.5
74	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	3972.00	0.10	0.60	0.25	0.05	397.2	17302.0	67598.6	19224.5	2383.2	103812.2	405591.8	115346.9	993.0	43255.1	168996.6	48061.2	198.6	8651.0	33799.3	9612.2
75	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	4446.00	0.10	0.60	0.25	0.05	444.6	19366.8	75665.5	21518.6	2667.6	116200.7	453993.3	129111.8	1111.5	48416.9	189163.9	53796.6	222.3	9683.4	37832.8	10759.3
76	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	4918.00	0.10	0.60	0.25	0.05	491.8	21422.8	83698.4	23803.1	2950.8	128536.8	502190.5	142818.7	1229.5	53557.0	209246.0	59507.8	245.9	10711.4	41849.2	11901.6
77	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	3428.00	0.10	0.60	0.25	0.05	342.8	14932.4	58340.4	16591.5	2056.8	89594.2	350042.5	99549.1	857.0	37330.9	145851.0	41478.8	171.4	7466.2	29170.2	8295.8
78	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	2732.00	0.10	0.60	0.25	0.05	273.2	11900.6	46495.3	13222.9	1639.2	71403.6	278972.0	79337.3	683.0	29751.5	116238.3	33057.2	136.6	5950.3	23247.7	6611.4
79	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	3318.00	0.10	0.60	0.25	0.05	331.8	14453.2	56468.3	16059.1	1990.8	86719.2	338810.1	96354.7	829.5	36133.0	141170.9	40147.8	165.9	7226.6	28234.2	8029.6
80	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	3536.00	0.10	0.60	0.25	0.05	353.6	15402.8	60178.4	17114.2	2121.6	92416.9	361070.7	102685.4	884.0	38507.0	150446.1	42785.6	176.8	7701.4	30089.2	8557.1
81	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	4118.00	0.10	0.60	0.25	0.05	411.8	17938.0	70083.4	19931.1	2470.8	107628.0	420500.3	119586.7	1029.5	44845.0	175208.5	49827.8	205.9	8969.0	35041.7	9965.6
82	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	2259.00	0.10	0.60	0.25	0.05	225.9	9840.2	38445.4	10933.6	1355.4	59041.2	230672.7	65601.4	564.8	24600.5	96113.6	27333.9	113.0	4920.1	19222.7	5466.8
83	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	1000.00	0.10	0.60	0.25	0.05	100.0	4356.0	17018.8	4840.0	600.0	26136.0	102112.7	29040.0	250.0	10890.0	42547.0	12100.0	50.0	2178.0	8509.4	2420.0
84	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	1621.00	0.10	0.60	0.25	0.05	162.1	7061.1	27587.5	7845.6	972.6	42366.5	165524.8	47073.8	405.3	17652.7	68968.6	19614.1	81.1	3530.5	13793.7	3922.8
85	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	979.00	0.10	0.60	0.25	0.05	97.9	4264.5	16661.4	4738.4	587.4	25587.1	99968.4	28430.2	244.8	10661.3	41653.5	11845.9	49.0	2132.3	8330.7	2369.2
86	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	845.00	0.10	0.60	0.25	0.05	84.5	3680.8	14380.9	4089.8	507.0	22084.9	86285.3	24538.8	211.3	9202.0	35952.2	10224.5	42.3	1840.4	7190.4	2044.9
87	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	694.00	0.10	0.60	0.25	0.05	69.4	3023.1	11811.0	3359.0	416.4	18138.4	70866.2	20153.8	173.5	7557.7	29527.6	8397.4	34.7	1511.5	5905.5	1679.5

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-1)35DCD2	10006	GILA IND/SRP	14040	10880	53	10	4118	795.00	0.10	0.60	0.25	0.05	79.5	3463.0	13529.9	3847.8	477.0	20778.1	81179.6	23086.8	198.8	8657.5	33824.8	9619.5	39.8	1731.5	6765.0	1923.9
72	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1691.00	0.40	0.30	0.20	0.10	676.4	29464.0	115115.1	32737.8	507.3	22098.0	86336.3	24553.3	338.2	14732.0	57557.6	16368.9	169.1	7366.0	28778.8	8184.4
73	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1389.00	0.40	0.30	0.20	0.10	555.6	24201.9	94556.4	26891.0	416.7	18151.5	70917.3	20168.3	277.8	12101.0	47278.2	13445.5	138.9	6050.5	23639.1	6722.8
74	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1761.00	0.40	0.30	0.20	0.10	704.4	30683.7	119880.4	34093.0	528.3	23012.7	89910.3	25569.7	352.2	15341.8	59940.2	17046.5	176.1	7670.9	29970.1	8523.2
75	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1671.00	0.40	0.30	0.20	0.10	668.4	29115.5	113753.6	32350.6	501.3	21836.6	85315.2	24262.9	334.2	14557.8	56876.8	16175.3	167.1	7278.9	28438.4	8087.6
76	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1961.00	0.40	0.30	0.20	0.10	784.4	34168.5	133495.4	37965.0	588.3	25626.3	100121.5	28473.7	392.2	17084.2	66747.7	18982.5	196.1	8542.1	33373.8	9491.2
77	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	2386.00	0.40	0.30	0.20	0.10	954.4	41573.7	162427.3	46193.0	715.8	31180.2	121820.5	34644.7	477.2	20786.8	81213.7	23096.5	238.6	10393.4	40606.8	11548.2
78	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1654.00	0.40	0.30	0.20	0.10	661.6	28819.3	112596.3	32021.4	496.2	21614.5	84447.2	24016.1	330.8	14409.6	56298.2	16010.7	165.4	7204.8	28149.1	8005.4
79	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1948.00	0.40	0.30	0.20	0.10	779.2	33942.0	132610.4	37713.3	584.4	25456.5	99457.8	28285.0	389.6	16971.0	66305.2	18856.6	194.8	8485.5	33152.6	9428.3
80	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	2231.00	0.40	0.30	0.20	0.10	892.4	38872.9	151875.7	43192.2	669.3	29154.7	113906.8	32394.1	446.2	19436.5	75937.8	21596.1	223.1	9718.2	37968.9	10798.0
81	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1871.00	0.40	0.30	0.20	0.10	748.4	32600.3	127368.6	36222.6	561.3	24450.2	95526.5	27166.9	374.2	16300.2	63684.3	18111.3	187.1	8150.1	31842.2	9055.6
82	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1728.00	0.40	0.30	0.20	0.10	691.2	30108.7	117633.9	33454.1	518.4	22581.5	88225.4	25090.6	345.6	15054.3	58816.9	16727.0	172.8	7527.2	29408.5	8363.5
83	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	579.00	0.40	0.30	0.20	0.10	231.6	10088.5	39415.5	11209.4	173.7	7566.4	29561.6	8407.1	115.8	5044.2	19707.8	5604.7	57.9	2522.1	9853.9	2802.4
84	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1577.00	0.40	0.30	0.20	0.10	630.8	27477.6	107354.5	30530.7	473.1	20608.2	80515.9	22898.0	315.4	13738.8	53677.3	15265.4	157.7	6869.4	26838.6	7632.7
85	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1527.00	0.40	0.30	0.20	0.10	610.8	26606.4	103950.8	29562.7	458.1	19954.8	77963.1	22172.0	305.4	13303.2	51975.4	14781.4	152.7	6651.6	25987.7	7390.7
86	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1237.00	0.40	0.30	0.20	0.10	494.8	21553.5	84209.0	23948.3	371.1	16165.1	63156.7	17961.2	247.4	10776.7	42104.5	11974.2	123.7	5388.4	21052.2	5987.1
87	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1431.00	0.40	0.30	0.20	0.10	572.4	24933.7	97415.6	27704.2	429.3	18700.3	73061.7	20778.1	286.2	12466.9	48707.8	13852.1	143.1	6233.4	24353.9	6926.0
88	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1824.00	0.40	0.30	0.20	0.10	729.6	31781.4	124169.1	35312.6	547.2	23836.0	93126.8	26484.5	364.8	15890.7	62084.5	17656.3	182.4	7945.3	31042.3	8828.2
89	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1304.00	0.40	0.30	0.20	0.10	521.6	22720.9	88770.0	25245.4	391.2	17040.7	66577.5	18934.1	260.8	11360.4	44385.0	12622.7	130.4	5680.2	22192.5	6311.4
90	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1221.00	0.40	0.30	0.20	0.10	488.4	21274.7	83119.8	23638.6	366.3	15956.0	62339.8	17728.9	244.2	10637.4	41559.9	11819.3	122.1	5318.7	20779.9	5909.6
91	(A-1-1)36AAD	626267	SRP	20880	11800	53	19	4127	1130.00	0.40	0.30	0.20	0.10	452.0	19689.1	76924.9	21876.8	339.0	14766.8	57693.7	16407.6	226.0	9844.6	38462.5	10938.4	113.0	4922.3	19231.2	5469.2
78	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	33.00	0.40	0.40	0.10	0.10	13.2	1533.3	454.6	638.9	13.2	1533.3	454.6	638.9	3.3	383.3	113.7	159.7	3.3	383.3	113.7	159.7
79	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	30.00	0.40	0.40	0.10	0.10	12.0	1393.9	413.3	580.8	12.0	1393.9	413.3	580.8	3.0	348.5	103.3	145.2	3.0	348.5	103.3	145.2
80	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	34.00	0.40	0.40	0.10	0.10	13.6	1579.8	468.4	658.2	13.6	1579.8	468.4	658.2	3.4	394.9	117.1	164.6	3.4	394.9	117.1	164.6
81	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	36.00	0.40	0.40	0.10	0.10	14.4	1672.7	496.0	697.0	14.4	1672.7	496.0	697.0	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2
82	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	36.00	0.40	0.40	0.10	0.10	14.4	1672.7	496.0	697.0	14.4	1672.7	496.0	697.0	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2
83	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	36.00	0.40	0.40	0.10	0.10	14.4	1672.7	496.0	697.0	14.4	1672.7	496.0	697.0	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2
84	(A-1-1)36AC		RIGBY	19320	13680	51	17	3967	37.00	0.40	0.40	0.10	0.10	14.8	1719.2	509.8	716.3	14.8	1719.2	509.8	716.3	3.7	429.8	127.4	179.1	3.7	429.8	127.4	179.1
78	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
79	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
80	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
81	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
82	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
83	(A-1-1)36BAA		PENINSULA	17840	15400	50	15	3886	1533.00	0.15	0.25	0.25	0.35	230.0	10016.6	39134.7	11129.6	383.3	16694.4	65224.5	18549.3	383.3	16694.4	65224.5	18549.3	536.6	23372.1	91314.3	25969.0
78	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	23.00	0.15	0.25	0.25	0.35	3.5	400.8	118.8	167.0	5.8	667.9	198.0	278.3	5.8	667.9	198.0	278.3	8.0	935.1	277.3	389.6
79	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	21.00	0.15	0.25	0.25	0.35	3.2	365.9	108.5	152.5	5.3	609.8	180.8	254.1	5.3	609.8	180.8	254.1	7.4	853.8	253.2	355.7
80	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	22.00	0.15	0.25	0.25	0.35	3.3	383.3	113.7	159.7	5.5	638.9	189.4	266.2	5.5	638.9	189.4	266.2	7.7	894.4	265.2	372.7
81	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	29.00	0.15	0.25	0.25	0.35	4.4	505.3	149.8	210.5	7.3	842.2	249.7	350.9	7.3	842.2	249.7	350.9	10.2	1179.0	349.6	491.3
82	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	21.00	0.15	0.25	0.25	0.35	3.2	365.9	108.5	152.5	5.3	609.8	180.8	254.1	5.3	609.8	180.8	254.1	7.4	853.8	253.2	355.7
83	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	9.00	0.15	0.25	0.25	0.35	1.4	156.8	46.5	65.3	2.3	261.4	77.5	108.9	2.3	261.4	77.5	108.9	3.2	365.9	108.5	152.5
84	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	29.00	0.15	0.25	0.25	0.35	4.4	505.3	149.8	210.5	7.3	842.2	249.7	350.9	7.3	842.2	249.7	350.9	10.2	1179.0	349.6	491.3
85	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	21.00	0.15	0.25	0.25	0.35	3.2	365.9	108.5	152.5	5.3	609.8	180.8	254.1	5.3	609.8	180.8	254.1	7.4	853.8	253.2	355.7
86	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	27.00	0.15	0.25	0.25	0.35	4.1	470.4	139.5	196.0	6.8	784.1	232.5	326.7	6.8	784.1	232.5	326.7	9.4	1097.7	325.5	457.4
87	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	18.00	0.15	0.25	0.25	0.35	2.7	313.6	93.0	130.7	4.5	522.7	155.0	217.8	4.5	522.7	155.0	217.8	6.3	731.8	217.0	304.9
88	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885		0.15	0.25	0.25	0.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885		0.15	0.25	0.25	0.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-1)36BAB1	636011	WESTERN MEAT	17240	15400	50	14	3885	17.00	0.15	0.25	0.25	0.35	2.6	296.2	87.8	123.4	4.3	493.7	146.4	205.7	4.3	493.7	146.4	205.7	5.9	691.2	204.9	288.0
88	(A-1-1)36BAB2	636011	HERSETA FEEDLOT	17240	15400	50	14	3885	26.00	0.15	0.25	0.25	0.35	3.9	453.0	134.3	188.8	6.5	755.0	223.9	314.6	6.5	755.0	223.9	314.6	9.1	1057.1	313.4	440.4
89	(A-1-1)36BAB2	636011	HERSETA FEEDLOT	17240	15400	50	14	3885	28.00	0.15	0.25	0.25	0.35	4.2	487.9	144.7	203.3	7.0	813.1	241.1	338.8	7.0	813.1	241.1	338.8	9.8	1138.4	337.5	474.3
84	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1397.00	0.10	0.70	0.15	0.05	139.7	6085.3	23775.3	6761.5	977.9	42597.3	166426.8	47330.4	209.6	9128.0	35662.9	10142.2	69.9	3042.7	11887.6	3380.7
85	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1425.00	0.10	0.70	0.15	0.05	142.5	6207.3	24251.8	6897.0	997.5	43451.1	169762.4	48279.0	213.8	9311.0	36377.7	10345.5	71.3	3103.7	12125.9	3448.5
86	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1377.00	0.10	0.70	0.15	0.05	137.7	5998.2	23434.9	6664.7	963.9	41987.5	164044.1	46652.8	206.6	8997.3	35152.3	9997.0	68.9	2999.1	11717.4	3332.3
87	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	874.00	0.10	0.70	0.15	0.05	87.4	3807.1	14874.4	4230.2	611.8	26650.0	104121.0	29611.1	131.1	5710.7	22311.6	6345.2	43.7	1903.6	7437.2	2115.1
88	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	899.00	0.10	0.70	0.15	0.05	89.9	3916.0	15299.9	4351.2	629.3	27412.3	107099.2	30458.1	134.9	5874.1	22949.8	6526.7	45.0	1958.0	7649.9	2175.6

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)				Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)				Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)				Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
89	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1744.00	0.10	0.70	0.15	0.05	174.4	7596.9	29680.8	8441.0	1220.8	53178.0	207765.4	59086.7	261.6	11395.3	44521.2	12661.4	87.2	3798.4	14840.4	4220.5
90	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1446.00	0.10	0.70	0.15	0.05	144.6	6298.8	24609.2	6998.6	1012.2	44091.4	172264.2	48990.5	216.9	9448.2	36913.8	10498.0	72.3	3149.4	12304.6	3499.3
91	(A-1-1)36DDA	626266	PENINSULA	20840	11760	53	19	4127	1265.00	0.10	0.70	0.15	0.05	126.5	5510.3	21528.8	6122.6	885.5	38572.4	150701.4	42858.2	189.8	8265.5	32293.2	9183.9	63.3	2755.2	10764.4	3061.3
78	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	199.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	39.8	4623.2	1370.8	1926.3	159.2	18492.7	5483.3	7705.3	0.0	0.0	0.0	0.0
79	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	182.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	36.4	4228.2	1253.7	1761.8	145.6	16912.9	5014.9	7047.0	0.0	0.0	0.0	0.0
80	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	191.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	38.2	4437.3	1315.7	1848.9	152.8	17749.2	5262.9	7395.5	0.0	0.0	0.0	0.0
81	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	254.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	50.8	5900.9	1749.7	2458.7	203.2	23603.7	6998.8	9834.9	0.0	0.0	0.0	0.0
82	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	189.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	37.8	4390.8	1301.9	1829.5	151.2	17563.4	5207.7	7318.1	0.0	0.0	0.0	0.0
83	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	80.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	16.0	1858.6	551.1	774.4	64.0	7434.2	2204.3	3097.6	0.0	0.0	0.0	0.0
84	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	174.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	34.8	4042.4	1198.6	1684.3	139.2	16169.5	4794.4	6737.3	0.0	0.0	0.0	0.0
85	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	27.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	5.4	627.3	186.0	261.4	21.6	2509.1	744.0	1045.4	0.0	0.0	0.0	0.0
86	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	35.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	7.0	813.1	241.1	338.8	28.0	3252.5	964.4	1355.2	0.0	0.0	0.0	0.0
87	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	147.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	29.4	3415.1	1012.6	1423.0	117.6	13660.4	4050.5	5691.8	0.0	0.0	0.0	0.0
88	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	212.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	42.4	4925.2	1460.4	2052.2	169.6	19700.7	5841.5	8208.6	0.0	0.0	0.0	0.0
89	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	20.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	4.0	464.6	137.8	193.6	16.0	1858.6	551.1	774.4	0.0	0.0	0.0	0.0
90	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	221.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	44.2	5134.3	1522.4	2139.3	176.8	20537.1	6089.5	8557.1	0.0	0.0	0.0	0.0
91	(A-1-2)01AAA	617310	Southeastern Public	52320	42120	10	71	782	276.00	0.00	0.20	0.80	0.00	0.0	0.0	0.0	0.0	55.2	6412.0	1901.2	2671.7	220.8	25648.1	7605.0	10686.7	0.0	0.0	0.0	0.0
78	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	93.00	0.20	0.40	0.40	0.00	18.6	2160.6	640.6	900.2	37.2	4321.2	1281.3	1800.5	37.2	4321.2	1281.3	1800.5	0.0	0.0	0.0	0.0
86	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	128.00	0.20	0.40	0.40	0.00	25.6	2973.7	881.7	1239.0	51.2	5947.4	1763.5	2478.1	51.2	5947.4	1763.5	2478.1	0.0	0.0	0.0	0.0
87	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	279.00	0.20	0.40	0.40	0.00	55.8	6481.7	1921.9	2700.7	111.6	12963.5	3843.8	5401.4	111.6	12963.5	3843.8	5401.4	0.0	0.0	0.0	0.0
88	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	145.00	0.20	0.40	0.40	0.00	29.0	3368.6	998.8	1403.6	58.0	6737.3	1997.7	2807.2	58.0	6737.3	1997.7	2807.2	0.0	0.0	0.0	0.0
89	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	0.00	0.20	0.40	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-2)01BDB	801094	IFS Arizona Inc.	48800	40400	12	66	935	160.00	0.20	0.40	0.40	0.00	32.0	3717.1	1102.2	1548.8	64.0	7434.2	2204.3	3097.6	64.0	7434.2	2204.3	3097.6	0.0	0.0	0.0	0.0
72	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	148.00	0.20	0.50	0.15	0.15	29.6	1289.4	5037.6	1432.6	74.0	3223.4	12593.9	3581.6	22.2	967.0	3778.2	1074.5	22.2	967.0	3778.2	1074.5
73	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	143.00	0.20	0.50	0.15	0.15	28.6	1245.8	4867.4	1384.2	71.5	3114.5	12168.4	3460.6	21.5	934.4	3650.5	1038.2	21.5	934.4	3650.5	1038.2
74	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	146.00	0.20	0.50	0.15	0.15	29.2	1272.0	4969.5	1413.3	73.0	3179.9	12423.7	3533.2	21.9	954.0	3727.1	1060.0	21.9	954.0	3727.1	1060.0
75	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	365.00	0.20	0.50	0.15	0.15	73.0	3179.9	12423.7	3533.2	182.5	7949.7	31059.3	8833.0	54.8	2384.9	9317.8	2649.9	54.8	2384.9	9317.8	2649.9
76	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	536.00	0.20	0.50	0.15	0.15	107.2	4669.6	18244.1	5188.5	268.0	11674.1	45610.4	12971.2	80.4	3502.2	13683.1	3891.4	80.4	3502.2	13683.1	3891.4
77	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	672.00	0.20	0.50	0.15	0.15	134.4	5854.5	22873.3	6505.0	336.0	14636.2	57183.1	16262.4	100.8	4390.8	17154.9	4878.7	100.8	4390.8	17154.9	4878.7
78	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	20.00	0.20	0.50	0.15	0.15	4.0	174.2	680.8	193.6	10.0	435.6	1701.9	484.0	3.0	130.7	510.6	145.2	3.0	130.7	510.6	145.2
79	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	18.00	0.20	0.50	0.15	0.15	3.6	156.8	612.7	174.2	9.0	392.0	1531.7	435.6	2.7	117.6	459.5	130.7	2.7	117.6	459.5	130.7
80	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	19.00	0.20	0.50	0.15	0.15	3.8	165.5	646.7	183.9	9.5	413.8	1616.8	459.8	2.9	124.1	485.0	137.9	2.9	124.1	485.0	137.9
81	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	25.00	0.20	0.50	0.15	0.15	5.0	217.8	850.9	242.0	12.5	544.5	2127.3	605.0	3.8	163.4	638.2	181.5	3.8	163.4	638.2	181.5
82	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	19.00	0.20	0.50	0.15	0.15	3.8	165.5	646.7	183.9	9.5	413.8	1616.8	459.8	2.9	124.1	485.0	137.9	2.9	124.1	485.0	137.9
83	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	8.00	0.20	0.50	0.15	0.15	1.6	69.7	272.3	77.4	4.0	174.2	680.8	193.6	1.2	52.3	204.2	58.1	1.2	52.3	204.2	58.1
84	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	17.00	0.20	0.50	0.15	0.15	3.4	148.1	578.6	164.6	8.5	370.3	1446.6	411.4	2.6	111.1	434.0	123.4	2.6	111.1	434.0	123.4
85	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	119.00	0.20	0.50	0.15	0.15	23.8	1036.7	4050.5	1151.9	59.5	2591.8	10126.2	2879.8	17.9	777.5	3037.9	863.9	17.9	777.5	3037.9	863.9
86	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	106.00	0.20	0.50	0.15	0.15	21.2	923.5	3608.0	1026.1	53.0	2308.7	9020.0	2565.2	15.9	692.6	2706.0	769.6	15.9	692.6	2706.0	769.6
87	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	95.00	0.20	0.50	0.15	0.15	19.0	827.6	3233.6	919.6	47.5	2069.1	8083.9	2299.0	14.3	620.7	2425.2	689.7	14.3	620.7	2425.2	689.7
88	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	106.00	0.20	0.50	0.15	0.15	21.2	923.5	3608.0	1026.1	53.0	2308.7	9020.0	2565.2	15.9	692.6	2706.0	769.6	15.9	692.6	2706.0	769.6
89	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	150.00	0.20	0.50	0.15	0.15	30.0	1306.8	5105.6	1452.0	75.0	3267.0	12764.1	3630.0	22.5	980.1	3829.2	1089.0	22.5	980.1	3829.2	1089.0
91	(A-1-2)01CBB	629584	Az Cemeteries	47600	39280	14	64	1091	122.00	0.20	0.50	0.15	0.15	24.4	1062.9	4152.6	1181.0	61.0	2657.2	10381.5	2952.4	18.3	797.1	3114.4	885.7	18.3	797.1	3114.4	885.7
72	(A-1-2)01CBC			47600	38600	14	64	1091	444.00	0.20	0.50	0.15	0.15	88.8	10315.0	3058.5	4297.9	222.0	25787.5	7646.3	10744.8	66.6	7736.3	2293.9	3223.4	66.6	7736.3	2293.9	3223.4
73	(A-1-2)01CBC			47600	38600	14	64	1091	426.00	0.20	0.50	0.15	0.15	85.2	9896.8	2934.5	4123.7	213.0	24742.1	7336.3	10309.2	63.9	7422.6	2200.9	3092.8	63.9	7422.6	2200.9	3092.8
74	(A-1-2)01CBC			47600	38600	14	64	1091	435.00	0.20	0.50	0.15	0.15	87.0	10105.9	2996.5	4210.8	217.5	25264.8	7491.3	10527.0	65.3	7579.4	2247.4	3158.1	65.3	7579.4	2247.4	3158.1
75	(A-1-2)01CBC			47600	38600	14	64	1091	255.00	0.20	0.50	0.15	0.15	51.0	5924.2	1756.6	2468.4	127.5	14810.4	4391.5	6171.0	38.3	4443.1	1317.4	1851.3	38.3	4443.1	1317.4	1851.3

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
76	(A-1-2)01CBC			47600	38600	14	64	1091	218.00	0.20	0.50	0.15	0.15	43.6	5064.6	1501.7	2110.2	109.0	12661.4	3754.3	5275.6	32.7	3798.4	1126.3	1582.7	32.7	3798.4	1126.3	1582.7
77	(A-1-2)01CBC			47600	38600	14	64	1091	431.00	0.20	0.50	0.15	0.15	86.2	10013.0	2969.0	4172.1	215.5	25032.5	7422.4	10430.2	64.6	7509.7	2226.7	3129.1	64.6	7509.7	2226.7	3129.1
84	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	18.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	1.8	209.1	62.0	87.1	16.2	1881.8	558.0	784.1	0.0	0.0	0.0	0.0
85	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	18.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	1.8	209.1	62.0	87.1	16.2	1881.8	558.0	784.1	0.0	0.0	0.0	0.0
86	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	18.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	1.8	209.1	62.0	87.1	16.2	1881.8	558.0	784.1	0.0	0.0	0.0	0.0
87	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	28.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	2.8	325.2	96.4	135.5	25.2	2927.2	868.0	1219.7	0.0	0.0	0.0	0.0
88	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	11.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	1.1	127.8	37.9	53.2	9.9	1150.0	341.0	479.2	0.0	0.0	0.0	0.0
89	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005	150.00	0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	15.0	1742.4	516.6	726.0	135.0	15681.6	4649.8	6534.0	0.0	0.0	0.0	0.0
90	(A-1-2)02BCC	626533	COP	42480	40120	13	57	1005		0.00	0.10	0.90	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-2)04DCD			34800	37200	16	43	1228	0.00	0.50	0.25	0.25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)05BDC	629596	Olnhausen	28000	40400	12	29	898	22.00	0.25	0.50	0.25	0.00	5.5	638.9	189.4	266.2	11.0	1277.8	378.9	532.4	5.5	638.9	189.4	266.2	0.0	0.0	0.0	0.0
87	(A-1-2)05BDC	629596	Olnhausen	28000	40400	12	29	898	21.00	0.25	0.50	0.25	0.00	5.3	609.8	180.8	254.1	10.5	1219.7	361.6	508.2	5.3	609.8	180.8	254.1	0.0	0.0	0.0	0.0
88	(A-1-2)05BDC	629596	Olnhausen	28000	40400	12	29	898	24.00	0.25	0.50	0.25	0.00	6.0	697.0	206.7	290.4	12.0	1393.9	413.3	580.8	6.0	697.0	206.7	290.4	0.0	0.0	0.0	0.0
72	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2463.00	0.50	0.20	0.25	0.05	1231.5	53644.1	209586.4	59604.6	492.6	21457.7	83834.6	23841.8	615.8	26822.1	104793.2	29802.3	123.2	5364.4	20958.6	5960.5
73	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1206.00	0.50	0.20	0.25	0.05	603.0	26266.7	102623.3	29185.2	241.2	10506.7	41049.3	11674.1	301.5	13133.3	51311.7	14592.6	60.3	2626.7	10262.3	2918.5
74	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2277.00	0.50	0.20	0.25	0.05	1138.5	49593.1	193758.9	55103.4	455.4	19837.2	77503.6	22041.4	569.3	24796.5	96879.5	27551.7	113.9	4959.3	19375.9	5510.3
75	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2486.00	0.50	0.20	0.25	0.05	1243.0	54145.1	211543.6	60161.2	497.2	21658.0	84617.4	24064.5	621.5	27072.5	105771.8	30080.6	124.3	5414.5	21154.4	6016.1
76	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2458.00	0.50	0.20	0.25	0.05	1229.0	53535.2	209160.9	59483.6	491.6	21414.1	83664.4	23793.4	614.5	26767.6	104580.5	29741.8	122.9	5353.5	20916.1	5948.4
77	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2541.00	0.50	0.20	0.25	0.05	1270.5	55343.0	216223.7	61492.2	508.2	22137.2	86489.5	24596.9	635.3	27671.5	108111.9	30746.1	127.1	5534.3	21622.4	6149.2
78	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1205.00	0.50	0.20	0.25	0.05	602.5	26244.9	102538.2	29161.0	241.0	10498.0	41015.3	11664.4	301.3	13122.5	51269.1	14580.5	60.3	2624.5	10253.8	2916.1
79	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1499.00	0.50	0.20	0.25	0.05	749.5	32648.2	127555.8	36275.8	299.8	13059.3	51022.3	14510.3	374.8	16324.1	63777.9	18137.9	75.0	3264.8	12755.6	3627.6
80	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2065.00	0.50	0.20	0.25	0.05	1032.5	44975.7	175719.0	49973.0	413.0	17990.3	70287.6	19989.2	516.3	22487.9	87859.5	24986.5	103.3	4497.6	17571.9	4997.3
81	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	3002.00	0.50	0.20	0.25	0.05	1501.0	65383.6	255452.0	72648.4	600.4	26153.4	102180.8	29059.4	750.5	32691.8	127726.0	36324.2	150.1	6538.4	25545.2	7264.8
82	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1526.00	0.50	0.20	0.25	0.05	763.0	33236.3	129853.4	36929.2	305.2	13294.5	51941.3	14771.7	381.5	16618.1	64926.7	18464.6	76.3	3323.6	12985.3	3692.9
83	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	998.00	0.50	0.20	0.25	0.05	499.0	21736.4	84923.8	24151.6	199.6	8694.6	33969.5	9660.6	249.5	10868.2	42461.9	12075.8	49.9	2173.6	8492.4	2415.2
84	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	2254.00	0.50	0.20	0.25	0.05	1127.0	49092.1	191801.8	54546.8	450.8	19636.8	76720.7	21818.7	563.5	24546.1	95900.9	27273.4	112.7	4909.2	19180.2	5454.7
85	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1232.00	0.50	0.20	0.25	0.05	616.0	26833.0	104835.8	29814.4	246.4	10733.2	41934.3	11925.8	308.0	13416.5	52417.9	14907.2	61.6	2683.3	10483.6	2981.4
86	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1399.00	0.50	0.20	0.25	0.05	699.5	30470.2	119046.4	33855.8	279.8	12188.1	47618.6	13542.3	349.8	15235.1	59523.2	16927.9	70.0	3047.0	11904.6	3385.6
87	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1334.00	0.50	0.20	0.25	0.05	667.0	29054.5	113515.3	32282.8	266.8	11621.8	45406.1	12913.1	333.5	14527.3	56757.7	16141.4	66.7	2905.5	11351.5	3228.3
88	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1284.00	0.50	0.20	0.25	0.05	642.0	27965.5	109260.6	31072.8	256.8	11186.2	43704.3	12429.1	321.0	13982.8	54630.3	15536.4	64.2	2796.6	10926.1	3107.3
89	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1484.00	0.50	0.20	0.25	0.05	742.0	32321.5	126279.4	35912.8	296.8	12928.6	50511.8	14365.1	371.0	16160.8	63139.7	17956.4	74.2	3232.2	12627.9	3591.3
90	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1038.00	0.50	0.20	0.25	0.05	519.0	22607.6	88327.5	25119.6	207.6	9043.1	35331.0	10047.8	259.5	11303.8	44163.8	12559.8	51.9	2260.8	8832.8	2512.0
91	(A-1-2)07BBB	607205	RID	21487	37076	17	19	1283	1151.00	0.50	0.20	0.25	0.05	575.5	25068.8	97943.1	27854.2	230.2	10027.5	39177.3	11141.7	287.8	12534.4	48971.6	13927.1	57.6	2506.9	9794.3	2785.4
72	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4160.00	0.35	0.55	0.05	0.05	1456.0	63423.4	247793.6	70470.4	2288.0	99665.3	389389.9	110739.2	208.0	9060.5	35399.1	10067.2	208.0	9060.5	35399.1	10067.2
73	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	2323.00	0.35	0.55	0.05	0.05	813.1	35416.5	138371.3	39351.6	1277.7	55654.4	217440.6	61838.3	116.2	5059.5	19767.3	5621.7	116.2	5059.5	19767.3	5621.7
74	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4056.00	0.35	0.55	0.05	0.05	1419.6	61837.8	241598.8	68708.6	2230.8	97173.6	379655.2	107970.7	202.8	8834.0	34514.1	9815.5	202.8	8834.0	34514.1	9815.5
75	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4198.00	0.35	0.55	0.05	0.05	1469.3	64002.7	250057.1	71114.1	2308.9	100575.7	392946.9	111750.8	209.9	9143.2	35722.4	10159.2	209.9	9143.2	35722.4	10159.2
76	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4054.00	0.35	0.55	0.05	0.05	1418.9	61807.3	241479.6	68674.8	2229.7	97125.7	379468.0	107917.5	202.7	8829.6	34497.1	9810.7	202.7	8829.6	34497.1	9810.7
77	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4330.00	0.35	0.55	0.05	0.05	1515.5	66015.2	257919.8	73350.2	2381.5	103738.1	405302.5	115264.6	216.5	9430.7	36845.7	10478.6	216.5	9430.7	36845.7	10478.6
78	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	2322.00	0.35	0.55	0.05	0.05	812.7	35401.2	138311.7	39334.7	1277.1	55630.5	217347.0	61811.6	116.1	5057.3	19758.8	5619.2	116.1	5057.3	19758.8	5619.2
79	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3135.00	0.35	0.55	0.05	0.05	1097.3	47796.2	186738.7	53106.9	1724.3	75108.3	293446.5	83453.7	156.8	6828.0	26677.0	7586.7	156.8	6828.0	26677.0	7586.7
80	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3894.00	0.35	0.55	0.05	0.05	1362.9	59367.9	231949.1	65964.4	2141.7	93292.5	364491.4	103658.3	194.7	8481.1	33135.6	9423.5	194.7	8481.1	33135.6	9423.5
81	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4600.00	0.35	0.55	0.05	0.05	1610.0	70131.6	274002.5	77924.0	2530.0	110206.8	430575.4	122452.0	230.0	10018.8	39143.2	11132.0	230.0	10018.8	39143.2	11132.0
82	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3451.00	0.35	0.55	0.05	0.05	1207.9	52613.9	205561.5	58459.9	1898.1	82679.1	323025.2	91865.6	172.6	7516.3	29365.9	8351.4	172.6	7516.3	29365.9	8351.4
83	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	1874.00	0.35	0.55	0.05	0.05	655.9	28571.0	111626.2	31745.6	1030.7	44897.3	175412.7	49885.9	93.7	4081.6	15946.6	4535.1	93.7	4081.6	15946.6	4535.1
84	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	2280.00	0.35	0.55	0.05	0.05	798.0	34760.9	135809.9	38623.2	1254.0	54624.2	213415.6	60693.6	114.0	4965.8	19401.4	5517.6	114.0	4965.8	19401.4	5517.6
85	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3139.00	0.35	0.55	0.05	0.05	1098.7	47857.2	186976.9	53174.7	1726.5	75204.2	293820.9	83560.2	157.0	6836.7	26711.0	7596.4	157.0	6836.7	26711.0	7596.4
86	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3891.00	0.35	0.55	0.05	0.05	1361.9	59322.2	231770.4	65913.5	2140.1	93220.6	364210.6	103578.4	194.6	8474.6	33110.1	9416.2	194.6	8474.6	33110.1	9416.2
87	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	2684.00	0.35	0.55	0.05	0.05	939.4	40920.3	159874.5	45467.0	1476.2	64303.3	251231.4	71448.1	134.2	5845.8	22839.2	6495.3	134.2	5845.8	22839.2	6495.3

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3841.00	0.35	0.55	0.05	0.05	1344.4	58559.9	228792.1	65066.5	2112.6	92022.7	359530.5	102247.4	192.1	8365.7	32684.6	9295.2	192.1	8365.7	32684.6	9295.2
89	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	4341.00	0.35	0.55	0.05	0.05	1519.4	66182.9	258575.0	73536.5	2387.6	104001.7	406332.1	115557.4	217.1	9454.7	36939.3	10505.2	217.1	9454.7	36939.3	10505.2
90	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	3193.00	0.35	0.55	0.05	0.05	1117.6	48680.5	190193.5	54089.4	1756.2	76497.9	298875.5	84997.7	159.7	6954.4	27170.5	7727.1	159.7	6954.4	27170.5	7727.1
91	(A-1-2)07CCC2	607225	RID	21293	32216	26	19	1994	2317.00	0.35	0.55	0.05	0.05	810.9	35325.0	138013.9	39250.0	1274.4	55510.7	216879.0	61678.5	115.9	5046.4	19716.3	5607.1	115.9	5046.4	19716.3	5607.1
73	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	1.00	0.25	0.50	0.25	0.00	0.3	29.0	8.6	12.1	0.5	58.1	17.2	24.2	0.3	29.0	8.6	12.1	0.0	0.0	0.0	0.0
78	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	78.00	0.25	0.50	0.25	0.00	19.5	2265.1	671.6	943.8	39.0	4530.2	1343.3	1887.6	19.5	2265.1	671.6	943.8	0.0	0.0	0.0	0.0
79	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	71.00	0.25	0.50	0.25	0.00	17.8	2061.8	611.4	859.1	35.5	4123.7	1222.7	1718.2	17.8	2061.8	611.4	859.1	0.0	0.0	0.0	0.0
80	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	74.00	0.25	0.50	0.25	0.00	18.5	2149.0	637.2	895.4	37.0	4297.9	1274.4	1790.8	18.5	2149.0	637.2	895.4	0.0	0.0	0.0	0.0
81	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	99.00	0.25	0.50	0.25	0.00	24.8	2875.0	852.5	1197.9	49.5	5749.9	1704.9	2395.8	24.8	2875.0	852.5	1197.9	0.0	0.0	0.0	0.0
82	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	74.00	0.25	0.50	0.25	0.00	18.5	2149.0	637.2	895.4	37.0	4297.9	1274.4	1790.8	18.5	2149.0	637.2	895.4	0.0	0.0	0.0	0.0
83	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	31.00	0.25	0.50	0.25	0.00	7.8	900.2	266.9	375.1	15.5	1800.5	533.9	750.2	7.8	900.2	266.9	375.1	0.0	0.0	0.0	0.0
84	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	68.00	0.25	0.50	0.25	0.00	17.0	1974.7	585.5	822.8	34.0	3949.4	1171.1	1645.6	17.0	1974.7	585.5	822.8	0.0	0.0	0.0	0.0
85	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	85.00	0.25	0.50	0.25	0.00	21.3	2468.4	731.9	1028.5	42.5	4936.8	1463.8	2057.0	21.3	2468.4	731.9	1028.5	0.0	0.0	0.0	0.0
86	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	92.00	0.25	0.50	0.25	0.00	23.0	2671.7	792.2	1113.2	46.0	5343.4	1584.4	2226.4	23.0	2671.7	792.2	1113.2	0.0	0.0	0.0	0.0
87	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	85.00	0.25	0.50	0.25	0.00	21.3	2468.4	731.9	1028.5	42.5	4936.8	1463.8	2057.0	21.3	2468.4	731.9	1028.5	0.0	0.0	0.0	0.0
88	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	88.00	0.25	0.50	0.25	0.00	22.0	2555.5	757.7	1064.8	44.0	5111.0	1515.5	2129.6	22.0	2555.5	757.7	1064.8	0.0	0.0	0.0	0.0
89	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	86.00	0.25	0.50	0.25	0.00	21.5	2497.4	740.5	1040.6	43.0	4994.9	1481.0	2081.2	21.5	2497.4	740.5	1040.6	0.0	0.0	0.0	0.0
90	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	88.00	0.25	0.50	0.25	0.00	22.0	2555.5	757.7	1064.8	44.0	5111.0	1515.5	2129.6	22.0	2555.5	757.7	1064.8	0.0	0.0	0.0	0.0
91	(A-1-2)07DCD	639889	F.L. Sharon Owen	24520	32520	26	23	1998	118.00	0.25	0.50	0.25	0.00	29.5	3426.7	1016.1	1427.8	59.0	6853.4	2032.1	2855.6	29.5	3426.7	1016.1	1427.8	0.0	0.0	0.0	0.0
72	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1833.00	0.20	0.70	0.05	0.05	366.6	15969.1	62390.9	17743.4	1283.1	55891.8	218368.1	62102.0	91.7	3992.3	15597.7	4435.9	91.7	3992.3	15597.7	4435.9
73	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1462.00	0.20	0.70	0.05	0.05	292.4	12736.9	49762.9	14152.2	1023.4	44579.3	174170.3	49532.6	73.1	3184.2	12440.7	3538.0	73.1	3184.2	12440.7	3538.0
74	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1722.00	0.20	0.70	0.05	0.05	344.4	15002.1	58612.7	16669.0	1205.4	52507.2	205144.5	58341.4	86.1	3750.5	14653.2	4167.2	86.1	3750.5	14653.2	4167.2
75	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1541.00	0.20	0.70	0.05	0.05	308.2	13425.2	52451.9	14916.9	1078.7	46988.2	183581.7	52209.1	77.1	3356.3	13113.0	3729.2	77.1	3356.3	13113.0	3729.2
76	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1897.00	0.20	0.70	0.05	0.05	379.4	16526.7	64569.3	18363.0	1327.9	57843.3	225992.5	64270.4	94.9	4131.7	16142.3	4590.7	94.9	4131.7	16142.3	4590.7
77	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	2170.00	0.20	0.70	0.05	0.05	434.0	18905.0	73861.6	21005.6	1519.0	66167.6	258515.4	73519.6	108.5	4726.3	18465.4	5251.4	108.5	4726.3	18465.4	5251.4
78	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1451.00	0.20	0.70	0.05	0.05	290.2	12641.1	49388.5	14045.7	1015.7	44243.9	172859.9	49159.9	72.6	3160.3	12347.1	3511.4	72.6	3160.3	12347.1	3511.4
79	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	831.00	0.20	0.70	0.05	0.05	166.2	7239.7	28285.2	8044.1	581.7	25338.9	98998.3	28154.3	41.6	1809.9	7071.3	2011.0	41.6	1809.9	7071.3	2011.0
80	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1367.00	0.20	0.70	0.05	0.05	273.4	11909.3	46529.4	13232.6	956.9	41682.6	162852.8	46314.0	68.4	2977.3	11632.3	3308.1	68.4	2977.3	11632.3	3308.1
81	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1369.00	0.20	0.70	0.05	0.05	273.8	11926.7	46597.4	13251.9	958.3	41743.5	163091.1	46381.7	68.5	2981.7	11649.4	3313.0	68.5	2981.7	11649.4	3313.0
82	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1039.00	0.20	0.70	0.05	0.05	207.8	9051.8	35365.0	10057.5	727.3	31681.2	123777.7	35201.3	52.0	2262.9	8841.3	2514.4	52.0	2262.9	8841.3	2514.4
83	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	634.00	0.20	0.70	0.05	0.05	126.8	5523.4	21579.8	6137.1	443.8	19331.9	75529.4	21479.9	31.7	1380.9	5395.0	1534.3	31.7	1380.9	5395.0	1534.3
84	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1409.00	0.20	0.70	0.05	0.05	281.8	12275.2	47959.0	13639.1	986.3	42963.2	167856.3	47736.9	70.5	3068.8	11989.7	3409.8	70.5	3068.8	11989.7	3409.8
85	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1163.00	0.20	0.70	0.05	0.05	232.6	10132.1	39585.7	11257.8	814.1	35462.2	138550.0	39402.4	58.2	2533.0	9896.4	2814.5	58.2	2533.0	9896.4	2814.5
86	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1420.00	0.20	0.70	0.05	0.05	284.0	12371.0	48333.4	13745.6	994.0	43298.6	169166.8	48109.6	71.0	3092.8	12083.3	3436.4	71.0	3092.8	12083.3	3436.4
87	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1133.00	0.20	0.70	0.05	0.05	226.6	9870.7	38564.6	10967.4	793.1	34547.4	134976.0	38386.0	56.7	2467.7	9641.1	2741.9	56.7	2467.7	9641.1	2741.9
88	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1010.00	0.20	0.70	0.05	0.05	202.0	8799.1	34378.0	9776.8	707.0	30796.9	120322.9	34218.8	50.5	2199.8	8594.5	2444.2	50.5	2199.8	8594.5	2444.2
89	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1415.00	0.20	0.70	0.05	0.05	283.0	12327.5	48163.2	13697.2	990.5	43146.2	168571.1	47940.2	70.8	3081.9	12040.8	3424.3	70.8	3081.9	12040.8	3424.3
90	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	937.00	0.20	0.70	0.05	0.05	187.4	8163.1	31893.2	9070.2	655.9	28571.0	111626.2	31745.6	46.9	2040.8	7973.3	2267.5	46.9	2040.8	7973.3	2267.5
91	(A-1-2)08BAA1	631099	RID	28879	36985	17	31	1295	1524.00	0.20	0.70	0.05	0.05	304.8	13277.1	51873.3	14752.3	1066.8	46469.8	181556.5	51633.1	76.2	3319.3	12968.3	3688.1	76.2	3319.3	12968.3	3688.1
72	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2376.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1900.8	82798.8	323493.2	91998.7	594.0	25874.6	101091.6	28749.6	0.0	0.0	0.0	0.0
73	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1228.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	982.4	42793.3	167192.6	47548.2	307.0	13372.9	52247.7	14858.8	0.0	0.0	0.0	0.0
74	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2512.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	2009.6	87538.2	342009.6	97264.6	628.0	27355.7	106878.0	30395.2	0.0	0.0	0.0	0.0
75	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2490.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1992.0	86771.5	339014.3	96412.8	622.5	27116.1	105942.0	30129.0	0.0	0.0	0.0	0.0
76	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2497.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1997.6	87015.5	339967.4	96683.8	624.3	27192.3	106239.8	30213.7	0.0	0.0	0.0	0.0
77	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2006.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1604.8	69905.1	273117.6	77672.3	501.5	21845.3	85349.2	24272.6	0.0	0.0	0.0	0.0
78	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1246.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	996.8	43420.6	169643.3	48245.1	311.5	13568.9	53013.5	15076.6	0.0	0.0	0.0	0.0
79	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2214.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1771.2	77153.5	301436.8	85726.1	553.5	24110.5	94199.0	26789.4	0.0	0.0	0.0	0.0
80	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2091.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1672.8	72867.2	284690.3	80963.5	522.8	22771.0	88965.7	25301.1	0.0	0.0	0.0	0.0
81	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2385.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1908.0	83112.5	324718.5	92347.2	596.3	25972.7	101474.5	28858.5	0.0	0.0	0.0	0.0
82	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1448.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1158.4	50459.9	197145.7	56066.6	362.0	15768.7	61608.0	17520.8	0.0	0.0	0.0	0.0
83	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	607.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	485.6	21152.7	82643.2	23503.0	151.8	6610.2	25826.0	7344.7	0.0	0.0	0.0	0.0
84	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1151.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	920.8	40110.0	156709.0	44566.7	287.8	12534.4	48971.6	13927.1	0.0	0.0	0.0	0.0
85	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2182.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1745.6	76038.3	297080.0	84487.0	545.5	23762.0	92837.5	26402.2	0.0	0.0	0.0	0.0
86	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1292.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1033.6	45023.6	175906.2	50026.2	323.0	14069.9	54970.7	15633.2	0.0	0.0	0.0	0.0
87	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1468.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1174.4	51156.9	199868.7	56841.0	367.0	15986.5	62459.0	17762.8	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
88	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1225.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	980.0	42688.8	166784.1	47432.0	306.3	13340.3	52120.0	14822.5	0.0	0.0	0.0	0.0
89	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1903.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1522.4	66315.7	259094.1	73684.2	475.8	20723.7	80966.9	23026.3	0.0	0.0	0.0	0.0
90	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	2541.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	2032.8	88548.8	345958.0	98387.5	635.3	27671.5	108111.9	30746.1	0.0	0.0	0.0	0.0
91	(A-1-2)08BBB	607204	RID	26665	37020	17	26	1290	1465.00	0.00	0.80	0.25	0.00	0.0	0.0	0.0	0.0	1172.0	51052.3	199460.2	56724.8	366.3	15953.9	62331.3	17726.5	0.0	0.0	0.0	0.0
72	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	3303.00	0.50	0.45	0.05	0.00	1651.5	71939.3	281065.3	79932.6	1486.4	64745.4	252958.8	71939.3	165.2	7193.9	28106.5	7993.3	0.0	0.0	0.0	0.0
73	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2656.00	0.50	0.45	0.05	0.00	1328.0	57847.7	226009.5	64275.2	1195.2	52062.9	203408.6	57847.7	132.8	5784.8	22601.0	6427.5	0.0	0.0	0.0	0.0
74	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	3589.00	0.50	0.45	0.05	0.00	1794.5	78168.4	305402.2	86853.8	1615.1	70351.6	274862.0	78168.4	179.5	7816.8	30540.2	8685.4	0.0	0.0	0.0	0.0
75	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	3447.00	0.50	0.45	0.05	0.00	1723.5	75075.7	293318.9	83417.4	1551.2	67568.1	263987.0	75075.7	172.4	7507.6	29331.9	8341.7	0.0	0.0	0.0	0.0
76	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2875.00	0.50	0.45	0.05	0.00	1437.5	62617.5	244645.1	69575.0	1293.8	56355.8	220180.6	62617.5	143.8	6261.8	24464.5	6957.5	0.0	0.0	0.0	0.0
77	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	3300.00	0.50	0.45	0.05	0.00	1650.0	71874.0	280810.0	79860.0	1485.0	64686.6	252729.0	71874.0	165.0	7187.4	28081.0	7986.0	0.0	0.0	0.0	0.0
78	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2765.00	0.50	0.45	0.05	0.00	1382.5	60221.7	235284.8	66913.0	1244.3	54199.5	211756.3	60221.7	138.3	6022.2	23528.5	6691.3	0.0	0.0	0.0	0.0
79	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	1769.00	0.50	0.45	0.05	0.00	884.5	38528.8	150531.2	42809.8	796.1	34675.9	135478.1	38528.8	88.5	3852.9	15053.1	4281.0	0.0	0.0	0.0	0.0
80	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2640.00	0.50	0.45	0.05	0.00	1320.0	57499.2	224648.0	63888.0	1188.0	51749.3	202183.2	57499.2	132.0	5749.9	22464.8	6388.8	0.0	0.0	0.0	0.0
81	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2456.00	0.50	0.45	0.05	0.00	1228.0	53491.7	208990.7	59435.2	1105.2	48142.5	188091.7	53491.7	122.8	5349.2	20899.1	5943.5	0.0	0.0	0.0	0.0
82	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	1301.00	0.50	0.45	0.05	0.00	650.5	28335.8	110707.2	31484.2	585.5	25502.2	99636.5	28335.8	65.1	2833.6	11070.7	3148.4	0.0	0.0	0.0	0.0
83	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	1730.00	0.50	0.45	0.05	0.00	865.0	37679.4	147212.5	41866.0	778.5	33911.5	132491.3	37679.4	86.5	3767.9	14721.3	4186.6	0.0	0.0	0.0	0.0
84	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2517.00	0.50	0.45	0.05	0.00	1258.5	54820.3	214181.5	60911.4	1132.7	49338.2	192763.3	54820.3	125.9	5482.0	21418.1	6091.1	0.0	0.0	0.0	0.0
85	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2387.00	0.50	0.45	0.05	0.00	1193.5	51988.9	203119.3	57765.4	1074.2	46790.0	182807.3	51988.9	119.4	5198.9	20311.9	5776.5	0.0	0.0	0.0	0.0
86	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2467.00	0.50	0.45	0.05	0.00	1233.5	53731.3	209926.8	59701.4	1110.2	48358.1	188934.1	53731.3	123.4	5373.1	20992.7	5970.1	0.0	0.0	0.0	0.0
87	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2219.00	0.50	0.45	0.05	0.00	1109.5	48329.8	188823.5	53699.8	998.6	43496.8	169941.1	48329.8	111.0	4833.0	18882.3	5370.0	0.0	0.0	0.0	0.0
88	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	1758.00	0.50	0.45	0.05	0.00	879.0	38289.2	149595.2	42543.6	791.1	34460.3	134635.7	38289.2	87.9	3828.9	14959.5	4254.4	0.0	0.0	0.0	0.0
89	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309		0.50	0.45	0.05	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	2100.00	0.50	0.45	0.05	0.00	1050.0	45738.0	178697.3	50820.0	945.0	41164.2	160827.6	45738.0	105.0	4573.8	17869.7	5082.0	0.0	0.0	0.0	0.0
91	(A-1-2)09AAB2	607201	RID	36040	36908	17	45	1309	1750.00	0.50	0.45	0.05	0.00	875.0	38115.0	148914.4	42350.0	787.5	34303.5	134023.0	38115.0	87.5	3811.5	14891.4	4235.0	0.0	0.0	0.0	0.0
72	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	3218.00	0.50	0.45	0.05	0.00	1609.0	70088.0	273832.3	77875.6	1448.1	63079.2	246449.1	70088.0	160.9	7008.8	27383.2	7787.6	0.0	0.0	0.0	0.0
73	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2435.00	0.50	0.45	0.05	0.00	1217.5	53034.3	207203.8	58927.0	1095.8	47730.9	186483.4	53034.3	121.8	5303.4	20720.4	5892.7	0.0	0.0	0.0	0.0
74	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	3362.00	0.50	0.45	0.05	0.00	1681.0	73224.4	286085.9	81360.4	1512.9	65901.9	257477.3	73224.4	168.1	7322.4	28608.6	8136.0	0.0	0.0	0.0	0.0
75	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	3664.00	0.50	0.45	0.05	0.00	1832.0	79801.9	311784.2	88668.8	1648.8	71821.7	280605.8	79801.9	183.2	7980.2	31178.4	8866.9	0.0	0.0	0.0	0.0
76	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	3606.00	0.50	0.45	0.05	0.00	1803.0	78538.7	306848.8	87265.2	1622.7	70684.8	276163.9	78538.7	180.3	7853.9	30684.9	8726.5	0.0	0.0	0.0	0.0
77	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2239.00	0.50	0.45	0.05	0.00	1119.5	48765.4	190525.4	54183.8	1007.6	43888.9	171472.8	48765.4	112.0	4876.5	19052.5	5418.4	0.0	0.0	0.0	0.0
78	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2436.00	0.50	0.45	0.05	0.00	1218.0	53056.1	207288.9	58951.2	1096.2	47750.5	186560.0	53056.1	121.8	5305.6	20728.9	5895.1	0.0	0.0	0.0	0.0
79	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1561.00	0.50	0.45	0.05	0.00	780.5	33998.6	132831.7	37776.2	702.5	30598.7	119548.5	33998.6	78.1	3399.9	13283.2	3777.6	0.0	0.0	0.0	0.0
80	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2010.00	0.50	0.45	0.05	0.00	1005.0	43777.8	171038.8	48642.0	904.5	39400.0	153935.0	43777.8	100.5	4377.8	17103.9	4864.2	0.0	0.0	0.0	0.0
81	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2151.00	0.50	0.45	0.05	0.00	1075.5	46848.8	183037.1	52054.2	968.0	42163.9	164733.4	46848.8	107.6	4684.9	18303.7	5205.4	0.0	0.0	0.0	0.0
82	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1833.00	0.50	0.45	0.05	0.00	916.5	39922.7	155977.2	44358.6	824.9	35930.5	140379.5	39922.7	91.7	3992.3	15597.7	4435.9	0.0	0.0	0.0	0.0
83	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	42.00	0.50	0.45	0.05	0.00	21.0	914.8	3573.9	1016.4	18.9	823.3	3216.6	914.8	2.1	91.5	357.4	101.6	0.0	0.0	0.0	0.0
84	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2361.00	0.50	0.45	0.05	0.00	1180.5	51422.6	200906.8	57136.2	1062.5	46280.3	180816.1	51422.6	118.1	5142.3	20090.7	5713.6	0.0	0.0	0.0	0.0
85	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1939.00	0.50	0.45	0.05	0.00	969.5	42231.4	164997.2	46923.8	872.6	38008.3	148497.5	42231.4	97.0	4223.1	16499.7	4692.4	0.0	0.0	0.0	0.0
86	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2486.00	0.50	0.45	0.05	0.00	1243.0	54145.1	211543.6	60161.2	1118.7	48730.6	190389.2	54145.1	124.3	5414.5	21154.4	6016.1	0.0	0.0	0.0	0.0
87	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1416.00	0.50	0.45	0.05	0.00	708.0	30840.5	120493.0	34267.2	637.2	27756.4	108443.7	30840.5	70.8	3084.0	12049.3	3426.7	0.0	0.0	0.0	0.0
88	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1071.00	0.50	0.45	0.05	0.00	535.5	23326.4	91135.6	25918.2	482.0	20993.7	82022.1	23326.4	53.6	2332.6	9113.6	2591.8	0.0	0.0	0.0	0.0
89	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1622.00	0.50	0.45	0.05	0.00	811.0	35327.2	138022.4	39252.4	729.9	31794.4	124220.2	35327.2	81.1	3532.7	13802.2	3925.2	0.0	0.0	0.0	0.0
90	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	2077.00	0.50	0.45	0.05	0.00	1038.5	45237.1	176740.1	50263.4	934.7	40713.4	159066.1	45237.1	103.9	4523.7	17674.0	5026.3	0.0	0.0	0.0	0.0
91	(A-1-2)09BBB2	607202	RID	31900	36949	17	37	1301	1584.00	0.50	0.45	0.05	0.00	792.0	34499.5	134788.8	38332.8	712.8	31049.6	121309.9	34499.5	79.2	3450.0	13478.9	3833.3	0.0	0.0	0.0	0.0
72	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	4550.00	0.05	0.75	0.10	0.05	227.5	9909.9	38717.7	11011.0	3412.5	148648.5	580766.2	165165.0	455.0	19819.8	77435.5	22022.0	227.5	9909.9	38717.7	11011.0
73	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2352.00	0.05	0.75	0.10	0.05	117.6	5122.7	20014.1	5691.8	1764.0	76839.8	300211.5	85377.6	235.2	10245.3	40028.2	11383.7	117.6	5122.7	20014.1	5691.8
74	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	4667.00	0.05	0.75	0.10	0.05	233.4	10164.7	39713.3	11294.1	3500.3	152470.9	595700.2	169412.1	466.7	20329.5	79426.7	22588.3	233.4	10164.7	39713.3	11294.1
75	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	4748.00	0.05	0.75	0.10	0.05	237.4	10341.1	40402.6	11490.2	3561.0	155117.2	606039.1	172352.4	474.8	20682.3	80805.2	22980.3	237.4	10341.1	40402.6	11490.2
76	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	3750.00	0.05	0.75	0.10	0.05	187.5	8167.5	31910.2	9075.0	2812.5	122512.5	478653.5	136125.0	375.0	16335.0	63820.5	18150.0	187.5	8167.5	31910.2	9075.0
77	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	5033.00	0.05	0.75	0.10	0.05	251.7	10961.9	42827.8	12179.9	3774.8	164428.1	642416.8	182697.9	503.3	21923.7	85655.6	24359.7	251.7	10961.9	42827.8	12179.9
78	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2331.00	0.05	0.75	0.10	0.05	116.6	5076.9	19835.4	5641.0	1748.3	76153.8	297531.0	84615.3	233.1	10153.8	39670.8	11282.0	116.6	5076.9	19835.4	5641.0
79	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2825.00	0.05	0.75	0.10	0.05	141.3	6152.9	24039.0	6836.5	2118.8	92292.8	360585.6	102547.5	282.5	12305.7	48078.1	13673.0	141.3	6152.9	24039.0	6836.5
80	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	3773.00	0.05	0.75	0.10	0.05	188.7	8217.6	32105.9	9130.7	2829.8	123263.9	481589.2	136959.9	377.3	16435.2	64211.9	18261.3	188.7	8217.6	32105.9	9130.7
81	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	3753.00	0.05	0.75	0.10	0.05	187.7	8174.0	31935.8	9082.3	2814.8	122610.5	479036.4	136233.9	375.3	16348.1	63871.5	18164.5	187.7	8174.0	31935.8	9082.3
82	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	4079.00	0.05	0.75	0.10	0.05	204.0	8884.1	34709.8	9871.2	3059.3	133260.9	520647.4	148067.7	407.9	17768.1	69419.6	19742.4	204.0	8884.1	34709.8	9871.2

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
83	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2324.00	0.05	0.75	0.10	0.05	116.2	5061.7	19775.8	5624.1	1743.0	75925.1	296637.5	84361.2	232.4	10123.3	39551.7	11248.2	116.2	5061.7	19775.8	5624.1
84	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2299.00	0.05	0.75	0.10	0.05	115.0	5007.2	19563.1	5563.6	1724.3	75108.3	293446.5	83453.7	229.9	10014.4	39126.2	11127.2	115.0	5007.2	19563.1	5563.6
85	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2964.00	0.05	0.75	0.10	0.05	148.2	6455.6	25221.8	7172.9	2223.0	96833.9	378327.7	107593.2	296.4	12911.2	50443.7	14345.8	148.2	6455.6	25221.8	7172.9
86	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	1022.00	0.05	0.75	0.10	0.05	51.1	2225.9	8696.6	2473.2	766.5	33388.7	130449.0	37098.6	102.2	4451.8	17393.2	4946.5	51.1	2225.9	8696.6	2473.2
87	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2771.00	0.05	0.75	0.10	0.05	138.6	6035.2	23579.5	6705.8	2078.3	90528.6	353693.0	100587.3	277.1	12070.5	47159.1	13411.6	138.6	6035.2	23579.5	6705.8
88	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	3036.00	0.05	0.75	0.10	0.05	151.8	6612.4	25834.5	7347.1	2277.0	99186.1	387517.9	110206.8	303.6	13224.8	51669.0	14694.2	151.8	6612.4	25834.5	7347.1
89	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2809.00	0.05	0.75	0.10	0.05	140.5	6118.0	23902.9	6797.8	2106.8	91770.0	358543.4	101966.7	280.9	12236.0	47805.8	13595.6	140.5	6118.0	23902.9	6797.8
90	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	845.00	0.05	0.75	0.10	0.05	42.3	1840.4	7190.4	2044.9	633.8	27606.2	107856.6	30673.5	84.5	3680.8	14380.9	4089.8	42.3	1840.4	7190.4	2044.9
91	(A-1-2)09CBC2	607221	RID	31922	32882	25	37	1933	2496.00	0.05	0.75	0.10	0.05	124.8	5436.3	21239.5	6040.3	1872.0	81544.3	318591.8	90604.8	249.6	10872.6	42478.9	12080.6	124.8	5436.3	21239.5	6040.3
78	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1190.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	833.0	96761.3	28690.8	40317.2	357.0	41469.1	12296.1	17278.8	0.0	0.0	0.0	0.0
79	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1087.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	760.9	88386.1	26207.5	36827.6	326.1	37879.8	11231.8	15783.2	0.0	0.0	0.0	0.0
80	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1141.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	798.7	92777.0	27509.5	38657.1	342.3	39761.6	11789.8	16567.3	0.0	0.0	0.0	0.0
81	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1520.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	1064.0	123594.2	36647.1	51497.6	456.0	52969.0	15705.9	22070.4	0.0	0.0	0.0	0.0
82	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1127.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	788.9	91638.6	27171.9	38182.8	338.1	39273.7	11645.1	16364.0	0.0	0.0	0.0	0.0
83	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	479.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	335.3	38948.4	11548.7	16228.5	143.7	16692.2	4949.4	6955.1	0.0	0.0	0.0	0.0
84	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1039.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	727.3	84483.2	25050.2	35201.3	311.7	36207.1	10735.8	15086.3	0.0	0.0	0.0	0.0
85	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1465.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	1025.5	119122.1	35321.1	49634.2	439.5	51052.3	15137.6	21271.8	0.0	0.0	0.0	0.0
86	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1012.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	708.4	82287.7	24399.3	34286.6	303.6	35266.2	10456.8	14694.2	0.0	0.0	0.0	0.0
87	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	745.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	521.5	60577.4	17961.9	25240.6	223.5	25961.8	7698.0	10817.4	0.0	0.0	0.0	0.0
88	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1373.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	961.1	111641.4	33103.0	46517.2	411.9	47846.3	14187.0	19936.0	0.0	0.0	0.0	0.0
89	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1470.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	1029.0	119528.6	35441.6	49803.6	441.0	51226.6	15189.3	21344.4	0.0	0.0	0.0	0.0
90	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1451.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	1015.7	117983.7	34983.5	49159.9	435.3	50564.4	14992.9	21068.5	0.0	0.0	0.0	0.0
91	(A-1-2)09CCA	626784	Anderson-Clayton Co	32640	32960	25	38	1934	1196.00	0.00	0.70	0.30	0.00	0.0	0.0	0.0	0.0	837.2	97249.2	28835.5	40520.5	358.8	41678.2	12358.1	17365.9	0.0	0.0	0.0	0.0
78	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	16.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.4	1672.7	496.0	697.0	1.6	185.9	55.1	77.4
86	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	0.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	13.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	1359.1	403.0	566.3	1.3	151.0	44.8	62.9
88	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	18.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	1881.8	558.0	784.1	1.8	209.1	62.0	87.1
89	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	11.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	1150.0	341.0	479.2	1.1	127.8	37.9	53.2
90	(A-1-2)09CCC	626785	ANDERSON CLAY.	32000	32000	27	37	2091	15.00	0.00	0.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	1568.2	465.0	653.4	1.5	174.2	51.7	72.6
78	(A-1-2)09DDB			34800	34400	22	42	1701	17.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)09DDB			34800	34400	22	42	1701	10.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)09DDB			34800	34400	22	42	1701	2.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)09DDB			34800	34400	22	42	1701	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)09DDB			34800	34400	22	42	1701	13.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)09DDB			34800	34400	22	42	1701	8.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	2095.00	0.40	0.50	0.10	0.00	838.0	36503.3	142617.5	40559.2	1047.5	45629.1	178271.8	50699.0	209.5	9125.8	35654.4	10139.8	0.0	0.0	0.0	0.0
73	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1108.00	0.40	0.50	0.10	0.00	443.2	19305.8	75427.3	21450.9	554.0	24132.2	94284.1	26813.6	110.8	4826.4	18856.8	5362.7	0.0	0.0	0.0	0.0
74	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	2421.00	0.40	0.50	0.10	0.00	968.4	42183.5	164810.0	46870.6	1210.5	52729.4	206012.5	58588.2	242.1	10545.9	41202.5	11717.6	0.0	0.0	0.0	0.0
75	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1956.00	0.40	0.50	0.10	0.00	782.4	34081.3	133155.0	37868.2	978.0	42601.7	166443.8	47335.2	195.6	8520.3	33288.8	9467.0	0.0	0.0	0.0	0.0
76	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1769.00	0.40	0.50	0.10	0.00	707.6	30823.1	120425.0	34247.8	884.5	38528.8	150531.2	42809.8	176.9	7705.8	30106.2	8562.0	0.0	0.0	0.0	0.0
77	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	2233.00	0.40	0.50	0.10	0.00	893.2	38907.8	152011.8	43230.9	1116.5	48634.7	190014.8	54038.6	223.3	9726.9	38003.0	10807.7	0.0	0.0	0.0	0.0
78	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1107.00	0.40	0.50	0.10	0.00	442.8	19288.4	75359.2	21431.5	553.5	24110.5	94199.0	26789.4	110.7	4822.1	18839.8	5357.9	0.0	0.0	0.0	0.0
79	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1242.00	0.40	0.50	0.10	0.00	496.8	21640.6	84549.4	24045.1	621.0	27050.8	105686.7	30056.4	124.2	5410.2	21137.3	6011.3	0.0	0.0	0.0	0.0
80	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1544.00	0.40	0.50	0.10	0.00	617.6	26902.7	105108.1	29891.8	772.0	33628.3	131385.1	37364.8	154.4	6725.7	26277.0	7473.0	0.0	0.0	0.0	0.0
81	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1576.00	0.40	0.50	0.10	0.00	630.4	27460.2	107286.5	30511.4	788.0	34325.3	134108.1	38139.2	157.6	6865.1	26821.6	7627.8	0.0	0.0	0.0	0.0
82	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1238.00	0.40	0.50	0.10	0.00	495.2	21570.9	84277.1	23967.7	619.0	26963.6	105346.3	29959.6	123.8	5392.7	21069.3	5991.9	0.0	0.0	0.0	0.0
83	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	877.00	0.40	0.50	0.10	0.00	350.8	15280.8	59701.9	16978.7	438.5	19101.1	74627.4	21223.4	87.7	3820.2	14925.5	4244.7	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
84	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1534.00	0.40	0.50	0.10	0.00	613.6	26728.4	104427.3	29698.2	767.0	33410.5	130534.1	37122.8	153.4	6682.1	26106.8	7424.6	0.0	0.0	0.0	0.0
85	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1586.00	0.40	0.50	0.10	0.00	634.4	27634.5	107967.2	30705.0	793.0	34543.1	134959.0	38381.2	158.6	6908.6	26991.8	7676.2	0.0	0.0	0.0	0.0
86	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	1322.00	0.40	0.50	0.10	0.00	528.8	23034.5	89995.4	25593.9	661.0	28793.2	112494.2	31992.4	132.2	5758.6	22498.8	6398.5	0.0	0.0	0.0	0.0
87	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	90.00	0.40	0.50	0.10	0.00	36.0	1568.2	6126.8	1742.4	45.0	1960.2	7658.5	2178.0	9.0	392.0	1531.7	435.6	0.0	0.0	0.0	0.0
88	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	0.00	0.40	0.50	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	2861.00	0.40	0.50	0.10	0.00	1144.4	49850.1	194763.0	55389.0	1430.5	62312.6	243453.8	69236.2	286.1	12462.5	48690.8	13847.2	0.0	0.0	0.0	0.0
90	(A-1-2)10ABA	607200	RID	40707	36847	17	54	1318	0.00	0.40	0.50	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1855.00	0.10	0.80	0.10	0.00	185.5	8080.4	31569.9	8978.2	1484.0	64643.0	252558.9	71825.6	185.5	8080.4	31569.9	8978.2	0.0	0.0	0.0	0.0
73	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1855.00	0.10	0.80	0.10	0.00	185.5	8080.4	31569.9	8978.2	1484.0	64643.0	252558.9	71825.6	185.5	8080.4	31569.9	8978.2	0.0	0.0	0.0	0.0
74	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1627.00	0.10	0.80	0.10	0.00	162.7	7087.2	27689.6	7874.7	1301.6	56697.7	221516.6	62997.4	162.7	7087.2	27689.6	7874.7	0.0	0.0	0.0	0.0
75	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	2538.00	0.10	0.80	0.10	0.00	253.8	11055.5	43193.7	12283.9	2030.4	88444.2	345549.5	98271.4	253.8	11055.5	43193.7	12283.9	0.0	0.0	0.0	0.0
76	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1690.00	0.10	0.80	0.10	0.00	169.0	7361.6	28761.8	8179.6	1352.0	58893.1	230094.1	65436.8	169.0	7361.6	28761.8	8179.6	0.0	0.0	0.0	0.0
77	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1564.00	0.10	0.80	0.10	0.00	156.4	6812.8	26617.4	7569.8	1251.2	54502.3	212939.1	60558.1	156.4	6812.8	26617.4	7569.8	0.0	0.0	0.0	0.0
78	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	739.00	0.10	0.80	0.10	0.00	73.9	3219.1	12576.9	3576.8	591.2	25752.7	100615.1	28614.1	73.9	3219.1	12576.9	3576.8	0.0	0.0	0.0	0.0
79	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	831.00	0.10	0.80	0.10	0.00	83.1	3619.8	14142.6	4022.0	664.8	28958.7	113140.9	32176.3	83.1	3619.8	14142.6	4022.0	0.0	0.0	0.0	0.0
80	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1627.00	0.10	0.80	0.10	0.00	162.7	7087.2	27689.6	7874.7	1301.6	56697.7	221516.6	62997.4	162.7	7087.2	27689.6	7874.7	0.0	0.0	0.0	0.0
81	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1616.00	0.10	0.80	0.10	0.00	161.6	7039.3	27502.4	7821.4	1292.8	56314.4	220018.9	62571.5	161.6	7039.3	27502.4	7821.4	0.0	0.0	0.0	0.0
82	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1104.00	0.10	0.80	0.10	0.00	110.4	4809.0	18788.7	5343.4	883.2	38472.2	150310.0	42746.9	110.4	4809.0	18788.7	5343.4	0.0	0.0	0.0	0.0
83	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	464.00	0.10	0.80	0.10	0.00	46.4	2021.2	7896.7	2245.8	371.2	16169.5	63173.8	17966.1	46.4	2021.2	7896.7	2245.8	0.0	0.0	0.0	0.0
84	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1043.00	0.10	0.80	0.10	0.00	104.3	4543.3	17750.6	5048.1	834.4	36346.5	142004.8	40385.0	104.3	4543.3	17750.6	5048.1	0.0	0.0	0.0	0.0
85	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1359.00	0.10	0.80	0.10	0.00	135.9	5919.8	23128.5	6577.6	1087.2	47358.4	185028.3	52620.5	135.9	5919.8	23128.5	6577.6	0.0	0.0	0.0	0.0
86	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1307.00	0.10	0.80	0.10	0.00	130.7	5693.3	22243.6	6325.9	1045.6	45546.3	177948.5	50607.0	130.7	5693.3	22243.6	6325.9	0.0	0.0	0.0	0.0
87	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1064.00	0.10	0.80	0.10	0.00	106.4	4634.8	18108.0	5149.8	851.2	37078.3	144863.9	41198.1	106.4	4634.8	18108.0	5149.8	0.0	0.0	0.0	0.0
88	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	991.00	0.10	0.80	0.10	0.00	99.1	4316.8	16865.6	4796.4	792.8	34534.4	134925.0	38371.5	99.1	4316.8	16865.6	4796.4	0.0	0.0	0.0	0.0
89	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1010.00	0.10	0.80	0.10	0.00	101.0	4399.6	17189.0	4888.4	808.0	35196.5	137511.8	39107.2	101.0	4399.6	17189.0	4888.4	0.0	0.0	0.0	0.0
90	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	946.00	0.10	0.80	0.10	0.00	94.6	4120.8	16099.8	4578.6	756.8	32966.2	128798.2	36629.1	94.6	4120.8	16099.8	4578.6	0.0	0.0	0.0	0.0
91	(A-1-2)10CCB	607218	RID	37242	33019	25	47	1943	1048.00	0.10	0.80	0.10	0.00	104.8	4565.1	17835.7	5072.3	838.4	36520.7	142685.5	40578.6	104.8	4565.1	17835.7	5072.3	0.0	0.0	0.0	0.0
72	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2776.00	0.35	0.60	0.05	0.00	971.6	42322.9	165354.6	47025.4	1665.6	72553.5	283465.0	80615.0	138.8	6046.1	23622.1	6717.9	0.0	0.0	0.0	0.0
73	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2454.00	0.35	0.60	0.05	0.00	858.9	37413.7	146174.4	41570.8	1472.4	64137.7	250584.7	71264.2	122.7	5344.8	20882.1	5938.7	0.0	0.0	0.0	0.0
74	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	3354.00	0.35	0.60	0.05	0.00	1173.9	51135.1	199783.6	56816.8	2012.4	87660.1	342486.1	97400.2	167.7	7305.0	28540.5	8116.7	0.0	0.0	0.0	0.0
75	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2579.00	0.35	0.60	0.05	0.00	902.7	39319.4	153620.1	43688.3	1547.4	67404.7	263348.8	74894.2	129.0	5617.1	21945.7	6241.2	0.0	0.0	0.0	0.0
76	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2914.00	0.35	0.60	0.05	0.00	1019.9	44426.8	173574.6	49363.2	1748.4	76160.3	297556.5	84622.6	145.7	6346.7	24796.4	7051.9	0.0	0.0	0.0	0.0
77	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2257.00	0.35	0.60	0.05	0.00	789.9	34410.2	134439.9	38233.6	1354.2	58989.0	230468.5	65543.3	112.9	4915.7	19205.7	5461.9	0.0	0.0	0.0	0.0
78	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2457.00	0.35	0.60	0.05	0.00	859.9	37459.4	146353.1	41621.6	1474.2	64216.2	250891.0	71351.3	122.9	5351.3	20907.6	5945.9	0.0	0.0	0.0	0.0
79	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1936.00	0.35	0.60	0.05	0.00	677.6	29516.3	115319.3	32795.8	1161.6	50599.3	197690.3	56221.4	96.8	4216.6	16474.2	4685.1	0.0	0.0	0.0	0.0
80	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2309.00	0.35	0.60	0.05	0.00	808.2	35203.0	137537.4	39114.5	1385.4	60348.0	235778.3	67053.4	115.5	5029.0	19648.2	5587.8	0.0	0.0	0.0	0.0
81	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2271.00	0.35	0.60	0.05	0.00	794.8	34623.7	135273.9	38470.7	1362.6	59354.9	231898.0	65949.8	113.6	4946.2	19324.8	5495.8	0.0	0.0	0.0	0.0
82	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1947.00	0.35	0.60	0.05	0.00	681.4	29684.0	115974.5	32982.2	1168.2	50886.8	198813.5	56540.9	97.4	4240.6	16567.8	4711.7	0.0	0.0	0.0	0.0
83	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1661.00	0.35	0.60	0.05	0.00	581.3	25323.6	98938.7	28137.3	996.6	43411.9	169609.3	48235.4	83.1	3617.7	14134.1	4019.6	0.0	0.0	0.0	0.0
84	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2370.00	0.35	0.60	0.05	0.00	829.5	36133.0	141170.9	40147.8	1422.0	61942.3	242007.2	68824.8	118.5	5161.9	20167.3	5735.4	0.0	0.0	0.0	0.0
85	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2036.00	0.35	0.60	0.05	0.00	712.6	31040.9	121275.9	34489.8	1221.6	53212.9	207901.5	59125.4	101.8	4434.4	17325.1	4927.1	0.0	0.0	0.0	0.0
86	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1733.00	0.35	0.60	0.05	0.00	606.6	26421.3	103227.5	29357.0	1039.8	45293.7	176961.4	50326.3	86.7	3774.5	14746.8	4193.9	0.0	0.0	0.0	0.0
87	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1584.00	0.35	0.60	0.05	0.00	554.4	24149.7	94352.2	26833.0	950.4	41399.4	161746.6	45999.4	79.2	3450.0	13478.9	3833.3	0.0	0.0	0.0	0.0
88	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1194.00	0.35	0.60	0.05	0.00	417.9	18203.7	71121.5	20226.4	716.4	31206.4	121922.6	34673.8	59.7	2600.5	10160.2	2889.5	0.0	0.0	0.0	0.0
89	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	2102.00	0.35	0.60	0.05	0.00	735.7	32047.1	125207.2	35607.9	1261.2	54937.9	214641.0	61042.1	105.1	4578.2	17886.7	5086.8	0.0	0.0	0.0	0.0
90	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1682.00	0.35	0.60	0.05	0.00	588.7	25643.8	100189.6	28493.1	1009.2	43960.8	171753.6	48845.3	84.1	3663.4	14312.8	4070.4	0.0	0.0	0.0	0.0
91	(A-1-2)11AAA	607198	RID	47308	36669	17	64	1328	1315.00	0.35	0.60	0.05	0.00	460.2	20048.5	78329.0	22276.1	789.0	34368.8	134278.3	38187.6	65.8	2864.1	11189.9	3182.3	0.0	0.0	0.0	0.0
72	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2967.00	0.50	0.40	0.10	0.00	1483.5	64621.3	252473.8	71801.4	1186.8	51697.0	201979.0	57441.1	296.7	12924.3	50494.8	14360.3	0.0	0.0	0.0	0.0
73	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1784.00	0.50	0.40	0.10	0.00	892.0	38855.5	151807.6	43172.8	713.6	31084.4	121446.1	34538.2	178.4	7771.1	30361.5	8634.6	0.0	0.0	0.0	0.0
74	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	3496.00	0.50	0.40	0.10	0.00	1748.0	76142.9	297488.5	84603.2	1398.4	60914.3	237990.8	67682.6	349.6	15228.6	59497.7	16920.6	0.0	0.0	0.0	0.0
75	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2812.00	0.50	0.40	0.10	0.00	1406.0	61245.4	239284.2	68050.4	1124.8	48996.3	191427.4	54440.3	281.2	12249.1	47856.8	13610.1	0.0	0.0	0.0	0.0
76	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2879.00	0.50	0.40	0.10	0.00	1439.5	62704.6	244985.5	69671.8	1151.6	50163.7	195988.4	55737.4	287.9	12540.9	48997.1	13934.4	0.0	0.0	0.0	0.0
77	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2681.00	0.50	0.40	0.10	0.00	1340.5	58392.2	228136.9	64880.2	1072.4	46713.7	182509.5	51904.2	268.1	11678.4	45627.4	12976.0	0.0	0.0	0.0	0.0
78	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1611.00	0.50	0.40	0.10	0.00	805.5	35087.6	137086.4	38986.2	644.4	28070.1	109669.1	31189.0	161.1	7017.5	27417.3	7797.2	0.0	0.0	0.0	0.0
79	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1448.00	0.50	0.40	0.10	0.00	724.0	31537.4	123216.0	35041.6	579.2	25230.0	98572.8	28033.3	144.8	6307.5	24643.2	7008.3	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
80	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2366.00	0.50	0.40	0.10	0.00	1183.0	51531.5	201332.3	57257.2	946.4	41225.2	161065.8	45805.8	236.6	10306.3	40266.5	11451.4	0.0	0.0	0.0	0.0
81	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2161.00	0.50	0.40	0.10	0.00	1080.5	47066.6	183888.0	52296.2	864.4	37653.3	147110.4	41837.0	216.1	9413.3	36777.6	10459.2	0.0	0.0	0.0	0.0
82	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1902.00	0.50	0.40	0.10	0.00	951.0	41425.6	161848.7	46028.4	760.8	33140.4	129479.0	36822.7	190.2	8285.1	32369.7	9205.7	0.0	0.0	0.0	0.0
83	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1441.00	0.50	0.40	0.10	0.00	720.5	31385.0	122620.4	34872.2	576.4	25108.0	98096.3	27897.8	144.1	6277.0	24524.1	6974.4	0.0	0.0	0.0	0.0
84	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	2726.00	0.50	0.40	0.10	0.00	1363.0	59372.3	231966.1	65969.2	1090.4	47497.8	185572.9	52775.4	272.6	11874.5	46393.2	13193.8	0.0	0.0	0.0	0.0
85	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1604.00	0.50	0.40	0.10	0.00	802.0	34935.1	136490.7	38816.8	641.6	27948.1	109192.6	31053.4	160.4	6987.0	27298.1	7763.4	0.0	0.0	0.0	0.0
86	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1533.00	0.50	0.40	0.10	0.00	766.5	33388.7	130449.0	37098.6	613.2	26711.0	104359.2	29678.9	153.3	6677.7	26089.8	7419.7	0.0	0.0	0.0	0.0
87	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1146.00	0.50	0.40	0.10	0.00	573.0	24959.9	97517.7	27733.2	458.4	19967.9	78014.1	22186.6	114.6	4992.0	19503.5	5546.6	0.0	0.0	0.0	0.0
88	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1411.00	0.50	0.40	0.10	0.00	705.5	30731.6	120067.6	34146.2	564.4	24585.3	96054.1	27317.0	141.1	6146.3	24013.5	6829.2	0.0	0.0	0.0	0.0
89	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1837.00	0.50	0.40	0.10	0.00	918.5	40009.9	156317.6	44455.4	734.8	32007.9	125054.1	35564.3	183.7	8002.0	31263.5	8891.1	0.0	0.0	0.0	0.0
90	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1456.00	0.50	0.40	0.10	0.00	728.0	31711.7	123896.8	35235.2	582.4	25369.3	99117.4	28188.2	145.6	6342.3	24779.4	7047.0	0.0	0.0	0.0	0.0
91	(A-1-2)11BAB	607199	RID	43800	36756	17	59	1323	1144.00	0.50	0.40	0.10	0.00	572.0	24916.3	97347.5	27684.8	457.6	19933.1	77878.0	22147.8	114.4	4983.3	19469.5	5537.0	0.0	0.0	0.0	0.0
73	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1793.00	0.45	0.40	0.05	0.00	806.9	35146.4	137316.1	39051.5	717.2	31241.2	122058.8	34712.5	89.7	3905.2	15257.3	4339.1	0.0	0.0	0.0	0.0
74	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	3316.00	0.45	0.40	0.05	0.00	1492.2	65000.2	253954.4	72222.5	1326.4	57778.0	225737.2	64197.8	165.8	7222.2	28217.2	8024.7	0.0	0.0	0.0	0.0
75	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	3407.00	0.45	0.40	0.05	0.00	1533.2	66784.0	260923.6	74204.5	1362.8	59363.6	231932.1	65959.5	170.4	7420.4	28991.5	8244.9	0.0	0.0	0.0	0.0
76	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	3042.00	0.45	0.40	0.05	0.00	1368.9	59629.3	232970.2	66254.8	1216.8	53003.8	207084.6	58893.1	152.1	6625.5	25885.6	7361.6	0.0	0.0	0.0	0.0
77	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1975.00	0.45	0.40	0.05	0.00	888.8	38714.0	151254.5	43015.5	790.0	34412.4	134448.4	38236.0	98.8	4301.6	16806.1	4779.5	0.0	0.0	0.0	0.0
78	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1809.00	0.45	0.40	0.05	0.00	814.1	35460.0	138541.5	39400.0	723.6	31520.0	123148.0	35022.2	90.5	3940.0	15393.5	4377.8	0.0	0.0	0.0	0.0
79	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1837.00	0.45	0.40	0.05	0.00	826.7	36008.9	140685.8	40009.9	734.8	32007.9	125054.1	35564.3	91.9	4001.0	15631.8	4445.5	0.0	0.0	0.0	0.0
80	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	3067.00	0.45	0.40	0.05	0.00	1380.2	60119.3	234884.8	66799.3	1226.8	53439.4	208786.5	59377.1	153.4	6679.9	26098.3	7422.1	0.0	0.0	0.0	0.0
81	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	3360.00	0.45	0.40	0.05	0.00	1512.0	65862.7	257324.1	73180.8	1344.0	58544.6	228732.5	65049.6	168.0	7318.1	28591.6	8131.2	0.0	0.0	0.0	0.0
82	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2311.00	0.45	0.40	0.05	0.00	1040.0	45300.2	176986.9	50333.6	924.4	40266.9	157321.7	44741.0	115.6	5033.4	19665.2	5592.6	0.0	0.0	0.0	0.0
83	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1663.00	0.45	0.40	0.05	0.00	748.4	32598.1	127360.1	36220.1	665.2	28976.1	113209.0	32195.7	83.2	3622.0	14151.1	4024.5	0.0	0.0	0.0	0.0
84	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2135.00	0.45	0.40	0.05	0.00	960.8	41850.3	163508.0	46500.3	854.0	37200.2	145340.5	41333.6	106.8	4650.0	18167.6	5166.7	0.0	0.0	0.0	0.0
85	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1401.00	0.45	0.40	0.05	0.00	630.5	27462.4	107295.0	30513.8	560.4	24411.0	95373.3	27123.4	70.1	3051.4	11921.7	3390.4	0.0	0.0	0.0	0.0
86	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2300.00	0.45	0.40	0.05	0.00	1035.0	45084.6	176144.5	50094.0	920.0	40075.2	156572.9	44528.0	115.0	5009.4	19571.6	5566.0	0.0	0.0	0.0	0.0
87	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2151.00	0.45	0.40	0.05	0.00	968.0	42163.9	164733.4	46848.8	860.4	37479.0	146429.7	41643.4	107.6	4684.9	18303.7	5205.4	0.0	0.0	0.0	0.0
88	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2125.00	0.45	0.40	0.05	0.00	956.3	41654.3	162742.2	46282.5	850.0	37026.0	144659.7	41140.0	106.3	4628.3	18082.5	5142.5	0.0	0.0	0.0	0.0
89	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	2196.00	0.45	0.40	0.05	0.00	988.2	43046.0	168179.7	47828.9	878.4	38263.1	149493.1	42514.6	109.8	4782.9	18686.6	5314.3	0.0	0.0	0.0	0.0
90	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1771.00	0.45	0.40	0.05	0.00	797.0	34715.1	135631.3	38572.4	708.4	30857.9	120561.1	34286.6	88.6	3857.2	15070.1	4285.8	0.0	0.0	0.0	0.0
91	(A-1-2)11CBC	607215	RID	42402	33251	24	57	1874	1726.00	0.45	0.40	0.05	0.00	776.7	33833.1	132184.9	37592.3	690.4	30073.8	117497.7	33415.4	86.3	3759.2	14687.2	4176.9	0.0	0.0	0.0	0.0
72	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	3266.00	0.50	0.45	0.05	0.00	1633.0	71133.5	277916.9	79037.2	1469.7	64020.1	250125.2	71133.5	163.3	7113.3	27791.7	7903.7	0.0	0.0	0.0	0.0
73	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1693.00	0.50	0.45	0.05	0.00	846.5	36873.5	144064.1	40970.6	761.9	33186.2	129657.7	36873.5	84.7	3687.4	14406.4	4097.1	0.0	0.0	0.0	0.0
74	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	3657.00	0.50	0.45	0.05	0.00	1828.5	79649.5	311188.6	88499.4	1645.7	71684.5	280069.7	79649.5	182.9	7964.9	31118.9	8849.9	0.0	0.0	0.0	0.0
75	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	3191.00	0.50	0.45	0.05	0.00	1595.5	69500.0	271534.8	77222.2	1436.0	62550.0	244381.3	69500.0	159.6	6950.0	27153.5	7722.2	0.0	0.0	0.0	0.0
76	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	3012.00	0.50	0.45	0.05	0.00	1506.0	65601.4	256303.0	72890.4	1355.4	59041.2	230672.7	65601.4	150.6	6560.1	25630.3	7289.0	0.0	0.0	0.0	0.0
77	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	3284.00	0.50	0.45	0.05	0.00	1642.0	71525.5	279448.5	79472.8	1477.8	64373.0	251503.7	71525.5	164.2	7152.6	27944.9	7947.3	0.0	0.0	0.0	0.0
78	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1700.00	0.50	0.45	0.05	0.00	850.0	37026.0	144659.7	41140.0	765.0	33323.4	130193.7	37026.0	85.0	3702.6	14466.0	4114.0	0.0	0.0	0.0	0.0
79	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1600.00	0.50	0.45	0.05	0.00	800.0	34848.0	136150.3	38720.0	720.0	31363.2	122535.3	34848.0	80.0	3484.8	13615.0	3872.0	0.0	0.0	0.0	0.0
80	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1711.00	0.50	0.45	0.05	0.00	855.5	37265.6	145595.8	41406.2	770.0	33539.0	131036.2	37265.6	85.6	3726.6	14559.6	4140.6	0.0	0.0	0.0	0.0
81	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1490.00	0.50	0.45	0.05	0.00	745.0	32452.2	126790.0	36058.0	670.5	29207.0	114111.0	32452.2	74.5	3245.2	12679.0	3605.8	0.0	0.0	0.0	0.0
82	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1253.00	0.50	0.45	0.05	0.00	626.5	27290.3	106622.7	30322.6	563.9	24561.3	95960.5	27290.3	62.7	2729.0	10662.3	3032.3	0.0	0.0	0.0	0.0
83	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	201.00	0.50	0.45	0.05	0.00	100.5	4377.8	17103.9	4864.2	90.5	3940.0	15393.5	4377.8	10.1	437.8	1710.4	486.4	0.0	0.0	0.0	0.0
84	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1543.00	0.50	0.45	0.05	0.00	771.5	33606.5	131300.0	37340.6	694.4	30245.9	118170.0	33606.5	77.2	3360.7	13130.0	3734.1	0.0	0.0	0.0	0.0
85	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1387.00	0.50	0.45	0.05	0.00	693.5	30208.9	118025.3	33565.4	624.2	27188.0	106222.8	30208.9	69.4	3020.9	11802.5	3356.5	0.0	0.0	0.0	0.0
86	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1299.00	0.50	0.45	0.05	0.00	649.5	28292.2	110537.0	31435.8	584.6	25463.0	99483.3	28292.2	65.0	2829.2	11053.7	3143.6	0.0	0.0	0.0	0.0
87	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	949.00	0.50	0.45	0.05	0.00	474.5	20669.2	80754.2	22965.8	427.1	18602.3	72678.7	20669.2	47.5	2066.9	8075.4	2296.6	0.0	0.0	0.0	0.0
88	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1410.00	0.50	0.45	0.05	0.00	705.0	30709.8	119982.5	34122.0	634.5	27638.8	107984.2	30709.8	70.5	3071.0	11998.2	3412.2	0.0	0.0	0.0	0.0
89	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1503.00	0.50	0.45	0.05	0.00	751.5	32735.3	127896.2	36372.6	676.4	29461.8	115106.6	32735.3	75.2	3273.5	12789.6	3637.3	0.0	0.0	0.0	0.0
90	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1540.00	0.50	0.45	0.05	0.00	770.0	33541.2	131044.7	37268.0	693.0	30187.1	117940.2	33541.2	77.0	3354.1	13104.5	3726.8	0.0	0.0	0.0	0.0
91	(A-1-2)12BAA	607197	RID	49858	36636	18	67	1410	1161.00	0.50	0.45	0.05	0.00	580.5	25286.6	98794.1	28096.2	522.5	22757.9	88914.7	25286.6	58.1	2528.7	9879.4	2809.6	0.0	0.0	0.0	0.0
78	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	44.00	0.10	0.70	0.20	0.00	4.4	511.1	151.5	213.0	30.8	3577.7	1060.8	1490.7	8.8	1022.2	303.1	425.9	0.0	0.0	0.0	0.0
79	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	40.00	0.10	0.70	0.20	0.00	4.0	464.6	137.8	193.6	28.0	3252.5	964.4	1355.2	8.0	929.3	275.5	387.2	0.0	0.0	0.0	0.0
80	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	42.00	0.10	0.70	0.20	0.00	4.2	487.9	144.7	203.3	29.4	3415.1	1012.6	1423.0	8.4	975.7	289.3	406.6	0.0	0.0	0.0	0.0
81	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	56.00	0.10	0.70	0.20	0.00	5.6	650.5	192.9	271.0	39.2	4553.5	1350.2	1897.3	11.2	1301.0	385.8	542.1	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
82	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	41.00	0.10	0.70	0.20	0.00	4.1	476.3	141.2	198.4	28.7	3333.8	988.5	1389.1	8.2	952.5	282.4	396.9	0.0	0.0	0.0	0.0
83	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	10.00	0.10	0.70	0.20	0.00	1.0	116.2	34.4	48.4	7.0	813.1	241.1	338.8	2.0	232.3	68.9	96.8	0.0	0.0	0.0	0.0
84	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	38.00	0.10	0.70	0.20	0.00	3.8	441.4	130.9	183.9	26.6	3089.9	916.2	1287.4	7.6	882.8	261.8	367.8	0.0	0.0	0.0	0.0
85	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	38.00	0.10	0.70	0.20	0.00	3.8	441.4	130.9	183.9	26.6	3089.9	916.2	1287.4	7.6	882.8	261.8	367.8	0.0	0.0	0.0	0.0
86	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	38.00	0.10	0.70	0.20	0.00	3.8	441.4	130.9	183.9	26.6	3089.9	916.2	1287.4	7.6	882.8	261.8	367.8	0.0	0.0	0.0	0.0
87	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	38.00	0.10	0.70	0.20	0.00	3.8	441.4	130.9	183.9	26.6	3089.9	916.2	1287.4	7.6	882.8	261.8	367.8	0.0	0.0	0.0	0.0
88	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	8.00	0.10	0.70	0.20	0.00	0.8	92.9	27.6	38.7	5.6	650.5	192.9	271.0	1.6	185.9	55.1	77.4	0.0	0.0	0.0	0.0
89	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	0.00	0.10	0.70	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)12CAA	800748	HOLSUM BAKERY	49360	34280	22	67	1726	0.00	0.10	0.70	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2045.00	0.50	0.45	0.05	0.00	1022.5	44540.1	174017.1	49489.0	920.3	40086.1	156615.4	44540.1	102.3	4454.0	17401.7	4948.9	0.0	0.0	0.0	0.0
73	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2045.00	0.50	0.45	0.05	0.00	1022.5	44540.1	174017.1	49489.0	920.3	40086.1	156615.4	44540.1	102.3	4454.0	17401.7	4948.9	0.0	0.0	0.0	0.0
74	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	4290.00	0.50	0.45	0.05	0.00	2145.0	93436.2	365053.1	103818.0	1930.5	84092.6	328547.8	93436.2	214.5	9343.6	36505.3	10381.8	0.0	0.0	0.0	0.0
75	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	3656.00	0.50	0.45	0.05	0.00	1828.0	79627.7	311103.5	88475.2	1645.2	71664.9	279993.1	79627.7	182.8	7962.8	31110.3	8847.5	0.0	0.0	0.0	0.0
76	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	3786.00	0.50	0.45	0.05	0.00	1893.0	82459.1	322165.7	91621.2	1703.7	74213.2	289949.1	82459.1	189.3	8245.9	32216.6	9162.1	0.0	0.0	0.0	0.0
77	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	3420.00	0.50	0.45	0.05	0.00	1710.0	74487.6	291021.3	82764.0	1539.0	67038.8	261919.2	74487.6	171.0	7448.8	29102.1	8276.4	0.0	0.0	0.0	0.0
78	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2045.00	0.50	0.45	0.05	0.00	1022.5	44540.1	174017.1	49489.0	920.3	40086.1	156615.4	44540.1	102.3	4454.0	17401.7	4948.9	0.0	0.0	0.0	0.0
79	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	1613.00	0.50	0.45	0.05	0.00	806.5	35131.1	137256.5	39034.6	725.9	31618.0	123530.9	35131.1	80.7	3513.1	13725.7	3903.5	0.0	0.0	0.0	0.0
80	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2036.00	0.50	0.45	0.05	0.00	1018.0	44344.1	173251.3	49271.2	916.2	39909.7	155926.2	44344.1	101.8	4434.4	17325.1	4927.1	0.0	0.0	0.0	0.0
81	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2414.00	0.50	0.45	0.05	0.00	1207.0	52576.9	205416.8	58418.8	1086.3	47319.2	184875.1	52576.9	120.7	5257.7	20541.7	5841.9	0.0	0.0	0.0	0.0
82	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	1434.00	0.50	0.45	0.05	0.00	717.0	31232.5	122024.7	34702.8	645.3	28109.3	109822.3	31232.5	71.7	3123.3	12202.5	3470.3	0.0	0.0	0.0	0.0
83	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	1524.00	0.50	0.45	0.05	0.00	762.0	33192.7	129683.2	36880.8	685.8	29873.4	116714.9	33192.7	76.2	3319.3	12968.3	3688.1	0.0	0.0	0.0	0.0
84	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	1886.00	0.50	0.45	0.05	0.00	943.0	41077.1	160487.2	45641.2	848.7	36969.4	144438.5	41077.1	94.3	4107.7	16048.7	4564.1	0.0	0.0	0.0	0.0
85	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2684.00	0.50	0.45	0.05	0.00	1342.0	58457.5	228392.2	64952.8	1207.8	52611.8	205553.0	58457.5	134.2	5845.8	22839.2	6495.3	0.0	0.0	0.0	0.0
86	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	3071.00	0.50	0.45	0.05	0.00	1535.5	66886.4	261323.5	74318.2	1382.0	60197.7	235191.2	66886.4	153.6	6688.6	26132.4	7431.8	0.0	0.0	0.0	0.0
87	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2303.00	0.50	0.45	0.05	0.00	1151.5	50159.3	195971.4	55732.6	1036.4	45143.4	176374.2	50159.3	115.2	5015.9	19597.1	5573.3	0.0	0.0	0.0	0.0
88	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	3017.00	0.50	0.45	0.05	0.00	1508.5	65710.3	256728.5	73011.4	1357.7	59139.2	231055.6	65710.3	150.9	6571.0	25672.8	7301.1	0.0	0.0	0.0	0.0
89	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2853.00	0.50	0.45	0.05	0.00	1426.5	62138.3	242773.0	69042.6	1283.9	55924.5	218495.7	62138.3	142.7	6213.8	24277.3	6904.3	0.0	0.0	0.0	0.0
90	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	2429.00	0.50	0.45	0.05	0.00	1214.5	52903.6	206693.2	58781.8	1093.1	47613.3	186023.9	52903.6	121.5	5290.4	20669.3	5878.2	0.0	0.0	0.0	0.0
91	(A-1-2)12CBC	607210	RID	47687	32916	25	64	1960	1692.00	0.50	0.45	0.05	0.00	846.0	36851.8	143979.0	40946.4	761.4	33166.6	129581.1	36851.8	84.6	3685.2	14397.9	4094.6	0.0	0.0	0.0	0.0
72	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	5463.00	0.70	0.25	0.05	0.00	3824.1	166577.8	650815.6	185086.4	1365.8	59492.1	232434.1	66102.3	273.2	11898.4	46486.8	13220.5	0.0	0.0	0.0	0.0
73	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3232.00	0.70	0.25	0.05	0.00	2262.4	98550.1	385033.1	109500.2	808.0	35196.5	137511.8	39107.2	161.6	7039.3	27502.4	7821.4	0.0	0.0	0.0	0.0
74	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	5825.00	0.70	0.25	0.05	0.00	4077.5	177615.9	693941.2	197351.0	1456.3	63434.3	247836.1	70482.5	291.3	12686.9	49567.2	14096.5	0.0	0.0	0.0	0.0
75	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	4862.00	0.70	0.25	0.05	0.00	3403.4	148252.1	579217.5	164724.6	1215.5	52947.2	206863.4	58830.2	243.1	10589.4	41372.7	11766.0	0.0	0.0	0.0	0.0
76	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	5929.00	0.70	0.25	0.05	0.00	4150.3	180787.1	706330.9	200874.5	1482.3	64566.8	252261.0	71740.9	296.5	12913.4	50452.2	14348.2	0.0	0.0	0.0	0.0
77	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	5237.00	0.70	0.25	0.05	0.00	3665.9	159686.6	623891.8	177429.6	1309.3	57030.9	222818.5	63367.7	261.9	11406.2	44563.7	12673.5	0.0	0.0	0.0	0.0
78	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3232.00	0.70	0.25	0.05	0.00	2262.4	98550.1	385033.1	109500.2	808.0	35196.5	137511.8	39107.2	161.6	7039.3	27502.4	7821.4	0.0	0.0	0.0	0.0
79	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3081.00	0.70	0.25	0.05	0.00	2156.7	93945.9	367044.3	104384.3	770.3	33552.1	131087.2	37280.1	154.1	6710.4	26217.4	7456.0	0.0	0.0	0.0	0.0
80	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	4737.00	0.70	0.25	0.05	0.00	3315.9	144440.6	564326.1	160489.6	1184.3	51585.9	201545.0	57317.7	236.9	10317.2	40309.0	11463.5	0.0	0.0	0.0	0.0
81	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	4160.00	0.70	0.25	0.05	0.00	2912.0	126846.7	495587.2	140940.8	1040.0	45302.4	176995.4	50336.0	208.0	9060.5	35399.1	10067.2	0.0	0.0	0.0	0.0
82	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3399.00	0.70	0.25	0.05	0.00	2379.3	103642.3	404928.1	115158.1	849.8	37015.1	144617.2	41127.9	170.0	7403.0	28923.4	8225.6	0.0	0.0	0.0	0.0
83	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	2224.00	0.70	0.25	0.05	0.00	1556.8	67814.2	264948.5	75349.1	556.0	24219.4	94624.5	26910.4	111.2	4843.9	18924.9	5382.1	0.0	0.0	0.0	0.0
84	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	4527.00	0.70	0.25	0.05	0.00	3168.9	138037.3	539308.5	153374.8	1131.8	49299.0	192610.2	54776.7	226.4	9859.8	38522.0	10955.3	0.0	0.0	0.0	0.0
85	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3068.00	0.70	0.25	0.05	0.00	2147.6	93549.5	365495.5	103943.8	767.0	33410.5	130534.1	37122.8	153.4	6682.1	26106.8	7424.6	0.0	0.0	0.0	0.0
86	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	2120.00	0.70	0.25	0.05	0.00	1484.0	64643.0	252558.9	71825.6	530.0	23086.8	90199.6	25652.0	106.0	4617.4	18039.9	5130.4	0.0	0.0	0.0	0.0
87	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	2721.00	0.70	0.25	0.05	0.00	1904.7	82968.7	324156.9	92187.5	680.3	29631.7	115770.3	32924.1	136.1	5926.3	23154.1	6584.8	0.0	0.0	0.0	0.0
88	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3306.00	0.70	0.25	0.05	0.00	2314.2	100806.6	393848.9	112007.3	826.5	36002.3	140660.3	40002.6	165.3	7200.5	28132.1	8000.5	0.0	0.0	0.0	0.0
89	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3501.00	0.70	0.25	0.05	0.00	2450.7	106752.5	417079.5	118613.9	875.3	38125.9	148957.0	42362.1	175.1	7625.2	29791.4	8472.4	0.0	0.0	0.0	0.0
90	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3383.00	0.70	0.25	0.05	0.00	2368.1	103154.4	403022.0	114616.0	845.8	36840.9	143936.4	40934.3	169.2	7368.2	28787.3	8186.9	0.0	0.0	0.0	0.0
91	(A-1-2)13ABD2	607196	RID	51211	30328	30	69	2360	3695.00	0.70	0.25	0.05	0.00	2586.5	112667.9	440191.0	125186.6	923.8	40238.6	157211.1	44709.5	184.8	8047.7	31442.2	8941.9	0.0	0.0	0.0	0.0
72	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	5728.00	0.40	0.55	0.05	0.00	2291.2	99804.7	389934.5	110894.1	3150.4	137231.4	536160.0	152479.4	286.4	12475.6	48741.8	13861.8	0.0	0.0	0.0	0.0
73	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	4995.00	0.40	0.55	0.05	0.00	1998.0	87032.9	340035.4	96703.2	2747.3	119670.2	467548.7	132966.9	249.8	10879.1	42504.4	12087.9	0.0	0.0	0.0	0.0
74	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	5411.00	0.40	0.55	0.05	0.00	2164.4	94281.3	368354.7	104757.0	2976.1	129636.7	506487.7	144040.8	270.6	11785.2	46044.3	13094.6	0.0	0.0	0.0	0.0
75	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	6035.00	0.40	0.55	0.05	0.00	2414.0	105153.8	410833.6	116837.6	3319.3	144586.5	564896.2	160651.7	301.8	13144.2	51354.2	14604.7	0.0	0.0	0.0	0.0
76	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	5914.00	0.40	0.55	0.05	0.00	2365.6	103045.5	402596.5	114495.0	3252.7	141687.6	553570.2	157430.7	295.7	12880.7	50324.6	14311.9	0.0	0.0	0.0	0.0
77	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	5551.00	0.40	0.55	0.05	0.00	2220.4	96720.6	377885.2	107467.4	3053.1	132990.9	519592.2	147767.6	277.6	12090.1	47235.7	13433.4	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
78	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	5190.00	0.40	0.55	0.05	0.00	2076.0	90430.6	353310.1	100478.4	2854.5	124342.0	485801.4	138157.8	259.5	11303.8	44163.8	12559.8	0.0	0.0	0.0	0.0
79	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3066.00	0.40	0.55	0.05	0.00	1226.4	53422.0	208718.4	59357.8	1686.3	73455.2	286987.9	81616.9	153.3	6677.7	26089.8	7419.7	0.0	0.0	0.0	0.0
80	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	4953.00	0.40	0.55	0.05	0.00	1981.2	86301.1	337176.3	95890.1	2724.2	118664.0	463617.4	131848.9	247.7	10787.6	42147.0	11986.3	0.0	0.0	0.0	0.0
81	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	6524.00	0.40	0.55	0.05	0.00	2609.6	113674.2	444122.4	126304.6	3588.2	156302.0	610668.2	173668.9	326.2	14209.3	55515.3	15788.1	0.0	0.0	0.0	0.0
82	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3994.00	0.40	0.55	0.05	0.00	1597.6	69591.5	271892.2	77323.8	2196.7	95688.3	373851.8	106320.3	199.7	8698.9	33986.5	9665.5	0.0	0.0	0.0	0.0
83	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	2089.00	0.40	0.55	0.05	0.00	835.6	36398.7	142209.0	40443.0	1149.0	50048.3	195537.4	55609.2	104.5	4549.8	17776.1	5055.4	0.0	0.0	0.0	0.0
84	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3612.00	0.40	0.55	0.05	0.00	1444.8	62935.5	245887.5	69928.3	1986.6	86536.3	338095.3	96151.4	180.6	7866.9	30735.9	8741.0	0.0	0.0	0.0	0.0
85	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	2813.00	0.40	0.55	0.05	0.00	1125.2	49013.7	191495.4	54459.7	1547.2	67393.9	263306.2	74882.1	140.7	6126.7	23936.9	6807.5	0.0	0.0	0.0	0.0
86	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	4685.00	0.40	0.55	0.05	0.00	1874.0	81631.4	318932.1	90701.6	2576.8	112243.2	438531.7	124714.7	234.3	10203.9	39866.5	11337.7	0.0	0.0	0.0	0.0
87	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	4639.00	0.40	0.55	0.05	0.00	1855.6	80829.9	315800.7	89811.0	2551.5	111141.2	434225.9	123490.2	232.0	10103.7	39475.1	11226.4	0.0	0.0	0.0	0.0
88	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3627.00	0.40	0.55	0.05	0.00	1450.8	63196.8	246908.6	70218.7	1994.9	86895.7	339499.3	96550.7	181.4	7899.6	30863.6	8777.3	0.0	0.0	0.0	0.0
89	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3313.00	0.40	0.55	0.05	0.00	1325.2	57725.7	225533.0	64139.7	1822.2	79372.9	310107.9	88192.1	165.7	7215.7	28191.6	8017.5	0.0	0.0	0.0	0.0
90	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	3008.00	0.40	0.55	0.05	0.00	1203.2	52411.4	204770.1	58234.9	1654.4	72065.7	281558.9	80073.0	150.4	6551.4	25596.3	7279.4	0.0	0.0	0.0	0.0
91	(A-1-2)13CDD2	607209	RID	49944	26457	38	67	2990	4161.00	0.40	0.55	0.05	0.00	1664.4	72501.3	283260.8	80557.0	2288.6	99689.2	389483.5	110765.8	208.1	9062.7	35407.6	10069.6	0.0	0.0	0.0	0.0
72	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3636.00	0.70	0.25	0.05	0.00	2545.2	110868.9	433162.3	123187.7	909.0	39596.0	154700.8	43995.6	181.8	7919.2	30940.2	8799.1	0.0	0.0	0.0	0.0
73	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3169.00	0.70	0.25	0.05	0.00	2218.3	96629.1	377527.8	107365.7	792.3	34510.4	134831.4	38344.9	158.5	6902.1	26966.3	7669.0	0.0	0.0	0.0	0.0
74	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	4334.00	0.70	0.25	0.05	0.00	3033.8	132152.3	516316.1	146835.9	1083.5	47197.3	184398.6	52441.4	216.7	9439.5	36879.7	10488.3	0.0	0.0	0.0	0.0
75	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3366.00	0.70	0.25	0.05	0.00	2356.2	102636.1	400996.7	114040.1	841.5	36655.7	143213.1	40728.6	168.3	7331.1	28642.6	8145.7	0.0	0.0	0.0	0.0
76	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3346.00	0.70	0.25	0.05	0.00	2342.2	102026.2	398614.1	113362.5	836.5	36437.9	142362.2	40486.6	167.3	7287.6	28472.4	8097.3	0.0	0.0	0.0	0.0
77	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3496.00	0.70	0.25	0.05	0.00	2447.2	106600.0	416483.8	118444.5	874.0	38071.4	148744.2	42301.6	174.8	7614.3	29748.8	8460.3	0.0	0.0	0.0	0.0
78	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3305.00	0.70	0.25	0.05	0.00	2313.5	100776.1	393729.7	111973.4	826.3	35991.5	140617.8	39990.5	165.3	7198.3	28123.6	7998.1	0.0	0.0	0.0	0.0
79	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	2544.00	0.70	0.25	0.05	0.00	1780.8	77571.6	303070.6	86190.7	636.0	27704.2	108239.5	30782.4	127.2	5540.8	21647.9	6156.5	0.0	0.0	0.0	0.0
80	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3340.00	0.70	0.25	0.05	0.00	2338.0	101843.3	397899.3	113159.2	835.0	36372.6	142106.9	40414.0	167.0	7274.5	28421.4	8082.8	0.0	0.0	0.0	0.0
81	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3809.00	0.70	0.25	0.05	0.00	2666.3	116144.0	453772.0	129048.9	952.3	41480.0	162061.4	46088.9	190.5	8296.0	32412.3	9217.8	0.0	0.0	0.0	0.0
82	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	2984.00	0.70	0.25	0.05	0.00	2088.8	90988.1	355488.5	101097.9	746.0	32495.8	126960.2	36106.4	149.2	6499.2	25392.0	7221.3	0.0	0.0	0.0	0.0
83	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	1798.00	0.70	0.25	0.05	0.00	1258.6	54824.6	214198.5	60916.2	449.5	19580.2	76499.5	21755.8	89.9	3916.0	15299.9	4351.2	0.0	0.0	0.0	0.0
84	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	2713.00	0.70	0.25	0.05	0.00	1899.1	82724.8	323203.9	91916.4	678.3	29544.6	115429.9	32827.3	135.7	5908.9	23086.0	6565.5	0.0	0.0	0.0	0.0
85	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3182.00	0.70	0.25	0.05	0.00	2227.4	97025.5	379076.5	107806.2	795.5	34652.0	135384.5	38502.2	159.1	6930.4	27076.9	7700.4	0.0	0.0	0.0	0.0
86	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3137.00	0.70	0.25	0.05	0.00	2195.9	95653.4	373715.6	106281.6	784.3	34161.9	133469.9	37957.7	156.9	6832.4	26694.0	7591.5	0.0	0.0	0.0	0.0
87	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	2487.00	0.70	0.25	0.05	0.00	1740.9	75833.6	296280.1	84259.6	621.8	27083.4	105814.3	30092.7	124.4	5416.7	21162.9	6018.5	0.0	0.0	0.0	0.0
88	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3765.00	0.70	0.25	0.05	0.00	2635.5	114802.4	448530.2	127558.2	941.3	41000.9	160189.4	45556.5	188.3	8200.2	32037.9	9111.3	0.0	0.0	0.0	0.0
89	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3688.00	0.70	0.25	0.05	0.00	2581.6	112454.5	439357.1	124949.4	922.0	40162.3	156913.3	44624.8	184.4	8032.5	31382.7	8925.0	0.0	0.0	0.0	0.0
90	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	2865.00	0.70	0.25	0.05	0.00	2005.5	87359.6	341311.8	97066.2	716.3	31199.9	121897.1	34666.5	143.3	6240.0	24379.4	6933.3	0.0	0.0	0.0	0.0
91	(A-1-2)13DDA	607208	RID	52563	27544	36	71	2836	3352.00	0.70	0.25	0.05	0.00	2346.4	102209.2	399328.9	113565.8	838.0	36503.3	142617.5	40559.2	167.6	7300.7	28523.5	8111.8	0.0	0.0	0.0	0.0
72	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2293.00	0.75	0.20	0.05	0.00	1719.8	74912.3	292680.7	83235.9	458.6	19976.6	78048.2	22196.2	114.7	4994.2	19512.0	5549.1	0.0	0.0	0.0	0.0
73	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1888.00	0.75	0.20	0.05	0.00	1416.0	61681.0	240986.1	68534.4	377.6	16448.3	64263.0	18275.8	94.4	4112.1	16065.7	4569.0	0.0	0.0	0.0	0.0
74	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2906.00	0.75	0.20	0.05	0.00	2179.5	94939.0	370924.5	105487.8	581.2	25317.1	98913.2	28130.1	145.3	6329.3	24728.3	7032.5	0.0	0.0	0.0	0.0
75	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1994.00	0.75	0.20	0.05	0.00	1495.5	65144.0	254516.0	72382.2	398.8	17371.7	67870.9	19301.9	99.7	4342.9	16967.7	4825.5	0.0	0.0	0.0	0.0
76	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2281.00	0.75	0.20	0.05	0.00	1710.8	74520.3	291149.0	82800.3	456.2	19872.1	77639.7	22080.1	114.1	4968.0	19409.9	5520.0	0.0	0.0	0.0	0.0
77	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1992.00	0.75	0.20	0.05	0.00	1494.0	65078.6	254260.7	72309.6	398.4	17354.3	67802.9	19282.6	99.6	4338.6	16950.7	4820.6	0.0	0.0	0.0	0.0
78	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1888.00	0.75	0.20	0.05	0.00	1416.0	61681.0	240986.1	68534.4	377.6	16448.3	64263.0	18275.8	94.4	4112.1	16065.7	4569.0	0.0	0.0	0.0	0.0
79	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1685.00	0.75	0.20	0.05	0.00	1263.8	55049.0	215075.0	61165.5	337.0	14679.7	57353.3	16310.8	84.3	3669.9	14338.3	4077.7	0.0	0.0	0.0	0.0
80	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1909.00	0.75	0.20	0.05	0.00	1431.8	62367.0	243666.5	69296.7	381.8	16631.2	64977.7	18479.1	95.5	4157.8	16244.4	4619.8	0.0	0.0	0.0	0.0
81	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2195.00	0.75	0.20	0.05	0.00	1646.3	71710.6	280171.8	79678.5	439.0	19122.8	74712.5	21247.6	109.8	4780.7	18678.1	5311.9	0.0	0.0	0.0	0.0
82	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	929.00	0.75	0.20	0.05	0.00	696.8	30350.4	118578.4	33722.7	185.8	8093.4	31620.9	8992.7	46.5	2023.4	7905.2	2248.2	0.0	0.0	0.0	0.0
83	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1547.00	0.75	0.20	0.05	0.00	1160.3	50540.5	197460.5	56156.1	309.4	13477.5	52656.1	14975.0	77.4	3369.4	13164.0	3743.7	0.0	0.0	0.0	0.0
84	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1861.00	0.75	0.20	0.05	0.00	1395.8	60798.9	237539.8	67554.3	372.2	16213.0	63343.9	18014.5	93.1	4053.3	15836.0	4503.6	0.0	0.0	0.0	0.0
85	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2289.00	0.75	0.20	0.05	0.00	1716.8	74781.6	292170.1	83090.7	457.8	19941.8	77912.0	22157.5	114.5	4985.4	19478.0	5539.4	0.0	0.0	0.0	0.0
86	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1949.00	0.75	0.20	0.05	0.00	1461.8	63673.8	248772.2	70748.7	389.8	16979.7	66339.2	18866.3	97.5	4244.9	16584.8	4716.6	0.0	0.0	0.0	0.0
87	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1781.00	0.75	0.20	0.05	0.00	1335.8	58185.3	227328.5	64650.3	356.2	15516.1	60620.9	17240.1	89.1	3879.0	15155.2	4310.0	0.0	0.0	0.0	0.0
88	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1855.00	0.75	0.20	0.05	0.00	1391.3	60602.9	236773.9	67336.5	371.0	16160.8	63139.7	17956.4	92.8	4040.2	15784.9	4489.1	0.0	0.0	0.0	0.0
89	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	2285.00	0.75	0.20	0.05	0.00	1713.8	74651.0	291659.5	82945.5	457.0	19906.9	77775.9	22118.8	114.3	4976.7	19444.0	5529.7	0.0	0.0	0.0	0.0
90	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	844.00	0.75	0.20	0.05	0.00	633.0	27573.5	107728.9	30637.2	168.8	7352.9	28727.7	8169.9	42.2	1838.2	7181.9	2042.5	0.0	0.0	0.0	0.0
91	(A-1-2)14AAD	607211	RID	47374	30452	30	64	2355	1304.00	0.75	0.20	0.05	0.00	978.0	42601.7	166443.8	47335.2	260.8	11360.4	44385.0	12622.7	65.2	2840.1	11096.3	3155.7	0.0	0.0	0.0	0.0
72	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	6680.00	0.55	0.35	0.10	0.00	3674.0	160039.4	625270.4	177821.6	2338.0	101843.3	397899.3	113159.2	668.0	29098.1	113685.5	32331.2	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
73	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3000.00	0.55	0.35	0.10	0.00	1650.0	71874.0	280810.0	79860.0	1050.0	45738.0	178697.3	50820.0	300.0	13068.0	51056.4	14520.0	0.0	0.0	0.0	0.0
74	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	7355.00	0.55	0.35	0.10	0.00	4045.3	176211.1	688452.6	195790.1	2574.3	112134.3	438106.2	124593.7	735.5	32038.4	125173.2	35598.2	0.0	0.0	0.0	0.0
75	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	7243.00	0.55	0.35	0.10	0.00	3983.7	173527.8	677969.1	192808.7	2535.1	110426.8	431434.9	122696.4	724.3	31550.5	123267.1	35056.1	0.0	0.0	0.0	0.0
76	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	6629.00	0.55	0.35	0.10	0.00	3646.0	158817.6	620496.6	176464.0	2320.2	101065.7	394861.5	112295.3	662.9	28875.9	112817.6	32084.4	0.0	0.0	0.0	0.0
77	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	5445.00	0.55	0.35	0.10	0.00	2994.8	130451.3	509670.2	144945.9	1905.8	83014.5	324335.6	92238.3	544.5	23718.4	92667.3	26353.8	0.0	0.0	0.0	0.0
78	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	2990.00	0.55	0.35	0.10	0.00	1644.5	71634.4	279874.0	79593.8	1046.5	45585.5	178101.6	50650.6	299.0	13024.4	50886.2	14471.6	0.0	0.0	0.0	0.0
79	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3370.00	0.55	0.35	0.10	0.00	1853.5	80738.5	315443.3	89709.4	1179.5	51379.0	200736.6	57087.8	337.0	14679.7	57353.3	16310.8	0.0	0.0	0.0	0.0
80	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	5566.00	0.55	0.35	0.10	0.00	3061.3	133350.2	520996.2	148166.9	1948.1	84859.2	331543.1	94288.0	556.6	24245.5	94726.6	26939.4	0.0	0.0	0.0	0.0
81	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	6576.00	0.55	0.35	0.10	0.00	3616.8	157547.8	615535.6	175053.1	2301.6	100257.7	391704.5	111397.4	657.6	28645.1	111915.6	31827.8	0.0	0.0	0.0	0.0
82	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	4487.00	0.55	0.35	0.10	0.00	2467.9	107499.5	419998.2	119443.9	1570.5	68408.8	267271.6	76009.8	448.7	19545.4	76363.3	21717.1	0.0	0.0	0.0	0.0
83	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	2870.00	0.55	0.35	0.10	0.00	1578.5	68759.5	268641.6	76399.4	1004.5	43756.0	170953.8	48617.8	287.0	12501.7	48843.9	13890.8	0.0	0.0	0.0	0.0
84	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3513.00	0.55	0.35	0.10	0.00	1932.2	84164.5	328828.6	93516.1	1229.6	53559.2	209254.5	59510.2	351.3	15302.6	59787.0	17002.9	0.0	0.0	0.0	0.0
85	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	4516.00	0.55	0.35	0.10	0.00	2483.8	108194.3	422712.7	120215.9	1580.6	68850.9	268999.0	76501.0	451.6	19671.7	76856.9	21857.4	0.0	0.0	0.0	0.0
86	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	1942.00	0.55	0.35	0.10	0.00	1068.1	46526.4	181777.7	51696.0	679.7	29607.7	115676.7	32897.5	194.2	8459.4	33050.5	9399.3	0.0	0.0	0.0	0.0
87	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	4057.00	0.55	0.35	0.10	0.00	2231.4	97197.6	379748.8	107997.3	1420.0	61853.0	241658.3	68725.6	405.7	17672.3	69045.2	19635.9	0.0	0.0	0.0	0.0
88	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	4137.00	0.55	0.35	0.10	0.00	2275.4	99114.2	387237.1	110126.9	1448.0	63072.7	246423.6	70080.8	413.7	18020.8	70406.7	20023.1	0.0	0.0	0.0	0.0
89	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3825.00	0.55	0.35	0.10	0.00	2103.8	91639.4	358032.8	101821.5	1338.8	58316.0	227839.1	64795.5	382.5	16661.7	65096.9	18513.0	0.0	0.0	0.0	0.0
90	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3971.00	0.55	0.35	0.10	0.00	2184.1	95137.2	371698.9	105708.0	1389.9	60541.9	236535.7	67268.7	397.1	17297.7	67581.6	19219.6	0.0	0.0	0.0	0.0
91	(A-1-2)14BBC	607216	RID	42429	30367	30	57	2348	3245.00	0.55	0.35	0.10	0.00	1784.8	77743.7	303742.9	86381.9	1135.8	49473.3	193290.9	54970.3	324.5	14135.2	55226.0	15705.8	0.0	0.0	0.0	0.0
72	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	4983.00	0.55	0.35	0.10	0.00	2740.7	119382.7	466425.5	132647.5	1744.1	75970.8	296816.2	84412.0	498.3	21705.9	84804.6	24117.7	0.0	0.0	0.0	0.0
73	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2501.00	0.55	0.35	0.10	0.00	1375.6	59919.0	234102.0	66576.6	875.3	38130.2	148974.0	42366.9	250.1	10894.4	42564.0	12104.8	0.0	0.0	0.0	0.0
74	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	5743.00	0.55	0.35	0.10	0.00	3158.7	137590.8	537564.0	152878.7	2010.1	87557.8	342086.2	97286.4	574.3	25016.5	97738.9	27796.1	0.0	0.0	0.0	0.0
75	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	5084.00	0.55	0.35	0.10	0.00	2796.2	121802.5	475879.4	135336.1	1779.4	77510.7	302832.4	86123.0	508.4	22145.9	86523.5	24606.6	0.0	0.0	0.0	0.0
76	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	4715.00	0.55	0.35	0.10	0.00	2593.3	112962.0	441339.8	125513.3	1650.3	71884.9	280852.6	79872.1	471.5	20538.5	80243.6	22820.6	0.0	0.0	0.0	0.0
77	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	4389.00	0.55	0.35	0.10	0.00	2414.0	105151.7	410825.1	116835.2	1536.2	66914.7	261434.2	74349.7	438.9	19118.5	74695.5	21242.8	0.0	0.0	0.0	0.0
78	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2504.00	0.55	0.35	0.10	0.00	1377.2	59990.8	234382.8	66656.5	876.4	38176.0	149152.7	42417.8	250.4	10907.4	42615.1	12119.4	0.0	0.0	0.0	0.0
79	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2601.00	0.55	0.35	0.10	0.00	1430.6	62314.8	243462.3	69238.6	910.3	39654.8	154930.6	44060.9	260.1	11330.0	44265.9	12588.8	0.0	0.0	0.0	0.0
80	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3339.00	0.55	0.35	0.10	0.00	1836.5	79995.8	312541.6	88884.2	1168.7	50906.4	198890.1	56562.7	333.9	14544.7	56825.7	16160.8	0.0	0.0	0.0	0.0
81	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3933.00	0.55	0.35	0.10	0.00	2163.2	94226.8	368142.0	104696.5	1376.6	59962.5	234272.2	66625.0	393.3	17132.1	66934.9	19035.7	0.0	0.0	0.0	0.0
82	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2624.00	0.55	0.35	0.10	0.00	1443.2	62865.8	245615.2	69850.9	918.4	40005.5	156300.6	44450.6	262.4	11430.1	44657.3	12700.2	0.0	0.0	0.0	0.0
83	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	1962.00	0.55	0.35	0.10	0.00	1079.1	47005.6	183649.8	52228.4	686.7	29912.7	116868.0	33236.3	196.2	8546.5	33390.9	9496.1	0.0	0.0	0.0	0.0
84	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2375.00	0.55	0.35	0.10	0.00	1306.3	56900.3	222308.0	63222.5	831.3	36209.3	141468.7	40232.5	237.5	10345.5	40419.6	11495.0	0.0	0.0	0.0	0.0
85	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3562.00	0.55	0.35	0.10	0.00	1959.1	85338.4	333415.1	94820.4	1246.7	54306.3	212173.3	60340.3	356.2	15516.1	60620.9	17240.1	0.0	0.0	0.0	0.0
86	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	2344.00	0.55	0.35	0.10	0.00	1289.2	56157.6	219406.2	62397.3	820.4	35736.6	139622.2	39707.4	234.4	10210.5	39892.0	11345.0	0.0	0.0	0.0	0.0
87	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3510.00	0.55	0.35	0.10	0.00	1930.5	84092.6	328547.8	93436.2	1228.5	53513.5	209075.8	59459.4	351.0	15289.6	59736.0	16988.4	0.0	0.0	0.0	0.0
88	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	1115.00	0.55	0.35	0.10	0.00	613.3	26713.2	104367.7	29681.3	390.3	16999.3	66415.8	18888.1	111.5	4856.9	18976.0	5396.6	0.0	0.0	0.0	0.0
89	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	6507.00	0.55	0.35	0.10	0.00	3578.9	155894.7	609077.0	173216.3	2277.5	99205.7	387594.4	110228.6	650.7	28344.5	110741.3	31493.9	0.0	0.0	0.0	0.0
90	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3355.00	0.55	0.35	0.10	0.00	1845.3	80379.1	314039.2	89310.1	1174.3	51150.3	199843.1	56833.7	335.5	14614.4	57098.0	16238.2	0.0	0.0	0.0	0.0
91	(A-1-2)14CCB	607214	RID	42645	27732	35	58	2744	3284.00	0.55	0.35	0.10	0.00	1806.2	78678.1	307393.4	87420.1	1149.4	50067.9	195614.0	55631.0	328.4	14305.1	55889.7	15894.6	0.0	0.0	0.0	0.0
72	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	6614.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	4299.1	187268.8	731654.8	208076.4	1322.8	57621.2	225124.6	64023.5	330.7	14405.3	56281.1	16005.9
73	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	5615.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	3649.8	158983.1	621143.3	176647.9	1123.0	48917.9	191121.0	54353.2	280.8	12229.5	47780.3	13588.3
74	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	7019.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	4562.4	198736.0	776456.8	220817.7	1403.8	61149.5	238909.8	67943.9	351.0	15287.4	59727.4	16986.0
75	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	6915.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	4494.8	195791.3	764952.1	217545.9	1383.0	60243.5	235369.9	66937.2	345.8	15060.9	58842.5	16734.3
76	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	6472.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	4206.8	183248.2	715946.5	203609.1	1294.4	56384.1	220291.2	62649.0	323.6	14096.0	55072.8	15662.2
77	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	6052.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	3933.8	171356.3	669485.2	190395.9	1210.4	52725.0	205995.4	58583.4	302.6	13181.3	51498.9	14645.8
78	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4273.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2777.5	120985.7	472688.4	134428.6	854.6	37226.4	145442.6	41362.6	213.7	9306.6	36360.6	10340.7
79	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	3774.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2453.1	106857.0	417488.0	118730.0	754.8	32879.1	128457.8	36532.3	188.7	8219.8	32114.5	9133.1
80	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4473.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2907.5	126648.5	494812.8	140720.6	894.6	38968.8	152250.1	43298.6	223.7	9742.2	38062.5	10824.7
81	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	5495.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	3571.8	155585.4	607868.7	172872.7	1099.0	47872.4	187036.5	53191.6	274.8	11968.1	46759.1	13297.9
82	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4582.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2978.3	129734.7	506870.6	144149.7	916.4	39918.4	155960.2	44353.8	229.1	9979.6	38990.0	11088.4
83	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	2807.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	1824.6	79477.4	310516.3	88308.2	561.4	24454.6	95543.5	27171.8	140.4	6113.6	23885.9	6792.9
84	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4011.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2607.2	113567.5	443705.4	126186.1	802.2	34943.8	136524.7	38826.5	200.6	8736.0	34131.2	9706.6
85	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	5398.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	3508.7	152839.0	597138.3	169821.1	1079.6	47027.4	183734.9	52252.6	269.9	11756.8	45933.7	13063.2
86	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	5302.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	3446.3	150120.8	586518.6	166800.9	1060.4	46191.0	180467.3	51323.4	265.1	11547.8	45116.8	12830.8
87	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4460.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2899.0	126280.4	493374.7	140311.6	892.0	38855.5	151807.6	43172.8	223.0	9713.9	37951.9	10793.2

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4046.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2629.9	114558.4	447577.2	127287.2	809.2	35248.8	137716.1	39165.3	202.3	8812.2	34429.0	9791.3
89	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	4096.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2662.4	115974.1	453108.3	128860.2	819.2	35684.4	139417.9	39649.3	204.8	8921.1	34854.5	9912.3
90	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	3690.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2398.5	104478.7	408195.7	116087.4	738.0	32147.3	125598.7	35719.2	184.5	8036.8	31399.7	8929.8
91	(A-1-2)14CDD2	607213	RID	44685	26632	38	60	2983	3170.00	0.00	0.65	0.20	0.05	0.0	0.0	0.0	0.0	2060.5	89755.4	350672.2	99728.2	634.0	27617.0	107899.1	30685.6	158.5	6904.3	26974.8	7671.4
72	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	5417.00	0.55	0.40	0.05	0.00	2979.4	129780.5	507049.3	144200.5	2166.8	94385.8	368763.2	104873.1	270.9	11798.2	46095.4	13109.1	0.0	0.0	0.0	0.0
73	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	5417.00	0.55	0.40	0.05	0.00	2979.4	129780.5	507049.3	144200.5	2166.8	94385.8	368763.2	104873.1	270.9	11798.2	46095.4	13109.1	0.0	0.0	0.0	0.0
74	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	7053.00	0.55	0.40	0.05	0.00	3879.2	168975.8	660184.4	187750.9	2821.2	122891.5	480134.1	136546.1	352.7	15361.4	60016.8	17068.3	0.0	0.0	0.0	0.0
75	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	7253.00	0.55	0.40	0.05	0.00	3989.2	173767.4	678905.1	193074.9	2901.2	126376.3	493749.2	140418.1	362.7	15797.0	61718.6	17552.3	0.0	0.0	0.0	0.0
76	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	7635.00	0.55	0.40	0.05	0.00	4199.3	182919.3	714661.6	203243.7	3054.0	133032.2	519753.9	147813.6	381.8	16629.0	64969.2	18476.7	0.0	0.0	0.0	0.0
77	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	5991.00	0.55	0.40	0.05	0.00	3295.1	143532.4	560777.7	159480.4	2396.4	104387.2	407838.3	115985.8	299.6	13048.4	50979.8	14498.2	0.0	0.0	0.0	0.0
78	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	5415.00	0.55	0.40	0.05	0.00	2978.3	129732.6	506862.1	144147.3	2166.0	94351.0	368627.0	104834.4	270.8	11793.9	46078.4	13104.3	0.0	0.0	0.0	0.0
79	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	4822.00	0.55	0.40	0.05	0.00	2652.1	115525.5	451355.3	128361.6	1928.8	84018.5	328258.4	93353.9	241.1	10502.3	41032.3	11669.2	0.0	0.0	0.0	0.0
80	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	6866.00	0.55	0.40	0.05	0.00	3776.3	164495.6	642680.6	182772.9	2746.4	119633.2	467404.1	132925.8	343.3	14954.1	58425.5	16615.7	0.0	0.0	0.0	0.0
81	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	8298.00	0.55	0.40	0.05	0.00	4563.9	198803.5	776720.6	220892.8	3319.2	144584.4	564887.7	160649.3	414.9	18073.0	70611.0	20081.2	0.0	0.0	0.0	0.0
82	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	3665.00	0.55	0.40	0.05	0.00	2015.8	87806.1	343056.3	97562.3	1466.0	63859.0	249495.5	70954.4	183.3	7982.4	31186.9	8869.3	0.0	0.0	0.0	0.0
83	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	3278.00	0.55	0.40	0.05	0.00	1802.9	78534.3	306831.8	87260.4	1311.2	57115.9	223150.4	63462.1	163.9	7139.5	27893.8	7932.8	0.0	0.0	0.0	0.0
84	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	4238.00	0.55	0.40	0.05	0.00	2330.9	101534.0	396691.0	112815.6	1695.2	73842.9	288502.5	82047.7	211.9	9230.4	36062.8	10256.0	0.0	0.0	0.0	0.0
85	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	2648.00	0.55	0.40	0.05	0.00	1456.4	63440.8	247861.7	70489.8	1059.2	46138.8	180263.0	51265.3	132.4	5767.3	22532.9	6408.2	0.0	0.0	0.0	0.0
86	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	4727.00	0.55	0.40	0.05	0.00	2599.9	113249.5	442463.0	125832.7	1890.8	82363.2	321791.3	91514.7	236.4	10295.4	40223.9	11439.3	0.0	0.0	0.0	0.0
87	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	3519.00	0.55	0.40	0.05	0.00	1935.5	84308.2	329390.2	93675.8	1407.6	61315.1	239556.5	68127.8	176.0	7664.4	29944.6	8516.0	0.0	0.0	0.0	0.0
88	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	2990.00	0.55	0.40	0.05	0.00	1644.5	71634.4	279874.0	79593.8	1196.0	52097.8	203544.7	57886.4	149.5	6512.2	25443.1	7235.8	0.0	0.0	0.0	0.0
89	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	5526.00	0.55	0.40	0.05	0.00	3039.3	132391.9	517252.1	147102.1	2210.4	96285.0	376183.3	106983.4	276.3	12035.6	47022.9	13372.9	0.0	0.0	0.0	0.0
90	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	4635.00	0.55	0.40	0.05	0.00	2549.3	111045.3	433851.5	123383.7	1854.0	80760.2	315528.4	89733.6	231.8	10095.0	39441.0	11216.7	0.0	0.0	0.0	0.0
91	(A-1-2)15ACC	607217	RID	39906	29240	32	53	2502	4090.00	0.55	0.40	0.05	0.00	2249.5	97988.2	382837.7	108875.8	1636.0	71264.2	278427.4	79182.4	204.5	8908.0	34803.4	9897.8	0.0	0.0	0.0	0.0
72	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	6235.00	0.65	0.30	0.05	0.00	4052.8	176537.8	689729.0	196153.1	1870.5	81479.0	318336.5	90532.2	311.8	13579.8	53056.1	15088.7	0.0	0.0	0.0	0.0
73	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	3133.00	0.65	0.30	0.05	0.00	2036.5	88707.8	346579.2	98564.2	939.9	40942.0	159959.6	45491.2	156.7	6823.7	26659.9	7581.9	0.0	0.0	0.0	0.0
74	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	6266.00	0.65	0.30	0.05	0.00	4072.9	177415.5	693158.3	197128.4	1879.8	81884.1	319919.2	90982.3	313.3	13647.3	53319.9	15163.7	0.0	0.0	0.0	0.0
75	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	7248.00	0.65	0.30	0.05	0.00	4711.2	205219.9	801789.3	228022.1	2174.4	94716.9	370056.6	105241.0	362.4	15786.1	61676.1	17540.2	0.0	0.0	0.0	0.0
76	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	6170.00	0.65	0.30	0.05	0.00	4010.5	174697.4	682538.6	194108.2	1851.0	80629.6	315017.8	89588.4	308.5	13438.3	52503.0	14931.4	0.0	0.0	0.0	0.0
77	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	5257.00	0.65	0.30	0.05	0.00	3417.1	148846.7	581540.6	165385.2	1577.1	68698.5	268403.3	76331.6	262.9	11449.7	44733.9	12721.9	0.0	0.0	0.0	0.0
78	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	3081.00	0.65	0.30	0.05	0.00	2002.7	87235.4	340826.8	96928.3	924.3	40262.5	157304.7	44736.1	154.1	6710.4	26217.4	7456.0	0.0	0.0	0.0	0.0
79	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	3199.00	0.65	0.30	0.05	0.00	2079.4	90576.5	353880.2	100640.5	959.7	41804.5	163329.3	46449.5	160.0	6967.4	27221.6	7741.6	0.0	0.0	0.0	0.0
80	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	5616.00	0.65	0.30	0.05	0.00	3650.4	159011.4	621253.9	176679.4	1684.8	73389.9	286732.6	81544.3	280.8	12231.6	47788.8	13590.7	0.0	0.0	0.0	0.0
81	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	5955.00	0.65	0.30	0.05	0.00	3870.8	168609.9	658754.8	187344.3	1786.5	77819.9	304040.7	86466.6	297.8	12970.0	50673.4	14411.1	0.0	0.0	0.0	0.0
82	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4353.00	0.65	0.30	0.05	0.00	2829.5	123250.8	481538.2	136945.4	1305.9	56885.0	222248.4	63205.6	217.7	9480.8	37041.4	10534.3	0.0	0.0	0.0	0.0
83	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	1943.00	0.65	0.30	0.05	0.00	1263.0	55014.1	214938.8	61126.8	582.9	25391.1	99202.5	28212.4	97.2	4231.9	16533.8	4702.1	0.0	0.0	0.0	0.0
84	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	3492.00	0.65	0.30	0.05	0.00	2269.8	98872.5	386292.5	109858.3	1047.6	45633.5	178288.9	50703.8	174.6	7605.6	29714.8	8450.6	0.0	0.0	0.0	0.0
85	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4371.00	0.65	0.30	0.05	0.00	2841.2	123760.5	483529.4	137511.7	1311.3	57120.2	223167.4	63466.9	218.6	9520.0	37194.6	10577.8	0.0	0.0	0.0	0.0
86	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	5480.00	0.65	0.30	0.05	0.00	3562.0	155160.7	606209.3	172400.8	1644.0	71612.6	279788.9	79569.6	274.0	11935.4	46631.5	13261.6	0.0	0.0	0.0	0.0
87	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4161.00	0.65	0.30	0.05	0.00	2704.7	117814.6	460298.7	130905.1	1248.3	54375.9	212445.6	60417.7	208.1	9062.7	35407.6	10069.6	0.0	0.0	0.0	0.0
88	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4712.00	0.65	0.30	0.05	0.00	3062.8	133415.6	521251.5	148239.5	1413.6	61576.4	240577.6	68418.2	235.6	10262.7	40096.3	11403.0	0.0	0.0	0.0	0.0
89	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4771.00	0.65	0.30	0.05	0.00	3101.2	135086.1	527778.2	150095.7	1431.3	62347.4	243590.0	69274.9	238.6	10391.2	40598.3	11545.8	0.0	0.0	0.0	0.0
90	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4111.00	0.65	0.30	0.05	0.00	2672.2	116398.9	454767.6	129332.1	1233.3	53722.5	209892.7	59691.7	205.6	8953.8	34982.1	9948.6	0.0	0.0	0.0	0.0
91	(A-1-2)15BCC	607219	RID	37120	29560	32	47	2496	4133.00	0.65	0.30	0.05	0.00	2686.5	117021.8	457201.3	130024.2	1239.9	54010.0	211016.0	60011.2	206.7	9001.7	35169.3	10001.9	0.0	0.0	0.0	0.0
72	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	4094.00	0.45	0.50	0.05	0.00	1842.3	80250.6	313537.2	89167.3	2047.0	89167.3	348374.6	99074.8	204.7	8916.7	34837.5	9907.5	0.0	0.0	0.0	0.0
73	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2437.00	0.45	0.50	0.05	0.00	1096.7	47770.1	186636.6	53077.9	1218.5	53077.9	207374.0	58975.4	121.9	5307.8	20737.4	5897.5	0.0	0.0	0.0	0.0
74	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	4177.00	0.45	0.50	0.05	0.00	1879.7	81877.6	319893.7	90975.1	2088.5	90975.1	355437.4	101083.4	208.9	9097.5	35543.7	10108.3	0.0	0.0	0.0	0.0
75	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	4447.00	0.45	0.50	0.05	0.00	2001.2	87170.1	340571.5	96855.7	2223.5	96855.7	378412.8	107617.4	222.4	9685.6	37841.3	10761.7	0.0	0.0	0.0	0.0
76	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	4379.00	0.45	0.50	0.05	0.00	1970.6	85837.2	335363.8	95374.6	2189.5	95374.6	372626.4	105971.8	219.0	9537.5	37262.6	10597.2	0.0	0.0	0.0	0.0
77	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	3372.00	0.45	0.50	0.05	0.00	1517.4	66097.9	258243.1	73442.2	1686.0	73442.2	286936.8	81602.4	168.6	7344.2	28693.7	8160.2	0.0	0.0	0.0	0.0
78	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2572.00	0.45	0.50	0.05	0.00	1157.4	50416.3	196975.5	56018.2	1286.0	56018.2	218861.6	62242.4	128.6	5601.8	21886.2	6224.2	0.0	0.0	0.0	0.0
79	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2841.00	0.45	0.50	0.05	0.00	1278.5	55689.3	217576.7	61877.0	1420.5	61877.0	241751.9	68752.2	142.1	6187.7	24175.2	6875.2	0.0	0.0	0.0	0.0
80	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	3198.00	0.45	0.50	0.05	0.00	1439.1	62687.2	244917.4	69652.4	1599.0	69652.4	272130.5	77391.6	159.9	6965.2	27213.0	7739.2	0.0	0.0	0.0	0.0
81	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	3416.00	0.45	0.50	0.05	0.00	1537.2	66960.4	261612.9	74400.5	1708.0	74400.5	290680.9	82667.2	170.8	7440.0	29068.1	8266.7	0.0	0.0	0.0	0.0
82	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	3092.00	0.45	0.50	0.05	0.00	1391.4	60609.4	236799.5	67343.8	1546.0	67343.8	263110.5	74826.4	154.6	6734.4	26311.1	7482.6	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
83	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	1990.00	0.45	0.50	0.05	0.00	895.5	39008.0	152403.3	43342.2	995.0	43342.2	169337.0	48158.0	99.5	4334.2	16933.7	4815.8	0.0	0.0	0.0	0.0
84	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2366.00	0.45	0.50	0.05	0.00	1064.7	46378.3	181199.1	51531.5	1183.0	51531.5	201332.3	57257.2	118.3	5153.1	20133.2	5725.7	0.0	0.0	0.0	0.0
85	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2256.00	0.45	0.50	0.05	0.00	1015.2	44222.1	172774.8	49135.7	1128.0	49135.7	191972.0	54595.2	112.8	4913.6	19197.2	5459.5	0.0	0.0	0.0	0.0
86	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2505.00	0.45	0.50	0.05	0.00	1127.3	49103.0	191844.3	54558.9	1252.5	54558.9	213160.4	60621.0	125.3	5455.9	21316.0	6062.1	0.0	0.0	0.0	0.0
87	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2441.00	0.45	0.50	0.05	0.00	1098.5	47848.5	186942.9	53165.0	1220.5	53165.0	207714.3	59072.2	122.1	5316.5	20771.4	5907.2	0.0	0.0	0.0	0.0
88	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2213.00	0.45	0.50	0.05	0.00	995.9	43379.2	169481.6	48199.1	1106.5	48199.1	188312.9	53554.6	110.7	4819.9	18831.3	5355.5	0.0	0.0	0.0	0.0
89	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2280.00	0.45	0.50	0.05	0.00	1026.0	44692.6	174612.8	49658.4	1140.0	49658.4	194014.2	55176.0	114.0	4965.8	19401.4	5517.6	0.0	0.0	0.0	0.0
90	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	1762.00	0.45	0.50	0.05	0.00	792.9	34538.7	134942.0	38376.4	881.0	38376.4	149935.5	42640.4	88.1	3837.6	14993.6	4264.0	0.0	0.0	0.0	0.0
91	(A-1-2)16DBB2	607220	RID	34520	29080	33	42	2570	2037.00	0.45	0.50	0.05	0.00	916.7	39929.3	156002.7	44365.9	1018.5	44365.9	173336.4	49295.4	101.9	4436.6	17333.6	4929.5	0.0	0.0	0.0	0.0
84	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	1969.00	0.10	0.70	0.10	0.00	196.9	8577.0	33510.0	9530.0	1378.3	60038.7	234570.0	66709.7	196.9	8577.0	33510.0	9530.0	0.0	0.0	0.0	0.0
85	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	2353.00	0.10	0.70	0.10	0.00	235.3	10249.7	40045.2	11388.5	1647.1	71747.7	280316.5	79719.6	235.3	10249.7	40045.2	11388.5	0.0	0.0	0.0	0.0
86	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	2296.00	0.10	0.70	0.10	0.00	229.6	10001.4	39075.1	11112.6	1607.2	70009.6	273526.0	77788.5	229.6	10001.4	39075.1	11112.6	0.0	0.0	0.0	0.0
87	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	2768.00	0.10	0.70	0.10	0.00	276.8	12057.4	47108.0	13397.1	1937.6	84401.9	329756.1	93779.8	276.8	12057.4	47108.0	13397.1	0.0	0.0	0.0	0.0
88	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	3214.00	0.10	0.70	0.10	0.00	321.4	14000.2	54698.4	15555.8	2249.8	98001.3	382888.8	108890.3	321.4	14000.2	54698.4	15555.8	0.0	0.0	0.0	0.0
89	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	5531.00	0.10	0.70	0.10	0.00	553.1	24093.0	94130.9	26770.0	3871.7	168651.3	658916.5	187390.3	553.1	24093.0	94130.9	26770.0	0.0	0.0	0.0	0.0
90	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	2390.00	0.10	0.70	0.10	0.00	239.0	10410.8	40674.9	11567.6	1673.0	72875.9	284724.4	80973.2	239.0	10410.8	40674.9	11567.6	0.0	0.0	0.0	0.0
91	(A-1-2)17ADD	607222	RID	31320	29680	31	36	2406	1975.00	0.10	0.70	0.10	0.00	197.5	8603.1	33612.1	9559.0	1382.5	60221.7	235284.8	66913.0	197.5	8603.1	33612.1	9559.0	0.0	0.0	0.0	0.0
72	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	4703.00	0.60	0.30	0.10	0.00	2821.8	122917.6	480236.2	136575.1	1410.9	61458.8	240118.1	68287.6	470.3	20486.3	80039.4	22762.5	0.0	0.0	0.0	0.0
73	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2409.00	0.60	0.30	0.10	0.00	1445.4	62961.6	245989.6	69957.4	722.7	31480.8	122994.8	34978.7	240.9	10493.6	40998.3	11659.6	0.0	0.0	0.0	0.0
74	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	6578.00	0.60	0.30	0.10	0.00	3946.8	171922.6	671697.6	191025.1	1973.4	85961.3	335848.8	95512.6	657.8	28653.8	111949.6	31837.5	0.0	0.0	0.0	0.0
75	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	4190.00	0.60	0.30	0.10	0.00	2514.0	109509.8	427852.4	121677.6	1257.0	54754.9	213926.2	60838.8	419.0	18251.6	71308.7	20279.6	0.0	0.0	0.0	0.0
76	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	4440.00	0.60	0.30	0.10	0.00	2664.0	116043.8	453380.6	128937.6	1332.0	58021.9	226690.3	64468.8	444.0	19340.6	75563.4	21489.6	0.0	0.0	0.0	0.0
77	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3605.00	0.60	0.30	0.10	0.00	2163.0	94220.3	368116.4	104689.2	1081.5	47110.1	184058.2	52344.6	360.5	15703.4	61352.7	17448.2	0.0	0.0	0.0	0.0
78	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2335.00	0.60	0.30	0.10	0.00	1401.0	61027.6	238433.3	67808.4	700.5	30513.8	119216.6	33904.2	233.5	10171.3	39738.9	11301.4	0.0	0.0	0.0	0.0
79	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2927.00	0.60	0.30	0.10	0.00	1756.2	76500.1	298884.0	85000.1	878.1	38250.0	149442.0	42500.0	292.7	12750.0	49814.0	14166.7	0.0	0.0	0.0	0.0
80	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3690.00	0.60	0.30	0.10	0.00	2214.0	96441.8	376796.0	107157.6	1107.0	48220.9	188398.0	53578.8	369.0	16073.6	62799.3	17859.6	0.0	0.0	0.0	0.0
81	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	5143.00	0.60	0.30	0.10	0.00	3085.8	134417.4	525165.8	149352.7	1542.9	67208.7	262582.9	74676.4	514.3	22402.9	87527.6	24892.1	0.0	0.0	0.0	0.0
82	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3902.00	0.60	0.30	0.10	0.00	2341.2	101982.7	398443.9	113314.1	1170.6	50991.3	199222.0	56657.0	390.2	16997.1	66407.3	18885.7	0.0	0.0	0.0	0.0
83	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2831.00	0.60	0.30	0.10	0.00	1698.6	73991.0	289081.2	82212.2	849.3	36995.5	144540.6	41106.1	283.1	12331.8	48180.2	13702.0	0.0	0.0	0.0	0.0
84	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2906.00	0.60	0.30	0.10	0.00	1743.6	75951.2	296739.6	84390.2	871.8	37975.6	148369.8	42195.1	290.6	12658.5	49456.6	14065.0	0.0	0.0	0.0	0.0
85	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2991.00	0.60	0.30	0.10	0.00	1794.6	78172.8	305419.2	86858.6	897.3	39086.4	152709.6	43429.3	299.1	13028.8	50903.2	14476.4	0.0	0.0	0.0	0.0
86	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3406.00	0.60	0.30	0.10	0.00	2043.6	89019.2	347796.0	98910.2	1021.8	44509.6	173898.0	49455.1	340.6	14836.5	57966.0	16485.0	0.0	0.0	0.0	0.0
87	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2996.00	0.60	0.30	0.10	0.00	1797.6	78303.5	305929.8	87003.8	898.8	39151.7	152964.9	43501.9	299.6	13050.6	50988.3	14500.6	0.0	0.0	0.0	0.0
88	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3400.00	0.60	0.30	0.10	0.00	2040.0	88862.4	347183.3	98736.0	1020.0	44431.2	173591.7	49368.0	340.0	14810.4	57863.9	16456.0	0.0	0.0	0.0	0.0
89	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	3652.00	0.60	0.30	0.10	0.00	2191.2	95448.7	372915.7	106054.1	1095.6	47724.3	186457.9	53027.0	365.2	15908.1	62152.6	17675.7	0.0	0.0	0.0	0.0
90	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	2603.00	0.60	0.30	0.10	0.00	1561.8	68032.0	265799.5	75591.1	780.9	34016.0	132899.7	37795.6	260.3	11338.7	44299.9	12598.5	0.0	0.0	0.0	0.0
91	(A-1-2)17CAA2	607223	RID	28520	29240	32	30	2479	1978.00	0.60	0.30	0.10	0.00	1186.8	51697.0	201979.0	57441.1	593.4	25848.5	100989.5	28720.6	197.8	8616.2	33663.2	9573.5	0.0	0.0	0.0	0.0
78	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	136.00	0.10	0.60	0.20	0.10	13.6	592.4	2314.6	658.2	81.6	3554.5	13887.3	3949.4	27.2	1184.8	4629.1	1316.5	13.6	592.4	2314.6	658.2
79	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	124.00	0.10	0.60	0.20	0.10	12.4	540.1	2110.3	600.2	74.4	3240.9	12662.0	3601.0	24.8	1080.3	4220.7	1200.3	12.4	540.1	2110.3	600.2
80	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	130.00	0.10	0.60	0.20	0.10	13.0	566.3	2212.4	629.2	78.0	3397.7	13274.7	3775.2	26.0	1132.6	4424.9	1258.4	13.0	566.3	2212.4	629.2
81	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	174.00	0.10	0.60	0.20	0.10	17.4	757.9	2961.3	842.2	104.4	4547.7	17767.6	5053.0	34.8	1515.9	5922.5	1684.3	17.4	757.9	2961.3	842.2
82	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	129.00	0.10	0.60	0.20	0.10	12.9	561.9	2195.4	624.4	77.4	3371.5	13172.5	3746.2	25.8	1123.8	4390.8	1248.7	12.9	561.9	2195.4	624.4
83	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	55.00	0.10	0.60	0.20	0.10	5.5	239.6	936.0	266.2	33.0	1437.5	5616.2	1597.2	11.0	479.2	1872.1	532.4	5.5	239.6	936.0	266.2
84	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	119.00	0.10	0.60	0.20	0.10	11.9	518.4	2025.2	576.0	71.4	3110.2	12151.4	3455.8	23.8	1036.7	4050.5	1151.9	11.9	518.4	2025.2	576.0
89	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	863.00	0.10	0.60	0.20	0.10	86.3	3759.2	14687.2	4176.9	517.8	22555.4	88123.3	25061.5	172.6	7518.5	29374.4	8353.8	86.3	3759.2	14687.2	4176.9
90	(A-1-2)18AAA	619745	LDS Church	26040	31960	27	25	2079	1493.00	0.10	0.60	0.20	0.10	149.3	6503.5	25409.1	7226.1	895.8	39021.0	152454.3	43356.7	298.6	13007.0	50818.1	14452.2	149.3	6503.5	25409.1	7226.1
72	(A-1-2)18BAA			23600	32000	27	22	2076	16.00	0.20	0.50	0.20	0.10	3.2	371.7	110.2	154.9	8.0	929.3	275.5	387.2	3.2	371.7	110.2	154.9	1.6	185.9	55.1	77.4
73	(A-1-2)18BAA			23600	32000	27	22	2076	0.00	0.20	0.50	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-1-2)18BAA			23600	32000	27	22	2076	0.00	0.20	0.50	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-1-2)18BAA			23600	32000	27	22	2076	0.00	0.20	0.50	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-2)18BAA			23600	32000	27	22	2076	0.00	0.20	0.50	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-2)18BAA			23600	32000	27	22	2076	0.00	0.20	0.50	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	7285.00	0.70	0.25	0.05	0.00	5099.5	222134.2	867873.2	246815.8	1821.3	79333.6	309954.7	88148.5	364.3	15866.7	61990.9	17629.7	0.0	0.0	0.0	0.0
73	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	3967.00	0.70	0.25	0.05	0.00	2776.9	120961.8	472594.8	134402.0	991.8	43200.6	168783.9	48000.7	198.4	8640.1	33756.8	9600.1	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
74	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	8142.00	0.70	0.25	0.05	0.00	5699.4	248265.9	969969.0	275851.0	2035.5	88666.4	346417.5	98518.2	407.1	17733.3	69283.5	19703.6	0.0	0.0	0.0	0.0
75	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	8180.00	0.70	0.25	0.05	0.00	5726.0	249424.6	974496.0	277138.4	2045.0	89080.2	348034.3	98978.0	409.0	17816.0	69606.9	19795.6	0.0	0.0	0.0	0.0
76	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	6551.00	0.70	0.25	0.05	0.00	4585.7	199753.1	780430.7	221947.9	1637.8	71340.4	278725.2	79267.1	327.6	14268.1	55745.0	15853.4	0.0	0.0	0.0	0.0
77	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	6862.00	0.70	0.25	0.05	0.00	4803.4	209236.1	817480.6	232484.6	1715.5	74727.2	291957.4	83030.2	343.1	14945.4	58391.5	16606.0	0.0	0.0	0.0	0.0
78	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	6267.00	0.70	0.25	0.05	0.00	4386.9	191093.4	746597.3	212326.0	1566.8	68247.6	266641.9	75830.7	313.4	13649.5	53328.4	15166.1	0.0	0.0	0.0	0.0
79	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	4815.00	0.70	0.25	0.05	0.00	3370.5	146819.0	573618.3	163132.2	1203.8	52435.4	204863.7	58261.5	240.8	10487.1	40972.7	11652.3	0.0	0.0	0.0	0.0
80	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	4419.00	0.70	0.25	0.05	0.00	3093.3	134744.1	526442.3	149715.7	1104.8	48122.9	188015.1	53469.9	221.0	9624.6	37603.0	10694.0	0.0	0.0	0.0	0.0
81	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	5357.00	0.70	0.25	0.05	0.00	3749.9	163345.6	638187.6	181495.2	1339.3	58337.7	227924.2	64819.7	267.9	11667.5	45584.8	12963.9	0.0	0.0	0.0	0.0
82	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	3349.00	0.70	0.25	0.05	0.00	2344.3	102117.7	398971.5	113464.1	837.3	36470.6	142489.8	40522.9	167.5	7294.1	28498.0	8104.6	0.0	0.0	0.0	0.0
83	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	1807.00	0.70	0.25	0.05	0.00	1264.9	55099.0	215270.7	61221.2	451.8	19678.2	76882.4	21864.7	90.4	3935.6	15376.5	4372.9	0.0	0.0	0.0	0.0
84	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	2926.00	0.70	0.25	0.05	0.00	2048.2	89219.6	348578.9	99132.9	731.5	31864.1	124492.5	35404.6	146.3	6372.8	24898.5	7080.9	0.0	0.0	0.0	0.0
85	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	5224.00	0.70	0.25	0.05	0.00	3656.8	159290.2	622343.1	176989.1	1306.0	56889.4	222265.4	63210.4	261.2	11377.9	44453.1	12642.1	0.0	0.0	0.0	0.0
86	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	6311.00	0.70	0.25	0.05	0.00	4417.7	192435.0	751839.1	213816.7	1577.8	68726.8	268514.0	76363.1	315.6	13745.4	53702.8	15272.6	0.0	0.0	0.0	0.0
87	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	2704.00	0.70	0.25	0.05	0.00	1892.8	82450.4	322131.7	91611.5	676.0	29446.6	115047.0	32718.4	135.2	5889.3	23009.4	6543.7	0.0	0.0	0.0	0.0
88	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	4132.00	0.70	0.25	0.05	0.00	2892.4	125992.9	492251.5	139992.2	1033.0	44997.5	175804.1	49997.2	206.6	8999.5	35160.8	9999.4	0.0	0.0	0.0	0.0
89	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	5663.00	0.70	0.25	0.05	0.00	3964.1	172676.2	674641.9	191862.4	1415.8	61670.1	240943.5	68522.3	283.2	12334.0	48188.7	13704.5	0.0	0.0	0.0	0.0
90	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	4640.00	0.70	0.25	0.05	0.00	3248.0	141482.9	552770.3	157203.2	1160.0	50529.6	197418.0	56144.0	232.0	10105.9	39483.6	11228.8	0.0	0.0	0.0	0.0
91	(A-1-2)18BDA	607224	RID	23520	30840	29	22	2234	3040.00	0.70	0.25	0.05	0.00	2128.0	92695.7	362159.9	102995.2	760.0	33105.6	129342.8	36784.0	152.0	6621.1	25868.6	7356.8	0.0	0.0	0.0	0.0
78	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	21.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	10.5	1219.7	361.6	508.2	6.3	731.8	217.0	304.9	4.2	487.9	144.7	203.3
79	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	19.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	9.5	1103.5	327.2	459.8	5.7	662.1	196.3	275.9	3.8	441.4	130.9	183.9
80	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	20.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	10.0	1161.6	344.4	484.0	6.0	697.0	206.7	290.4	4.0	464.6	137.8	193.6
81	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	27.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	13.5	1568.2	465.0	653.4	8.1	940.9	279.0	392.0	5.4	627.3	186.0	261.4
82	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	20.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	10.0	1161.6	344.4	484.0	6.0	697.0	206.7	290.4	4.0	464.6	137.8	193.6
83	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	9.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	4.5	522.7	155.0	217.8	2.7	313.6	93.0	130.7	1.8	209.1	62.0	87.1
84	(A-1-2)18CB1		TRUOG FAMILY PARTNER	21720	29120	33	20	2548	19.00	0.00	0.50	0.30	0.20	0.0	0.0	0.0	0.0	9.5	1103.5	327.2	459.8	5.7	662.1	196.3	275.9	3.8	441.4	130.9	183.9
72	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	2539.00	0.10	0.50	0.30	0.10	253.9	11059.9	43210.7	12288.8	1269.5	55299.4	216053.5	61443.8	761.7	33179.7	129632.1	36866.3	253.9	11059.9	43210.7	12288.8
73	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	802.00	0.10	0.50	0.30	0.10	80.2	3493.5	13649.1	3881.7	401.0	17467.6	68245.4	19408.4	240.6	10480.5	40947.2	11645.0	80.2	3493.5	13649.1	3881.7
74	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	1464.00	0.10	0.50	0.30	0.10	146.4	6377.2	24915.5	7085.8	732.0	31885.9	124577.5	35428.8	439.2	19131.6	74746.5	21257.3	146.4	6377.2	24915.5	7085.8
75	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	1967.00	0.10	0.50	0.30	0.10	196.7	8568.3	33476.0	9520.3	983.5	42841.3	167379.8	47601.4	590.1	25704.8	100427.9	28560.8	196.7	8568.3	33476.0	9520.3
76	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	1850.00	0.10	0.50	0.30	0.10	185.0	8058.6	31484.8	8954.0	925.0	40293.0	157423.8	44770.0	555.0	24175.8	94454.3	26862.0	185.0	8058.6	31484.8	8954.0
77	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	2009.00	0.10	0.50	0.30	0.10	200.9	8751.2	34190.8	9723.6	1004.5	43756.0	170953.8	48617.8	602.7	26253.6	102572.3	29170.7	200.9	8751.2	34190.8	9723.6
78	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	478.00	0.10	0.50	0.30	0.10	47.8	2082.2	8135.0	2313.5	239.0	10410.8	40674.9	11567.6	143.4	6246.5	24404.9	6940.6	47.8	2082.2	8135.0	2313.5
79	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	76.00	0.10	0.50	0.30	0.10	7.6	331.1	1293.4	367.8	38.0	1655.3	6467.1	1839.2	22.8	993.2	3880.3	1103.5	7.6	331.1	1293.4	367.8
80	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	1349.00	0.10	0.50	0.30	0.10	134.9	5876.2	22958.3	6529.2	674.5	29381.2	114791.7	32645.8	404.7	17628.7	68875.0	19587.5	134.9	5876.2	22958.3	6529.2
81	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	1844.00	0.10	0.50	0.30	0.10	184.4	8032.5	31382.7	8925.0	922.0	40162.3	156913.3	44624.8	553.2	24097.4	94148.0	26774.9	184.4	8032.5	31382.7	8925.0
82	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	248.00	0.10	0.50	0.30	0.10	24.8	1080.3	4220.7	1200.3	124.0	5401.4	21103.3	6001.6	74.4	3240.9	12662.0	3601.0	24.8	1080.3	4220.7	1200.3
83	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	41.00	0.10	0.50	0.30	0.10	4.1	178.6	697.8	198.4	20.5	893.0	3488.9	992.2	12.3	535.8	2093.3	595.3	4.1	178.6	697.8	198.4
84	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	928.00	0.10	0.50	0.30	0.10	92.8	4042.4	15793.4	4491.5	464.0	20211.8	78967.2	22457.6	278.4	12127.1	47380.3	13474.6	92.8	4042.4	15793.4	4491.5
85	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	93.00	0.10	0.50	0.30	0.10	9.3	405.1	1582.7	450.1	46.5	2025.5	7913.7	2250.6	27.9	1215.3	4748.2	1350.4	9.3	405.1	1582.7	450.1
86	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	22.00	0.10	0.50	0.30	0.10	2.2	95.8	374.4	106.5	11.0	479.2	1872.1	532.4	6.6	287.5	1123.2	319.4	2.2	95.8	374.4	106.5
87	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	21.00	0.10	0.50	0.30	0.10	2.1	91.5	357.4	101.6	10.5	457.4	1787.0	508.2	6.3	274.4	1072.2	304.9	2.1	91.5	357.4	101.6
88	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	41.00	0.10	0.50	0.30	0.10	4.1	178.6	697.8	198.4	20.5	893.0	3488.9	992.2	12.3	535.8	2093.3	595.3	4.1	178.6	697.8	198.4
89	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	35.00	0.10	0.50	0.30	0.10	3.5	152.5	595.7	169.4	17.5	762.3	2978.3	847.0	10.5	457.4	1787.0	508.2	3.5	152.5	595.7	169.4
90	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	579.00	0.10	0.50	0.30	0.10	57.9	2522.1	9853.9	2802.4	289.5	12610.6	49269.4	14011.8	173.7	7566.4	29561.6	8407.1	57.9	2522.1	9853.9	2802.4
91	(A-1-2)18DDD2	608386	SRP	26040	27520	36	25	2790	45.00	0.10	0.50	0.30	0.10	4.5	196.0	765.8	217.8	22.5	980.1	3829.2	1089.0	13.5	588.1	2297.5	653.4	4.5	196.0	765.8	217.8
78	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	496.00	0.30	0.60	0.10	0.00	148.8	6481.7	25324.0	7201.9	297.6	12963.5	50647.9	14403.8	49.6	2160.6	8441.3	2400.6	0.0	0.0	0.0	0.0
79	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	453.00	0.30	0.60	0.10	0.00	135.9	5919.8	23128.5	6577.6	271.8	11839.6	46257.1	13155.1	45.3	1973.3	7709.5	2192.5	0.0	0.0	0.0	0.0
80	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	476.00	0.30	0.60	0.10	0.00	142.8	6220.4	24302.8	6911.5	285.6	12440.7	48605.7	13823.0	47.6	2073.5	8100.9	2303.8	0.0	0.0	0.0	0.0
81	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	634.00	0.30	0.60	0.10	0.00	190.2	8285.1	32369.7	9205.7	380.4	16570.2	64739.5	18411.4	63.4	2761.7	10789.9	3068.6	0.0	0.0	0.0	0.0
82	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	470.00	0.30	0.60	0.10	0.00	141.0	6142.0	23996.5	6824.4	282.0	12283.9	47993.0	13648.8	47.0	2047.3	7998.8	2274.8	0.0	0.0	0.0	0.0
83	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	199.00	0.30	0.60	0.10	0.00	59.7	2600.5	10160.2	2889.5	119.4	5201.1	20320.4	5779.0	19.9	866.8	3386.7	963.2	0.0	0.0	0.0	0.0
84	(A-1-2)19BBB1	634476	M. MASTIN	21240	26800	37	19	2863	434.00	0.30	0.60	0.10	0.00	130.2	5671.5	22158.5	6301.7	260.4	11343.0	44316.9	12603.4	43.4	1890.5	7386.2	2100.6	0.0	0.0	0.0	0.0
78	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	10.00	0.30	0.60	0.10	0.00	3.0	348.5	103.3	145.2	6.0	697.0	206.7	290.4	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
79	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	9.00	0.30	0.60	0.10	0.00	2.7	313.6	93.0	130.7	5.4	627.3	186.0	261.4	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
80	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	10.00	0.30	0.60	0.10	0.00	3.0	348.5	103.3	145.2	6.0	697.0	206.7	290.4	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
81	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	13.00	0.30	0.60	0.10	0.00	3.9	453.0	134.3	188.8	7.8	906.0	268.7	377.5	1.3	151.0	44.8	62.9	0.0	0.0	0.0	0.0
82	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	10.00	0.30	0.60	0.10	0.00	3.0	348.5	103.3	145.2	6.0	697.0	206.7	290.4	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
83	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	4.00	0.30	0.60	0.10	0.00	1.2	139.4	41.3	58.1	2.4	278.8	82.7	116.2	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0
84	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	9.00	0.30	0.60	0.10	0.00	2.7	313.6	93.0	130.7	5.4	627.3	186.0	261.4	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0
85	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)19C	638631	MACMILLAN	22160	23000	42	20	3259	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	17.00	0.60	0.30	0.10	0.00	10.2	1184.8	351.3	493.7	5.1	592.4	175.7	246.8	1.7	197.5	58.6	82.3	0.0	0.0	0.0	0.0
79	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	16.00	0.60	0.30	0.10	0.00	9.6	1115.1	330.7	464.6	4.8	557.6	165.3	232.3	1.6	185.9	55.1	77.4	0.0	0.0	0.0	0.0
80	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	16.00	0.60	0.30	0.10	0.00	9.6	1115.1	330.7	464.6	4.8	557.6	165.3	232.3	1.6	185.9	55.1	77.4	0.0	0.0	0.0	0.0
81	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	22.00	0.60	0.30	0.10	0.00	13.2	1533.3	454.6	638.9	6.6	766.7	227.3	319.4	2.2	255.6	75.8	106.5	0.0	0.0	0.0	0.0
82	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	16.00	0.60	0.30	0.10	0.00	9.6	1115.1	330.7	464.6	4.8	557.6	165.3	232.3	1.6	185.9	55.1	77.4	0.0	0.0	0.0	0.0
83	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	7.00	0.60	0.30	0.10	0.00	4.2	487.9	144.7	203.3	2.1	243.9	72.3	101.6	0.7	81.3	24.1	33.9	0.0	0.0	0.0	0.0
84	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	15.00	0.60	0.30	0.10	0.00	9.0	1045.4	310.0	435.6	4.5	522.7	155.0	217.8	1.5	174.2	51.7	72.6	0.0	0.0	0.0	0.0
85	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	9.00	0.60	0.30	0.10	0.00	5.4	627.3	186.0	261.4	2.7	313.6	93.0	130.7	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0
86	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	11.00	0.60	0.30	0.10	0.00	6.6	766.7	227.3	319.4	3.3	383.3	113.7	159.7	1.1	127.8	37.9	53.2	0.0	0.0	0.0	0.0
87	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	4.00	0.60	0.30	0.10	0.00	2.4	278.8	82.7	116.2	1.2	139.4	41.3	58.1	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0
88	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	5.00	0.60	0.30	0.10	0.00	3.0	348.5	103.3	145.2	1.5	174.2	51.7	72.6	0.5	58.1	17.2	24.2	0.0	0.0	0.0	0.0
89	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	7.00	0.60	0.30	0.10	0.00	4.2	487.9	144.7	203.3	2.1	243.9	72.3	101.6	0.7	81.3	24.1	33.9	0.0	0.0	0.0	0.0
90	(A-1-2)19CAD1	605714	GUSTAFSON	23240	23000	42	22	3261	5.00	0.60	0.30	0.10	0.00	3.0	348.5	103.3	145.2	1.5	174.2	51.7	72.6	0.5	58.1	17.2	24.2	0.0	0.0	0.0	0.0
84	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	3.00	0.30	0.60	0.10	0.00	0.9	104.5	31.0	43.6	1.8	209.1	62.0	87.1	0.3	34.8	10.3	14.5	0.0	0.0	0.0	0.0
85	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	3.00	0.30	0.60	0.10	0.00	0.9	104.5	31.0	43.6	1.8	209.1	62.0	87.1	0.3	34.8	10.3	14.5	0.0	0.0	0.0	0.0
86	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	11.00	0.30	0.60	0.10	0.00	3.3	383.3	113.7	159.7	6.6	766.7	227.3	319.4	1.1	127.8	37.9	53.2	0.0	0.0	0.0	0.0
87	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	9.00	0.30	0.60	0.10	0.00	2.7	313.6	93.0	130.7	5.4	627.3	186.0	261.4	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0
88	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	8.00	0.30	0.60	0.10	0.00	2.4	278.8	82.7	116.2	4.8	557.6	165.3	232.3	0.8	92.9	27.6	38.7	0.0	0.0	0.0	0.0
89	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	9.00	0.30	0.60	0.10	0.00	2.7	313.6	93.0	130.7	5.4	627.3	186.0	261.4	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0
90	(A-1-2)19DAA	622272	KING	26000	23800	42	25	3264	6.00	0.30	0.60	0.10	0.00	1.8	209.1	62.0	87.1	3.6	418.2	124.0	174.2	0.6	69.7	20.7	29.0	0.0	0.0	0.0	0.0
84	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	1.00	0.30	0.60	0.10	0.00	0.3	34.8	10.3	14.5	0.6	69.7	20.7	29.0	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
85	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	1.00	0.30	0.60	0.10	0.00	0.3	34.8	10.3	14.5	0.6	69.7	20.7	29.0	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
86	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	4.00	0.30	0.60	0.10	0.00	1.2	139.4	41.3	58.1	2.4	278.8	82.7	116.2	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0
87	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	4.00	0.30	0.60	0.10	0.00	1.2	139.4	41.3	58.1	2.4	278.8	82.7	116.2	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0
88	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	6.00	0.30	0.60	0.10	0.00	1.8	209.1	62.0	87.1	3.6	418.2	124.0	174.2	0.6	69.7	20.7	29.0	0.0	0.0	0.0	0.0
89	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	2.00	0.30	0.60	0.10	0.00	0.6	69.7	20.7	29.0	1.2	139.4	41.3	58.1	0.2	23.2	6.9	9.7	0.0	0.0	0.0	0.0
90	(A-1-2)19DDA	622273	KING	26000	22800	43	25	3343	1.00	0.30	0.60	0.10	0.00	0.3	34.8	10.3	14.5	0.6	69.7	20.7	29.0	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
78	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	587.00	0.50	0.40	0.10	0.00	293.5	34093.0	10109.0	14205.4	234.8	27274.4	8087.2	11364.3	58.7	6818.6	2021.8	2841.1	0.0	0.0	0.0	0.0
79	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	536.00	0.50	0.40	0.10	0.00	268.0	31130.9	9230.7	12971.2	214.4	24904.7	7384.5	10377.0	53.6	6226.2	1846.1	2594.2	0.0	0.0	0.0	0.0
80	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	563.00	0.50	0.40	0.10	0.00	281.5	32699.0	9695.6	13624.6	225.2	26159.2	7756.5	10899.7	56.3	6539.8	1939.1	2724.9	0.0	0.0	0.0	0.0
81	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	749.00	0.50	0.40	0.10	0.00	374.5	43501.9	12898.8	18125.8	299.6	34801.5	10319.1	14500.6	74.9	8700.4	2579.8	3625.2	0.0	0.0	0.0	0.0
82	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	556.00	0.50	0.40	0.10	0.00	278.0	32292.5	9575.1	13455.2	222.4	25834.0	7660.1	10764.2	55.6	6458.5	1915.0	2691.0	0.0	0.0	0.0	0.0
83	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	236.00	0.50	0.40	0.10	0.00	118.0	13706.9	4064.2	5711.2	94.4	10965.5	3251.4	4569.0	23.6	2741.4	812.8	1142.2	0.0	0.0	0.0	0.0
84	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	512.00	0.50	0.40	0.10	0.00	256.0	29737.0	8817.4	12390.4	204.8	23789.6	7053.9	9912.3	51.2	5947.4	1763.5	2478.1	0.0	0.0	0.0	0.0
85	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	43.00	0.50	0.40	0.10	0.00	21.5	2497.4	740.5	1040.6	17.2	1998.0	592.4	832.5	4.3	499.5	148.1	208.1	0.0	0.0	0.0	0.0
91	(A-1-2)20BCD	613468	KING	27400	24120	41	28	3188	470.00	0.50	0.40	0.10	0.00	235.0	27297.6	8094.1	11374.0	188.0	21838.1	6475.2	9099.2	47.0	5459.5	1618.8	2274.8	0.0	0.0	0.0	0.0
78	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	968.00	0.50	0.40	0.10	0.00	484.0	21083.0	82370.9	23425.6	387.2	16866.4	65896.8	18740.5	96.8	4216.6	16474.2	4685.1	0.0	0.0	0.0	0.0
79	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	884.00	0.50	0.40	0.10	0.00	442.0	19253.5	75223.1	21392.8	353.6	15402.8	60178.4	17114.2	88.4	3850.7	15044.6	4278.6	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
80	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	928.00	0.50	0.40	0.10	0.00	464.0	20211.8	78967.2	22457.6	371.2	16169.5	63173.8	17966.1	92.8	4042.4	15793.4	4491.5	0.0	0.0	0.0	0.0
81	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	1236.00	0.50	0.40	0.10	0.00	618.0	26920.1	105176.1	29911.2	494.4	21536.1	84140.9	23929.0	123.6	5384.0	21035.2	5982.2	0.0	0.0	0.0	0.0
82	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	917.00	0.50	0.40	0.10	0.00	458.5	19972.3	78031.2	22191.4	366.8	15977.8	62424.9	17753.1	91.7	3994.5	15606.2	4438.3	0.0	0.0	0.0	0.0
83	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	390.00	0.50	0.40	0.10	0.00	195.0	8494.2	33186.6	9438.0	156.0	6795.4	26549.3	7550.4	39.0	1698.8	6637.3	1887.6	0.0	0.0	0.0	0.0
84	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	845.00	0.50	0.40	0.10	0.00	422.5	18404.1	71904.4	20449.0	338.0	14723.3	57523.5	16359.2	84.5	3680.8	14380.9	4089.8	0.0	0.0	0.0	0.0
85	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	592.00	0.50	0.40	0.10	0.00	296.0	12893.8	50375.6	14326.4	236.8	10315.0	40300.5	11461.1	59.2	2578.8	10075.1	2865.3	0.0	0.0	0.0	0.0
86	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	635.00	0.50	0.40	0.10	0.00	317.5	13830.3	54034.7	15367.0	254.0	11064.2	43227.7	12293.6	63.5	2766.1	10806.9	3073.4	0.0	0.0	0.0	0.0
87	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	506.00	0.50	0.40	0.10	0.00	253.0	11020.7	43057.5	12245.2	202.4	8816.5	34446.0	9796.2	50.6	2204.1	8611.5	2449.0	0.0	0.0	0.0	0.0
88	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	120.00	0.50	0.40	0.10	0.00	60.0	2613.6	10211.3	2904.0	48.0	2090.9	8169.0	2323.2	12.0	522.7	2042.3	580.8	0.0	0.0	0.0	0.0
89	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	118.00	0.50	0.40	0.10	0.00	59.0	2570.0	10041.1	2855.6	47.2	2056.0	8032.9	2284.5	11.8	514.0	2008.2	571.1	0.0	0.0	0.0	0.0
91	(A-1-2)22CBA	612845	M. VALENTE	38040	23520	42	49	3288	561.00	0.50	0.40	0.10	0.00	280.5	12218.6	47737.7	13576.2	224.4	9774.9	38190.2	10861.0	56.1	2443.7	9547.5	2715.2	0.0	0.0	0.0	0.0
78	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	71.00	0.40	0.40	0.20	0.00	28.4	3298.9	978.2	1374.6	28.4	3298.9	978.2	1374.6	14.2	1649.5	489.1	687.3	0.0	0.0	0.0	0.0
79	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	64.00	0.40	0.40	0.20	0.00	25.6	2973.7	881.7	1239.0	25.6	2973.7	881.7	1239.0	12.8	1486.8	440.9	619.5	0.0	0.0	0.0	0.0
80	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	68.00	0.40	0.40	0.20	0.00	27.2	3159.6	936.8	1316.5	27.2	3159.6	936.8	1316.5	13.6	1579.8	468.4	658.2	0.0	0.0	0.0	0.0
81	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	90.00	0.40	0.40	0.20	0.00	36.0	4181.8	1239.9	1742.4	36.0	4181.8	1239.9	1742.4	18.0	2090.9	620.0	871.2	0.0	0.0	0.0	0.0
82	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	67.00	0.40	0.40	0.20	0.00	26.8	3113.1	923.1	1297.1	26.8	3113.1	923.1	1297.1	13.4	1556.5	461.5	648.6	0.0	0.0	0.0	0.0
83	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	28.00	0.40	0.40	0.20	0.00	11.2	1301.0	385.8	542.1	11.2	1301.0	385.8	542.1	5.6	650.5	192.9	271.0	0.0	0.0	0.0	0.0
84	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538	62.00	0.40	0.40	0.20	0.00	24.8	2880.8	854.2	1200.3	24.8	2880.8	854.2	1200.3	12.4	1440.4	427.1	600.2	0.0	0.0	0.0	0.0
85	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)23DCD1	601546	REEVES	45720	21080	45	62	3538		0.40	0.40	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	6401.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	4800.8	209120.7	817029.6	232356.3	640.1	27882.8	108937.3	30980.8	320.1	13941.4	54468.6	15490.4
73	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3564.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2673.0	116435.9	454912.3	129373.2	356.4	15524.8	60655.0	17249.8	178.2	7762.4	30327.5	8624.9
74	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	7507.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	5630.3	245253.7	958200.5	272504.1	750.7	32700.5	127760.1	36333.9	375.4	16350.2	63880.0	18166.9
75	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	7046.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	5284.5	230192.8	899358.0	255769.8	704.6	30692.4	119914.4	34102.6	352.3	15346.2	59957.2	17051.3
76	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	4833.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	3624.8	157894.1	616888.6	175437.9	483.3	21052.5	82251.8	23391.7	241.7	10526.3	41125.9	11695.9
77	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	6218.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	4663.5	203142.1	793671.3	225713.4	621.8	27085.6	105822.8	30095.1	310.9	13542.8	52911.4	15047.6
78	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3212.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2409.0	104936.0	409982.7	116595.6	321.2	13991.5	54664.4	15546.1	160.6	6995.7	27332.2	7773.0
79	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	2897.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2172.8	94645.0	369775.8	105161.1	289.7	12619.3	49303.4	14021.5	144.9	6309.7	24651.7	7010.7
80	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	4461.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	3345.8	145740.9	569406.2	161934.3	446.1	19432.1	75920.8	21591.2	223.1	9716.1	37960.4	10795.6
81	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3975.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2981.3	129863.3	507372.7	144292.5	397.5	17315.1	67649.7	19239.0	198.8	8657.5	33824.8	9619.5
82	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3046.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2284.5	99512.8	388794.3	110569.8	304.6	13268.4	51839.2	14742.6	152.3	6634.2	25919.6	7371.3
83	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	1390.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	1042.5	45411.3	177420.9	50457.0	139.0	6054.8	23656.1	6727.6	69.5	3027.4	11828.1	3363.8
84	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	2268.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	1701.0	74095.6	289489.6	82328.4	226.8	9879.4	38598.6	10977.1	113.4	4939.7	19299.3	5488.6
85	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3887.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2915.3	126988.3	496140.3	141098.1	388.7	16931.8	66152.0	18813.1	194.4	8465.9	33076.0	9406.5
86	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	4587.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	3440.3	149857.3	585488.9	166508.1	458.7	19981.0	78065.2	22201.1	229.4	9990.5	39032.6	11100.5
87	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3945.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2958.8	128883.2	503543.5	143203.5	394.5	17184.4	67139.1	19093.8	197.3	8592.2	33569.6	9546.9
88	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	4350.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	3262.5	142114.5	555238.0	157905.0	435.0	18948.6	74031.7	21054.0	217.5	9474.3	37015.9	10527.0
89	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3005.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2253.8	98173.4	383561.0	109081.5	300.5	13089.8	51141.5	14544.2	150.3	6544.9	25570.7	7272.1
90	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3192.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2394.0	104282.6	407429.8	115869.6	319.2	13904.4	54324.0	15449.3	159.6	6952.2	27162.0	7724.6
91	(A-1-2)24BBB2	607212	RID	47654	26116	38	64	2987	3890.00	0.00	0.75	0.10	0.05	0.0	0.0	0.0	0.0	2917.5	127086.3	496523.2	141207.0	389.0	16944.8	66203.1	18827.6	194.5	8472.4	33101.5	9413.8
78	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	777.00	0.20	0.20	0.00	0.00	155.4	18051.3	5352.4	7521.4	155.4	18051.3	5352.4	7521.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	710.00	0.20	0.20	0.00	0.00	142.0	16494.7	4890.9	6872.8	142.0	16494.7	4890.9	6872.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	745.00	0.20	0.20	0.00	0.00	149.0	17307.8	5132.0	7211.6	149.0	17307.8	5132.0	7211.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	992.00	0.20	0.20	0.00	0.00	198.4	23046.1	6833.4	9602.6	198.4	23046.1	6833.4	9602.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	736.00	0.20	0.20	0.00	0.00	147.2	17098.8	5070.0	7124.5	147.2	17098.8	5070.0	7124.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	313.00	0.20	0.20	0.00	0.00	62.6	7271.6	2156.1	3029.8	62.6	7271.6	2156.1	3029.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	678.00	0.20	0.20	0.00	0.00	135.6	15751.3	4670.4	6563.0	135.6	15751.3	4670.4	6563.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	635.00	0.20	0.20	0.00	0.00	127.0	14752.3	4374.2	6146.8	127.0	14752.3	4374.2	6146.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	550.00	0.20	0.20	0.00	0.00	110.0	12777.6	3788.7	5324.0	110.0	12777.6	3788.7	5324.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-2)24DAB2	605118	TANNER CO.	51520	23000	42	69	3308	717.00	0.20	0.20	0.00	0.00	143.4	16657.3	4939.1	6940.6	143.4	16657.3	4939.1	6940.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
72	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	351.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	210.6	9173.7	35841.6	10193.0	87.8	3822.4	14934.0	4247.1	52.7	2293.4	8960.4	2548.3
73	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	229.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	137.4	5985.1	23383.8	6650.2	57.3	2493.8	9743.3	2770.9	34.4	1496.3	5846.0	1662.5
74	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	1265.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	759.0	33062.0	129172.6	36735.6	316.3	13775.9	53821.9	15306.5	189.8	8265.5	32293.2	9183.9
75	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	708.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	424.8	18504.3	72295.8	20560.3	177.0	7710.1	30123.3	8566.8	106.2	4626.1	18074.0	5140.1
76	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	799.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	479.4	20882.7	81588.1	23203.0	199.8	8701.1	33995.0	9667.9	119.9	5220.7	20397.0	5800.7
77	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	1025.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	615.0	26789.4	104665.6	29766.0	256.3	11162.3	43610.7	12402.5	153.8	6697.4	26166.4	7441.5
78	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	96.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	57.6	2509.1	9802.8	2787.8	24.0	1045.4	4084.5	1161.6	14.4	627.3	2450.7	697.0
79	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	0.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	56.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	33.6	1463.6	5718.3	1626.2	14.0	609.8	2382.6	677.6	8.4	365.9	1429.6	406.6
81	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	182.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	109.2	4756.8	18584.5	5285.3	45.5	1982.0	7743.5	2202.2	27.3	1189.2	4646.1	1321.3
82	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	32.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	19.2	836.4	3267.6	929.3	8.0	348.5	1361.5	387.2	4.8	209.1	816.9	232.3
83	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	63.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	37.8	1646.6	6433.1	1829.5	15.8	686.1	2680.5	762.3	9.4	411.6	1608.3	457.4
84	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	138.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	82.8	3606.8	14091.6	4007.5	34.5	1502.8	5871.5	1669.8	20.7	901.7	3522.9	1001.9
85	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	36.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	21.6	940.9	3676.1	1045.4	9.0	392.0	1531.7	435.6	5.4	235.2	919.0	261.4
86	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	57.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	34.2	1489.8	5820.4	1655.3	14.3	620.7	2425.2	689.7	8.5	372.4	1455.1	413.8
87	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545		0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	27.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	16.2	705.7	2757.0	784.1	6.8	294.0	1148.8	326.7	4.1	176.4	689.3	196.0
89	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	10.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	6.0	261.4	1021.1	290.4	2.5	108.9	425.5	121.0	1.5	65.3	255.3	72.6
90	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	93.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	55.8	2430.6	9496.5	2700.7	23.3	1012.8	3956.9	1125.3	14.0	607.7	2374.1	675.2
91	(A-1-2)24DCD2	608378	SRP	51120	20880	45	69	3545	13.00	0.00	0.60	0.25	0.15	0.0	0.0	0.0	0.0	7.8	339.8	1327.5	377.5	3.3	141.6	553.1	157.3	2.0	84.9	331.9	94.4
78	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	569.00	0.30	0.50	0.20	0.00	170.7	7435.7	29051.1	8261.9	284.5	12392.8	48418.5	13769.8	113.8	4957.1	19367.4	5507.9	0.0	0.0	0.0	0.0
79	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	519.00	0.30	0.50	0.20	0.00	155.7	6782.3	26498.3	7535.9	259.5	11303.8	44163.8	12559.8	103.8	4521.5	17665.5	5023.9	0.0	0.0	0.0	0.0
80	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	545.00	0.30	0.50	0.20	0.00	163.5	7122.1	27825.7	7913.4	272.5	11870.1	46376.2	13189.0	109.0	4748.0	18550.5	5275.6	0.0	0.0	0.0	0.0
81	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	726.00	0.30	0.50	0.20	0.00	217.8	9487.4	37066.9	10541.5	363.0	15812.3	61778.2	17569.2	145.2	6324.9	24711.3	7027.7	0.0	0.0	0.0	0.0
82	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	539.00	0.30	0.50	0.20	0.00	161.7	7043.7	27519.4	7826.3	269.5	11739.4	45865.6	13043.8	107.8	4695.8	18346.3	5217.5	0.0	0.0	0.0	0.0
83	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	229.00	0.30	0.50	0.20	0.00	68.7	2992.6	11691.9	3325.1	114.5	4987.6	19486.5	5541.8	45.8	1995.0	7794.6	2216.7	0.0	0.0	0.0	0.0
84	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	496.00	0.30	0.50	0.20	0.00	148.8	6481.7	25324.0	7201.9	248.0	10802.9	42206.6	12003.2	99.2	4321.2	16882.6	4801.3	0.0	0.0	0.0	0.0
85	(A-1-2)26DDD	617602	MANZANITA ACRES	47240	15880	50	64	3935	77.00	0.30	0.50	0.20	0.00	23.1	1006.2	3931.3	1118.0	38.5	1677.1	6552.2	1863.4	15.4	670.8	2620.9	745.4	0.0	0.0	0.0	0.0
72	(A-1-2)27DAD			42000	17560	48	57	3770	40.00	0.50	0.15	0.25	0.10	20.0	2323.2	688.9	968.0	6.0	697.0	206.7	290.4	10.0	1161.6	344.4	484.0	4.0	464.6	137.8	193.6
73	(A-1-2)27DAD			42000	17560	48	57	3770	28.00	0.50	0.15	0.25	0.10	14.0	1626.2	482.2	677.6	4.2	487.9	144.7	203.3	7.0	813.1	241.1	338.8	2.8	325.2	96.4	135.5
74	(A-1-2)27DAD			42000	17560	48	57	3770	11.00	0.50	0.15	0.25	0.10	5.5	638.9	189.4	266.2	1.7	191.7	56.8	79.9	2.8	319.4	94.7	133.1	1.1	127.8	37.9	53.2
75	(A-1-2)27DAD			42000	17560	48	57	3770	0.00	0.50	0.15	0.25	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-2)27DAD			42000	17560	48	57	3770	0.00	0.50	0.15	0.25	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-2)27DAD			42000	17560	48	57	3770	0.00	0.50	0.15	0.25	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)28ADD	609588	STANLEY	36800	18400	47	46	3680	7.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)28ADD	609588	STANLEY	36800	18400	47	46	3680						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)28ADD	609588	STANLEY	36800	18400	47	46	3680						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)28BDB1	628465	BADER	33200	19200	47	40	3674	17.00	0.40	0.40	0.20	0.00	6.8	296.2	1157.3	329.1	6.8	296.2	1157.3	329.1	3.4	148.1	578.6	164.6	0.0	0.0	0.0	0.0
86	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674	118.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674	1298.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674	2076.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674	474.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-2)28BDB2	628465	CALMAT	33200	19200	47	40	3674	482.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)29AA	507729	TEX-STRUCT	31040	20520	45	35	3511	4949.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	5.00	0.40	0.40	0.20	0.00	2.0	232.3	68.9	96.8	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
86	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	13.00	0.40	0.40	0.20	0.00	5.2	604.0	179.1	251.7	5.2	604.0	179.1	251.7	2.6	302.0	89.6	125.8	0.0	0.0	0.0	0.0
87	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	9.00	0.40	0.40	0.20	0.00	3.6	418.2	124.0	174.2	3.6	418.2	124.0	174.2	1.8	209.1	62.0	87.1	0.0	0.0	0.0	0.0
88	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	5.00	0.40	0.40	0.20	0.00	2.0	232.3	68.9	96.8	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
89	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	13.00	0.40	0.40	0.20	0.00	5.2	604.0	179.1	251.7	5.2	604.0	179.1	251.7	2.6	302.0	89.6	125.8	0.0	0.0	0.0	0.0
90	(A-1-2)29DAC	600469	LINCOLN	30400	16800	48	34	3747	10.00	0.40	0.40	0.20	0.00	4.0	464.6	137.8	193.6	4.0	464.6	137.8	193.6	2.0	232.3	68.9	96.8	0.0	0.0	0.0	0.0
78	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	662.00	0.50	0.50	0.00	0.00	331.0	14418.4	56332.2	16020.4	331.0	14418.4	56332.2	16020.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	605.00	0.50	0.50	0.00	0.00	302.5	13176.9	51481.8	14641.0	302.5	13176.9	51481.8	14641.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
80	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	635.00	0.50	0.50	0.00	0.00	317.5	13830.3	54034.7	15367.0	317.5	13830.3	54034.7	15367.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	846.00	0.50	0.50	0.00	0.00	423.0	18425.9	71989.5	20473.2	423.0	18425.9	71989.5	20473.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	628.00	0.50	0.50	0.00	0.00	314.0	13677.8	53439.0	15197.6	314.0	13677.8	53439.0	15197.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	267.00	0.50	0.50	0.00	0.00	133.5	5815.3	22720.1	6461.4	133.5	5815.3	22720.1	6461.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	578.00	0.50	0.50	0.00	0.00	289.0	12588.8	49184.3	13987.6	289.0	12588.8	49184.3	13987.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	177.00	0.50	0.50	0.00	0.00	88.5	3855.1	15061.6	4283.4	88.5	3855.1	15061.6	4283.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	904.00	0.50	0.50	0.00	0.00	452.0	19689.1	76924.9	21876.8	452.0	19689.1	76924.9	21876.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	565.00	0.50	0.50	0.00	0.00	282.5	12305.7	48078.1	13673.0	282.5	12305.7	48078.1	13673.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	424.00	0.50	0.50	0.00	0.00	212.0	9234.7	36079.8	10260.8	212.0	9234.7	36079.8	10260.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	720.00	0.50	0.50	0.00	0.00	360.0	15681.6	61267.6	17424.0	360.0	15681.6	61267.6	17424.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	358.00	0.50	0.50	0.00	0.00	179.0	7797.2	30463.6	8663.6	179.0	7797.2	30463.6	8663.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-2)29DDA	600468	DAVID LINCOLN	31480	16920	49	36	3828	289.00	0.50	0.50	0.00	0.00	144.5	6294.4	24592.2	6993.8	144.5	6294.4	24592.2	6993.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	1314.00	0.40	0.30	0.20	0.10	525.6	22895.1	89450.8	25439.0	394.2	17171.4	67088.1	19079.3	262.8	11447.6	44725.4	12719.5	131.4	5723.8	22362.7	6359.8
85	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	988.00	0.40	0.30	0.20	0.10	395.2	17214.9	67258.3	19127.7	296.4	12911.2	50443.7	14345.8	197.6	8607.5	33629.1	9563.8	98.8	4303.7	16814.6	4781.9
86	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	412.00	0.40	0.30	0.20	0.10	164.8	7178.7	28047.0	7976.3	123.6	5384.0	21035.2	5982.2	82.4	3589.3	14023.5	3988.2	41.2	1794.7	7011.7	1994.1
87	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	602.00	0.40	0.30	0.20	0.10	240.8	10489.2	40981.2	11654.7	180.6	7866.9	30735.9	8741.0	120.4	5244.6	20490.6	5827.4	60.2	2622.3	10245.3	2913.7
88	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	827.00	0.40	0.30	0.20	0.10	330.8	14409.6	56298.2	16010.7	248.1	10807.2	42223.6	12008.0	165.4	7204.8	28149.1	8005.4	82.7	3602.4	14074.5	4002.7
89	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	885.00	0.40	0.30	0.20	0.10	354.0	15420.2	60246.5	17133.6	265.5	11565.2	45184.9	12850.2	177.0	7710.1	30123.3	8566.8	88.5	3855.1	15061.6	4283.4
90	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	1148.00	0.40	0.30	0.20	0.10	459.2	20002.8	78150.3	22225.3	344.4	15002.1	58612.7	16669.0	229.6	10001.4	39075.1	11112.6	114.8	5000.7	19537.6	5556.3
91	(A-1-2)30DDC	626268	PENINSULA DITCH	25080	16000	50	24	3895	943.00	0.40	0.30	0.20	0.10	377.2	16430.8	64194.9	18256.5	282.9	12323.1	48146.2	13692.4	188.6	8215.4	32097.4	9128.2	94.3	4107.7	16048.7	4564.1
72	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3663.00	0.50	0.25	0.10	0.05	1831.5	79780.1	311699.2	88644.6	915.8	39890.1	155849.6	44322.3	366.3	15956.0	62339.8	17728.9	183.2	7978.0	31169.9	8864.5
73	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3333.00	0.50	0.25	0.10	0.05	1666.5	72592.7	283618.1	80658.6	833.3	36296.4	141809.1	40329.3	333.3	14518.5	56723.6	16131.7	166.7	7259.3	28361.8	8065.9
74	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3476.00	0.50	0.25	0.10	0.05	1738.0	75707.3	295786.6	84119.2	869.0	37853.6	147893.3	42059.6	347.6	15141.5	59157.3	16823.8	173.8	7570.7	29578.7	8411.9
75	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3521.00	0.50	0.25	0.10	0.05	1760.5	76687.4	299615.8	85208.2	880.3	38343.7	149807.9	42604.1	352.1	15337.5	59923.2	17041.6	176.1	7668.7	29961.6	8520.8
76	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	4606.00	0.50	0.25	0.10	0.05	2303.0	100318.7	391942.7	111465.2	1151.5	50159.3	195971.4	55732.6	460.6	20063.7	78388.5	22293.0	230.3	10031.9	39194.3	11146.5
77	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3692.00	0.50	0.25	0.10	0.05	1846.0	80411.8	314166.9	89346.4	923.0	40205.9	157083.4	44673.2	369.2	16082.4	62833.4	17869.3	184.6	8041.2	31416.7	8934.6
78	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	1517.00	0.50	0.25	0.10	0.05	758.5	33040.3	129087.5	36711.4	379.3	16520.1	64543.8	18355.7	151.7	6608.1	25817.5	7342.3	75.9	3304.0	12908.8	3671.1
79	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	94.00	0.50	0.25	0.10	0.05	47.0	2047.3	7998.8	2274.8	23.5	1023.7	3999.4	1137.4	9.4	409.5	1599.8	455.0	4.7	204.7	799.9	227.5
80	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	4653.00	0.50	0.25	0.10	0.05	2326.5	101342.3	395942.2	112602.6	1163.3	50671.2	197971.1	56301.3	465.3	20268.5	79188.4	22520.5	232.7	10134.2	39594.2	11260.3
81	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	4675.00	0.50	0.25	0.10	0.05	2337.5	101821.5	397814.2	113135.0	1168.8	50910.8	198907.1	56567.5	467.5	20364.3	79562.8	22627.0	233.8	10182.2	39781.4	11313.5
82	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	4045.00	0.50	0.25	0.10	0.05	2022.5	88100.1	344205.0	97889.0	1011.3	44050.1	172102.5	48944.5	404.5	17620.0	68841.0	19577.8	202.3	8810.0	34420.5	9788.9
83	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	1475.00	0.50	0.25	0.10	0.05	737.5	32125.5	125513.6	35695.0	368.8	16062.8	62756.8	17847.5	147.5	6425.1	25102.7	7139.0	73.8	3212.6	12551.4	3569.5
84	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	2538.00	0.50	0.25	0.10	0.05	1269.0	55277.6	215968.5	61419.6	634.5	27638.8	107984.2	30709.8	253.8	11055.5	43193.7	12283.9	126.9	5527.8	21596.8	6142.0
85	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	294.00	0.50	0.25	0.10	0.05	147.0	6403.3	25017.6	7114.8	73.5	3201.7	12508.8	3557.4	29.4	1280.7	5003.5	1423.0	14.7	640.3	2501.8	711.5
86	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3925.00	0.50	0.25	0.10	0.05	1962.5	85486.5	333993.8	94985.0	981.3	42743.3	166996.9	47492.5	392.5	17097.3	66798.8	18997.0	196.3	8548.7	33399.4	9498.5
87	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3341.00	0.50	0.25	0.10	0.05	1670.5	72767.0	284298.9	80852.2	835.3	36383.5	142149.4	40426.1	334.1	14553.4	56859.8	16170.4	167.1	7276.7	28429.9	8085.2
88	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3518.00	0.50	0.25	0.10	0.05	1759.0	76622.0	299360.5	85135.6	879.5	38311.0	149680.3	42567.8	351.8	15324.4	59872.1	17027.1	175.9	7662.2	29936.1	8513.6
89	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3246.00	0.50	0.25	0.10	0.05	1623.0	70697.9	276215.0	78553.2	811.5	35348.9	138107.5	39276.6	324.6	14139.6	55243.0	15710.6	162.3	7069.8	27621.5	7855.3
90	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	2663.00	0.50	0.25	0.10	0.05	1331.5	58000.1	226605.2	64444.6	665.8	29000.1	113302.6	32222.3	266.3	11600.0	45321.0	12888.9	133.2	5800.0	22660.5	6444.5
91	(A-1-2)31AAA1	626269	SRP	26240	15480	50	26	3897	3032.00	0.50	0.25	0.10	0.05	1516.0	66037.0	258004.9	73374.4	758.0	33018.5	129002.4	36687.2	303.2	13207.4	51601.0	14674.9	151.6	6603.7	25800.5	7337.4
85	(A-1-2)31CBB	623534		21200	12800	52	19	4048	60.00	0.50	0.25	0.10	0.05	30.0	3484.8	1033.3	1452.0	15.0	1742.4	516.6	726.0	6.0	697.0	206.7	290.4	3.0	348.5	103.3	145.2
86	(A-1-2)31CBB	623534		21200	12800	52	19	4048	60.00	0.50	0.25	0.10	0.05	30.0	3484.8	1033.3	1452.0	15.0	1742.4	516.6	726.0	6.0	697.0	206.7	290.4	3.0	348.5	103.3	145.2
87	(A-1-2)31CBB	623534		21200	12800	52	19	4048	60.00	0.50	0.25	0.10	0.05	30.0	3484.8	1033.3	1452.0	15.0	1742.4	516.6	726.0	6.0	697.0	206.7	290.4	3.0	348.5	103.3	145.2
88	(A-1-2)31CBB	623534		21200	12800	52	19	4048	30.00	0.50	0.25	0.10	0.05	15.0	1742.4	516.6	726.0	7.5	871.2	258.3	363.0	3.0	348.5	103.3	145.2	1.5	174.2	51.7	72.6
89	(A-1-2)31CBB	623534		21200	12800	52	19	4048	0.00	0.50	0.25	0.10	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)31CBB	623534		21200	12800	52	19	4048	0.00	0.50	0.25	0.10	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
79	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
80	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
81	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
82	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
83	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	1533.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	766.5	33388.7	130449.0	37098.6	306.6	13355.5	52179.6	14839.4	306.6	13355.5	52179.6	14839.4
91	(A-1-2)31DBB	623537	PENINSULA	24120	12840	52	23	4052	69.00	0.00	0.50	0.20	0.20	0.0	0.0	0.0	0.0	34.5	1502.8	5871.5	1669.8	13.8	601.1	2348.6	667.9	13.8	601.1	2348.6	667.9
72	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2144.00	0.20	0.50	0.15	0.15	428.8	18678.5	72976.6	20753.9	1072.0	46696.3	182441.4	51884.8	321.6	14008.9	54732.4	15565.4	321.6	14008.9	54732.4	15565.4

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
73	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2267.00	0.20	0.50	0.15	0.15	453.4	19750.1	77163.2	21944.6	1133.5	49375.3	192908.0	54861.4	340.1	14812.6	57872.4	16458.4	340.1	14812.6	57872.4	16458.4
74	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2122.00	0.20	0.50	0.15	0.15	424.4	18486.9	72227.7	20541.0	1061.0	46217.2	180569.4	51352.4	318.3	13865.1	54170.8	15405.7	318.3	13865.1	54170.8	15405.7
75	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2003.00	0.20	0.50	0.15	0.15	400.6	17450.1	68177.3	19389.0	1001.5	43625.3	170443.2	48472.6	300.5	13087.6	51133.0	14541.8	300.5	13087.6	51133.0	14541.8
76	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2476.00	0.20	0.50	0.15	0.15	495.2	21570.9	84277.1	23967.7	1238.0	53927.3	210692.6	59919.2	371.4	16178.2	63207.8	17975.8	371.4	16178.2	63207.8	17975.8
77	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1947.00	0.20	0.50	0.15	0.15	389.4	16962.3	66271.2	18847.0	973.5	42405.7	165677.9	47117.4	292.1	12721.7	49703.4	14135.2	292.1	12721.7	49703.4	14135.2
78	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1471.00	0.20	0.50	0.15	0.15	294.2	12815.4	50069.3	14239.3	735.5	32038.4	125173.2	35598.2	220.7	9611.5	37552.0	10679.5	220.7	9611.5	37552.0	10679.5
79	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1740.00	0.20	0.50	0.15	0.15	348.0	15158.9	59225.4	16843.2	870.0	37897.2	148063.5	42108.0	261.0	11369.2	44419.0	12632.4	261.0	11369.2	44419.0	12632.4
80	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1904.00	0.20	0.50	0.15	0.15	380.8	16587.6	64807.6	18430.7	952.0	41469.1	162018.9	46076.8	285.6	12440.7	48605.7	13823.0	285.6	12440.7	48605.7	13823.0
81	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2449.00	0.20	0.50	0.15	0.15	489.8	21335.7	83358.0	23706.3	1224.5	53339.2	208395.1	59265.8	367.4	16001.8	62518.5	17779.7	367.4	16001.8	62518.5	17779.7
82	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1821.00	0.20	0.50	0.15	0.15	364.2	15864.6	61982.4	17627.3	910.5	39661.4	154956.1	44068.2	273.2	11898.4	46486.8	13220.5	273.2	11898.4	46486.8	13220.5
83	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	566.00	0.20	0.50	0.15	0.15	113.2	4931.0	19265.3	5478.9	283.0	12327.5	48163.2	13697.2	84.9	3698.2	14449.0	4109.2	84.9	3698.2	14449.0	4109.2
84	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1377.00	0.20	0.50	0.15	0.15	275.4	11996.4	46869.7	13329.4	688.5	29991.1	117174.4	33323.4	206.6	8997.3	35152.3	9997.0	206.6	8997.3	35152.3	9997.0
85	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1761.00	0.20	0.50	0.15	0.15	352.2	15341.8	59940.2	17046.5	880.5	38354.6	149850.5	42616.2	264.2	11506.4	44955.1	12784.9	264.2	11506.4	44955.1	12784.9
86	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1704.00	0.20	0.50	0.15	0.15	340.8	14845.2	58000.0	16494.7	852.0	37113.1	145000.1	41236.8	255.6	11133.9	43500.0	12371.0	255.6	11133.9	43500.0	12371.0
87	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1476.00	0.20	0.50	0.15	0.15	295.2	12858.9	50239.5	14287.7	738.0	32147.3	125598.7	35719.2	221.4	9644.2	37679.6	10715.8	221.4	9644.2	37679.6	10715.8
88	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1553.00	0.20	0.50	0.15	0.15	310.6	13529.7	52860.4	15033.0	776.5	33824.3	132150.9	37582.6	233.0	10147.3	39645.3	11274.8	233.0	10147.3	39645.3	11274.8
89	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	1794.00	0.20	0.50	0.15	0.15	358.8	15629.3	61063.4	17365.9	897.0	39073.3	152658.6	43414.8	269.1	11722.0	45797.6	13024.4	269.1	11722.0	45797.6	13024.4
90	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2841.00	0.20	0.50	0.15	0.15	568.2	24750.8	96700.8	27500.9	1420.5	61877.0	241751.9	68752.2	426.2	18563.1	72525.6	20625.7	426.2	18563.1	72525.6	20625.7
91	(A-1-2)32AAA2	626271	SRP	31480	15440	50	36	3907	2650.00	0.20	0.50	0.15	0.15	530.0	23086.8	90199.6	25652.0	1325.0	57717.0	225499.0	64130.0	397.5	17315.1	67649.7	19239.0	397.5	17315.1	67649.7	19239.0
84	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	1910.00	0.30	0.50	0.20	0.00	573.0	24959.9	97517.7	27733.2	955.0	41599.8	162529.5	46222.0	382.0	16639.9	65011.8	18488.8	0.0	0.0	0.0	0.0
85	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	1709.00	0.30	0.50	0.20	0.00	512.7	22333.2	87255.3	24814.7	854.5	37222.0	145425.6	41357.8	341.8	14888.8	58170.2	16543.1	0.0	0.0	0.0	0.0
86	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	1418.00	0.30	0.50	0.20	0.00	425.4	18530.4	72397.9	20589.4	709.0	30884.0	120663.2	34315.6	283.6	12353.6	48265.3	13726.2	0.0	0.0	0.0	0.0
87	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	1938.00	0.30	0.50	0.20	0.00	581.4	25325.8	98947.2	28139.8	969.0	42209.6	164912.1	46899.6	387.6	16883.9	65964.8	18759.8	0.0	0.0	0.0	0.0
88	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	2139.00	0.30	0.50	0.20	0.00	641.7	27952.5	109209.6	31058.3	1069.5	46587.4	182016.0	51763.8	427.8	18635.0	72806.4	20705.5	0.0	0.0	0.0	0.0
89	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	462.00	0.30	0.50	0.20	0.00	138.6	6037.4	23588.0	6708.2	231.0	10062.4	39313.4	11180.4	92.4	4024.9	15725.4	4472.2	0.0	0.0	0.0	0.0
90	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	1029.00	0.30	0.50	0.20	0.00	308.7	13447.0	52537.0	14941.1	514.5	22411.6	87561.7	24901.8	205.8	8964.6	35024.7	9960.7	0.0	0.0	0.0	0.0
91	(A-1-2)32BAA	626270	PENINSULA	28560	15440	50	30	3901	862.00	0.30	0.50	0.20	0.00	258.6	11264.6	44010.6	12516.2	431.0	18774.4	73351.0	20860.4	172.4	7509.7	29340.4	8344.2	0.0	0.0	0.0	0.0
78	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	24.00	0.50	0.40	0.10	0.00	12.0	1393.9	413.3	580.8	9.6	1115.1	330.7	464.6	2.4	278.8	82.7	116.2	0.0	0.0	0.0	0.0
79	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	22.00	0.50	0.40	0.10	0.00	11.0	1277.8	378.9	532.4	8.8	1022.2	303.1	425.9	2.2	255.6	75.8	106.5	0.0	0.0	0.0	0.0
80	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	23.00	0.50	0.40	0.10	0.00	11.5	1335.8	396.1	556.6	9.2	1068.7	316.9	445.3	2.3	267.2	79.2	111.3	0.0	0.0	0.0	0.0
81	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	31.00	0.50	0.40	0.10	0.00	15.5	1800.5	533.9	750.2	12.4	1440.4	427.1	600.2	3.1	360.1	106.8	150.0	0.0	0.0	0.0	0.0
82	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	23.00	0.50	0.40	0.10	0.00	11.5	1335.8	396.1	556.6	9.2	1068.7	316.9	445.3	2.3	267.2	79.2	111.3	0.0	0.0	0.0	0.0
83	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	10.00	0.50	0.40	0.10	0.00	5.0	580.8	172.2	242.0	4.0	464.6	137.8	193.6	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0
84	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	21.00	0.50	0.40	0.10	0.00	10.5	1219.7	361.6	508.2	8.4	975.7	289.3	406.6	2.1	243.9	72.3	101.6	0.0	0.0	0.0	0.0
85	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	148.00	0.50	0.40	0.10	0.00	74.0	8595.8	2548.8	3581.6	59.2	6876.7	2039.0	2865.3	14.8	1719.2	509.8	716.3	0.0	0.0	0.0	0.0
86	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	13.00	0.50	0.40	0.10	0.00	6.5	755.0	223.9	314.6	5.2	604.0	179.1	251.7	1.3	151.0	44.8	62.9	0.0	0.0	0.0	0.0
87	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	0.00	0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	8.00	0.50	0.40	0.10	0.00	4.0	464.6	137.8	193.6	3.2	371.7	110.2	154.9	0.8	92.9	27.6	38.7	0.0	0.0	0.0	0.0
89	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	2.00	0.50	0.40	0.10	0.00	1.0	116.2	34.4	48.4	0.8	92.9	27.6	38.7	0.2	23.2	6.9	9.7	0.0	0.0	0.0	0.0
90	(A-1-2)32CCD	624173	VANDERWAY	27680	10680	53	28	4136	1.00	0.50	0.40	0.10	0.00	0.5	58.1	17.2	24.2	0.4	46.5	13.8	19.4	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
86	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	25.00	0.40	0.40	0.20	0.00	10.0	435.6	1701.9	484.0	10.0	435.6	1701.9	484.0	5.0	217.8	850.9	242.0	0.0	0.0	0.0	0.0
87	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	89.00	0.40	0.40	0.20	0.00	35.6	1550.7	6058.7	1723.0	35.6	1550.7	6058.7	1723.0	17.8	775.4	3029.3	861.5	0.0	0.0	0.0	0.0
88	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	151.00	0.40	0.40	0.20	0.00	60.4	2631.0	10279.3	2923.4	60.4	2631.0	10279.3	2923.4	30.2	1315.5	5139.7	1461.7	0.0	0.0	0.0	0.0
89	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	101.00	0.40	0.40	0.20	0.00	40.4	1759.8	6875.6	1955.4	40.4	1759.8	6875.6	1955.4	20.2	879.9	3437.8	977.7	0.0	0.0	0.0	0.0
90	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	129.00	0.40	0.40	0.20	0.00	51.6	2247.7	8781.7	2497.4	51.6	2247.7	8781.7	2497.4	25.8	1123.8	4390.8	1248.7	0.0	0.0	0.0	0.0
91	(A-1-2)32DDD1	804008	VANDERWAY	31200	10800	53	36	4144	137.00	0.40	0.40	0.20	0.00	54.8	2387.1	9326.3	2652.3	54.8	2387.1	9326.3	2652.3	27.4	1193.5	4663.1	1326.2	0.0	0.0	0.0	0.0
78	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-2)33ADD	625399		36800	13200	52	46	4075	701.00	0.40	0.40	0.20	0.00	280.4	32571.3	9657.8	13571.4	280.4	32571.3	9657.8	13571.4	140.2	16285.6	4828.9	6785.7	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
85	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)33ADD	625399		36800	13200	52	46	4075	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)33ADD	625399		36800	13200	52	46	4075	660.00	0.40	0.40	0.20		264.0	30666.2	9092.9	12777.6	264.0	30666.2	9092.9	12777.6	132.0	15333.1	4546.4	6388.8	0.0	0.0	0.0	0.0
85	(A-1-2)33BAB	636286		33200	15600	51	41	3991	3.00	0.25	0.50	0.25		0.8	87.1	25.8	36.3	1.5	174.2	51.7	72.6	0.8	87.1	25.8	36.3	0.0	0.0	0.0	0.0
86	(A-1-2)33BAB	636286		33200	15600	51	41	3991	8.00	0.25	0.50	0.25		2.0	232.3	68.9	96.8	4.0	464.6	137.8	193.6	2.0	232.3	68.9	96.8	0.0	0.0	0.0	0.0
87	(A-1-2)33BAB	636286		33200	15600	51	41	3991	8.00	0.25	0.50	0.25		2.0	232.3	68.9	96.8	4.0	464.6	137.8	193.6	2.0	232.3	68.9	96.8	0.0	0.0	0.0	0.0
88	(A-1-2)33BAB	636286		33200	15600	51	41	3991	17.00	0.25	0.50	0.25		4.3	493.7	146.4	205.7	8.5	987.4	292.8	411.4	4.3	493.7	146.4	205.7	0.0	0.0	0.0	0.0
89	(A-1-2)33BAB	636286		33200	15600	51	41	3991	18.00	0.25	0.50	0.25		4.5	522.7	155.0	217.8	9.0	1045.4	310.0	435.6	4.5	522.7	155.0	217.8	0.0	0.0	0.0	0.0
90	(A-1-2)33BAB	636286		33200	15600	51	41	3991	27.00	0.25	0.50	0.25		6.8	784.1	232.5	326.7	13.5	1568.2	465.0	653.4	6.8	784.1	232.5	326.7	0.0	0.0	0.0	0.0
85	(A-1-2)33BBD	626786		33200	14400	51	39	3989	3.00	0.25	0.50	0.25		0.8	87.1	25.8	36.3	1.5	174.2	51.7	72.6	0.8	87.1	25.8	36.3	0.0	0.0	0.0	0.0
86	(A-1-2)33BBD	626786		33200	14400	51	39	3989						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-2)33BBD	626786		33200	14400	51	39	3989						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)33BBD	626786		33200	14400	51	39	3989						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)33BBD	626786		33200	14400	51	39	3989	3.00	0.25	0.50	0.25		0.8	87.1	25.8	36.3	1.5	174.2	51.7	72.6	0.8	87.1	25.8	36.3	0.0	0.0	0.0	0.0
90	(A-1-2)33BBD	626786		33200	14400	51	39	3989						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1091.00	0.50	0.40	0.10	0.00	545.5	23762.0	92837.5	26402.2	436.4	19009.6	74270.0	21121.8	109.1	4752.4	18567.5	5280.4	0.0	0.0	0.0	0.0
79	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	996.00	0.50	0.40	0.10	0.00	498.0	21692.9	84753.6	24103.2	398.4	17354.3	67802.9	19282.6	99.6	4338.6	16950.7	4820.6	0.0	0.0	0.0	0.0
80	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1046.00	0.50	0.40	0.10	0.00	523.0	22781.9	89008.3	25313.2	418.4	18225.5	71206.6	20250.6	104.6	4556.4	17801.7	5062.6	0.0	0.0	0.0	0.0
81	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1394.00	0.50	0.40	0.10	0.00	697.0	30361.3	118621.0	33734.8	557.6	24289.1	94896.8	26987.8	139.4	6072.3	23724.2	6747.0	0.0	0.0	0.0	0.0
82	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1034.00	0.50	0.40	0.10	0.00	517.0	22520.5	87987.1	25022.8	413.6	18016.4	70389.7	20018.2	103.4	4504.1	17597.4	5004.6	0.0	0.0	0.0	0.0
83	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	440.00	0.50	0.40	0.10	0.00	220.0	9583.2	37441.3	10648.0	176.0	7666.6	29953.1	8518.4	44.0	1916.6	7488.3	2129.6	0.0	0.0	0.0	0.0
84	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	953.00	0.50	0.40	0.10	0.00	476.5	20756.3	81094.5	23062.6	381.2	16605.1	64875.6	18450.1	95.3	4151.3	16218.9	4612.5	0.0	0.0	0.0	0.0
85	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1370.00	0.50	0.40	0.10	0.00	685.0	29838.6	116578.7	33154.0	548.0	23870.9	93263.0	26523.2	137.0	5967.7	23315.7	6630.8	0.0	0.0	0.0	0.0
86	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	400.00	0.50	0.40	0.10	0.00	200.0	8712.0	34037.6	9680.0	160.0	6969.6	27230.1	7744.0	40.0	1742.4	6807.5	1936.0	0.0	0.0	0.0	0.0
87	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	832.00	0.50	0.40	0.10	0.00	416.0	18121.0	70798.2	20134.4	332.8	14496.8	56638.5	16107.5	83.2	3624.2	14159.6	4026.9	0.0	0.0	0.0	0.0
88	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1400.00	0.50	0.40	0.10	0.00	700.0	30492.0	119131.5	33880.0	560.0	24393.6	95305.2	27104.0	140.0	6098.4	23826.3	6776.0	0.0	0.0	0.0	0.0
89	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1604.00	0.50	0.40	0.10	0.00	802.0	34935.1	136490.7	38816.8	641.6	27948.1	109192.6	31053.4	160.4	6987.0	27298.1	7763.4	0.0	0.0	0.0	0.0
90	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1154.00	0.50	0.40	0.10	0.00	577.0	25134.1	98198.4	27926.8	461.6	20107.3	78558.7	22341.4	115.4	5026.8	19639.7	5585.4	0.0	0.0	0.0	0.0
91	(A-1-2)33BDA1	625400	VANDERWAY	33840	14000	51	41	3991	1130.00	0.50	0.40	0.10	0.00	565.0	24611.4	96156.2	27346.0	452.0	19689.1	76924.9	21876.8	113.0	4922.3	19231.2	5469.2	0.0	0.0	0.0	0.0
91	(A-1-2)33CC	625439							787.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-2)34ACC	803485	RAWLINGS	40000	13200	52	53	4082	5.00	0.50	0.40	0.10	0.00	2.5	290.4	86.1	121.0	2.0	232.3	68.9	96.8	0.5	58.1	17.2	24.2	0.0	0.0	0.0	0.0
72	(A-1-2)34BAA			39280	15360	50	51	3922	135.00	0.50	0.30	0.10	0.10	67.5	7840.8	2324.9	3267.0	40.5	4704.5	1394.9	1960.2	13.5	1568.2	465.0	653.4	13.5	1568.2	465.0	653.4
73	(A-1-2)34BAA			39280	15360	50	51	3922	53.00	0.50	0.30	0.10	0.10	26.5	3078.2	912.7	1282.6	15.9	1846.9	547.6	769.6	5.3	615.6	182.5	256.5	5.3	615.6	182.5	256.5
74	(A-1-2)34BAA			39280	15360	50	51	3922	31.00	0.50	0.30	0.10	0.10	15.5	1800.5	533.9	750.2	9.3	1080.3	320.3	450.1	3.1	360.1	106.8	150.0	3.1	360.1	106.8	150.0
75	(A-1-2)34BAA			39280	15360	50	51	3922	0.00	0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-1-2)34BAA			39280	15360	50	51	3922	0.00	0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-1-2)34BAA			39280	15360	50	51	3922	0.00	0.50	0.30	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	6.00	0.30	0.40	0.20	0.10	1.8	209.1	62.0	87.1	2.4	278.8	82.7	116.2	1.2	139.4	41.3	58.1	0.6	69.7	20.7	29.0
79	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	5.00	0.30	0.40	0.20	0.10	1.5	174.2	51.7	72.6	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.5	58.1	17.2	24.2
80	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	5.00	0.30	0.40	0.20	0.10	1.5	174.2	51.7	72.6	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.5	58.1	17.2	24.2
81	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	7.00	0.30	0.40	0.20	0.10	2.1	243.9	72.3	101.6	2.8	325.2	96.4	135.5	1.4	162.6	48.2	67.8	0.7	81.3	24.1	33.9
82	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	5.00	0.30	0.40	0.20	0.10	1.5	174.2	51.7	72.6	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.5	58.1	17.2	24.2
83	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	2.00	0.30	0.40	0.20	0.10	0.6	69.7	20.7	29.0	0.8	92.9	27.6	38.7	0.4	46.5	13.8	19.4	0.2	23.2	6.9	9.7
84	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	5.00	0.30	0.40	0.20	0.10	1.5	174.2	51.7	72.6	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.5	58.1	17.2	24.2
85	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	5.00	0.30	0.40	0.20	0.10	1.5	174.2	51.7	72.6	2.0	232.3	68.9	96.8	1.0	116.2	34.4	48.4	0.5	58.1	17.2	24.2
86	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009	21.00	0.30	0.40	0.20	0.10	6.3	731.8	217.0	304.9	8.4	975.7	289.3	406.6	4.2	487.9	144.7	203.3	2.1	243.9	72.3	101.6
87	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009		0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009		0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009		0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-2)35BAC	619396	HERSETH FEEDLOT	43960	14440	51	59	4009		0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
78	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	238.00	0.20	0.80	0.00	0.00	47.6	2073.5	8100.9	2303.8	190.4	8293.8	32403.8	9215.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	218.00	0.20	0.80	0.00	0.00	43.6	1899.2	7420.2	2110.2	174.4	7596.9	29680.8	8441.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	228.00	0.20	0.80	0.00	0.00	45.6	1986.3	7760.6	2207.0	182.4	7945.3	31042.3	8828.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	304.00	0.20	0.80	0.00	0.00	60.8	2648.4	10347.4	2942.7	243.2	10593.8	41389.7	11770.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	226.00	0.20	0.80	0.00	0.00	45.2	1968.9	7692.5	2187.7	180.8	7875.6	30770.0	8750.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	96.00	0.20	0.80	0.00	0.00	19.2	836.4	3267.6	929.3	76.8	3345.4	13070.4	3717.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-2)35DDD	604323	BUTLER FARMS	47160	10600	53	64	4172	208.00	0.20	0.80	0.00	0.00	41.6	1812.1	7079.8	2013.4	166.4	7248.4	28319.3	8053.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-3)06DCD	626530	UNIV. PARK	56520	37360	16	75	1260	1.00	0.40	0.30	0.30	0.00	0.4	46.5	13.8	19.4	0.3	34.8	10.3	14.5	0.3	34.6	10.3	14.5	0.0	0.0	0.0	0.0
85	(A-1-3)06DCD	626530	UNIV. PARK	56520	37360	16	75	1260	1.00	0.40	0.30	0.30	0.00	0.4	46.5	13.8	19.4	0.3	34.8	10.3	14.5	0.3	34.8	10.3	14.5	0.0	0.0	0.0	0.0
78	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	1060.00	0.30	0.20	0.40	0.10	318.0	36938.9	10952.8	15391.2	212.0	24625.9	7301.9	10260.8	424.0	49251.8	14603.7	20521.6	106.0	12313.0	3650.9	5130.4
79	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	968.00	0.30	0.20	0.40	0.10	290.4	33732.9	10002.2	14055.4	193.6	22488.6	6668.1	9370.2	387.2	44977.2	13336.2	18740.5	96.8	11244.3	3334.1	4685.1
80	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	1018.00	0.30	0.20	0.40	0.10	305.4	35475.3	10518.8	14781.4	203.6	23650.2	7012.6	9854.2	407.2	47300.4	14025.1	19708.5	101.8	11825.1	3506.3	4927.1
81	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	1354.00	0.30	0.20	0.40	0.10	406.2	47184.2	13990.7	19660.1	270.8	31456.1	9327.1	13106.7	541.6	62912.3	18654.2	26213.4	135.4	15728.1	4663.6	6553.4
82	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	1004.00	0.30	0.20	0.40	0.10	301.2	34987.4	10374.2	14578.1	200.8	23324.9	6916.1	9718.7	401.6	46649.9	13832.2	19437.4	100.4	11662.5	3458.1	4859.4
83	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	427.00	0.30	0.20	0.40	0.10	128.1	14880.1	4412.1	6200.0	85.4	9920.1	2941.4	4133.4	170.8	19840.1	5882.8	8266.7	42.7	4960.0	1470.7	2066.7
84	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	926.00	0.30	0.20	0.40	0.10	277.8	32269.2	9568.2	13445.5	185.2	21512.8	6378.8	8963.7	370.4	43025.7	12757.6	17927.4	92.6	10756.4	3189.4	4481.8
85	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	616.00	0.30	0.20	0.40	0.10	184.8	21466.4	6365.0	8944.3	123.2	14310.9	4243.4	5962.9	246.4	28621.8	8486.7	11925.8	61.6	7155.5	2121.7	2981.4
86	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	811.00	0.30	0.20	0.40	0.10	243.3	28261.7	8379.9	11775.7	162.2	18841.2	5586.6	7850.5	324.4	37682.3	11173.2	15701.0	81.1	9420.6	2793.3	3925.2
87	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	592.00	0.30	0.20	0.40	0.10	177.6	20630.0	6117.0	8595.8	118.4	13753.3	4078.0	5730.6	236.8	27506.7	8156.1	11461.1	59.2	6876.7	2039.0	2865.3
88	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	351.00	0.30	0.20	0.40	0.10	105.3	12231.6	3626.8	5096.5	70.2	8154.4	2417.9	3397.7	140.4	16308.9	4835.8	6795.4	35.1	4077.2	1208.9	1698.8
89	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	76.00	0.30	0.20	0.40	0.10	22.8	2648.4	785.3	1103.5	15.2	1765.6	523.5	735.7	30.4	3531.3	1047.1	1471.4	7.6	882.8	261.8	367.8
90	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	234.00	0.30	0.20	0.40	0.10	70.2	8154.4	2417.9	3397.7	46.8	5436.3	1611.9	2265.1	93.6	10872.6	3223.8	4530.2	23.4	2718.1	806.0	1132.6
91	(A-1-3)08ABB1	610166	VNB	61200	36880	17	78	1342	220.00	0.30	0.20	0.40	0.10	66.0	7666.6	2273.2	3194.4	44.0	5111.0	1515.5	2129.6	88.0	10222.1	3031.0	4259.2	22.0	2555.5	757.7	1064.8
78	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	127.00	0.30	0.60	0.10	0.00	38.1	4425.7	1312.3	1844.0	76.2	8851.4	2624.5	3688.1	12.7	1475.2	437.4	614.7	0.0	0.0	0.0	0.0
79	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	116.00	0.30	0.60	0.10	0.00	34.8	4042.4	1198.6	1684.3	69.6	8084.7	2397.2	3368.6	11.6	1347.5	399.5	561.4	0.0	0.0	0.0	0.0
80	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	122.00	0.30	0.60	0.10	0.00	36.6	4251.5	1260.6	1771.4	73.2	8502.9	2521.2	3542.9	12.2	1417.2	420.2	590.5	0.0	0.0	0.0	0.0
81	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	163.00	0.30	0.60	0.10	0.00	48.9	5680.2	1684.3	2366.8	97.8	11360.4	3368.5	4733.5	16.3	1893.4	561.4	788.9	0.0	0.0	0.0	0.0
82	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	121.00	0.30	0.60	0.10	0.00	36.3	4216.6	1250.3	1756.9	72.6	8433.2	2500.5	3513.8	12.1	1405.5	416.8	585.6	0.0	0.0	0.0	0.0
83	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	51.00	0.30	0.60	0.10	0.00	15.3	1777.2	527.0	740.5	30.6	3554.5	1053.9	1481.0	5.1	592.4	175.7	246.8	0.0	0.0	0.0	0.0
84	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	111.00	0.30	0.60	0.10	0.00	33.3	3868.1	1146.9	1611.7	66.6	7736.3	2293.9	3223.4	11.1	1289.4	382.3	537.2	0.0	0.0	0.0	0.0
85	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	63.00	0.30	0.60	0.10	0.00	18.9	2195.4	651.0	914.8	37.8	4390.8	1301.9	1829.5	6.3	731.8	217.0	304.9	0.0	0.0	0.0	0.0
86	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	126.00	0.30	0.60	0.10	0.00	37.8	4390.8	1301.9	1829.5	75.6	8781.7	2603.9	3659.0	12.6	1463.6	434.0	609.8	0.0	0.0	0.0	0.0
87	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500	91.00	0.30	0.60	0.10	0.00	27.3	3171.2	940.3	1321.3	54.6	6342.3	1880.6	2642.6	9.1	1057.1	313.4	440.4	0.0	0.0	0.0	0.0
88	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500		0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500		0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-3)08BAD	619307	FIB	60360	35880	19	78	1500		0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-3)08BDA	629587		60400	35800	20	77	1578	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)08BDA	629587		60400	35800	20	77	1578	873.00	0.30	0.50	0.10	0.10	261.9	30422.3	9020.6	12676.0	436.5	50703.8	15034.3	21126.6	87.3	10140.8	3006.9	4225.3	87.3	10140.8	3006.9	4225.3
86	(A-1-3)08BDA	629587		60400	35800	20	77	1578	966.00	0.30	0.50	0.10	0.10	289.8	33663.2	9981.5	14026.3	483.0	56105.3	16635.9	23377.2	96.6	11221.1	3327.2	4675.4	96.6	11221.1	3327.2	4675.4
87	(A-1-3)08BDA	629587		60400	35800	20	77	1578	652.00	0.30	0.50	0.10	0.10	195.6	22720.9	6737.0	9467.0	326.0	37868.2	11228.3	15778.4	65.2	7573.6	2245.7	3155.7	65.2	7573.6	2245.7	3155.7
88	(A-1-3)08BDA	629587		60400	35800	20	77	1578	604.00	0.30	0.50	0.10	0.10	181.2	21048.2	6241.0	8770.1	302.0	35080.3	10401.7	14616.8	60.4	7016.1	2080.3	2923.4	60.4	7016.1	2080.3	2923.4
89	(A-1-3)08BDA	629587		60400	35800	20	77	1578	566.00	0.30	0.50	0.10	0.10	169.8	19724.0	5848.4	8218.3	283.0	32873.3	9747.3	13697.2	56.6	6574.7	1949.5	2739.4	56.6	6574.7	1949.5	2739.4
90	(A-1-3)08BDA	629587		60400	35800	20	77	1578	508.00	0.30	0.50	0.10	0.10	152.4	17702.8	5249.1	7376.2	254.0	29504.6	8748.5	12293.6	50.8	5900.9	1749.7	2458.7	50.8	5900.9	1749.7	2458.7
91	(A-1-3)08BDA	629587		60400	35800	20	77	1578	644.00	0.30	0.50	0.10	0.10	193.2	22442.1	6654.3	9350.9	322.0	37403.5	11090.6	15584.8	64.4	7480.7	2218.1	3117.0	64.4	7480.7	2218.1	3117.0
84	(A-1-3)08BDD	518962		60400	34800	21	78	1658	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)08BDD	518962		60400	34800	21	78	1658	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)08BDD	518962		60400	34800	21	78	1658	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)08BDD	518962		60400	34800	21	78	1658	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-3)08BDD	518962		60400	34800	21	78	1658	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-3)08BDD	518962		60400	34800	21	78	1658	29.00	0.30	0.50	0.10	0.10	8.7	1010.6	299.7	421.1	14.5	1684.3	499.4	701.8	2.9	336.9	99.9	140.4	2.9	336.9	99.9	140.4
90	(A-1-3)08BDD	518962		60400	34800	21	78	1658	24.00	0.30	0.50	0.10	0.10	7.2	836.4	248.0	348.5	12.0	1393.9	413.3	580.8	2.4	278.8	82.7	116.2	2.4	278.8	82.7	116.2
78	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	67.00	0.30	0.60	0.10	0.00	20.1	2334.8	692.3	972.8	40.2	4669.6	1384.6	1945.7	6.7	778.3	230.8	324.3	0.0	0.0	0.0	0.0
79	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	61.00	0.30	0.60	0.10	0.00	18.3	2125.7	630.3	885.7	36.6	4251.5	1260.6	1771.4	6.1	708.6	210.1	295.2	0.0	0.0	0.0	0.0
80	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	65.00	0.30	0.60	0.10	0.00	19.5	2265.1	671.6	943.8	39.0	4530.2	1343.3	1887.6	6.5	755.0	223.9	314.6	0.0	0.0	0.0	0.0
81	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	86.00	0.30	0.60	0.10	0.00	25.8	2996.9	888.6	1248.7	51.6	5993.9	1777.2	2497.4	8.6	999.0	296.2	416.2	0.0	0.0	0.0	0.0
82	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	64.00	0.30	0.60	0.10	0.00	19.2	2230.3	661.3	929.3	38.4	4460.5	1322.6	1858.6	6.4	743.4	220.4	309.8	0.0	0.0	0.0	0.0
83	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	27.00	0.30	0.60	0.10	0.00	8.1	940.9	279.0	392.0	16.2	1881.8	558.0	784.1	2.7	313.6	93.0	130.7	0.0	0.0	0.0	0.0
84	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	59.00	0.30	0.60	0.10	0.00	17.7	2056.0	609.6	856.7	35.4	4112.1	1219.3	1713.4	5.9	685.3	203.2	285.6	0.0	0.0	0.0	0.0
85	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	118.00	0.30	0.60	0.10	0.00	35.4	4112.1	1219.3	1713.4	70.8	8224.1	2438.5	3426.7	11.8	1370.7	406.4	571.1	0.0	0.0	0.0	0.0
86	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	59.00	0.30	0.60	0.10	0.00	17.7	2056.0	609.6	856.7	35.4	4112.1	1219.3	1713.4	5.9	685.3	203.2	285.6	0.0	0.0	0.0	0.0
87	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	70.00	0.30	0.60	0.10	0.00	21.0	2439.4	723.3	1016.4	42.0	4878.7	1446.6	2032.8	7.0	813.1	241.1	338.8	0.0	0.0	0.0	0.0
88	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	69.00	0.30	0.60	0.10	0.00	20.7	2404.5	713.0	1001.9	41.4	4809.0	1425.9	2003.8	6.9	801.5	237.7	334.0	0.0	0.0	0.0	0.0
89	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	96.00	0.30	0.60	0.10	0.00	28.8	3345.4	992.0	1393.9	57.6	6690.8	1983.9	2787.8	9.6	1115.1	330.7	464.6	0.0	0.0	0.0	0.0
90	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	0.00	0.30	0.60	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-3)08DCA	801051	PHOENIX SCHOOLS	61840	32920	25	79	1975	40.00	0.30	0.60	0.10	0.00	12.0	1393.9	413.3	580.8	24.0	2787.8	826.6	1161.6	4.0	464.6	137.8	193.6	0.0	0.0	0.0	0.0
84	(A-1-3)17BBD	626532		59200	30800	33	77	2605	1.00	0.50	0.40	0.10	0.00	0.5	58.1	17.2	24.2	0.4	46.5	13.8	19.4	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
85	(A-1-3)17BBD	626532		59200	30800	33	77	2605	0.00	0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)17BBD	626532		59200	30800	33	77	2605		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)17BBD	626532		59200	30800	33	77	2605		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-3)17BBD	626532		59200	30800	33	77	2605		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-3)17BBD	626532		59200	30800	33	77	2605		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-3)17BBD	626532		59200	30800	33	77	2605		0.50	0.40	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)17BDA			60400	30400	31	78	2448	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)17BDA			60400	30400	31	78	2448	2005.00	0.50	0.40	0.10		1002.5	116450.4	34528.9	48521.0	802.0	93160.3	27623.1	38816.8	200.5	23290.1	6905.8	9704.2	0.0	0.0	0.0	0.0
87	(A-1-3)17BDA			60400	30400	31	78	2448	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)17CDD	523499	SHANK ARTUKOVICH	60400	26400	38	77	3000	1184.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)17CDD	523499	SHANK ARTUKOVICH	60400	26400	38	77	3000	11760.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)17CDD	523499	SHANK ARTUKOVICH	60400	26400	38	77	3000	1586.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)17DBA		SHANK ARTUKOVICH	62000	28800	34	79	2686	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)17DBA		SHANK ARTUKOVICH	62000	28800	34	79	2686	2041.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)17DBA		SHANK ARTUKOVICH	62000	28800	34	79	2686	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)17DBC		SHANK ARTUKOVICH	61200	28000	35	78	2764	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)17DBC		SHANK ARTUKOVICH	61200	28000	35	78	2764	519.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)17DBC		SHANK ARTUKOVICH	61200	28000	35	78	2764	520.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	129.00	0.20	0.70	0.10	0.00	25.8	2996.9	888.6	1248.7	90.3	10489.2	3110.2	4370.5	12.9	1498.5	444.3	624.4	0.0	0.0	0.0	0.0
79	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	118.00	0.20	0.70	0.10	0.00	23.6	2741.4	812.8	1142.2	82.6	9594.8	2845.0	3997.8	11.8	1370.7	406.4	571.1	0.0	0.0	0.0	0.0
80	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	124.00	0.20	0.70	0.10	0.00	24.8	2880.8	854.2	1200.3	86.8	10082.7	2989.6	4201.1	12.4	1440.4	427.1	600.2	0.0	0.0	0.0	0.0
81	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	165.00	0.20	0.70	0.10	0.00	33.0	3833.3	1136.6	1597.2	115.5	13416.5	3978.1	5590.2	16.5	1916.6	568.3	798.6	0.0	0.0	0.0	0.0
82	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	122.00	0.20	0.70	0.10	0.00	24.4	2834.3	840.4	1181.0	85.4	9920.1	2941.4	4133.4	12.2	1417.2	420.2	590.5	0.0	0.0	0.0	0.0
83	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	52.00	0.20	0.70	0.10	0.00	10.4	1208.1	358.2	503.4	36.4	4228.2	1253.7	1761.8	5.2	604.0	179.1	251.7	0.0	0.0	0.0	0.0
84	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	113.00	0.20	0.70	0.10	0.00	22.6	2625.2	778.4	1093.8	79.1	9188.3	2724.4	3828.4	11.3	1312.6	389.2	546.9	0.0	0.0	0.0	0.0
85	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	37.00	0.20	0.70	0.10	0.00	7.4	859.6	254.9	358.2	25.9	3008.5	892.1	1253.6	3.7	429.8	127.4	179.1	0.0	0.0	0.0	0.0
86	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	6.00	0.20	0.70	0.10	0.00	1.2	139.4	41.3	58.1	4.2	487.9	144.7	203.3	0.6	69.7	20.7	29.0	0.0	0.0	0.0	0.0
87	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	0.00	0.20	0.70	0.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	1.00	0.20	0.70	0.10	0.00	0.2	23.2	6.9	9.7	0.7	81.3	24.1	33.9	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
89	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	1.00	0.20	0.70	0.10	0.00	0.2	23.2	6.9	9.7	0.7	81.3	24.1	33.9	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
90	(A-1-3)18	800819	MARICOPA PACK.	55200	29600	32	73	2522	1.00	0.20	0.70	0.10	0.00	0.2	23.2	6.9	9.7	0.7	81.3	24.1	33.9	0.1	11.6	3.4	4.8	0.0	0.0	0.0	0.0
84	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364	1.00	0.50	0.30	0.20	0.00	0.5	58.1	17.2	24.2	0.3	34.8	10.3	14.5	0.2	23.2	6.9	9.7	0.0	0.0	0.0	0.0
85	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364	1.00	0.50	0.30	0.20	0.00	0.5	58.1	17.2	24.2	0.3	34.8	10.3	14.5	0.2	23.2	6.9	9.7	0.0	0.0	0.0	0.0
86	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-3)18BAD	626524	COP	55200	30800	30	73	2364		0.50	0.30	0.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3775.00	0.60	0.30	0.10	0.00	2265.0	98663.4	385475.6	109626.0	1132.5	49331.7	192737.8	54813.0	377.5	16443.9	64245.9	18271.0	0.0	0.0	0.0	0.0
73	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3774.00	0.60	0.30	0.10	0.00	2264.4	98637.3	385373.5	109597.0	1132.2	49318.6	192686.7	54798.5	377.4	16439.5	64228.9	18266.2	0.0	0.0	0.0	0.0
74	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	4098.00	0.60	0.30	0.10	0.00	2458.8	107105.3	418458.0	119005.9	1229.4	53552.7	209229.0	59503.0	409.8	17850.9	69743.0	19834.3	0.0	0.0	0.0	0.0
75	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3658.00	0.60	0.30	0.10	0.00	2194.8	95605.5	373528.4	106228.3	1097.4	47802.7	186764.2	53114.2	365.8	15934.2	62254.7	17704.7	0.0	0.0	0.0	0.0
76	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3997.00	0.60	0.30	0.10	0.00	2398.2	104465.6	408144.6	116072.9	1199.1	52232.8	204072.3	58036.4	399.7	17410.9	68024.1	19345.5	0.0	0.0	0.0	0.0
77	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3348.00	0.60	0.30	0.10	0.00	2008.8	87503.3	341873.5	97225.9	1004.4	43751.7	170936.7	48613.0	334.8	14583.9	56978.9	16204.3	0.0	0.0	0.0	0.0
78	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3374.00	0.60	0.30	0.10	0.00	2024.4	88182.9	344528.4	97981.0	1012.2	44091.4	172264.2	48990.5	337.4	14697.1	57421.4	16330.2	0.0	0.0	0.0	0.0
79	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	2764.00	0.60	0.30	0.10	0.00	1658.4	72239.9	282239.6	80266.6	829.2	36120.0	141119.8	40133.3	276.4	12040.0	47039.9	13377.8	0.0	0.0	0.0	0.0
80	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	4115.00	0.60	0.30	0.10	0.00	2469.0	107549.6	420193.9	119499.6	1234.5	53774.8	210097.0	59749.8	411.5	17924.9	70032.3	19916.6	0.0	0.0	0.0	0.0
81	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	4192.00	0.60	0.30	0.10	0.00	2515.2	109562.1	428056.6	121735.7	1257.6	54781.1	214028.3	60867.8	419.2	18260.4	71342.8	20289.3	0.0	0.0	0.0	0.0
82	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	2567.00	0.60	0.30	0.10	0.00	1540.2	67091.1	262123.4	74545.7	770.1	33545.6	131061.7	37272.8	256.7	11181.9	43687.2	12424.3	0.0	0.0	0.0	0.0
83	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	1306.00	0.60	0.30	0.10	0.00	783.6	34133.6	133359.2	37926.2	391.8	17066.8	66679.6	18963.1	130.6	5688.9	22226.5	6321.0	0.0	0.0	0.0	0.0
84	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3467.00	0.60	0.30	0.10	0.00	2080.2	90613.5	354024.9	100681.7	1040.1	45306.8	177012.4	50340.8	346.7	15102.3	59004.1	16780.3	0.0	0.0	0.0	0.0
85	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	4019.00	0.60	0.30	0.10	0.00	2411.4	105040.6	410391.1	116711.8	1205.7	52520.3	205195.6	58355.9	401.9	17506.8	68398.5	19452.0	0.0	0.0	0.0	0.0
86	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3918.00	0.60	0.30	0.10	0.00	2350.8	102400.8	400077.7	113778.7	1175.4	51200.4	200038.9	56889.4	391.8	17066.8	66679.6	18963.1	0.0	0.0	0.0	0.0
87	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3256.00	0.60	0.30	0.10	0.00	1953.6	85098.8	332479.1	94554.2	976.8	42549.4	166239.5	47277.1	325.6	14183.1	55413.2	15759.0	0.0	0.0	0.0	0.0
88	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	4170.00	0.60	0.30	0.10	0.00	2502.0	108987.1	425810.1	121096.8	1251.0	54493.6	212905.1	60548.4	417.0	18164.5	70968.4	20182.8	0.0	0.0	0.0	0.0
89	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3459.00	0.60	0.30	0.10	0.00	2075.4	90404.4	353208.0	100449.4	1037.7	45202.2	176604.0	50224.7	345.9	15067.4	58868.0	16741.6	0.0	0.0	0.0	0.0
90	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	2904.00	0.60	0.30	0.10	0.00	1742.4	75898.9	296535.4	84332.2	871.2	37949.5	148267.7	42166.1	290.4	12649.8	49422.6	14055.4	0.0	0.0	0.0	0.0
91	(A-1-3)18BBC	607207	RID	53305	30268	30	72	2363	3228.00	0.60	0.30	0.10	0.00	1936.8	84367.0	329619.9	93741.1	968.4	42183.5	164810.0	46870.6	322.8	14061.2	54936.7	15623.5	0.0	0.0	0.0	0.0
78	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1169.00	0.20	0.20	0.00	0.00	233.8	27158.2	8052.7	11315.9	233.8	27158.2	8052.7	11315.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1068.00	0.20	0.20	0.00	0.00	213.6	24811.8	7357.0	10338.2	213.6	24811.8	7357.0	10338.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1121.00	0.20	0.20	0.00	0.00	224.2	26043.1	7722.1	10851.3	224.2	26043.1	7722.1	10851.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1492.00	0.20	0.20	0.00	0.00	298.4	34662.1	10277.7	14442.6	298.4	34662.1	10277.7	14442.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1108.00	0.20	0.20	0.00	0.00	221.6	25741.1	7632.5	10725.4	221.6	25741.1	7632.5	10725.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	471.00	0.20	0.20	0.00	0.00	94.2	10942.3	3244.5	4559.3	94.2	10942.3	3244.5	4559.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1021.00	0.20	0.20	0.00	0.00	204.2	23719.9	7033.2	9883.3	204.2	23719.9	7033.2	9883.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1435.00	0.20	0.20	0.00	0.00	287.0	33337.9	9885.1	13890.8	287.0	33337.9	9885.1	13890.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1220.00	0.20	0.20	0.00	0.00	244.0	28343.0	8404.0	11809.6	244.0	28343.0	8404.0	11809.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158		0.20	0.20	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1375.00	0.20	0.20	0.00	0.00	275.0	31944.0	9471.8	13310.0	275.0	31944.0	9471.8	13310.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158		0.20	0.20	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1038.00	0.20	0.20	0.00	0.00	207.6	24114.8	7150.3	10047.8	207.6	24114.8	7150.3	10047.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-1-3)20BAD1	604164	UNION ROCK	60400	24800	40	77	3158	1255.00	0.20	0.20	0.00	0.00	251.0	29156.2	8645.1	12148.4	251.0	29156.2	8645.1	12148.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	938.00	0.20	0.50	0.10	0.20	187.6	8171.9	31927.3	9079.8	469.0	20429.6	79818.1	22699.6	93.8	4085.9	15963.6	4539.9	187.6	8171.9	31927.3	9079.8
85	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	13.00	0.20	0.50	0.10	0.20	2.6	113.3	442.5	125.8	6.5	283.1	1106.2	314.6	1.3	56.6	221.2	62.9	2.6	113.3	442.5	125.8
86	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	12.00	0.20	0.50	0.10	0.20	2.4	104.5	408.5	116.2	6.0	261.4	1021.1	290.4	1.2	52.3	204.2	58.1	2.4	104.5	408.5	116.2
87	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	6.00	0.20	0.50	0.10	0.20	1.2	52.3	204.2	58.1	3.0	130.7	510.6	145.2	0.6	26.1	102.1	29.0	1.2	52.3	204.2	58.1
88	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	8.00	0.20	0.50	0.10	0.20	1.6	69.7	272.3	77.4	4.0	174.2	680.8	193.6	0.8	34.8	136.2	38.7	1.6	69.7	272.3	77.4
89	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	107.00	0.20	0.50	0.10	0.20	21.4	932.2	3642.0	1035.8	53.5	2330.5	9105.1	2589.4	10.7	466.1	1821.0	517.9	21.4	932.2	3642.0	1035.8
90	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	397.00	0.20	0.50	0.10	0.20	79.4	3458.7	13512.9	3843.0	198.5	8646.7	33782.3	9607.4	39.7	1729.3	6756.5	1921.5	79.4	3458.7	13512.9	3843.0
91	(A-1-3)31DDB	626564	SRP	56840	11400	53	75	4183	256.00	0.20	0.50	0.10	0.20	51.2	2230.3	8713.6	2478.1	128.0	5575.7	21784.1	6195.2	25.6	1115.1	4356.8	1239.0	51.2	2230.3	8713.6	2478.1
84	(A-1-3)32AAD	626531	COP	63040	14240	51	79	4029	1.00	0.20	0.20	0.20	0.40	0.2	23.2	6.9	9.7	0.2	23.2	6.9	9.7	0.2	23.2	6.9	9.7	0.4	46.5	13.8	19.4
85	(A-1-3)32AAD	626531	COP	63040	14240	51	79	4029	1.00	0.20	0.20	0.20	0.40	0.2	23.2	6.9	9.7	0.2	23.2	6.9	9.7	0.2	23.2	6.9	9.7	0.4	46.5	13.8	19.4
72	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	998.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	399.2	17389.2	67939.0	19321.3	99.8	4347.3	16984.8	4830.3	399.2	17389.2	67939.0	19321.3
73	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	31.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	12.4	540.1	2110.3	600.2	3.1	135.0	527.6	150.0	12.4	540.1	2110.3	600.2
74	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	671.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	268.4	11691.5	45678.4	12990.6	67.1	2922.9	11419.6	3247.6	268.4	11691.5	45678.4	12990.6
75	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	1153.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	461.2	20089.9	78490.7	22322.1	115.3	5022.5	19622.7	5580.5	461.2	20089.9	78490.7	22322.1
76	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	1043.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	417.2	18173.2	71002.4	20192.5	104.3	4543.3	17750.6	5048.1	417.2	18173.2	71002.4	20192.5
77	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	1325.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	530.0	23086.8	90199.6	25652.0	132.5	5771.7	22549.9	6413.0	530.0	23086.8	90199.6	25652.0
78	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	597.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	238.8	10402.1	40640.9	11557.9	59.7	2600.5	10160.2	2889.5	238.8	10402.1	40640.9	11557.9

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
79	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	548.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	219.2	9548.4	37305.2	10609.3	54.8	2387.1	9326.3	2652.3	219.2	9548.4	37305.2	10609.3
80	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	985.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	394.0	17162.6	67054.0	19069.6	98.5	4290.7	16763.5	4767.4	394.0	17162.6	67054.0	19069.6
81	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	346.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	138.4	6028.7	23554.0	6698.6	34.6	1507.2	5888.5	1674.6	138.4	6028.7	23554.0	6698.6
82	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	219.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	87.6	3815.9	14908.5	4239.8	21.9	954.0	3727.1	1060.0	87.6	3815.9	14908.5	4239.8
83	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	63.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	25.2	1097.7	4288.7	1219.7	6.3	274.4	1072.2	304.9	25.2	1097.7	4288.7	1219.7
84	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	904.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	361.6	15751.3	61539.9	17501.4	90.4	3937.8	15385.0	4375.4	361.6	15751.3	61539.9	17501.4
85	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	46.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	18.4	801.5	3131.5	890.6	4.6	200.4	782.9	222.6	18.4	801.5	3131.5	890.6
86	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	55.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	22.0	958.3	3744.1	1064.8	5.5	239.6	936.0	266.2	22.0	958.3	3744.1	1064.8
87	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	130.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	52.0	2265.1	8849.8	2516.8	13.0	566.3	2212.4	629.2	52.0	2265.1	8849.8	2516.8
88	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	21.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	8.4	365.9	1429.6	406.6	2.1	91.5	357.4	101.6	8.4	365.9	1429.6	406.6
89	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	16.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	6.4	278.8	1089.2	309.8	1.6	69.7	272.3	77.4	6.4	278.8	1089.2	309.8
90	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	1357.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	542.8	23644.4	92378.0	26271.5	135.7	5911.1	23094.5	6567.9	542.8	23644.4	92378.0	26271.5
91	(A-2-1)21AAA	608410	SRP	5080	58000	1	3	3	170.00	0.00	0.40	0.10	0.40	0.0	0.0	0.0	0.0	68.0	2962.1	11572.8	3291.2	17.0	740.5	2893.2	822.8	68.0	2962.1	11572.8	3291.2
72	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	1139.00	0.10	0.30	0.20	0.40	113.9	4961.5	19384.4	5512.8	341.7	14884.5	58153.2	16538.3	227.8	9923.0	38768.8	11025.5	455.6	19845.9	77537.6	22051.0
73	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	74.00	0.10	0.30	0.20	0.40	7.4	322.3	1259.4	358.2	22.2	967.0	3778.2	1074.5	14.8	644.7	2518.8	716.3	29.6	1289.4	5037.6	1432.6
74	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	744.00	0.10	0.30	0.20	0.40	74.4	3240.9	12662.0	3601.0	223.2	9722.6	37985.9	10802.9	148.8	6481.7	25324.0	7201.9	297.6	12963.5	50647.9	14403.8
75	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	293.00	0.10	0.30	0.20	0.40	29.3	1276.3	4986.5	1418.1	87.9	3828.9	14959.5	4254.4	58.6	2552.6	9973.0	2836.2	117.2	5105.2	19946.0	5672.5
76	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	1096.00	0.10	0.30	0.20	0.40	109.6	4774.2	18652.6	5304.6	328.8	14322.5	55957.8	15913.9	219.2	9548.4	37305.2	10609.3	438.4	19096.7	74610.4	21218.6
77	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	258.00	0.10	0.30	0.20	0.40	25.8	1123.8	4390.8	1248.7	77.4	3371.5	13172.5	3746.2	51.6	2247.7	8781.7	2497.4	103.2	4495.4	17563.4	4994.9
78	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	70.00	0.10	0.30	0.20	0.40	7.0	304.9	1191.3	338.8	21.0	914.8	3573.9	1016.4	14.0	609.8	2382.6	677.6	28.0	1219.7	4765.3	1355.2
79	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	7.00	0.10	0.30	0.20	0.40	0.7	30.5	119.1	33.9	2.1	91.5	357.4	101.6	1.4	61.0	238.3	67.8	2.8	122.0	476.5	135.5
80	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	182.00	0.10	0.30	0.20	0.40	18.2	792.8	3097.4	880.9	54.6	2378.4	9292.3	2642.6	36.4	1585.6	6194.8	1761.8	72.8	3171.2	12389.7	3523.5
81	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	918.00	0.10	0.30	0.20	0.40	91.8	3998.8	15623.2	4443.1	275.4	11996.4	46869.7	13329.4	183.6	7997.6	31246.5	8886.2	367.2	15995.2	62493.0	17772.5
82	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	249.00	0.10	0.30	0.20	0.40	24.9	1084.6	4237.7	1205.2	74.7	3253.9	12713.0	3615.5	49.8	2169.3	8475.4	2410.3	99.6	4338.6	16950.7	4820.6
83	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	134.00	0.10	0.30	0.20	0.40	13.4	583.7	2280.5	648.6	40.2	1751.1	6841.6	1945.7	26.8	1167.4	4561.0	1297.1	53.6	2334.8	9122.1	2594.2
84	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	792.22	0.10	0.30	0.20	0.40	79.2	3450.9	13482.6	3834.3	237.7	10352.7	40447.9	11503.0	158.4	6901.8	26965.3	7668.7	316.9	13803.6	53930.5	15337.4
85	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	15.01	0.10	0.30	0.20	0.40	1.5	65.4	255.5	72.6	4.5	196.2	766.4	217.9	3.0	130.8	510.9	145.3	6.0	261.5	1021.8	290.6
86	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	16.52	0.10	0.30	0.20	0.40	1.7	72.0	281.2	80.0	5.0	215.9	843.5	239.9	3.3	143.9	562.3	159.9	6.6	287.8	1124.6	319.8
87	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	0.00	0.10	0.30	0.20	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	0.00	0.10	0.30	0.20	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	0.00	0.10	0.30	0.20	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-1)23CCC	608393	SRP	10760	53200	3	7	165	0.00	0.10	0.30	0.20	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1378.00	0.20	0.50	0.10	0.20	275.6	12005.1	46903.8	13339.0	689.0	30012.8	117259.5	33347.6	137.8	6002.6	23451.9	6669.5	275.6	12005.1	46903.8	13339.0
73	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	127.00	0.20	0.50	0.10	0.20	25.4	1106.4	4322.8	1229.4	63.5	2766.1	10806.9	3073.4	12.7	553.2	2161.4	614.7	25.4	1106.4	4322.8	1229.4
74	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	938.00	0.20	0.50	0.10	0.20	187.6	8171.9	31927.3	9079.8	469.0	20429.6	79818.1	22699.6	93.8	4085.9	15963.6	4539.9	187.6	8171.9	31927.3	9079.8
75	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1328.00	0.20	0.50	0.10	0.20	265.6	11569.5	45201.9	12855.0	664.0	28923.8	113004.8	32137.6	132.8	5784.8	22601.0	6427.5	265.6	11569.5	45201.9	12855.0
76	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1398.00	0.20	0.50	0.10	0.20	279.6	12179.4	47584.5	13532.6	699.0	30448.4	118961.3	33831.6	139.8	6089.7	23792.3	6766.3	279.6	12179.4	47584.5	13532.6
77	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1643.00	0.20	0.50	0.10	0.20	328.6	14313.8	55923.7	15904.2	821.5	35784.5	139809.4	39760.6	164.3	7156.9	27961.9	7952.1	328.6	14313.8	55923.7	15904.2
78	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	50.00	0.20	0.50	0.10	0.20	10.0	435.6	1701.9	484.0	25.0	1089.0	4254.7	1210.0	5.0	217.8	850.9	242.0	10.0	435.6	1701.9	484.0
79	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	121.00	0.20	0.50	0.10	0.20	24.2	1054.2	4118.5	1171.3	60.5	2635.4	10296.4	2928.2	12.1	527.1	2059.3	585.6	24.2	1054.2	4118.5	1171.3
80	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	325.00	0.20	0.50	0.10	0.20	65.0	2831.4	11062.2	3146.0	162.5	7078.5	27655.5	7865.0	32.5	1415.7	5531.1	1573.0	65.0	2831.4	11062.2	3146.0
81	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1628.00	0.20	0.50	0.10	0.20	325.6	14183.1	55413.2	15759.0	814.0	35457.8	138533.0	39397.6	162.8	7091.6	27706.6	7879.5	325.6	14183.1	55413.2	15759.0
82	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	97.00	0.20	0.50	0.10	0.20	19.4	845.1	3301.6	939.0	48.5	2112.7	8254.1	2347.4	9.7	422.5	1650.8	469.5	19.4	845.1	3301.6	939.0
83	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	32.00	0.20	0.50	0.10	0.20	6.4	278.8	1089.2	309.8	16.0	697.0	2723.0	774.4	3.2	139.4	544.6	154.9	6.4	278.8	1089.2	309.8
84	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	1052.06	0.20	0.50	0.10	0.20	210.4	9165.5	35809.6	10183.9	526.0	22913.9	89523.9	25459.9	105.2	4582.8	17904.8	5092.0	210.4	9165.5	35809.6	10183.9
85	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	52.67	0.20	0.50	0.10	0.20	10.5	458.9	1792.8	509.8	26.3	1147.2	4481.9	1274.6	5.3	229.4	896.4	254.9	10.5	458.9	1792.8	509.8
86	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	247.53	0.20	0.50	0.10	0.20	49.5	2156.5	8425.3	2396.1	123.8	5391.2	21063.3	5990.2	24.8	1078.2	4212.7	1198.0	49.5	2156.5	8425.3	2396.1
87	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	58.31	0.20	0.50	0.10	0.20	11.7	508.0	1984.7	564.4	29.2	1270.0	4961.8	1411.1	5.8	254.0	992.4	282.2	11.7	508.0	1984.7	564.4
88	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	187.03	0.20	0.50	0.10	0.20	37.4	1629.4	6366.0	1810.5	93.5	4073.5	15915.1	4526.1	18.7	814.7	3183.0	905.2	37.4	1629.4	6366.0	1810.5
89	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	34.52	0.20	0.50	0.10	0.20	6.9	300.7	1175.0	334.2	17.3	751.8	2937.4	835.4	3.5	150.4	587.5	167.1	6.9	300.7	1175.0	334.2
90	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	2140.76	0.20	0.50	0.10	0.20	428.2	18650.3	72866.3	20722.6	1070.4	46625.8	182165.7	51806.4	214.1	9325.2	36433.1	10361.3	428.2	18650.3	72866.3	20722.6
91	(A-2-1)23DDA	608392	SRP	15600	54520	2	12	91	52.00	0.20	0.50	0.10	0.20	10.4	453.0	1770.0	503.4	26.0	1132.6	4424.9	1258.4	5.2	226.5	885.0	251.7	10.4	453.0	1770.0	503.4
72	(A-2-1)24BAD			18240	57120	1	15	15	569.00	0.10	0.35	0.45	0.20	56.9	2478.6	9683.7	2754.0	199.2	8675.0	33892.9	9638.9	256.1	11153.5	43576.6	12392.8	113.8	4957.1	19367.4	5507.9
73	(A-2-1)24BAD			18240	57120	1	15	15	164.00	0.10	0.35	0.45	0.20	16.4	714.4	2791.1	793.8	57.4	2500.3	9768.8	2778.2	73.8	3214.7	12559.9	3571.9	32.8	1428.8	5582.2	1587.5
74	(A-2-1)24BAD			18240	57120	1	15	15	348.00	0.10	0.35	0.45	0.20	34.8	1515.9	5922.5	1684.3	121.8	5305.6	20728.9	5895.1	156.6	6821.5	26651.4	7579.4	69.6	3031.8	11845.1	3368.6

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
75	(A-2-1)24BAD			18240	57120	1	15	15	333.00	0.10	0.35	0.45	0.20	33.3	1450.5	5667.3	1611.7	116.6	5076.9	19835.4	5641.0	149.9	6527.5	25502.7	7252.7	66.6	2901.1	11334.5	3223.4
76	(A-2-1)24BAD			18240	57120	1	15	15	300.00	0.10	0.35	0.45	0.20	30.0	1306.8	5105.6	1452.0	105.0	4573.8	17869.7	5082.0	135.0	5880.6	22975.4	6534.0	60.0	2613.6	10211.3	2904.0
72	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	1699.00	0.10	0.35	0.45	0.10	169.9	7400.8	28914.9	8223.2	594.7	25903.0	101202.2	28781.1	764.6	33303.8	130117.2	37004.2	169.9	7400.8	28914.9	8223.2
73	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	247.00	0.10	0.35	0.45	0.10	24.7	1075.9	4203.6	1195.5	86.4	3765.8	14712.7	4184.2	111.2	4841.7	18916.4	5379.7	24.7	1075.9	4203.6	1195.5
74	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	1493.00	0.10	0.35	0.45	0.10	149.3	6503.5	25409.1	7226.1	522.6	22762.3	88931.7	25291.4	671.9	29265.8	114340.7	32517.5	149.3	6503.5	25409.1	7226.1
75	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	2155.00	0.10	0.35	0.45	0.10	215.5	9387.2	36675.5	10430.2	754.3	32855.1	128364.2	36505.7	969.8	42242.3	165039.7	46935.9	215.5	9387.2	36675.5	10430.2
76	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	1752.00	0.10	0.35	0.45	0.10	175.2	7631.7	29816.9	8479.7	613.2	26711.0	104359.2	29678.9	788.4	34342.7	134176.1	38158.6	175.2	7631.7	29816.9	8479.7
77	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	1847.00	0.10	0.35	0.45	0.10	184.7	8045.5	31433.7	8939.5	646.4	28159.4	110018.0	31288.2	831.2	36204.9	141451.7	40227.7	184.7	8045.5	31433.7	8939.5
78	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	9.00	0.10	0.35	0.45	0.10	0.9	39.2	153.2	43.6	3.2	137.2	536.1	152.5	4.1	176.4	689.3	196.0	0.9	39.2	153.2	43.6
79	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	8.00	0.10	0.35	0.45	0.10	0.8	34.8	136.2	38.7	2.8	122.0	476.5	135.5	3.6	156.8	612.7	174.2	0.8	34.8	136.2	38.7
80	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	43.00	0.10	0.35	0.45	0.10	4.3	187.3	731.8	208.1	15.1	655.6	2561.3	728.4	19.4	842.9	3293.1	936.5	4.3	187.3	731.8	208.1
81	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	2244.00	0.10	0.35	0.45	0.10	224.4	9774.9	38190.2	10861.0	785.4	34212.0	133665.6	38013.4	1009.8	43986.9	171855.7	48874.3	224.4	9774.9	38190.2	10861.0
82	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	652.00	0.10	0.35	0.45	0.10	65.2	2840.1	11096.3	3155.7	228.2	9940.4	38836.9	11044.9	293.4	12780.5	49933.1	14200.6	65.2	2840.1	11096.3	3155.7
83	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	18.00	0.10	0.35	0.45	0.10	1.8	78.4	306.3	87.1	6.3	274.4	1072.2	304.9	8.1	352.8	1378.5	392.0	1.8	78.4	306.3	87.1
84	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	1492.00	0.10	0.35	0.45	0.10	149.2	6499.2	25392.0	7221.3	522.2	22747.0	88872.1	25274.5	671.4	29246.2	114264.2	32495.8	149.2	6499.2	25392.0	7221.3
85	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	20.00	0.10	0.35	0.45	0.10	2.0	87.1	340.4	96.8	7.0	304.9	1191.3	338.8	9.0	392.0	1531.7	435.6	2.0	87.1	340.4	96.8
86	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	0.00	0.10	0.35	0.45	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	14.00	0.10	0.35	0.45	0.10	1.4	61.0	238.3	67.8	4.9	213.4	833.9	237.2	6.3	274.4	1072.2	304.9	1.4	61.0	238.3	67.8
88	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	0.00	0.10	0.35	0.45	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	0.00	0.10	0.35	0.45	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	2731.00	0.10	0.35	0.45	0.10	273.1	11896.2	46478.3	13218.0	955.8	41636.8	162674.1	46263.1	1229.0	53533.1	209152.4	59481.2	273.1	11896.2	46478.3	13218.0
91	(A-2-1)24BDD	608391	SRP	18360	56280	1	15	15	431.00	0.10	0.35	0.45	0.10	43.1	1877.4	7335.1	2086.0	150.9	6571.0	25672.8	7301.1	194.0	8448.5	33007.9	9387.2	43.1	1877.4	7335.1	2086.0
72	(A-2-1)25BCB1			16240	51480	3	12	170	1807.00	0.30	0.40	0.20	0.10	542.1	23613.9	92258.9	26237.6	722.8	31485.2	123011.8	34983.5	361.4	15742.6	61505.9	17491.8	180.7	7871.3	30753.0	8745.9
73	(A-2-1)25BCB1			16240	51480	3	12	170	1167.00	0.30	0.40	0.20	0.10	350.1	15250.4	59582.8	16944.8	466.8	20333.8	79443.7	22593.1	233.4	10166.9	39721.9	11296.6	116.7	5083.5	19860.9	5648.3
74	(A-2-1)25BCB1			16240	51480	3	12	170	2334.00	0.30	0.40	0.20	0.10	700.2	30500.7	119165.6	33889.7	933.6	40667.6	158887.4	45186.2	466.8	20333.8	79443.7	22593.1	233.4	10166.9	39721.9	11296.6
75	(A-2-1)25BCB1			16240	51480	3	12	170	1618.00	0.30	0.40	0.20	0.10	485.4	21144.0	82609.2	23493.4	647.2	28192.0	110145.6	31324.5	323.6	14096.0	55072.8	15662.2	161.8	7048.0	27536.4	7831.1
76	(A-2-1)25BCB1			16240	51480	3	12	170	2725.00	0.30	0.40	0.20	0.10	817.5	35610.3	139128.6	39567.0	1090.0	47480.4	185504.8	52756.0	545.0	23740.2	92752.4	26378.0	272.5	11870.1	46376.2	13189.0
77	(A-2-1)25BCB1			16240	51480	3	12	170	1290.00	0.30	0.40	0.20	0.10	387.0	16857.7	65862.7	18730.8	516.0	22477.0	87817.0	24974.4	258.0	11238.5	43908.5	12487.2	129.0	5619.2	21954.2	6243.6
78	(A-2-1)25BCB1			16240	51480	3	12	170	1503.00	0.30	0.40	0.20	0.10	450.9	19641.2	76737.7	21823.6	601.2	26188.3	102317.0	29098.1	300.6	13094.1	51158.5	14549.0	150.3	6547.1	25579.2	7274.5
79	(A-2-1)25BCB1			16240	51480	3	12	170	804.00	0.30	0.40	0.20	0.10	241.2	10506.7	41049.3	11674.1	321.6	14008.9	54732.4	15565.4	160.8	7004.4	27366.2	7782.7	80.4	3502.2	13683.1	3891.4
80	(A-2-1)25BCB1			16240	51480	3	12	170	138.00	0.30	0.40	0.20	0.10	41.4	1803.4	7045.8	2003.8	55.2	2404.5	9394.4	2671.7	27.6	1202.3	4697.2	1335.8	13.8	601.1	2348.6	667.9
81	(A-2-1)25BCB1			16240	51480	3	12	170	0.00	0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-2-1)25BCB1			16240	51480	3	12	170	0.00	0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-2-1)25BCB1			16240	51480	3	12	170	0.00	0.30	0.40	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	2237.00	0.30	0.50	0.10	0.10	671.1	29233.1	114213.1	32481.2	1118.5	48721.9	190355.2	54135.4	223.7	9744.4	38071.0	10827.1	223.7	9744.4	38071.0	10827.1
73	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	1724.00	0.30	0.50	0.10	0.10	517.2	22529.2	88021.2	25032.5	862.0	37548.7	146702.0	41720.8	172.4	7509.7	29340.4	8344.2	172.4	7509.7	29340.4	8344.2
75	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	1952.00	0.30	0.50	0.10	0.10	585.6	25508.7	99662.0	28343.0	976.0	42514.6	166103.4	47238.4	195.2	8502.9	33220.7	9447.7	195.2	8502.9	33220.7	9447.7
76	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	2050.00	0.30	0.50	0.10	0.10	615.0	26789.4	104665.6	29766.0	1025.0	44649.0	174442.6	49610.0	205.0	8929.8	34888.5	9922.0	205.0	8929.8	34888.5	9922.0
77	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	2537.00	0.30	0.50	0.10	0.10	761.1	33153.5	129530.0	36837.2	1268.5	55255.9	215883.4	61395.4	253.7	11051.2	43176.7	12279.1	253.7	11051.2	43176.7	12279.1
78	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	50.00	0.30	0.50	0.10	0.10	15.0	653.4	2552.8	726.0	25.0	1089.0	4254.7	1210.0	5.0	217.8	850.9	242.0	5.0	217.8	850.9	242.0
79	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	219.00	0.30	0.50	0.10	0.10	65.7	2861.9	11181.3	3179.9	109.5	4769.8	18635.6	5299.8	21.9	954.0	3727.1	1060.0	21.9	954.0	3727.1	1060.0
80	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	218.00	0.30	0.50	0.10	0.10	65.4	2848.8	11130.3	3165.4	109.0	4748.0	18550.5	5275.6	21.8	949.6	3710.1	1055.1	21.8	949.6	3710.1	1055.1
81	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	1450.00	0.30	0.50	0.10	0.10	435.0	18948.6	74031.7	21054.0	725.0	31581.0	123386.2	35090.0	145.0	6316.2	24677.2	7018.0	145.0	6316.2	24677.2	7018.0
82	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	266.00	0.30	0.50	0.10	0.10	79.8	3476.1	13581.0	3862.3	133.0	5793.5	22635.0	6437.2	26.6	1158.7	4527.0	1287.4	26.6	1158.7	4527.0	1287.4
83	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	281.00	0.30	0.50	0.10	0.10	84.3	3672.1	14346.8	4080.1	140.5	6120.2	23911.4	6800.2	28.1	1224.0	4782.3	1360.0	28.1	1224.0	4782.3	1360.0
84	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	1275.00	0.30	0.50	0.10	0.10	382.5	16661.7	65096.9	18513.0	637.5	27769.5	108494.8	30855.0	127.5	5553.9	21699.0	6171.0	127.5	5553.9	21699.0	6171.0
85	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	20.00	0.30	0.50	0.10	0.10	6.0	261.4	1021.1	290.4	10.0	435.6	1701.9	484.0	2.0	87.1	340.4	96.8	2.0	87.1	340.4	96.8
86	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	167.00	0.30	0.50	0.10	0.10	50.1	2182.4	8526.4	2424.8	83.5	3637.3	14210.7	4041.4	16.7	727.5	2842.1	808.3	16.7	727.5	2842.1	808.3
87	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	120.00	0.30	0.50	0.10	0.10	36.0	1568.2	6126.8	1742.4	60.0	2613.6	10211.3	2904.0	12.0	522.7	2042.3	580.8	12.0	522.7	2042.3	580.8
88	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	41.00	0.30	0.50	0.10	0.10	12.3	535.8	2093.3	595.3	20.5	893.0	3488.9	992.2	4.1	178.6	697.8	198.4	4.1	178.6	697.8	198.4
89	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	13.00	0.30	0.50	0.10	0.10	3.9	169.9	663.7	188.8	6.5	283.1	1106.2	314.6	1.3	56.6	221.2	62.9	1.3	56.6	221.2	62.9
90	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	2322.00	0.30	0.50	0.10	0.10	696.6	30343.9	118552.9	33715.4	1161.0	50573.2	197588.2	56192.4	232.2	10114.6	39517.6	11238.5	232.2	10114.6	39517.6	11238.5
91	(A-2-1)26DAA	608389	SRP	15600	50120	4	12	249	392.00	0.30	0.50	0.10	0.10	117.6	5122.7	20014.1	5691.8	196.0	8537.8	33356.8	9486.4	39.2	1707.6	6671.4	1897.3	39.2	1707.6	6671.4	1897.3

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
72	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	399.00	0.35	0.15	0.20	0.30	139.7	16221.7	4809.9	6759.1	59.8	6952.2	2061.4	2896.7	79.8	9269.6	2748.5	3862.3	119.7	13904.4	4122.8	5793.5
78	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	850.00	0.35	0.15	0.20	0.30	297.5	34557.6	10246.7	14399.0	127.5	14810.4	4391.5	6171.0	170.0	19747.2	5855.3	8228.0	255.0	29620.8	8782.9	12342.0
79	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	783.00	0.35	0.15	0.20	0.30	274.1	31833.6	9439.0	13264.0	117.5	13643.0	4045.3	5684.6	156.6	18190.7	5393.7	7579.4	234.9	27286.0	8090.6	11369.2
80	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1008.00	0.35	0.15	0.20	0.30	352.8	40981.2	12151.4	17075.5	151.2	17563.4	5207.7	7318.1	201.6	23417.9	6943.7	9757.4	302.4	35126.8	10415.5	14636.2
81	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1124.00	0.35	0.15	0.20	0.30	393.4	45697.3	13549.8	19040.6	168.6	19584.6	5807.1	8160.2	224.8	26112.8	7742.7	10880.3	337.2	39169.2	11614.1	16320.5
82	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	804.00	0.35	0.15	0.20	0.30	281.4	32687.4	9692.2	13619.8	120.6	14008.9	4153.8	5837.0	160.8	18678.5	5538.4	7782.7	241.2	28017.8	8307.6	11674.1
83	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	383.00	0.35	0.15	0.20	0.30	134.1	15571.2	4617.1	6488.0	57.5	6673.4	1978.7	2780.6	76.6	8897.9	2638.3	3707.4	114.9	13346.8	3957.5	5561.2
84	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	997.00	0.35	0.15	0.20	0.30	349.0	40534.0	12018.8	16889.2	149.6	17371.7	5150.9	7238.2	199.4	23162.3	6867.9	9651.0	299.1	34743.5	10301.8	14476.4
85	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	693.00	0.35	0.15	0.20	0.30	242.6	28174.6	8354.1	11739.4	104.0	12074.8	3580.3	5031.2	138.6	16099.8	4773.8	6708.2	207.9	24149.7	7160.7	10062.4
86	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1100.00	0.35	0.15	0.20	0.30	385.0	44721.6	13260.5	18634.0	165.0	19166.4	5683.1	7986.0	220.0	25555.2	7577.4	10648.0	330.0	38332.8	11366.1	15972.0
87	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1217.00	0.35	0.15	0.20	0.30	426.0	49478.4	14670.9	20616.0	182.6	21205.0	6287.5	8835.4	243.4	28273.3	8383.4	11780.6	365.1	42410.0	12575.1	17670.8
88	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1377.00	0.35	0.15	0.20	0.30	482.0	55983.3	16599.7	23326.4	206.6	23992.8	7114.2	9997.0	275.4	31990.5	9485.5	13329.4	413.1	47985.7	14228.3	19994.0
89	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	1012.00	0.35	0.15	0.20	0.30	354.2	41143.9	12199.6	17143.3	151.8	17633.1	5228.4	7347.1	202.4	23510.8	6971.2	9796.2	303.6	35266.2	10456.8	14694.2
90	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	0.00	0.35	0.15	0.20	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-1)27ABB	626630	COP	8360	52800	3	6	164	450.00	0.35	0.15	0.20	0.30	157.5	18295.2	5424.7	7623.0	67.5	7840.8	2324.9	3267.0	90.0	10454.4	3099.9	4356.0	135.0	15681.6	4649.8	6534.0
72	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	1064.00	0.30	0.05	0.10	0.55	319.2	13904.4	54324.0	15449.3	53.2	2317.4	9054.0	2574.9	106.4	4634.8	18108.0	5149.8	585.2	25491.3	99594.0	28323.7
73	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	54.00	0.30	0.05	0.10	0.55	16.2	705.7	2757.0	784.1	2.7	117.6	459.5	130.7	5.4	235.2	919.0	261.4	29.7	1293.7	5054.6	1437.5
74	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	778.00	0.30	0.05	0.10	0.55	233.4	10166.9	39721.9	11296.6	38.9	1694.5	6620.3	1882.8	77.8	3389.0	13240.6	3765.5	427.9	18639.3	72823.4	20710.4
75	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	1067.00	0.30	0.05	0.10	0.55	320.1	13943.6	54477.1	15492.8	53.4	2323.9	9079.5	2582.1	106.7	4647.9	18159.0	5164.3	586.9	25563.2	99874.8	28403.5
76	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	0.00	0.30	0.05	0.10	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	0.00	0.30	0.05	0.10	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	0.00	0.30	0.05	0.10	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	12.00	0.30	0.05	0.10	0.55	3.6	156.8	612.7	174.2	0.6	26.1	102.1	29.0	1.2	52.3	204.2	58.1	6.6	287.5	1123.2	319.4
80	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	67.00	0.30	0.05	0.10	0.55	20.1	875.6	3420.8	972.8	3.4	145.9	570.1	162.1	6.7	291.9	1140.3	324.3	36.9	1605.2	6271.4	1783.5
81	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	494.00	0.30	0.05	0.10	0.55	148.2	6455.6	25221.8	7172.9	24.7	1075.9	4203.6	1195.5	49.4	2151.9	8407.3	2391.0	271.7	11835.3	46240.1	13150.3
82	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	165.00	0.30	0.05	0.10	0.55	49.5	2156.2	8424.3	2395.8	8.3	359.4	1404.1	399.3	16.5	718.7	2808.1	798.6	90.8	3953.1	15444.6	4392.3
83	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	24.00	0.30	0.05	0.10	0.55	7.2	313.6	1225.4	348.5	1.2	52.3	204.2	58.1	2.4	104.5	408.5	116.2	13.2	575.0	2246.5	638.9
84	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	409.00	0.30	0.05	0.10	0.55	122.7	5344.8	20882.1	5938.7	20.5	890.8	3480.3	989.8	40.9	1781.6	6960.7	1979.6	225.0	9798.8	38283.8	10887.6
85	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	20.00	0.30	0.05	0.10	0.55	6.0	261.4	1021.1	290.4	1.0	43.6	170.2	48.4	2.0	87.1	340.4	96.8	11.0	479.2	1872.1	532.4
86	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	61.00	0.30	0.05	0.10	0.55	18.3	797.1	3114.4	885.7	3.1	132.9	519.1	147.6	6.1	265.7	1038.1	295.2	33.6	1461.4	5709.8	1623.8
87	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	12.00	0.30	0.05	0.10	0.55	3.6	156.8	612.7	174.2	0.6	26.1	102.1	29.0	1.2	52.3	204.2	58.1	6.6	287.5	1123.2	319.4
88	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	14.00	0.30	0.05	0.10	0.55	4.2	183.0	714.8	203.3	0.7	30.5	119.1	33.9	1.4	61.0	238.3	67.8	7.7	335.4	1310.4	372.7
89	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	3.00	0.30	0.05	0.10	0.55	0.9	39.2	153.2	43.6	0.2	6.5	25.5	7.3	0.3	13.1	51.1	14.5	1.7	71.9	280.8	79.9
90	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	641.00	0.30	0.05	0.10	0.55	192.3	8376.6	32727.1	9307.3	32.1	1396.1	5454.5	1551.2	64.1	2792.2	10909.0	3102.4	352.6	15357.1	59999.7	17063.4
91	(A-2-1)28AAA1	608358	SRP	5080	52800	3	3	161	50.00	0.30	0.05	0.10	0.55	15.0	653.4	2552.8	726.0	2.5	108.9	425.5	121.0	5.0	217.8	850.9	242.0	27.5	1197.9	4680.2	1331.0
72	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	776.00	0.70	0.20	0.05	0.05	543.2	23661.8	92446.1	26290.9	155.2	6760.5	26413.2	7511.7	38.8	1690.1	6603.3	1877.9	38.8	1690.1	6603.3	1877.9
73	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	1131.00	0.70	0.20	0.05	0.05	791.7	34486.5	134737.8	38318.3	226.2	9853.3	38496.5	10948.1	56.6	2463.3	9624.1	2737.0	56.6	2463.3	9624.1	2737.0
74	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	834.00	0.70	0.20	0.05	0.05	583.8	25430.3	99355.7	28255.9	166.8	7265.8	28387.3	8073.1	41.7	1816.5	7096.8	2018.3	41.7	1816.5	7096.8	2018.3
75	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	992.00	0.70	0.20	0.05	0.05	694.4	30248.1	118178.5	33609.0	198.4	8642.3	33765.3	9602.6	49.6	2160.6	8441.3	2400.6	49.6	2160.6	8441.3	2400.6
76	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	343.00	0.70	0.20	0.05	0.05	240.1	10458.8	40862.1	11620.8	68.6	2988.2	11674.9	3320.2	17.2	747.1	2918.7	830.1	17.2	747.1	2918.7	830.1
77	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	936.00	0.70	0.20	0.05	0.05	655.2	28540.5	111507.1	31711.7	187.2	8154.4	31859.2	9060.5	46.8	2038.6	7964.8	2265.1	46.8	2038.6	7964.8	2265.1
78	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	1169.00	0.70	0.20	0.05	0.05	818.3	35645.1	139264.8	39605.7	233.8	10184.3	39789.9	11315.9	58.5	2546.1	9947.5	2829.0	58.5	2546.1	9947.5	2829.0
79	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	913.00	0.70	0.20	0.05	0.05	639.1	27839.2	108767.1	30932.4	182.6	7954.1	31076.3	8837.8	45.7	1988.5	7769.1	2209.5	45.7	1988.5	7769.1	2209.5
80	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	999.00	0.70	0.20	0.05	0.05	699.3	30461.5	119012.4	33846.1	199.8	8703.3	34003.5	9670.3	50.0	2175.8	8500.9	2417.6	50.0	2175.8	8500.9	2417.6
81	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	1283.00	0.70	0.20	0.05	0.05	898.1	39121.2	152845.8	43468.0	256.6	11177.5	43670.2	12419.4	64.2	2794.4	10917.6	3104.9	64.2	2794.4	10917.6	3104.9
82	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	717.00	0.70	0.20	0.05	0.05	501.9	21862.8	85417.3	24292.0	143.4	6246.5	24404.9	6940.6	35.9	1561.6	6101.2	1735.1	35.9	1561.6	6101.2	1735.1
83	(A-2-1)33ACC2	607234	RID	3240	45200	7	2	476	407.00	0.70	0.20	0.05	0.05	284.9	12410.2	48486.5	13789.2	81.4	3545.8	13853.3	3939.8	20.4	886.4	3463.3	984.9	20.4	886.4	3463.3	984.9
72	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3098.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2168.6	94464.2	369069.5	104960.2	464.7	20242.3	79086.3	22491.5	154.9	6747.4	26362.1	7497.2
73	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	1540.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1078.0	46957.7	183462.6	52175.2	231.0	10062.4	39313.4	11180.4	77.0	3354.1	13104.5	3726.8
74	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3494.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2445.8	106539.0	416245.6	118376.7	524.1	22829.8	89195.5	25366.4	174.7	7609.9	29731.8	8455.5

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
75	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2948.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2063.6	89890.4	351199.8	99878.2	442.2	19262.2	75257.1	21402.5	147.4	6420.7	25085.7	7134.2
76	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3251.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2275.7	99129.5	387296.6	110143.9	487.7	21242.0	82992.1	23602.3	162.6	7080.7	27664.0	7867.4
77	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2700.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1890.0	82328.4	321655.1	91476.0	405.0	17641.8	68926.1	19602.0	135.0	5880.6	22975.4	6534.0
78	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	1560.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1092.0	47567.5	185845.2	52852.8	234.0	10193.0	39824.0	11325.6	78.0	3397.7	13274.7	3775.2
79	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2649.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1854.3	80773.3	315579.4	89748.1	397.4	17308.6	67624.2	19231.7	132.5	5769.5	22541.4	6410.6
80	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2810.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1967.0	85682.5	334759.6	95202.8	421.5	18360.5	71734.2	20400.6	140.5	6120.2	23911.4	6800.2
81	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3766.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2636.2	114832.9	448649.4	127592.1	564.9	24607.0	96139.1	27341.2	188.3	8202.3	32046.4	9113.7
82	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	1876.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1313.2	57203.0	223490.8	63558.9	281.4	12257.8	47890.9	13619.8	93.8	4085.9	15963.6	4539.9
83	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	566.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	396.2	17258.5	67428.4	19176.1	84.9	3698.2	14449.0	4109.2	28.3	1232.7	4816.3	1369.7
84	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	1398.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	978.6	42627.8	166545.9	47364.2	209.7	9134.5	35688.4	10149.5	69.9	3044.8	11896.1	3383.2
85	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2944.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2060.8	89768.4	350723.2	99742.7	441.6	19236.1	75155.0	21373.4	147.2	6412.0	25051.7	7124.5
86	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3267.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2286.9	99617.4	389202.7	110686.0	490.1	21346.6	83400.6	23718.4	163.4	7115.5	27800.2	7906.1
87	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3202.50	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2241.8	97650.6	381518.7	108500.7	480.4	20925.1	81754.0	23250.2	160.1	6975.0	27251.3	7750.1
88	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	4027.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2818.9	122791.3	479742.7	136434.8	604.1	26312.4	102802.0	29236.0	201.4	8770.8	34267.3	9745.3
89	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3729.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2610.3	113704.7	444241.5	126338.5	559.4	24365.3	95194.6	27072.5	186.5	8121.8	31731.5	9024.2
90	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	3171.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	2219.7	96690.1	377766.1	107433.5	475.7	20719.3	80949.9	23021.5	158.6	6906.4	26983.3	7673.8
91	(A-2-1)33CCC	607234	RID	160	42440	9	1	633	2436.00	0.00	0.70	0.15	0.05	0.0	0.0	0.0	0.0	1705.2	74278.5	290204.4	82531.7	365.4	15916.8	62186.7	17685.4	121.8	5305.6	20728.9	5895.1
72	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1904.00	0.30	0.60	0.05	0.05	571.2	24881.5	97211.3	27646.1	1142.4	49762.9	194422.7	55292.2	95.2	4146.9	16201.9	4607.7	95.2	4146.9	16201.9	4607.7
73	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1741.00	0.30	0.60	0.05	0.05	522.3	22751.4	88889.1	25279.3	1044.6	45502.8	177778.3	50558.6	87.1	3791.9	14814.9	4213.2	87.1	3791.9	14814.9	4213.2
74	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2151.00	0.30	0.60	0.05	0.05	645.3	28109.3	109822.3	31232.5	1290.6	56218.5	219644.5	62465.0	107.6	4684.9	18303.7	5205.4	107.6	4684.9	18303.7	5205.4
75	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2163.00	0.30	0.60	0.05	0.05	648.9	28266.1	110434.9	31406.8	1297.8	56532.2	220869.9	62813.5	108.2	4711.0	18405.8	5234.5	108.2	4711.0	18405.8	5234.5
76	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1161.00	0.30	0.60	0.05	0.05	348.3	15171.9	59276.4	16857.7	696.6	30343.9	118552.9	33715.4	58.1	2528.7	9879.4	2809.6	58.1	2528.7	9879.4	2809.6
77	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2139.00	0.30	0.60	0.05	0.05	641.7	27952.5	109209.6	31058.3	1283.4	55904.9	218419.2	62116.6	107.0	4658.7	18201.6	5176.4	107.0	4658.7	18201.6	5176.4
78	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1767.00	0.30	0.60	0.05	0.05	530.1	23091.2	90216.6	25656.8	1060.2	46182.3	180433.2	51313.7	88.4	3848.5	15036.1	4276.1	88.4	3848.5	15036.1	4276.1
79	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2286.00	0.30	0.60	0.05	0.05	685.8	29873.4	116714.9	33192.7	1371.6	59746.9	233429.7	66385.4	114.3	4978.9	19452.5	5532.1	114.3	4978.9	19452.5	5532.1
80	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2005.00	0.30	0.60	0.05	0.05	601.5	26201.3	102368.0	29112.6	1203.0	52402.7	204736.1	58225.2	100.3	4366.9	17061.3	4852.1	100.3	4366.9	17061.3	4852.1
81	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2210.00	0.30	0.60	0.05	0.05	663.0	28880.3	112834.6	32089.2	1326.0	57760.6	225669.2	64178.4	110.5	4813.4	18805.8	5348.2	110.5	4813.4	18805.8	5348.2
82	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1195.00	0.30	0.60	0.05	0.05	358.5	15616.3	61012.4	17351.4	717.0	31232.5	122024.7	34702.8	59.8	2602.7	10168.7	2891.9	59.8	2602.7	10168.7	2891.9
83	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	631.00	0.30	0.60	0.05	0.05	189.3	8245.9	32216.6	9162.1	378.6	16491.8	64433.1	18324.2	31.6	1374.3	5369.4	1527.0	31.6	1374.3	5369.4	1527.0
84	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1544.00	0.30	0.60	0.05	0.05	463.2	20177.0	78831.0	22418.9	926.4	40354.0	157662.1	44837.8	77.2	3362.8	13138.5	3736.5	77.2	3362.8	13138.5	3736.5
85	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1456.00	0.30	0.60	0.05	0.05	436.8	19027.0	74338.1	21141.1	873.6	38054.0	148676.2	42282.2	72.8	3171.2	12389.7	3523.5	72.8	3171.2	12389.7	3523.5
86	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	891.00	0.30	0.60	0.05	0.05	267.3	11643.6	45491.2	12937.3	534.6	23287.2	90982.5	25874.6	44.6	1940.6	7581.9	2156.2	44.6	1940.6	7581.9	2156.2
87	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1973.00	0.30	0.60	0.05	0.05	591.9	25783.2	100734.2	28648.0	1183.8	51566.3	201468.4	57295.9	98.7	4297.2	16789.0	4774.7	98.7	4297.2	16789.0	4774.7
88	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2389.00	0.30	0.60	0.05	0.05	716.7	31219.5	121973.7	34688.3	1433.4	62438.9	243947.3	69376.6	119.5	5203.2	20328.9	5781.4	119.5	5203.2	20328.9	5781.4
89	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	2271.00	0.30	0.60	0.05	0.05	681.3	29677.4	115949.0	32974.9	1362.6	59354.9	231898.0	65949.8	113.6	4946.2	19324.8	5495.8	113.6	4946.2	19324.8	5495.8
90	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1202.00	0.30	0.60	0.05	0.05	360.6	15707.7	61369.8	17453.0	721.2	31415.5	122739.5	34906.1	60.1	2618.0	10228.3	2908.8	60.1	2618.0	10228.3	2908.8
91	(A-2-1)33CDD	607233	RID	2560	42560	9	2	634	1958.00	0.30	0.60	0.05	0.05	587.4	25587.1	99968.4	28430.2	1174.8	51174.3	199936.8	56860.3	97.9	4264.5	16661.4	4738.4	97.9	4264.5	16661.4	4738.4
72	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1291.00	0.65	0.20	0.10	0.05	839.2	36553.4	142813.2	40614.9	258.2	11247.2	43942.5	12496.9	129.1	5623.6	21971.3	6248.4	64.6	2811.8	10985.6	3124.2
73	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	869.00	0.65	0.20	0.10	0.05	564.9	24604.9	96130.6	27338.7	173.8	7570.7	29578.7	8411.9	86.9	3785.4	14789.3	4206.0	43.5	1892.7	7394.7	2103.0
74	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1365.00	0.65	0.20	0.10	0.05	887.3	38648.6	150999.2	42942.9	273.0	11891.9	46461.3	13213.2	136.5	5945.9	23230.6	6606.6	68.3	2973.0	11615.3	3303.3
75	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1305.00	0.65	0.20	0.10	0.05	848.3	36949.8	144361.9	41055.3	261.0	11369.2	44419.0	12632.4	130.5	5684.6	22209.5	6316.2	65.3	2842.3	11104.8	3158.1
76	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1318.00	0.65	0.20	0.10	0.05	856.7	37317.9	145800.0	41464.3	263.6	11482.4	44861.5	12758.2	131.8	5741.2	22430.8	6379.1	65.9	2870.6	11215.4	3189.6
77	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1177.00	0.65	0.20	0.10	0.05	765.1	33325.6	130202.3	37028.4	235.4	10254.0	40062.2	11393.4	117.7	5127.0	20031.1	5696.7	58.9	2563.5	10015.6	2848.3
78	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	896.00	0.65	0.20	0.10	0.05	582.4	25369.3	99117.4	28188.2	179.2	7806.0	30497.7	8673.3	89.6	3903.0	15248.8	4336.6	44.8	1951.5	7624.4	2168.3
79	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1715.00	0.65	0.20	0.10	0.05	1114.8	48558.5	189717.0	53953.9	343.0	14941.1	58374.5	16601.2	171.5	7470.5	29187.2	8300.6	85.8	3735.3	14593.6	4150.3
80	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1201.00	0.65	0.20	0.10	0.05	780.7	34005.1	132857.2	37783.5	240.2	10463.1	40879.1	11625.7	120.1	5231.6	20439.6	5812.8	60.1	2615.8	10219.8	2906.4
81	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1814.00	0.65	0.20	0.10	0.05	1179.1	51361.6	200668.6	57068.4	362.8	15803.6	61744.2	17559.5	181.4	7901.8	30872.1	8779.8	90.7	3950.9	15436.0	4389.9
82	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	982.00	0.65	0.20	0.10	0.05	638.3	27804.3	108630.9	30893.7	196.4	8555.2	33424.9	9505.8	98.2	4277.6	16712.5	4752.9	49.1	2138.8	8356.2	2376.4
83	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	642.00	0.65	0.20	0.10	0.05	417.3	18177.6	71019.4	20197.3	128.4	5593.1	21852.1	6214.6	64.2	2796.6	10926.1	3107.3	32.1	1398.3	5463.0	1553.6
84	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	738.00	0.65	0.20	0.10	0.05	479.7	20895.7	81639.1	23217.5	147.6	6429.5	25119.7	7143.8	73.8	3214.7	12559.9	3571.9	36.9	1607.4	6279.9	1786.0
85	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1356.00	0.65	0.20	0.10	0.05	881.4	38393.8	150003.6	42659.8	271.2	11813.5	46155.0	13126.1	135.6	5906.7	23077.5	6563.0	67.8	2953.4	11538.7	3281.5
86	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1600.00	0.65	0.20	0.10	0.05	1040.0	45302.4	176995.4	50336.0	320.0	13939.2	54460.1	15488.0	160.0	6969.6	27230.1	7744.0	80.0	3484.8	13615.0	3872.0
87	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1507.00	0.65	0.20	0.10	0.05	979.6	42669.2	166707.6	47410.2	301.4	13129.0	51294.6	14587.8	150.7	6564.5	25647.3	7293.9	75.4	3282.2	12823.7	3646.9
88	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1781.00	0.65	0.20	0.10	0.05	1157.7	50427.2	197018.0	56030.3	356.2	15516.1	60620.9	17240.1	178.1	7758.0	30310.5	8620.0	89.1	3879.0	15155.2	4310.0
89	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	2128.00	0.65	0.20	0.10	0.05	1383.2	60252.2	235403.9	66946.9	425.6	18539.1	72432.0	20599.0	212.8	9269.6	36216.0	10299.5	106.4	4634.8	18108.0	5149.8

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
90	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1299.00	0.65	0.20	0.10	0.05	844.4	36779.9	143698.2	40866.5	259.8	11316.9	44214.8	12574.3	129.9	5658.4	22107.4	6287.2	65.0	2829.2	11053.7	3143.6
91	(A-2-1)34BBB1	607229	RID	5807	47581	6	4	399	1413.00	0.65	0.20	0.10	0.05	918.5	40007.7	156309.1	44453.0	282.6	12310.1	48095.1	13677.8	141.3	6155.0	24047.6	6838.9	70.7	3077.5	12023.8	3419.5
72	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1530.00	0.25	0.45	0.20	0.10	382.5	16661.7	65096.9	18513.0	688.5	29991.1	117174.4	33323.4	306.0	13329.4	52077.5	14810.4	153.0	6664.7	26038.7	7405.2
73	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	991.00	0.25	0.45	0.20	0.10	247.8	10792.0	42164.1	11991.1	446.0	19425.6	75895.3	21584.0	198.2	8633.6	33731.2	9592.9	99.1	4316.8	16865.6	4796.4
74	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	2127.00	0.25	0.45	0.20	0.10	531.8	23163.0	90497.4	25736.7	957.2	41693.5	162895.4	46326.1	425.4	18530.4	72397.9	20589.4	212.7	9265.2	36199.0	10294.7
75	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	701.00	0.25	0.45	0.20	0.10	175.3	7633.9	29825.4	8482.1	315.5	13741.0	53685.8	15267.8	140.2	6107.1	23860.3	6785.7	70.1	3053.6	11930.2	3392.8
76	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1800.00	0.25	0.45	0.20	0.10	450.0	19602.0	76584.6	21780.0	810.0	35283.6	137852.2	39204.0	360.0	15681.6	61267.6	17424.0	180.0	7840.8	30633.8	8712.0
77	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1490.00	0.25	0.45	0.20	0.10	372.5	16226.1	63395.0	18029.0	670.5	29207.0	114111.0	32452.2	298.0	12980.9	50716.0	14423.2	149.0	6490.4	25358.0	7211.6
78	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	968.00	0.25	0.45	0.20	0.10	242.0	10541.5	41185.5	11712.8	435.6	18974.7	74133.9	21083.0	193.6	8433.2	32948.4	9370.2	96.8	4216.6	16474.2	4685.1
79	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1423.00	0.25	0.45	0.20	0.10	355.8	15496.5	60544.3	17218.3	640.4	27893.6	108979.8	30992.9	284.6	12397.2	48435.5	13774.6	142.3	6198.6	24217.7	6887.3
80	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1755.00	0.25	0.45	0.20	0.10	438.8	19112.0	74669.9	21235.5	789.8	34401.5	134405.9	38223.9	351.0	15289.6	59736.0	16988.4	175.5	7644.8	29868.0	8494.2
81	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	2543.00	0.25	0.45	0.20	0.10	635.8	27693.3	108197.0	30770.3	1144.4	49847.9	194754.5	55386.5	508.6	22154.6	86557.6	24616.2	254.3	11077.3	43278.8	12308.1
82	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1190.00	0.25	0.45	0.20	0.10	297.5	12959.1	50630.9	14399.0	535.5	23326.4	91135.6	25918.2	238.0	10367.3	40504.7	11519.2	119.0	5183.6	20252.4	5759.6
83	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	747.00	0.25	0.45	0.20	0.10	186.8	8134.8	31782.6	9038.7	336.2	14642.7	57208.7	16269.7	149.4	6507.9	25426.1	7231.0	74.7	3253.9	12713.0	3615.5
84	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1192.00	0.25	0.45	0.20	0.10	298.0	12980.9	50716.0	14423.2	536.4	23365.6	91288.8	25961.8	238.4	10384.7	40572.8	11538.6	119.2	5192.4	20286.4	5769.3
85	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	675.00	0.25	0.45	0.20	0.10	168.8	7350.8	28719.2	8167.5	303.8	13231.4	51694.6	14701.5	135.0	5880.6	22975.4	6534.0	67.5	2940.3	11487.7	3267.0
86	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1516.00	0.25	0.45	0.20	0.10	379.0	16509.2	64501.2	18343.6	682.2	29716.6	116102.2	33018.5	303.2	13207.4	51601.0	14674.9	151.6	6603.7	25800.5	7337.4
87	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	854.00	0.25	0.45	0.20	0.10	213.5	9300.1	36335.1	10333.4	384.3	16740.1	65403.2	18600.1	170.8	7440.0	29068.1	8266.7	85.4	3720.0	14534.0	4133.4
88	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1976.00	0.25	0.45	0.20	0.10	494.0	21518.6	84072.8	23909.6	889.2	38733.6	151331.1	43037.3	395.2	17214.9	67258.3	19127.7	197.6	8607.5	33629.1	9563.8
89	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	2311.00	0.25	0.45	0.20	0.10	577.8	25166.8	98326.1	27963.1	1040.0	45300.2	176986.9	50333.6	462.2	20133.4	78660.9	22370.5	231.1	10066.7	39330.4	11185.2
90	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	2049.00	0.25	0.45	0.20	0.10	512.3	22313.6	87178.8	24792.9	922.1	40164.5	156921.8	44627.2	409.8	17850.9	69743.0	19834.3	204.9	8925.4	34871.5	9917.2
91	(A-2-1)34CBB	607231	RID	5890	44721	8	4	557	1486.00	0.25	0.45	0.20	0.10	371.5	16182.5	63224.8	17980.6	668.7	29128.6	113804.7	32365.1	297.2	12946.0	50579.8	14384.5	148.6	6473.0	25289.9	7192.2
78	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	156.00	0.10	0.10	0.80	0.00	15.6	1812.1	537.3	755.0	15.6	1812.1	537.3	755.0	124.8	14496.8	4298.5	6040.3	0.0	0.0	0.0	0.0
79	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	143.00	0.10	0.10	0.80	0.00	14.3	1661.1	492.5	692.1	14.3	1661.1	492.5	692.1	114.4	13288.7	3940.3	5537.0	0.0	0.0	0.0	0.0
80	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	150.00	0.10	0.10	0.80	0.00	15.0	1742.4	516.6	726.0	15.0	1742.4	516.6	726.0	120.0	13939.2	4133.1	5808.0	0.0	0.0	0.0	0.0
81	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	200.00	0.10	0.10	0.80	0.00	20.0	2323.2	688.9	968.0	20.0	2323.2	688.9	968.0	160.0	18585.6	5510.8	7744.0	0.0	0.0	0.0	0.0
82	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	148.00	0.10	0.10	0.80	0.00	14.8	1719.2	509.8	716.3	14.8	1719.2	509.8	716.3	118.4	13753.3	4078.0	5730.6	0.0	0.0	0.0	0.0
83	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	63.00	0.10	0.10	0.80	0.00	6.3	731.8	217.0	304.9	6.3	731.8	217.0	304.9	50.4	5854.5	1735.9	2439.4	0.0	0.0	0.0	0.0
84	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	137.00	0.10	0.10	0.80	0.00	13.7	1591.4	471.9	663.1	13.7	1591.4	471.9	663.1	109.6	12731.1	3774.9	5304.6	0.0	0.0	0.0	0.0
85	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-1)35DAA		JOHN F. LONG	15600	44800	8	12	565	0.00	0.10	0.10	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	3389.00	0.20	0.30	0.40	0.10	677.8	29525.0	115353.4	32805.5	1016.7	44287.5	173030.0	49208.3	1355.6	59049.9	230706.7	65611.0	338.9	14762.5	57676.7	16402.8
73	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	326.00	0.20	0.30	0.40	0.10	65.2	2840.1	11096.3	3155.7	97.8	4260.2	16644.4	4733.5	130.4	5680.2	22192.5	6311.4	32.6	1420.1	5548.1	1577.8
74	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	1463.00	0.20	0.30	0.40	0.10	292.6	12745.7	49797.0	14161.8	438.9	19118.5	74695.5	21242.8	585.2	25491.3	99594.0	28323.7	146.3	6372.8	24898.5	7080.9
75	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	2225.00	0.20	0.30	0.40	0.10	445.0	19384.2	75733.6	21538.0	667.5	29076.3	113600.4	32307.0	890.0	38768.4	151467.2	43076.0	222.5	9692.1	37866.8	10769.0
76	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	2063.00	0.20	0.30	0.40	0.10	412.6	17972.9	70219.5	19969.8	618.9	26959.3	105329.3	29954.8	825.2	35945.7	140439.1	39939.7	206.3	8986.4	35109.8	9984.9
77	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	2971.00	0.20	0.30	0.40	0.10	594.2	25883.4	101125.7	28759.3	891.3	38825.0	151688.5	43138.9	1188.4	51766.7	202251.3	57518.6	297.1	12941.7	50562.8	14379.6
78	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	12.00	0.20	0.30	0.40	0.10	2.4	104.5	408.5	116.2	3.6	156.8	612.7	174.2	4.8	209.1	816.9	232.3	1.2	52.3	204.2	58.1
79	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	306.00	0.20	0.30	0.40	0.10	61.2	2665.9	10415.5	2962.1	91.8	3998.8	15623.2	4443.1	122.4	5331.7	20831.0	5924.2	30.6	1332.9	5207.7	1481.0
80	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	144.00	0.20	0.30	0.40	0.10	28.8	1254.5	4901.4	1393.9	43.2	1881.8	7352.1	2090.9	57.6	2509.1	9802.8	2787.8	14.4	627.3	2450.7	697.0
81	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	2128.00	0.20	0.30	0.40	0.10	425.6	18539.1	72432.0	20599.0	638.4	27808.7	108648.0	30898.6	851.2	37078.3	144863.9	41198.1	212.8	9269.6	36216.0	10299.5
82	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	123.00	0.20	0.30	0.40	0.10	24.6	1071.6	4186.6	1190.6	36.9	1607.4	6279.9	1786.0	49.2	2143.2	8373.2	2381.3	12.3	535.8	2093.3	595.3
83	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	41.00	0.20	0.30	0.40	0.10	8.2	357.2	1395.5	396.9	12.3	535.8	2093.3	595.3	16.4	714.4	2791.1	793.8	4.1	178.6	697.8	198.4
84	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	1907.00	0.20	0.30	0.40	0.10	381.4	16613.8	64909.7	18459.8	572.1	24920.7	97364.5	27689.6	762.8	33227.6	129819.3	36919.5	190.7	8306.9	32454.8	9229.9
85	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	413.00	0.20	0.30	0.40	0.10	82.6	3598.1	14057.5	3997.8	123.9	5397.1	21086.3	5996.8	165.2	7196.1	28115.0	7995.7	41.3	1799.0	7028.8	1998.9
86	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	228.00	0.20	0.30	0.40	0.10	45.6	1986.3	7760.6	2207.0	68.4	2979.5	11640.9	3310.6	91.2	3972.7	15521.1	4414.1	22.8	993.2	3880.3	1103.5
87	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	157.00	0.20	0.30	0.40	0.10	31.4	1367.8	5343.9	1519.8	47.1	2051.7	8015.9	2279.6	62.8	2735.6	10687.8	3039.5	15.7	683.9	2672.0	759.9
88	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	100.00	0.20	0.30	0.40	0.10	20.0	871.2	3403.8	968.0	30.0	1306.8	5105.6	1452.0	40.0	1742.4	6807.5	1936.0	10.0	435.6	1701.9	484.0
89	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	14.00	0.20	0.30	0.40	0.10	2.8	122.0	476.5	135.5	4.2	183.0	714.8	203.3	5.6	243.9	953.1	271.0	1.4	61.0	238.3	67.8
90	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	2016.00	0.20	0.30	0.40	0.10	403.2	17563.4	68619.8	19514.9	604.8	26345.1	102929.6	29272.3	806.4	35126.8	137239.5	39029.8	201.6	8781.7	34309.9	9757.4
91	(A-2-1)35DDD	608388	SRP	15952	42809	9	12	644	247.00	0.20	0.30	0.40	0.10	49.4	2151.9	8407.3	2391.0	74.1	3227.8	12610.9	3586.4	98.8	4303.7	16814.6	4781.9	24.7	1075.9	4203.6	1195.5

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
72	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	3036.00	0.40	0.20	0.35	0.05	1214.4	52899.3	206676.2	58777.0	607.2	26449.6	103338.1	29388.5	1062.6	46286.9	180841.7	51429.8	151.8	6612.4	25834.5	7347.1
73	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	35.00	0.40	0.20	0.35	0.05	14.0	609.8	2382.6	677.6	7.0	304.9	1191.3	338.8	12.3	533.6	2084.8	592.9	1.8	76.2	297.8	84.7
74	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	2019.00	0.40	0.20	0.35	0.05	807.6	35179.1	137443.8	39087.8	403.8	17589.5	68721.9	19543.9	706.7	30781.7	120263.3	34201.9	101.0	4397.4	17180.5	4886.0
75	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	3176.00	0.40	0.20	0.35	0.05	1270.4	55338.6	216206.7	61487.4	635.2	27669.3	108103.4	30743.7	1111.6	48421.3	189180.9	53801.4	158.8	6917.3	27025.8	7685.9
76	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	3060.00	0.40	0.20	0.35	0.05	1224.0	53317.4	208310.0	59241.6	612.0	26658.7	104155.0	29620.8	1071.0	46652.8	182271.2	51836.4	153.0	6664.7	26038.7	7405.2
77	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	3375.00	0.40	0.20	0.35	0.05	1350.0	58806.0	229753.7	65340.0	675.0	29403.0	114876.8	32670.0	1181.3	51455.3	201034.5	57172.5	168.8	7350.8	28719.2	8167.5
78	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	113.00	0.40	0.20	0.35	0.05	45.2	1968.9	7692.5	2187.7	22.6	984.5	3846.2	1093.8	39.6	1722.8	6730.9	1914.2	5.7	246.1	961.6	273.5
79	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	75.00	0.40	0.20	0.35	0.05	30.0	1306.8	5105.6	1452.0	15.0	653.4	2552.8	726.0	26.3	1143.5	4467.4	1270.5	3.8	163.4	638.2	181.5
80	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	296.00	0.40	0.20	0.35	0.05	118.4	5157.5	20150.2	5730.6	59.2	2578.8	10075.1	2865.3	103.6	4512.8	17631.5	5014.2	14.8	644.7	2518.8	716.3
81	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	3219.00	0.40	0.20	0.35	0.05	1287.6	56087.9	219133.9	62319.8	643.8	28043.9	109567.0	31159.9	1126.7	49076.9	191742.2	54529.9	161.0	7011.0	27391.7	7790.0
82	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	69.00	0.40	0.20	0.35	0.05	27.6	1202.3	4697.2	1335.8	13.8	601.1	2348.6	667.9	24.2	1052.0	4110.0	1168.9	3.5	150.3	587.1	167.0
83	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	192.00	0.40	0.20	0.35	0.05	76.8	3345.4	13070.4	3717.1	38.4	1672.7	6535.2	1858.6	67.2	2927.2	11436.6	3252.5	9.6	418.2	1633.8	464.6
84	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	1624.00	0.40	0.20	0.35	0.05	649.6	28296.6	110554.1	31440.6	324.8	14148.3	55277.0	15720.3	568.4	24759.5	96734.8	27510.6	81.2	3537.1	13819.3	3930.1
85	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	19.00	0.40	0.20	0.35	0.05	7.6	331.1	1293.4	367.8	3.8	165.5	646.7	183.9	6.6	289.7	1131.7	321.9	1.0	41.4	161.7	46.0
86	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	276.00	0.40	0.20	0.35	0.05	110.4	4809.0	18788.7	5343.4	55.2	2404.5	9394.4	2671.7	96.6	4207.9	16440.2	4675.4	13.8	601.1	2348.6	667.9
87	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	62.00	0.40	0.20	0.35	0.05	24.8	1080.3	4220.7	1200.3	12.4	540.1	2110.3	600.2	21.7	945.3	3693.1	1050.3	3.1	135.0	527.6	150.0
88	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	92.00	0.40	0.20	0.35	0.05	36.8	1603.0	6262.9	1781.1	18.4	801.5	3131.5	890.6	32.2	1402.6	5480.1	1558.5	4.6	200.4	782.9	222.6
89	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	27.00	0.40	0.20	0.35	0.05	10.8	470.4	1838.0	522.7	5.4	235.2	919.0	261.4	9.4	411.6	1608.3	457.4	1.4	58.8	229.8	65.3
90	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	2944.00	0.40	0.20	0.35	0.05	1177.6	51296.3	200413.3	56995.8	588.8	25648.1	100206.6	28497.9	1030.4	44884.2	175361.6	49871.4	147.2	6412.0	25051.7	7124.5
91	(A-2-1)36DAA	608384	SRP	21254	44856	8	19	572	428.00	0.40	0.20	0.35	0.05	171.2	7457.5	29136.2	8286.1	85.6	3728.7	14568.1	4143.0	149.8	6525.3	25494.1	7250.3	21.4	932.2	3642.0	1035.8
72	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	976.00	0.10	0.20	0.30	0.40	97.6	4251.5	16610.3	4723.8	195.2	8502.9	33220.7	9447.7	292.8	12754.4	49831.0	14171.5	390.4	17005.8	66441.4	18895.4
73	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	59.00	0.10	0.20	0.30	0.40	5.9	257.0	1004.1	285.6	11.8	514.0	2008.2	571.1	17.7	771.0	3012.3	856.7	23.6	1028.0	4016.4	1142.2
74	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	854.00	0.10	0.20	0.30	0.40	85.4	3720.0	14534.0	4133.4	170.8	7440.0	29068.1	8266.7	256.2	11160.1	43602.1	12400.1	341.6	14880.1	58136.2	16533.4
75	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	1108.00	0.10	0.20	0.30	0.40	110.8	4826.4	18856.8	5362.7	221.6	9652.9	37713.6	10725.4	332.4	14479.3	56570.5	16088.2	443.2	19305.8	75427.3	21450.9
76	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	781.00	0.10	0.20	0.30	0.40	78.1	3402.0	13291.7	3780.0	156.2	6804.1	26583.4	7560.1	234.3	10206.1	39875.0	11340.1	312.4	13608.1	53166.7	15120.2
77	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	584.00	0.10	0.20	0.30	0.40	58.4	2543.9	9939.0	2826.6	116.8	5087.8	19877.9	5653.1	175.2	7631.7	29816.9	8479.7	233.6	10175.6	39755.9	11306.2
78	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	3.00	0.10	0.20	0.30	0.40	0.3	13.1	51.1	14.5	0.6	26.1	102.1	29.0	0.9	39.2	153.2	43.6	1.2	52.3	204.2	58.1
79	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	6.00	0.10	0.20	0.30	0.40	0.6	26.1	102.1	29.0	1.2	52.3	204.2	58.1	1.8	78.4	306.3	87.1	2.4	104.5	408.5	116.2
80	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	66.00	0.10	0.20	0.30	0.40	6.6	287.5	1123.2	319.4	13.2	575.0	2246.5	638.9	19.8	862.5	3369.7	958.3	26.4	1150.0	4493.0	1277.8
81	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	990.00	0.10	0.20	0.30	0.40	99.0	4312.4	16848.6	4791.6	198.0	8624.9	33697.2	9583.2	297.0	12937.3	50545.8	14374.8	396.0	17249.8	67394.4	19166.4
82	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	243.00	0.10	0.20	0.30	0.40	24.3	1058.5	4135.6	1176.1	48.6	2117.0	8271.1	2352.2	72.9	3175.5	12406.7	3528.4	97.2	4234.0	16542.3	4704.5
83	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	7.00	0.10	0.20	0.30	0.40	0.7	30.5	119.1	33.9	1.4	61.0	238.3	67.8	2.1	91.5	357.4	101.6	2.8	122.0	476.5	135.5
84	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	615.00	0.10	0.20	0.30	0.40	61.5	2678.9	10466.6	2976.6	123.0	5357.9	20933.1	5953.2	184.5	8036.8	31399.7	8929.8	246.0	10715.8	41866.2	11906.4
85	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	5.00	0.10	0.20	0.30	0.40	0.5	21.8	85.1	24.2	1.0	43.6	170.2	48.4	1.5	65.3	255.3	72.6	2.0	87.1	340.4	96.8
86	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	13.00	0.10	0.20	0.30	0.40	1.3	56.6	221.2	62.9	2.6	113.3	442.5	125.8	3.9	169.9	663.7	188.8	5.2	226.5	885.0	251.7
87	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	17.00	0.10	0.20	0.30	0.40	1.7	74.1	289.3	82.3	3.4	148.1	578.6	164.6	5.1	222.2	868.0	246.8	6.8	296.2	1157.3	329.1
88	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	8.00	0.10	0.20	0.30	0.40	0.8	34.8	136.2	38.7	1.6	69.7	272.3	77.4	2.4	104.5	408.5	116.2	3.2	139.4	544.6	154.9
89	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	19.00	0.10	0.20	0.30	0.40	1.9	82.8	323.4	92.0	3.8	165.5	646.7	183.9	5.7	248.3	970.1	275.9	7.6	331.1	1293.4	367.8
90	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	1318.00	0.10	0.20	0.30	0.40	131.8	5741.2	22430.8	6379.1	263.6	11482.4	44861.5	12758.2	395.4	17223.6	67292.3	19137.4	527.2	22964.8	89723.1	25516.5
91	(A-2-2)19CCB	608385	SRP	21480	54560	2	19	98	227.00	0.10	0.20	0.30	0.40	22.7	988.8	3863.3	1098.7	45.4	1977.6	7726.5	2197.4	68.1	2966.4	11589.8	3296.0	90.8	3955.2	15453.1	4394.7
72	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	2979.00	0.15	0.05	0.40	0.40	446.9	19464.8	76048.5	21627.5	149.0	6488.3	25349.5	7209.2	1191.6	51906.1	202795.9	57673.4	1191.6	51906.1	202795.9	57673.4
73	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	1815.00	0.15	0.05	0.40	0.40	272.3	11859.2	46333.7	13176.9	90.8	3953.1	15444.6	4392.3	726.0	31624.6	123556.4	35138.4	726.0	31624.6	123556.4	35138.4
74	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	3025.00	0.15	0.05	0.40	0.40	453.8	19765.4	77222.8	21961.5	151.3	6588.5	25740.9	7320.5	1210.0	52707.6	205927.4	58564.0	1210.0	52707.6	205927.4	58564.0
75	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	1258.00	0.15	0.05	0.40	0.40	188.7	8219.8	32114.5	9133.1	62.9	2739.9	10704.8	3044.4	503.2	21919.4	85638.6	24354.9	503.2	21919.4	85638.6	24354.9
76	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	1054.00	0.15	0.05	0.40	0.40	158.1	6886.8	26906.7	7652.0	52.7	2295.6	8968.9	2550.7	421.6	18364.9	71751.2	20405.4	421.6	18364.9	71751.2	20405.4
77	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	1431.00	0.15	0.05	0.40	0.40	214.7	9350.2	36530.8	10389.1	71.6	3116.7	12176.9	3463.0	572.4	24933.7	97415.6	27704.2	572.4	24933.7	97415.6	27704.2
78	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	9.00	0.15	0.05	0.40	0.40	1.4	58.8	229.8	65.3	0.5	19.6	76.6	21.8	3.6	156.8	612.7	174.2	3.6	156.8	612.7	174.2
80	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	4.00	0.15	0.05	0.40	0.40	0.6	26.1	102.1	29.0	0.2	8.7	34.0	9.7	1.6	69.7	272.3	77.4	1.6	69.7	272.3	77.4
81	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	779.00	0.15	0.05	0.40	0.40	116.9	5090.0	19886.5	5655.5	39.0	1696.7	6628.8	1885.2	311.6	13573.3	53030.6	15081.4	311.6	13573.3	53030.6	15081.4
82	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	120.00	0.15	0.05	0.40	0.40	18.0	784.1	3063.4	871.2	6.0	261.4	1021.1	290.4	48.0	2090.9	8169.0	2323.2	48.0	2090.9	8169.0	2323.2
83	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	7.00	0.15	0.05	0.40	0.40	1.1	45.7	178.7	50.8	0.4	15.2	59.6	16.9	2.8	122.0	476.5	135.5	2.8	122.0	476.5	135.5
84	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	297.00	0.15	0.05	0.40	0.40	44.6	1940.6	7581.9	2156.2	14.9	646.9	2527.3	718.7	118.8	5174.9	20218.3	5749.9	118.8	5174.9	20218.3	5749.9
85	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
87	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-2)20ADD1	608372	SRP	31440	56160	1	36	36	0.00	0.15	0.05	0.40	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)21CCB			31880	54320	2	37	116	157.00	0.45	0.25	0.20	0.10	70.7	8206.7	2433.4	3419.5	39.3	4559.3	1351.9	1899.7	31.4	3647.4	1081.5	1519.8	15.7	1823.7	540.8	759.9
73	(A-2-2)21CCB			31880	54320	2	37	116	59.00	0.45	0.25	0.20	0.10	26.6	3084.0	914.5	1285.0	14.8	1713.4	508.0	713.9	11.8	1370.7	406.4	571.1	5.9	685.3	203.2	285.6
74	(A-2-2)21CCB			31880	54320	2	37	116	72.00	0.45	0.25	0.20	0.10	32.4	3763.6	1115.9	1568.2	18.0	2090.9	620.0	871.2	14.4	1672.7	496.0	697.0	7.2	836.4	248.0	348.5
75	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-2)21CCB			31880	54320	2	37	116	0.00	0.45	0.25	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	286.00	0.10	0.65	0.20	0.05	28.6	3322.2	985.1	1384.2	185.9	21594.1	6402.9	8997.6	57.2	6644.4	1970.1	2768.5	14.3	1661.1	492.5	692.1
73	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	101.00	0.10	0.65	0.20	0.05	10.1	1173.2	347.9	488.8	65.7	7625.9	2261.2	3177.5	20.2	2346.4	695.7	977.7	5.1	586.6	173.9	244.4
74	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	265.00	0.10	0.65	0.20	0.05	26.5	3078.2	912.7	1282.6	172.3	20008.6	5932.8	8336.9	53.0	6156.5	1825.5	2565.2	13.3	1539.1	456.4	641.3
75	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	221.00	0.10	0.65	0.20	0.05	22.1	2567.1	761.2	1069.6	143.7	16686.4	4947.7	6952.7	44.2	5134.3	1522.4	2139.3	11.1	1283.6	380.6	534.8
76	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	217.00	0.10	0.65	0.20	0.05	21.7	2520.7	747.4	1050.3	141.1	16384.4	4858.2	6826.8	43.4	5041.3	1494.8	2100.6	10.9	1260.3	373.7	525.1
77	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	233.00	0.10	0.65	0.20	0.05	23.3	2706.5	802.5	1127.7	151.5	17592.4	5216.4	7330.2	46.6	5413.1	1605.0	2255.4	11.7	1353.3	401.3	563.9
78	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	92.00	0.10	0.65	0.20	0.05	9.2	1068.7	316.9	445.3	59.8	6946.4	2059.7	2894.3	18.4	2137.3	633.7	890.6	4.6	534.3	158.4	222.6
79	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	226.00	0.10	0.65	0.20	0.05	22.6	2625.2	778.4	1093.8	146.9	17063.9	5059.6	7110.0	45.2	5250.4	1556.8	2187.7	11.3	1312.6	389.2	546.9
80	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	293.00	0.10	0.65	0.20	0.05	29.3	3403.5	1009.2	1418.1	190.5	22122.7	6559.6	9217.8	58.6	6807.0	2018.3	2836.2	14.7	1701.7	504.6	709.1
81	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	246.00	0.10	0.65	0.20	0.05	24.6	2857.5	847.3	1190.6	159.9	18574.0	5507.4	7739.2	49.2	5715.1	1694.6	2381.3	12.3	1428.8	423.6	595.3
82	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	204.00	0.10	0.65	0.20	0.05	20.4	2369.7	702.6	987.4	132.6	15402.8	4567.1	6417.8	40.8	4739.3	1405.3	1974.7	10.2	1184.8	351.3	493.7
83	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	145.00	0.10	0.65	0.20	0.05	14.5	1684.3	499.4	701.8	94.3	10948.1	3246.2	4561.7	29.0	3368.6	998.8	1403.6	7.3	842.2	249.7	350.9
84	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	271.00	0.10	0.65	0.20	0.05	27.1	3147.9	933.4	1311.6	176.2	20461.6	6067.1	8525.7	54.2	6295.9	1866.8	2623.3	13.6	1574.0	466.7	655.8
85	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	326.00	0.10	0.65	0.20	0.05	32.6	3786.8	1122.8	1577.8	211.9	24614.3	7298.4	10256.0	65.2	7573.6	2245.7	3155.7	16.3	1893.4	561.4	788.9
86	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	255.00	0.10	0.65	0.20	0.05	25.5	2962.1	878.3	1234.2	165.8	19253.5	5708.9	8022.3	51.0	5924.2	1756.6	2468.4	12.8	1481.0	439.1	617.1
87	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	180.00	0.10	0.65	0.20	0.05	18.0	2090.9	620.0	871.2	117.0	13590.7	4029.8	5662.8	36.0	4181.8	1239.9	1742.4	9.0	1045.4	310.0	435.6
88	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	13.00	0.10	0.65	0.20	0.05	1.3	151.0	44.8	62.9	8.5	981.6	291.0	409.0	2.6	302.0	89.6	125.8	0.7	75.5	22.4	31.5
89	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	0.00	0.10	0.65	0.20	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)22DAA	626551	COP	41880	55320	2	57	136	0.00	0.10	0.65	0.20	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)24AAA		SRP	52440	57960	1	71	71	190.00	0.10	0.30	0.50	0.10	19.0	827.6	3233.6	919.6	57.0	2482.9	9700.7	2758.8	95.0	4138.2	16167.9	4598.0	19.0	827.6	3233.6	919.6
73	(A-2-2)24AAA		SRP	52440	57960	1	71	71	0.00	0.10	0.30	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-2-2)24AAA		SRP	52440	57960	1	71	71	188.00	0.10	0.30	0.50	0.10	18.8	818.9	3199.5	909.9	56.4	2456.8	9598.6	2729.8	94.0	4094.6	15997.7	4549.6	18.8	818.9	3199.5	909.9
75	(A-2-2)24AAA		SRP	52440	57960	1	71	71	40.00	0.10	0.30	0.50	0.10	4.0	174.2	680.8	193.6	12.0	522.7	2042.3	580.8	20.0	871.2	3403.8	968.0	4.0	174.2	680.8	193.6
72	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	948.00	0.10	0.10	0.70	0.10	94.8	4129.5	16133.8	4588.3	94.8	4129.5	16133.8	4588.3	663.6	28906.4	112936.7	32118.2	94.8	4129.5	16133.8	4588.3
73	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	2.00	0.10	0.10	0.70	0.10	0.2	8.7	34.0	9.7	0.2	8.7	34.0	9.7	1.4	61.0	238.3	67.8	0.2	8.7	34.0	9.7
74	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	636.00	0.10	0.10	0.70	0.10	63.6	2770.4	10824.0	3078.2	63.6	2770.4	10824.0	3078.2	445.2	19392.9	75767.7	21547.7	63.6	2770.4	10824.0	3078.2
75	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	947.00	0.10	0.10	0.70	0.10	94.7	4125.1	16116.8	4583.5	94.7	4125.1	16116.8	4583.5	662.9	28875.9	112817.6	32084.4	94.7	4125.1	16116.8	4583.5
76	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	817.00	0.10	0.10	0.70	0.10	81.7	3558.9	13904.4	3954.3	81.7	3558.9	13904.4	3954.3	571.9	24912.0	97330.5	27680.0	81.7	3558.9	13904.4	3954.3
77	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	1162.00	0.10	0.10	0.70	0.10	116.2	5061.7	19775.8	5624.1	116.2	5061.7	19775.8	5624.1	813.4	35431.7	138430.8	39368.6	116.2	5061.7	19775.8	5624.1

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
78	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	44.00	0.10	0.10	0.70	0.10	4.4	191.7	748.8	213.0	4.4	191.7	748.8	213.0	30.8	1341.6	5241.8	1490.7	4.4	191.7	748.8	213.0
79	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	6.00	0.10	0.10	0.70	0.10	0.6	26.1	102.1	29.0	0.6	26.1	102.1	29.0	4.2	183.0	714.8	203.3	0.6	26.1	102.1	29.0
80	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	6.00	0.10	0.10	0.70	0.10	0.6	26.1	102.1	29.0	0.6	26.1	102.1	29.0	4.2	183.0	714.8	203.3	0.6	26.1	102.1	29.0
81	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	1208.00	0.10	0.10	0.70	0.10	120.8	5262.0	20558.7	5846.7	120.8	5262.0	20558.7	5846.7	845.6	36834.3	143910.9	40927.0	120.8	5262.0	20558.7	5846.7
82	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	555.00	0.10	0.10	0.70	0.10	55.5	2417.6	9445.4	2686.2	55.5	2417.6	9445.4	2686.2	388.5	16923.1	66118.0	18803.4	55.5	2417.6	9445.4	2686.2
83	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	6.00	0.10	0.10	0.70	0.10	0.6	26.1	102.1	29.0	0.6	26.1	102.1	29.0	4.2	183.0	714.8	203.3	0.6	26.1	102.1	29.0
84	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	876.00	0.10	0.10	0.70	0.10	87.6	3815.9	14908.5	4239.8	87.6	3815.9	14908.5	4239.8	613.2	26711.0	104359.2	29678.9	87.6	3815.9	14908.5	4239.8
85	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	52.00	0.10	0.10	0.70	0.10	5.2	226.5	885.0	251.7	5.2	226.5	885.0	251.7	36.4	1585.6	6194.8	1761.8	5.2	226.5	885.0	251.7
86	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	78.00	0.10	0.10	0.70	0.10	7.8	339.8	1327.5	377.5	7.8	339.8	1327.5	377.5	54.6	2378.4	9292.3	2642.6	7.8	339.8	1327.5	377.5
87	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	23.00	0.10	0.10	0.70	0.10	2.3	100.2	391.4	111.3	2.3	100.2	391.4	111.3	16.1	701.3	2740.0	779.2	2.3	100.2	391.4	111.3
88	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	6.00	0.10	0.10	0.70	0.10	0.6	26.1	102.1	29.0	0.6	26.1	102.1	29.0	4.2	183.0	714.8	203.3	0.6	26.1	102.1	29.0
89	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	197.00	0.10	0.10	0.70	0.10	19.7	858.1	3352.7	953.5	19.7	858.1	3352.7	953.5	137.9	6006.9	23468.9	6674.4	19.7	858.1	3352.7	953.5
90	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	1327.00	0.10	0.10	0.70	0.10	132.7	5780.4	22583.9	6422.7	132.7	5780.4	22583.9	6422.7	928.9	40462.9	158087.5	44958.8	132.7	5780.4	22583.9	6422.7
91	(A-2-2)25BCA	617850	SRP	48600	51400	4	66	303	301.00	0.10	0.10	0.70	0.10	30.1	1311.2	5122.7	1456.8	30.1	1311.2	5122.7	1456.8	210.7	9178.1	35858.6	10197.9	30.1	1311.2	5122.7	1456.8
84	(A-2-2)26BDC	618512		43800	50600	4	59	296	12.00	0.20	0.30	0.50	0.00	2.4	278.8	82.7	116.2	3.6	418.2	124.0	174.2	6.0	697.0	206.7	290.4	0.0	0.0	0.0	0.0
85	(A-2-2)26BDC	618512		43800	50600	4	59	296	7.00	0.20	0.30	0.50	0.00	1.4	162.6	48.2	67.8	2.1	243.9	72.3	101.6	3.5	406.6	120.5	169.4	0.0	0.0	0.0	0.0
86	(A-2-2)26BDC	618512		43800	50600	4	59	296	10.00	0.20	0.30	0.50	0.00	2.0	232.3	68.9	96.8	3.0	348.5	103.3	145.2	5.0	580.8	172.2	242.0	0.0	0.0	0.0	0.0
87	(A-2-2)26BDC	618512		43800	50600	4	59	296	11.00	0.20	0.30	0.50	0.00	2.2	255.6	75.8	106.5	3.3	383.3	113.7	159.7	5.5	638.9	189.4	266.2	0.0	0.0	0.0	0.0
88	(A-2-2)26BDC	618512		43800	50600	4	59	296	24.00	0.20	0.30	0.50	0.00	4.8	557.6	165.3	232.3	7.2	836.4	248.0	348.5	12.0	1393.9	413.3	580.8	0.0	0.0	0.0	0.0
89	(A-2-2)26BDC	618512		43800	50600	4	59	296	20.00	0.20	0.30	0.50	0.00	4.0	464.6	137.8	193.6	6.0	697.0	206.7	290.4	10.0	1161.6	344.4	484.0	0.0	0.0	0.0	0.0
90	(A-2-2)26BDC	618512		43800	50600	4	59	296	25.00	0.20	0.30	0.50	0.00	5.0	580.8	172.2	242.0	7.5	871.2	258.3	363.0	12.5	1452.0	430.5	605.0	0.0	0.0	0.0	0.0
78	(A-2-2)26CBC			42400	49480	4	57	294	0.00	0.10	0.60	0.30	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)26CBC			42400	49480	4	57	294	0.00	0.10	0.60	0.30	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-2-2)26CBC			42400	49480	4	57	294	1498.00	0.10	0.60	0.30	0.00	149.8	17400.8	5159.5	7250.3	898.8	104404.6	30957.2	43501.9	449.4	52202.3	15478.6	21751.0	0.0	0.0	0.0	0.0
81	(A-2-2)26CBC			42400	49480	4	57	294	2697.00	0.10	0.60	0.30	0.00	269.7	31328.4	9289.2	13053.5	1618.2	187970.1	55735.3	78320.9	809.1	93985.1	27867.7	39160.4	0.0	0.0	0.0	0.0
82	(A-2-2)26CBC			42400	49480	4	57	294	2403.00	0.10	0.60	0.30	0.00	240.3	27913.2	8276.6	11630.5	1441.8	167479.5	49659.6	69783.1	720.9	83739.7	24829.8	34891.6	0.0	0.0	0.0	0.0
83	(A-2-2)26CBC			42400	49480	4	57	294	1386.00	0.10	0.60	0.30	0.00	138.6	16099.8	4773.8	6708.2	831.6	96598.7	28642.6	40249.4	415.8	48299.3	14321.3	20124.7	0.0	0.0	0.0	0.0
78	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	48.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	44.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	46.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	61.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	45.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	19.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	42.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	51.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	61.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	66.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	64.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	79.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)26CBD	800680	CRYSTAL BTL H20	43800	49600	4	59	296	64.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	2589.00	0.25	0.10	0.40	0.25	647.3	28194.2	110154.1	31326.9	258.9	11277.7	44061.6	12530.8	1035.6	45110.7	176246.6	50123.0	647.3	28194.2	110154.1	31326.9
73	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	112.00	0.25	0.10	0.40	0.25	28.0	1219.7	4765.3	1355.2	11.2	487.9	1906.1	542.1	44.8	1951.5	7624.4	2168.3	28.0	1219.7	4765.3	1355.2
74	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	2659.00	0.25	0.10	0.40	0.25	664.8	28956.5	113132.4	32173.9	265.9	11582.6	45253.0	12869.6	1063.6	46330.4	181011.9	51478.2	664.8	28956.5	113132.4	32173.9
75	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	2844.00	0.25	0.10	0.40	0.25	711.0	30971.2	121003.6	34412.4	284.4	12388.5	48401.4	13765.0	1137.6	49553.9	193605.8	55059.8	711.0	30971.2	121003.6	34412.4
76	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	2352.00	0.25	0.10	0.40	0.25	588.0	25613.3	100070.5	28459.2	235.2	10245.3	40028.2	11383.7	940.8	40981.2	160112.8	45534.7	588.0	25613.3	100070.5	28459.2
77	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	3581.00	0.25	0.10	0.40	0.25	895.3	38997.1	152360.7	43330.1	358.1	15598.8	60944.3	17332.0	1432.4	62395.3	243777.2	69328.2	895.3	38997.1	152360.7	43330.1
78	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	62.00	0.25	0.10	0.40	0.25	15.5	675.2	2637.9	750.2	6.2	270.1	1055.2	300.1	24.8	1080.3	4220.7	1200.3	15.5	675.2	2637.9	750.2
79	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	36.00	0.25	0.10	0.40	0.25	9.0	392.0	1531.7	435.6	3.6	156.8	612.7	174.2	14.4	627.3	2450.7	697.0	9.0	392.0	1531.7	435.6
80	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	25.00	0.25	0.10	0.40	0.25	6.3	272.3	1063.7	302.5	2.5	108.9	425.5	121.0	10.0	435.6	1701.9	484.0	6.3	272.3	1063.7	302.5
81	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	3544.00	0.25	0.10	0.40	0.25	886.0	38594.2	150786.5	42882.4	354.4	15437.7	60314.6	17153.0	1417.6	61750.7	241258.4	68611.8	886.0	38594.2	150786.5	42882.4
82	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	1485.00	0.25	0.10	0.40	0.25	371.3	16171.7	63182.3	17968.5	148.5	6468.7	25272.9	7187.4	594.0	25874.6	101091.6	28749.6	371.3	16171.7	63182.3	17968.5
83	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	14.00	0.25	0.10	0.40	0.25	3.5	152.5	595.7	169.4	1.4	61.0	238.3	67.8	5.6	243.9	953.1	271.0	3.5	152.5	595.7	169.4
84	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	2016.00	0.25	0.10	0.40	0.25	504.0	21954.2	85774.7	24393.6	201.6	8781.7	34309.9	9757.4	806.4	35126.8	137239.5	39029.8	504.0	21954.2	85774.7	24393.6
85	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	19.00	0.25	0.10	0.40	0.25	4.8	206.9	808.4	229.9	1.9	82.8	323.4	92.0	7.6	331.1	1293.4	367.8	4.8	206.9	808.4	229.9

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)				Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
86	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	22.00	0.25	0.10	0.40	0.25	5.5	239.6	936.0	266.2	2.2	95.8	374.4	106.5	8.8	383.3	1497.7	425.9	5.5	239.6	936.0	266.2
87	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	27.00	0.25	0.10	0.40	0.25	6.8	294.0	1148.8	326.7	2.7	117.6	459.5	130.7	10.8	470.4	1838.0	522.7	6.8	294.0	1148.8	326.7
88	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	0.00	0.25	0.10	0.40	0.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	196.00	0.25	0.10	0.40	0.25	49.0	2134.4	8339.2	2371.6	19.6	853.8	3335.7	948.6	78.4	3415.1	13342.7	3794.6	49.0	2134.4	8339.2	2371.6
90	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	1275.00	0.25	0.10	0.40	0.25	318.8	13884.8	54247.4	15427.5	127.5	5553.9	21699.0	6171.0	510.0	22215.6	86795.8	24684.0	318.8	13884.8	54247.4	15427.5
91	(A-2-2)26DBB	608377	SRP	45280	50200	4	61	298	31.00	0.25	0.10	0.40	0.25	7.8	337.6	1319.0	375.1	3.1	135.0	527.6	150.0	12.4	540.1	2110.3	600.2	7.8	337.6	1319.0	375.1
72	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	2440.00	0.05	0.70	0.10	0.15	122.0	5314.3	20762.9	5904.8	1708.0	74400.5	290680.9	82667.2	244.0	10628.6	41525.8	11809.6	366.0	15943.0	62288.8	17714.4
73	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	177.00	0.05	0.70	0.10	0.15	8.9	385.5	1506.2	428.3	123.9	5397.1	21086.3	5996.8	17.7	771.0	3012.3	856.7	26.6	1156.5	4518.5	1285.0
74	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	2293.00	0.05	0.70	0.10	0.15	114.7	4994.2	19512.0	5549.1	1605.1	69918.2	273168.6	77686.8	229.3	9988.3	39024.1	11098.1	344.0	14982.5	58536.1	16647.2
75	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	2603.00	0.05	0.70	0.10	0.15	130.2	5669.3	22150.0	6299.3	1822.1	79370.7	310099.4	88189.6	260.3	11338.7	44299.9	12598.5	390.5	17008.0	66449.9	18897.8
76	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	2817.00	0.05	0.70	0.10	0.15	140.9	6135.4	23971.0	6817.1	1971.9	85896.0	335593.5	95440.0	281.7	12270.9	47941.9	13634.3	422.6	18406.3	71912.9	20451.4
77	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	3047.00	0.05	0.70	0.10	0.15	152.4	6636.4	25928.1	7373.7	2132.9	92909.1	362993.8	103232.4	304.7	13272.7	51856.3	14747.5	457.1	19909.1	77784.4	22121.2
78	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	55.00	0.05	0.70	0.10	0.15	2.8	119.8	468.0	133.1	38.5	1677.1	6552.2	1863.4	5.5	239.6	936.0	266.2	8.3	359.4	1404.1	399.3
79	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	12.00	0.05	0.70	0.10	0.15	0.6	26.1	102.1	29.0	8.4	365.9	1429.6	406.6	1.2	52.3	204.2	58.1	1.8	78.4	306.3	87.1
80	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	9.00	0.05	0.70	0.10	0.15	0.5	19.6	76.6	21.8	6.3	274.4	1072.2	304.9	0.9	39.2	153.2	43.6	1.4	58.8	229.8	65.3
81	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	2638.00	0.05	0.70	0.10	0.15	131.9	5745.6	22447.8	6384.0	1846.6	80437.9	314269.0	89375.4	263.8	11491.1	44895.6	12767.9	395.7	17236.7	67343.4	19151.9
82	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	1116.00	0.05	0.70	0.10	0.15	55.8	2430.6	9496.5	2700.7	781.2	34029.1	132950.8	37810.1	111.6	4861.3	18993.0	5401.4	167.4	7291.9	28489.5	8102.2
83	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	10.00	0.05	0.70	0.10	0.15	0.5	21.8	85.1	24.2	7.0	304.9	1191.3	338.8	1.0	43.6	170.2	48.4	1.5	65.3	255.3	72.6
84	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	1606.00	0.05	0.70	0.10	0.15	80.3	3497.9	13666.1	3886.5	1124.2	48970.2	191325.2	54411.3	160.6	6995.7	27332.2	7773.0	240.9	10493.6	40998.3	11659.6
85	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	11.00	0.05	0.70	0.10	0.15	0.6	24.0	93.6	26.6	7.7	335.4	1310.4	372.7	1.1	47.9	187.2	53.2	1.7	71.9	280.8	79.9
86	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	47.00	0.05	0.70	0.10	0.15	2.4	102.4	399.9	113.7	32.9	1433.1	5599.2	1592.4	4.7	204.7	799.9	227.5	7.1	307.1	1199.8	341.2
87	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	21.00	0.05	0.70	0.10	0.15	1.1	45.7	178.7	50.8	14.7	640.3	2501.8	711.5	2.1	91.5	357.4	101.6	3.2	137.2	536.1	152.5
88	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291		0.05	0.70	0.10	0.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	102.00	0.05	0.70	0.10	0.15	5.1	222.2	868.0	246.8	71.4	3110.2	12151.4	3455.8	10.2	444.3	1735.9	493.7	15.3	666.5	2603.9	740.5
90	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	1900.00	0.05	0.70	0.10	0.15	95.0	4138.2	16167.9	4598.0	1330.0	57934.8	226349.9	64372.0	190.0	8276.4	32335.7	9196.0	285.0	12414.6	48503.6	13794.0
91	(A-2-2)27ACB	608381	SRP	40320	51160	4	54	291	419.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	(A-2-2)27ADD	603866		39040	50800	4	51	288	7.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)27ADD	603866		39040	50800	4	51	288	3.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)27ADD	603866		39040	50800	4	51	288	6.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)27ADD	603866		39040	50800	4	51	288	0.00					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	764.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	611.2	70997.0	21051.4	29582.1	76.4	8874.6	2631.4	3697.8	76.4	8874.6	2631.4	3697.8
73	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	95.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	76.0	8828.2	2617.7	3678.4	9.5	1103.5	327.2	459.8	9.5	1103.5	327.2	459.8
74	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	695.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	556.0	64585.0	19150.2	26910.4	69.5	8073.1	2393.8	3363.8	69.5	8073.1	2393.8	3363.8
75	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	593.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	474.4	55106.3	16339.7	22961.0	59.3	6888.3	2042.5	2870.1	59.3	6888.3	2042.5	2870.1
76	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	581.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	464.8	53991.2	16009.0	22496.3	58.1	6748.9	2001.1	2812.0	58.1	6748.9	2001.1	2812.0
77	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	663.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	530.4	61611.3	18268.5	25671.4	66.3	7701.4	2283.6	3208.9	66.3	7701.4	2283.6	3208.9
78	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	728.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	582.4	67651.6	20059.5	28188.2	72.8	8456.4	2507.4	3523.5	72.8	8456.4	2507.4	3523.5
79	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	587.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	469.6	54548.7	16174.3	22728.6	58.7	6818.6	2021.8	2841.1	58.7	6818.6	2021.8	2841.1
80	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	968.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	774.4	89954.3	26672.5	37481.0	96.8	11244.3	3334.1	4685.1	96.8	11244.3	3334.1	4685.1
81	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	726.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	580.8	67465.7	20004.4	28110.7	72.6	8433.2	2500.5	3513.8	72.6	8433.2	2500.5	3513.8
82	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	380.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	304.0	35312.6	10470.6	14713.6	38.0	4414.1	1308.8	1839.2	38.0	4414.1	1308.8	1839.2
83	(A-2-2)27DCB1	626575	COP/CON WATER	39800	48800	5	53	369	0.00	0.00	0.80	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1262.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	820.3	95286.0	28253.4	39702.5	315.5	36648.5	10866.7	15270.2	126.2	14659.4	4346.7	6108.1
73	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	462.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	300.3	34882.8	10343.2	14534.5	115.5	13416.5	3978.1	5590.2	46.2	5366.6	1591.3	2236.1
74	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	963.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	626.0	72710.4	21559.5	30296.0	240.8	27965.5	8292.1	11652.3	96.3	11186.2	3316.8	4660.9

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
75	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	444.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	288.6	33523.8	9940.2	13968.2	111.0	12893.8	3823.1	5372.4	44.4	5157.5	1529.3	2149.0
76	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	649.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	421.9	49002.1	14529.7	20417.5	162.3	18847.0	5588.3	7852.9	64.9	7538.8	2235.3	3141.2
77	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	632.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	410.8	47718.5	14149.1	19882.7	158.0	18353.3	5442.0	7647.2	63.2	7341.3	2176.8	3058.9
78	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	732.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	475.8	55268.9	16387.9	23028.7	183.0	21257.3	6303.0	8857.2	73.2	8502.9	2521.2	3542.9
79	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	770.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	500.5	58138.1	17238.6	24224.2	192.5	22360.8	6630.2	9317.0	77.0	8944.3	2652.1	3726.8
80	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	779.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	506.4	58817.6	17440.1	24507.3	194.8	22622.2	6707.7	9425.9	77.9	9048.9	2683.1	3770.4
81	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	478.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	310.7	36090.9	10701.4	15037.9	119.5	13881.1	4115.9	5783.8	47.8	5552.4	1646.4	2313.5
82	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	542.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	352.3	40923.2	12134.2	17051.3	135.5	15739.7	4667.0	6558.2	54.2	6295.9	1866.8	2623.3
83	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	754.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	490.1	56930.0	16880.4	23720.8	188.5	21896.2	6492.5	9123.4	75.4	8758.5	2597.0	3649.4
84	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1730.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	1124.5	130621.9	38730.9	54425.8	432.5	50239.2	14896.5	20933.0	173.0	20095.7	5958.6	8373.2
85	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1233.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	801.5	93096.4	27604.2	38790.2	308.3	35806.3	10617.0	14919.3	123.3	14322.5	4246.8	5967.7
86	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1417.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	921.1	106989.2	31723.5	44578.8	354.3	41149.7	12201.4	17145.7	141.7	16459.9	4880.5	6858.3
87	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1048.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	681.2	79128.2	23462.4	32970.1	262.0	30433.9	9024.0	12680.8	104.8	12173.6	3609.6	5072.3
88	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	1216.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	790.4	91812.9	27223.6	38255.4	304.0	35312.6	10470.6	14713.6	121.6	14125.1	4188.2	5885.4
89	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	164.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	106.6	12382.7	3671.6	5159.4	41.0	4762.6	1412.2	1984.4	16.4	1905.0	564.9	793.8
90	(A-2-2)28ABB1	626576	COP/CON WATER	34800	52840	3	43	201	0.00	0.00	0.65	0.25	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	2013.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	805.2	35074.5	137035.3	38971.7	1006.5	43843.1	171294.1	48714.6	201.3	8768.6	34258.8	9742.9
73	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	137.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	54.8	2387.1	9326.3	2652.3	68.5	2983.9	11657.9	3315.4	13.7	596.8	2331.6	663.1
74	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	179.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	71.6	3118.9	12185.5	3465.4	89.5	3898.6	15231.8	4331.8	17.9	779.7	3046.4	866.4
75	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	1071.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	428.4	18661.1	72908.5	20734.6	535.5	23326.4	91135.6	25918.2	107.1	4665.3	18227.1	5183.6
76	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	9.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	3.6	156.8	612.7	174.2	4.5	196.0	765.8	217.8	0.9	39.2	153.2	43.6
77	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	0.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	8.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	3.2	139.4	544.6	154.9	4.0	174.2	680.8	193.6	0.8	34.8	136.2	38.7
79	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	8.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	3.2	139.4	544.6	154.9	4.0	174.2	680.8	193.6	0.8	34.8	136.2	38.7
80	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	72.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	28.8	1254.5	4901.4	1393.9	36.0	1568.2	6126.8	1742.4	7.2	313.6	1225.4	348.5
81	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	1086.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	434.4	18922.5	73929.6	21025.0	543.0	23653.1	92412.0	26281.2	108.6	4730.6	18482.4	5256.2
82	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	627.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	250.8	10924.8	42683.1	12138.7	313.5	13656.1	53353.9	15173.4	62.7	2731.2	10670.8	3034.7
83	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	8.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	3.2	139.4	544.6	154.9	4.0	174.2	680.8	193.6	0.8	34.8	136.2	38.7
84	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	825.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	330.0	14374.8	56162.0	15972.0	412.5	17968.5	70202.5	19965.0	82.5	3593.7	14040.5	3993.0
85	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	7.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	2.8	122.0	476.5	135.5	3.5	152.5	595.7	169.4	0.7	30.5	119.1	33.9
86	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	29.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	11.6	505.3	1974.2	561.4	14.5	631.6	2467.7	701.8	2.9	126.3	493.5	140.4
87	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	17.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	6.8	296.2	1157.3	329.1	8.5	370.3	1446.6	411.4	1.7	74.1	289.3	82.3
88	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	149.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	59.6	2596.2	10143.2	2884.6	74.5	3245.2	12679.0	3605.8	14.9	649.0	2535.8	721.2
89	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	154.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	61.6	2683.3	10483.6	2981.4	77.0	3354.1	13104.5	3726.8	15.4	670.8	2620.9	745.4
90	(A-2-2)28BDD	608374	SRP	33800	50760	4	41	278	1283.00	0.00	0.40	0.50	0.10	0.0	0.0	0.0	0.0	513.2	22355.0	87340.4	24838.9	641.5	27943.7	109175.5	31048.6	128.3	5588.7	21835.1	6209.7
72	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1843.00	0.15	0.45	0.35	0.05	276.5	12042.2	47048.4	13380.2	829.4	36126.5	141145.3	40140.5	645.1	28098.4	109779.7	31220.4	92.2	4014.1	15682.8	4460.1
73	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	93.00	0.15	0.45	0.35	0.05	14.0	607.7	2374.1	675.2	41.9	1823.0	7122.4	2025.5	32.6	1417.9	5539.6	1575.4	4.7	202.6	791.4	225.1
74	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1497.00	0.15	0.45	0.35	0.05	224.6	9781.4	38215.7	10868.2	673.7	29344.2	114647.1	32604.7	523.9	22823.3	89170.0	25359.2	74.9	3260.5	12738.6	3622.7
75	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1892.00	0.15	0.45	0.35	0.05	283.8	12362.3	48299.3	13735.9	851.4	37087.0	144898.0	41207.8	662.2	28845.4	112698.4	32050.5	94.6	4120.8	16099.8	4578.6
76	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1965.00	0.15	0.45	0.35	0.05	294.8	12839.3	50162.9	14265.9	884.3	38517.9	150488.7	42797.7	687.8	29958.4	117046.7	33287.1	98.3	4279.8	16721.0	4755.3
77	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	2153.00	0.15	0.45	0.35	0.05	323.0	14067.7	54962.2	15630.8	968.9	42203.1	164886.6	46892.3	753.6	32824.6	128245.1	36471.8	107.7	4689.2	18320.7	5210.3
78	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	32.00	0.15	0.45	0.35	0.05	4.8	209.1	816.9	232.3	14.4	627.3	2450.7	697.0	11.2	487.9	1906.1	542.1	1.6	69.7	272.3	77.4
79	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	40.00	0.15	0.45	0.35	0.05	6.0	261.4	1021.1	290.4	18.0	784.1	3063.4	871.2	14.0	609.8	2382.6	677.6	2.0	87.1	340.4	96.8
80	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	43.00	0.15	0.45	0.35	0.05	6.5	281.0	1097.7	312.2	19.4	842.9	3293.1	936.5	15.1	655.6	2561.3	728.4	2.2	93.7	365.9	104.1
81	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1939.00	0.15	0.45	0.35	0.05	290.9	12669.4	49499.2	14077.1	872.6	38008.3	148497.5	42231.4	678.7	29562.0	115498.0	32846.7	97.0	4223.1	16499.7	4692.4
82	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	503.00	0.15	0.45	0.35	0.05	75.5	3286.6	12840.7	3651.8	226.4	9859.8	38522.0	10955.3	176.1	7668.7	29961.6	8520.8	25.2	1095.5	4280.2	1217.3
83	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	12.00	0.15	0.45	0.35	0.05	1.8	78.4	306.3	87.1	5.4	235.2	919.0	261.4	4.2	183.0	714.8	203.3	0.6	26.1	102.1	29.0
84	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1638.00	0.15	0.45	0.35	0.05	245.7	10702.7	41815.2	11891.9	737.1	32108.1	125445.5	35675.6	573.3	24972.9	97568.7	27747.7	81.9	3567.6	13938.4	3964.0
85	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	20.00	0.15	0.45	0.35	0.05	3.0	130.7	510.6	145.2	9.0	392.0	1531.7	435.6	7.0	304.9	1191.3	338.8	1.0	43.6	170.2	48.4
86	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	32.00	0.15	0.45	0.35	0.05	4.8	209.1	816.9	232.3	14.4	627.3	2450.7	697.0	11.2	487.9	1906.1	542.1	1.6	69.7	272.3	77.4
87	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	28.00	0.15	0.45	0.35	0.05	4.2	183.0	714.8	203.3	12.6	548.9	2144.4	609.8	9.8	426.9	1667.8	474.3	1.4	61.0	238.3	67.8
88	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	11.00	0.15	0.45	0.35	0.05	1.7	71.9	280.8	79.9	5.0	215.6	842.4	239.6	3.9	167.7	655.2	186.3	0.6	24.0	93.6	26.6
89	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	83.00	0.15	0.45	0.35	0.05	12.5	542.3	2118.8	602.6	37.4	1627.0	6356.5	1807.7	29.1	1265.4	4944.0	1406.0	4.2	180.8	706.3	200.9
90	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	1575.00	0.15	0.45	0.35	0.05	236.3	10291.1	40206.9	11434.5	708.8	30873.2	120620.7	34303.5	551.3	24012.5	93816.1	26680.5	78.8	3430.4	13402.3	3811.5
91	(A-2-2)29ACC	607675	SRP	29440	50720	4	32	269	291.00	0.15	0.45	0.35	0.05	43.7	1901.4	7428.7	2112.7	131.0	5704.2	22286.1	6338.0	101.9	4436.6	17333.6	4929.5	14.6	633.8	2476.2	704.2

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
72	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	1798.00	0.20	0.60	0.15	0.05	359.6	15664.2	61199.6	17404.6	1078.8	46992.5	183598.7	52213.9	269.7	11748.1	45899.7	13053.5	89.9	3916.0	15299.9	4351.2
73	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	111.00	0.20	0.60	0.15	0.05	22.2	967.0	3778.2	1074.5	66.6	2901.1	11334.5	3223.4	16.7	725.3	2833.6	805.9	5.6	241.8	944.5	268.6
74	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	1724.00	0.20	0.60	0.15	0.05	344.8	15019.5	58680.8	16688.3	1034.4	45058.5	176042.4	50065.0	258.6	11264.6	44010.6	12516.2	86.2	3754.9	14670.2	4172.1
75	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	1962.00	0.20	0.60	0.15	0.05	392.4	17092.9	66781.7	18992.2	1177.2	51278.8	200345.2	56976.5	294.3	12819.7	50086.3	14244.1	98.1	4273.2	16695.4	4748.0
76	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	2068.00	0.20	0.60	0.15	0.05	413.6	18016.4	70389.7	20018.2	1240.8	54049.2	211169.2	60054.7	310.2	13512.3	52792.3	15013.7	103.4	4504.1	17597.4	5004.6
77	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	2137.00	0.20	0.60	0.15	0.05	427.4	18617.5	72738.3	20686.2	1282.2	55852.6	218214.9	62058.5	320.6	13963.2	54553.7	15514.6	106.9	4654.4	18184.6	5171.5
78	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	78.00	0.20	0.60	0.15	0.05	15.6	679.5	2654.9	755.0	46.8	2038.6	7964.8	2265.1	11.7	509.7	1991.2	566.3	3.9	169.9	663.7	188.8
79	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	37.00	0.20	0.60	0.15	0.05	7.4	322.3	1259.4	358.2	22.2	967.0	3778.2	1074.5	5.6	241.8	944.5	268.6	1.9	80.6	314.8	89.5
80	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	110.00	0.20	0.60	0.15	0.05	22.0	958.3	3744.1	1064.8	66.0	2875.0	11232.4	3194.4	16.5	718.7	2808.1	798.6	5.5	239.6	936.0	266.2
81	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	1910.00	0.20	0.60	0.15	0.05	382.0	16639.9	65011.8	18488.8	1146.0	49919.8	195035.3	55466.4	286.5	12479.9	48758.8	13866.6	95.5	4160.0	16252.9	4622.2
82	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	606.00	0.20	0.60	0.15	0.05	121.2	5279.5	20626.8	5866.1	363.6	15838.4	61880.3	17598.2	90.9	3959.6	15470.1	4399.6	30.3	1319.9	5156.7	1466.5
83	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	24.00	0.20	0.60	0.15	0.05	4.8	209.1	816.9	232.3	14.4	627.3	2450.7	697.0	3.6	156.8	612.7	174.2	1.2	52.3	204.2	58.1
84	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	143.00	0.20	0.60	0.15	0.05	28.6	1245.8	4867.4	1384.2	85.8	3737.4	14602.1	4152.7	21.5	934.4	3650.5	1038.2	7.2	311.5	1216.8	346.1
85	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	10.00	0.20	0.60	0.15	0.05	2.0	87.1	340.4	96.8	6.0	261.4	1021.1	290.4	1.5	65.3	255.3	72.6	0.5	21.8	85.1	24.2
86	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	26.00	0.20	0.60	0.15	0.05	5.2	226.5	885.0	251.7	15.6	679.5	2654.9	755.0	3.9	169.9	663.7	188.8	1.3	56.6	221.2	62.9
87	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	24.00	0.20	0.60	0.15	0.05	4.8	209.1	816.9	232.3	14.4	627.3	2450.7	697.0	3.6	156.8	612.7	174.2	1.2	52.3	204.2	58.1
88	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	40.00	0.20	0.60	0.15	0.05	8.0	348.5	1361.5	387.2	24.0	1045.4	4084.5	1161.6	6.0	261.4	1021.1	290.4	2.0	87.1	340.4	96.8
89	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	241.00	0.20	0.60	0.15	0.05	48.2	2099.6	8203.1	2332.9	144.6	6298.8	24609.2	6998.6	36.2	1574.7	6152.3	1749.7	12.1	524.9	2050.8	583.2
90	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	2287.00	0.20	0.60	0.15	0.05	457.4	19924.3	77843.9	22138.2	1372.2	59773.0	233531.8	66414.5	343.1	14943.3	58383.0	16603.6	114.4	4981.1	19461.0	5534.5
91	(A-2-2)29BCB	608387	SRP	26480	51440	3	26	184	298.00	0.20	0.60	0.15	0.05	59.6	2596.2	10143.2	2884.6	178.8	7788.5	30429.6	8653.9	44.7	1947.1	7607.4	2163.5	14.9	649.0	2535.8	721.2
72	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	2836.00	0.10	0.60	0.20	0.10	283.6	32943.0	9768.0	13726.2	1701.6	197657.9	58607.9	82357.4	567.2	65886.0	19536.0	27452.5	283.6	32943.0	9768.0	13726.2
73	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	1570.00	0.10	0.60	0.20	0.10	157.0	18237.1	5407.5	7598.8	942.0	109422.7	32445.1	45592.8	314.0	36474.2	10815.0	15197.6	157.0	18237.1	5407.5	7598.8
74	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	2225.00	0.10	0.60	0.20	0.10	222.5	25845.6	7663.5	10769.0	1335.0	155073.6	45981.1	64614.0	445.0	51691.2	15327.0	21538.0	222.5	25845.6	7663.5	10769.0
75	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	1495.00	0.10	0.60	0.20	0.10	149.5	17365.9	5149.2	7235.8	897.0	104195.5	30895.2	43414.8	299.0	34731.8	10298.4	14471.6	149.5	17365.9	5149.2	7235.8
76	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	927.00	0.10	0.60	0.20	0.10	92.7	10768.0	3192.8	4486.7	556.2	64608.2	19157.1	26920.1	185.4	21536.1	6385.7	8973.4	92.7	10768.0	3192.8	4486.7
77	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	1205.00	0.10	0.60	0.20	0.10	120.5	13997.3	4150.4	5832.2	723.0	83983.7	24902.1	34993.2	241.0	27994.6	8300.7	11664.4	120.5	13997.3	4150.4	5832.2
78	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	1824.00	0.10	0.60	0.20	0.10	182.4	21187.6	6282.4	8828.2	1094.4	127125.5	37694.2	52969.0	364.8	42375.2	12564.7	17656.3	182.4	21187.6	6282.4	8828.2
79	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	910.00	0.10	0.60	0.20	0.10	91.0	10570.6	3134.3	4404.4	546.0	63423.4	18805.8	26426.4	182.0	21141.1	6268.6	8808.8	91.0	10570.6	3134.3	4404.4
80	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	261.00	0.10	0.60	0.20	0.10	26.1	3031.8	899.0	1263.2	156.6	18190.7	5393.7	7579.4	52.2	6063.6	1797.9	2526.5	26.1	3031.8	899.0	1263.2
81	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	457.00	0.10	0.60	0.20	0.10	45.7	5308.5	1574.0	2211.9	274.2	31851.1	9444.2	13271.3	91.4	10617.0	3148.1	4423.8	45.7	5308.5	1574.0	2211.9
82	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	381.00	0.10	0.60	0.20	0.10	38.1	4425.7	1312.3	1844.0	228.6	26554.2	7873.6	11064.2	76.2	8851.4	2624.5	3688.1	38.1	4425.7	1312.3	1844.0
83	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	47.00	0.10	0.60	0.20	0.10	4.7	546.0	161.9	227.5	28.2	3275.7	971.3	1364.9	9.4	1091.9	323.8	455.0	4.7	546.0	161.9	227.5
84	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	20.00	0.10	0.60	0.20	0.10	2.0	232.3	68.9	96.8	12.0	1393.9	413.3	580.8	4.0	464.6	137.8	193.6	2.0	232.3	68.9	96.8
85	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)30BAA1	626578	COP	23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)30BAA2	626578		23440	52840	3	22	180	1387.00	0.10	0.60	0.20	0.10	138.7	6041.8	23605.1	6713.1	832.2	36250.6	141630.4	40278.5	277.4	12083.5	47210.1	13426.2	138.7	6041.8	23605.1	6713.1
73	(A-2-2)30BAA2	626578		23440	52840	3	22	180	890.00	0.10	0.60	0.20	0.10	89.0	3876.8	15146.7	4307.6	534.0	23261.0	90880.3	25845.6	178.0	7753.7	30293.4	8615.2	89.0	3876.8	15146.7	4307.6
74	(A-2-2)30BAA2	626578		23440	52840	3	22	180	1205.00	0.10	0.60	0.20	0.10	120.5	5249.0	20507.6	5832.2	723.0	31493.9	123045.9	34993.2	241.0	10498.0	41015.3	11664.4	120.5	5249.0	20507.6	5832.2
75	(A-2-2)30BAA2	626578		23440	52840	3	22	180	632.00	0.10	0.60	0.20	0.10	63.2	2753.0	10755.9	3058.9	379.2	16518.0	64535.3	18353.3	126.4	5506.0	21511.8	6117.8	63.2	2753.0	10755.9	3058.9
76	(A-2-2)30BAA2	626578		23440	52840	3	22	180	510.00	0.10	0.60	0.20	0.10	51.0	2221.6	8679.6	2468.4	306.0	13329.4	52077.5	14810.4	102.0	4443.1	17359.2	4936.8	51.0	2221.6	8679.6	2468.4
77	(A-2-2)30BAA2	626578		23440	52840	3	22	180	706.00	0.10	0.60	0.20	0.10	70.6	3075.3	12015.3	3417.0	423.6	18452.0	72091.6	20502.2	141.2	6150.7	24030.5	6834.1	70.6	3075.3	12015.3	3417.0
78	(A-2-2)30BAA2	626578		23440	52840	3	22	180	942.00	0.10	0.60	0.20	0.10	94.2	4103.4	16031.7	4559.3	565.2	24620.1	96190.2	27355.7	188.4	8206.7	32063.4	9118.6	94.2	4103.4	16031.7	4559.3
79	(A-2-2)30BAA2	626578		23440	52840	3	22	180	463.00	0.10	0.60	0.20	0.10	46.3	2016.8	7879.7	2240.9	277.8	12101.0	47278.2	13445.5	92.6	4033.7	15759.4	4481.8	46.3	2016.8	7879.7	2240.9
80	(A-2-2)30BAA2	626578		23440	52840	3	22	180	127.00	0.10	0.60	0.20	0.10	12.7	553.2	2161.4	614.7	76.2	3319.3	12968.3	3688.1	25.4	1106.4	4322.8	1229.4	12.7	553.2	2161.4	614.7
81	(A-2-2)30BAA2	626578		23440	52840	3	22	180	235.00	0.10	0.60	0.20	0.10	23.5	1023.7	3999.4	1137.4	141.0	6142.0	23996.5	6824.4	47.0	2047.3	7998.8	2274.8	23.5	1023.7	3999.4	1137.4
82	(A-2-2)30BAA2	626578		23440	52840	3	22	180	238.00	0.10	0.60	0.20	0.10	23.8	1036.7	4050.5	1151.9	142.8	6220.4	24302.8	6911.5	47.6	2073.5	8100.9	2303.8	23.8	1036.7	4050.5	1151.9
83	(A-2-2)30BAA2	626578		23440	52840	3	22	180	32.00	0.10	0.60	0.20	0.10	3.2	139.4	544.6	154.9	19.2	836.4	3267.6	929.3	6.4	278.8	1089.2	309.8	3.2	139.4	544.6	154.9
84	(A-2-2)30BAA2	626578		23440	52840	3	22	180	12.00	0.10	0.60	0.20	0.10	1.2	52.3	204.2	58.1	7.2	313.6	1225.4	348.5	2.4	104.5	408.5	116.2	1.2	52.3	204.2	58.1
85	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR Well No.	Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
88	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)30BAA2	626578		23440	52840	3	22	180	0.00	0.10	0.60	0.20	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-2)30BAA2	626578		23440	52840	3	22	180	154.00	0.10	0.60	0.20	0.10	15.4	670.8	2620.9	745.4	92.4	4024.9	15725.4	4472.2	30.8	1341.6	5241.8	1490.7	15.4	670.8	2620.9	745.4
72	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	438.00	0.10	0.65	0.20	0.05	43.8	5087.8	1508.6	2119.9	284.7	33070.8	9805.9	13779.5	87.6	10175.6	3017.2	4239.8	21.9	2543.9	754.3	1060.0
73	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	257.00	0.10	0.65	0.20	0.05	25.7	2985.3	885.2	1243.9	167.1	19404.5	5753.7	8085.2	51.4	5970.6	1770.4	2487.8	12.9	1492.7	442.6	621.9
74	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	449.00	0.10	0.65	0.20	0.05	44.9	5215.6	1546.5	2173.2	291.9	33901.3	10052.1	14125.5	89.8	10431.2	3093.0	4346.3	22.5	2607.8	773.2	1086.6
75	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	319.00	0.10	0.65	0.20	0.05	31.9	3705.5	1098.7	1544.0	207.4	24085.8	7141.7	10035.7	63.8	7411.0	2197.5	3087.9	16.0	1852.8	549.4	772.0
76	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	547.00	0.10	0.65	0.20	0.05	54.7	6354.0	1884.0	2647.5	355.6	41300.7	12246.1	17208.6	109.4	12707.9	3768.0	5295.0	27.4	3177.0	942.0	1323.7
77	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	563.00	0.10	0.65	0.20	0.05	56.3	6539.8	1939.1	2724.9	366.0	42508.8	12604.3	17712.0	112.6	13079.6	3878.3	5449.8	28.2	3269.9	969.6	1362.5
78	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	787.00	0.10	0.65	0.20	0.05	78.7	9141.8	2710.6	3809.1	511.6	59421.6	17619.2	24759.0	157.4	18283.6	5421.3	7618.2	39.4	4570.9	1355.3	1904.5
79	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	959.00	0.10	0.65	0.20	0.05	95.9	11139.7	3303.1	4641.6	623.4	72408.3	21469.9	30170.1	191.8	22279.5	6606.1	9283.1	48.0	5569.9	1651.5	2320.8
80	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	71.00	0.10	0.65	0.20	0.05	7.1	824.7	244.5	343.6	46.2	5360.8	1589.5	2233.7	14.2	1649.5	489.1	687.3	3.6	412.4	122.3	171.8
81	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	1103.00	0.10	0.65	0.20	0.05	110.3	12812.4	3799.0	5338.5	717.0	83280.9	24693.8	34700.4	220.6	25624.9	7598.1	10677.0	55.2	6406.2	1899.5	2669.3
82	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	1042.00	0.10	0.65	0.20	0.05	104.2	12103.9	3588.9	5043.3	677.3	78675.2	23328.1	32781.3	208.4	24207.7	7177.9	10086.6	52.1	6051.9	1794.5	2521.6
83	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	0.00	0.10	0.65	0.20	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	575.00	0.10	0.65	0.20	0.05	57.5	6679.2	1980.5	2783.0	373.8	43414.8	12873.0	18089.5	115.0	13358.4	3960.9	5566.0	28.8	3339.6	990.2	1391.5
85	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	247.00	0.10	0.65	0.20	0.05	24.7	2869.2	850.7	1195.5	160.6	18649.5	5529.8	7770.6	49.4	5738.3	1701.5	2391.0	12.4	1434.6	425.4	597.7
86	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	200.00	0.10	0.65	0.20	0.05	20.0	2323.2	688.9	968.0	130.0	15100.8	4477.6	6292.0	40.0	4646.4	1377.7	1936.0	10.0	1161.6	344.4	484.0
87	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	16.00	0.10	0.65	0.20	0.05	1.6	185.9	55.1	77.4	10.4	1208.1	358.2	503.4	3.2	371.7	110.2	154.9	0.8	92.9	27.6	38.7
88	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	234.00	0.10	0.65	0.20	0.05	23.4	2718.1	806.0	1132.6	152.1	17667.9	5238.7	7361.6	46.8	5436.3	1611.9	2265.1	11.7	1359.1	403.0	566.3
89	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	79.00	0.10	0.65	0.20	0.05	7.9	917.7	272.1	382.4	51.4	5964.8	1768.6	2485.3	15.8	1835.3	544.2	764.7	4.0	458.8	136.0	191.2
90	(A-2-2)30BAB	626587	COP	22560	52960	3	21	179	1032.00	0.10	0.65	0.20	0.05	103.2	11987.7	3554.5	4994.9	670.8	77920.1	23104.2	32466.7	206.4	23975.4	7109.0	9989.8	51.6	5993.9	1777.2	2497.4
72	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	867.00	0.10	0.70	0.15	0.05	86.7	10071.1	2986.2	4196.3	606.9	70497.5	20903.3	29374.0	130.1	15106.6	4479.3	6294.4	43.4	5035.5	1493.1	2098.1
73	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	257.00	0.10	0.70	0.15	0.05	25.7	2985.3	885.2	1243.9	179.9	20897.2	6196.3	8707.2	38.6	4478.0	1327.8	1865.8	12.9	1492.7	442.6	621.9
74	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	395.00	0.10	0.70	0.15	0.05	39.5	4588.3	1360.5	1911.8	276.5	32118.2	9523.4	13382.6	59.3	6882.5	2040.7	2867.7	19.8	2294.2	680.2	955.9
75	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	330.00	0.10	0.70	0.15	0.05	33.0	3833.3	1136.6	1597.2	231.0	26833.0	7956.3	11180.4	49.5	5749.9	1704.9	2395.8	16.5	1916.6	568.3	798.6
76	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	163.00	0.10	0.70	0.15	0.05	16.3	1893.4	561.4	788.9	114.1	13253.9	3929.9	5522.4	24.5	2840.1	842.1	1183.4	8.2	946.7	280.7	394.5
77	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	92.00	0.10	0.70	0.15	0.05	9.2	1068.7	316.9	445.3	64.4	7480.7	2218.1	3117.0	13.8	1603.0	475.3	667.9	4.6	534.3	158.4	222.6
78	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	584.00	0.10	0.70	0.15	0.05	58.4	6783.7	2011.5	2826.6	408.8	47486.2	14080.2	19785.9	87.6	10175.6	3017.2	4239.8	29.2	3391.9	1005.7	1413.3
79	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	246.00	0.10	0.70	0.15	0.05	24.6	2857.5	847.3	1190.6	172.2	20002.8	5931.0	8334.5	36.9	4286.3	1270.9	1786.0	12.3	1428.8	423.6	595.3
80	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	465.00	0.10	0.70	0.15	0.05	46.5	5401.4	1601.6	2250.6	325.5	37810.1	11211.1	15754.2	69.8	8102.2	2402.4	3375.9	23.3	2700.7	800.8	1125.3
81	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	469.00	0.10	0.70	0.15	0.05	46.9	5447.9	1615.4	2270.0	328.3	38135.3	11307.6	15889.7	70.3	8171.9	2423.1	3404.9	23.5	2724.0	807.7	1135.0
82	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	388.00	0.10	0.70	0.15	0.05	38.8	4507.0	1336.4	1877.9	271.6	31549.1	9354.7	13145.4	58.2	6760.5	2004.6	2816.9	19.4	2253.5	668.2	939.0
83	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	254.00	0.10	0.70	0.15	0.05	25.4	2950.5	874.8	1229.4	177.8	20653.2	6123.9	8605.5	38.1	4425.7	1312.3	1844.0	12.7	1475.2	437.4	614.7
84	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	534.00	0.10	0.70	0.15	0.05	53.4	6202.9	1839.2	2584.6	373.8	43420.6	12874.7	18091.9	80.1	9304.4	2758.9	3876.8	26.7	3101.5	919.6	1292.3
85	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	459.00	0.10	0.70	0.15	0.05	45.9	5331.7	1580.9	2221.6	321.3	37322.2	11066.5	15550.9	68.8	7997.6	2371.4	3332.3	23.0	2665.9	790.5	1110.8
86	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	106.00	0.10	0.70	0.15	0.05	10.6	1231.3	365.1	513.0	74.2	8619.1	2555.7	3591.3	15.9	1846.9	547.6	769.6	5.3	615.6	182.5	256.5
87	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	880.00	0.10	0.70	0.15	0.05	88.0	10222.1	3031.0	4259.2	616.0	71554.6	21216.8	29814.4	132.0	15333.1	4546.4	6388.8	44.0	5111.0	1515.5	2129.6
88	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	26.00	0.10	0.70	0.15	0.05	2.6	302.0	89.6	125.8	18.2	2114.1	626.9	880.9	3.9	453.0	134.3	188.8	1.3	151.0	44.8	62.9
89	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	0.00	0.10	0.70	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)30DBB	626579	COP	24240	50200	4	23	260	0.00	0.10	0.70	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	2367.00	0.40	0.40	0.10	0.10	946.8	41242.6	161133.9	45825.1	946.8	41242.6	161133.9	45825.1	236.7	10310.7	40283.5	11456.3	236.7	10310.7	40283.5	11456.3
73	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	111.00	0.40	0.40	0.10	0.10	44.4	1934.1	7556.3	2149.0	44.4	1934.1	7556.3	2149.0	11.1	483.5	1889.1	537.2	11.1	483.5	1889.1	537.2
74	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	1533.00	0.40	0.40	0.10	0.10	613.2	26711.0	104359.2	29678.9	613.2	26711.0	104359.2	29678.9	153.3	6677.7	26089.8	7419.7	153.3	6677.7	26089.8	7419.7
75	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	2252.00	0.40	0.40	0.10	0.10	900.8	39238.8	153305.3	43598.7	900.8	39238.8	153305.3	43598.7	225.2	9809.7	38326.3	10899.7	225.2	9809.7	38326.3	10899.7
76	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	1983.00	0.40	0.40	0.10	0.10	793.2	34551.8	134993.0	38390.9	793.2	34551.8	134993.0	38390.9	198.3	8637.9	33748.3	9597.7	198.3	8637.9	33748.3	9597.7
77	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	2433.00	0.40	0.40	0.10	0.10	973.2	42392.6	165626.9	47102.9	973.2	42392.6	165626.9	47102.9	243.3	10598.1	41406.7	11775.7	243.3	10598.1	41406.7	11775.7
78	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	89.00	0.40	0.40	0.10	0.10	35.6	1550.7	6058.7	1723.0	35.6	1550.7	6058.7	1723.0	8.9	387.7	1514.7	430.8	8.9	387.7	1514.7	430.8
79	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	160.00	0.40	0.40	0.10	0.10	64.0	2787.8	10892.0	3097.6	64.0	2787.8	10892.0	3097.6	16.0	697.0	2723.0	774.4	16.0	697.0	2723.0	774.4
80	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	85.00	0.40	0.40	0.10	0.10	34.0	1481.0	5786.4	1645.6	34.0	1481.0	5786.4	1645.6	8.5	370.3	1446.6	411.4	8.5	370.3	1446.6	411.4
81	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	2262.00	0.40	0.40	0.10	0.10	904.8	39413.1	153986.0	43792.3	904.8	39413.1	153986.0	43792.3	226.2	9853.3	38496.5	10948.1	226.2	9853.3	38496.5	10948.1
82	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	372.00	0.40	0.40	0.10	0.10	148.8	6481.7	25324.0	7201.9	148.8	6481.7	25324.0	7201.9	37.2	1620.4	6331.0	1800.5	37.2	1620.4	6331.0	1800.5
83	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	43.00	0.40	0.40	0.10	0.10	17.2	749.2	2927.2	832.5	17.2	749.2	2927.2	832.5	4.3	187.3	731.8	208.1	4.3	187.3	731.8	208.1
84	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	1925.00	0.40	0.40	0.10	0.10	770.0	33541.2	131044.7	37268.0	770.0	33541.2	131044.7	37268.0	192.5	8385.3	32761.2	9317.0	192.5	8385.3	32761.2	9317.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
85	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	62.00	0.40	0.40	0.10	0.10	24.8	1080.3	4220.7	1200.3	24.8	1080.3	4220.7	1200.3	6.2	270.1	1055.2	300.1	6.2	270.1	1055.2	300.1
86	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	95.00	0.40	0.40	0.10	0.10	38.0	1655.3	6467.1	1839.2	38.0	1655.3	6467.1	1839.2	9.5	413.8	1616.8	459.8	9.5	413.8	1616.8	459.8
87	(A-2-2)31ADA	607727	SRP	26080	45960	7.	26	500	227.00	0.40	0.40	0.10	0.10	90.8	3955.2	15453.1	4394.7	90.8	3955.2	15453.1	4394.7	22.7	988.8	3863.3	1098.7	22.7	988.8	3863.3	1098.7
88	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	120.00	0.40	0.40	0.10	0.10	48.0	2090.9	8169.0	2323.2	48.0	2090.9	8169.0	2323.2	12.0	522.7	2042.3	580.8	12.0	522.7	2042.3	580.8
89	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	38.00	0.40	0.40	0.10	0.10	15.2	662.1	2586.9	735.7	15.2	662.1	2586.9	735.7	3.8	165.5	646.7	183.9	3.8	165.5	646.7	183.9
90	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	2288.00	0.40	0.40	0.10	0.10	915.2	39866.1	155756.0	44295.7	915.2	39866.1	155756.0	44295.7	228.8	9966.5	38939.0	11073.9	228.8	9966.5	38939.0	11073.9
91	(A-2-2)31ADA	607727	SRP	26080	45960	7	26	500	160.00	0.40	0.40	0.10	0.10	64.0	2787.8	10892.0	3097.6	64.0	2787.8	10892.0	3097.6	16.0	697.0	2723.0	774.4	16.0	697.0	2723.0	774.4
72	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1614.00	0.20	0.05	0.70	0.05	322.8	37496.4	11118.1	15623.5	80.7	9374.1	2779.5	3905.9	1129.8	131237.6	38913.5	54682.3	80.7	9374.1	2779.5	3905.9
73	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1124.00	0.20	0.05	0.70	0.05	224.8	26112.8	7742.7	10880.3	56.2	6528.2	1935.7	2720.1	786.8	91394.7	27099.6	38081.1	56.2	6528.2	1935.7	2720.1
74	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1539.00	0.20	0.05	0.70	0.05	307.8	35754.0	10601.5	14897.5	77.0	8938.5	2650.4	3724.4	1077.3	125139.2	37105.2	52141.3	77.0	8938.5	2650.4	3724.4
75	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1355.00	0.20	0.05	0.70	0.05	271.0	31479.4	9334.0	13116.4	67.8	7869.8	2333.5	3279.1	948.5	110177.8	32669.0	45907.4	67.8	7869.8	2333.5	3279.1
76	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1376.00	0.20	0.05	0.70	0.05	275.2	31967.2	9478.7	13319.7	68.8	7991.8	2369.7	3329.9	963.2	111885.3	33175.3	46618.9	68.8	7991.8	2369.7	3329.9
77	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1372.00	0.20	0.05	0.70	0.05	274.4	31874.3	9451.1	13281.0	68.6	7968.6	2362.8	3320.2	960.4	111560.1	33078.9	46483.4	68.6	7968.6	2362.8	3320.2
78	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	768.00	0.20	0.05	0.70	0.05	153.6	17842.2	5290.4	7434.2	38.4	4460.5	1322.6	1858.6	537.6	62447.6	18516.4	26019.8	38.4	4460.5	1322.6	1858.6
79	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	642.00	0.20	0.05	0.70	0.05	128.4	14914.9	4422.5	6214.6	32.1	3728.7	1105.6	1553.6	449.4	52202.3	15478.6	21751.0	32.1	3728.7	1105.6	1553.6
80	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	197.00	0.20	0.05	0.70	0.05	39.4	4576.7	1357.0	1907.0	9.9	1144.2	339.3	476.7	137.9	16018.5	4749.7	6674.4	9.9	1144.2	339.3	476.7
81	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	266.00	0.20	0.05	0.70	0.05	53.2	6179.7	1832.4	2574.9	13.3	1544.9	458.1	643.7	186.2	21629.0	6413.2	9012.1	13.3	1544.9	458.1	643.7
82	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	156.00	0.20	0.05	0.70	0.05	31.2	3624.2	1074.6	1510.1	7.8	906.0	268.7	377.5	109.2	12684.7	3761.2	5285.3	7.8	906.0	268.7	377.5
83	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	373.00	0.20	0.05	0.70	0.05	74.6	8665.5	2569.4	3610.6	18.7	2166.4	642.4	902.7	261.1	30329.4	8993.0	12637.2	18.7	2166.4	642.4	902.7
84	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	503.00	0.20	0.05	0.70	0.05	100.6	11685.7	3464.9	4869.0	25.2	2921.4	866.2	1217.3	352.1	40899.9	12127.3	17041.6	25.2	2921.4	866.2	1217.3
85	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	761.00	0.20	0.05	0.70	0.05	152.2	17679.6	5242.2	7366.5	38.1	4419.9	1310.5	1841.6	532.7	61878.4	18347.7	25782.7	38.1	4419.9	1310.5	1841.6
86	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	1042.00	0.20	0.05	0.70	0.05	208.4	24207.7	7177.9	10086.6	52.1	6051.9	1794.5	2521.6	729.4	84727.1	25122.6	35303.0	52.1	6051.9	1794.5	2521.6
87	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	617.00	0.20	0.05	0.70	0.05	123.4	14334.1	4250.2	5972.6	30.9	3583.5	1062.6	1493.1	431.9	50169.5	14875.8	20904.0	30.9	3583.5	1062.6	1493.1
88	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	36.00	0.20	0.05	0.70	0.05	7.2	836.4	248.0	348.5	1.8	209.1	62.0	87.1	25.2	2927.2	868.0	1219.7	1.8	209.1	62.0	87.1
89	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	0.00	0.20	0.05	0.70	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)32ABB1	626580	COP	29640	47600	6	32	427	0.00	0.20	0.05	0.70	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	2005.00	0.10	0.15	0.70	0.05	200.5	8733.8	34122.7	9704.2	300.8	13100.7	51184.0	14556.3	1403.5	61136.5	238858.7	67929.4	100.3	4366.9	17061.3	4852.1
73	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	88.00	0.10	0.15	0.70	0.05	8.8	383.3	1497.7	425.9	13.2	575.0	2246.5	638.9	61.6	2683.3	10483.6	2981.4	4.4	191.7	748.8	213.0
74	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	1143.00	0.10	0.15	0.70	0.05	114.3	4978.9	19452.5	5532.1	171.5	7468.4	29178.7	8298.2	800.1	34852.4	136167.3	38724.8	57.2	2489.5	9726.2	2766.1
75	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	1380.00	0.10	0.15	0.70	0.05	138.0	6011.3	23485.9	6679.2	207.0	9016.9	35228.9	10018.8	966.0	42079.0	164401.5	46754.4	69.0	3005.6	11743.0	3339.6
76	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	1212.00	0.10	0.15	0.70	0.05	121.2	5279.5	20626.8	5866.1	181.8	7919.2	30940.2	8799.1	848.4	36956.3	144387.4	41062.6	60.6	2639.7	10313.4	2933.0
77	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	1897.00	0.10	0.15	0.70	0.05	189.7	8263.3	32284.6	9181.5	284.6	12395.0	48427.0	13772.2	1327.9	57843.3	225992.5	64270.4	94.9	4131.7	16142.3	4590.7
78	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	0.00	0.10	0.15	0.70	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	55.00	0.10	0.15	0.70	0.05	5.5	239.6	936.0	266.2	8.3	359.4	1404.1	399.3	38.5	1677.1	6552.2	1863.4	2.8	119.8	468.0	133.1
80	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	11.00	0.10	0.15	0.70	0.05	1.1	47.9	187.2	53.2	1.7	71.9	280.8	79.9	7.7	335.4	1310.4	372.7	0.6	24.0	93.6	26.6
81	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	698.00	0.10	0.15	0.70	0.05	69.8	3040.5	11879.1	3378.3	104.7	4560.7	17818.7	5067.5	488.6	21283.4	83153.8	23648.2	34.9	1520.2	5939.6	1689.2
82	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	60.00	0.10	0.15	0.70	0.05	6.0	261.4	1021.1	290.4	9.0	392.0	1531.7	435.6	42.0	1829.5	7147.9	2032.8	3.0	130.7	510.6	145.2
83	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	103.00	0.10	0.15	0.70	0.05	10.3	448.7	1752.9	498.5	15.5	673.0	2629.4	747.8	72.1	3140.7	12270.5	3489.6	5.2	224.3	876.5	249.3
84	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	388.00	0.10	0.15	0.70	0.05	38.8	1690.1	6603.3	1877.9	58.2	2535.2	9904.9	2816.9	271.6	11830.9	46223.0	13145.4	19.4	845.1	3301.6	939.0
85	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	12.00	0.10	0.15	0.70	0.05	1.2	52.3	204.2	58.1	1.8	78.4	306.3	87.1	8.4	365.9	1429.6	406.6	0.6	26.1	102.1	29.0
86	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	13.00	0.10	0.15	0.70	0.05	1.3	56.6	221.2	62.9	2.0	84.9	331.9	94.4	9.1	396.4	1548.7	440.4	0.7	28.3	110.6	31.5
87	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	19.00	0.10	0.15	0.70	0.05	1.9	82.8	323.4	92.0	2.9	124.1	485.0	137.9	13.3	579.3	2263.5	643.7	1.0	41.4	161.7	46.0
88	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	15.00	0.10	0.15	0.70	0.05	1.5	65.3	255.3	72.6	2.3	98.0	382.9	108.9	10.5	457.4	1787.0	508.2	0.8	32.7	127.6	36.3
89	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	5.00	0.10	0.15	0.70	0.05	0.5	21.8	85.1	24.2	0.8	32.7	127.6	36.3	3.5	152.5	595.7	169.4	0.3	10.9	42.5	12.1
90	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	670.00	0.10	0.15	0.70	0.05	67.0	2918.5	11402.6	3242.8	100.5	4377.8	17103.9	4864.2	469.0	20429.6	79818.1	22699.6	33.5	1459.3	5701.3	1621.4
91	(A-2-2)32DAA	607736	SRP	31320	44920	7	36	510	56.00	0.10	0.15	0.70	0.05	5.6	243.9	953.1	271.0	8.4	365.9	1429.6	406.6	39.2	1707.6	6671.4	1897.3	2.8	122.0	476.5	135.5
72	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	375.00	0.80	0.00	0.15	0.05	300.0	34848.0	10332.8	14520.0	0.0	0.0	0.0	0.0	56.3	6534.0	1937.4	2722.5	18.8	2178.0	645.8	907.5
73	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	145.00	0.80	0.00	0.15	0.05	116.0	13474.6	3995.4	5614.4	0.0	0.0	0.0	0.0	21.8	2526.5	749.1	1052.7	7.3	842.2	249.7	350.9
74	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	343.00	0.80	0.00	0.15	0.05	274.4	31874.3	9451.1	13281.0	0.0	0.0	0.0	0.0	51.5	5976.4	1772.1	2490.2	17.2	1992.1	590.7	830.1
75	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	283.00	0.80	0.00	0.15	0.05	226.4	26298.6	7797.8	10957.8	0.0	0.0	0.0	0.0	42.5	4931.0	1462.1	2054.6	14.2	1643.7	487.4	684.9
76	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	341.00	0.80	0.00	0.15	0.05	272.8	31688.4	9396.0	13203.5	0.0	0.0	0.0	0.0	51.2	5941.6	1761.7	2475.7	17.1	1980.5	587.2	825.2
77	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	403.00	0.80	0.00	0.15	0.05	322.4	37450.0	11104.4	15604.2	0.0	0.0	0.0	0.0	60.5	7021.9	2082.1	2925.8	20.2	2340.6	694.0	975.3
78	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	461.00	0.80	0.00	0.15	0.05	368.8	42839.8	12702.5	17849.9	0.0	0.0	0.0	0.0	69.1	8032.5	2381.7	3346.9	23.1	2677.5	793.9	1115.6
79	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	454.00	0.80	0.00	0.15	0.05	363.2	42189.3	12509.6	17578.9	0.0	0.0	0.0	0.0	68.1	7910.5	2345.6	3296.0	22.7	2636.8	781.9	1098.7
80	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	533.00	0.80	0.00	0.15	0.05	426.4	49530.6	14686.4	20637.8	0.0	0.0	0.0	0.0	80.0	9287.0	2753.7	3869.6	26.7	3095.7	917.9	1289.9

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
81	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	442.00	0.80	0.00	0.15	0.05	353.6	41074.2	12179.0	17114.2	0.0	0.0	0.0	0.0	66.3	7701.4	2283.6	3208.9	22.1	2567.1	761.2	1069.6
82	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	391.00	0.80	0.00	0.15	0.05	312.8	36334.8	10773.7	15139.5	0.0	0.0	0.0	0.0	58.7	6812.8	2020.1	2838.7	19.6	2270.9	673.4	946.2
83	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	259.00	0.80	0.00	0.15	0.05	207.2	24068.4	7136.5	10028.5	0.0	0.0	0.0	0.0	38.9	4512.8	1338.1	1880.3	13.0	1504.3	446.0	626.8
84	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	465.00	0.80	0.00	0.15	0.05	372.0	43211.5	12812.7	18004.8	0.0	0.0	0.0	0.0	69.8	8102.2	2402.4	3375.9	23.3	2700.7	800.8	1125.3
85	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	383.00	0.80	0.00	0.15	0.05	306.4	35591.4	10553.3	14829.8	0.0	0.0	0.0	0.0	57.5	6673.4	1978.7	2780.6	19.2	2224.5	659.6	926.9
86	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	126.00	0.80	0.00	0.15	0.05	100.8	11708.9	3471.8	4878.7	0.0	0.0	0.0	0.0	18.9	2195.4	651.0	914.8	6.3	731.8	217.0	304.9
87	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)34ADC	626550	COP/CON WATER	40960	45240	7	55	529	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	429.00	0.80	0.00	0.15	0.05	343.2	39866.1	11820.8	16610.9	0.0	0.0	0.0	0.0	64.3	7474.9	2216.4	3114.5	21.5	2491.6	738.8	1038.2
73	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	126.00	0.80	0.00	0.15	0.05	100.8	11708.9	3471.8	4878.7	0.0	0.0	0.0	0.0	18.9	2195.4	651.0	914.8	6.3	731.8	217.0	304.9
74	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	337.00	0.80	0.00	0.15	0.05	269.6	31316.7	9285.8	13048.6	0.0	0.0	0.0	0.0	50.6	5871.9	1741.1	2446.6	16.9	1957.3	580.4	815.5
75	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	239.00	0.80	0.00	0.15	0.05	191.2	22209.8	6585.5	9254.1	0.0	0.0	0.0	0.0	35.9	4164.3	1234.8	1735.1	12.0	1388.1	411.6	578.4
76	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	237.00	0.80	0.00	0.15	0.05	189.6	22023.9	6530.4	9176.6	0.0	0.0	0.0	0.0	35.6	4129.5	1224.4	1720.6	11.9	1376.5	408.1	573.5
77	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	218.00	0.80	0.00	0.15	0.05	174.4	20258.3	6006.8	8441.0	0.0	0.0	0.0	0.0	32.7	3798.4	1126.3	1582.7	10.9	1266.1	375.4	527.6
78	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	327.00	0.80	0.00	0.15	0.05	261.6	30387.5	9010.2	12661.4	0.0	0.0	0.0	0.0	49.1	5697.6	1689.4	2374.0	16.4	1899.2	563.1	791.3
79	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	409.00	0.80	0.00	0.15	0.05	327.2	38007.6	11269.7	15836.5	0.0	0.0	0.0	0.0	61.3	7126.4	2113.1	2969.3	20.5	2375.5	704.4	989.8
80	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	436.00	0.80	0.00	0.15	0.05	348.8	40516.6	12013.6	16881.9	0.0	0.0	0.0	0.0	65.4	7596.9	2252.6	3165.4	21.8	2532.3	750.9	1055.1
81	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	408.00	0.80	0.00	0.15	0.05	326.4	37914.6	11242.1	15797.8	0.0	0.0	0.0	0.0	61.2	7109.0	2107.9	2962.1	20.4	2369.7	702.6	987.4
82	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	299.00	0.80	0.00	0.15	0.05	239.2	27785.5	8238.7	11577.3	0.0	0.0	0.0	0.0	44.9	5209.8	1544.8	2170.7	15.0	1736.6	514.9	723.6
83	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	141.00	0.80	0.00	0.15	0.05	112.8	13102.8	3885.1	5459.5	0.0	0.0	0.0	0.0	21.2	2456.8	728.5	1023.7	7.1	818.9	242.8	341.2
84	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	104.00	0.80	0.00	0.15	0.05	83.2	9664.5	2865.6	4026.9	0.0	0.0	0.0	0.0	15.6	1812.1	537.3	755.0	5.2	604.0	179.1	251.7
85	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-2)35DCC	626561	COP/SUB WATER	45400	42680	9	61	693	0.00	0.80	0.00	0.15	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	136.00	0.05	0.05	0.80	0.10	6.8	789.9	234.2	329.1	6.8	789.9	234.2	329.1	108.8	12638.2	3747.4	5265.9	13.6	1579.8	468.4	658.2
79	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	124.00	0.05	0.05	0.80	0.10	6.2	720.2	213.5	300.1	6.2	720.2	213.5	300.1	99.2	11523.1	3416.7	4801.3	12.4	1440.4	427.1	600.2
80	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	131.00	0.05	0.05	0.80	0.10	6.6	760.8	225.6	317.0	6.6	760.8	225.6	317.0	104.8	12173.6	3609.6	5072.3	13.1	1521.7	451.2	634.0
81	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	174.00	0.05	0.05	0.80	0.10	8.7	1010.6	299.7	421.1	8.7	1010.6	299.7	421.1	139.2	16169.5	4794.4	6737.3	17.4	2021.2	599.3	842.2
82	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	129.00	0.05	0.05	0.80	0.10	6.5	749.2	222.2	312.2	6.5	749.2	222.2	312.2	103.2	11987.7	3554.5	4994.9	12.9	1498.5	444.3	624.4
83	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	55.00	0.05	0.05	0.80	0.10	2.8	319.4	94.7	133.1	2.8	319.4	94.7	133.1	44.0	5111.0	1515.5	2129.6	5.5	638.9	189.4	266.2
84	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	119.00	0.05	0.05	0.80	0.10	6.0	691.2	204.9	288.0	6.0	691.2	204.9	288.0	95.2	11058.4	3279.0	4607.7	11.9	1382.3	409.9	576.0
85	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	121.00	0.05	0.05	0.80	0.10	6.1	702.8	208.4	292.8	6.1	702.8	208.4	292.8	96.8	11244.3	3334.1	4685.1	12.1	1405.5	416.8	585.6
86	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	118.00	0.05	0.05	0.80	0.10	5.9	685.3	203.2	285.6	5.9	685.3	203.2	285.6	94.4	10965.5	3251.4	4569.0	11.8	1370.7	406.4	571.1
87	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	107.00	0.05	0.05	0.80	0.10	5.4	621.5	184.3	258.9	5.4	621.5	184.3	258.9	85.6	9943.3	2948.3	4143.0	10.7	1242.9	368.5	517.9
88	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	115.00	0.05	0.05	0.80	0.10	5.8	667.9	198.0	278.3	5.8	667.9	198.0	278.3	92.0	10686.7	3168.7	4452.8	11.5	1335.8	396.1	556.6
89	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	120.00	0.05	0.05	0.80	0.10	6.0	697.0	206.7	290.4	6.0	697.0	206.7	290.4	96.0	11151.4	3306.5	4646.4	12.0	1393.9	413.3	580.8
90	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	121.00	0.05	0.05	0.80	0.10	6.1	702.8	208.4	292.8	6.1	702.8	208.4	292.8	96.8	11244.3	3334.1	4685.1	12.1	1405.5	416.8	585.6
91	(A-2-2)36CBB	603550	SHAMROCK	47680	44880	8	64	617	142.00	0.05	0.05	0.80	0.10	7.1	824.7	244.5	343.6	7.1	824.7	244.5	343.6	113.6	13195.8	3912.7	5498.2	14.2	1649.5	489.1	687.3
78	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	180.00	0.50	0.10	0.40	0.00	90.0	10454.4	3099.9	4356.0	18.0	2090.9	620.0	871.2	72.0	8363.5	2479.9	3484.8	0.0	0.0	0.0	0.0
79	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	164.00	0.50	0.10	0.40	0.00	82.0	9525.1	2824.3	3968.8	16.4	1905.0	564.9	793.8	65.6	7620.1	2259.4	3175.0	0.0	0.0	0.0	0.0
80	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	172.00	0.50	0.10	0.40	0.00	86.0	9989.8	2962.1	4162.4	17.2	1998.0	592.4	832.5	68.8	7991.8	2369.7	3329.9	0.0	0.0	0.0	0.0
81	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	230.00	0.50	0.10	0.40	0.00	115.0	13358.4	3960.9	5566.0	23.0	2671.7	792.2	1113.2	92.0	10686.7	3168.7	4452.8	0.0	0.0	0.0	0.0
82	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	170.00	0.50	0.10	0.40	0.00	85.0	9873.6	2927.6	4114.0	17.0	1974.7	585.5	822.8	68.0	7898.9	2342.1	3291.2	0.0	0.0	0.0	0.0
83	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	72.00	0.50	0.10	0.40	0.00	36.0	4181.8	1239.9	1742.4	7.2	836.4	248.0	348.5	28.8	3345.4	992.0	1393.9	0.0	0.0	0.0	0.0
84	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	157.00	0.50	0.10	0.40	0.00	78.5	9118.6	2703.8	3799.4	15.7	1823.7	540.8	759.9	62.8	7294.8	2163.0	3039.5	0.0	0.0	0.0	0.0
85	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	140.00	0.50	0.10	0.40	0.00	70.0	8131.2	2411.0	3388.0	14.0	1626.2	482.2	677.6	56.0	6505.0	1928.8	2710.4	0.0	0.0	0.0	0.0
86	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700		0.50	0.10	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	82.00	0.50	0.10	0.40	0.00	41.0	4762.6	1412.2	1984.4	8.2	952.5	282.4	396.9	32.8	3810.0	1129.7	1587.5	0.0	0.0	0.0	0.0
88	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	54.00	0.50	0.10	0.40	0.00	27.0	3136.3	930.0	1306.8	5.4	627.3	186.0	261.4	21.6	2509.1	744.0	1045.4	0.0	0.0	0.0	0.0
89	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	56.00	0.50	0.10	0.40	0.00	28.0	3252.5	964.4	1355.2	5.6	650.5	192.9	271.0	22.4	2602.0	771.5	1084.2	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)				Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)				Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)				Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)			
90	(A-2-2)36DCC	617312	SE PUBLIC SERV	50520	42680	9	68	700	39.00	0.50	0.10	0.40	0.00	19.5	2265.1	671.6	943.8	3.9	453.0	134.3	188.8	15.6	1812.1	537.3	755.0	0.0	0.0	0.0	0.0
72	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1041.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	104.1	12092.3	3585.5	5038.4	728.7	84645.8	25098.5	35269.1	208.2	24184.5	7171.0	10076.9
73	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	450.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	45.0	5227.2	1549.9	2178.0	315.0	36590.4	10849.5	15246.0	90.0	10454.4	3099.9	4356.0
74	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1054.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	105.4	12243.3	3630.3	5101.4	737.8	85702.8	25411.9	35709.5	210.8	24486.5	7260.5	10202.7
75	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1072.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	107.2	12452.4	3692.3	5188.5	750.4	87166.5	25845.9	36319.4	214.4	24904.7	7384.5	10377.0
76	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1310.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	131.0	15217.0	4512.0	6340.4	917.0	106518.7	31584.0	44382.8	262.0	30433.9	9024.0	12680.8
77	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	607.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	60.7	7050.9	2090.7	2937.9	424.9	49356.4	14634.7	20565.2	121.4	14101.8	4181.4	5875.8
78	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	960.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	96.0	11151.4	3306.5	4646.4	672.0	78059.5	23145.6	32524.8	192.0	22302.7	6613.0	9292.8
79	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1452.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	145.2	16866.4	5001.1	7027.7	1016.4	118065.0	35007.7	49193.8	290.4	33732.9	10002.2	14055.4
80	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	750.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	75.0	8712.0	2583.2	3630.0	525.0	60984.0	18082.5	25410.0	150.0	17424.0	5166.4	7260.0
81	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1426.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	142.6	16564.4	4911.5	6901.8	998.2	115950.9	34380.8	48312.9	285.2	33128.8	9823.1	13803.7
82	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1416.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	141.6	16448.3	4877.1	6853.4	991.2	115137.8	34139.7	47974.1	283.2	32896.5	9754.2	13706.9
83	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1457.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	145.7	16924.5	5018.3	7051.9	1019.9	118471.6	35128.2	49363.2	291.4	33849.0	10036.6	14103.8
84	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1375.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	137.5	15972.0	4735.9	6655.0	962.5	111804.0	33151.2	46585.0	275.0	31944.0	9471.8	13310.0
85	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1241.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	124.1	14415.5	4274.4	6006.4	868.7	100908.2	29920.5	42045.1	248.2	28830.9	8548.7	12012.9
86	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1229.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	122.9	14276.1	4233.0	5948.4	860.3	99932.4	29631.1	41638.5	245.8	28552.1	8466.0	11896.7
87	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	1209.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	120.9	14043.7	4164.1	5851.6	846.3	98306.2	29148.9	40960.9	241.8	28087.5	8328.3	11703.1
88	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	515.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	51.5	5982.2	1773.8	2492.6	360.5	41875.7	12416.6	17448.2	103.0	11964.5	3547.6	4985.2
89	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	59.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	5.9	685.3	203.2	285.6	41.3	4797.4	1422.5	1998.9	11.8	1370.7	406.4	571.1
90	(A-2-3)19BCD	626565	COP/MARIPOSA WA	54000	55840	2	72	151	0.00	0.00	0.10	0.70	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	(A-2-3)20A	800731		62240	56880	1	79	79	18.00	0.10	0.00	0.20	0.70	1.8	209.1	62.0	87.1	0.0	0.0	0.0	0.0	3.6	418.2	124.0	174.2	12.6	1463.6	434.0	609.8
85	(A-2-3)20A	800731		62240	56880	1	79	79	22.00	0.10	0.00	0.20	0.70	2.2	255.6	75.8	106.5	0.0	0.0	0.0	0.0	4.4	511.1	151.5	213.0	15.4	1788.9	530.4	745.4
86	(A-2-3)20A	800731		62240	56880	1	79	79	33.00	0.10	0.00	0.20	0.70	3.3	383.3	113.7	159.7	0.0	0.0	0.0	0.0	6.6	766.7	227.3	319.4	23.1	2683.3	795.6	1118.0
87	(A-2-3)20A	800731		62240	56880	1	79	79	0.00	0.10	0.00	0.20	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-3)20A	800731		62240	56880	1	79	79	0.00	0.10	0.00	0.20	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-3)20A	800731		62240	56880	1	79	79	0.00	0.10	0.00	0.20	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(A-2-3)20A	800731		62240	56880	1	79	79	54.00	0.10	0.00	0.20	0.70	5.4	627.3	186.0	261.4	0.0	0.0	0.0	0.0	10.8	1254.5	372.0	522.7	37.8	4390.8	1301.9	1829.5
91	(A-2-3)20A	800731		62240	56880	1	79	79	44.00	0.10	0.00	0.20	0.70	4.4	511.1	151.5	213.0	0.0	0.0	0.0	0.0	8.8	1022.2	303.1	425.9	30.8	3577.7	1060.8	1490.7
72	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	720.00	0.10	0.05	0.15	0.70	72.0	3136.3	12253.5	3484.8	36.0	1568.2	6126.8	1742.4	108.0	4704.5	18380.3	5227.2	504.0	21954.2	85774.7	24393.6
73	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	0.00	0.10	0.05	0.15	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	660.00	0.10	0.05	0.15	0.70	66.0	2875.0	11232.4	3194.4	33.0	1437.5	5616.2	1597.2	99.0	4312.4	16848.6	4791.6	462.0	20124.7	78626.8	22360.8
75	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	657.00	0.10	0.05	0.15	0.70	65.7	2861.9	11181.3	3179.9	32.9	1430.9	5590.7	1589.9	98.6	4292.8	16772.0	4769.8	459.9	20033.2	78269.4	22259.2
76	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	822.00	0.10	0.05	0.15	0.70	82.2	3580.6	13989.4	3978.5	41.1	1790.3	6994.7	1989.2	123.3	5370.9	20984.2	5967.7	575.4	25064.4	97926.1	27849.4
77	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	847.00	0.10	0.05	0.15	0.70	84.7	3689.5	14414.9	4099.5	42.4	1844.8	7207.5	2049.7	127.1	5534.3	21622.4	6149.2	592.9	25826.7	100904.4	28696.4
78	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	35.00	0.10	0.05	0.15	0.70	3.5	152.5	595.7	169.4	1.8	76.2	297.8	84.7	5.3	228.7	893.5	254.1	24.5	1067.2	4169.6	1185.8
79	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	4.00	0.10	0.05	0.15	0.70	0.4	17.4	68.1	19.4	0.2	8.7	34.0	9.7	0.6	26.1	102.1	29.0	2.8	122.0	476.5	135.5
80	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	4.00	0.10	0.05	0.15	0.70	0.4	17.4	68.1	19.4	0.2	8.7	34.0	9.7	0.6	26.1	102.1	29.0	2.8	122.0	476.5	135.5
81	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	819.00	0.10	0.05	0.15	0.70	81.9	3567.6	13938.4	3964.0	41.0	1783.8	6969.2	1982.0	122.9	5351.3	20907.6	5945.9	573.3	24972.9	97568.7	27747.7
82	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	46.00	0.10	0.05	0.15	0.70	4.6	200.4	782.9	222.6	2.3	100.2	391.4	111.3	6.9	300.6	1174.3	334.0	32.2	1402.6	5480.1	1558.5
83	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	11.00	0.10	0.05	0.15	0.70	1.1	47.9	187.2	53.2	0.6	24.0	93.6	26.6	1.7	71.9	280.8	79.9	7.7	335.4	1310.4	372.7
84	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	688.00	0.10	0.05	0.15	0.70	68.8	2996.9	11708.9	3329.9	34.4	1498.5	5854.5	1665.0	103.2	4495.4	17563.4	4994.9	481.6	20978.5	81962.5	23309.4
85	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	3.00	0.10	0.05	0.15	0.70	0.3	13.1	51.1	14.5	0.2	6.5	25.5	7.3	0.5	19.6	76.6	21.8	2.1	91.5	357.4	101.6
86	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	28.00	0.10	0.05	0.15	0.70	2.8	122.0	476.5	135.5	1.4	61.0	238.3	67.8	4.2	183.0	714.8	203.3	19.6	853.8	3335.7	948.6
87	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	3.00	0.10	0.05	0.15	0.70	0.3	13.1	51.1	14.5	0.2	6.5	25.5	7.3	0.5	19.6	76.6	21.8	2.1	91.5	357.4	101.6
88	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	6.00	0.10	0.05	0.15	0.70	0.6	26.1	102.1	29.0	0.3	13.1	51.1	14.5	0.9	39.2	153.2	43.6	4.2	183.0	714.8	203.3
89	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	11.00	0.10	0.05	0.15	0.70	1.1	47.9	187.2	53.2	0.6	24.0	93.6	26.6	1.7	71.9	280.8	79.9	7.7	335.4	1310.4	372.7
90	(A-2-3)20ADD2	608422	SRP	63080	55800	2	79	158	278.00	0.10	0.05	0.15	0.70	27.8	1211.0	4731.2	1345.5	13.9	605.5	2365.6	672.8	41.7	1816.5	7096.8	2018.3	194.6	8476.8	33118.6	9418.6
72	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	549.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	54.9	2391.4	9343.3	2657.2	164.7	7174.3	28029.9	7971.5	329.4	14348.7	56059.9	15943.0
73	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	0.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	586.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	58.6	2552.6	9973.0	2836.2	175.8	7657.8	29919.0	8508.7	351.6	15315.7	59838.1	17017.4
75	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	722.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	72.2	3145.0	12287.6	3494.5	216.6	9435.1	36862.7	10483.4	433.2	18870.2	73725.4	20966.9
76	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	897.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	89.7	3907.3	15265.9	4341.5	269.1	11722.0	45797.6	13024.4	538.2	23444.0	91595.1	26048.9
77	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	771.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	77.1	3358.5	13121.5	3731.6	231.3	10075.4	39364.5	11194.9	462.6	20150.9	78728.9	22389.8
78	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	30.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	3.0	130.7	510.6	145.2	9.0	392.0	1531.7	435.6	18.0	784.1	3063.4	871.2

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No.	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
79	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	1.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.1	4.4	17.0	4.8	0.3	13.1	51.1	14.5	0.6	26.1	102.1	29.0
80	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	3.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.3	13.1	51.1	14.5	0.9	39.2	153.2	43.6	1.8	78.4	306.3	87.1
81	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	590.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	59.0	2570.0	10041.1	2855.6	177.0	7710.1	30123.3	8566.8	354.0	15420.2	60246.5	17133.6
82	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	73.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	7.3	318.0	1242.4	353.3	21.9	954.0	3727.1	1060.0	43.8	1907.9	7454.2	2119.9
83	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	4.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.4	17.4	68.1	19.4	1.2	52.3	204.2	58.1	2.4	104.5	408.5	116.2
84	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	390.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	39.0	1698.8	6637.3	1887.6	117.0	5096.5	19912.0	5662.8	234.0	10193.0	39824.0	11325.6
85	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	0.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	2.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.2	8.7	34.0	9.7	0.6	26.1	102.1	29.0	1.2	52.3	204.2	58.1
87	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	6.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.6	26.1	102.1	29.0	1.8	78.4	306.3	87.1	3.6	156.8	612.7	174.2
88	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	4.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.4	17.4	68.1	19.4	1.2	52.3	204.2	58.1	2.4	104.5	408.5	116.2
89	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	8.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	0.8	34.8	136.2	38.7	2.4	104.5	408.5	116.2	4.8	209.1	816.9	232.3
90	(A-2-3)20BCC2	608379	SRP	58280	55640	2	76	155	58.00	0.00	0.10	0.30	0.60	0.0	0.0	0.0	0.0	5.8	252.6	987.1	280.7	17.4	757.9	2961.3	842.2	34.8	1515.9	5922.5	1684.3
78	(A-2-3)20DDA	800735		63120	54000	2	79	158	11.00	0.10	0.00	0.20	0.70	1.1	127.8	37.9	53.2	0.0	0.0	0.0	0.0	2.2	255.6	75.8	106.5	7.7	894.4	265.2	372.7
79	(A-2-3)20DDA	800735		63120	54000	2	79	158	10.00	0.10	0.00	0.20	0.70	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0	2.0	232.3	68.9	96.8	7.0	813.1	241.1	338.8
80	(A-2-3)20DDA	800735		63120	54000	2	79	158	10.00	0.10	0.00	0.20	0.70	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0	2.0	232.3	68.9	96.8	7.0	813.1	241.1	338.8
81	(A-2-3)20DDA	800735		63120	54000	2	79	158	14.00	0.10	0.00	0.20	0.70	1.4	162.6	48.2	67.8	0.0	0.0	0.0	0.0	2.8	325.2	96.4	135.5	9.8	1138.4	337.5	474.3
82	(A-2-3)20DDA	800735		63120	54000	2	79	158	10.00	0.10	0.00	0.20	0.70	1.0	116.2	34.4	48.4	0.0	0.0	0.0	0.0	2.0	232.3	68.9	96.8	7.0	813.1	241.1	338.8
83	(A-2-3)20DDA	800735		63120	54000	2	79	158	4.00	0.10	0.00	0.20	0.70	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0	0.8	92.9	27.6	38.7	2.8	325.2	96.4	135.5
84	(A-2-3)20DDA	800735		63120	54000	2	79	158	9.00	0.10	0.00	0.20	0.70	0.9	104.5	31.0	43.6	0.0	0.0	0.0	0.0	1.8	209.1	62.0	87.1	6.3	731.8	217.0	304.9
85	(A-2-3)20DDA	800735		63120	54000	2	79	158	6.00	0.10	0.00	0.20	0.70	0.6	69.7	20.7	29.0	0.0	0.0	0.0	0.0	1.2	139.4	41.3	58.1	4.2	487.9	144.7	203.3
86	(A-2-3)20DDA	800735		63120	54000	2	79	158	6.00	0.10	0.00	0.20	0.70	0.6	69.7	20.7	29.0	0.0	0.0	0.0	0.0	1.2	139.4	41.3	58.1	4.2	487.9	144.7	203.3
87	(A-2-3)20DDA	800735		63120	54000	2	79	158	4.00	0.10	0.00	0.20	0.70	0.4	46.5	13.8	19.4	0.0	0.0	0.0	0.0	0.8	92.9	27.6	38.7	2.8	325.2	96.4	135.5
88	(A-2-3)20DDA	800735		63120	54000	2	79	158	0.00	0.10	0.00	0.20	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(A-2-3)20DDA	800735		63120	54000	2	79	158	3.00	0.10	0.00	0.20	0.70	0.3	34.8	10.3	14.5	0.0	0.0	0.0	0.0	0.6	69.7	20.7	29.0	2.1	243.9	72.3	101.6
90	(A-2-3)20DDA	800735		63120	54000	2	79	158	3.00	0.10	0.00	0.20	0.70	0.3	34.8	10.3	14.5	0.0	0.0	0.0	0.0	0.6	69.7	20.7	29.0	2.1	243.9	72.3	101.6
78	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2929.00	0.20	0.00	0.10	0.70	585.8	68046.5	20176.6	28352.7	0.0	0.0	0.0	0.0	292.9	34023.3	10088.3	14176.4	2050.3	238162.8	70618.1	99234.5
79	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2674.00	0.20	0.00	0.10	0.70	534.8	62122.4	18420.0	25884.3	0.0	0.0	0.0	0.0	267.4	31061.2	9210.0	12942.2	1871.8	217428.3	64470.0	90595.1
80	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2808.00	0.20	0.00	0.10	0.70	561.6	65235.5	19343.1	27181.4	0.0	0.0	0.0	0.0	280.8	32617.7	9671.5	13590.7	1965.6	228324.1	67700.7	95135.0
81	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	3739.00	0.20	0.00	0.10	0.70	747.8	86864.4	25756.3	36193.5	0.0	0.0	0.0	0.0	373.9	43432.2	12878.2	18096.8	2617.3	304025.6	90147.1	126677.3
82	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2774.00	0.20	0.00	0.10	0.70	554.8	64445.6	19108.9	26852.3	0.0	0.0	0.0	0.0	277.4	32222.8	9554.4	13426.2	1941.8	225559.5	66881.0	93983.1
83	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	1180.00	0.20	0.00	0.10	0.70	236.0	27413.8	8128.5	11422.4	0.0	0.0	0.0	0.0	118.0	13706.9	4064.2	5711.2	826.0	95948.2	28449.7	39978.4
84	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2557.00	0.20	0.00	0.10	0.70	511.4	59404.2	17614.0	24751.8	0.0	0.0	0.0	0.0	255.7	29702.1	8807.0	12375.9	1789.9	207914.8	61649.2	86631.2
85	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2583.00	0.20	0.00	0.10	0.70	516.6	60008.3	17793.1	25003.4	0.0	0.0	0.0	0.0	258.3	30004.1	8896.6	12501.7	1808.1	210028.9	62276.0	87512.0
86	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	1908.00	0.20	0.00	0.10	0.70	381.6	44326.7	13143.4	18469.4	0.0	0.0	0.0	0.0	190.8	22163.3	6571.7	9234.7	1335.6	155143.3	46001.8	64643.0
87	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	458.00	0.20	0.00	0.10	0.70	91.6	10640.3	3155.0	4433.4	0.0	0.0	0.0	0.0	45.8	5320.1	1577.5	2216.7	320.6	37240.9	11042.4	15517.0
88	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	465.00	0.20	0.00	0.10	0.70	93.0	10802.9	3203.2	4501.2	0.0	0.0	0.0	0.0	46.5	5401.4	1601.6	2250.6	325.5	37810.1	11211.1	15754.2
89	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	507.00	0.20	0.00	0.10	0.70	101.4	11778.6	3492.5	4907.8	0.0	0.0	0.0	0.0	50.7	5889.3	1746.2	2453.9	354.9	41225.2	12223.7	17177.2
90	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	345.00	0.20	0.00	0.10	0.70	69.0	8015.0	2376.6	3339.6	0.0	0.0	0.0	0.0	34.5	4007.5	1188.3	1669.8	241.5	28052.6	8317.9	11688.6
91	(A-2-3)29CCD1	621151	PARK CENTRAL	59360	47800	6	77	472	2030.00	0.20	0.00	0.10	0.70	406.0	47161.0	13983.8	19650.4	0.0	0.0	0.0	0.0	203.0	23580.5	6991.9	9825.2	1421.0	165063.4	48943.2	68776.4
72	(A-2-3)31			55080	45520	7	73	547	850.00	0.65	0.05	0.20	0.10	552.5	64178.4	19029.6	26741.0	42.5	4936.8	1463.8	2057.0	170.0	19747.2	5855.3	8228.0	85.0	9873.6	2927.6	4114.0
73	(A-2-3)31			55080	45520	7	73	547	913.00	0.65	0.05	0.20	0.10	593.5	68935.2	20440.1	28723.0	45.7	5302.7	1572.3	2209.5	182.6	21210.8	6289.3	8837.8	91.3	10605.4	3144.6	4418.9
74	(A-2-3)31			55080	45520	7	73	547	950.00	0.65	0.05	0.20	0.10	617.5	71728.8	21268.4	29887.0	47.5	5517.6	1636.0	2299.0	190.0	22070.4	6544.1	9196.0	95.0	11035.2	3272.1	4598.0
75	(A-2-3)31			55080	45520	7	73	547	1007.00	0.65	0.05	0.20	0.10	654.6	76032.5	22544.5	31680.2	50.4	5848.7	1734.2	2436.9	201.4	23394.6	6936.8	9747.8	100.7	11697.3	3468.4	4873.9
84	(A-2-3)31AAB	626536		56720	47360	6	75	470	30.00	0.30	0.10	0.30	0.30	9.0	1045.4	310.0	435.6	3.0	348.5	103.3	145.2	9.0	1045.4	310.0	435.6	9.0	1045.4	310.0	435.6
85	(A-2-3)31AAB	626536		56720	47360	6	75	470	1.00	0.30	0.10	0.30	0.30	0.3	34.8	10.3	14.5	0.1	11.6	3.4	4.8	0.3	34.8	10.3	14.5	0.3	34.8	10.3	14.5
86	(A-2-3)31AAB	626536		56720	47360	6	75	470	63.00	0.30	0.10	0.30	0.30	18.9	2195.4	651.0	914.8	6.3	731.8	217.0	304.9	18.9	2195.4	651.0	914.8	18.9	2195.4	651.0	914.8
87	(A-2-3)31AAB	626536		56720	47360	6	75	470	209.00	0.30	0.10	0.30	0.30	62.7	7283.2	2159.6	3034.7	20.9	2427.7	719.9	1011.6	62.7	7283.2	2159.6	3034.7	62.7	7283.2	2159.6	3034.7
88	(A-2-3)31AAB	626536		56720	47360	6	75	470	21.00	0.30	0.10	0.30	0.30	6.3	731.8	217.0	304.9	2.1	243.9	72.3	101.6	6.3	731.8	217.0	304.9	6.3	731.8	217.0	304.9
89	(A-2-3)31AAB	626536		56720	47360	6	75	470	5.00	0.30	0.10	0.30	0.30	1.5	174.2	51.7	72.6	0.5	58.1	17.2	24.2	1.5	174.2	51.7	72.6	1.5	174.2	51.7	72.6
90	(A-2-3)31AAB	626536		56720	47360	6	75	470	0.00	0.30	0.10	0.30	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-3)31AAB	626536		56720	47360	6	75	470	54.00	0.30	0.10	0.30	0.30	16.2	1881.8	558.0	784.1	5.4	627.3	186.0	261.4	16.2	1881.8	558.0	784.1	16.2	1881.8	558.0	784.1
84	(A-2-3)31DBB	626534		55720	44800	8	74	627	12.00	0.30	0.05	0.45	0.20	3.6	418.2	124.0	174.2	0.6	69.7	20.7	29.0	5.4	627.3	186.0	261.4	2.4	278.8	82.7	116.2
85	(A-2-3)31DBB	626534		55720	44800	8	74	627	3.00	0.30	0.05	0.45	0.20	0.9	104.5	31.0	43.6	0.2	17.4	5.2	7.3	1.4	156.8	46.5	65.3	0.6	69.7	20.7	29.0
86	(A-2-3)31DBB	626534		55720	44800	8	74	627	0.00	0.30	0.05	0.45	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
87	(A-2-3)31DBB	626534		55720	44800	8	74	627	0.00	0.30	0.05	0.45	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	(A-2-3)31DBB	626534		55720	44800	8	74	627	100.00	0.30	0.05	0.45	0.20	30.0	3484.8	1033.3	1452.0	5.0	580.8	172.2	242.0	45.0	5227.2	1549.9	2178.0	20.0	2323.2	688.9	968.0
89	(A-2-3)31DBB	626534		55720	44800	8	74	627	100.00	0.30	0.05	0.45	0.20	30.0	3484.8	1033.3	1452.0	5.0	580.8	172.2	242.0	45.0	5227.2	1549.9	2178.0	20.0	2323.2	688.9	968.0
90	(A-2-3)31DBB	626534		55720	44800	8	74	627	0.00	0.30	0.05	0.45	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(A-2-3)31DBB	626534		55720	44800	8	74	627	44.00	0.30	0.05	0.45	0.20	13.2	1533.3	454.6	638.9	2.2	255.6	75.8	106.5	19.8	2300.0	682.0	958.3	8.8	1022.2	303.1	425.9
78	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	38.00	0.30	0.50	0.10	0.10	11.4	496.6	1940.1	551.8	19.0	827.6	3233.6	919.6	3.8	165.5	646.7	183.9	3.8	165.5	646.7	183.9
79	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	35.00	0.30	0.50	0.10	0.10	10.5	457.4	1787.0	508.2	17.5	762.3	2978.3	847.0	3.5	152.5	595.7	169.4	3.5	152.5	595.7	169.4
80	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	37.00	0.30	0.50	0.10	0.10	11.1	483.5	1889.1	537.2	18.5	805.9	3148.5	895.4	3.7	161.2	629.7	179.1	3.7	161.2	629.7	179.1
81	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	49.00	0.30	0.50	0.10	0.10	14.7	640.3	2501.8	711.5	24.5	1067.2	4169.6	1185.8	4.9	213.4	833.9	237.2	4.9	213.4	833.9	237.2
82	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	36.00	0.30	0.50	0.10	0.10	10.8	470.4	1838.0	522.7	18.0	784.1	3063.4	871.2	3.6	156.8	612.7	174.2	3.6	156.8	612.7	174.2
83	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	15.00	0.30	0.50	0.10	0.10	4.5	196.0	765.8	217.8	7.5	326.7	1276.4	363.0	1.5	65.3	255.3	72.6	1.5	65.3	255.3	72.6
84	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	34.00	0.30	0.50	0.10	0.10	10.2	444.3	1735.9	493.7	17.0	740.5	2893.2	822.8	3.4	148.1	578.6	164.6	3.4	148.1	578.6	164.6
85	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	119.00	0.30	0.50	0.10	0.10	35.7	1555.1	6075.7	1727.9	59.5	2591.8	10126.2	2879.8	11.9	518.4	2025.2	576.0	11.9	518.4	2025.2	576.0
86	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	120.00	0.30	0.50	0.10	0.10	36.0	1568.2	6126.8	1742.4	60.0	2613.6	10211.3	2904.0	12.0	522.7	2042.3	580.8	12.0	522.7	2042.3	580.8
87	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	48.00	0.30	0.50	0.10	0.10	14.4	627.3	2450.7	697.0	24.0	1045.4	4084.5	1161.6	4.8	209.1	816.9	232.3	4.8	209.1	816.9	232.3
88	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	0.00	0.30	0.50	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	(D-1-1)01BAA	618775	KNAPPLE	17960	10240	53	15	4123	296.00	0.30	0.50	0.10	0.10	88.8	3868.1	15112.7	4297.9	148.0	6446.9	25187.8	7163.2	29.6	1289.4	5037.6	1432.6	29.6	1289.4	5037.6	1432.6
78	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1202.00	0.70	0.10	0.00	0.20	841.4	36651.4	143196.1	40723.8	120.2	5235.9	20456.6	5817.7	0.0	0.0	0.0	0.0	240.4	10471.8	40913.2	11635.4
79	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1203.00	0.70	0.10	0.00	0.20	842.1	36681.9	143315.2	40757.6	120.3	5240.3	20473.6	5822.5	0.0	0.0	0.0	0.0	240.6	10480.5	40947.2	11645.0
80	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1305.00	0.70	0.10	0.00	0.20	913.5	39792.1	155466.7	44213.4	130.5	5684.6	22209.5	6316.2	0.0	0.0	0.0	0.0	261.0	11369.2	44419.0	12632.4
81	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1657.00	0.70	0.10	0.00	0.20	1159.9	50525.2	197401.0	56139.2	165.7	7217.9	28200.1	8019.9	0.0	0.0	0.0	0.0	331.4	14435.8	56400.3	16039.8
82	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1446.00	0.70	0.10	0.00	0.20	1012.2	44091.4	172264.2	48990.5	144.6	6298.8	24609.2	6998.6	0.0	0.0	0.0	0.0	289.2	12597.6	49218.3	13997.3
83	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	990.00	0.70	0.10	0.00	0.20	693.0	30187.1	117940.2	33541.2	99.0	4312.4	16848.6	4791.6	0.0	0.0	0.0	0.0	198.0	8624.9	33697.2	9583.2
84	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	1000.00	0.70	0.10	0.00	0.20	700.0	30492.0	119131.5	33880.0	100.0	4356.0	17018.8	4840.0	0.0	0.0	0.0	0.0	200.0	8712.0	34037.6	9680.0
85	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	661.00	0.70	0.10	0.00	0.20	462.7	20155.2	78745.9	22394.7	66.1	2879.3	11249.4	3199.2	0.0	0.0	0.0	0.0	132.2	5758.6	22498.8	6398.5
86	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	591.00	0.70	0.10	0.00	0.20	413.7	18020.8	70406.7	20023.1	59.1	2574.4	10058.1	2860.4	0.0	0.0	0.0	0.0	118.2	5148.8	20116.2	5720.9
87	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	511.00	0.70	0.10	0.00	0.20	357.7	15581.4	60876.2	17312.7	51.1	2225.9	8696.6	2473.2	0.0	0.0	0.0	0.0	102.2	4451.8	17393.2	4946.5
88	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194	564.00	0.70	0.10	0.00	0.20	394.8	17197.5	67190.2	19108.3	56.4	2456.8	9598.6	2729.8	0.0	0.0	0.0	0.0	112.8	4913.6	19197.2	5459.5
89	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194		0.70	0.10	0.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(D-1-1)02BBC	10008	GILA RIVER IND.	10680	9480	54	7	4194		0.70	0.10	0.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
79	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
80	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
81	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
82	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
83	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
84	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
85	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
86	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
87	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
88	(D-1-1)02BCB	10225		10680	8960	54	7	4194	145.00	0.70	0.10	0.00	0.20	101.5	11790.2	3495.9	4912.6	14.5	1684.3	499.4	701.8	0.0	0.0	0.0	0.0	29.0	3368.6	998.8	1403.6
89	(D-1-1)02BCB	10225		10680	8960	54	7	4194		0.70	0.10	0.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(D-1-1)02BCB	10225		10680	8960	54	7	4194		0.70	0.10	0.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1585.00	0.60	0.20	0.10	0.10	951.0	41425.6	161848.7	46028.4	317.0	13808.5	53949.6	15342.8	158.5	6904.3	26974.8	7671.4	158.5	6904.3	26974.8	7671.4
79	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1587.00	0.60	0.20	0.10	0.10	952.2	41477.8	162052.9	46086.5	317.4	13825.9	54017.6	15362.2	158.7	6913.0	27008.8	7681.1	158.7	6913.0	27008.8	7681.1
80	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1740.00	0.60	0.20	0.10	0.10	1044.0	45476.6	177676.2	50529.6	348.0	15158.9	59225.4	16843.2	174.0	7579.4	29612.7	8421.6	174.0	7579.4	29612.7	8421.6
81	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	2269.00	0.60	0.20	0.10	0.10	1361.4	59302.6	231693.8	65891.8	453.8	19767.5	77231.3	21963.9	226.9	9883.8	38615.6	10982.0	226.9	9883.8	38615.6	10982.0
82	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1952.00	0.60	0.20	0.10	0.10	1171.2	51017.5	199324.1	56686.1	390.4	17005.8	66441.4	18895.4	195.2	8502.9	33220.7	9447.7	195.2	8502.9	33220.7	9447.7
83	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1267.00	0.60	0.20	0.10	0.10	760.2	33114.3	129376.8	36793.7	253.4	11038.1	43125.6	12264.6	126.7	5519.1	21562.8	6132.3	126.7	5519.1	21562.8	6132.3
84	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	1283.00	0.60	0.20	0.10	0.10	769.8	33532.5	131010.7	37258.3	256.6	11177.5	43670.2	12419.4	128.3	5588.7	21835.1	6209.7	128.3	5588.7	21835.1	6209.7
85	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	775.00	0.60	0.20	0.10	0.10	465.0	20255.4	79137.4	22506.0	155.0	6751.8	26379.1	7502.0	77.5	3375.9	13189.6	3751.0	77.5	3375.9	13189.6	3751.0
86	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	669.00	0.60	0.20	0.10	0.10	401.4	17485.0	68313.4	19427.8	133.8	5828.3	22771.1	6475.9	66.9	2914.2	11385.6	3238.0	66.9	2914.2	11385.6	3238.0

Year	Well Location	ADWR No.	Well Owner	X (feet)	Y (feet)	Row	Col	Cell No,	Total (acre feet/year)	Percentage of Pumpage assigned to each Layer				Total for Layer 1 (AF)	Pumpage for each Stress Period - Layer 1 (cubic feet/day)			Total for Layer 2 (AF)	Pumpage for each Stress Period - Layer 2 (cubic feet/day)			Total for Layer 3 (AF)	Pumpage for each Stress Period - Layer 3 (cubic feet/day)			Total for Layer 4 (AF)	Pumpage for each Stress Period - Layer 4 (cubic feet/day)		
87	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	549.00	0.60	0.20	0.10	0.10	329.4	14348.7	56059.9	15943.0	109.8	4782.9	18686.6	5314.3	54.9	2391.4	9343.3	2657.2	54.9	2391.4	9343.3	2657.2
88	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113	629.00	0.60	0.20	0.10	0.10	377.4	16439.5	64228.9	18266.2	125.8	5479.8	21409.6	6088.7	62.9	2739.9	10704.8	3044.4	62.9	2739.9	10704.8	3044.4
89	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113		0.60	0.20	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(D-1-1)03BAA	10007	GILA RIVER IND.	7480	10240	53	5	4113		0.60	0.20	0.10	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	(D-1-1)03DAA	10009		10240	7600	55	7	4273	1887.00	0.70	0.05	0.00	0.25	1320.9	153435.7	45495.5	63931.6	94.4	10959.7	3249.7	4566.5	0.0	0.0	0.0	0.0	471.8	54798.5	16248.4	22832.7
79	(D-1-1)03DAA	10009		10240	7600	55	7	4273	1890.00	0.70	0.05	0.00	0.25	1323.0	153679.7	45567.8	64033.2	94.5	10977.1	3254.8	4573.8	0.0	0.0	0.0	0.0	472.5	54885.6	16274.2	22869.0
80	(D-1-1)03DAA	10009		10240	7600	55	7	4273	2072.00	0.70	0.05	0.00	0.25	1450.4	168478.5	49955.8	70199.4	103.6	12034.2	3568.3	5014.2	0.0	0.0	0.0	0.0	518.0	60170.9	17841.4	25071.2
81	(D-1-1)03DAA	10009		10240	7600	55	7	4273	2701.00	0.70	0.05	0.00	0.25	1890.7	219623.7	65121.0	91509.9	135.1	15687.4	4651.5	6536.4	0.0	0.0	0.0	0.0	675.3	78437.0	23257.5	32682.1
82	(D-1-1)03DAA	10009		10240	7600	55	7	4273	2324.00	0.70	0.05	0.00	0.25	1626.8	188969.1	56031.5	78737.1	116.2	13497.8	4002.3	5624.1	0.0	0.0	0.0	0.0	581.0	67489.0	20011.3	28120.4
83	(D-1-1)03DAA	10009		10240	7600	55	7	4273	1509.00	0.70	0.05	0.00	0.25	1056.3	122699.8	36381.9	51124.9	75.5	8764.3	2598.7	3651.8	0.0	0.0	0.0	0.0	377.3	43821.4	12993.5	18258.9
84	(D-1-1)03DAA	10009		10240	7600	55	7	4273	1527.00	0.70	0.05	0.00	0.25	1068.9	124163.4	36815.9	51734.8	76.4	8868.8	2629.7	3695.3	0.0	0.0	0.0	0.0	381.8	44344.1	13148.5	18476.7
85	(D-1-1)03DAA	10009		10240	7600	55	7	4273	922.00	0.70	0.05	0.00	0.25	645.4	74969.7	22229.4	31237.4	46.1	5355.0	1587.8	2231.2	0.0	0.0	0.0	0.0	230.5	26774.9	7939.1	11156.2
86	(D-1-1)03DAA	10009		10240	7600	55	7	4273	796.00	0.70	0.05	0.00	0.25	557.2	64724.4	19191.5	26968.5	39.8	4623.2	1370.8	1926.3	0.0	0.0	0.0	0.0	199.0	23115.8	6854.1	9631.6
87	(D-1-1)03DAA	10009		10240	7600	55	7	4273	654.00	0.70	0.05	0.00	0.25	457.8	53178.0	15767.9	22157.5	32.7	3798.4	1126.3	1582.7	0.0	0.0	0.0	0.0	163.5	18992.2	5631.4	7913.4
88	(D-1-1)03DAA	10009		10240	7600	55	7	4273	749.00	0.70	0.05	0.00	0.25	524.3	60902.7	18058.4	25376.1	37.5	4350.2	1289.9	1812.6	0.0	0.0	0.0	0.0	187.3	21751.0	6449.4	9062.9
89	(D-1-1)03DAA	10009		10240	7600	55	7	4273		0.70	0.05	0.00	0.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	(D-1-1)03DAA	10009		10240	7600	55	7	4273		0.70	0.05	0.00	0.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX E

Available Well Logs and Wells with Hydraulic Testing

APPENDIX E
AVAILABLE WELL LOGS

Well Location		Date Drilling Completed	Total Depth (feet)	Log Type
A (1-1)	2 BBB	NA	800	D
A (1-1)	2 CCC	11/56	910	D
A (1-1)	2 DDD	4/90	260	D
A (1-1)	3 ABB	9/49	600	D
A (1-1)	3 BBB	11/43	850	D
A (1-1)	3 BCA	NA	650	D
A (1-1)	3 DDD	NA	340	D
A (1-1)	4 AAA	NA	365	D
A (1-1)	4 DDC	5/62	700	D
A (1-1)	9 ABD	NA	614	D
A (1-1)	9 BBB	8/46	500	D
A (1-1)	9 BDB	NA	610	GS
A (1-1)	10 AAA	NA	650	D
A (1-1)	10 CBA	NA	804	D
A (1-1)	10 CBB*	NA	585	D
A (1-1)	10 CBB*	NA	580	GS
A (1-1)	10 CCC	3/53	662	D
A (1-1)	10 DDD	NA	150	D
A (1-1)	11 ABC	NA	790	GS
A (1-1)	11 ACB	6/94	500	G
A (1-1)	11 ADD*	NA	863	D
A (1-1)	11 ADD*	6/57	800	D
A (1-1)	11 CBC	12/73	800	D
A (1-1)	11 CCB	12/73	800	D
A (1-1)	11 DBB	7/94	500	G
A (1-1)	12 BBB	NA	620	D
A (1-1)	12 DAB	2/52	600	D
A (1-1)	13 ADA	2/59	400	D
A (1-1)	14 BAB	4/85	1445	D
A (1-1)	14 DAA	7/51	365	D
A (1-1)	14 DAD	12/78	305	D
A (1-1)	15 DAA	5/05	500	D
A (1-1)	16 AAA	NA	937	D
A (1-1)	21 AAA	5/05	500	D
A (1-1)	21 DDA	1/61	701	D
A (1-1)	22 DDD	11/46	584	D
A (1-1)	23 AAB	3/78	495	D
A (1-1)	23 DDA	6/26	161	D
A (1-1)	23 DDD	12/68	340	D
A (1-1)	24 AAC	7/49	586	D
A (1-1)	24 DAC	NA	337	D
A (1-1)	25 ABA	NA	306	D
A (1-1)	25 DCC	3/65	287	D
A (1-1)	25 DDA	NA	550	D

Note:
D Driller's Log
G Geologist's Log
GS Grain Size Log
NA Not Available
* - Some entries may be duplicates

APPENDIX E
AVAILABLE WELL LOGS

Well Location	Date Drilling Completed	Total Depth (feet)	Log Type
A (1-1) 26 AAA	NA	521	D
A (1-1) 27 BAB	7/87	1099	D
A (1-1) 27 CBB	NA	192	D
A (1-1) 28 BCB	NA	400	D
A (1-1) 33 AAA	3/61	500	D
A (1-1) 33 BBB	NA	300	D
A (1-1) 34 B	1957	450	D
A (1-1) 35 AAD	1978	352	D
A (1-1) 35 BDD	3/70	337	D
A (1-1) 35 DCD	10/52	500	D
A (1-2) 1 CAC	NA	322	D
A (1-2) 2 BCD	NA	400	D
A (1-2) 2 CBB	NA	295	GS
A (1-2) 5 CBC	NA	204	D
A (1-2) 7 BBB	1946	790	D
A (1-2) 7 CBB	NA	850	G
A (1-2) 7 CCC	4/52	700	D
A (1-2) 7 DAA	5/63	565	GS
A (1-2) 8 ADA	11/60	448	D
A (1-2) 8 BAA	5/67	540	D
A (1-2) 8 BBB	5/43	414	D
A (1-2) 9 AAB	3/36	227	D
A (1-2) 9 AAB	4/57	500	D
A (1-2) 9 BBB	5/46	242	D
A (1-2) 9 CBC	NA	1800	D,GS
A (1-2) 9 CBC	10/40	300	D
A (1-2) 9 CCC	5/49	480	D
A (1-2) 9 CDB	6/76	1800	D
A (1-2) 9 DAC	NA	1793	D
A (1-2) 9 DCC	12/48	1942	D
A (1-2) 9 DDD	3/76	1809	D
A (1-2) 10 ABB	NA	454	D
A (1-2) 10 CCB	NA	500	GS
A (1-2) 11 AAA	NA	415	D
A (1-2) 11 ACC	9/43	650	D
A (1-2) 11 CBC	NA	1800	D,GS
A (1-2) 12 BAA	NA	395	D
A (1-2) 12 CCB	NA	302	D
A (1-2) 13 ABD	NA	201	D
A (1-2) 13 CDD	2/68	401	D
A (1-2) 13 CDD	NA	300	D
A (1-2) 13 DDA	NA	440	D
A (1-2) 14 AAD	6/52	420	D
A (1-2) 14 BCB	NA	425	D

Note:
D Driller's Log
G Geologist's Log
GS Grain Size Log
NA Not Available
* - Some entries may be duplicates

Well Location		Date Drilling Completed	Total Depth (feet)	Log Type
A (1-2)	14 CDA	NA	1800	D,GS
A (1-2)	15 BCC	NA	174	D
A (1-2)	15 CAA	NA	246	D
A (1-2)	16 AAA	5/65	505	D
A (1-2)	16 DBB	5/52	460	D
A (1-2)	17 ADD	11/64	1800	GS
A (1-2)	17 CAA	1947	500	D
A (1-2)	18 BDA	NA	300	D
A (1-2)	18 DDD	2/53	800	D
A (1-2)	19 AAB	NA	315	D
A (1-2)	19 BAA	NA	208	D
A (1-2)	19 CCB	NA	130	D
A (1-2)	21 ADD	NA	310	D
A (1-2)	21 BCA	NA	210	GS
A (1-2)	21 BCB	NA	415	D
A (1-2)	22 CBB	NA	300	GS
A (1-2)	22 CCC	NA	270	D
A (1-2)	24 BBB	NA	1675	GS
A (1-2)	24 DAA	NA	340	GS
A (1-2)	24 DAB	11/71	350	D
A (1-2)	24 DDC	3/56	600	D
A (1-2)	25 DDD	1/52	325	D
A (1-2)	26 AAB	2/58	430	D
A (1-2)	26 DDD	3/57	300	D
A (1-2)	27 DAA	NA	201	D
A (1-2)	27 DAD	2/61	695	D
A (1-2)	28 CBC	NA	411	D
A (1-2)	29 DDA	NA	201	D
A (1-2)	30 AAA	NA	265	D
A (1-2)	31 AAA	12/56	600	D
A (1-2)	31 DBB	4/71	1380	GS
A (1-2)	32 AAA	3/59	500	D
A (1-2)	32 BAA	NA	403	D
A (1-2)	32 DDD	NA	118	D
A (1-2)	33 BAD	NA	202	D
A (1-2)	33 CAD	NA	132	D
A (1-2)	34 AAC	NA	165	D
A (1-2)	34 ADA	3/83	635	D
A (1-2)	34 CCC	NA	365	D
A (1-2)	34 DAC	NA	162	D
A (1-2)	35 DDD	NA	230	D
A (1-2)	36 AAD	1/59	500	D
A (1-3)	5 ABD	1/59	400	D
A (1-3)	8 BBC	NA	252	GS

Note:
D Driller's Log
G Geologist's Log
GS Grain Size Log
NA Not Available
* - Some entries may be duplicates

Well Location		Date Drilling Completed	Total Depth (feet)	Log Type
A (1-3)	8 BCD	11/86	270	D
A (1-3)	17 BCB	12/86	267	D
A (1-3)	17 DCB	NA	200	G
A (1-3)	20 CAC	1/89	260	D
A (1-3)	20 DAC	12/86	267	D
A (1-3)	29 DDA	2/89	260	D
A (1-3)	30 BBD	12/86	267	D
A (1-3)	31 DAD	NA	635	GS
A (2-1)	21 AAA	12/63	1000	D
A (2-1)	21 AAD	NA	1000	GS
A (2-1)	23 AAD	NA	250	D
A (2-1)	23 CCC	NA	700	D
A (2-1)	23 DDA	4/49	700	D
A (2-1)	24 DAA	NA	224	D
A (2-1)	24 DBC	11/51	810	D
A (2-1)	26 DAA	5/49	700	D
A (2-1)	28 AAA	3/47	525	D
A (2-1)	33 ACC	6/43	1000	D
A (2-1)	33 CCC	NA	1725	GS
A (2-1)	34 BBB	NA	215	D
A (2-1)	34 BCC	8/51	800	D
A (2-1)	35 DDD	4/49	700	D
A (2-1)	36 DAD	4/49	700	D
A (2-2)	19 CCB	6/51	600	D
A (2-2)	20 ADD	3/49	700	D
A (2-2)	21 BBA	NA	602	D
A (2-2)	24 AAA	4/19	470	D
A (2-2)	24 ABA	NA	700	D
A (2-2)	24 BAA	NA	1205	D
A (2-2)	24 BCC	12/52	400	D
A (2-2)	25 BCA	6/50	500	D
A (2-2)	26 BDC	4/49	698	D
A (2-2)	26 CBD	1/74	950	D
A (2-2)	27 DBB	12/48	700	D
A (2-2)	27 DCB	4/55	701	D
A (2-2)	28 AAB	11/46	635	D
A (2-2)	28 ABB	10/54	650	D
A (2-2)	28 BAA	3/57	650	D
A (2-2)	28 CAA	12/48	700	D
A (2-2)	29 BCB	3/49	700	D
A (2-2)	29 DBB	4/49	700	D
A (2-2)	30 ABC	2/58	710	D
A (2-2)	30 BAD	3/58	720	GS
A (2-2)	30 BBA	NA	1280	GS

Note:
D Driller's Log
G Geologist's Log
GS Grain Size Log
NA Not Available
* - Some entries may be duplicates

Well Location		Date Drilling Completed	Total Depth (feet)	Log Type
A (2-2)	31 AAA	5/49	550	D
A (2-2)	32 DAA	7/49	616	D
A (2-2)	34 ADC	2/53	434	D
A (2-2)	35 DCC	5/49	385	D
A (2-3)	19 BCD	12/54	650	D
A (2-3)	19 CBB	5/22	262	D
A (2-3)	19 DBB	NA	204	D
A (2-3)	20 ADD	1/68	400	GS
A (2-3)	20 BCC	9/71	405	GS
D (1-1)	2 BBC	NA	341	D
D (1-1)	3 AAA	NA	450	D
D (1-2)	1 DBA	NA	175	D
D (1-2)	2 BAB	NA	107	D
D (1-2)	2 BBC	NA	300	D
D (1-2)	2 DCD	NA	260	D
D (1-2)	6 ADD	NA	701	D
D (1-2)	6 CCB	NA	240	D
D (1-2)	6 DCC	NA	320	D
D (1-2)	7 ADD	NA	548	D
D (1-2)	7 CBA	NA	425	D
D (1-2)	8 ADA	NA	201	D
D (1-2)	9 CAA	NA	202	D
D (1-2)	9 DDD	NA	115	D
D (1-2)	10 ABB	NA	105	D
D (1-2)	10 BBB	1978	760	D
D (1-2)	10 CCC	NA	400	D
D (1-2)	11 DCD	1976	120	D

Note:
D Driller's Log
G Geologist's Log
GS Grain Size Log
NA Not Available
* - Some entries may be duplicates

APPENDIX E
WELLS WITH HYDRAULIC TESTING

Well Location	Date Drilling Completed	Total Depth (feet)	Test Type	Perforation Interval (feet bgs)
A (1-1) 2 BBB	NA	300	SC	50-286
A (1-1) 2 BBB	NA	800	SC	140-782
A (1-1) 2 CCC	11/56	910	SC, R	300-898
A (1-1) 3 ABB	9/49	600	SC, R	200-585
A (1-1) 3 BBB	11/43	850	SC	NA
A (1-1) 9 BBB	8/46	500	SC, R	144-488
A (1-1) 10 AAA	NA	650	SC	150-650
A (1-1) 10 CCC	3/53	662	SC, R	150-662
A (1-1) 11 ACB	NA	790	SC	NA
A (1-1) 11 ADD	6/57	800	SC, R	300-800
A (1-1) 11 CBC	12/73	800	SC, R	325-800
A (1-1) 12 BBB	NA	622	SC	80-508
A (1-1) 12 DBB	2/52	600	SC	NA
A (1-1) 14 DAA	7/51	365	SC	80-365
A (1-1) 22 DDD	11/46	584	SC, R	192-572
A (1-1) 23 DDA	6/26	161	SC	50-151
A (1-1) 24 AAC	7/49	586	SC, R	150-560
A (1-1) 26 AAA	NA	521	SC	260-505
A (1-1) 28 BCB	NA	400	SC	202-382
A (1-1) 28 CDB	5/29	152	SC, R	50-140
A (1-1) 33 AAA	3/61	500	SC	150-250
A (1-1) 35 DCD	10/52	500	SC	220-500
A (1-2) 2 BCC	NA	NA	R	220-400
A (1-2) 7 BBB	1946	790	SC	80-776
A (1-2) 7 CCC	4/52	700	SC	135-680
A (1-2) 8 BAA	NA	284	R	62-270
A (1-2) 8 BBB	5/43	414	SC	NA
A (1-2) 9 AAB	4/57	500	SC	140-465
A (1-2) 9 BBB	5/46	242	R	60-232
A (1-2) 9 CBC	NA	1800	SC	180-1770
A (1-2) 9 DDD	3/76	1809	SC, R	1129-1789
A (1-2) 10 AAA	NA	NA	SC	NA
A (1-2) 10 CCB	NA	500	SC	NA
A (1-2) 11 AAA	NA	415	SC	NA
A (1-2) 11 AAC	NA	NA	SC	50-635
A (1-2) 11 CBC	NA	1800	SC	180-1800
A (1-2) 12 BAA	NA	395	SC	NA
A (1-2) 12 CCB	NA	302	SC, R	55-290
A (1-2) 13 ABD	NA	201	SC	NA
A (1-2) 13 CDD	2/68	401	SC	NA
A (1-2) 13 DDA	NA	440	SC	NA
A (1-2) 14 AAD	6/52	420	SC	NA
A (1-2) 14 BBC	NA	425	SC	NA
A (1-2) 14 CCB	NA	NA	SC	NA

Notes:
bgs Below ground surface
NA Not Available
SC Specific Capacity Test
P Pumping Drawdown Test, with Observation Wells
R Pumping Well Recovery Test

APPENDIX E
WELLS WITH HYDRAULIC TESTING

Well Location	Date Drilling Completed	Total Depth (feet)	Test Type	Perforation Interval (feet bgs)
A (1-2) 14 CDA	NA	1800	P,R	200-1800
A (1-2) 14 CDD	NA	NA	SC	NA
A (1-2) 15 BCC	NA	172	SC	NA
A (1-2) 15 CAA	NA	246	SC	60-236
A (1-2) 16 BDD	NA	NA	SC	170-490
A (1-2) 17 ADD	11/64	1800	SC, P, R	185-1785
A (1-2) 17 CAA	1947	500	SC	NA
A (1-2) 18 BBC	NA	NA	SC	NA
A (1-2) 18 BDA	NA	300	R	60-300
A (1-2) 18 DDD	2/53	800	SC, R	200-780
A (1-2) 24 BBB	NA	1675	SC	NA
A (1-2) 24 DAB	11/71	350	SC	150-330
A (1-2) 24 DDC	3/56	600	SC	200-585
A (1-2) 31 AAA	12/56	600	SC	140-572
A (1-2) 32 AAA	3/59	500	SC	150-488
A (1-2) 36 AAD	1/59	500	SC	150-488
A (2-1) 23 CCC	NA	700	SC, R	NA
A (2-1) 23 DDA	4/49	700	SC, R	165-685
A (2-1) 24 DBC	11/51	810	SC, R	252-810
A (2-1) 26 DAA	5/49	700	SC, R	170-685
A (2-1) 28 AAA	3/47	525	SC, R	160-512
A (2-1) 33 AAC		1000	SC	NA
A (2-1) 33 CCC	NA	875	SC	250-875
A (2-1) 33 CDD	NA	NA	SC	NA
A (2-1) 34 BBB	NA	215	SC	NA
A (2-1) 34 CCB	NA	NA	SC	NA
A (2-1) 35 DDD	4/49	700	SC, R	170-685
A (2-1) 36 DAD	4/49	700	SC, R	180-685
A (2-2) 19 CCB	6/51	600	SC, R	188-596
A (2-2) 20 ADD	3/49	700	SC	200-685
A (2-2) 24 AAA	4/19	470	SC	60-350
A (2-2) 25 BCA	6/50	500	SC, R	200-485
A (2-2) 26 CBD	1/74	950	R	905-930
A (2-2) 26 DBB	6/49	698	SC, R	210-680
A (2-2) 27 DBB	12/48	700	SC, R	220-685
A (2-2) 28 CAA	12/48	700	SC, R	255-685
A (2-2) 29 BCB	3/49	700	SC, R	180-682
A (2-2) 29 DBB	4/49	700	SC, R	200-680
A (2-2) 31 AAD	5/49	550	SC, R	175-536
A (2-2) 32 DAA	7/49	616	SC, R	185-600
A (2-3) 19 CBB	5/22	262	SC	70-245
A (2-3) 20 ADD	1/68	400	SC	150-400
A (2-3) 20 BCC	9/71	405	SC	205-405

Notes:
bgs Below ground surface
NA Not Available
SC Specific Capacity Test
P Pumping Drawdown Test, with Observation Wells
R Pumping Well Recovery Test

Appendix B: WVBSA Model Pumping Database

Provided separately in electronic file
WVBSA_Groundwater_Model_Pumping_dataset.xlsx

DB2_ID	Year	Location id	Regno	Owner	Irrig code	GWSILOC	UTM83_X	UTM83_Y	UTM83_Src	Total	X1	X2	X3	X4	QL1	QL2	QL3	QL4	Comment
91	72	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1849	0.20	0.15	0.45	0.20	369.8	277.35	832.05	369.8	
91	73	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1572	0.20	0.15	0.45	0.20	314.4	235.8	707.4	314.4	
91	74	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1809	0.20	0.15	0.45	0.20	361.8	271.35	814.05	361.8	
91	75	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	2097	0.20	0.15	0.45	0.20	419.4	314.55	943.65	419.4	
91	76	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1754	0.20	0.15	0.45	0.20	350.8	263.1	789.3	350.8	
91	77	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1736	0.20	0.15	0.45	0.20	347.2	260.4	781.2	347.2	
91	78	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1574	0.20	0.15	0.45	0.20	314.8	236.1	708.3	314.8	
91	79	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1949	0.20	0.15	0.45	0.20	389.8	292.35	877.05	389.8	
91	80	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1449	0.20	0.15	0.45	0.20	289.8	217.35	652.05	289.8	
91	81	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	2268	0.20	0.15	0.45	0.20	453.6	340.2	1020.6	453.6	
91	82	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	540	0.20	0.15	0.45	0.20	108	81	243	108	
91	83	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	0	0.20	0.15	0.45	0.20	0	0	0	0	
91	84	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1038	0.20	0.15	0.45	0.20	207.6	155.7	467.1	207.6	
91	85	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1445	0.20	0.15	0.45	0.20	289	216.75	650.25	289	
91	86	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1420	0.20	0.15	0.45	0.20	284	213	639	284	
91	87	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1554	0.20	0.15	0.45	0.20	310.8	233.1	699.3	310.8	
91	88	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	2328	0.20	0.15	0.45	0.20	465.6	349.2	1047.6	465.6	
91	89	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	2565	0.20	0.15	0.45	0.20	513	384.75	1154.3	513	
91	90	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	2213	0.20	0.15	0.45	0.20	442.6	331.95	995.85	442.6	
91	91	(A-1-1)02BBB2	607228	RID	1	A-01-01 02BBB	384986	3703539	GWSI LL NAD27 reprojected - Method G	1442	0.20	0.15	0.45	0.20	288.4	216.3	648.9	288.4	
105	72	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1822	0.00	0.10	0.40	0.40	0	182.2	728.8	728.8	
105	73	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	225	0.00	0.10	0.40	0.40	0	22.5	90	90	
105	74	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1180	0.00	0.10	0.40	0.40	0	118	472	472	
105	75	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1630	0.00	0.10	0.40	0.40	0	163	652	652	
105	76	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1347	0.00	0.10	0.40	0.40	0	134.7	538.8	538.8	
105	77	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1772	0.00	0.10	0.40	0.40	0	177.2	708.8	708.8	
105	78	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	21	0.00	0.10	0.40	0.40	0	2.1	8.4	8.4	
105	79	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	320	0.00	0.10	0.40	0.40	0	32	128	128	
105	80	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	483	0.00	0.10	0.40	0.40	0	48.3	193.2	193.2	
105	81	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	2022	0.00	0.10	0.40	0.40	0	202.2	808.8	808.8	
105	82	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	295	0.00	0.10	0.40	0.40	0	29.5	118	118	
105	83	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	473	0.00	0.10	0.40	0.40	0	47.3	189.2	189.2	
105	84	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	1797	0.00	0.10	0.40	0.40	0	179.7	718.8	718.8	
105	85	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	257	0.00	0.10	0.40	0.40	0	25.7	102.8	102.8	
105	86	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	156	0.00	0.10	0.40	0.40	0	15.6	62.4	62.4	
105	87	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	164	0.00	0.10	0.40	0.40	0	16.4	65.6	65.6	
105	88	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	105	0.00	0.10	0.40	0.40	0	10.5	42	42	
105	89	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	113	0.00	0.10	0.40	0.40	0	11.3	45.2	45.2	
105	90	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	2949	0.00	0.10	0.40	0.40	0	294.9	1179.6	1179.6	
105	91	(A-1-1)02CCC	607728	SRP	1	A-01-01 02CCC	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G	53	0.00	0.10	0.40	0.40	0	5.3	21.2	21.2	
157	78	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	5	0.10	0.15	0.70	0.05	0.5	0.75	3.5	0.25	
157	79	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	4	0.10	0.15	0.70	0.05	0.4	0.6	2.8	0.2	
157	80	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	4	0.10	0.15	0.70	0.05	0.4	0.6	2.8	0.2	
157	81	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	6	0.10	0.15	0.70	0.05	0.6	0.9	4.2	0.3	
157	82	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	4	0.10	0.15	0.70	0.05	0.4	0.6	2.8	0.2	
157	83	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	2	0.10	0.15	0.70	0.05	0.2	0.3	1.4	0.1	
157	84	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	4	0.10	0.15	0.70	0.05	0.4	0.6	2.8	0.2	
157	85	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	7	0.10	0.15	0.70	0.05	0.7	1.05	4.9	0.35	
157	86	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G		0.10	0.15	0.70	0.05	0	0	0	0	
157	87	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	8	0.10	0.15	0.70	0.05	0.8	1.2	5.6	0.4	
157	88	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	8	0.10	0.15	0.70	0.05	0.8	1.2	5.6	0.4	
157	89	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	8	0.10	0.15	0.70	0.05	0.8	1.2	5.6	0.4	
157	90	(A-1-1)02DA	620583	BROOKS	2	A-01-01 02DA	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G	11	0.10	0.15	0.70	0.05	1.1	1.65	7.7	0.55	
100	72	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	1802	0.00	0.45	0.45	0.10	0	810.9	810.9	180.2	
100	73	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	268	0.00	0.45	0.45	0.10	0	120.6	120.6	26.8	
100	74	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	883	0.00	0.45	0.45	0.10	0	397.35	397.35	88.3	
100	75	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	945	0.00	0.45	0.45	0.10	0	425.25	425.25	94.5	
100	76	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	802	0.00	0.45	0.45	0.10	0	360.9	360.9	80.2	
100	77	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	1390	0.00	0.45	0.45	0.10	0	625.5	625.5	139	
100	78	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	210	0.00	0.45	0.45	0.10	0	94.5	94.5	21	
100	79	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	3	0.00	0.45	0.45	0.10	0	1.35	1.35	0.3	
100	80	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	393	0.00	0.45	0.45	0.10	0	176.85	176.85	39.3	
100	81	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	523	0.00	0.45	0.45	0.10	0	235.35	235.35	52.3	
100	82	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	18	0.00	0.45	0.45	0.10	0	8.1	8.1	1.8	
100	83	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	91	0.00	0.45	0.45	0.10	0	40.95	40.95	9.1	
100	84	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	335	0.00	0.45	0.45	0.10	0	150.75	150.75	33.5	
100	85	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	86	0.00	0.45	0.45	0.10	0	38.7	38.7	8.6	
100	86	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	45	0.00	0.45	0.45	0.10	0	20.25	20.25	4.5	
100	87	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	187	0.00	0.45	0.45	0.10	0	84.15	84.15	18.7	
100	88	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	201	0.00	0.45	0.45	0.10	0	90.45	90.45	20.1	
100	89	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	17	0.00	0.45	0.45	0.10	0	7.65	7.65	1.7	
100	90	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	244	0.00	0.45	0.45	0.10	0	109.8	109.8	24.4	
100	91	(A-1-1)03ABB	607692	SRP	1	A-01-01 03ABB	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27	39	0.00	0.45	0.45	0.10	0	17.55	17.55	3.9	
93	72	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1474	0.10	0.45	0.35	0.10	147.4	663.3	515.9	147.4	
93	73	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1488	0.10	0.45	0.35	0.10	148.8	669.6	520.8	148.8	
93	74	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1511	0.10	0.45	0.35	0.10	151.1	679.95	528.85	151.1	
93	75	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1468	0.10	0.45	0.35	0.10	146.8	660.6	513.8	146.8	
93	76	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1669	0.10	0.45	0.35	0.10	166.9	751.05	584.15	166.9	
93	77	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1246	0.10	0.45	0.35	0.10	124.6	560.7	436.1	124.6	
93	78	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1488	0.10	0.45	0.35	0.10	148.8	669.6	520.8	148.8	
93	79	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1781	0.10	0.45	0.35	0.10	178.1	801.45	623.35	178.1	
93	80	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	2112	0.10	0.45	0.35	0.10	211.2	950.4	739.2	211.2	
93	81	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1966	0.10	0.45	0.35	0.10	196.6	884.7	688.1	196.6	
93	82	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1065	0.10	0.45	0.35	0.10	106.5	479.25	372.75	106.5	
93	83	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	84	0.10	0.45	0.35	0.10	8.4	37.8	29.4	8.4	
93	84	(A-1-1)03BBB	607230	RID	1	A-01-01 03BBB	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G	1247	0.10	0.45	0.35	0.10	124.7	561.15	436.45	124.7	

DB2_ID	OBJECTID	REG_NO	REG_NO_LONG	LOCAL_ID	GWSILOC	RIGHT_	OWNER	RIGHT_TYPE	MOVEMENT	WATER_TYPE	UTM83_X	UTM83_Y	UTM83_Src
33	37	505481	505481	A-01-01 22CDB	A-01-01 22CDB	58-111861.0000	Boschma Edward S	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	383753.6	3697290.3	GWSI LL NAD27 reprojected - Method
34	45	507729	507729	A-01-02 29AA	A-01-02 29AA	59-507729.0000	Tex-Struct Inc	Temporary Dewatering Permits	Withdrawal	Groundwater	391085.5	3696875.8	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
45	68	600468	600468	A-01-02 29DDA	A-01-02 29DDA	58-113285.0000	Lincoln David C	Irrigation Use	Withdrawal	Groundwater	391329.4	3695748.1	GWSI LL NAD27 reprojected - Method
47	69	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0000	Coldwater Industrial Park Ltd	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
48	70	601546	601546	A-01-02 23DCD	A-01-02 23DCD	58-104234.0000	Reeves Lillian V	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	395737.4	3696968.9	GWSI LL NAD27 reprojected - Method
49	111	603440	603440	A-01-01 28BCB	A-01-01 28BCB	58-101539.0000	Brummett P H	Irrigation Use	Withdrawal	Groundwater	381743.5	3696655.5	GWSI LL NAD27 reprojected - Method
50	114	603550	603550	A-02-02 36CBB	A-02-02 36CBB	58-102419.0000	Shamrock Dairy Of Phoenix Corp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396390.7	3704197.9	GWSI LL NAD27 reprojected - Method G
52	147	604164	604164	A-01-03 20BAD	A-01-03 20BAD	58-105296.0000	Union Rock & Materials Corp	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	400063.1	3698213	GWSI LL NAD27 reprojected - Method G
53	151	604323	604323	A-01-02 35DDD	A-01-02 35DDD	58-107869.0000	Butler Robert	Irrigation Use	Withdrawal	Groundwater	396127.3	3693789.2	GWSI LL NAD27 reprojected - Method G
54	173	604967	604967	A-01-01 28DAB	A-01-01 28DAB	58-110077.0000	Hash Edgar	Irrigation Use	Withdrawal	Groundwater	383146.4	3696219.5	GWSI LL NAD27 reprojected - Method
55	183	605118	605118	A-01-02 24DAB	A-01-02 24DAB	58-115464.0000	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	397417.8	3697707.8	GWSI LL NAD27 reprojected - Method G
56	222	605714	605714	A-01-02 19CAD	A-01-02 19CAD	58-113305.0000	Gustafson Derwent G	Irrigation Use	Withdrawal	Groundwater	388873.6	3697692.2	GWSI LL NAD27 reprojected - Method
57	233	606101	606101	A-01-01 04BAC	A-01-01 04BAC	58-104145.0000	Tristan Corp	Irrigation Use	Withdrawal	Groundwater	382841	3702999.9	GWSI LL NAD27 reprojected - Method
58	256	606370	606370	A-01-01 26CAA	A-01-01 26CAA	58-110602.0000	Bill Luke Ranches	Irrigation Use	Withdrawal	Groundwater	385701.9	3696201.3	GWSI LL NAD27 reprojected - Method
59	257	606371	606371	A-01-01 26ADA	A-01-01 26ADA	58-110602.0000	Bill Luke Ranches	Irrigation Use	Withdrawal	Groundwater	386412.2	3697080.1	GWSI LL NAD27 reprojected - Method
60	343	607196	607196	A-01-02 13ABD	A-01-02 13ABD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	397334	3699861.4	GWSI LL NAD27 reprojected - Method G
61	344	607197	607197	A-01-02 12BAA	A-01-02 12BAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	396940.9	3701830.5	GWSI LL NAD27 reprojected - Method G
62	345	607198	607198	A-01-02 11AAA	A-01-02 11AAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	395945.8	3701839.6	GWSI LL NAD27 reprojected - Method G
63	346	607199	607199	A-01-02 11AAC	A-01-02 11AAC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	395149.9	3701872.8	GWSI LL NAD27 reprojected - Method G
64	347	607200	607200	A-01-02 10AAA	A-01-02 10AAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	393982.3	3701885.2	GWSI LL NAD27 reprojected - Method G
65	348	607201	607201	A-01-02 09AAA	A-01-02 09AAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	392673.3	3701904	GWSI LL NAD27 reprojected - Method G
66	349	607202	607202	A-01-02 09BBB	A-01-02 09BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	391360.3	3701904.8	GWSI LL NAD27 reprojected - Method G
205	350	607203	607203	A-01-02 08BAA	A-01-02 08BAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	390500.5	3701908.6	GWSI LL NAD27 reprojected - Method G
67	351	607204	607204	A-01-02 08BBB	A-01-02 08BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	389737	3701943.8	GWSI LL NAD27 reprojected - Method G
68	352	607205	607205	A-01-02 07BBB	A-01-02 07BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	388221.7	3701977	GWSI LL NAD27 reprojected - Method G
69	353	607206	607206	A-01-01 12BBB	A-01-01 12BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	386521.9	3702015	GWSI LL NAD27 reprojected - Method G
70	354	607207	607207	A-01-03 18BBC	A-01-03 18BBC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	397891.8	3699860.8	GWSI LL NAD27 reprojected - Method G
71	355	607208	607208	A-01-02 13DDA	A-01-02 13DDA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	397718.5	3699055.6	GWSI LL NAD27 reprojected - Method G
72	356	607209	607209	A-01-02 13CDD	A-01-02 13CDD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	396944.3	3698711.8	GWSI LL NAD27 reprojected - Method
73	357	607210	607210	A-01-02 12CCB	A-01-02 12CCB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	396150	3700673.1	GWSI LL NAD27 reprojected - Method G
74	358	607211	607211	A-01-02 14AAD	A-01-02 14AAD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	396121.3	3699878.1	GWSI LL NAD27 reprojected - Method G
75	359	607212	607212	A-01-02 24BBB	A-01-02 24BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	396161.6	3698652.1	GWSI LL NAD27 reprojected - Method G
76	360	607213	607213	A-01-02 14CDD	A-01-02 14CDD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	395306.4	3698844.8	GWSI LL NAD27 reprojected - Method G
77	361	607214	607214	A-01-02 14CCB	A-01-02 14CCB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	394686.8	3699036.7	GWSI LL NAD27 reprojected - Method G
78	362	607215	607215	A-01-02 11CBC	A-01-02 11CBC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	394577.7	3700721.8	GWSI LL NAD27 reprojected - Method G
79	363	607216	607216	A-01-02 14BBC	A-01-02 14BBC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	394549.3	3699884.3	GWSI LL NAD27 reprojected - Method G
80	364	607217	607217	A-01-02 15ACC	A-01-02 15ACC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	393734.2	3699536.9	GWSI LL NAD27 reprojected - Method G
81	365	607218	607218	A-01-02 10CCB	A-01-02 10CCB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	392956.4	3700721.1	GWSI LL NAD27 reprojected - Method G
82	366	607219	607219	A-01-02 15BCC	A-01-02 15BCC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	392946.2	3699533.5	GWSI LL NAD27 reprojected - Method G
83	367	607220	607220	A-01-02 16BDD	A-01-02 16BDD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	392145.4	3699508.6	GWSI LL NAD27 reprojected - Method G
84	368	607221	607221	A-01-02 09CBC	A-01-02 09CBC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	391342.2	3700727.8	GWSI LL NAD27 reprojected - Method G
85	369	607222	607222	A-01-02 17ADD	A-01-02 17ADD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	391269.1	3699558.1	GWSI LL NAD27 reprojected - Method G
86	370	607223	607223	A-01-02 17CAA	A-01-02 17CAA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	390490.5	3699540.4	GWSI LL NAD27 reprojected - Method G
87	371	607224	607224	A-01-02 18BDA	A-01-02 18BDA	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	388919.7	3699934.4	GWSI LL NAD27 reprojected - Method G
88	372	607225	607225	A-01-02 07CCC	A-01-02 07CCC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	388123.3	3700441.1	GWSI LL NAD27 reprojected - Method G
89	373	607226	607226	A-01-01 12DBB	A-01-01 12DBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	387678.2	3701167.3	GWSI LL NAD27 reprojected - Method G
90	374	607227	607227	A-01-01 11ACB	A-01-01 11ACB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	385750.9	3701489.5	GWSI LL NAD27 reprojected - Method G
91	375	607228	607228	A-01-01 02BBB	A-01-01 02BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	384986	3703539	GWSI LL NAD27 reprojected - Method G
92	376	607229	607229	A-02-01 34BBB	A-02-01 34BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	383398.7	3705115.5	GWSI LL NAD27 reprojected - Method
93	377	607230	607230	A-01-01 03BBB	A-01-01 03BBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	383385.5	3703529.3	GWSI LL NAD27 reprojected - Method G
94	378	607231	607231	A-02-01 34CBB	A-02-01 34CBB	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	383384.2	3704364.1	GWSI LL NAD27 reprojected - Method
95	380	607233	607233	A-02-01 33CDD	A-02-01 33CDD	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	382533.1	3703585.8	GWSI LL NAD27 reprojected - Method
97	381	607234	607234	A-02-01 33CCC	A-02-01 33CCC	57-002517.0000	Roosevelt Irrigation District	Irrigation District (Gw Only)	Withdrawal	Groundwater	381882.3	3703550.6	GWSI LL NAD27 reprojected - Method
98	414	607624	607624	A-01-01 11ADC	A-01-01 11ADC	58-105687.0000	Southwest Milling Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	386172.7	3701235.4	GWSI LL NAD27 reprojected - Method G
99	424	607675	607675	A-02-02 29ACC	A-02-02 29ACC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	390609	3706040.8	GWSI LL NAD27 reprojected - Method G
100	438	607692	607692	A-01-01 03ABB	A-01-01 03ABB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	384253.4	3703458.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
101	439	607694	607694	A-01-01 33AAA	A-01-01 33AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	383340.9	3695200.6	GWSI LL NAD27 reprojected - Method
102	440	607695	607695	A-01-01 28CAC	A-01-01 28CAC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	382755.4	3695937.8	GWSI LL NAD27 reprojected - Method G
103	460	607718	607718	A-01-01 09BBB	A-01-01 09BBB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	381752.9	3701842.6	GWSI LL NAD27 reprojected - Method G
104	469	607727	607727	A-02-02 31ADA	A-02-02 31ADA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	389754	3704782.4	GWSI LL NAD27 reprojected - Method G
105	470	607728	607728	A-01-01 02CCC	A-01-01 02CCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G
106	476	607736	607736	A-02-02 32DAA	A-02-02 32DAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	391360.7	3704350.6	GWSI LL NAD27 reprojected - Method G
107	506	608358	608358	A-02-01 28AAA	A-02-01 28AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	383810.4	3706315	GWSI LL NAD27 reprojected - Method G
108	510	608362	608362	A-01-01 11CCB	A-01-01 11CCB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	384929.6	3700834.3	GWSI LL NAD27 reprojected - Method G
109	516	608368	608368	A-01-01 24AAA	A-01-01 24AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	387436.3	3698509.7	GWSI LL NAD27 reprojected - Method G
110	519	608371	608371	A-01-01 23DDA	A-01-01 23DDA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	386415.9	3697619	GWSI LL NAD27 reprojected - Method G
111	520	608372	608372	A-02-02 20ADD	A-02-02 20ADD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	391418.8	3707589.4	GWSI LL NAD27 reprojected - Method G
112	522	608374	608374	A-02-02 28BDD	A-02-02 28BDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	392198.8	3706003	GWSI LL NAD27 reprojected - Method G
113	525	608377	608377	A-02-02 26DBB	A-02-02 26DBB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	395188.9	3706044.5	GWSI LL NAD27 reprojected - Method G
114	526	608378	608378	A-01-02 24DCD	A-01-02 24DCD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	397413.6	3696994	GWSI LL NAD27 reprojected - Method G
115	527	608379	608379	A-02-03 20BCC	A-02-03 20BCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	399490.8	3707617.4	GWSI LL NAD27 reprojected - Method
116	529	608381	608381	A-02-02 27ACB	A-02-02 27ACB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	393829	3706228.2	GWSI LL NAD27 reprojected - Method G
117	532	608384	608384	A-02-01 36DAA	A-02-01 36DAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	388178.7	3704171.9	GWSI LL NAD27 reprojected - Method G
118	533	608385	608385	A-02-02 19CCB	A-02-02 19CCB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	388274.5	3707208.3	GWSI LL NAD27 reprojected - Method G
119	534	608386	608386	A-01-02 18DDD	A-01-02 18DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	389667.7	3698783	GWSI LL NAD27 reprojected - Method G
120	535	608387	608387	A-02-02 29BCB	A-02-02 29BCB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	389798.7	3706396	GWSI LL NAD27 reprojected - Method G
121	536	608388	608388	A-02-01 35DDD	A-02-01 35DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	386550.4	3703599.5	GWSI LL NAD27 reprojected - Method G
122	537	608389	608389	A-02-01 26DAA	A-02-01 26DAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	386491.1	3706005.9	GWSI LL NAD27 reprojected - Method

124	539	608392	608392	A-02-01 23DDA	A-02-01 23DDA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	386504.9	3707176.3	GWSI LL NAD27 reprojected - Method
125	540	608393	608393	A-02-01 23CCC	A-02-01 23CCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	385133.9	3706915.3	GWSI LL NAD27 reprojected - Method
126	554	608410	608410	A-02-01 21AAD	A-02-01 21AAD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	383370.4	3708353.3	GWSI LL NAD27 reprojected - Method
127	565	608422	608422	A-02-03 20ADD	A-02-03 20ADD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	401056.6	3707527.4	GWSI LL NAD27 reprojected - Method G
129	577	608436	608436	A-01-01 10CCC	A-01-01 10CCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	383358.6	3700340.2	GWSI LL NAD27 reprojected - Method G
130	621	609146	609146	A-01-01 09AAA	A-01-01 09AAA	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	383187.9	3701794.4	GWSI LL NAD27 reprojected - Method
131	622	609148	609148	A-01-01 09AAC	A-01-01 09AAC	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	383004.1	3701550.1	GWSI LL NAD27 reprojected - Method
132	623	609149	609149	A-01-01 04DDB	A-01-01 04DDB	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	382960.4	3702197.6	GWSI LL NAD27 reprojected - Method
134	683	610166	610166	A-01-03 08ABB	A-01-03 08ABB	58-104638.0000	Valley National Bank Of Ariz	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400249.2	3701815.8	GWSI LL NAD27 reprojected - Method
136	843	612845	612845	A-01-02 22CBA	A-01-02 22CBA	58-111219.0000	Valente Thomas M & Frances	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	393085.2	3697768	GWSI LL NAD27 reprojected - Method
137	916	613468	613468	A-01-02 20BCD	A-01-02 20BCD	58-105772.0000	King Algia Elvin	Irrigation Use	Withdrawal	Groundwater	389962.2	3698018.5	GWSI LL NAD27 reprojected - Method
138	1023	617112	617112	A-01-01 11ADD	A-01-01 11ADD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	386483.7	3701351.3	GWSI LL NAD27 reprojected - Method G
139	1046	617310	617310	A-01-02 01AAA	A-01-02 01AAA	58-112445.0000	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397518.7	3703431.5	GWSI LL NAD27 reprojected - Method G
140	1047	617312	617312	A-02-02 36DCC	A-02-02 36DCC	58-112447.0000	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397226	3703581	GWSI LL NAD27 reprojected - Method G
141	1050	617511	617511	A-01-01 28CB	A-01-01 28CB	58-112199.0000	Heavyside John A	Irrigation Use	Withdrawal	Groundwater	381896.2	3696081	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
142	1051	617512	617512	A-01-01 21BCD	A-01-01 21BCD	58-115836.0000	Heavyside John A	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	382082.7	3697988.1	GWSI LL NAD27 reprojected - Method
143	1054	617602	617602	A-01-02 26DDD	A-01-02 26DDD	58-115207.0000	Manzanita Acres	Irrigation Use	Withdrawal	Groundwater	396123.1	3695347.7	GWSI LL NAD27 reprojected - Method
144	1093	617850	617850	A-02-02 25BCD	A-02-02 25BCD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	396566.3	3706155.7	GWSI LL NAD27 reprojected - Method G
145	1125	618120	618120	A-01-01 23DBA	A-01-01 23DBA	58-110593.0000	Estate Of D E Accomazzo	Irrigation Use	Withdrawal	Groundwater	385937.8	3698025.1	GWSI LL NAD27 reprojected - Method
148	1159	618775	618775	D-01-01 01BAA	D-01-01 01BAA	58-102282.0000	Knapple George	Irrigation Use	Withdrawal	Groundwater	387329.5	3693767.3	GWSI LL NAD27 reprojected - Method
149	1160	618807	618807	A-01-01 10CAB	A-01-01 10CAB	58-100177.0000	Sun Land Beef Co, Attn: Ted Hawken	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	383369.9	3701104.7	GWSI LL NAD27 reprojected - Method G
150	1175	619307	619307	A-01-03 08BAD	A-01-03 08BAD	58-111665.0000	First Interstate Bank Of Ariz	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400125.1	3701573.8	GWSI LL NAD27 reprojected - Method
151	1180	619396	619396	A-01-02 35BAC	A-01-02 35BAC	58-103684.0000	Herseth Feedlots Incorporated	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	394978.8	3695125.7	GWSI LL NAD27 reprojected - Method
152	1187	619467	619467	A-01-01 23AAB	A-01-01 23AAB	58-110595.0000	Accomazzo James M	Irrigation Use	Withdrawal	Groundwater	386070.9	3698821.4	GWSI LL NAD27 reprojected - Method
153	1188	619468	619468	A-01-01 21AAA	A-01-01 21AAA	58-110585.0000	Accomazzo James M	Irrigation Use	Withdrawal	Groundwater	383245.7	3698648.4	GWSI LL NAD27 reprojected - Method
154	1189	619469	619469	A-01-01 22CDA	A-01-01 22CDA	58-114548.0000	Accomazzo James M & Jacquelynn C	Irrigation Use	Withdrawal	Groundwater	384074.4	3697545.1	GWSI LL NAD27 reprojected - Method
155	1195	619745	619745	A-01-02 18AAA	A-01-02 18AAA	58-109257.0000	Corp Of Presiding Bishop, Lds Church	Irrigation Use	Withdrawal	Groundwater	389684.2	3700318.1	GWSI LL NAD27 reprojected - Method G
157	1314	620583	620583	A-01-01 02DA	A-01-01 02DA	58-102946.0000	Brooks Jr Marion B	Irrigation Use	Withdrawal	Groundwater	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G
159	1362	622272	622272	A-01-02 19DAA	A-01-02 19DAA	56-002180.0000	King Virgil E.	Small Municipal Provider	Withdrawal	Groundwater	389650.9	3697898.9	GWSI LL NAD27 reprojected - Method
160	1363	622273	622273	A-01-02 19DDA	A-01-02 19DDA	56-002180.0000	King Virgil E.	Small Municipal Provider	Withdrawal	Groundwater	390213.2	3697368.9	GWSI LL NAD27 reprojected - Method
163	1389	624173	624173	A-01-02 32CCD	A-01-02 32CCD	58-106937.0000	Vanderwey Dairy	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	390060.6	3693933.1	GWSI LL NAD27 reprojected - Method
164	1428	624825	624825	A-01-01 16AAA	A-01-01 16AAA	58-111647.0002	Ratliff-Miller Development Co	Irrigation Use	Withdrawal	Groundwater	383239.6	3700281.3	GWSI LL NAD27 reprojected - Method
166	1500	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-130069.0000	Rogers Gilbert R	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
168	1561	626266	626266	A-01-01 36DDA	A-01-01 36DDA	57-002514.0000	Peninsula Ditch Co	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	388082.8	3694097.4	GWSI LL NAD27 reprojected - Method
170	1562	626268	626268	A-01-02 30DDC	A-01-02 30DDC	57-002514.0000	Peninsula Ditch Co	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	389441.2	3695375.5	GWSI LL NAD27 reprojected - Method
172	1563	626270	626270	A-01-02 32BAA	A-01-02 32BAA	57-002514.0000	Peninsula Ditch Co	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	390551.9	3695332.1	GWSI LL NAD27 reprojected - Method
176	1587	626524	626524	A-01-03 18BAD	A-01-03 18BAD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	398274.5	3699929.8	GWSI LL NAD27 reprojected - Method
177	1592	626530	626530	A-01-03 06DCA	A-01-03 06DCD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	398977.3	3702043.1	GWSI LL NAD27 reprojected - Method G
178	1593	626531	626531	A-01-03 32AAD	A-01-03 32AAD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	400805.5	3694882.9	GWSI LL NAD27 reprojected - Method
179	1594	626532	626532	A-01-03 17BBD	A-01-03 17BBD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	399637.4	3699979	GWSI LL NAD27 reprojected - Method G
180	1595	626533	626533	A-01-02 02BCC	A-01-02 02BCC	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	394762.6	3702798.3	GWSI LL NAD27 reprojected - Method G
181	1596	626534	626534	A-02-03 31DBB	A-02-03 31DBB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	398734.6	3704230.6	GWSI LL NAD27 reprojected - Method G
182	1598	626536	626536	A-02-03 31AAB	A-02-03 31AAB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	398037.9	3704343.1	GWSI LL NAD27 reprojected - Method G
183	1609	626550	626550	A-02-02 34ADC	A-02-02 34ADC	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	394220.9	3704362.5	GWSI LL NAD27 reprojected - Method G
184	1610	626551	626551	A-02-02 22DAA	A-02-02 22DAA	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	394541.3	3707460.2	GWSI LL NAD27 reprojected - Method G
185	1617	626561	626561	A-02-02 35CDD	A-02-02 35CDD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	395215.4	3703627.8	GWSI LL NAD27 reprojected - Method
186	1619	626564	626564	A-01-03 31DDB	A-01-03 31DDB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	399191	3694036.8	GWSI LL NAD27 reprojected - Method G
187	1620	626565	626565	A-02-03 19BCD	A-02-03 19BCD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	398221.8	3707673.5	GWSI LL NAD27 reprojected - Method
189	1626	626575	626575	A-02-02 28ABB	A-02-02 28ABB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	392176.6	3706626.3	GWSI LL NAD27 reprojected - Method G
189	1627	626576	626576	A-02-02 28ABB	A-02-02 28ABB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	392176.6	3706626.3	GWSI LL NAD27 reprojected - Method G
191	1629	626578	626578	A-02-02 30BAA1	A-02-02 30BAA1	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	388898.3	3706498.4	GWSI LL NAD27 reprojected - Method G
192	1630	626579	626579	A-02-02 30DBB	A-02-02 30DBB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	389009.1	3705965.8	GWSI LL NAD27 reprojected - Method G
193	1631	626580	626580	A-02-02 32ABB	A-02-02 32ABB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	390589.8	3705100.7	GWSI LL NAD27 reprojected - Method G
194	1637	626587	626587	A-02-02 30BAB	A-02-02 30BAB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	388596	3706761.9	GWSI LL NAD27 reprojected - Method G
195	1641	626594	626594	A-01-01 11BCC	A-01-01 11BCC	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	384990.1	3701341.5	GWSI LL NAD27 reprojected - Method
196	1674	626630	626630	A-02-01 27ABB	A-02-01 27ABB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	384280.1	3706740.6	GWSI LL NAD27 reprojected - Method
197	1688	626784	626784	A-01-02 09CCA	A-01-02 09CCA	58-113978.0000	Anderson-Clayton & Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391559	3700620.3	GWSI LL NAD27 reprojected - Method G
202	1778	629584	629584	A-01-02 01CBB	A-01-02 01CBB	58-103048.0000	Arizona Cemeteries Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396321.7	3702479.9	GWSI LL NAD27 reprojected - Method G
208	1827	636011	636011	A-01-01 36BAB1	A-01-01 36BAB1	58-117215.0000	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387141.1	3695340.4	GWSI LL NAD27 reprojected - Method
210	1831	638631	638631	A-01-02 19C	A-01-02 19C	58-115024.0000	Mac Millan Richard D	Irrigation Use	Withdrawal	Groundwater	388453.7	3697595.1	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
211	1836	639889	639889	A-01-02 07DC	A-01-02 07DC	58-111160.0000	Owen Frank L & Eayleen	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	389308.7	3699597	GWSI LL NAD27 reprojected - Method
213	1858	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-100542.0000	Sparkletts Drinking Water Corp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
214	1864	800731	800731	A-02-03 20A	A-02-03 20A	56-002160.0000	Brophy College Preparatory	Small Municipal Provider	Withdrawal	Groundwater	400498.7	3707761	GWSI LL NAD27 reprojected - Method
215	1866	800735	800735	A-02-03 20DDA	A-02-03 20DDA	58-116105.0000	United States Of America	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400943.9	3706878.6	GWSI LL NAD27 reprojected - Method
216	1867	800748	800748	A-01-02 12CAA	A-01-02 12CAA	58-102109.0000	Holsum Bakery Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396865.3	3700991.9	GWSI LL NAD27 reprojected - Method
217	1875	800819	800819	A-01-03 18DDD	A-01-03 18DDD	58-110742.0000	Maricopa Packing Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	399290.1	3698698.2	GWSI LL NAD27 reprojected - Method G
219	1882	801051	801051	A-01-03 08DCA	A-01-03 08DCA	58-108805.0000	Phoenix Elementary School	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400391.5	3700785.6	GWSI LL NAD27 reprojected - Method G
46	1928	600469	600469	A-01-02 29DAC	A-01-02 29DAC	58-113286.0000	Lincoln David C	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391125.5	3695787.6	GWSI LL NAD27 reprojected - Method
51	1942	603866	603866	A-02-02 27ADD	A-02-02 27ADD	58-104090.0000	Marbar Corporation	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	394383.3	3706110	GWSI LL NAD27 reprojected - Method G
56	1969	605714	605714	A-01-02 19CAD	A-01-02 19CAD	56-002176.0000	Gustafson Derwent	Municipal Provider (Gw Only)	Withdrawal	Groundwater	388873.6	3697692.2	GWSI LL NAD27 reprojected - Method
161	2122	623534	623534	A-01-02 31CBB	A-01-02 31CBB	56-002201.0000	Peninsula Water Inc.	Municipal Provider (Gw Only)	Withdrawal	Groundwater	388242.9	3694526.8	GWSI LL NAD27 reprojected - Method
165	2144	625399	625399	A-01-02 33ADD	A-01-02 33ADD	58-130069.0000	Rogers Gilbert R	Irrigation Use	Withdrawal	Groundwater	392920.6	3694566.4	GWSI LL NAD27 reprojected - Method
171	2162	626269	626269	A-01-02 31AAA	A-01-02 31AAA	56-002201.0000	Peninsula Water Inc.	Municipal Provider (Gw Only)	Withdrawal	Groundwater	389644.1	3695260.7	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
174	2163	626416	626416	A-01-01 15AAD	A-01-01 15AAD	58-104050.0000	Homrighausen Lee Allen	Irrigation Use	Withdrawal	Groundwater	384871.8	3700080	GWSI LL NAD27 reprojected - Method
198	2166	626785	626785	A-01-02 09CCC	A-01-02 09CCC	58-113978.0000	Anderson-Clayton & Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391417.6	3700474.4	GWSI LL NAD27 reprojected - Method G
199	2167	626786	626786	A-01-02 33BBD	A-01-02 33BBD	58-113977.0000	Anderson Clayton & Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391477.9	3694952	GWSI LL NAD27 reprojected - Method
203	2196	629587	629587	A-01-03 08BDA	A-01-03 08BDA	58-100060.0000	Jefferson Square Ltd	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400167.1	3701335.8	GWSI LL NAD27 reprojected - Method G
212	2211	640003	640003	A-01-01 35AD	A-01-01 35AD	58-106280.0000	Willey Charles A	Irrigation Use	Withdrawal	Groundwater	386310	3694980.5	GWSI LL NAD27 reprojected - Method
220	2230	801094	801094	A-01-02 01BDB	A-01-02 01BDB	58-106886.0000	Greenwood Memorial Park	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396592.7	3702903.1	GWSI LL NAD27 reprojected - Method G

47	2275	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0001	Westside Industrial Park Ltd	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
48	2276	601546	601546	A-01-02 23DCD	A-01-02 23DCD	58-104234.0001	Tanner Land Co Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	395737.4	3696968.9	GWSI LL NAD27 reprojected - Method
135	2369	612452	612452	A-01-01 27BDA	A-01-01 27BDA	58-106659.0000	Stump Jess P	Irrigation Use	Withdrawal	Groundwater	384030.8	3696605.3	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
136	2370	612845	612845	A-01-02 22CBA	A-01-02 22CBA	59-512708.0000	Phoenix Redi-Mix Co., Inc.	Mineral Extraction	Withdrawal	Groundwater	393085.2	3697768	GWSI LL NAD27 reprojected - Method
139	2395	617310	617310	A-01-02 01AAA	A-01-02 01AAA	58-112445.0001	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397518.7	3703431.5	GWSI LL NAD27 reprojected - Method G
151	2409	619396	619396	A-01-02 35BAC	A-01-02 35BAC	58-117215.0001	Herseth Feed Lots, Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	394978.8	3695125.7	GWSI LL NAD27 reprojected - Method
157	2461	620583	620583	A-01-01 02DA	A-01-01 02DA	58-102820.0000	Brooks Bruce B	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	386400.8	3702800.6	GWSI LL NAD27 reprojected - Method G
166	2492	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-106942.0000	Vanderwey John A	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
166	2493	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-103837.0000	Weiler Carl Edward	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
166	2494	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-108706.0000	Rampey Lula Jackson	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
201	2530	628465	628465	A-01-02 28BDB2	A-01-02 28BDB2	59-512549.0000	Calmat Co Of Arizona	Dewatering Permit (Mining)	Withdrawal	Groundwater	391959.4	3696425.2	GWSI LL NAD27 reprojected - Method
208	2551	636011	636011	A-01-01 36BAB1	A-01-01 36BAB1	58-103684.0001	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387141.1	3695340.4	GWSI LL NAD27 reprojected - Method
221	2569	803485	803485	A-01-02 34ACC	A-01-02 34ACC	58-100176.0000	Rawlings Donald Roe	Irrigation Use	Withdrawal	Groundwater	393855.4	3694633	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
222	2572	803560	803560	A-01-01 27CDD	A-01-01 27CDD	59-513639.0000	Sletten Construction Co.	Temporary Dewatering Permits	Withdrawal	Groundwater	384036.6	3695533.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
223	2574	804008	804008	A-01-02 32DDD	A-01-02 32DDD	58-106942.0000	Vanderwey John A	Irrigation Use	Withdrawal	Groundwater	391310.7	3693875.8	GWSI LL NAD27 reprojected - Method
223	2575	804008	804008	A-01-02 32DDD	A-01-02 32DDD	58-108706.0000	Rampey Lula Jackson	Irrigation Use	Withdrawal	Groundwater	391310.7	3693875.8	GWSI LL NAD27 reprojected - Method
224	2582	804665	804665	A-01-01 22BAA	A-01-01 22BAA	58-108234.0000	Hurley Patrick J	Irrigation Use	Withdrawal	Groundwater	384029.2	3698734.7	GWSI LL NAD27 reprojected - Method
9999	2605	514597	514597	A-01-01 27CCC2	A-01-01 27CCC2	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
37	2606	514598	514598	A-01-01 27CCC1	A-01-01 27CCC1	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
38	2607	514848	514848	A-01-01 27CCD	A-01-01 27CCD	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383635.8	3695534.3	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
47	2626	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0002	Coldwater Industrial Park Ltd	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
47	2627	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0004	Ninety One Hundred	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
51	2638	603866	603866	A-02-02 27ADD	A-02-02 27ADD	58-104090.0001	Pincus, Lenore U - Trustee Of	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	394383.3	3706110	GWSI LL NAD27 reprojected - Method G
140	2756	617312	617312	A-02-02 36DCC	A-02-02 36DCC	58-112447.0001	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397226	3703581	GWSI LL NAD27 reprojected - Method G
147	2763	618655	618655	A-01-01 14BAB	A-01-01 14BAB	59-507636.0000	Crews Farms	General Industrial Use Withdrawal P	Withdrawal	Groundwater	385373.4	3700341.7	GWSI LL NAD27 reprojected - Method
174	2801	626416	626416	A-01-01 15AAD	A-01-01 15AAD	58-104050.0003	Pioneer Trust Co Of Arizona	Irrigation Use	Withdrawal	Groundwater	384871.8	3700080	GWSI LL NAD27 reprojected - Method
222	2824	803560	803560	A-01-01 27CDD	A-01-01 27CDD	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	384036.6	3695533.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
35	2830	510285	510285	A-01-01 27C	A-01-01 27C	59-519424.0000	City Of Phoenix	Dewatering Permit (Mining)	Withdrawal	Groundwater	383656.8	3695689.7	GWSI LL NAD27 reprojected - Method
36	2834	512987	512987	A-01-01 25BBB	A-01-01 25BBB	58-130662.0000	Viss Family Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	386516.1	3697134.3	GWSI LL NAD27 reprojected - Method
41	2850	518899	518899	A-01-01 10AAA	A-01-01 10AAA	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	384869.4	3701849.3	GWSI LL NAD27 reprojected - Method G
43	2852	519437	519437	A-01-01 03BDB	A-01-01 03BDB	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	383803.1	3703154.6	GWSI LL NAD27 reprojected - Method G
47	2874	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0005	Harbor Financial Group, Inc.	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
51	2876	603866	603866	A-02-02 27ADD	A-02-02 27ADD	58-104090.0002	Pincus, Lenore U - Trustee Of	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	394383.3	3706110	GWSI LL NAD27 reprojected - Method G
55	2881	605118	605118	A-01-02 24DAB	A-01-02 24DAB	58-115464.0001	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	397417.8	3697707.8	GWSI LL NAD27 reprojected - Method G
58	2883	606370	606370	A-01-01 26CAA	A-01-01 26CAA	58-110602.0001	Bill Luke Ranches	Irrigation Use	Withdrawal	Groundwater	385701.9	3696201.3	GWSI LL NAD27 reprojected - Method
59	2884	606371	606371	A-01-01 26ADA	A-01-01 26ADA	58-110602.0001	Bill Luke Ranches	Irrigation Use	Withdrawal	Groundwater	386412.2	3697080.1	GWSI LL NAD27 reprojected - Method
133	2894	609588	609588	A-01-02 28ADD	A-01-02 28ADD	58-111284.0000	Stanley Structures Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	392938.7	3696198.7	GWSI LL NAD27 reprojected - Method
134	2898	610166	610166	A-01-03 08ABB	A-01-03 08ABB	58-104638.0001	Downtown Phoenix Limited Ptsp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	400249.2	3701815.8	GWSI LL NAD27 reprojected - Method
207	3034	636011	636011	A-01-01 36BAB2	A-01-01 36BAB2	58-103684.0002	Herseth Feedlots, Inc.	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387141.1	3695340.4	GWSI LL NAD27 reprojected - Method
47	3069	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0006	Harbor Financial Group, Inc.	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
135	3109	612452	612452	A-01-01 27BDA	A-01-01 27BDA	58-106659.0001	Stump, Robert L, As Trustee	Irrigation Use	Withdrawal	Groundwater	384030.8	3696605.3	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
158	3127	621151	621151	A-02-03 29CCD	A-02-03 29CCD	58-111856.0000	St Joseph'S Hospital & Medical Center	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	399724	3705212.5	GWSI LL NAD27 reprojected - Method
174	3153	626416	626416	A-01-01 15AAD	A-01-01 15AAD	58-104050.0004	Pioneer Trust Co Of Arizona	Irrigation Use	Withdrawal	Groundwater	384871.8	3700080	GWSI LL NAD27 reprojected - Method
218	3169	800926	800926	A-01-01 16ACB	A-01-01 16ACB	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	382606.1	3699799.5	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
225	3177	805626	805626	A-01-01 25AAB	A-01-01 25AAB	58-130662.0000	Viss Family Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387742.5	3697098.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
40	3189	518181	518181	A-01-01 27CAC	A-01-01 27CAC	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383831.1	3695956.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
54	3220	604967	604967	A-01-01 28DAB	A-01-01 28DAB	58-110077.0002	City Of Phoenix	Irrigation Use	Withdrawal	Groundwater	383146.4	3696219.5	GWSI LL NAD27 reprojected - Method
110	3242	608371	608371	A-01-01 23DDA	A-01-01 23DDA	58-110593.0000	Estate Of D E Accomazzo	Irrigation Use	Withdrawal	Groundwater	386415.9	3697619	GWSI LL NAD27 reprojected - Method G
137	3306	613468	613468	A-01-02 20BCD	A-01-02 20BCD	58-105772.0001	King Algia Elvin	Irrigation Use	Withdrawal	Groundwater	389962.2	3698018.5	GWSI LL NAD27 reprojected - Method
148	3316	618775	618775	D-01-01 01BAA	D-01-01 01BAA	57-002514.0000	Peninsula Ditch Co	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	387329.5	3693767.3	GWSI LL NAD27 reprojected - Method
161	3321	623534	623534	A-01-02 31CBB	A-01-02 31CBB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	388242.9	3694526.8	GWSI LL NAD27 reprojected - Method
162	3322	623537	623537	A-01-02 31CAA	A-01-02 31DBB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	388939.5	3694426.3	GWSI LL NAD27 reprojected - Method
164	3327	624825	624825	A-01-01 16AAA	A-01-01 16AAA	58-111647.0010	Ratliff-Miller Development Co.	Irrigation Use	Withdrawal	Groundwater	383239.6	3700281.3	GWSI LL NAD27 reprojected - Method
165	3329	625399	625399	A-01-02 33ADD	A-01-02 33ADD	58-130069.0001	Tempe Associates Dba Estrella	Irrigation Use	Withdrawal	Groundwater	392920.6	3694566.4	GWSI LL NAD27 reprojected - Method
204	3343	629596	629596	A-01-02 05BDC	A-01-02 05BDC	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	390244	3702863.8	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
208	3348	636011	636011	A-01-01 36BAB1	A-01-01 36BAB1	58-117215.0002	Western Meat Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387141.1	3695340.4	GWSI LL NAD27 reprojected - Method
220	3354	801094	801094	A-01-02 01BDB	A-01-02 01BDB	58-106886.0001	Ifs Arizona Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396592.7	3702903.1	GWSI LL NAD27 reprojected - Method G
33	3363	505481	505481	A-01-01 22CDB	A-01-01 22CDB	58-111861.0001	Boschma Living Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	383753.6	3697290.3	GWSI LL NAD27 reprojected - Method
33	3364	505481	505481	A-01-01 22CDB	A-01-01 22CDB	58-103443.0002	Boschma Living Trust Dtd 7/25/84	Type 1 Gfr	Withdrawal	Groundwater	383753.6	3697290.3	GWSI LL NAD27 reprojected - Method
36	3366	512987	512987	A-01-01 25BBB	A-01-01 25BBB	58-130662.0001	Viss Family Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	386516.1	3697134.3	GWSI LL NAD27 reprojected - Method
47	3409	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0008	Talley Realty Finance And	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
50	3416	603550	603550	A-02-02 36CBB	A-02-02 36CBB	58-102416.0001	Shamrock Farms Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396390.7	3704197.9	GWSI LL NAD27 reprojected - Method G
139	3500	617310	617310	A-01-02 01AAA	A-01-02 01AAA	58-112447.0002	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397518.7	3703431.5	GWSI LL NAD27 reprojected - Method G
140	3501	617312	617312	A-02-02 36DCC	A-02-02 36DCC	58-112447.0002	Southeastern Public Service Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397226	3703581	GWSI LL NAD27 reprojected - Method G
166	3521	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-106942.0003	Williams Revocable Trust Agreement Dtd 2/18/82	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
167	3522	625439	625439	A-01-02 33CC	A-01-02 33CC	58-130069.0002	Rogers Gilbert R & Shirley W	Irrigation Use	Withdrawal	Groundwater	392064.6	3694267.8	GWSI LL NAD27 reprojected - Method
223	3554	804008	804008	A-01-02 32DDD	A-01-02 32DDD	58-106942.0003	Williams Revocable Trust Agreement Dtd 2/18/82	Irrigation Use	Withdrawal	Groundwater	391310.7	3693875.8	GWSI LL NAD27 reprojected - Method
225	3558	805626	805626	A-01-01 25AAB	A-01-01 25AAB	58-130662.0001	Viss Family Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	387742.5	3697098.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
213	3722	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-102405.0002	Crystal Bottled Waters	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
35	3732	510285	510285	A-01-01 27C	A-01-01 27C	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383656.8	3695689.7	GWSI LL NAD27 reprojected - Method
55	3772	605118	605118	A-01-02 24DAB	A-01-02 24DAB	58-115464.0002	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	397417.8	3697707.8	GWSI LL NAD27 reprojected - Method G
174	3837	626416	626416	A-01-01 15AAD	A-01-01 15AAD	58-104050.0002	Pioneer Trust Co Of Arizona	Irrigation Use	Withdrawal	Groundwater	384871.8	3700080	GWSI LL NAD27 reprojected - Method
47	3870	600620	600620	A-01-01 09DD	A-01-01 09DD	58-103354.0010	Westside Industrial Park Lp	Irrigation Use	Withdrawal	Groundwater	383304.4	3700745.6	GWSI LL NAD27 reprojected - Method
49	3873	603440	603440	A-01-01 28BCB	A-01-01 28BCB	58-101539.0001	Boschma Edward S & Mina C	Irrigation Use	Withdrawal	Groundwater	381743.5	3696655.5	GWSI LL NAD27 reprojected - Method
128	3884	608427	608427	A-01-01 21DDA	A-01-01 21DDA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	383266	3697333	GWSI LL NAD27 reprojected - Method G
137	3901	613468	613468	A-01-02 20BCD	A-01-02 20BCD	58-105693.0000	King Virgil Elwood	Irrigation Use	Withdrawal	Groundwater	389962.2	3698018.5	GWSI LL NAD27 reprojected - Method
59	3976	606371	606371	A-01-01 26ADA	A-01-01 26ADA	58-110602.0003	Edward C Levy Co	Irrigation Use	Withdrawal	Groundwater	386412.2	3697080.1	GWSI LL NAD27 reprojected - Method
133	3983	609588	609588	A-01-02 28ADD	A-01-02 28ADD	58-111284.0001	Coreslab Structures Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	392938.7	3696198.7	GWSI LL NAD27 reprojected - Method
45	4064	600468	600468	A-01-02 29DDA	A-01-02 29DDA	58-113285.0001	Jdl & Co Llc	Irrigation Use	Withdrawal	Groundwater	391329.4	3695748.1	GWSI LL NAD27 reprojected - Method

98	4073	607624	607624	A-01-01 11ADC	A-01-01 11ADC	59-512085.0000	Southwest Milling Co.	General Industrial Use Withdrawal P	Withdrawal	Groundwater	386172.7	3701235.4	GWSI LL NAD27 reprojected - Method G
164	4099	624825	624825	A-01-01 16AAA	A-01-01 16AAA	58-111647.0009	West Phoenix Venture	Irrigation Use	Withdrawal	Groundwater	383239.6	3700281.3	GWSI LL NAD27 reprojected - Method
166	4107	625400	625400	A-01-02 33BDA	A-01-02 33BDA	58-130069.0002	Rogers Gilbert R & Shirley W	Irrigation Use	Withdrawal	Groundwater	392072.2	3694945.4	GWSI LL NAD27 reprojected - Method
9999	4129	514597	514597	A-01-01 27CCC2	A-01-01 27CCC2	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
37	4130	514598	514598	A-01-01 27CCC1	A-01-01 27CCC1	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
40	4135	518181	518181	A-01-01 27CAC	A-01-01 27CAC	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	383831.1	3695956.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
139	4233	617310	617310	A-01-02 01AAA	A-01-02 01AAA	58-112445.0002	Southwestern Ice Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	397518.7	3703431.5	GWSI LL NAD27 reprojected - Method G
142	4235	617512	617512	A-01-01 21BCD	A-01-01 21BCD	58-115836.0001	Boschma Edward S & Mina Cj	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	382082.7	3697988.1	GWSI LL NAD27 reprojected - Method
35	4273	510285	510285	A-01-01 27C	A-01-01 27C	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	383656.8	3695689.7	GWSI LL NAD27 reprojected - Method
46	4311	600469	600469	A-01-02 29DAC	A-01-02 29DAC	58-113286.0001	Jdl & Co Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391125.5	3695787.6	GWSI LL NAD27 reprojected - Method
53	4316	604323	604323	A-01-02 35DDD	A-01-02 35DDD	58-114182.0002	Rogers, Gilbert R & Shirley W	Irrigation Use	Withdrawal	Groundwater	396127.3	3693789.2	GWSI LL NAD27 reprojected - Method G
153	4398	619468	619468	A-01-01 21AAA	A-01-01 21AAA	58-110585.0001	Accomazzo, James M	Irrigation Use	Withdrawal	Groundwater	383245.7	3698648.4	GWSI LL NAD27 reprojected - Method
154	4399	619469	619469	A-01-01 22CDA	A-01-01 22CDA	58-110585.0002	Brlbd Llc	Irrigation Use	Withdrawal	Groundwater	384074.4	3697545.1	GWSI LL NAD27 reprojected - Method
174	4427	626416	626416	A-01-01 15AAD	A-01-01 15AAD	58-104050.0005	Homrighausen Lee Allen & Phyllis E	Irrigation Use	Withdrawal	Groundwater	384871.8	3700080	GWSI LL NAD27 reprojected - Method
222	4445	803560	803560	A-01-01 27CDD	A-01-01 27CDD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	384036.6	3695533.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
135	4560	612452	612452	A-01-01 27BDA	A-01-01 27BDA	58-106659.0002	Stump, Robert L	Irrigation Use	Withdrawal	Groundwater	384030.8	3696605.3	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
153	4572	619468	619468	A-01-01 21AAA	A-01-01 21AAA	58-110585.0003	James Mark Accomazzo Marital Deduction Trust	Irrigation Use	Withdrawal	Groundwater	383245.7	3698648.4	GWSI LL NAD27 reprojected - Method
164	4584	624825	624825	A-01-01 16AAA	A-01-01 16AAA	58-111647.0012	Gould Revocable Trust Dtd 6/1/77	Irrigation Use	Withdrawal	Groundwater	383239.6	3700281.3	GWSI LL NAD27 reprojected - Method
216	4598	800748	800748	A-01-02 12CAA	A-01-02 12CAA	58-102109.0003	Holsum Bakery, Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396865.3	3700991.9	GWSI LL NAD27 reprojected - Method
9999	4607	514597	514597	A-01-01 27CCC2	A-01-01 27CCC2	59-571627.0000	City Of Phoenix	Temporary Dewatering Permits	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
37	4608	514598	514598	A-01-01 27CCC1	A-01-01 27CCC1	59-571627.0000	City Of Phoenix	Temporary Dewatering Permits	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
40	4609	518181	518181	A-01-01 27CAC	A-01-01 27CAC	59-571627.0000	City Of Phoenix	Temporary Dewatering Permits	Withdrawal	Groundwater	383831.1	3695956.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
45	4662	600468	600468	A-01-02 29DDA	A-01-02 29DDA	58-113285.0002	Jdl & Co	Irrigation Use	Withdrawal	Groundwater	391329.4	3695748.1	GWSI LL NAD27 reprojected - Method
105	4684	607728	607728	A-01-01 02CCC	A-01-01 02CCC	58-100178.0000	Rousseau Farming Co.	Irrigation Use	Withdrawal	Groundwater	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G
142	4708	617512	617512	A-01-01 21BCD	A-01-01 21BCD	58-115836.0002	Boschma Living Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	382082.7	3697988.1	GWSI LL NAD27 reprojected - Method
154	4712	619469	619469	A-01-01 22CDA	A-01-01 22CDA	58-110585.0004	Accomazzo Survivor'S Trust	Irrigation Use	Withdrawal	Groundwater	384074.4	3697545.1	GWSI LL NAD27 reprojected - Method
198	4734	626785	626785	A-01-02 09CCC	A-01-02 09CCC	58-113978.0001	Portco Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391417.6	3700474.4	GWSI LL NAD27 reprojected - Method G
213	4741	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-111016.0002	Mckesson Water Products Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
216	4743	800748	800748	A-01-02 12CAA	A-01-02 12CAA	58-102109.0004	Holsum Bakery Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	396865.3	3700991.9	GWSI LL NAD27 reprojected - Method
153	4916	619468	619468	A-01-01 21AAA	A-01-01 21AAA	58-110585.0005	Country Place Llc	Irrigation Use	Withdrawal	Groundwater	383245.7	3698648.4	GWSI LL NAD27 reprojected - Method
153	4917	619468	619468	A-01-01 21AAA	A-01-01 21AAA	58-110585.0004	Accomazzo Survivor'S Trust	Irrigation Use	Withdrawal	Groundwater	383245.7	3698648.4	GWSI LL NAD27 reprojected - Method
167	4926	625439	625439	A-01-02 33CC	A-01-02 33CC	58-130069.0005	Tahoe Llc	Irrigation Use	Withdrawal	Groundwater	392064.6	3694267.8	GWSI LL NAD27 reprojected - Method
213	4931	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-111016.0003	Ds Of North America	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
213	4932	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-100542.0001	Ds Of North America	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
213	4933	800680	800680	A-02-02 26CBD	A-02-02 26CBD	58-102405.0003	Ds Of North America	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	395062.8	3705488.7	GWSI LL NAD27 reprojected - Method G
55	5063	605118	605118	A-01-02 24DAB	A-01-02 24DAB	58-115464.0003	United Metro Materials Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	397417.8	3697707.8	GWSI LL NAD27 reprojected - Method G
198	5163	626785	626785	A-01-02 09CCC	A-01-02 09CCC	58-113978.0003	Portco Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391417.6	3700474.4	GWSI LL NAD27 reprojected - Method G
217	5180	800819	800819	A-01-03 18DDD	A-01-03 18DDD	58-110742.0001	Maricopa Packing Company, Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	399290.1	3698698.2	GWSI LL NAD27 reprojected - Method G
123	5327	608391	608391	A-02-01 24BDD	A-02-01 24BDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	387721.3	3707470	GWSI LL NAD27 reprojected - Method
217	5411	800819	800819	A-01-03 18DDD	A-01-03 18DDD	58-110742.0003	Maricopa Packing Company Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	399290.1	3698698.2	GWSI LL NAD27 reprojected - Method G
222	5416	803560	803560	A-01-01 27CDD	A-01-01 27CDD	59-571627.0000	City Of Phoenix	Temporary Dewatering Permits	Withdrawal	Groundwater	384036.6	3695533.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
135	5515	612452	612452	A-01-01 27BDA	A-01-01 27BDA	58-106659.0003	Robert L Stump Revocable Living Trust Dtd 8/29/01	Irrigation Use	Withdrawal	Groundwater	384030.8	3696605.3	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
198	5553	626785	626785	A-01-02 09CCC	A-01-02 09CCC	58-113978.0004	Portco Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391417.6	3700474.4	GWSI LL NAD27 reprojected - Method G
201	5554	628465	628465	A-01-02 28BDB2	A-01-02 28BDB2	59-512549.0001	Calmat Co Of Arizona	Dewatering Permit (Mining)	Withdrawal	Groundwater	391959.4	3696425.2	GWSI LL NAD27 reprojected - Method
217	5562	800819	800819	A-01-03 18DDD	A-01-03 18DDD	58-110742.0004	Maricopa Packing Company Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	399290.1	3698698.2	GWSI LL NAD27 reprojected - Method G
224	5566	804665	804665	A-01-01 22BAA	A-01-01 22BAA	58-108234.0001	Madilyn B Hurley Revocable Living Trust Of 1998	Irrigation Use	Withdrawal	Groundwater	384029.2	3698734.7	GWSI LL NAD27 reprojected - Method
145	5784	618120	618120	A-01-01 23DBA	A-01-01 23DBA	58-110593.0001	The Newport Group 17 Llc	Irrigation Use	Withdrawal	Groundwater	385937.8	3698025.1	GWSI LL NAD27 reprojected - Method
37	5950	514598	514598	A-01-01 27CCC1	A-01-01 27CCC1	59-571627.0001	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
40	5952	518181	518181	A-01-01 27CAC	A-01-01 27CAC	59-571627.0001	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	383831.1	3695956.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
49	6002	603440	603440	A-01-01 28BCB	A-01-01 28BCB	58-116209.0002	Boschma Living Trust Dtd 7/25/84	Irrigation Use	Withdrawal	Groundwater	381743.5	3696655.5	GWSI LL NAD27 reprojected - Method
98	6007	607624	607624	A-01-01 11ADC	A-01-01 11ADC	58-105687.0001	Westside Milling Co Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	386172.7	3701235.4	GWSI LL NAD27 reprojected - Method G
105	6008	607728	607728	A-01-01 02CCC	A-01-01 02CCC	58-100178.0001	Chicago Title Insurance Co	Irrigation Use	Withdrawal	Groundwater	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G
164	6043	624825	624825	A-01-01 16AAA	A-01-01 16AAA	58-111647.0018	Buckeye 65c Lllp	Irrigation Use	Withdrawal	Groundwater	383239.6	3700281.3	GWSI LL NAD27 reprojected - Method
198	6049	626785	626785	A-01-02 09CCC	A-01-02 09CCC	58-113978.0005	Harvard Water Co Llc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	391417.6	3700474.4	GWSI LL NAD27 reprojected - Method G
222	6063	803560	803560	A-01-01 27CDD	A-01-01 27CDD	59-571627.0001	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	384036.6	3695533.6	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
203	90001	629587	629587	A-01-03 08BDA	A-01-03 08BDA	58-100060.0001	HHLUHRS LLC	TYPE 2 NON-IRRIGATION GFR	WITHDRAWAL	GROUNDWATER	400167.1	3701335.8	GWSI LL NAD27 reprojected - Method G
105	90003	607728	607728	A-01-01 02CCC	A-01-01 02CCC	58-100178.0005	CAPRI I LLC	IRRIGATION USE	WITHDRAWAL	GROUNDWATER	384981.8	3702133.3	GWSI LL NAD27 reprojected - Method G
9999	90004	514597	514597	A-01-01 27CCC2	A-01-01 27CCC2	59-571627.0001	CITY OF PHOENIX	EXTENDED DEWATERING PERMITS	WITHDRAWAL	GROUNDWATER	383440.9	3695534.9	RoGR UTM reprojected to NAD83 assuming orig coords are NAD27
52	90006	604164	604164	A-01-03 20BAD	A-01-03 20BAD	58-105296.0001	CEMEX CONSTRUCTION MATERIALS SOUTH LLC	TYPE 2 MINERAL EXTRACT GFR	WITHDRAWAL	GROUNDWATER	400063.1	3698213	GWSI LL NAD27 reprojected - Method G
98	90007	607624	607624	A-01-01 11ADC	A-01-01 11ADC	58-105687.0002	SOUTHWEST PET PRODUCTS INC	TYPE 2 NON-IRRIGATION GFR	WITHDRAWAL	GROUNDWATER	386172.7	3701235.4	GWSI LL NAD27 reprojected - Method G
155	90009	619745	619745	A-01-02 18AAA	A-01-02 18AAA	58-109257.0002	PROPERTY RESERVE ARIZONA LLC	IRRIGATION USE	WITHDRAWAL	GROUNDWATER	389684.2	3700318.1	GWSI LL NAD27 reprojected - Method G
126	90011	608410	608410	A-02-01 21AAD	A-02-01 21AAD	74-581371.0002	CITY OF GLENDALE	RECOVERY WELL PERMITS	RECOVERED	SALT/VERDE WATER RECOVERED/SPILLWATER	383370.4	3708353.3	GWSI LL NAD27 reprojected - Method
146	618512	618512	618512	A-02-02 26BDC	A-02-02 26BDC	56-002196.0000	OSBORN INVESTORS	WATER PROVIDERS	WITHDRAWAL	GROUNDWATER	395233	3705992.6	GWSI LL NAD27 reprojected - Method G

SPEC_USE	IRRIG_CODE	PUMP1992	PUMP1993	PUMP1994	PUMP1995	PUMP1996	PUMP1997	PUMP1998	PUMP1999	PUMP2000	PUMP2001	PUMP2002	PUMP2003	PUMP2004	PUMP2005	PUMP2006	PUMP2007	PUMP2008	PUMP2009	L1	L2	L3	L4
DAIRY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.10	0.10
TEMPORARY DEWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.00	0.00	0.00	0.00
IRRIGATION	1	0	548	834	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
SAND/GRAVEL > 100 AFA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.40	0.40	0.10
INDUSTRIAL - MULTIPLE USES	2	139	168	139	125	157	173	210	225	224	160	0	130	128	137	157	78	83	79	0.05	0.05	0.80	0.10
SAND/GRAVEL > 100 AFA	2	326	492	381	196	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20	0.80	0.00	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.15	0.05
SAND/GRAVEL > 100 AFA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.30	0.10	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.40	0.40	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.10	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.30	0.10	0.10
IRRIGATION	1	2631	2072	2770	3553	3112	1580	3634	3764	3139	2563	3960	2411	3089	2476	2772	2557.67	3262.39	4113.55	0.70	0.25	0.05	0.00
IRRIGATION	1	623	776	829	1416	1724	1924	131	1543	1617	1937	1879	2055	1879	1853	1994	2060.55	2231.06	2051.92	0.50	0.45	0.05	0.00
IRRIGATION	1	825	1367	3212	3792	3906	5075	293	2495	2150	1846	1825	2005	1924	937	1848	1623.97	1670.08	1702.29	0.35	0.60	0.05	0.00
IRRIGATION	1	653	1112	1250	1263	1422	1349	285	1534	1352	1417	1302	1333	1562	1313	1377	1283.95	1427.5	921.23	0.50	0.40	0.10	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.50	0.10	0.00
IRRIGATION	1	1114	785	1586	710	812	940	1215	1653	2061	585	1777	2239	2566	1512	2044	1866.7	2372.45	2577.39	0.50	0.45	0.05	0.00
IRRIGATION	1	1147	1470	1481	1639	2172	1080	1298	1665	2002	1845	878	1680	1917	1662	1814	1063.86	2099.91	2090.48	0.50	0.45	0.05	0.00
IRRIGATION	1	706	915	1189	1195	1535	1334	971	1236	806	2033	1620	1917	1918	1663	1666	1499.25	1696.28	1575.02	0.20	0.70	0.05	0.05
IRRIGATION	1	764	2078	2039	1665	1784	1034	1407	2006	1962	1902	2012	2239	2076	1863	1688	1651.26	1921.95	1483.32	0.35	0.55	0.10	0.00
IRRIGATION	1	557	469	428	1017	1082	823	507	1086	1382	1231	1131	1421	1493	854	1132	1240.71	1229.56	841.68	0.50	0.20	0.25	0.05
IRRIGATION	1	897	441	594	1656	1584	1938	1306	1867	2087	2019	1804	2005	1696	1693	1395	1445.81	1716.61	1499.8	0.30	0.05	0.60	0.05
IRRIGATION	1	3163	3630	3984	3589	2774	3086	3328	3266	3706	3003	3509	2865	2881	2593	2900	2512.58	3203.1	1872.35	0.60	0.30	0.10	0.00
IRRIGATION	1	2656	3215	3640	2963	1434	1874	2238	2325	2924	2025	2533	1847	2213	1824	1869	1153.56	1428.57	1574.06	0.70	0.25	0.05	0.00
IRRIGATION	1	2239	3639	5079	4130	3503	3818	1564	4640	4677	3300	4040	3695	3626	3775	4103	4093.28	2839.21	4566.35	0.40	0.55	0.05	0.00
IRRIGATION	1	1773	2474	3251	3120	2940	2820	2592	3132	1921	2171	3144	1586	2001	1534	1981	1851.81	1996.05	1841.99	0.50	0.45	0.05	0.00
IRRIGATION	1	1335	1327	1808	1847	1981	1272	2275	2631	2423	2078	2789	1571	2080	1780	2151	1650.99	2225.24	2566.88	0.75	0.20	0.05	0.00
IRRIGATION	1	3316	5114	6448	5198	1986	2927	4805	5875	4562	3994	4659	3888	2886	3314	3456	3203.79	3707.49	4096.89	0.00	0.75	0.10	0.05
IRRIGATION	1	4215	3136	3002	3770	3214	2958	4056	5499	3241	3520	4256	2600	2531	2573	3142	3419.61	3111.01	3493.16	0.00	0.65	0.20	0.05
IRRIGATION	1	2017	3685	4497	3085	3374	2662	3719	4913	3582	3454	3950	3083	2980	2637	3743	3668.8	3065.63	3499.62	0.55	0.35	0.10	0.00
IRRIGATION	1	1300	1609	2015	1892	2152	1443	1888	1855	2759	1883	2637	2176	2225	1648	1912	2314.86	2329.12	1296.87	0.45	0.40	0.05	0.00
IRRIGATION	1	3302	4167	4732	4887	7343	4501	2344	6398	3222	3584	4032	3722	3100	3843	3939	3720.56	1902.73	3822.97	0.55	0.35	0.10	0.00
IRRIGATION	1	3798	482	5169	6098	6243	5636	3685	3617	4342	3728	4518	3431	5972	422	4779	3270.24	1677.31	2699.45	0.55	0.40	0.05	0.00
IRRIGATION	1	682	823	1175	889	995	899	933	1174	1233	1061	1225	1092	319	903	1424	1153.29	1173.95	88.04	0.10	0.80	0.10	0.00
IRRIGATION	1	2946	4254	5603	5499	5587	5897	3903	2566	3108	2446	2770	2867	1741	3586	3825	3656.98	4019.16	4261.09	0.65	0.30	0.05	0.00
IRRIGATION	1	1774	2010	2856	2293	1826	2431	2281	3221	2524	3019	3008	2469	2459	1729	3124	2475.84	3090.27	2870.15	0.45	0.50	0.05	0.00
IRRIGATION	1	1956	3298	4170	3903	3618	3422	4376	4508	3121	4287	4295	2976	3144	3837	3401	3670.92	4108.3	4298.19	0.05	0.75	0.10	0.05
IRRIGATION	1	1411	2108	3976	2371	3654	2543	3561	2251	1904	2490	2764	2339	2775	2777	2542	2446.38	2537.01	2086.23	0.10	0.70	0.10	0.00
IRRIGATION	1	2337	2668	3664	3296	2819	2961	2836	2257	3208	3153	3028	2830	2654	2071	1539	1164.29	1921.98	1387.04	0.60	0.30	0.10	0.00
IRRIGATION	1	1868	3502	4065	3460	3074	2948	4975	4329	3537	3565	4288	4470	4299	4083	4487	3713.96	4542.75	5053.4	0.70	0.25	0.05	0.00
IRRIGATION	1	1635	2175	3599	3192	2591	2610	4024	3586	2946	2483	2854	2587	2216	2626	2500	2552.93	2848.93	2291.59	0.35	0.55	0.05	0.05
IRRIGATION	1	2081	2906	3843	2858	3150	2161	2181	2845	2698	1820	2075	1799	2067	2632	3259	1966.46	2448.06	2780.1	0.25	0.65	0.05	0.05
IRRIGATION	1	1964	2192	1639	2771	3172	2682	2777	2030	2616	2795	2300	2667	2268	2867	2718	2827.4	2503.21	2242.78	0.05	0.70	0.15	0.10
IRRIGATION	1	1154	1656	2809	2033	2436	531	1865	1696	1750	1128	2050	1481	767	1383	1536	1434.49	1138.78	583.97	0.20	0.15	0.45	0.20
IRRIGATION	1	1280	1684	1925	1866	1632	633	1127	1774	1571	1548	1554	1668	1457	1027	1190	1724.75	2079.81	1412.59	0.65	0.20	0.10	0.05
IRRIGATION	1	1382	1611	2527	2054	1685	1340	1005	2090	2335	2093	2193	2024	2306	938	1763	1761.38	1870.14	1838.32	0.10	0.45	0.35	0.10
IRRIGATION	1	1420	1712	1682	1513	1612	559	1083	1423	1969	1839	2451	1417	1862	1355	1417	1763.94	1594.4	1629.13	0.25	0.45	0.20	0.10
IRRIGATION	1	1268	4402	2312	2428	1769	1796	1472	1885	760	1570	2401	2454	2331	1946	1816	1741.66	724.52	1634.78	0.30	0.60	0.05	0.05
IRRIGATION	1	2346	3571	3540	3683	2817	1511	1621	2372	1108	2562	2642	3327	2725	2467	2318	2108.2	2004.1	1911.39	0.00	0.70	0.15	0.05
INDUSTRIAL - COMMERCIAL BUSINESS	2	12	16	17	15	15	15	16	16	18	7	25	32	33	0	0	0	0	0	0.10	0.20	0.40	0.30
IRRIGATION	1	10	34	579	10	633	901	106	1599	1414	1035	1666	2032	1319	110	275	1211.41	0	266.13	0.15	0.45	0.35	0.05
IRRIGATION	1	126	11	81	147	26	373	0	113	1032	0	1407	0	0	0	0	0	0	0	0.00	0.45	0.45	0.10
IRRIGATION	1	168	373	3097	3039	2778	3092	2419	2421	1445	1251	2535	117	0	0	0	0	0	0	0.35	0.40	0.15	0.10
IRRIGATION	1	2542	3386	4056	3517	3739	3609	3072	3207	3415	3383	3623	0	0	0	0	0	0	0	0.50	0.20	0.20	0.10
IRRIGATION	1	31	109	657	726	110	1086	810	999	1381	1679	1739	1138	1383	119	175	105.51	0	14.8	0.40	0.45	0.10	0.05
IRRIGATION	1	169	19	211	232	941	734	521	972	849	1198	1504	1383	828	0	60	64.58	0	113.97	0.40	0.40	0.10	0.10
IRRIGATION	1	102	26	167	59	1743	1290	648	1443	0	0	0	0	0	0	0	707.62	0	173.66	0.00	0.10	0.40	0.40
IRRIGATION	1	24	11	53	14	326	672	115	586	1163	1174	1395	562	404	1	61	169.8	0	209.3	0.10	0.15	0.70	0.05
IRRIGATION	1	11	1	34	54	5	346	45	503	425	441	526	1052	1134	27	123	376.95	0	18.4	0.30	0.05	0.10	0.55
IRRIGATION	1	26	26	101	120	221	476	46	371	657	232	863	689	355	52	9	96.16	0	39.5	0.00	0.10	0.75	0.10
IRRIGATION	1	101	70	185	157	370	565	220	119	0	381	637	343	672	108	94	153.61	0	42.08	0.35	0.55	0.10	0.00
IRRIGATION	1	232	291	346	243	820	720	518	781	699	502	1446	1112	1148	3	251	919.2	0	11.76	0.60	0.30	0.10	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	1379	1057	49	10	430.22	0	35.65	0.15	0.05	0.40	0.40
IRRIGATION	1	32	13	501	15	544	792	144	533	0	0	0	0	7	0	0	0	0	10.74	0.00	0.40	0.50	0.10
IRRIGATION	1	27	32	1046	41	287	1279	151	750	0	0	0	0	0	0	0	0	0	0.55	0.25	0.10	0.40	0.25
IRRIGATION	1	15	3	46	4	7	8	2	0	12	0	0	0	0	0	0	0	0	0.1	0.00	0.60	0.25	0.15
IRRIGATION	1	6	4	53	9	75	139	4	382	203	28	183	230	537	0	156	287.3	0	41.74	0.00	0.10	0.30	0.60
IRRIGATION	1	16	31	367	85	717	883	161	545	0	0	0	0	0	0	0	0	0	1.36	0.05	0.70	0.10	0.15
IRRIGATION	1	53	24	255	243	838	1254	158	1625	2304	1983	1978	823	1700	0	22	102.61	0	19.8	0.40	0.20	0.35	0.05
IRRIGATION	1	9	8	282	30	440	239	47	894	981	703	1100	841	433	33	145	714.65	0	178.59	0.10	0.20	0.30	0.40
IRRIGATION	1	201	68	40	49	45	332	45	16	361	19	1	130	326	2	111	165.18	0	0.45	0.10	0.50	0.30	0.10
IRRIGATION	1	41	62	769	39	854	968	180	2452	2121	1560	1873	1698	1339	61	253	1321.2	0	297.45	0.20	0.60	0.15	0.05
IRRIGATION	1	18	68	169	68	318	1329	321	967	1437	686	1773	943	1642	39	1	12.11	0	0.18	0.20	0.30	0.40	0.10
IRRIGATION	1	0	5	144	104	71	1741	34	1228	1860	1421	1859	1419	1424	106	33	77.27	0	72.76	0.30	0.50	0.10	0.10

IRRIGATION	1	17	10	150	43	196	829	337	855	1671	1418	1893	1406	1183	75	99	52.04	0	48.24	0.20	0.50	0.10	0.20
IRRIGATION	1	0	0	6	0	0	678	142	412	2134	1026	1663	929	526	90	5	73.35	0	37.9	0.10	0.30	0.20	0.40
IRRIGATION	1	62	366	112	888	695	1369	807	750	431	1339	1776	1629	1812	2053	1574	1456.19	0	91.22	0.00	0.40	0.10	0.40
IRRIGATION	1	2	3	38	1	88	32	18	548	718	518	260	429	657	4	0	377.61	0	49.35	0.10	0.05	0.15	0.70
IRRIGATION	1	260	204	53	514	84	525	557	910	872	916	1205	1332	864	0	0	69.95	0	11.8	0.10	0.60	0.25	0.05
MUNICIPAL	2	421	128	371	268	396	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.10	0.60	0.30
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.20	0.30	0.50
MUNICIPAL	2	283	325	523	461	237	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.90	0.10
AIR COND/COOLING	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.20	0.40	0.10
SAND/GRAVEL > 100 AFA	1	142	151	122	157	37	12	21	13	15	18	19	26	34	17	20	22.5	26.5	15.5	0.50	0.40	0.10	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	84	40	93	190	133	914	307	1249	997	1087	1656	1361	1068	27	8	92.57	0	0.33	0.00	0.10	0.40	0.45
COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.20	0.80	0.00
COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.10	0.40	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.40	0.40	0.10
DAIRY	2	92	85	81	81	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.40	0.15	0.15
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
IRRIGATION	1	19	50	478	13	0	434	102	381	0	17	373	1174	784	59	247	555.78	0	156.12	0.10	0.10	0.70	0.10
IRRIGATION	1	0	0	290	0	253	517	368	586	687	590	0	0	684	0	0	0	0	0	0.20	0.40	0.30	0.10
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.10	0.10
INDUSTRIAL - AGRICULTURAL PROCESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.30	0.15	0.05
AIR COND/COOLING	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.60	0.10	0.00
FEEDLOT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.40	0.20	0.10
IRRIGATION	1	0	0	679	0	569	867	655	769	661	531	624	0	7	0	0	0	0	0	0.20	0.40	0.30	0.10
IRRIGATION	2	16	6	318	344	257	155	0	0	0	0	0	0	0	0	0	0	0	0	0.20	0.60	0.10	0.10
IRRIGATION	2	0	0	301	0	82	475	0	557	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.10	0.10
IRRIGATION	1	0	0	1005	60	2230	2449	1429	1407	912	537	0	668	1136	730	904	180.1	0	0	0.10	0.60	0.20	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.15	0.70	0.05
MUNICIPAL	2	9	3	4	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.60	0.10	0.00
MUNICIPAL	2	1	2	0	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0.30	0.60	0.10	0.00
TURF - GOLF COURSE	2	10	0	16	15	49	10	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.20	0.50	0.10
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	1419	1015	2062	2372	2337	2638	2152	2291	2154	1642	1374	876	724	110	131	89.45	85.6	0	0.10	0.70	0.15	0.05
IRRIGATION	1	672	407	651	1097	1280	1282	930	1254	1223	766	1168	572	135	98	6	0	0	0	0.40	0.30	0.20	0.10
IRRIGATION	1	914	654	853	722	600	562	401	393	405	331	402	792	451	388	280	316.13	218.7	0	0.30	0.50	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.30	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.30	0.30	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20	0.20	0.20	0.40
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
MUNICIPAL	2	12	35	28	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.10	0.90	0.00
MUNICIPAL	2	92	157	254	392	333	29	147	186	124	187	136	134	202	245	173	282.25	101.99	67.24	0.30	0.05	0.45	0.20
MUNICIPAL	2	77	63	32	46	82	110	66	87	20	0	0	0	0	0	0	0	0	0	0.30	0.10	0.30	0.30
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.80	0.00	0.15	0.05
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.65	0.20	0.05
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.80	0.00	0.15	0.05
IRRIGATION	1	0	3	0	0	77	497	143	1112	912	688	766	659	520	286	343	3.04	0	524.52	0.20	0.50	0.10	0.20
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.10	0.70	0.20
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.65	0.25	0.10
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.65	0.25	0.10
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.60	0.20	0.10
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.70	0.15	0.05
MUNICIPAL	2	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0.20	0.05	0.70	0.05
IRRIGATION	2	55	69	321	38	396	504	86	988	907	613	941	719	422	27	68	463.02	0	97.17	0.10	0.65	0.20	0.05
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.30	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.35	0.15	0.20	0.30
INDUSTRIAL	2	675	1159	1160	1154	1372	1186	558	0	0	0	0	0	0	0	0	0	0	0	0.00	0.70	0.30	0.00
TURF - CEMETERY	1	105	86	98	80	94	105	95	100	126	134	132	123	0	142	153	96.81	105.72	124.5	0.20	0.50	0.15	0.15
AGRICULTURAL PROCESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.25	0.25	0.35
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.60	0.10	0.00
DAIRY	2	55	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	0.50	0.25	0.00
INDUSTRIAL	2	50	50	50	50	60	68	68	0	134	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
MUNICIPAL	2	40	41	48	45	47	46	46	57	48	27	39	53	48	41	54	54.46	60.23	56.12	0.10	0.00	0.20	0.70
INDUSTRIAL - LANDSCAPING	2	4	4	5	5	5	2	2	0	0	3	1	2	0	0	0	0	0	0	0.10	0.00	0.20	0.70
AIR COND/COOLING	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.70	0.20	0.00
STOCKWATER - INDUSTRIAL	2	4	10	20	0	0	0	0	0	6	13	0	0	0	0	0	0	0	0	0.20	0.70	0.10	0.00
INDUSTRIAL - AIR COND/COOLING	2	41	0	40	11	0	14	14	14	14	14	0	0	0	0	0	0	0	0	0.30	0.60	0.10	0.00
FEEDLOT	2	6	10	8	13	17	15	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
TURF	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.30	0.10	0.00
MUNICIPAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.25	0.10	0.05
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
MUNICIPAL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.25	0.10	0.05
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
INDUSTRIAL	2	9	17	14	21	24	24	4	5	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.90	0.10
INDUSTRIAL - AGRICULTURAL PROCESS	2	1	3	3	3	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0.25	0.50	0.25	0.00
INDUSTRIAL - AIR COND/COOLING	2	353	293	341	310	486	428	588	469	489	525	421	474	292	319	253	223	903	0	0.30	0.50	0.10	0.10
IRRIGATION	2	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
TURF	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20	0.40	0.40	0.00

IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
SAND/GRAVEL > 100 AFA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
SAND AND GRAVEL	1	391	312	455	331	177	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
INDUSTRIAL - COMMERCIAL BUSINESS	2	202	128	115	144	122	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.20	0.80	0.00
AGRICULTURAL PROCESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.40	0.20	0.10
FEEDLOT	2	10	29	33	12	12	24	14	7	6	14	9	0	0	0	0	0	0	0	0.10	0.15	0.70	0.05
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	0	466	0	0	0	0	0	0	0	0	0	0	147	0	0	0	89.25	0	0.50	0.40	0.10	0.00
SAND AND GRAVEL	2	14	36	42	23	54	478	119	716	869	544	429	1086	0	0	0	0	0	0	0.40	0.40	0.20	0.00
FEEDLOT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.25	0.25	0.35
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
TEMPORARY DEWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	2	285	169	156	179	753	859	753	1196	1470	1196	1451	1395	0	0	0	0	0	0	0.30	0.30	0.30	0.10
EXTENDED DEWATER	2	3096	1894	0	235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
EXTENDED DEWATER	2	2115	5131	4789	4543	2426	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
EXTENDED DEWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
TURF	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.10	0.40	0.00
INDUSTRIAL	1	4	4	4	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0.20	0.60	0.20	0.00
IRRIGATION	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
EXTENDED DEWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
TEMPORARY DEWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
DAIRY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
MUNICIPAL	2	362	437	39	28	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
MUNICIPAL	2	0	285	496	538	759	407	10	4	2	0	0	0	0	0	0	0	0	0	0.20	0.60	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
INDUSTRIAL - COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
SAND/GRAVEL > 100 AFA	2	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.10	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.30	0.10	0.10
STOCKWATER	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
AIR COND/COOLING	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.20	0.40	0.10
FEEDLOT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.25	0.25	0.35
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
IRRIGATION	1	12	92	178	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
INDUSTRIAL	2	232	493	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20	0.00	0.10	0.70
IRRIGATION	1	1	7	240	142	552	732	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
MUNICIPAL	2	6	11	24	24	15	18	8	0	0	0	0	0	0	0	0	0	0	0	0.00	0.25	0.65	0.10
DAIRY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
EXTENDED DEWATER	2	2805	2688	2469	1141	907	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	467	566	560	633	657	616	557	934	1066	1059	636	643	688	708	789	0	0	0	0.30	0.50	0.15	0.05
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	583	0	0	0	0	0	0	0	0.60	0.30	0.10	0.00
IRRIGATION	2	0	0	135	103	101	305	831	680	470	331	941	675	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	159	369	691	481	514	701	311	1048	571	529	715	238	209	0	0	0	0	0	0.30	0.50	0.10	0.10
MUNICIPAL	2	15	21	27	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.25	0.10	0.05
MUNICIPAL	1	85	66	67	50	63	62	30	0	0	0	0	0	0	0	0	0	0	0	0.00	0.50	0.20	0.20
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.20	0.50	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
MUNICIPAL	2	18	23	18	48	43	43	46	37	13	0	0	0	0	0	0	0	0	0	0.25	0.50	0.25	0.00
INDUSTRIAL - FLOATING RIGHT	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.25	0.25	0.35
TURF - CEMETERY	2	172	98	115	100	172	238	408	418	136	0	1	6	0	0	0	0	0	0	0.20	0.40	0.40	0.00
DAIRY	2	77	59	62	78	60	93	97	102	114	88	115	0	0	0	0	0	0	0	0.30	0.50	0.10	0.10
DAIRY	2	48	51	116	124	122	124	132	151	148	136	150	143	151	155	140	160.4	167.88	137.79	0.30	0.50	0.10	0.10
DAIRY	2	60	57	52	48	0	52	60	75	71	80	84	109	111	115	113	115	116	117	0.50	0.50	0.00	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
DAIRY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0.05	0.80	0.10
COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.20	0.80	0.00
COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.10	0.40	0.00
IRRIGATION	1	929	0	455	462	604	502	380	486	521	649	584	599	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	1	805	626	672	0	673	612	533	935	1055	634	0	0	32	0	0	0	0	0	1.00	0.00	0.00	0.00
IRRIGATION	1	29	147	0	77	186	112	64	122	272	308	142	21	0	0	0	0	0	0	0.40	0.40	0.20	0.00
DAIRY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
INDUSTRIAL	2	16	20	15	19	25	29	30	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
EXTENDED DEWATER	2	0	2044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
SAND/GRAVEL > 100 AFA	2	0	148	88	279	0	256	204	277	316	333	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
IRRIGATION	1	0	0	745	0	658	167	0	0	0	0	0	0	0	0	0	0	0	0	0.60	0.20	0.15	0.05
IRRIGATION	1	0	0	1158	0	130	668	568	736	421	235	541	369	449	0	0	0	0	0	0.10	0.40	0.40	0.10
IRRIGATION	1	0	0	499	505	246	692	155	241	278	159	895	316	364	0	84	210.86	0	100.03	0.00	0.20	0.50	0.30
IRRIGATION	2	0	0	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
IRRIGATION	2	0	0	0	462	602	690	385	0	717	346	34	534	795	0	302	0	0	0	0.50	0.30	0.10	0.10
STOCKWATER - INDUSTRIAL	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
IRRIGATION	1	0	0	0	0	132	280	1	2	0	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00

INDUSTRIAL	2	0	0	0	0	18	16	17	15	0	7	0	0	0	0	0	0	0	0	0.10	0.20	0.40	0.30
IRRIGATION	2	0	0	0	0	90	0	0	0	0	0	0	0	1385	116	0	0	0	0	0.10	0.20	0.50	0.10
IRRIGATION	1	0	0	0	0	482	464	377	414	910	441	0	0	0	0	0	0	0	0	0.50	0.40	0.10	0.00
MUNICIPAL	2	0	0	0	0	0	249	4	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	16	5	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	244	795	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
INDUSTRIAL	2	0	0	0	0	0	72	58	0	0	0	0	0	0	0	0	0	0	0	0.00	0.20	0.80	0.00
DAIRY	2	0	0	0	0	0	77	79	84	0	0	0	0	0	0	0	0	0	0	0.30	0.40	0.15	0.15
MUNICIPAL	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
FEEDLOT	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	597	176	738	979	731	0	0	0	0	0	0	0	0.20	0.80	0.00	0.00
IRRIGATION	2	0	0	0	0	0	0	225	0	0	0	0	0	0	0	0	0	0	0	0.20	0.60	0.10	0.10
IRRIGATION	2	0	0	0	0	0	0	188	0	0	0	0	0	0	0	0	0	0	0	0.30	0.50	0.10	0.10
IRRIGATION	1	0	0	0	0	0	0	668	562	142	0	0	0	0	0	0	0	0	0	0.30	0.50	0.20	0.00
MUNICIPAL	2	0	0	0	0	0	0	262	0	0	0	0	0	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	269	238	348	313	314	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	2	0	0	0	0	0	0	0	688	317	0	0	0	0	0	0	0	0	0	0.20	0.60	0.10	0.10
IRRIGATION	2	0	0	0	0	0	0	0	334	1508	1128	1746	1114	0	0	0	0	0	0	0.10	0.20	0.50	0.10
INDUSTRIAL	2	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0.10	0.70	0.20	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	2290	0	0	148	0	0	0	20.47	474.74	0	0.40	0.40	0.20	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	3610	0	1	188	0	0	0	0	0	0	0.40	0.40	0.20	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	489	0	0	2	0	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	58	0	0	0	0	0	0	0	0	0	0.50	0.50	0.00	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	1299	807	0	2273	1149	0	0	0	0	0	0.00	0.10	0.40	0.40
DAIRY	2	0	0	0	0	0	0	0	0	78	2	0	0	0	0	0	0	0	0	0.30	0.40	0.15	0.15
IRRIGATION	2	0	0	0	0	0	0	0	0	642	0	0	265	0	0	0	0	0	0	0.30	0.50	0.10	0.10
INDUSTRIAL	2	0	0	0	0	0	0	0	0	13	14	0	0	0	0	0	0	0	0	0.00	0.00	0.90	0.10
INDUSTRIAL	2	0	0	0	0	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	37	0	2	2	0	0	0	0	0	0	0.10	0.70	0.20	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	383	395	111	0	0	0	0	0	0	0.20	0.60	0.10	0.10
IRRIGATION	2	0	0	0	0	0	0	0	0	0	496	384	0	0	0	0	0	0	0	0.20	0.60	0.10	0.10
IRRIGATION	1	0	0	0	0	0	0	0	0	0	131	149	110	169	0	125	0	0	0	1.00	0.00	0.00	0.00
INDUSTRIAL - COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
INDUSTRIAL - COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	68	118	108	98	0	111	118	124	131	0.00	0.00	0.00	0.00
INDUSTRIAL - COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
METAL MINING > 500 A - INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	198	166	134	235	108	0	0	0	0.50	0.50	0.00	0.00
INDUSTRIAL - SUBDIVISION	2	0	0	0	0	0	0	0	0	0	0	40	36	0	0	0	0	0	0	0.00	0.00	0.90	0.10
STOCKWATER - INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0.20	0.70	0.10	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	1916	1240	161	340	681.67	0	650.17	0.10	0.35	0.45	0.10
STOCKWATER - INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0.20	0.70	0.10	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	1174	866	0	0	0	0	0	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	319	0	0	0	0	0	0.40	0.40	0.20	0.00
INDUSTRIAL - SUBDIVISION	2	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0	0.00	0.00	0.90	0.10
SAND AND GRAVEL	2	0	0	0	0	0	0	0	0	0	0	0	0	841	1206	0	0	0	0	0.40	0.40	0.20	0.00
STOCKWATER - INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	0	4	39	6	3	10	12	0.20	0.70	0.10	0.00
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	1044	90	0	0	0	0	0.30	0.30	0.30	0.10
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0.20	0.40	0.30	0.10
INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	68.42	578.99	151.54	0.40	0.40	0.20	0.00
INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06	56.55	103.53	0.40	0.40	0.20	0.00
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	29.73	570.6	35.54	0.10	0.40	0.40	0.10
INDUSTRIAL - COMMERCIAL BUSINESS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	18	14.14	0	0.10	0.20	0.40	0.30
IRRIGATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	0	0	0	0.00	0.10	0.40	0.40
IRRIGATION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	732	1462.58	982.84	511.53	0.10	0.20	0.50	0.10
INDUSTRIAL - SUBDIVISION	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	43.06	0	0	0.00	0.00	0.90	0.10
INDUSTRIAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	387	491.95	393.32	633.64	0.40	0.40	0.20	0.00
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	828	0.30	0.50	0.10	0.10
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154.76	0.00	0.10	0.40	0.40
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77.21	0.40	0.40	0.20	0.00
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	456.8	0.50	0.50	0.00	0.00
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0.10	0.20	0.40	0.30
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87.05	0.10	0.60	0.20	0.10
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-29.14	0.00	0.40	0.10	0.40
MUNICIPAL	2	19.5	19.5	15.7	19.89	23.06	22.73	21.28	21.36	22.22	22.85	21.21	0	0	0	0	0	44.58	0	0.20	0.30	0.50	0.00

Comment
Original HLA database had no layer factors; zero pumping 1992-onward; only pumping is in 1984; TD=65', so all in layer 1 - update layer factor for future
Original HLA DB had 0.2/0.2 layer 1/2 split; RoGR has depth to 353', so assume data entry error that should be 0.5/0.5
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Zeros for layer factors - did confirm in GWSI DB that top of perf is at depth of 905', so below model domain

Original HLA database had no layer factors; zero pumping 1992-onward; only a few ac-ft/yr 1985-1988; no construction info GWSI

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Original HLA database had no layer factors; zero pumping 1992-onward; only a few ac-ft/yr 1985-1988; no construction info GWSI
Original HLA DB had 0.2/0.2 layer 1/2 split; RoGR has depth to 353', so assume data entry error that should be 0.5/0.5

Original HLA database had no layer factors; only 7ac-ft pumping in 1988

Original HLA DB had no layer factors; GWSI database indicates that perforations to depth of 129', so all in layer 1

Zeros for layer factors - did confirm in GWSI DB that top of perf is at depth of 905', so below model domain

Original HLA DB had 0.2/0.2 layer 1/2 split; RoGR has depth to 353', so assume data entry error that should be 0.5/0.5

Original HLA database had no layer factors; only 7ac-ft pumping in 1988, and again then 7 ac-ft in 1995

Zeros for layer factors - did confirm in GWSI DB that top of perf is at depth of 905', so below model domain
Original HLA DB had no layer factors; GWSI database indicates that perforations to depth of 129', so all in layer 1
Zeros for layer factors - did confirm in GWSI DB that top of perf is at depth of 905', so below model domain
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Original HLA DB had 0.2/0.2 layer 1/2 split; RoGR has depth to 353', so assume data entry error that should be 0.5/0.5
20101124 - new reg_no/right combo for existing reg_no in 2009.
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new right number 2009
20101124 - new reg_no/right combo for existing reg_no in 2009; Original HLA DB had 0.2/0.2 layer 1/2 split; RoGR has depth to 353', so assume data entry error that should be 0.5/0.5
20101124 - new reg_no/right combo for existing reg_no in 2009.
20101124 - new reg_no/right combo for existing reg_no in 2009.
20101124 - new reg_no/right combo for existing reg_no in 2009.
Built this record and 92-onward pumping records from https://gisweb.azwater.gov/WellRegistry/Detail.aspx?RegID=618512; not in SRV pumping (?)

OBJECTID	REG_NO	LOCAL_ID	RIGHT_	OWNER	RIGHT_TYPE	MOVEMENT	WATER_TYPE	UTM83_Src	UTM83_X	UTM83_Y	SPEC_USE	SRV_Layer1_Factor	IRRIG	PUMP1984_SRV	PUMP1985_SRV	PUMP1986_SRV
33	504249	A-01-01 09BAC	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	382306.96	3701558.6	MUNICIPAL	0.48	2	109	244	280
71	601559	D-01-02 06A	58-100155.0000	Accomazzo Mark S	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389646.06	3692939.8	IRRIGATION	0.958	1	194	0	0
72	601560	D-01-02 05BAC	58-100155.0000	Accomazzo Mark S	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390166.45	3693241.9	IRRIGATION	0.55	1	794	0	0
135	604114	A-02-02 16DDD	56-002018.0000	City Of Glendale	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392656.91	3708510.4	MUNICIPAL	0.14	2	376	520	434
146	604163	A-01-03 20BAD	58-105296.0000	Union Rock & Materials Corp	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400047.3	3698240.3	SAND/GRAVEL > 100 AFA	0.83	2	913	1270	1072
182	605117	A-01-02 24DAB	58-115464.0000	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	397553.14	3697658	SAND/GRAVEL > 100 AFA	0.91	2	275	235	166
230	605870	D-01-02 06BDD	58-130609.0000	Schlosser Ronald A	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388844.93	3692948.9	DAIRY	0.74	2	62	58	69
231	605872	D-01-02 06BDD	58-100366.0000	Mesquite Dairy	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389219.95	3691835.8	DAIRY	1	2	57	58	68
406	607470	A-01-01 21DDA	58-107756.0000	Valley Natl Bank Of Arizona	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	383264.61	3697450.2	IRRIGATION	0.76	1	968	0	0
423	607674	A-02-02 18DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389791.66	3708465.7	IRRIGATION	0.49	1	220	4	10
441	607696	A-01-02 32AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	391133.22	3695325.5	IRRIGATION	0.82	1	1377	1761	1704
442	607697	A-01-02 31AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389725.11	3695341.5	IRRIGATION	0.72	1	2538	270	3892
471	607729	D-01-03 06AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	399217.06	3693464	IRRIGATION	0.96	1	1521	38	30
504	608356	A-02-01 17DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381789.43	3708409.6	IRRIGATION	0.41	1	398	49	7
541	608394	A-02-01 14CCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	385065.39	3708508.6	IRRIGATION	0.39	1	874	43	81
551	608407	A-02-01 29DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381751.95	3705160.2	IRRIGATION	0.351	1	967	49	174
552	608408	A-02-01 13CCC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	386682.1	3708397	IRRIGATION	0.63	1	869	10	53
566	608423	A-02-03 18DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	399447.32	3708388	IRRIGATION	0.44	1	12	6	4
578	608437	A-02-01 20DAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381776.22	3707543.8	IRRIGATION	0.54	1	1200	63	124
661	609960	A-01-02 19BBB	58-130252.0000	Mastin Matalie A	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388860.09	3698770.4	IRRIGATION	0.95	1	409	0	0
662	609961	A-01-02 19BBB	58-130322.0000	Hawpe Harley K	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	388166.73	3698701.7	DAIRY	0.41	2	25	0	0
682	610165	A-01-03 08ABB	58-104638.0000	Valley National Bank Of Ariz	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400203.2	3701634.5	AIR COND/COOLING	1	2	198	124	282
719	610682	D-01-02 02DDD	58-106968.0000	La Salvia Angeline N	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	396663.55	3691753.6	DAIRY	0.733	2	28	28	19
720	610683	D-01-02 02DCD	58-107847.0000	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	395608.17	3692165.3	DAIRY	1	2	122	111	14
721	610684	D-01-02 02DCC	58-107847.0000	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	395400.77	3692106	DAIRY	1	2	122	111	72
904	613079	A-01-02 09CDB	58-114046.0000	Arizona Public Service Co	Type 2 Power Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	391753.52	3700700.7	ELECTRIC POWER	0.23	2	551	771	349
905	613081	A-01-02 09DDD	58-114046.0000	Arizona Public Service Co	Type 2 Power Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392869.02	3700384.2	ELECTRIC POWER	0.25	2	799	329	104
906	613082	A-01-02 09DCC	58-114046.0000	Arizona Public Service Co	Type 2 Power Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392158.05	3700334.8	ELECTRIC POWER	0.231	2	369	433	20
907	613083	A-01-02 09DBB	58-114046.0000	Arizona Public Service Co	Type 2 Power Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392269.22	3701042	ELECTRIC POWER	0.26	2	23	553	449
908	613084	A-01-02 09DAC	58-114046.0000	Arizona Public Service Co	Type 2 Power Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392653.76	3700792.9	ELECTRIC POWER	0.265	2	288	6	26
1011	617100	A-02-01 20DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381774.24	3706767.9	IRRIGATION	0.45	1	1139	60	163
1062	617659	A-01-01 29AAA	56-002182.0000	Leister Mobile Home Park	Small Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381621.41	3696176.3	MUNICIPAL	0.9	2	53	52	48
1064	617817	A-01-01 36AAD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	388036.94	3695067	IRRIGATION	0.72	1	1577	1527	1237
1091	617848	D-01-02 03CDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	393617.45	3692125.4	IRRIGATION	0.97	1	595	0	10
1094	617851	D-01-03 06CAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	398412.79	3692677.3	IRRIGATION	1	1	420	4	3
1123	618034	A-02-03 29CCD	58-109274.0000	Park Central Properties	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	399620.08	3705151.9	AIR COND/COOLING	0.5	2	461	487	524
1196	619746	A-01-01 13ADA	58-130150.0000	Corp Of Presiding Bishop, Lds Church	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388074.03	3699799	IRRIGATION	0.76	1	11	0	0
1340	621135	D-01-02 06DC	58-113850.0000	Sun Valley Dairy Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389223.82	3692174.6	DAIRY	0.93	2	12	0	0
1341	621150	A-02-03 29CCD	58-111856.0000	St Joseph'S Hospital & Medical Center	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	399698.12	3705212.8	INDUSTRIAL	0.56	2	2096	2096	1384
1380	623410	A-01-01 32AAA	57-002519.0000	St Johns Irrigation District	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381611.63	3695375.6	IRRIGATION	1	1	489	531	492
1382	623510	A-01-03 08BAA	58-109621.0000	Koret Joseph Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400177.45	3701634.8	AIR COND/COOLING	1	2	251	288	0
1387	624171	D-01-02 05AAD	58-106940.0000	Vanderwey John A	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	DAIRY	0.208	2	154	63	61
1388	624171	D-01-02 05AAD	58-106941.0000	Vanderwey John A	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	IRRIGATION	0.208	1	633	0	0
1391	624200	A-02-01 35D	58-103314.0000	John F Long Properties Inc	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	386168.39	3703970.2	IRRIGATION	0.66	1	137	0	0
1397	624350	A-01-01 15DAA	58-105488.0000	Layton Ronald Deon & Marilyn	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	384866.67	3699648.8	IRRIGATION	0.59	1	96	48	0
1403	624386	A-01-03 08BAA	58-111353.0000	Phoenix Ii	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400178.41	3701727.2	AIR COND/COOLING	1	2	323	1	0
1417	624778	D-01-02 10BBB	58-113412.0000	Wilaims John M Jr	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392841.79	3692103.1	IRRIGATION	0.61	1	724	0	0
1426	624810	A-01-03 08BAA	58-112393.0000	Security Center Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400146.4	3701831.9	INDUSTRIAL	1	2	154	154	206
1447	625040	D-01-02 06DDD	58-130138.0000	Williams Jr John M	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389624.46	3692170	IRRIGATION	0.96	1	862	0	0
1501	625474	A-01-01 14DAD	58-111641.0000	Lbr Farms	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	386181.63	3699448.4	IRRIGATION	0.72	1	105	0	0
1568	626440	D-01-02 09CAA	58-114168.0000	Cheatham Linsey	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391921.09	3691216.2	DAIRY	1	2	3	3	3
1569	626450	D-01-02 04ADD	58-114167.0000	Mayr Helen S Trust	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.524	1	57	16	51
1570	626450	D-01-02 04ADD	58-114173.0000	Cheatham Earnest C	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.524	1	71	20	64
1571	626450	D-01-02 04ADD	58-114179.0000	Cheatham Earnest C Et Als	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.524	1	512	141	460
1572	626450	D-01-02 04ADD	58-114174.0000	Cheatham Earnest C	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.524	1	11	3	10
1579	626452	D-01-02 04BBC	58-114180.0000	Cheatham Earnest C	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	391355.21	3693228.5	DAIRY	1	2	61	61	61
1628	626577	A-02-02 30BAA	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388960.48	3706453.6	MUNICIPAL	0.392	2	12	0	0
1644	626597	D-01-02 09DDA	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392750.67	3690872.1	MUNICIPAL	1	2	12	19	22
1775	629043	A-01-02 18CBB	58-103994.0000	Truog Thompson N	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	388186.43	3699500.4	DAIRY	0.351	2	19	0	0
1813	633843	A-01-01 25B	58-130662.0000	Viss Family Trust	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	386850.02	3696760.2	DAIRY	0.8	2	90	9	15
1814	633843	A-01-01 25B	58-130622.0000	Logan T Wilford	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	386850.02	3696760.2	IRRIGATION	0.8	1	89	0	0
1825	636009	A-01-01 36BAB	58-117215.0000	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.85	3695309.9	AGRICULTURAL PROCESS	0.936	2	20	13	0
1826	636010	A-01-01 36BAB	58-117215.0000	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.49	3695279.1	AGRICULTURAL PROCESS	1	2	5	5	0
1865	800734	A-02-03 20DDA	58-116105.0000	United States Of America	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400943.85	3706878.6	INDUSTRIAL - LANDSCAPING	0.331	2	9	6	6
1894	801739	D-01-02 08BCD	58-106815.0000	Tyson Lela E	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390015.92	3691364.6	IRRIGATION	0.73	1	170	34	238
1915	507637	A-01-01 14BAB	59-507636.0000	Crews Farms	General Industrial Use Withdrawal P	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	385394.25	3700337.7	INDUSTRIAL	0.143	2	0	2	11
1929	601559	D-01-02 06A	58-100155.0002	59th Ave. & Baseline Assoc.	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389646.06	3692939.8	IRRIGATION	0.958	1	0	364	317
1930	601560	D-01-02 05BAC	58-100155.0002	59th Ave. & Baseline Assoc.	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390166.45	3693241.9	IRRIGATION	0.55	1	0	527	125
1943	603876	A-01-02 33BAB	58-115000.0000	Tryon Jerry Lynn	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	391843.05	3695256	IRRIGATION	1	1	0	3	8
2097	617223	D-01-02 10ABB	58-107975.0000	Us Life & Title Co Of Arizona	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393726.01	3692007.9	RESIDENCE	1	2	0	2	0
2229	801093	A-01-02 01CAC	58-106886.0000	Greenwood Memorial Park	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	396572.11	3702354.9	TURF	0.27	2	0	243	279
2237	802293	A-01-02 33B	58-108706.0000	Rampey Lula Jackson	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391751.08	3694941.8	IRRIGATION	1	1	0	190	0
2263	510183	A-01-03 17	59-510183.0000	Shank-Artukovich-Ohbayashi	Dewatering Permit (Mining)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400197.14	3699424	TEMPORARY DEWATER	1	2	0	0	307
2264	510184	A-01-03 17	59-510184.0000	Shank-Artukovick-Ohbayashi	Dewatering Permit (Mining)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400197.14	3699424	TEMPORARY DEWATER	1	2	0	0	4565
2268	513639	A-01-01 27CDD	59-513639.0000	Sletten Construction Co.	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	TEMPORARY DEWATER	1	2	0	0	188
2271	515979	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	1	2	0	0	0
2472	624386	A-01-03 08BAA	58-111353.0001	San Carlos Hotel Ltd Prtnshp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400178.41	3701727.2	AIR COND/COOLING	1	2	0	0	323
2480	624826	A-01-01 20DAA	58-111646.0000	Gould Charles P	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381691.84	3697715.7	FEEDLOT	0.92	2	0	0	16

2549	636009	A-01-01 36BAB	58-103684.0001	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.85	3695309.9	FEEDLOT	0.936	2	0	0	16
2550	636010	A-01-01 36BAB	58-103684.0001	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.49	3695279.1	FEEDLOT	1	2	0	0	5
2566	802161	A-01-01 17DAA	58-112649.0000	Roberts Lena	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381868.21	3699462.8	IRRIGATION	1	1	0	0	11
2570	803558	A-01-01 27CDD	59-513639.0000	Sletten Construction Co.	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	TEMPORARY DEWATER	1	2	0	0	188
2571	803559	A-01-01 27CDD	59-513639.0000	Sletten Construction Co.	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	TEMPORARY DEWATER	1	2	0	0	188
2576	804009	D-01-02 05AAA	58-106941.0000	Vanderwey John A	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391148.28	3693639.2	IRRIGATION	1	1	0	0	73
2577	804010	D-01-02 05ADD	58-106941.0000	Vanderwey John A	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391143.28	3693035.5	IRRIGATION	0.36	1	0	0	508
2603	514595	A-01-01 27CCC	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EXTENDED DEWATER	1	2	0	0	0
2604	514596	A-01-01 27CCC	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EXTENDED DEWATER	1	2	0	0	0
2608	514905	A-02-02 22CDB	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393522.95	3707044.1	POOR QUALITY	1	2	0	0	0
2611	516109	A-02-02 22CDB	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393522.95	3707044.1	POOR QUALITY	0.859	2	0	0	0
2612	516110	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.68	2	0	0	0
2613	516111	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.683	2	0	0	0
2616	517289	A-01-02 24DAB	58-115464.0000	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	397469.72	3697681.4	SAND/GRAVEL > 100 AFA	0.84	2	0	0	0
2620	518077	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	1	2	0	0	0
2628	601559	D-01-02 06A	58-100155.0001	Accomazzo, Mark S. & Betty L.	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389646.06	3692939.8	IRRIGATION	0.958	1	0	0	0
2758	618034	A-02-03 29CCD	58-109274.0001	St. Joseph'S Hospital &	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	399620.08	3705151.9	INDUSTRIAL	0.5	2	0	0	0
2802	626450	D-01-02 04ADD	58-108621.0001	Tempe Associates Dba Tempe	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.524	1	0	0	0
2814	636010	A-01-01 36BAB	58-117216.0001	Western Meat Company	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.49	3695279.1	FEEDLOT	1	2	0	0	0
2823	803558	A-01-01 27CDD	59-514594.0000	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	EXTENDED DEWATER	1	2	0	0	0
2835	513639	A-01-01 27CDD	59-519424.0000	City Of Phoenix	Dewatering Permit (Mining)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	TEMPORARY DEWATER	1	2	0	0	0
2845	517289	A-01-02 24DAB	58-115464.0001	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	397469.72	3697681.4	SAND/GRAVEL > 100 AFA	0.84	2	0	0	0
2897	610165	A-01-03 08ABB	58-104638.0001	Downtown Phoenix Limited Ptsp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400203.2	3701634.5	AIR COND/COOLING	1	2	0	0	0
2906	610682	D-01-02 02DDD	58-107847.0000	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	396663.55	3691753.6	DAIRY	0.733	2	0	0	0
2997	621135	D-01-02 06DC	58-113850.0002	Vanderwey, John A. & Angelina	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389223.82	3692174.6	DAIRY	0.93	2	0	0	0
3032	636009	A-01-01 36BAB	58-103684.0002	Herseth Feedlots, Inc.	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.85	3695309.9	FEEDLOT	0.936	2	0	0	0
3033	636010	A-01-01 36BAB	58-103684.0002	Herseth Feedlots, Inc.	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.49	3695279.1	FEEDLOT	1	2	0	0	0
3037	639890	A-01-01 35AD	58-112299.0001	Randel, John & Shirley	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	386341.13	3694783.2	IRRIGATION	1	1	0	0	0
3046	803559	A-01-01 27CDD	59-519424.0000	City Of Phoenix	Dewatering Permit (Mining)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	TEMPORARY DEWATER	1	2	0	0	0
3053	500078	A-01-01 10CBA	58-100177.0000	Sun Land Beef Co, Attn: Ted Hawken	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	383755.59	3701118.4	INDUSTRIAL - AGRICULTURAL PROCESS	0.41	2	0	0	0
3057	517721	A-01-03 08BDD	59-522335.0000	Maricopa County Equipment	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400102.73	3701139.9	POOR QUALITY	1	2	0	0	0
3087	607673	A-02-03 17DDD	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	401046.01	3708279	IRRIGATION	0.35	1	0	0	0
3104	610682	D-01-02 02DDD	58-107847.0001	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	396663.55	3691753.6	DAIRY	0.733	2	0	0	0
3105	610683	D-01-02 02DCD	58-107847.0001	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	395608.17	3692165.3	DAIRY	1	2	0	0	0
3106	610684	D-01-02 02DCC	58-107847.0001	La Salvia Anthony Jerome	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	395400.77	3692106	DAIRY	1	2	0	0	0
3195	522163	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	1	2	0	0	0
3196	522164	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.679	2	0	0	0
3197	522165	A-02-02 22CAC	59-515979.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.679	2	0	0	0
3243	608730	A-02-01 32DDA	56-002003.0000	City Of Avondale	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381656.59	3703907.7	MUNICIPAL	0.7	2	0	0	0
3324	624171	D-01-02 05AAD	58-106940.0001	Arizona Agricultural Credit	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	DAIRY	0.208	2	0	0	0
3346	636009	A-01-01 36BAB	58-117215.0002	Western Meat Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.85	3695309.9	INDUSTRIAL - FLOATING RIGHT	0.936	2	0	0	0
3347	636010	A-01-01 36BAB	58-117215.0002	Western Meat Co	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	387114.49	3695279.1	INDUSTRIAL - FLOATING RIGHT	1	2	0	0	0
3352	800916	A-01-02 34CCC	58-111195.0000	Shelton Clifford Eldon	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	393768.61	3694125.8	RESIDENCE	0.924	2	0	0	0
3353	801093	A-01-02 01CAC	58-106886.0001	Ifs Arizona Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	396572.11	3702354.9	TURF - CEMETERY	0.27	2	0	0	0
3368	518345	A-01-03 17DBD	59-526770.0000	Penske Truck Leasing	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400502.74	3699119.5	POOR QUALITY	1	2	0	0	0
3408	533399	A-02-02 25BBB	59-533160.0000	Mobil Oil Corporation	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	396352.57	3706610.7	HYDROLOGIC TESTING	1	2	0	0	0
3516	624386	A-01-03 08BAA	58-111353.0003	Great Western Associates V	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400178.41	3701727.2	INDUSTRIAL - AIR COND/COOLING	1	2	0	0	0
3542	629280	A-01-03 05DCC	58-112462.0000	Phoenix Newspapers Inc	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400412.05	3701848	INDUSTRIAL	1	2	0	0	0
3549	802161	A-01-01 17DAA	58-112649.0001	Accomazzo James M & Jacquelynn C	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	381868.21	3699462.8	IRRIGATION	1	1	0	0	0
3555	804009	D-01-02 05AAA	58-106941.0004	Ariz Agricultural Credit Assn	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391148.28	3693639.2	IRRIGATION	1	1	0	0	0
3556	804010	D-01-02 05ADD	58-106941.0005	Roszto czy, Ferenc E, Trustee	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391143.28	3693035.5	IRRIGATION	0.36	1	0	0	0
3564	514905	A-02-02 22CDB	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393522.95	3707044.1	POOR QUALITY	1	2	0	0	0
3566	516109	A-02-02 22CDB	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393522.95	3707044.1	POOR QUALITY	0.859	2	0	0	0
3567	516110	A-02-02 22CAC	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.68	2	0	0	0
3568	516111	A-02-02 22CAC	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.683	2	0	0	0
3572	522164	A-02-02 22CAC	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.679	2	0	0	0
3573	522165	A-02-02 22CAC	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.679	2	0	0	0
3575	525597	A-01-02 22BBC	59-535010.0000	Tnt Bestway Transportation	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393012.18	3698401.1	HYDROLOGIC TESTING	1	2	0	0	0
3576	528969	A-01-02 20CDD	59-528968.0000	Cyr E.J. & Jeraldine	Mineral Extraction	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390944.09	3697117.3	SAND AND GRAVEL	0.863	2	0	0	0
3593	533461	A-01-01 28BBA	58-110588.0003	Van Hofwegen Robert T	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	381995.77	3696966.8	DAIRY	0.97	2	0	0	0
3600	535960	A-02-03 20ABB	59-535961.0000	Areea Investment	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	HYDROLOGIC TESTING	-9999	2	0	0	0
3606	604166	A-01-02 30AAD	58-105298.0000	Union Rock & Materials Corp	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389589.37	3697037.1	SAND/GRAVEL > 100 AFA	1	2	0	0	0
3699	624171	D-01-02 05AAD	58-106940.0002	Dewitt William G & Martha	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	STOCKWATER - INDUSTRIAL	0.23	2	0	0	0
3734	517289	A-01-02 24DAB	58-115464.0002	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	397469.72	3697681.4	SAND/GRAVEL > 100 AFA	0.84	2	0	0	0
3746	533400	A-02-02 25BBB	59-532933.0000	Mobil Oil Corp	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	396352.57	3706610.7	POOR QUALITY	1	2	0	0	0
3749	535757	A-01-01 28BBA	58-110588.0003	Van Hofwegen Robert T	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	381995.77	3696966.8	DAIRY	0.97	2	0	0	0
3750	536173	A-01-01 27AAA	58-108155.0002	Van Hofwegen David L & Janet L	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384871.2	3697129.1	DAIRY	0.86	2	0	0	0
3756	539196	A-01-01 04BDC	59-539195.0000	Tolleson, City Of	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	382217.2	3702668.6	HYDROLOGIC TESTING	0.377	2	0	0	0
3761	601559	D-01-02 06A	58-100155.0004	Southwest Loop 59th Avenue	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389646.06	3692939.8	IRRIGATION	1	1	0	0	0
3762	601560	D-01-02 05BAC	58-100155.0004	Southwest Loop 59th Avenue	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390166.45	3693241.9	IRRIGATION	0.55	1	0	0	0
3774	605870	D-01-02 06BDD	58-130609.0001	Moss Robert	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388844.93	3692948.9	DAIRY	0.74	2	0	0	0
3775	605872	D-01-02 06BDD	58-100366.0001	Desert Park Dairy	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389219.95	3691835.8	DAIRY	1	2	0	0	0
3846	804009	D-01-02 05AAA	58-106941.0006	Dewitt, William G And Martha	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391148.28	3693639.2	IRRIGATION	1	1	0	0	0
3853	533399	A-02-02 25BBB	59-532933.0000	Mobil Oil Corp	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	396352.57	3706610.7	POOR QUALITY	1	2	0	0	0
3860	539196	A-01-01 04BDC	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	382217.2	3702668.6	MUNICIPAL	0.377	2	0	0	0
3861	541642	A-02-02 22CAC	59-533880.0000	City Of Phoenix	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	393527.05	3707245.5	POOR QUALITY	0.735	2	0	0	0
3862	541688	A-01-01 27BAB	58-107991.0001	Gerben Boschma Family Trust Dtd 1/31/85	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383818.79	3697008.9	DAIRY	0.91	2	0	0	0
3909	618806	A-01-01 10CBB	58-100177.0000	Sun Land Beef Co, Attn: Ted Hawken	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	383385.51	3701052.7	INDUSTRIAL - AGRICULTURAL PROCESS	0.51	2	0	0	0
3921	624778	D-01-02 10BBB	58-113412.0006	John F Long Properties Inc	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392841.79	3692103.1	IRRIGATION	0.61	1	0	0	0

3926	626355	D-01-02 07ADD	58-108620.0004	La Salvia Jerome & Peggy M	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	389610.06	3691363.1	IRRIGATION	0.94	1	0	0	0
3939	806760	A-02-01 28BDD	58-103311.0000	John F Long	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382492.54	3706064.5	IRRIGATION	0.31	1	0	0	0
3953	546895	A-02-03 20AB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400475.71	3708058.1	INDUSTRIAL	1	2	0	0	0
3954	548935	A-01-01 27CCD	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3955	550276	A-01-01 27CDC	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3956	550277	A-01-01 27CDC	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3957	550278	A-01-01 27CDC	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3958	550279	A-01-01 27CDC	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3959	550280	A-01-01 27CDC	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3960	550393	A-01-01 27CCD	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
3961	550394	A-01-01 27CCD	59-549676.0000	Martin K Eby Construction Co	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	INDUSTRIAL - EMERGENCY DEWATER	1	2	0	0	0
4069	605117	A-01-02 24DAB	58-115464.0002	Tanner Companies Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	397553.14	3697658	SAND/GRAVEL > 100 AFA	0.91	2	0	0	0
4146	550279	A-01-01 27CDC	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	TEMPORARY DEWATER	1	2	0	0	0
4147	550280	A-01-01 27CDC	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383836.2	3695533.9	TEMPORARY DEWATER	1	2	0	0	0
4160	560601	A-01-01 27CCD	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	TEMPORARY DEWATER	1	2	0	0	0
4161	560602	A-01-01 27CCD	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	TEMPORARY DEWATER	1	2	0	0	0
4162	560603	A-01-01 27CCD	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	TEMPORARY DEWATER	1	2	0	0	0
4163	560604	A-01-01 27CCA	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383631.9	3695742.5	TEMPORARY DEWATER	1	2	0	0	0
4164	560605	A-01-01 27CCD	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	TEMPORARY DEWATER	1	2	0	0	0
4165	560606	A-01-01 27CCD	59-560237.0000	Martin K Eby Construction Co	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383635.8	3695534.3	TEMPORARY DEWATER	1	2	0	0	0
4171	562206	A-01-03 07ACC	59-562205.0000	Adeq	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	398683.32	3701152.2	HYDROLOGIC TESTING	0.7	2	0	0	0
4196	607470	A-01-01 21DDA	58-107756.0001	Brlbd, Llc	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	383264.61	3697450.2	IRRIGATION	0.76	1	0	0	0
4269	803558	A-01-01 27CDD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	MUNICIPAL	1	2	0	0	0
4278	520499	A-02-01 32DDA	56-002003.0000	City Of Avondale	Large Municipal Provider	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	381645.44	3703837.2	MUNICIPAL	0.42	2	0	0	0
4329	607470	A-01-01 21DDA	58-107756.0002	Brlbd Llc	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	383264.61	3697450.2	IRRIGATION	0.76	1	0	0	0
4415	624778	D-01-02 10BBB	58-113412.0007	Long John F	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392841.79	3692103.1	IRRIGATION	0.61	1	0	0	0
4464	528969	A-01-02 20CDD	59-528968.0001	Pioneer Concrete Of Arizona Inc.	Mineral Extraction	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390944.09	3697117.3	INDUSTRIAL	0.863	2	0	0	0
4466	536173	A-01-01 27AAA	58-108155.0004	Van Hofwegen David L & Janet L	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384871.2	3697129.1	DAIRY	0.86	2	0	0	0
4507	572379	A-02-01 28BDD	58-103311.0001	John F Long	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382492.54	3706064.5	IRRIGATION	0.26	1	0	0	0
4590	626450	D-01-02 04ADD	58-114179.0002	Cheatham Linsey F	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392799.25	3692935.2	IRRIGATION	0.96	1	0	0	0
4631	570373	A-01-01 27BAB	58-107991.0001	Gerben Boschma Family Trust Dtd 1/31/85	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383818.79	3697008.9	DAIRY	0.9	2	0	0	0
4633	572379	A-02-01 28BDD	58-103311.0003	Algodon Center Lllp	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382492.54	3706064.5	IRRIGATION	0.26	1	0	0	0
4641	575568	A-01-01 27AAA	58-108155.0004	Van Hofwegen David L & Janet L	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384871.2	3697129.1	DAIRY	0.85	2	0	0	0
4642	577836	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4643	577837	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4644	577838	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4645	577839	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4646	577840	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4647	577841	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4648	577842	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4649	577843	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4650	577844	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4651	577845	A-01-01 27CBB	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383422.09	3696148.7	EMERGENCY DEWATER	1	2	0	0	0
4652	577846	A-01-01 27CCB	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383434.59	3695739.6	EMERGENCY DEWATER	1	2	0	0	0
4653	577847	A-01-01 27CCB	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383434.59	3695739.6	EMERGENCY DEWATER	1	2	0	0	0
4654	577848	A-01-01 27CCB	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383434.59	3695739.6	EMERGENCY DEWATER	1	2	0	0	0
4655	577849	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4656	577850	A-01-01 27CCC	59-577834.0000	Mccarthy Construction	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383440.89	3695534.9	EMERGENCY DEWATER	1	2	0	0	0
4732	626440	D-01-02 09CAA	58-114168.0001	Cheatham Lisa	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391921.09	3691216.2	INDUSTRIAL - RESIDENCE	1	2	0	0	0
4745	803558	A-01-01 27CDD	59-571627.0000	City Of Phoenix	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	INDUSTRIAL	1	2	0	0	0
4764	524960	A-01-01 22DCD	58-104031.0001	Deed Of Trust Dtd 12/13/96	Type 1 Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	385199.02	3697180.6	DAIRY	0.77	2	0	0	0
4808	577698	A-01-03 07DAA	59-582827.0001	Az Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	399292.52	3700947.9	POOR QUALITY	1	2	0	0	0
4811	578740	A-01-01 36AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	388034.64	3695267.3	IRRIGATION	0.69	1	0	0	0
4828	584460	A-01-03 17DCB	74-584460.0000	City Of Phoenix	Recovery Well Permits	Recovered	Effluent Recovered I	Reproject RoGR UTMs assuming original are NAD27	400299.94	3698919.9	RECOVERY	1	2	0	0	0
4833	585690	A-01-01 26DDA	59-584727.0000	Pcl Civil Constructors, Inc.	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	386425.42	3695729.9	CONSTRUCTION WORK	1	2	0	0	0
4863	607698	A-01-01 35DDC	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	386215.87	3693789.6	IRRIGATION	0.524	1	0	0	0
4920	624171	D-01-02 05AAD	58-106941.0005	Rosztoczy, Ferenc E, Trustee	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	IRRIGATION	0.23	1	0	0	0
4949	517289	A-01-02 24DAB	58-115464.0003	United Metro Materials Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	397469.72	3697681.4	METAL MINING > 500 A - INDUSTRIAL	0.84	2	0	0	0
4955	520499	A-02-01 32DDA	74-553424.0003	City Of Avondale	Recovery Well Permits	Recovered	Salt/Verde Water Re	Reproject RoGR UTMs assuming original are NAD27	381645.44	3703837.2	RECOVERY	0.42	2	0	0	0
4970	533461	A-01-01 28BBA	58-110588.0005	Van Hofwegen Robert T & Andrea	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	381995.77	3696966.8	DAIRY	0.97	2	0	0	0
4972	535757	A-01-01 28BBA	58-110588.0005	Van Hofwegen Robert T & Andrea	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	381995.77	3696966.8	DAIRY	0.97	2	0	0	0
5012	573209	A-01-02 21DBD	59-573208.0000	Gti Capital Holdings, Llc	Mineral Extraction	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	392421.97	3697564.5	SAND/GRAVEL > 100 AFA	0.934	2	0	0	0
5019	578323	A-01-02 32AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391252.97	3695244.3	IRRIGATION	0.8	1	0	0	0
5052	593126	A-01-03 20BBB	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	399486.64	3698517.8	MUNICIPAL	0.73	2	0	0	0
5053	593127	A-01-03 19ADD	56-002030.0000	City Of Phoenix	Large Municipal Provider	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	399295.94	3697872.8	MUNICIPAL	0.839	2	0	0	0
5190	200418	A-01-01 27ABC	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384238.5	3696838.8	EMERGENCY DEWATER	1	2	0	0	0
5191	200419	A-01-01 34ABC	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384243.11	3695122	EMERGENCY DEWATER	1	2	0	0	0
5192	200420	A-01-01 34ABC	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384243.11	3695122	EMERGENCY DEWATER	1	2	0	0	0
5193	200421	A-01-01 27DCD	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	EMERGENCY DEWATER	1	2	0	0	0
5204	520499	A-02-01 32DDA	74-553424.0004	City Of Avondale	Recovery Well Permits	Recovered	Salt/Verde Water Re	Reproject RoGR UTMs assuming original are NAD27	381645.44	3703837.2	RECOVERY	0.42	2	0	0	0
5205	523773	A-01-01 28CCA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382003.17	3695782.8	IRRIGATION	1	1	0	0	0
5207	524960	A-01-01 22DCD	58-108155.0007	Deed Of Trust Dtd 12/13/96	Type 1 Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	385199.02	3697180.6	DAIRY	0.77	2	0	0	0
5211	528969	A-01-02 20CDD	59-528968.0002	Pioneer Concrete Of Arizona Inc.	Mineral Extraction	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390944.09	3697117.3	SAND/GRAVEL > 100 AFA	0.863	2	0	0	0
5239	577694	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5240	577695	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5241	577696	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5242	577697	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5245	579467	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5246	579468	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0

5247	579469	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5248	579470	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5249	579471	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5250	579472	A-02-03 20ABB	59-540940.0000	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5269	586184	A-01-01 33AAA	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383243.79	3695336.2	IRRIGATION	0.85	1	0	0	0
5271	588109	A-02-03 20BAA	59-588107.0000	Arizona Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400171.5	3708165.2	POOR QUALITY	1	2	0	0	0
5272	588110	A-02-03 20BAA	59-588107.0000	Arizona Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400171.5	3708165.2	POOR QUALITY	1	2	0	0	0
5278	589502	A-01-03 07DAA	59-582827.0001	Az Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	399292.52	3700947.9	POOR QUALITY	1	2	0	0	0
5323	607735	A-01-01 03ABB	57-002520.0000	Salt River Project	Irrigation District (Sw & Gw)	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	384207.6	3703538.2	IRRIGATION	0.396	1	0	0	0
5417	804009	D-01-02 05AAA	58-106941.0008	Terrazona Llc	Irrigation Use	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	391148.28	3693639.2	IRRIGATION	1	1	0	0	0
5424	201052	A-01-01 27DCD	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	EMERGENCY DEWATER	1	2	0	0	0
5425	201053	A-01-01 27DCD	59-200416.0000	Earth Tech	Emergency Dewatering	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	EMERGENCY DEWATER	1	2	0	0	0
5432	202897	A-01-02 29CAD	58-105298.0001	United Metro Materials Inc	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	390426.56	3695907.3	SAND/GRAVEL > 100 AFA	0.83	2	0	0	0
5446	536688	A-01-01 22CCD	58-103443.0002	Boschma Living Trust Dtd 7/25/84	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383587.89	3697192.8	DAIRY	0.88	2	0	0	0
5450	573209	A-01-02 21DBD	59-573208.0001	Arizona Materials Llc	Mineral Extraction	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	392421.97	3697564.5	SAND/GRAVEL > 100 AFA	0.934	2	0	0	0
5452	577694	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5453	577695	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5454	577696	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5455	577697	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5459	579467	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5460	579468	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5461	579469	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5462	579470	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5463	579471	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5464	579472	A-02-03 20ABB	59-540940.0001	One Camelback Inc.	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
5564	801739	D-01-02 08BCD	58-106815.0001	Tyson Family Lp	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	390015.92	3691364.6	IRRIGATION	0.73	1	0	0	0
5570	200418	A-01-01 27ABC	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384238.5	3696838.8	TEMPORARY DEWATER	1	2	0	0	0
5571	200419	A-01-01 34ABC	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384243.11	3695122	TEMPORARY DEWATER	1	2	0	0	0
5572	200420	A-01-01 34ABC	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384243.11	3695122	TEMPORARY DEWATER	1	2	0	0	0
5573	200421	A-01-01 27DCD	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	TEMPORARY DEWATER	1	2	0	0	0
5576	201052	A-01-01 27DCD	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	TEMPORARY DEWATER	1	2	0	0	0
5577	201053	A-01-01 27DCD	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384437.41	3695533.9	TEMPORARY DEWATER	1	2	0	0	0
5592	206365	A-01-01 34ABB	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384246.7	3695323.5	TEMPORARY DEWATER	1	2	0	0	0
5594	206647	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5595	206648	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5596	206649	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5597	206650	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5598	206651	A-01-01 34ABC	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384243.11	3695122	TEMPORARY DEWATER	1	2	0	0	0
5599	206652	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5600	206653	A-01-01 34BBA	59-206364.0000	Earth Tech	Temporary Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	383647.8	3695329	TEMPORARY DEWATER	1	2	0	0	0
5685	584460	A-01-03 17DCB	74-584460.0001	City Of Phoenix	Recovery Well Permits	Recovered	Effluent Recovered I	Reproject RoGR UTMs assuming original are NAD27	400299.94	3698919.9	RECOVERY	1	2	0	0	0
5687	588111	A-02-03 20BAA	59-588107.0000	Arizona Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400171.5	3708165.2	POOR QUALITY	1	2	0	0	0
5688	588112	A-02-03 20BAA	59-588107.0000	Arizona Dept Of Environmental Quality	Poor Quality Withdrawal Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400171.5	3708165.2	POOR QUALITY	1	2	0	0	0
5716	599019	A-02-01 32DAD	74-553424.0005	City Of Avondale	Recovery Well Permits	Recovered	Salt/Verde Water St	Reproject RoGR UTMs assuming original are NAD27	381649.04	3704039.1	RECOVERY	0.42	2	0	0	0
5724	605274	A-01-02 08A	58-102407.0000	United States Steel Corp	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	391286.63	3701372.1	INDUSTRIAL - RESIDENCE	1	2	0	0	0
5793	624171	D-01-02 05AAD	58-106940.0004	Cox William A	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	INDUSTRIAL - NURSERY	0.23	2	0	0	0
5794	624172	D-01-02 05AAD	58-106940.0004	Cox William A	Type 2 Non-Irrigation Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	392023.65	3692913	INDUSTRIAL - NURSERY	1	2	0	0	0
5861	209179	A-01-01 09BAC	56-002044.0000	City Of Tolleson	Large Municipal Provider	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382238.06	3701624	MUNICIPAL	0.25	2	0	0	0
5862	209179	A-01-01 09BAC	59-209178.0000	City Of Tolleson	Hydrologic Testing Permit	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	382238.06	3701624	TEST WELL	0.25	2	0	0	0
5984	593126	A-01-03 20BBB	74-584460.0001	City Of Phoenix	Recovery Well Permits	Recovered	Effluent Recovered I	Reproject RoGR UTMs assuming original are NAD27	399486.64	3698517.8	RECOVERY	0.73	2	0	0	0
5985	593127	A-01-03 19ADD	74-584460.0001	City Of Phoenix	Recovery Well Permits	Recovered	Effluent Recovered I	Reproject RoGR UTMs assuming original are NAD27	399295.94	3697872.8	RECOVERY	0.839	2	0	0	0
5995	599019	A-02-01 32DAD	74-553424.0007	City Of Avondale	Recovery Well Permits	Recovered	Salt/Verde Water Re	Reproject RoGR UTMs assuming original are NAD27	381649.04	3704039.1	RECOVERY	0.42	2	0	0	0
5996	599020	A-01-02 32CDC	74-205389.0000	City Of Phoenix	Recovery Well Permits	Recovered	Effluent Recovered I	Reproject RoGR UTMs assuming original are NAD27	390245.57	3693850.8	RECOVERY	0.44	2	0	0	0
6018	611453	A-01-02 28ADA	58-108233.0002	Calmat Co Of Arizona	Type 1 Gfr	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	392856.18	3696496.1	SAND/GRAVEL > 100 AFA	1	2	0	0	0
6033	619746	A-01-01 13ADA	58-130150.0001	Property Reserve Arizona Llc	Irrigation Use	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	388074.03	3699799	IRRIGATION	0.76	1	0	0	0
6062	803558	A-01-01 27CDD	59-571627.0001	City Of Phoenix	Extended Dewatering Permits	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	384036.6	3695533.6	INDUSTRIAL	1	2	0	0	0
6065	804529	A-01-02 30CCC	59-208411.0000	Salt River Material Group	Mineral Extraction	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	388221.94	3695482	SAND/GRAVEL > 100 AFA	0.911	2	0	0	0
90002	601559	D-01-02 06A	58-100155.0005	JOJO I LLC	IRRIGATION USE	WITHDRAWAL	GROUNDWATER	Reproject GWSI LL NAD27 to UTM12 NAD83	389646.06	3692939.8	IRRIGATION	0.958	1	0	0	0
90003	604163	A-01-03 20BAD	58-105296.0001	CEMEX CONSTRUCTION MATERIALS SOUTH LLC	Type 2 Mineral Extract Gfr	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	400047.3	3698240.3	TYPE 2 MINERAL EXTRACT GFR	0.83	2	0	0	0
90004	577694	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90005	577695	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90006	577696	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90007	577697	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90008	579467	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90009	579468	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90010	579469	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90011	579470	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90012	579471	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90013	579472	A-02-03 20ABB	59-540940.0002	ONE CAMELBACK INC	TEMPORARY DEWATERING PERMITS	Withdrawal	Groundwater	Reproject RoGR UTMs assuming original are NAD27	400374.4	3708161.4	INDUSTRIAL	1	2	0	0	0
90014	599019	A-02-01 32DAD	74-553424.0009	CITY OF AVONDALE	RECOVERY WELL PERMITS	Recovered	Salt/Verde Water Re	Reproject RoGR UTMs assuming original are NAD27	381649.04	3704039.1	RECOVERY	0.42	2	0	0	0
90015	605117	A-01-02 24DAB	58-115464.0003	UNITED METRO MATERIALS INC	TYPE 2 MINERAL EXTRACT GFR	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	397553.14	3697658	SAND/GRAVEL > 100 AFA	0.91	2	0	0	0
90016	524960	A-01-01 22DCD	58-108155.0009	BROADWAY 42 LLC	TYPE 1 GFR	Withdrawal	Groundwater	Reproject GWSI LL NAD27 to UTM12 NAD83	385199.02	3697180.6	DAIRY	0.77	2	0	0	0

PUMP1987_SRV	PUMP1988_SRV	PUMP1989_SRV	PUMP1990_SRV	PUMP1991_SRV	PUMP1992_SRV	PUMP1993_SRV	PUMP1994_SRV	PUMP1995_SRV	PUMP1996_SRV	PUMP1997_SRV	PUMP1998_SRV	PUMP1999_SRV	PUMP2000_SRV	PUMP2001_SRV	PUMP2002_SRV	PUMP2003_SRV	PUMP2004_SRV	PUMP2005_SRV	PUMP2006_SRV	PUMP2007_SRV	PUMP2008_SRV
266	464	263	264	458	645	576	482	487	299	373	81	287	37	11	6	15	101	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
220	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1246	0	845	1043	881	746	847	641	180	1	2	30	22	52	117	184	28	10	57	5.4	4.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	72	58	55	56	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	72	60	36	33	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	277	741	353	0	0	827	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	5	8	116	5	6	4	157	0	1	3	4	375	290	383	388	439	94	16	0	667.51	0
1476	1553	1794	2841	2650	1914	1481	2036	1951	2085	1756	2068	2126	2036	1495	62	0	0	0	0	0	0
3305	3457	3246	2663	3032	2490	2348	3595	2849	3142	3185	2507	2583	2650	3517	3855	3088	3138	2904	3212	3209.97	0
19	190	170	1741	41	105	196	1128	215	795	1095	569	1555	1500	1262	1242	1135	1002	395	673	1285.14	0
80	107	26	1332	278	33	4	145	121	123	597	223	412	586	394	359	797	582	12	1	337.39	0
75	3	3	2069	219	52	30	273	211	313	1018	141	1016	1534	1494	1326	1444	1088	9	109	0	0
261	71	103	1091	173	1	30	221	273	218	913	335	1100	1398	1109	1326	960	732	23	7	306.97	0
83	47	267	951	737	92	89	564	245	720	732	327	1320	1263	888	1406	1453	932	97	0	0	0
6	3	30	195	90	5	1	9	9	60	37	3	132	330	47	307	265	257	0	96	126.09	0
245	152	186	173	225	58	23	311	207	76	195	196	952	1397	1041	918	1095	761	0	2	92.53	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	68	0	0	24	24	28	28	28	28	20	26	28	28	28	0	0	0	0	0	0	0
10	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	143	0	110	128	217	86	214	188	119	18	87	67	369	715	416	733	59	0	2	3.43	3.18
142	216	0	38	121	115	295	181	135	366	43	186	620	673	1267	118	779	431	0	191	421.01	176.79
61	122	0	27	306	214	235	223	88	13	450	90	166	2	105	0	389	576	0	520	108.44	274.29
420	223	0	455	163	262	390	401	904	535	402	386	419	505	207	114	212	757	0	1335	1147.02	1003.66
18	6	0	23	4	11	1	1	4	5	3	0	0	0	202	1731	691	247	0	489	927.2	876.37
312	227	170	2156	307	113	42	457	528	336	918	249	1754	954	1197	1448	1681	1160	2	5	184.47	0
46	39	46	39	31	43	0	56	44	53	51	45	57	70	56	63	54	37	37	18	0	0
1431	1824	1304	1221	1130	873	1112	877	732	1170	1098	941	909	908	515	0	0	0	0	0	0	0
39	35	113	970	58	13	18	21	42	131	858	14	242	333	378	711	50	72	0	3	0.13	0
3	34	17	8	37	45	27	3	4	527	106	4	680	359	260	455	489	172	22	56	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	95	1105	22	0	0	547	0	1970	1913	1265	744	1162	522	0	850	1262	361	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1584	1498	777	0	1503	232	493	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
376	1133	1242	866	354	492	809	1643	1291	196	2355	1204	1111	995	1004	784	0	187	734	1241	1201	1056.56
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	4	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	232	1271	1375	81	0	69	603	230	755	1009	770	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	91	76	52	72	141	121	200	145	152	91	210	147	33	0	0	0	0	0	0	0	0
0	0	371	1018	255	0	0	1381	230	888	1548	969	1249	1008	877	1109	1084	1305	580	1127	1290.93	0
9	51	333	417	0	0	0	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	3	7	0	7	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	288	892	448	407	574	1238	711	1176	2506	1408	0	0	0	0	0	0	0	0	0	0
2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	63	48	38	37	37	34	40	33	30	30	0	23	0	26	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	62	59	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	3	3	3	4	4	5	5	5	2	2	0	0	3	1	2	2	50	19	18.5	12.53
0	252	134	208	48	0	0	125	58	61	105	111	107	361	374	158	234	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	565	352	571	604	379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	857	790	383	846	727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	17	18	27	17	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	2	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
227	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
358	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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291	144	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	167	380	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
473	556	0	502	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1370	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	0	6	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
458	465	507	345	396	635	370	334	224	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3400	2001	0	0	1695	518	2028	3513	3647	1928	0	0	0	0	0	0	0	0	0	0	0	0
0	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	93	0	84	578	451	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	17	17	17	16	17	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	9	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	15	21	13	11	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	747	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	535	529	556	12	46	0	23	0	0	177	1005	1016	965	916	592	466	748	805	830	810.65
0	0	29	24	22	29	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	18	17	0	0	1	5	5	6	0	0	2	3	1	21	0	37	40	14	16.4	18.58
0	0	45	52	63	25	17	21	16	17	15	8	15	17	17	13	0	116	61	77	69.5	51.1
0	0	63	55	40	64	72	38	32	72	29	30	50	56	41	30	0	21	29	39	27.94	22.49
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	536	248	210	35	110	153	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	21	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	6	0	5	4	0	6	1	6	18	19	28	35	11	0	0	0	0	0	0
0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	2	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	237	272	141	279	216	305	257	233	39	28	362	514	513	486	0	621	497	558.49	472.89
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

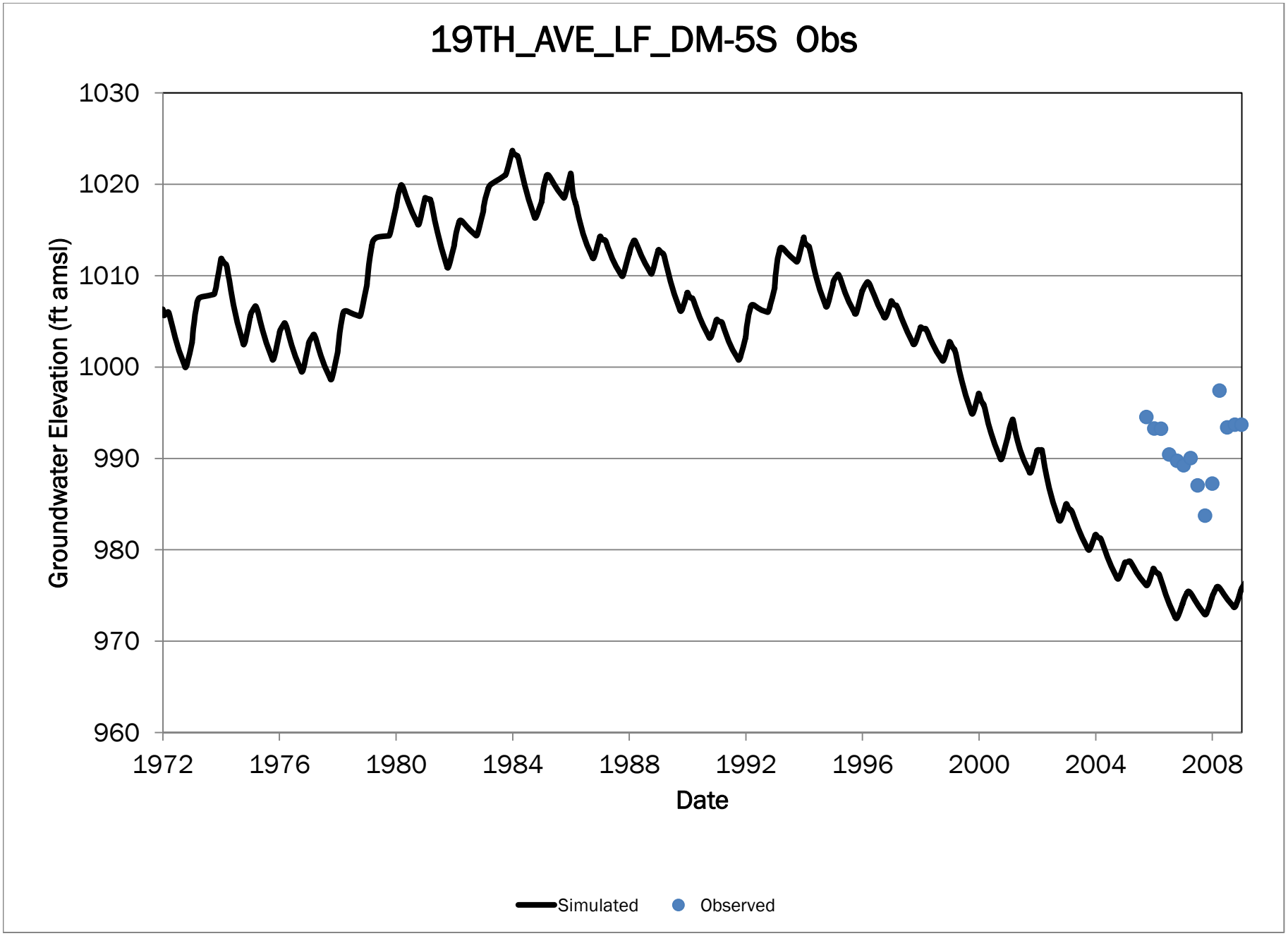
PUMP2009_SRV	TopLayer	BotLayer	Comment
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	-1	-1	
0	1	4	
5.39	1	4	
0	1	4	
3439.91	1	4	
703	1	4	
101.19	1	4	
13.47	1	4	
194.58	1	4	
0	1	4	
43.99	1	4	
109.12	1	4	
0	1	4	
0	1	4	
0	1	2	
0	1	4	
0	1	3	
0	1	1	
10.68	1	4	
392.77	1	4	
205.32	1	4	
761.37	1	4	
755.53	1	4	
156.84	1	4	
0	1	4	
0	1	4	
2.87	1	4	
10.03	1	2	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
1175.47	1	4	
0	1	2	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	2	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	2	
0	1	4	
0	4	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	1	
0	3	-4	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	Zero pumping, so no SRV Factor for layer 1 - set to 100%; here for completeness
0	1	2	
0	1	4	

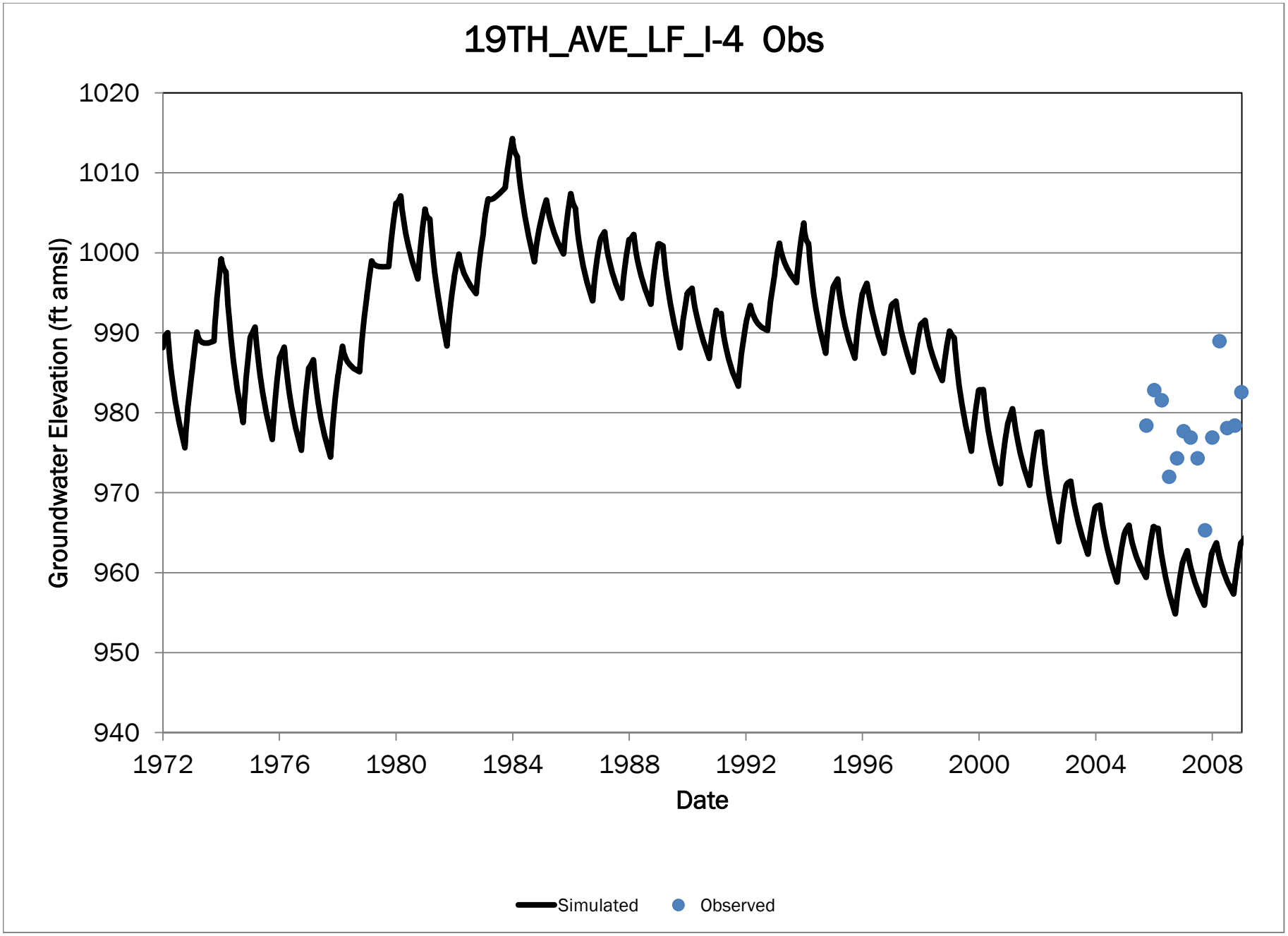
0	1	4	
0	1	1	
0	1	4	
0	1	1	
0	1	1	
0	1	-4	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	Zero pumping, so no SRV Factor for layer 1 - set to 100%; here for completeness
0	1	1	
0	1	4	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	2	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	3	
0	1	1	
736.17	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	3	
0	1	1	
0	1	1	Zero pumping, so no SRV Factor for layer 1 - set to 100%; here for completeness
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
566.78	1	4	
0	1	1	
0	1	1	
0	1	2	
0	1	2	
0	1	4	
0	1	-4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	2	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
14.2	1	4	
0	-1	-1	
0	1	-4	
0	1	1	
448.28	1	4	
0	1	4	
116.78	1	4	
339.41	1	4	
0	1	4	

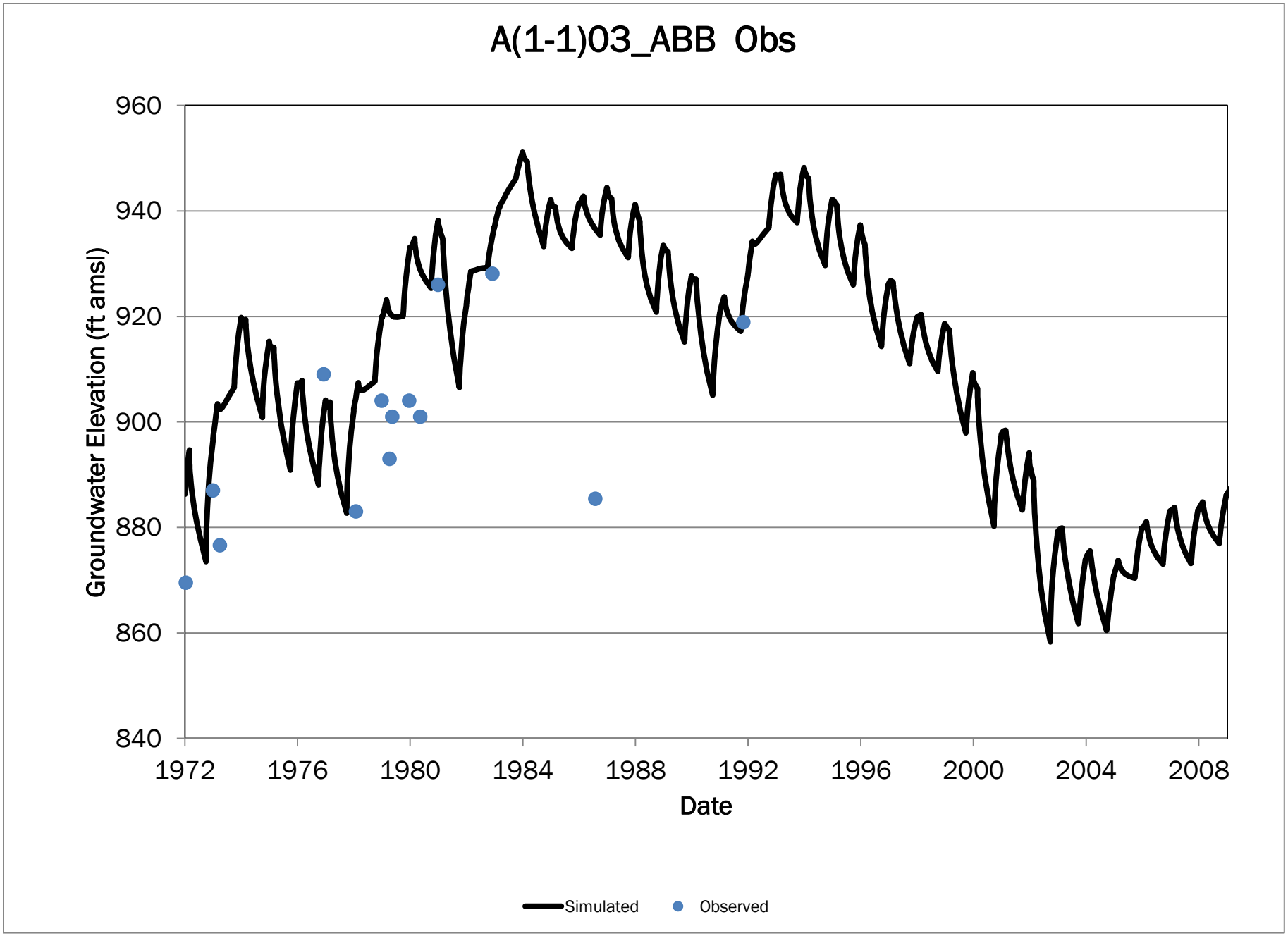
0	1	4	
0	1	4	
0	1	3	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	1	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
54.73	1	4	
0	1	4	
0	1	4	
107.45	1	4	
484.21	1	4	
94.59	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	1	
304.42	1	4	
0	1	2	
0	1	1	
0	1	4	
0	1	4	
1	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
1390.38	1	4	
0	1	4	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
3355.61	1	1	
0	1	4	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	

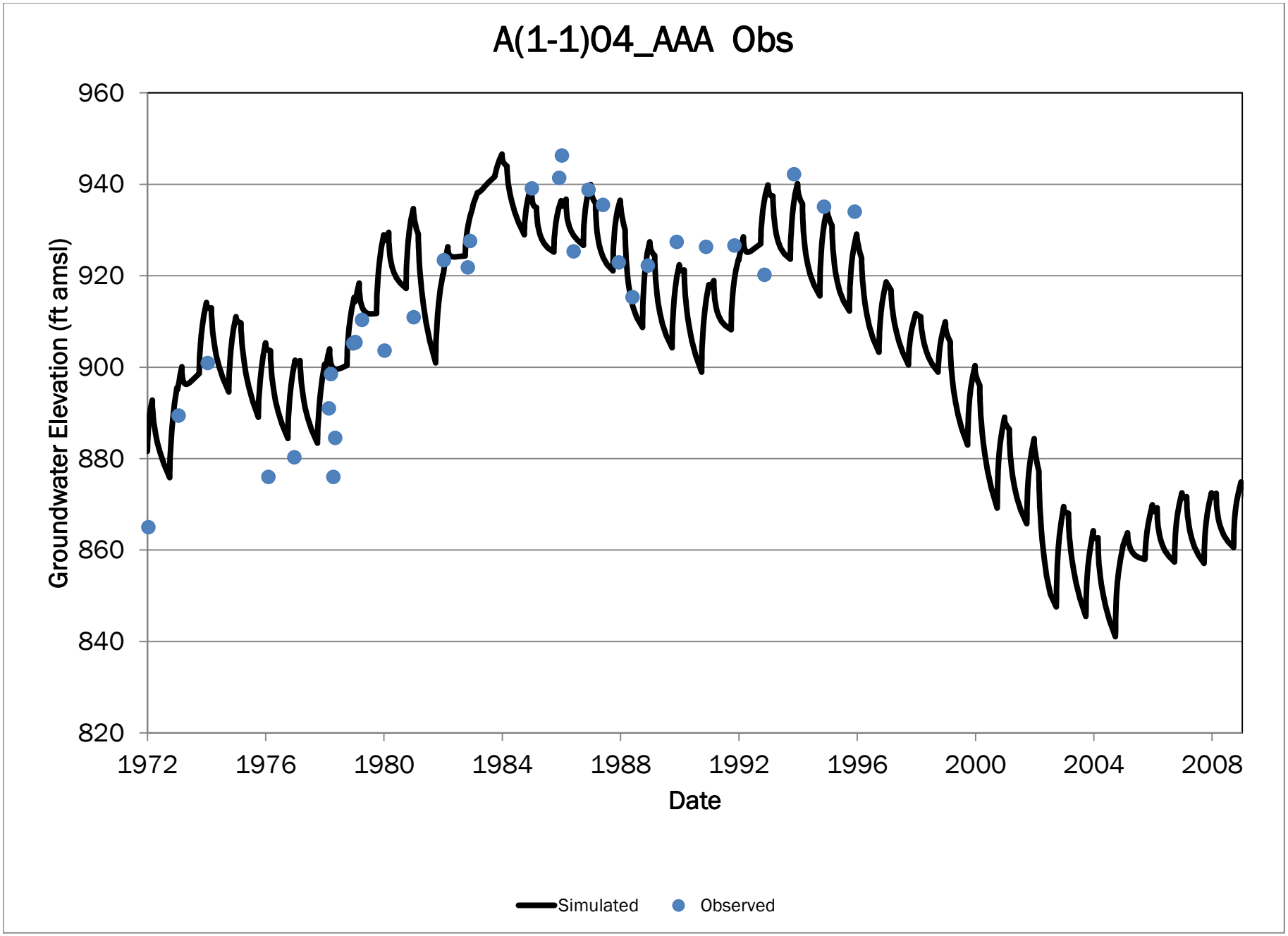
0	1	1	
0	1	1	
0	1	1	
0	1	1	
3973.06	1	4	
39.21	1	1	
22.43	1	1	
0	1	1	
6.81	1	4	
0	1	-4	
0	1	1	
0	1	1	
172.7	1	4	
206	1	4	
246	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	4	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	1	
0	1	2	
12	1	1	
1.02	1	1	
0	1	4	
0	4	4	
77.41	1	4	
3.53	1	-4	
309.45	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
0	1	4	
708	1	1	
0	1	4	
158.36	1	1	
58.01	1	4	
360.61	1	1	Added new right # for 2009; KKZ
3.5	1	4	Added new right # for 2009; KKZ
5.1	1	1	Added new right # for 2009; KKZ
2.7	1	1	Added new right # for 2009; KKZ
5.25	1	1	Added new right # for 2009; KKZ
4.9	1	1	Added new right # for 2009; KKZ
11.5	1	1	Added new right # for 2009; KKZ
4.54	1	1	Added new right # for 2009; KKZ
3	1	1	Added new right # for 2009; KKZ
6.6	1	1	Added new right # for 2009; KKZ
4.3	1	1	Added new right # for 2009; KKZ
9.6	1	1	Added new right # for 2009; KKZ
-509	1	4	Added new right # for 2009; KKZ
177.1	1	4	Added new right # for 2009; KKZ
30	1	4	Added new right # for 2009; KKZ

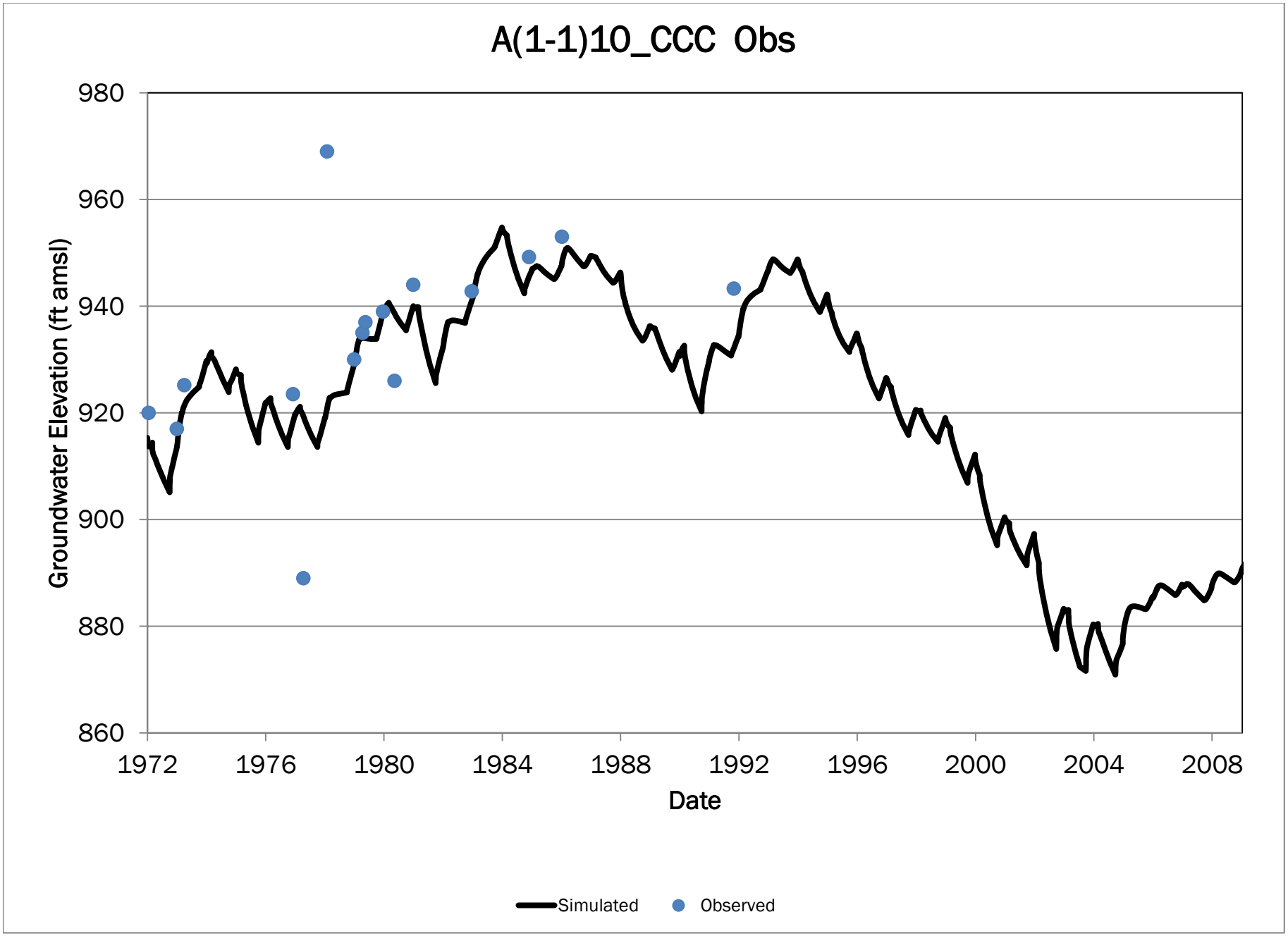
Appendix C: WVBSA Model Calibration Hydrographs

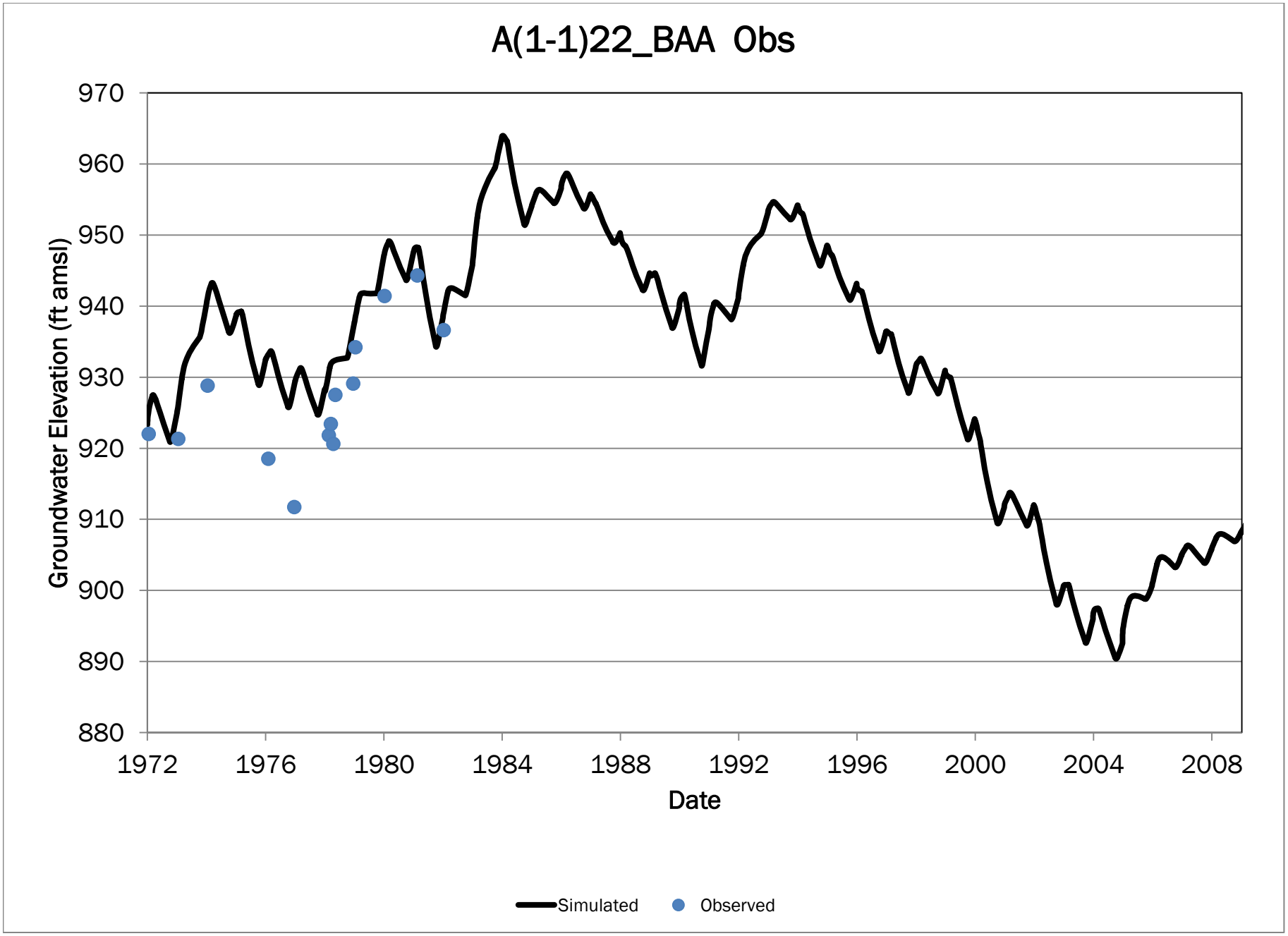

19TH_AVE_LF_DM-5S Obs
Groundwater Elevation (ft amsl)
1030
1020
1010
1000
990
980
970
960
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

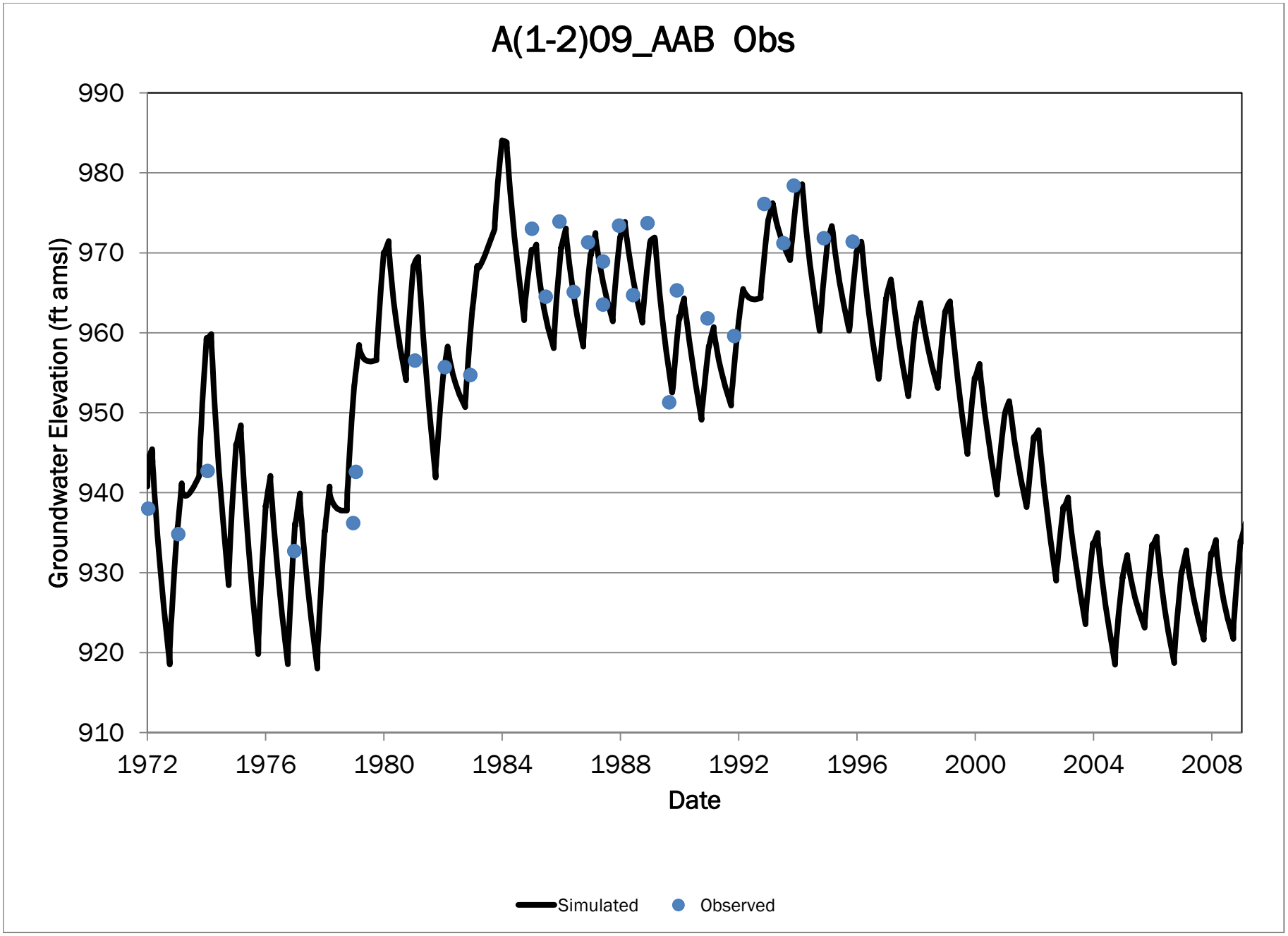

19TH_AVE_LF_I-4 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

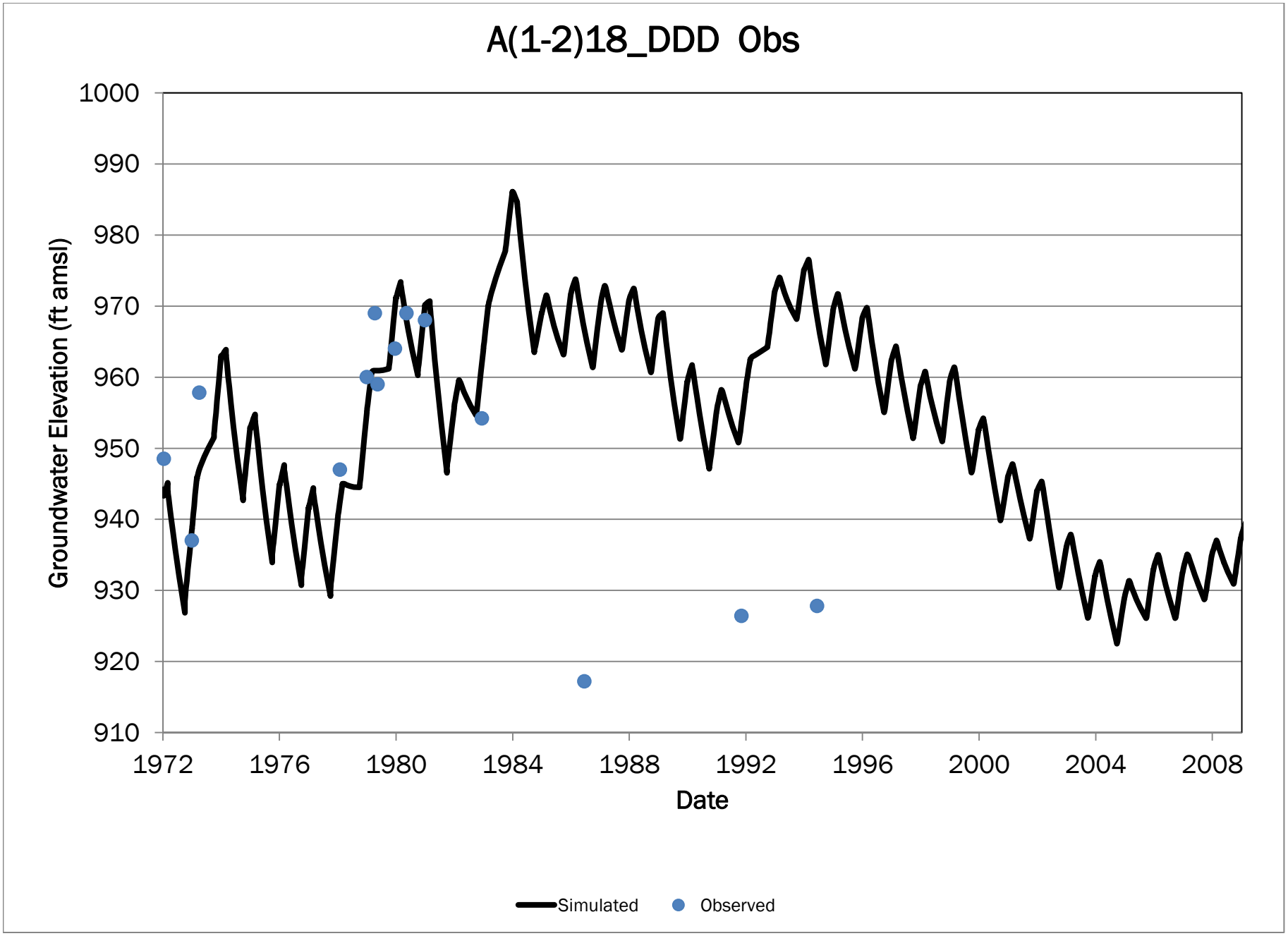

A(1-1)03_ABB Obs
Groundwater Elevation (ft amsl)
960
940
920
900
880
860
840
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

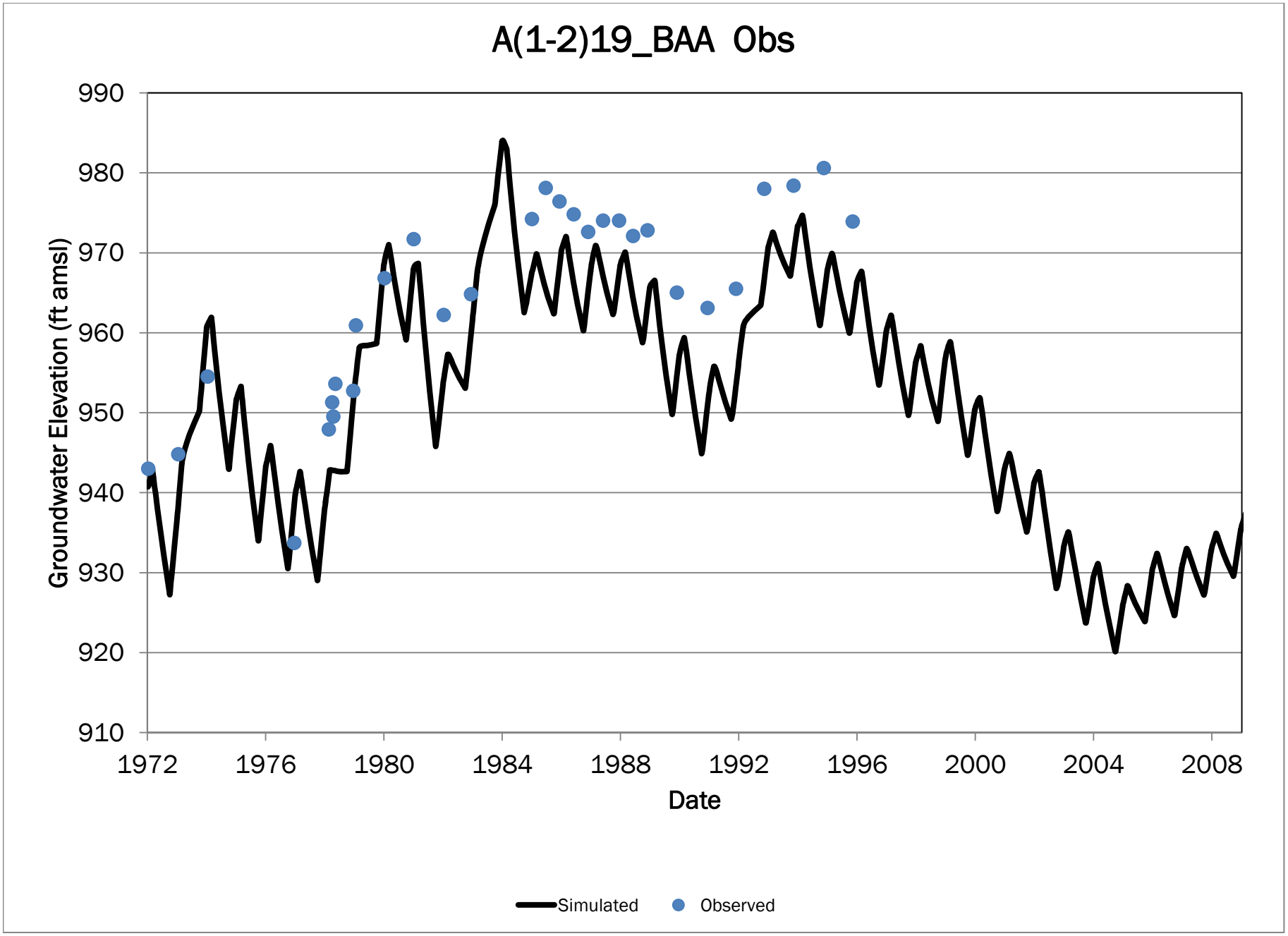

A(1-1)04_AAA Obs
960
940
920
900
880
860
840
820
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

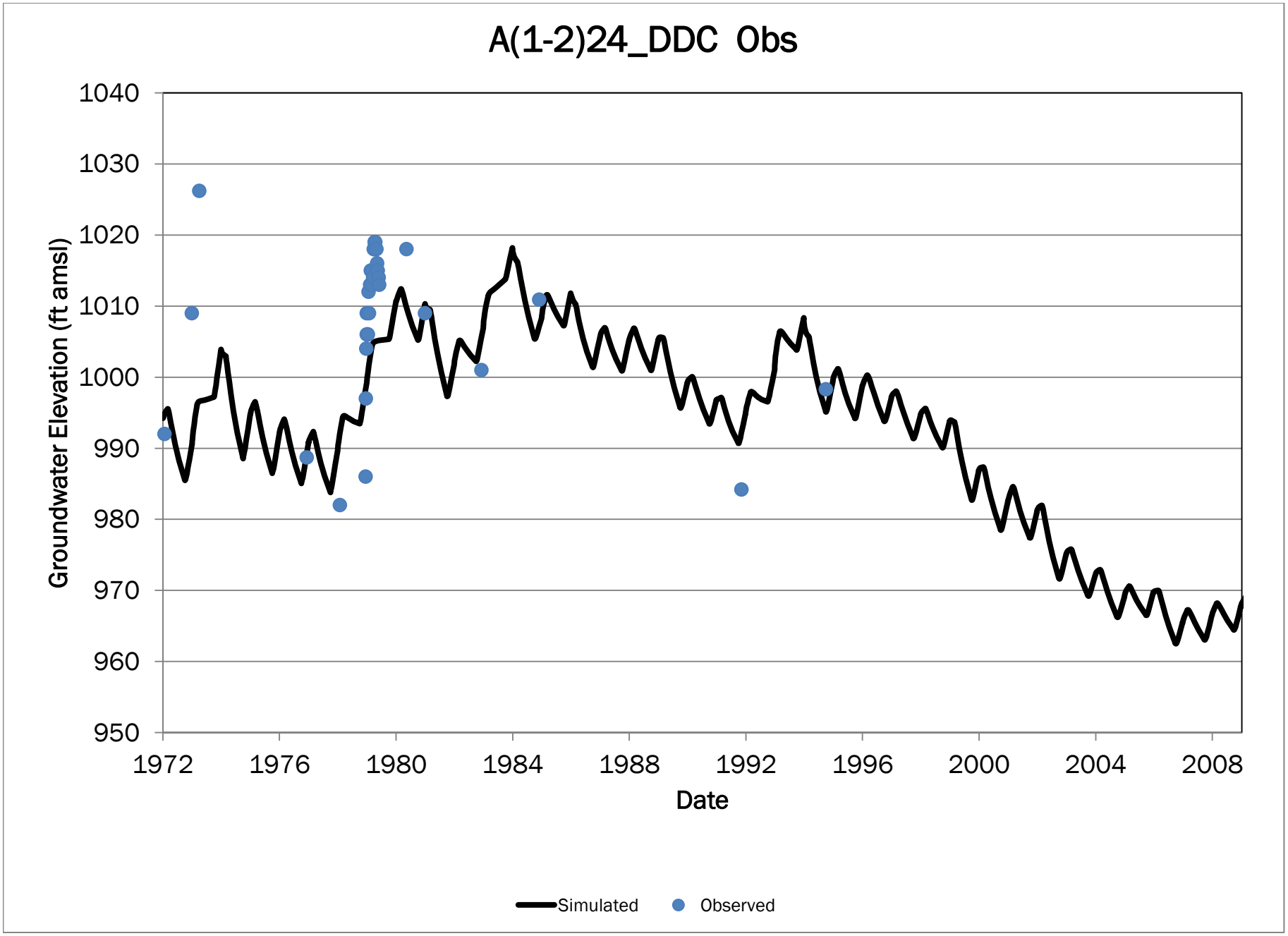

A(1-1)10_CCC Obs
980
960
940
920
900
880
860
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

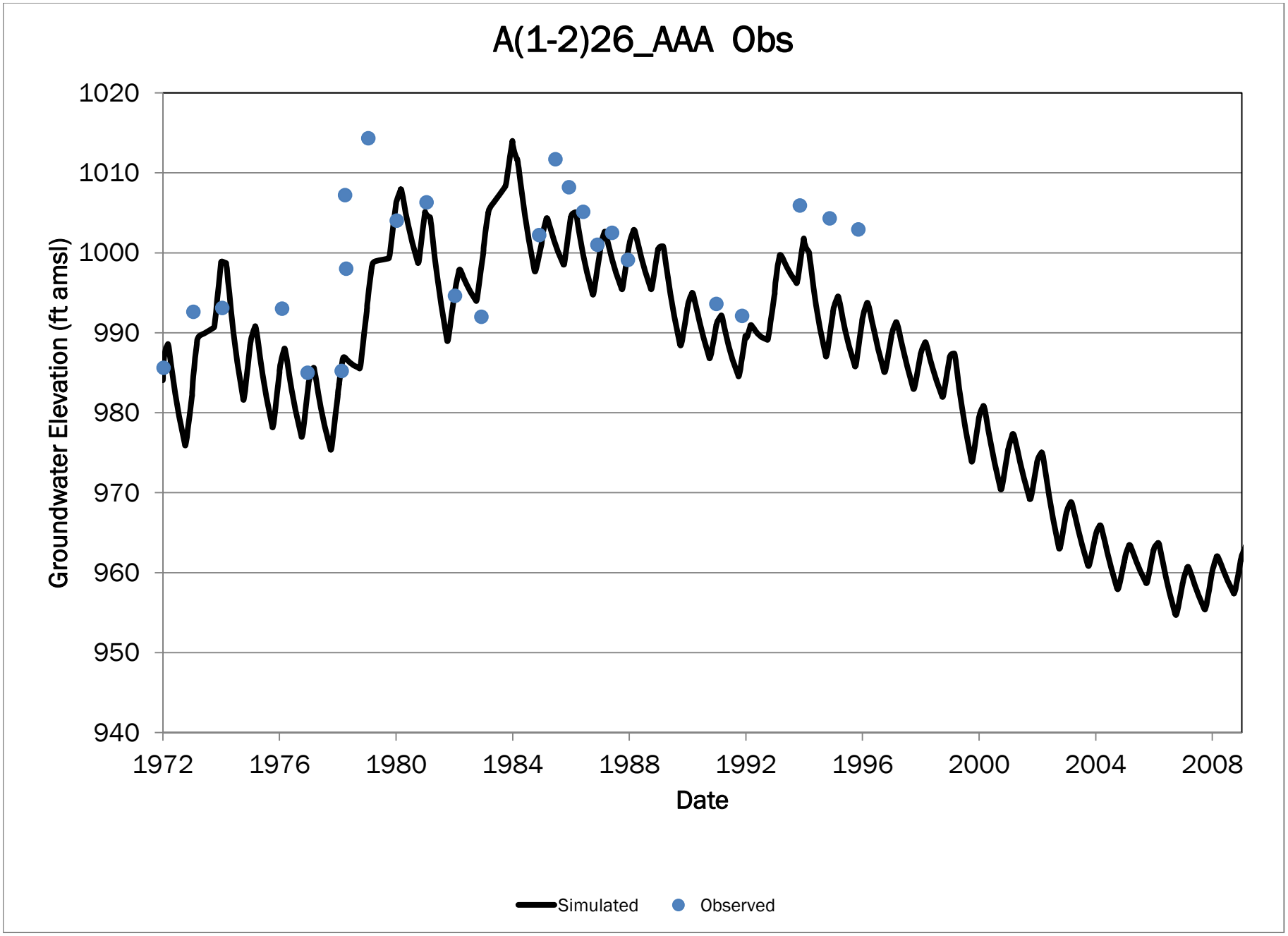

A(1-1)22_BAA Obs
970
960
950
940
930
920
910
900
890
880
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

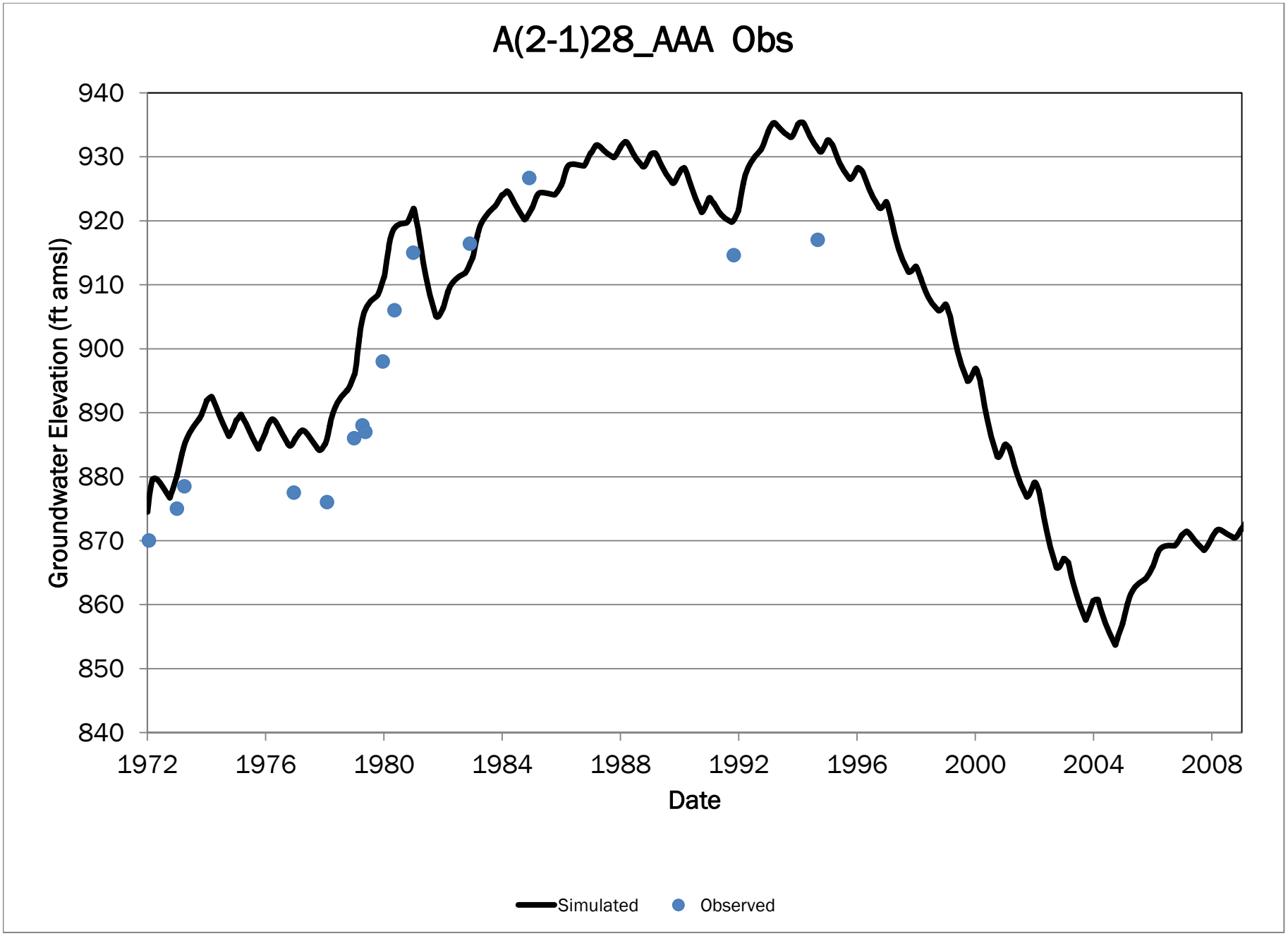

A(1-2)09_AAB Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

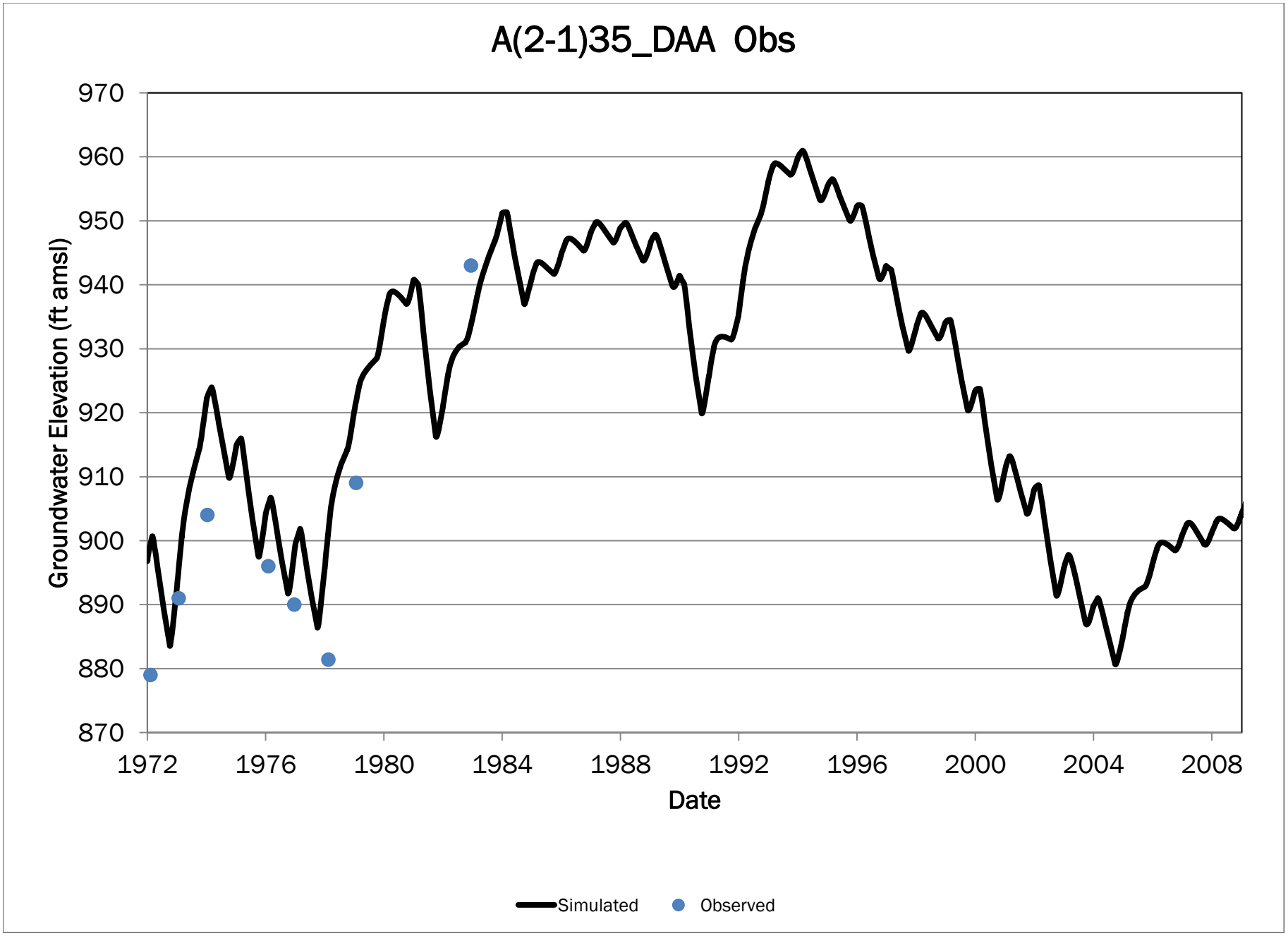

A(1-2)18_DDD Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

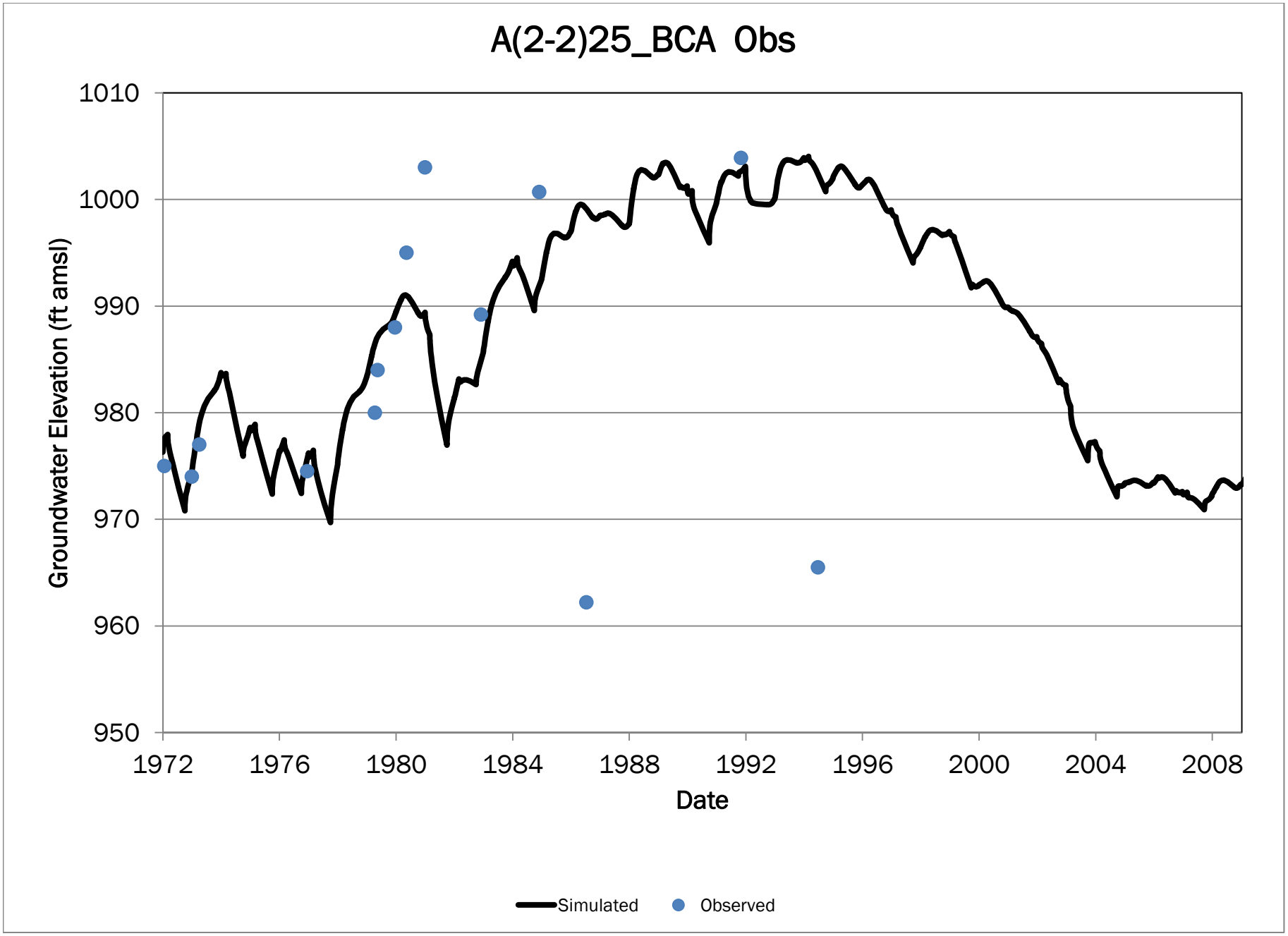

A(1-2)19_BAA Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

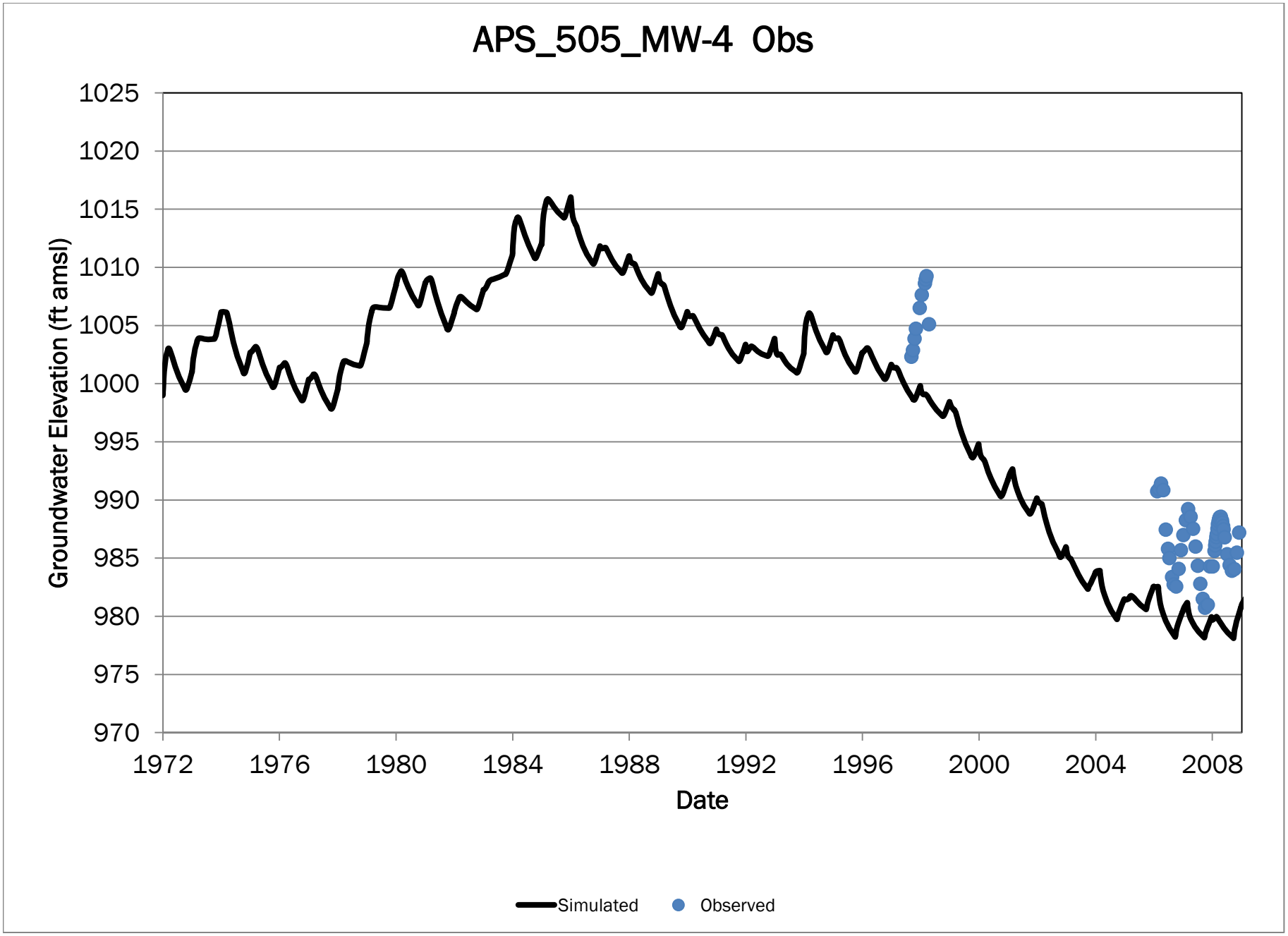

A(1-2)24_DDC Obs
Groundwater Elevation (ft amsl)
1040
1030
1020
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

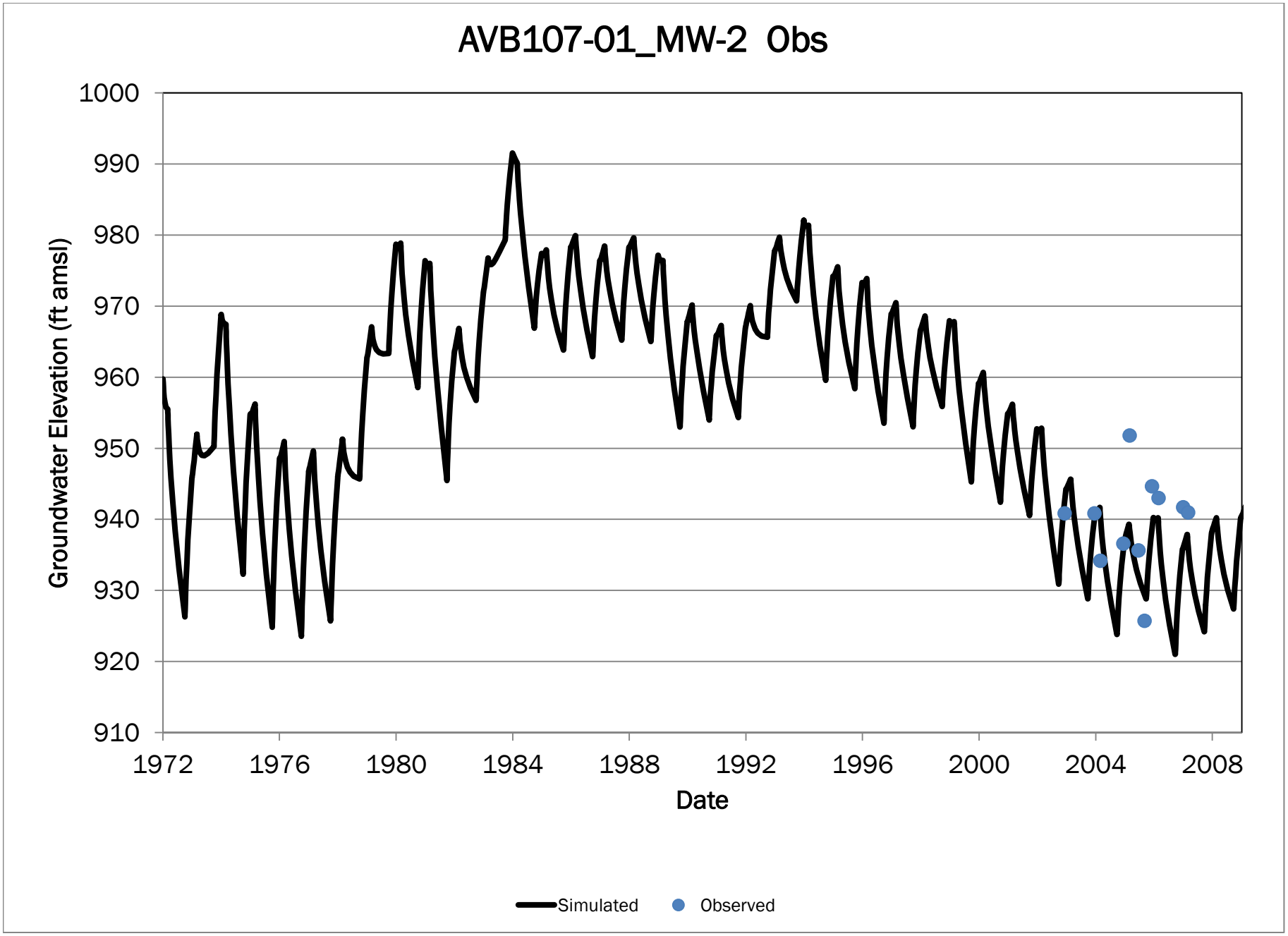

A(1-2)26_AAA Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

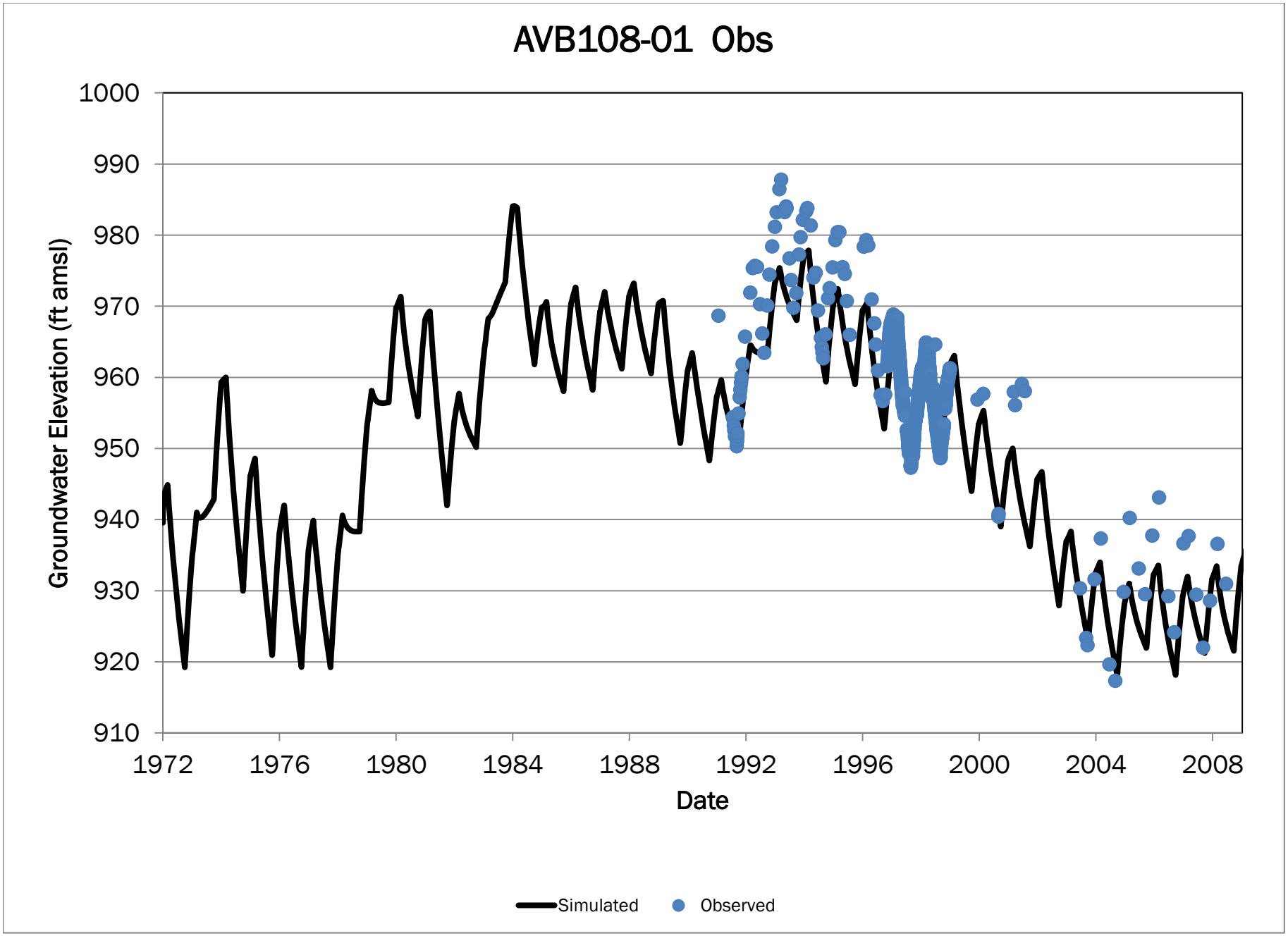

A(2-1)28_AAA Obs
Groundwater Elevation (ft amsl)
940
930
920
910
900
890
880
870
860
850
840
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

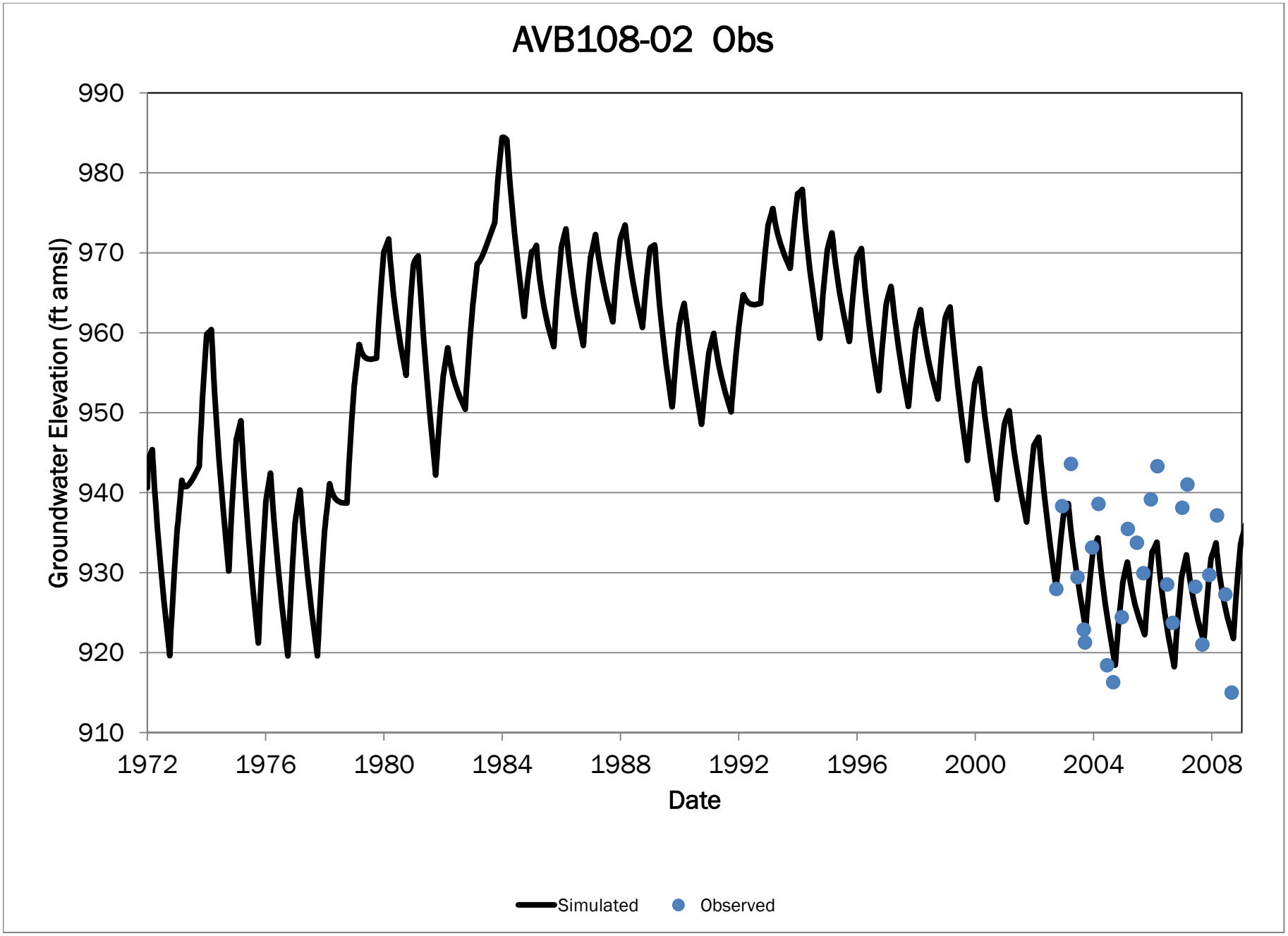

A(2-1)35_DAA Obs
Groundwater Elevation (ft amsl)
970
960
950
940
930
920
910
900
890
880
870
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

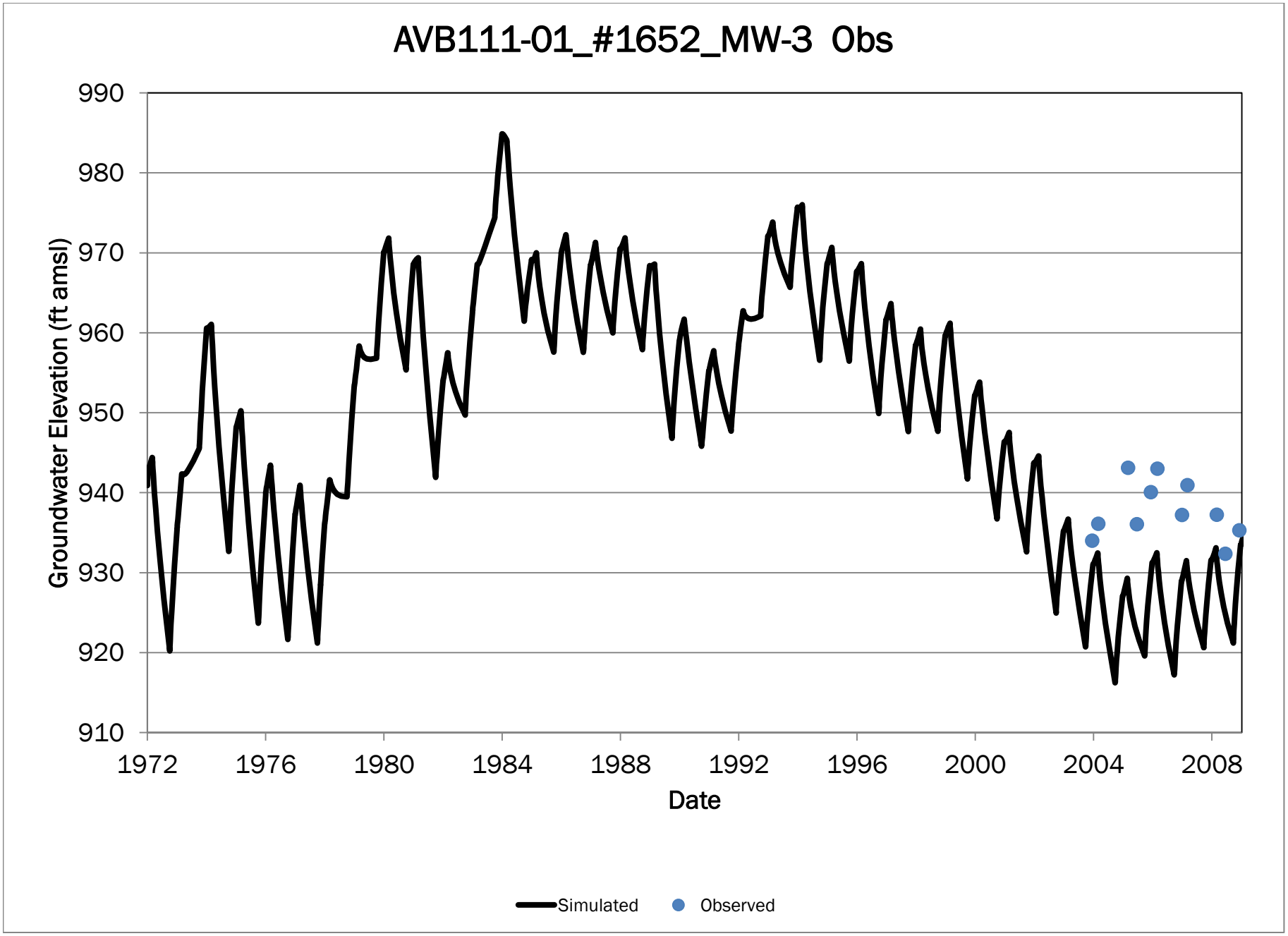

A(2-2)25_BCA Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

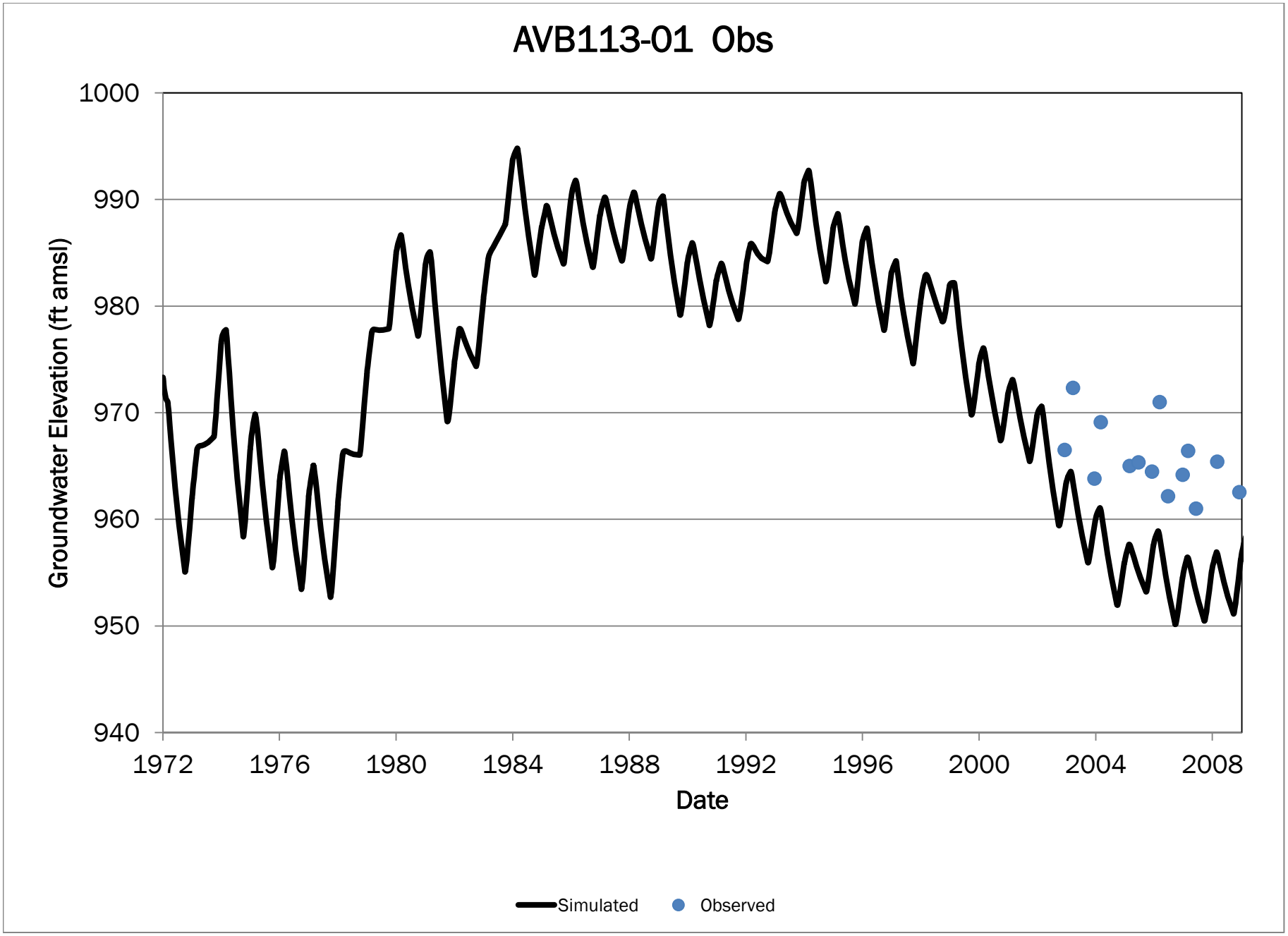

APS_505_MW-4 Obs
Groundwater Elevation (ft amsl)
1025
1020
1015
1010
1005
1000
995
990
985
980
975
970
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

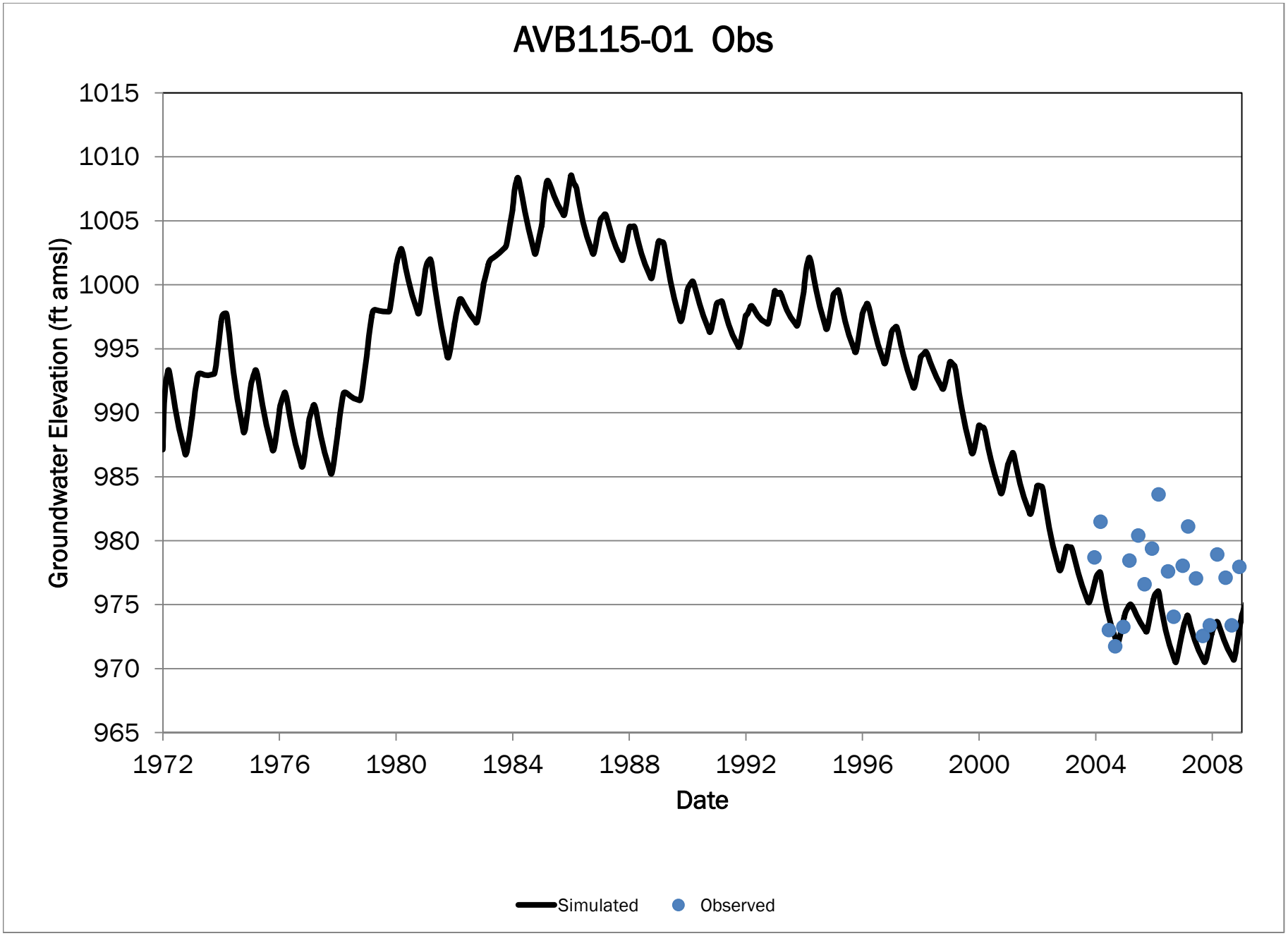

AVB107-01_MW-2 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

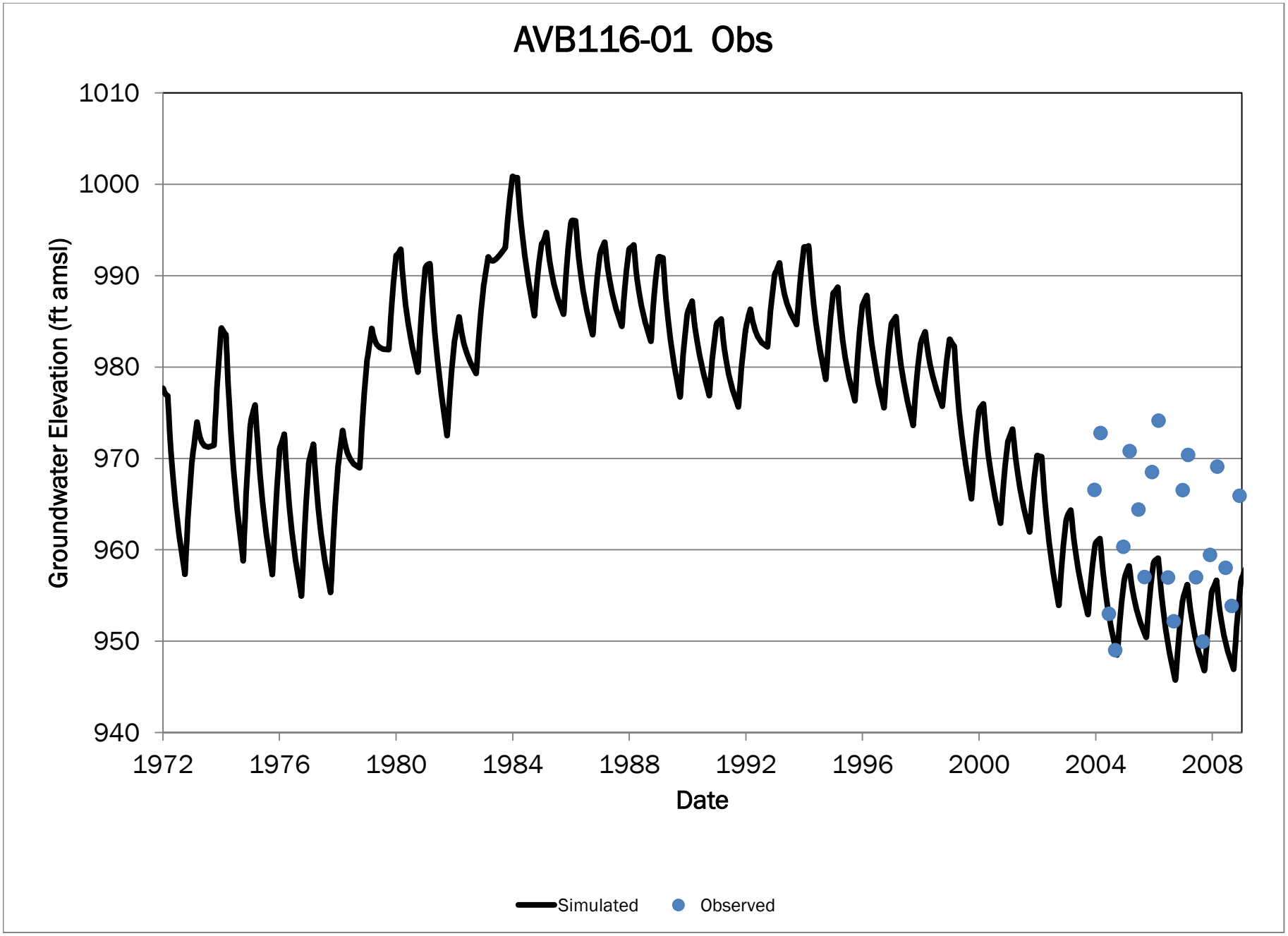

AVB108-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

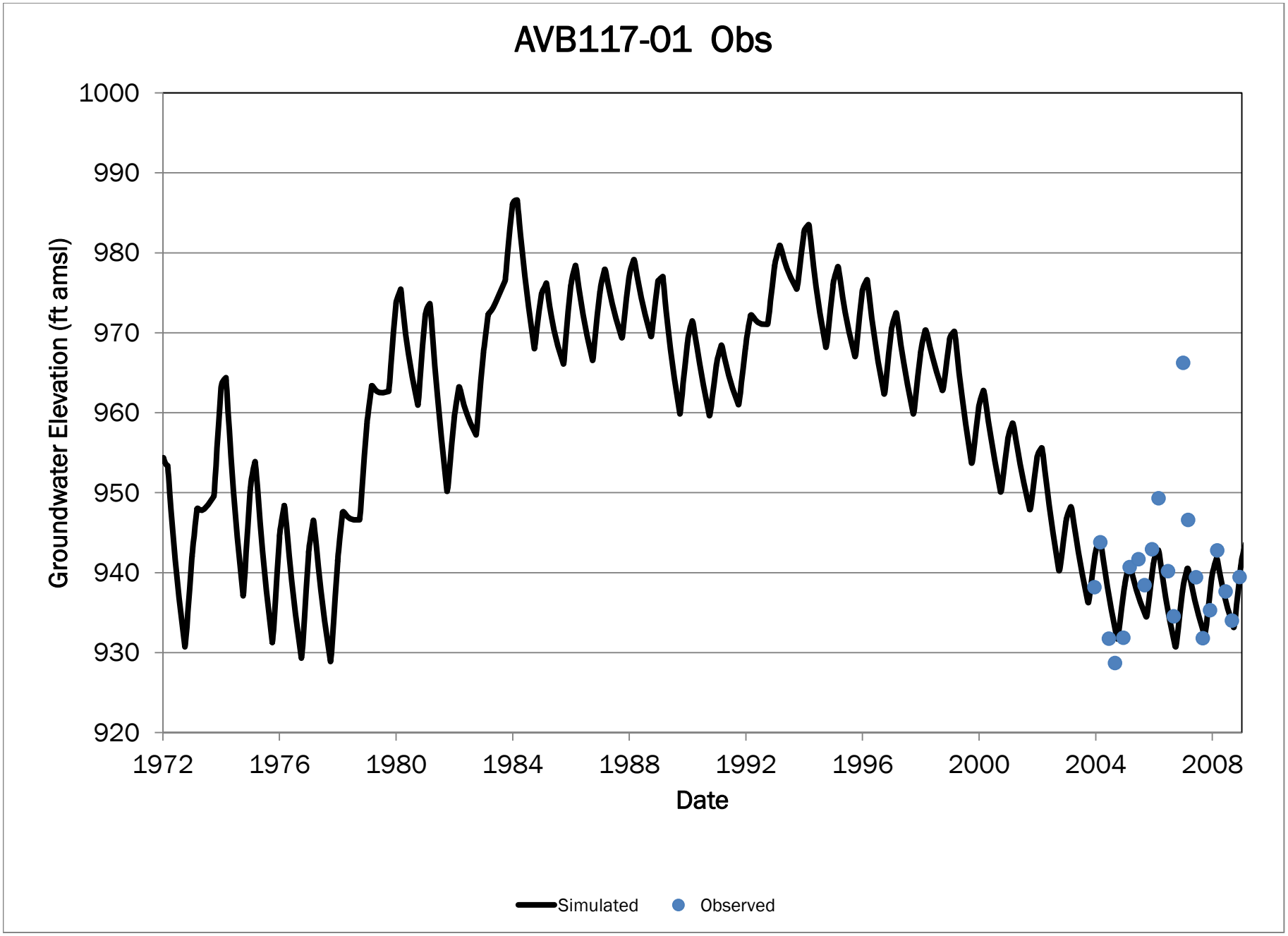

AVB108-02 Obs
990
980
970
960
950
940
930
920
910
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

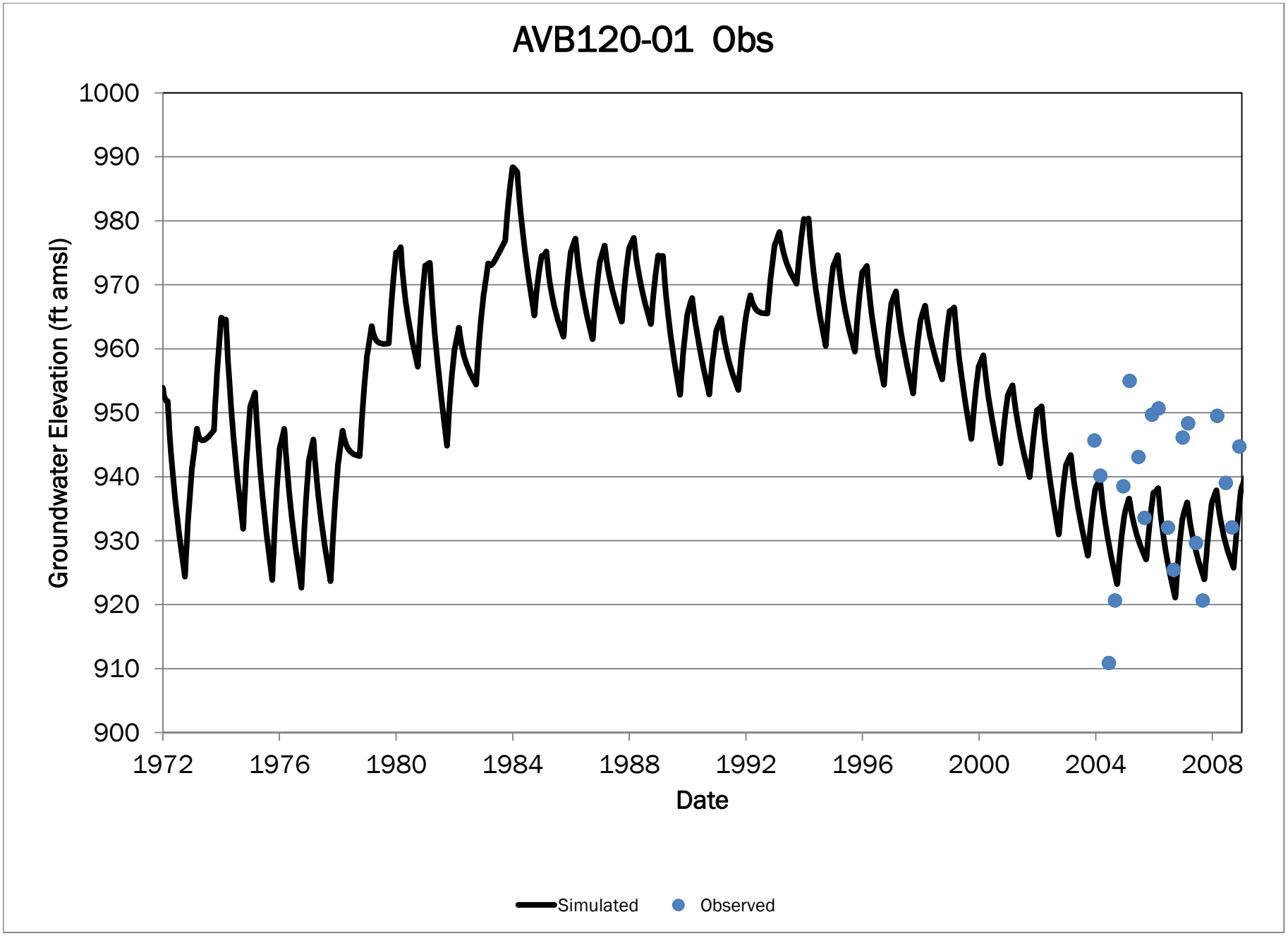

AVB111-01_#1652_MW-3 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

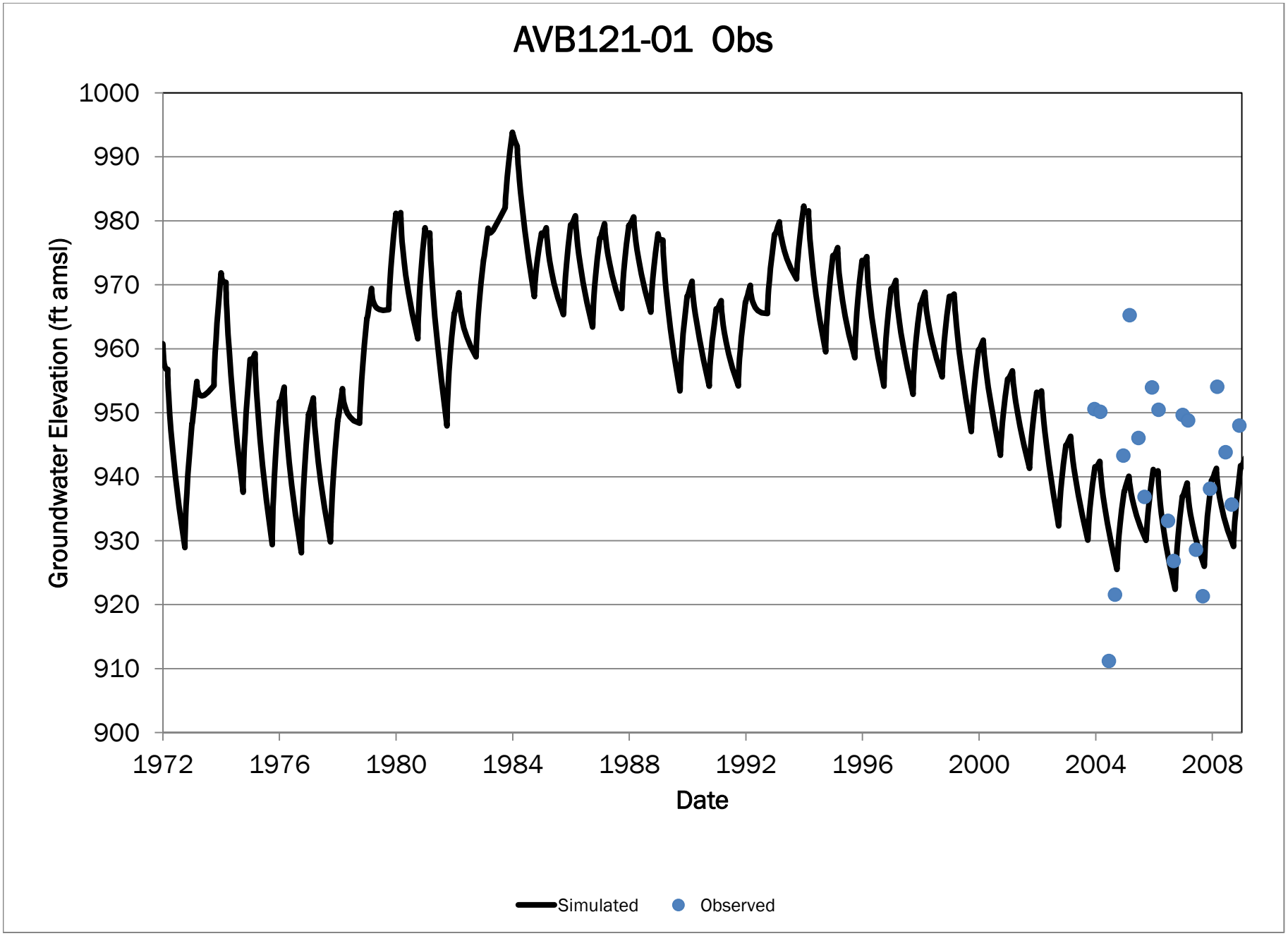

AVB113-01 Obs
1000
990
980
970
960
950
940
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

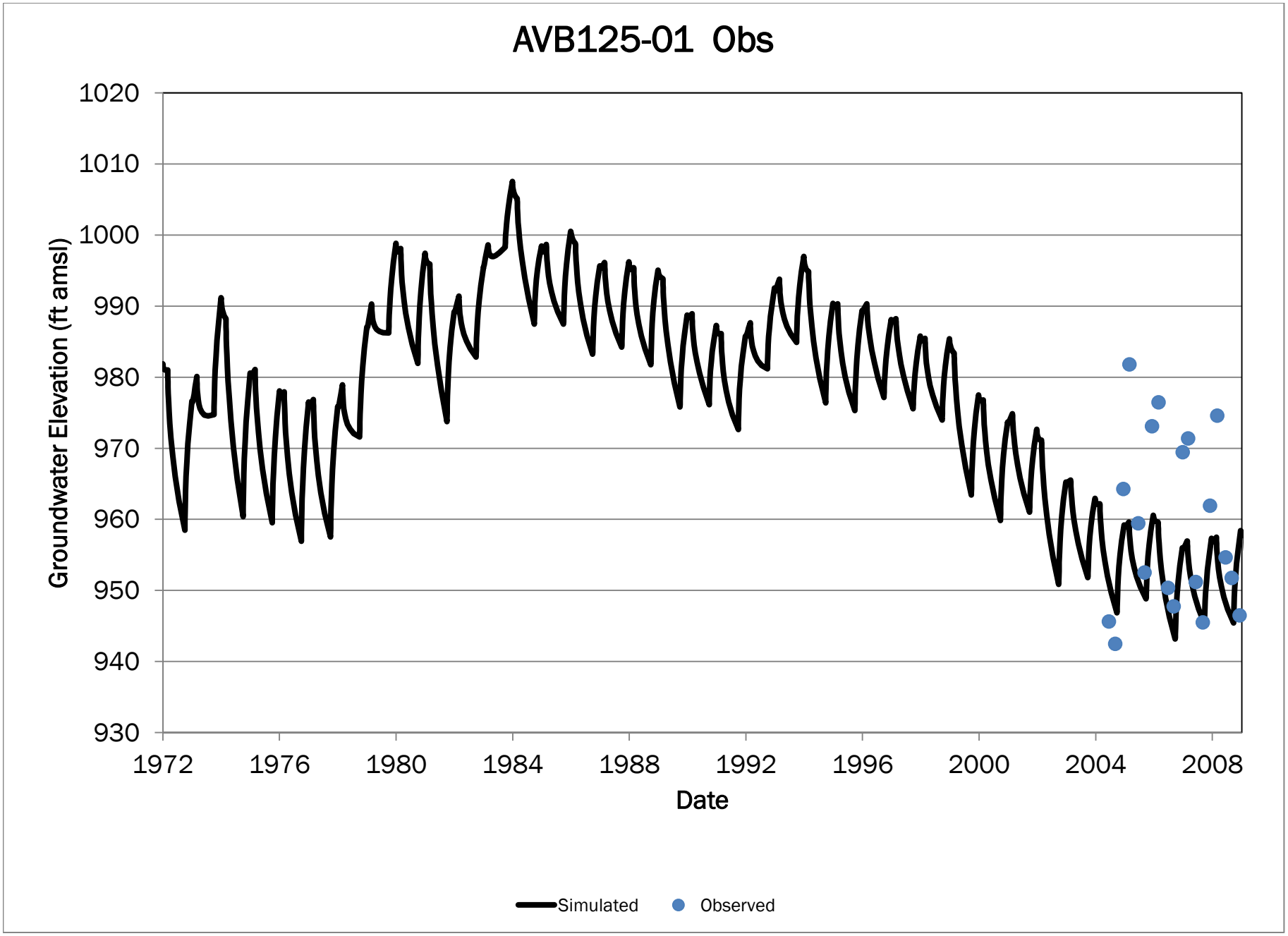

AVB115-01 Obs
Groundwater Elevation (ft amsl)
1015
1010
1005
1000
995
990
985
980
975
970
965
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

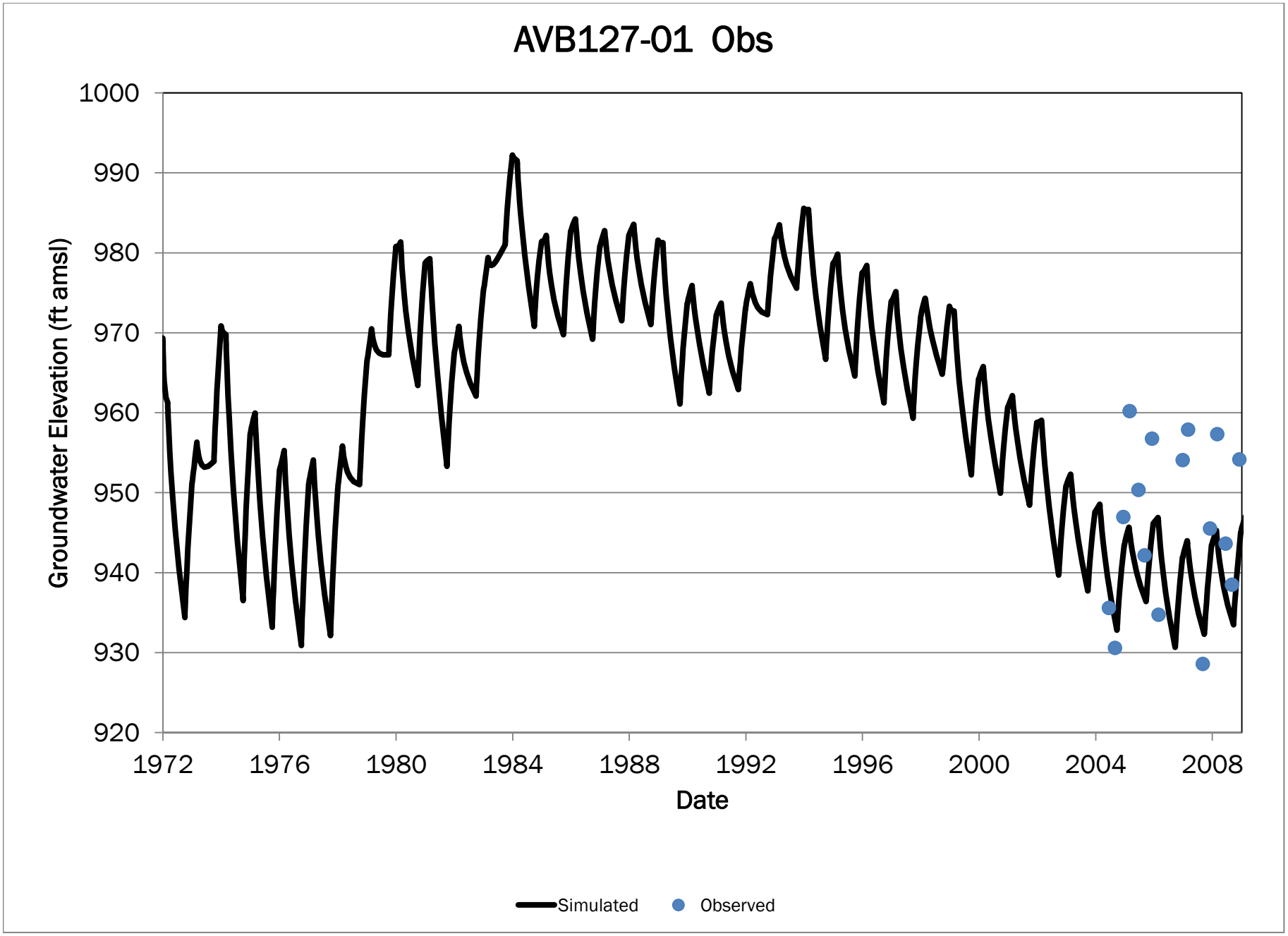

AVB116-01 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

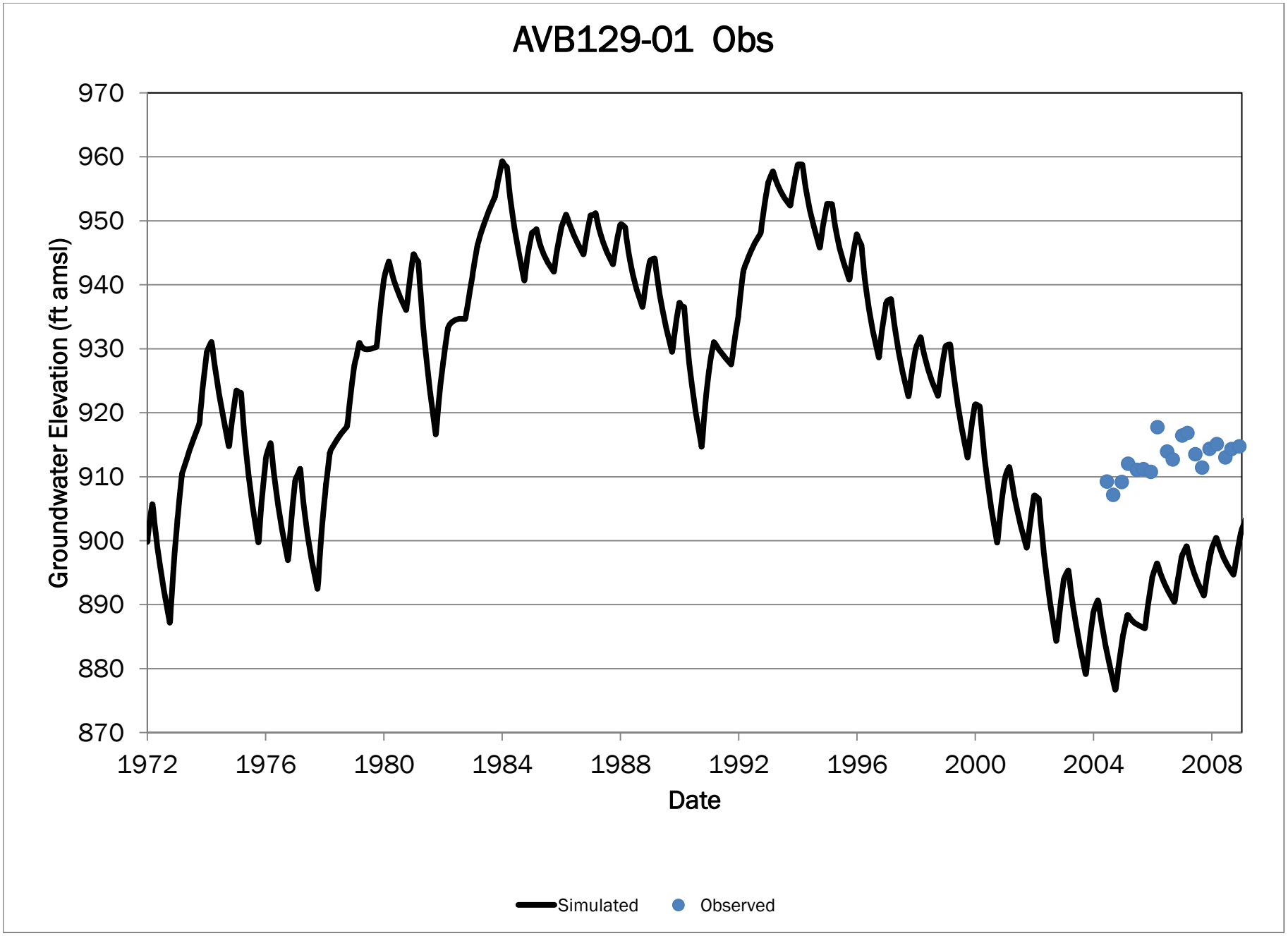

AVB117-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

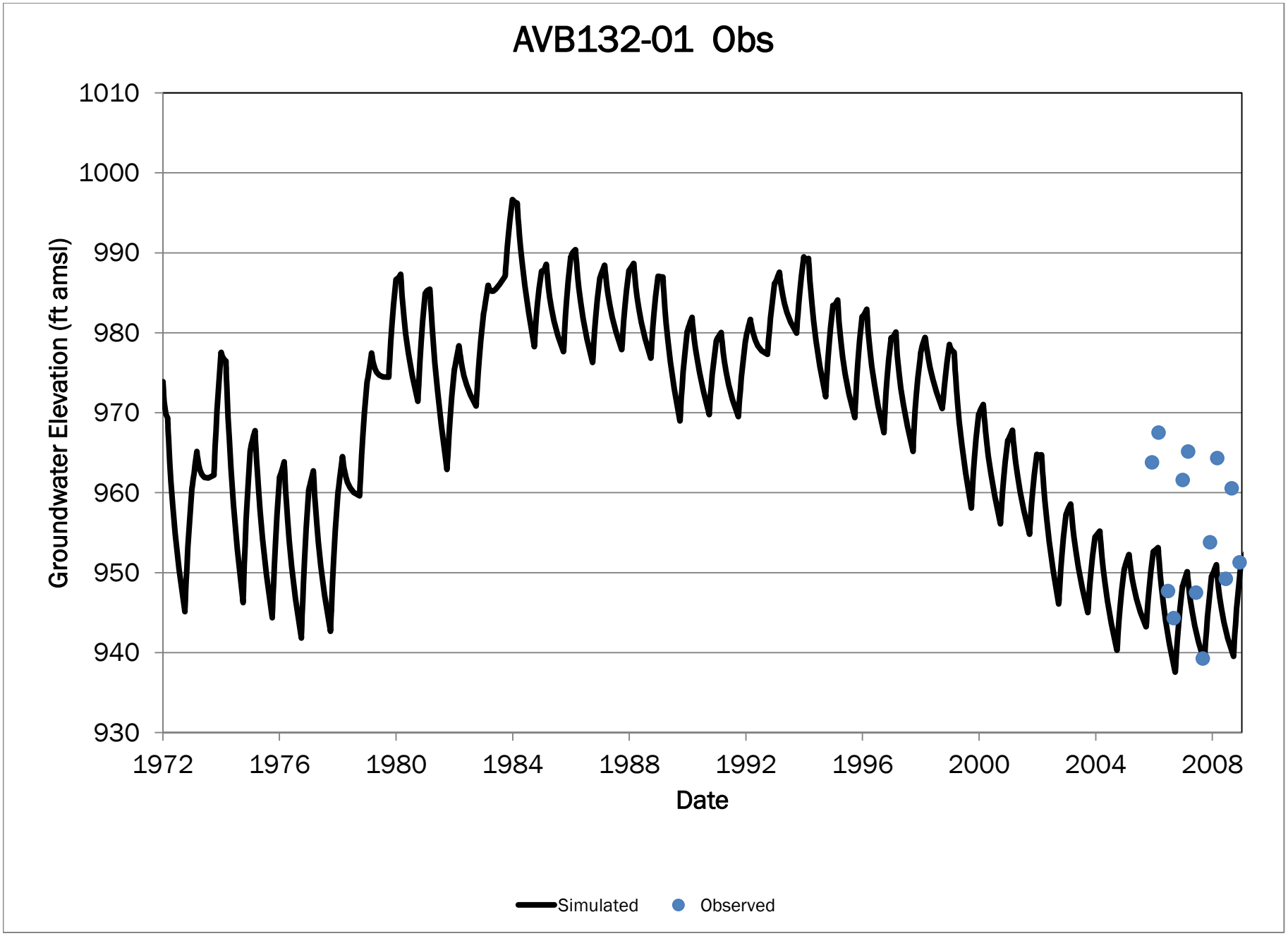

AVB120-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

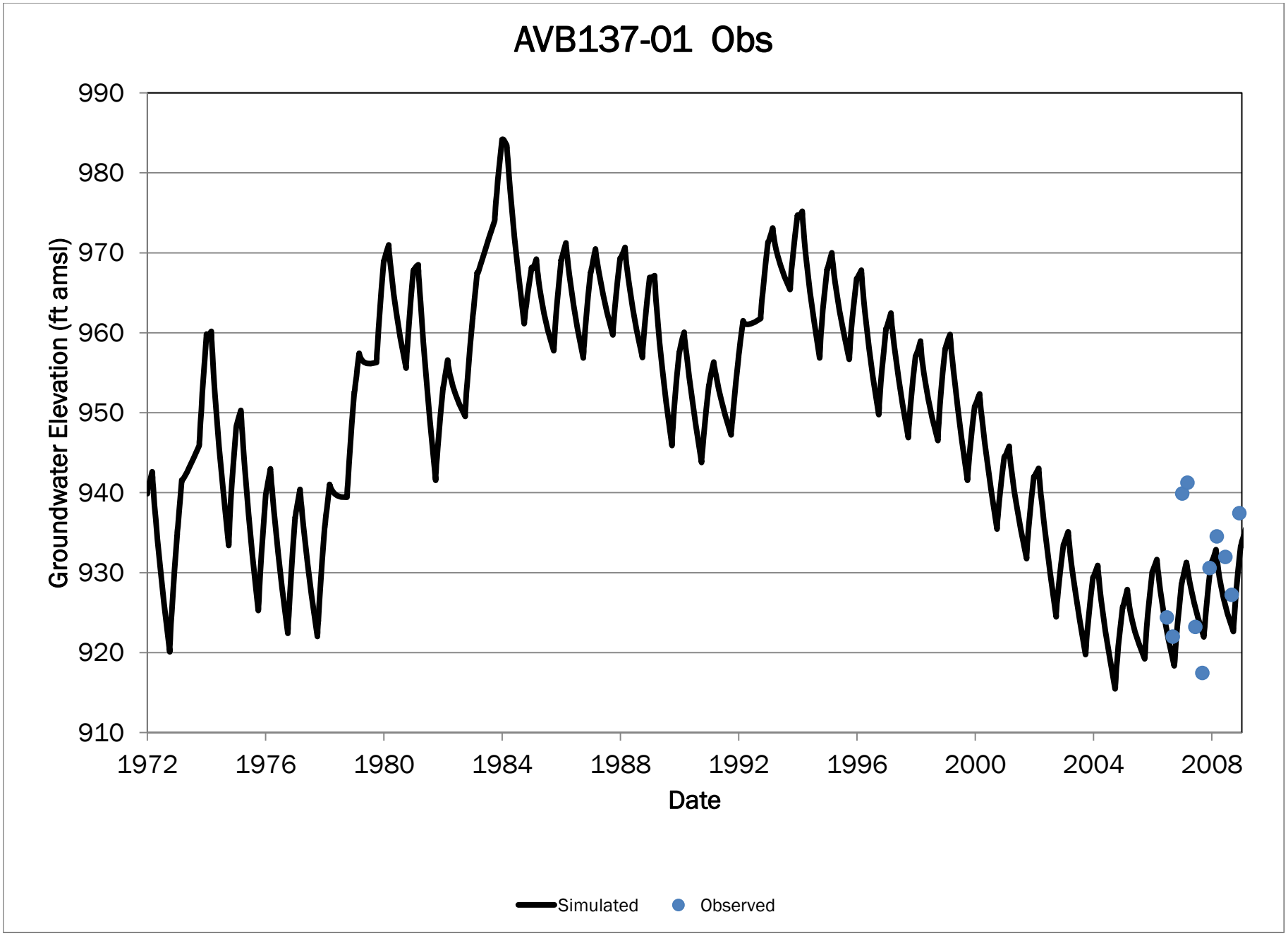

AVB121-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

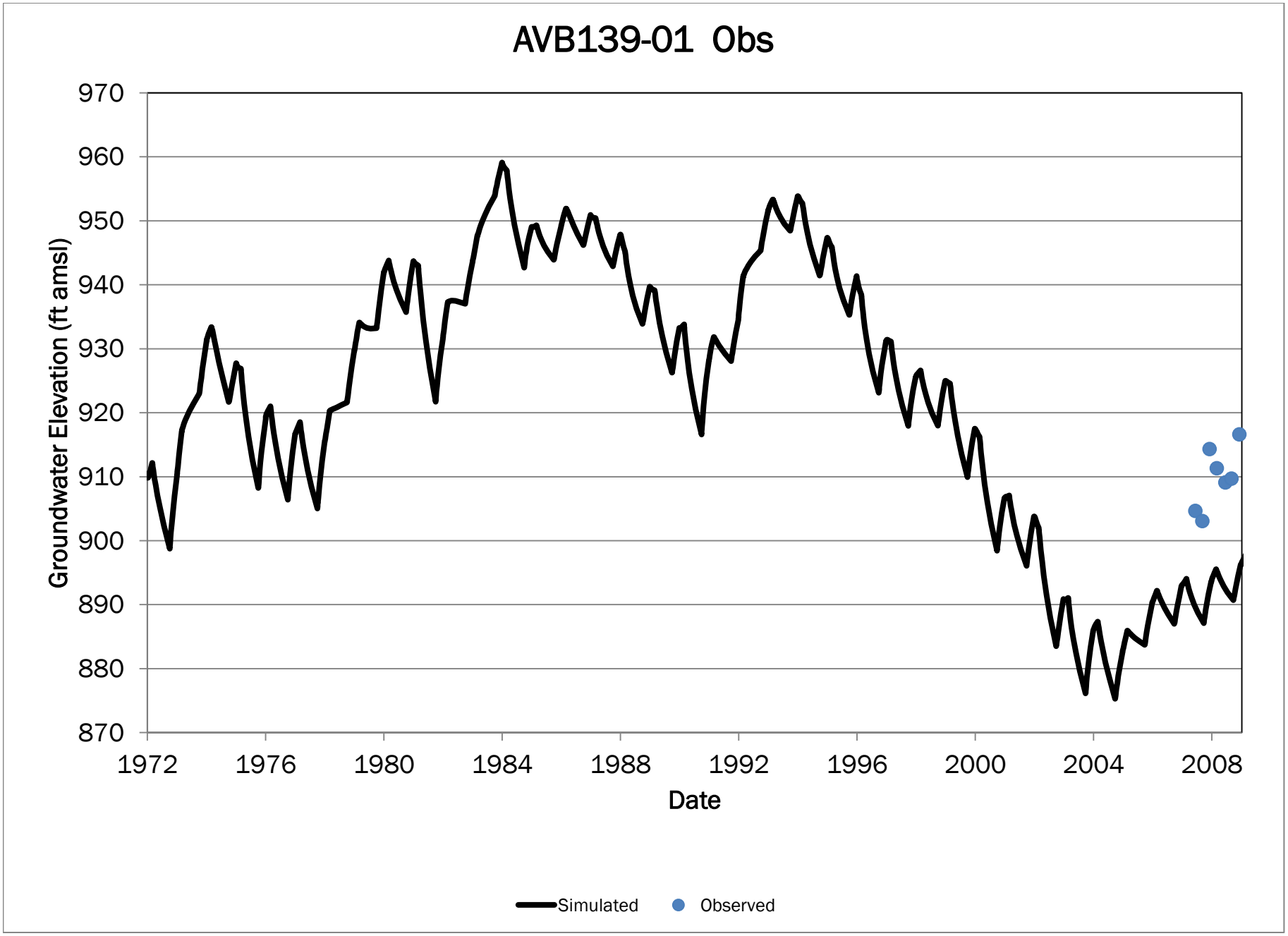

AVB125-01 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
940
930
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

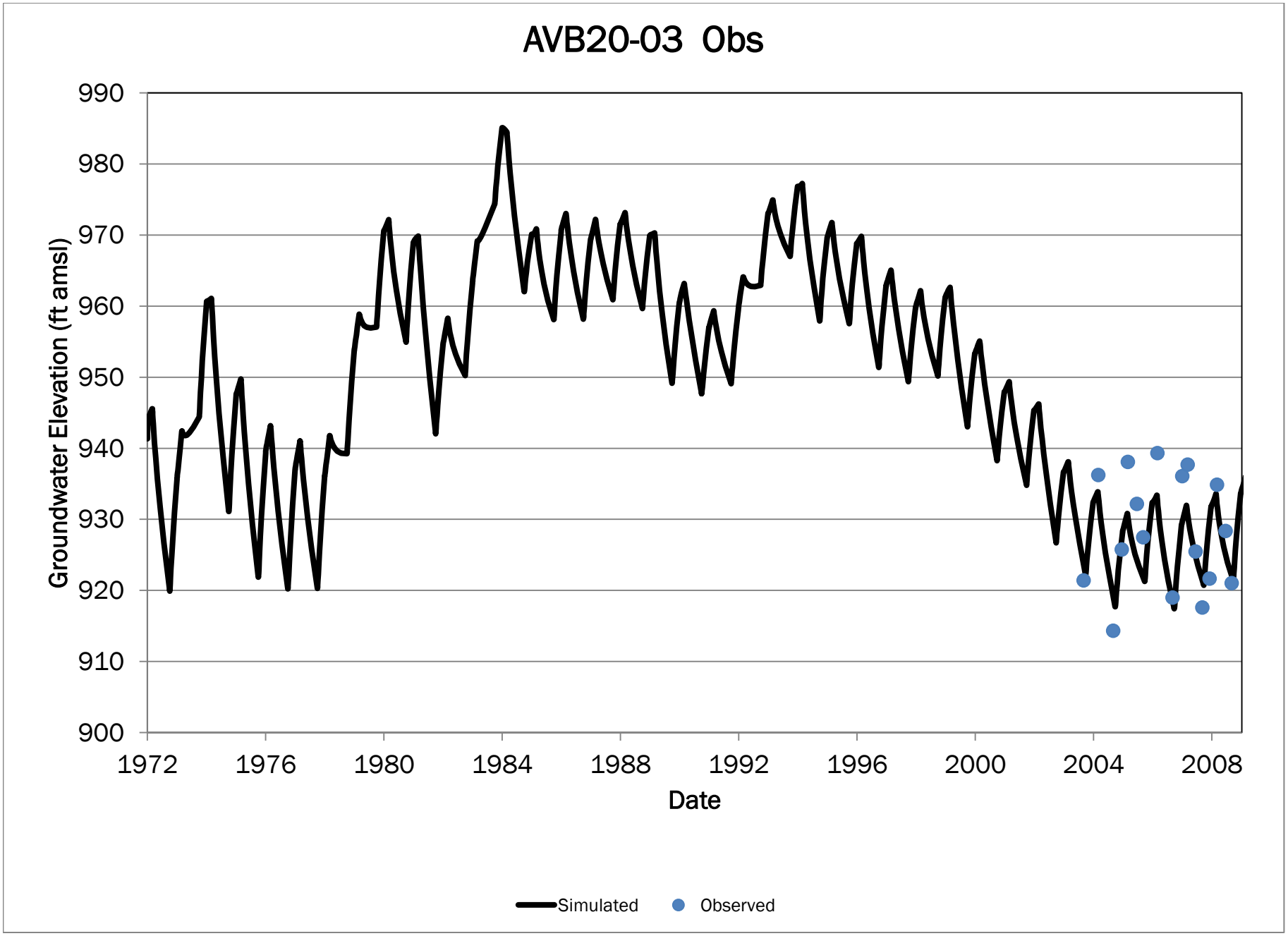

AVB127-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

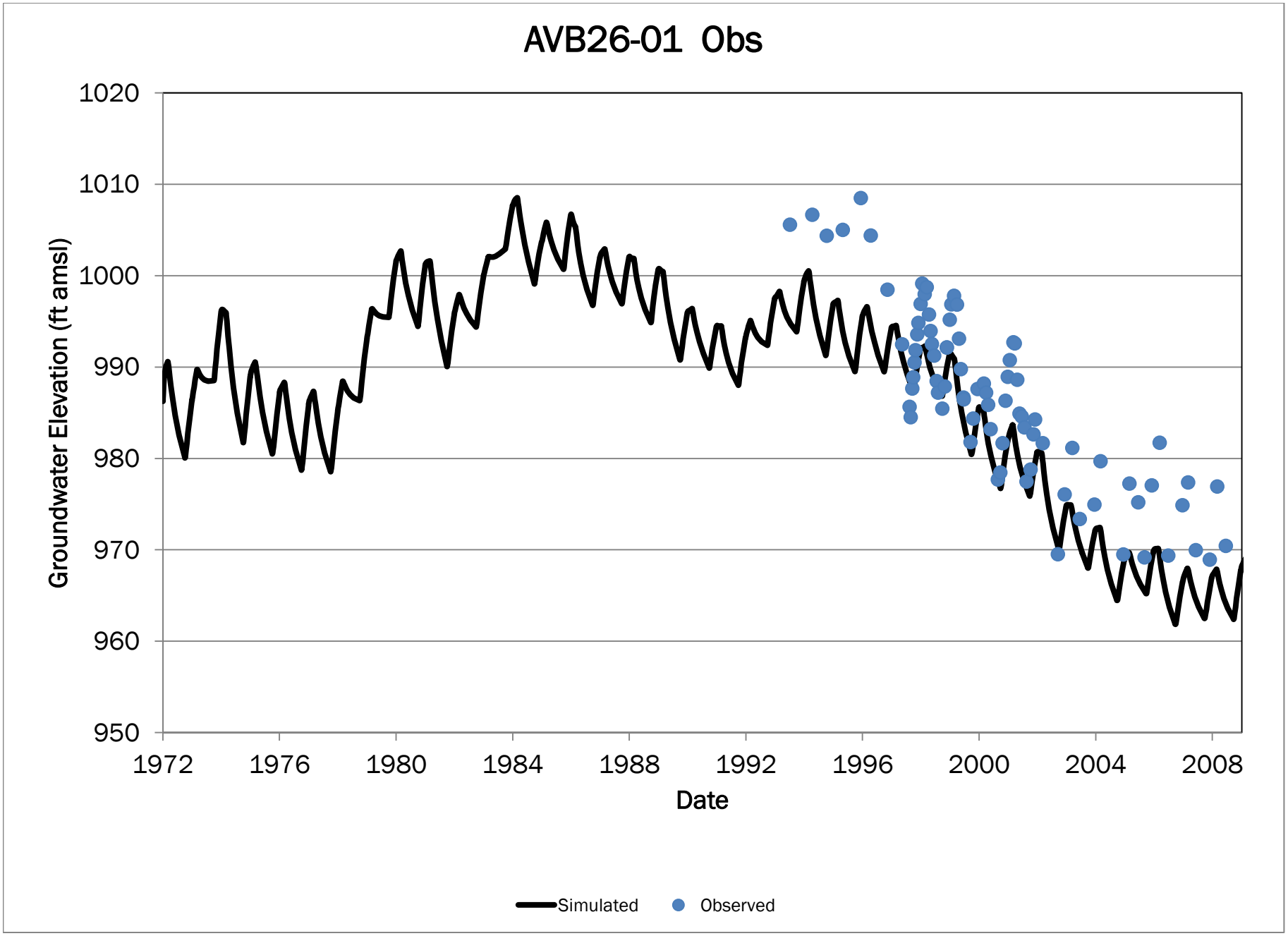

AVB129-01 Obs
970
960
950
940
930
920
910
900
890
880
870
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

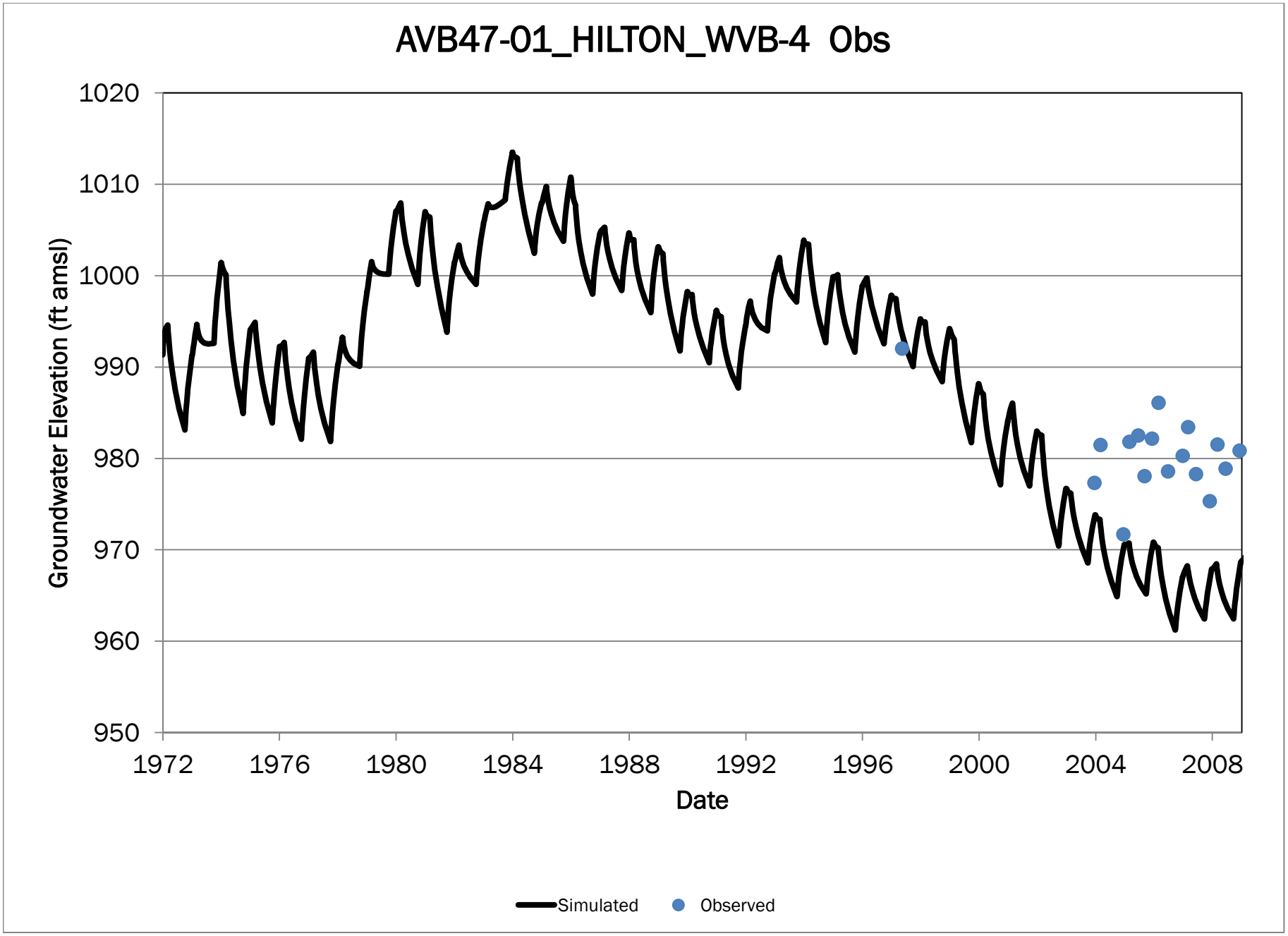

AVB132-01 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
930
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

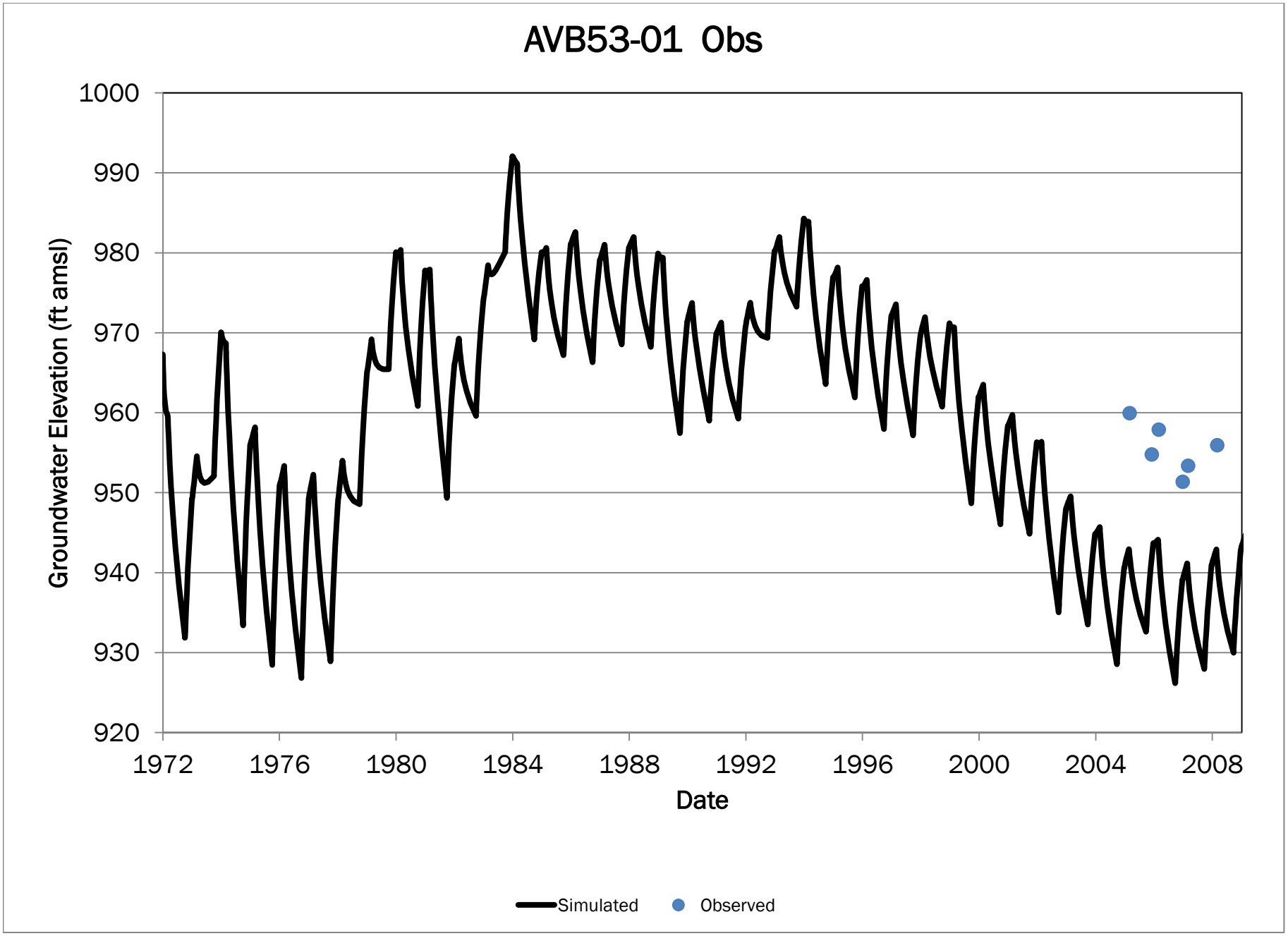

AVB137-01 Obs
990
980
970
960
950
940
930
920
910
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

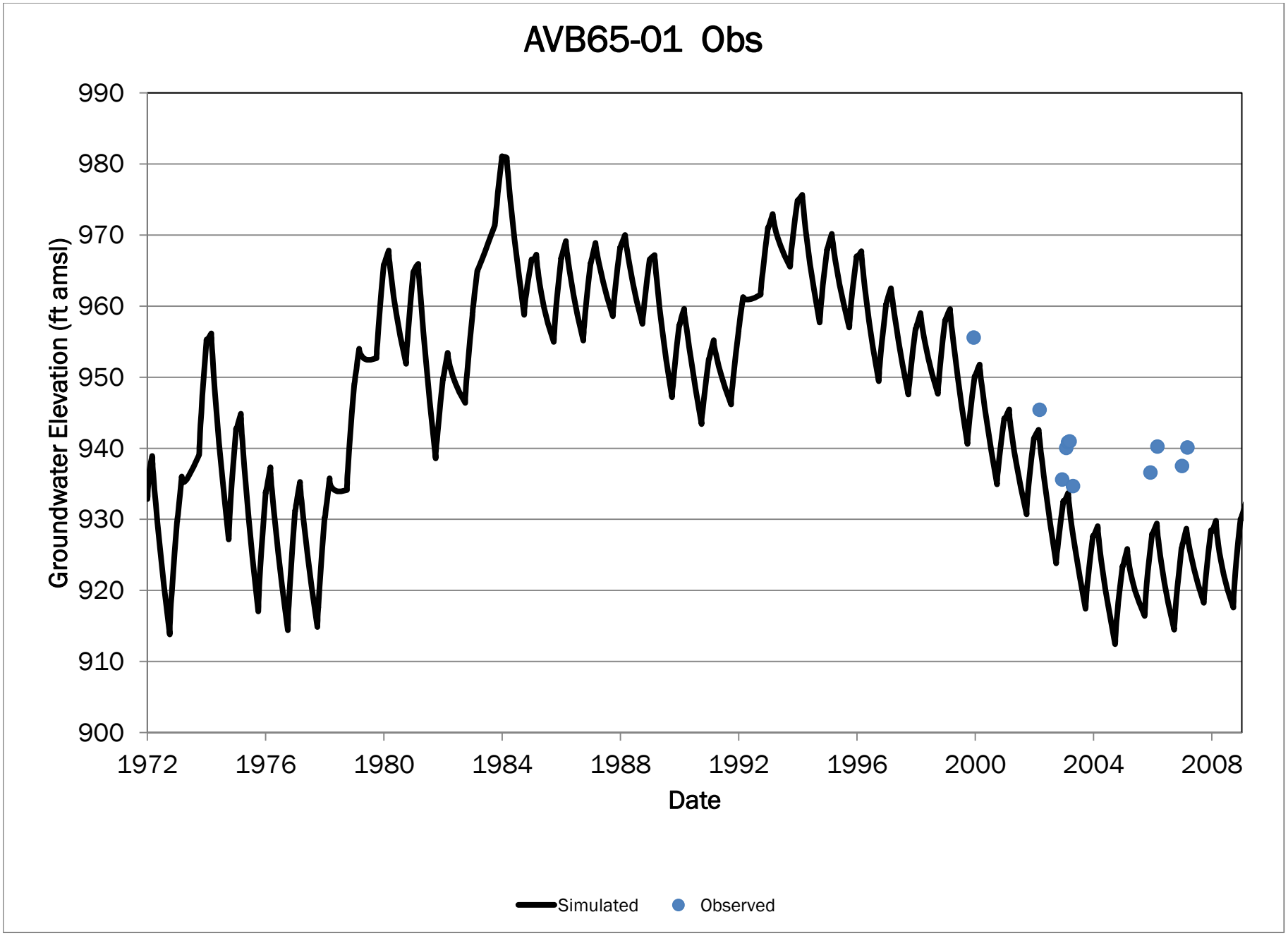

AVB139-01 Obs
970
960
950
940
930
920
910
900
890
880
870
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

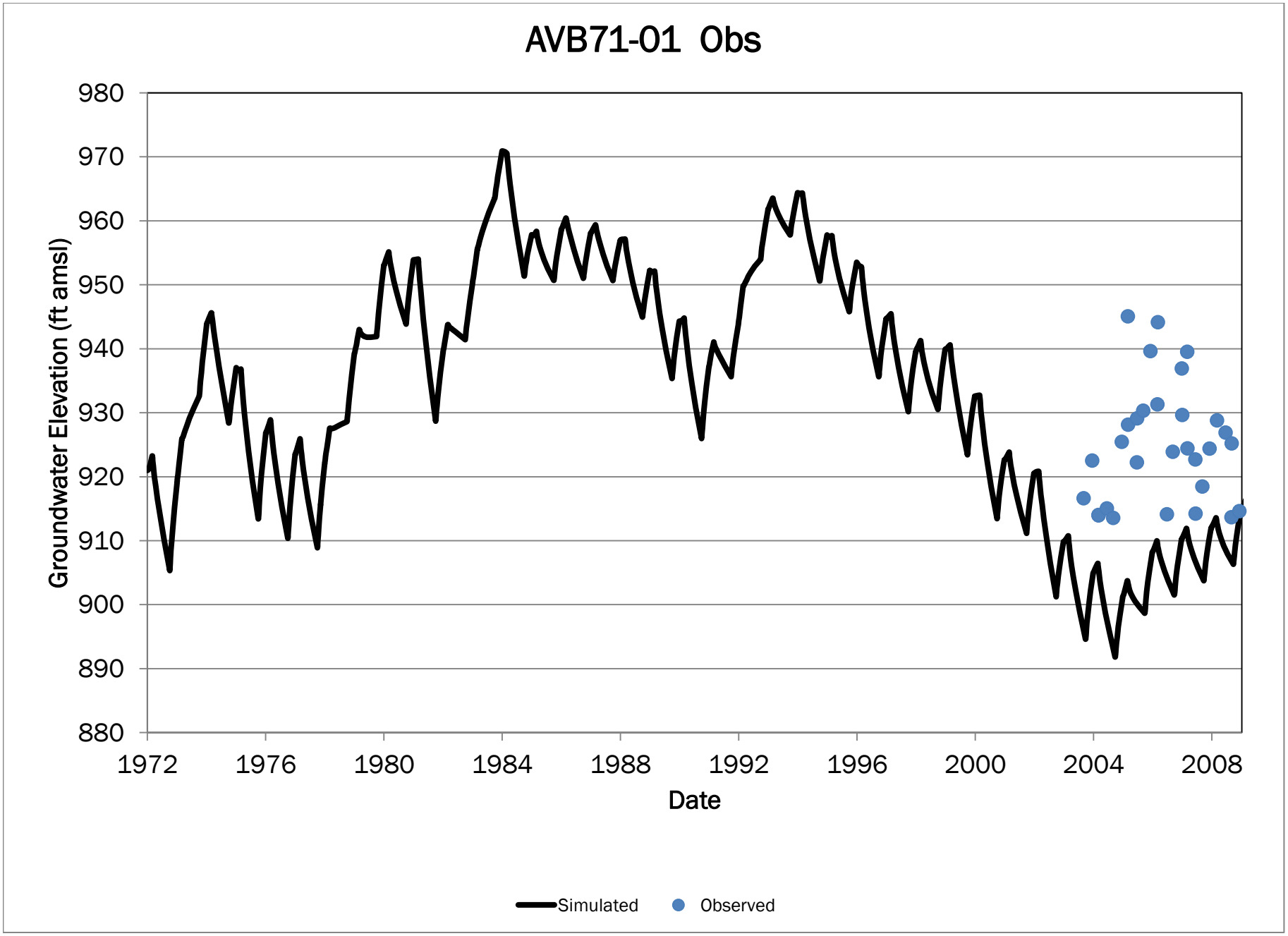

AVB20-03 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

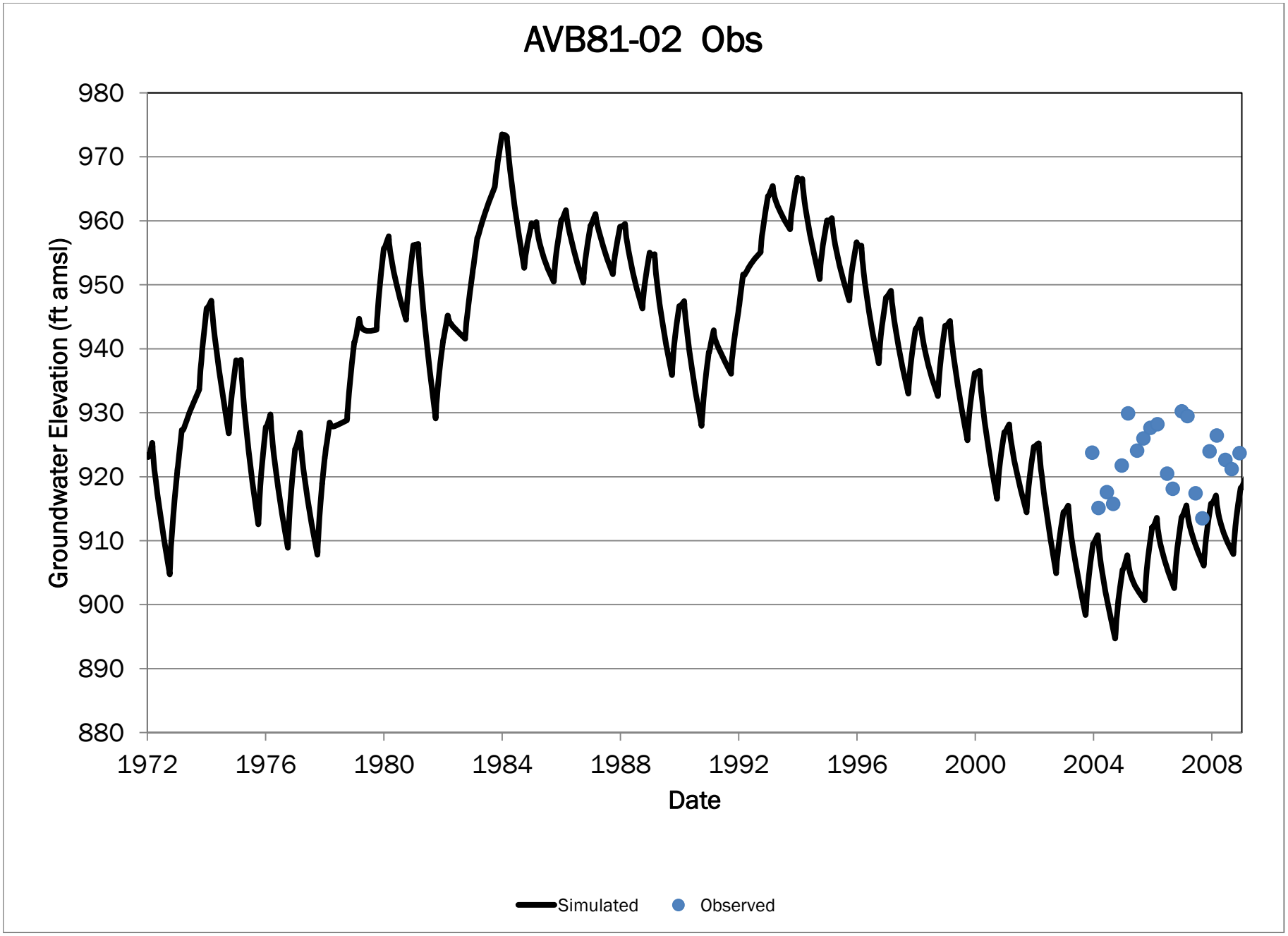

AVB26-01 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

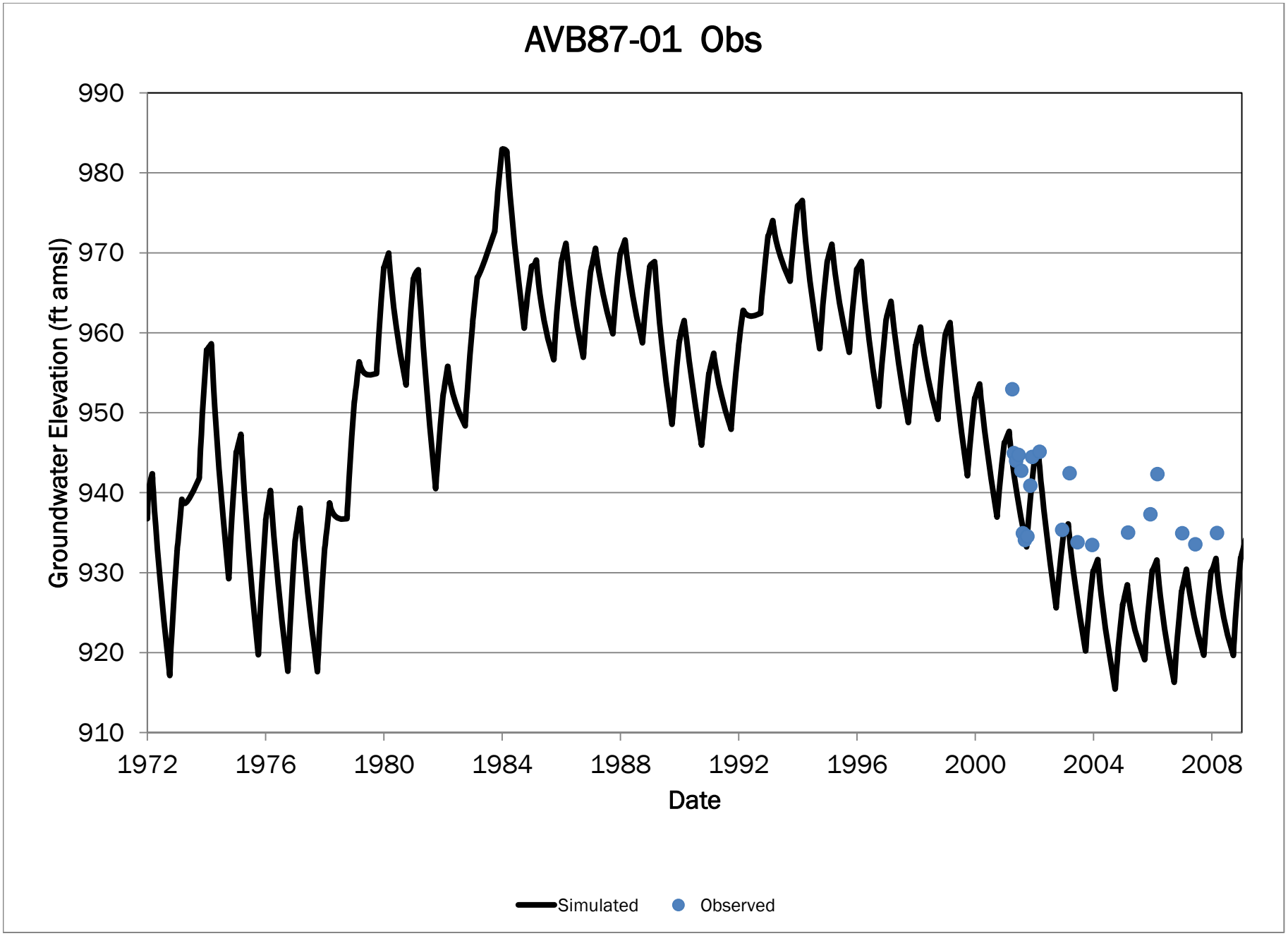

AVB47-01_HILTON_WVB-4 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

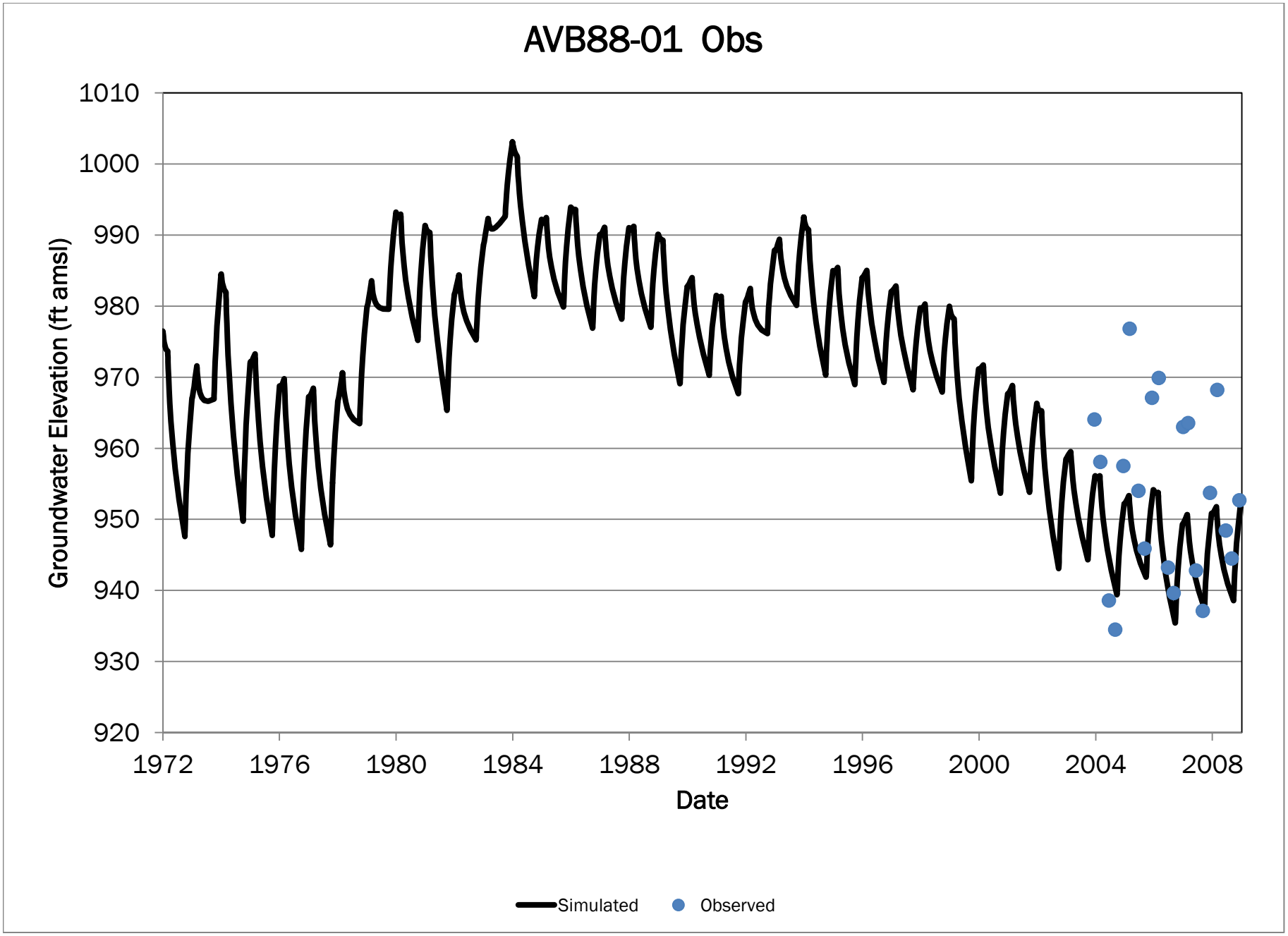

AVB53-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

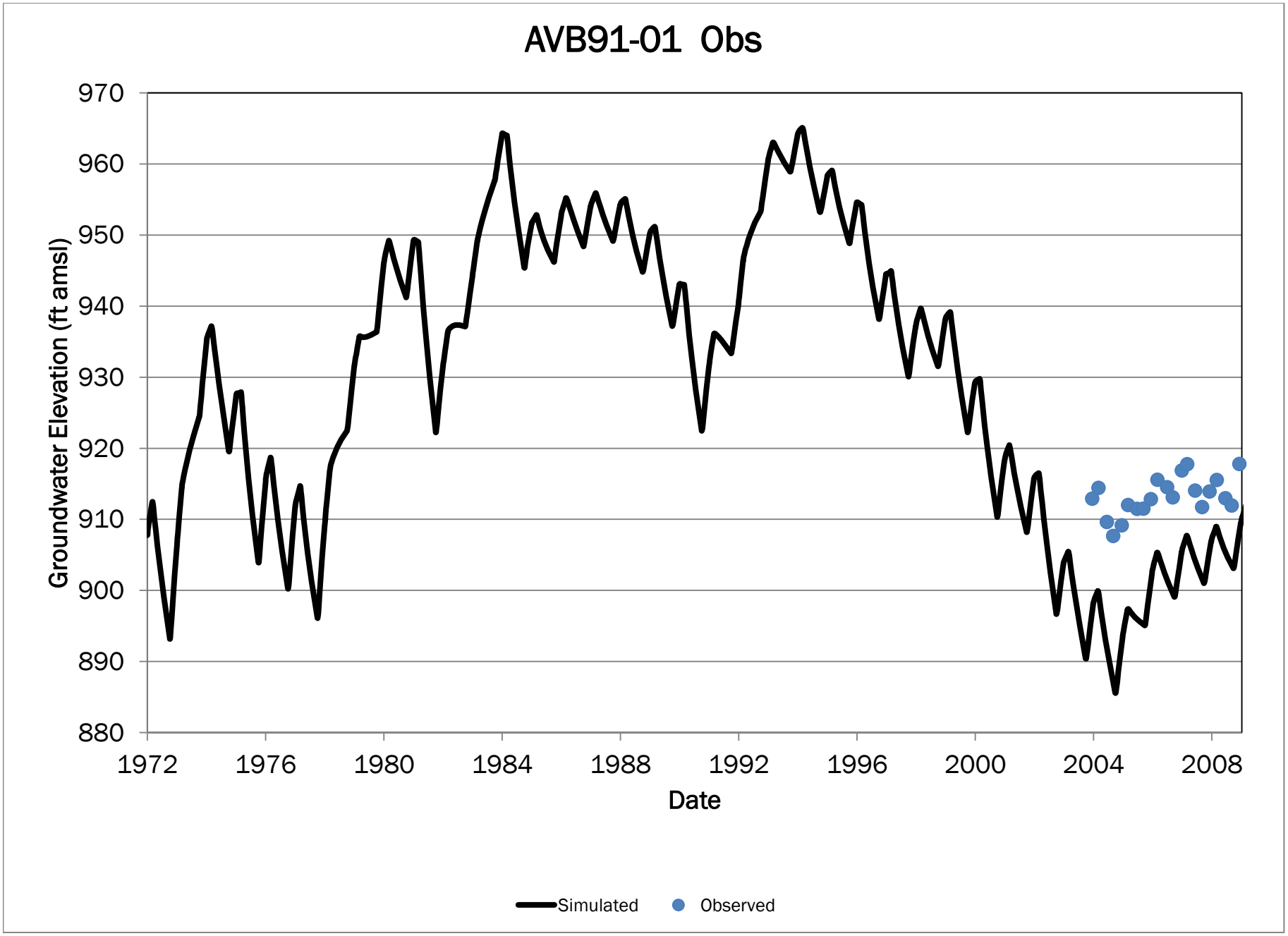

AVB65-01 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

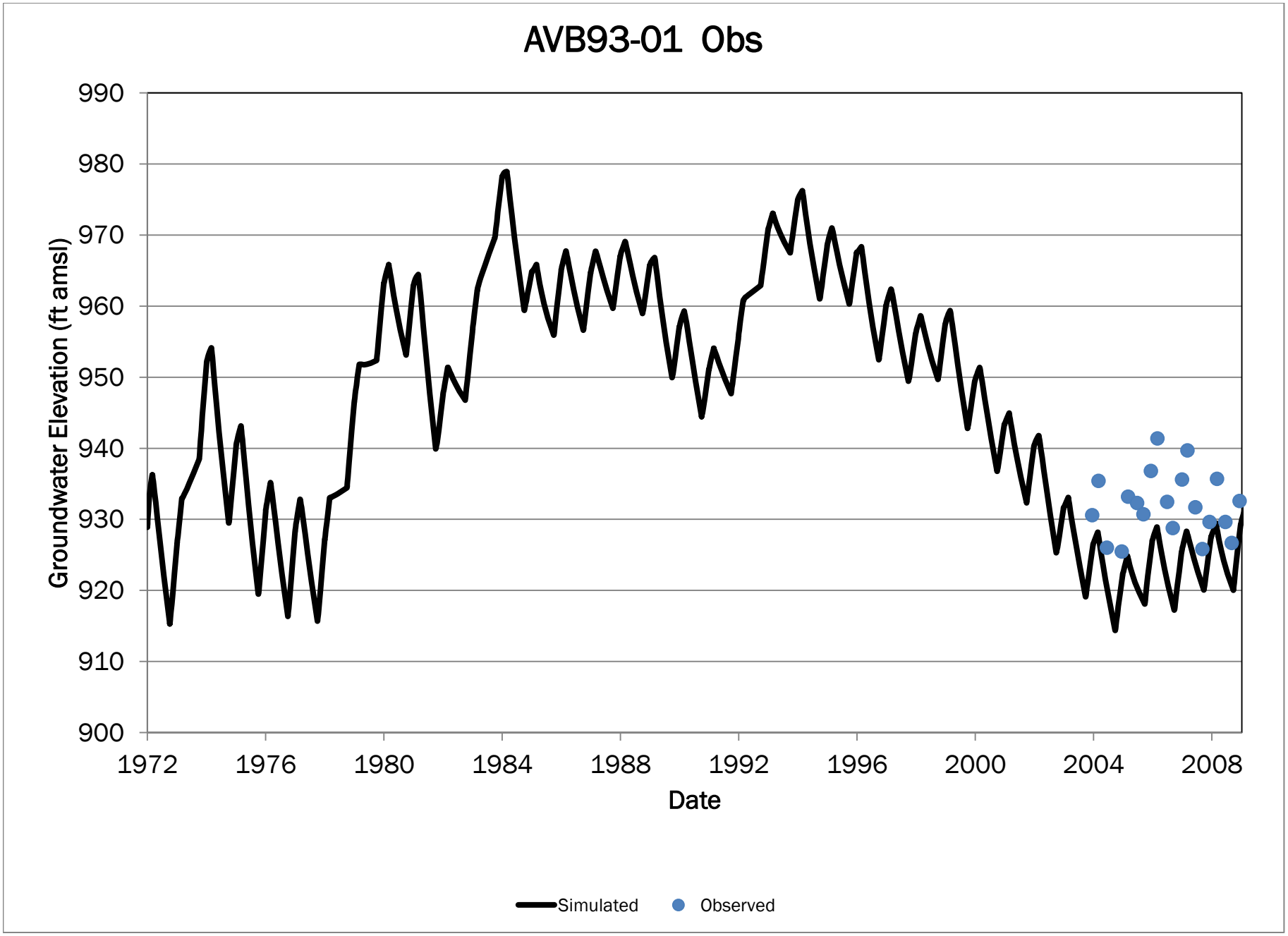

AVB71-01 Obs
Groundwater Elevation (ft amsl)
980
970
960
950
940
930
920
910
900
890
880
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

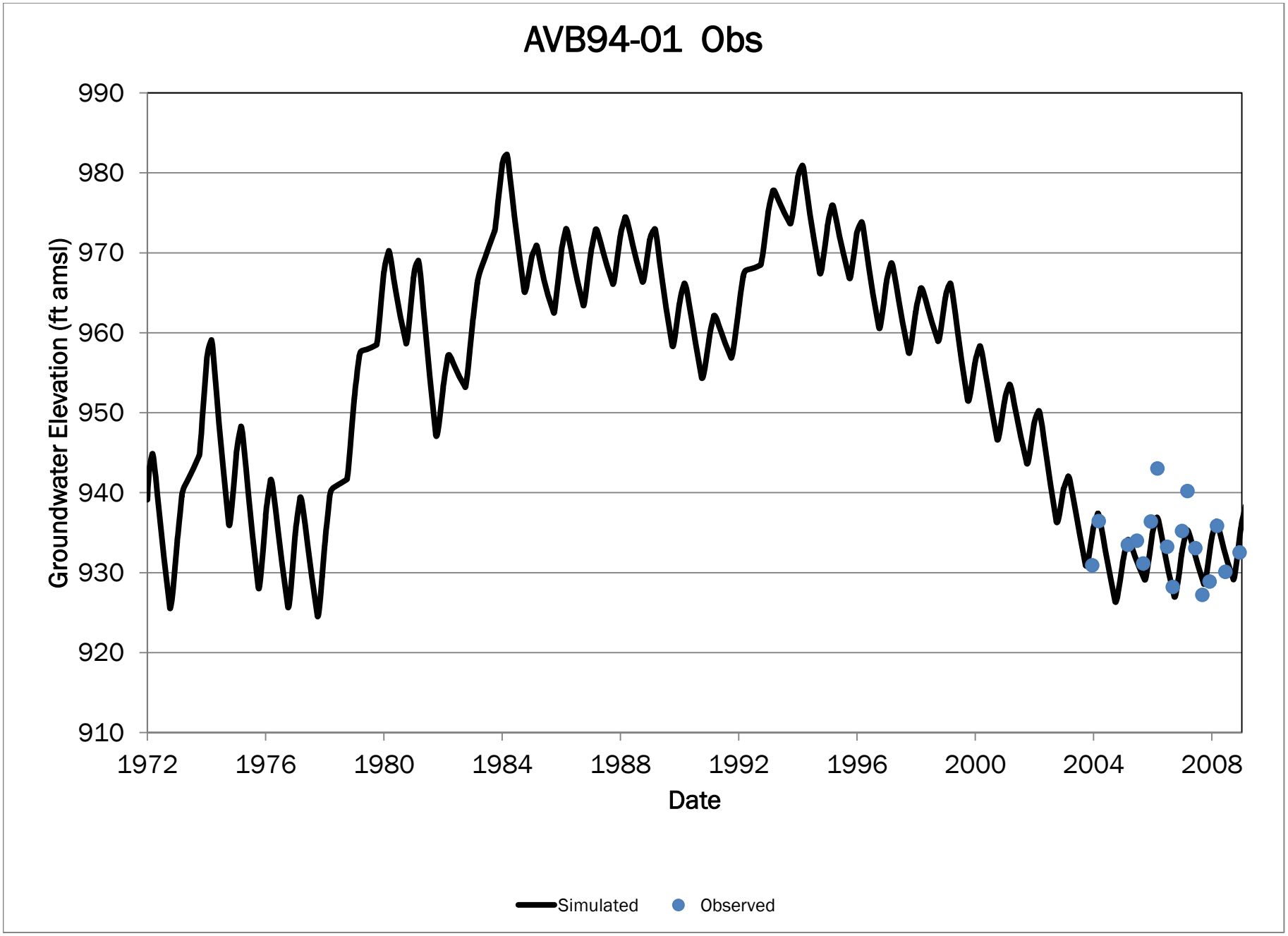

AVB81-02 Obs
980
970
960
950
940
930
920
910
900
890
880
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

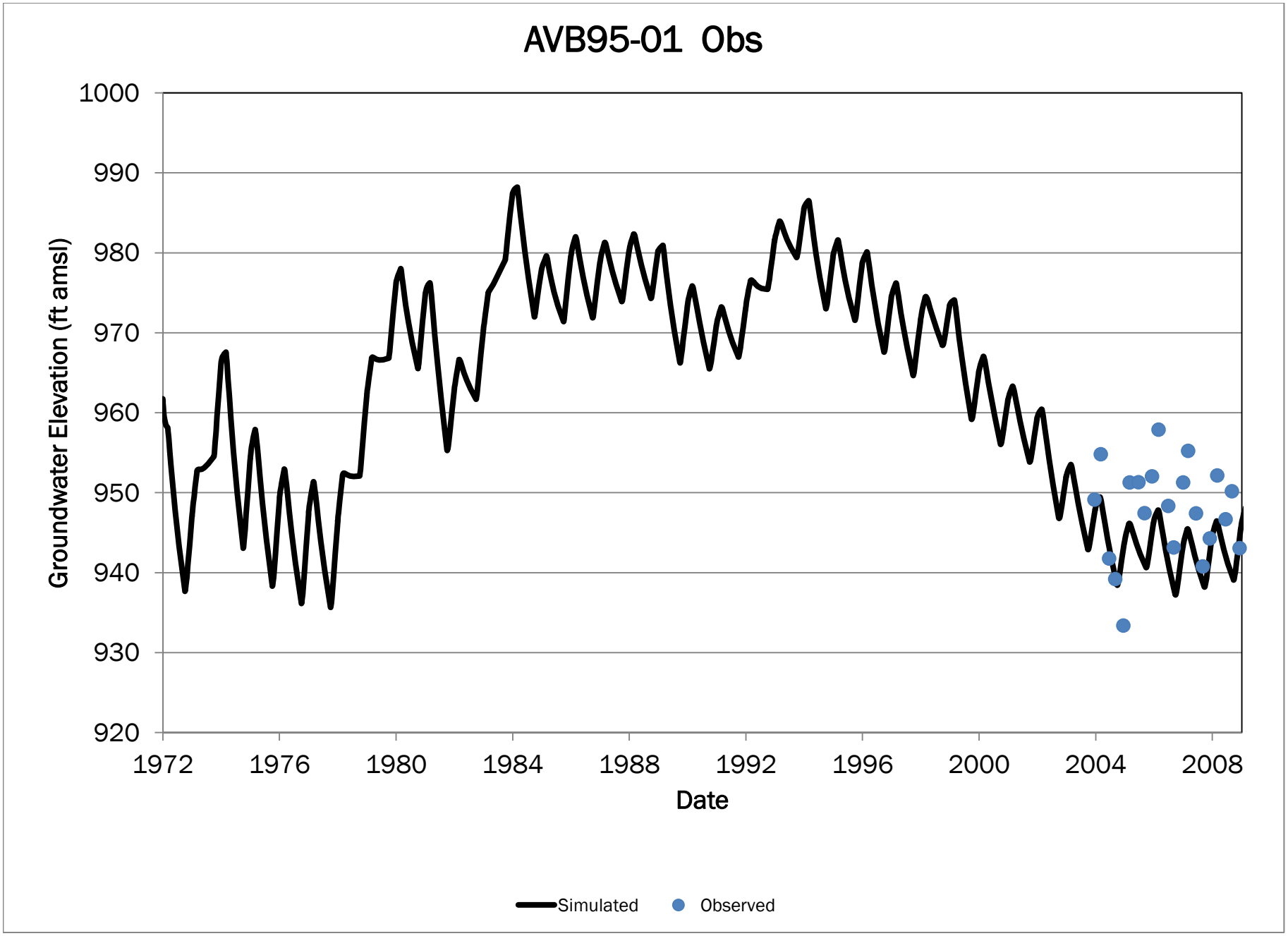

AVB87-01 Obs
990
980
970
960
950
940
930
920
910
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

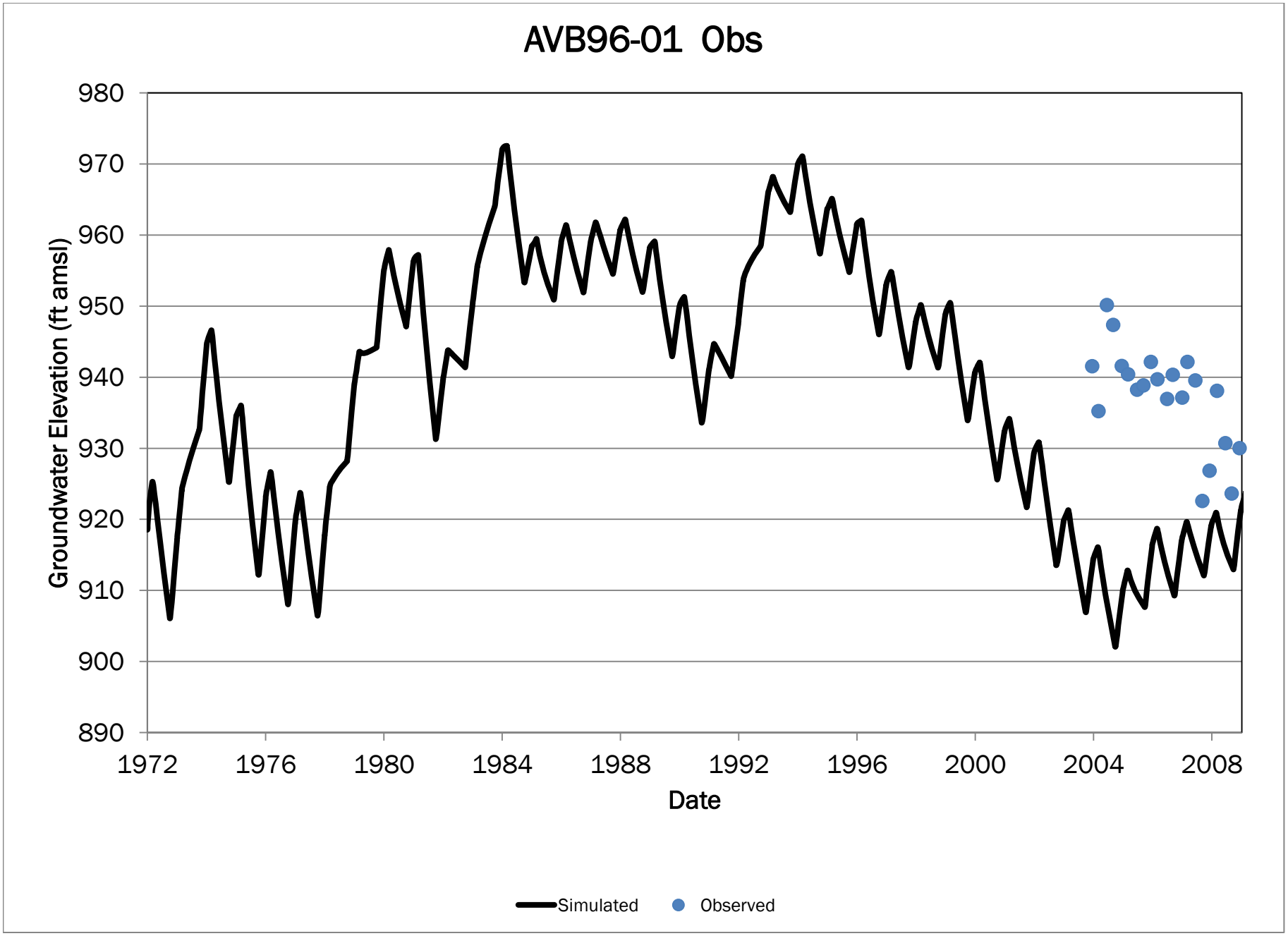

AVB88-01 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

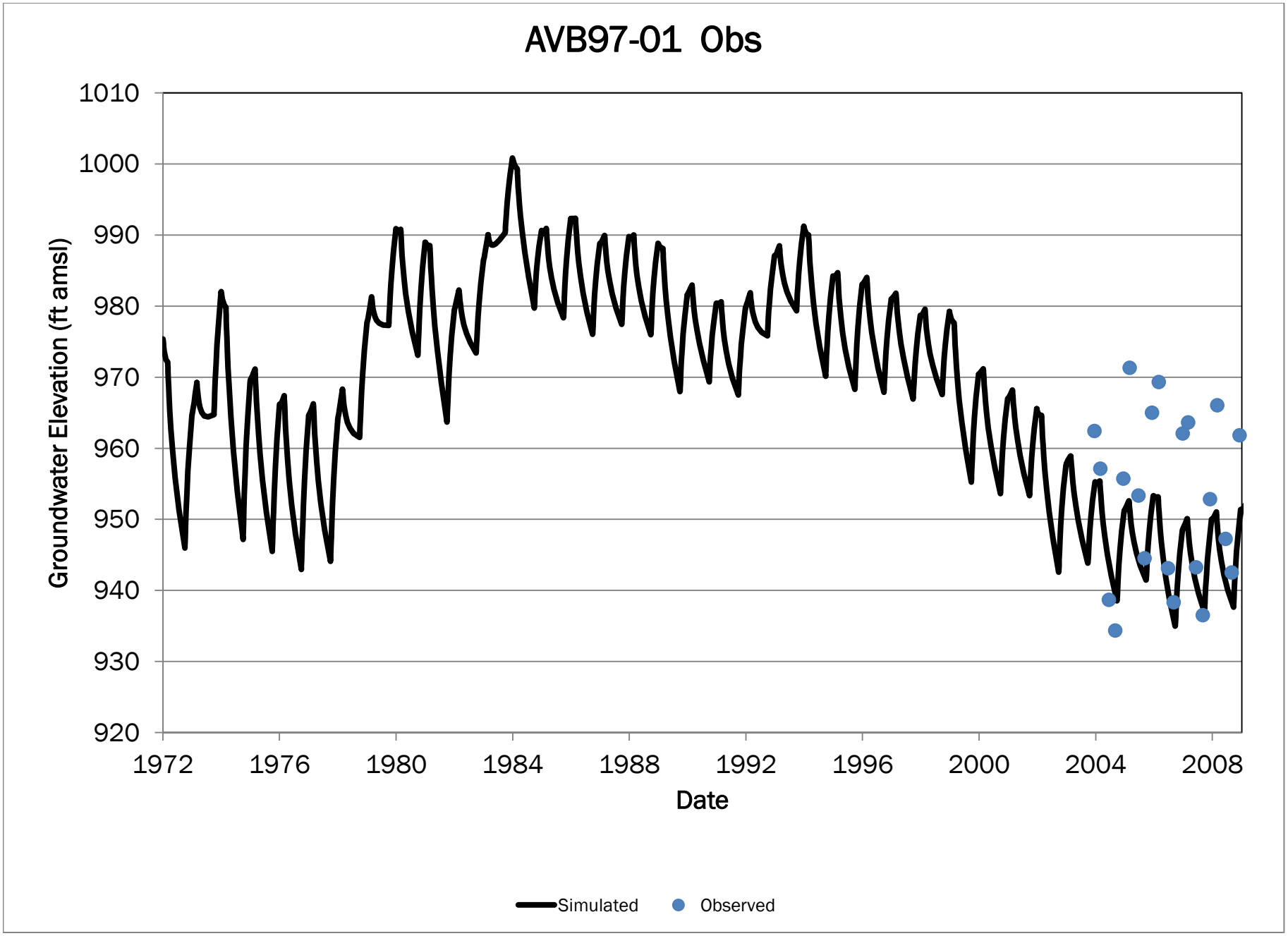

AVB91-01 Obs
970
960
950
940
930
920
910
900
890
880
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

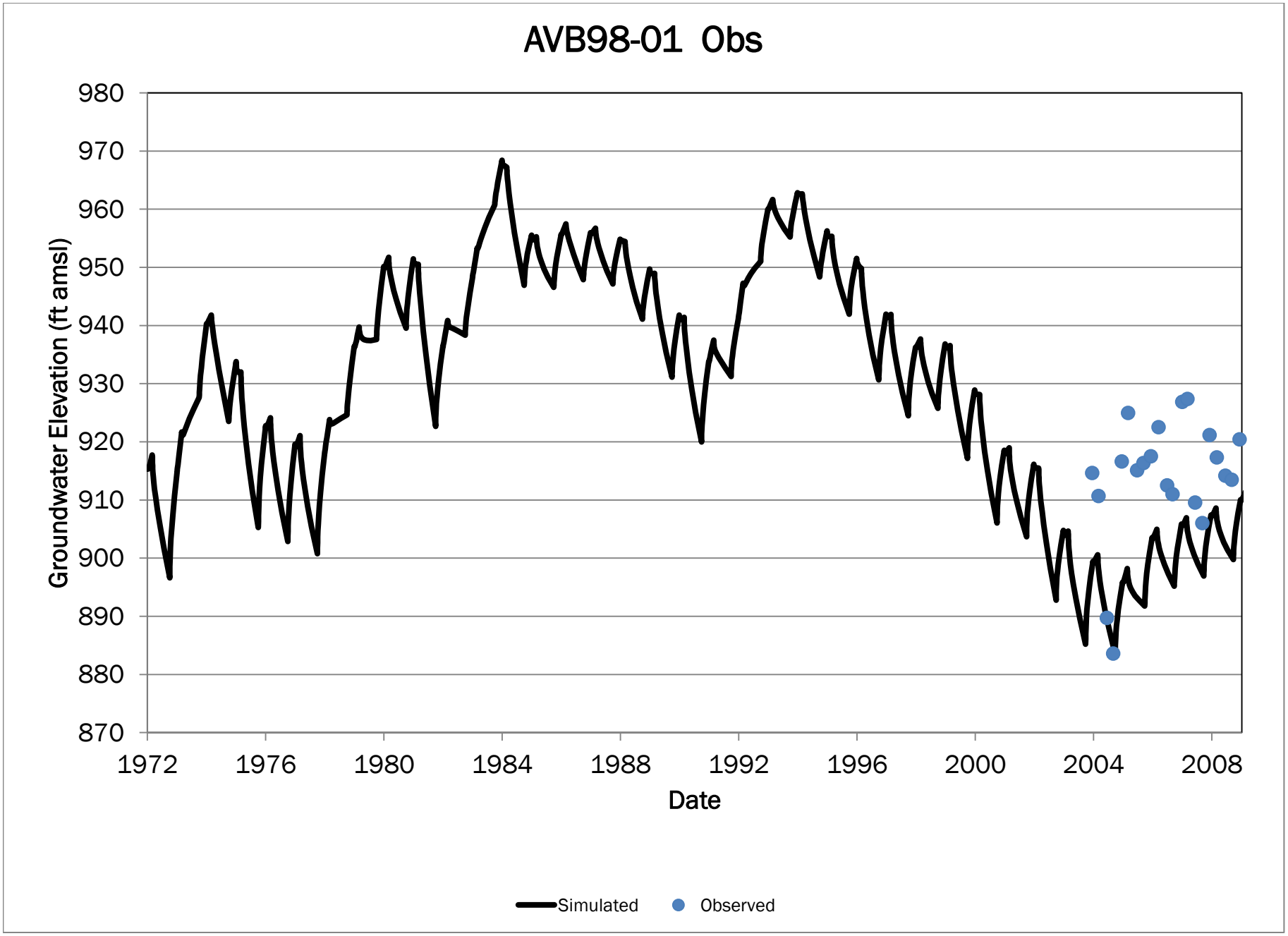

AVB93-01 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

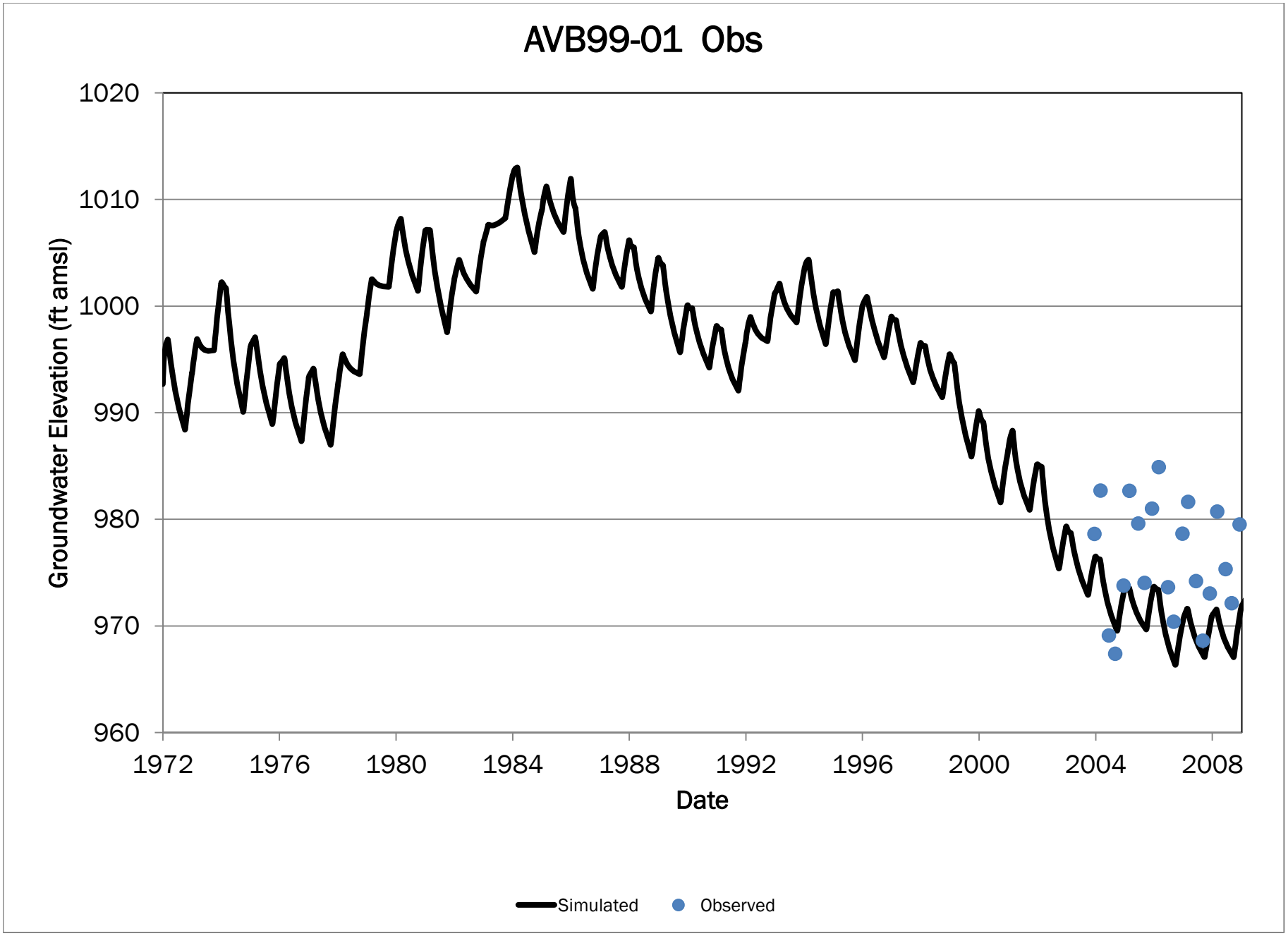

AVB94-01 Obs
990
980
970
960
950
940
930
920
910
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

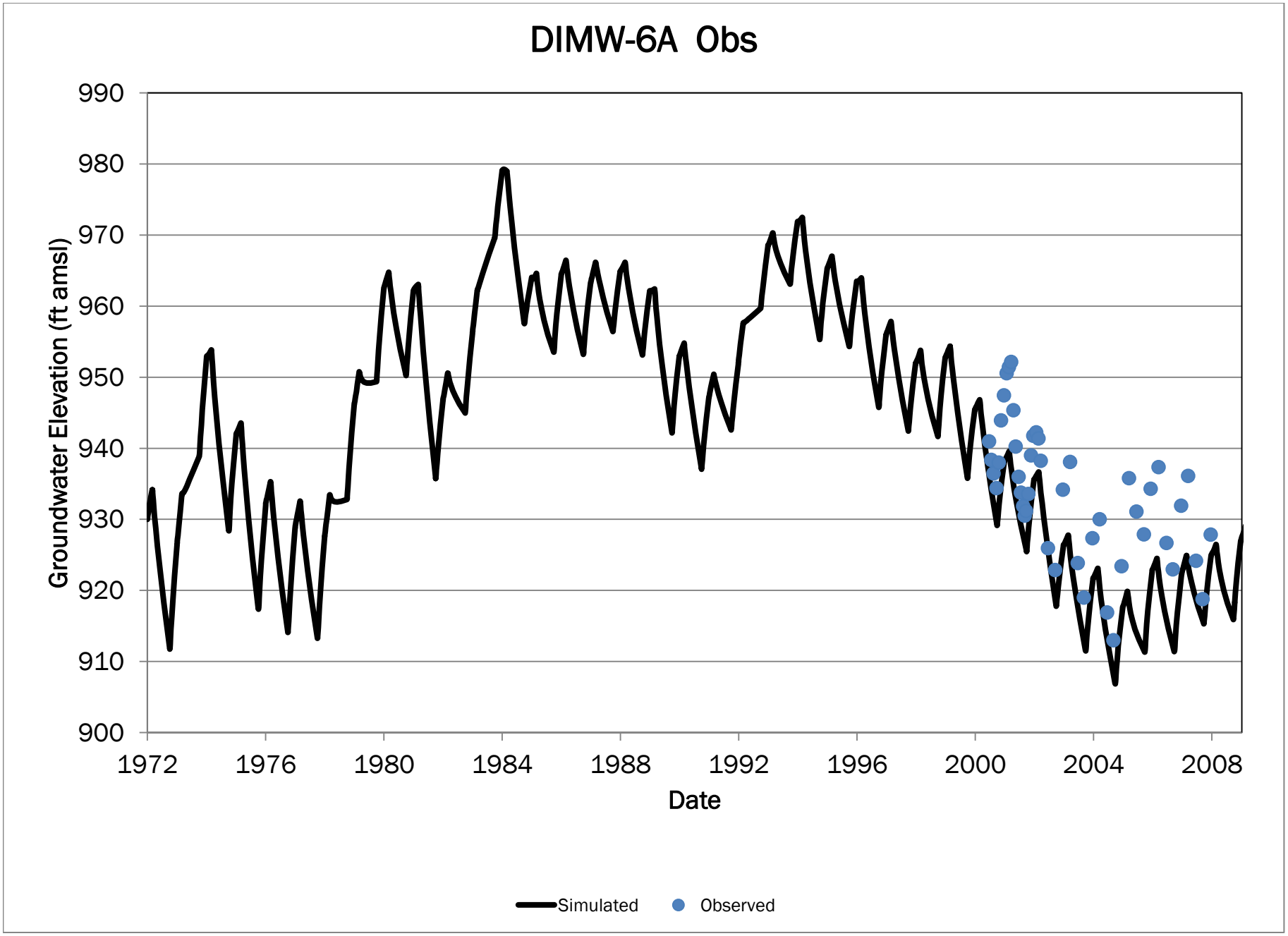

AVB95-01 Obs
Groundwater Elevation (ft amsl)
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

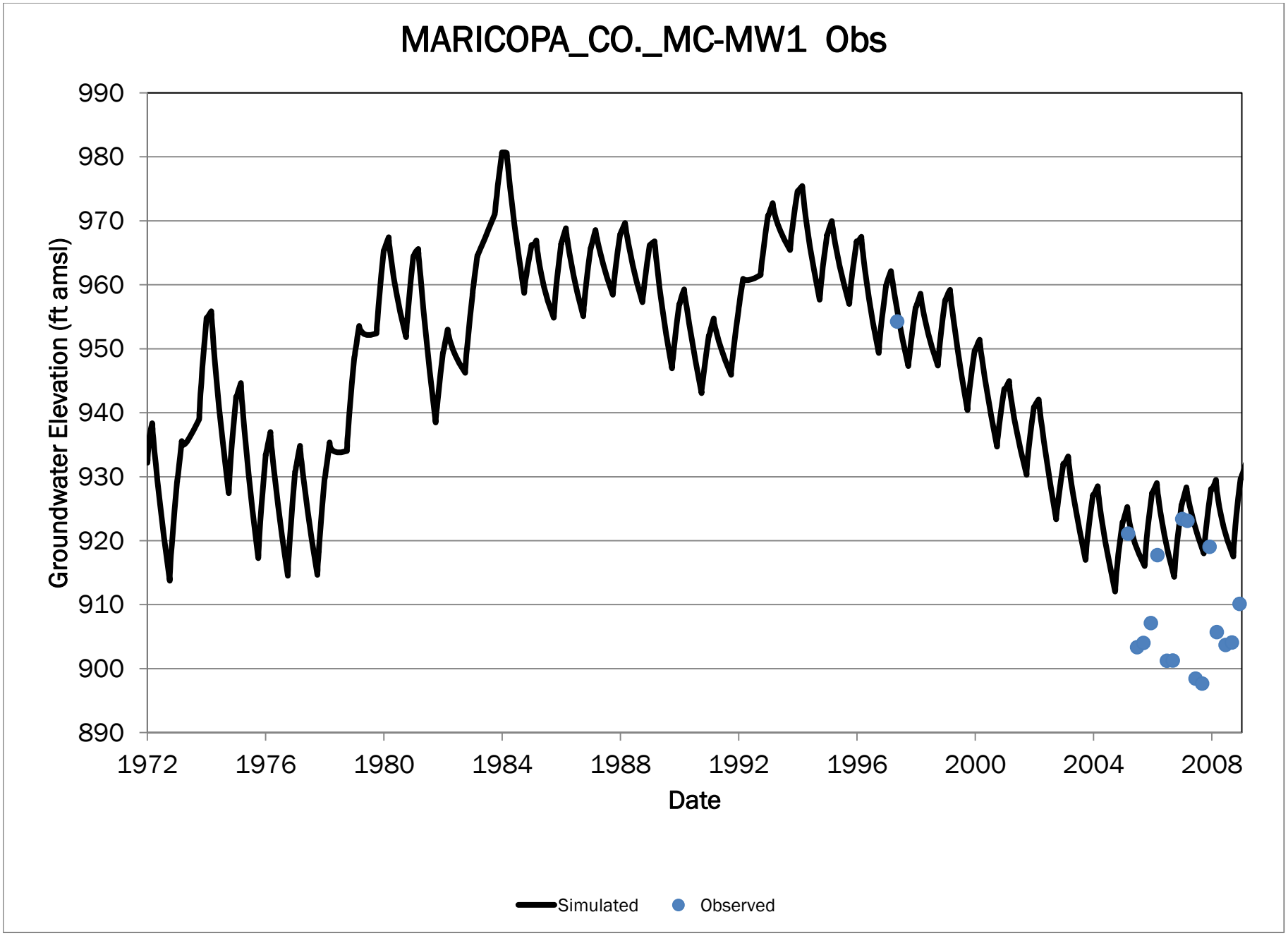

AVB96-01 Obs
980
970
960
950
940
930
920
910
900
890
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

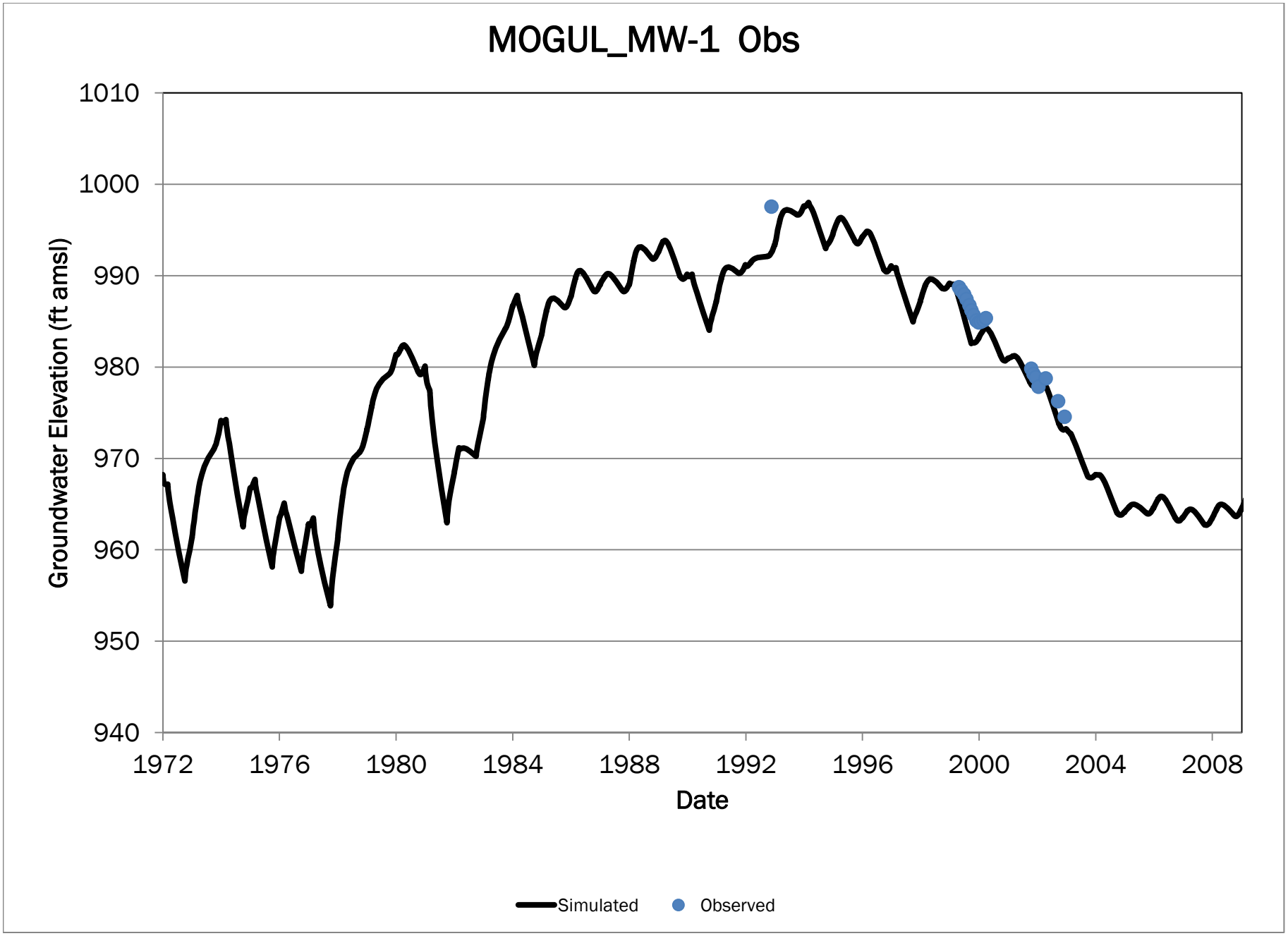

AVB97-01 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
930
920
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

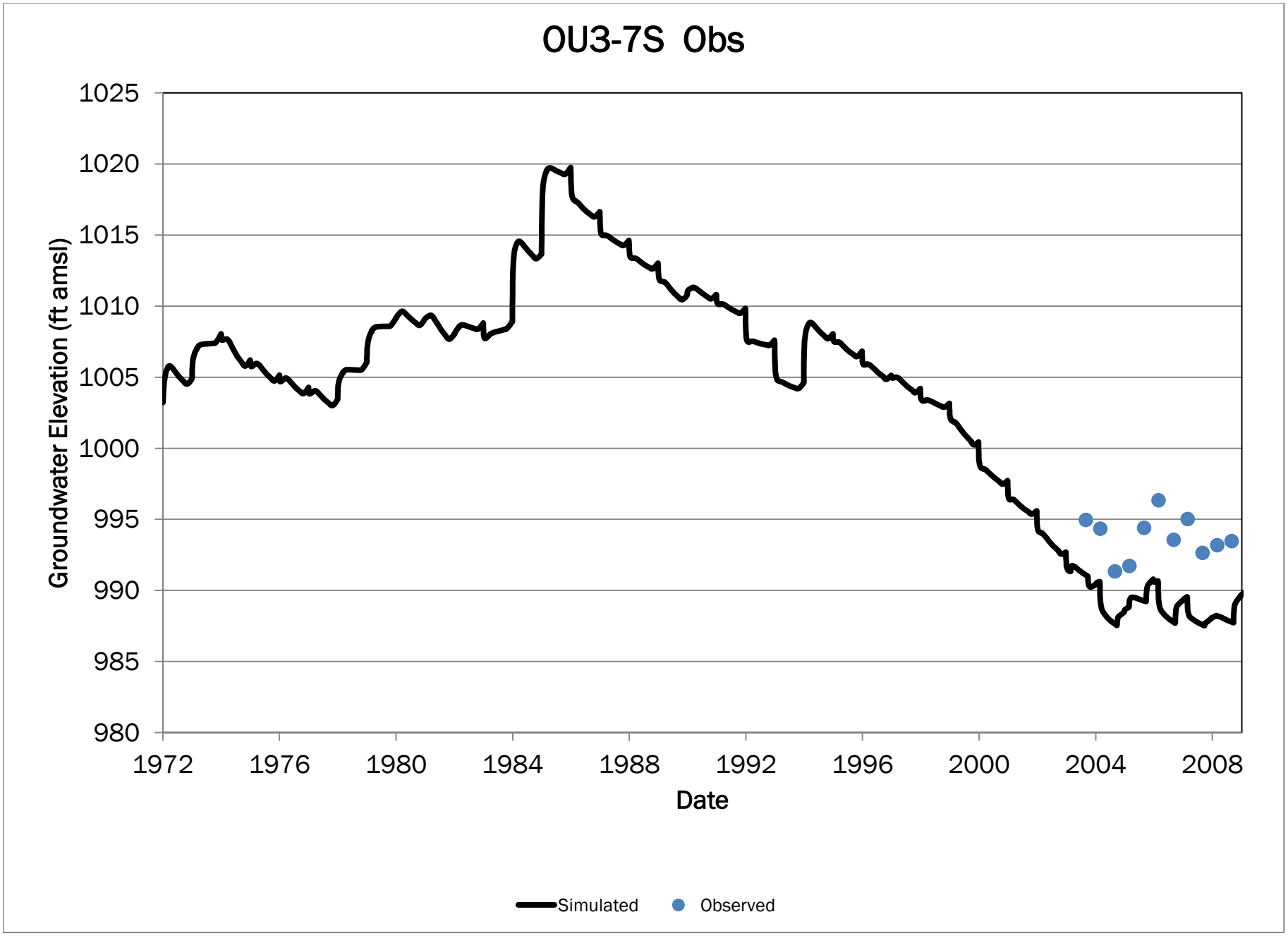

AVB98-01 Obs
Groundwater Elevation (ft amsl)
980
970
960
950
940
930
920
910
900
890
880
870
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

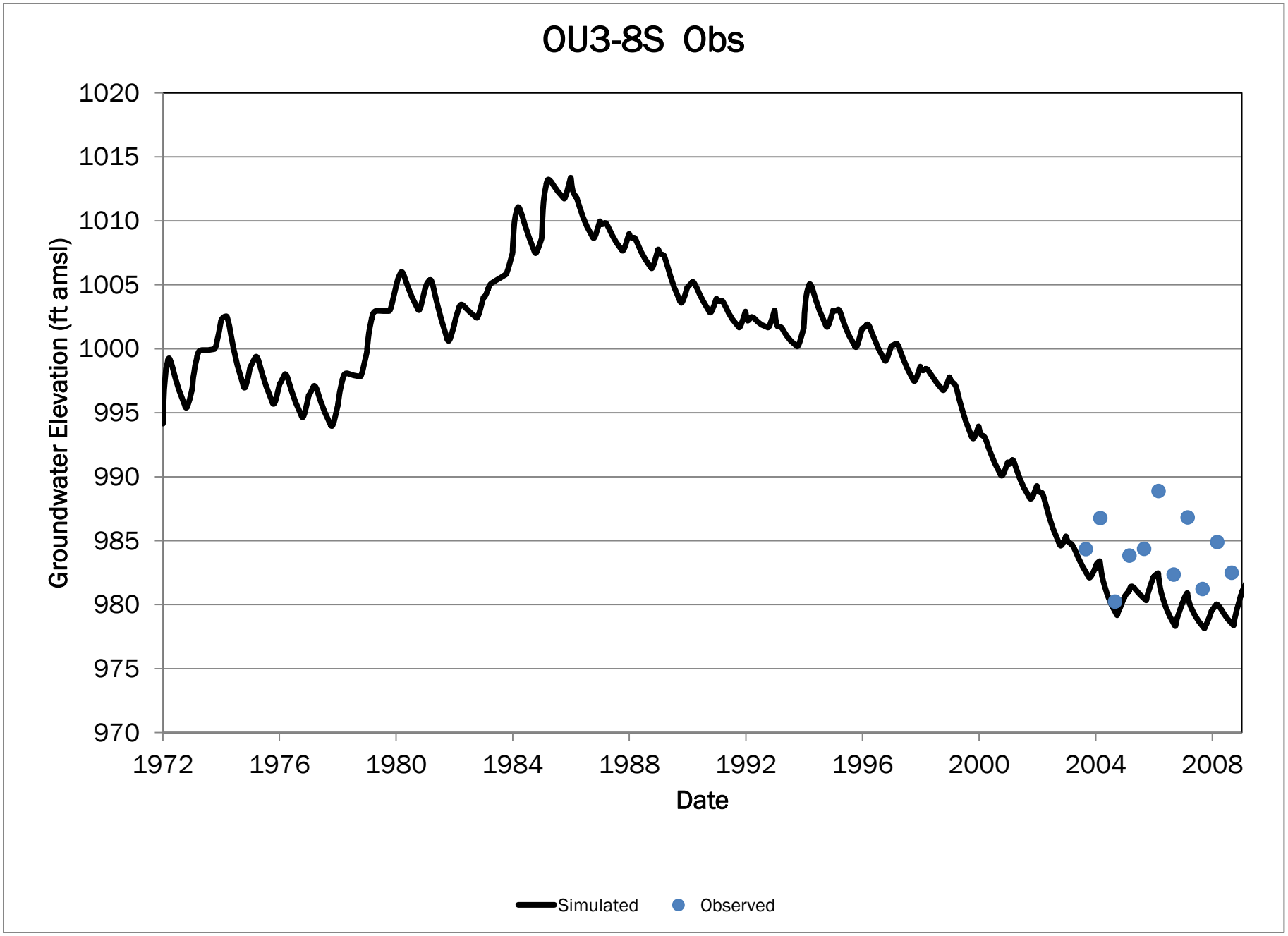

AVB99-01 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

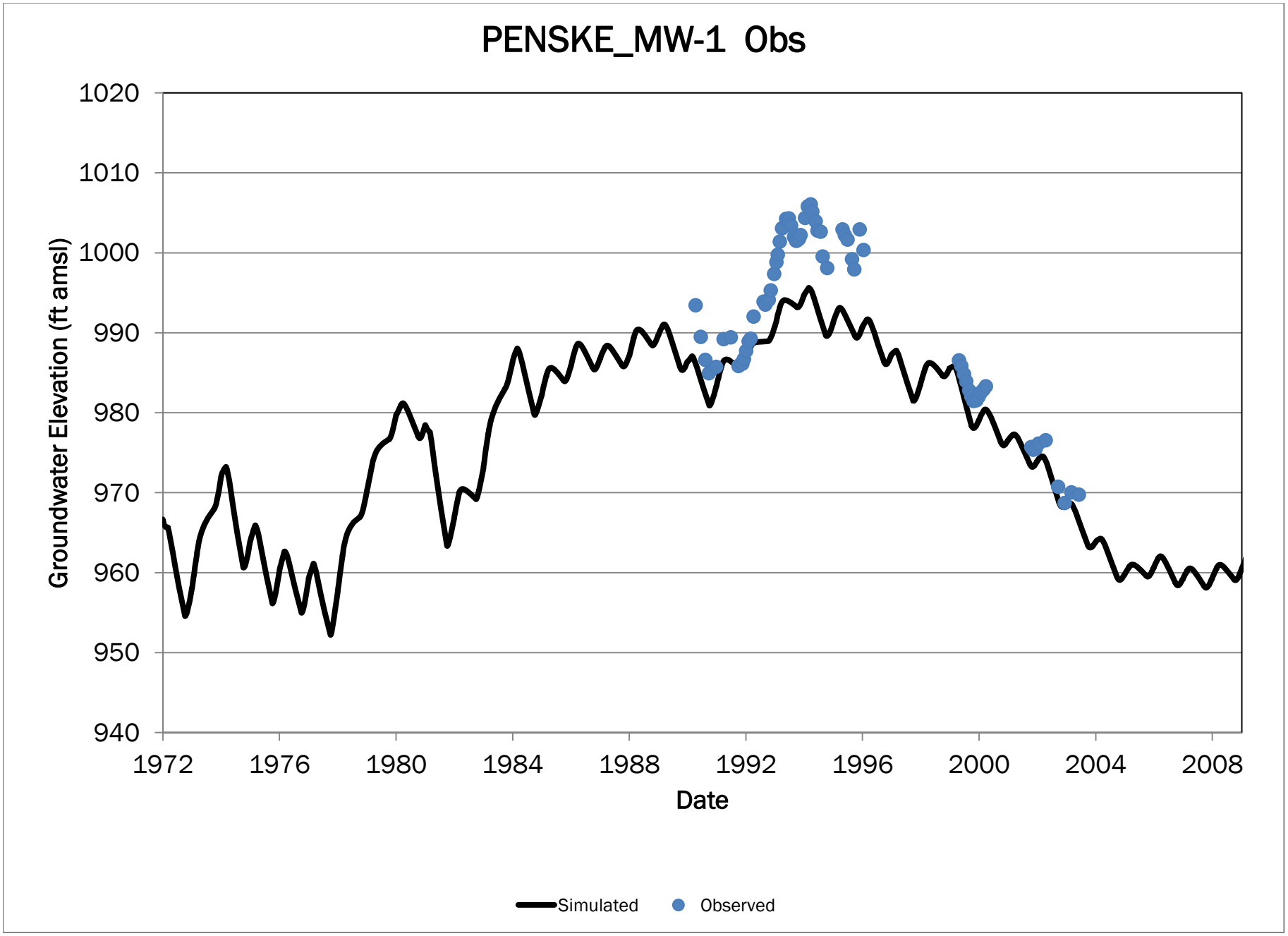

DIMW-6A Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

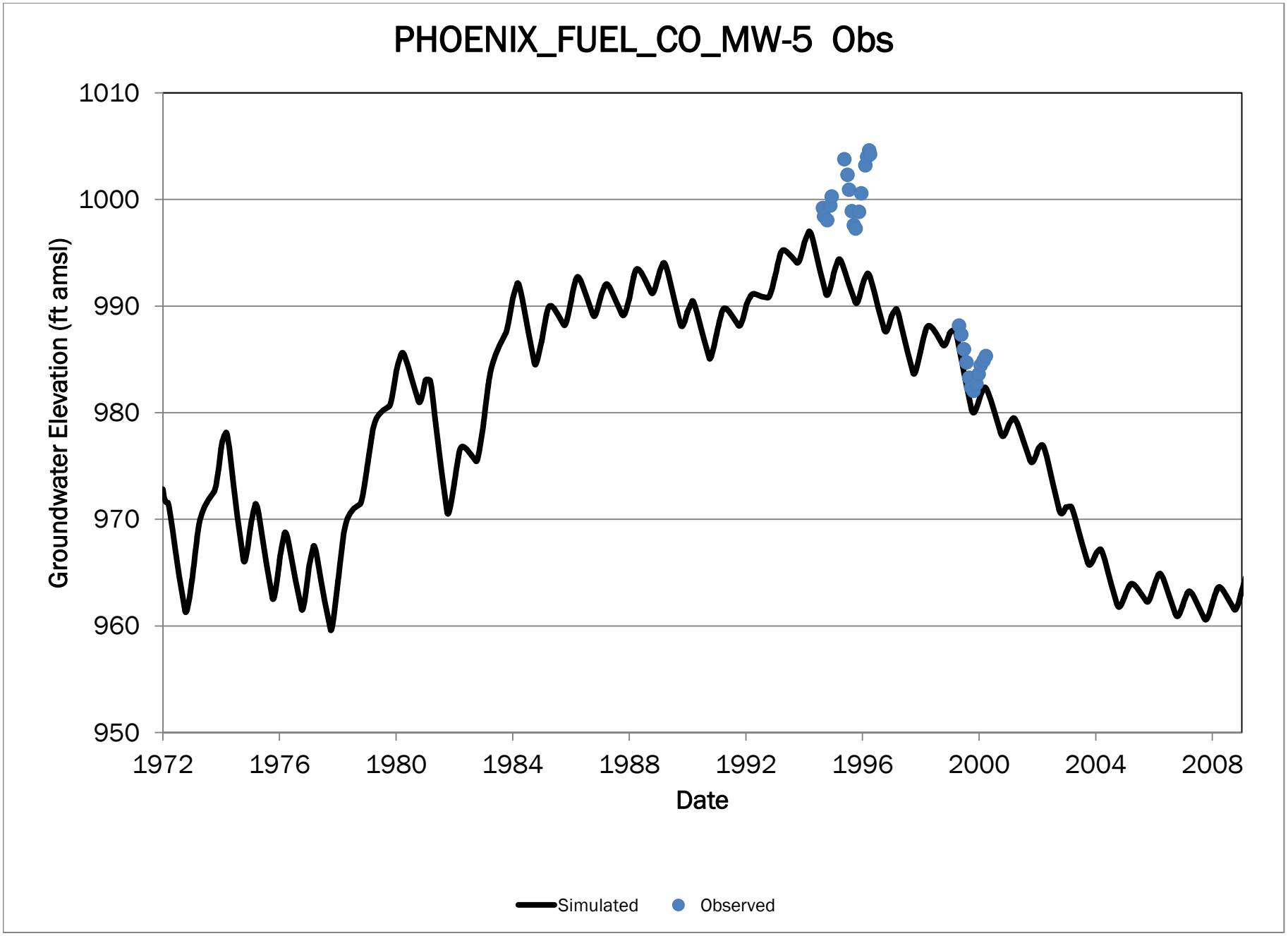

MARICOPA_CO._MC-MW1 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
890
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

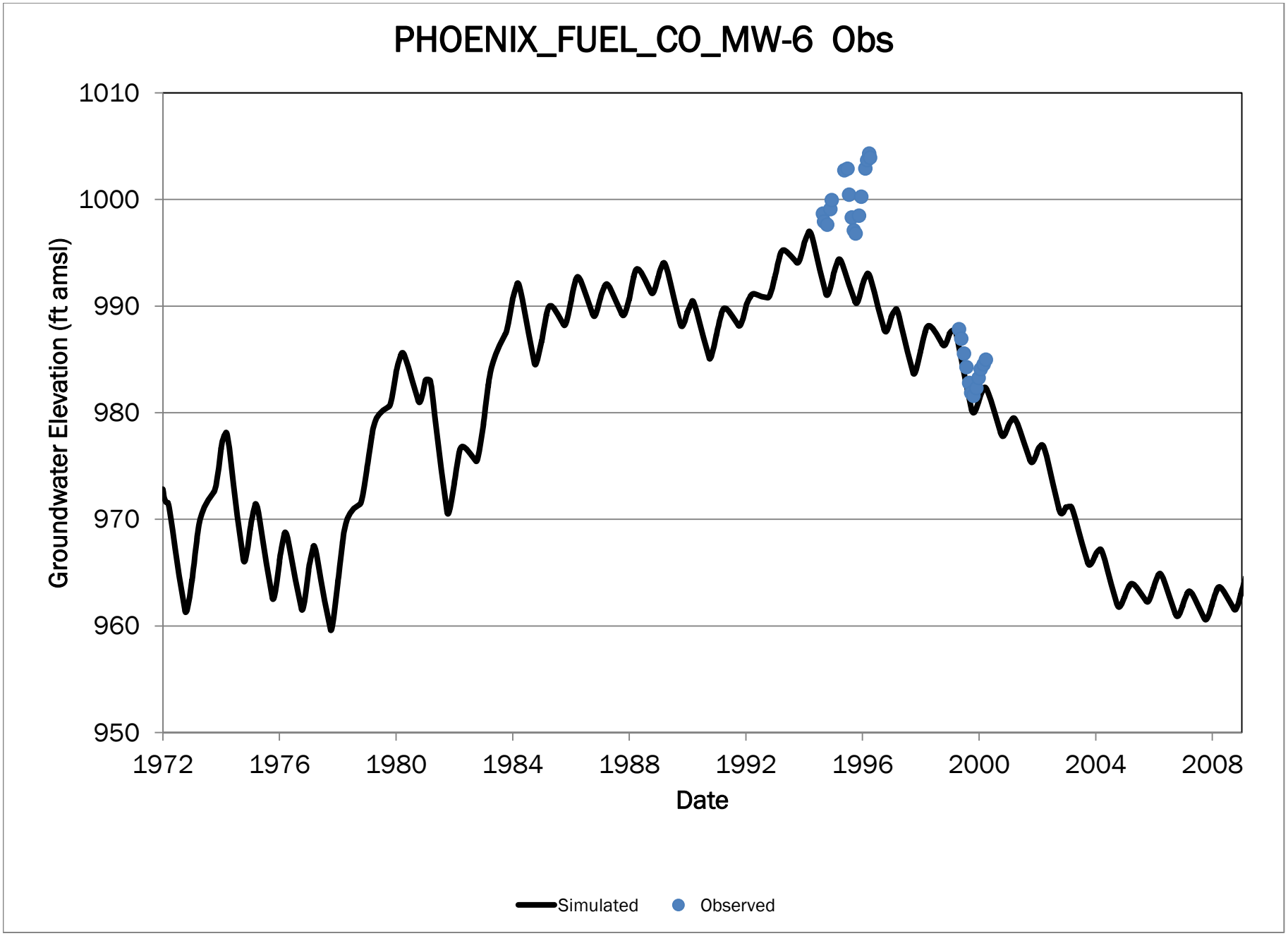

MOGUL_MW-1 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

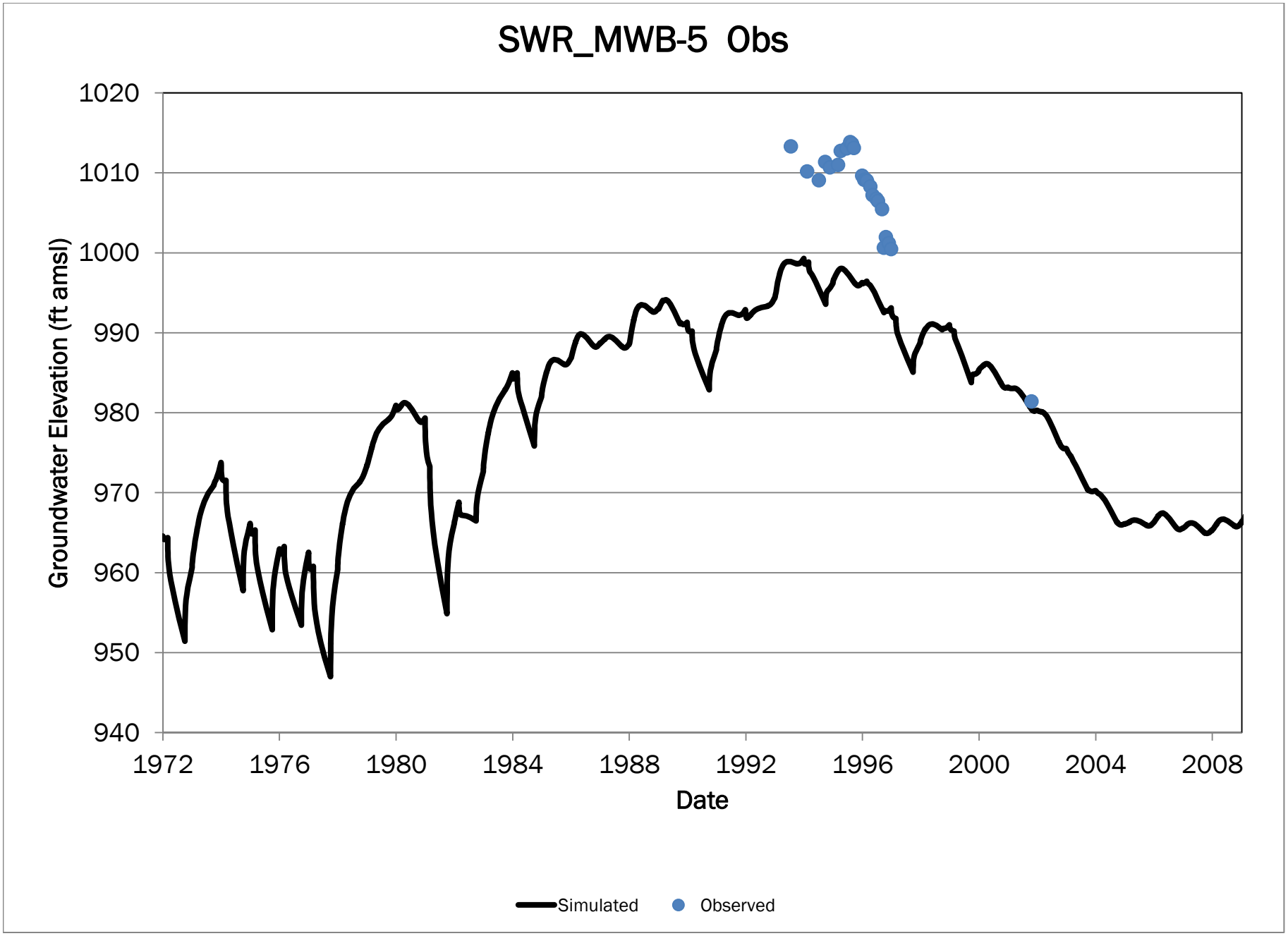

OU3-7S Obs
Groundwater Elevation (ft amsl)
1025
1020
1015
1010
1005
1000
995
990
985
980
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

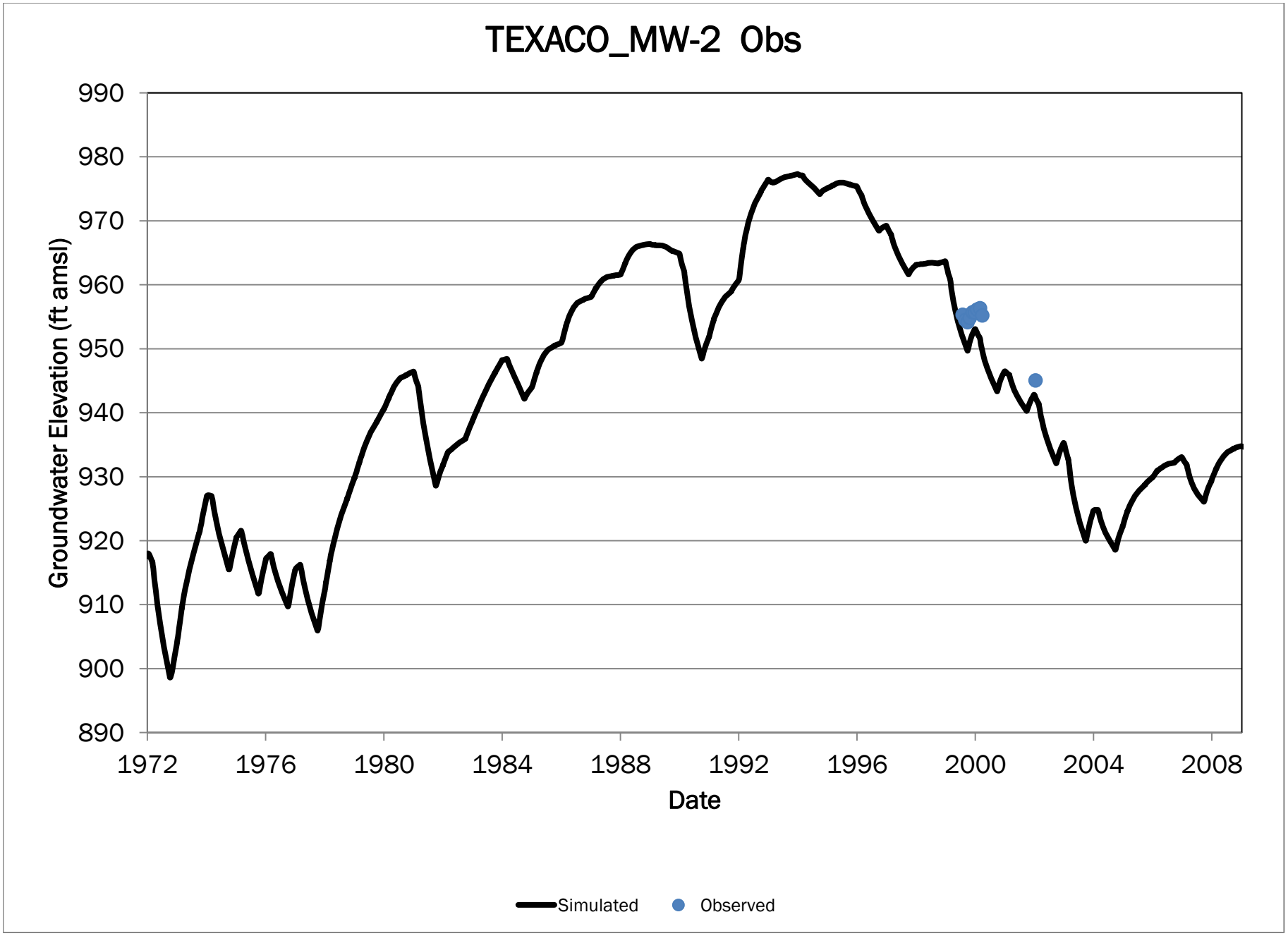

OU3-8S Obs
Groundwater Elevation (ft amsl)
1020
1015
1010
1005
1000
995
990
985
980
975
970
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

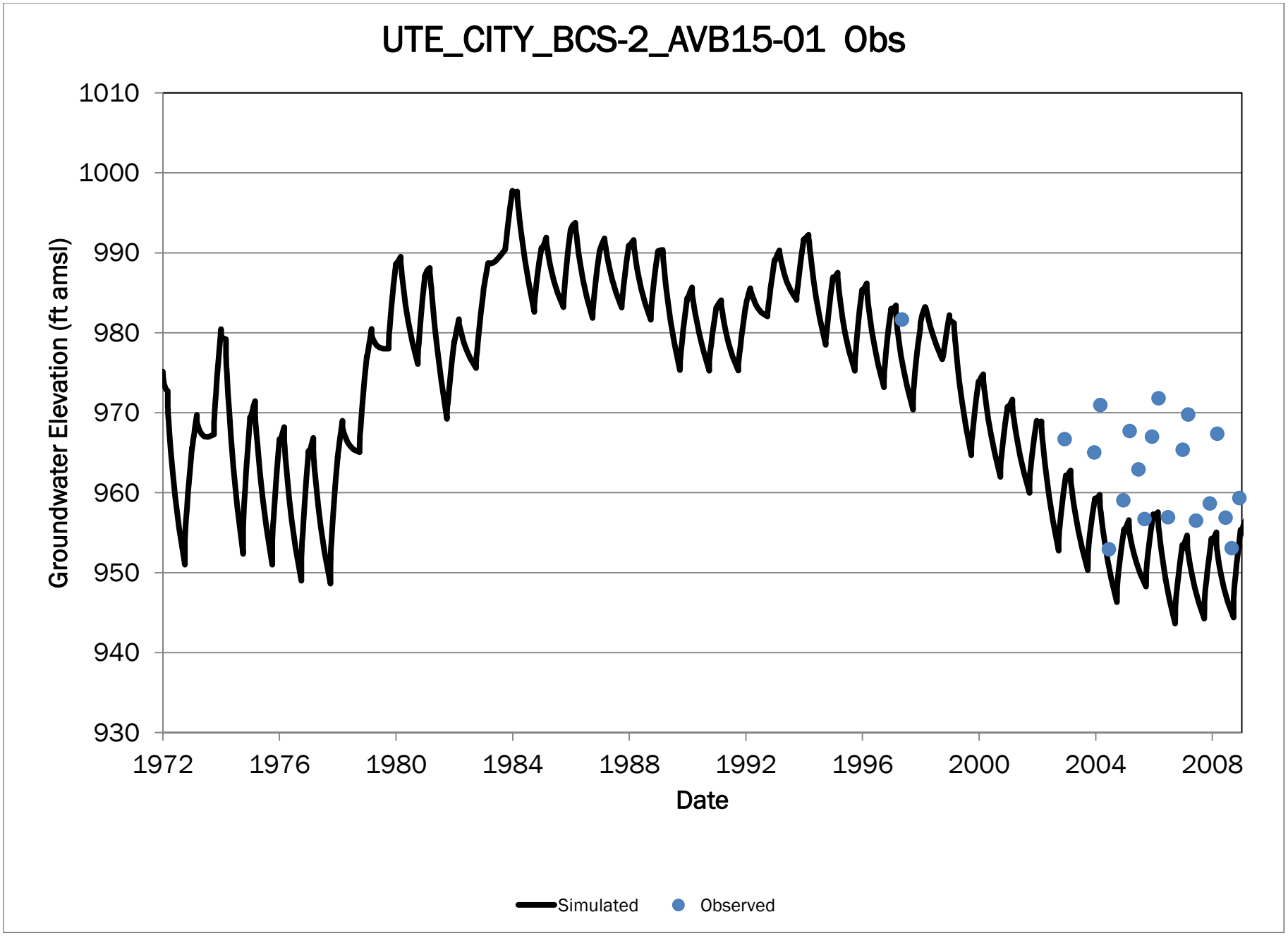

PENSKE_MW-1 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

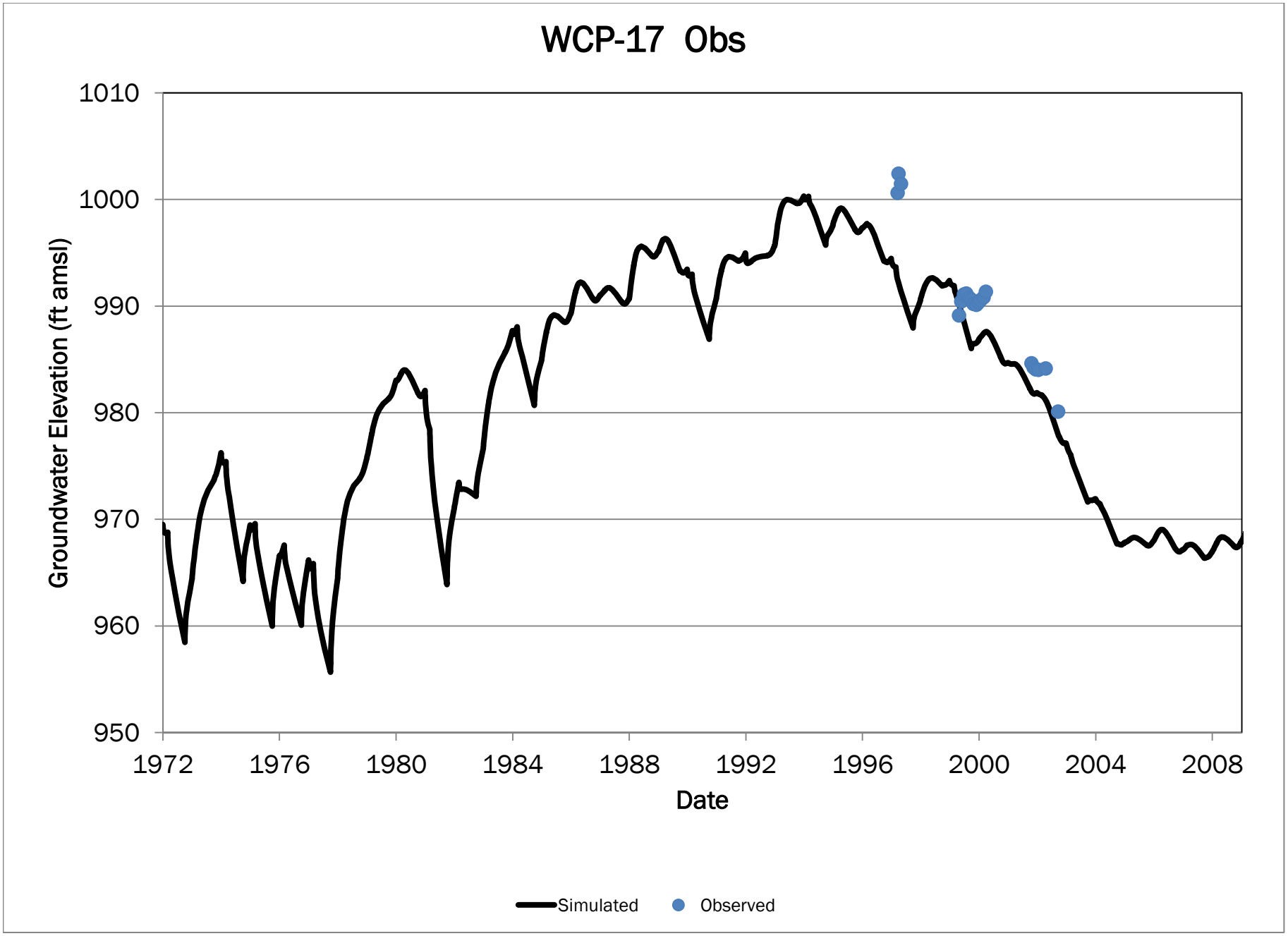

PHOENIX_FUEL_CO_MW-5 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

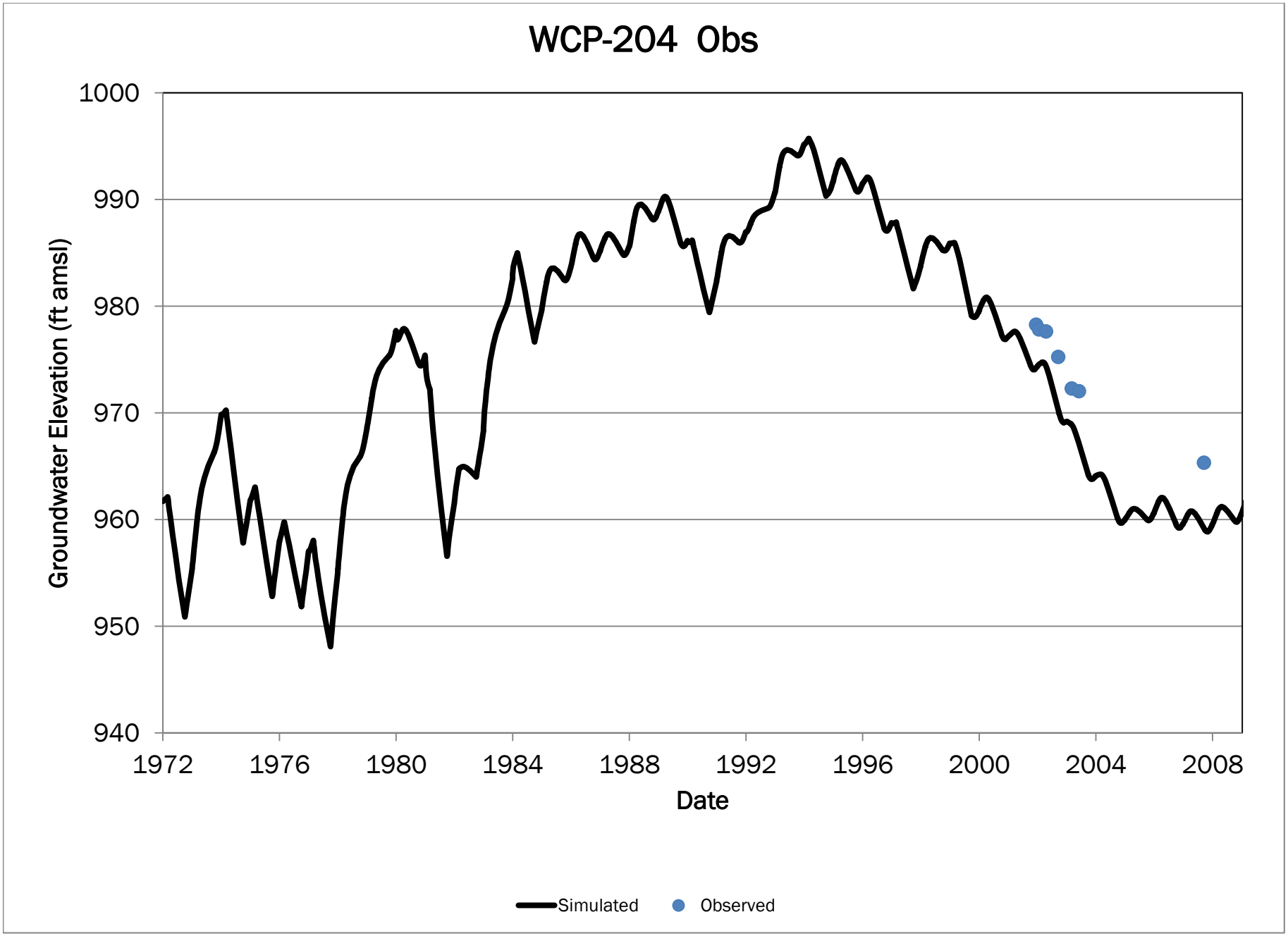

PHOENIX_FUEL_CO_MW-6 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

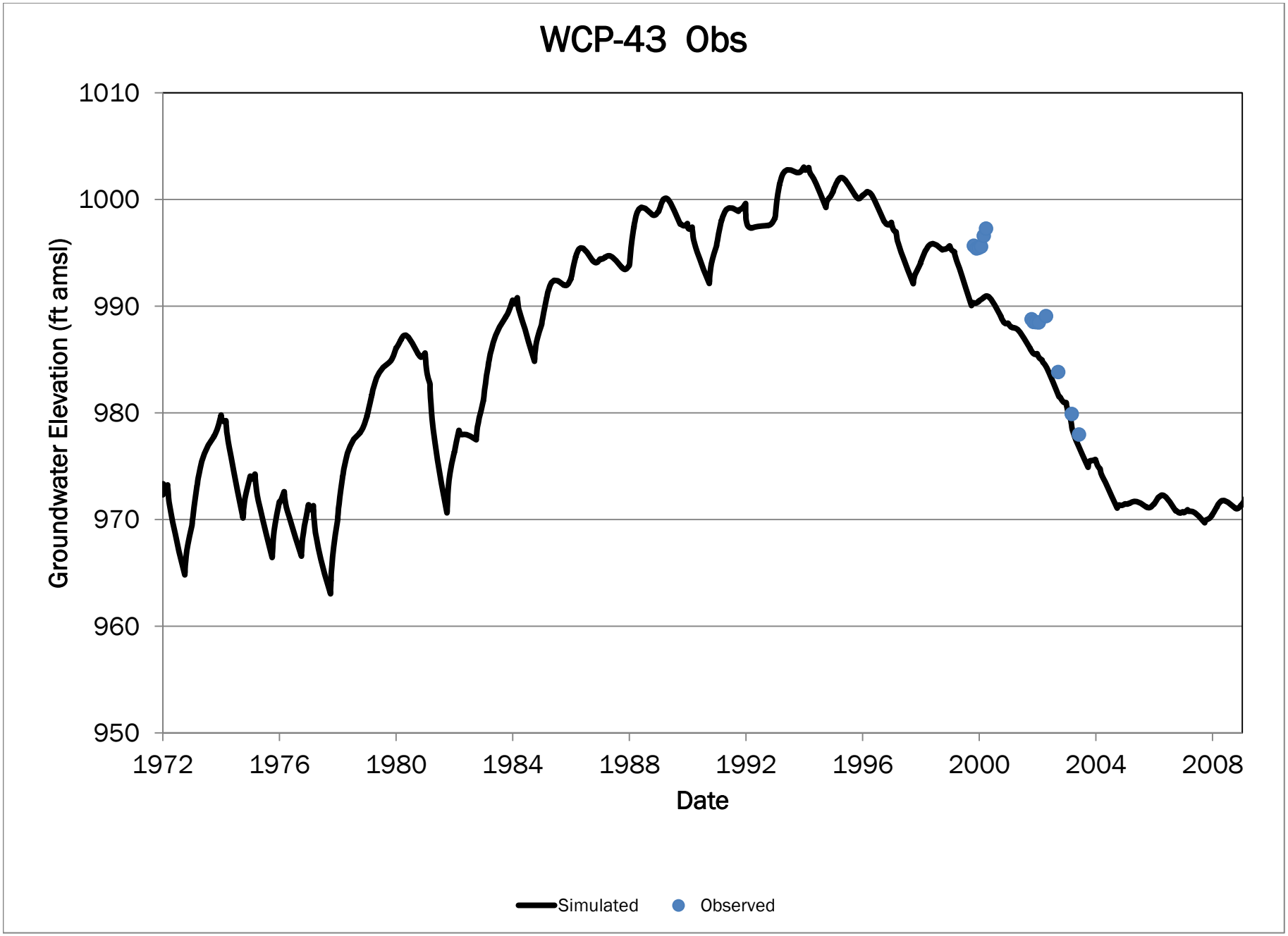

SWR_MWB-5 Obs
Groundwater Elevation (ft amsl)
1020
1010
1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


TEXACO_MW-2 Obs
Groundwater Elevation (ft amsl)
990
980
970
960
950
940
930
920
910
900
890
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


UTE_CITY_BCS-2_AVB15-01 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
940
930
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


WCP-17 Obs
Groundwater Elevation (ft amsl)
1010
1000
990
980
970
960
950
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


WCP-204 Obs
1000
990
980
970
960
950
940
Groundwater Elevation (ft amsl)
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


WCP-43 Obs
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1000
990
980
970
960
950
Groundwater Elevation (ft amsl)
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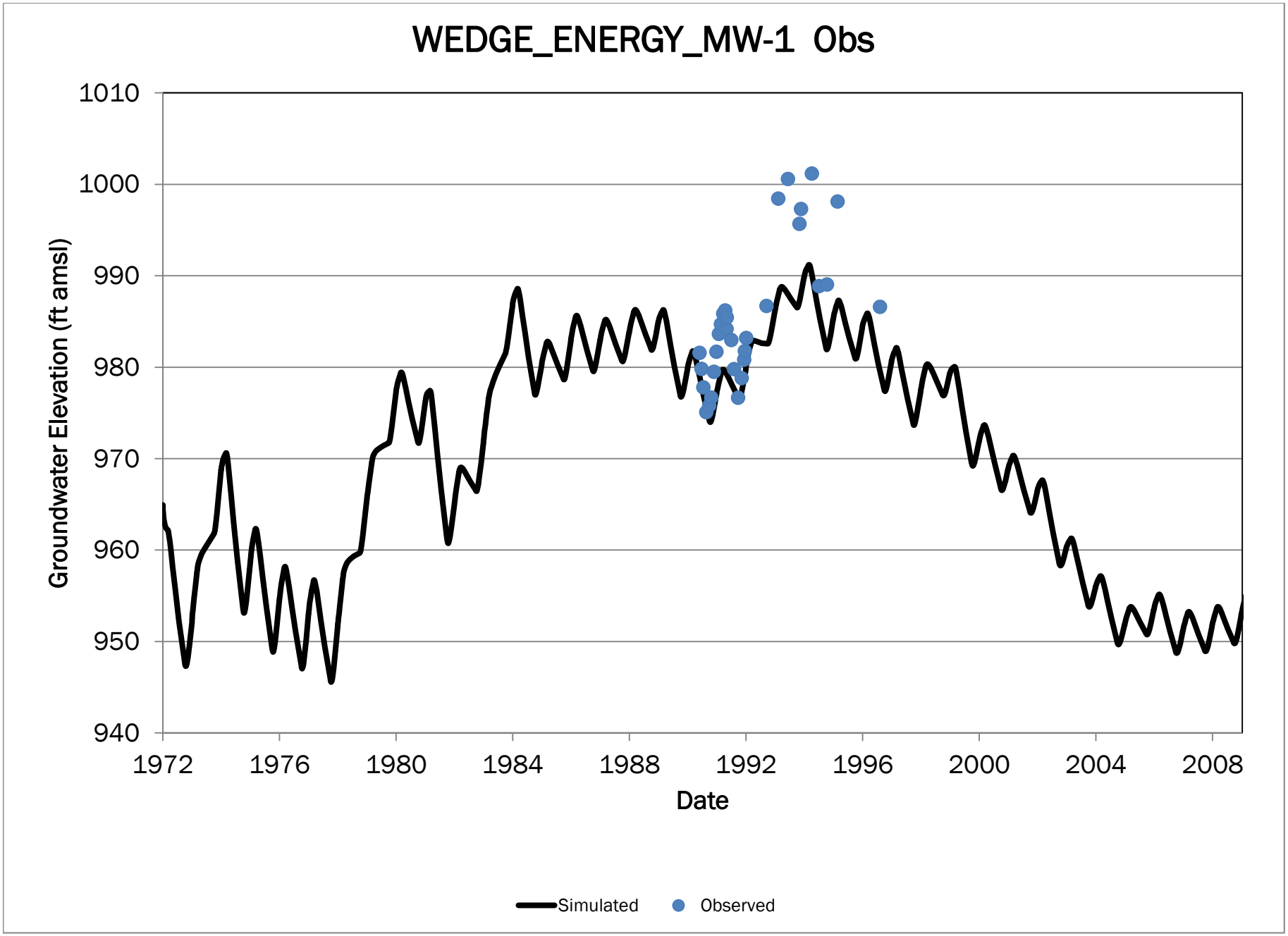
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed


WEDGE_ENERGY_MW-1 Obs
Groundwater Elevation (ft amsl)
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1000
990
980
970
960
950
940
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Date
Simulated
Observed

Appendix D: ADEQ Review Comments and Written Responses

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June 10, 2014

Ms. Tina LePage
Remedial Projects Section, Waste Programs Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007 144774.001

Subject: Brown and Caldwell's Response to Terranext Comments on the Univar Groundwater Flow Model Update Report

Dear Ms. LePage:

Brown and Caldwell is providing our responses to comments provided by the Arizona Department of Environmental Quality (ADEQ) in their letter dated February 27, 2014 on our report entitled "West Van Buren Study Area, Univar Groundwater Flow Model Update," December, 2013, The ADEQ letter contains comments from its contractor, Terranext, dated January 15, 2014. The Terranext comments were developed for ADEQ by Mr. John Ward, a sub-consultant to Terranext, and were discussed in general on a conference call on January 29, 2014. The ADEQ comments are lengthy and are only summarized in the responses. However, they are included as Attachment A for further reference.

Brown and Caldwell's responses to comments are provided as follows:

General Comment #1

The comment notes that the revised Univar Groundwater Flow Model represents an improvement over previous modeling, that there is no need to revise the current report unless inaccuracies require revision, and that the specific comments have been provided to be useful going forward in areas where possible model improvements have been identified. The comment is noted, and responses to specific comments have been developed accordingly.

General Comment #2

The report was developed by Mr. Jeff Weaver and Mr. Kurt Zeiler of Brown and Caldwell. A signature page has been included for clarification. Mr. Chris Legg of Brown and Caldwell has reviewed the report and provided an Arizona Registered Geologist's seal.

Specific Comment #1 on Initial Conditions

The comment notes that the original initial conditions for the model, representing groundwater flow conditions for 1972, have the effect of "not starting from a steady state". The initial groundwater levels in the model do represent a steady-state starting condition assumed to be representative of average groundwater flow conditions occurring in 1972. Given that water level data available for 1972 were limited, Harding Lawson

Associates (HLA) did not develop calibration statistics for this period, but relied on visual inspection of simulated groundwater hydrographs showing water levels collected throughout the model period (1972 through 1992). Brown and Caldwell updated the calibration data set (as described in Section 3.1) to include water levels collected between 1972 and 1992 in the calculation of calibration statistics, and has also included those data on the hydrographs presented in Appendix C of the modeling report. Both the updated calibration statistics and visual inspection of simulated hydrographs demonstrates that the initial steady-state condition (1972) is reasonable, and does not materially affect subsequent changes in groundwater levels simulated by the model.

Specific Comment #2 on Layering and Parameterization

Paragraph 1 - Comment relates to the high degree of variability in hydraulic conductivity zones and how those might relate to localized higher conductivity zones identified in the North Plume area. As described in Section 3.4, the layer structure used in the model represents a flow zone much thicker than the localized units identified in the North Plume. Hydraulic parameters in the Univar Groundwater Flow Model are representative of vertically averaged flow conditions, and thus cannot be directly compared to isolated, local variations. Section 3.4 describes the interpretation of water level data from specific wells in the northeastern area of the model domain that were not representative of larger-scale, vertically averaged conditions. The monitor wells from which the water level data were obtained are designed to collect water levels at selected intervals in the localized system rather than a vertically averaged water level. The data are highly influenced by local scale conditions that the model is not designed to simulate. These data were removed from the analysis of vertically averaged boundary water levels. Given that the model has been developed to reasonably match vertically averaged conditions based on existing layer thickness, we believe that additional review of small-scale, localized variations noted in well logs outside the main area of interest of the model is not warranted.

Paragraph 2 – The comment notes that Figure 2.8 is indicative of a significant increase in the portion of total recharge that is attributed to agricultural activities (i.e. recharge from irrigation) occurring after 1992. As noted in Section 2.3, agricultural recharge estimates were taken from the Arizona Department of Water Resources (ADWR) Salt River Valley (SRV) model for the period 1992 through 2006, and the estimates shown on the figure do indicate that the SRV model estimated higher annual agricultural recharge rates than HLA assumed for years prior to 1992. However, agricultural recharge represents only a portion of total recharge to groundwater in the model. A review of total annual recharge shown on Figure 2.4, which includes all components of recharge, indicates that the overall change in total recharge between 1991 and 1992 is not significant, and that total recharge added to the model for periods after 1992 are well within the range of estimates used in the model to represent conditions occurring prior to 1991. Use of agricultural estimates from the SRV model is thus considered reasonable when compared to the total annual recharge applied in the model.

Specific Comment #3 on Calibration Targets

Paragraph 1 – Comment refers to potential bias in calibration statistics occurring from using a well with a large number of water level measurements combined with wells with more limited water level data sets. Monitoring well AVB-108-01 has a large portion of the measured water levels used in the calibration data set. However, the well is centrally located within the model domain that is an area of interest for modeling. Monitoring well AVB108-01 also has nearly 20 years of water level data. As

such, model simulation of observed water level fluctuations in this well are considered key to understanding the model's ability to simulate groundwater flow in the primary area of interest (the central portion of the model domain). Overall calibration statistics that include all data collected from AVB108-01 are indicative of reasonable model calibration in this area.

Brown and Caldwell has calculated calibration statistics for the model without data from well AVB108-01 to assess model calibration using a more limited dataset from wells across the model domain. Table 1 presents a summary of statistical changes if data from AVB108-01 are not used in the assessment of model calibration. The absence of data from AVB108-01 in the statistical analysis results in generally similar calibration statistics, with the primary calibration parameters, such as the root-mean squared error (RMSE), all within approximately 2 feet of the originally reported statistics (Table 1). As such, the model is still deemed to be reasonably calibrated to observed conditions whether or not the more robust AVB108-01 water level dataset is used in the analysis.

Table 1. Model Bulk Calibration Statistics Summary

Calibration Statistic	Base Model 1972-2009	Base Model without AVB108-01 1972-2009	Base Model with Original Specific Yield 1972-2009	Base Model 2000-2009
Mean Residual (ft)	4.0	5.8	2.0	-7.8
Mean Absolute Residual (ft)	6.2	8.5	6.3	8.9
Minimum Residual (ft)	-51.2	-51.2	-50.3	-44.0
Maximum Residual (ft)	48.0	48.0	48.9	23.5
Root- Mean Squared Error	8.8	10.9	8.5	11.2
Scaled Residual Standard Deviation	0.049	0.057	0.051	0.07

Paragraph 2 – Comment notes a disparity in the number of wells used for calibration and the number shown on Figure 3-1. The figure has been revised to reflect only the location of the 63 wells listed in Table 3-1.

Paragraph 3 – Comment notes that the earlier HLA report cites well data not used in the model update. Brown and Caldwell limited water level data used for calibration to what is publically available in either the ADWR Groundwater Site Inventory (GWSI) database or ADEQ's Water Quality Database. The single-time water level measurements included in the original HLA report could not be independently verified, and were thus used only in comparisons between the original and updated versions of the West Van Buren Study Area (WVBSA) groundwater model.

Specific Comment #4 on Specific Yield

Paragraph 1 – Comment notes that changes in specific yield values should only be applicable to the uppermost model layer (model layer 1). Changes to specific yield values in the model as part of calibration generally only affect conditions in model layer 1, as noted in the comment. The values described for deeper model layers are required as part of MODFLOW input files for fully convertible layers (MODFLOW layer type 3), but generally have no effect on simulated groundwater levels, as only a negligible number of model cells in layer 1 (< 5) go dry for short periods during the transient simulation.

Paragraph 2 – Comment notes that it would be useful to have a table of calibration improvements related to reductions in specific yield. Reductions in specific yield resulted primarily in improvements in the model's ability to simulate seasonal fluctuations in groundwater levels, as illustrated on Figure 3-6 in the report. Bulk calibration statistics were generally similar for both the original HLA specific yield values and the simulation using lower estimates (Table 1), indicating that the bulk statistical match was generally insensitive to these changes. This illustrates that visual inspection of simulated hydrographs versus available data, using professional judgment, is a key component of assessing the model's ability to simulate known groundwater flow conditions.

Paragraph 3 – Comment relates to assessing correlated effects of model parameters and combinations other than specific yield to achieve calibration. This comment describes a reasonable approach to development of potential alternative calibrations during initial model development. However, the updated model as presented is based both on the original HLA model that was reviewed and purchased for use by ADEQ, and on detailed assumptions and approaches developed by ADWR (the SRV model). As such, the modeling approach did not include significant modifications or testing of recharge assumptions and model parameterizations. It was outside the scope of work for this model to test a wide variety of potential flux, parameter, and model structure combinations for alternative model development The reduction in specific yield was simply applied to improve the models ability to simulate seasonal variations in observed water table fluctuations.

Paragraph 4 – Comment notes that specific yield will "undoubtedly be a sensitive parameter" and that the values used in the model represent "the low end of the normal range." As noted above, bulk calibration statistics were generally insensitive to changes in specific yield over the range reported, while seasonal water level fluctuations were sensitive. The lower values used in the model resulted in better visual matches with the magnitude of seasonal groundwater fluctuations, although not completely, as noted by the reviewer in Specific Comment 6 (discussed below). We do not believe it is appropriate to simulate groundwater capture as part of the Feasibility Study process with higher values of specific yield that do not match observed groundwater fluctuations.

No references are provided by the reviewer in support of the contention that the specific yield values used in the original HLA model "fit a normal range" and that by halving them they are "at the low end of range." The specific yield parameter, as it relates to water level fluctuations in the subsurface, is not a constant parameter but is expected to vary in time and space (McWhorter and Sunada[1], 1977; Nachabe[2], 2001; Shah[3], 2007) as a function of air entrapment, moisture storage conditions within the capillary fringe, and water table fluctuations. Constant values used in groundwater flow models represent "average" drainage conditions and are not necessarily expected to be consistent with laboratory measurements based on long-term gravity drainage (Nachabe, 2001; Shah, 2007).

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[1] McWhorter, D.B. and D.K. Sunada, 1977, Ground-Water Hydrology and Hydraulics, Water Resource Publications, LLC., Highlands Ranch, Colorado

[2] Nachabe, M. H., 2001, Analytical Expressions for Transient Specific Yield and Shallow Water Table Drainage, Water Resources Research, Vol. 38, No. 10, p. 1193

[3] Shah, N, 2007, Vadose Zone Processes Affecting Water Table Fluctuations, Conceptualization and Modeling Considerations, Ph.D. Dissertation, University of South Florida Scholar Commons.

The values used in the WVBSA model relate to shorter-term, seasonal groundwater fluctuations, and are better represented by "apparent" specific yield values as described by McWhorter and Sunada, 1977, which is defined as "a bulk parameter that incorporates the influences of such factors as air entrapped near the water table, stratification of materials above the water table, water table position and the rate of change in water table elevation." Hansen[4] (1977) notes that field measurements of entrapped air averaged 20% of the pore volume of material above the water table, resulting in apparent specific yield values that are often on the order of one-third of laboratory measured specific yield values (as described in McWhorter and Sunada, 1977). Given these considerations, use of laboratory-measured specific yield estimates that are based on long-term gravity drainage alone, and do not account for the variety of influences encountered in the field, is not warranted. Both seasonal and longer term groundwater fluctuations observed within the model domain are likely influenced by air entrapment, stratigraphic variability, short-term changes in net recharge, and incomplete gravity drainage. Therefore, the reduction of apparent specific yield values by 50% to achieve more accurate simulations of seasonal fluctuations is considered reasonable.

Specific Comment #5 on General Head Boundaries

Paragraph 1 – Comment notes potential bias in calibration statistics from using monitoring wells that are set close to and influenced by the general head boundaries. In reference to Specific Comment 3, paragraph 2, additional monitoring wells were erroneously shown on Figure 3-1 that were not included in the final calibration data set, including wells ADEQ-CC-3, GSC-MW-27, GSC-MW-18, and ATR/MCI-MW-3 that are shown set close to the boundary. As such, data from these wells were not used in generating calibration statistics and thus are not contributing to potential bias.

Paragraph 2 – Comment notes importance of boundary condition assumptions on potential Feasibility Study simulations. Comment noted.

Paragraph 3 – Comment notes potential influence of river and groundwater flow directions on the assumed no-flow conditions along the southern model boundary. Flows within the Salt River, located south of central area of interest of the model domain, have been interpreted as having potential influence of groundwater flow in the WVBSA. The southern model boundary was originally extended well south of the Salt River to allow for reasonable simulation of the river's influence. Groundwater flow is generally east to west along the Salt River. The Gila River flows into the Salt River from the southeast (heading northwest) downgradient of the western model boundary. Minor transient groundwater flows that could flow along this general trend (southeast to northwest) in response to recharge from intermittent flows in the Gila River are expected to have negligible impact on groundwater flow north and northeast of the Salt River, and thus we believe no changes to the southern model boundary are warranted.

[4] Hansen, B.L, 1977, Entrapped Gas in an Unconfined Aquifer, Ph.D. Dissertation, Colorado State University, Fort Collins, Colorado

Specific Comment #6 on Calibration Results

Paragraph 1 – Comment notes the desirability of residual maps to show spatial variations of residuals. Comment noted. Because the model residuals are highly transient, and multiple maps would be required for assessment, we believe the comparison of hydrographs presented in Appendix C with the locations shown on Figure 3-1 is sufficient for review of model calibration.

Paragraph 2 – Comments note that hydrographs show that in later time periods, the simulated seasonal fluctuations do not match the magnitude of seasonal water level fluctuations, and that assessment of calibration statistics may be more complete by evaluating various time frames. As discussed in Specific Comment 4, paragraph 4, the simulated magnitude of seasonal water table fluctuations was improved by lowering the apparent specific yield, and we believe a reasonable balance was achieved between lowering estimates and achieving improved transient matches.

Per the comment, calibration statistics were developed for the simulation period of 2000 through 2009. These statistics are included on Table 1 and show generally similar calibration parameters for the entire model period.

Paragraph 3 – Comment related to model solution parameters and mass balances. Per the comment, model solution criteria are summarized in Table 2, and overall model mass balances are presented in Table 3.

Table 2. Model Solver Parameters

Solver Parameter	Value
Solver Package	Preconditioned Conjugate-Gradient 2 (PCG2)[a]
Matrix Preconditioning Method	Modified Incomplete Cholesky
Maximum Number of Outer Iterations	300
Maximum Number of Inner Iterations	5
Head Change Criterion (ft)	0.001
Residual Change Criterion (ft^3/day)	1.0
Relaxation Parameter	1.0
Damping Parameter	1.0

Hill, M.C., 1990. Preconditioned Conjugate-Gradient 2 (PCG2), a Computer Program for Solving Ground-Water Flow Equations. U.S. Geological Survey Water-Resources Investigations Report 90-4048. 25 p.

Paragraph 4 – Comment notes the need for sensitivity analysis. A complete understanding of model sensitivity would require the development of multiple model calibrations based on variations in transient model recharge and physical parameters, as described in Specific Comment 4, paragraph 3. As noted, creation of multiple models using assumptions outside of those previously used in the original HLA model were not part of this scope of work. In our experience, it is very difficult to achieve multiple model calibrations balancing different flux with different model parameters given known pumping and groundwater level conditions, and we believe the calibration as presented is a reasonable representation of groundwater flow conditions within the WVBSA.

Table 3. Simulated Water Balance in Each Stress Period

Stress Period	Time Period	Stress Period Length (days)	Storage In (ac-ft)	Constant Heads In (ac-ft)	Wells In (ac-ft)	GHB In (ac-ft)	Recharge In (ac-ft)	Storage Out (ac-ft)	Constant Heads Out (ac-ft)	Wells Out (ac-ft)	GHB Out (ac-ft)	Total In (ac-ft)	Total Out (ac-ft)
1	Winter 1972	60	5,995	829	0	8,443	22,878	12,599	0	22,261	3,285	38,145	38,145
2	Spring/Summer 1972	215	59,641	3,441	0	39,483	81,979	545	0	177,066	6,932	184,543	184,543
3	Fall 1972	90	819	1,573	0	15,844	34,317	33,780	0	14,874	3,899	52,553	52,553
4	Winter 1973	60	71	1,034	0	10,533	28,639	25,108	0	12,690	2,479	40,277	40,276
5	Spring/Summer 1973	215	2,404	3,140	0	30,727	102,622	23,983	0	101,796	13,114	138,894	138,894
6	Fall 1973	90	0	1,158	0	10,739	42,958	37,364	0	8,511	8,980	54,855	54,854
7	Winter 1974	60	1,927	689	0	6,308	24,225	5,955	0	21,654	5,539	33,148	33,148
8	Spring/Summer 1974	215	66,558	2,462	0	33,422	86,807	593	0	174,508	14,148	189,249	189,249
9	Fall 1974	90	1,036	1,211	0	14,136	36,338	31,630	0	14,372	6,718	52,720	52,720
10	Winter 1975	60	877	813	0	7,936	23,874	6,425	0	21,958	5,117	33,500	33,500
11	Spring/Summer 1975	215	63,578	2,980	0	37,903	85,548	303	0	178,735	10,972	190,010	190,010
12	Fall 1975	90	953	1,396	0	15,126	35,811	33,939	0	14,243	5,104	53,286	53,286
13	Winter 1976	60	1,009	960	0	8,419	23,051	8,596	0	20,830	4,012	33,438	33,438
14	Spring/Summer 1976	215	54,142	3,643	0	38,594	82,598	373	0	170,100	8,504	178,977	178,977
15	Fall 1976	90	777	1,665	0	15,376	34,576	34,689	0	13,408	4,296	52,393	52,393
16	Winter 1977	60	519	1,096	0	8,820	22,029	8,947	0	20,080	3,436	32,464	32,464
17	Spring/Summer 1977	215	49,316	3,867	0	39,520	78,937	482	0	163,650	7,508	171,640	171,641
18	Fall 1977	90	621	1,713	0	15,610	33,044	33,958	0	12,987	4,041	50,987	50,987
19	Winter 1978	60	162	1,116	0	11,982	24,626	20,976	0	15,556	1,354	37,887	37,887
20	Spring/Summer 1978	215	4,955	3,631	0	35,219	88,244	11,368	0	113,081	7,600	132,050	132,049
21	Fall 1978	90	2	1,453	0	12,727	36,939	33,002	0	12,620	5,500	51,122	51,122
22	Winter 1979	60	85	883	0	9,910	27,510	20,735	0	15,120	2,533	38,388	38,388
23	Spring/Summer 1979	215	3,496	2,459	0	28,072	98,577	10,398	0	110,662	11,544	132,604	132,604
24	Fall 1979	90	0	880	0	9,965	41,265	32,083	0	12,126	7,900	52,109	52,109

Table 3. Simulated Water Balance in Each Stress Period

Stress Period	Time Period	Stress Period Length (days)	Storage In (ac-ft)	Constant Heads In (ac-ft)	Wells In (ac-ft)	GHB In (ac-ft)	Recharge In (ac-ft)	Storage Out (ac-ft)	Constant Heads Out (ac-ft)	Wells Out (ac-ft)	GHB Out (ac-ft)	Total In (ac-ft)	Total Out (ac-ft)
25	Winter 1980	60	329	487	0	7,877	26,324	10,877	0	18,291	5,849	35,017	35,017
26	Spring/Summer 1980	215	34,588	1,479	0	28,041	94,327	2,713	0	137,080	18,642	158,435	158,435
27	Fall 1980	90	392	695	0	11,403	39,486	28,438	0	14,069	9,469	51,977	51,976
28	Winter 1981	60	4,717	463	0	7,414	20,826	2,366	0	25,218	5,836	33,420	33,420
29	Spring/Summer 1981	215	79,653	1,996	0	40,119	74,628	68	0	189,541	6,787	196,396	196,396
30	Fall 1981	90	1,272	1,078	0	16,431	31,240	28,336	0	19,296	2,387	50,021	50,020
31	Winter 1982	60	79	716	0	10,390	21,562	14,540	0	16,118	2,088	32,746	32,746
32	Spring/Summer 1982	215	14,010	2,403	0	36,064	77,262	3,637	0	117,410	8,692	129,739	129,739
33	Fall 1982	90	66	1,013	0	13,406	32,342	28,400	0	13,030	5,396	46,826	46,825
34	Winter 1983	60	639	651	0	6,535	25,510	20,857	0	9,183	3,294	33,335	33,334
35	Spring/Summer 1983	215	561	1,852	0	18,809	91,411	26,261	0	67,241	19,131	112,633	112,632
36	Fall 1983	90	0	581	0	6,716	38,265	26,446	0	7,359	11,756	45,563	45,562
37	Winter 1984	60	5,008	302	0	7,292	18,863	4,062	1	20,082	7,321	31,465	31,465
38	Spring/Summer 1984	215	62,415	1,895	0	28,307	67,592	146	0	145,374	14,691	160,210	160,210
39	Fall 1984	90	752	866	0	12,481	28,295	19,270	0	16,407	6,717	42,394	42,394
40	Winter 1985	60	483	472	0	10,103	21,444	12,298	0	14,981	5,223	32,502	32,502
41	Spring/Summer 1985	215	21,431	1,355	0	33,378	76,841	3,289	0	107,959	21,758	133,006	133,006
42	Fall 1985	90	158	585	0	13,259	32,166	23,885	0	12,329	9,953	46,168	46,167
43	Winter 1986	60	3,058	352	0	7,712	18,693	8,428	0	17,006	4,382	29,816	29,816
44	Spring/Summer 1986	215	34,753	1,433	0	34,119	66,985	2,105	0	121,204	13,982	137,290	137,290
45	Fall 1986	90	476	744	0	14,101	28,040	22,457	0	14,248	6,656	43,361	43,361
46	Winter 1987	60	3,721	545	0	5,872	18,878	7,053	0	17,311	4,651	29,016	29,015
47	Spring/Summer 1987	215	28,472	2,260	0	28,952	67,644	1,093	0	114,737	11,499	127,328	127,329
48	Fall 1987	90	411	1,046	0	11,750	28,316	20,620	0	16,118	4,785	41,523	41,522

Table 3. Simulated Water Balance in Each Stress Period

Stress Period	Time Period	Stress Period Length (days)	Storage In (ac-ft)	Constant Heads In (ac-ft)	Wells In (ac-ft)	GHB In (ac-ft)	Recharge In (ac-ft)	Storage Out (ac-ft)	Constant Heads Out (ac-ft)	Wells Out (ac-ft)	GHB Out (ac-ft)	Total In (ac-ft)	Total Out (ac-ft)
49	Winter 1988	60	2,435	643	0	8,317	18,823	8,785	0	16,851	4,581	30,218	30,218
50	Spring/Summer 1988	215	32,909	2,174	0	31,876	67,450	1,783	0	120,848	11,777	134,408	134,408
51	Fall 1988	90	416	990	0	12,040	28,235	22,452	0	13,978	5,250	41,681	41,680
52	Winter 1989	60	2,196	705	0	5,181	16,916	3,635	0	16,251	5,112	24,998	24,998
53	Spring/Summer 1989	215	48,748	3,005	0	27,721	60,614	332	0	127,085	12,671	140,088	140,088
54	Fall 1989	90	1,112	1,437	0	11,277	25,373	22,481	0	11,511	5,207	39,199	39,199
55	Winter 1990	60	3,437	1,019	0	6,048	17,222	5,318	0	19,169	3,240	27,727	27,727
56	Spring/Summer 1990	215	52,165	4,499	0	34,501	61,715	105	0	147,827	4,946	152,879	152,878
57	Fall 1990	90	566	1,885	0	13,266	25,834	25,579	0	13,966	2,005	41,551	41,551
58	Winter 1991	60	1,937	1,176	0	7,083	17,160	9,378	0	14,706	3,272	27,356	27,356
59	Spring/Summer 1991	215	24,013	4,238	0	29,510	61,489	2,708	0	108,834	7,709	119,250	119,251
60	Fall 1991	90	216	1,840	0	11,390	25,740	23,575	0	11,569	4,041	39,186	39,185
61	Winter 1992	60	1,371	1,177	0	9,400	20,327	18,235	0	10,656	3,384	32,275	32,275
62	Spring/Summer 1992	215	4,151	3,572	0	26,923	72,839	14,909	0	77,161	15,414	107,485	107,485
63	Fall 1992	90	60	1,366	0	9,936	30,491	24,360	0	8,700	8,792	41,853	41,851
64	Winter 1993	60	1,341	827	0	6,203	21,551	9,410	0	13,400	7,112	29,923	29,922
65	Spring/Summer 1993	215	16,291	2,609	0	22,448	77,226	2,043	0	95,482	21,049	118,574	118,574
66	Fall 1993	90	103	1,058	0	8,410	32,327	20,743	0	11,231	9,922	41,898	41,897
67	Winter 1994	60	2,386	693	0	7,252	21,051	5,236	0	17,749	8,397	31,382	31,382
68	Spring/Summer 1994	215	45,760	3,025	0	29,505	75,433	215	0	133,297	20,211	153,722	153,723
69	Fall 1994	90	696	1,403	0	12,354	31,577	22,870	0	13,601	9,557	46,029	46,028
70	Winter 1995	60	2,364	910	0	6,892	20,952	5,679	0	16,022	9,416	31,118	31,118
71	Spring/Summer 1995	215	33,872	3,363	0	28,801	75,078	538	0	117,815	22,762	141,114	141,115
72	Fall 1995	90	637	1,487	0	11,801	31,428	22,287	0	12,747	10,319	45,353	45,353

Table 3. Simulated Water Balance in Each Stress Period

Stress Period	Time Period	Stress Period Length (days)	Storage In (ac-ft)	Constant Heads In (ac-ft)	Wells In (ac-ft)	GHB In (ac-ft)	Recharge In (ac-ft)	Storage Out (ac-ft)	Constant Heads Out (ac-ft)	Wells Out (ac-ft)	GHB Out (ac-ft)	Total In (ac-ft)	Total Out (ac-ft)
73	Winter 1996	60	2,567	1,022	0	7,106	19,272	4,074	0	16,392	9,502	29,968	29,968
74	Spring/Summer 1996	215	45,815	4,203	0	29,287	69,061	135	0	125,529	22,701	148,365	148,365
75	Fall 1996	90	881	1,784	0	12,264	28,909	21,937	0	12,108	9,793	43,837	43,837
76	Winter 1997	60	3,858	1,160	0	6,221	19,001	4,409	0	15,982	9,850	30,240	30,241
77	Spring/Summer 1997	215	44,761	4,787	0	28,900	68,086	108	0	124,778	21,649	146,534	146,535
78	Fall 1997	90	581	2,004	0	12,512	28,501	22,361	0	11,359	9,877	43,597	43,597
79	Winter 1998	60	2,198	1,292	0	6,444	18,821	6,748	0	12,879	9,127	28,754	28,755
80	Spring/Summer 1998	215	27,073	4,793	0	27,114	67,443	796	0	101,304	24,323	126,422	126,423
81	Fall 1998	90	252	2,037	0	11,365	28,231	21,613	0	9,013	11,259	41,885	41,885
82	Winter 1999	60	4,588	1,394	0	5,809	18,228	2,962	0	17,194	9,864	30,019	30,019
83	Spring/Summer 1999	215	56,042	6,022	0	31,127	65,317	44	0	136,713	21,751	158,509	158,509
84	Fall 1999	90	1,007	2,518	0	13,494	27,342	22,575	0	11,758	10,028	44,361	44,361
85	Winter 2000	60	6,589	1,651	0	5,599	18,359	3,676	0	18,979	9,542	32,198	32,197
86	Spring/Summer 2000	215	53,135	6,712	0	29,861	65,783	114	0	138,722	16,656	155,491	155,492
87	Fall 2000	90	929	2,805	0	13,142	27,538	22,025	0	15,256	7,134	44,414	44,414
88	Winter 2001	60	2,384	1,834	0	7,427	18,177	7,015	0	14,865	7,941	29,821	29,821
89	Spring/Summer 2001	215	37,760	7,116	0	28,558	65,133	236	0	117,635	20,697	138,567	138,568
90	Fall 2001	90	587	2,941	0	12,423	27,265	23,033	0	10,270	9,912	43,216	43,215
91	Winter 2002	60	6,328	1,934	0	6,153	17,534	3,205	0	17,395	11,348	31,949	31,949
92	Spring/Summer 2002	215	57,451	7,630	0	29,445	62,831	83	0	135,321	21,953	157,357	157,357
93	Fall 2002	90	1,192	3,163	0	12,628	26,302	21,656	0	12,051	9,577	43,285	43,284
94	Winter 2003	60	3,691	2,077	0	5,345	16,786	3,983	0	16,066	7,849	27,899	27,898
95	Spring/Summer 2003	215	43,124	7,957	0	30,295	60,152	135	0	123,618	17,775	141,528	141,528
96	Fall 2003	90	960	3,303	0	12,032	25,180	21,049	0	11,744	8,681	41,475	41,475

Table 3. Simulated Water Balance in Each Stress Period

Stress Period	Time Period	Stress Period Length (days)	Storage In (ac-ft)	Constant Heads In (ac-ft)	Wells In (ac-ft)	GHB In (ac-ft)	Recharge In (ac-ft)	Storage Out (ac-ft)	Constant Heads Out (ac-ft)	Wells Out (ac-ft)	GHB Out (ac-ft)	Total In (ac-ft)	Total Out (ac-ft)
97	Winter 2004	60	2,552	2,175	0	5,814	17,229	4,469	0	16,312	6,990	27,770	27,771
98	Spring/Summer 2004	215	40,196	8,137	0	27,664	61,741	177	0	121,133	16,428	137,738	137,737
99	Fall 2004	90	709	3,405	0	11,530	25,844	20,739	0	12,756	7,994	41,488	41,488
100	Winter 2005	60	606	2,238	0	6,282	17,635	9,267	0	11,547	5,947	26,761	26,761
101	Spring/Summer 2005	215	14,642	8,049	0	24,316	63,192	4,056	0	84,688	21,457	110,200	110,201
102	Fall 2005	90	133	3,363	0	10,018	26,453	20,242	0	9,228	10,497	39,967	39,967
103	Winter 2006	60	731	2,232	0	6,447	17,139	7,483	0	12,067	6,999	26,549	26,549
104	Spring/Summer 2006	215	27,789	8,236	0	23,681	61,414	2,026	0	95,121	23,975	121,121	121,122
105	Fall 2006	90	516	3,480	0	10,474	25,709	20,058	0	8,406	11,713	40,178	40,178
106	Winter 2007	60	399	2,303	99	6,449	17,139	6,659	0	11,643	8,088	26,390	26,390
107	Spring/Summer 2007	215	22,909	8,322	356	24,165	61,414	679	0	91,610	24,878	117,166	117,167
108	Fall 2007	90	341	3,450	149	10,228	25,709	20,023	0	8,141	11,711	39,876	39,875
109	Winter 2008	60	97	2,252	115	6,267	17,139	7,401	0	10,022	8,445	25,869	25,869
110	Spring/Summer 2008	215	18,052	7,857	411	22,714	61,414	3,146	0	77,251	30,052	110,449	110,449
111	Fall 2008	90	244	3,280	172	10,034	25,709	18,871	0	7,310	13,258	39,439	39,438
112	Winter 2009	60	323	2,183	0	6,225	17,139	5,976	0	11,064	8,830	25,870	25,869
113	Spring/Summer 2009	215	23,036	7,912	0	23,927	61,414	903	0	87,490	27,896	116,290	116,289
114	Fall 2009	90	366	3,307	0	9,982	25,709	18,741	0	7,655	12,967	39,363	39,363

Specific Comment #7 on Industry Standards

Paragraphs 1 and 2 – Comment relates to discussion that model meets industry standards and that the reviewer believes these are "misleading." Comment noted. All discussions of model calibration are generally subjective and rely on professional judgment to assess whether the model represents known groundwater flow conditions and is suitable for the stated objectives. Because there are no recognized objective standards or guidelines on specific model calibrations, we have cited literature that outlines the nature of how professional judgment may be applied to various model approaches and calibration statistics. We believe that the modeling approach and calibration presented is representative of a general industry standard for groundwater models.

Very truly yours,

Brown and Caldwell

Jeffrey Weaver
Supervising Hydrogeologist

Christopher J. Legg, R.G.
Water Resources Manager

JW/CL:cjr

Attachment A Terranext Comments

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33751
CHRISTOPHER J.
LEGG
Date Signed 6/10/14
ARIZONA U.S.A.
EXPIRES 6/30/2017

Attachment A: Terranext Comments

Janice K. Brewer
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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February 27, 2014 RPU 14:286

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RE: West Van Buren Working Group
Feasibility Study Groundwater Modeling –
West Van Buren Study Area Univar Groundwater Flow Model Update and
Revisions to the West Van Buren Study Working Group Base Groundwater Flow Model

Dear Ms. Clement, Mr. Drazek, Mr. Klein, and Mr. Travers:

The Arizona Department of Environmental Quality (ADEQ) Remedial Projects Unit (RPU) is in receipt of the West Van Buren Working Group's (WVBWG) *West Van Buren Study Area Univar Groundwater Flow Model Update*, dated December 2013 as prepared by Brown and Caldwell, and *Revisions to the West Van Buren Study Working Group Base Groundwater Flow Model*, dated January 22, 2014, as prepared by Haley & Aldrich, Inc. on behalf of the WVBWG. The modeling documents were prepared for the West Van Buren Area (WVBA) Water Quality Assurance Revolving Fund (WQARF) Registry Site as part of the WVBWG regional feasibility study process.

ADEQ's WVBA WQARF Registry Site contractor, Terranext, has completed reviews of both modeling documents. Terranext submitted two letters to ADEQ dated January 15, 2014 and January 31, 2014 regarding the two documents which are enclosed with this letter. ADEQ requests that the WVBWG review and address the comments within the draft Feasibility Study.

If you have any questions or need additional information, please contact me at (602) 771-4293 or by e-mail at lepage.tina@azdeq.gov.

Sincerely,

Tina LePage, Manager
Remedial Projects Section, Waste Programs Division

Enc: Terranext Review Letter dated January 15, 2014
Terranext Review Letter dated January 31, 2014

cc: Laura Malone, ADEQ
Ana Vargas, ADEQ
Danielle Taber, ADEQ

Terranext
4050 E. Cotton Center Blvd., Ste. 73, Phoenix, AZ 85040

Woman-Owned Small Business

COPY

January 15, 2014

Terranext Project No. 03103154

Ms. Danielle Taber
Arizona Department of Environmental Quality
1110 West Washington
Phoenix, Arizona 85007

Re: **Terranext/John J. Ward Comments on Brown and Caldwell December 2013 West Van Buren Study Area Univar Groundwater Flow Model Update**

Dear Ms. Taber:

Terranext and our subcontractor, Mr. John J. Ward, have completed our review of the Brown and Caldwell (B-C) final report on calibration of the West Van Buren Study Area groundwater model[1] (WVBSA model). To facilitate our review, we also briefly read the earlier modeling report by Harding Lawson Associates[2] (HLA), upon which the WVBSA model was based. We did not attempt to independently verify any of the data used for the model or the results.

B-C prepared their report for Univar. Its purpose was to update the existing HLA model, check its calibration using more recent water-level and pumping data, and revise the model calibration as needed to improve or maintain the level of calibration. The updated/revised WVBSA model was prepared for the West Van Buren Working Group for use in assessing Feasibility Study (FS) alternatives.

General Comments

1. Overall, the revised model represents an improvement over the earlier HLA model, both in terms of rediscretization, and of incorporating the new data into the model. Several areas of possible model improvement are identified where additional work is recommended: specific yield and calibration bias; these are discussed in more detail under specific comments. Our comments are intended to be useful going forward. There is no need to revise the current report unless inaccuracies require such revision; model

[1] Brown and Caldwell, 2013, West Van Buren Study Area - Univar Groundwater Flow Model Update, prepared for Univar USA Inc, Nampa Idaho, December 2013 (4 documents).

[2] Harding Lawson Associates, 1997, Groundwater Glow Model, West Van Buren WQARF Study Area, Prepared for Van Waters & Rogers, January 15, 1997.

sensitivity could be evaluated and reported at a later date. During development of FS scenarios, there should be additional opportunity to examine how the model will perform.

2. Univar provided this model to the WVB Working Group. Because WVB Group consultants will likely use this model and may have already contributed to model revisions, the names of primary authors of the report and principal investigators/modelers should be included on the title or signature page. It is also good practice (and may be required) to submit this report under an Arizona professional geologist or engineer seal.

Specific Comments

1. Initial Conditions. The HLA model initial condition was year 1972 and they acknowledged it was a "moving target". HLA began calibration with 1982 water levels, presumably to diminish the effects of not starting from a steady state. However, from Appendix C hydrographs, it appears that B-C began their simulations at the same time, yet used the early data in their calibration statistics. This should be explained in sufficient detail to understand the effects of this initial condition on their results.

2. Layering and Parameterization. Complex K distributions make it difficult to visualize whether limited high K zones in the upper alluvial unit, such as identified in the LFR North Plume remedial investigation[3] ("30-foot thick high permeability sand unit"), exist and are mapped in those K distributions. HLA may not have had this information when they mapped K distributions for their model. This sand layer has been discussed previously, and there may be additional information available that can be accessed to evaluate the existence and possible importance of such a unit (or units). We recommend that additional investigation of well logs and other data be conducted to allow a confident evaluation of the extent of this or similar units.

   Figure 2-8 shows that a significant increase in agricultural recharge occurs beginning in 1992; the original HLA model period ended in 1991. There's no discussion in Section 2.3.3 explaining this sudden increase other than stating that the post 1991 data was taken from ADWRs SRV model; there should be a discussion of this discrepancy.

3. Calibration Targets. Although 2176 water levels were available, more than a third of them came from a single well, #63. In Appendix C for this well, it appears there were (roughly) 700 measurements from this well over a two year period. Assuming a ten day time step, as many as ten measurements per simulated head would most likely result in a significant bias in the calibration statistics. B-C should evaluate how this single well or time period affects overall calibration statistics. Data culling or resampling techniques should be considered to evaluate the skew from these water levels (and those from other wells).

[3] LFR, Inc., 2009, Final Remedial Investigation Report, West Central Phoenix North Plume Site, Phoenix AZ, submitted to Arizona Department of Environmental Quality, January 2009.

Hydrographs in Appendix C and Table 3-1 show and list 63 wells. Figure 3-1, however, shows at least 67 wells. If there are four additional calibration target wells, they should be included.

It appears that about two-thirds of the wells shown in Appendix C have ten or fewer years of data, and no wells have water levels spanning the entire simulation period. Comparison of the numbers of wells with the HLA model reveals that the earlier model had 100 water level measurements for the 1982 calibration date, and 135 for the 1992 calibration date. We did not do a well-by-well comparison, but if the number of wells has been reduced in the new model, the rationale for this should be explained.

4. Specific yield. It would be useful to cite measurements or studies that support the range of specific yields used in the model. We could not find a description of layer definitions, but assume the top layer is unconfined and lower layers are confined or convertible. It is confusing, therefore, why specific yield was changed for any but the upper layer. If layer 1 becomes dry during the simulation, then such should be noted on simulated water level maps. If not, then the impact (or lack thereof) from lowering of specific yields in layers 2-4 should be discussed.

   It would also be useful to have a table listing how the calibration statistics were improved by reducing Sy, and whether changing Sy in any but the top layer of the model affected results (i.e., a sensitivity analysis).

   The halving of the specific yields from the HLA values may be reasonable to the modeler, however, the decision should be rationalized using site specific or published data based on similar geologic characteristics. Other options besides reducing Sy should be discussed, including changing K, effects of model cell size on simulated well response, and effects of local recharge. The modeler needs to consider the effects of correlated parameters on these calibration results.

   The Sy values will undoubtedly be a sensitive parameter in the upcoming simulations of various FS pumping scenarios. Everything else being equal, reducing Sy values will result in an expanded simulated capture envelope from pumping wells. In our experience, Sy values used by HLA fit a normal range for this parameter and halving them places Sy values at the low end of the normal range. Thus, using this model for predictive simulations using capture from pumping wells may show optimistic capture envelopes. We encourage B-C to continue refining or justifying Sy using available site specific data (e.g., long term pumping tests, soils testing).

5. General Head Boundaries. Stipulation of a head function along model boundaries (i.e., transient reference heads for GHBs) will have the effect of pre-determining simulated transient water levels within the model domain in the vicinity of those boundaries. Well ADEQ_CC-3, nearly on the model boundary, is a prime example of water levels stipulated by GHB conditions. Other calibration target wells may be similarly influenced depending on distance from the boundaries. In these instances calibration statistics will be biased in that there is an additional factor influencing those statistics unrelated to

model aquifer properties. One of the appreciated features of Groundwater Vistas software is that calibration statistics are automatically computed with each run. However, it is incumbent on the modeler to choose those targets so that they are an appropriate gauge of model calibration. Those wells in proximity to stipulated water levels are likely not good candidates for calibration targets.

Perhaps more importantly, this GHB stipulation will also become an issue during predictive simulations of FS remedial alternatives. This is because the modeler will have to either keep the GHB heads constant (probably the preferred alternative) or the modeler will have to generate some future time series for the GHB heads, thus incorporating additional uncertainty into the predictive results.

Additionally, with respect to model boundary conditions, the second paragraph of Section 1.1.3 states that groundwater is assumed to flow east to west and not be affected by changes in flow (southern boundary of model west of no-flow bedrock, Figure 1-5); this assumption is carried forward in Figure 2-9. Within this area, the Gila River flows northwestward to the confluence with the Salt River, and groundwater may also flow in a similar direction in this area. Groundwater flow direction in this area should be evaluated to confirm the assumed model boundary conditions.

6. Calibration Results. Modeling guidelines cited in the B-C report describe various ways to display spatial and temporal results, including head contour maps, residual maps, and various sensitivity graphs. Residual maps for selected model time steps would have been of interest as there is no feasible way of understanding any spatial context in Appendix C hydrographs.

   Several of the hydrographs in Appendix C show significant scatter of measured data above and below the simulated line, and a number of others show simulated values significantly below the measured data (mostly data from about 2004 on). It may be construed from this comparison that the model does not perform as well for later times. It may be useful to look at the mean absolute error (MAE, or absolute value of the residual) for these time segments to verify model performance, or confirm that the model may need some improvement in this time segment.

   For the various model runs, model-area mass balances should have been provided, including fluxes across GHBs and constant heads, pumping, recharge, etc. Information on time step size, closure criterion, and mass balance error should also be provided. MAE should be calculated as part of the analysis. The modelers may find it useful to calculate calibration statistics for specific time segments, for example, simulation results for 2000 - 2009. This may allow identification of whether calibration results for specific data sets are different from the entire data set.

   Some sort of model sensitivity analysis is also needed. With the complex K distribution for each layer, this becomes a real issue, as traditional methods of adjusting a limited number of parameter zones does not appear to be applicable in this case. We do not recommend blanket K adjustment unless residual maps are used to identify those areas

(or K zones) which have improved or degraded calibration results. Finally, factors affecting model uniqueness and level of confidence should be identified and discussed.

7. Industry Standards. B-C's opinion (Sections 1.1.7 and 3.5) that their calibration results were consistent with or met or exceeded "widely recognized industry standards for calibration" (three citations given) is somewhat misleading. The cited guidelines do not provide quantitative numeric calibration standards; to the contrary, the guides reject such standards (e.g., Australian Groundwater Modeling Guidelines: "The guidelines should be seen as a point of reference and not as a rigid standard.") Similarly, the ASTM definition of *Standard Guide* is "an organized collection of information or series of options that does not recommend a specific course of action". Anderson and Woessner, although providing detailed and practical discussion of the calibration process, does not advocate for particular performance standards and is but one of a number of textbooks on the subject.

   Furthermore, some calibration practices mentioned in these guidelines were not utilized (e.g., parameterization tests, sensitivity analysis), and others may not have acknowledged the caveats in the guidelines (e.g., transient GHB conditions). To opine that the results met or exceeded the guidelines opens one up to additional criticism of those results. We recommend that rather than using these generalized and optimistic statements, the authors either state which specific guidelines were followed (and which were not), or simply cite the appropriate authority/guideline for particular calibration procedures.

Closure

These comments are intended to be useful going forward. We recommend supplemental analysis in specific areas; however, there is no need to revise the current report unless inaccuracies require such revision. Model sensitivity could be evaluated and reported at a later date. During development of FS scenarios, there should be additional opportunity to examine how the model will perform.

Sincerely,

TERRANEXT

Arthur J. Gordon
Manager, Arizona Office

JOHN J. WARD, R.G.

REGISTERED GEOLOGIST
CERTIFICATE NO. 18425
JOHN J. WARD
Date Signed 1/15/14
ARIZONA U.S.A.
Expires 12/31/2016

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TECHNICAL MEMORANDUM

22 January 2014
File No. 37503-103

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Date Signed 01/22/14
ARIZONA, U.S.A.
Expires 06/30/16

TO: Ms. Gail Clement, G.M. Clement & Associates, Inc.
Mr. Bruce Travers, Geosyntec Consultants
Mr. Joe Drazek, Quarles & Brady LLP
Mr. Christopher Thomas, Squire, Sanders & Dempsey L.L.P.

FROM: Eric Pigati, Haley & Aldrich, Inc.

SUBJECT: Revisions to the West Van Buren Feasibility Study Working Group Base Groundwater Flow Model

Pursuant to your request, Haley & Aldrich, Inc. (Haley & Aldrich) prepared this technical memorandum to summarize the revisions made to the West Van Buren (WVB) Feasibility Study (FS) Working Group Base Groundwater Flow Model (Base Model). This technical memorandum only provides detail of the revisions made to the Base Model, and therefore assumes that the reader has knowledge of the Base Model construction provided in "West Van Buren Study Area: Univar Groundwater Flow Model Update" prepared by Brown and Caldwell on behalf of Univar USA Inc. and dated December 2013.

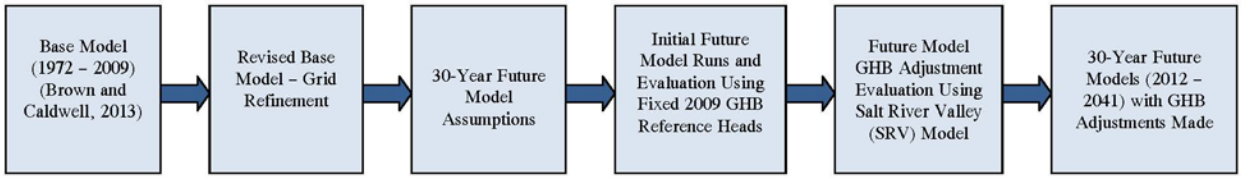
INTRODUCTION

The goal of the Base Model revisions was to improve the simulation of groundwater flow conditions over the entire WVB Water Quality Assurance Revolving Fund (WQARF) Site (WVB Site) to support the evaluation of WVB FS remedial alternatives under a range of potential future pumping scenarios[1].

This goal was accomplished, while maintaining the integrity of the Base Model, by: (1) refining the model grid discretization over the footprint of the WVB Site plume; (2) constructing three, 30-Year Future Models using potential future pumping scenarios; and, (3) adjusting the General Head Boundary (GHB) conditions for the 30-Year Future Models to improve the simulation of groundwater flow conditions that might result from a decrease or cessation of irrigation pumping within the model area, should changes in pumping occur.

The overall Base Model chronology is provided in the following flow chart and a discussion of each item provided below.

[1] Conceptual FS remedial alternatives are currently in development, and the modeling process will be ongoing during preparation of the final FS alternatives.



BASE MODEL

The 1972 to 2009 updated Univar Model was provided to the WVB FS Working Group to be used as the Base Model to develop potential future pumping scenarios to evaluate FS remedial alternatives. Details of the updated Univar Model, including recent improvements to the pumping well database, are described in the "West Van Buren Study Area: Univar Groundwater Flow Model Update Report" (Brown and Caldwell, 2013). Haley & Aldrich initially reviewed the Base Model construction and inputs during a WVB FS Working Group meeting presented by the Univar modelers, with subsequent review support from the Univar modelers following the meeting. Several model updates were conducted by the Univar modelers during this collaborative model review process, such as updates to the well database, as detailed in the 2013 Brown and Caldwell report. The model construction, model inputs, and calibration data presented in the Brown and Caldwell report were reviewed by Haley & Aldrich, and it was concluded that the model is adequately constructed and calibrated to use as a Base Model to conduct a comparative analysis of future FS alternatives.

REVISED BASE MODEL – GRID REFINEMENT

The cell sizes of the Base Model grid consisted of 100 x 100 foot spacing in the central portion of the model area, expanding out to 1000 x 1000 feet at the edges of the model grid. For the Revised Base Model, the 100 x 100 foot model grid was expanded to cover a larger portion of the WVB Site (Figure 1).

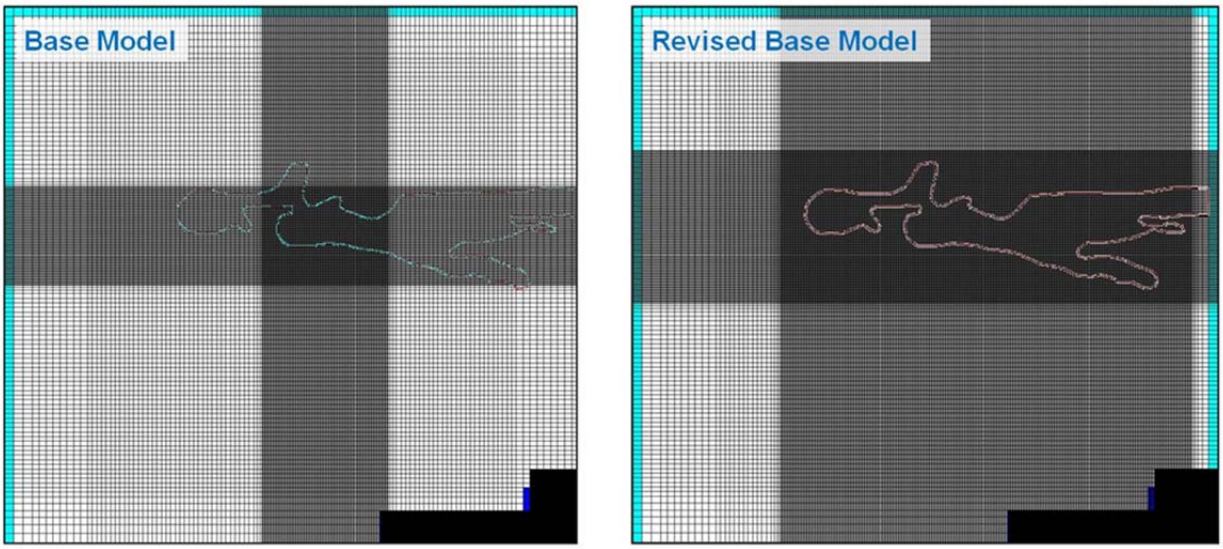


Figure 1: Model Grid Spacing in Base Model and Revised Base Model. Also Shown for Reference is the Approximate Combined Footprint of TCE and PCE Greater than 5 Micrograms per Liter (μg/L) in Upper Alluvial Unit 1 (UAU1) Groundwater (2011 ADEQ Water Quality Data).

The purpose of the grid refinement was to better simulate groundwater flow conditions within the overall plume footprint within the WVB Site, as refinement of the grid spacing reduces spatial averaging of groundwater flux and head conditions within the model domain, allows for a more refined simulation of drawdown around pumping wells, and results in improved accuracy of particle tracking and capture zone analysis.

The grid refinement resulted in an increase of the number of model grid cells from 196 x 226 (176,176 active cells), to 242 x 480 (459,888 active cells). The Revised Base Model still has four layers, as there were no changes made to the Base Model layer designations. During grid refinement, the additional model cells were created by horizontally subdividing existing larger model cells into smaller cells, with no change in the number of model layers. As anticipated, this adjustment did not result in changes to distribution or location of model properties, boundary conditions, or wells, and did not have any apparent effect on the Base Model calibration based on a visual comparison of groundwater head contour maps from both models.

During this process, cell discretization was adjusted around the edge of the area of 100 x 100 foot cells so that changes in row or column widths did not exceed 50 percent between any two adjacent rows or columns. This restriction in row and column size adjustments is standard modeling practice that minimizes the potential for numerical instability (Anderson and Woessner, 1992; Zheng and Bennett, 1995).

30-YEAR FUTURE MODEL ASSUMPTIONS

The Revised Base Model was then used to create three "30-Year Future Models" (2012 through 2041) to be used in comparative studies for the WVB FS. All three 30-Year Future Models use the Revised Base Model, with model inputs such as GHB reference heads[2], annual recharge, and seasonal well production rates from the final Base Model year (2009) repeated unchanged for 30 years (2012 through 2041), but with differing projected future pumping scenarios for Roosevelt Irrigation District (RID), Salt River Project (SRP), and City of Phoenix (COP), as discussed below.

- RID seasonal pumping rates were taken from RID's "Modified Early Response Action Proposal" prepared by Synergy Environmental LLC and dated 17 July 2012, which provided pumping data (in gallons per minute) for the 32 RID wells within and adjacent to the WVB Site (RID-83 through RID-114)[3].

- COP and SRP provided the WVB FS Working Group their projected 2012 through 2041 pumping rates for production wells located in the vicinity of the WVB Site.

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[2] Evaluation of initial Future Model runs indicated that the GHBs would require adjustment to accommodate potential reduction or cessation of irrigation pumping within the model domain; these GHB adjustments are described in subsequent sections of this memo.

[3] While RID's "Early Response Action Work Plan" dated 03 February 2010 includes proposed year-round pumping at select RID wells, the 30-Year Future Models assume that pumping at RID-83 through RID-114 will remain seasonal, based on continued current seasonal pumping of RID wells, including those wells proposed for year-round pumping in the ERA Work Plan.

Proposed RID, SRP, and COP well-by-well pumping rates for the three 30-Year Future Models, including data sources and assumptions, are provided in the attached Tables 1 through 3. All three future pumping scenarios consist of COP pumping a constant 7,500 acre-feet per year (AFY) from 2012 through 2041 and SRP pumping increasing at a linear rate from 25,000 AFY in 2012 to 35,000 AFY in 2035 and then remaining constant at 35,000 AFY from 2036 through 2041. Note that the Future Model does not account for potential future changes in pumping outside of the model domain.

The following potential future RID pumping for three future scenarios was developed to evaluate the potential influence of long-term, regional changes in irrigation pumping during comparative analysis of FS remedial alternatives:

- Scenario 1: RID wells pumping at the current rate of 75,000 AFY[4] through 2025 (14 years) and then RID wells within the Salt River Reservoir District (SRRD) are turned off from 2026[5] through 2041 (16 years).
- Scenario 2: RID wells pumping at the current rate of 75,000 AFY until the end of 2025 (14 years) and then RID production within the SRRD reduced to 40,000 AFY[6] from 2026 through 2041 (16 years).
- Scenario 3: RID wells pumping at the current rate of 75,000 AFY until the end of 2041 (30 years).

Note that all of these assumptions described above are base assumptions for use in comparative analyses of remedial alternatives, subject to sensitivity analysis or further model refinement during the FS process.

INITIAL FUTURE MODEL RUNS USING 2009 FIXED REFERENCE HEADS

During the initial runs and evaluation of the Future Model, using fixed 2009 reference heads resulted in GHB boundary effects during the period of decreased RID pumping, due to the long-term, regional influence of irrigation pumping during the Base Model calibration period of 1972-2009 (i.e., a significant reduction in irrigation pumping did not occur during this calibration time period).

The evaluation indicated that using fixed 2009 reference heads did not allow the GHBs to adjust upwards to accommodate a regional water table rise following a decrease or cessation of irrigation pumping within the model domain. The Future Model GHBs therefore required adjustment using the following methodology to capture the effects of regional impacts on groundwater levels resulting from

[4] Total of 75,000 AFY is from 32 RID wells within and adjacent to the WVBA WQARF site (i.e., RID-83 though RID-114). For other RID wells within the Base Model domain, 2006 pumping rates from the Salt River Valley (SRV) model database (i.e., the latest SRV model year) were used.

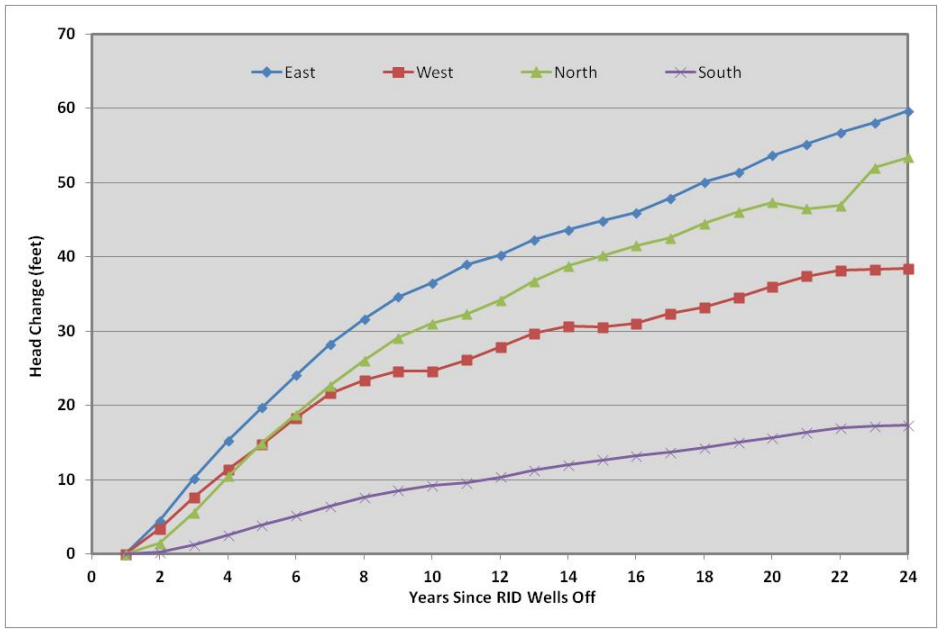
[5] According to SRP, the 1920 agreement and subsequent supplemental agreements with Carrick-Mangham and RID will expire in 2026 (SRP, 2009).

[6] Pumping rate provided by SRP, as a means to evaluate a potential future pumping scenario with reduced RID pumping.

the cessation of RID pumping[7].

FUTURE MODEL GHB ADJUSTMENT EVALUATION USING THE SRV MODEL

To assess the potential effect on groundwater heads in the vicinity of the Future Model boundaries due to reduction or cessation of RID production within the SRRD, the current Salt River Valley (SRV) Model (Arizona Department of Water Resources, 2009) was run as-is, but with RID production wells within the SRRD turned off from 1983 through 2006 (last 24 years of the SRV Model[8] simulated period). An indication of the changes in heads within the SRV Model at the approximate location of the Future Model boundaries and following cessation of RID pumping is provided on Graph 1. The results indicate that the rebound in groundwater elevations following the cessation of RID well pumping will propagate out to the boundaries of the Future Model, with head changes ranging up to 60 feet at the boundaries.



Graph 1: Difference in Groundwater Heads Between SRV Model Runs (1982-2006), With and Without RID Wells Pumping, at the Approximate Midpoint of the North, South, East, and West Base Model Boundaries.

[7] Note that model calibration only applies to the 1972-2009 Base Model (Brown and Caldwell, 2013), where modeled heads can be compared and calibrated against observed heads for the model time period. The concept of model calibration therefore does not apply to the Future Model calculated heads. The GHB adjustments made to the Future Model described below therefore do not affect the Base Model calibration. The Future Model simply uses the calibrated Base Model as a tool to simulate the effects of potential future pumping scenarios for purposes of comparative analysis of FS remedial alternatives.

[8] The initial Future Model period was 24 years (later expanded to 30 years), thus the last 24 years of the SRV model were used during the initial GHB assessment.

30-YEAR FUTURE MODELS WITH GHB ADJUSTMENTS

The results of this initial assessment indicated that the 30-Year Future Model would require GHB adjustment for scenarios involving a decrease or cessation of RID pumping to better simulate the effects of potential future changes in irrigation pumping on future groundwater elevations within the model domain. The adjustments allow the GHBs to "float" in order to accommodate a potential regional rise in water levels not observed during the Base Model calibration period of 1972 through 2009.

To accommodate this potential regional head response, the SRV Model was run for 16 years with the same proposed RID pumping rates (2026 through 2041) as Future Scenarios 1, 2, and 3. SRV Model years 1987 through 2002 (i.e., 16 years) were selected because this time period represents the most recent conditions in the SRV model with reliable recharge (see Section 2.3.3 in Brown & Caldwell, 2013).

Groundwater head observation locations were imported into the SRV Model at the location of the center of each GHB cell in the 30-Year Future Model (Figures 2 and 3) to extract the appropriate simulated groundwater levels from SRV Model output.

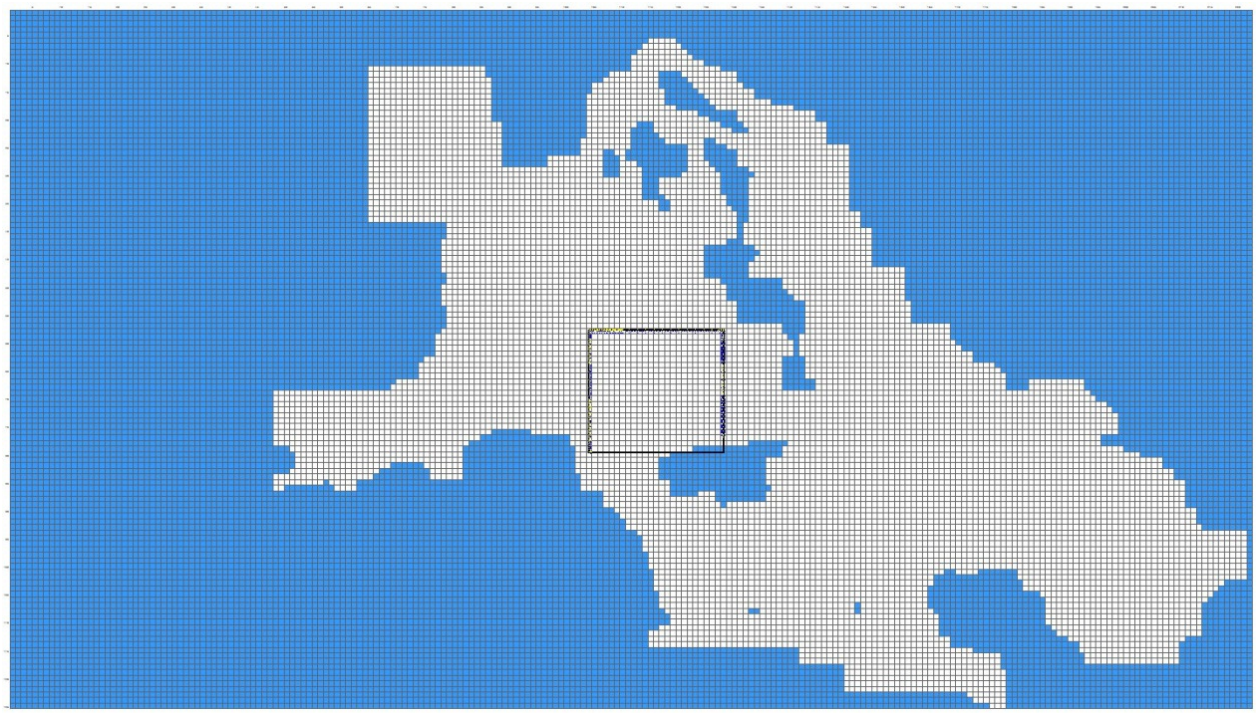


Figure 2: SRV Model Domain – Smaller Square within the Domain Represents Head Observation Locations Along the Boundaries of the 30-Year Future Model. See Figure 3 for Expanded View.

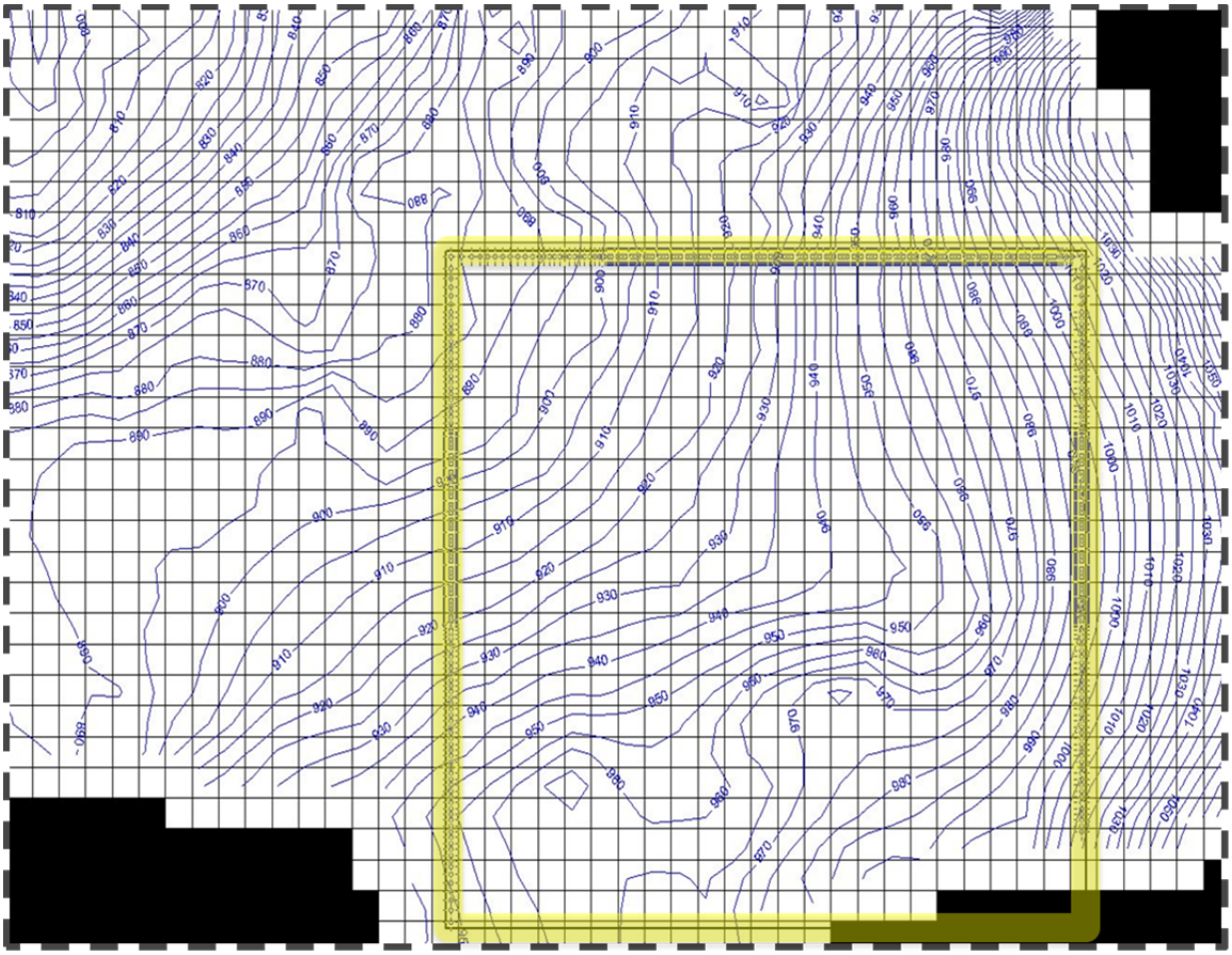
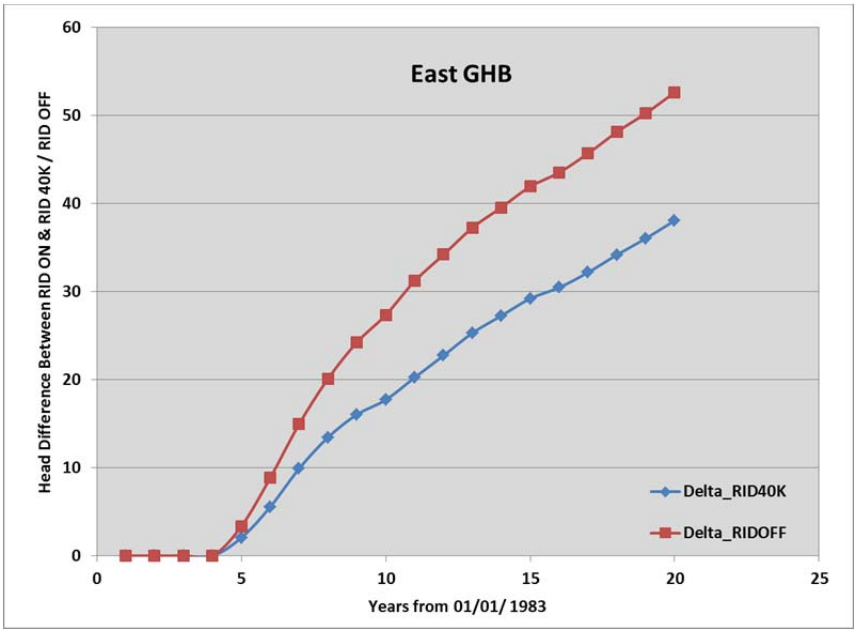


Figure 3: Expanded View of Head Observation Locations (in Yellow) Along the Boundaries of the 30-Year Future Model within a Subset of the SRV Model Domain.

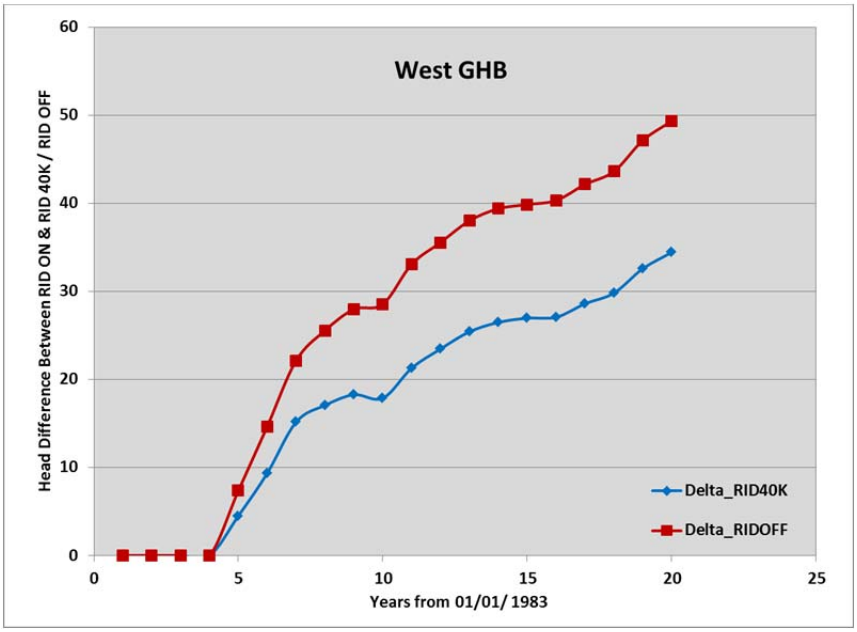
After the SRV Model was run for future pumping Scenarios 1, 2, and 3, the heads for each model stress period[9] (one year in the SRV Model) for each head observation location were exported and the head differences between Scenarios 3 and 1 and Scenarios 3 and 2 were calculated. These head differences were then used to adjust the reference heads in the GHBs for those 30-Year Future Models that included a decrease or cessation of RID pumping.

Examples of the head differences over 20 years (four years without any changes to the RID pumping, followed by 16 years with RID pumping reduced to 40,000 AFY or RID pumping off) at the midpoint of the eastern, western, and northern Future Model GHBs, are shown in Graphs 2a, b, c, respectively.

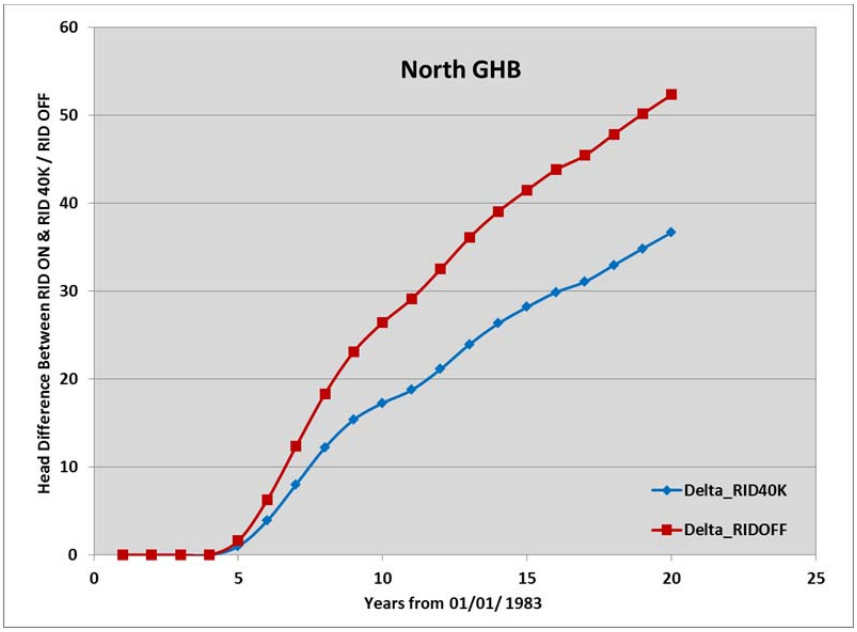
[9] The computational time intervals within a groundwater flow model are called "stress periods".



Graph 2a: Difference in Groundwater Heads (in feet) Over 20 Years (Four Years Without Any Changes to RID Pumping, Followed by 16 years with RID Pumping Reduced to 40,000 AFY or RID Pumping Off), at the Approximate Midpoint of the Future Model Eastern Boundary.



Graph 2b: Difference in Groundwater Heads (in feet) Over 20 Years (Four Years Without Any Changes to RID Pumping, Followed by 16 years with RID Pumping Reduced to 40,000 AFY or RID Pumping Off), at the Approximate Midpoint of the Future Model Western Boundary.



Graph 2c: Difference in Groundwater Heads (in feet) Over 20 Years (Four Years Without Any Changes to RID Pumping, Followed by 16 years with RID Pumping Reduced to 40,000 AFY or RID Pumping Off), at the Approximate Midpoint of the Future Model Northern Boundary.

CONCLUSIONS

The data presented in Graphs 2a, b, and c demonstrate the effect of a potential reduction or cessation of RID pumping within the 30-Year Future Model domain, with a groundwater head rise of up to 50 feet or more at the model boundaries over a period of 16 years following a change in pumping.

The use of the regional SRV Model to estimate groundwater head responses at the boundaries of the smaller 30-Year Future Model, in response to potential reductions in future irrigation pumping, reduces the boundary effects of the 30-Year Future Model on the simulation of groundwater conditions in the vicinity of the WVB Site. This improves the 30-Year Future Model's use as a tool to compare FS remedial alternatives under a range of potential future pumping scenarios, subject to sensitivity analysis or further model refinement during the FS process.

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ATTACHMENTS

Table 1 – Future Model 1 (RID OFF) - Well by Well Pumping Rates
Table 2 – Future Model 2 (RID 40K AFY) - Well by Well Pumping Rates
Table 3 – Future Model 3 (RID 75K AFY) - Well by Well Pumping Rates

TABLE 1
FUTURE MODEL 1 (RID OFF) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
SRP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
SALT RIVER PROJECT	608377	10.5E 7.5N	395528.67	3705815.30	901.17	431.17	531	539	547	555	563	571	580	588	597	606	614	624	633	642	651	661	671	680	690	700	711	721	732	742	742	742	742	742	742	742
SALT RIVER PROJECT	617850	11.2E 7.7N	396542.38	3706009.80	912.71	627.71	337	342	347	352	357	363	368	373	379	384	390	396	402	407	413	419	426	432	438	445	451	458	464	471	471	471	471	471	471	471
SALT RIVER PROJECT	608378	11.8E 2.0N	397278.92	3697039.23	852.00	467.00	329	334	339	344	349	354	359	364	370	375	380	386	392	397	403	409	415	421	427	434	440	446	453	460	460	460	460	460	460	460
SALT RIVER PROJECT	214512	12.1E-8.9N	397932.14	3708218.84	1178.00	-666.00	128	130	132	134	136	138	140	142	144	146	149	151	153	155	157	160	162	164	167	169	172	174	177	179	179	179	179	179	179	179
SALT RIVER PROJECT	617851	12.5E 0.6S	398334.15	3692796.40	985.00	855.00	182	184	187	190	193	196	198	201	204	207	210	213	217	220	223	226	229	233	236	240	243	247	250	254	254	254	254	254	254	254
SALT RIVER PROJECT	626564	12.8E 0.3N	399074.65	3694000.81	917.44	507.44	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	607729	13.0E 0.1S	399137.66	3693597.01	985.00	755.00	573	581	590	598	607	616	625	634	643	653	662	672	682	692	702	712	723	733	744	755	766	777	789	800	800	800	800	800	800	800
SALT RIVER PROJECT	608379	13.0E 8.6N	399481.53	3707635.18	917.00	717.00	210	213	216	220	223	226	229	233	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	294	294	294	294	294	294
SALT RIVER PROJECT	608422	14.0E 8.5N	401057.76	3707527.59	974.00	724.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607718	2.0E 5.0N	381839.75	3701828.55	908.00	508.00	590	599	608	617	626	635	644	654	663	673	683	693	703	713	724	734	745	756	767	778	790	801	813	825	825	825	825	825	825	825
SALT RIVER PROJECT	608407	2.0E 7.0N	381741.88	3705167.14	848.00	428.00	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	587	596	605	614	623	632	641	650	660	660	660	660	660	660	660
SALT RIVER PROJECT	617100	2.0E 8.0N	381763.14	3706778.75	882.00	484.00	567	575	583	592	601	609	618	627	637	646	655	665	675	685	695	705	715	726	736	747	758	769	780	792	792	792	792	792	792	792
SALT RIVER PROJECT	608437	2.0E 8.5N	381758.68	3707541.77	887.00	552.00	505	513	520	528	536	543	551	560	568	576	584	593	602	611	619	629	638	647	657	666	676	686	696	706	706	706	706	706	706	706
SALT RIVER PROJECT	608356	2.0E 9.0N	381779.35	3708396.91	819.00	494.00	498	506	513	521	528	536	544	552	560	568	577	585	594	602	611	620	629	638	648	657	667	677	686	697	697	697	697	697	697	697
SALT RIVER PROJECT	523773	2.3E 1.3N	382003.17	3695782.78	882.50	795.00	699	709	720	730	741	752	763	774	785	797	808	820	832	844	857	869	882	895	908	921	935	949	963	977	977	977	977	977	977	977
SALT RIVER PROJECT	607695	2.3E 1.3N	382113.56	3695900.96	914.00	812.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	586184	3.0E 1.0N	383224.81	3695392.38	800.00	738.00	876	889	902	915	929	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1172	1189	1206	1224	1224	1224	1224	1224	1224	1224
SALT RIVER PROJECT	607694	3.0E 1.0N	383316.74	3695354.17	816.00	716.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608427	3.0E 2.3N	383266.61	3697335.68	801.00	421.00	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	608436	3.0E 4.0N	383423.78	3700411.93	617.00	340.00	751	762	773	784	796	808	819	831	844	856	868	881	894	907	921	934	948	962	976	990	1004	1019	1034	1049	1049	1049	1049	1049	1049	1049
SALT RIVER PROJECT	608358	3.0E 8.0N	383301.35	3706683.70	1022.00	521.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
SALT RIVER PROJECT	608410	3.0E 8.9N	383320.65	3708095.31	1010.00	63.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607735	3.5E 6.0N	384189.76	3703471.73	829.00	429.00	451	458	465	471	478	485	492	500	507	514	522	530	537	545	553	561	570	578	586	595	604	612	621	631	631	631	631	631	631	631
SALT RIVER PROJECT	608362	4.0E 4.2N	384988.69	3700741.34	520.00	220.00	375	381	387	392	398	404	410	416	422	428	434	441	447	454	460	467	474	481	488	495	502	510	517	525	525	525	525	525	525	525
SALT RIVER PROJECT	608393	4.0E 8.0N	385125.27	3706864.00	1044.00	366.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
ROUSSEAU, DAVID	607728	4.0E-5.0N	384977.23	3702126.41	740.00	195.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	607698	4.8E 0.0N	386193.44	3693790.59	782.00	497.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608371	5.0E 2.3N	386339.92	3697532.91	946.00	845.00	708	719	729	740	751	762	773	784	796	808	819	831	844	856	868	881	894	907	920	934	948	961	976	990	990	990	990	990	990	990
SALT RIVER PROJECT	617112	5.0E 4.5N	386483.06	3701348.36	731.00	231.00	543	551	559	567	576	584	593	601	610	619	628	637	647	656	666	676	685	695	706	716	726	737	748	759	759	759	759	759	759	759
SALT RIVER PROJECT	608388	5.0E 6.0N	386465.90	3703673.67	951.00	391.00	827	839	851	863	876	889	902	915	928	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1155	1155	1155	1155	1155	1155
SALT RIVER PROJECT	608389	5.0E 7.5N	386507.19	3705880.09	774.00	374.00	455	461	468	475	482	489	496	503	511	518	526	533	541	549	557	565	574	582	591	599	608	617	626	635	635	635	635	635	635	635
SALT RIVER PROJECT	608392	5.0E 8.3N	386521.09	3707084.90	938.00	389.00	603	612	621	630	639	649	658	668	678	688	698	708	718	729	740	750	761	773	784	795	807	819	831	843	843	843	843	843	843	843
SALT RIVER PROJECT	209184	5.0E 8.9N	386739.48	3708284.32	665.31	530.31	277	282	286	290	294	298	303	307	312	316	321	326	330	335	340	345	350	355	361	366	371	377	382	388	388	388	388	388	388	388
SALT RIVER PROJECT	608408	5.0E 9.0N	386667.94	3708416.05	795.00	315.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608391	5.5E 8.5N	387334.49	3707691.41	1073.00	286.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	608368	5.8E 2.8N	387965.73	3698707.43	871.00	461.00	397	403	408	414	420	427	433	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	554	554	554	554	554	554
SALT RIVER PROJECT	578740	6.0E 0.9N	388034.64	3695267.29	890.00	550.00	508	515	523	530	538	546	554	562	570	579	587	596	605	613	622	631	641	650	660	669	679	689	699	709	709	709	709	709	709	709
SALT RIVER PROJECT	608384	6.0E 6.4N	388091.11	3704278.58	1012.00	362.00	773	784	795	807	819	831	843	855	868	881	894	907	920	933	947	961	975	989	1004	1019	1034	1049	1064	1080	1080	1080	1080	1080	1080	1080
SALT RIVER PROJECT	608385	6.0E 8.3N	388324.80	3707096.11	899.00	494.00	368	374	379	385	390	396	402	408	414	420	426	432	439	445	452	458	465	472	479	486	493	500	507	515	515	515	515	515	515	515
SALT RIVER PROJECT	626587	6.3E 8.0N	388604.97	3706776.96	646.44	-502.56	272	276	280	284	288	292	296	301	305	310	314	319	323	328	333	338	343	348	353	358	363	369	374	379	379	379	379	379	379	379
SALT RIVER PROJECT	607697	7.0E 1.0N	389727.10	3695346.54	866.00	434.00	915	928	942	956	970	984	998	1013	1028	1043	1058	1074	1090	1105	1122	1138	1155	1172	1189	1206	1224	1242	1260	1279	1279	1279	1279	1279	1279	1279
SALT RIVER PROJECT	608386	7.0E 3.0N	389589.84	3698858.93	903.00	228.00	874	887	900	913	926	940	953	967	982	996	1011	1025	1040	1056	1071	1087	1103	1119	1135	1152	1169	1186	1203	1221	1221	1221	1221	1221	1221	1221
SALT RIVER PROJECT	607727	7.0E 6.8N	389661.22	3704682.18	904.27	543.27	720	731	741	752	763	775	786	797	809	821	833	845	858	870	883	896	909	922	936	949	963	977	992	1006	1006	1006	1006	1006	1006	1006
SALT RIVER PROJECT	608387	7.0E 7.8N	389811.32	3706377.60	938.98	398.98	613	622	631	640	649	659	669	678	688	698	709	719	730	740	751	762	773	785	796	808	820	832	844	856	856	856	856	856	856	856
SALT RIVER PROJECT	607674	7.0E 9.0N	389717.31	3708509.82	940.55	780.55	220	224	227	230	234	237	240	244	248	251	255	259	262	266	270	274	278	282	286	290	295	299	303	308	308	308	308	308	308	308
SALT RIVER PROJECT	607675	7.5E 7.5N	390607.29	3706026.91	900.00	420.00	579	587	596	604	613	622	631	641	650	659	669	679	689	699	709	720	730	741	752	763	774	785	797	808	808	808	808	808	808	808
SALT RIVER PROJECT	578323	7.9E 1.0N	391252.97	3695244.30	860.00	510.00	638	647	656	666	676	686	696	706	716	727	737	748	759	770	782	793	805	816	828	841	853	865	878	891	891	891	891	891	891	891
SALT RIVER PROJECT	607696	8.0E 1.0N	391252.97	3695244.30	863.00	525.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	607736	8.0E 6.5N	391275.04	3704257.08	896.43	481.43	809	821	833	845	857	870	883	895	909	922	935	949	963	977	991	1006	1021	1036	1051	1066	1082	1098	1114	1130	1130	1130	1130	1130	1130	1130
SALT RIVER PROJECT	608372	8.0E 8.5N	391330.12	3707672.61	1063.59	423.59	392	398	403	409	415	421	427	434	440	447	453	460	466	473	480	487	494	502	509	516	524	532	539	547	547	547	547	547	547	547
SALT RIVER PROJECT	608374	8.5E 7.5N	392105.64	3706053.80	848.39	418.39	352	357	362	368	373	378	384	390	395	401	407	413	419	425	431	438	444	451	457	464	471	478	485	492	492	492	492	492	492	492
SALT RIVER PROJECT	617848	9.5E 1.0S	393527.81	3692210.78	1002.00	377.00	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	588	596	605	614	614	614	614	614	614	614
SALT RIVER PROJECT	608381	9.5E 7.7N	393913.35	3706233.60	887.67	422.67	484	491	498	506	513	521	528	536	544	552	560	568	576	585	593	602	611	620	629	638	648	657	667	676	676	676	676	676	676	676
						TOTALS	**25063**	**25430**	**25803**	**26181**	**26565**	**26954**	**27349**	**27749**	**28156**	**28568**	**28987**	**29411**	**29842**	**30280**	**30723**	**31173**	**31630**	**32093**	**32563**	**33041**	**33525**	**34016**	**34514**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**

TABLE 1
FUTURE MODEL 1 (RID OFF) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
RID WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
ROOSEVELT IRRIGATION DISTRICT	607227	RID-83	385750.85	3701489.54	857.61	237.61	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607226	RID-84	387678.2	3701167.33	906.27	518.27	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607225	RID-85	388123.3	3700441.05	894.57	347.57	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607224	RID-86	388919.67	3699934.42	975.55	742.55	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607223	RID-87	390490.48	3699540.37	959.69	554.69	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607222	RID-88	391269.13	3699558.09	868.63	-751.37	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607221	RID-89	391342.15	3700727.81	863.47	-726.53	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607220	RID-90	392145.4	3699508.58	922.64	586.64	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607219	RID-91	392946.16	3699533.51	959.56	591.56	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607218	RID-92	392956.42	3700721.12	868.82	560.82	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607217	RID-93	393734.22	3699536.91	928.83	607.83	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607216	RID-94	394549.27	3699884.27	959.76	632.76	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607215	RID-95	394577.74	3700721.82	874.05	-720.95	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607214	RID-96	394686.76	3699036.7	918.87	253.87	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607213	RID-97	395306.39	3698844.8	842	-746	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607212	RID-98	396161.57	3698652.07	848.42	-616.58	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607211	RID-99	396121.27	3699878.13	980.55	650.55	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607210	RID-100	396149.98	3700673.1	1006.17	771.17	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607209	RID-101	396944.34	3698711.78	940	660	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607196	RID-102	397333.97	3699861.41	970.12	641.12	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607208	RID-103	397718.47	3699055.63	978.01	638.01	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607207	RID-104	397891.83	3699860.83	958	688	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607206	RID-105	386521.94	3702014.95	953.61	525.61	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607205	RID-106	388221.66	3701976.96	961.62	265.62	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607204	RID-107	389737.01	3701943.81	849.69	645.69	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607203	RID-108	390500.46	3701908.63	992.6	784.6	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607202	RID-109	391360.3	3701904.8	918.01	664.01	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607201	RID-110	392673.34	3701903.99	920.3	595.3	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607200	RID-111	393982.28	3701885.22	1007.45	620.45	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607199	RID-112	395149.89	3701872.82	764.44	429.44	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607198	RID-113	395945.82	3701839.6	842.71	672.71	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607197	RID-114	396940.93	3701830.5	865.38	690.38	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						SUBTOTAL	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ROOSEVELT IRRIGATION DISTRICT	607230	RID	383517	3703251.4	---	---	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607228	RID	385117.4	3703268.8	---	---	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607233	RID	382512.8	3703444.8	---	---	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607234	RID	381907.2	3703439.4	---	---	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607232	RID	383269.5	3714259.2	---	---	759	759	759	759	759	759	759	759	759	759	759	759	759	759	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607231	RID	383529.3	3704062.2	---	---	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOSEVELT IRRIGATION DISTRICT	607229	RID	383543.8	3704873.5	---	---	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						SUBTOTAL	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
						TOTAL	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE 1
FUTURE MODEL 1 (RID OFF) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
COP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
CITY OF PHOENIX	30046	WC-4	388204.33	3694525.52	-204.00	-804.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30047	WC-1	394603.90	3698228.47	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30050	WPWF	382413.02	3704325.99	830.00	-170.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30052	WC-2	394506.28	3697085.90	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30061	WC-3	391415.88	3696554.39	-190.00	-790.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	510285		383739.10	3695850.79	931.00	871.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	513639		384036.60	3695533.59	944.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514595		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514596		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514597		383440.90	3695534.89	904.72	864.72	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406
CITY OF PHOENIX	514598		383440.90	3695534.89	904.72	864.72	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633
CITY OF PHOENIX	514848		383635.80	3695534.28	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	518181		383831.10	3695956.59	884.72	834.72	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
CITY OF PHOENIX	541642	RW-5	393527.05	3707245.51	1029.82	1029.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	548935		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550276	SDW-10	383836.20	3695533.89	944.72	899.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550277	SDW-11	383836.20	3695533.89	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550278	SDW-12	383836.20	3695533.89	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550279	DW-15	383836.20	3695533.89	944.72	896.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550280	SDW-14	383836.20	3695533.89	944.72	889.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550393		383635.80	3695534.28	944.72	888.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550394		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560601		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560602		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560603		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560604		383631.90	3695742.49	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560605		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560606		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	584460	RSPW-2	400299.94	3698919.85	986.53	861.53	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	593126	RSSW-5	399486.64	3698517.75	988.88	705.88	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113
CITY OF PHOENIX	593127	RSSW-6	399295.94	3697872.84	988.73	702.73	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	599020	LACC-1	390165.60	3693789.54	957.99	505.99	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
CITY OF PHOENIX	604967		383154.61	3696208.52	918.00	783.00	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650
CITY OF PHOENIX	612452		384030.80	3696605.30	943.07	715.07	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	623534	COP 283	388243.24	3694464.89	976.00	791.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	623537	COP 282	388845.55	3694462.09	-172.00	-472.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626524	ALKIRE PARK POOL WEL	398223.12	3699919.08	869.00	799.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626530	UNIVERSITY PARK	398991.14	3702041.64	909.09	723.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626531	EL REPOSO PARK WELL	400884.06	3694993.42	926.00	526.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626532	HARMON PARK WELL	399692.03	3699934.66	972.05	822.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626533	FALCON	394671.27	3702807.37	843.00	673.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626534	ENCANTO E.	398712.00	3704166.69	996.53	466.53	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
CITY OF PHOENIX	626536	ENCANTO W.	399120.70	3704963.19	998.04	468.04	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CITY OF PHOENIX	626550	COP 68	394212.72	3704362.75	969.15	650.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626551	COP 69	394542.75	3707433.41	964.67	744.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626552	COP 70	393836.98	3705514.92	878.58	413.58	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	626561	COP 100	395289.58	3703606.58	970.00	692.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626565	COP 110	398149.88	3707607.91	726.00	479.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626575	COP 151	392238.02	3706625.15	903.35	515.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626576	COP 152	392267.52	3706632.81	843.08	663.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626577	COP 154	388970.87	3706446.51	906.90	390.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626578	COP 155	388903.24	3706498.18	906.89	552.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626579	COP 156	389006.10	3705961.83	841.82	620.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626580	COP 157	390586.94	3705101.73	751.27	390.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626597	COP 204	392717.10	3690806.47	666.00	628.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626630	COP 240	384247.25	3706759.81	640.00	354.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803558		384036.60	3695533.59	944.72	874.72	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723
CITY OF PHOENIX	803559		384036.60	3695533.59	944.72	874.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803560		384036.60	3695533.59	944.72	874.72	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340
						TOTALS	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**

SRP	25063	25430	25803	26181	26565	26954	27349	27749	28156	28568	28987	29411	29842	30280	30723	31173	31630	32093	32563	33041	33525	34016	34514	35020	35020	35020	35020	35020	35020	35020	35020	35020
RID	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COP	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451
TOTAL	**118307**	**118675**	**119047**	**119425**	**119809**	**120198**	**120593**	**120993**	**121400**	**121812**	**122231**	**122656**	**123086**	**123524**	**38174**	**38624**	**39080**	**39544**	**40014**	**40491**	**40975**	**41466**	**41965**	**42470**	**42470**	**42470**	**42470**	**42470**	**42470**	**42470**	**42470**	**42470**

NOTES:

1. Pumping rates are in acre-feet per year (AFY).
2. Future Model 1 = Current levels of RID pumping (75,000 AFY) through 2025 for RID-83 through RID-114; pumping rates for other RID wells within the SRRD based on 2006 data from SRV groundwater model database. All RID wells within the SRRD off beginning 2026. Historical (1985-2010) annual average levels of SRP pumping (25,000 AFY) linearly increasing to 35,000 AFY by 2035; Base levels of COP pumping (7,450 AFY) from 2012 through 2041.
3. The "Estimated Future Pumpage (Low)" well-by-well pumping rates provided by SRP in a spreadsheet dated on or about June 26, 2011 were adjusted to total 25,000 AFY; pumping in subsequent years was adjusted linearly to meet 35,000 AFY in 2035 per SRP's September 16, 2011 email.
4. RID pumping rates for RID-83 through RID-114 (in gallons/minute) taken from Figure 14 of RIDs Modified ERA Proposal dated July 17, 2012, converted to AFY and prorated for pumping 7 of 12 months, then adjusted to total 75,000 AFY; total pumping rate of 75,000 AFY is per page 20 of RID's February 3, 2010 Early Response Action. Pumping rates for other RID wells within the SRRD are 2006 pumping rates from the SRV groundwater model database.
5. COP pumping per COP's August 18, 2011 email and spreadsheet attached to the August 18, 2011 email.

TABLE 2
FUTURE MODEL 2 (RID 40K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
SRP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
SALT RIVER PROJECT	608377	10.5E 7.5N	395528.67	3705815.30	901.17	431.17	531	539	547	555	563	571	580	588	597	606	614	624	633	642	651	661	671	680	690	700	711	721	732	742	742	742	742	742	742	742
SALT RIVER PROJECT	617850	11.2E 7.7N	396542.38	3706009.80	912.71	627.71	337	342	347	352	357	363	368	373	379	384	390	396	402	407	413	419	426	432	438	445	451	458	464	471	471	471	471	471	471	471
SALT RIVER PROJECT	608378	11.8E 2.0N	397278.92	3697039.23	852.00	467.00	329	334	339	344	349	354	359	364	370	375	380	386	392	397	403	409	415	421	427	434	440	446	453	460	460	460	460	460	460	460
SALT RIVER PROJECT	214512	12.1E-8.9N	397932.14	3708218.84	1178.00	-666.00	128	130	132	134	136	138	140	142	144	146	149	151	153	155	157	160	162	164	167	169	172	174	177	179	179	179	179	179	179	179
SALT RIVER PROJECT	617851	12.5E 0.6S	398334.15	3692796.40	985.00	855.00	182	184	187	190	193	196	198	201	204	207	210	213	217	220	223	226	229	233	236	240	243	247	250	254	254	254	254	254	254	254
SALT RIVER PROJECT	626564	12.8E 0.3N	399074.65	3694000.81	917.44	507.44	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	607729	13.0E 0.1S	399137.66	3693597.01	985.00	755.00	573	581	590	598	607	616	625	634	643	653	662	672	682	692	702	712	723	733	744	755	766	777	789	800	800	800	800	800	800	800
SALT RIVER PROJECT	608379	13.0E 8.6N	399481.53	3707635.18	917.00	717.00	210	213	216	220	223	226	229	233	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	294	294	294	294	294	294
SALT RIVER PROJECT	608422	14.0E 8.5N	401057.76	3707527.59	974.00	724.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607718	2.0E 5.0N	381839.75	3701828.55	908.00	508.00	590	599	608	617	626	635	644	654	663	673	683	693	703	713	724	734	745	756	767	778	790	801	813	825	825	825	825	825	825	825
SALT RIVER PROJECT	608407	2.0E 7.0N	381741.88	3705167.14	848.00	428.00	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	587	596	605	614	623	632	641	650	660	660	660	660	660	660	660
SALT RIVER PROJECT	617100	2.0E 8.0N	381763.14	3706778.75	882.00	484.00	567	575	583	592	601	609	618	627	637	646	655	665	675	685	695	705	715	726	736	747	758	769	780	792	792	792	792	792	792	792
SALT RIVER PROJECT	608437	2.0E 8.5N	381758.68	3707541.77	887.00	552.00	505	513	520	528	536	543	551	560	568	576	584	593	602	611	619	629	638	647	657	666	676	686	696	706	706	706	706	706	706	706
SALT RIVER PROJECT	608356	2.0E 9.0N	381779.35	3708396.91	819.00	494.00	498	506	513	521	528	536	544	552	560	568	577	585	594	602	611	620	629	638	648	657	667	677	686	697	697	697	697	697	697	697
SALT RIVER PROJECT	523773	2.3E 1.3N	382003.17	3695782.78	882.50	795.00	699	709	720	730	741	752	763	774	785	797	808	820	832	844	857	869	882	895	908	921	935	949	963	977	977	977	977	977	977	977
SALT RIVER PROJECT	607695	2.3E 1.3N	382113.56	3695900.96	914.00	812.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	586184	3.0E 1.0N	383224.81	3695392.38	800.00	738.00	876	889	902	915	929	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1172	1189	1206	1224	1224	1224	1224	1224	1224	1224
SALT RIVER PROJECT	607694	3.0E 1.0N	383316.74	3695354.17	816.00	716.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608427	3.0E 2.3N	383266.61	3697335.68	801.00	421.00	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	608436	3.0E 4.0N	383423.78	3700411.93	617.00	340.00	751	762	773	784	796	808	819	831	844	856	868	881	894	907	921	934	948	962	976	990	1004	1019	1034	1049	1049	1049	1049	1049	1049	1049
SALT RIVER PROJECT	608358	3.0E 8.0N	383301.35	3706683.70	1022.00	521.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
SALT RIVER PROJECT	608410	3.0E 8.9N	383320.65	3708095.31	1010.00	63.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607735	3.5E 6.0N	384189.76	3703471.73	829.00	429.00	451	458	465	471	478	485	492	500	507	514	522	530	537	545	553	561	570	578	586	595	604	612	621	631	631	631	631	631	631	631
SALT RIVER PROJECT	608362	4.0E 4.2N	384988.69	3700741.34	520.00	220.00	375	381	387	392	398	404	410	416	422	428	434	441	447	454	460	467	474	481	488	495	502	510	517	525	525	525	525	525	525	525
SALT RIVER PROJECT	608393	4.0E 8.0N	385125.27	3706864.00	1044.00	366.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
ROUSSEAU, DAVID	607728	4.0E-5.0N	384977.23	3702126.41	740.00	195.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	607698	4.8E 0.0N	386193.44	3693790.59	782.00	497.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608371	5.0E 2.3N	386339.92	3697532.91	946.00	845.00	708	719	729	740	751	762	773	784	796	808	819	831	844	856	868	881	894	907	920	934	948	961	976	990	990	990	990	990	990	990
SALT RIVER PROJECT	617112	5.0E 4.5N	386483.06	3701348.36	731.00	231.00	543	551	559	567	576	584	593	601	610	619	628	637	647	656	666	676	685	695	706	716	726	737	748	759	759	759	759	759	759	759
SALT RIVER PROJECT	608388	5.0E 6.0N	386465.90	3703673.67	951.00	391.00	827	839	851	863	876	889	902	915	928	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1155	1155	1155	1155	1155	1155
SALT RIVER PROJECT	608389	5.0E 7.5N	386507.19	3705880.09	774.00	374.00	455	461	468	475	482	489	496	503	511	518	526	533	541	549	557	565	574	582	591	599	608	617	626	635	635	635	635	635	635	635
SALT RIVER PROJECT	608392	5.0E 8.3N	386521.09	3707084.90	938.00	389.00	603	612	621	630	639	649	658	668	678	688	698	708	718	729	740	750	761	773	784	795	807	819	831	843	843	843	843	843	843	843
SALT RIVER PROJECT	209184	5.0E 8.9N	386739.48	3708284.32	665.31	530.31	277	282	286	290	294	298	303	307	312	316	321	326	330	335	340	345	350	355	361	366	371	377	382	388	388	388	388	388	388	388
SALT RIVER PROJECT	608408	5.0E 9.0N	386667.94	3708416.05	795.00	315.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608391	5.5E 8.5N	387334.49	3707691.41	1073.00	286.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	608368	5.8E 2.8N	387965.73	3698707.43	871.00	461.00	397	403	408	414	420	427	433	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	554	554	554	554	554	554
SALT RIVER PROJECT	578740	6.0E 0.9N	388034.64	3695267.29	890.00	550.00	508	515	523	530	538	546	554	562	570	579	587	596	605	613	622	631	641	650	660	669	679	689	699	709	709	709	709	709	709	709
SALT RIVER PROJECT	608384	6.0E 6.4N	388091.11	3704278.58	1012.00	362.00	773	784	795	807	819	831	843	855	868	881	894	907	920	933	947	961	975	989	1004	1019	1034	1049	1064	1080	1080	1080	1080	1080	1080	1080
SALT RIVER PROJECT	608385	6.0E 8.3N	388324.80	3707096.11	899.00	494.00	368	374	379	385	390	396	402	408	414	420	426	432	439	445	452	458	465	472	479	486	493	500	507	515	515	515	515	515	515	515
SALT RIVER PROJECT	626587	6.3E 8.0N	388604.97	3706776.96	646.44	-502.56	272	276	280	284	288	292	296	301	305	310	314	319	323	328	333	338	343	348	353	358	363	369	374	379	379	379	379	379	379	379
SALT RIVER PROJECT	607697	7.0E 1.0N	389727.10	3695346.54	866.00	434.00	915	928	942	956	970	984	998	1013	1028	1043	1058	1074	1090	1105	1122	1138	1155	1172	1189	1206	1224	1242	1260	1279	1279	1279	1279	1279	1279	1279
SALT RIVER PROJECT	608386	7.0E 3.0N	389589.84	3698858.93	903.00	228.00	874	887	900	913	926	940	953	967	982	996	1011	1025	1040	1056	1071	1087	1103	1119	1135	1152	1169	1186	1203	1221	1221	1221	1221	1221	1221	1221
SALT RIVER PROJECT	607727	7.0E 6.8N	389661.22	3704682.18	904.27	543.27	720	731	741	752	763	775	786	797	809	821	833	845	858	870	883	896	909	922	936	949	963	977	992	1006	1006	1006	1006	1006	1006	1006
SALT RIVER PROJECT	608387	7.0E 7.8N	389811.32	3706377.60	938.98	398.98	613	622	631	640	649	659	669	678	688	698	709	719	730	740	751	762	773	785	796	808	820	832	844	856	856	856	856	856	856	856
SALT RIVER PROJECT	607674	7.0E 9.0N	389717.31	3708509.82	940.55	780.55	220	224	227	230	234	237	240	244	248	251	255	259	262	266	270	274	278	282	286	290	295	299	303	308	308	308	308	308	308	308
SALT RIVER PROJECT	607675	7.5E 7.5N	390607.29	3706026.91	900.00	420.00	579	587	596	604	613	622	631	641	650	659	669	679	689	699	709	720	730	741	752	763	774	785	797	808	808	808	808	808	808	808
SALT RIVER PROJECT	578323	7.9E 1.0N	391252.97	3695244.30	860.00	510.00	638	647	656	666	676	686	696	706	716	727	737	748	759	770	782	793	805	816	828	841	853	865	878	891	891	891	891	891	891	891
SALT RIVER PROJECT	607696	8.0E 1.0N	391252.97	3695244.30	863.00	525.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	607736	8.0E 6.5N	391275.04	3704257.08	896.43	481.43	809	821	833	845	857	870	883	895	909	922	935	949	963	977	991	1006	1021	1036	1051	1066	1082	1098	1114	1130	1130	1130	1130	1130	1130	1130
SALT RIVER PROJECT	608372	8.0E 8.5N	391330.12	3707672.61	1063.59	423.59	392	398	403	409	415	421	427	434	440	447	453	460	466	473	480	487	494	502	509	516	524	532	539	547	547	547	547	547	547	547
SALT RIVER PROJECT	608374	8.5E 7.5N	392105.64	3706053.80	848.39	418.39	352	357	362	368	373	378	384	390	395	401	407	413	419	425	431	438	444	451	457	464	471	478	485	492	492	492	492	492	492	492
SALT RIVER PROJECT	617848	9.5E 1.0S	393527.81	3692210.78	1002.00	377.00	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	588	596	605	614	614	614	614	614	614	614
SALT RIVER PROJECT	608381	9.5E 7.7N	393913.35	3706233.60	887.67	422.67	484	491	498	506	513	521	528	536	544	552	560	568	576	585	593	602	611	620	629	638	648	657	667	676	676	676	676	676	676	676
						TOTALS	**25063**	**25430**	**25803**	**26181**	**26565**	**26954**	**27349**	**27749**	**28156**	**28568**	**28987**	**29411**	**29842**	**30280**	**30723**	**31173**	**31630**	**32093**	**32563**	**33041**	**33525**	**34016**	**34514**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**

TABLE 2
FUTURE MODEL 2 (RID 40K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
RID WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
ROOSEVELT IRRIGATION DISTRICT	607227	RID-83	385750.85	3701489.54	857.61	237.61	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	802	802	802	802	802	802	802	802	802	802	802	802	802	802	802	802
ROOSEVELT IRRIGATION DISTRICT	607226	RID-84	387678.2	3701167.33	906.27	518.27	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837
ROOSEVELT IRRIGATION DISTRICT	607225	RID-85	388123.3	3700441.05	894.57	347.57	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907
ROOSEVELT IRRIGATION DISTRICT	607224	RID-86	388919.67	3699934.42	975.55	742.55	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255
ROOSEVELT IRRIGATION DISTRICT	607223	RID-87	390490.48	3699540.37	959.69	554.69	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697
ROOSEVELT IRRIGATION DISTRICT	607222	RID-88	391269.13	3699558.09	868.63	-751.37	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697
ROOSEVELT IRRIGATION DISTRICT	607221	RID-89	391342.15	3700727.81	863.47	-726.53	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081
ROOSEVELT IRRIGATION DISTRICT	607220	RID-90	392145.4	3699508.58	922.64	586.64	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	872	872	872	872	872	872	872	872	872	872	872	872	872	872	872	872
ROOSEVELT IRRIGATION DISTRICT	607219	RID-91	392946.16	3699533.51	959.56	591.56	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116
ROOSEVELT IRRIGATION DISTRICT	607218	RID-92	392956.42	3700721.12	868.82	560.82	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	453	453	453	453	453	453	453	453	453	453	453	453	453	453	453	453
ROOSEVELT IRRIGATION DISTRICT	607217	RID-93	393734.22	3699536.91	928.83	607.83	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395
ROOSEVELT IRRIGATION DISTRICT	607216	RID-94	394549.27	3699884.27	959.76	632.76	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151	1151
ROOSEVELT IRRIGATION DISTRICT	607215	RID-95	394577.74	3700721.82	874.05	-720.95	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	593	593	593	593	593	593	593	593	593	593	593	593	593	593	593	593
ROOSEVELT IRRIGATION DISTRICT	607214	RID-96	394686.76	3699036.7	918.87	253.87	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046	1046
ROOSEVELT IRRIGATION DISTRICT	607213	RID-97	395306.39	3698844.8	842	-746	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116
ROOSEVELT IRRIGATION DISTRICT	607212	RID-98	396161.57	3698652.07	848.42	-616.58	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325	1325
ROOSEVELT IRRIGATION DISTRICT	607211	RID-99	396121.27	3699878.13	980.55	650.55	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837
ROOSEVELT IRRIGATION DISTRICT	607210	RID-100	396149.98	3700673.1	1006.17	771.17	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	732	732	732	732	732	732	732	732	732	732	732	732	732	732	732	732
ROOSEVELT IRRIGATION DISTRICT	607209	RID-101	396944.34	3698711.78	940	660	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569	1569
ROOSEVELT IRRIGATION DISTRICT	607196	RID-102	397333.97	3699861.41	970.12	641.12	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360
ROOSEVELT IRRIGATION DISTRICT	607208	RID-103	397718.47	3699055.63	978.01	638.01	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	767	767	767	767	767	767	767	767	767	767	767	767	767	767	767	767
ROOSEVELT IRRIGATION DISTRICT	607207	RID-104	397891.83	3699860.83	958	688	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255	1255
ROOSEVELT IRRIGATION DISTRICT	607206	RID-105	386521.94	3702014.95	953.61	525.61	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
ROOSEVELT IRRIGATION DISTRICT	607205	RID-106	388221.66	3701976.96	961.62	265.62	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	523	523	523	523	523	523	523	523	523	523	523	523	523	523	523	523
ROOSEVELT IRRIGATION DISTRICT	607204	RID-107	389737.01	3701943.81	849.69	645.69	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	732	732	732	732	732	732	732	732	732	732	732	732	732	732	732	732
ROOSEVELT IRRIGATION DISTRICT	607203	RID-108	390500.46	3701908.63	992.6	784.6	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
ROOSEVELT IRRIGATION DISTRICT	607202	RID-109	391360.3	3701904.8	918.01	664.01	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837	837
ROOSEVELT IRRIGATION DISTRICT	607201	RID-110	392673.34	3701903.99	920.3	595.3	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011
ROOSEVELT IRRIGATION DISTRICT	607200	RID-111	393982.28	3701885.22	1007.45	620.45	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
ROOSEVELT IRRIGATION DISTRICT	607199	RID-112	395149.89	3701872.82	764.44	429.44	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	593	593	593	593	593	593	593	593	593	593	593	593	593	593	593	593
ROOSEVELT IRRIGATION DISTRICT	607198	RID-113	395945.82	3701839.6	842.71	672.71	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	802	802	802	802	802	802	802	802	802	802	802	802	802	802	802	802
ROOSEVELT IRRIGATION DISTRICT	607197	RID-114	396940.93	3701830.5	865.38	690.38	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	872	872	872	872	872	872	872	872	872	872	872	872	872	872	872	872
						SUBTOTAL	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**	**29498**
ROOSEVELT IRRIGATION DISTRICT	607230	RID	383517	3703251.4	---	---	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692
ROOSEVELT IRRIGATION DISTRICT	607228	RID	385117.4	3703268.8	---	---	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	603	603	603	603	603	603	603	603	603	603	603	603	603	603	603	603
ROOSEVELT IRRIGATION DISTRICT	607233	RID	382512.8	3703444.8	---	---	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	713	713	713	713	713	713	713	713	713	713	713	713	713	713	713	713
ROOSEVELT IRRIGATION DISTRICT	607234	RID	381907.2	3703439.4	---	---	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	910	910	910	910	910	910	910	910	910	910	910	910	910	910	910	910
ROOSEVELT IRRIGATION DISTRICT	607232	RID	383269.5	3714259.2	---	---	759	759	759	759	759	759	759	759	759	759	759	759	759	759	298	298	298	298	298	298	298	298	298	298	298	298	298	298	298	298
ROOSEVELT IRRIGATION DISTRICT	607231	RID	383529.3	3704062.2	---	---	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556
ROOSEVELT IRRIGATION DISTRICT	607229	RID	383543.8	3704873.5	---	---	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	467	467	467	467	467	467	467	467	467	467	467	467	467	467	467	467
						SUBTOTAL	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**	**4241**
						TOTAL	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**	**33739**

TABLE 2
FUTURE MODEL 2 (RID 40K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
COP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
CITY OF PHOENIX	30046	WC-4	388204.33	3694525.52	-204.00	-804.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30047	WC-1	394603.90	3698228.47	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30050	WPWF	382413.02	3704325.99	830.00	-170.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30052	WC-2	394506.28	3697085.90	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30061	WC-3	391415.88	3696554.39	-190.00	-790.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	510285		383739.10	3695850.79	931.00	871.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	513639		384036.60	3695533.59	944.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514595		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514596		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514597		383440.90	3695534.89	904.72	864.72	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406
CITY OF PHOENIX	514598		383440.90	3695534.89	904.72	864.72	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633
CITY OF PHOENIX	514848		383635.80	3695534.28	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	518181		383831.10	3695956.59	884.72	834.72	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
CITY OF PHOENIX	541642	RW-5	393527.05	3707245.51	1029.82	1029.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	548935		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550276	SDW-10	383836.20	3695533.89	944.72	899.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550277	SDW-11	383836.20	3695533.89	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550278	SDW-12	383836.20	3695533.89	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550279	DW-15	383836.20	3695533.89	944.72	896.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550280	SDW-14	383836.20	3695533.89	944.72	889.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550393		383635.80	3695534.28	944.72	888.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550394		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560601		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560602		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560603		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560604		383631.90	3695742.49	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560605		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560606		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	584460	RSPW-2	400299.94	3698919.85	986.53	861.53	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	593126	RSSW-5	399486.64	3698517.75	988.88	705.88	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113
CITY OF PHOENIX	593127	RSSW-6	399295.94	3697872.84	988.73	702.73	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	599020	LACC-1	390165.60	3693789.54	957.99	505.99	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
CITY OF PHOENIX	604967		383154.61	3696208.52	918.00	783.00	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650
CITY OF PHOENIX	612452		384030.80	3696605.30	943.07	715.07	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	623534	COP 283	388243.24	3694464.89	976.00	791.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	623537	COP 282	388845.55	3694462.09	-172.00	-472.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626524	ALKIRE PARK POOL WEL	398223.12	3699919.08	869.00	799.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626530	UNIVERSITY PARK	398991.14	3702041.64	909.09	723.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626531	EL REPOSO PARK WELL	400884.06	3694993.42	926.00	526.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626532	HARMON PARK WELL	399692.03	3699934.66	972.05	822.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626533	FALCON	394671.27	3702807.37	843.00	673.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626534	ENCANTO E.	398712.00	3704166.69	996.53	466.53	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
CITY OF PHOENIX	626536	ENCANTO W.	399120.70	3704963.19	998.04	468.04	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CITY OF PHOENIX	626550	COP 68	394212.72	3704362.75	969.15	650.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626551	COP 69	394542.75	3707433.41	964.67	744.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626552	COP 70	393836.98	3705514.92	878.58	413.58	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	626561	COP 100	395289.58	3703606.58	970.00	692.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626565	COP 110	398149.88	3707607.91	726.00	479.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626575	COP 151	392238.02	3706625.15	903.35	515.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626576	COP 152	392267.52	3706632.81	843.08	663.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626577	COP 154	388970.87	3706446.51	906.90	390.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626578	COP 155	388903.24	3706498.18	906.89	552.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626579	COP 156	389006.10	3705961.83	841.82	620.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626580	COP 157	390586.94	3705101.73	751.27	390.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626597	COP 204	392717.10	3690806.47	666.00	628.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626630	COP 240	384247.25	3706759.81	640.00	354.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803558		384036.60	3695533.59	944.72	874.72	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723
CITY OF PHOENIX	803559		384036.60	3695533.59	944.72	874.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803560		384036.60	3695533.59	944.72	874.72	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340
						TOTALS	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**
						SRP	25063	25430	25803	26181	26565	26954	27349	27749	28156	28568	28987	29411	29842	30280	30723	31173	31630	32093	32563	33041	33525	34016	34514	35020	35020	35020	35020	35020	35020	35020
						RID	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739	33739
						COP	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451
						TOTAL	**118307**	**118675**	**119047**	**119425**	**119809**	**120198**	**120593**	**120993**	**121400**	**121812**	**122231**	**122656**	**123086**	**123524**	**71913**	**72363**	**72820**	**73283**	**73753**	**74230**	**74714**	**75206**	**75704**	**76210**	**76210**	**76210**	**76210**	**76210**	**76210**	**76210**

NOTES:

1. Pumping rates are in acre-feet per year (AFY).
2. Future Model 2 = Current levels of RID pumping (75,000 AFY) through 2025 for RID-83 through RID-114; pumping rates for other RID wells within the SRRD based on 2006 data from SRV groundwater model database. Total RID pumping for all wells within the SRRD decreased to 40,000 AFY beginning 2026 (assumes RID pumping is pursuant to a valid water exchange agreement with SRP); Historical (1985-2010) annual average levels of SRP pumping (25,000 AFY) linearly increasing to 35,000 AFY by 2035; Base levels of COP pumping (7,450 AFY) from 2012 through 2041.
3. The "Estimated Future Pumpage (Low)" well-by-well pumping rates provided by SRP in a spreadsheet dated on or about June 26, 2011 were adjusted to total 25,000 AFY; pumping in subsequent years was adjusted linearly to meet 35,000 AFY in 2035 per SRP's September 16, 2011 email.
4. RID pumping rates for RID-83 to RID-114 (in gallons/minute) taken from Figure 14 of RIDs Modified ERA Proposal dated July 17, 2012, converted to AFY and prorated for pumping 7 of 12 months, then adjusted to total 75,000 AFY; total pumping rate of 75,000 AFY is per page 20 of RID's February 3, 2010 Early Response Action. Pumping rates for other RID wells within the SRRD are 2006 pumping rates from the SRV groundwater model database. The pumping rates for all RID wells within the SRRD (55 total) were then adjusted linearly to total 40,000 AFY starting in 2026.
5. COP pumping per COP's August 18, 2011 email and spreadsheet attached to the August 18, 2011 email.

TABLE 3
FUTURE MODEL 3 (RID 75K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
SRP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
SALT RIVER PROJECT	608377	10.5E 7.5N	395528.67	3705815.30	901.17	431.17	531	539	547	555	563	571	580	588	597	606	614	624	633	642	651	661	671	680	690	700	711	721	732	742	742	742	742	742	742	742
SALT RIVER PROJECT	617850	11.2E 7.7N	396542.38	3706009.80	912.71	627.71	337	342	347	352	357	363	368	373	379	384	390	396	402	407	413	419	426	432	438	445	451	458	464	471	471	471	471	471	471	471
SALT RIVER PROJECT	608378	11.8E 2.0N	397278.92	3697039.23	852.00	467.00	329	334	339	344	349	354	359	364	370	375	380	386	392	397	403	409	415	421	427	434	440	446	453	460	460	460	460	460	460	460
SALT RIVER PROJECT	214512	12.1E-8.9N	397932.14	3708218.84	1178.00	-666.00	128	130	132	134	136	138	140	142	144	146	149	151	153	155	157	160	162	164	167	169	172	174	177	179	179	179	179	179	179	179
SALT RIVER PROJECT	617851	12.5E 0.6S	398334.15	3692796.40	985.00	855.00	182	184	187	190	193	196	198	201	204	207	210	213	217	220	223	226	229	233	236	240	243	247	250	254	254	254	254	254	254	254
SALT RIVER PROJECT	626564	12.8E 0.3N	399074.65	3694000.81	917.44	507.44	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	607729	13.0E 0.1S	399137.66	3693597.01	985.00	755.00	573	581	590	598	607	616	625	634	643	653	662	672	682	692	702	712	723	733	744	755	766	777	789	800	800	800	800	800	800	800
SALT RIVER PROJECT	608379	13.0E 8.6N	399481.53	3707635.18	917.00	717.00	210	213	216	220	223	226	229	233	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	294	294	294	294	294	294
SALT RIVER PROJECT	608422	14.0E 8.5N	401057.76	3707527.59	974.00	724.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607718	2.0E 5.0N	381839.75	3701828.55	908.00	508.00	590	599	608	617	626	635	644	654	663	673	683	693	703	713	724	734	745	756	767	778	790	801	813	825	825	825	825	825	825	825
SALT RIVER PROJECT	608407	2.0E 7.0N	381741.88	3705167.14	848.00	428.00	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	587	596	605	614	623	632	641	650	660	660	660	660	660	660	660
SALT RIVER PROJECT	617100	2.0E 8.0N	381763.14	3706778.75	882.00	484.00	567	575	583	592	601	609	618	627	637	646	655	665	675	685	695	705	715	726	736	747	758	769	780	792	792	792	792	792	792	792
SALT RIVER PROJECT	608437	2.0E 8.5N	381758.68	3707541.77	887.00	552.00	505	513	520	528	536	543	551	560	568	576	584	593	602	611	619	629	638	647	657	666	676	686	696	706	706	706	706	706	706	706
SALT RIVER PROJECT	608356	2.0E 9.0N	381779.35	3708396.91	819.00	494.00	498	506	513	521	528	536	544	552	560	568	577	585	594	602	611	620	629	638	648	657	667	677	686	697	697	697	697	697	697	697
SALT RIVER PROJECT	523773	2.3E 1.3N	382003.17	3695782.78	882.50	795.00	699	709	720	730	741	752	763	774	785	797	808	820	832	844	857	869	882	895	908	921	935	949	963	977	977	977	977	977	977	977
SALT RIVER PROJECT	607695	2.3E 1.3N	382113.56	3695900.96	914.00	812.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	586184	3.0E 1.0N	383224.81	3695392.38	800.00	738.00	876	889	902	915	929	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1172	1189	1206	1224	1224	1224	1224	1224	1224	1224
SALT RIVER PROJECT	607694	3.0E 1.0N	383316.74	3695354.17	816.00	716.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608427	3.0E 2.3N	383266.61	3697335.68	801.00	421.00	718	728	739	750	761	772	783	795	806	818	830	842	855	867	880	893	906	919	933	946	960	974	989	1003	1003	1003	1003	1003	1003	1003
SALT RIVER PROJECT	608436	3.0E 4.0N	383423.78	3700411.93	617.00	340.00	751	762	773	784	796	808	819	831	844	856	868	881	894	907	921	934	948	962	976	990	1004	1019	1034	1049	1049	1049	1049	1049	1049	1049
SALT RIVER PROJECT	608358	3.0E 8.0N	383301.35	3706683.70	1022.00	521.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
SALT RIVER PROJECT	608410	3.0E 8.9N	383320.65	3708095.31	1010.00	63.00	236	240	243	247	250	254	258	261	265	269	273	277	281	285	289	294	298	302	307	311	316	320	325	330	330	330	330	330	330	330
SALT RIVER PROJECT	607735	3.5E 6.0N	384189.76	3703471.73	829.00	429.00	451	458	465	471	478	485	492	500	507	514	522	530	537	545	553	561	570	578	586	595	604	612	621	631	631	631	631	631	631	631
SALT RIVER PROJECT	608362	4.0E 4.2N	384988.69	3700741.34	520.00	220.00	375	381	387	392	398	404	410	416	422	428	434	441	447	454	460	467	474	481	488	495	502	510	517	525	525	525	525	525	525	525
SALT RIVER PROJECT	608393	4.0E 8.0N	385125.27	3706864.00	1044.00	366.00	460	467	474	481	488	495	502	510	517	525	533	540	548	556	564	573	581	590	598	607	616	625	634	643	643	643	643	643	643	643
ROUSSEAU, DAVID	607728	4.0E-5.0N	384977.23	3702126.41	740.00	195.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	607698	4.8E 0.0N	386193.44	3693790.59	782.00	497.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608371	5.0E 2.3N	386339.92	3697532.91	946.00	845.00	708	719	729	740	751	762	773	784	796	808	819	831	844	856	868	881	894	907	920	934	948	961	976	990	990	990	990	990	990	990
SALT RIVER PROJECT	617112	5.0E 4.5N	386483.06	3701348.36	731.00	231.00	543	551	559	567	576	584	593	601	610	619	628	637	647	656	666	676	685	695	706	716	726	737	748	759	759	759	759	759	759	759
SALT RIVER PROJECT	608388	5.0E 6.0N	386465.90	3703673.67	951.00	391.00	827	839	851	863	876	889	902	915	928	942	956	970	984	999	1013	1028	1043	1058	1074	1090	1106	1122	1138	1155	1155	1155	1155	1155	1155	1155
SALT RIVER PROJECT	608389	5.0E 7.5N	386507.19	3705880.09	774.00	374.00	455	461	468	475	482	489	496	503	511	518	526	533	541	549	557	565	574	582	591	599	608	617	626	635	635	635	635	635	635	635
SALT RIVER PROJECT	608392	5.0E 8.3N	386521.09	3707084.90	938.00	389.00	603	612	621	630	639	649	658	668	678	688	698	708	718	729	740	750	761	773	784	795	807	819	831	843	843	843	843	843	843	843
SALT RIVER PROJECT	209184	5.0E 8.9N	386739.48	3708284.32	665.31	530.31	277	282	286	290	294	298	303	307	312	316	321	326	330	335	340	345	350	355	361	366	371	377	382	388	388	388	388	388	388	388
SALT RIVER PROJECT	608408	5.0E 9.0N	386667.94	3708416.05	795.00	315.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	608391	5.5E 8.5N	387334.49	3707691.41	1073.00	286.00	697	707	717	728	738	749	760	771	783	794	806	817	829	842	854	866	879	892	905	918	932	945	959	973	973	973	973	973	973	973
SALT RIVER PROJECT	608368	5.8E 2.8N	387965.73	3698707.43	871.00	461.00	397	403	408	414	420	427	433	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	554	554	554	554	554	554
SALT RIVER PROJECT	578740	6.0E 0.9N	388034.64	3695267.29	890.00	550.00	508	515	523	530	538	546	554	562	570	579	587	596	605	613	622	631	641	650	660	669	679	689	699	709	709	709	709	709	709	709
SALT RIVER PROJECT	608384	6.0E 6.4N	388091.11	3704278.58	1012.00	362.00	773	784	795	807	819	831	843	855	868	881	894	907	920	933	947	961	975	989	1004	1019	1034	1049	1064	1080	1080	1080	1080	1080	1080	1080
SALT RIVER PROJECT	608385	6.0E 8.3N	388324.80	3707096.11	899.00	494.00	368	374	379	385	390	396	402	408	414	420	426	432	439	445	452	458	465	472	479	486	493	500	507	515	515	515	515	515	515	515
SALT RIVER PROJECT	626587	6.3E 8.0N	388604.97	3706776.96	646.44	-502.56	272	276	280	284	288	292	296	301	305	310	314	319	323	328	333	338	343	348	353	358	363	369	374	379	379	379	379	379	379	379
SALT RIVER PROJECT	607697	7.0E 1.0N	389727.10	3695346.54	866.00	434.00	915	928	942	956	970	984	998	1013	1028	1043	1058	1074	1090	1105	1122	1138	1155	1172	1189	1206	1224	1242	1260	1279	1279	1279	1279	1279	1279	1279
SALT RIVER PROJECT	608386	7.0E 3.0N	389589.84	3698858.93	903.00	228.00	874	887	900	913	926	940	953	967	982	996	1011	1025	1040	1056	1071	1087	1103	1119	1135	1152	1169	1186	1203	1221	1221	1221	1221	1221	1221	1221
SALT RIVER PROJECT	607727	7.0E 6.8N	389661.22	3704682.18	904.27	543.27	720	731	741	752	763	775	786	797	809	821	833	845	858	870	883	896	909	922	936	949	963	977	992	1006	1006	1006	1006	1006	1006	1006
SALT RIVER PROJECT	608387	7.0E 7.8N	389811.32	3706377.60	938.98	398.98	613	622	631	640	649	659	669	678	688	698	709	719	730	740	751	762	773	785	796	808	820	832	844	856	856	856	856	856	856	856
SALT RIVER PROJECT	607674	7.0E 9.0N	389717.31	3708509.82	940.55	780.55	220	224	227	230	234	237	240	244	248	251	255	259	262	266	270	274	278	282	286	290	295	299	303	308	308	308	308	308	308	308
SALT RIVER PROJECT	607675	7.5E 7.5N	390607.29	3706026.91	900.00	420.00	579	587	596	604	613	622	631	641	650	659	669	679	689	699	709	720	730	741	752	763	774	785	797	808	808	808	808	808	808	808
SALT RIVER PROJECT	578323	7.9E 1.0N	391252.97	3695244.30	860.00	510.00	638	647	656	666	676	686	696	706	716	727	737	748	759	770	782	793	805	816	828	841	853	865	878	891	891	891	891	891	891	891
SALT RIVER PROJECT	607696	8.0E 1.0N	391252.97	3695244.30	863.00	525.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALT RIVER PROJECT	607736	8.0E 6.5N	391275.04	3704257.08	896.43	481.43	809	821	833	845	857	870	883	895	909	922	935	949	963	977	991	1006	1021	1036	1051	1066	1082	1098	1114	1130	1130	1130	1130	1130	1130	1130
SALT RIVER PROJECT	608372	8.0E 8.5N	391330.12	3707672.61	1063.59	423.59	392	398	403	409	415	421	427	434	440	447	453	460	466	473	480	487	494	502	509	516	524	532	539	547	547	547	547	547	547	547
SALT RIVER PROJECT	608374	8.5E 7.5N	392105.64	3706053.80	848.39	418.39	352	357	362	368	373	378	384	390	395	401	407	413	419	425	431	438	444	451	457	464	471	478	485	492	492	492	492	492	492	492
SALT RIVER PROJECT	617848	9.5E 1.0S	393527.81	3692210.78	1002.00	377.00	439	446	452	459	466	472	479	486	493	501	508	515	523	531	538	546	554	562	571	579	588	596	605	614	614	614	614	614	614	614
SALT RIVER PROJECT	608381	9.5E 7.7N	393913.35	3706233.60	887.67	422.67	484	491	498	506	513	521	528	536	544	552	560	568	576	585	593	602	611	620	629	638	648	657	667	676	676	676	676	676	676	676
						TOTALS	**25063**	**25430**	**25803**	**26181**	**26565**	**26954**	**27349**	**27749**	**28156**	**28568**	**28987**	**29411**	**29842**	**30280**	**30723**	**31173**	**31630**	**32093**	**32563**	**33041**	**33525**	**34016**	**34514**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**	**35020**

TABLE 3
FUTURE MODEL 3 (RID 75K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
RID WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
ROOSEVELT IRRIGATION DISTRICT	607227	RID-83	385750.85	3701489.54	857.61	237.61	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039
ROOSEVELT IRRIGATION DISTRICT	607226	RID-84	387678.2	3701167.33	906.27	518.27	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128
ROOSEVELT IRRIGATION DISTRICT	607225	RID-85	388123.3	3700441.05	894.57	347.57	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305	2305
ROOSEVELT IRRIGATION DISTRICT	607224	RID-86	388919.67	3699934.42	975.55	742.55	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192
ROOSEVELT IRRIGATION DISTRICT	607223	RID-87	390490.48	3699540.37	959.69	554.69	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
ROOSEVELT IRRIGATION DISTRICT	607222	RID-88	391269.13	3699558.09	868.63	-751.37	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
ROOSEVELT IRRIGATION DISTRICT	607221	RID-89	391342.15	3700727.81	863.47	-726.53	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748	2748
ROOSEVELT IRRIGATION DISTRICT	607220	RID-90	392145.4	3699508.58	922.64	586.64	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216
ROOSEVELT IRRIGATION DISTRICT	607219	RID-91	392946.16	3699533.51	959.56	591.56	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837
ROOSEVELT IRRIGATION DISTRICT	607218	RID-92	392956.42	3700721.12	868.82	560.82	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152
ROOSEVELT IRRIGATION DISTRICT	607217	RID-93	393734.22	3699536.91	928.83	607.83	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546	3546
ROOSEVELT IRRIGATION DISTRICT	607216	RID-94	394549.27	3699884.27	959.76	632.76	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926	2926
ROOSEVELT IRRIGATION DISTRICT	607215	RID-95	394577.74	3700721.82	874.05	-720.95	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507
ROOSEVELT IRRIGATION DISTRICT	607214	RID-96	394686.76	3699036.7	918.87	253.87	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660
ROOSEVELT IRRIGATION DISTRICT	607213	RID-97	395306.39	3698844.8	842	-746	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837	2837
ROOSEVELT IRRIGATION DISTRICT	607212	RID-98	396161.57	3698652.07	848.42	-616.58	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369	3369
ROOSEVELT IRRIGATION DISTRICT	607211	RID-99	396121.27	3699878.13	980.55	650.55	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128
ROOSEVELT IRRIGATION DISTRICT	607210	RID-100	396149.98	3700673.1	1006.17	771.17	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
ROOSEVELT IRRIGATION DISTRICT	607209	RID-101	396944.34	3698711.78	940	660	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989	3989
ROOSEVELT IRRIGATION DISTRICT	607196	RID-102	397333.97	3699861.41	970.12	641.12	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457	3457
ROOSEVELT IRRIGATION DISTRICT	607208	RID-103	397718.47	3699055.63	978.01	638.01	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
ROOSEVELT IRRIGATION DISTRICT	607207	RID-104	397891.83	3699860.83	958	688	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192	3192
ROOSEVELT IRRIGATION DISTRICT	607206	RID-105	386521.94	3702014.95	953.61	525.61	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684
ROOSEVELT IRRIGATION DISTRICT	607205	RID-106	388221.66	3701976.96	961.62	265.62	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
ROOSEVELT IRRIGATION DISTRICT	607204	RID-107	389737.01	3701943.81	849.69	645.69	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
ROOSEVELT IRRIGATION DISTRICT	607203	RID-108	390500.46	3701908.63	992.6	784.6	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684
ROOSEVELT IRRIGATION DISTRICT	607202	RID-109	391360.3	3701904.8	918.01	664.01	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128	2128
ROOSEVELT IRRIGATION DISTRICT	607201	RID-110	392673.34	3701903.99	920.3	595.3	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571	2571
ROOSEVELT IRRIGATION DISTRICT	607200	RID-111	393982.28	3701885.22	1007.45	620.45	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394	2394
ROOSEVELT IRRIGATION DISTRICT	607199	RID-112	395149.89	3701872.82	764.44	429.44	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507
ROOSEVELT IRRIGATION DISTRICT	607198	RID-113	395945.82	3701839.6	842.71	672.71	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039
ROOSEVELT IRRIGATION DISTRICT	607197	RID-114	396940.93	3701830.5	865.38	690.38	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216	2216
						SUBTOTAL	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**	**75001**
ROOSEVELT IRRIGATION DISTRICT	607230	RID	383517	3703251.4	---	---	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762
ROOSEVELT IRRIGATION DISTRICT	607228	RID	385117.4	3703268.8	---	---	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535	1535
ROOSEVELT IRRIGATION DISTRICT	607233	RID	382512.8	3703444.8	---	---	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815
ROOSEVELT IRRIGATION DISTRICT	607234	RID	381907.2	3703439.4	---	---	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316	2316
ROOSEVELT IRRIGATION DISTRICT	607232	RID	383269.5	3714259.2	---	---	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759	759
ROOSEVELT IRRIGATION DISTRICT	607231	RID	383529.3	3704062.2	---	---	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416
ROOSEVELT IRRIGATION DISTRICT	607229	RID	383543.8	3704873.5	---	---	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189
						SUBTOTAL	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**	**10793**
						TOTAL	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**	**85794**

TABLE 3
FUTURE MODEL 3 (RID 75K AFY) - WELL BY WELL PUMPING RATES
WVBA WQARF Site
Phoenix, Arizona

OWNER	REGISTRYID	WELLNAME	EAST	NORTH	TOP_ELEV	BOT_ELEV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
COP WELLS WITHIN 30-YEAR FUTURE MODEL BOUNDARY																																				
CITY OF PHOENIX	30046	WC-4	388204.33	3694525.52	-204.00	-804.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30047	WC-1	394603.90	3698228.47	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30050	WPWF	382413.02	3704325.99	830.00	-170.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30052	WC-2	394506.28	3697085.90	-166.00	-766.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	30061	WC-3	391415.88	3696554.39	-190.00	-790.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	510285		383739.10	3695850.79	931.00	871.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	513639		384036.60	3695533.59	944.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514595		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514596		383440.90	3695534.89	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	514597		383440.90	3695534.89	904.72	864.72	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406	406
CITY OF PHOENIX	514598		383440.90	3695534.89	904.72	864.72	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633
CITY OF PHOENIX	514848		383635.80	3695534.28	934.72	854.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	518181		383831.10	3695956.59	884.72	834.72	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
CITY OF PHOENIX	541642	RW-5	393527.05	3707245.51	1029.82	1029.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	548935		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550276	SDW-10	383836.20	3695533.89	944.72	899.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550277	SDW-11	383836.20	3695533.89	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550278	SDW-12	383836.20	3695533.89	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550279	DW-15	383836.20	3695533.89	944.72	896.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550280	SDW-14	383836.20	3695533.89	944.72	889.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550393		383635.80	3695534.28	944.72	888.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	550394		383635.80	3695534.28	944.72	894.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560601		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560602		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560603		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560604		383631.90	3695742.49	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560605		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	560606		383635.80	3695534.28	944.72	474.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	584460	RSPW-2	400299.94	3698919.85	986.53	861.53	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	593126	RSSW-5	399486.64	3698517.75	988.88	705.88	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113
CITY OF PHOENIX	593127	RSSW-6	399295.94	3697872.84	988.73	702.73	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
CITY OF PHOENIX	599020	LACC-1	390165.60	3693789.54	957.99	505.99	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
CITY OF PHOENIX	604967		383154.61	3696208.52	918.00	783.00	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650
CITY OF PHOENIX	612452		384030.80	3696605.30	943.07	715.07	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	623534	COP 283	388243.24	3694464.89	976.00	791.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	623537	COP 282	388845.55	3694462.09	-172.00	-472.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626524	ALKIRE PARK POOL WEL	398223.12	3699919.08	869.00	799.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626530	UNIVERSITY PARK	398991.14	3702041.64	909.09	723.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626531	EL REPOSO PARK WELL	400884.06	3694993.42	926.00	526.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626532	HARMON PARK WELL	399692.03	3699934.66	972.05	822.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626533	FALCON	394671.27	3702807.37	843.00	673.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626534	ENCANTO E.	398712.00	3704166.69	996.53	466.53	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
CITY OF PHOENIX	626536	ENCANTO W.	399120.70	3704963.19	998.04	468.04	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CITY OF PHOENIX	626550	COP 68	394212.72	3704362.75	969.15	650.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626551	COP 69	394542.75	3707433.41	964.67	744.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626552	COP 70	393836.98	3705514.92	878.58	413.58	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
CITY OF PHOENIX	626561	COP 100	395289.58	3703606.58	970.00	692.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626565	COP 110	398149.88	3707607.91	726.00	479.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626575	COP 151	392238.02	3706625.15	903.35	515.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626576	COP 152	392267.52	3706632.81	843.08	663.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626577	COP 154	388970.87	3706446.51	906.90	390.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626578	COP 155	388903.24	3706498.18	906.89	552.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626579	COP 156	389006.10	3705961.83	841.82	620.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626580	COP 157	390586.94	3705101.73	751.27	390.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626597	COP 204	392717.10	3690806.47	666.00	628.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	626630	COP 240	384247.25	3706759.81	640.00	354.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803558		384036.60	3695533.59	944.72	874.72	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723	723
CITY OF PHOENIX	803559		384036.60	3695533.59	944.72	874.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CITY OF PHOENIX	803560		384036.60	3695533.59	944.72	874.72	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340
						TOTALS	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**	**7451**
						SRP	25063	25430	25803	26181	26565	26954	27349	27749	28156	28568	28987	29411	29842	30280	30723	31173	31630	32093	32563	33041	33525	34016	34514	35020	35020	35020	35020	35020	35020	35020
						RID	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794	85794
						COP	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451	7451
						TOTAL	**118307**	**118675**	**119047**	**119425**	**119809**	**120198**	**120593**	**120993**	**121400**	**121812**	**122231**	**122656**	**123086**	**123524**	**123967**	**124417**	**124874**	**125337**	**125808**	**126285**	**126769**	**127260**	**127758**	**128264**	**128264**	**128264**	**128264**	**128264**	**128264**	**128264**

NOTES:

1. Pumping rates are in acre-feet per year (AFY).

2. Future Model 3 = Current levels of RID pumping (75,000 AFY) for RID-83 through RID-114; pumping rates for other RID wells within the SRRD based on 2006 data from SRV groundwater model database. All RID pumping within the SRRD unchanged from current levels through 2041. Historical (1985-2010) annual average levels of SRP pumping (25,000 AFY) linearly increasing to 35,000 AFY by 2035; Base levels of COP pumping (7,450 AFY) from 2012 through 2041.

3. The "Estimated Future Pumpage (Low)" well-by-well pumping rates provided by SRP in a spreadsheet dated on or about June 26, 2011 were adjusted to total 25,000 AFY; pumping in subsequent years was adjusted linearly to meet 35,000 AFY in 2035 per SRP's September 16, 2011 email.

4. RID pumping rates for RID-83 through RID-114 (in gallons/minute) taken from Figure 14 of RIDs Modified ERA Proposal dated July 17, 2012, converted to AFY and prorated for pumping 7 of 12 months, then adjusted to total 75,000 AFY; total pumping rate of 75,000 AFY is per page 20 of RID's February 3, 2010 Early Response Action. Pumping rates for other RID wells within the SRRD are 2006 pumping rates from the SRV groundwater model database.

5. COP pumping per COP's August 18, 2011 email and spreadsheet attached to the August 18, 2011 email.

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TECHNICAL MEMORANDUM

05 July 2014
File No. 37503-204

REGISTERED GEOLOGIST
CERTIFICATE NO.
46379
ERIC
MICHAEL
PIGATI
Date Signed 7/6/14
ARIZONA, U.S.A.
Expires: 6/30/16

TO: Ms. Gail Clement, G.M. Clement & Associates, Inc.
Mr. Bruce Travers, Allwyn Environmental
Mr. Joe Drazek, Quarles & Brady LLP
Mr. Christopher Thomas, Squire Sanders (US) LLP

FROM: Eric Pigati, Haley & Aldrich, Inc.

SUBJECT: West Van Buren Area Feasibility Study Alternatives Modeling

INTRODUCTION

This Technical Memorandum (Memo) describes the groundwater flow, particle tracking, and groundwater tracer modeling used to support the West Van Buren Area (WVBA) Feasibility Study (FS) remedial alternatives evaluation. Details of the 30-Year Future Model (i.e., 2012 through 2041) used as the base model to assess WVBA FS remedial alternatives, were provided in a previous Technical Memorandum dated 22 January 2014 (Haley & Aldrich, Inc. [Haley & Aldrich], 2014) and the documents referenced therein, in particular Brown and Caldwell, 2013. This Memo describes the subsequent minor adjustments to the model production well database and general head boundaries (GHBs). This Memo also provides details of the FS remedial alternatives simulations, including the important model input parameters and settings for groundwater flow, particle tracking, and groundwater tracer modeling.

WVBA FS REMEDIAL ALTERNATIVES

The WVBA FS remedial alternatives are described in detail in the main body of the FS Report. There are three primary remedial alternatives: the Less Aggressive Remedy, the Reference Remedy, and the More Aggressive Remedy. All of the remedial alternatives started with the same base model setup from 2012 through 2025, which is primarily based on model input data from 2009, as described in Brown and Caldwell, 2013, and Haley & Aldrich, 2014.

Different time periods within the 30-Year Future Model were used for the Less Aggressive Remedy, and the Reference and More Aggressive Remedies. A 2026 through 2041 model was used for the Less Aggressive Remedy, based on the assumption that Roosevelt Irrigation District (RID) wells within the Salt River Reservoir District cease pumping on 1 January 2026. A separate 2012 through 2025 model was used for the Reference Remedy and the More Aggressive Remedy, which included one or two additional remedial extraction wells, respectively, pumping within the WVBA alongside RID wells to enhance overall VOC mass removal from high concentration areas from 2012 through 2025. A third model was used as a control to simulate conditions from 2012 through 2025 with no additional remedial

extraction wells pumping, to compare against the Reference Remedy and More Aggressive Remedy model results and establish the initial (2026) conditions in the Less Aggressive Remedy model. Table 1 summarizes the model setups for the remedial alternatives.

ADDITIONAL MODEL ADJUSTMENTS

New Production Wells and Adjustment of GHBs

Since issuing the 22 January 2014 Technical Memorandum, the location of one RID well (Arizona Department of Water Resources Registration Number 55-607232) was identified as being included in the model at an incorrect location. This well was moved to its correct location, and four planned future City of Tolleson wells were added based on new information (Table 2; City of Tolleson, 2014). The Arizona Department of Water Resources (ADWR) Salt River Valley Model (SRV2; ADWR, 2009) was re-run to simulate potential changes in groundwater elevations in response to these additional wells. The 30-Year Future Model GHBs were also updated accordingly, using the same method described in Haley & Aldrich, 2014.

Estimated 2026 Combined PCE/TCE Plume Footprint and Groundwater Tracer Application

The goal of the groundwater tracer modeling described below was to evaluate the comparative movement of groundwater originating from within the estimated 2026 combined tetrachloroethylene/ trichloroethylene (PCE/TCE) plume under the Less Aggressive Remedy. The tracer modeling consisted of tracking groundwater movement from within a defined boundary, representing an estimated future plume extent, through the WVB groundwater system with no additional remedial wells operating after 2025. The method is based on using a generalized solute to represent groundwater mass; only the movement and mixing of groundwater mass is simulated.

The estimated 2026 plume footprint[1] was added to the Upper Alluvial Unit 1 (UAU1) 1 (model layers 1 and 2). Because of the overall stable concentration trends within the UAU2 monitoring wells, the 2013 UAU2 plume footprint was used as the starting 2026 tracer distribution for illustrative purposes (model layer 3). A normalized groundwater tracer unit of 1 (1 NU) was used to represent the volume of groundwater originating from within the defined footprint. The groundwater tracer was added at the beginning of model year 2026.

The tracer was simulated to act as a conservative solute with practically no added dispersion, no sorption, no diffusion, and no degradation (mass loss). The mixing of the initial groundwater mass with other groundwater along the simulated flow paths results in a general dilution of the tracer mass. With the exception of some numerical dispersion, this is as close as practical to the movement of groundwater. No continuous sources of tracer were applied to the model. This method of approximately tracking groundwater originating from within the plume footprint was selected as a more robust

[1] For the UAU1, within the approximate extent of the estimated 10 ppb isoconcentration contour for the combined PCE/TCE plumes. The estimated 2026 plume boundary was based on the trend analysis discussed in Section 3.7.4 of Appendix A of the FS Report.

alternative to particle tracking to evaluate which downgradient production wells may pump groundwater that originated from the plume footprint, potentially becoming impaired under the Less Aggressive Remedy.

The groundwater tracer distribution displayed in Figures 7 through 9 of the FS Report is based on the ratio of the starting tracer value of 1 NU to the spatially-averaged PCE/TCE concentration of 20 parts per billion (ppb) within the estimated 2026 UAU1 plume outline. A simulated groundwater tracer value above 0.25 NU in the model output (e.g., groundwater not diluted through mixing below that level) therefore is a general representation, but not a direct correlative, of UAU1 groundwater that may be above the potable well impairment threshold relative to a starting, uniform PCE/TCE concentration of 20 ppb (0.25 NU:5 ppb being the same approximate ratio as 1 NU:20 ppb). The UAU1 groundwater tracer distributions in Figures 7 through 9 of the FS Report show simulated tracer values greater than 0.25 NU.

The tracer approach for the UAU2 was only used for illustrative purposes for the Less Aggressive Remedy to show the relatively slow rate of groundwater migration within the UAU2. The starting groundwater tracer with a value of 1 NU was placed within a boundary developed based on the extent of the 5 ppb TCE contour. Because of the higher concentrations within the UAU2 (on the order of 100 ppb), the UAU2 tracer distribution in Figures 10 through 12 of the FS Report represents tracer values greater than 0.05 NU (0.05 NU:5 ppb being the same approximate ratio as 1 NU:100 ppb).

Groundwater Head and Tracer Value Target (Observation) Wells

Additional groundwater head and tracer value target wells were added to the models to help evaluate tracer breakthrough at downgradient production wells in the Less Aggressive Remedy, and groundwater head changes at RID wells close to the proposed remedial extraction well locations, and along a central east-west transect of the WVBA. The number and location of target or observation wells varied depending on the model run and information required. Figure 1 shows all target well locations.

MODELING SOFTWARE AND RUN SETTINGS

As with the previous modeling efforts (Brown and Caldwell, 2013; Haley & Aldrich, 2014), Groundwater Vistas (now version 6.59 Build 9; Environmental Simulations Inc.) was used as the pre- and post-processor. The United States Geological Survey's (USGS) Modflow 2000 (McDonald and Harbaugh, 1988; Harbaugh and McDonald, 1996; Harbaugh et. al., 2000) was used for groundwater flow, the USGS Modpath version 5 (Pollock, 1994) for particle tracking, and MT3DMS (Zheng and Wang, 1998) for groundwater tracer modeling. A summary of the models and important input parameters and settings is provided in Table 3.

MODEL OUTPUT

Selected model output is presented and discussed in the main body of the FS Report.

ATTACHMENTS

Table 1 – Summary of Groundwater Models for the Remedial Alternatives
Table 2 – Production Wells Added After Issuance of Previous Technical Memorandum (Haley & Aldrich, 2014)
Table 3 – Summary of Groundwater Models, Input Parameters, and Settings
Figure 1 – Tracer Value and Head Observation Well Locations

REFERENCES

1. Arizona Department of Water Resources (ADWR), 2009. "Regional Groundwater Flow Model of the Salt River Valley, Phoenix Active Management Area; Model Update and Calibration. Modeling Report No. 19, April 2009.

2. Brown & Caldwell, 2013. "West Van Buren Study Area: Univar Groundwater Flow Model Update," December 2013.

3. City of Tolleson, 2014. Email dated April 2, 2014 from Supervisor of Water Utilities for City of Tolleson.

4. Haley & Aldrich, 2014. "Revisions to the West Van Buren Feasibility Study Working Group Base Groundwater Flow Model," Technical Memorandum, 22 January 2014.

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7. McDonald, M. G. and Harbaugh, A. W. 1988. "A modular three-dimensional finite, difference groundwater flow model. U.S. Geol. Survey Open File Rep.," 83-875, 528 pages.

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9. Zheng, C. and Bennett, G. D. 1995. "Applied Contaminant Transport Modeling: Theory and Practice. Van Nostrand Reinhold (John Wiley and Sons)," New York, 1995. 440 pp.

10. Zheng, C. and Wang, P. P. 1998. MT3DMS: "A modular three dimensional multi-species transport model for simulation of advection, dispersion and chemical reactions of contaminants in groundwater systems (Release DoD_3.00.A). Technical Report," June 1998. University of Alabama.

11. Zheng, C. personal communication, 2000. Email communication (August 2000) regarding numerical dispersion in dispersion tests using MT3D[99], suggested using TVD, use of implicit GCG solver in all cases, with reduction of C_o to <0.75, and SSOR with relaxation parameter set to 0.8 .

TABLE 1
SUMMARY OF GROUNDWATER MODELS FOR THE REMEDIAL ALTERNATIVES
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

FS Alternative	Years	Description of FS Alternative	Production Wells	Additional Wells	Particle Tracking	Groundwater Tracer
Current, Base Conditions - Used as the control for comparison with the Reference Remedy & More Aggressive Remedy. Also used as initial (2026) conditions for the Less Aggressive Remedy model.	2012 - 2025	N/A	2009 well database & 2012 - 2025 future production rates for five new COT wells, and RID, COP, & SRP wells **(See Haley & Aldrich, 2014 & Table 2)**	None	Reverse particle tracking from 2012 through 2025, from around each RID wells within & adjacent to the WQARF Site	No Tracer
Less Aggressive Remedy	2026 - 2041	RID wells off end of 2025; no additional remedial wells added	2009 well database with RID wells off, & future production rates for five new COT wells, and RID, COP, & SRP wells **(See Haley & Aldrich, 2014 & Table 2)**	None	Reverse particle tracking from 2026 through 2041, from around select down-gradient production wells	Tracer concentration of 1 normalized unit added at start of model (2026), within the area bounded by the estimated 2026 combined 10 ppb PCE/TCE iso-concentration contour for UAU1[(7)]; for the UAU2, within the area bounded by the 5 ppb contour .
More Aggressive Remedy	2012 - 2025	RID wells pumping at current rates to end of 2025; two additional remedial wells EW-1 & EW-2, pumping at 1,000 GPM from 2012 through 2025 to enhance VOC mass removal	2009 well database & 2012 - 2025 future production rates for five new COT wells, and RID, COP, & SRP wells **(See Haley & Aldrich, 2014 & Table 2)**	EW-1 screened in UAU1, EW-2 screened in UAU1 & 2, both pumping at 1,000 GPM	Reverse particle tracking from 2012 through 2025, from around each RID well within & adjacent to the WQARF Site, & from around the 2 additional remedial wells	No Tracer
Reference Remedy		RID wells pumping at current rates to end of 2025; one additional remedial well EW-2, pumping at 500 GPM from 2012 through 2025 to enhance VOC mass removal		EW-2, screened in UAU1 & 2, pumping at 500 GPM	Reverse particle tracking from 2012 through 2025, from around each RID well within & adjacent to the WQARF Site, & from around the additional remedial well	

NOTES:
1. All models derived from the 30-Year Future Model described in Haley & Aldrich, 2014, this Memo, and referenced material.
2. COT = City of Tolleson
3. COP = City of Phoenix
4. RID = Roosevelt Irrigation District
5. SRP = Salt River Project
6. UAU = Upper Alluvial Unit
7. The estimated 2026 PCE/TCE plume footprint was based on the trend analysis discussed in Section 3.7.4 of Appendix A of the FS Report.

TABLE 2
PRODUCTION WELLS ADDED AFTER ISSUANCE OF
PREVIOUS TECHNICAL MEMORANDUM (HALEY & ALDRICH, 2014)
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

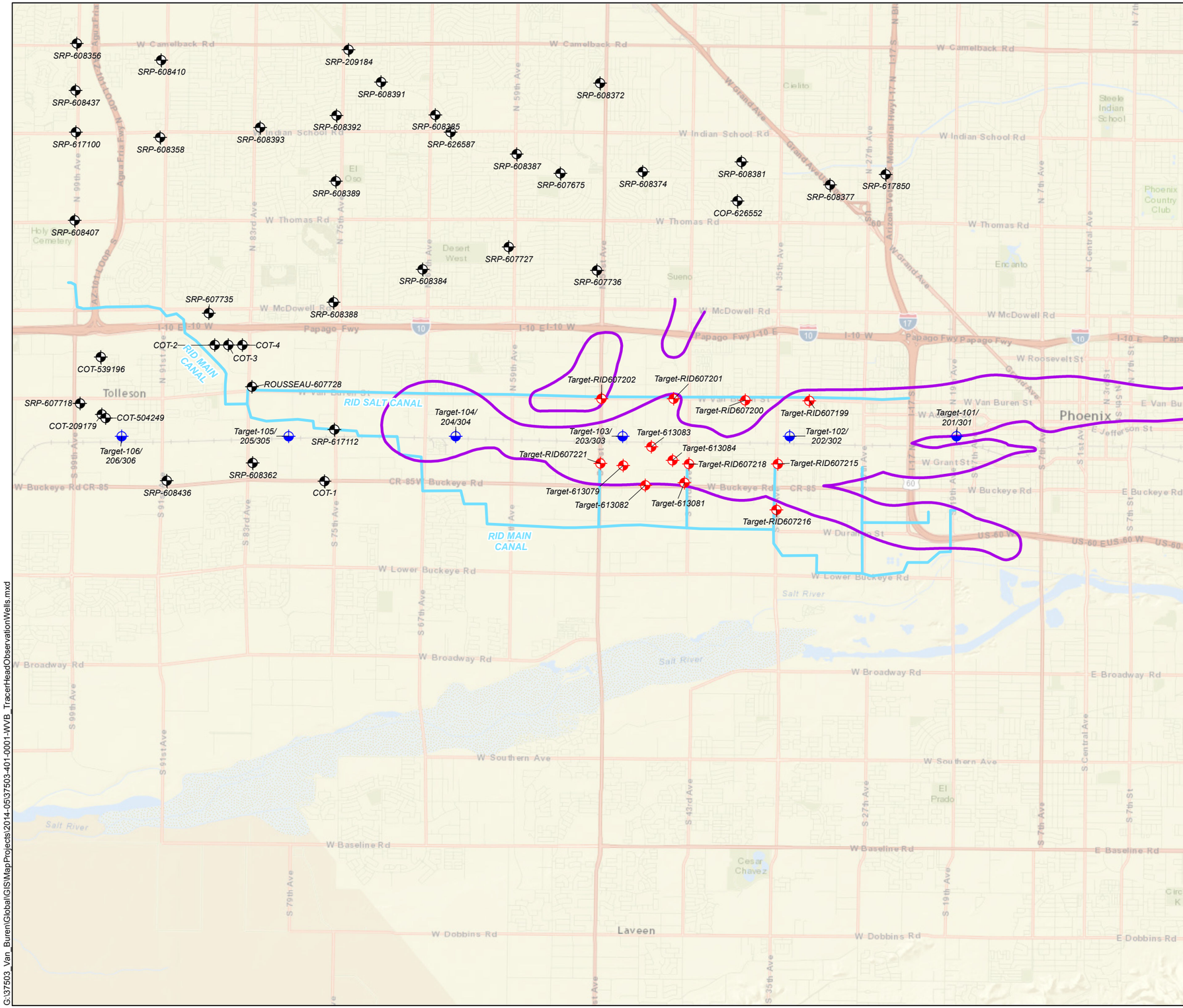
Well Name in Model	Registry Number	Well Owner	UTM X (metres)	UTM Y (metres)	Top of Screen (ft aMSL)	Bottom of Screen (ft aMSL)	Pumping Rate (gpd)	Notes
COT-1	Not assigned	City of Tolleson	386301	3700410	507	332	1,000,000	Proposed Future Well
COT-2	Not assigned	City of Tolleson	384296	3702889	511	336	1,000,000	Proposed Future Well
COT-3	Not assigned	City of Tolleson	384545	3702889	511	336	1,000,000	Proposed Future Well
COT-4	Not assigned	City of Tolleson	384801	3702889	511	336	1,000,000	Proposed Future Well
COT-5	Not assigned	City of Tolleson	380620	3700538	473	298	1,000,000	Proposed Future Well
RID-607232	607232	RID	382563	3704326	900	28	678,000	Well Location Corrected

NOTES:
1. UTM = Universal Transverse Mercator coordinates
2. ft = feet
3. aMSL = above Mean Sea Level
4. gpd = gallons per day

TABLE 3
SUMMARY OF GROUNDWATER MODELS, INPUT PARAMETERS, AND SETTINGS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

FS Alternative	Years	Initial Groundwater Heads	Select Modflow Settings	Modpath Settings	MT3DMS Settings
Current, Base Conditions - Used as the control for comparison with the Reference Remedy & More Aggressive Remedy. Also used as initial (2026) conditions for the Less Aggressive Remedy model.	2012 - 2025	2009 output from WVBSA2 Model, Stress Period 114, Time Step 10	Modflow 2000 Layers types: unconfined type 1, 3, 3, 3 for model layers 1, 2, 3, & 4, respectively. As described in Brown & Caldwell, 2013. Solver Settings: PCG2 Solver, head change criterion = 0.001 feet, residual criterion for convergence = 1, relaxation parameter = 1, matrix preconditioning = Cholesky, maximum bound on Eigenvalue = 2, damping factor = 1. Resaturation capability inactive.	Reverse particle tracking for 5114 days (2012 through 2025). 25 particles equally distributed at a radius of 100 ft around each RID well within & adjacent to the WQARF Site. Particles placed 10% of layer thickness from the bottom of model layers 2 & 3.	Not Used
Less Aggressive Remedy	2026 - 2041	2025 output from WVB2_BASE14, Stress Period 42, Time Step 10		Reverse particle tracking for 5844 days (2026 through 2041). 25 particles equally distributed at a radius of 100 ft around each selected down-gradient well. Particles placed 10% of layer thickness from the bottom of model layers 2 & 3.	Advective Solution TVD: Courant Number = 0.75, max particles = 20,000,000 GCG solver settings: max outer iterations = 1, max inner iterations = 50, solver = SSOR, relaxation parameter = 0.8, concentration criterion for convergence = 0.0001. Maximum transport time step between 0.5 & 2 days depending on model run. Dispersivities (feet): Dl = 0.01, Dt = 0.001, Dv = 0.0001, No diffusion, sorption, or reactions. 'Initial (unitless) concentration' added at start of model run (2026), within the area bounded by the estimated 2026 combined 10 ppb PCE/TCE iso-concentration contour for UAU1[(4)]; for the UAU2, within the 5 ppb contour.
Reference Remedy	2012 - 2025	2009 output from WVBSA2 Model, Stress Period 114, Time Step 10		Reverse particle tracking for 5114 days (2012 through 2025). 25 particles equally distributed at a radius of 100 ft around each RID well within & adjacent to the WQARF Site & remedial wells EW-1 & EW-2 (More Agressive Remedy) & EW-2 (Reference Remedy). Particles placed 10% of layer thickness from the bottom of model layers 2 & 3 for all wells except well EW-1, which only had particles placed in layer 2.	Not Used
More Aggressive Remedy	2012 - 2025				

NOTES:
1. All models derived from the 30-Year Future Model described in this Memo (Haley & Aldrich, 2014c) and referenced material.
2. MT3DMS settings guided by Zheng and Bennett, 1995; Zheng and Wang, 1998; and Zheng, 2000.
3. Additional information on models contained in the individual model Groundwater Vistas files.
4. The estimated 2026 PCE/TCE plume footprint was based on the trend analysis discussed in Section 3.7.4 of Appendix A of the FS Report.



LEGEND

- TRACER VALUE OBSERVATION WELLS
- HEAD OBSERVATION TARGET WELLS ALONG AN E-W TRANSECT OF THE PLUME
- HEAD OBSERVATION WELLS USED IN THE REFERENCE AND MORE AGGRESSIVE REMEDY MODELS
- 2013 COMBINED PCE/TCE PLUME OUTLINE (>5 ug/L) - UAU1

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BACKGROUND IMAGERY: ARCGIS ONLINE, 11-2010.

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0 6,000 12,000
SCALE IN FEET

HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, AZ

TRACER VALUE AND
HEAD OBSERVATION WELL LOCATIONS

SCALE: AS SHOWN
JULY 2014

FIGURE 1

G:\37503_Van_Buren\Global\GIS\MapProjects\2014-05\37503-401-0001-WVB_TracerHeadObservationWells.mxd

APPENDIX D

Human Health Risk Assessment

HUMAN HEALTH RISK ASSESSMENT
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

by

Haley & Aldrich, Inc.
San Diego, California

for

The West Van Buren WQARF Site Working Group

File No. 37503-600
July 2014

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Subject: Human Health Risk Assessment
West Van Buren WQARF Site
Phoenix, Arizona

Ladies and Gentlemen:

On behalf of the West Van Buren WQARF Site Working Group, Haley & Aldrich, Inc. prepared the enclosed Human Health Risk Assessment for the West Van Buren Water Quality Assurance Revolving Fund site in Phoenix, Arizona.

Please contact the undersigned if you have any questions regarding this report.

Sincerely yours,
HALEY & ALDRICH, INC.

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Enclosures

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LIST OF ACRONYMS AND ABBREVIATIONS

1,1-DCE	1,1-Dichloroethene
95% UCL	95% Upper Confidence Level
μg/L	Micrograms per liter
$\mu g/m^3$	Micrograms per cubic foot
ADEQ	Arizona Department of Environmental Quality
ADD	Average Daily Dose
Air Liquide	Air Liquide America Specialty Gases, LP
ALSCo	American Linen Supply Company
AWQS	Aquifer Water Quality Standards
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ChemResearch	ChemResearch Co, Inc.
cis-1,2-DCE	cis-1,2-Dichloroethene
COPCs	Chemicals of Potential Concern
Dolphin	Dolphin, Incorporated
DQIs	Data Quality Indicators
EC	Exposure Concentration
EPA	United States Environmental Protection Agency
EPCs	Exposure Point Concentrations
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQs	Hazard Quotients
ILCRs	Incremental Lifetime Cancer Risks

LADD	Lifetime Average Daily Dose
LMS	Linearized Multi-stage
LOAEL	Lowest-observed-adverse-effect-level
MAU	Middle Alluvial Unit
MCLs	Maximum Contaminant Levels
MCMM	Maricopa County Materials Management
mg/kg-day	Milligrams of COPC per kilogram of body weight per day
NOAEL	No-observed-adverse-effect-level
PCE	Tetrachloroethene
Prudential	Prudential Overall Supply
Q-Q	Quantile-Quantile
RfCs	Reference Concentrations
RfDs	Reference Doses
RID	Roosevelt Irrigation District
RI Report	"Remedial Investigation Report," Terranext, August 2012
RME	Reasonable Maximum Exposure
ROs	Remedial Objectives
September 2011 RID Report	"Early Response Action Public Heath Exposure Assessment and Mitigation Summary Report," Synergy Environmental LLC
SFs	Slope Factors
SVE	Soil Vapor Extraction
Synergy	Synergy Environmental LLC
TCE	Trichloroethene
UAU1	Upper Alluvial Unit 1
UAU2	Upper Alluvial Unit 2

Univar	Univar USA Inc.
URFs	Unit Risk Factors
VOCs	Volatile Organic Compounds
Working Group	West Van Buren Area Working Group
WQARF	Water Quality Assurance Revolving Fund
WVBA	West Van Buren Area

1. INTRODUCTION

This Human Health Risk Assessment (HHRA) was conducted for the West Van Buren Area (WVBA) Water Quality Assurance Revolving Fund (WQARF) site on behalf of the WVBA Working Group (Working Group) following U.S. Environmental Protection Agency (EPA) and Arizona Department of Environmental Quality (ADEQ) risk assessment guidance. The assumptions used in the HHRA are considered to be conservative and likely result in an overestimation of potential health risks. In general, the HHRA assumptions include higher than likely chemical concentrations a person (i.e., receptor) may be exposed to and longer exposure time periods, given the current and likely future locations of such receptors. The health risks presented herein may therefore be considered upper-bound estimates of the potential human health risks.

The Site, referred to as the WVBA, is located in the western portion of the City of Phoenix, Arizona, approximately bounded by W. McDowell Road to the north, 7th Avenue to the east, W. Buckeye Road to the south, and 75th Avenue to the west. The approximate boundary of the WVBA is presented on Figure 1.

The Working Group is an unincorporated association of parties that either had or have operating facilities within the WVBA (or the Site) and other key regional stakeholders. The Working Group includes: Air Liquide America Specialty Gases, LP (Air Liquide); Arizona Public Service Company; the City of Phoenix; Dolphin, Incorporated (Dolphin); Freescale Semiconductor; Holsum Bakery, Inc.; Honeywell International, Inc.; ITT Corporation; Laundry & Cleaners Supply, Inc.; Maricopa Land and Cattle Co.; Milum Textile Services Co.; Prudential Overall Supply, Inc. (Prudential); Salt River Project Agricultural Improvement and Power District; Schuff Steel Company; and Univar USA Inc. (Univar) – formerly Van Waters & Rogers. Penn Racket Sports (HTM Sport GmbH/HEAD USA/HEAD Penn Racquet Sports) also participated in the early stages of the Working Group's effort.

1.1 Background

Volatile organic compounds (VOCs) were first detected in groundwater within the WVBA in 1985 during a groundwater investigation conducted by Chevron USA Inc. at their facility located south of Van Buren Street between 51st Avenue and 55th Avenue (Dames & Moore, 1985). This discovery was the inception of the WVBA WQARF site. ADEQ's November 1987 Decision Record created the Van Buren Tank Farm WQARF Area and a December 1987 amended Decision Record changed the name to the West Van Buren Area WQARF Site (ADEQ, 2010).

Beginning in 1988, several facilities within the WVBA conducted site investigations and remedial actions under the guidance of ADEQ (Terranext, 2008, 2012b). The WVBA was placed on the State of Arizona WQARF registry in 1998 (ADEQ, 1998a) and a community advisory board was formed in 1999 (ADEQ, 2010). The "Remedial Investigation Report, West Van Buren Area WQARF Registry Site, Phoenix, Arizona" (RI Report), which includes the Land and Water Use report, was prepared in August 2012 by Terranext on behalf of the ADEQ (Terranext, 2012b). The RI Report also includes the Remedial Objectives (ROs) report prepared by ADEQ (ADEQ, 2012b). Many more WVBA facilities identified in the RI Report and other potential sources have not yet conducted site investigations. ADEQ's potentially responsible party search for the WVBA, including orphan sites, is ongoing and potentially responsible parties will be identified in ADEQ's Proposed Remedial Action Plan.

WQARF and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites adjacent to the WVBA include:

- Motorola 52nd Street CERCLA site; and
- West Osborn Complex WQARF site.

The Roosevelt Irrigation District (RID) operates 32 irrigation wells, the Salt Canal, and the Main Canal and its laterals in the vicinity of the WVBA (Figure 1); these combined features are herein referred to as the RID canal system. Portions of the canal system are open channels; other portions are enclosed (consist of piping).

RID pumps water from RID production wells into laterals and canals and the water is used for agricultural purposes west of the WVBA. Based on the "Land and Water Use Report" (Terranext, 2012a) and the RI Report Terranext, 2012b), ADEQ issued final ROs for the WVBA on 8 August 2012 in the "Remedial Objectives Report" (ADEQ, 2012a). ADEQ established ROs for land use, groundwater use, and canal/surface water use.

1.2 Objectives

The objective of this HHRA is to assess potential human health risks associated with possible exposure to chemicals within the surface water in the RID canal system and groundwater beneath the WVBA. Facility-specific soil and soil gas impacts identified within the WVBA are being addressed separately by the respective facility owner/operator under ADEQ guidance. The results of the HHRA will be used in the Feasibility Study to identify appropriate remedial alternatives, if warranted, to protect human health.

1.3 Methodology

This HHRA was prepared using both EPA and ADEQ risk assessment guidance. The primary guidance documents used during the preparation of this HHRA are as follows:

1. "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final," prepared by EPA and dated December 1989;
2. "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites," prepared by the EPA and dated December 2002;
3. "Release Reporting and Corrective Action Guidance, Underground Storage Tank Program" prepared by the Arizona Department of Environmental Quality and dated August 2002;
4. "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)," prepared by EPA and dated July 2004;
5. "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)," prepared by EPA and dated January 2009; and
6. "Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors", prepared by EPA and dated 6 February 2014.

A HHRA is typically conducted in four steps: 1) hazard identification; 2) exposure assessment; 3) toxicity assessment; and 4) risk characterization. These steps are described as follows:

- Hazard Identification (Section 2): review and evaluate the data collected and identify the chemicals of potential concern (COPCs) detected in groundwater, surface water, and ambient air at the WVBA.
- Exposure Assessment (Section 3): identify the most sensitive receptors within the WVBA based on current and hypothetical future land use in the WVBA, identify the possible exposure pathways (i.e., how the receptors may come into contact with the COPCs at the WVBA), derive exposure point concentrations (EPCs), and estimate the COPC intake by each receptor category. This section also presents a discussion of the ambient air concentration estimation and model input assumptions for WVBA human receptors. The exposure assessment is summarized in a Conceptual Site Model, which identifies potentially complete exposure pathways for each receptor.
- Toxicity Assessment (Section 4): identify the relevant toxicity values for the COPCs.
- Risk Characterization (Section 5): summarize the estimated human health risk results and the associated risk uncertainties.

These four steps of the HHRA are described in further detail in the following sections.

2. HAZARD IDENTIFICATION

The initial step of the HHRA process is to review the available data to identify and characterize site impacts. Investigation activities conducted at the WVBA included the collection and analysis of groundwater samples, surface water samples, and ambient air samples.

2.1 Investigation Activities

Environmental sample data have been collected at selected facilities and from within regional groundwater of the WVBA. Facilities within the WVBA identified in the RI Report as having conducted detailed site investigations and/or remediation activities include the following:

- Air Liquide;
- American Linen Supply Company (ALSCo);
- ChemResearch Co, Inc., (ChemResearch);
- Department of Energy;
- Dolphin;
- Maricopa County Materials Management (MCMM);
- Prudential;
- Reynolds Metals Co.; and
- Van Waters & Rogers (now Univar).

Several of the WVBA facilities identified in the RI Report have either completed or nearly completed their respective site investigations under ADEQ guidance (Terranext, 2012b). ALSCo, Dolphin, MCMM, Reynolds Metals Co., and Univar have also completed remediation work for soil and soil gas at their respective facilities, and based on the results of the remedial actions have either obtained No Further Action determinations from ADEQ, ADEQ has terminated their respective consent orders, and/or the remedial system was shut down with ADEQ approval after meeting soil remediation levels.

In addition to completing soil remediation, Univar conducted extensive groundwater monitoring in the Upper Alluvial Unit 1 (UAU1) and the Upper Alluvial Unit 2 (UAU2) and received ADEQ approval to discontinue site-specific groundwater monitoring. Dolphin and ALSCo also performed groundwater remediation via air sparging and/or groundwater extraction. Air Liquide performed remedial work (excavation, removal, and disposal of two former grease traps, associated concrete, and surrounding soils), and has conducted approximately six years of quarterly and semiannual groundwater quality monitoring as required by a signed Consent Order and an amended Consent Order with ADEQ. The Amended Consent Order required an additional two years of semiannual groundwater sampling and quarterly water level monitoring, plus a soil-air-vapor extraction pilot test and radius-of-influence testing. On the basis of further testing and analysis of the vadose zone, during June of 2013, ADEQ determined that soil-vapor radius of influence testing activities were no longer necessary. During March of 2014, ADEQ concurred with Air Liquide that sufficient and favorable work has been done in connection with characterization of the vadose zone and ADEQ indicated that it would be receptive to reviewing a request for No Further Action on the vadose zone beneath the Air Liquide's facility. Consequently, Air Liquide is now preparing a formal request for submittal to ADEQ.

Prudential negotiated an amended Consent Order with ADEQ to address remedial actions, began construction of a soil vapor extraction (SVE) system in 2011 and began operation of the SVE system in 2012. The Prudential SVE system continues to operate. To date, remediation of VOC-impacted soil and/or groundwater has not been performed at ChemResearch, although some remediation of chromium-contaminated soil has been conducted.

Groundwater monitoring began in 1984 at the WVBA. In general, groundwater samples collected from WVBA monitoring wells and RID wells have historically been analyzed for VOCs. In addition, metals, in particular dissolved total chromium and hexavalent chromium, have also been periodically analyzed in samples collected from select WVBA monitoring wells. WVBA groundwater monitoring wells are currently monitored semiannually by the ADEQ. Figure 1 shows the groundwater monitoring well locations at the WVBA.

Since 1984, groundwater levels have been measured from the WVBA monitoring well network, consisting of wells screened within three separate groundwater units, identified as the UAU1, the UAU2, and the Middle Alluvial Unit ([MAU]; Terranext, 2012b). The depth to the water table in the uppermost groundwater unit (UAU1) currently ranges from 75 to 140 feet below ground surface (Terranext, 2012b).

Surface water samples were collected within open areas of the RID canal and analyzed for VOCs in August 1995, June/July 2000, June 2003, June 2010, April/June/September 2011, September 2012, and April 2013 (ADEQ, 1995, 2011, 2012c, 2013; Synergy Environmental LLC [Synergy], 2011; Terranext, 2012b). Corresponding ambient air samples adjacent to surface water sampling locations were also collected in June 2011 and analyzed for select VOCs. Figure 2 shows the location of the surface water and ambient air samples collected at the WVBA. Surface water and ambient air sampling data sources include:

- 1995 surface water sample analytical results, provided by ADEQ (ADEQ, 1995);
- 2000 and 2003 surface water sample analytical results, presented in the "Remedial Investigation Report, West Van Buren Area WQARF Registry Site, Phoenix, Arizona" prepared by Terranext and dated August 2012 (Terranext, 2012b);
- June 2010 and April and June 2011 surface water and ambient air sample analytical results, presented in the "Early Response Action Public Heath Exposure Assessment and Mitigation Summary Report" prepared by Synergy for RID, and dated 16 September 2011 (Synergy, 2011), herein referred to as the September 2011 RID Report; and
- September 2011, September 2012, and April 2013 surface water analytical results, provided by ADEQ (ADEQ, 2011, 2012c, 2013).

2.2 Contaminant Distribution

Groundwater within the WVBA is impacted with VOCs, and to a lesser extent hexavalent chromium, presumably released during historical operations at certain industrial sites and other facilities within the WVBA. WVBA groundwater also appears to be impacted with VOCs originating from upgradient VOC sources within the Motorola 52nd Street Superfund site Operable Unit 3 (Terranext, 2012b; EPA, 2010) and the West Central Phoenix, West Osborn Complex WQARF site (Terranext, 2012b; ADEQ, 2008a; ADEQ, 2010b). The approximate lateral extent of VOC-impacted groundwater at the WVBA based on reported concentrations of trichloroethene (TCE) and tetrachloroethene (PCE) in the UAU1 zone obtained during the first quarter 2013 groundwater sampling event is shown on Figure 3. Metals

concentrations have also been measured in the WVBA groundwater; however, as described in Section 2.4.1, the detected metals concentrations appear to be within natural background concentrations with the exception of dissolved total chromium and hexavalent chromium.

The primary chemicals detected in WVBA groundwater are (Terranext, 2012b; ADEQ, 2010c):

- TCE;
- PCE;
- 1,1,1-Trichloroethane;
- cis-1,2-Dichloroethene (cis-1,2-DCE);
- 1,1-Dichloroethane;
- 1,1-Dichloroethene (1,1-DCE); and
- Hexavalent chromium[1].

VOCs, primarily PCE, TCE, cis-1,2-DCE, and 1,1-DCE, have also been detected in some surface water samples collected from the RID canal system.

2.3 Data Usability

The overall quality of the samples and analytical data is a function of the sample collection methodology; sample management (from the time the sample is collected in the field, transported to and stored at the analytical laboratory, and handled through the analytical process); analytical methodology; data interpretation, review, and validation; and database management steps. EPA's April 1992 document titled, "Guidance for Data Usability in Risk Assessment (Part A) (EPA, 1992a) identifies six principal evaluation criteria to judge data usability in an HHRA. These criteria, listed below, were considered as part of the Hazard Identification step of this HHRA:

- Site Information Related to the Data;
- Documentation;
- Data Sources;
- Analytical Methods and Detection Limits;
- Data Review; and
- Data Quality Indicators.

[1] According to the RI Report, hexavalent chromium is present in groundwater beneath the ChemResearch facility and is considered a COPC at this location. Regarding other total chromium detects in groundwater above the Aquifer Water Quality Standards, the RI Report states "…ADEQ redeveloped wells exhibiting elevated chromium concentrations in February/March 2003 and in February 2004. The objective of well redevelopment was to remove fine-grained sediment within and immediately adjacent to the wells. It was hypothesized that the sediment may be the origin of the elevated chromium concentrations. Chromium concentrations in groundwater samples declined substantially after redevelopment of the monitor wells…Based on this information, ADEQ believes that the detected chromium in most of the wells…may be due to deterioration of the stainless steel well casing, where present, or naturally occurring in subsurface soils." (Terranext, 2012b)

2.3.1 Site Information Related to the Data

Information regarding the WVBA description, the rationale for the sample design, sample locations, selected analytical parameters and analytical methods, and sample results is presented in the previously identified WVBA investigation reports and related documentation (ADEQ, 1995, 2011, 2012c, 2013; Terranext 2012b; Synergy, 2011). These results also include figures depicting sample locations and tables summarizing the analytical data. These data are available from ADEQ. The analytical data were entered into an electronic data management system to assist with its use in the HHRA. Site information was also obtained from a review of other sources (such as aerial photographs). Sufficient WVBA information was provided to conduct the HHRA.

2.3.2 Documentation

This documentation criterion is used to assess whether there is sufficient documentation to assess whether the analytical results are associated with the identified sample location and field collection procedure for the collected groundwater, surface water, and air samples. Based on a review of the sample documentation, it was concluded that there was sufficient information to specifically identify each sample location with the exception of a subset of the surface water and ambient air data. It was determined that there was sufficient information to accurately locate a sample when the reports summarizing the data included a figure depicting the sample location; it was concluded that there was insufficient information to accurately locate a sample when no figure depicting the sample location was available and the only available location description was a relatively vague text description. For these samples, the text descriptions and the descriptions regarding the collection of these samples was available were used to identify the approximate sample locations. These samples include those surface water samples collected in 1995 and 2010 through 2013. These approximate locations, as noted in Figure 2, were considered to be adequate for use in the HHRA. It was therefore concluded that sufficient sample location and collection documentation was provided to identify each sample location for conducting the HHRA.

2.3.3 Data Sources

The data sources criterion is used to assess the data comparability among the various data sources. A review of the data collected indicates that EPA analytical methods were used for each media and reported detection limits were consistent within the data set of each media analyzed. The following analytical methods were used for the groundwater, surface water, and ambient air samples collected:

- Groundwater: EPA Method 8260B;
- Surface water: EPA Method TO-15/TO-15 SIM; and
- Ambient air: EPA Method 8260B.

A review of the minimum reported detection limits for each chemical analyzed in groundwater, surface water, and ambient air in Attachment A indicates that for each analyte the reported minimum detection limits are similar for each sample analyzed.

Since similar analytical methods were used for each environmental media sampled and the reported detection limits were consistent among each media's samples, none of the data were rejected by this criterion for use in the HHRA.

2.3.4 Analytical Methods and Detection Limits

The selected analytical methods and associated detection limits must be low enough to assess each chemical's level of potential concern in the HHRA. This criterion is typically met if EPA or other regulatory-approved analytical methods are used and elevated detection limits are not reported for critical sample data. This criterion is considered to be met when regulatory-approved analytical methods were used when chemicals were not detected, the majority of the detection limits were not reported as elevated, and elevated detection limits were not consistently reported for samples at any given sample location where multiple samples were collected over time.

As indicated above in Section 2.3.3, EPA methods were used. Further review of the minimum and maximum reported detection limits listed in the tables presented in Attachment A indicate that the reported detection limits for each analyte in each media analyzed are within an order of magnitude of one another, with few exceptions. For these exceptions, analyte detection limits for samples collected during other sampling events are consistent with the minimum detection limit reported for that analyte. Therefore, it was concluded that the selected analytical methods and associated detection limits were low enough to assess each chemical's level of potential concern in the HHRA.

2.3.5 Data Review

The data review criterion is used to validate the analytical data obtained from the laboratory for use in the HHRA. This criterion is typically met through the use of independent data validation. Independent data validation reports for the analytical data were not available during the preparation of this HHRA. Since the data were previously reviewed by the consultants who collected the data and the ADEQ who approved the use of the data for the preparation of the RI Report, the data were considered of sufficient quality for use in the HHRA. However, to further assess the confidence of that conclusion, a multiple lines of evidence approach was used to evaluate the quality of the data. This multiple lines of evidence included a comparison of the data collected at each location over time (e.g., consistency or differences in detected chemicals and reported concentrations) and the relationship between the concentrations measured in various media (e.g., detected chemicals between media, and relative concentrations of chemicals in RID wells compared to nearby surface water). Additional information regarding the results of this evaluation is presented in Sections 2.4, 3.2.2, and 3.2.3. Based on the results of the multiple lines of evidence approach, it was concluded that the analytical results are of sufficient quality for use in the HHRA.

2.3.6 Data Quality Indicators

Data quality indicators (DQIs) are used to assess whether the sampling and analytical methodologies were conducted in a manner that resulted in analytical measurements within established control limits. DQIs are typically identified for data precision, accuracy, representativeness, comparability, and completeness.

2.3.6.1 Definitions

Each DQI is described below:

- Precision**:** Precision is a measure of the degree of agreement between replicate measurements (e.g., duplicate samples). Precision is expressed by the relative percent difference between

replicate measurements. Replicate measurements can be made on the same sample or on two samples from the same source.

- Accuracy: Accuracy is a measure of the level of bias that an analytical method or measurement exhibits. To measure accuracy, a standard or reference material containing a known concentration is analyzed or measured and the result is compared to the known value.
- Representativeness: Representativeness is the degree to which data represents the population being measured. For risk assessment purposes, samples should reflect the site's characteristics, so that the sampling and analyses adequately represent chemical concentrations within the exposure area. Representativeness is achieved by appropriately selecting sampling locations and collecting an adequate number of samples. Other important elements when evaluating sample representativeness include conformance with sample preservation requirements, analytical holding times, and sample handling to avoid sample contamination.
- Comparability: Comparability is the confidence with which data can be compared with another. Comparability can be evaluated by collecting multiple samples over time, using consistent procedures, and similar reporting characteristics (e.g., analytical units).
- Completeness: Completeness is commonly expressed as a percentage of measurements that are valid and usable relative to the total number of measurements.

2.3.6.2 DQI Results

As indicated previously, the data evaluated for the HHRA was collected by others, submitted to the ADEQ, and is publicly available. The samples were reportedly collected by qualified firms and the analyses were reportedly conducted by Arizona -accredited analytical laboratories. The data collected have also been incorporated into the RI Report prepared for ADEQ (Terranext, 2012b) and used to understand and interpret WVBA characteristics and the nature and extent of chemical impacts within the WVBA. Even so, as described in Section 2.3.5, a multiple lines of evidence approach was used to further assess the quality of the data for use in the HHRA.

As stated in the RI Report (Terranext, 2012b) pursuant to A.A.C. R18-16-406, the purpose of the RI was to:

1. Establish the nature and extent of the contamination and the sources thereof;
2. Identify current and potential impacts to public health, welfare, and the environment;
3. Identify current and reasonably foreseeable use of land and water of the state; and
4. Obtain and evaluate any other information necessary to identify and compare alternative remedial action.

The RI Report (Terranext, 2012b) further states that the objectives of the canal characterization were to:

- Assess VOC concentrations in RID wells within the WVBA; and
- Evaluate VOC concentrations within RID canal water downstream of discharging RID wells.

The WVBA characterization was therefore reportedly developed to allow collection of samples that are representative of the media to which the receptors may be exposed at the WVBA.

A review of the data, as presented in Section 2.4, indicates that groundwater samples from RID wells and monitoring wells within the WVBA have been collected during multiple sampling events over approximately thirty years. Surface water samples have also been collected from several locations along the RID canal system during multiple sampling events over 10 years. Those data represent the majority of the data available for the WVBA. Ambient air data have also been collected and analyzed, but these data have more limited use, as it was collected during only one sampling event. Additional information regarding the types, quantity, and quality of available data is presented in Section 2.4.

Based on the evaluation of data usability for the HHRA, it was concluded that the data collected sufficiently characterizes the nature of chemicals within the surface water in the RID canal system and groundwater beneath the WVBA and is of sufficient quality for use in the HHRA.

2.4 Chemicals of Potential Concern

The following sections summarize the data available in each media at the WVBA and the COPCs selected for each media. Table 1 presents a list of the chemicals detected and COPCs selected in each media at the WVBA. Attachment A includes tables that present the results of the COPC selection process.

Groundwater samples were collected and analyzed in groundwater beneath the WVBA from 1984 to 2013 and predominantly analyzed for VOCs. Metals were also analyzed in select groundwater samples. The COPC selection process described below includes an evaluation to assess whether reported metals concentrations are greater than natural background concentrations and how detected chemicals were selected as COPCs for inclusion in the HHRA.

2.4.1 Background Metals in Groundwater

A background metals evaluation was conducted for groundwater to assess which, if any, metals may be present at concentrations greater than natural background concentrations. Groundwater was analyzed for various metals, including arsenic, barium, cadmium, dissolved total chromium, hexavalent chromium, copper, lead, mercury, and zinc. The WVBA-specific background metals evaluation was conducted using EPA guidance and a multiple lines of evidence approach. The reported metals concentrations within groundwater zones UAU1, UAU2, and MAU beneath the WVBA were evaluated first by comparing the reported results to regional background data, then by performing a statistical evaluation.

2.4.1.1 Regional Background Data Comparison

Regional background data sets were identified in proximity to the WVBA and include the following:

- Agua Fria Basin: The Aqua Fria Basin is located approximately 25 miles north of the WVBA and the reported minimum and maximum background metals concentrations were obtained from the "Ambient Groundwater Quality of the Agua Fria Basin, A 2004-2006 Baseline Study," prepared by ADEQ and dated July 2008.
- Phoenix-Goodyear Airport North: Phoenix-Goodyear Airport North is a EPA National Priorities List site located in Goodyear, Arizona, approximately 8 miles west of the WVBA, and the reported minimum and maximum background metals concentrations were obtained from the "Final Source Areas, Soil, and Facility Structure Investigation Report, Phoenix Goodyear Airport North Superfund Site, Goodyear, Arizona," prepared by AMEC and dated 6 July 2011,

and the "Final Main Drywells Source Area Characterization Report, Phoenix-Goodyear Airport-North Superfund Site, Goodyear, Arizona," prepared by Arcadis and dated 19 January 2007.

- City of Mesa: The City of Mesa is located approximately 20 miles east of the WVBA and the reported minimum and maximum background metals concentrations were obtained from the "2011 City of Mesa Water Quality Report," prepared by the City of Mesa Water Resources Department and dated 2011.

The minimum and maximum detected concentrations from groundwater samples collected since 1984 (each of the groundwater samples collected to date) from the three groundwater zones beneath the WVBA and the minimum and maximum regional background concentrations identified from the above three data sources are presented in Table 2. For each metal, the range of the concentrations reported from the WVBA wells was compared to the regional background concentration ranges. For the purposes of this evaluation, a concentration difference of up to approximately three times is considered similar (to account for sampling and analytical precision and a degree of certainty in identifying a potential result as being greater than background). If the concentration range for the WVBA groundwater sample results was generally similar to the regional background concentration ranges, it was concluded that the WVBA metals concentrations are likely within regional background concentrations.

Based on a review of the WVBA and regional data, concentrations of dissolved total chromium greater than regional background concentrations appear to have been detected in groundwater beneath the WVBA. For the other metals, the WVBA groundwater sample results are generally similar to the regional background concentration ranges, with the exception of hexavalent chromium. Regional background concentrations were not identified for hexavalent chromium. Thus, a review of the hexavalent chromium concentrations detected beneath the WVBA was not included in the regional background comparison. Further assessment of whether reported metals concentrations in groundwater beneath the WVBA may be present at concentrations greater than background was conducted using a statistical evaluation, as described in the following section.

2.4.1.2 Statistical Analysis

The primary guidance used in the statistical evaluation is presented in the EPA September 2013 document titled, "ProUCL Version 5.0.00 Technical Guide Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations" (EPA, 2013a). The WVBA groundwater data was analyzed using statistical tools presented in the September 2013 EPA guidance.

The statistical analysis was conducted for each detected metal in each of the three groundwater zones (UAU1, UAU2, and MAU) where at least four samples had detected results in that groundwater zone (i.e., results greater than the reported laboratory detection limit) in samples collected between 1984 and 2013. The number of detected results for each metal by groundwater zone along with the maximum detected concentration is listed in Table 3. A review of Table 3 indicates that the following metals have at least four detected concentrations in one or more of the groundwater zones:

- UAU1: Arsenic, dissolved total chromium, hexavalent chromium, lead, and zinc;
- UAU2: Dissolved total chromium and hexavalent chromium; and
- MAU: Dissolved total chromium and hexavalent chromium.

Thus, insufficient detected concentrations (less than four detected concentrations) of barium, cadmium, copper, and mercury were reported in each of the groundwater zones.

For each groundwater zone where there were at least four detected concentrations for a given metal, both histograms and quantile-quantile (Q-Q) plots were prepared for untransformed and log-transformed of those detected concentrations for that metal. These histograms and Q-Q plots are labeled with "All Years" in Attachment B. Consistent with the September 2013 EPA guidance, only detected concentrations were included in the histograms and Q-Q plots so as not to distort the distributions by results reported at various detection limits. Histograms and Q-Q plots were therefore created for detected concentrations of arsenic, dissolved total chromium, hexavalent chromium, lead, and zinc in zone UAU1, and for dissolved total chromium and hexavalent chromium in zones UAU2 and MAU. The histograms and Q-Q plots prepared using the EPA ProUCL Software are presented in Attachment B. For comparison purposes, histograms and Q-Q plots including nondetect concentrations are also included in Attachment B.

The histograms and Q-Q plots for each metal were reviewed to assess whether the untransformed or the log-transformed data best resembled a normal distribution, depicted as a bell-shaped curve on a histogram. The evaluation is then conducted using the data that most resembles a normal distribution, unless there is insufficient data to identify an apparent normal distribution, the data appear non-parametric (i.e., neither the untransformed or log-transformed data resemble a normal distribution), or the data appears bi-modal. When the latter observations are noted, both the untransformed and log-transformed data are reviewed in the evaluation. A review of the histograms of the untransformed and log-transformed data indicates that for the zone UAU1 histograms there is insufficient data for arsenic, lead, and zinc to assess which data set best represents a normal distribution. A review of the histograms for dissolved total chromium indicates that the dissolved total chromium data appears to be non-parametric, and a review of the histograms for hexavalent chromium indicates that the hexavalent chromium data appears to be bi-modal. A review of the zone UAU2 and zone MAU histograms indicates that there is insufficient data for dissolved total chromium and hexavalent chromium to assess which data set best represents a normal distribution.

Since a review of the histograms did not definitely indicate that either the untransformed data or the log-transformed data resemble a normal distribution, the Q-Q plots for both the untransformed data and the log-transformed data were reviewed to assess whether there appears to be a point-of-departure or significant break in the slope of the Q-Q plots. The point-of-departure or break in the slope can be interpreted as the concentration at which the background metals population (closest to the origin) diverged from the non-background (impacted) population. Thus, concentrations less than the point-of-departure or break in the slope are considered to be within background concentrations and concentrations greater than the point-of-departure or break in the slope appear to be greater than background concentrations.

Based on a review of the Q-Q plots, no point-of-departure or break in the slope was identified for the reported UAU1 zone arsenic, lead, or zinc results, for the reported dissolved total chromium results in the UAU2 and MAU zones, and for the reported hexavalent chromium results in the MAU zone. A point-of-departure or break in the slope was identified in the Q-Q plots for the dissolved total chromium results in the UAU1 zone and the Q-Q plots for the hexavalent chromium results in the UAU1 and UAU2 zones. It is therefore concluded that dissolved total chromium was detected at concentrations greater than background in the UAU1 zone and hexavalent chromium was detected at concentrations greater than background in the UAU1 and UAU2 zones. A line is shown on each Q-Q plot indicating

which data appears to be less than and which data appears to be greater than the apparent point-of-departure or break in the slope.

A focused evaluation of the more recent data collected over the last five years (between 2009 and 2013) was also conducted. This evaluation included the preparation of Q-Q plots for the reported detected dissolved total chromium data in the UAU1 zone and hexavalent chromium data in the UAU1 and UAU2 zones obtained between 2009 and 2013. These plots were reviewed to assess whether there appears to be a point-of-departure or break in the slope indicating apparent concentrations greater than background in the data collected between 2009 and 2013. These Q-Q plots are also presented in Attachment B. A review of these Q-Q plots indicates that there appears to be an apparent point-of-departure or break in the slope in the Q-Q plots for the dissolved total chromium and hexavalent chromium data sets in only the UAU1 zone, indicating that dissolved total chromium and hexavalent chromium were detected at concentrations greater than background in groundwater samples collected only from the UAU1 zone. A line also shown on each of these Q-Q plots to indicate which data appears to be less than and which data appears to be greater than the apparent point-of-departure or break in the slope.

In summary, interpreting the Q-Q plots for metals detected in groundwater samples collected between 1984 and 2013 indicates that dissolved total chromium was detected at concentrations greater than background in the UAU1 zone and hexavalent chromium was detected at concentrations greater than background in the UAU1 and UAU2 zones. The above-noted regional background comparison confirms that dissolved total chromium was detected at concentrations in groundwater beneath the WVBA at concentrations greater than background. A focused review of the data collected between 2009 and 2013 indicates that dissolved total chromium and hexavalent chromium concentrations were detected at concentrations greater than background in groundwater samples collected only from the UAU1 zone.

2.4.1.3 Spatial Distribution Evaluation

The spatial distribution of the dissolved total chromium and hexavalent chromium concentrations was reviewed to assess whether the apparently elevated concentrations are present in close proximity to a potential COPC source. The sample locations for the previously-noted elevated dissolved total chromium and dissolved hexavalent chromium concentrations are shown in Figure 4. A review of Figure 4 indicates that these sample locations are clustered in the southeastern portion of the WVBA, located directly downgradient of the ChemResearch facility, which is indicative of a localized source for the dissolved total chromium and hexavalent chromium impacts that appear to originate from the ChemResearch facility. The highest reported dissolved total chromium and hexavalent chromium concentrations in the last 5 years of data (between 2009 and 2013) were 3,200 micrograms per liter (μg/L) and 32,000 μg/L, respectively. Apparent elevated concentrations were also reported in data collected prior to 2009. The highest reported dissolved total chromium and hexavalent chromium concentrations prior to 2009 were 1,700 μg/L and 22,000 μg/L, respectively.

2.4.1.4 Conclusions

The concentrations measured beneath the WVBA for a particular metal were identified as being within naturally-occurring background concentrations when:

- The histograms suggest that the data set is likely comprised of one sample population;
- The Q-Q plots further support that the data set is comprised of one sample population;

- The WVBA concentrations are similar to regional background concentrations;
- There are no known sources for that metal at the WVBA; and
- The spatial distribution of metals concentrations does not suggest that there are higher concentrations in proximity to a potential source of impacts.

Based on the results of the background evaluation, each metal detected in groundwater beneath the WVBA appears to be within natural regional background concentrations with the exception of dissolved total chromium and hexavalent chromium. As indicated above, dissolved total chromium and hexavalent chromium concentrations are clustered immediately downgradient of the ChemResearch facility, identified in Figure 1. A review of the RI Report confirms that the ChemResearch facility has been impacted by a release of hexavalent chromium and other chemicals related to onsite electronics plating operations.

The elevated concentrations of dissolved total chromium and hexavalent chromium in groundwater are not widely distributed across the WVBA. Although they are considered to be COPCs in the HHRA, since the source of these impacts can be attributed to releases from one facility property owned and operated by ChemResearch, it is assumed that further evaluation of these impacts and associated potential health risks will be performed by ChemResearch. Instead of including an assessment of the exposure to these localized elevated concentrations in the WVBA-wide HHRA calculations, an abbreviated evaluation of these elevated concentrations was included in this HHRA, which included only a comparison of reported dissolved total chromium and hexavalent chromium concentrations to their drinking water criterion. The results of this comparison are described in Section 5.2.1.

2.4.2 Groundwater – All Depths

2.4.2.1 Available Data

Groundwater samples have been collected from WVBA groundwater monitoring wells since 1984. The ADEQ currently monitors approximately 150 wells spatially located throughout the WVBA; since 2003, monitoring has been performed on a semiannual basis. Table 4 presents the frequency of detections for each constituent in all the sampled wells between 1984 and 2013 and between 2009 and 2013. Groundwater data from the last 5 years are considered representative of existing groundwater conditions. Table 5 presents the maximum detected concentration of each detected constituent in all wells between 2009 and 2013. The maximum detected concentration for each constituent each year for all wells is presented in a table included in Attachment A.

2.4.2.2 COPC Selection

The data from the groundwater monitoring wells were used to assess background metals concentrations in groundwater beneath the WVBA and identify detected chemicals with promulgated drinking water standards (Maximum Contaminant Levels [MCLs]). The background metals evaluation is summarized in Section 2.4.1; the chemical concentration comparison to MCLs is presented in Section 5.2.1.

COPCs for quantitative evaluation in the HHRA were identified from a review of data from the RID wells and surface water samples within the RID canal system. These data best represent potential exposure concentrations from the RID wells and water discharged from the RID wells into the RID canal system.

2.4.3 Groundwater – RID Wells

2.4.3.1 Available Data

Groundwater samples have been collected from RID wells on a periodic basis since 1984. Table 6 presents the frequency of detections for each constituent in the sampled RID wells between 1984 and 2013 and between 2009 and 2013. Table 7 presents the maximum detected concentration of each constituent in each RID well between 2009 and 2013. The maximum detected concentration for each constituent each year for the RID wells is presented in a table included in Attachment A.

2.4.3.2 COPC Selection

Each VOC detected in groundwater samples collected from the RID wells between 2009 through 2013 was selected as a COPC. A VOC was also selected as a COPC if it was detected in groundwater samples from RID wells at a frequency greater than 20 percent between 1984 and 2013, even if that VOC was not detected in a groundwater sample in the last 5 years (2009 to 2013). The COPCs selected for RID well groundwater are listed in Table 1.

2.4.4 Surface Water

2.4.4.1 Available Data

Surface water samples were collected within open areas of the RID canal system and associated laterals during the following sampling events: August 1995, June/July 2000, June 2003, June 2010, April/June/September 2011, September 2012, and April 2013. Corresponding ambient air samples adjacent to surface water sampling locations were also collected in June 2011. Surface water and air sample locations are identified on Figure 2. In general, surface water samples were collected at open canal and/or open lateral areas where RID Wells 92 and 114 discharge to the open segments of the RID canal system, since these RID wells have historically contained higher COPC concentrations than other RID wells. Surface water samples were also collected in other locations within the open canal portions of the Main Canal and the Salt Canal. The RID 92 lateral has been piped underground and is no longer open to the atmosphere. As of 15 April 2014, the only open canal segments are those shown on Figure 2. Table 8 presents the detected concentration of surface water samples detected within currently open segments of the RID canal system between 2009 and 2013. A summary table of analytical data for each surface water sample is included in Attachment A.

2.4.4.2 COPC Selection

The COPCs identified for surface water samples are those identified in the RID wells as described above in Section 2.4.3.2 (Table 1).

2.4.5 Ambient Air

2.4.5.1 Available Data

Ambient air samples were collected in June 2011 immediately above surface water at selected open lateral and canal locations (Synergy, 2011). Ambient air samples were also collected adjacent to the receiver box at RID Wells 92 and 114, and at the northern, eastern, southern, and western fence lines at these locations. Background ambient air samples were collected ½-mile northwest of RID Well 114

and 1,700 feet south of the RID main canal. The air sample locations are identified on Figure 2. PCE, TCE, and 1,1-DCE were reported in ambient air samples. Table 9 presents the detected ambient air concentrations.

2.4.5.2 COPC Selection

Each COPC selected for RID well groundwater and surface water was also selected as a COPC for ambient air (Table 1).

2.4.6 Soil Gas

Soil gas data within the WVBA were reviewed to assess whether any of the soil gas sample locations may be situated outside of facility-specific areas. It was concluded from a review of the soil gas data that only facility-specific soil gas samples were collected within the WVBA. Since ADEQ required remediation, if warranted, at those facilities with soil and soil gas impacts (Terranext, 2012b), the available soil gas data within the WVBA was not further evaluated in this HHRA.

3. EXPOSURE ASSESSMENT

The objective of the exposure assessment is to estimate the magnitude, frequency, duration, and routes of reasonably anticipated human exposure to COPCs at the WVBA. The exposure assessment is based on identified receptors and associated potentially complete exposure pathways that define the conditions of potential exposure to the COPCs. The receptors and assessment of potentially complete exposure pathways are shown in the Conceptual Site Model as illustrated on Figure 5 and further described on Figure 6.

Human health risks are estimated for significant complete or potentially complete exposure pathways. An exposure pathway must have the following elements to be considered potentially complete for a particular receptor:

- A constituent source;
- A retention medium and transport mechanism;
- A point of potential human contact with the impacted medium; and
- An exposure route at the exposure point.

If any of the above required elements are absent, the exposure pathway is considered incomplete (i.e., no exposure will occur) and will have no associated health risks (i.e., health risks will be zero for that exposure pathway). However, even if a pathway is considered potentially complete, pursuant to EPA guidance (EPA, 1989) it could be considered insignificant if:

1. The associated risk is so small relative to other pathways it will not add perceptibly to the total exposure being evaluated; or
2. The potential risk contribution from an insignificant pathway would be trivial.

Insignificant pathways need not be quantitatively evaluated in the HHRA. Potentially complete and insignificant exposure pathways are discussed below in Section 3.1.

Once the potentially complete exposure pathways are identified, the quantification of constituent intake for each receptor requires that an estimate be made of:

- Each COPC concentration to which the receptor may be exposed (also referred to as an EPC);
- The absorption of each COPC into the human body once exposed via the complete and potentially complete exposure pathways;
- Frequency and duration of contact for the complete and potentially complete exposure pathways; and
- The biological characteristics of the receptor.

The components of the exposure assessment are discussed further below.

3.1 Conceptual Site Model

The Conceptual Site Model for the WVBA, presented as an illustration on Figure 5 and further described on Figure 6, identifies the potential COPC exposure pathways (i.e., ways that current and hypothetical future receptors could potentially be exposed to the COPCs in groundwater discharged from the RID wells) and also identifies a user of groundwater beneath the WVBA for domestic and agricultural purposes. The receptors are considered to be those individuals with the maximum potential exposure to the COPCs and are identified based on existing and likely future land use. Exposure assumptions for each of the receptors are listed in Table 10.

3.1.1 Site Location and Land Use

Figure 1 presents a recent aerial photograph of the WVBA; Figure 7 presents the current zoning in the WVBA. A review of Figures 1 and 7 indicates that the WVBA is a mixed-use area containing residential, commercial, and industrial land use. It is understood that residential development is also allowed in the commercially- and industrially-zoned areas. As indicated in the RI Report, no municipal wells are currently operable within the WVBA; the City of Phoenix municipal water system serves residents and businesses in the WVBA with drinking water. It is our understanding that although not currently planned, groundwater beneath the WVBA may potentially be used for municipal purposes in the future (Terranext, 2012b). The September 2011 RID Report described use of groundwater as a drinking water source as having a "limited and transient potential."

Groundwater pumped from the RID wells is used to irrigate crops west of the WVBA. The RID groundwater canal system is a prominent feature in the WVBA. As previously indicated, this system contains 32 RID wells and open canals and piping to convey the pumped groundwater for agricultural use west of the WVBA. The northern portion of the RID canal system is called the Salt Canal; the southern portion of the RID canal system is called the Main Canal. The Salt Canal is comprised of underground piping with two open channel areas west of RID Well 105; there are no laterals to the Salt Canal. The Main Canal is predominantly comprised of approximately 4-meter wide concrete-lined channels that are open to the atmosphere and underground lateral piping. The Main Canal does not included laterals that are open to the atmosphere; both the laterals and portions of the eastern canal segment are comprised of underground piping. Figure 2 shows the locations of open and underground main canal segments and the underground laterals.

3.1.2 Exposure Pathways by Receptor

Three receptor groups have been identified within the WVBA: residents, RID workers, and groundwater supply users. These receptors were identified based on current land use and hypothetical (but plausible) future land use within the WVBA. The identified potentially complete exposure pathways associated with these receptors are representative of worse-case exposure to the COPCs measured within in the WVBA.

3.1.2.1 RID Worker

The RID worker provides field operations and maintenance support to the RID canal system and periodically works in proximity to the RID wells and possibly other portions of the RID canal system. It is noted in the September 2011 RID Report that RID employee and contract workers "may infrequently conduct well maintenance work." It is further noted in the September 2011 RID Report that the RID well sites are contained by security fencing that preclude access to the general public. To

account for infrequent well maintenance activities, it was assumed that the RID worker works adjacent to an RID well two days each month for 8 hours a day over 25 years.

It was further assumed that the RID worker would be exposed to COPC concentrations via the following potentially complete pathways listed on Figure 6:

- Inhalation of COPCs in ambient air from the volatilization of COPCs present in groundwater in the RID well, in proximity to the well-head, including near the point of groundwater discharge to the open canal; and
- Dermal contact with COPCs in groundwater from the RID well.

The RID worker may also conduct maintenance activities in proximity to other portions of the RID canal system (i.e., open segments and pipelines). Water within these portions of the RID canal system receive water discharged from the RID wells and contain lower COPC concentrations primarily due to:

- COPC loss from volatilization at and downgradient of the well-heads and discharge points; and
- COPC concentration reduction in the canals from dilution with water from other upgradient contributions to the RID canal system.

This reduction in COPC concentrations from the well-head to the downgradient canals and laterals is documented and described in the September 2011 RID Report. Since higher exposure concentrations would be present in proximity to the well-head, it was assumed that the RID worker would be situated near the RID wells during their entire exposure period to provide an upper end exposure estimate.

3.1.2.2 Resident

Children and adults reside within residential areas located within the WVBA. These residents may live adjacent and/or in proximity to the RID wells and open segments of the RID canal system. These open canal segments receive and transport COPC-impacted groundwater discharged from RID wells.

It is unlikely that residents would have contact with water at the RID well-head, since these wells are not directly assessable to the public and the RID well sites are contained by security fencing that precludes access to the general public (Synergy, 2011). Potential contact with surface water within the open canal segment is plausible; however, access to these areas is limited, as most of the open segments are fenced and have signage indicating restricted access.

Most residential properties within the WVBA are not situated directly adjacent to the open canals, with the exception of an apparent single-family residential development located approximately 3,400 feet south of the open Main Canal segment situated between S 67th Avenue and S 63rd Avenue (between RID-85 and RID-86). As shown in Figure 3, the majority of the RID wells that feed these open canal segments are outside of the groundwater plume area. Thus, the majority of the water pumped into these open canal portions is not impacted by COPCs. No known surface water samples have been collected within the above-noted open canal segment.

A review of Figure 7 indicates that in addition to the above-noted open canal segment, the following three areas situated adjacent to open canal segments are zoned for residential land use, but do not contain residential structures:

- Approximately 3,000 feet north of the open Main Canal segment between S 75th Avenue and S 71st Avenue (between RID-83 and RID-84);
- Along approximately 4,000 feet of the open Main Canal segment between S 63rd Avenue and S 59th Avenue (east of RID-86); and
- Approximately 4,000 feet south of the open Main Canal segment between S 35th Avenue and S 31st Avenue (west of RID-97).

For the purpose of assessing health risks to residents, it is generally assumed that residents live at the same location for 26 years, 6 years as a child and 20 years as an adult (EPA, 2014). For this HHRA, it is conservatively assumed that the residential receptor lives adjacent to any currently open canal segment. There are no laterals open to the atmosphere. Potentially complete exposure pathways for the resident are therefore only associated with potential exposures related to the currently open canal segments.

Although it may be considered relatively implausible, given the posted signage and limited accessibility to the open canal, it is conservatively assumed that the adjacent resident may also swim and fish in the open canal segments. This assumption is generally consistent with the statement in the September 2012 RID Report that indicates "…public exposure to waters in the open RID system has been known to occur and has been documented but is believed to be limited to localized and periodic usage in the warmer months."

It is therefore assumed that the resident is potentially exposed to the COPCs via the following potentially complete pathways listed on Figure 6:

- Inhalation of COPCs in ambient air from the volatilization of COPCs from surface water (i.e., groundwater pumped from the RID wells) in the open canal;
- Dermal contact with COPCs in surface water (i.e., groundwater pumped from the RID wells) in the open canal;
- Incidental ingestion of COPCs in surface water (i.e., groundwater pumped from the RID wells) in the open canal; and
- Ingestion of fish caught in the open canal that contains COPCs.

Residents may also be exposed to COPCs from inhalation of COPCs in indoor air due to subsurface migration of COPCs from groundwater into overlying buildings. However, ADEQ has stated in their response to the public comments on the RI Report (ADEQ, 2012b; 8 August 2012 Appendix Z, Responsiveness Summary, of the RI Report) that "Based on evaluation of available data, ADEQ has determined that vapor intrusion isn't an exposure threat in the WVBA." ADEQ further stated in the Remedial Objectives Report (ADEQ, 2012a; 8 August 2012 Appendix AA of the RI Report) that they have "…no data to suggest that exposure to vapors, through vapor intrusion, poses a threat within WVBA." This pathway is therefore not evaluated further in this HHRA.

It is assumed that the resident lives in close proximity to the open canal, similar to the residents that currently live south of open Main Canal segment situated between S 67th Avenue and S 63rd Avenue, over the standard residential default duration of 26 years, which is equivalent from the time the resident is a young child well into adulthood. It is also assumed that the resident swims and fishes in the open canal twice a month between March and September, and that the duration of each swimming or fishing event is 2 hours, during which time the resident is in contact with the water within the open canal and

fish caught during 50 percent of the fishing events are eaten by the resident. It is further assumed, based on EPA default exposure assumptions (EPA, 2004) that a child swims over 6 years and an adult over 9 years. However, it is conservatively assumed that the child and adult fish in the open canal over their entire 26-year residential exposure period.

The residential receptor is assumed to have a greater potential exposure to the COPCs in comparison to workers occupying commercial/industrial buildings within the WVBA. A commercial/industrial worker would only be potentially exposed via inhalation of COPCs in ambient air due to volatilization from the surface water from the open canals. The duration and frequency of exposure for the commercial/industrial receptor would also be less than that of a resident. The estimated human health risk for the resident therefore provides a higher estimate of human health risk for a receptor's potential exposure to groundwater discharged from the RID wells into the open canal segments. Health risks associated with the commercial/industrial receptor within the WVBA are therefore not separately quantified herein.

3.1.2.3 Groundwater Supply User

Although groundwater beneath the WVBA is not used for municipal purposes and has been referred to as having a "limited and transient potential" (Synergy, 2011), it may potentially be used for municipal purposes in the future (Terranext, 2012b). For the purpose of this HHRA, COPC concentrations detected in groundwater from both the groundwater monitoring wells and the RID wells in the WVBA were compared to ADEQ Aquifer Water Quality Standards (AWQS) for Drinking Water Protected Use, which are equivalent to federal MCLs. The results of this comparison are presented in Section 5.2.1.

Groundwater extracted from the RID wells is used for irrigation. The maximum detected VOC concentration in surface water sampled from the open canals was compared to the ADEQ water quality standards for surface water. The results of this comparison are summarized in Section 5.2.2.

3.2 Exposure Point Concentrations

Deriving estimates of COPC concentrations at points of potential human exposure is necessary to derive COPC intakes for each receptor. These COPC concentrations are referred to as EPCs.

3.2.1 Overview

Developing long-term EPCs from the investigation data collected at the WVBA includes an underlying assumption about the representativeness of the data, both temporally and spatially. The spatial and temporal characteristics of the data were described in Section 2.3. For the purpose of this HHRA, it was concluded that the groundwater and surface water samples provide an adequate data set and can be used to estimate health risks. However, the ambient air sample data set was considered to be limited; therefore, groundwater and surface water data were used to estimate ambient air concentrations. For the purpose of this HHRA, EPCs in ambient air for the resident were therefore estimated using analytical results of surface water samples and EPCs in ambient air for the RID worker using analytical results of groundwater samples obtained from the RID wells. The measured ambient air data were only used for comparison purposes.

The EPCs were calculated under the assumption that COPC concentrations would remain constant at the levels detected during the investigation activities for an indefinite period of time. It is therefore assumed that the data considered representative of current WVBA conditions simulates both current and

future exposure conditions for a receptor having potential exposure to COPCs at the WVBA. Organic chemicals naturally degrade in the environment, which results in the reduction of concentrations over time. However, it was conservatively assumed that no degradation mechanisms will occur. This assumption of steady-state concentrations for each COPC results in a conservative estimation of long-term exposure concentrations.

To simulate a receptor's spatially and temporally integrated exposure, EPA (1992b, 1997, 2002b) defines the EPC used to estimate the reasonable maximum exposure (RME) as the 95% upper confidence limit (95% UCL) of the arithmetic mean or the maximum observed concentration, whichever is lower. The arithmetic mean reflects the assumption that exposure by the receptor is averaged as they traverse an area over time. The intent of the RME scenario is to focus the assessment on a conservative exposure within the range of exposures. The 95% UCL concentrations are typically derived using the entire data set to account for the range of concentrations detected. As described below, maximum COPC concentrations at each RID well between 2009 and 2013 were used to derive the EPCs for the RID worker; maximum detected concentrations in surface water samples collected between 2009 and 2013 were used to estimate the EPCs for the resident. These EPCs therefore overestimate actual potential EPCs for each of these receptors.

A comparison of the measured versus modeled ambient air concentrations is presented in Table 11. The EPCs in groundwater and ambient air used in the HHRA for the RID Worker are presented in Table 12; the EPCs in surface water and ambient air, and in fish (for consumption) used in the HHRA for the resident are presented in Tables 13 and 14, respectively. The methodology used to derive the EPCs is summarized below.

3.2.2 RID Worker

3.2.2.1 Dermal Contact

The EPCs for a RID worker's dermal exposure to RID well groundwater are conservatively assumed to be the lower of the maximum and the 95% UCL concentration of the maximum COPC concentrations in groundwater collected from the RID wells over the past 5 years (2009 through 2013). For each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP is half the maximum laboratory reporting limit.

3.2.2.2 Inhalation of Ambient Air

The EPCs for a RID worker's exposure to COPCs in ambient air due to volatilization of groundwater pumped from the RID wells were conservatively estimated from the lower of the maximum and the 95% UCL concentration of the maximum COPC concentrations in groundwater collected from the RID wells over the past 5 years (2009 through 2013). For each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP is estimated using half the maximum laboratory reporting limit.

The ambient air EPCs were derived using an equation developed for estimating COPC emission rates due to volatilization releases of low solubility compounds from water bodies, such as hazardous waste lagoons (EPA, 1988), with an assumed turbulence factor to account for groundwater discharge to the open canals. The calculated COPC emission rates from the surface water (discharged groundwater) was then input into a simple box model (EPA, 1988) to estimate COPC concentrations in ambient air in the breathing zone. The exposure area is assumed to be 6 meters wide by 6 meters long by 2 meters high,

which represents the area within the virtual fence line in proximity to each well-head (including at the well-head and near the point of groundwater discharge to the open canal), and the height of the breathing zone. The virtual fence line is defined by the assumed fence line locations.
The equation used to estimate the VOC emission rate from groundwater at the well head of the RID well is as follows:

$$ER = K \times Cgw \times A \times CF \times Tf$$ (Equation 1; EPA, 1988)

where,

ER	=	COPC emission rate from groundwater (μg/s)
K	=	Overall mass transfer coefficient (cm/s)
Cgw	=	COPC concentration in groundwater (μg/L)
A	=	Area of the RID well-head fenced area (m^2) (assumed to be 6 meters long by 6 meters wide)
CF	=	Conversion factor (10 L/cm/m^2)
Tf	=	Turbulence Factor at the point of discharge of groundwater to the canal (assumed to be 10, unitless)

$$\frac{1}{K} = \frac{1}{kl} + \frac{1}{kg}\left(\frac{RT}{H}\right)$$ (Equation 2; EPA, 1988)

where,

kl	=	Liquid-phase mass transfer coefficient (cm/s) (See Equation 3)
kg	=	Gas-phase mass transfer coefficient (cm/s) (See Equation 4)
R	=	Ideal gas constant, 8.2 x 10^{-5} atm-m^3/mol^{o}K
T	=	Liquid temperature (^{o}K)
H	=	COPC-specific Henry's Law coefficient (atm-m^3/mol) (EPA, 2013b)

$$kl = \left(\frac{MW_{O2}}{MWi}\right)^{0.5} \times \left(\frac{T}{298}\right) \times kl_{O2}$$ (Equation 3; EPA, 1988)

where,

MW_{O2}	=	Molecular weight of oxygen (32 g/mol)
MWi	=	Molecular weight of COPC (g/mol)
kl_{O2}	=	Liquid-phase mass transfer coefficient for oxygen (0.002 cm/s)

$$kg = \left(\frac{MW_{H2O}}{MWi}\right)^{0.335} \times \left(\frac{T}{298}\right)^{1.005} \times kg_{H2O}$$ (Equation 4; EPA, 1988)

where,

MW_{H20} = Molecular weight of water (18 g/mol)

kg_{H2O} = Gas-phase mass transfer coefficient for water vapor (0.833 cm/s)

$$Ca = \frac{ER}{U \times W \times H}$$ (Equation 5; EPA, 1988)

where,

Ca = Concentration in air (μg/m^3)

U = Wind speed (m/s) (average annual wind speed of 2.8 m/s [6.2 miles per hour] for Phoenix; based on an annual prevailing wind direction to the east measured at the Phoenix Sky Harbor Airport from 1992 to 2002; Western Regional Climate Center, 2012)

W = Width of work area perpendicular to wind direction (m) (assumed to be 6 meters)

H = Height of breathing zone (m) (2 meters)

Table 12 presents the above-described EPCs in ambient air due to volatilization of COPCs in groundwater pumped from RID wells.

To validate the use of the above model, estimated ambient air concentrations using the model were compared to measured ambient air concentrations collected within 24 hours and at the same general location as the surface water sample used in the model. Two comparisons were made, one comparing estimated ambient air concentrations to measured ambient air concentrations in proximity to RID-92, and one comparing estimated ambient air concentrations to measured ambient air concentrations in proximity to RID-114. This comparison was conducted for three VOCs, 1,1-DCE, PCE, and TCE. The results of this comparison are shown in Table 11. A review of Table 11 indicates that the estimated and measured ambient air concentrations are similar; the measured COPC concentrations are between 0.8 and 2.8 times their estimated EPC concentrations. For TCE, the most prevalent of the VOCs, the measured concentrations are between 0.8 and 1.1 times their estimated EPC concentrations. From this comparison, it is concluded that the measured concentrations are similar to the estimated concentrations using the model and using the model is reasonable for estimating the EPC concentrations for these and the other COPCs.

3.2.3 Resident

3.2.3.1 Dermal and Incidental Ingestion of Surface Water

The EPCs for the resident's dermal exposure and incidental ingestion of surface water while swimming in open RID canals were estimated assuming potential exposure within any open segment of the RID

canal system. The resident is unlikely to be exposed to average concentrations within the entire open canal, since it is not expected that this receptor would swim throughout the open canal segments during any particular event or during their entire exposure period. Instead, it is more likely that an individual would swim in the open canal segment closest to their residence or would swim at one or more favorite or most accessible open canal segments. Using the maximum concentrations within the open canal segments therefore appears to provide the most reasonable estimate of exposure to this receptor, since it is assumed that this receptor could swim in any open segment within the RID canal system. In addition, since few samples are available at any one open canal location throughout the warmer months in a given year, insufficient data are available to estimate average concentrations over an annual exposure period at any one location.

EPCs were therefore conservatively based on maximum COPC concentrations measured in surface water samples collected between 2009 and 2013 within the open canal segments. For each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP is half the maximum laboratory reporting limit. Table 13 presents the EPCs for the resident's dermal contact with, and incidental ingestion of surface water.

3.2.3.2 Inhalation of Ambient Air at the Open Lateral/Open Canal

It is assumed that a resident may be located adjacent to any open canal segment. Similar to the estimation of EPCs for dermal exposure and incidental ingestion of surface water while swimming, the EPCs for the resident's exposure to COPCs in ambient air at and within a residential property adjacent to open canal segments were estimated using maximum COPC concentrations measured in surface water samples collected between 2009 and 2013 within the open canal segments.

Similar to estimating ambient air concentrations for the RID worker, the ambient air EPCs for the resident were derived using an equation developed for estimating COPC emission rates due to volatilization releases of low solubility compounds from water bodies, such as hazardous waste lagoons (EPA, 1988), but with no turbulence. The calculated COPC emission rates from the surface water within the open canal were then input into a simple box model (EPA, 1988) to estimate COPC concentrations in ambient air in the breathing zone. The width of the surface water within the open canal was assumed to be 6.5 meters wide. The distance from the canal to the residential fence line was assumed to be 12 meters; the length of a single-family residential property perpendicular to the canal was assumed to be 27 meters; and the length of the canal adjacent to the residential property was assumed to be 18 meters. These measurements were obtained from measurements taken of the RID canal system and the smallest of the adjacent residential properties located between S 67th Avenue and S 63rd Avenue. The width of the water within the open canal and the length of the single-family residential lots were measured from an aerial photograph (Google Earth ™ using the built-in measurement tool). The height of the breathing zone was assumed to be 2 meters high for an adult and 1 meter high for a child.

The equation used to estimate the COPC emission rates from the open canal is as follows:

$$ER = K \times Cgw \times A \times CF$$ (Equation 6; EPA, 1988)

where,

ER = COPC emission rate from open canal (mg/s)

K = Overall mass transfer coefficient (cm/s)

Cgw	=	COPC concentration in surface water (mg/L)
A	=	Area of the surface water area exposure area (m^2) (assumed to be 18 meters long by 6.5 meter wide)
CF	=	Conversion factor (10 L/cm/m^2)

$$\frac{1}{K} = \frac{1}{kl} + \frac{1}{kg}\left(\frac{RT}{H}\right)$$ (Equation 7; EPA, 1988)

where,

kl	=	Liquid-phase mass transfer coefficient (cm/s) (See Equation 8)
kg	=	Gas-phase mass transfer coefficient (cm/s) (See Equation 9)
R	=	Ideal gas constant, 8.2 x 10^{-5} atm-m^3/mol°K
T	=	Liquid temperature (°K)
H	=	COPC-specific Henry's Law coefficient (atm-m^3/mol) (EPA, 2013b)

$$kl = \left(\frac{MW_{O2}}{MWi}\right)^{0.5} \times \left(\frac{T}{298}\right) \times kl_{O2}$$ (Equation 8; EPA, 1988)

where,

MW_{O2}	=	Molecular weight of oxygen (32 g/mol)
MWi	=	Molecular weight of COPC (g/mol)
kl_{O2}	=	Liquid-phase mass transfer coefficient for oxygen (0.002 cm/s)

$$kg = \left(\frac{MW_{H2O}}{MWi}\right)^{0.335} \times \left(\frac{T}{298}\right)^{1.005} \times kg_{H2O}$$ (Equation 9; EPA, 1988)

where,

MW_{H20}	=	Molecular weight of water (18 g/mol)
kg_{H2O}	=	Gas-phase mass transfer coefficient for water vapor (0.833 cm/s)

$$Ca = \frac{ER}{U \times W \times H}$$ (Equation 10; EPA, 1988)

where,

Ca	=	Concentration in air (mg/m^3)

U	=	Wind speed (m/s) (average annual wind speed of 2.8 m/s [6.2 miles per hour] for Phoenix; based on an annual prevailing wind direction to the east measured at the Phoenix Sky Harbor Airport from 1992 to 2002; Western Regional Climate Center, 2012
W	=	Width of open canal perpendicular to wind direction (m) (assumed to be 6.5 meters, the width of the open canal)
H	=	Height of breathing zone above the surface water (m) (2 meters for an adult and 1 meter for a child)

Table 13 presents the above-described EPCs in ambient air due to volatilization of COPCs from the surface water within the open canals.

To validate the use of the above model, estimated ambient air concentrations using the model were compared to measured ambient air concentrations collected within 24 hours and at the same general location as the surface water sample used in the model. One data pair met these criteria; a surface water sample and ambient air sample were collected on 28 June 2011 near an open lateral segment near RID-92. Since the ambient air sample was collected immediately above the surface of the water, for comparison purposes the modeled concentration was estimated at 0.5 foot above the surface water. This comparison was conducted for three VOCs, 1,1-DCE, PCE, and TCE. The estimated ambient air concentrations using the model are included in Attachment C. The results of this comparison are shown in Table 11. A review of Table 11 indicates that the estimated and measured ambient air concentrations are similar; the measured COPC concentrations are between 0.5 and 1.1 times their estimated EPC concentrations. For TCE, the most prevalent of the VOCs, the measured concentration is 0.5 times the estimated EPC concentrations (the estimated concentration is 2 times the measured concentration). From this comparison, it is concluded that the measured concentrations are similar to the estimated concentrations using the model. Using the model is therefore reasonable for estimating the EPC concentrations for these and the other COPCs.

3.2.3.3 Ingestion of Fish

The EPCs in fish from the open canal segments were also conservatively based on maximum COPC concentrations in surface water samples collected within the open canal segments between 2009 and 2013. For each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP was estimated using half the maximum laboratory reporting limit.

The EPCs in fish from the open canal were estimated using the following equation:

$$C_f = C_{sw} \times BCF \qquad \text{(Equation 11; EPA, 2005)}$$

where,

Cf	=	Concentration in fish (mg/kg)
Csw	=	Concentration in surface water (mg/L)
BCF	=	Fish Bioconcentration Factor (L/kg, COPC-specific) (EPA, 2005; Oak Ridge National Laboratory, 2012)

Table 14 presents the EPCs in fish caught from the open canal segments.

3.2.4 Groundwater Supply Use

The EPCs for groundwater used for drinking water were assumed to be the maximum concentration of each COPC detected over the past 5 years in any of the groundwater wells. For each detected COPC, the EPC is the maximum concentration over the past 5 years (2009 through 2013); for each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP is half the maximum laboratory reporting limit.

3.2.5 Irrigation Supply Use

The EPCs for irrigation water were assumed to be the maximum concentration in surface water samples collected at the open canal at the western convergence of the Salt Canal and the Main Canal. For each detected COPC, the EPC is the maximum concentration over the past 5 years (2009 through 2013); for each COPC not detected above the laboratory reporting limits over the past 5 years, the ECP is half the maximum laboratory reporting limit.

3.3 Estimation of COPC Intakes

EPA risk assessment guidelines recommend that intake doses be calculated in a manner that will produce risk estimates of the RME scenario (EPA, 1989). The RME considers the upper-bound case described by using the 50th or 95th percentile of the actual distribution of most input parameters, including receptor characteristics used to estimate intake doses. The intent of the RME scenario is to focus the risk assessment on conservative exposures within the range of possible exposures. Since the RME scenario uses a mixture of upper-bound and central tendency assumptions and data, the associated estimated COPC intake is not an average COPC intake, but is intended to be an estimate of the plausible upper-end intake. The exposure parameter assumptions for the selected worst-case receptors are based on conservative default values and WVBA-specific estimates and are presented in Table 10.

For the quantification of noncarcinogenic effects, each intake from either ingestion (surface water and fish) and from dermal contact (surface water and groundwater) is averaged over the period of exposure and referred to as the average daily dose ([ADD]; sometimes referred to as average daily intake. For the quantification of carcinogenic effects, the intake is averaged over a lifetime and is referred to as the lifetime average daily dose ([LADD]; sometimes referred to as lifetime average daily intake. The following general equation was applied to estimate COPC intakes associated with the ingestion or dermal contact exposure pathways considered in this HHRA:

$$Dose = \frac{C \times IR \times EF \times ED \times RAF}{BW \times AT}$$ (Equation 12; EPA, 1989)

where,

Dose	=	ADD (mg/kg-day) for noncarcinogens LADD (mg/kg-day) for carcinogens
C	=	EPC of COPC in environmental medium (e.g., mg/L surface water)
IR	=	Intake rate (e.g., L water/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)

RAF	=	Relative absorption factor (i.e., the ratio of bioavailability in the exposure scenario to bioavailability in the exposure situation from which the toxicity criteria is based)
BW	=	Body weight (kg)
AT	=	Averaging time (days)

For the inhalation pathway, COPC intake in ambient air is based on a time-weighted average concentration referred to as exposure concentration (EC) as described in the EPA January 2009 guidance document titled, "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)" (EPA, 2009). The EC was derived from modeled concentrations in air and adjusted based on characteristics of the exposure scenario being evaluated. The following general equation was applied to estimate ECs for the inhalation exposure pathways considered in this HHRA:

$$EC = \frac{CA \times ET \times EF \times ED}{AT}$$

(Equation 13; EPA, 2009)

where,

EC	=	Exposure concentration (micrograms per cubic meter [$\mu g/m^3$])
CA	=	EPC of COPC in air ($\mu g/m^3$ in air)
ET	=	Exposure time (hours/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (hour over a lifetime for cancer risk, hours over exposure period for hazard index)

Additional details regarding the derivation of the intakes for the ingestion and dermal contact exposure pathways are presented in the following sections.

3.3.1 Incidental Ingestion of Surface Water

The equation used to estimate COPC intake due to incidental ingestion of surface water is presented below:

(Equation 14; EPA, 1989)

$$Dose = \frac{Csw \times IR \times EF \times ED \times RAF}{BW \times AT}$$

where,

Csw	=	EPC of COPC in surface water (mg/L)
IR	=	Ingestion rate of surface water (L/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)

RAF	=	Relative absorption factor (unitless)
BW	=	Body weight (kg)
AT	=	Averaging time (days)

3.3.2 Ingestion of Fish

The equation used to estimate COPC intake due to ingestion of fish is presented below:

$$Dose = \frac{Cf \times IR \times CF \times EF \times ED \times RAF}{BW \times AT}$$ (Equation 15; EPA, 1989)

where,

Cf	=	EPC of COPC in fish (mg/kg)
IR	=	Ingestion rate of fish (mg/day)
CF	=	Conversion factor (1 x 10^{-6} kg/mg)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
RAF	=	Relative absorption factor (unitless)
BW	=	Body weight (kg)
AT	=	Averaging time (days)

3.3.3 Dermal Contact with Surface Water or RID Well Groundwater

The equations used to estimate COPC intake due to dermal contact with surface water or RID well groundwater are described in the EPA July 2004 guidance document titled, "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)" (EPA, 2004). The equation used to estimate COPC intake (dermally absorbed dose) due to dermal contact is presented below:

$$Dose = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$$ (Equation 16; EPA, 2004)

where,

DA_{event}	=	Absorbed dose per event (mg/cm^3-event)
EV	=	Event frequency (events/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
SA	=	Surface area of exposed skin in contact with surface water or RID well groundwater (cm^2)
BW	=	Body weight (kg)

AT = Averaging time (days)

The derivation of absorbed dose, DA_{event}, is derived using one of the two equations presented below, depending on whether the event duration is equal to or less than or greater than the time to reach steady state:

$$If\ t_{event} \leq t^*,\ then:\ DA_{event} = 2\ FA \times K_p \times C_w \sqrt{\frac{6\ \tau_{event} \times t_{event}}{\pi}}$$

$$If\ t_{event} > t^*,\ then:\ DA_{event} = FA \times K_p \times C_w \left[\frac{t_{event}}{1 + B} + 2\ \tau_{event}\left(\frac{1 + 3\ B + 3\ B^2}{(1 + B)^2}\right)\right]$$

(Equations 17A and 17B; EPA, 2004)

where,

FA	=	Fraction absorbed water (dimensionless)
K_p	=	Dermal permeability coefficient of compound in water (cm/hr), EPA, 2004
C_w	=	EPC concentration in surface water (mg/cm^3)
τ_{event}	=	Lag time per event (hours/event); EPA, 2004
t_{event}	=	Event duration (hours/event)
t^*	=	Time to reach steady-state (hours) = 2.4 τ_{event}
B	=	Dimensionless ration of the permeability coefficient of the COPC through the stratum corneum relative to its permeability coefficient across the viable epidermis; EPA, 2004

4. TOXICITY ASSESSMENT

The toxicity assessment characterizes the relationship between the magnitude of exposure to a COPC and the nature and magnitude of adverse health effects that may result from each exposure. For the purpose of this HHRA, adverse health effects are classified into two broad categories: noncarcinogens and carcinogens. Toxicity values are generally developed based on the threshold approach for noncarcinogenic effects and the non-threshold approach for carcinogenic effects. Toxicity values may be based on epidemiological studies, short-term human studies, or subchronic or chronic animal data. Toxicity values to estimate adverse noncarcinogenic health effects as hazard quotients (HQs) are derived reference doses (RfDs) and reference concentrations (RfCs). Toxicity values to estimate incremental lifetime cancer risks (ILCRs), also referred to as excess lifetime cancer risks) are derived cancer slope factors (SFs) and unit risk factors (URFs).

4.1 Adverse Noncarcinogenic Health Effects

It is widely accepted that adverse noncarcinogenic health effects from chemical substances occur only after a threshold dose or intake has been reached. For the purpose of establishing a toxicity value for an adverse noncarcinogenic health effect, a threshold dose is usually estimated from the no-observed-adverse-effect-level (NOAEL) or the lowest-observed-adverse-effect-level (LOAEL) determined from chronic or subchronic animal studies. The NOAEL is the highest dose at which no adverse effects are observed; the LOAEL is the lowest dose at which adverse effects are observed.

Safety factors (up to 1,000-fold) are applied to the NOAEL or LOAEL observed in animal studies or human epidemiological studies to establish conservative RfDs or RfCs. An RfD is an estimate of a dose level expected to result in no adverse health effects in humans, even among the most sensitive members of the population (EPA, 1989). RfDs are expressed as acceptable daily doses in milligrams of COPC per kilogram of body weight per day (mg/kg-day).

An RfC is "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime" (EPA, 2009). RfCs are expressed in micrograms per cubic meter ($\mu g/m^3$).

4.2 Carcinogenic Health Effects

Regulatory agencies have generally assumed that carcinogenic agents do not have toxicological thresholds. The dose-response curve used to regulate carcinogens only predicts zero risk when there is zero dose (i.e., for doses greater than zero, some risk is assumed to be present). Cancer risks from potential human exposures to carcinogenic COPCs are modeled mathematically using either animal or human data.

Cancer risks for exposure to carcinogens are defined in terms of upper-bounds on probabilities. The probabilities identify the likelihood of a carcinogenic response in an individual that receives a given dose of a particular COPC (based on mathematical modeling of the animal or human data). Potential carcinogenic effects are expressed as the probability that an individual will develop cancer from a lifetime exposure. This probability is based on projected intakes and COPC-specific dose-response data called SFs and URFs.

The SF defines the cancer risk due to average lifetime exposure to one unit of carcinogen (in units of risk per mg/kg-day). To derive SFs, the EPA generally uses the linearized multistage model for low-dose extrapolation. This method is considered one of the most protective models applied and has been recognized by EPA to overpredict ILCRs. Using this model, SFs are derived by calculating the 95% UCL on the slope of the linearized portion of the dose-response curve obtained from the multistage cancer model. Using the 95% UCL of the slope means that there is only a 5 percent chance that a response could be greater than the estimated value.

The inhalation URF is "the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 $\mu g/m^3$ in air" (EPA, 2009). Inhalation URFs are expressed in $(\mu g/m^3)^{-1}$.

4.3 COPC-Specific Toxicity Values

Chronic toxicity values for adverse cancer and non-cancer effects were conservatively used to evaluate both chronic and subchronic exposures for each COPC. Each of the exposures evaluated herein are considered to be chronic exposures. Toxicity values were chosen in accordance with the EPA 5 December 2003 memorandum titled "Human Health Toxicity Values in Superfund Risk Assessments," (EPA, 2003). The recommended toxicity hierarchy identified in the above-referenced 2003 EPA memorandum is summarized as follows:

1. EPA Integrated Risk Information System (IRIS) database http://www.epa.gov/iris/index.html;
2. EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) from the Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (STSC); and
3. Other Toxicity Values- Health Effects Assessment Summary Tables (HEAST) and National Center for Environmental Assessment (NCEA) provisional values.

This hierarchy is used by EPA to develop their routinely updated Regional Screening Levels. The table of toxicity values used to derive the Regional Screening Levels (dated November 2013 and available at http://www.epa.gov/region9/superfund/prg/) was the primary source of toxicity values identified in this HHRA. A list of the toxicity values for the COPCs is presented in Table 15.

5. RISK CHARACTERIZATION

Risk characterization is the fourth step in the risk assessment process and includes the integration of the toxicity and exposure assessments to provide quantitative and qualitative expressions of risk.

5.1 Quantitative Risk Characterization

The following summarizes the quantitative risk characterization and results.

5.1.1 Calculation of Adverse Noncarcinogenic Health Effects

The RfD or RfC is used in the risk characterization to estimate the potential for adverse noncarcinogenic health effects. The HQ compares a receptor's exposure or intake level to the RfD or RfC of that COPC, as appropriate for the defined complete or potentially complete exposure pathway (EPA, 1989). An HQ value greater than 1.0 indicates a COPC intake above the RfD or RfC for that pathway, and thus a potential for adverse noncarcinogenic health effects. A total hazard index (HI) is a sum of the HQs for more than one COPC with similar toxicological endpoints. A total HI greater than 1.0 indicates a potential for an adverse noncarcinogenic health effect from exposure to those COPCs. Typically, additional risk evaluation is undertaken only when this threshold is exceeded. Additional information regarding the derivation and interpretation of HQs and total HI is presented below.

To calculate an HQ, the ADD or EC (e.g., upper-bound intake averaged over the exposure period) for each COPC is divided by the COPC-specific RfD or RfC as shown in the following equation:

$$HQ_{pathway1} = ADD/RfD \quad \text{Or} \quad EC/RfC \qquad \text{(Equation 18; EPA, 1989)}$$

where,

$HQ_{pathway1}$	=	HQ of particular pathway for COPC (unitless)
ADD	=	ADD of COPC (mg/kg-day)
EC	=	Exposure concentration ($\mu g/m^3$)
RfD	=	Reference dose of COPC (mg/kg-day) for non-inhalation pathways
RfC	=	Reference concentration of COPC ($\mu g/m^3$) for the inhalation pathway

When using the above equation to estimate the potential for adverse noncancer health effects, both the intake and the RfD or the exposure concentration and the RfC must refer to exposures of equivalent duration (e.g., chronic exposures).

For each receptor, the HQ of each pathway for the COPC is then summed to calculate the total HQ for that COPC as shown in the following equation:

$$Total\ HQ = HQ_{pathway1} + HQ_{pathway2} + \ldots + HQ_{pathway\ n} \qquad \text{(Equation 19; EPA, 1989)}$$

where,

Total HQ	=	Summed HQs for COPC (unitless)
HQpathway1	=	HQ for particular pathway for COPC (unitless)

As a first tier analysis, the HQs (e.g., for all COPCs, regardless of target organ) for each receptor can be summed as the basis for conservatively estimating a screening total HI for that receptor. In this case, it is assumed that each COPC acts by the same mechanism and induces the same effects (EPA, 1989). For simultaneous exposures to a receptor by several COPCs, a total HI is calculated as the sum of the HQs for each COPC by:

$$Total\ HI = HQ(COPC_1) + HQ(COPC_2) + \ldots + HQ(COPC_n)$$ (Equation 20; EPA, 1989)

where,

Total HI	=	Total Hazard Index
Total HQ(COPC$_n$)	=	Sum of HQs for that COPC

If the total HI exceeds a value of 1.0, then acceptable target organ-specific total HIs can be calculated for the receptor based on target organs as recommended by EPA (1989).

5.1.2 Calculation of Cumulative Incremental Lifetime Cancer Risk

The cancer SF and the inhalation URF are used in the risk characterization to estimate the cancer risk. The SF multiplied by the LADD or the URF for inhalation exposures multiplied by the EC is referred to as the ILCR as shown in the following equations:

$$ILCR = LADD \times SF$$
$$Or$$
$$EC \times IURF$$ (Equation 21; EPA, 1989)

where,

ILCR	=	Incremental lifetime cancer risk for COPC, also referred to as excess lifetime cancer risk (unitless)
LADD	=	LADD of COPC (mg/kg-day)
EC	=	Exposure concentration (μg/m^3)
SF	=	Slope factor of COPC (mg/kg-day)$^{-1}$ for non-inhalation pathways
IURF	=	Inhalation URF (μg/m^3)$^{-1}$ for the inhalation pathway

For each COPC identified as a potential human carcinogen, the theoretical upper-bound ILCR for a particular receptor is the sum of the calculated ILCRs for each COPC.

For each receptor, the ILCR of each pathway for the COPC is then summed to calculate the ILCR for that COPC as shown in the following equation:

$$ILCR_{COPC} = ILCR_{pathway1} + ILCR_{pathway2} + \ldots + ILCR_{pathwayn}$$ (Equation 22; EPA, 1989)

where,

$ILCR_{COPC}$	=	Summed ILCR for COPC (unitless)
$ILCRpathway1$	=	ILCR for particular pathway for COPC (unitless)

If a receptor is exposed to several carcinogens, the following equation is used to sum cancer risks:

$$Cumulative\ ILCR = ILCR(COPC_1) + ILCR(COPC_2) + \ldots + ILCR(COPC_n)$$

(Equation 23; EPA, 1989)

where,

$Cumulative\ ILCR$	=	Total risk of cancer incidence for all COPCs
$ILCR(COPC_n)$	=	Individual COPC ILCR

5.1.3 Acceptable Risk Thresholds

Estimates of the Site-specific noncancer HI and cumulative ILCR are compared to acceptable target levels by risk managers. There is some variability in acceptable cumulative ILCRs established by various regulatory agencies, although the acceptable target level for HIs is generally less than or equal to 1.0 and most target cumulative ILCRs considered acceptable lie within the risk range of 10^{-6} to 10^{-4}.

Total Noncancer Hazard Index: The HI evaluation process typically occurs in two steps. First, the HQs for all COPCs are added and compared to an acceptable target total HI. If the calculated value is greater than the acceptable target level, then for the second step only the total HQs for those compounds considered to have additive adverse noncarcinogenic health effects are summed to refine the HI estimate.

An HI of less than 1.0 indicates that it is unlikely that adverse human health effects will occur during a lifetime in an exposed population, including sensitive subpopulations (EPA, 1989). Most environmental programs employ an HI of unity (i.e., 1.0) as an acceptable target for risk decisions. Arizona's promulgated Soil Remediation Levels, presented in AAC Title 18, Chapter 7, states that "'Residential site-specific remediation level' means a level of contaminants remaining in the soil after remediation that results in a cumulative excess lifetime cancer risk between 1×10^{-6} and 1×10^{-4} and a Hazard Index no greater than 1 based on residential exposure assumptions." and "'Non-residential site-specific remediation level' means a level of contaminants remaining in soil after remediation that results in a cumulative excess lifetime cancer risk between 1×10^{-6} and 1×10^{-4} and a Hazard Index no greater than 1 based on non-residential exposure assumptions." It is further stated for the development of site-specific remediation standards, as opposed to pre-determined remediation standards, that "A person conducting a remediation to a residential or a non-residential site-specific remediation level shall remediate the contaminants in soil to a Hazard Index no greater than 1 and a cumulative excess lifetime cancer risk from 1×10^{-6} to 1×10^{-4}."

Cumulative Incremental Lifetime Cancer Risk: A total incremental lifetime risk of 10^{-6} to 10^{-4} corresponds to a theoretical probability of 1 chance in 1 million to 1 chance in ten thousand, which is in addition to or in excess of the background cancer risk. The conservatism of such risk increments is enhanced by the fact that risk is typically expressed as an upper-bound ILCR. That is, true risk is

anticipated to lie somewhere between zero and the upper-bound risk estimated in the risk characterization (EPA, 1989). Pursuant to the National Contingency Plan, potential risk estimates between 10^{-6} and 10^{-4} require risk management decisions based on site-specific land use/exposure scenarios and may or may not require remediation or mitigation (EPA, 1990). It is generally widely accepted in the regulatory community that risk estimates equal to or less than 10^{-6} do not require remediation or mitigation measures, and is a threshold typically referred to as the point of departure. Risk estimates greater than 10^{-4} generally require remediation or mitigation to reduce potential exposures, while site remediation based on cumulative ILCRs between 10^{-6} and 10^{-4} is made on a case-by-case basis (EPA, 1990). In addition, as noted above, AAC Title 8, Chapter 7 similarly indicates that sites shall be remediated to site-specific residential and non-residential remediation levels within cumulative excess lifetime cancer risk of 1×10^{-6} and 1×10^{-4}.

5.1.4 Summary of Quantitative Risk Characterization Results

The risk characterization results for the RID worker and resident are summarized below. For each receptor, cumulative ILCR and total HI were estimated. A summary of the risk results is presented in Table 16. The associated risk calculations are presented in Attachments D and E.

5.1.4.1 RID Worker

Based on the results of this HHRA for the RID worker, the cumulative ILCR is 4×10^{-7} and the total HI is 0.053. The cumulative ILCR is less than the cumulative ILCR point of departure of 1×10^{-6} and the total HI is less than the acceptable total HI of 1.0. Based on these results, mitigation is not warranted to protect the RID worker within the WVBA from potential exposure to groundwater from the RID wells.

5.1.4.2 Resident

Based on the results of this HHRA for the resident within the WVBA, the cumulative ILCR is 8×10^{-7} and total HI is 0.13. This cumulative ILCR is less than the cumulative ILCR point of departure of 1×10^{-6} and the total HI is less than the acceptable total HI of 1.0. Based on these results, mitigation is not warranted to protect the residents within the WVBA from potential exposure to groundwater from the RID wells.

5.2 Applicable or Relevant and Appropriate Requirements Comparison

Risks associated with drinking groundwater and surface water use for various purposes were assessed by comparison of associated EPCs to Applicable or Relevant and Appropriate Requirements (ARARs).

The ADEQ AAC Title 18 AWQS for the protection of human health and groundwater quality and the ADEQ AAC, Title 18 Water Quality Standards identified as the surface water quality criteria by designated use were considered to be ARARs for the WVBA. These ARARs include:

- AAC, Title 18, Chapter 11, Article 4: Numeric AWQS: Drinking Water Protected Use, which applies to aquifers classified for drinking water protected use; and
- AAC, Title 18, Chapter 11, Article 1, Appendix A. Numeric Water Quality Standards, Table 1. Water Quality Criteria By Designated Use.

5.2.1 Groundwater

Table 17 presents the comparison of maximum COPC concentrations detected in the groundwater monitoring wells and the RID wells in the WVBA between 2009 and 2013 to ADEQ AWQS for Drinking Water Protected Use published in AAC, Title 18, Chapter 11, Article 4, which are equivalent to federal MCLs. The following chemicals have been detected at concentrations exceeding MCLs between 2009 and 2013: PCE, TCE, 1,1-DCE, benzene, dissolved total chromium, and hexavalent chromium. Figure 8 shows groundwater wells with concentrations that exceed MCLs between 2009 and 2013. Figures 9 through 14 show groundwater wells with concentrations that exceed MCLs between 2009 and 2013 for PCE, TCE, 1,1-DCE, benzene, dissolved total chromium, and hexavalent chromium, respectively. The exceedances appear more wide spread for PCE and TCE, and to a lesser extent 1,1-DCE, whereas the exceedances for benzene were only identified at two well locations; exceedances for dissolved total chromium were observed at two well locations; exceedances for hexavalent chromium were observed at three well locations.

5.2.2 Surface Water

Table 18 presents the comparison of maximum CPOC concentrations detected in open canal segments between 2009 and 2013 to surface water quality standards published in Appendix A of AAC, Title 18, Chapter 11, Article 1. Based on a review of Article 1, the numeric water quality standards identified as being relevant are those associated with the following uses/pathways:

- Fish consumption;
- Full-body contact;
- Partial-body contact;
- Aquatic and wildlife (effluent-dependent water);
- Agricultural irrigation; and
- Agricultural livestock watering.

A review of Table 18 indicates that each maximum COPC concentration in surface water samples collected within the open canal segments between 2009 and 2013 is less than the above-noted standards.

5.3 Uncertainty Analysis

It should be noted that the above risk estimates are conservative estimates of potential future health risks. Arizona and EPA guidance documents for risk assessment provide a systematic means for organizing, analyzing, and presenting information on the nature and magnitude of risks to public health posed by COPC exposures. Despite the advanced state of current risk assessment methodology, uncertainties and limitations are inherent in the risk assessment process. In an attempt to minimize the consequences of uncertainty, regulatory guidance typically relies on the use of conservative estimates of adverse health effects in the absence of strong scientific data. Uncertainties from different parameters are compounded in the risk assessment. For example, if a person's daily intake rate for a chemical is compared to an RfD to determine potential health risks, the uncertainties in the concentration measurements, exposure assumptions, and toxicities will all be expressed in the result. By combining all upper-bound numbers, the uncertainty is therefore compounded and the resulting risk estimate is generally above the 90th or 95th percentile, perhaps even greater than the 99th percentile. Because multiple

conservative assumptions are used, the overall risk characterization results are much more likely to overestimate the potential risk rather than to underestimate it.

The risk estimates presented herein are likely overestimates of risk for the following reasons:

Sample Data

Decades of annual data are available for the groundwater monitoring wells within the WVBA and for the RID wells. However, much more limited data have been collected regarding COPC concentrations within the open canal segments over time, and only a single set of ambient air samples has been collected. The ambient air samples provide limited information, as they were generally not collected at potential receptor locations and do not likely represent the range of potential ambient air concentrations associated with the groundwater discharged from the RID wells at the well-head or in the open canal segments.

For instance, the ambient air samples in proximity to the open canal segments and open laterals were collected immediately above the water surface. These data do not provide representative COPC concentrations for the receptors in proximity to the open canal segments or within an adjacent residential property. Instead of using the measured concentrations within this limited data set, groundwater and surface water data were used to project estimated concentrations at the receptor locations. After validating the model used to estimate ambient air concentrations using a few paired data points (groundwater or surface water samples collected within 24 hours and generally collocated with ambient air samples), the maximum or 95% UCL maximum concentrations were used to estimate the high end of the range of potential COPC concentrations in ambient air. The use of these modeled COPC concentrations in ambient air results in an overestimation of the exposure concentrations and associated risks attributed to the inhalation pathway for both the RID worker and the resident.

COPC Selection

COPC identification was conservative and included chemicals that may not be routinely present at the exposure location. For instance, COPCs in groundwater were identified for chemicals that were only detected once between 2009 and 2013 in RID wells and also for chemicals detected at a frequency greater than 20 percent between 1984 and 2013, even if that VOC was not detected in a groundwater sample in the last 5 years (2009 to 2013). By assuming potential exposure to these chemicals over the entire exposure duration (e.g., 26 years for a resident) results in an overestimation of risk.

Exposure Pathway Evaluation

Limited information is available regarding the actual receptor behavior patterns. For the RID worker, information could not be obtained regarding the operations and maintenance needs for the RID wells or the RID worker work schedule and their work procedures and habits. For the resident, information regarding the frequency of swimming in the open canal segments and where swimming has been observed is limited, and whether fishing occurs in the open canal segments is unknown. Conservative exposure assumptions were used to purposefully err on the conservative side. These conservative assumptions contribute to an overestimate of potential exposure and associated human health risk.

EPC Derivation

Use of the maximum concentrations assumes that a person would be exposed to a maximum concentration during their entire exposure duration, which is unlikely. For instance, EPCs for surface water were based on maximum COPC concentrations measured in surface water during the last 5 years (2009 through 2013). For the RID worker, it was assumed that this receptor would be exposed to the 95% UCL concentration of reported maximum concentrations detected in the RID wells. This use of maximum concentrations to estimate EPCs is conservative and results in an overestimation of risk. It is more realistic to assume that a person may be exposed to representative average concentrations. Thus, the use of maximum concentrations overestimates risk.

It is also assumed that COPC concentrations would remain constant over time. A review of the time-series COPC concentration plots included in Appendix A of the Feasibility Study indicates that the COPC concentrations within the RID wells have generally been declining or have been fairly stable over the last 10 years. Although the concentration changes do not appear to have been dramatic overtime, continued decreasing organic COPC concentrations due to natural degradation processes would result in lower estimated organic COPC intakes over time, which would result in lower risk estimates than presented herein.

Receptor Characteristics

Risk assessments require assumptions in order to assess potential human exposure. This HHRA includes assumptions about general characteristics and potential patterns of human exposure. RME exposures were calculated to provide some measure of the range and uncertainty in potential exposures. The RME case is developed to provide an upper-bound on exposure. For instance, it was conservatively assumed that the resident would live adjacent to an open canal, would be routinely present adjacent to the canal, and swim and fish in the canal. Access to the open canal segments is limited by fencing and is not situated directly adjacent to residences.

Toxicity Values

The availability and quality of toxicological data is another source of uncertainty in the risk assessment. Uncertainties associated with the interpretation and use of animal and human studies affect the derivation of toxicity criteria that are used in the risk assessment; “safety” factors are used to account for these assumed uncertainties and to provide an additional conservatism in the use of those toxicity criteria. Thus, toxicity values used in risk assessments present overestimates of the potential toxicity of these chemicals to humans. Assumptions used to develop toxicity values include the addition of safety factors to account for uncertainties associated with extrapolating high doses to low doses where chronic environmental exposures would occur and to account for uncertainties associated with the use of laboratory animal studies to assess potential toxicity to human receptors. Carcinogenic toxicity criteria are also classified by EPA and others according to the strength of the evidence available that suggests human carcinogenicity. This strength of evidence is not incorporated into the quantitative estimate of risk. So, COPCs with a lower uncertainty for human carcinogenicity are treated equally to those with a greater certainty based on the available toxicological studies.

In general, the extrapolation of toxicological data from animal tests is one of the largest sources of uncertainty in a risk assessment. There may be important, but unidentified differences in uptake, metabolism, and distribution of chemicals in the body between the test species and humans. Typically, animals are administered doses of a chemical in a standard diet or in air that are higher than would be

experienced in an environmental setting. Humans may be exposed to much lower doses in a highly variable diet, which may affect the toxicity of the chemical. In addition, in animal studies, the animals, usually laboratory rodents, are exposed to the chemical daily for various periods of time up to their relatively short lifetimes. Humans have an average 70-year lifetime and may be exposed either intermittently or regularly for an exposure period ranging from months to their entire lifetime. Because of these differences, the extrapolation error is a large source of uncertainty in a risk assessment. These uncertainties are addressed through use of conservative assumptions in establishing toxicity values used to assess human exposures, as further described below.

- **Use of Animal Data to Develop Non-Carcinogenic Toxicity Criteria**. In establishing the non-carcinogenic toxicity criteria, conservative multipliers, known as uncertainty factors, are used. Most of the chronic non-carcinogenic toxicity criteria that were located in the IRIS database have an uncertainty factor of 1,000. This means that the dose corresponding to a toxicological endpoint (e.g., lowest-observed-adverse-effect-level) was divided by 1,000, thus increasing the toxicity by three orders of magnitude. The purpose of the uncertainty factor is to account for the extrapolation of toxicity data from animals to humans and ensure the protection of sensitive individuals in the human population evaluated.

- **Use of Animal Data to Develop Carcinogenic Toxicity Criteria**. Carcinogenic toxicity criteria for humans are derived by extrapolating toxicological data for potential carcinogens tested with animals. EPA uses the linearized multi-stage (LMS) model to extrapolate the toxicological data from animals to humans. The LMS assumes that there is no threshold for carcinogenic substances; that is, exposure to even one molecule of a carcinogen is sufficient to cause cancer. This is a highly conservative assumption, because the body has several mechanisms to protect against cancer.

  At low levels of exposure, the probability of cancer cannot be measured, but must be extrapolated from higher dosages. It would be difficult, if not impossible, to perform animal experiments with a sufficiently large number of animals to directly estimate the level of risk at the low exposure levels typically encountered by humans. Therefore, in animal studies, animals are typically exposed to carcinogens at levels that are orders of magnitude greater than those likely to be encountered by humans in the natural environment. To then estimate the risk to humans exposed at low levels, dose response data derived from animals given high dosages are extrapolated downward using mathematical models such as the LMS, which assumes that there is no threshold of response. The dose response curve generated by the model is known as the maximum likelihood estimate. The slope of the 95 percent lower confidence interval (i.e., upper-bound limit) of the dose response curve, which is a function of the variability in the input animal data, is taken as the SF from which a URF can also be derived.

- **Use of Human Data.** Even when studies of chemical effects in humans are available, they are typically for workplace exposures at higher concentrations than those generally expected in the environment. Uncertainties can be large because of activity patterns, exposure duration, frequency, individual susceptibility, and the dose may not be the same in the study populations compared to individuals exposed to environmental concentrations. Because conservative methods are also used in interpreting these data and in developing associated toxicity criteria applicable to the larger population, including sensitive receptors, the possibility of underestimating risks is low.

6. CONCLUSIONS

Based on the results of the HHRA, the estimated health risks to receptors potentially exposed to COPCs within the WVBA are acceptable. While PCE, TCE, 1,1-DCE, benzene, and dissolved total chromium concentrations from groundwater samples collected between 2009 and 2013 within the WVBA have exceeded MCLs at select locations, groundwater beneath the WVBA is not currently used for municipal purposes.

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TABLE 1

LIST OF DETECTED CHEMICALS AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

WEST VAN BUREN AREA WQARF SITE

PHOENIX, ARIZONA

	DATA OVER LAST 5 YEARS (2009 - 2013)				
CHEMICAL	**GROUNDWATER ALL DEPTHS**	**GROUNDWATER RID WELLS**	**SURFACE WATER**	**AMBIENT AIR ABOVE CANAL**	**AMBIENT AIR HEAD SPACE**
1,1,1-TRICHLOROETHANE (TCA)	X				
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)					
1,1,2-TRICHLOROETHANE	X				
1,1-DICHLOROETHANE (1,1-DCA)	X	X	X		
1,1-DICHLOROETHENE (1,1-DCE)	X	X	X	X	X
1,2-DICHLOROETHANE	X	X	X		
1,4-DIOXANE	X				
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	X				
ACETONE	X				
BENZENE	X	X	X		
BROMODICHLOROMETHANE	X		X		
BROMOFORM					
CARBON DISULFIDE	X	X			
CARBON TETRACHLORIDE	X				
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	X		X		
CHLOROFORM	X	X	X		
CIS-1,2-DICHLOROETHENE	X	X	X		
DICHLORODIFLUOROMETHANE (FREON 12)	X	X			
ETHYLBENZENE					
ISOPROPYLBENZENE	X				
METHYL ETHYL KETONE (2-BUTANONE)					
METHYL TERT-BUTYL ETHER (MTBE)	X	X			
METHYLENE CHLORIDE (DICHLOROMETHANE)					
NAPHTHALENE	X				
TETRACHLOROETHENE (PCE)	X	X	X	X	X
TOLUENE	X				
TRANS-1,2-DICHLOROETHENE	X				
TRICHLOROETHENE (TCE)	X	X	X	X	X
TRICHLOROFLUOROMETHANE (FREON 11)	X	X			
TRICHLOROTRIFLUOROETHANE					
VINYL CHLORIDE	X				
XYLENES, TOTAL	X				
M,P-XYLENES					
O-XYLENE					
CHROMIUM, DISSOLVED	X	X			
CHROMIUM, HEXAVALENT	X				

Notes:

X = Chemical was detected between 2009 and 2013

Yellow shade indicates chemical was selected as a COPC based on 2009-2013 detections or historical detections

TABLE 2
SUMMARY OF REGIONAL GROUNDWATER BACKGROUND METALS CONCENTRATIONS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Data Source	**Dates**	**Arsenic, total**		**Barium, total**		**Cadmium, total**		**Chromium, dissolved**		**Chromium, hexavalent**		**Copper, total**		**Lead, total**		**Mercury, total**		**Zinc, total**	
µg/L (detections)		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
WVBA	1986-2011	0.8	16.2	0.04	203	5	5	7.1	3,200	13	22,000	11	30	3	6	0.29	0.35	17	200
WVBA	2007-2011	na	na	na	na	na	na	10	3,200	13	35	na	na	na	na	na	na	na	na
Agua Fria Basin	2004-2006	5.4	2,250	11	340	nd	nd	11	14	na	na	14	225	nd	nd	0.25	0.25	58	1,150
PGA - North	2004-2009	200	200	56.2	862	8	8	9	*1,350*	---	---	nd	nd	17	305	0.08	0.11	nd	nd
City of Mesa	2010	11	11	2	132	na	na	2	27	na	na	na	na	na	na	na	na	na	na

Notes:
PGA = Phoenix Goodyear Airport
Concentrations in micrograms per liter (µg/L)

Sources:
ADEQ, 2008. Ambient Groundwater Quality of the Agua Fria Basin, A 2004-2006 Baseline Study. July
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TABLE 3
SUMMARY OF METALS RESULTS BY GROUNDWATER ZONE
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

Metal	UAU1		UAU2		MAU	
	Number of Detects	Maximum Detected Concentration µg/L	Number of Detects	Maximum Detected Concentration µg/L	Number of Detects	Maximum Detected Concentration µg/L
Arsenic	7	0.8	0	nd	--	--
Barium	3	55	1	0.11	--	--
Beryllium	--	--	--	--	--	--
Cadmium	0	nd	0	nd	--	--
Chromium, Dissolved Total	164	3,200	24	26	11	16.7
Chromium, Hexavalent	140	38,000	8	12,000	0	nd
Cobalt	--	--	--	--	--	--
Copper	1	30	--	--	--	--
Lead	4	6	0	nd	--	--
Mercury	0	nd	0	nd	--	--
Molybdenum	--	--	--	--	--	--
Nickel	0	nd	0	nd	--	--
Selenium	0	nd	0	nd	--	--
Silver	0	nd	0	nd	--	--
Thallium	--	--	--	--	--	--
Vanadium	--	--	--	--	--	--
Zinc	10	200	--	--	--	--

µg/L = micrograms per liter
nd = not detected above laboratory detection limits
-- = not analyzed

TABLE 4
FREQUENCY OF DETECTION - WVBA GROUNDWATER MONITORING WELLS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	0	3%
71-55-6	1,1,1-TCA	23	5	97%
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	0	17%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	12	0	41%
79-00-5	1,1,2-TRICHLOROETHANE	8	2	34%
75-34-3	1,1-DCA	24	5	100%
75-35-4	1,1-DCE	24	5	100%
78-99-9	1,1-DICHLOROPROPANE	1	0	3%
563-58-6	1,1-DICHLOROPROPENE	1	0	3%
12+14DCB	1,2-&1,4-DICHLOROBENZENE	3	0	10%
95-63-6	1,2,4-TRIMETHYLBENZENE	6	0	21%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	1	0	3%
106-93-4	1,2-DIBROMOETHANE (EDB)	1	0	3%
107-06-2	1,2-DICHLOROETHANE	20	4	83%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE	9	0	31%
78-87-5	1,2-DICHLOROPROPANE	1	0	3%
108-67-8	1,3,5-TRIMETHYLBENZENE	5	0	17%
142-28-9	1,3-DICHLOROPROPANE	1	0	3%
123-91-1	1,4-DIOXANE	5	4	31%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-	0	1	3%
594-20-7	2,2-DICHLOROPROPANE	1	0	3%
110-75-8	2-CHLOROETHYL VINYL ETHER	1	0	3%
591-78-6	2-HEXANONE	3	0	10%
99-87-6	4-ISOPROPYLTOLUENE (P-	5	0	17%
67-64-1	ACETONE	5	3	28%
7440-38-2	ARSENIC	2	0	7%
7440-38-2	ARSENIC, DISSOLVED (AS AS)	1	0	3%
7440-38-2	ARSENIC, TOTAL (AS AS)	2	0	7%
7440-39-3	BARIUM	2	0	7%
7440-39-3	BARIUM, TOTAL (AS BA)	2	0	7%
71-43-2	BENZENE	19	3	76%
75-27-4	BROMODICHLOROMETHANE	17	4	72%
75-25-2	BROMOFORM	10	0	34%
74-83-9	BROMOMETHANE	1	0	3%
75-15-0	CARBON DISULFIDE	7	4	38%
56-23-5	CARBON TETRACHLORIDE	14	1	52%
108-90-7	CHLOROBENZENE	8	0	28%
74-97-5	CHLOROBROMOMETHANE	3	0	10%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	14	4	62%
75-00-3	CHLOROETHANE	1	0	3%
67-66-3	CHLOROFORM	23	5	97%
74-87-3	CHLOROMETHANE	4	0	14%
7440-47-3	CHROMIUM	14	5	66%
7440-47-3	CHROMIUM, DISSOLVED	9	4	45%

TABLE 4
FREQUENCY OF DETECTION - WVBA GROUNDWATER MONITORING WELLS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
18540-29-9	CHROMIUM, HEXAVALENT	15	5	69%
7440-47-3	CHROMIUM, SUSPENDED	1	0	3%
7440-47-3	CHROMIUM, TOTAL	16	4	69%
16065-83-1	CHROMIUM, TRIVALENT	12	4	55%
156-59-2	CIS-1,2-DCE	16	5	72%
7440-50-8	COPPER	1	0	3%
7440-50-8	COPPER, TOTAL (AS CU)	2	0	7%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	17	4	72%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE	1	0	3%
100-41-4	ETHYLBENZENE	15	0	52%
98-82-8	ISOPROPYLBENZENE	4	1	17%
7439-92-1	LEAD	4	0	14%
7439-92-1	LEAD, TOTAL (AS PB)	1	0	3%
179601-23-1	M,P-XYLENES	10	0	34%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	7	0	24%
74-88-4	METHYL IODIDE (IODOMETHANE)	2	0	7%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	12	2	48%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	2	0	7%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	12	0	41%
91-20-3	NAPHTHALENE	4	3	24%
104-51-8	N-BUTYLBENZENE	4	0	14%
7440-02-0	NICKEL	1	0	3%
103-65-1	N-PROPYLBENZENE	4	0	14%
95-47-6	O-XYLENE	10	0	34%
127-18-4	PCE	24	5	100%
135-98-8	SEC-BUTYLBENZENE	4	0	14%
79-01-6	TCE	24	5	100%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE	1	0	3%
108-88-3	TOLUENE	20	4	83%
156-60-5	TRANS-1,2-DICHLOROETHENE	14	2	55%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	0	3%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	22	4	90%
26523-64-8	TRICHLOROTRIFLUOROETHANE	7	0	24%
108-05-4	VINYL ACETATE	1	0	3%
75-01-4	VINYL CHLORIDE	7	2	31%
1330-20-7	XYLENES, TOTAL	10	1	38%
7440-66-6	ZINC	3	0	10%
7440-66-6	ZINC, DISSOLVED (AS ZN)	1	0	3%
7440-66-6	ZINC, TOTAL (AS ZN)	1	0	3%

TABLE 5

MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013

WEST VAN BUREN WQARF SITE

PHOENIX, ARIZONA

COMPOUND	AL MW-1	AL MW-2	AL MW-3	AL MW-3R	AL MW-4	AL MW-5	AL MW-6	AVB100-01	AVB10-01	AVB10-02	AVB101-01	AVB103-02	AVB106-01	AVB106-02	AVB106-03	AVB107-01	AVB108-01	AVB108-02	AVB111-01	AVB112-05
1,1,1,2-TETRACHLOROETHANE	<5	<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	41	6.6	13	3.9	<2	1.3	2.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<2	<2	<2	<2	<2	<2	<2	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	1.8	<2	<2	<2	<2	<2	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	11	3.9	5.9	2.4	1.3	16	12	<0.5	<0.5	0.53	1.2	<0.5	<0.5	<0.5	<0.5	2.49	1.4	<0.5	<0.5	<0.5
1,1-DCE	27	6.1	14	4	1.4	10	6	0.6	1.2	2.58	2.2	0.73	<0.5	<0.5	<0.5	3.27	4.1	<0.5	<0.5	<0.5
1,1-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<10	<10	<10	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<5	<5	<5	<5	<5	<5	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-DIBROMOETHANE (EDB)	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<2	<2	<2	<2	<2	1.2	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.51
1,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	9.6	5.5	3	9.3	1.8	7.7	11	--	<4	<4	<50	<4	<4	<4	<4	<4	<50	<4	--	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<5	<5	<5	<5	<5	<5	<5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-HEXANONE	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10	--	<10	<10	<5	<5	--	<10	<10	--	<10
4-CHLOROTOLUENE	<5	<5	<5	<5	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<2	<2	<2	<2	<2	<2	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	--	<20	<20	<20	<20	--	<20	40.2	--	<20
BENZENE	<2	<2	<2	<2	<2	<2	<2	<0.5	<0.5	11.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<5	<5	<5	<5	<5	<5	<5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	0.9	<1	<1	0.54	<1	<1	<1	<1
BROMOFORM	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<5	<5	<5	<5	<5	<5	<5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
CARBON TETRACHLORIDE	<5	<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROETHANE	<5	<5	<5	<5	<5	<5	<5	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	5	5.3	5.3	6	5.7	5.5	6	0.82	0.63	0.63	4.2	1.68	19.5	0.52	<1	6.23	5.22	9.73	1.4	0.8
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	--	--	--	--	--	--	52	<10	<10	--	<10	<10	--	--	--	67.2	--	--	12.7
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	--	--	--	--	--	--	57	97.3	117	--	102	25.1	--	--	--	92.8	--	--	13.6
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	2.9	2.7	3	2.8	2.2	3.4	2.5	0.87	0.69	<0.5	5.4	<0.5	<0.5	<0.5	<0.5	5.21	2.01	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5

MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013

WEST VAN BUREN WQARF SITE

PHOENIX, ARIZONA

COMPOUND	AL MW-1	AL MW-2	AL MW-3	AL MW-3R	AL MW-4	AL MW-5	AL MW-6	AVB100-01	AVB10-01	AVB10-02	AVB101-01	AVB103-02	AVB106-01	AVB106-02	AVB106-03	AVB107-01	AVB108-01	AVB108-02	AVB111-01	AVB112-05
DICHLORODIFLUOROMETHANE (FREON 12)	<5	<5	<5	<5	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	--	--	--	--	--	--	--	10.8	<	--	<	<	--	--	--	<	--	--	13.5
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2.5	<2.5	<2.5	<2.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10	--	<10	<10	<5	<5	--	<10	<10	--	<10
METHYL TERT-BUTYL ETHER (MTBE)	<5	<5	<5	<5	<5	<5	<5	<2	<2	<2	--	<2	<2	<2	<2	--	<2	<2	--	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
METHYLENE CHLORIDE (DICHLOROMETHANE)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<5	<5	<5	<5	<5	<5	<5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PCE	8.6	9.7	11	12	13	36	23	160	23.9	15	12	0.7	6.54	<0.5	<0.5	4.79	16.4	5.7	<0.5	<0.5
SEC-BUTYLBENZENE	<5	<5	<5	<5	<5	<5	<5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	33	32	35	36	30	40	35	5.9	2.38	4.9	60	0.95	20.4	<0.5	<0.5	20.1	29.1	4.1	1.8	<0.5
TERT-BUTYLBENZENE	<5	<5	<5	<5	<5	<5	<5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	13	1.6	23	33	67	94	78	<2	4.53	5.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TOTAL CHROMIUM	--	--	--	--	--	--	--	--	79.7	30	--	<	29	--	--	--	82.4	--	--	60.3
TOTAL TRIHALOMETHANES	--	--	--	--	--	--	--	0.72	0.55	0.61	4.2	1.46	19.5	<2.5	<2.5	--	5.2	7.8	<2.5	<2.5
TRANS-1,2-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<5	<5	<5	<5	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	<25	<25	<25	<25	<25	<25	<25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VINYL CHLORIDE	<5	<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<10	<10	<10	<10	<10	<10	<10	<3	<3	<3	<3	<1	<3	<3	<3	<1	<3	<3	<3	<3

Notes:

Concentrations in micrograms per liter (ug/L)

-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB115-01	AVB116-01	AVB116-02	AVB117-01	AVB118-01	AVB119-01	AVB120-01	AVB120-02	AVB120-03	AVB12-01	AVB121-01	AVB121-02	AVB122-01	AVB122-02	AVB122-03	AVB123-01	AVB124-01	AVB124-02
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
1,1-DCA	5.88	1.43	3.7	<0.5	1.78	<0.5	4.24	<0.5	<1	0.56	<0.5	<0.5	<0.5	<1	<0.5	<0.5	3.73	<0.5
1,1-DCE	8.68	2.27	6.01	<0.5	2.69	<0.5	7.45	1.44	0.71	<0.5	<0.5	<0.5	1.8	2.13	0.66	<0.5	13.4	<0.5
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<3	<3	<3	<3	<3	<3	<3	<3	<10	<3	<3	<2	<3	<10	<3	<3	<3	<2
1,2-DIBROMOETHANE (EDB)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	<4	<4	<4	<4	--	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<0.5	<1	<2	<1	<1	<1	<0.5
2-HEXANONE	<5	<5	<5	<5	--	--	--	<5	<5	<10	<5	<5	<5	<10	<10	<5	<5	<10
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	--	--	--	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<0.5	<1	0.94	<1	<1	<1	<0.5
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5	<2.5	<2.5	<0.5	0.63	<5	<2.5	<2.5	<2.5	<0.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	3.3	1.45	1.2	5	1.23	1.21	3.93	1.46	7.29	0.93	<1	<0.5	5.61	2.35	0.95	1.88	1.16	<1
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	--	--	--	--	--	--	--	<10	<10	--	<10	--	<10	<10	--	--	<10
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	--	--	--	--	--	--	--	<10	19.5	--	81.8	--	13.1	17.1	--	--	103
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	14.9	1.47	3.77	<0.5	1.56	<0.5	15.4	<0.5	<1	0.8	<0.5	<0.5	0.9	<1	<0.5	3.24	17.6	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB115-01	AVB116-01	AVB116-02	AVB117-01	AVB118-01	AVB119-01	AVB120-01	AVB120-02	AVB120-03	AVB12-01	AVB121-01	AVB121-02	AVB122-01	AVB122-02	AVB122-03	AVB123-01	AVB124-01	AVB124-02
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	2.17	<2	<2	<2	4.63	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	--	--	--	--	--	--	--	--	22.1	--	<	--	--	<	--	--	<
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10	<10	<10	<10	<5
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<2	<2	<5	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<5	--	--	--	<5	<5	<10	<5	<5	<5	<10	<10	<5	<5	<10
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<3	<5	<5	<5	<5	<5	<3
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	159	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PCE	3.5	1.86	1.92	4.28	1.39	87.5	11	37	14.9	9.9	<0.5	<0.5	16.9	8.83	3.01	1.77	8.49	<0.5
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	72	6.86	18.6	2.32	7.34	<0.5	96.9	189	41.4	13.4	<0.5	<0.5	10.8	7.49	2.63	20.7	184	1.32
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	49.1	<2	<2	<2	<2	<2	46.8
TOTAL CHROMIUM	--	--	--	--	--	--	--	--	--	193	--	<	--	--	40.1	--	--	35.6
TOTAL TRIHALOMETHANES	3.3	--	--	2.9	--	<2.5	3.7	<2.5	--	0.78	<2.5	<2.5	<2.5	<2.5	--	--	--	--
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10	<10	<10	<10	<5
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<3	<1	<1	<3	<1	<3	<3	<3	<3	<3	<3	<3	<3	<3	<1	<1	<1	<1

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB125-01	AVB126-01	AVB126-02	AVB126-03	AVB127-01	AVB128-01	AVB129-01	AVB129-02	AVB130-01	AVB131-01	AVB132-01	AVB132-02	AVB133-01	AVB134-01	AVB134-02	AVB135-01	AVB136-01	AVB137-01
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<1
1,1,1-TCA	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.56	<0.5	<1	<0.5	<1	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5
1,1-DCA	<0.5	1.3	3.84	<0.5	4.69	<0.5	<0.5	<2	<0.5	<0.5	14	<0.5	<0.5	11	10.3	<0.5	1.42	<0.5
1,1-DCE	<0.5	2.2	7.42	<0.5	6.74	<0.5	<0.5	<1.5	4.08	<0.5	30	0.79	0.93	16	24.5	<0.5	4.24	<0.5
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	<2	<1	<2	<2
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<3	<3	<2	<2	<3	<3	<3	<3	<3	<2	<3	<2	<2	<3	<10	<3	<10	<3
1,2-DIBROMOETHANE (EDB)	<1	<1	<0.5	<0.5	<1	<1	<1	<5	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<1	<1
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	0.51	<0.5	<1	<0.5
1,2-DICHLOROPROPANE	<1	<1	<0.5	<0.5	<1	<1	<1	<4	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<1	<1
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<2
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<2	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	<4	<4	<4	<4	<4	<4	<4	--	<4	<4	<50	<4	<4	<4	<4	<4	<4	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<0.5	<0.5	<1	<2	<1	<2	<1
2-HEXANONE	<5	<10	<10	<10	<10	--	<5	--	<5	<10	<5	<10	<10	<5	<5	<10	<10	<10
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	--	<20	<0.5	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<1	<20
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<1	<1	<0.5	<0.5	<1	<1	<1	6.81	1.39	<0.5	<1	<0.5	<0.5	<1	<5	<1	<5	<1
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	1.56	<2.5	0.84	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	0.74	<0.5	<0.5	<2.5	<5	<2.5	<5	<2.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<1	<1	<0.5	<0.5	<1	<1	<1	<5	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<1	<1.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<1	<1	<0.5	<0.5	<1	<1	<1	4.5	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<1	<1
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	<1	1.6	1.1	<0.5	4.66	4.53	<1	6.97	3.05	7.28	2.7	<0.5	0.71	2.4	2.8	<1	1.36	<1
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	<10	<10	18.1	<10	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	21.7
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	40.1	<10	26	16.9	--	--	--	--	42.5	36	18	15.1	<10	21.1	31.3	33.2	423
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	5.64	5.53	<0.5	20.9	<0.5	<0.5	<5	<0.5	<0.5	38.4	1.02	0.53	23.1	27.6	<0.5	4.57	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB125-01	AVB126-01	AVB126-02	AVB126-03	AVB127-01	AVB128-01	AVB129-01	AVB129-02	AVB130-01	AVB131-01	AVB132-01	AVB132-02	AVB133-01	AVB134-01	AVB134-02	AVB135-01	AVB136-01	AVB137-01
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<5	58.5	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	179	13.6	<	19.9	--	--	--	--	--	<	--	<	<	--	--	<	<	<
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<10	<10	<5	<5	<10	<10	<10	<10	<10	<5	<10	<5	<5	<10	<10	<10	<5	<10
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	<5	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<10	<10	<10	<10	--	<5	--	<5	<10	<5	<10	<10	<5	<5	<10	<10	<10
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	--	<2	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5
METHYLENE BROMIDE (DIBROMOMETHANE)	<1	<1	<0.5	<0.5	<1	<1	<1	<2	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<0.5	<1
METHYLENE CHLORIDE (DICHLOROMETHANE)	<5	<5	<3	<3	<5	<5	<5	<5	<5	<3	<5	<3	<3	<5	<5	<5	<3	<5
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	232	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.5
PCE	24	12	1.98	<0.5	5.92	2.94	<0.5	<0.5	2.26	4.26	10.6	1.67	0.56	5.81	12	0.66	8.66	<0.5
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2
TCE	<0.5	13	20.6	<0.5	99.9	1.49	<0.5	<0.5	42	1.02	252	8.82	0.95	110	1380	<0.5	20.8	<0.5
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	<2	<2	6.61	24.1	<2	<2	<2	<2	<2	5.42	<2	43.8	51.3	<2	<2	<2	16.1	<2
TOTAL CHROMIUM	187	59.4	34.1	34.2	--	--	--	--	--	53.5	--	<	<	--	--	202	60.7	11.8
TOTAL TRIHALOMETHANES	--	1.46	1.03	<2.5	4.5	--	--	--	--	--	2.56	<2.5	--	2.09	2.8	<2.5	0.92	<2.5
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	0.53	<0.5	<0.5	<0.5	<1	<0.5	<1	<0.5
TRANS-1,3-DICHLOROPROPENE	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<0.5	<0.5	<1	<1	<1	<1	<1
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	<10	<10	<5	<5	<10	<10	<10	<10	<10	<5	<10	<5	<5	<10	<10	<10	<5	<10
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1	<5
XYLENES, TOTAL	<1	<3	<3	<3	<3	<1	<1	<1	<1	<1	<3	<3	<1	<3	<3	<3	<3	<3

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB138-01	AVB139-01	AVB140-01	AVB14-01	AVB141-01	AVB142-01	AVB15-01	AVB18-01	AVB20-03	AVB26-01	AVB37-04	AVB38-04	AVB40-05	AVB40-06	AVB40-07	AVB40-08	AVB47-01	AVB53-01	AVB57-01	AVB60-01
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	<5	<5	<0.5	<0.5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	<0.5	<0.5	<0.5	2.7	<0.5	1.5	2.78	<0.5	3.15	<0.5	2.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.72	<0.5	<0.5
1,1-DCE	<0.5	<0.5	<0.5	2.07	<0.5	2.53	3.55	<0.5	6.09	<0.5	1.98	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	9.53	<0.5	<0.5
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	1.37	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<3	<3	<3	<3	<3	<3	<3	<3	<3	<2	<2	<3	<3	<3	<3	<2	<2	<3	<3
1,2-DIBROMOETHANE (EDB)	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	--	<4	<4	<4	<4	<4	<4	<4	<4	<4	--	<4	<4	<4	<4	<4	--	--	<4	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
2-HEXANONE	<5	<10	<10	<10	<10	<10	<10	<5	<10	--	<5	<5	--	--	--	<10	<5	<5	<10	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20	--	<20	<20	--	--	--	<20	81.5	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<0.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<0.5	<0.5	0.59	<2.5	<2.5	<2.5	<0.5	<0.5	<2.5	<2.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	<0.5	<1	<1	2.83	<1	<1	2.7	2.75	4.94	1.3	4.13	3.96	0.97	0.8	1.15	0.93	0.57	2.34	1.16	<1
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	19	<10	<10	<10	12.3	12.3	<10	--	<10	--	<10	--	--	--	--	<10	3200	<10	18	<10
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	347	14.6	12	54	18.2	16	14.2	--	<10	--	41.4	--	--	--	--	31.7	30100	<10	3680	77
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	14	<0.5	11.8	0.84	1.62	<0.5	<0.5	<0.5	2.49	<0.5	<0.5	21.7	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB138-01	AVB139-01	AVB140-01	AVB14-01	AVB141-01	AVB142-01	AVB15-01	AVB18-01	AVB20-03	AVB26-01	AVB37-04	AVB38-04	AVB40-05	AVB40-06	AVB40-07	AVB40-08	AVB47-01	AVB53-01	AVB57-01	AVB60-01
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	<	<	10.2	12.8	<	<	--	<	--	--	--	--	--	--	<	--	--	<	--
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<5	<10	<10	<10	<10	<5	<5	<10	<10
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<10	<10	<10	<10	<10	<10	<5	<10	--	<5	<5	--	--	--	<10	<5	<5	<10	<5
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	--	--	--	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<3	<3	<5	<5	<5	<5	<3	<3	<5	<5
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PCE	<0.5	<0.5	<0.5	0.82	<0.5	7.34	3.5	1.16	11	1.49	24.2	2.14	4.1	3.49	24.5	8.1	369	4.8	1.7	1.33
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	<0.5	<0.5	<0.5	13	<0.5	3.11	82	1.63	77	0.73	25.4	1.25	8.93	5.22	8.8	27	<0.5	93.3	0.85	<0.5
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	<2	<2	<2	<2	52.3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TOTAL CHROMIUM	--	97.5	137	205	168	15.3	14.6	--	<	--	--	--	--	--	--	18.5	--	--	4450	--
TOTAL TRIHALOMETHANES	<0.5	<2.5	<2.5	1.39	<2.5	<2.5	2.7	--	3.19	<2.5	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	0.63	<2.5
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<1	<1
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<5	<10	<10	<10	<10	<5	<5	<10	<10
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<1	<3	<3	<3	<3	<3	<3	<1	<3	<3	<1	<3	<3	<3	<3	<3	<3	<1	<3	<3

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB61-01	AVB65-01	AVB68-02	AVB68-04	AVB69-01	AVB69-02	AVB70-01	AVB71-01	AVB72-01	AVB73-01	AVB74-01	AVB75-01	AVB76-01	AVB77-01	AVB77-02	AVB77-03	AVB81-01	AVB81-02	AVB82-01	AVB82-02
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	1.7	<0.5	0.87	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.03	<0.5
1,1-DCE	<0.5	9.94	0.88	<0.5	<0.5	<0.5	9.11	<0.5	<0.5	<0.5	<0.5	1.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	29.4	2
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<3	<2	<3	<3	<3	<3	<3	<3	<2	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-DIBROMOETHANE (EDB)	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	<4	--	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1.71	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-HEXANONE	<10	<5	<10	<5	<5	<10	<10	<10	<5	<10	<10	<10	<10	<5	<5	<5	<5	<5	<10	<10
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	174	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	24.4	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	1.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<2.5	<0.5	<2.5	0.62	<2.5	<2.5	<2.5	4.21	<0.5	<2.5	0.57	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	2.49	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	0.71	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	<1	0.72	1.2	<1	<1	0.63	0.91	<1	3.23	5.3	1.67	1.2	2.84	0.79	<1	0.69	<1	<1	1.15	<1
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	42.9	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	<10	<10	--	--	--	33	<10	<10	<10	<10	40	13.9	15.7	--	--	--	--	<10	10.7	16.6
CHROMIUM, HEXAVALENT	--	--	--	--	14	19.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	404	<10	--	--	--	480	3380	127	2700	840	109	110	213	--	--	--	--	19	31	33
CHROMIUM, TRIVALENT	--	--	--	--	28.9	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	23	<0.5	3.9	<0.5	<0.5	1.77	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.96	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB61-01	AVB65-01	AVB68-02	AVB68-04	AVB69-01	AVB69-02	AVB70-01	AVB71-01	AVB72-01	AVB73-01	AVB74-01	AVB75-01	AVB76-01	AVB77-01	AVB77-02	AVB77-03	AVB81-01	AVB81-02	AVB82-01	AVB82-02
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	<	--	--	--	--	<	<	23.9	<	<	32.2	25.7	11.5	--	--	--	--	--	--	17.5
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<10	<5	<10	<10	<10	<10	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<10	<5	<10	<5	<5	<10	<10	<10	<5	<10	<10	<10	<10	<5	<5	<5	<5	<5	<10	<10
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<1	<0.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
METHYLENE CHLORIDE (DICHLOROMETHANE)	<5	<3	<5	<5	<5	<5	<5	<5	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PCE	<0.5	7.25	1.8	<0.5	1.52	18.6	25	<0.5	7.71	4.54	0.84	18.7	0.7	3	<0.5	1.2	<0.5	<0.5	70.2	9.89
SEC-BUTYLBENZENE	<1.5	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	<0.5	3.59	2.4	<0.5	<0.5	<0.5	16	<0.5	28	<0.5	0.81	3.84	0.91	4.99	<0.5	1.63	<0.5	<0.5	21.6	<0.5
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	179	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	46.7
TOTAL CHROMIUM	252	--	--	--	--	157	9160	1400	1190	4800	10200	15900	760	--	--	--	--	--	--	48.1
TOTAL TRIHALOMETHANES	<2.5	--	<2.5	<2.5	<2.5	<2.5	0.73	<2.5	3.2	7.81	0.99	1.2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	0.85	<0.5
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<1	<0.5	<1	<1	<0.5	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5.21	<2
VINYL ACETATE	<10	<5	<10	<10	<10	<10	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.98	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<3	<1	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<1	<1

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB83-01	AVB84-01	AVB85-01	AVB87-01	AVB88-01	AVB91-01	AVB91-02	AVB91-03	AVB92-01	AVB92-02	AVB93-01	AVB94-01	AVB94-02	AVB95-01	AVB95-02	AVB96-01	AVB96-02	AVB97-01	AVB98-01	AVB99-01
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	<5	<5	1.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	<0.5	<0.5	5.15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCE	<0.5	0.62	2.16	2	0.63	<0.5	1.02	<0.5	<0.5	0.78	<0.5	4.2	1.3	<0.5	<0.5	<0.5	0.84	<0.5	0.86	0.96
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-DIBROMOETHANE (EDB)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	<4	<4	<4	<50	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-HEXANONE	<5	<5	<5	--	<10	<10	<5	<10	<10	<5	<10	--	<5	<5	<5	<5	<5	<10	<5	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	--	<20	<20	<20	<20	<20	<20	<20	--	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<1	<1	<1	6.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	0.59	<2.5	<2.5	0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.52	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	3.2	<1	<1	1.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	0.73	1.6	0.87	14	<1	<1	0.56	<1	<1	0.61	<1	1.23	1.83	2.5	<1	<1	<1	1.4	<1	2.3
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	9.09	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	42.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	--	--	--	16.3	27	--	16.7	15	--	14	--	--	--	--	--	--	<10	--	--
CHROMIUM, HEXAVALENT	--	--	--	--	42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	--	--	--	21.9	534	--	56.7	56.8	--	62.6	--	--	--	--	--	--	22	--	--
CHROMIUM, TRIVALENT	--	--	--	--	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	<0.5	66	0.55	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.19	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	AVB83-01	AVB84-01	AVB85-01	AVB87-01	AVB88-01	AVB91-01	AVB91-02	AVB91-03	AVB92-01	AVB92-02	AVB93-01	AVB94-01	AVB94-02	AVB95-01	AVB95-02	AVB96-01	AVB96-02	AVB97-01	AVB98-01	AVB99-01
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	11.9	<2	2.31	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	--	--	--	59	20.8	--	11	11.5	--	<	--	--	--	--	--	--	31.2	--	--
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	--	<10	<10	<5	<10	<10	<5	<10	--	<5	<5	<5	<5	<5	<10	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
METHYLENE CHLORIDE (DICHLOROMETHANE)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PCE	2.1	<0.5	93	22.7	65.1	<0.5	4.19	<0.5	5.6	1.25	53	1.44	3.51	1.52	<0.5	<0.5	1.6	1.56	7.85	<0.5
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	2.22	0.87	41.3	12.6	<0.5	<0.5	1.59	<0.5	<0.5	17	1.3	53	4.7	0.64	<0.5	<0.5	4.5	0.7	0.99	1.1
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TOTAL CHROMIUM	--	--	--	--	247	160	--	14.6	165	--	234	--	--	--	--	--	--	104	--	--
TOTAL TRIHALOMETHANES	<2.5	<2.5	<2.5	24.1	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	2.5	<2.5	<2.5	<2.5	1.03	<2.5	<2.5
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	CMW-1	CMW-1D	CMW-2	CMW-4	CMW-5	DIMW-1 (115-125)	DIMW-1 (160-170)	DIMW-1 (235-245)	DIMW-1 (340-350)	DIMW-1 (405-415)	DIMW-2 (162-172)	DIMW-2 (237-247)	DIMW-2 (340-350)
1,1,1,2-TETRACHLOROETHANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
1,1-DCE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	7	<0.5	<0.5
1,1-DICHLOROPROPENE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMOETHANE (EDB)	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
1,2-DICHLOROPROPANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	--	--	--	--	--	--	--	--	--	--	--	--	--
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-HEXANONE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
4-CHLOROTOLUENE	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	--	--	--	--	--	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOFORM	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARBON TETRACHLORIDE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROETHANE	--	--	--	--	--	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	--	--	--	--	--	0.81	0.81	0.56	<0.5	<0.5	4.5	<0.5	<0.5
CHLOROMETHANE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	30000	<10	<10	435	171	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, HEXAVALENT	32000	<10	<10	429	179	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TRIVALENT	7300	<10	<10	57	11	--	--	--	--	--	--	--	--
CIS-1,2-DCE	--	--	--	--	--	<0.5	<0.5	<0.5	5.5	3.7	1.2	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	CMW-1	CMW-1D	CMW-2	CMW-4	CMW-5	DIMW-1 (115-125)	DIMW-1 (160-170)	DIMW-1 (235-245)	DIMW-1 (340-350)	DIMW-1 (405-415)	DIMW-2 (162-172)	DIMW-2 (237-247)	DIMW-2 (340-350)
DICHLORODIFLUOROMETHANE (FREON 12)	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	--	--	--	--	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	--	--	--	--	--	<2	<2	--	<2	<2	<2	--	<2
METHYL ETHYL KETONE (2-BUTANONE)	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
METHYL IODIDE (IODOMETHANE)	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	--	--	--	--	--	<3	<3	<3	<3	<3	<3	<3	<3
NAPHTHALENE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	--	--	--	--	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	--	--	--	--	--	<1	<1	--	<1	<1	<1	--	<1
PCE	--	--	--	--	--	8.5	5.1	3	45	4.400000095	30	1.100000024	0.99000001
SEC-BUTYLBENZENE	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1
TCE	--	--	--	--	--	<0.5	<0.5	0.550000012	5.6	<0.5	11	<0.5	<0.5
TERT-BUTYLBENZENE	--	--	--	--	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
TOTAL CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL TRIHALOMETHANES	--	--	--	--	--	<0.5	<0.5	--	<0.5	<0.5	2.700000048	<2.5	<2.5
TRANS-1,2-DICHLOROETHENE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	<5	<5	<5
TRICHLOROFLUOROMETHANE (FREON 11)	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
VINYL ACETATE	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5
VINYL CHLORIDE	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	--	--	--	--	--	<3	<3	<3	<3	<3	<3	<3	<3

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	DIMW-2 (403-413)	DIMW-3 (162-172)	DIMW-3 (237-247)	DIMW-3 (340-350)	/W-3 (403-4	DIMW-4A	DIMW-5A	DIMW-6A	DIMW-7A	DIMW-8D	DIMW-9D	DM-509	PRU-MW-1	PRU-MW-2	PRU-MW-3	Pru-MW-4	PS-1	PS-2
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
1,1,1-TCA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	6.13
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
1,1-DCA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	9.81	3.88
1,1-DCE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.87	0.86	<0.5	<0.5	--	--	--	--	--	<0.5	3
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
1,2-DIBROMOETHANE (EDB)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
1,2-DICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<0.5	<0.5
1,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
1,4-DIOXANE	--	--	--	--	--	--	--	--	--	--	--	7.2	--	--	--	--	--	--
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
2,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
2-HEXANONE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	--	--	--	--	--	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
BROMODICHLOROMETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
CARBON DISULFIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	1.21	--	<0.5	<0.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	--	--	--	--	--	<4	<4
CHLOROFORM	<0.5	0.63	<0.5	<0.5	<0.5	0.76	<0.5	1.1	1.5	0.91	<0.5	--	0.84	1.2	1.1	0.24	0.96	3.49
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	152	1460
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	1.22	2.86	9.4	3.75	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	DIMW-2 (403-413)	DIMW-3 (162-172)	DIMW-3 (237-247)	DIMW-3 (340-350)	IW-3 (403-4	DIMW-4A	DIMW-5A	DIMW-6A	DIMW-7A	DIMW-8D	DIMW-9D	DM-509	PRU-MW-1	PRU-MW-2	PRU-MW-3	Pru-MW-4	PS-1	PS-2
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
DISSOLVED CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--	--	--	7.81	<2.5
M,P-XYLENES	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	--	--	--	--	--	<3	<3
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--	--	--	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
O-XYLENE	<1	<1	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
PCE	0.600000024	0.860000014	0.7	<0.5	0.66	2.6	2	8.3000002	7.3000002	6	<0.5	--	316	804	1120	463	1.95	1.7
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1
TCE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	1.9	1	<0.5	--	3.13	10.7	18.8	7.28	2.07	1.4
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	--	--	--	<2.5	<2.5
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
TOTAL CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL TRIHALOMETHANES	<2.5	<2.5	<2.5	<2.5	<2.5	<0.5	<0.5	<0.5	0.82	<0.5	<0.5	--	--	--	--	--	<2.5	2.6
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
TRANS-1,4-DICHLORO-2-BUTENE	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	--	--	<2	<2
VINYL ACETATE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	<5	<5
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	<0.5	<0.5
XYLENES, TOTAL	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	--	1.6	--	--	1	<3	<3

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	PS-3	PS-4	PS-5	PS-6	PS-7	PS-9	RID-100	RID-101	RID-102	RID-103	RID-104	RID-105	RID-106	RID-107	RID-108	RID-109	RID-110	RID-111	RID-112	RID-113	RID-114	RID-83	RID-84	RID-85	RID-86	RID-88
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TCA	<0.5	<0.5	<0.5	<5	<5	<5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCA	<0.5	<0.5	<0.5	1.19	0.59	0.5	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.38	3.7	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DCE	1.53	0.5	<0.5	1.07	0.99	<0.5	4.2	<0.5	<0.5	1.4	0.76	0.68	5.7	3.6	0.96	3	<0.5	<0.5	0.76	2.45	5.5	<0.5	1.16	<0.5	<0.5	<0.5
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<2	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<5	<1	<5	<5	<5	<5	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<5	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<2	<2	<3	<3	<3	<5	<2	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMOETHANE (EDB)	<0.5	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	1.49	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	3.2	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,4-DIOXANE	--	--	--	<50	<50	<4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<1	<1	<1	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-HEXANONE	<5	<5	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	8.11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<0.5	<0.5	<0.5	<1	<1	18	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOFORM	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<0.5	<0.5	<0.5	<2.5	<2.5	<2.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<1	<1	4	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	4	2.4	3.6	19.9	4.47	37	1.4	<0.5	0.73	<0.5	1.13	<0.5	2.2	1.7	1.2	3.09	4.5	3.96	4.2	3.01	7.3	<0.5	0.83	<0.5	<0.5	<0.5
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CHROMIUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, DISSOLVED	<10	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	231	<10	<10	26.6	28	104	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CIS-1,2-DCE	<0.5	2.6	<0.5	1.85	<0.5	<0.5	5.4	<0.5	0.81	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	0.95	0.86	<0.5	2.5	4.82	15	<0.5	<0.5	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	PS-3	PS-4	PS-5	PS-6	PS-7	PS-9	RID-100	RID-101	RID-102	RID-103	RID-104	RID-105	RID-106	RID-107	RID-108	RID-109	RID-110	RID-111	RID-112	RID-113	RID-114	RID-83	RID-84	RID-85	RID-86	RID-88
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.65	<2	2.46	2.6	<2	<2	<2	<2	<2	<2	<2	<2	<2
DISSOLVED CHROMIUM	--	--	--	<	<	<	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<5	<5	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	11	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<0.5	<0.5	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<3	<3	<5	<5	<5	<5	<3	<3	<3	<3	<3	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	<1	<1
PCE	1.58	8.43	1.66	6.4	2	2.15	7.1	<0.5	17	<0.5	6	3.5	27	10	8.7	6.9	7.9	0.97	4.5	3.2	4.4	<0.5	9.7	<0.5	<0.5	<0.5
SEC-BUTYLBENZENE	<1.5	<1.5	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TCE	0.66	33.7	<0.5	25	2.95	5.23	17	<0.5	0.72	<0.5	0.79	0.58	10	9.5	3.1	7	1.9	<0.5	17	29.2	87	<0.5	1.4	<0.5	<0.5	<0.5
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TOTAL CHROMIUM	--	--	--	41.1	443	188	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL TRIHALOMETHANES	4	<2.5	--	3.6	3.85	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5	<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.93	0.8	<2	<2	<2	<2	<2	<2	0.82	<2	<2	<2	<2	<2
VINYL ACETATE	<5	<5	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<3	<3	<1	<3	<3	<3	<3	<1	<3	<3	<3	<3	<3	<3	<3	<3	<3	<1	<3	<1	<3	<3	<3	<3	<1	<1

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	RID-89	RID-90	RID-91	RID-92	RID-93	RID-94	RID-95	RID-99	WVB-4
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,1,1-TCA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	--	--	--	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,1-DCA	0.87	<0.5	<0.5	2.1	<0.5	<0.5	4.76	<0.5	--
1,1-DCE	2.75	<0.5	0.58	5.17	0.57	0.94	9.23	1.4	--
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	--
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	--
1,2,3-TRICHLOROPROPANE	<5	<1	<1	<5	<1	<5	<1	<5	--
1,2,4-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	--
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	--
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<2	<2	<2	<2	<2	<2	<2	--
1,2-DIBROMOETHANE (EDB)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
1,2-DICHLOROETHANE	0.81	<0.5	<0.5	2	<0.5	<0.5	4.4	<0.5	--
1,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	--
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
1,4-DIOXANE	--	--	--	--	--	--	--	--	--
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
2,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
2-HEXANONE	<5	<5	<5	<5	<5	<5	<5	<5	--
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	--
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	--
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
BROMODICHLOROMETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	--
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	--
CARBON DISULFIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	--
CHLOROFORM	3.17	<0.5	<0.5	3.4	0.52	0.57	1.2	0.54	--
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	--
CHROMIUM	--	--	--	--	--	--	--	--	1560
CHROMIUM, DISSOLVED	--	--	--	--	--	--	--	--	--
CHROMIUM, HEXAVALENT	--	--	--	--	--	--	--	--	1500
CHROMIUM, TOTAL	--	--	--	--	--	--	--	--	--
CHROMIUM, TRIVALENT	--	--	--	--	--	--	--	--	450
CIS-1,2-DCE	3	<0.5	0.57	7.58	0.52	0.85	11.2	0.91	--
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	--

TABLE 5
MAXIMUM VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

COMPOUND	RID-89	RID-90	RID-91	RID-92	RID-93	RID-94	RID-95	RID-99	WVB-4
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<2	<2	<2	<2	<2	<2	<2	--
DISSOLVED CHROMIUM	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	--
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	--
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	--
METHYL ETHYL KETONE (2-BUTANONE)	<5	<5	<5	<5	<5	<5	<5	<5	--
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	--
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<5	<5	<5	<5	<5	--
METHYL TERT-BUTYL ETHER (MTBE)	<2	<2	<2	<2	<2	<2	<2	<2	--
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<3	<3	<3	<3	<3	<3	<3	--
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	--
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	--
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	--
PCE	11	<0.5	<0.5	17	0.67	1.2	4.6	8.85	--
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	--
TCE	34.1	<0.5	2.99	84	1.85	1.13	60.2	<0.5	--
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	--
TOTAL CHROMIUM	--	--	--	--	--	--	--	--	--
TOTAL TRIHALOMETHANES	--	--	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
TRANS-1,3-DICHLOROPROPENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
TRANS-1,4-DICHLORO-2-BUTENE	--	--	--	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<2	<2	0.52	<2	<2	<2	<2	--
VINYL ACETATE	<5	<5	<5	<5	<5	<5	<5	<5	--
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
XYLENES, TOTAL	<3	<1	<1	<3	<1	<3	<1	<3	--

Notes:
Concentrations in micrograms per liter (ug/L)
-- = Not analyzed or data not available.

TABLE 6
FREQUENCY OF DETECTION - RID WELLS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL NAME	Frequency of Detect (Prior to 2009)	Frequency of Detect (2009-2013)	Frequency of Detect (over all years) (%)
71-55-6	1,1,1-TRICHLOROETHANE	6	0	29%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	3	0	14%
75-34-3	1,1-DICHCLOROETHANE	14	4	86%
75-35-4	1,1-DICHLOROETHENE	15	4	90%
12+14DCB	1,2-&1,4-DICHLOROBENZENE	1	0	5%
95-63-6	1,2,4-TRIMETHYLBENZENE	1	0	5%
107-06-2	1,2-DICHLOROETHANE	7	2	43%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	5	0	24%
142-28-9	1,3-DICHLOROPROPANE	1	0	5%
594-20-7	2,2-DICHLOROPROPANE	1	0	5%
110-75-8	2-CHLOROETHYL VINYL ETHER	1	0	5%
71-43-2	BENZENE	6	2	38%
75-25-2	BROMOFORM	1	0	5%
75-15-0	CARBON DISULFIDE	1	1	10%
56-23-5	CARBON TETRACHLORIDE	5	0	24%
67-66-3	CHLOROFORM	13	4	81%
156-59-2	CIS-1,2-DICHLOROETHENE	7	4	52%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	4	4	38%
100-41-4	ETHYLBENZENE	1	0	5%
98-82-8	ISOPROPYLBENZENE	1	0	5%
74-88-4	METHYL IODIDE (IODOMETHANE)	1	0	5%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	6	2	38%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1	0	5%
91-20-3	NAPHTHALENE	1	0	5%
104-51-8	N-BUTYLBENZENE	1	0	5%
135-98-8	SEC-BUTYLBENZENE	1	0	5%
127-18-4	TETRACHLOROETHENE	17	4	100%
108-88-3	TOLUENE	1	0	5%
156-60-5	TRANS-1,2-DICHLOROETHENE	3	0	14%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	0	5%
79-01-6	TRICHLOROETHENE (TCE)	16	4	95%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	7	1	38%
26523-64-8	TRICHLOROTRIFLUOROETHANE	2	0	10%
75-01-4	VINYL CHLORIDE	1	0	5%
179601-23-1	M,P-XYLENES	2	0	10%
95-47-6	O-XYLENE	1	0	5%

7440-47-3	CHROMIUM, DISSOLVED	6	0	29%
7440-47-3	CHROMIUM, TOTAL	6	0	29%

TABLE 7

MAXIMUM VOC CONCENTRATIONS IN RID WELLS - 2009 THROUGH 2013

WEST VAN BUREN WQARF SITE

PHOENIX, ARIZONA

PARAMETER_NAME	RID-100	RID-101	RID-102	RID-103	RID-104	RID-105	RID-106	RID-107	RID-108	RID-109	RID-110	RID-112	RID-113	RID-114	RID-83	RID-84	RID-85	RID-86
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.38	3.7	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE	4.2	<0.5	<0.5	1.4	0.76	0.68	5.7	3.6	0.96	3	<0.5	0.76	2.45	5.5	<0.5	0.98	<0.5	<0.5
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2,4-TRICHLOROBENZENE	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMOETHANE (EDB)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	3.2	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-HEXANONE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

TABLE 7
MAXIMUM VOC CONCENTRATIONS IN RID WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

PARAMETER_NAME	RID-100	RID-101	RID-102	RID-103	RID-104	RID-105	RID-106	RID-107	RID-108	RID-109	RID-110	RID-112	RID-113	RID-114	RID-83	RID-84	RID-85	RID-86
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	1.4	<0.5	0.73	<0.5	1.13	<0.5	2.2	1.7	1.2	3.09	4.5	4.2	3.01	7.3	<0.5	0.83	<0.5	<0.5
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CIS-1,2-DCE	5.4	<0.5	0.81	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	0.95	0.86	2.5	4.82	15	<0.5	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
DICHLORODIFLUOROMETHANE (FREON 12)	<0.5	<2	<0.5	<2	<0.5	<0.5	<0.5	0.65	<0.5	2.46	2.6	<0.5	<0.5	<0.5	<2	<0.5	<2	<2
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2
METHYL ETHYL KETONE (2-BUTANONE)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	<0.5	<2	<0.5	<2	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TETRACHLOROETHENE	7.1	<0.5	17	<0.5	6	3.5	27	10	8.7	6.9	7.9	4.5	3.2	4.3	<0.5	9.7	<0.5	<0.5
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRICHLOROETHENE	17	<0.5	0.72	<0.5	0.79	0.58	10	9.5	3.1	7	1.9	17	29.2	87	<0.5	1.4	<0.5	<0.5
TRICHLOROFLUOROMETHANE (FREON 11)	<0.5	<2	<0.5	<2	<0.5	<0.5	0.93	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	0.82	<2	<0.5	<2	<2
VINYL ACETATE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<3	<1

Notes:
Concentrations in micrograms per liter (µg/L)
-- = Not analyzed or data not available.

TABLE 7
MAXIMUM VOC CONCENTRATIONS IN RID WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

PARAMETER_NAME	RID-88	RID-89	RID-90	RID-91	RID-92	RID-93	RID-94	RID-95	RID-99
1,1,1,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLOROETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	<0.5	0.87	<0.5	<0.5	2.1	<0.5	<0.5	4.53	<0.5
1,1-DICHLOROETHENE	<0.5	2.75	<0.5	0.58	5.17	0.57	0.94	9.23	1.4
1,1-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-TRICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-TRICHLOROBENZENE	<5	<1	<5	<5	<1	<5	<1	<5	<1
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DIBROMOETHANE (EDB)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,2-DICHLOROETHANE	<0.5	0.81	<0.5	<0.5	2	<0.5	<0.5	4.4	<0.5
1,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,3-DICHLOROPROPANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DICHLOROBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
2,2-DICHLOROPROPANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-HEXANONE	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ACETONE	<20	<20	<20	<20	<20	<20	<20	<20	<20
BENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
BROMODICHLOROMETHANE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BROMOFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1
BROMOMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5
CARBON DISULFIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CARBON TETRACHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

TABLE 7
MAXIMUM VOC CONCENTRATIONS IN RID WELLS - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

PARAMETER_NAME	RID-88	RID-89	RID-90	RID-91	RID-92	RID-93	RID-94	RID-95	RID-99
CHLOROETHANE	<4	<4	<4	<4	<4	<4	<4	<4	<4
CHLOROFORM	<0.5	3.17	<0.5	<0.5	3.4	0.52	<0.5	1.2	0.54
CHLOROMETHANE	<5	<5	<5	<5	<5	<5	<5	<5	<5
CIS-1,2-DCE	<0.5	3	<0.5	0.57	7.58	0.52	0.85	11.2	0.91
CIS-1,3-DICHLOROPROPENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
DICHLORODIFLUOROMETHANE (FREON 12)	<2	<0.5	<2	<2	<0.5	<2	<2	<0.5	<2
ETHYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
HEXACHLOROBUTADIENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
ISOPROPYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M,P-XYLENES	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ETHYL KETONE (2-BUTANONE)	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL IODIDE (IODOMETHANE)	<2	<2	<2	<2	<2	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (MIBK)	<5	<5	<5	<5	<5	<5	<5	<5	<5
METHYL TERT-BUTYL ETHER (MTBE)	<2	<0.5	<2	<2	<0.5	<2	<2	<0.5	<2
METHYLENE BROMIDE (DIBROMOMETHANE)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	<3	<3	<3	<3	<3	<3	<3	<3	<3
NAPHTHALENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
N-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
O-XYLENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
SEC-BUTYLBENZENE	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
STYRENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TERT-BUTYLBENZENE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
TETRACHLOROETHENE	<0.5	11	<0.5	<0.5	17	0.6	1.2	4.6	8.85
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
TRANS-1,2-DICHLOROETHENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRICHLOROETHENE	<0.5	34.1	<0.5	2.99	84	1.85	0.88	60.2	<0.5
TRICHLOROFLUOROMETHANE (FREON 11)	<2	<0.5	<2	<2	0.52	<2	<2	<0.5	<2
VINYL ACETATE	<5	<5	<5	<5	<5	<5	<5	<5	<5
VINYL CHLORIDE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
XYLENES, TOTAL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
Concentrations in micrograms per liter (µg/L)
-- = Not analyzed or data not available.

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave	Salt Canal	SC West of RID-105
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012
1,1,1,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,1-Trichloroethane (TCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane (1,1-DCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.52**	<0.50
1,1-Dichloroethene (1,1-DCE)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	**0.5**	<0.50	<0.50	<0.50	**0.8**
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0
1,2,4-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
1,2,4-Trimethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
1,2-Dibromo-3-chloropropane	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0
1,2-Dibromoethane (EDB)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,2-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,3,5-Trimethylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,3-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,3-Dichloropropane	<1.0	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
2,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0
2-Butanone (MEK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
2-Hexanone	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Chlorotoluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
4-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acetone	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Bromobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
Bromochloromethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Bromodichloromethane	**3.87**	<0.5	**0.82**	<0.5	**3.24**	**3.4**	**3.83**	**3.8**	**4.13**	**3.9**	<0.50	<2.0
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0
Carbon Disulfide	<0.5	<0.5	<0.5	<0.5	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Chloroethane	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<4.0	<1.0	<4.0	<1.0
Chloroform	**5.92**	**0.93**	<0.5	<0.5	**4.91**	**4.7**	**5.21**	**4.7**	**6.07**	**5.3**	**1.11**	**1.5**
cis-1,2-Dichloroethene	<0.5	**1.02**	<0.5	**0.52**	<0.50	<0.50	**0.82**	**0.7**	**0.56**	<0.50	**0.72**	**0.7**
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	**1.41**	<0.5	<0.5	<0.5	**1.76**	**1.6**	**1.9**	**1.6**	**2.24**	**1.8**	<0.50	<1.0

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave	Salt Canal	SC West of RID-105
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012
Dichlorodifluoromethane (CFC 12)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Hexachlorobutadiene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
Isopropylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
m,p-Xylenes	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	<2.0	NA
Methyl Bromide (Bromomethane)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl Chloride (Cloromethane)	<5.0	<5.0	<5.0	<5.0	<5.00	<0.50	<5.00	<0.50	<5.00	<0.50	<5.00	<0.50
Methyl Iodide (Idomethane)	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	<2.0	NA
Methylene Bromide (Dibromomethane)	<0.5	<0.5	<0.5	<0.5	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA
Methylene chloride	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<5.0	<3.0	<5.0	<3.0	<5.0
MTBE	<2.0	<2.0	<2.0	<2.0	<2.00	<1.0	<2.00	<1.0	<2.00	<1.0	<2.00	<1.0
Napthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
n-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
n-Propylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
o-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	<1.0	NA
p-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	<1.5	NA	<1.5	NA	<1.5	NA	<1.5	NA
sec-Butylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
Tetrachloroethene (PCE)	<0.5	**2.75**	<0.5	**0.56**	**0.59**	**0.8**	**0.89**	**1.1**	<0.50	**0.5**	**3.79**	**3.9**
Toluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Trichloroethene (TCE)	**0.6**	**2.97**	<0.5	**1.24**	**0.73**	**1.2**	**2.65**	**2.8**	**0.75**	**1.2**	**2.01**	**2.5**
Trichlorofluoromethane (CFC 11)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Total Chromium	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<3.0	<1.0	<3.0

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Open Section of Salt Canal (W of RID-105)**	**500 ft Downstream of Salt Canal Discharge**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**
Sample ID	Canal W of 83A	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-19	W-22	83A Canal	43A Canal	67A Canal
Date Collected	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/27/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011
1,1,1,2-Tetrachloroethane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,1,1-Trichloroethane (TCA)	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,1,2,2-Tetrachloroethane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,1,2-Trichloroethane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane (1,1-DCA)	<0.500	--	<0.500	<0.500	**0.64**	--	--	--	<0.500	<0.500	<0.500
1,1-Dichloroethene (1,1-DCE)	**0.74**	<0.50	<0.500	<0.500	**1.43**	**0.94**	**1.5**	<0.50	**0.74**	**0.55**	<0.500
1,1-Dichloropropene	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
1,2,3-Trichloropropane	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
1,2,4-Trichlorobenzene	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
1,2,4-Trimethylbenzene	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
1,2-Dibromo-3-chloropropane	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
1,2-Dibromoethane (EDB)	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,2-Dichlorobenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
1,2-Dichloroethane	<0.500	--	<0.500	<0.500	<0.500	--	**0.62**	<0.50	<0.500	<0.500	<0.500
1,2-Dichloropropane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
1,3,5-Trimethylbenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
1,3-Dichlorobenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
1,3-Dichloropropane	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
1,4-Dichlorobenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
2,2-Dichloropropane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
2-Butanone (MEK)	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
2-Hexanone	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
4-Chlorotoluene	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
4-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
Acetone	<20	--	<20	<20	<20	--	--	--	<20	<20	<20
Benzene	<0.500	--	<0.500	<0.500	**0.7**	--	--	--	<0.500	<0.500	<0.500
Bromobenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
Bromochloromethane	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Bromodichloromethane	**1.25**	--	**2.69**	**2.21**	<0.500	--	<0.50	**1.7**	**2.24**	**5.7**	**3.74**
Bromoform	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
Carbon Disulfide	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Carbon Tetrachloride	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Chlorobenzene	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Chloroethane	<4.00	--	<4.00	<4.00	<4.00	--	--	--	<4.00	<4.00	<4.00
Chloroform	**3.68**	--	**5.23**	**4.61**	**2.15**	--	**2.2**	**3**	**3.3**	**6.19**	**4.78**
cis-1,2-Dichloroethene	**1.2**	--	<0.500	<0.500	**2.25**	--	**2.2**	**0.74**	**0.92**	**0.71**	<0.500
cis-1,3-Dichloropropene	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
Dibromochloromethane	<0.500	--	**0.84**	**0.68**	<0.500	--	<0.50	**0.7**	**1.21**	**3.19**	**2.07**

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Open Section of Salt Canal (W of RID-105)**	**500 ft Downstream of Salt Canal Discharge**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**
Sample ID	Canal W of 83A	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-19	W-22	83A Canal	43A Canal	67A Canal
Date Collected	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/27/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011
Dichlorodifluoromethane (CFC 12)	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00
Ethylbenzene	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
Hexachlorobutadiene	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
Isopropylbenzene	<2.50	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50
m,p-Xylenes	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
Methyl Bromide (Bromomethane)	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
Methyl Chloride (Cloromethane)	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
Methyl Iodide (Idomethane)	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
Methylene Bromide (Dibromomethane)	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Methylene chloride	<3.00	--	<3.00	<3.00	<3.00	--	--	--	<3.00	<3.00	<3.00
MTBE	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00
Napthalene	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
n-Butylbenzene	<2.50	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50
n-Propylbenzene	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
o-Xylene	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
p-Isopropyltoluene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
sec-Butylbenzene	<1.50	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50
Styrene	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00
tert-Butylbenzene	<2.50	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50
Tetrachloroethene (PCE)	**2.6**	**2.1**	**1.51**	**1.19**	**4.63**	**3.9**	**5.9**	**1.9**	**2.08**	**1.19**	**0.99**
Toluene	<2.00	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
trans-1,3-Dichloropropene	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Trichloroethene (TCE)	**5.57**	**4.4**	**2.59**	**2.3**	**11.8**	**9.8**	**14**	**4.2**	**4.73**	**3.5**	**3.06**
Trichlorofluoromethane (CFC 11)	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	<5.00	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00
Vinyl Chloride	<0.500	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500
Total Chromium	--	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	<1.00	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Salt Canal W of RID-105**	**Main Canal, Upstrm of Salt Canal**	**Main Canal, Upstrm of Salt Canal**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Main Canal, W of RID-84**	**Main Canal, W of RID-84**	**Main Canal, W of 67th Ave/RID-85**	**Main Canal, W of 67th Ave/RID-85**	**Minimum Detected Concentration over Last 5 Years**	**Maximum Detected Concentration over Last 5 Years**
Sample ID	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)	Salt Canal E. of 8310	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)		
Date Collected	9/13/2011	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010		
1,1,1,2-Tetrachloroethane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,1,1-Trichloroethane (TCA)	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,1,2,2-Tetrachloroethane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,1,2-Trichloroethane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	na	--	na	--	na	--	na	--	---	---
1,1-Dichloroethane (1,1-DCA)	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	0.52	0.64
1,1-Dichloroethene (1,1-DCE)	**1.24**	<0.50	<0.50	**1.5**	**1.4**	<0.50	<0.50	<0.50	<0.50	0.5	1.5
1,1-Dichloropropene	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	---	---
1,2,3-Trichlorobenzene	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
1,2,3-Trichloropropane	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
1,2,4-Trichlorobenzene	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
1,2,4-Trimethylbenzene	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
1,2-Dibromo-3-chloropropane	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
1,2-Dibromoethane (EDB)	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,2-Dichlorobenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
1,2-Dichloroethane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	0.62	0.62
1,2-Dichloropropane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
1,3,5-Trimethylbenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
1,3-Dichlorobenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
1,3-Dichloropropane	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
1,4-Dichlorobenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
2,2-Dichloropropane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
2-Butanone (MEK)	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	---	---
2-Chlorotoluene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
2-Hexanone	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
4-Chlorotoluene	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
4-Isopropyltoluene	--	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
4-Methyl-2-pentanone (MIBK)	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
Acetone	<20	<20	--	<20	--	<20	--	<20	--	---	---
Benzene	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	0.7	0.7
Bromobenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
Bromochloromethane	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Bromodichloromethane	<0.500	**2.2**	--	<0.50	--	**2.5**	--	**2.6**	--	0.82	5.7
Bromoform	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
Carbon Disulfide	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Carbon Tetrachloride	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Chlorobenzene	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Chloroethane	<4.00	<4.0	--	<4.0	--	<4.0	--	<4.0	--	---	---
Chloroform	**1.6**	**4.6**	--	**1.9**	--	**5.1**	--	**5.2**	--	0.93	6.19
cis-1,2-Dichloroethene	**1.66**	<0.50	--	**2**	--	<0.50	--	<0.50	--	0.52	2.25
cis-1,3-Dichloropropene	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
Dibromochloromethane	<0.500	**0.8**	--	<0.50	--	**0.88**	--	**0.88**	--	0.68	3.19

TABLE 8
SURFACE WATER CONCENTRATIONS IN RID CANAL SYSTEM - 2009 THROUGH 2013
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Salt Canal W of RID-105**	**Main Canal, Upstrm of Salt Canal**	**Main Canal, Upstrm of Salt Canal**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Main Canal, W of RID-84**	**Main Canal, W of RID-84**	**Main Canal, W of 67th Ave/RID-85**	**Main Canal, W of 67th Ave/RID-85**	**Minimum Detected Concentration over Last 5 Years**	**Maximum Detected Concentration over Last 5 Years**
Sample ID	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)	Salt Canal E. of 8310	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)		
Date Collected	9/13/2011	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010		
Dichlorodifluoromethane (CFC 12)	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Ethylbenzene	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Hexachlorobutadiene	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
Isopropylbenzene	<2.50	<2.5	--	<2.5	--	<2.5	--	<2.5	--	---	---
m,p-Xylenes	<2.00	na	--	na	--	na	--	na	--	---	---
Methyl Bromide (Bromomethane)	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
Methyl Chloride (Cloromethane)	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
Methyl Iodide (Idomethane)	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Methylene Bromide (Dibromomethane)	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Methylene chloride	<3.00	<3.0	--	<3.0	--	<3.0	--	<3.0	--	---	---
MTBE	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Napthalene	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
n-Butylbenzene	<2.50	<2.5	--	<2.5	--	<2.5	--	<2.5	--	---	---
n-Propylbenzene	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
o-Xylene	<1.00	na	--	na	--	na	--	na	--	---	---
p-Isopropyltoluene	<1.50	na	--	na	--	na	--	na	--	---	---
sec-Butylbenzene	<1.50	<1.5	--	<1.5	--	<1.5	--	<1.5	--	---	---
Styrene	<1.00	<1.0	--	<1.0	--	<1.0	--	<1.0	--	---	---
tert-Butylbenzene	<2.50	<2.5	--	<2.5	--	<2.5	--	<2.5	--	---	---
Tetrachloroethene (PCE)	**4.47**	**1.5**	**1.4**	**6.1**	**5.9**	**1.4**	**1.4**	**1.5**	**1.4**	0.5	6.1
Toluene	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Total Trihalomethanes	--	**7.6**	--	<2.5	--	**8.48**	--	**8.68**	--	7.6	8.68
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	---	---
trans-1,2-Dichloroethene	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
trans-1,3-Dichloropropene	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Trichloroethene (TCE)	**8.58**	**2.5**	**2.5**	**12**	**11**	**2.6**	**2.7**	**2.7**	**2.8**	0.6	14
Trichlorofluoromethane (CFC 11)	<2.00	<2.0	--	<2.0	--	<2.0	--	<2.0	--	---	---
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	---	---
Vinyl Acetate	<5.00	<5.0	--	<5.0	--	<5.0	--	<5.0	--	---	---
Vinyl Chloride	<0.500	<0.50	--	<0.50	--	<0.50	--	<0.50	--	---	---
Total Chromium	--	--	--	--	--	--	--	--	--	---	---
Dissolved Chromium	--	--	--	--	--	--	--	--	--	---	---
Xylenes, Total	<1.00	<3.0	--	<3.0	--	<3.0	--	<3.0	--	---	---

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE 9

AIR CONCENTRATIONS ADJACENT TO RID CANAL SYSTEM, JUNE 2011

WEST VAN BUREN WQARF SITE

PHOENIX, ARIZONA

SAMPLE LOCATION	Sample ID	Date Collected	Dichloroethene (1,1-DCE)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	SAMPLE DESCRIPTION
			µg/m^3	µg/m3	µg/m3	
Headspace @ RID-114 Receiver Box	A1	6/29/2011	1390	115	4080	Air sample from headspace of the concrete receiver box that channels the well discharge at RID-114
Headspace @ RID-92 Receiver Box	A2	6/28/2011	990	62.4	2040	Air sample from headspace of the concrete receiver box that channels the well discharge at RID-92
Breathing Zone @ RID-114 Receiver Box	A3	6/29/2011	0.87	0.95	7.52	Air sample from the breathing zone adjacent to the RID-114 concrete receiver box
Breathing Zone @ RID-92 Receiver Box	A4	6/28/2011	1.35	5.22	10.7	Air sample from breathing zone immediately adjacent to the concrete receiver box at RID-92
Breathing Zone @ RID-114 Fence Line (N)	A5	6/29/2011	0.67	0.88	6.44	Air samples from the four "virtual" fence-line locations (north, south, east, west) at RID-114 breathing zone
Breathing Zone @ RID-114 Fence Line (E)	A6	6/29/2011	0.67	0.95	6.44	
Breathing Zone @ RID-114 Fence Line (W)	A7	6/29/2011	1.19	1.08	10.2	
Breathing Zone @ RID-114 Fence Line (S)	A8	6/29/2011	1.07	1.22	10.7	
Breathing Zone @ RID-92 Fence Line (N)	A9	6/28/2011	0.51	1.97	5.53	Air samples from the four "virtual" fence-line locations (north, south, east, west) at RID-92 breathing zone
Breathing Zone @ RID-92 Fence Line (E)	A10	6/28/2011	1.15	4.27	9.13	
Breathing Zone @ RID-92 Fence Line (S)	A11	6/28/2011	0.71	2.64	7.79	
Breathing Zone @ RID-92 Fence Line (W)	A12	6/28/2011	0.2	0.81	1.88	
Background Sample Location North of RID-114	A13	6/29/2011	<0.16	<0.27	<0.21	Air sample from the open turf area in the cemetery north of Van Buren Street at a location approximately 1/2 mile northwest of RID-114
Background Sample Location South of RID-92	A14	6/28/2011	<0.16	<0.27	<0.21	Air sample from vacant, unimproved dirt lot on the west side of 43rd Avenue located approximately 1,700 feet south of the RID Main Cana
Headspace in RID-114 Diversion Box	A15	6/29/2011	1620	35.3	3110	Air sample from the headspace of the diversion box
Breathing Zone @ RID-114 Diversion Box	A16	6/29/2011	3.92	4.07	29	Air sample from the breathing zone immediately adjacent to the concrete diversion box
Headspace in Salt Canal Manhole	A17	6/29/2011	2570	1020	17700	Air sample from the headspace under one of the first manhole covers that provides reasonable exposure potential downstream from RID-114
Headspace in Salt Canal Pipe @ Opening (79th Ave)	A18	6/29/2011	5.15	4.88	25.2	Air sample from the headspace inside the Salt Canal pipeline where the pipeline becomes open canal
	A18 (duplicate)	6/29/2011	5.94	7.46	26.9	
Surface of Salt Canal @ Open Section	A19	6/29/2011	2.18	5.09	17.7	Air sample above the water surface immediately downstream of the point of discharge from the enclosed pipeline to the open cana
Headspace in RID-92 Lateral @ Opening	A20	6/28/2011	2730	461	5210	Air sample from the headspace of the enclosed lateral pipeline where the RID-92 pipeline transitions into open lateral
	A20 (duplicate)	6/28/2011	2460	285	5100	
Surface of RID-92 Lateral @ Open Section	A21	6/28/2011	0.95	3.86	11.8	Air sample above the water surface in open section of the RID-92 lateral
Surface of Main Canal @ RID-92 Discharge	A22	6/28/2011	51.5	31.2	199	Air sample above the water surface on the Main Canal, approximately 10 feet downstream from the point of discharge of the lateral serving RID-92, above the inferred mixing zone
Surface of Main Canal @ Salt Canal Discharge	A23	6/29/2011	0.79	1.7	6.44	Air sample above the water surface in the Main Canal at the point of discharge of the Salt Canal in the Main Canal

TABLE 10
RECEPTOR CHARACTERISTICS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Receptor: RID Worker (Adult)	
Parameter	**Reasonable Maximum Exposure (RME)**
General Parameters	
Body Weight (BW)	Value: 80 kg Rationale: Default value; USEPA 2011, 2014
Exposure Frequency (EF)	Value: 24 days/year (2 events per month) Rationale: Site-specific assumption
Exposure Duration (ED)	Value: 25 years Rationale: Default values; USEPA 1997; 2002, 2004, 2013, 2014
Averaging Time (AT)	Value: Carcinogenic Effects: 70 years (25,550 days); Noncarcinogenic Effects: AT = Exposure duration Rationale: Default value; USEPA 1991, 1997, 2002, 2004, 2011, 2013, 2014
Dermal Contact with Groundwater	
Event Frequency (EV)	Value: 1 event/day Rationale: Default value; USEPA 2002, 2004
Skin Surface Area (SA)	Value: 3,470 $cm^{2,}$ Rationale: USEPA 2011, 2014
Inhalation of Ambient Air	
Exposure Time	Value: 8 hours/day Rationale: USEPA 2009, 2014

TABLE 10
RECEPTOR CHARACTERISTICS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

Receptor: Resident (Child/Adult)	
Parameter	**Reasonable Maximum Exposure (RME)**
General Parameters	
Body Weight (BW)	Value: 15 kg (child/teen); 80 kg (adult) Rationale: Default value used in USEPA risk assessments and derivation of cancer slope factors and unit risks, USEPA 1991, 1996a,b, 1997, 2013, 2014
Exposure Duration (ED)	Value: 6 years (Child); 20 years (Adult) Rationale: USEPA 1991, 1996a,b, 1997, 2011, 2013, 2014
Averaging Time (AT)	Value: Carcinogenic Effects: 70 years (25,550 days); Noncarcinogenic Effects: AT = Exposure duration Rationale: Default value used in USEPA risk assessments and derivation of cancer slope factors and unit risks, USEPA 1991, 1996 a,b, 1997, 2004, 2011, 2013, 2014
Dermal Contact with Surface Water (while swimming)	
Event Frequency (EV)	Value: 1 event per day Rationale: Site-specific assumption
Exposure Frequency (EF)	Value: 14 days per year, 2 hours per event Rationale: Site-specific assumption
Skin Surface Area (SA)	Value: 6,378 cm^2 (Child); 20,900 cm^2 (Adult) Rationale: USEPA 2004, 2014
Dermal Absorption Fraction (ABS_d)	Value: Chemical-specific Rationale: USEPA 2004
Incidental Surface Water Ingestion (while swimming)	
Ingestion Rate (IR_{sw})	Value: 0.049 l/hour (child/teen); 0.021 l/hour (adult) Rationale: USEPA 2011
Relative Absorption Factor (RAF)	Value: 1.0 Assumed total dose is absorbed.
Inhalation of Ambient Air	
Exposure Frequency (EF)	Value: 350 days/yr Rationale: USEPA 1991, 1996a,b, 1997, 2013, 2014
Exposure Time	Value: 24 hours/day Rationale: 1991, 1996a,b, 1997, 2011, 2013, 2014
Fish Ingestion	
Exposure Duration	Value: 14 days per year Rationale: Site-specific assumption
Fishing Success Rate	Value: 50 percent Rationale: Site-specific assumption
Ingestion Rate (IR_{fish})	Value: 70,000 mg/day (Child, weighted for age 2-6 years); 114,000 mg/day (Adult) Rationale: USEPA 2011
Bioconcentration factor	Value: Chemical-specific Rationale: USEPA 2005, RAIS 2014

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TABLE 11
COMPARISON OF AMBIENT AIR CONCENTRATIONS AND
ESTIMATED AIR CONCENTRATIONS AT RID WELLS AND OPEN CANAL LOCATIONS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Sample ID**	**Date Collected**	1,1-Dichloroethene (1,1-DCE)	Tetrachloroethene (PCE)	Trichloroethene (TCE)
			µg/m^3	µg/m^3	µg/m^3
RID WORKER (AT RID WELLS)					
Breathing Zone @ RID-92 Fence Line (N)	A9	6/28/2011	0.51	1.97	5.53
Breathing Zone @ RID-92 Fence Line (E)	A10	6/28/2011	1.15	4.27	9.13
Breathing Zone @ RID-92 Fence Line (S)	A11	6/28/2011	0.71	2.64	7.79
Breathing Zone @ RID-92 Fence Line (W)	A12	6/28/2011	0.2	0.81	1.88
Breathing Zone @ RID-114 Collection Box	A3	6/29/2011	0.87	0.95	7.52
Breathing Zone @ RID-114 Fence Line (N)	A5	6/29/2011	0.67	0.88	6.44
Breathing Zone @ RID-114 Fence Line (E)	A6	6/29/2011	0.67	0.95	6.44
Breathing Zone @ RID-114 Fence Line (W)	A7	6/29/2011	1.19	1.08	10.2
Breathing Zone @ RID-114 Fence Line (S)	A8	6/29/2011	1.07	1.22	10.7
RID-92					
Average Breathing Zone Concentration in Proximity to RID-92		6/28/2011	0.64	2.42	6.08
Modeled from Surface Water Sample Results at RID-92 Well Area	W-2	6/28/2011	0.61	1.3	7.8
Ratio of Average Measured Ambient Air Concentration to Maximum Modeled Concentration			***1.1***	***1.9***	***0.8***
RID-114					
Average Breathing Zone Concentration in Proximity to RID-114		6/28/2011	0.89	1.02	8.26
Modeled from Surface Water Sample Results at RID-114 Well Area	W-1	6/28/2011	0.53	0.36	7.4
Ratio of Average Measured Ambient Air Concentration to Maximum Modeled Concentration			***1.7***	***2.8***	***1.1***
RESIDENT (AT LATERAL/CANAL LOCATIONS)					
Surface of RID-92 Lateral @ Open Section	A21	6/28/2011	0.95	3.86	11.8
Modeled at RID 92 Open Lateral (see Note 1)	W-20	6/28/2011	1.5	3.6	23
Ratio of Measured Ambient Air Concentration to Modeled Concentration at RID 92 Open Lateral			***0.6***	***1.1***	***0.5***

Notes:
1. Air concentrations were modeled at 0.5 feet above surface water similar to the height at which the ambient air samples were collected.

TABLE 12
EXPOSURE POINT CONCENTRATIONS - RID WORKER (DERMAL CONTACT AND INHALATION)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

CHEMICAL	CAS RN	95%UCL OR MAX DETECTED CONCENTRATION IN RID WELL GROUNDWATER: 2009-2013 (µg/L)	ESTIMATED CONCENTRATION IN AMBIENT AIR (µg/m^3)	RID WELL WITH MAXIMUM DETECTED CONCENTRATIONS
1,1,1-TRICHLOROETHANE (TCA)	71-55-6	*0.25*	*2.6E-02*	
1,1-DICHLOROETHANE	75-34-3	***1.3***	***1.5E-01***	RID-95
1,1-DICHLOROETHENE	75-35-4	***2.7***	***3.3E-01***	RID-95
1,2-DICHLOROETHANE	107-06-2	***1.2***	***1.4E-01***	RID-95
BENZENE	71-43-2	**8.11**	**1.1E+00**	RID-108
CARBON DISULFIDE	75-15-0	**0.51**	**7.0E-02**	RID-109
CARBON TETRACHLORIDE	56-23-5	*0.25*	*2.4E-02*	
CHLOROFORM	67-66-3	***2.2***	***2.4E-01***	RID-114
CIS-1,2-DICHLOROETHENE	156-59-2	***6.7***	***8.0E-01***	RID-114
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	**2.6**	**2.8E-01**	RID-110
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	**11**	**1.3E+00**	RID-108
TETRACHLOROETHENE (PCE)	127-18-4	***8.1***	***7.5E-01***	RID-106
TRICHLOROETHENE (TCE)	79-01-6	***28***	***2.9E+00***	RID-114
TRICHLOROFLUOROMETHANE (FREON 11)	75-69-4	**0.93**	**9.5E-02**	RID-106

Notes:
Italicized EPCs are half the maximum reported detection limit
Bolded EPCs are the maximum detected concentration
Bolded Italicized EPCs are 95% Upper Confidence Level (95%UCL) concentrations

TABLE 13

EXPOSURE POINT CONCENTRATIONS - RESIDENT (INCIDENTAL INGESTION, DERMAL CONTACT, AND INHALATION)

WEST VAN BUREN AREA WQARF

PHOENIX, ARIZONA

		OPEN CANAL		
CHEMICAL	**CAS RN**	**EPC IN SURFACE WATER (µg/L)**	**EPC IN AMBIENT AIR - CHILD RECEPTOR (µg/m^3)**	**EPC IN AMBIENT AIR - ADULT RECEPTOR (µg/m^3)**
1,1,1-TRICHLOROETHANE (TCA)	71-55-6	*0.5*	*4.4E-03*	*2.2E-03*
1,1-DICHLOROETHANE	75-34-3	**0.64**	**6.5E-03**	**3.3E-03**
1,1-DICHLOROETHENE	75-35-4	**1.5**	**1.6E-02**	**7.8E-03**
1,2-DICHLOROETHANE	107-06-2	**0.62**	**6.1E-03**	**3.0E-03**
BENZENE	71-43-2	**0.7**	**8.0E-03**	**4.0E-03**
CARBON DISULFIDE	75-15-0	*2.5*	*2.9E-02*	*1.5E-02*
CARBON TETRACHLORIDE	56-23-5	*0.5*	*4.1E-03*	*2.1E-03*
CHLOROFORM	67-66-3	**6.19**	**5.7E-02**	**2.9E-02**
CIS-1,2-DICHLOROETHENE	156-59-2	**2.25**	**2.3E-02**	**1.2E-02**
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	*1*	*9.3E-03*	*4.7E-03*
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	*1*	*9.9E-03*	*5.0E-03*
TETRACHLOROETHENE (PCE)	127-18-4	**6.1**	**4.8E-02**	**2.4E-02**
TRICHLOROETHENE (TCE)	79-01-6	**14**	*1.2E-01*	**6.2E-02**
TRICHLOROFLUOROMETHANE (FREON 11)	75-69-4	*1*	*8.7E-03*	*4.4E-03*

Notes:

Italicized EPCs are half the maximum reported detection limit

Bolded EPCs are the maximum detected concentration

TABLE 14
EXPOSURE POINT CONCENTRATIONS - RESIDENT (FISH INGESTION)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

		OPEN CANAL		FISH BIOCONCENTRATION FACTOR (BCF) (L/kg)
CHEMICAL	**CAS RN**	**EPC IN SURFACE WATER (µg/L)**	**EPC IN FISH (mg/kg)**	
1,1,1-TRICHLOROETHANE (TCA)	71-55-6	*0.5*	*8.4E-03*	16.8
1,1-DICHLOROETHANE	75-34-3	**0.64**	**3.1E-03**	4.85
1,1-DICHLOROETHENE	75-35-4	**1.5**	**1.2E-02**	8.26
1,2-DICHLOROETHANE	107-06-2	**0.62**	**1.8E-03**	2.85
BENZENE	71-43-2	**0.7**	**5.8E-03**	8.26
CARBON DISULFIDE	75-15-0	*2.5*	*2.5E-02*	9.86
CARBON TETRACHLORIDE	56-23-5	*0.5*	*1.4E-02*	28.6
CHLOROFORM	67-66-3	**6.19**	**4.3E-02**	6.92
CIS-1,2-DICHLOROETHENE	156-59-2	**2.25**	**1.3E-02**	5.79
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	*1*	*9.2E-03*	9.19
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	*1*	*1.5E-03*	1.51
TETRACHLOROETHENE (PCE)	127-18-4	**6.1**	**5.1E-01**	82.8
TRICHLOROETHENE (TCE)	79-01-6	**14**	**2.0E-01**	14.1
TRICHLOROFLUOROMETHANE (FREON 11)	75-69-4	*1*	*1.7E-02*	16.8

Notes:
Italicized EPCs are half the maximum reported detection limit
Bolded EPCs are the maximum detected concentration
Fish Bioconcentration Factor selected from the" Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities"
by the USEPA Office of Solid Waste and Emergency Response dated September 2005 (EPA530-R-05-006)
Fish Bioconcentration Factor for MTBE from the RAIS database, http://rais.ornl.gov/.

TABLE 15

LIST OF TOXICITY VALUES

WEST VAN BUREN AREA WQARF

PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	SFo $(mg/kg\text{-}day)^{-1}$	IUR $(\mu g/m^3)^{-1}$	RfDo (mg/kg-day)	RfCi $\mu g/m^3$
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	NA	NA	2.0E+00	5.0E+03
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	5.7E-03	1.6E-06	2.0E-01	NA
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	NA	NA	5.0E-02	2.0E+02
107-06-2	1,2-DICHLOROETHANE	9.1E-02	2.6E-05	6.0E-03	7.0E+00
71-43-2	BENZENE	5.5E-02	7.8E-06	4.0E-03	3.0E+01
75-15-0	CARBON DISULFIDE	NA	NA	1.0E-01	7.0E+02
56-23-5	CARBON TETRACHLORIDE	7.0E-02	6.0E-06	4.0E-03	1.0E+02
67-66-3	CHLOROFORM	3.1E-02	2.3E-05	1.0E-02	9.8E+01
156-59-2	CIS-1,2-DICHLOROETHENE	NA	NA	2.0E-03	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	NA	NA	2.0E-01	1.0E+02
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.8E-03	2.6E-07	NA	3.0E+03
127-18-4	TETRACHLOROETHENE (PCE)	2.1E-03	2.6E-07	6.0E-03	4.00E+01
79-01-6	TRICHLOROETHENE (TCE)	4.6E-02	4.1E-06	5.0E-04	2.0E+00
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	NA	NA	3.0E-01	7.0E+02

Notes:

SFo = Slope Factor Oral

IUR = Inhalation Unit Risk

RfDo = Reference Dose Oral

RfCi = Reference Concentration Inhalation

TABLE 16

HUMAN HEALTH RISK ASSESSMENT SUMMARY
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

Receptor	Pathway	Hazard Index	Cumulative Cancer Risk
RID Worker - 95%UCL Concentrations	Dermal Contact with Groundwater	0.019	2×10^{-7}
	Inhalation of VOCs in Ambient Air from Groundwater	0.034	2×10^{-7}
	Total	**0.053**	**4×10^{-7}**

Receptor	Pathway	Hazard Index	Cumulative Cancer Risk
Resident - Open Canal Surface Water	Ingestion of Surface Water	0.0078	2×10^{-8}
	Dermal Contact with Surface Water	0.020	9×10^{-8}
	Inhalation of VOCs in Ambient Air from Surface Water	0.063	5×10^{-7}
	Ingestion of Fish	0.044	2×10^{-7}
	Total	**0.13**	**8×10^{-7}**

TABLE 17
GROUNDWATER COPC CONCENTRATIONS COMPARISON
TO DRINKING WATER MAXIMUM CONTAMINANT LEVELS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

COMPOUND	MAXIMUM CONCENTRATION (2009-2013)	ADEQ AQUIFER WATER QUALITY STANDARD	MAXIMUM CONCENTRATION > ADEQ AQUIFER WATER QUALITY STANDARD
1,1,1-TRICHLOROETHANE (TCA)	41	200	No
1,1,2-TRICHLOROETHANE	1.8	5	No
1,1-DICHLOROETHANE (1,1-DCA)	16	NE	No
1,1-DICHLOROETHENE (1,1-DCE)	30	7	**Yes**
1,2-DICHLOROETHANE	4.4	5	No
1,4-DIOXANE	11	NE	No
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.71	NE	No
ACETONE	174	NE	No
BENZENE	11.8	5	**Yes**
BROMODICHLOROMETHANE	18	NE	No
CARBON DISULFIDE	4.21	NE	No
CARBON TETRACHLORIDE	2.5	5	No
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	4.5	NE	No
CHLOROFORM	37	NE	No
DISSOLVED CHROMIUM	3,200	100	**Yes**
CHROMIUM, HEXAVALENT	32,000	100	**Yes**
CIS-1,2-DICHLOROETHENE	66	70	No
DICHLORODIFLUOROMETHANE (FREON 12)	58.5	NE	No
ISOPROPYLBENZENE	7.81	NE	No
METHYL TERT-BUTYL ETHER (MTBE)	11	NE	No
NAPHTHALENE	232	NE	No
TETRACHLOROETHENE (PCE)	1120	5	**Yes**
TOLUENE	179	1,000	No
TOTAL TRIHALOMETHANES	59	100	No
TRANS-1,2-DICHLOROETHENE	1.9	100	No
TRICHLOROETHENE (TCE)	1,380	5	**Yes**
TRICHLOROFLUOROMETHANE (FREON 11)	5.21	NE	No
VINYL CHLORIDE	0.98	2	No
XYLENES, TOTAL	1.6	10,000	No

Notes:
Concentrations in micrograms per liter (µg/L)
NE = not established

HALEY & ALDRICH, INC.
T17_2014-0715_WVB_Deep_Wells_2009-2013_MCL_comparison_F.xlsx

TABLE 18

SURFACE WATER COPC CONCENTRATIONS COMPARISON TO WATER QUALITY CRITERIA FOR SURFACE WATERS - 2009 THROUGH 2013

WEST VAN BUREN AREA WQARF

PHOENIX, ARIZONA

CHEMICAL	CAS RN	MAXIMUM EPC IN SURFACE WATER (µg/L)	FISH CONSUMPTION µg/L	FULL BODY CONTACT µg/L	PARTIAL BODY CONTACT µg/L	AQUATIC AND WILDLIFE (EFFLUENT DEPENDENT WATER) ACUTE µg/L	AQUATIC AND WILDLIFE (EFFLUENT DEPENDENT WATER) CHRONIC µg/L	AGRICULTURE IRRIGATION µg/L	AGRICULTURE LIVESTOCK WATERING µg/L
1,1,1-TRICHLOROETHANE (TCA)	71-55-6	*0.5*	428,571	1,866,667	1,866,667	2,600	1,600	1,000	--
1,1-DICHLOROETHANE	75-34-3	**0.64**	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	75-35-4	**1.5**	7,143	46,667	46,667	15,000	950	--	--
1,2-DICHLOROETHANE	107-06-2	**0.62**	37	15	186,667	59,000	41,000	--	--
BENZENE	71-43-2	**0.7**	114	93	3,733	8,800	560	--	--
CARBON DISULFIDE	75-15-0	*2.5*	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	56-23-5	*0.5*	2	11	1,307	18,000	1,100	--	--
CHLOROFORM	67-66-3	**6.19**	2,133	9,333	9,333	14,000	900	--	--
CIS-1,2-DICHLOROETHENE	156-59-2	**2.25**	--	70	70	--	--	--	--
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	*1*	--	--	--	--	--	--	--
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	*1*	--	--	--	--	--	--	--
TETRACHLOROETHENE (PCE)	127-18-4	**6.1**	261	9,333	9,333	6,500	680	--	--
TRICHLOROETHENE (TCE)	79-01-6	**14**	29	280,000	280	20,000	1,300	--	--
TRICHLOROFLUOROMETHANE (FREON 11)	75-69-4	*1*	--	--	--	--	--	--	--

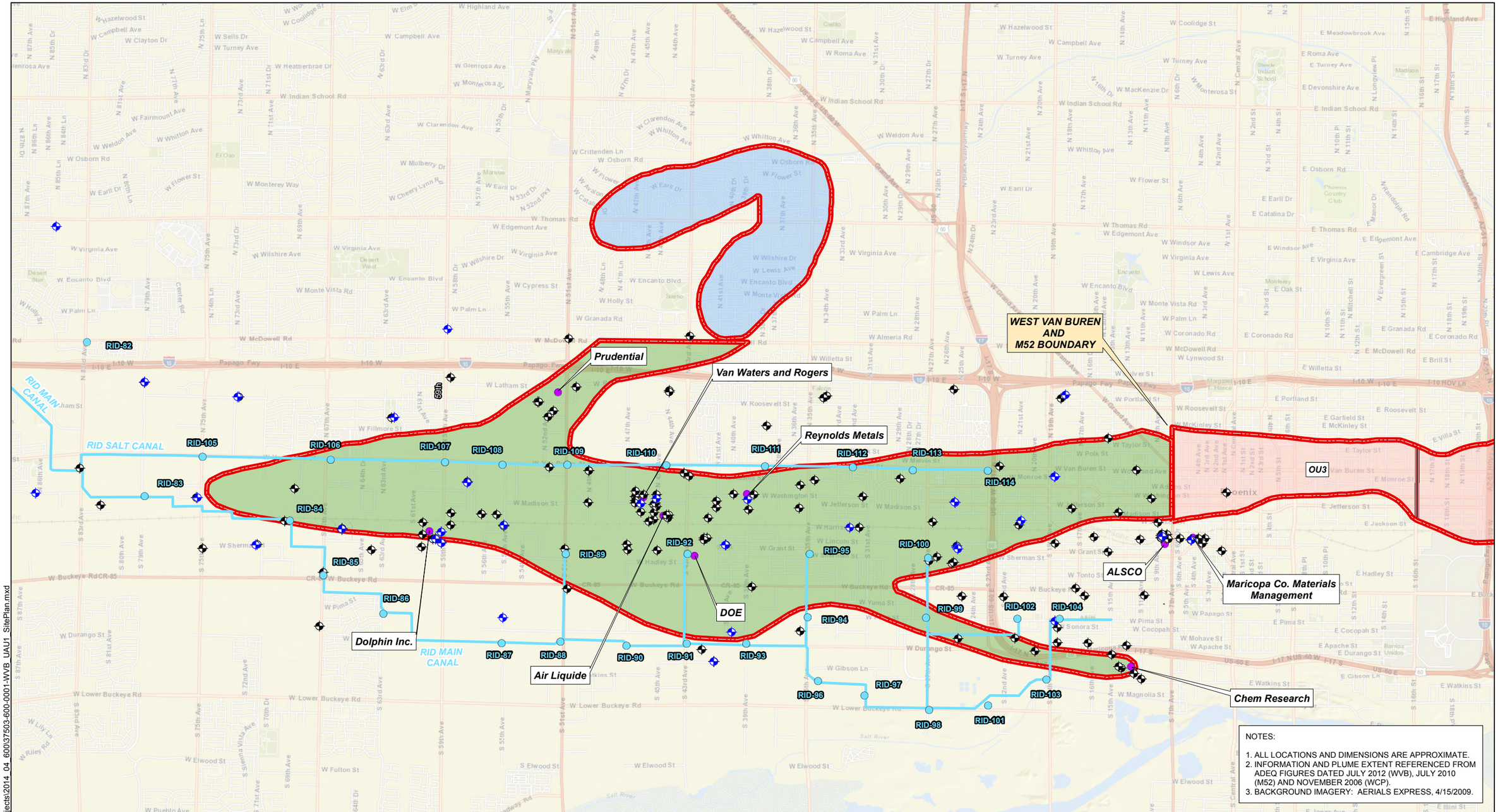
Notes:

Italicized EPCs are half the maximum reported detection limit

Bolded EPCs are the maximum detected concentration

-- not established

Source: Arizona Administrative Cods (AAC), Title 18, Chapter 11, Article 1, Appendix A. Numeric Water Quality Standards, Table 1. Water Quality Criteria By Designated Use



NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. INFORMATION AND PLUME EXTENT REFERENCED FROM ADEQ FIGURES DATED JULY 2012 (WVB), JULY 2010 (M52) AND NOVEMBER 2006 (WCP).
3. BACKGROUND IMAGERY: AERIALS EXPRESS, 4/15/2009.

LEGEND

- WVBA UAU1 MONITORING WELL LOCATION
- WVBA UAU2 MONITORING WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT WELL LOCATION
- SELECT FACILITIES WITHIN THE WEST VAN BUREN WQARF SITE
- CONTOUR REPRESENTS ESTIMATED AREA OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER THAT EXCEED THE AQUIFER WATER QUALITY STANDARDS.
- OU AREA BOUNDARY
- MOTOROLA 52ND STREET SUPERFUND SITE
- WEST VAN BUREN AREA WQARF SITE
- WEST OSBORN COMPLEX (WOC) WQARF SITE

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HALEY & ALDRICH

WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

SITE PLAN

SCALE: AS SHOWN
JULY 2014

FIGURE 1

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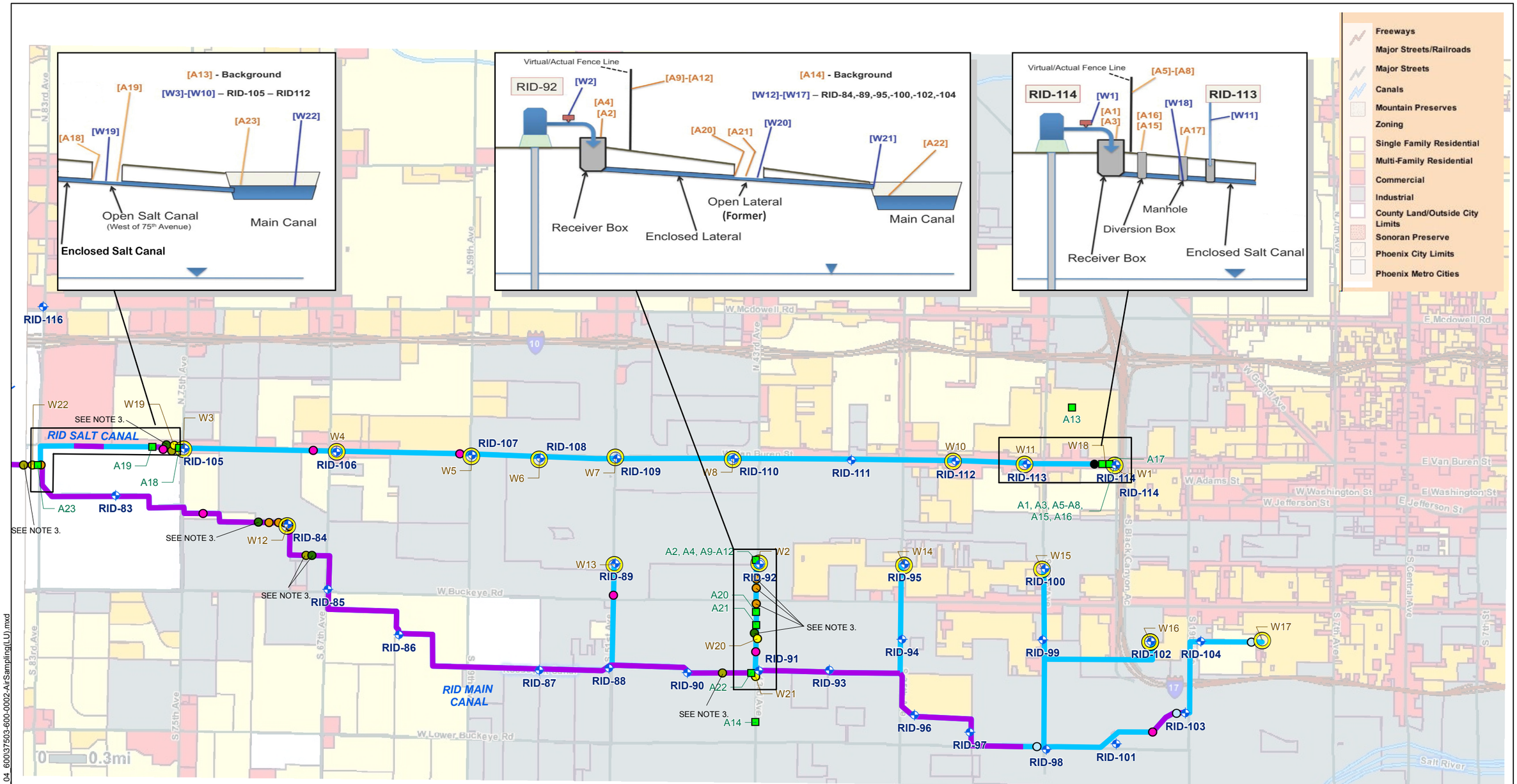

LEGEND

- SURFACE WATER SAMPLE LOCATION (AUGUST 1995)
- SURFACE WATER SAMPLE LOCATION (JUNE 2000/ **JULY 2000**)
- SURFACE WATER SAMPLE LOCATION (**JUNE 2003**)
- SURFACE WATER SAMPLE LOCATION (JUNE 2010)
- MANHOLE WATER SAMPLE (**JUNE 2011**)
- RID WELL HEAD WATER SAMPLE LOCATION (**JUNE 2011**)
- SURFACE WATER SAMPLE LOCATION (APRIL/SEPTEMBER 2011 SEPTEMBER 2012/APRIL 2013)
- SURFACE WATER SAMPLE LOCATION (**JUNE 2011**)
- ROOSEVELT IRRIGATION DISTRICT (RID) WELL LOCATION
- AIR SAMPLE LOCATION (JUNE 2011)
- UNDERGROUND RID CANAL SEGMENT
- OPEN RID CANAL SEGMENT

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SAMPLES COLLECTED DURING BOLDED SAMPLE DATES ARE SAMPLE LOCATIONS WITH GREATEST LOCATION CERTAINTY.
3. LOCATION BASED ON RELATIVELY VAGUE TEXT DESCRIPTION ONLY.
4. ONLY JUNE 2011 SAMPLES DISPLAYED IN INSETS.

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HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

AIR AND SURFACE WATER SAMPLE LOCATION MAP

SCALE: AS SHOWN
JULY 2014

FIGURE 2

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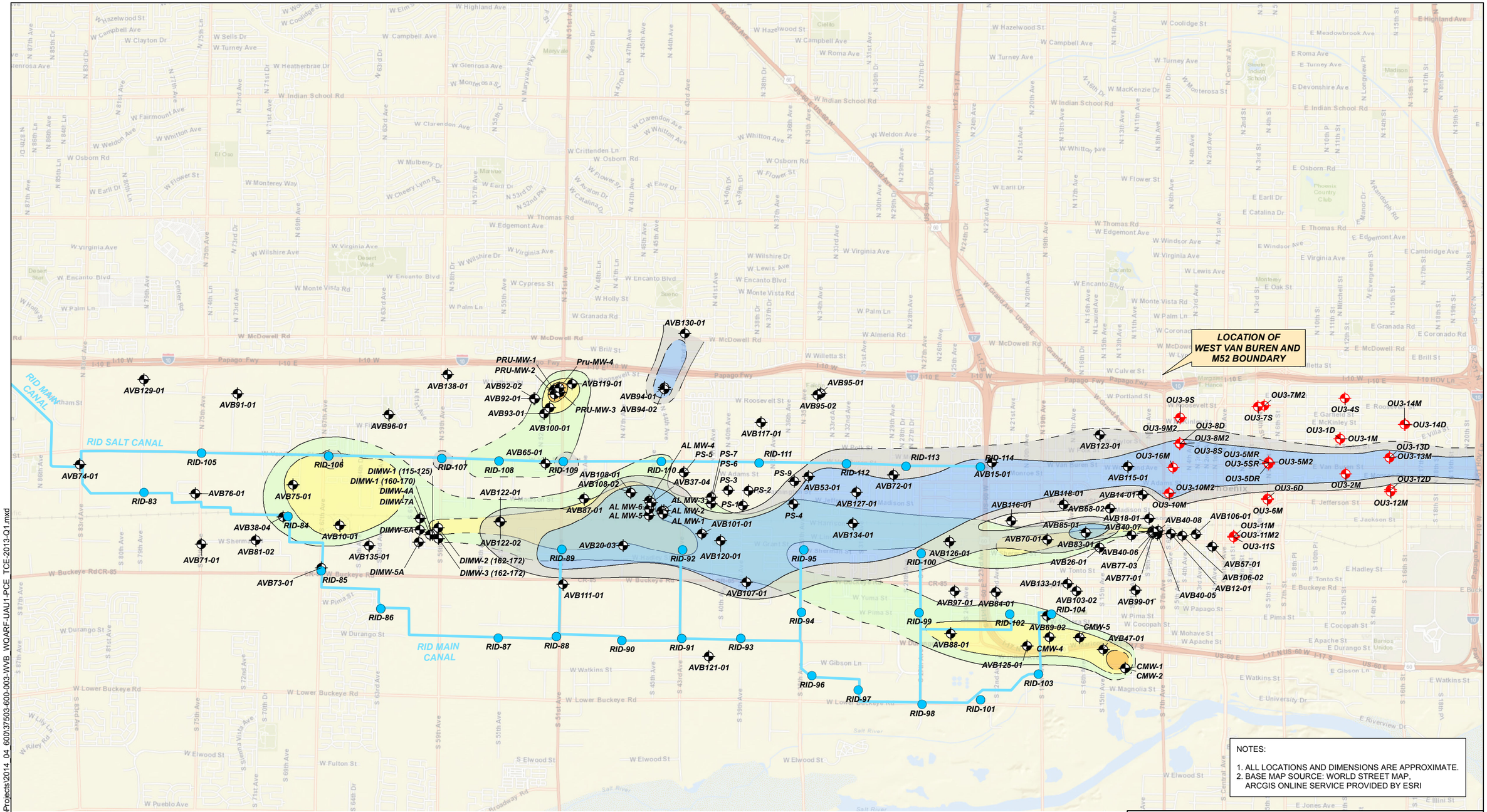

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: WORLD STREET MAP, ARCGIS ONLINE SERVICE PROVIDED BY ESRI

LEGEND

- WVBA MONITORING WELL
- M52 MONITORING WELL
- ROOSEVELT IRRIGATION DISTRICT WELL

PCE CONCENTRATION (ug/L)	TCE CONCENTRATION (ug/L)
> 100	> 100
10 - 100	10 - 100
5 - 10	5 - 10

CONTOUR LINE DASHED WHERE INFERRED

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HALEY & ALDRICH

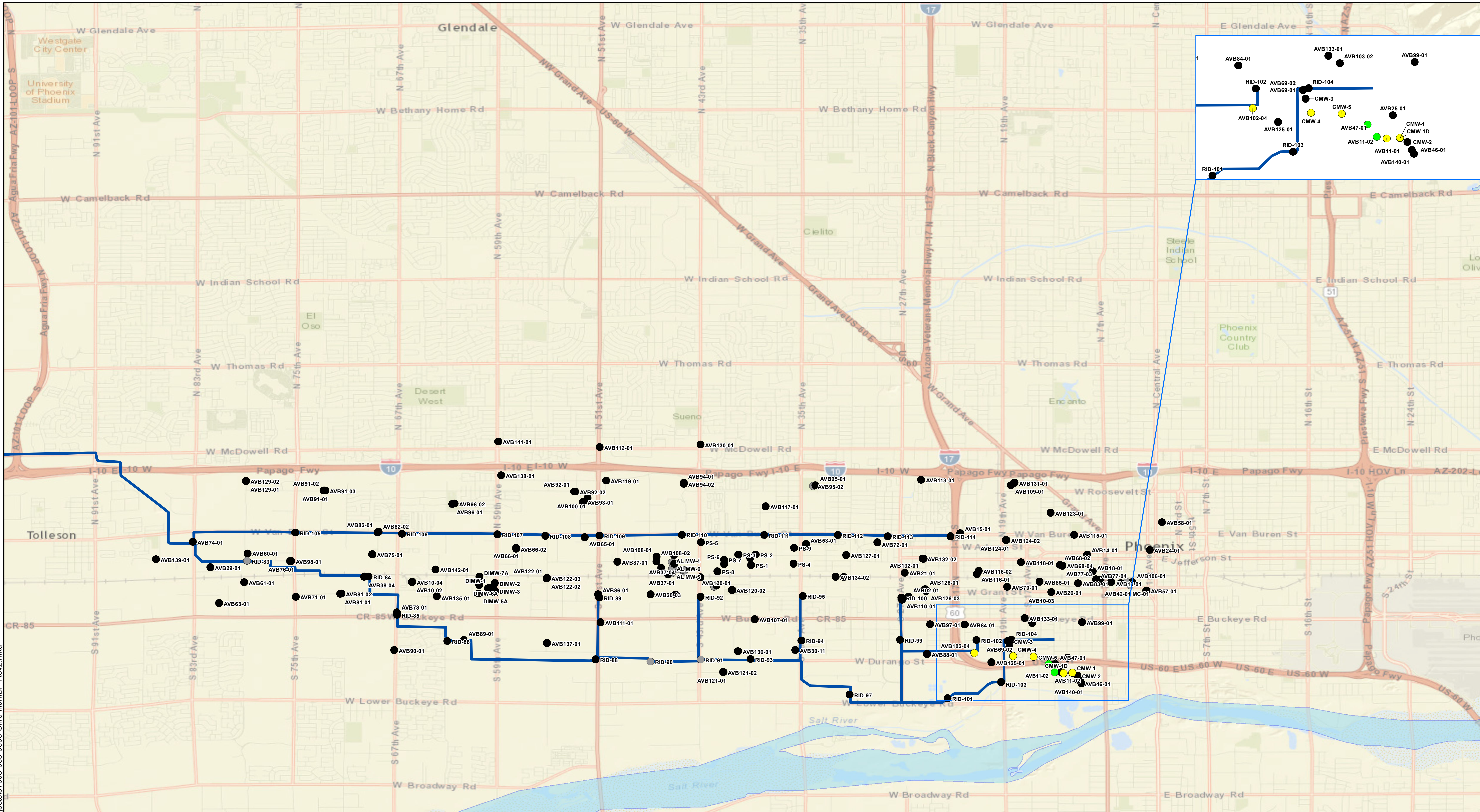
WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

OVERLAY OF TCE AND PCE PLUMES IN UAU1 GROUNDWATER – FIRST QUARTER 2013

SCALE: AS SHOWN
JULY 2014

FIGURE 3

G:\37503_Van_Buren\Global\GIS\MapProjects\2014_04_600\37503-600-003-WVB_WQARF-UAU1-PCE_TCE-2013-Q1.mxd



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LEGEND

- (grey) DISSOLVED AND HEXAVALENT CHROMIUM NOT ANALYZED
- (black) DISSOLVED AND HEXAVALENT CHROMIUM CONCENTRATION < BREAK POINT
- (green) DISSOLVED CHROMIUM AND HEXAVALENT CHROMIUM CONCENTRATION > BREAKPOINT
- (yellow) HEXAVALENT CHROMIUM CONCENTRATION > BREAKPOINT

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

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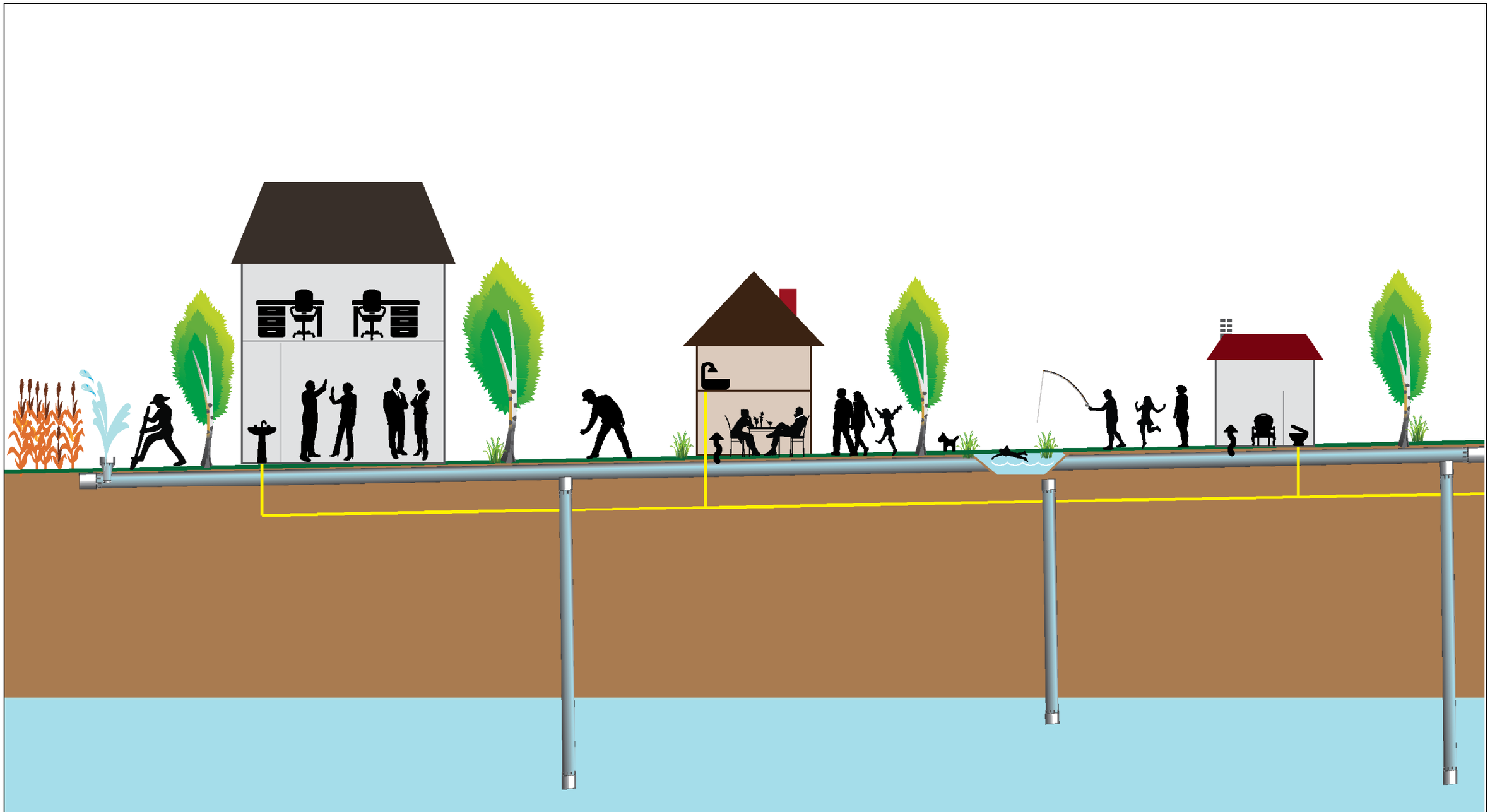
HALEY & ALDRICH

WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

SUMMARY OF DISSOLVED TOTAL CHROMIUM AND HEXAVALENT CHROMIUM CONCENTRATION LOCATIONS GREATER THAN ESTIMATED BACKGROUND THRESHOLDS (1994 – 2013)

SCALE: AS SHOWN
JUNE 2014

FIGURE 4



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WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

CONCEPTUAL PATHWAY

SCALE: NOT TO SCALE
JULY 2014

FIGURE 5

SURFACE WATER / GROUNDWATER PATHWAYS:

Source	Transport Mechanism	Exposure Route	RID Worker (Adult)	Resident (Child/Adult)	Groundwater Supply User (Child/Adult)
Surface Soil / Subsurface Soil → Leaching → Groundwater	Flow Movement to Groundwater Beneath the Site	Incidental Ingestion of Groundwater	incomplete	incomplete	incomplete
		Dermal Contact with Groundwater	**potentially complete**	incomplete	incomplete
		Inhalation of VOCs Volatilizing from Groundwater into Ambient Air	**potentially complete**	insignificant	incomplete
		Inhalation of VOCs Volatilizing from Groundwater into Indoor Air	incomplete	insignificant	incomplete
	Flow Movement to Domestic or Agricultural Wells	Ingestion of Domestic or Agriculture Groundwater	incomplete	incomplete	**potentially complete**
		Dermal Contact with Domestic or Agriculture Groundwater	incomplete	incomplete	incomplete
		Inhalation of VOCs from Domestic or Agriculture Groundwater	incomplete	incomplete	incomplete
		Ingestion of Plants (biouptake)	incomplete	incomplete	**potentially complete**
	Flow Movement to Surface Water	Dermal Contact with Surface Water	incomplete	**potentially complete**	incomplete
		Incidental Ingestion while Swimming	incomplete	**potentially complete**	incomplete
		Inhalation of VOC volatilizing from Surface Water into Ambient Air	**potentially complete**	**potentially complete**	incomplete
		Ingestion of Fish (biouptake)	incomplete	**potentially complete**	incomplete

Notes:
Potentially Complete: Exposure pathway may exist for receptor.
Incomplete: One or more criteria for a complete pathway do not exist.
Insignificant: All criteria exist for a complete exposure pathway, but data suggest low concentrations, low exposure frequency, potential insignificant risk, or insignificant pathway in comparison to other pathways.

HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

PATHWAY EVALUATION

JULY 2014

FIGURE 6

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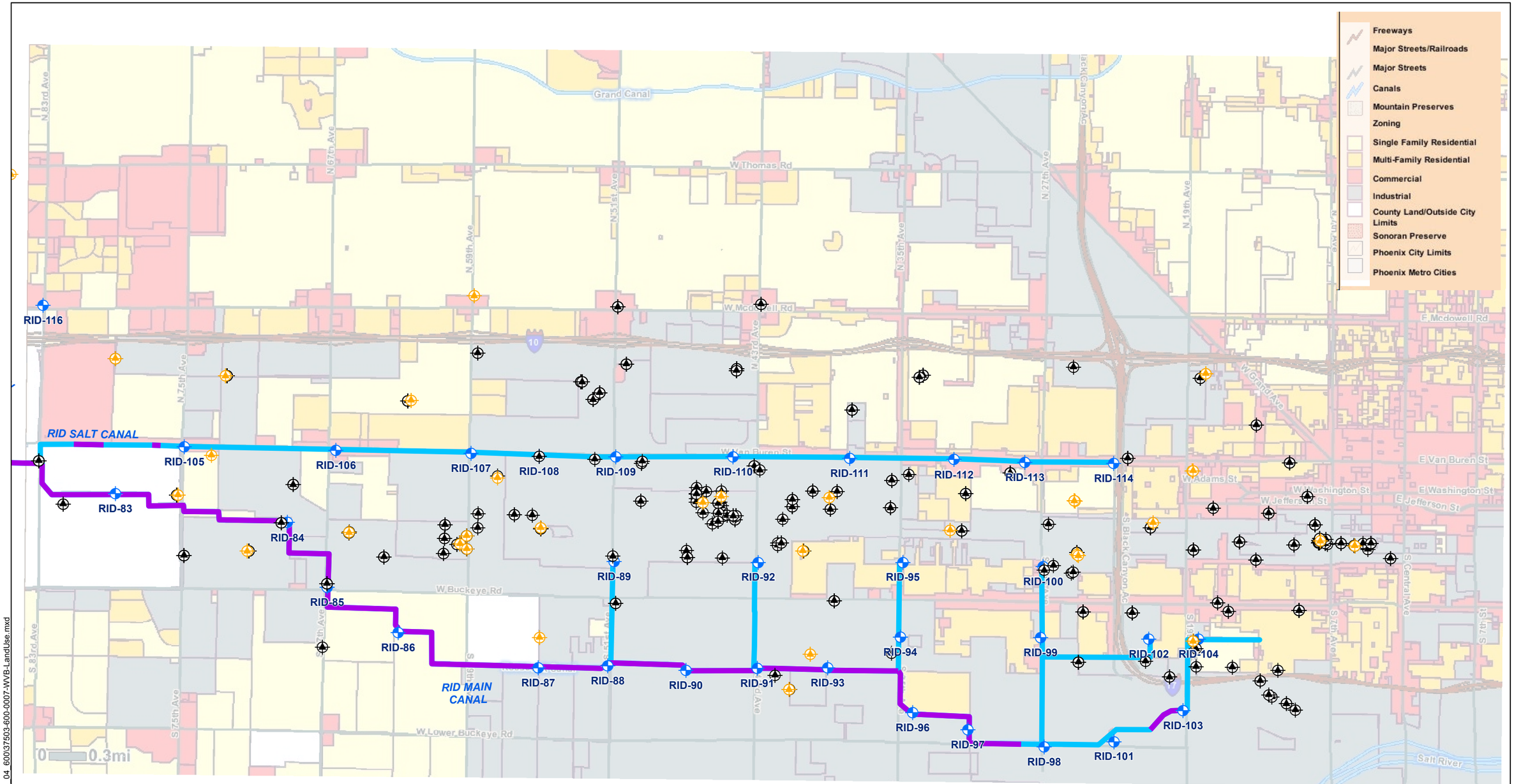

LEGEND

- WVBA UAU2 MONITORING WELL LOCATION
- WVBA UAU1 MONITORING WELL LOCATION
- ROOSEVELT IRRIGATION DISTRICT (RID) WELL LOCATION
- UNDERGROUND RID CANAL SEGMENT
- OPEN RID CANAL SEGMENT

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

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HALEY & ALDRICH

WEST VAN BUREN AREA
WQARF SITE
PHOENIX, ARIZONA

WEST VAN BUREN AREA
LAND USE

SCALE: AS SHOWN
JULY 2014

FIGURE 7

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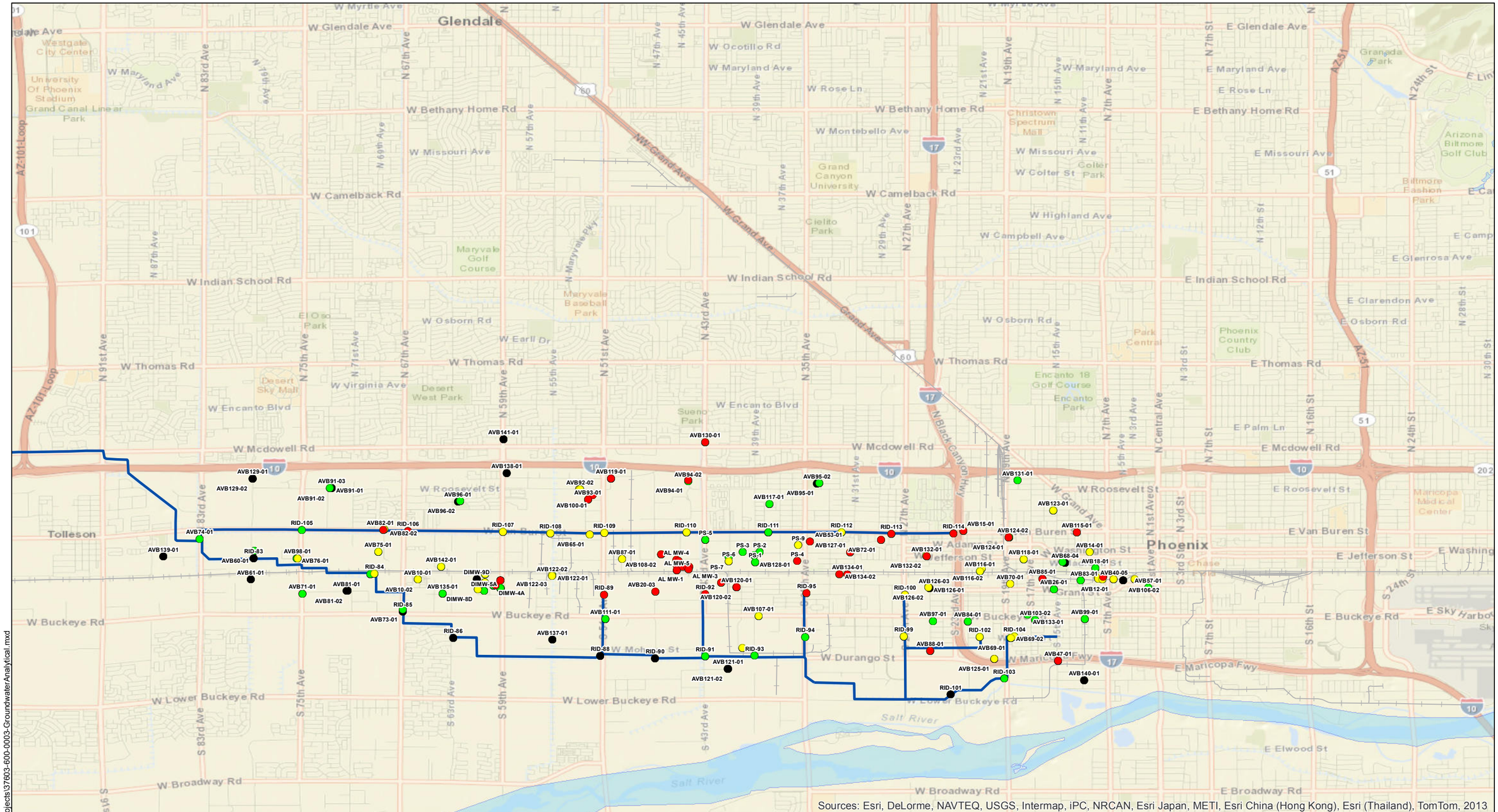

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

LEGEND

- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
1,1-DCE (1,1-Dichloroethene)	Detect to <7	>7 to ≤ 35	>35
Benzene	Detect to <5	>5 to ≤ 25	>25
PCE (Tetrachloroethene)	Detect to <5	>5 to ≤ 25	>25
TCE (Trichloroethene)	Detect to <5	>5 to ≤ 25	>25

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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HALEY & ALDRICH

WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

VOC CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 8

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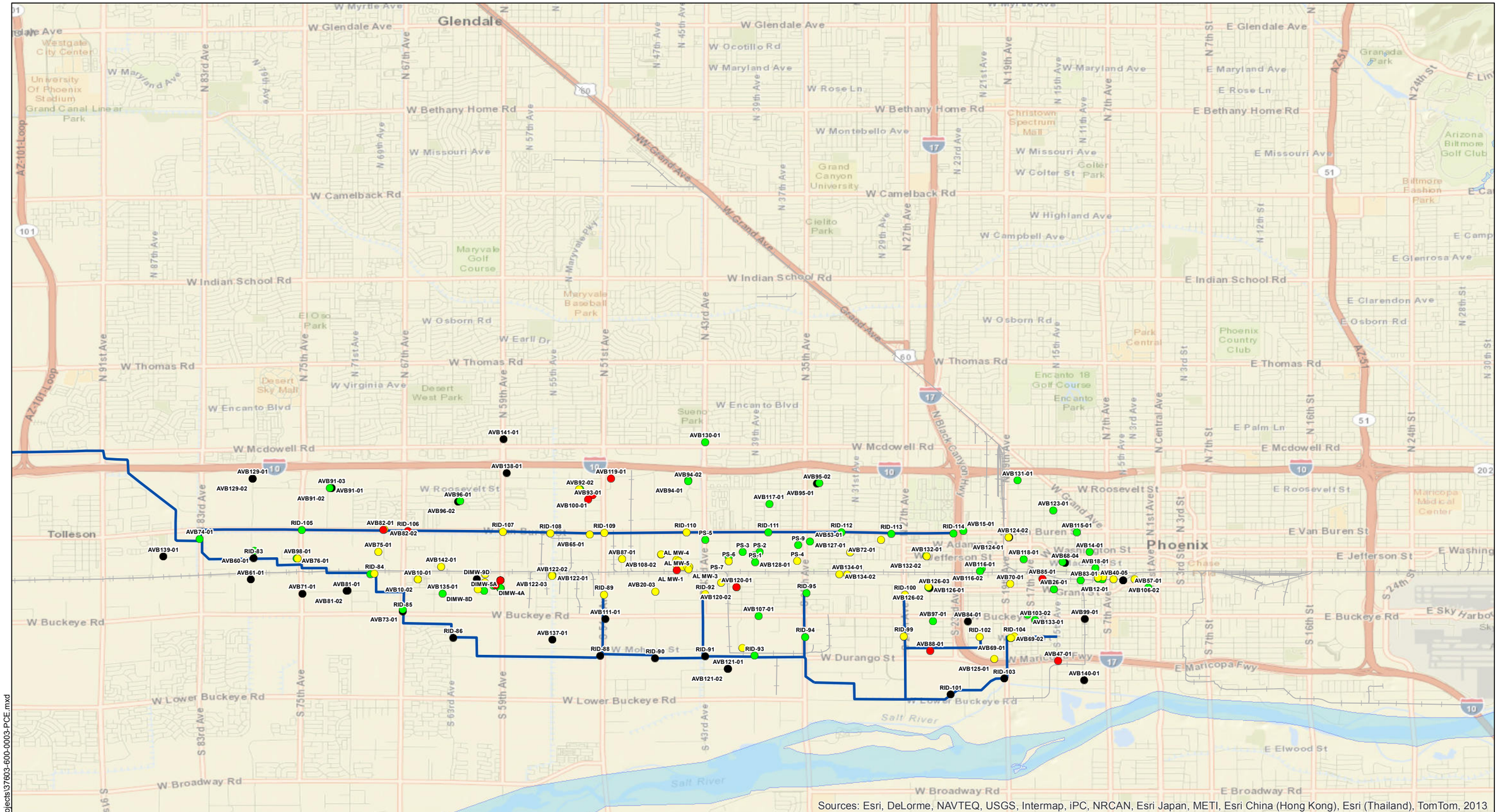

LEGEND

- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
PCE (Tetrachloroethene)	Detect to <5	>5 to ≤ 25	>25

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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SCALE IN FEET

HALEY & ALDRICH

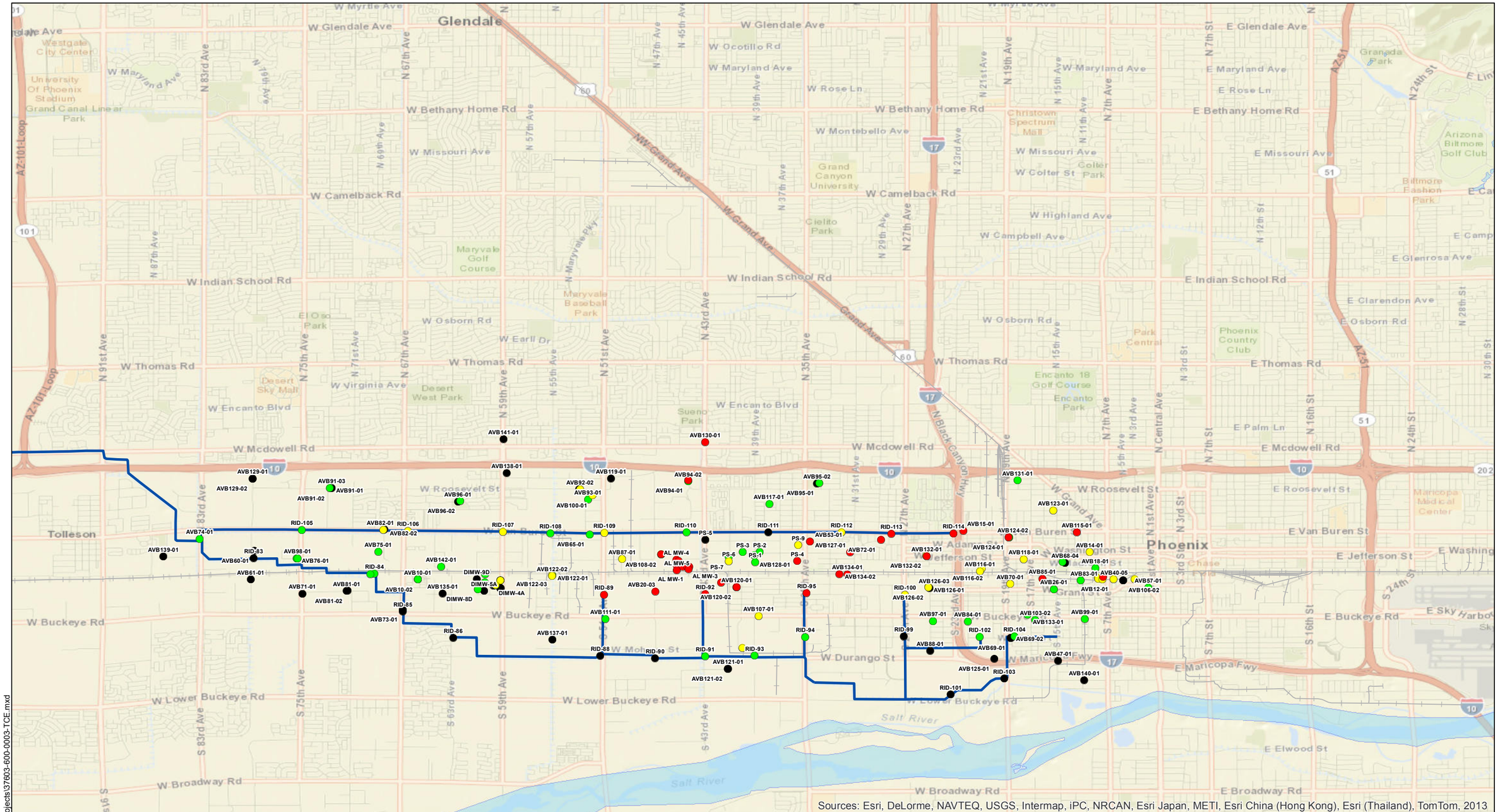
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

PCE CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 9

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-PCE.mxd



LEGEND

- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
TCE (Trichloroethene)	Detect to <5	>5 to ≤ 25	>25

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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0 6,000 12,000
SCALE IN FEET

HALEY & ALDRICH

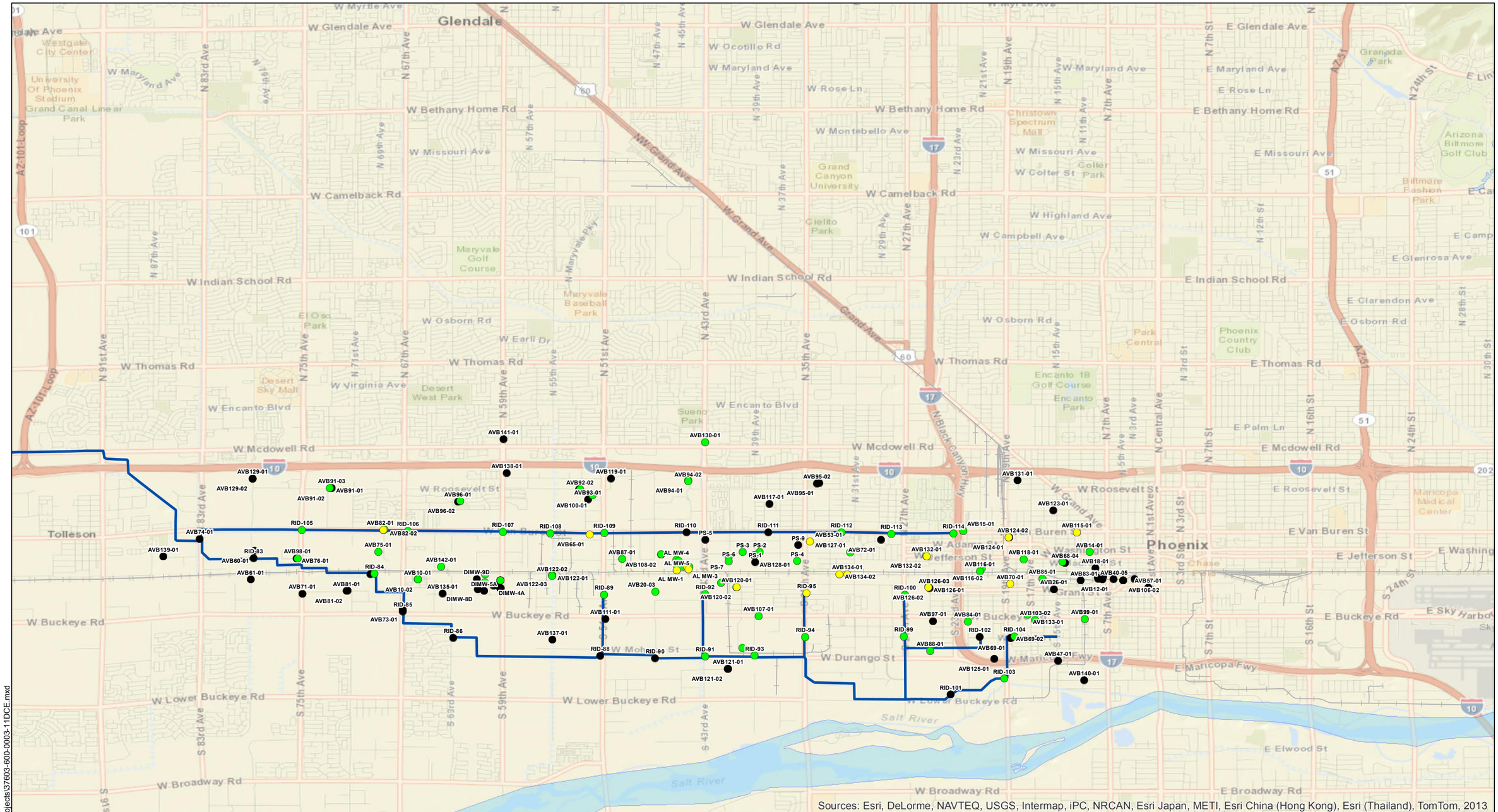
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

TCE CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 10

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-TCE.mxd



LEGEND

- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
1,1-DCE (1,1-Dichloroethene)	Detect to <7	>7 to ≤ 35	>35

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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SCALE IN FEET

HALEY & ALDRICH

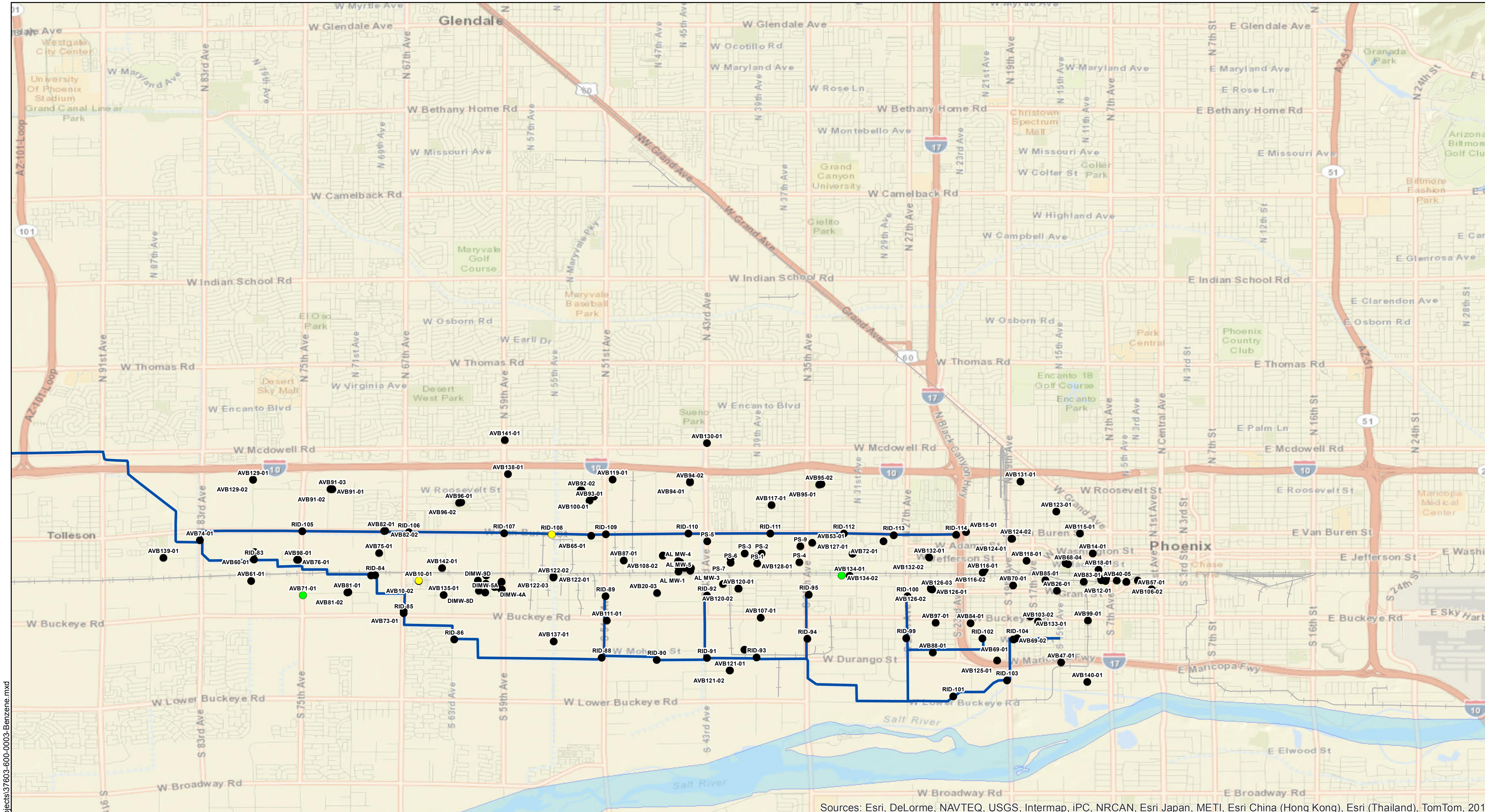
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

1,1-DCE CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLS

SCALE: AS SHOWN
JULY 2014

FIGURE 11

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-11DCE.mxd



LEGEND

- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
Benzene	Detect to <5	>5 to ≤ 25	>25

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2..UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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SCALE IN FEET

HALEY & ALDRICH

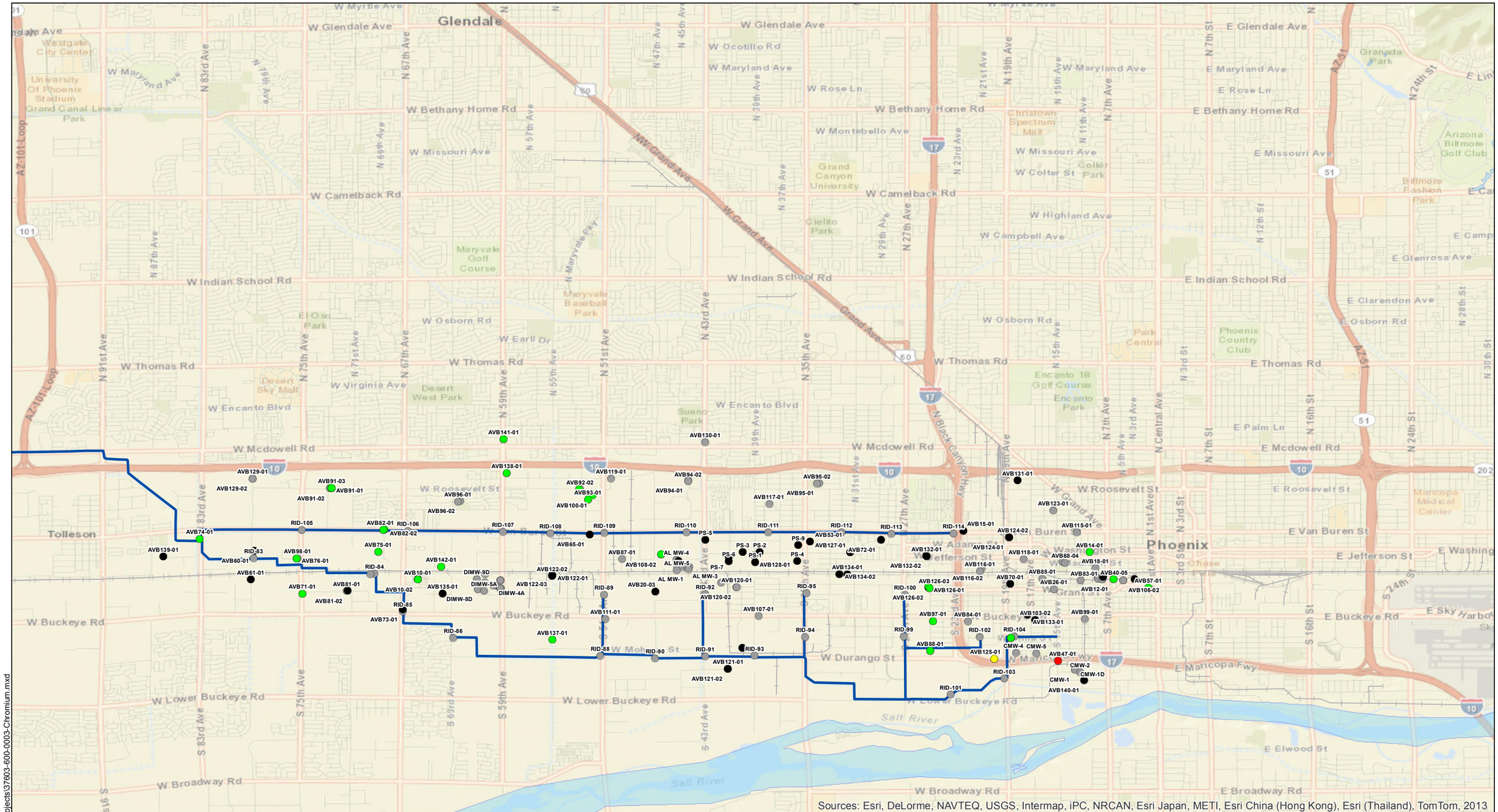
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

BENZENE CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 12

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-Benzene.mxd



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

LEGEND

- NOT ANALYZED
- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
Dissolved Chromium	Detect to <100	>100 to ≤ 500	>500

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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SCALE IN FEET

HALEY & ALDRICH

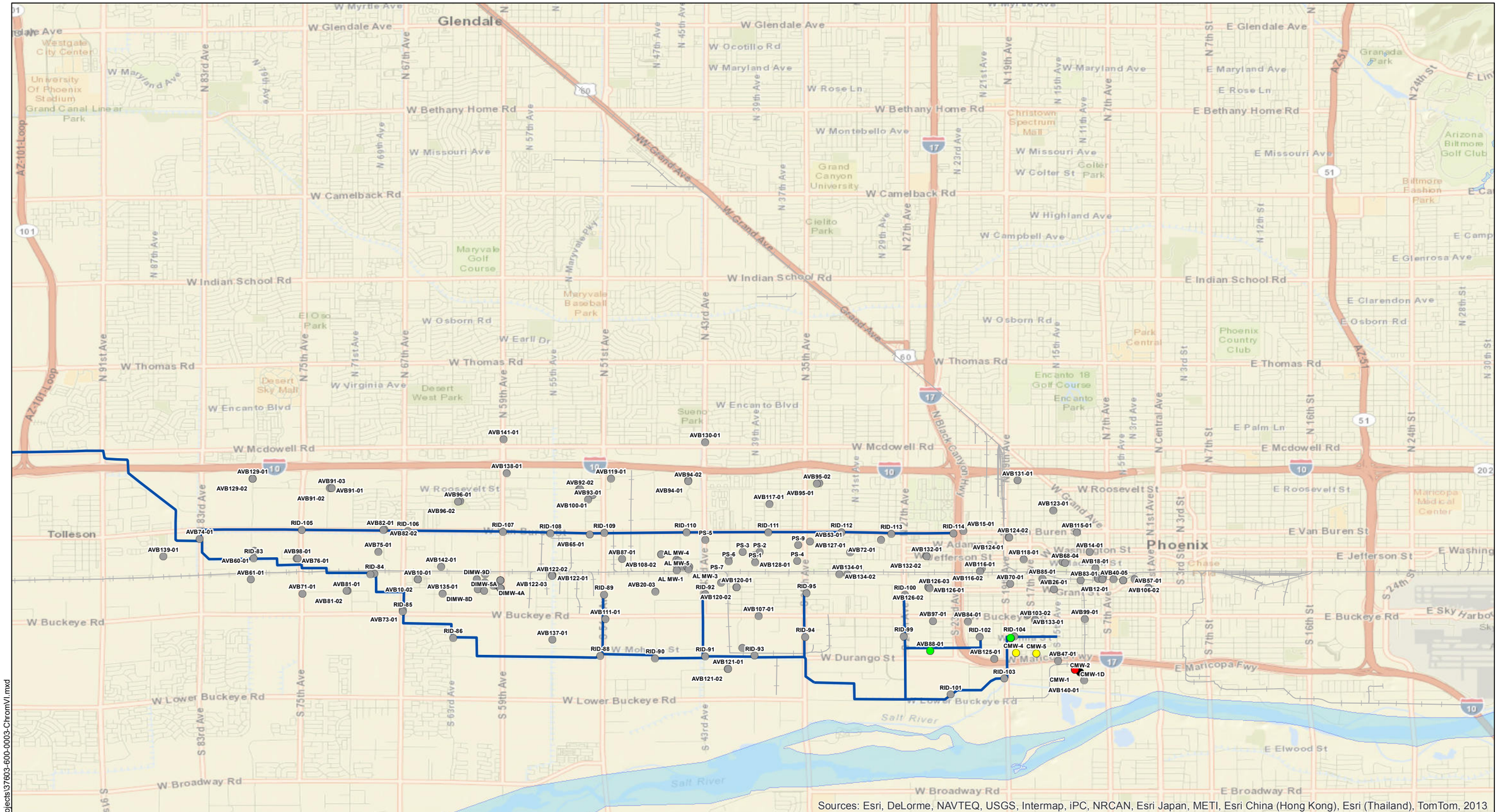
WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

DISSOLVED TOTAL CHROMIUM CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 13

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-Chromium.mxd



LEGEND

- NOT ANALYZED
- NON DETECT RESULT
- RANGE 1: ≤ MCL
- RANGE 2: > MCL TO ≤5 x MCL
- RANGE 3: >5 x MCL

Chemical	Range 1	Range 2	Range 3
Hexavalent Chromium	Detect to <100	>100 to ≤ 500	>500

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. UNITS ARE IN ug/L.
3. MCL = MAXIMUM CONTAMINANT LEVEL.

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0 6,000 12,000
SCALE IN FEET

HALEY & ALDRICH

WEST VAN BUREN
WQARF SITE
PHOENIX, ARIZONA

HEXAVALENT CHROMIUM CONCENTRATIONS IN WVBA GROUNDWATER MONITORING WELLS (2009-2013) - COMPARISON TO MCLs

SCALE: AS SHOWN
JULY 2014

FIGURE 14

G:\Projects\37503-600\Global\GIS\Map Projects\37603-600-0003-ChromVI.mxd

ATTACHMENT A

COPC Data Evaluation

TABLE A-1
COPC DATA EVALUATION - ALL GROUNDWATER DATA
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONIA

CAS NUMBER	PARAMETER_NAME	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	0	3%
71-55-6	1,1,1-TCA	23	5	97%
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	0	17%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	12	0	41%
79-00-5	1,1,2-TRICHLOROETHANE	8	2	34%
75-34-3	1,1-DCA	24	5	100%
75-35-4	1,1-DCE	24	5	100%
78-99-9	1,1-DICHLOROPROPANE	1	0	3%
563-58-6	1,1-DICHLOROPROPENE	1	0	3%
12+14DCB	1,2-&1,4-DICHLOROBENZENE	3	0	10%
95-63-6	1,2,4-TRIMETHYLBENZENE	6	0	21%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	1	0	3%
106-93-4	1,2-DIBROMOETHANE (EDB)	1	0	3%
107-06-2	1,2-DICHLOROETHANE	20	4	83%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	9	0	31%
78-87-5	1,2-DICHLOROPROPANE	1	0	3%
108-67-8	1,3,5-TRIMETHYLBENZENE	5	0	17%
142-28-9	1,3-DICHLOROPROPANE	1	0	3%
123-91-1	1,4-DIOXANE	5	4	31%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	0	1	3%
594-20-7	2,2-DICHLOROPROPANE	1	0	3%
110-75-8	2-CHLOROETHYL VINYL ETHER	1	0	3%
591-78-6	2-HEXANONE	3	0	10%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	5	0	17%
67-64-1	ACETONE	5	3	28%
7440-38-2	ARSENIC	2	0	7%
7440-38-2	ARSENIC, DISSOLVED (AS AS)	1	0	3%
7440-38-2	ARSENIC, TOTAL (AS AS)	2	0	7%

TABLE A-1
COPC DATA EVALUATION - ALL GROUNDWATER DATA
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONIA

CAS NUMBER	PARAMETER_NAME	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
7440-39-3	BARIUM	2	0	7%
7440-39-3	BARIUM, TOTAL (AS BA)	2	0	7%
71-43-2	BENZENE	19	3	76%
75-27-4	BROMODICHLOROMETHANE	17	4	72%
75-25-2	BROMOFORM	10	0	34%
74-83-9	BROMOMETHANE	1	0	3%
75-15-0	CARBON DISULFIDE	7	4	38%
56-23-5	CARBON TETRACHLORIDE	14	1	52%
108-90-7	CHLOROBENZENE	8	0	28%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	3	0	10%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	14	4	62%
75-00-3	CHLOROETHANE	1	0	3%
67-66-3	CHLOROFORM	23	5	97%
74-87-3	CHLOROMETHANE	4	0	14%
7440-47-3	CHROMIUM	14	5	66%
7440-47-3	CHROMIUM, DISSOLVED	9	4	45%
18540-29-9	CHROMIUM, HEXAVALENT	15	5	69%
7440-47-3	CHROMIUM, SUSPENDED	1	0	3%
7440-47-3	CHROMIUM, TOTAL	16	4	69%
16065-83-1	CHROMIUM, TRIVALENT	12	4	55%
156-59-2	CIS-1,2-DCE	16	5	72%
7440-50-8	COPPER	1	0	3%
7440-50-8	COPPER, TOTAL (AS CU)	2	0	7%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	17	4	72%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE	1	0	3%
100-41-4	ETHYLBENZENE	15	0	52%
98-82-8	ISOPROPYLBENZENE	4	1	17%
7439-92-1	LEAD	4	0	14%

TABLE A-1
COPC DATA EVALUATION - ALL GROUNDWATER DATA
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONIA

CAS NUMBER	PARAMETER_NAME	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
7439-92-1	LEAD, TOTAL (AS PB)	1	0	3%
179601-23-1	M,P-XYLENES	10	0	34%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	7	0	24%
74-88-4	METHYL IODIDE (IODOMETHANE)	2	0	7%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	12	2	48%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	2	0	7%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	12	0	41%
91-20-3	NAPHTHALENE	4	3	24%
104-51-8	N-BUTYLBENZENE	4	0	14%
7440-02-0	NICKEL	1	0	3%
103-65-1	N-PROPYLBENZENE	4	0	14%
95-47-6	O-XYLENE	10	0	34%
127-18-4	PCE	24	5	100%
135-98-8	SEC-BUTYLBENZENE	4	0	14%
79-01-6	TCE	24	5	100%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE	1	0	3%
108-88-3	TOLUENE	20	4	83%
156-60-5	TRANS-1,2-DICHLOROETHENE	14	2	55%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	0	3%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	22	4	90%
26523-64-8	TRICHLOROTRIFLUOROETHANE	7	0	24%
108-05-4	VINYL ACETATE	1	0	3%
75-01-4	VINYL CHLORIDE	7	2	31%
1330-20-7	XYLENES, TOTAL	10	1	38%
7440-66-6	ZINC	3	0	10%
7440-66-6	ZINC, DISSOLVED (AS ZN)	1	0	3%
7440-66-6	ZINC, TOTAL (AS ZN)	1	0	3%

Yellow shade indicates chemical was selected as a COPC based on 2009 - 2013 detections or historical detections

TABLE A-2
COPC DATA EVALUATION - RID WELL DATA
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL NAME	Frequency of Detect (Prior to 2009)	Frequency of Detect (2009-2013)	Frequency of Detect (over all years) (%)
71-55-6	1,1,1-TRICHLOROETHANE	6	0	29%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	3	0	14%
75-34-3	1,1-DICHCLOROETHANE	14	4	86%
75-35-4	1,1-DICHLOROETHENE	15	4	90%
12+14DCB	1,2-&1,4-DICHLOROBENZENE	1	0	5%
95-63-6	1,2,4-TRIMETHYLBENZENE	1	0	5%
107-06-2	1,2-DICHLOROETHANE	7	2	43%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	5	0	24%
142-28-9	1,3-DICHLOROPROPANE	1	0	5%
594-20-7	2,2-DICHLOROPROPANE	1	0	5%
110-75-8	2-CHLOROETHYL VINYL ETHER	1	0	5%
71-43-2	BENZENE	6	2	38%
75-25-2	BROMOFORM	1	0	5%
75-15-0	CARBON DISULFIDE	1	1	10%
56-23-5	CARBON TETRACHLORIDE	5	0	24%
67-66-3	CHLOROFORM	13	4	81%
156-59-2	CIS-1,2-DICHLOROETHENE	7	4	52%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	4	4	38%
100-41-4	ETHYLBENZENE	1	0	5%
98-82-8	ISOPROPYLBENZENE	1	0	5%
74-88-4	METHYL IODIDE (IODOMETHANE)	1	0	5%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	6	2	38%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1	0	5%
91-20-3	NAPHTHALENE	1	0	5%
104-51-8	N-BUTYLBENZENE	1	0	5%
135-98-8	SEC-BUTYLBENZENE	1	0	5%
127-18-4	TETRACHLOROETHENE	17	4	100%
108-88-3	TOLUENE	1	0	5%
156-60-5	TRANS-1,2-DICHLOROETHENE	3	0	14%

TABLE A-2
COPC DATA EVALUATION - RID WELL DATA
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL NAME	Frequency of Detect (Prior to 2009)	Frequency of Detect (2009-2013)	Frequency of Detect (over all years) (%)
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	0	5%
79-01-6	TRICHLOROETHENE (TCE)	16	4	95%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	7	1	38%
26523-64-8	TRICHLOROTRIFLUOROETHANE	2	0	10%
75-01-4	VINYL CHLORIDE	1	0	5%
179601-23-1	M,P-XYLENES	2	0	10%
95-47-6	O-XYLENE	1	0	5%
7440-47-3	CHROMIUM, DISSOLVED	6	0	29%
7440-47-3	CHROMIUM, TOTAL	6	0	29%

Yellow shade indicates chemical was selected as a COPC based on 2009 - 2013 detections or historical detections

TABLE A-3
MAXIMUM DETECTED GROUNDWATER CONCENTRATION PER YEAR - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
630-20-6	1,1,1,2-TETRACHLOROETHANE													0.018						
71-55-6	1,1,1-TCA	0.004	0.0043	0.0015	0.0018	0.0195	0.053	0.023	0.22	0.16	0.045	0.02	0.1	0.063	0.0061		0.0019	0.025	0.0018	0.078
79-34-5	1,1,2,2-TETRACHLOROETHANE					0.0002					0.0004	0.0023	0.001		0.0018					
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)										0.011	0.01	0.014	0.02	0.026	0.013	0.0064	0.0064	0.0088	0.016
79-00-5	1,1,2-TRICHLOROETHANE								0.00053		0.031			0.0089	0.0039	0.003		0.0078		0.002
75-34-3	1,1-DCA	0.0049	0.0012	0.0013	0.002	0.0041	0.00446	0.0066	0.015	0.077	0.074	0.036	0.2	0.066	0.023	0.017	0.023	0.061	0.028	0.028
75-35-4	1,1-DCE	0.0022	0.02	0.031	0.006	0.055	0.299	0.045	0.11	0.04	0.096	0.068	1.3	0.054	0.05	0.034	0.052	0.047	0.041	0.04
78-99-9	1,1-DICHLOROPROPANE																		0.00074	
563-58-6	1,1-DICHLOROPROPENE																		0.00074	
12+14DCB	1,2-&1,4-DICHLOROBENZENE						0.0045		0.0019		0.006									
95-63-6	1,2,4-TRIMETHYLBENZENE																	0.0013	0.19	0.078
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)																			
106-93-4	1,2-DIBROMOETHANE (EDB)																		0.0034	
107-06-2	1,2-DICHLOROETHANE		0.0013			0.019	0.00081	0.0024	0.0037	0.0017	0.21	0.0039	0.001	0.0089	0.0014	0.00068	0.0007	0.0012	0.011	0.0006
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)				0.0004	0.0029	0.0065	0.0052	0.032	0.009	0.046	0.002	0.0163							
78-87-5	1,2-DICHLOROPROPANE														0.01					
108-67-8	1,3,5-TRIMETHYLBENZENE																	0.001	0.12	0.053
142-28-9	1,3-DICHLOROPROPANE																			
123-91-1	1,4-DIOXANE																		0.005	0.003
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)																			
594-20-7	2,2-DICHLOROPROPANE																			
110-75-8	2-CHLOROETHYL VINYL ETHER		0.0008																	
591-78-6	2-HEXANONE														0.022				0.006	
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)																		0.0043	0.0017
67-64-1	ACETONE														0.16				0.079	0.035
7440-38-2	ARSENIC								0.01	0.011										
7440-38-2	ARSENIC, DISSOLVED (AS AS)													0.011						
7440-38-2	ARSENIC, TOTAL (AS AS)												0.01	0.012						
7440-39-3	BARIUM									0.055				0.00011						
7440-39-3	BARIUM, TOTAL (AS BA)												0.082	0.18						
71-43-2	BENZENE				0.0006	0.104	0.005	0.0058	0.00073		0.018	0.0091	0.0087	0.045	0.0024	0.0075		0.001	0.019	0.016
75-27-4	BROMODICHLOROMETHANE							0.00069	0.00057		0.0074	0.0077	0.0055	0.0031	0.0063	0.0023	0.0015	0.0074	0.0027	0.011
75-25-2	BROMOFORM										0.0013	0.0084	0.0021		0.00054			0.00062		0.0012
74-83-9	BROMOMETHANE										0.003									
75-15-0	CARBON DISULFIDE																0.001	0.0066	0.011	
56-23-5	CARBON TETRACHLORIDE	0.001					0.0002	0.00081	0.00067		0.0003	0.0004				0.0034		0.00079	0.001	0.0016
108-90-7	CHLOROBENZENE							0.0011	0.003		0.02	0.0052		0.012						
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)																		0.0012	0.0012
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)										0.0056	0.008	0.004	0.002	0.0065	0.0018		0.0048	0.002	0.0064
75-00-3	CHLOROETHANE																			0.0055
67-66-3	CHLOROFORM		0.0021	0.0019	0.0015	0.0032	0.00347	0.022	0.097	0.069	0.79	0.1	0.112	0.068	0.013	0.0089	0.0096	0.015	0.012	0.019
74-87-3	CHLOROMETHANE								0.0011		0.013							0.0031		
7440-47-3	CHROMIUM											15.6	5.6	11	17	16	8	12	1.1	5.1
7440-47-3	CHROMIUM, DISSOLVED													1.7			0.02		0.02	0.027

TABLE A-3
MAXIMUM DETECTED GROUNDWATER CONCENTRATION PER YEAR - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
18540-29-9	CHROMIUM, HEXAVALENT										0.7	16.5	13	11	22	14	6	12	1.1	5.5
7440-47-3	CHROMIUM, SUSPENDED																			
7440-47-3	CHROMIUM, TOTAL			0.022					0.02	0.02	0.656		25	22.4	12		0.12	3.8	63	40.5
16065-83-1	CHROMIUM, TRIVALENT												12		1.2	2.9	2	0.15	0.11	2.8
156-59-2	CIS-1,2-DCE									0.004	0.19	0.83	1.3	0.56	4	0.031	0.026	0.12	0.041	0.038
7440-50-8	COPPER								0.03											
7440-50-8	COPPER, TOTAL (AS CU)					0.02							0.011							
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)							0.033	0.016	0.013	0.0079	0.038	0.0051	0.0075	0.014	0.0014		0.001	0.031	0.053
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE										0.034									
100-41-4	ETHYLBENZENE					0.0005	0.0157		0.0018		0.0091	0.0049	0.1	0.043	0.0015	0.0039		0.0008	0.063	0.048
98-82-8	ISOPROPYLBENZENE																		0.0074	0.012
7439-92-1	LEAD							0.006	0.005	0.003										0.0075
7439-92-1	LEAD, TOTAL (AS PB)													0.003						
179601-23-1	M,P-XYLENES										0.0033	0.016	0.0049		0.0012	0.016		0.0022	0.46	0.22
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)														0.077			0.024	0.022	0.014
74-88-4	METHYL IODIDE (IODOMETHANE)																			0.0062
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)									0.015	0.076			0.034	0.34		0.21	0.17	4.6	0.017
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)																		0.0005	
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)		0.0005			0.002	0.00113	0.023	0.066		0.01		0.0006	0.0062				0.053	0.0013	0.0016
91-20-3	NAPHTHALENE																		0.042	0.073
104-51-8	N-BUTYLBENZENE																		0.0049	0.0066
7440-02-0	NICKEL																			0.22
103-65-1	N-PROPYLBENZENE																		0.014	0.021
95-47-6	O-XYLENE										0.0019	0.012	0.0023		0.0009	0.007		0.0012	0.41	0.078
127-18-4	PCE	0.00073	0.038	0.0313	0.05	0.087	1.01	0.26	1.4	0.85	8.9	26	30	26	95	1.5	0.97	3.8	0.29	0.37
135-98-8	SEC-BUTYLBENZENE																		0.0046	0.0062
79-01-6	TCE	0.0016	0.035	0.0171	0.01	0.107	0.171	0.13	0.12	0.2	0.58	0.6	0.36	0.544	0.17	0.087	0.12	0.13	0.18	0.21
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE					0.006														
108-88-3	TOLUENE					0.018	0.0517	0.00079	0.021	0.0077	0.0054	0.019	0.0059	0.0098	0.0041	0.019	0.009	0.0089	0.099	0.042
156-60-5	TRANS-1,2-DICHLOROETHENE	0.0037	0.0016			0.0045			0.0261					0.023	0.00057		0.0022	0.025	0.00063	0.00093
10061-02-6	TRANS-1,3-DICHLOROPROPENE																			
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	0.0016	0.022			0.0018	0.0124	0.0019	0.013	0.0034	0.0065	0.0044	0.0058	0.00891	0.0057	0.0041	0.0059	0.04	0.002	0.017
26523-64-8	TRICHLOROTRIFLUOROETHANE					0.0014	0.0045	0.075	0.14	0.0153	0.069	0.019								
108-05-4	VINYL ACETATE																	0.029		
75-01-4	VINYL CHLORIDE								0.0024			0.001					0.02		0.0028	
1330-20-7	XYLENES, TOTAL					0.291	0.00792		0.0059		0.0063	0.024	0.0183	0.0138						
7440-66-6	ZINC							0.13	0.2	0.05										
7440-66-6	ZINC, DISSOLVED (AS ZN)					0.034														
7440-66-6	ZINC, TOTAL (AS ZN)					0.097														

TABLE A-3
MAXIMUM DETECTED GROUNDWATER CONCENTRATION PER YEAR - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
630-20-6	1,1,1,2-TETRACHLOROETHANE											1	0	3%
71-55-6	1,1,1-TCA	0.0099	0.021	0.0023	0.014	0.0069	0.041	0.025	0.013	0.0087	0.0013	23	5	97%
79-34-5	1,1,2,2-TETRACHLOROETHANE											5	0	17%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	0.0091	0.0097									12	0	41%
79-00-5	1,1,2-TRICHLOROETHANE		0.0016				0.0018		0.00055			8	2	34%
75-34-3	1,1-DCA	0.021	0.022	0.015	0.014	0.013	0.016	0.014	0.0105	0.0119	0.0104	24	5	100%
75-35-4	1,1-DCE	0.038	0.039	0.022	0.023	0.027	0.027	0.03	0.0256	0.0248	0.0294	24	5	100%
78-99-9	1,1-DICHLOROPROPANE											1	0	3%
563-58-6	1,1-DICHLOROPROPENE											1	0	3%
12+14DCB	1,2-&1,4-DICHLOROBENZENE											3	0	10%
95-63-6	1,2,4-TRIMETHYLBENZENE	0.092	0.032	0.003								6	0	21%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)					0.0025						1	0	3%
106-93-4	1,2-DIBROMOETHANE (EDB)											1	0	3%
107-06-2	1,2-DICHLOROETHANE	0.00083	0.0009	0.001	0.0011		0.0012	0.0011	0.0044		0.00157	20	4	83%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)											9	0	31%
78-87-5	1,2-DICHLOROPROPANE											1	0	3%
108-67-8	1,3,5-TRIMETHYLBENZENE	0.044	0.063									5	0	17%
142-28-9	1,3-DICHLOROPROPANE	0.0005										1	0	3%
123-91-1	1,4-DIOXANE	0.0027	0.0023			0.0097	0.0099		0.011	0.0063	0.0027	5	4	31%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)							0.00171				0	1	3%
594-20-7	2,2-DICHLOROPROPANE	0.0005										1	0	3%
110-75-8	2-CHLOROETHYL VINYL ETHER											1	0	3%
591-78-6	2-HEXANONE	0.012										3	0	10%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	0.0025	0.0075			0.00385						5	0	17%
67-64-1	ACETONE	0.038		0.024					0.0815	0.0402	0.174	5	3	28%
7440-38-2	ARSENIC											2	0	7%
7440-38-2	ARSENIC, DISSOLVED (AS AS)											1	0	3%
7440-38-2	ARSENIC, TOTAL (AS AS)											2	0	7%
7440-39-3	BARIUM											2	0	7%
7440-39-3	BARIUM, TOTAL (AS BA)											2	0	7%
71-43-2	BENZENE	0.0032	0.035	0.016	0.0062	0.013		0.0012	0.00811	0.0118		19	3	76%
75-27-4	BROMODICHLOROMETHANE	0.012	0.02	0.013	0.01	0.00336	0.0016	0.018	0.0039	0.00681		17	4	72%
75-25-2	BROMOFORM	0.0016	0.0015	0.0015		0.001						10	0	34%
74-83-9	BROMOMETHANE											1	0	3%
75-15-0	CARBON DISULFIDE	0.0093		0.0011	0.012	0.00062		0.00055	0.00421	0.00121	0.00063	7	4	38%
56-23-5	CARBON TETRACHLORIDE	0.0022	0.0029	0.0015		0.00064			0.00052			14	1	52%
108-90-7	CHLOROBENZENE			0.00068	0.00096	0.0016						8	0	28%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)					0.00063						3	0	10%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.0088	0.0056	0.0077	0.0065	0.0067	0.001	0.004	0.00083	0.0045		14	4	62%
75-00-3	CHLOROETHANE											1	0	3%
67-66-3	CHLOROFORM	0.013	0.1	0.026	0.026	0.028	0.006	0.037	0.0204	0.0181	0.00973	23	5	97%
74-87-3	CHLOROMETHANE		0.0077									4	0	14%
7440-47-3	CHROMIUM	6.2	6.5	35	34	35	30	25	11.7	7.36	0.034	14	5	66%
7440-47-3	CHROMIUM, DISSOLVED	0.041	0.085	0.033	0.033	0.05		0.052	3.2	0.7	0.135	9	4	45%

TABLE A-3
MAXIMUM DETECTED GROUNDWATER CONCENTRATION PER YEAR - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detect (over entire 29 years) (%)
18540-29-9	CHROMIUM, HEXAVALENT	6.3	6.4	37	37	32	32	18	11.3	6.62	0.0416	15	5	69%
7440-47-3	CHROMIUM, SUSPENDED			0.043								1	0	3%
7440-47-3	CHROMIUM, TOTAL	29.3	5.26	7.3	9	1.9		0.982	6.07	30.1	5.74	16	4	69%
16065-83-1	CHROMIUM, TRIVALENT	3.6	0.14	0.78	0.12	3	0.29	7.3	0.4	0.74		12	4	55%
156-59-2	CIS-1,2-DCE	0.04	0.041	0.048	0.036	0.036	0.0055	0.052	0.066	0.0384	0.0317	16	5	72%
7440-50-8	COPPER											1	0	3%
7440-50-8	COPPER, TOTAL (AS CU)											2	0	7%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	0.052	0.011	0.043	0.038	0.046		0.0074	0.0361	0.0318	0.0119	17	4	72%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE											1	0	3%
100-41-4	ETHYLBENZENE	0.052	0.0013	0.0046								15	0	52%
98-82-8	ISOPROPYLBENZENE	0.0061	0.0011						0.00781			4	1	17%
7439-92-1	LEAD											4	0	14%
7439-92-1	LEAD, TOTAL (AS PB)											1	0	3%
179601-23-1	M,P-XYLENES	0.18	0.031									10	0	34%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	0.013	0.05		0.018							7	0	24%
74-88-4	METHYL IODIDE (IODOMETHANE)		0.004									2	0	7%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	0.85	0.67	0.18		0.045		0.011	0.00306			12	2	48%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)		0.00067									2	0	7%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)		0.0063									12	0	41%
91-20-3	NAPHTHALENE	0.0046	0.0046						0.232	0.159	0.0677	4	3	24%
104-51-8	N-BUTYLBENZENE	0.0066	0.00055									4	0	14%
7440-02-0	NICKEL											1	0	3%
103-65-1	N-PROPYLBENZENE	0.019	0.00068									4	0	14%
95-47-6	O-XYLENE	0.08	0.074									10	0	34%
127-18-4	PCE	0.096	0.46	0.34	0.55	0.39	0.61	0.54	0.804	1.05	1.12	24	5	100%
135-98-8	SEC-BUTYLBENZENE	0.0034	0.00062									4	0	14%
79-01-6	TCE	0.2	0.15	0.15	0.2	0.17	0.036	1.38	0.218	0.209	0.177	24	5	100%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE											1	0	3%
108-88-3	TOLUENE	0.027	0.036	0.013	0.035	0.047	0.018		0.094	0.033	0.179	20	4	83%
156-60-5	TRANS-1,2-DICHLOROETHENE	0.0014	0.00059		0.00066	0.0074		0.0006		0.0019		14	2	55%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	0.0005										1	0	3%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	0.0052	0.0036	0.0044	0.0053	0.0075		0.00516	0.00521	0.00509	0.00481	22	4	90%
26523-64-8	TRICHLOROTRIFLUOROETHANE											7	0	24%
108-05-4	VINYL ACETATE											1	0	3%
75-01-4	VINYL CHLORIDE	0.0013			0.00069	0.0016			0.0008		0.00098	7	2	31%
1330-20-7	XYLENES, TOTAL		0.0048	0.0053		0.001					0.0016	10	1	38%
7440-66-6	ZINC											3	0	10%
7440-66-6	ZINC, DISSOLVED (AS ZN)											1	0	3%
7440-66-6	ZINC, TOTAL (AS ZN)											1	0	3%

Yellow shade indicates chemical was selected as a COPC based on 2009 - 2013 detections or historical detections
Concentration in mg/L

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984 Sampled Count	1984 Detect Count	**1984 Frequency**	1986 Sampled Count	1986 Detect Count	**1986 Frequency**	1987 Sampled Count	1987 Detect Count	**1987 Frequency**	1988 Sampled Count	1988 Detect Count	**1988 Frequency**	1989 Sampled Count	1989 Detect Count	**1989 Frequency**	1990 Sampled Count	1990 Detect Count	**1990 Frequency**
70300	(TDS) RESIDUE,TOTAL FILTRABLE (DRIED AT 180C)													3	3	1			
630-20-6	1,1,1,2-Tetrachloroethane																		
71-55-6	1,1,1-TCA	7	1	14.29%	5	2	40.00%	3	3	100.00%	5	2	40.00%	13	5	38.46%	8	5	62.50%
79-34-5	1,1,2,2-Tetrachloroethane							3	0	0.00%	3	0	0.00%	10	1	10.00%	8	0	0.00%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (Freon 113)																		
79-00-5	1,1,2-Trichloroethane							3	0	0.00%	3	0	0.00%	10	0	0.00%	8	0	0.00%
75-34-3	1,1-DCA	7	7	100.00%	4	2	50.00%	1	1	100.00%	5	1	20.00%	13	7	53.85%	8	4	50.00%
75-35-4	1,1-DCE	3	2	66.67%	4	2	50.00%	2	2	100.00%	5	4	80.00%	13	9	69.23%	8	8	100.00%
78-99-9	1,1-DICHLOROPROPANE																		
563-58-6	1,1-Dichloropropene																		
12+14DCB	1,2-&1,4-Dichlorobenzene													7	0	0	5	1	0.2
87-61-6	1,2,3-Trichlorobenzene				2	0	0.00%	1	0	0.00%				1	0	0.00%			
96-18-4	1,2,3-Trichloropropane																		
120-82-1	1,2,4-Trichlorobenzene																		
95-63-6	1,2,4-Trimethylbenzene																		
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	1	0	0.00%	3	0	0.00%	2	0	0.00%				5	0	0.00%	3	0	0.00%
106-93-4	1,2-Dibromoethane (EDB)				2	0	0.00%	3	0	0.00%									
95-50-1	1,2-Dichlorobenzene										3	0	0.00%	1	0	0.00%	3	0	0.00%
107-06-2	1,2-Dichloroethane	2	0	0.00%	5	2	40.00%	2	0	0.00%	4	0	0.00%	10	6	60.00%	8	6	75.00%
540-59-0	1,2-Dichloroethene(Acetylene Dichloride)										3	1	0.333333333	11	8	0.727272727	8	4	0.5
78-87-5	1,2-Dichloropropane							1	0	0.00%	3	0	0.00%	10	0	0.00%	8	0	0.00%
108-67-8	1,3,5-Trimethylbenzene				3	0	0.00%	2	0	0.00%				4	0	0.00%	3	0	0.00%
541-73-1	1,3-Dichlorobenzene				1	0	0.00%	1	0	0.00%	3	0	0.00%	7	0	0.00%	5	0	0.00%
142-28-9	1,3-Dichloropropane	1	0	0.00%	1	0	0.00%							4	0	0.00%	3	0	0.00%
542-75-6	1,3-DICHLOROPROPENE, TOTAL WATER																		
106-46-7	1,4-Dichlorobenzene				3	0	0.00%	3	0	0.00%	3	0	0.00%	6	0	0.00%	5	0	0.00%
123-91-1	1,4-Dioxane																		
288-88-0	1H-1,2,4-TRIAZOL-3-AMINE, TOTAL WATER																		
95-49-8	1-METHYL-2-CHLOROBENZENE (2-Chlorotoluene)																		
594-20-7	2,2-Dichloropropane																		
94-75-7	2,4-D IN WHOLE WATER SAMPLE																		
110-75-8	2-Chloroethyl Vinyl Ether				2	1	0.5	3	0	0				6	0	0	6	0	0
591-78-6	2-Hexanone																		
51-52-5	4(1H)PYRIMIDINONE, 2,3-DIHYDRO6PROP2THIOXO,TOT WTR																		
106-43-4	4-Chlorotoluene																		
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)																		
67-64-1	Acetone																		
15972-60-8	ALACHLOR WHOLE WATER																		
56-41-7	ALANINE (NO MERCK)																		
116-06-3	ALDICARB IN WHOLE WATER																		
ALKC	Alkalinity, (as CaCo3)																		
471-34-1	ALKALINITY, BICARBONATE (AS CACO3)													5	5	1			
471-34-1	ALKALINITY, CARBONATE (AS CACO3)													5	0	0			
471-34-1	Alkalinity, Hydroxide (as CaCo3)													5	0	0			
471-34-1	Alkalinity, Total (as CaCo3)													4	4	1			
834-12-8	AMETRYN, WATER, DISSOLVED																		
834-12-8	AMETRYNE (GESAPAX OR EVIK) TOTAL																		
7440-36-0	ANTIMONY, DISSOLVED (AS SB)																		
7440-36-0	ANTIMONY, TOTAL (AS SB)																		
7440-38-2	Arsenic																		
7440-38-2	ARSENIC, DISSOLVED (AS AS)																		
7440-38-2	ARSENIC, TOTAL (AS AS)																		
1912-24-9	ATRAZINE IN WHOLE WATER SAMPLE																		
7440-39-3	Barium																		
7440-39-3	BARIUM, DISSOLVED (AS BA)																		
7440-39-3	BARIUM, TOTAL (AS BA)																		
71-43-2	Benzene										3	1	33.33%	10	1	10.00%	8	1	12.50%
65-85-0	BENZOIC ACID WHOLE WATER																		
7440-41-7	BERYLLIUM, DISSOLVED (AS BE)																		
7440-41-7	BERYLLIUM, TOTAL (AS BE)																		
71-52-3	Bicarbonate																		
35400-43-2	BOLSTAR, TOTAL WATER (SULPROFOS)																		
314-40-9	BROMACIL (HYVAR) IN WATER																		
108-86-1	Bromobenzene													5	0	0.00%	3	0	0.00%

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984 Sampled Count	1984 Detect Count	**1984 Frequency**	1986 Sampled Count	1986 Detect Count	**1986 Frequency**	1987 Sampled Count	1987 Detect Count	**1987 Frequency**	1988 Sampled Count	1988 Detect Count	**1988 Frequency**	1989 Sampled Count	1989 Detect Count	**1989 Frequency**	1990 Sampled Count	1990 Detect Count	**1990 Frequency**
75-27-4	Bromodichloromethane										3	0	0.00%	6	0	0.00%	5	0	0.00%
75-25-2	Bromoform										3	0	0.00%	10	0	0.00%	8	0	0.00%
74-83-9	Bromomethane				2	0	0.00%	3	0	0.00%	3	0	0.00%	10	0	0.00%	8	0	0.00%
2008-41-5	BUTYLATE, WHOLE WATER																		
7440-43-9	Cadmium																		
7440-43-9	CADMIUM, DISSOLVED (AS CD)																		
7440-43-9	CADMIUM, TOTAL (AS CD)																		
7440-70-2	Calcium																		
7440-70-2	CALCIUM, DISSOLVED (AS CA)													1	1	1			
7440-70-2	CALCIUM, TOTAL (AS CA)													3	3	1			
133-06-2	CAPTAN IN WHOLE WATER SAMPLE																		
63-25-2	CARBARYL WHOLE WATER																		
1563-66-2	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE																		
75-15-0	Carbon Disulfide							3	0	0.00%				5	0	0.00%	3	0	0.00%
56-23-5	Carbon Tetrachloride	1	1	100.00%	5	0	0.00%	3	0	0.00%	3	0	0.00%	10	0	0.00%	8	1	12.50%
5234-68-4	CARBOXIN, WHOLE WATER																		
16887-00-6	Chloride													4	4	1			
108-90-7	Chlorobenzene	1	0	0.00%							3	0	0.00%	6	0	0.00%	5	0	0.00%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)							3	0	0.00%				5	0	0.00%	3	0	0.00%
124-48-1	Chlorodibromomethane (Dibromochloromethane)										3	0	0.00%	6	0	0.00%	5	0	0.00%
75-00-3	Chloroethane										3	0	0.00%	6	0	0.00%	5	0	0.00%
67-66-3	Chloroform	5	0	0.00%	5	2	40.00%	3	2	66.67%	4	1	25.00%	10	6	60.00%	8	7	87.50%
74-87-3	Chloromethane										3	0	0.00%	6	0	0.00%	5	0	0.00%
25168-05-2	CHLOROTOLUENE IN WATER																		
7440-47-3	Chromium																		
7440-47-3	Chromium, Dissolved				1	0	0.00%												
18540-29-9	Chromium, Hexavalent																		
7440-47-3	Chromium, Suspended																		
7440-47-3	Chromium, Total				4	0	0.00%	3	1	33.33%									
16065-83-1	Chromium, Trivalent																		
156-59-2	cis-1,2-DCE													1	0	0.00%			
10061-01-5	cis-1,3-Dichloropropene				3	0	0.00%	3	0	0.00%	3	0	0.00%	10	0	0.00%	8	0	0.00%
7440-50-8	Copper																		
7440-50-8	COPPER, DISSOLVED (AS CU)													1	0	0			
7440-50-8	COPPER, TOTAL (AS CU)													3	1	0.333333333			
21725-46-2	CYANAZINE IN THE WHOLE WATER SAMPLE																		
57-12-5	CYANIDE, TOTAL (AS CN)																		
1134-23-2	CYCLOATE (RONEET)																		
1897-45-6	DACONIL(C8CL4N2) IN WATER (CHLOROTHALONIL)																		
1861-32-1	DACTHAL (DCPA) IN WHOLE WATER SAMPLE																		
333-41-5	DIAZINON IN WHOLE WATER SAMPLE																		
1918-00-9	DICAMBA (BANVEL) TOTAL, WHOLE WATER																		
99-30-9	DICHLORAN, TOTAL WATER																		
75-71-8	Dichlorodifluoromethane (Freon 12)										3	0	0.00%	9	0	0.00%	8	0	0.00%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE																		
108-20-3	DIISOPROPYL ETHER WHL WATER SMPL UG/L																		
60-51-5	DIMETHOATE IN WHOLE WATER SAMPLE																		
957-51-7	DIPHENAMID IN WATER																		
330-54-1	DIURON IN WHOLE WATER SAMPLE																		
D016	DPX-M6316																		
115-29-7	ENDOSULFAN IN WHOLE WATER SAMPLE																		
759-94-4	EPTC (EPTAM) IN WHOLE WATER SAMPLE																		
13194-48-4	ETHOPROP IN THE WHOLE WATER SAMPLE																		
100-41-4	Ethylbenzene				2	0	0.00%				3	0	0.00%	6	1	16.67%	5	1	20.00%
22224-92-6	FENAMIPHOS(NEMACUR), WHOLE WATER SAMPLE																		
60168-88-9	FENARIMOL, TOTAL RECOVERABLE, WATER																		
7439-89-6	Ferrous Iron																		
70124-77-5	FLUCYTHRINATE (I)																		
2164-17-2	FLUOMETURON, TOTAL WATER																		
16984-48-8	Fluoride													4	4	1			
04100	FLURIDONE, TOTAL RECOVERABLE, WATER																		
58-89-9	GAMMA-BHC(LINDANE), WHOLE WATER																		
56-40-6	GLYCINE WHOLE WATER																		

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984 Sampled Count	1984 Detect Count	**1984 Frequency**	1986 Sampled Count	1986 Detect Count	**1986 Frequency**	1987 Sampled Count	1987 Detect Count	**1987 Frequency**	1988 Sampled Count	1988 Detect Count	**1988 Frequency**	1989 Sampled Count	1989 Detect Count	**1989 Frequency**	1990 Sampled Count	1990 Detect Count	**1990 Frequency**
86-50-0	GUTHION IN WHOLE WATER SAMPLE																		
HARD	Hardness (as CaCo3)																		
471-34-1	HARDNESS, TOTAL (AS CACO3)													3	3	1			
87-68-3	Hexachlorobutadiene																		
51235-04-2	HEXAZINONE																		
35554-44-0	IMAZALIL																		
732-11-6	IMIDAN IN WHOLE WATER SAMPLE (PHOSMET)																		
7439-89-6	Iron																		
7439-89-6	IRON (AS FE)																		
7439-89-6	IRON, DISSOLVED (AS FE)																		
7439-89-6	IRON, SUSPENDED (AS FE)																		
7439-89-6	Iron, Total													4	4	1			
42509-80-8	ISAZOPHOS																		
98-82-8	Isopropylbenzene																		
7439-92-1	Lead																		
7439-92-1	LEAD, DISSOLVED (AS PB)																		
7439-92-1	LEAD, TOTAL (AS PB)																		
330-55-2	LINURON, TOTAL WATER																		
179601-23-1	m,p-Xylenes										3	0	0.00%	1	0	0.00%			
7439-95-4	Magnesium																		
7439-95-4	MAGNESIUM, DISSOLVED (AS MG)													1	1	1			
7439-95-4	MAGNESIUM, TOTAL (AS MG)													3	3	1			
7439-96-5	Manganese																		
7439-96-5	MANGANESE, DISSOLVED (AS MN)													1	0	0			
7439-96-5	MANGANESE, TOTAL (AS MN)													3	2	0.666666667			
7439-97-6	Mercury																		
7439-97-6	MERCURY, DISSOLVED (AS HG)																		
7439-97-6	MERCURY, TOTAL (AS HG)																		
57837-19-1	METALAXYL, TOTAL, WATER																		
9003-91-9	METALDEHYDE (ACETALDEHYDE, TETRAMER)																		
2032-65-7	METHIOCARB, TOTAL WATER																		
16752-77-5	METHOMYL IN WHOLE WATER																		
78034	METHOXYCHLOROBISUREAMETHANE IN WATER UG/L																		
78-93-3	Methyl ethyl ketone (2-Butanone)													5	0	0.00%	3	0	0.00%
74-88-4	Methyl Iodide (Iodomethane)																		
108-10-1	Methyl isobutyl ketone (MIBK)							3	0	0.00%				5	0	0.00%	3	0	0.00%
298-00-0	METHYL PARATHION IN WHOLE WATER SAMPLE																		
1634-04-4	Methyl tert-Butyl Ether (MTBE)																		
61-73-4	METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.)													2	0	0			
74-95-3	Methylene Bromide (Dibromomethane)																		
75-09-2	Methylene chloride (Dichloromethane)	2	0	0.00%	2	1	50.00%				3	0	0.00%	6	1	16.67%	5	1	20.00%
51218-45-2	METOLACHLOR(DUAL) IN WHOLE WATER																		
21087-64-9	METRIBUZIN, WHOLE WATER, TOTAL RECOVERABLE																		
108-38-3	M-XYLENE IN THE WHOLE WATER SAMPLE													1	0	0			
99907	MYCLOBUTANIL																		
91-20-3	Naphthalene																		
1529-99-9	NAPROPAMIDE, WATER, WHOLE																		
104-51-8	n-Butylbenzene																		
7440-02-0	Nickel																		
7440-02-0	NICKEL, DISSOLVED (AS NI)																		
7440-02-0	NICKEL, TOTAL (AS NI)																		
17778-88-0	NITRATE NITROGEN, TOTAL (AS N)													4	4	1			
14797-55-8	Nitrate-N																		
14797-65-0	Nitrite as N																		
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (AS N)																		
27314-13-2	NORFLURAZON IN WATER																		
26225-79-6	NORTRON (ETHOFUMESATE, TRAMAT), WATER, WHOLE																		
103-65-1	n-Propylbenzene																		
23135-22-0	OXAMYL, TOTAL WATER																		
95-47-6	o-Xylene										3	0	0.00%						
50-29-3	P,P'DDT IN WHOLE WATER SAMPLE (4,4'-DDT)																		
56-38-2	PARATHION IN WHOLE WATER SAMPLE																		
127-18-4	PCE	8	2	25.00%	5	5	100.00%	3	3	100.00%	5	4	80.00%	13	11	84.62%	8	7	87.50%

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PHOENIX, ARIZONA

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1114-71-2	PEBULATE, WATER, WHOLE																		
5264-55-3	PERMETHRIN (I) IN WHOLE WATER																		
103-82-2	PHENYLACETIC ACID WHOLE WATER																		
7786-34-7	PHOSDRIN IN WHOLE WATER SAMPLE (MEVINPHOS)																		
13171-21-6	PHOSPHAMIDON (I) (DIMECRON), WHOLE WATER																		
7723-14-0	PHOSPHORUS, TOTAL (AS P)																		
51-03-6	PIPERONYL BUTOXIDE																		
7440-09-7	Potassium																		
7440-09-7	POTASSIUM, DISSOLVED (AS K)													2	2	1			
7440-09-7	POTASSIUM, TOTAL (AS K)													3	3	1			
41198-08-7	PROFENOFOS TOTAL																		
1610-18-0	PROMETONE IN WHOLE WATER (PROMETON)																		
7287-19-6	PROMETRYNE IN WHOLE WATER (PROMETRYN)																		
23950-58-5	PRONAMIDE IN WATER, TOTAL WATER																		
79241-46-6	PROPANOIC ACID, 2-HYDROXY-,BUTYL ESTER (FLUAZIFOP-P-BUTYL)																		
60207-90-1	PROPICONAZOLE (I) (TILT),TOTAL,WATER																		
D038	P-XYLENE + O-XYLENE, TOTAL, WHOLE WATER SAMPLE													1	0	0			
1698-60-8	PYRAMIN (PYRAZON, CHLORIDAZON), WATER, WHOLE																		
135-98-8	sec-Butylbenzene													5	0	0.00%	3	0	0.00%
7782-49-2	Selenium																		
7782-49-2	SELENIUM, DISSOLVED (AS SE)																		
7782-49-2	SELENIUM, TOTAL (AS SE)																		
74051-80-2	SETHOXYDIM (POAST), DISSOLVED, WATER																		
7440-22-4	Silver																		
7440-22-4	SILVER, DISSOLVED (AS AG)																		
7440-22-4	SILVER, TOTAL (AS AG)																		
122-34-9	SIMAZINE IN WHOLE WATER																		
7440-23-5	Sodium																		
7440-23-5	SODIUM, DISSOLVED (AS NA)													1	1	1			
7440-23-5	SODIUM, TOTAL (AS NA)													3	3	1			
100-42-5	Styrene							3	0	0.00%				5	0	0.00%	3	0	0.00%
14808-79-8	Sulfate													4	4	1			
74222-97-2	SULFOMETURON METHYL																		
79-01-6	TCE	8	4	50.00%	4	4	100.00%	3	3	100.00%	5	4	80.00%	13	11	84.62%	8	8	100.00%
34014-18-1	TEBUTHIURON (GRASLAN, SPIKE), WATER WHOLE																		
5902-51-2	TERBACIL																		
13071-79-9	TERBUFOS (COUNTER) TOTAL, WHOLE WATER																		
98-06-6	tert-Butylbenzene													5	0	0.00%	3	0	0.00%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE													1	1	1			
51707-55-2	THIDIAZURON TOTAL																		
7440-31-5	TIN, DISSOLVED (AS SN)																		
7440-31-5	TIN, TOTAL (AS SN)																		
108-88-3	Toluene				2	0	0.00%				3	0	0.00%	6	1	16.67%	5	1	20.00%
TDS	Total Dissolved Solids																		
7440-44-0	Total Organic Content																		
TTHM TOT	Total Trihalomethanes																3	3	100.00%
TPH RECOVER	TPH, Recoverable																		
156-60-5	trans-1,2-Dichloroethene	4	2	50.00%	5	3	60.00%	3	0	0.00%	1	0	0.00%	3	2	66.67%	3	0	0.00%
10061-02-6	trans-1,3-Dichloropropene										3	0	0.00%	6	0	0.00%	5	0	0.00%
110-57-6	TRANS-1,4-DICHLORO-2-BUTENE																		
43121-43-3	TRIADIMEFON, TOTAL WATER																		
75-69-4	Trichlorofluoromethane (Freon 11)	4	2	50.00%	5	4	80.00%				4	0	0.00%	10	3	30.00%	8	3	37.50%
25735-29-9	TRICHLOROPROPANE WHOLE WATER																		
26523-64-8	Trichlorotrifluoroethane													9	4	0.444444444	5	1	0.2
1929-77-7	VERNAM (S-PROPYLDIPROPYLTHIOCARBAMATE)																		
50471-44-8	VINCLOZOLIN (RONILAN) TOTAL																		
108-05-4	Vinyl Acetate				3	0	0.00%	2	0	0.00%									
75-01-4	Vinyl Chloride										3	0	0.00%	6	0	0.00%	5	0	0.00%
1330-20-7	Xylenes, Total				2	0	0.00%							4	1	25.00%	5	1	20.00%
7440-66-6	Zinc																		
7440-66-6	ZINC, DISSOLVED (AS ZN)													2	1	0.5			
7440-66-6	ZINC, TOTAL (AS ZN)													3	2	0.666666667			

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	1992 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	199 Detect Count	**1993 Frequency**	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1995 Sampled Count	1995 Detect Count	**1995 Frequency**	1996 Sampled Count	1996 Detect Count	**1996 Frequency**
70300	(TDS) RESIDUE,TOTAL FILTRABLE (DRIED AT 180C)																		
630-20-6	1,1,1,2-Tetrachloroethane										2	0	0.00%						
71-55-6	1,1,1-TCA	16	9	56.25%	10	9	90.00%	14	13	92.86%	53	20	37.74%	53	6	11.32%	49	7	14.29%
79-34-5	1,1,2,2-Tetrachloroethane	16	0	0.00%	9	0	0.00%	8	0	0.00%	53	1	1.89%	53	3	5.66%	49	1	2.04%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (Freon 113)										15	9	0.6	15	5	0.333333333	15	8	0.533333333
79-00-5	1,1,2-Trichloroethane	16	0	0.00%	9	1	11.11%	8	0	0.00%	53	5	9.43%	53	0	0.00%	49	0	0.00%
75-34-3	1,1-DCA	16	6	37.50%	10	10	100.00%	14	13	92.86%	53	32	60.38%	53	18	33.96%	49	18	36.73%
75-35-4	1,1-DCE	16	13	81.25%	10	10	100.00%	14	14	100.00%	53	41	77.36%	53	35	66.04%	49	29	59.18%
78-99-9	1,1-DICHLOROPROPANE																		
563-58-6	1,1-Dichloropropene										2	0	0.00%						
12+14DCB	1,2-&1,4-Dichlorobenzene	13	0	0	9	1	0.111111111	8	0	0	28	1	0.035714286	2	0	0			
87-61-6	1,2,3-Trichlorobenzene										2	0	0.00%						
96-18-4	1,2,3-Trichloropropane										2	0	0.00%						
120-82-1	1,2,4-Trichlorobenzene										2	0	0.00%						
95-63-6	1,2,4-Trimethylbenzene										2	0	0.00%						
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2	0	0.00%				1	0	0.00%	4	0	0.00%						
106-93-4	1,2-Dibromoethane (EDB)							1	0	0.00%	5	0	0.00%						
95-50-1	1,2-Dichlorobenzene	11	0	0.00%	8	0	0.00%				26	0	0.00%	38	0	0.00%	34	0	0.00%
107-06-2	1,2-Dichloroethane	16	10	62.50%	9	9	100.00%	9	7	77.78%	53	16	30.19%	53	5	9.43%	49	5	10.20%
540-59-0	1,2-Dichloroethene(Acetylene Dichloride)	13	1	0.076923077	10	10	1	9	8	0.888888889	30	23	0.766666667	3	1	0.333333333	11	3	0.272727273
78-87-5	1,2-Dichloropropane	16	0	0.00%	9	0	0.00%	8	0	0.00%	39	0	0.00%	38	0	0.00%	34	0	0.00%
108-67-8	1,3,5-Trimethylbenzene	2	0	0.00%							2	0	0.00%						
541-73-1	1,3-Dichlorobenzene	16	0	0.00%	9	0	0.00%	8	0	0.00%	39	0	0.00%	38	0	0.00%	34	0	0.00%
142-28-9	1,3-Dichloropropane	2	0	0.00%							2	0	0.00%						
542-75-6	1,3-DICHLOROPROPENE, TOTAL WATER										1	0	0						
106-46-7	1,4-Dichlorobenzene	13	0	0.00%	8	0	0.00%				26	0	0.00%	38	0	0.00%	34	0	0.00%
123-91-1	1,4-Dioxane																		
288-88-0	1H-1,2,4-TRIAZOL-3-AMINE, TOTAL WATER							1	0	0	2	0	0						
95-49-8	1-METHYL-2-CHLOROBENZENE (2-Chlorotoluene)										2	0	0.00%						
594-20-7	2,2-Dichloropropane										2	0	0.00%						
94-75-7	2,4-D IN WHOLE WATER SAMPLE							1	0	0									
110-75-8	2-Chloroethyl Vinyl Ether	16	0	0	9	0	0	8	0	0	38	0	0	38	0	0	34	0	0
591-78-6	2-Hexanone																		
51-52-5	4(1H)PYRIMIDINONE, 2,3-DIHYDRO6PROP2THIOXO,TOT WTR							1	0	0	2	0	0						
106-43-4	4-Chlorotoluene																		
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)										2	0	0.00%						
67-64-1	Acetone										1	0	0.00%						
15972-60-8	ALACHLOR WHOLE WATER							1	0	0	2	0	0						
56-41-7	ALANINE (NO MERCK)							1	0	0	2	0	0						
116-06-3	ALDICARB IN WHOLE WATER							1	0	0	2	0	0						
ALKC	Alkalinity, (as CaCo3)	3	0	0	3	0	0	2	0	0									
471-34-1	ALKALINITY, BICARBONATE (AS CACO3)																		
471-34-1	ALKALINITY, CARBONATE (AS CACO3)																		
471-34-1	Alkalinity, Hydroxide (as CaCo3)	3	0	0	3	1	0.333333333	2	0	0									
471-34-1	Alkalinity, Total (as CaCo3)	3	3	1	3	3	1	2	2	1									
834-12-8	AMETRYN, WATER, DISSOLVED							1	0	0	2	0	0						
834-12-8	AMETRYNE (GESAPAX OR EVIK) TOTAL																		
7440-36-0	ANTIMONY, DISSOLVED (AS SB)																		
7440-36-0	ANTIMONY, TOTAL (AS SB)																1	0	0
7440-38-2	Arsenic	3	0	0	3	3	1	2	2	1									
7440-38-2	ARSENIC, DISSOLVED (AS AS)																		
7440-38-2	ARSENIC, TOTAL (AS AS)																1	1	1
1912-24-9	ATRAZINE IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
7440-39-3	Barium	3	0	0	3	0	0	2	2	1									
7440-39-3	BARIUM, DISSOLVED (AS BA)																		
7440-39-3	BARIUM, TOTAL (AS BA)																1	1	1
71-43-2	Benzene	16	1	6.25%	9	1	11.11%	8	0	0.00%	39	10	25.64%	38	3	7.89%	34	7	20.59%
65-85-0	BENZOIC ACID WHOLE WATER							1	0	0	2	0	0						
7440-41-7	BERYLLIUM, DISSOLVED (AS BE)																		
7440-41-7	BERYLLIUM, TOTAL (AS BE)																1	0	0
71-52-3	Bicarbonate	3	3	1	3	3	1	2	2	1									
35400-43-2	BOLSTAR, TOTAL WATER (SULPROFOS)							1	0	0	2	0	0						
314-40-9	BROMACIL (HYVAR) IN WATER							1	0	0	2	0	0						
108-86-1	Bromobenzene	2	0	0.00%							2	0	0.00%						

TABLE A-4
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WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	1992 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	199 Detect Count	**1993 Frequency**	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1995 Sampled Count	1995 Detect Count	**1995 Frequency**	1996 Sampled Count	1996 Detect Count	**1996 Frequency**
75-27-4	Bromodichloromethane	14	7	50.00%	9	7	77.78%	8	0	0.00%	53	11	20.75%	53	7	13.21%	49	10	20.41%
75-25-2	Bromoform	16	0	0.00%	9	0	0.00%	8	0	0.00%	53	1	1.89%	53	5	9.43%	49	2	4.08%
74-83-9	Bromomethane	16	0	0.00%	9	0	0.00%	8	0	0.00%	39	1	2.56%	38	0	0.00%	34	0	0.00%
2008-41-5	BUTYLATE, WHOLE WATER							1	0	0	2	0	0						
7440-43-9	Cadmium	3	0	0	3	0	0	2	0	0									
7440-43-9	CADMIUM, DISSOLVED (AS CD)																		
7440-43-9	CADMIUM, TOTAL (AS CD)																1	0	0
7440-70-2	Calcium	3	3	1	3	3	1	2	2	1									
7440-70-2	CALCIUM, DISSOLVED (AS CA)																		
7440-70-2	CALCIUM, TOTAL (AS CA)																		
133-06-2	CAPTAN IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
63-25-2	CARBARYL WHOLE WATER							1	0	0	2	0	0						
1563-66-2	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE							1	0	0	2	0	0						
75-15-0	Carbon Disulfide	2	0	0.00%															
56-23-5	Carbon Tetrachloride	16	3	18.75%	9	1	11.11%	8	0	0.00%	53	7	13.21%	53	5	9.43%	49	0	0.00%
5234-68-4	CARBOXIN, WHOLE WATER							1	0	0	2	0	0						
16887-00-6	Chloride	3	3	1	3	3	1	2	2	1									
108-90-7	Chlorobenzene	14	6	42.86%	9	6	66.67%	8	0	0.00%	53	2	3.77%	53	1	1.89%	49	0	0.00%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	2	0	0.00%							2	0	0.00%						
124-48-1	Chlorodibromomethane (Dibromochloromethane)	15	0	0.00%	9	0	0.00%	8	0	0.00%	39	6	15.38%	38	9	23.68%	34	8	23.53%
75-00-3	Chloroethane	14	0	0.00%	9	0	0.00%	8	0	0.00%	39	0	0.00%	38	0	0.00%	34	0	0.00%
67-66-3	Chloroform	16	11	68.75%	9	9	100.00%	9	9	100.00%	53	39	73.58%	53	36	67.92%	49	37	75.51%
74-87-3	Chloromethane	14	0	0.00%	9	1	11.11%	8	0	0.00%	39	7	17.95%	38	0	0.00%	34	0	0.00%
25168-05-2	CHLOROTOLUENE IN WATER										2	0	0						
7440-47-3	Chromium													2	1	50.00%	2	1	50.00%
7440-47-3	Chromium, Dissolved																		
18540-29-9	Chromium, Hexavalent										4	2	50.00%	2	1	50.00%	5	3	60.00%
7440-47-3	Chromium, Suspended																		
7440-47-3	Chromium, Total	3	0	0.00%	3	2	66.67%	2	2	100.00%	4	2	50.00%				6	5	83.33%
16065-83-1	Chromium, Trivalent													2	0	0.00%	2	1	50.00%
156-59-2	cis-1,2-DCE							5	3	60.00%	40	25	62.50%	52	25	48.08%	49	25	51.02%
10061-01-5	cis-1,3-Dichloropropene	16	0	0.00%	9	0	0.00%	8	0	0.00%	39	0	0.00%	38	0	0.00%	34	0	0.00%
7440-50-8	Copper	3	0	0	3	1	0.333333333	2	0	0									
7440-50-8	COPPER, DISSOLVED (AS CU)																		
7440-50-8	COPPER, TOTAL (AS CU)																1	1	1
21725-46-2	CYANAZINE IN THE WHOLE WATER SAMPLE							1	0	0	2	0	0						
57-12-5	CYANIDE, TOTAL (AS CN)																		
1134-23-2	CYCLOATE (RONEET)							1	0	0	2	0	0						
1897-45-6	DACONIL(C8CL4N2) IN WATER (CHLOROTHALONIL)							1	0	0	2	0	0						
1861-32-1	DACTHAL (DCPA) IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
333-41-5	DIAZINON IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
1918-00-9	DICAMBA (BANVEL) TOTAL, WHOLE WATER							1	0	0									
99-30-9	DICHLORAN, TOTAL WATER							1	0	0	2	0	0						
75-71-8	Dichlorodifluoromethane (Freon 12)	15	8	53.33%	9	8	88.89%	8	8	100.00%	53	18	33.96%	46	5	10.87%	49	9	18.37%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE										1	1	1						
108-20-3	DIISOPROPYL ETHER WHL WATER SMPL UG/L																		
60-51-5	DIMETHOATE IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
957-51-7	DIPHENAMID IN WATER							1	0	0	2	0	0						
330-54-1	DIURON IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
D016	DPX-M6316							1	0	0	2	0	0						
115-29-7	ENDOSULFAN IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
759-94-4	EPTC (EPTAM) IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
13194-48-4	ETHOPROP IN THE WHOLE WATER SAMPLE							1	0	0	2	0	0						
100-41-4	Ethylbenzene	14	0	0.00%	9	1	11.11%	8	0	0.00%	39	11	28.21%	38	3	7.89%	35	2	5.71%
22224-92-6	FENAMIPHOS(NEMACUR), WHOLE WATER SAMPLE							1	0	0	2	0	0						
60168-88-9	FENARIMOL, TOTAL RECOVERABLE, WATER							1	0	0	2	0	0						
7439-89-6	Ferrous Iron																		
70124-77-5	FLUCYTHRINATE (I)																		
2164-17-2	FLUOMETURON, TOTAL WATER							1	0	0	2	0	0						
16984-48-8	Fluoride	3	3	1	3	3	1	2	2	1									
04100	FLURIDONE, TOTAL RECOVERABLE, WATER																		
58-89-9	GAMMA-BHC(LINDANE), WHOLE WATER							1	0	0	2	0	0						
56-40-6	GLYCINE WHOLE WATER							1	0	0	2	0	0						

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	1992 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	199 Detect Count	**1993 Frequency**	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1995 Sampled Count	1995 Detect Count	**1995 Frequency**	1996 Sampled Count	1996 Detect Count	**1996 Frequency**
86-50-0	GUTHION IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
HARD	Hardness (as CaCo3)				3	3	1	2	2	1									
471-34-1	HARDNESS, TOTAL (AS CACO3)																		
87-68-3	Hexachlorobutadiene										2	0	0.00%						
51235-04-2	HEXAZINONE							1	0	0	2	0	0						
35554-44-0	IMAZALIL							1	0	0	2	0	0						
732-11-6	IMIDAN IN WHOLE WATER SAMPLE (PHOSMET)							1	0	0	2	0	0						
7439-89-6	Iron	3	2	0.666666667	3	3	1	2	2	1									
7439-89-6	IRON (AS FE)																		
7439-89-6	IRON, DISSOLVED (AS FE)																		
7439-89-6	IRON, SUSPENDED (AS FE)																		
7439-89-6	Iron, Total																		
42509-80-8	ISAZOPHOS																		
98-82-8	Isopropylbenzene										2	0	0.00%						
7439-92-1	Lead	3	2	0.666666667	3	1	0.333333333	2	1	0.5									
7439-92-1	LEAD, DISSOLVED (AS PB)																		
7439-92-1	LEAD, TOTAL (AS PB)																1	0	0
330-55-2	LINURON, TOTAL WATER							1	0	0	2	0	0						
179601-23-1	m,p-Xylenes										25	8	32.00%	3	1	33.33%	2	2	100.00%
7439-95-4	Magnesium	3	3	1	3	3	1	2	2	1									
7439-95-4	MAGNESIUM, DISSOLVED (AS MG)																		
7439-95-4	MAGNESIUM, TOTAL (AS MG)																		
7439-96-5	Manganese	3	2	0.666666667	3	0	0	2	0	0									
7439-96-5	MANGANESE, DISSOLVED (AS MN)																		
7439-96-5	MANGANESE, TOTAL (AS MN)																		
7439-97-6	Mercury	3	0	0	3	0	0	2	0	0									
7439-97-6	MERCURY, DISSOLVED (AS HG)																		
7439-97-6	MERCURY, TOTAL (AS HG)																		
57837-19-1	METALAXYL, TOTAL, WATER																		
9003-91-9	METALDEHYDE (ACETALDEHYDE, TETRAMER)							1	0	0	2	0	0						
2032-65-7	METHIOCARB, TOTAL WATER							1	0	0									
16752-77-5	METHOMYL IN WHOLE WATER							1	0	0	2	0	0						
78034	METHOXYCHLOROBISUREAMETHANE IN WATER UG/L																		
78-93-3	Methyl ethyl ketone (2-Butanone)	2	0	0.00%															
74-88-4	Methyl Iodide (Iodomethane)																		
108-10-1	Methyl isobutyl ketone (MIBK)	2	0	0.00%															
298-00-0	METHYL PARATHION IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
1634-04-4	Methyl tert-Butyl Ether (MTBE)							8	8	100.00%	8	6	75.00%						
61-73-4	METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.)																		
74-95-3	Methylene Bromide (Dibromomethane)																		
75-09-2	Methylene chloride (Dichloromethane)	14	3	21.43%	9	8	88.89%	8	0	0.00%	38	1	2.63%	38	0	0.00%	34	1	2.94%
51218-45-2	METOLACHLOR(DUAL) IN WHOLE WATER							1	0	0	2	0	0						
21087-64-9	METRIBUZIN, WHOLE WATER, TOTAL RECOVERABLE							1	0	0	2	0	0						
108-38-3	M-XYLENE IN THE WHOLE WATER SAMPLE																		
99907	MYCLOBUTANIL							1	0	0	2	0	0						
91-20-3	Naphthalene										2	0	0.00%						
1529-99-9	NAPROPAMIDE, WATER, WHOLE							1	0	0	2	0	0						
104-51-8	n-Butylbenzene										2	0	0.00%						
7440-02-0	Nickel																		
7440-02-0	NICKEL, DISSOLVED (AS NI)																		
7440-02-0	NICKEL, TOTAL (AS NI)																		
17778-88-0	NITRATE NITROGEN, TOTAL (AS N)																2	2	1
14797-55-8	Nitrate-N	3	1	0.333333333	3	3	1	2	2	1									
14797-65-0	Nitrite as N				3	0	0										2	0	0
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (AS N)																2	2	1
27314-13-2	NORFLURAZON IN WATER							1	0	0	2	0	0						
26225-79-6	NORTRON (ETHOFUMESATE, TRAMAT), WATER, WHOLE							1	0	0	2	0	0						
103-65-1	n-Propylbenzene										2	0	0.00%						
23135-22-0	OXAMYL, TOTAL WATER							1	0	0	2	0	0						
95-47-6	o-Xylene										24	9	37.50%	3	1	33.33%	2	1	50.00%
50-29-3	P,P'DDT IN WHOLE WATER SAMPLE (4,4'-DDT)							1	0	0									
56-38-2	PARATHION IN WHOLE WATER SAMPLE							1	0	0	2	0	0						
127-18-4	PCE	16	14	87.50%	10	10	100.00%	14	14	100.00%	53	50	94.34%	53	48	90.57%	49	45	91.84%

TABLE A-4
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WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	1992 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	199 Detect Count	**1993 Frequency**	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1995 Sampled Count	1995 Detect Count	**1995 Frequency**	1996 Sampled Count	1996 Detect Count	**1996 Frequency**
1114-71-2	PEBULATE, WATER, WHOLE							1	0	0	2	0	0						
5264-55-3	PERMETHRIN (I) IN WHOLE WATER							1	0	0	2	0	0						
103-82-2	PHENYLACETIC ACID WHOLE WATER							1	0	0	2	0	0						
7786-34-7	PHOSDRIN IN WHOLE WATER SAMPLE (MEVINPHOS)							1	0	0	2	0	0						
13171-21-6	PHOSPHAMIDON (I) (DIMECRON), WHOLE WATER							1	0	0	2	0	0						
7723-14-0	PHOSPHORUS, TOTAL (AS P)																		
51-03-6	PIPERONYL BUTOXIDE							1	0	0	2	0	0						
7440-09-7	Potassium	3	2	0.666666667	3	3	1	2	2	1									
7440-09-7	POTASSIUM, DISSOLVED (AS K)																		
7440-09-7	POTASSIUM, TOTAL (AS K)																		
41198-08-7	PROFENOFOS TOTAL							1	0	0	2	0	0						
1610-18-0	PROMETONE IN WHOLE WATER (PROMETON)							1	0	0	2	0	0						
7287-19-6	PROMETRYNE IN WHOLE WATER (PROMETRYN)							1	0	0	2	0	0						
23950-58-5	PRONAMIDE IN WATER, TOTAL WATER							1	0	0	2	0	0						
79241-46-6	PROPANOIC ACID, 2-HYDROXY-,BUTYL ESTER (FLUAZIFOP-P-BUTYL)							1	0	0	2	0	0						
60207-90-1	PROPICONAZOLE (I) (TILT),TOTAL,WATER							1	0	0	2	0	0						
D038	P-XYLENE + O-XYLENE, TOTAL, WHOLE WATER SAMPLE																		
1698-60-8	PYRAMIN (PYRAZON, CHLORIDAZON), WATER, WHOLE							1	0	0	2	0	0						
135-98-8	sec-Butylbenzene	2	0	0.00%							2	0	0.00%						
7782-49-2	Selenium	3	0	0	3	0	0	2	0	0									
7782-49-2	SELENIUM, DISSOLVED (AS SE)																		
7782-49-2	SELENIUM, TOTAL (AS SE)																		
74051-80-2	SETHOXYDIM (POAST), DISSOLVED, WATER							1	0	0	2	0	0						
7440-22-4	Silver	3	0	0	3	0	0	2	0	0									
7440-22-4	SILVER, DISSOLVED (AS AG)																		
7440-22-4	SILVER, TOTAL (AS AG)																		
122-34-9	SIMAZINE IN WHOLE WATER							1	0	0	2	0	0						
7440-23-5	Sodium	3	3	1	3	3	1	2	2	1									
7440-23-5	SODIUM, DISSOLVED (AS NA)																		
7440-23-5	SODIUM, TOTAL (AS NA)																		
100-42-5	Styrene	2	0	0.00%							2	0	0.00%						
14808-79-8	Sulfate	3	3	1	3	3	1	2	2	1									
74222-97-2	SULFOMETURON METHYL																		
79-01-6	TCE	16	13	81.25%	10	10	100.00%	14	14	100.00%	53	50	94.34%	53	41	77.36%	49	40	81.63%
34014-18-1	TEBUTHIURON (GRASLAN, SPIKE), WATER WHOLE							1	0	0	2	0	0						
5902-51-2	TERBACIL							1	0	0	2	0	0						
13071-79-9	TERBUFOS (COUNTER) TOTAL, WHOLE WATER							1	0	0	2	0	0						
98-06-6	tert-Butylbenzene	2	0	0.00%							2	0	0.00%						
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE																		
51707-55-2	THIDIAZURON TOTAL							1	0	0	2	0	0						
7440-31-5	TIN, DISSOLVED (AS SN)																		
7440-31-5	TIN, TOTAL (AS SN)																		
108-88-3	Toluene	14	3	21.43%	9	6	66.67%	8	1	12.50%	53	12	22.64%	53	3	5.66%	49	11	22.45%
TDS	Total Dissolved Solids	3	3	1	3	3	1	2	2	1									
7440-44-0	Total Organic Content																		
TTHM TOT	Total Trihalomethanes	11	7	63.64%	8	6	75.00%												
TPH RECOVER	TPH, Recoverable	7	0	0	7	0	0												
156-60-5	trans-1,2-Dichloroethene	11	0	0.00%	8	4	50.00%				40	0	0.00%	53	0	0.00%	49	0	0.00%
10061-02-6	trans-1,3-Dichloropropene	14	0	0.00%	9	0	0.00%	8	0	0.00%	39	0	0.00%	38	0	0.00%	34	0	0.00%
110-57-6	TRANS-1,4-DICHLORO-2-BUTENE																		
43121-43-3	TRIADIMEFON, TOTAL WATER							1	0	0	2	0	0						
75-69-4	Trichlorofluoromethane (Freon 11)	16	5	31.25%	9	8	88.89%	9	4	44.44%	52	17	32.69%	53	10	18.87%	49	12	24.49%
25735-29-9	TRICHLOROPROPANE WHOLE WATER																		
26523-64-8	Trichlorotrifluoroethane	13	8	0.615384615	9	8	0.888888889	9	8	0.888888889	30	6	0.2	26	4	0.153846154	13	0	0
1929-77-7	VERNAM (S-PROPYLDIPROPYLTHIOCARBAMATE)							1	0	0	2	0	0						
50471-44-8	VINCLOZOLIN (RONILAN) TOTAL							1	0	0	2	0	0						
108-05-4	Vinyl Acetate																		
75-01-4	Vinyl Chloride	14	0	0.00%	9	7	77.78%	8	0	0.00%	52	0	0.00%	53	2	3.77%	49	0	0.00%
1330-20-7	Xylenes, Total	14	0	0.00%	9	1	11.11%	8	0	0.00%	31	5	16.13%	35	4	11.43%	34	5	14.71%
7440-66-6	Zinc	3	3	1	3	3	1	2	2	1									
7440-66-6	ZINC, DISSOLVED (AS ZN)																		
7440-66-6	ZINC, TOTAL (AS ZN)																		

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1997 Sampled Count	1997 Detect Count	**1997 Frequency**	1998 Sampled Count	1998 Detect Count	**1998 Frequency**	1999 Sampled Count	1999 Detect Count	**1999 Frequency**	2000 Sampled Count	2000 Detect Count	**2000 Frequency**	2001 Sampled Count	2001 Detect Count	**2001 Frequency**	2002 Sampled Count	2002 Detect Count	**2002 Frequency**
70300	(TDS) RESIDUE,TOTAL FILTRABLE (DRIED AT 180C)	1	1	1															
630-20-6	1,1,1,2-Tetrachloroethane	16	1	6.25%	16	0	0.00%	16	0	0.00%	24	0	0.00%	29	0	0.00%	84	0	0.00%
71-55-6	1,1,1-TCA	63	4	6.35%	86	3	3.49%	63	0	0.00%	84	3	3.57%	86	6	6.98%	98	1	1.02%
79-34-5	1,1,2,2-Tetrachloroethane	63	0	0.00%	82	1	1.22%	64	0	0.00%	85	0	0.00%	87	0	0.00%	98	0	0.00%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (Freon 113)	16	10	0.625	16	9	0.5625	16	11	0.6875	24	4	0.166666667	25	3	0.12	84	10	0.119047619
79-00-5	1,1,2-Trichloroethane	63	1	1.59%	82	1	1.22%	64	2	3.13%	85	0	0.00%	87	6	6.90%	98	0	0.00%
75-34-3	1,1-DCA	63	24	38.10%	86	15	17.44%	63	14	22.22%	84	14	16.67%	86	20	23.26%	98	18	18.37%
75-35-4	1,1-DCE	63	36	57.14%	86	30	34.88%	63	26	41.27%	84	39	46.43%	86	40	46.51%	98	39	39.80%
78-99-9	1,1-DICHLOROPROPANE																53	1	0.018867925
563-58-6	1,1-Dichloropropene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	1	1.19%
12+14DCB	1,2-&1,4-Dichlorobenzene																		
87-61-6	1,2,3-Trichlorobenzene				15	0	0.00%	16	0	0.00%	28	0	0.00%	25	0	0.00%	84	0	0.00%
96-18-4	1,2,3-Trichloropropane				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	0	0.00%
120-82-1	1,2,4-Trichlorobenzene				15	0	0.00%	16	0	0.00%	24	0	0.00%	24	0	0.00%	84	0	0.00%
95-63-6	1,2,4-Trimethylbenzene				15	0	0.00%	16	0	0.00%	34	0	0.00%	25	2	8.00%	84	3	3.57%
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	0	0.00%
106-93-4	1,2-Dibromoethane (EDB)				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	1	1.19%
95-50-1	1,2-Dichlorobenzene	47	0	0.00%	32	0	0.00%	64	0	0.00%	78	0	0.00%	87	0	0.00%	98	0	0.00%
107-06-2	1,2-Dichloroethane	63	14	22.22%	85	9	10.59%	64	2	3.13%	85	3	3.53%	87	8	9.20%	98	6	6.12%
540-59-0	1,2-Dichloroethene(Acetylene Dichloride)	3	0	0															
78-87-5	1,2-Dichloropropane	47	0	0.00%	81	1	1.23%	64	0	0.00%	85	0	0.00%	87	0	0.00%	98	0	0.00%
108-67-8	1,3,5-Trimethylbenzene				17	0	0.00%	16	0	0.00%	33	0	0.00%	25	1	4.00%	84	3	3.57%
541-73-1	1,3-Dichlorobenzene	47	0	0.00%	30	0	0.00%	64	0	0.00%	78	0	0.00%	87	0	0.00%	98	0	0.00%
142-28-9	1,3-Dichloropropane				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	0	0.00%
542-75-6	1,3-DICHLOROPROPENE, TOTAL WATER				13	0	0	16	0	0									
106-46-7	1,4-Dichlorobenzene	47	0	0.00%	32	0	0.00%	64	0	0.00%	85	0	0.00%	87	0	0.00%	98	0	0.00%
123-91-1	1,4-Dioxane																15	2	13.33%
288-88-0	1H-1,2,4-TRIAZOL-3-AMINE, TOTAL WATER																		
95-49-8	1-METHYL-2-CHLOROBENZENE (2-Chlorotoluene)				15	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	0	0.00%
594-20-7	2,2-Dichloropropane				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	0	0.00%
94-75-7	2,4-D IN WHOLE WATER SAMPLE																		
110-75-8	2-Chloroethyl Vinyl Ether	37	0	0	16	0	0	63	0	0	76	0	0	75	0	0	87	0	0
591-78-6	2-Hexanone	4	0	0.00%	50	1	2.00%	56	0	0.00%	68	0	0.00%	76	0	0.00%	94	1	1.06%
51-52-5	4(1H)PYRIMIDINONE, 2,3-DIHYDRO6PROP2THIOXO,TOT WTR																		
106-43-4	4-Chlorotoluene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	0	0.00%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	3	3.57%
67-64-1	Acetone				50	2	4.00%	15	0	0.00%	24	0	0.00%	25	0	0.00%	84	3	3.57%
15972-60-8	ALACHLOR WHOLE WATER	2	0	0															
56-41-7	ALANINE (NO MERCK)																		
116-06-3	ALDICARB IN WHOLE WATER	2	0	0															
ALKC	Alkalinity, (as CaCo3)																		
471-34-1	ALKALINITY, BICARBONATE (AS CACO3)																		
471-34-1	ALKALINITY, CARBONATE (AS CACO3)																		
471-34-1	Alkalinity, Hydroxide (as CaCo3)																		
471-34-1	Alkalinity, Total (as CaCo3)	1	1	1															
834-12-8	AMETRYN, WATER, DISSOLVED																		
834-12-8	AMETRYNE (GESAPAX OR EVIK) TOTAL	2	0	0															
7440-36-0	ANTIMONY, DISSOLVED (AS SB)	1	0	0															
7440-36-0	ANTIMONY, TOTAL (AS SB)	1	0	0															
7440-38-2	Arsenic	2	0	0															
7440-38-2	ARSENIC, DISSOLVED (AS AS)	1	1	1															
7440-38-2	ARSENIC, TOTAL (AS AS)	1	1	1															
1912-24-9	ATRAZINE IN WHOLE WATER SAMPLE	2	0	0															
7440-39-3	Barium	2	2	1															
7440-39-3	BARIUM, DISSOLVED (AS BA)	1	0	0															
7440-39-3	BARIUM, TOTAL (AS BA)	1	1	1															
71-43-2	Benzene	47	10	21.28%	81	5	6.17%	64	5	7.81%	85	0	0.00%	83	2	2.41%	98	3	3.06%
65-85-0	BENZOIC ACID WHOLE WATER																		
7440-41-7	BERYLLIUM, DISSOLVED (AS BE)	1	0	0															
7440-41-7	BERYLLIUM, TOTAL (AS BE)	1	0	0															
71-52-3	Bicarbonate																		
35400-43-2	BOLSTAR, TOTAL WATER (SULPROFOS)	2	0	0															
314-40-9	BROMACIL (HYVAR) IN WATER	2	0	0															
108-86-1	Bromobenzene				15	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	0	0.00%

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1997 Sampled Count	1997 Detect Count	**1997 Frequency**	1998 Sampled Count	1998 Detect Count	**1998 Frequency**	1999 Sampled Count	1999 Detect Count	**1999 Frequency**	2000 Sampled Count	2000 Detect Count	**2000 Frequency**	2001 Sampled Count	2001 Detect Count	**2001 Frequency**	2002 Sampled Count	2002 Detect Count	**2002 Frequency**
75-27-4	Bromodichloromethane	63	10	15.87%	80	6	7.50%	64	7	10.94%	85	4	4.71%	87	6	6.90%	98	14	14.29%
75-25-2	Bromoform	63	0	0.00%	82	2	2.44%	64	0	0.00%	85	0	0.00%	87	1	1.15%	98	0	0.00%
74-83-9	Bromomethane	47	0	0.00%	81	0	0.00%	64	0	0.00%	85	0	0.00%	87	0	0.00%	98	0	0.00%
2008-41-5	BUTYLATE, WHOLE WATER	2	0	0															
7440-43-9	Cadmium	2	0	0															
7440-43-9	CADMIUM, DISSOLVED (AS CD)	1	0	0															
7440-43-9	CADMIUM, TOTAL (AS CD)	1	0	0															
7440-70-2	Calcium																		
7440-70-2	CALCIUM, DISSOLVED (AS CA)	1	1	1															
7440-70-2	CALCIUM, TOTAL (AS CA)	1	1	1															
133-06-2	CAPTAN IN WHOLE WATER SAMPLE	2	0	0															
63-25-2	CARBARYL WHOLE WATER	2	0	0															
1563-66-2	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE	2	0	0															
75-15-0	Carbon Disulfide	4	0	0.00%	52	0	0.00%	56	0	0.00%	78	1	1.28%	76	6	7.89%	94	5	5.32%
56-23-5	Carbon Tetrachloride	63	0	0.00%	82	0	0.00%	64	2	3.13%	85	0	0.00%	87	1	1.15%	98	3	3.06%
5234-68-4	CARBOXIN, WHOLE WATER	2	0	0															
16887-00-6	Chloride	1	1	1															
108-90-7	Chlorobenzene	63	1	1.59%	80	0	0.00%	64	0	0.00%	75	0	0.00%	87	0	0.00%	98	0	0.00%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	1	1.19%
124-48-1	Chlorodibromomethane (Dibromochloromethane)	47	3	6.38%	30	4	13.33%	64	1	1.56%	83	0	0.00%	87	3	3.45%	98	8	8.16%
75-00-3	Chloroethane	47	0	0.00%	79	0	0.00%	64	0	0.00%	75	0	0.00%	87	0	0.00%	98	0	0.00%
67-66-3	Chloroform	63	40	63.49%	85	32	37.65%	64	41	64.06%	85	51	60.00%	87	59	67.82%	98	63	64.29%
74-87-3	Chloromethane	47	0	0.00%	79	0	0.00%	64	0	0.00%	75	0	0.00%	87	1	1.15%	98	0	0.00%
25168-05-2	CHLOROTOLUENE IN WATER																		
7440-47-3	Chromium	3	2	66.67%	6	4	66.67%	6	3	50.00%	6	1	16.67%	6	3	50.00%	4	1	25.00%
7440-47-3	Chromium, Dissolved	35	4	11.43%	1	0	0.00%				3	2	66.67%				21	6	28.57%
18540-29-9	Chromium, Hexavalent	6	3	50.00%	6	5	83.33%	6	3	50.00%	6	3	50.00%	10	4	40.00%	21	3	14.29%
7440-47-3	Chromium, Suspended																7	0	0
7440-47-3	Chromium, Total	6	5	83.33%	4	4	100.00%				2	1	50.00%	4	2	50.00%	71	46	64.79%
16065-83-1	Chromium, Trivalent	3	0	0.00%	6	1	16.67%	6	2	33.33%	6	1	16.67%	6	1	16.67%	4	1	25.00%
156-59-2	cis-1,2-DCE	63	36	57.14%	86	33	38.37%	63	31	49.21%	84	35	41.67%	86	39	45.35%	98	44	44.90%
10061-01-5	cis-1,3-Dichloropropene	47	0	0.00%	81	0	0.00%	64	0	0.00%	85	0	0.00%	87	0	0.00%	98	0	0.00%
7440-50-8	Copper																		
7440-50-8	COPPER, DISSOLVED (AS CU)	1	0	0															
7440-50-8	COPPER, TOTAL (AS CU)	1	0	0															
21725-46-2	CYANAZINE IN THE WHOLE WATER SAMPLE	2	0	0															
57-12-5	CYANIDE, TOTAL (AS CN)	1	0	0															
1134-23-2	CYCLOATE (RONEET)	2	0	0															
1897-45-6	DACONIL(C8CL4N2) IN WATER (CHLOROTHALONIL)	2	0	0															
1861-32-1	DACTHAL (DCPA) IN WHOLE WATER SAMPLE	2	0	0															
333-41-5	DIAZINON IN WHOLE WATER SAMPLE	2	0	0															
1918-00-9	DICAMBA (BANVEL) TOTAL, WHOLE WATER																		
99-30-9	DICHLORAN, TOTAL WATER	2	0	0															
75-71-8	Dichlorodifluoromethane (Freon 12)	52	33	63.46%	30	16	53.33%	32	2	6.25%	31	0	0.00%	36	2	5.56%	88	6	6.82%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE																		
108-20-3	DIISOPROPYL ETHER WHL WATER SMPL UG/L																		
60-51-5	DIMETHOATE IN WHOLE WATER SAMPLE	2	0	0															
957-51-7	DIPHENAMID IN WATER	2	0	0															
330-54-1	DIURON IN WHOLE WATER SAMPLE	2	0	0															
D016	DPX-M6316	2	0	0															
115-29-7	ENDOSULFAN IN WHOLE WATER SAMPLE	2	0	0															
759-94-4	EPTC (EPTAM) IN WHOLE WATER SAMPLE	2	0	0															
13194-48-4	ETHOPROP IN THE WHOLE WATER SAMPLE	2	0	0															
100-41-4	Ethylbenzene	47	6	12.77%	79	1	1.27%	32	5	15.63%	75	0	0.00%	83	3	3.61%	98	4	4.08%
22224-92-6	FENAMIPHOS(NEMACUR), WHOLE WATER SAMPLE	2	0	0															
60168-88-9	FENARIMOL, TOTAL RECOVERABLE, WATER	2	0	0															
7439-89-6	Ferrous Iron																7	0	0
70124-77-5	FLUCYTHRINATE (I)	2	0	0															
2164-17-2	FLUOMETURON, TOTAL WATER	2	0	0															
16984-48-8	Fluoride	1	1	1															
04100	FLURIDONE, TOTAL RECOVERABLE, WATER	2	0	0															
58-89-9	GAMMA-BHC(LINDANE), WHOLE WATER	2	0	0															
56-40-6	GLYCINE WHOLE WATER	2	0	0															

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PHOENIX, ARIZONA

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86-50-0	GUTHION IN WHOLE WATER SAMPLE	2	0	0															
HARD	Hardness (as CaCo3)																		
471-34-1	HARDNESS, TOTAL (AS CACO3)																		
87-68-3	Hexachlorobutadiene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	0	0.00%
51235-04-2	HEXAZINONE	2	0	0															
35554-44-0	IMAZALIL	2	0	0															
732-11-6	IMIDAN IN WHOLE WATER SAMPLE (PHOSMET)	2	0	0															
7439-89-6	Iron																		
7439-89-6	IRON (AS FE)																7	2	0.285714286
7439-89-6	IRON, DISSOLVED (AS FE)	1	0	0															
7439-89-6	IRON, SUSPENDED (AS FE)																7	2	0.285714286
7439-89-6	Iron, Total	1	1	1													14	9	0.642857143
42509-80-8	ISAZOPHOS	2	0	0															
98-82-8	Isopropylbenzene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	3	3.57%
7439-92-1	Lead	2	0	0															
7439-92-1	LEAD, DISSOLVED (AS PB)	1	0	0															
7439-92-1	LEAD, TOTAL (AS PB)	1	1	1															
330-55-2	LINURON, TOTAL WATER	2	0	0															
179601-23-1	m,p-Xylenes	3	0	0.00%	22	2	9.09%	22	5	22.73%	10	0	0.00%	62	3	4.84%	75	3	4.00%
7439-95-4	Magnesium																		
7439-95-4	MAGNESIUM, DISSOLVED (AS MG)	1	1	1															
7439-95-4	MAGNESIUM, TOTAL (AS MG)	1	1	1															
7439-96-5	Manganese																		
7439-96-5	MANGANESE, DISSOLVED (AS MN)	1	0	0															
7439-96-5	MANGANESE, TOTAL (AS MN)	1	1	1															
7439-97-6	Mercury	2	0	0															
7439-97-6	MERCURY, DISSOLVED (AS HG)	1	0	0															
7439-97-6	MERCURY, TOTAL (AS HG)	1	0	0															
57837-19-1	METALAXYL, TOTAL, WATER	2	0	0															
9003-91-9	METALDEHYDE (ACETALDEHYDE, TETRAMER)	2	0	0															
2032-65-7	METHIOCARB, TOTAL WATER	2	0	0															
16752-77-5	METHOMYL IN WHOLE WATER	2	0	0															
78034	METHOXYCHLOROBISUREAMETHANE IN WATER UG/L													39	1	0.025641026			
78-93-3	Methyl ethyl ketone (2-Butanone)	4	0	0.00%	52	1	1.92%	56	0	0.00%	78	0	0.00%	76	4	5.26%	94	1	1.06%
74-88-4	Methyl Iodide (Iodomethane)							15	0	0.00%	24	0	0.00%	25	0	0.00%	84	0	0.00%
108-10-1	Methyl isobutyl ketone (MIBK)	4	0	0.00%	52	0	0.00%	56	0	0.00%	78	0	0.00%	76	0	0.00%	94	0	0.00%
298-00-0	METHYL PARATHION IN WHOLE WATER SAMPLE	2	0	0															
1634-04-4	Methyl tert-Butyl Ether (MTBE)	35	2	5.71%	67	1	1.49%	25	0	0.00%	78	2	2.56%	75	3	4.00%	94	3	3.19%
61-73-4	METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.)																		
74-95-3	Methylene Bromide (Dibromomethane)				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	1	1.19%
75-09-2	Methylene chloride (Dichloromethane)	47	3	6.38%	79	0	0.00%	32	0	0.00%	75	0	0.00%	87	6	6.90%	98	2	2.04%
51218-45-2	METOLACHLOR(DUAL) IN WHOLE WATER	2	0	0															
21087-64-9	METRIBUZIN, WHOLE WATER, TOTAL RECOVERABLE	2	0	0															
108-38-3	M-XYLENE IN THE WHOLE WATER SAMPLE																		
99907	MYCLOBUTANIL	2	0	0															
91-20-3	Naphthalene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	1	1.19%
1529-99-9	NAPROPAMIDE, WATER, WHOLE	2	0	0															
104-51-8	n-Butylbenzene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	1	1.19%
7440-02-0	Nickel																		
7440-02-0	NICKEL, DISSOLVED (AS NI)	1	0	0															
7440-02-0	NICKEL, TOTAL (AS NI)	1	0	0															
17778-88-0	NITRATE NITROGEN, TOTAL (AS N)	1	1	1															
14797-55-8	Nitrate-N																		
14797-65-0	Nitrite as N	1	0	0															
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (AS N)	1	1	1															
27314-13-2	NORFLURAZON IN WATER	2	0	0															
26225-79-6	NORTRON (ETHOFUMESATE, TRAMAT), WATER, WHOLE	2	0	0															
103-65-1	n-Propylbenzene				15	0	0.00%	16	0	0.00%	24	0	0.00%	25	0	0.00%	84	3	3.57%
23135-22-0	OXAMYL, TOTAL WATER	2	0	0															
95-47-6	o-Xylene	3	0	0.00%	22	7	31.82%	22	5	22.73%	10	0	0.00%	62	3	4.84%	75	3	4.00%
50-29-3	P,P'DDT IN WHOLE WATER SAMPLE (4,4'-DDT)																		
56-38-2	PARATHION IN WHOLE WATER SAMPLE	2	0	0															
127-18-4	PCE	64	60	93.75%	86	72	83.72%	37	33	89.19%	88	71	80.68%	86	73	84.88%	98	84	85.71%

TABLE A-4
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PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1997 Sampled Count	1997 Detect Count	**1997 Frequency**	1998 Sampled Count	1998 Detect Count	**1998 Frequency**	1999 Sampled Count	1999 Detect Count	**1999 Frequency**	2000 Sampled Count	2000 Detect Count	**2000 Frequency**	2001 Sampled Count	2001 Detect Count	**2001 Frequency**	2002 Sampled Count	2002 Detect Count	**2002 Frequency**
1114-71-2	PEBULATE, WATER, WHOLE	2	0	0															
5264-55-3	PERMETHRIN (I) IN WHOLE WATER	2	0	0															
103-82-2	PHENYLACETIC ACID WHOLE WATER																		
7786-34-7	PHOSDRIN IN WHOLE WATER SAMPLE (MEVINPHOS)	2	0	0															
13171-21-6	PHOSPHAMIDON (I) (DIMECRON), WHOLE WATER	2	0	0															
7723-14-0	PHOSPHORUS, TOTAL (AS P)	1	1	1															
51-03-6	PIPERONYL BUTOXIDE	2	0	0															
7440-09-7	Potassium																		
7440-09-7	POTASSIUM, DISSOLVED (AS K)	1	0	0															
7440-09-7	POTASSIUM, TOTAL (AS K)	1	1	1															
41198-08-7	PROFENOFOS TOTAL	2	0	0															
1610-18-0	PROMETONE IN WHOLE WATER (PROMETON)	2	0	0															
7287-19-6	PROMETRYNE IN WHOLE WATER (PROMETRYN)	2	0	0															
23950-58-5	PRONAMIDE IN WATER, TOTAL WATER	2	0	0															
79241-46-6	PROPANOIC ACID, 2-HYDROXY-,BUTYL ESTER (FLUAZIFOP-P-BUTYL)	2	0	0															
60207-90-1	PROPICONAZOLE (I) (TILT),TOTAL,WATER	2	0	0															
D038	P-XYLENE + O-XYLENE, TOTAL, WHOLE WATER SAMPLE																		
1698-60-8	PYRAMIN (PYRAZON, CHLORIDAZON), WATER, WHOLE	2	0	0															
135-98-8	sec-Butylbenzene				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	2	2.38%
7782-49-2	Selenium	2	0	0															
7782-49-2	SELENIUM, DISSOLVED (AS SE)	1	0	0															
7782-49-2	SELENIUM, TOTAL (AS SE)	1	0	0															
74051-80-2	SETHOXYDIM (POAST), DISSOLVED, WATER	2	0	0															
7440-22-4	Silver	2	0	0															
7440-22-4	SILVER, DISSOLVED (AS AG)	1	0	0															
7440-22-4	SILVER, TOTAL (AS AG)	1	0	0															
122-34-9	SIMAZINE IN WHOLE WATER	2	0	0															
7440-23-5	Sodium																		
7440-23-5	SODIUM, DISSOLVED (AS NA)	1	1	1															
7440-23-5	SODIUM, TOTAL (AS NA)	1	1	1															
100-42-5	Styrene	3	0	0.00%	67	0	0.00%	25	0	0.00%	78	0	0.00%	76	0	0.00%	94	0	0.00%
14808-79-8	Sulfate	1	1	1															
74222-97-2	SULFOMETURON METHYL	2	0	0															
79-01-6	TCE	63	49	77.78%	86	60	69.77%	37	26	70.27%	88	66	75.00%	86	72	83.72%	98	71	72.45%
34014-18-1	TEBUTHIURON (GRASLAN, SPIKE), WATER WHOLE	2	0	0															
5902-51-2	TERBACIL	2	0	0															
13071-79-9	TERBUFOS (COUNTER) TOTAL, WHOLE WATER	2	0	0															
98-06-6	tert-Butylbenzene				17	0	0.00%	16	0	0.00%	34	0	0.00%	25	0	0.00%	84	0	0.00%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE																		
51707-55-2	THIDIAZURON TOTAL	2	0	0															
7440-31-5	TIN, DISSOLVED (AS SN)	1	0	0															
7440-31-5	TIN, TOTAL (AS SN)	1	0	0															
108-88-3	Toluene	63	18	28.57%	82	8	9.76%	32	6	18.75%	85	3	3.53%	83	13	15.66%	98	9	9.18%
TDS	Total Dissolved Solids																		
7440-44-0	Total Organic Content										1	1	1						
TTHM TOT	Total Trihalomethanes																		
TPH RECOVER	TPH, Recoverable																		
156-60-5	trans-1,2-Dichloroethene	63	10	15.87%	85	1	1.18%	33	0	0.00%	85	1	1.18%	87	5	5.75%	98	3	3.06%
10061-02-6	trans-1,3-Dichloropropene	47	0	0.00%	79	0	0.00%	32	0	0.00%	75	0	0.00%	87	0	0.00%	98	0	0.00%
110-57-6	TRANS-1,4-DICHLORO-2-BUTENE																		
43121-43-3	TRIADIMEFON, TOTAL WATER	2	0	0															
75-69-4	Trichlorofluoromethane (Freon 11)	63	18	28.57%	85	6	7.06%	32	5	15.63%	85	4	4.71%	87	15	17.24%	98	8	8.16%
25735-29-9	TRICHLOROPROPANE WHOLE WATER																53	0	0
26523-64-8	Trichlorotrifluoroethane	6	0	0	7	0	0	7	0	0	7	0	0	7	0	0			
1929-77-7	VERNAM (S-PROPYLDIPROPYLTHIOCARBAMATE)	2	0	0															
50471-44-8	VINCLOZOLIN (RONILAN) TOTAL	2	0	0															
108-05-4	Vinyl Acetate	3	0	0.00%	50	0	0.00%	24	0	0.00%	68	0	0.00%	76	4	5.26%	94	0	0.00%
75-01-4	Vinyl Chloride	63	0	0.00%	79	0	0.00%	32	0	0.00%	76	1	1.32%	86	0	0.00%	98	1	1.02%
1330-20-7	Xylenes, Total	46	7	15.22%	72	0	0.00%	25	0	0.00%	65	0	0.00%	21	0	0.00%	23	0	0.00%
7440-66-6	Zinc																		
7440-66-6	ZINC, DISSOLVED (AS ZN)	1	0	0															
7440-66-6	ZINC, TOTAL (AS ZN)	1	0	0															

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2003 Sampled Count	2003 Detect Count	**2003 Frequency**	2004 Sampled Count	2004 Detect Count	**2004 Frequency**	2005 Sampled Count	2005 Detect Count	**2005 Frequency**	2006 Sampled Count	200 Detect Count	**2006 Frequency**	2007 Sampled Count	2007 Detect Count	**2007 Frequency**	2008 Sampled Count	2008 Detect Count	**2008 Frequency**
70300	(TDS) RESIDUE,TOTAL FILTRABLE (DRIED AT 180C)																		
630-20-6	1,1,1,2-Tetrachloroethane	139	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	167	0	0.00%
71-55-6	1,1,1-TCA	143	4	2.80%	131	4	3.05%	136	3	2.21%	158	3	1.90%	130	2	1.54%	170	2	1.18%
79-34-5	1,1,2,2-Tetrachloroethane	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (Freon 113)	130	33	0.253846154	123	23	0.18699187	126	18	0.142857143	20	0	0	20	0	0	6	0	0
79-00-5	1,1,2-Trichloroethane	138	1	0.72%	128	0	0.00%	135	1	0.74%	158	0	0.00%	130	0	0.00%	169	0	0.00%
75-34-3	1,1-DCA	143	32	22.38%	128	21	16.41%	135	29	21.48%	158	26	16.46%	130	23	17.69%	170	31	18.24%
75-35-4	1,1-DCE	143	75	52.45%	128	56	43.75%	135	59	43.70%	158	75	47.47%	130	57	43.85%	170	78	45.88%
78-99-9	1,1-DICHLOROPROPANE	78	0	0	66	0	0	83	0	0									
563-58-6	1,1-Dichloropropene	136	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
12+14DCB	1,2-&1,4-Dichlorobenzene																		
87-61-6	1,2,3-Trichlorobenzene	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
96-18-4	1,2,3-Trichloropropane	136	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
120-82-1	1,2,4-Trichlorobenzene	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
95-63-6	1,2,4-Trimethylbenzene	137	7	5.11%	128	4	3.13%	135	8	5.93%	158	1	0.63%	130	0	0.00%	169	0	0.00%
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	167	1	0.60%
106-93-4	1,2-Dibromoethane (EDB)	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
95-50-1	1,2-Dichlorobenzene	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
107-06-2	1,2-Dichloroethane	142	4	2.82%	128	4	3.13%	135	3	2.22%	158	1	0.63%	130	1	0.77%	169	0	0.00%
540-59-0	1,2-Dichloroethene(Acetylene Dichloride)																		
78-87-5	1,2-Dichloropropane	140	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
108-67-8	1,3,5-Trimethylbenzene	137	6	4.38%	128	4	3.13%	135	4	2.96%	158	0	0.00%	130	0	0.00%	169	0	0.00%
541-73-1	1,3-Dichlorobenzene	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
142-28-9	1,3-Dichloropropane	137	0	0.00%	128	1	0.78%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
542-75-6	1,3-DICHLOROPROPENE, TOTAL WATER																		
106-46-7	1,4-Dichlorobenzene	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
123-91-1	1,4-Dioxane	1	1	100.00%	1	1	100.00%	1	1	100.00%							5	4	80.00%
288-88-0	1H-1,2,4-TRIAZOL-3-AMINE, TOTAL WATER																		
95-49-8	1-METHYL-2-CHLOROBENZENE (2-Chlorotoluene)	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
594-20-7	2,2-Dichloropropane	137	0	0.00%	128	2	1.56%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
94-75-7	2,4-D IN WHOLE WATER SAMPLE																		
110-75-8	2-Chloroethyl Vinyl Ether																		
591-78-6	2-Hexanone	137	0	0.00%	128	1	0.78%	135	0	0.00%	131	0	0.00%	85	0	0.00%	118	0	0.00%
51-52-5	4(1H)PYRIMIDINONE, 2,3-DIHYDRO6PROP2THIOXO,TOT WTR																		
106-43-4	4-Chlorotoluene	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	137	2	1.46%	128	1	0.78%	135	1	0.74%	158	0	0.00%	130	0	0.00%	169	1	0.59%
67-64-1	Acetone	137	7	5.11%	128	3	2.34%	135	0	0.00%	130	1	0.77%	84	0	0.00%	117	0	0.00%
15972-60-8	ALACHLOR WHOLE WATER																		
56-41-7	ALANINE (NO MERCK)																		
116-06-3	ALDICARB IN WHOLE WATER																		
ALKC	Alkalinity, (as CaCo3)																		
471-34-1	ALKALINITY, BICARBONATE (AS CACO3)																		
471-34-1	ALKALINITY, CARBONATE (AS CACO3)																		
471-34-1	Alkalinity, Hydroxide (as CaCo3)																		
471-34-1	Alkalinity, Total (as CaCo3)																		
834-12-8	AMETRYN, WATER, DISSOLVED																		
834-12-8	AMETRYNE (GESAPAX OR EVIK) TOTAL																		
7440-36-0	ANTIMONY, DISSOLVED (AS SB)																		
7440-36-0	ANTIMONY, TOTAL (AS SB)																		
7440-38-2	Arsenic																		
7440-38-2	ARSENIC, DISSOLVED (AS AS)																		
7440-38-2	ARSENIC, TOTAL (AS AS)																		
1912-24-9	ATRAZINE IN WHOLE WATER SAMPLE																		
7440-39-3	Barium																		
7440-39-3	BARIUM, DISSOLVED (AS BA)																		
7440-39-3	BARIUM, TOTAL (AS BA)																		
71-43-2	Benzene	140	17	12.14%	128	5	3.91%	135	2	1.48%	158	8	5.06%	130	2	1.54%	169	4	2.37%
65-85-0	BENZOIC ACID WHOLE WATER																		
7440-41-7	BERYLLIUM, DISSOLVED (AS BE)																		
7440-41-7	BERYLLIUM, TOTAL (AS BE)																		
71-52-3	Bicarbonate																		
35400-43-2	BOLSTAR, TOTAL WATER (SULPROFOS)																		
314-40-9	BROMACIL (HYVAR) IN WATER																		
108-86-1	Bromobenzene	137	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%

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75-27-4	Bromodichloromethane	138	18	13.04%	128	6	4.69%	135	11	8.15%	158	22	13.92%	130	9	6.92%	169	36	21.30%
75-25-2	Bromoform	140	2	1.43%	128	3	2.34%	135	2	1.48%	158	2	1.27%	130	0	0.00%	169	1	0.59%
74-83-9	Bromomethane	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
2008-41-5	BUTYLATE, WHOLE WATER																		
7440-43-9	Cadmium	12	0	0				1	0	0									
7440-43-9	CADMIUM, DISSOLVED (AS CD)																		
7440-43-9	CADMIUM, TOTAL (AS CD)																		
7440-70-2	Calcium																		
7440-70-2	CALCIUM, DISSOLVED (AS CA)																		
7440-70-2	CALCIUM, TOTAL (AS CA)																		
133-06-2	CAPTAN IN WHOLE WATER SAMPLE																		
63-25-2	CARBARYL WHOLE WATER																		
1563-66-2	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE																		
75-15-0	Carbon Disulfide	137	0	0.00%	128	4	3.13%	135	0	0.00%	158	4	2.53%	130	10	7.69%	167	1	0.60%
56-23-5	Carbon Tetrachloride	140	5	3.57%	128	1	0.78%	135	2	1.48%	158	2	1.27%	130	0	0.00%	169	1	0.59%
5234-68-4	CARBOXIN, WHOLE WATER																		
16887-00-6	Chloride																		
108-90-7	Chlorobenzene	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	2	1.27%	130	11	8.46%	169	1	0.59%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	137	1	0.73%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	1	0.59%
124-48-1	Chlorodibromomethane (Dibromochloromethane)	138	6	4.35%	128	4	3.13%	135	8	5.93%	158	7	4.43%	130	5	3.85%	169	5	2.96%
75-00-3	Chloroethane	138	1	0.72%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
67-66-3	Chloroform	142	77	54.23%	128	71	55.47%	135	79	58.52%	158	109	68.99%	130	86	66.15%	169	107	63.31%
74-87-3	Chloromethane	138	0	0.00%	128	0	0.00%	135	1	0.74%	158	0	0.00%	130	0	0.00%	169	0	0.00%
25168-05-2	CHLOROTOLUENE IN WATER																		
7440-47-3	Chromium	12	5	41.67%	6	2	33.33%	8	6	75.00%	8	5	62.50%	8	7	87.50%	7	6	85.71%
7440-47-3	Chromium, Dissolved	93	21	22.58%	93	27	29.03%	92	28	30.43%	46	6	13.04%	57	8	14.04%	80	13	16.25%
18540-29-9	Chromium, Hexavalent	12	5	41.67%	6	1	16.67%	8	5	62.50%	8	5	62.50%	55	9	16.36%	7	1	14.29%
7440-47-3	Chromium, Suspended										1	1	1						
7440-47-3	Chromium, Total	93	64	68.82%	93	74	79.57%	91	60	65.93%	46	35	76.09%	57	47	82.46%	81	49	60.49%
16065-83-1	Chromium, Trivalent	12	4	33.33%	6	1	16.67%	8	4	50.00%	8	5	62.50%	8	4	50.00%	7	5	71.43%
156-59-2	cis-1,2-DCE	143	57	39.86%	128	50	39.06%	135	51	37.78%	158	61	38.61%	130	42	32.31%	173	53	30.64%
10061-01-5	cis-1,3-Dichloropropene	138	0	0.00%	128	0	0.00%	135	0	0.00%	158	0	0.00%	130	0	0.00%	169	0	0.00%
7440-50-8	Copper																		
7440-50-8	COPPER, DISSOLVED (AS CU)																		
7440-50-8	COPPER, TOTAL (AS CU)																		
21725-46-2	CYANAZINE IN THE WHOLE WATER SAMPLE																		
57-12-5	CYANIDE, TOTAL (AS CN)	12	0	0															
1134-23-2	CYCLOATE (RONEET)																		
1897-45-6	DACONIL(C8CL4N2) IN WATER (CHLOROTHALONIL)																		
1861-32-1	DACTHAL (DCPA) IN WHOLE WATER SAMPLE																		
333-41-5	DIAZINON IN WHOLE WATER SAMPLE																		
1918-00-9	DICAMBA (BANVEL) TOTAL, WHOLE WATER																		
99-30-9	DICHLORAN, TOTAL WATER																		
75-71-8	Dichlorodifluoromethane (Freon 12)	140	6	4.29%	128	4	3.13%	135	4	2.96%	143	4	2.80%	130	3	2.31%	169	4	2.37%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE																		
108-20-3	DIISOPROPYL ETHER WHL WATER SMPL UG/L																1	0	0
60-51-5	DIMETHOATE IN WHOLE WATER SAMPLE																		
957-51-7	DIPHENAMID IN WATER																		
330-54-1	DIURON IN WHOLE WATER SAMPLE																		
D016	DPX-M6316																		
115-29-7	ENDOSULFAN IN WHOLE WATER SAMPLE																		
759-94-4	EPTC (EPTAM) IN WHOLE WATER SAMPLE																		
13194-48-4	ETHOPROP IN THE WHOLE WATER SAMPLE																		
100-41-4	Ethylbenzene	138	7	5.07%	128	4	3.13%	135	2	1.48%	143	1	0.70%	130	0	0.00%	169	0	0.00%
22224-92-6	FENAMIPHOS(NEMACUR), WHOLE WATER SAMPLE																		
60168-88-9	FENARIMOL, TOTAL RECOVERABLE, WATER																		
7439-89-6	Ferrous Iron																		
70124-77-5	FLUCYTHRINATE (I)																		
2164-17-2	FLUOMETURON, TOTAL WATER																		
16984-48-8	Fluoride																		
04100	FLURIDONE, TOTAL RECOVERABLE, WATER																		
58-89-9	GAMMA-BHC(LINDANE), WHOLE WATER																		
56-40-6	GLYCINE WHOLE WATER																		

TABLE A-4
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WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

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86-50-0	GUTHION IN WHOLE WATER SAMPLE																		
HARD	Hardness (as CaCo3)																		
471-34-1	HARDNESS, TOTAL (AS CACO3)																		
87-68-3	Hexachlorobutadiene	137	0	0.00%	128	0	0.00%	135	0	0.00%	143	0	0.00%	130	0	0.00%	167	0	0.00%
51235-04-2	HEXAZINONE																		
35554-44-0	IMAZALIL																		
732-11-6	IMIDAN IN WHOLE WATER SAMPLE (PHOSMET)																		
7439-89-6	Iron																		
7439-89-6	IRON (AS FE)																		
7439-89-6	IRON, DISSOLVED (AS FE)																		
7439-89-6	IRON, SUSPENDED (AS FE)																		
7439-89-6	Iron, Total																		
42509-80-8	ISAZOPHOS																		
98-82-8	Isopropylbenzene	137	2	1.46%	128	1	0.78%	135	1	0.74%	143	0	0.00%	130	0	0.00%	167	0	0.00%
7439-92-1	Lead	12	1	0.083333333															
7439-92-1	LEAD, DISSOLVED (AS PB)																		
7439-92-1	LEAD, TOTAL (AS PB)																		
330-55-2	LINURON, TOTAL WATER																		
179601-23-1	m,p-Xylenes	109	8	7.34%	119	6	5.04%	109	6	5.50%				1	0	0.00%	4	0	0.00%
7439-95-4	Magnesium																		
7439-95-4	MAGNESIUM, DISSOLVED (AS MG)																		
7439-95-4	MAGNESIUM, TOTAL (AS MG)																		
7439-96-5	Manganese																		
7439-96-5	MANGANESE, DISSOLVED (AS MN)																		
7439-96-5	MANGANESE, TOTAL (AS MN)																		
7439-97-6	Mercury																		
7439-97-6	MERCURY, DISSOLVED (AS HG)																		
7439-97-6	MERCURY, TOTAL (AS HG)																		
57837-19-1	METALAXYL, TOTAL, WATER																		
9003-91-9	METALDEHYDE (ACETALDEHYDE, TETRAMER)																		
2032-65-7	METHIOCARB, TOTAL WATER																		
16752-77-5	METHOMYL IN WHOLE WATER																		
78034	METHOXYCHLOROBISUREAMETHANE IN WATER UG/L																		
78-93-3	Methyl ethyl ketone (2-Butanone)	137	3	2.19%	128	1	0.78%	135	2	1.48%	130	0	0.00%	85	1	1.18%	118	0	0.00%
74-88-4	Methyl Iodide (Iodomethane)	137	4	2.92%	128	0	0.00%	135	1	0.74%	143	0	0.00%	130	0	0.00%	167	0	0.00%
108-10-1	Methyl isobutyl ketone (MIBK)	137	0	0.00%	128	0	0.00%	135	0	0.00%	130	0	0.00%	85	0	0.00%	118	0	0.00%
298-00-0	METHYL PARATHION IN WHOLE WATER SAMPLE																		
1634-04-4	Methyl tert-Butyl Ether (MTBE)	139	4	2.88%	128	8	6.25%	135	3	2.22%	114	2	1.75%	85	0	0.00%	117	2	1.71%
61-73-4	METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.)																		
74-95-3	Methylene Bromide (Dibromomethane)	136	0	0.00%	128	0	0.00%	135	1	0.74%	143	0	0.00%	130	0	0.00%	167	0	0.00%
75-09-2	Methylene chloride (Dichloromethane)	138	1	0.72%	128	0	0.00%	135	3	2.22%	143	0	0.00%	130	0	0.00%	169	0	0.00%
51218-45-2	METOLACHLOR(DUAL) IN WHOLE WATER																		
21087-64-9	METRIBUZIN, WHOLE WATER, TOTAL RECOVERABLE																		
108-38-3	M-XYLENE IN THE WHOLE WATER SAMPLE																		
99907	MYCLOBUTANIL																		
91-20-3	Naphthalene	137	3	2.19%	128	1	0.78%	135	3	2.22%	143	0	0.00%	130	0	0.00%	167	0	0.00%
1529-99-9	NAPROPAMIDE, WATER, WHOLE																		
104-51-8	n-Butylbenzene	137	3	2.19%	128	2	1.56%	135	1	0.74%	143	0	0.00%	130	0	0.00%	169	0	0.00%
7440-02-0	Nickel	12	2	0.166666667															
7440-02-0	NICKEL, DISSOLVED (AS NI)																		
7440-02-0	NICKEL, TOTAL (AS NI)																		
17778-88-0	NITRATE NITROGEN, TOTAL (AS N)																		
14797-55-8	Nitrate-N																		
14797-65-0	Nitrite as N																		
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (AS N)																		
27314-13-2	NORFLURAZON IN WATER																		
26225-79-6	NORTRON (ETHOFUMESATE, TRAMAT), WATER, WHOLE																		
103-65-1	n-Propylbenzene	137	2	1.46%	128	1	0.78%	135	1	0.74%	143	0	0.00%	130	0	0.00%	169	0	0.00%
23135-22-0	OXAMYL, TOTAL WATER																		
95-47-6	o-Xylene	109	10	9.17%	120	6	5.00%	109	5	4.59%				1	0	0.00%	4	0	0.00%
50-29-3	P,P'DDT IN WHOLE WATER SAMPLE (4,4'-DDT)																		
56-38-2	PARATHION IN WHOLE WATER SAMPLE																		
127-18-4	PCE	143	116	81.12%	131	107	81.68%	136	111	81.62%	143	114	79.72%	130	102	78.46%	173	137	79.19%

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2003 Sampled Count	2003 Detect Count	**2003 Frequency**	2004 Sampled Count	2004 Detect Count	**2004 Frequency**	2005 Sampled Count	2005 Detect Count	**2005 Frequency**	2006 Sampled Count	200 Detect Count	**2006 Frequency**	2007 Sampled Count	2007 Detect Count	**2007 Frequency**	2008 Sampled Count	2008 Detect Count	**2008 Frequency**
1114-71-2	PEBULATE, WATER, WHOLE																		
5264-55-3	PERMETHRIN (I) IN WHOLE WATER																		
103-82-2	PHENYLACETIC ACID WHOLE WATER																		
7786-34-7	PHOSDRIN IN WHOLE WATER SAMPLE (MEVINPHOS)																		
13171-21-6	PHOSPHAMIDON (I) (DIMECRON), WHOLE WATER																		
7723-14-0	PHOSPHORUS, TOTAL (AS P)																		
51-03-6	PIPERONYL BUTOXIDE																		
7440-09-7	Potassium																		
7440-09-7	POTASSIUM, DISSOLVED (AS K)																		
7440-09-7	POTASSIUM, TOTAL (AS K)																		
41198-08-7	PROFENOFOS TOTAL																		
1610-18-0	PROMETONE IN WHOLE WATER (PROMETON)																		
7287-19-6	PROMETRYNE IN WHOLE WATER (PROMETRYN)																		
23950-58-5	PRONAMIDE IN WATER, TOTAL WATER																		
79241-46-6	PROPANOIC ACID, 2-HYDROXY-,BUTYL ESTER (FLUAZIFOP-P-BUTYL)																		
60207-90-1	PROPICONAZOLE (I) (TILT),TOTAL,WATER																		
D038	P-XYLENE + O-XYLENE, TOTAL, WHOLE WATER SAMPLE																		
1698-60-8	PYRAMIN (PYRAZON, CHLORIDAZON), WATER, WHOLE																		
135-98-8	sec-Butylbenzene	137	1	0.73%	128	1	0.78%	135	1	0.74%	143	0	0.00%	130	0	0.00%	169	0	0.00%
7782-49-2	Selenium																		
7782-49-2	SELENIUM, DISSOLVED (AS SE)																		
7782-49-2	SELENIUM, TOTAL (AS SE)																		
74051-80-2	SETHOXYDIM (POAST), DISSOLVED, WATER																		
7440-22-4	Silver																		
7440-22-4	SILVER, DISSOLVED (AS AG)																		
7440-22-4	SILVER, TOTAL (AS AG)																		
122-34-9	SIMAZINE IN WHOLE WATER																		
7440-23-5	Sodium																		
7440-23-5	SODIUM, DISSOLVED (AS NA)																		
7440-23-5	SODIUM, TOTAL (AS NA)																		
100-42-5	Styrene	137	0	0.00%	128	0	0.00%	135	0	0.00%	143	0	0.00%	130	0	0.00%	169	0	0.00%
14808-79-8	Sulfate																		
74222-97-2	SULFOMETURON METHYL																		
79-01-6	TCE	143	101	70.63%	131	96	73.28%	136	99	72.79%	143	98	68.53%	130	87	66.92%	173	115	66.47%
34014-18-1	TEBUTHIURON (GRASLAN, SPIKE), WATER WHOLE																		
5902-51-2	TERBACIL																		
13071-79-9	TERBUFOS (COUNTER) TOTAL, WHOLE WATER																		
98-06-6	tert-Butylbenzene	137	0	0.00%	128	0	0.00%	135	0	0.00%	143	0	0.00%	130	0	0.00%	169	0	0.00%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE																		
51707-55-2	THIDIAZURON TOTAL																		
7440-31-5	TIN, DISSOLVED (AS SN)																		
7440-31-5	TIN, TOTAL (AS SN)																		
108-88-3	Toluene	138	11	7.97%	128	10	7.81%	135	9	6.67%	143	2	1.40%	130	2	1.54%	169	20	11.83%
TDS	Total Dissolved Solids																		
7440-44-0	Total Organic Content																		
TTHM TOT	Total Trihalomethanes																		
TPH RECOVER	TPH, Recoverable																		
156-60-5	trans-1,2-Dichloroethene	142	4	2.82%	128	2	1.56%	135	1	0.74%	143	0	0.00%	130	1	0.77%	169	10	5.92%
10061-02-6	trans-1,3-Dichloropropene	138	0	0.00%	128	1	0.78%	135	0	0.00%	143	0	0.00%	130	0	0.00%	169	0	0.00%
110-57-6	TRANS-1,4-DICHLORO-2-BUTENE																		
43121-43-3	TRIADIMEFON, TOTAL WATER																		
75-69-4	Trichlorofluoromethane (Freon 11)	142	26	18.31%	128	10	7.81%	135	15	11.11%	143	5	3.50%	130	1	0.77%	169	2	1.18%
25735-29-9	TRICHLOROPROPANE WHOLE WATER	78	0	0	66	0	0	83	0	0									
26523-64-8	Trichlorotrifluoroethane				1	0	0												
1929-77-7	VERNAM (S-PROPYLDIPROPYLTHIOCARBAMATE)																		
50471-44-8	VINCLOZOLIN (RONILAN) TOTAL																		
108-05-4	Vinyl Acetate	137	0	0.00%	125	0	0.00%	135	0	0.00%	143	0	0.00%	130	0	0.00%	169	0	0.00%
75-01-4	Vinyl Chloride	138	0	0.00%	128	1	0.78%	135	0	0.00%	143	0	0.00%	130	1	0.77%	170	2	1.18%
1330-20-7	Xylenes, Total	32	0	0.00%	26	0	0.00%	28	1	3.57%	143	1	0.70%	130	0	0.00%	167	1	0.60%
7440-66-6	Zinc																		
7440-66-6	ZINC, DISSOLVED (AS ZN)																		
7440-66-6	ZINC, TOTAL (AS ZN)																		

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2009 Sampled Count	2009 Detect Count	**2009 Frequency**	2010 Sampled Count	2010 Detect Count	**2010 Frequency**	2011 Sampled Count	2011 Detect Count	**2011 Frequency**	2012 Sampled Count	2012 Detects Count	**2012 Frequency**	2013 Sampled Count	2013 Detects Count	**2013 Frequency**
70300	(TDS) RESIDUE,TOTAL FILTRABLE (DRIED AT 180C)															
630-20-6	1,1,1,2-Tetrachloroethane	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
71-55-6	1,1,1-TCA	35	5	14.29%	147	5	3.40%	148	4	2.70%	148	4	2.70%	132	3	2.27%
79-34-5	1,1,2,2-Tetrachloroethane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (Freon 113)	19	0	0	19	0	0									
79-00-5	1,1,2-Trichloroethane	35	1	2.86%	144	0	0.00%	148	1	0.68%	148		0.00%	132		0.00%
75-34-3	1,1-DCA	35	7	20.00%	148	33	22.30%	148	40	27.03%	148	36	24.32%	133	25	18.80%
75-35-4	1,1-DCE	35	12	34.29%	150	65	43.33%	150	67	44.67%	148	60	40.54%	133	28	21.05%
78-99-9	1,1-DICHLOROPROPANE															
563-58-6	1,1-Dichloropropene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
12+14DCB	1,2-&1,4-Dichlorobenzene															
87-61-6	1,2,3-Trichlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
96-18-4	1,2,3-Trichloropropane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
120-82-1	1,2,4-Trichlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
95-63-6	1,2,4-Trimethylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	143		0.00%	132		0.00%
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
106-93-4	1,2-Dibromoethane (EDB)	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
95-50-1	1,2-Dichlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
107-06-2	1,2-Dichloroethane	35	1	2.86%	144	4	2.78%	150	9	6.00%	148		0.00%	133	4	3.01%
540-59-0	1,2-Dichloroethene(Acetylene Dichloride)															
78-87-5	1,2-Dichloropropane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
108-67-8	1,3,5-Trimethylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
541-73-1	1,3-Dichlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
142-28-9	1,3-Dichloropropane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
542-75-6	1,3-DICHLOROPROPENE, TOTAL WATER															
106-46-7	1,4-Dichlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
123-91-1	1,4-Dioxane	9	8	88.89%				6	6	100.00%	13	3	23.08%	105	1	0.95%
288-88-0	1H-1,2,4-TRIAZOL-3-AMINE, TOTAL WATER															
95-49-8	1-METHYL-2-CHLOROBENZENE (2-Chlorotoluene)	35	0	0.00%	144	1	0.69%	148	0	0.00%	148		0.00%	133		0.00%
594-20-7	2,2-Dichloropropane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
94-75-7	2,4-D IN WHOLE WATER SAMPLE															
110-75-8	2-Chloroethyl Vinyl Ether															
591-78-6	2-Hexanone	35	0	0.00%	102	0	0.00%	99	0	0.00%	91		0.00%	80		0.00%
51-52-5	4(1H)PYRIMIDINONE, 2,3-DIHYDRO6PROP2THIOXO,TOT WTR															
106-43-4	4-Chlorotoluene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
67-64-1	Acetone	35	0	0.00%	102	0	0.00%	99	1	1.01%	91	1	1.10%	80	2	2.50%
15972-60-8	ALACHLOR WHOLE WATER															
56-41-7	ALANINE (NO MERCK)															
116-06-3	ALDICARB IN WHOLE WATER															
ALKC	Alkalinity, (as CaCo3)															
471-34-1	ALKALINITY, BICARBONATE (AS CACO3)															
471-34-1	ALKALINITY, CARBONATE (AS CACO3)															
471-34-1	Alkalinity, Hydroxide (as CaCo3)															
471-34-1	Alkalinity, Total (as CaCo3)															
834-12-8	AMETRYN, WATER, DISSOLVED															
834-12-8	AMETRYNE (GESAPAX OR EVIK) TOTAL															
7440-36-0	ANTIMONY, DISSOLVED (AS SB)															
7440-36-0	ANTIMONY, TOTAL (AS SB)															
7440-38-2	Arsenic															
7440-38-2	ARSENIC, DISSOLVED (AS AS)															
7440-38-2	ARSENIC, TOTAL (AS AS)															
1912-24-9	ATRAZINE IN WHOLE WATER SAMPLE															
7440-39-3	Barium															
7440-39-3	BARIUM, DISSOLVED (AS BA)															
7440-39-3	BARIUM, TOTAL (AS BA)															
71-43-2	Benzene	35	0	0.00%	144	3	2.08%	148	3	2.03%	148	2	1.35%	133		0.00%
65-85-0	BENZOIC ACID WHOLE WATER															
7440-41-7	BERYLLIUM, DISSOLVED (AS BE)															
7440-41-7	BERYLLIUM, TOTAL (AS BE)															
71-52-3	Bicarbonate															
35400-43-2	BOLSTAR, TOTAL WATER (SULPROFOS)															
314-40-9	BROMACIL (HYVAR) IN WATER															
108-86-1	Bromobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%

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75-27-4	Bromodichloromethane	35	2	5.71%	144	5	3.47%	150	3	2.00%	148	5	3.38%	132		0.00%
75-25-2	Bromoform	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
74-83-9	Bromomethane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
2008-41-5	BUTYLATE, WHOLE WATER															
7440-43-9	Cadmium															
7440-43-9	CADMIUM, DISSOLVED (AS CD)															
7440-43-9	CADMIUM, TOTAL (AS CD)															
7440-70-2	Calcium															
7440-70-2	CALCIUM, DISSOLVED (AS CA)															
7440-70-2	CALCIUM, TOTAL (AS CA)															
133-06-2	CAPTAN IN WHOLE WATER SAMPLE															
63-25-2	CARBARYL WHOLE WATER															
1563-66-2	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE															
75-15-0	Carbon Disulfide	28	0	0.00%	144	1	0.69%	148	1	0.68%	149	6	4.03%	133	2	1.50%
56-23-5	Carbon Tetrachloride	35	0	0.00%	144	0	0.00%	148	1	0.68%	148		0.00%	133		0.00%
5234-68-4	CARBOXIN, WHOLE WATER															
16887-00-6	Chloride															
108-90-7	Chlorobenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
124-48-1	Chlorodibromomethane (Dibromochloromethane)	35	2	5.71%	144	5	3.47%	150	1	0.67%	148	2	1.35%	132		0.00%
75-00-3	Chloroethane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
67-66-3	Chloroform	35	20	57.14%	144	86	59.72%	150	95	63.33%	148	96	64.86%	137	40	29.20%
74-87-3	Chloromethane	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
25168-05-2	CHLOROTOLUENE IN WATER															
7440-47-3	Chromium	8	5	62.50%	8	5	62.50%	9	6	66.67%	8	5	62.50%	2	1	50.00%
7440-47-3	Chromium, Dissolved				51	12	23.53%	63	18	28.57%	52	13	25.00%	9	9	100.00%
18540-29-9	Chromium, Hexavalent	8	3	37.50%	8	5	62.50%	9	6	66.67%	8	5	62.50%	2	1	50.00%
7440-47-3	Chromium, Suspended															
7440-47-3	Chromium, Total				51	36	70.59%	63	46	73.02%	53	47	88.68%	37	37	100.00%
16065-83-1	Chromium, Trivalent	8	4	50.00%	8	4	50.00%	9	4	44.44%	8	4	50.00%	2		0.00%
156-59-2	cis-1,2-DCE	38	13	34.21%	154	49	31.82%	153	51	33.33%	152	47	30.92%	137	39	28.47%
10061-01-5	cis-1,3-Dichloropropene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
7440-50-8	Copper															
7440-50-8	COPPER, DISSOLVED (AS CU)															
7440-50-8	COPPER, TOTAL (AS CU)															
21725-46-2	CYANAZINE IN THE WHOLE WATER SAMPLE															
57-12-5	CYANIDE, TOTAL (AS CN)															
1134-23-2	CYCLOATE (RONEET)															
1897-45-6	DACONIL(C8CL4N2) IN WATER (CHLOROTHALONIL)															
1861-32-1	DACTHAL (DCPA) IN WHOLE WATER SAMPLE															
333-41-5	DIAZINON IN WHOLE WATER SAMPLE															
1918-00-9	DICAMBA (BANVEL) TOTAL, WHOLE WATER															
99-30-9	DICHLORAN, TOTAL WATER															
75-71-8	Dichlorodifluoromethane (Freon 12)	35	0	0.00%	144	4	2.78%	150	5	3.33%	148	4	2.70%	133	4	3.01%
45624	DICHLOROETHENE, TRANS 2,2- , WATER, WHOLE															
108-20-3	DIISOPROPYL ETHER WHL WATER SMPL UG/L															
60-51-5	DIMETHOATE IN WHOLE WATER SAMPLE															
957-51-7	DIPHENAMID IN WATER															
330-54-1	DIURON IN WHOLE WATER SAMPLE															
D016	DPX-M6316															
115-29-7	ENDOSULFAN IN WHOLE WATER SAMPLE															
759-94-4	EPTC (EPTAM) IN WHOLE WATER SAMPLE															
13194-48-4	ETHOPROP IN THE WHOLE WATER SAMPLE															
100-41-4	Ethylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
22224-92-6	FENAMIPHOS(NEMACUR), WHOLE WATER SAMPLE															
60168-88-9	FENARIMOL, TOTAL RECOVERABLE, WATER															
7439-89-6	Ferrous Iron															
70124-77-5	FLUCYTHRINATE (I)															
2164-17-2	FLUOMETURON, TOTAL WATER															
16984-48-8	Fluoride															
04100	FLURIDONE, TOTAL RECOVERABLE, WATER															
58-89-9	GAMMA-BHC(LINDANE), WHOLE WATER															
56-40-6	GLYCINE WHOLE WATER															

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2009 Sampled Count	2009 Detect Count	**2009 Frequency**	2010 Sampled Count	2010 Detect Count	**2010 Frequency**	2011 Sampled Count	2011 Detect Count	**2011 Frequency**	2012 Sampled Count	2012 Detects Count	**2012 Frequency**	2013 Sampled Count	2013 Detects Count	**2013 Frequency**
86-50-0	GUTHION IN WHOLE WATER SAMPLE															
HARD	Hardness (as CaCo3)															
471-34-1	HARDNESS, TOTAL (AS CACO3)															
87-68-3	Hexachlorobutadiene	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
51235-04-2	HEXAZINONE															
35554-44-0	IMAZALIL															
732-11-6	IMIDAN IN WHOLE WATER SAMPLE (PHOSMET)															
7439-89-6	Iron															
7439-89-6	IRON (AS FE)															
7439-89-6	IRON, DISSOLVED (AS FE)															
7439-89-6	IRON, SUSPENDED (AS FE)															
7439-89-6	Iron, Total															
42509-80-8	ISAZOPHOS															
98-82-8	Isopropylbenzene	28	0	0.00%	144	0	0.00%	148	1	0.68%	148		0.00%	132		0.00%
7439-92-1	Lead															
7439-92-1	LEAD, DISSOLVED (AS PB)															
7439-92-1	LEAD, TOTAL (AS PB)															
330-55-2	LINURON, TOTAL WATER															
179601-23-1	m,p-Xylenes	7	0	0.00%	72	0	0.00%	141	0	0.00%	141		0.00%	132		0.00%
7439-95-4	Magnesium															
7439-95-4	MAGNESIUM, DISSOLVED (AS MG)															
7439-95-4	MAGNESIUM, TOTAL (AS MG)															
7439-96-5	Manganese															
7439-96-5	MANGANESE, DISSOLVED (AS MN)															
7439-96-5	MANGANESE, TOTAL (AS MN)															
7439-97-6	Mercury															
7439-97-6	MERCURY, DISSOLVED (AS HG)															
7439-97-6	MERCURY, TOTAL (AS HG)															
57837-19-1	METALAXYL, TOTAL, WATER															
9003-91-9	METALDEHYDE (ACETALDEHYDE, TETRAMER)															
2032-65-7	METHIOCARB, TOTAL WATER															
16752-77-5	METHOMYL IN WHOLE WATER															
78034	METHOXYCHLOROBISUREAMETHANE IN WATER UG/L															
78-93-3	Methyl ethyl ketone (2-Butanone)	35	0	0.00%	102	0	0.00%	148	0	0.00%	91		0.00%	81		0.00%
74-88-4	Methyl Iodide (Iodomethane)	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
108-10-1	Methyl isobutyl ketone (MIBK)	35	0	0.00%	102	0	0.00%	99	0	0.00%	91		0.00%	80		0.00%
298-00-0	METHYL PARATHION IN WHOLE WATER SAMPLE															
1634-04-4	Methyl tert-Butyl Ether (MTBE)	35	0	0.00%	102	1	0.98%	101	1	0.99%	91		0.00%	81		0.00%
61-73-4	METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.)															
74-95-3	Methylene Bromide (Dibromomethane)	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
75-09-2	Methylene chloride (Dichloromethane)	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
51218-45-2	METOLACHLOR(DUAL) IN WHOLE WATER															
21087-64-9	METRIBUZIN, WHOLE WATER, TOTAL RECOVERABLE															
108-38-3	M-XYLENE IN THE WHOLE WATER SAMPLE															
99907	MYCLOBUTANIL															
91-20-3	Naphthalene	28	0	0.00%	144	0	0.00%	148	1	0.68%	148	2	1.35%	132	1	0.76%
1529-99-9	NAPROPAMIDE, WATER, WHOLE															
104-51-8	n-Butylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
7440-02-0	Nickel															
7440-02-0	NICKEL, DISSOLVED (AS NI)															
7440-02-0	NICKEL, TOTAL (AS NI)															
17778-88-0	NITRATE NITROGEN, TOTAL (AS N)															
14797-55-8	Nitrate-N															
14797-65-0	Nitrite as N															
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (AS N)															
27314-13-2	NORFLURAZON IN WATER															
26225-79-6	NORTRON (ETHOFUMESATE, TRAMAT), WATER, WHOLE															
103-65-1	n-Propylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
23135-22-0	OXAMYL, TOTAL WATER															
95-47-6	o-Xylene	7	0	0.00%	72	0	0.00%	141	0	0.00%	141		0.00%	132		0.00%
50-29-3	P,P'DDT IN WHOLE WATER SAMPLE (4,4'-DDT)															
56-38-2	PARATHION IN WHOLE WATER SAMPLE															
127-18-4	PCE	38	35	92.11%	154	114	74.03%	153	123	80.39%	152	117	76.97%	136	81	59.56%

TABLE A-4
FREQUENCY OF GROUNDWATER DETECTION - ALL DEPTHS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2009 Sampled Count	2009 Detect Count	**2009 Frequency**	2010 Sampled Count	2010 Detect Count	**2010 Frequency**	2011 Sampled Count	2011 Detect Count	**2011 Frequency**	2012 Sampled Count	2012 Detects Count	**2012 Frequency**	2013 Sampled Count	2013 Detects Count	**2013 Frequency**
1114-71-2	PEBULATE, WATER, WHOLE															
5264-55-3	PERMETHRIN (I) IN WHOLE WATER															
103-82-2	PHENYLACETIC ACID WHOLE WATER															
7786-34-7	PHOSDRIN IN WHOLE WATER SAMPLE (MEVINPHOS)															
13171-21-6	PHOSPHAMIDON (I) (DIMECRON), WHOLE WATER															
7723-14-0	PHOSPHORUS, TOTAL (AS P)															
51-03-6	PIPERONYL BUTOXIDE															
7440-09-7	Potassium															
7440-09-7	POTASSIUM, DISSOLVED (AS K)															
7440-09-7	POTASSIUM, TOTAL (AS K)															
41198-08-7	PROFENOFOS TOTAL															
1610-18-0	PROMETONE IN WHOLE WATER (PROMETON)															
7287-19-6	PROMETRYNE IN WHOLE WATER (PROMETRYN)															
23950-58-5	PRONAMIDE IN WATER, TOTAL WATER															
79241-46-6	PROPANOIC ACID, 2-HYDROXY-,BUTYL ESTER (FLUAZIFOP-P-BUTYL)															
60207-90-1	PROPICONAZOLE (I) (TILT),TOTAL,WATER															
D038	P-XYLENE + O-XYLENE, TOTAL, WHOLE WATER SAMPLE															
1698-60-8	PYRAMIN (PYRAZON, CHLORIDAZON), WATER, WHOLE															
135-98-8	sec-Butylbenzene	35	0	0.00%	144	0	0.00%	137	0	0.00%	148		0.00%	133		0.00%
7782-49-2	Selenium															
7782-49-2	SELENIUM, DISSOLVED (AS SE)															
7782-49-2	SELENIUM, TOTAL (AS SE)															
74051-80-2	SETHOXYDIM (POAST), DISSOLVED, WATER															
7440-22-4	Silver															
7440-22-4	SILVER, DISSOLVED (AS AG)															
7440-22-4	SILVER, TOTAL (AS AG)															
122-34-9	SIMAZINE IN WHOLE WATER															
7440-23-5	Sodium															
7440-23-5	SODIUM, DISSOLVED (AS NA)															
7440-23-5	SODIUM, TOTAL (AS NA)															
100-42-5	Styrene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
14808-79-8	Sulfate															
74222-97-2	SULFOMETURON METHYL															
79-01-6	TCE	38	18	47.37%	154	91	59.09%	154	111	72.08%	152	104	68.42%	136	83	61.03%
34014-18-1	TEBUTHIURON (GRASLAN, SPIKE), WATER WHOLE															
5902-51-2	TERBACIL															
13071-79-9	TERBUFOS (COUNTER) TOTAL, WHOLE WATER															
98-06-6	tert-Butylbenzene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	133		0.00%
25322-20-7	TETRACHLOROETHANE WHOLE WATER SAMPLE															
51707-55-2	THIDIAZURON TOTAL															
7440-31-5	TIN, DISSOLVED (AS SN)															
7440-31-5	TIN, TOTAL (AS SN)															
108-88-3	Toluene	35	7	20.00%	144	0	0.00%	148	4	2.70%	148	5	3.38%	132	17	12.88%
TDS	Total Dissolved Solids															
7440-44-0	Total Organic Content															
TTHM TOT	Total Trihalomethanes	2	0	0.00%	121	42	34.71%	10	2	20.00%	9	4	44.44%	3		0.00%
TPH RECOVER	TPH, Recoverable															
156-60-5	trans-1,2-Dichloroethene	35	0	0.00%	144	3	2.08%	148	0	0.00%	148	1	0.68%	133		0.00%
10061-02-6	trans-1,3-Dichloropropene	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
110-57-6	TRANS-1,4-DICHLORO-2-BUTENE				8	0	0									
43121-43-3	TRIADIMEFON, TOTAL WATER															
75-69-4	Trichlorofluoromethane (Freon 11)	35	0	0.00%	144	1	0.69%	150	5	3.33%	148	1	0.68%	132	1	0.76%
25735-29-9	TRICHLOROPROPANE WHOLE WATER															
26523-64-8	Trichlorotrifluoroethane															
1929-77-7	VERNAM (S-PROPYLDIPROPYLTHIOCARBAMATE)															
50471-44-8	VINCLOZOLIN (RONILAN) TOTAL															
108-05-4	Vinyl Acetate	35	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	132		0.00%
75-01-4	Vinyl Chloride	35	0	0.00%	144	0	0.00%	148	1	0.68%	148		0.00%	132	1	0.76%
1330-20-7	Xylenes, Total	28	0	0.00%	144	0	0.00%	148	0	0.00%	148		0.00%	134	2	1.49%
7440-66-6	Zinc															
7440-66-6	ZINC, DISSOLVED (AS ZN)															
7440-66-6	ZINC, TOTAL (AS ZN)															

TABLE A-5
MAXIMUM DETECTED GROUNDWATER CONCENTRATIONS PER YEAR - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	1984	1986	1987	1988	1989	1990	1991	1992	1994	1997	1998	2000	2003	2004	2005	2006	2008
71-55-6	1,1,1-TRICHLOROETHANE	0.004	0.0043	0.0015	0.0008	0.0008	0.0009											
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)													0.0055	0.0046	0.0028		
75-34-3	1,1-DICHLOROETHANE	0.0049	0.0012	0.0013	0.002	0.0022	0.0006	0.001	0.0012				0.0053	0.0075	0.0062	0.0036	0.0049	0.005
75-35-4	1,1-DICHLOROETHENE	0.0022	0.02	0.031	0.0008	0.0116	0.0119	0.0095	0.0096			0.0039	0.011	0.021	0.016	0.012	0.01	0.0093
12+14DCB	1,2-&1,4-DICHLOROBENZENE						0.0045											
95-63-6	1,2,4-TRIMETHYLBENZENE															0.0043		
107-06-2	1,2-DICHLOROETHANE		0.0013			0.0012	0.0004	0.0004	0.0003					0.0006	0.00065			
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)				0.0004	0.0029	0.0065	0.0052	0.0045									
142-28-9	1,3-DICHLOROPROPANE														0.0005			
594-20-7	2,2-DICHLOROPROPANE														0.0005			
110-75-8	2-CHLOROETHYL VINYL ETHER		0.0008															
71-43-2	BENZENE				0.0006									0.0024	0.0016	0.035	0.016	0.0028
75-25-2	BROMOFORM											0.00054						
75-15-0	CARBON DISULFIDE												0.001					
56-23-5	CARBON TETRACHLORIDE	0.001					0.0002							0.0016	0.0022	0.002		
67-66-3	CHLOROFORM		0.0021	0.0019		0.0032	0.0023	0.0005	0.0009			0.0032	0.0047	0.0058	0.0052	0.0065	0.0077	0.0054
156-59-2	CIS-1,2-DICHLOROETHENE											0.0011	0.0043	0.012	0.013	0.021	0.023	0.015
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)													0.0048	0.006	0.0036	0.0028	
100-41-4	ETHYLBENZENE															0.0008		
98-82-8	ISOPROPYLBENZENE															0.0011		
74-88-4	METHYL IODIDE (IODOMETHANE)															0.004		
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)												0.002	0.0024	0.85	0.67	0.18	0.045
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)		0.0005															
91-20-3	NAPHTHALENE															0.004		
104-51-8	N-BUTYLBENZENE															0.00055		
135-98-8	SEC-BUTYLBENZENE															0.00062		
127-18-4	TETRACHLOROETHENE	0.00073	0.038	0.0313	0.0078	0.06	0.15	0.116	0.135	0.0044	0.023	0.014	0.083	0.052	0.051	0.049	0.045	0.039
108-88-3	TOLUENE															0.0017		
156-60-5	TRANS-1,2-DICHLOROETHENE	0.0037	0.0016															0.0074
10061-02-6	TRANS-1,3-DICHLOROPROPENE														0.0005			
79-01-6	TRICHLOROETHENE (TCE)	0.0016	0.035	0.0171	0.0088	0.07	0.0111	0.0086	0.0078	0.0003		0.0059	0.07	0.098	0.085	0.099	0.11	0.09
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	0.0016	0.022			0.0018								0.0035	0.0046	0.0031	0.0024	
26523-64-8	TRICHLOROTRIFLUOROETHANE					0.0014	0.0045											
75-01-4	VINYL CHLORIDE												0.02					
179601-23-1	M,P-XYLENES													0.091		0.0027		
95-47-6	O-XYLENE															0.00086		
7440-47-3	CHROMIUM, DISSOLVED												0.02	0.02	0.018	0.014	0.014	0.019
7440-47-3	CHROMIUM, TOTAL			0.022										0.021	0.019	0.016	0.016	0.021

TABLE A-5
MAXIMUM DETECTED GROUNDWATER CONCENTRATIONS PER YEAR - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	PARAMETER NAME	2010	2011	2012	2013	Frequency of Detect (years per first 24 years)	Frequency of Detect (years per last 5 years)	Frequency of Detct (over entire 29 years) (%)
71-55-6	1,1,1-TRICHLOROETHANE					6	0	29%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)					3	0	14%
75-34-3	1,1-DICHLOROETHANE	0.0037	0.00429	0.00428	0.00453	14	4	86%
75-35-4	1,1-DICHLOROETHENE	0.0057	0.0077	0.00733	0.00923	15	4	90%
12+14DCB	1,2-&1,4-DICHLOROBENZENE					1	0	5%
95-63-6	1,2,4-TRIMETHYLBENZENE					1	0	5%
107-06-2	1,2-DICHLOROETHANE		0.0044		0.00055	7	2	43%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)					5	0	24%
142-28-9	1,3-DICHLOROPROPANE					1	0	5%
594-20-7	2,2-DICHLOROPROPANE					1	0	5%
110-75-8	2-CHLOROETHYL VINYL ETHER					1	0	5%
71-43-2	BENZENE	0.0008	0.00811			6	2	38%
75-25-2	BROMOFORM					1	0	5%
75-15-0	CARBON DISULFIDE			0.00051		1	1	10%
56-23-5	CARBON TETRACHLORIDE					5	0	24%
67-66-3	CHLOROFORM	0.0045	0.0073	0.00396	0.00393	13	4	81%
156-59-2	CIS-1,2-DICHLOROETHENE	0.015	0.0129	0.0112	0.00962	7	4	52%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	0.0026	0.00246	0.00205	0.00202	4	4	38%
100-41-4	ETHYLBENZENE					1	0	5%
98-82-8	ISOPROPYLBENZENE					1	0	5%
74-88-4	METHYL IODIDE (IODOMETHANE)					1	0	5%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	0.011	0.00306			6	2	38%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)					1	0	5%
91-20-3	NAPHTHALENE					1	0	5%
104-51-8	N-BUTYLBENZENE					1	0	5%
135-98-8	SEC-BUTYLBENZENE					1	0	5%
127-18-4	TETRACHLOROETHENE	0.027	0.025	0.0211	0.0147	17	4	100%
108-88-3	TOLUENE					1	0	5%
156-60-5	TRANS-1,2-DICHLOROETHENE					3	0	14%
10061-02-6	TRANS-1,3-DICHLOROPROPENE					1	0	5%
79-01-6	TRICHLOROETHENE (TCE)	0.087	0.075	0.0639	0.0735	16	4	95%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)		0.00093			7	1	38%
26523-64-8	TRICHLOROTRIFLUOROETHANE					2	0	10%
75-01-4	VINYL CHLORIDE					1	0	5%
179601-23-1	M,P-XYLENES					2	0	10%
95-47-6	O-XYLENE					1	0	5%
7440-47-3	CHROMIUM, DISSOLVED					6	0	29%
7440-47-3	CHROMIUM, TOTAL					6	0	29%

Yellow shade indicates chemical was selected as a COPC based on 2009 - 2013 detections or historical detections
Concentrations in mg/L

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1984 Sampled Count	1984 Detect Count	**1984 Frequency**	1986 Sampled Count	1986 Detect Count	**1986 Frequency**	1987 Sampled Count	1987 Detect Count	**1987 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE									
71-55-6	1,1,1-TRICHLOROETHANE	7	1	14%	5	2	40%	3	3	100%
79-34-5	1,1,2,2-TETRACHLOROETHANE							3	0	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)									
79-00-5	1,1,2-TRICHLOROETHANE							3	0	0%
75-34-3	1,1-DICHLOROETHANE	7	7	100%	4	2	50%	1	1	100%
75-35-4	1,1-DICHLOROETHENE	3	2	67%	4	2	50%	2	2	100%
563-58-6	1,1-DICHLOROPROPENE									
12+14DCB	1,2-&1,4-DICHLOROBENZENE									
87-61-6	1,2,3-TRICHLOROBENZENE				2	0	0%	1	0	0%
96-18-4	1,2,3-TRICHLOROPROPANE									
120-82-1	1,2,4-TRICHLOROBENZENE									
95-63-6	1,2,4-TRIMETHYLBENZENE									
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	1	0	0%	3	0	0%	2	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)				2	0	0%	3	0	0%
95-50-1	1,2-DICHLOROBENZENE									
107-06-2	1,2-DICHLOROETHANE	2	0	0%	5	2	40%	2	0	0%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)									
78-87-5	1,2-DICHLOROPROPANE							1	0	0%
108-67-8	1,3,5-TRIMETHYLBENZENE				3	0	0%	2	0	0%
541-73-1	1,3-DICHLOROBENZENE				1	0	0%	1	0	0%
142-28-9	1,3-DICHLOROPROPANE	1	0	0%	1	0	0%			
106-46-7	1,4-DICHLOROBENZENE				3	0	0%	3	0	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)									
594-20-7	2,2-DICHLOROPROPANE									
110-75-8	2-CHLOROETHYL VINYL ETHER				2	1	50%	3	0	0%
591-78-6	2-HEXANONE									
106-43-4	4-CHLOROTOLUENE									
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)									
67-64-1	ACETONE									
71-43-2	BENZENE									
108-86-1	BROMOBENZENE									
75-27-4	BROMODICHLOROMETHANE									
75-25-2	BROMOFORM									
74-83-9	BROMOMETHANE				2	0	0%	3	0	0%
75-15-0	CARBON DISULFIDE							3	0	0%
56-23-5	CARBON TETRACHLORIDE	1	1	100%	5	0	0%	3	0	0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1984 Sampled Count	1984 Detect Count	**1984 Frequency**	1986 Sampled Count	1986 Detect Count	**1986 Frequency**	1987 Sampled Count	1987 Detect Count	**1987 Frequency**
108-90-7	CHLOROBENZENE	1	0	0%						
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)							3	0	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)									
75-00-3	CHLOROETHANE									
67-66-3	CHLOROFORM	5	0	0%	5	2	40%	3	2	67%
74-87-3	CHLOROMETHANE									
7440-47-3	CHROMIUM, DISSOLVED				1	0	0%			
7440-47-3	CHROMIUM, TOTAL				4	0	0%	3	1	33%
156-59-2	CIS-1,2-DICHLOROETHENE									
10061-01-5	CIS-1,3-DICHLOROPROPENE				3	0	0%	3	0	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)									
100-41-4	ETHYLBENZENE				2	0	0%			
87-68-3	HEXACHLOROBUTADIENE									
98-82-8	ISOPROPYLBENZENE									
179601-23-1	M,P-XYLENES									
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)									
74-88-4	METHYL IODIDE (IODOMETHANE)									
108-10-1	METHYL ISOBUTYL KETONE (MIBK)							3	0	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)									
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)									
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	2	0	0%	2	1	50%			
91-20-3	NAPHTHALENE									
104-51-8	N-BUTYLBENZENE									
103-65-1	N-PROPYLBENZENE									
95-47-6	O-XYLENE									
135-98-8	SEC-BUTYLBENZENE									
100-42-5	STYRENE							3	0	0%
127-18-4	TETRACHLOROETHENE	8	2	25%	5	5	100%	3	3	100%
98-06-6	TERT-BUTYLBENZENE									
108-88-3	TOLUENE				2	0	0%			
156-60-5	TRANS-1,2-DICHLOROETHENE	4	2	50%	5	3	60%	3	0	0%
10061-02-6	TRANS-1,3-DICHLOROPROPENE									
79-01-6	TRICHLOROETHENE	8	4	50%	4	4	100%	3	3	100%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	4	2	50%	5	4	80%			
26523-64-8	TRICHLOROTRIFLUOROETHANE									
108-05-4	VINYL ACETATE				3	0	0%	2	0	0%
75-01-4	VINYL CHLORIDE									
1330-20-7	XYLENES, TOTAL				2	0	0%			

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1988 Sample Count	1988 Detect Count	**1988 Frequency**	1989 Sampled Count	1989 Detect Count	**1989 Frequency**	1990 Sampled Count	1990 Detect Count	**1990 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE									
71-55-6	1,1,1-TRICHLOROETHANE	3	1	33%	8	1	13%	5	2	40%
79-34-5	1,1,2,2-TETRACHLOROETHANE	3	0	0%	8	0	0%	5	0	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)									
79-00-5	1,1,2-TRICHLOROETHANE	3	0	0%	8	0	0%	5	0	0%
75-34-3	1,1-DICHLOROETHANE	3	1	33%	8	3	38%	5	1	20%
75-35-4	1,1-DICHLOROETHENE	3	3	100%	8	5	63%	5	5	100%
563-58-6	1,1-DICHLOROPROPENE									
12+14DCB	1,2-&1,4-DICHLOROBENZENE				7	0	0%	5	1	20%
87-61-6	1,2,3-TRICHLOROBENZENE				1	0	0%			
96-18-4	1,2,3-TRICHLOROPROPANE									
120-82-1	1,2,4-TRICHLOROBENZENE									
95-63-6	1,2,4-TRIMETHYLBENZENE									
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)				5	0	0%	3	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)									
95-50-1	1,2-DICHLOROBENZENE	3	0	0%						
107-06-2	1,2-DICHLOROETHANE	3	0	0%	8	4	50%	5	3	60%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	3	1	33%	8	6	75%	5	4	80%
78-87-5	1,2-DICHLOROPROPANE	3	0	0%	8	0	0%	5	0	0%
108-67-8	1,3,5-TRIMETHYLBENZENE				4	0	0%	3	0	0%
541-73-1	1,3-DICHLOROBENZENE	3	0	0%	5	0	0%	2	0	0%
142-28-9	1,3-DICHLOROPROPANE				4	0	0%	3	0	0%
106-46-7	1,4-DICHLOROBENZENE	3	0	0%	5	0	0%	2	0	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)									
594-20-7	2,2-DICHLOROPROPANE									
110-75-8	2-CHLOROETHYL VINYL ETHER				4	0	0%	3	0	0%
591-78-6	2-HEXANONE									
106-43-4	4-CHLOROTOLUENE									
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)									
67-64-1	ACETONE									
71-43-2	BENZENE	3	1	33%	8	0	0%	5	0	0%
108-86-1	BROMOBENZENE				5	0	0%	3	0	0%
75-27-4	BROMODICHLOROMETHANE	3	0	0%	4	0	0%	2	0	0%
75-25-2	BROMOFORM	3	0	0%	8	0	0%	5	0	0%
74-83-9	BROMOMETHANE	3	0	0%	8	0	0%	5	0	0%
75-15-0	CARBON DISULFIDE				5	0	0%	3	0	0%
56-23-5	CARBON TETRACHLORIDE	3	0	0%	8	0	0%	5	1	20%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1988 Sample Count	1988 Detect Count	**1988 Frequency**	1989 Sampled Count	1989 Detect Count	**1989 Frequency**	1990 Sampled Count	1990 Detect Count	**1990 Frequency**
108-90-7	CHLOROBENZENE	3	0	0%	4	0	0%	2	0	0%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)				5	0	0%	3	0	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	3	0	0%	4	0	0%	2	0	0%
75-00-3	CHLOROETHANE	3	0	0%	4	0	0%	2	0	0%
67-66-3	CHLOROFORM	3	0	0%	8	4	50%	5	4	80%
74-87-3	CHLOROMETHANE	3	0	0%	4	0	0%	2	0	0%
7440-47-3	CHROMIUM, DISSOLVED									
7440-47-3	CHROMIUM, TOTAL									
156-59-2	CIS-1,2-DICHLOROETHENE				1	0	0%			
10061-01-5	CIS-1,3-DICHLOROPROPENE	3	0	0%	8	0	0%	5	0	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	3	0	0%	7	0	0%	5	0	0%
100-41-4	ETHYLBENZENE	3	0	0%	4	0	0%	2	0	0%
87-68-3	HEXACHLOROBUTADIENE									
98-82-8	ISOPROPYLBENZENE									
179601-23-1	M,P-XYLENES	3	0	0%	1	0	0%			
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)				5	0	0%	3	0	0%
74-88-4	METHYL IODIDE (IODOMETHANE)									
108-10-1	METHYL ISOBUTYL KETONE (MIBK)				5	0	0%	3	0	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)									
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)									
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	3	0	0%	4	0	0%	2	0	0%
91-20-3	NAPHTHALENE									
104-51-8	N-BUTYLBENZENE									
103-65-1	N-PROPYLBENZENE									
95-47-6	O-XYLENE	3	0	0%						
135-98-8	SEC-BUTYLBENZENE				5	0	0%	3	0	0%
100-42-5	STYRENE				5	0	0%	3	0	0%
127-18-4	TETRACHLOROETHENE	3	2	67%	8	6	75%	5	4	80%
98-06-6	TERT-BUTYLBENZENE				5	0	0%	3	0	0%
108-88-3	TOLUENE	3	0	0%	4	0	0%	2	0	0%
156-60-5	TRANS-1,2-DICHLOROETHENE				1	0	0%			
10061-02-6	TRANS-1,3-DICHLOROPROPENE	3	0	0%	4	0	0%	2	0	0%
79-01-6	TRICHLOROETHENE	3	2	67%	8	6	75%	5	5	100%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	3	0	0%	8	1	13%	5	0	0%
26523-64-8	TRICHLOROTRIFLUOROETHANE				8	4	50%	5	1	20%
108-05-4	VINYL ACETATE									
75-01-4	VINYL CHLORIDE	3	0	0%	4	0	0%	2	0	0%
1330-20-7	XYLENES, TOTAL				3	0	0%	2	0	0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	199 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	1993 Detect Count	**1993 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE									
71-55-6	1,1,1-TRICHLOROETHANE	5	0	0%	1	0	0%			
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	0	0%	1	0	0%			
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)									
79-00-5	1,1,2-TRICHLOROETHANE	5	0	0%	1	0	0%			
75-34-3	1,1-DICHLOROETHANE	5	1	20%	1	1	100%			
75-35-4	1,1-DICHLOROETHENE	5	3	60%	1	1	100%			
563-58-6	1,1-DICHLOROPROPENE									
12+14DCB	1,2-&1,4-DICHLOROBENZENE	5	0	0%	1	0	0%			
87-61-6	1,2,3-TRICHLOROBENZENE									
96-18-4	1,2,3-TRICHLOROPROPANE									
120-82-1	1,2,4-TRICHLOROBENZENE									
95-63-6	1,2,4-TRIMETHYLBENZENE									
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	0	0%				1	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)							1	0	0%
95-50-1	1,2-DICHLOROBENZENE									
107-06-2	1,2-DICHLOROETHANE	5	1	20%	1	1	100%			
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	5	1	20%	1	1	100%			
78-87-5	1,2-DICHLOROPROPANE	5	0	0%	1	0	0%			
108-67-8	1,3,5-TRIMETHYLBENZENE	2	0	0%						
541-73-1	1,3-DICHLOROBENZENE	5	0	0%	1	0	0%			
142-28-9	1,3-DICHLOROPROPANE	2	0	0%						
106-46-7	1,4-DICHLOROBENZENE	2	0	0%						
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)									
594-20-7	2,2-DICHLOROPROPANE									
110-75-8	2-CHLOROETHYL VINYL ETHER	5	0	0%	1	0	0%			
591-78-6	2-HEXANONE									
106-43-4	4-CHLOROTOLUENE									
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)									
67-64-1	ACETONE									
71-43-2	BENZENE	5	0	0%	1	0	0%			
108-86-1	BROMOBENZENE	2	0	0%						
75-27-4	BROMODICHLOROMETHANE	3	0	0%	1	0	0%			
75-25-2	BROMOFORM	5	0	0%	1	0	0%			
74-83-9	BROMOMETHANE	5	0	0%	1	0	0%			
75-15-0	CARBON DISULFIDE	2	0	0%						
56-23-5	CARBON TETRACHLORIDE	5	0	0%	1	0	0%			

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1991 Sampled Count	1991 Detect Count	**1991 Frequency**	199 Sampled Count	1992 Detect Count	**1992 Frequency**	1993 Sampled Count	1993 Detect Count	**1993 Frequency**
108-90-7	CHLOROBENZENE	3	0	0%	1	0	0%			
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	2	0	0%						
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	4	0	0%	1	0	0%			
75-00-3	CHLOROETHANE	3	0	0%	1	0	0%			
67-66-3	CHLOROFORM	5	1	20%	1	1	100%			
74-87-3	CHLOROMETHANE	3	0	0%	1	0	0%			
7440-47-3	CHROMIUM, DISSOLVED									
7440-47-3	CHROMIUM, TOTAL									
156-59-2	CIS-1,2-DICHLOROETHENE									
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	0	0%	1	0	0%			
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	4	0	0%	1	0	0%			
100-41-4	ETHYLBENZENE	3	0	0%	1	0	0%			
87-68-3	HEXACHLOROBUTADIENE									
98-82-8	ISOPROPYLBENZENE									
179601-23-1	M,P-XYLENES									
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	2	0	0%						
74-88-4	METHYL IODIDE (IODOMETHANE)									
108-10-1	METHYL ISOBUTYL KETONE (MIBK)	2	0	0%						
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)									
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)									
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	3	0	0%	1	0	0%			
91-20-3	NAPHTHALENE									
104-51-8	N-BUTYLBENZENE									
103-65-1	N-PROPYLBENZENE									
95-47-6	O-XYLENE									
135-98-8	SEC-BUTYLBENZENE	2	0	0%						
100-42-5	STYRENE	2	0	0%						
127-18-4	TETRACHLOROETHENE	5	3	60%	1	1	100%			
98-06-6	TERT-BUTYLBENZENE	2	0	0%						
108-88-3	TOLUENE	3	0	0%	1	0	0%			
156-60-5	TRANS-1,2-DICHLOROETHENE									
10061-02-6	TRANS-1,3-DICHLOROPROPENE	3	0	0%	1	0	0%			
79-01-6	TRICHLOROETHENE	5	3	60%	1	1	100%			
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	5	0	0%	1	0	0%			
26523-64-8	TRICHLOROTRIFLUOROETHANE	5	0	0%	1	0	0%			
108-05-4	VINYL ACETATE									
75-01-4	VINYL CHLORIDE	3	0	0%	1	0	0%			
1330-20-7	XYLENES, TOTAL	3	0	0%	1	0	0%			

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1997 Sampled Count	1997 Detect Count	**1997 Frequency**	1998 Sampled Count	1998 Detect Count	**1998 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE									
71-55-6	1,1,1-TRICHLOROETHANE	1	0	0%				2	0	0%
79-34-5	1,1,2,2-TETRACHLOROETHANE	1	0	0%				2	0	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)									
79-00-5	1,1,2-TRICHLOROETHANE	1	0	0%				2	0	0%
75-34-3	1,1-DICHLOROETHANE	1	0	0%				2	0	0%
75-35-4	1,1-DICHLOROETHENE	1	0	0%				2	2	100%
563-58-6	1,1-DICHLOROPROPENE									
12+14DCB	1,2-&1,4-DICHLOROBENZENE	1	0	0%						
87-61-6	1,2,3-TRICHLOROBENZENE									
96-18-4	1,2,3-TRICHLOROPROPANE									
120-82-1	1,2,4-TRICHLOROBENZENE									
95-63-6	1,2,4-TRIMETHYLBENZENE									
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	0	0%				2	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)	2	0	0%				2	0	0%
95-50-1	1,2-DICHLOROBENZENE							2	0	0%
107-06-2	1,2-DICHLOROETHANE	1	0	0%				2	0	0%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)	1	0	0%						
78-87-5	1,2-DICHLOROPROPANE	1	0	0%				2	0	0%
108-67-8	1,3,5-TRIMETHYLBENZENE							2	0	0%
541-73-1	1,3-DICHLOROBENZENE	1	0	0%						
142-28-9	1,3-DICHLOROPROPANE							2	0	0%
106-46-7	1,4-DICHLOROBENZENE							2	0	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)									
594-20-7	2,2-DICHLOROPROPANE									
110-75-8	2-CHLOROETHYL VINYL ETHER	1	0	0%				2	0	0%
591-78-6	2-HEXANONE									
106-43-4	4-CHLOROTOLUENE									
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)									
67-64-1	ACETONE									
71-43-2	BENZENE	1	0	0%				2	0	0%
108-86-1	BROMOBENZENE									
75-27-4	BROMODICHLOROMETHANE	1	0	0%						
75-25-2	BROMOFORM	1	0	0%				2	2	100%
74-83-9	BROMOMETHANE	1	0	0%				2	0	0%
75-15-0	CARBON DISULFIDE							2	0	0%
56-23-5	CARBON TETRACHLORIDE	1	0	0%				2	0	0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	1994 Sampled Count	1994 Detect Count	**1994 Frequency**	1997 Sampled Count	1997 Detect Count	**1997 Frequency**	1998 Sampled Count	1998 Detect Count	**1998 Frequency**
108-90-7	CHLOROBENZENE	1	0	0%						
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)							2	0	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	1	0	0%						
75-00-3	CHLOROETHANE	1	0	0%						
67-66-3	CHLOROFORM	1	0	0%				2	2	100%
74-87-3	CHLOROMETHANE	1	0	0%						
7440-47-3	CHROMIUM, DISSOLVED									
7440-47-3	CHROMIUM, TOTAL									
156-59-2	CIS-1,2-DICHLOROETHENE							2	1	50%
10061-01-5	CIS-1,3-DICHLOROPROPENE	1	0	0%				2	0	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	0	0%						
100-41-4	ETHYLBENZENE	1	0	0%						
87-68-3	HEXACHLOROBUTADIENE									
98-82-8	ISOPROPYLBENZENE									
179601-23-1	M,P-XYLENES									
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)							2	0	0%
74-88-4	METHYL IODIDE (IODOMETHANE)									
108-10-1	METHYL ISOBUTYL KETONE (MIBK)							2	0	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)							2	0	0%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)									
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1	0	0%						
91-20-3	NAPHTHALENE									
104-51-8	N-BUTYLBENZENE									
103-65-1	N-PROPYLBENZENE									
95-47-6	O-XYLENE									
135-98-8	SEC-BUTYLBENZENE							2	0	0%
100-42-5	STYRENE							2	0	0%
127-18-4	TETRACHLOROETHENE	1	1	100%	1	1	100%	2	1	50%
98-06-6	TERT-BUTYLBENZENE							2	0	0%
108-88-3	TOLUENE	1	0	0%				2	0	0%
156-60-5	TRANS-1,2-DICHLOROETHENE							2	0	0%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	0	0%						
79-01-6	TRICHLOROETHENE	1	1	100%				2	2	100%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	0	0%				2	0	0%
26523-64-8	TRICHLOROTRIFLUOROETHANE	1	0	0%						
108-05-4	VINYL ACETATE									
75-01-4	VINYL CHLORIDE	1	0	0%						
1330-20-7	XYLENES, TOTAL	1	0	0%						

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2000 Sampled Count	2000 Detect Count	**2000 Frequency**	2003 Sampled Count	2003 Detect Count	**2003 Frequency**	2004 Sampled Count	2004 Detect Count	**2004 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE				26	0	0%	19	0	0%
71-55-6	1,1,1-TRICHLOROETHANE	17	0	0%	26	0	0%	19	0	0%
79-34-5	1,1,2,2-TETRACHLOROETHANE	17	0	0%	24	0	0%	19	0	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)				26	18	69%	19	12	63%
79-00-5	1,1,2-TRICHLOROETHANE	17	0	0%	24	0	0%	19	0	0%
75-34-3	1,1-DICHLOROETHANE	17	1	6%	26	8	31%	19	3	16%
75-35-4	1,1-DICHLOROETHENE	17	11	65%	26	18	69%	19	14	74%
563-58-6	1,1-DICHLOROPROPENE				24	0	0%	19	0	0%
12+14DCB	1,2-&1,4-DICHLOROBENZENE									
87-61-6	1,2,3-TRICHLOROBENZENE	4	0	0%	24	0	0%	19	0	0%
96-18-4	1,2,3-TRICHLOROPROPANE				24	0	0%	19	0	0%
120-82-1	1,2,4-TRICHLOROBENZENE				24	0	0%	19	0	0%
95-63-6	1,2,4-TRIMETHYLBENZENE	10	0	0%	24	0	0%	19	0	0%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	10	0	0%	24	0	0%	19	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)	10	0	0%	24	0	0%	19	0	0%
95-50-1	1,2-DICHLOROBENZENE	10	0	0%	24	0	0%	19	0	0%
107-06-2	1,2-DICHLOROETHANE	17	0	0%	26	1	4%	19	1	5%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)									
78-87-5	1,2-DICHLOROPROPANE	17	0	0%	26	0	0%	19	0	0%
108-67-8	1,3,5-TRIMETHYLBENZENE	9	0	0%	24	0	0%	19	0	0%
541-73-1	1,3-DICHLOROBENZENE	10	0	0%	24	0	0%	19	0	0%
142-28-9	1,3-DICHLOROPROPANE	10	0	0%	24	0	0%	19	1	5%
106-46-7	1,4-DICHLOROBENZENE	17	0	0%	24	0	0%	19	0	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	10	0	0%	24	0	0%	19	0	0%
594-20-7	2,2-DICHLOROPROPANE				24	0	0%	19	2	11%
110-75-8	2-CHLOROETHYL VINYL ETHER	17	0	0%						
591-78-6	2-HEXANONE	7	0	0%	24	0	0%	19	0	0%
106-43-4	4-CHLOROTOLUENE				24	0	0%	19	0	0%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)				24	0	0%	19	0	0%
67-64-1	ACETONE				24	0	0%	19	0	0%
71-43-2	BENZENE	17	0	0%	26	1	4%	19	1	5%
108-86-1	BROMOBENZENE	10	0	0%	24	0	0%	19	0	0%
75-27-4	BROMODICHLOROMETHANE	17	0	0%	24	0	0%	19	0	0%
75-25-2	BROMOFORM	17	0	0%	26	0	0%	19	0	0%
74-83-9	BROMOMETHANE	17	0	0%	24	0	0%	19	0	0%
75-15-0	CARBON DISULFIDE	17	1	6%	24	0	0%	19	0	0%
56-23-5	CARBON TETRACHLORIDE	17	0	0%	26	5	19%	19	1	5%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2000 Sampled Count	2000 Detect Count	**2000 Frequency**	2003 Sampled Count	2003 Detect Count	**2003 Frequency**	2004 Sampled Count	2004 Detect Count	**2004 Frequency**
108-90-7	CHLOROBENZENE	7	0	0%	24	0	0%	19	0	0%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	10	0	0%	24	0	0%	19	0	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	15	0	0%	24	0	0%	19	0	0%
75-00-3	CHLOROETHANE	7	0	0%	24	0	0%	19	0	0%
67-66-3	CHLOROFORM	17	11	65%	26	13	50%	19	13	68%
74-87-3	CHLOROMETHANE	7	0	0%	24	0	0%	19	0	0%
7440-47-3	CHROMIUM, DISSOLVED	3	2	67%	10	3	30%	9	2	22%
7440-47-3	CHROMIUM, TOTAL				10	3	30%	9	3	33%
156-59-2	CIS-1,2-DICHLOROETHENE	17	10	59%	26	13	50%	19	11	58%
10061-01-5	CIS-1,3-DICHLOROPROPENE	17	0	0%	24	0	0%	19	0	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)				26	3	12%	19	2	11%
100-41-4	ETHYLBENZENE	7	0	0%	24	0	0%	19	0	0%
87-68-3	HEXACHLOROBUTADIENE				24	0	0%	19	0	0%
98-82-8	ISOPROPYLBENZENE				24	0	0%	19	0	0%
179601-23-1	M,P-XYLENES				24	1	4%	19	0	0%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	17	0	0%	24	0	0%	19	0	0%
74-88-4	METHYL IODIDE (IODOMETHANE)				24	0	0%	19	0	0%
108-10-1	METHYL ISOBUTYL KETONE (MIBK)	17	0	0%	24	0	0%	19	0	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	17	1	6%	26	1	4%	19	3	16%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)				24	0	0%	19	0	0%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	7	0	0%	24	0	0%	19	0	0%
91-20-3	NAPHTHALENE				24	0	0%	19	0	0%
104-51-8	N-BUTYLBENZENE				24	0	0%	19	0	0%
103-65-1	N-PROPYLBENZENE				24	0	0%	19	0	0%
95-47-6	O-XYLENE				24	0	0%	19	0	0%
135-98-8	SEC-BUTYLBENZENE	10	0	0%	24	0	0%	19	0	0%
100-42-5	STYRENE	17	0	0%	24	0	0%	19	0	0%
127-18-4	TETRACHLOROETHENE	17	13	76%	26	19	73%	19	18	95%
98-06-6	TERT-BUTYLBENZENE	10	0	0%	24	0	0%	19	0	0%
108-88-3	TOLUENE	17	0	0%	24	0	0%	19	0	0%
156-60-5	TRANS-1,2-DICHLOROETHENE	17	0	0%	26	0	0%	19	0	0%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	7	0	0%	24	0	0%	19	1	5%
79-01-6	TRICHLOROETHENE	17	15	88%	26	20	77%	19	17	89%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	17	0	0%	26	16	62%	19	5	26%
26523-64-8	TRICHLOROTRIFLUOROETHANE									
108-05-4	VINYL ACETATE	7	0	0%	24	0	0%	19	0	0%
75-01-4	VINYL CHLORIDE	9	1	11%	24	0	0%	19	0	0%
1330-20-7	XYLENES, TOTAL	7	0	0%						

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2005 Sampled Count	2005 Detect Count	**2005 Frequency**	2006 Sampled Count	2006 Detect Count	**2006 Frequency**	2008 Sampled Count	2008 Detect Count	**2008 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
71-55-6	1,1,1-TRICHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
79-34-5	1,1,2,2-TETRACHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	20	6	30%						
79-00-5	1,1,2-TRICHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
75-34-3	1,1-DICHLOROETHANE	20	7	35%	25	3	12%	25	4	16%
75-35-4	1,1-DICHLOROETHENE	20	12	60%	25	18	72%	25	17	68%
563-58-6	1,1-DICHLOROPROPENE	20	0	0%	25	0	0%	25	0	0%
12+14DCB	1,2-&1,4-DICHLOROBENZENE									
87-61-6	1,2,3-TRICHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
96-18-4	1,2,3-TRICHLOROPROPANE	20	0	0%	25	0	0%	25	0	0%
120-82-1	1,2,4-TRICHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
95-63-6	1,2,4-TRIMETHYLBENZENE	20	1	5%	25	0	0%	25	0	0%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	20	0	0%	25	0	0%	25	0	0%
106-93-4	1,2-DIBROMOETHANE (EDB)	20	0	0%	25	0	0%	25	0	0%
95-50-1	1,2-DICHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
107-06-2	1,2-DICHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)									
78-87-5	1,2-DICHLOROPROPANE	20	0	0%	25	0	0%	25	0	0%
108-67-8	1,3,5-TRIMETHYLBENZENE	20	0	0%	25	0	0%	25	0	0%
541-73-1	1,3-DICHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
142-28-9	1,3-DICHLOROPROPANE	20	0	0%	25	0	0%	25	0	0%
106-46-7	1,4-DICHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	20	0	0%	25	0	0%	25	0	0%
594-20-7	2,2-DICHLOROPROPANE	20	0	0%	25	0	0%	25	0	0%
110-75-8	2-CHLOROETHYL VINYL ETHER									
591-78-6	2-HEXANONE	20	0	0%	25	0	0%	25	0	0%
106-43-4	4-CHLOROTOLUENE	20	0	0%	25	0	0%	25	0	0%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	20	0	0%	25	0	0%	25	0	0%
67-64-1	ACETONE	20	0	0%	25	0	0%	25	0	0%
71-43-2	BENZENE	20	1	5%	25	1	4%	25	1	4%
108-86-1	BROMOBENZENE	20	0	0%	25	0	0%	25	0	0%
75-27-4	BROMODICHLOROMETHANE	20	0	0%	25	0	0%	25	0	0%
75-25-2	BROMOFORM	20	0	0%	25	0	0%	25	0	0%
74-83-9	BROMOMETHANE	20	0	0%	25	0	0%	25	0	0%
75-15-0	CARBON DISULFIDE	20	0	0%	25	0	0%	25	0	0%
56-23-5	CARBON TETRACHLORIDE	20	1	5%	25	0	0%	25	0	0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2005 Sampled Count	2005 Detect Count	**2005 Frequency**	2006 Sampled Count	2006 Detect Count	**2006 Frequency**	2008 Sampled Count	2008 Detect Count	**2008 Frequency**
108-90-7	CHLOROBENZENE	20	0	0%	25	0	0%	25	0	0%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	20	0	0%	25	0	0%	25	0	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	20	0	0%	25	0	0%	25	0	0%
75-00-3	CHLOROETHANE	20	0	0%	25	0	0%	25	0	0%
67-66-3	CHLOROFORM	20	12	60%	25	15	60%	25	15	60%
74-87-3	CHLOROMETHANE	20	0	0%	25	0	0%	25	0	0%
7440-47-3	CHROMIUM, DISSOLVED	18	1	6%	4	2	50%	24	3	13%
7440-47-3	CHROMIUM, TOTAL	18	1	6%	4	2	50%	25	4	16%
156-59-2	CIS-1,2-DICHLOROETHENE	20	11	55%	25	13	52%	25	9	36%
10061-01-5	CIS-1,3-DICHLOROPROPENE	20	0	0%	25	0	0%	25	0	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	20	1	5%	25	1	4%	25	0	0%
100-41-4	ETHYLBENZENE	20	1	5%	25	0	0%	25	0	0%
87-68-3	HEXACHLOROBUTADIENE	20	0	0%	25	0	0%	25	0	0%
98-82-8	ISOPROPYLBENZENE	20	1	5%	25	0	0%	25	0	0%
179601-23-1	M,P-XYLENES	20	1	5%						
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	20	0	0%	25	0	0%	25	0	0%
74-88-4	METHYL IODIDE (IODOMETHANE)	20	1	5%	25	0	0%	25	0	0%
108-10-1	METHYL ISOBUTYL KETONE (MIBK)	20	0	0%	25	0	0%	25	0	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	20	2	10%	25	2	8%	25	2	8%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	20	0	0%	25	0	0%	25	0	0%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	20	0	0%	25	0	0%	25	0	0%
91-20-3	NAPHTHALENE	20	1	5%	25	0	0%	25	0	0%
104-51-8	N-BUTYLBENZENE	20	1	5%	25	0	0%	25	0	0%
103-65-1	N-PROPYLBENZENE	20	0	0%	25	0	0%	25	0	0%
95-47-6	O-XYLENE	20	1	5%						
135-98-8	SEC-BUTYLBENZENE	20	1	5%	25	0	0%	25	0	0%
100-42-5	STYRENE	20	0	0%	25	0	0%	25	0	0%
127-18-4	TETRACHLOROETHENE	20	17	85%	25	20	80%	25	18	72%
98-06-6	TERT-BUTYLBENZENE	20	0	0%	25	0	0%	25	0	0%
108-88-3	TOLUENE	20	1	5%	25	0	0%	25	0	0%
156-60-5	TRANS-1,2-DICHLOROETHENE	20	0	0%	25	0	0%	25	8	32%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	20	0	0%	25	0	0%	25	0	0%
79-01-6	TRICHLOROETHENE	20	16	80%	25	19	76%	25	18	72%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	20	8	40%	25	2	8%	25	0	0%
26523-64-8	TRICHLOROTRIFLUOROETHANE									
108-05-4	VINYL ACETATE	20	0	0%	25	0	0%	25	0	0%
75-01-4	VINYL CHLORIDE	20	0	0%	25	0	0%	25	0	0%
1330-20-7	XYLENES, TOTAL				25	0	0%	25	0	0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2010 Sampled Count	2010 Detect Count	**2010 Frequency**	2011 Sampled Count	2011 Detect Count	**2011 Frequency**	2012 Sampled Count	2012 Detects Count	**2012 Frequency**
630-20-6	1,1,1,2-TETRACHLOROETHANE	18	0	0%	20	0	0%	21		0%
71-55-6	1,1,1-TRICHLOROETHANE	18	0	0%	20	0	0%	21		0%
79-34-5	1,1,2,2-TETRACHLOROETHANE	18	0	0%	20	0	0%	21		0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)									
79-00-5	1,1,2-TRICHLOROETHANE	18	0	0%	20	0	0%	21		0%
75-34-3	1,1-DICHLOROETHANE	18	3	17%	20	6	30%	21	5	24%
75-35-4	1,1-DICHLOROETHENE	18	14	78%	22	16	73%	21	12	57%
563-58-6	1,1-DICHLOROPROPENE	18	0	0%	20	0	0%	21		0%
12+14DCB	1,2-&1,4-DICHLOROBENZENE									
87-61-6	1,2,3-TRICHLOROBENZENE	18	0	0%	20	0	0%	21		0%
96-18-4	1,2,3-TRICHLOROPROPANE	18	0	0%	20	0	0%	21		0%
120-82-1	1,2,4-TRICHLOROBENZENE	18	0	0%	20	0	0%	21		0%
95-63-6	1,2,4-TRIMETHYLBENZENE	18	0	0%	20	0	0%	21		0%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	18	0	0%	20	0	0%	21		0%
106-93-4	1,2-DIBROMOETHANE (EDB)	18	0	0%	20	0	0%	21		0%
95-50-1	1,2-DICHLOROBENZENE	18	0	0%	20	0	0%	21		0%
107-06-2	1,2-DICHLOROETHANE	18	0	0%	22	6	27%	21		0%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)									
78-87-5	1,2-DICHLOROPROPANE	18	0	0%	20	0	0%	21		0%
108-67-8	1,3,5-TRIMETHYLBENZENE	18	0	0%	20	0	0%	21		0%
541-73-1	1,3-DICHLOROBENZENE	18	0	0%	20	0	0%	21		0%
142-28-9	1,3-DICHLOROPROPANE	18	0	0%	20	0	0%	21		0%
106-46-7	1,4-DICHLOROBENZENE	18	0	0%	20	0	0%	21		0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	18	0	0%	20	0	0%	21		0%
594-20-7	2,2-DICHLOROPROPANE	18	0	0%	20	0	0%	21		0%
110-75-8	2-CHLOROETHYL VINYL ETHER									
591-78-6	2-HEXANONE	18	0	0%	20	0	0%	21		0%
106-43-4	4-CHLOROTOLUENE	18	0	0%	20	0	0%	21		0%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	18	0	0%	20	0	0%	21		0%
67-64-1	ACETONE	18	0	0%	20	0	0%	21		0%
71-43-2	BENZENE	18	1	6%	20	1	5%	21		0%
108-86-1	BROMOBENZENE	18	0	0%	20	0	0%	21		0%
75-27-4	BROMODICHLOROMETHANE	18	0	0%	22	0	0%	21		0%
75-25-2	BROMOFORM	18	0	0%	20	0	0%	21		0%
74-83-9	BROMOMETHANE	18	0	0%	20	0	0%	21		0%
75-15-0	CARBON DISULFIDE	18	0	0%	20	0	0%	21	1	5%
56-23-5	CARBON TETRACHLORIDE	18	0	0%	20	0	0%	21		0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2010 Sampled Count	2010 Detect Count	**2010 Frequency**	2011 Sampled Count	2011 Detect Count	**2011 Frequency**	2012 Sampled Count	2012 Detects Count	**2012 Frequency**
108-90-7	CHLOROBENZENE	18	0	0%	20	0	0%	21		0%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	18	0	0%	20	0	0%	21		0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	18	0	0%	22	0	0%	21		0%
75-00-3	CHLOROETHANE	18	0	0%	20	0	0%	21		0%
67-66-3	CHLOROFORM	18	13	72%	22	16	73%	21	13	62%
74-87-3	CHLOROMETHANE	18	0	0%	20	0	0%	21		0%
7440-47-3	CHROMIUM, DISSOLVED									
7440-47-3	CHROMIUM, TOTAL									
156-59-2	CIS-1,2-DICHLOROETHENE	18	10	56%	22	8	36%	21	10	48%
10061-01-5	CIS-1,3-DICHLOROPROPENE	18	0	0%	20	0	0%	21		0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	18	2	11%	22	2	9%	21	1	5%
100-41-4	ETHYLBENZENE	18	0	0%	20	0	0%	21		0%
87-68-3	HEXACHLOROBUTADIENE	18	0	0%	20	0	0%	21		0%
98-82-8	ISOPROPYLBENZENE	18	0	0%	20	0	0%	21		0%
179601-23-1	M,P-XYLENES				20	0	0%	21		0%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	18	0	0%	20	0	0%	21		0%
74-88-4	METHYL IODIDE (IODOMETHANE)	18	0	0%	20	0	0%	21		0%
108-10-1	METHYL ISOBUTYL KETONE (MIBK)	18	0	0%	20	0	0%	21		0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	18	1	6%	22	1	5%	21		0%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	18	0	0%	20	0	0%	21		0%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	18	0	0%	20	0	0%	21		0%
91-20-3	NAPHTHALENE	18	0	0%	20	0	0%	21		0%
104-51-8	N-BUTYLBENZENE	18	0	0%	20	0	0%	21		0%
103-65-1	N-PROPYLBENZENE	18	0	0%	20	0	0%	21		0%
95-47-6	O-XYLENE				20	0	0%	21		0%
135-98-8	SEC-BUTYLBENZENE	18	0	0%	20	0	0%	21		0%
100-42-5	STYRENE	18	0	0%	20	0	0%	21		0%
127-18-4	TETRACHLOROETHENE	18	15	83%	22	19	86%	21	19	90%
98-06-6	TERT-BUTYLBENZENE	18	0	0%	20	0	0%	21		0%
108-88-3	TOLUENE	18	0	0%	20	0	0%	21		0%
156-60-5	TRANS-1,2-DICHLOROETHENE	18	0	0%	20	0	0%	21		0%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	18	0	0%	20	0	0%	21		0%
79-01-6	TRICHLOROETHENE	18	13	72%	22	19	86%	21	16	76%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	18	0	0%	22	4	18%	21		0%
26523-64-8	TRICHLOROTRIFLUOROETHANE									
108-05-4	VINYL ACETATE	18	0	0%	20	0	0%	21		0%
75-01-4	VINYL CHLORIDE	18	0	0%	20	0	0%	21		0%
1330-20-7	XYLENES, TOTAL	18	0	0%	20	0	0%	21		0%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2013 Sampled Count	2013 Detects Count	**2013 Frequency**	**Average Frequency of Detect**
630-20-6	1,1,1,2-TETRACHLOROETHANE	25		0%	0%
71-55-6	1,1,1-TRICHLOROETHANE	25		0%	12%
79-34-5	1,1,2,2-TETRACHLOROETHANE	25		0%	0%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)				54%
79-00-5	1,1,2-TRICHLOROETHANE	25		0%	0%
75-34-3	1,1-DICHLOROETHANE	25	5	20%	33%
75-35-4	1,1-DICHLOROETHENE	25	7	28%	69%
563-58-6	1,1-DICHLOROPROPENE	25		0%	0%
12+14DCB	1,2-&1,4-DICHLOROBENZENE				4%
87-61-6	1,2,3-TRICHLOROBENZENE	25		0%	0%
96-18-4	1,2,3-TRICHLOROPROPANE	25		0%	0%
120-82-1	1,2,4-TRICHLOROBENZENE	25		0%	0%
95-63-6	1,2,4-TRIMETHYLBENZENE	25		0%	1%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	25		0%	0%
106-93-4	1,2-DIBROMOETHANE (EDB)	25		0%	0%
95-50-1	1,2-DICHLOROBENZENE	25		0%	0%
107-06-2	1,2-DICHLOROETHANE	25	1	4%	16%
540-59-0	1,2-DICHLOROETHENE(ACETYLENE DICHLORIDE)				51%
78-87-5	1,2-DICHLOROPROPANE	25		0%	0%
108-67-8	1,3,5-TRIMETHYLBENZENE	25		0%	0%
541-73-1	1,3-DICHLOROBENZENE	25		0%	0%
142-28-9	1,3-DICHLOROPROPANE	25		0%	0.3%
106-46-7	1,4-DICHLOROBENZENE	25		0%	0%
95-49-8	1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	25		0%	0%
594-20-7	2,2-DICHLOROPROPANE	25		0%	1%
110-75-8	2-CHLOROETHYL VINYL ETHER				6%
591-78-6	2-HEXANONE	25		0%	0%
106-43-4	4-CHLOROTOLUENE	25		0%	0%
99-87-6	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	25		0%	0%
67-64-1	ACETONE	25		0%	0%
71-43-2	BENZENE	25		0%	4%
108-86-1	BROMOBENZENE	25		0%	0%
75-27-4	BROMODICHLOROMETHANE	25		0%	0%
75-25-2	BROMOFORM	25		0%	6%
74-83-9	BROMOMETHANE	25		0%	0%
75-15-0	CARBON DISULFIDE	25		0%	1%
56-23-5	CARBON TETRACHLORIDE	25		0%	7%

TABLE A-6
FREQUENCY OF GROUNDWATER DETECTIONS - RID WELLS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CAS NUMBER	CHEMICAL	2013 Sampled Count	2013 Detects Count	**2013 Frequency**	**Average Frequency of Detect**
108-90-7	CHLOROBENZENE	25		0%	0%
74-97-5	CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	25		0%	0%
124-48-1	CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	25		0%	0%
75-00-3	CHLOROETHANE	25		0%	0%
67-66-3	CHLOROFORM	25	8	32%	53%
74-87-3	CHLOROMETHANE	25		0%	0%
7440-47-3	CHROMIUM, DISSOLVED				27%
7440-47-3	CHROMIUM, TOTAL				24%
156-59-2	CIS-1,2-DICHLOROETHENE	25	7	28%	44%
10061-01-5	CIS-1,3-DICHLOROPROPENE	25		0%	0%
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	25	1	4%	4%
100-41-4	ETHYLBENZENE	25		0%	0.3%
87-68-3	HEXACHLOROBUTADIENE	25		0%	0%
98-82-8	ISOPROPYLBENZENE	25		0%	1%
179601-23-1	M,P-XYLENES	25		0%	1%
78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	25		0%	0%
74-88-4	METHYL IODIDE (IODOMETHANE)	25		0%	1%
108-10-1	METHYL ISOBUTYL KETONE (MIBK)	25		0%	0%
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	25		0%	6%
74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	25		0%	0%
75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	25		0%	3%
91-20-3	NAPHTHALENE	25		0%	1%
104-51-8	N-BUTYLBENZENE	25		0%	1%
103-65-1	N-PROPYLBENZENE	25		0%	0%
95-47-6	O-XYLENE	25		0%	1%
135-98-8	SEC-BUTYLBENZENE	25		0%	0.4%
100-42-5	STYRENE	25		0%	0%
127-18-4	TETRACHLOROETHENE	25	18	72%	80%
98-06-6	TERT-BUTYLBENZENE	25		0%	0%
108-88-3	TOLUENE	25		0%	0.3%
156-60-5	TRANS-1,2-DICHLOROETHENE	25		0%	9%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	25		0%	0.3%
79-01-6	TRICHLOROETHENE	25	16	64%	82%
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	25		0%	16%
26523-64-8	TRICHLOROTRIFLUOROETHANE				14%
108-05-4	VINYL ACETATE	25		0%	0%
75-01-4	VINYL CHLORIDE	25		0%	1%
1330-20-7	XYLENES, TOTAL	25		0%	0%

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	NA	NA	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SPLIT	SURFACE WATER	SPLIT	SURFACE WATER	SPLIT
1,1,1,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,1-Trichloroethane (TCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane (1,1-DCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene (1,1-DCE)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	**0.5**	<0.50	<0.50
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0
1,2,4-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
1,2,4-Trimethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
1,2-Dibromo-3-chloropropane	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0
1,2-Dibromoethane (EDB)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,2-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
1,3,5-Trimethylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,3-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
1,3-Dichloropropane	<1.0	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
2,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0
2-Butanone (MEK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
2-Hexanone	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Chlorotoluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
4-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acetone	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Bromobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
Bromochloromethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Bromodichloromethane	**3.87**	<0.5	**0.82**	<0.5	**3.24**	**3.4**	**3.83**	**3.8**	**4.13**	**3.9**
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0
Carbon Disulfide	<0.5	<0.5	<0.5	<0.5	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Chloroethane	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<4.0	<1.0
Chloroform	**5.92**	**0.93**	<0.5	<0.5	**4.91**	**4.7**	**5.21**	**4.7**	**6.07**	**5.3**

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	NA	NA	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SPLIT	SURFACE WATER	SPLIT	SURFACE WATER	SPLIT
cis-1,2-Dichloroethene	<0.5	**1.02**	<0.5	**0.52**	<0.50	<0.50	**0.82**	**0.7**	**0.56**	<0.50
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	**1.41**	<0.5	<0.5	<0.5	**1.76**	**1.6**	**1.90**	**1.6**	**2.24**	**1.8**
Dichlorodifluoromethane (CFC 12)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Hexachlorobutadiene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
Isopropylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
m,p-Xylenes	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA
Methyl Bromide (Bromomethane)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl Chloride (Cloromethane)	<5.0	<5.0	<5.0	<5.0	<5.00	<0.50	<5.00	<0.50	<5.00	<0.50
Methyl Iodide (Idomethane)	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA
Methylene Bromide (Dibromomethane)	<0.5	<0.5	<0.5	<0.5	<0.50	NA	<0.50	NA	<0.50	NA
Methylene chloride	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<5.0	<3.0	<5.0
MTBE	<2.0	<2.0	<2.0	<2.0	<2.00	<1.0	<2.00	<1.0	<2.00	<1.0
Napthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0
n-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
n-Propylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
o-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	NA
p-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	<1.5	NA	<1.5	NA	<1.5	NA
sec-Butylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0
Tetrachloroethene (PCE)	<0.5	**2.75**	<0.5	**0.56**	**0.59**	**0.8**	**0.89**	**1.1**	<0.50	**0.5**
Toluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Trichloroethene (TCE)	**0.6**	**2.97**	<0.5	**1.24**	**0.73**	**1.2**	**2.65**	**2.8**	**0.75**	**1.2**
Trichlorofluoromethane (CFC 11)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0
Total Chromium	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<3.0

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Salt Canal In Manhole (Near RID-114)**	**Open Section of Salt Canal (W of RID-105)**
Sample ID	Salt Canal	SC West of RID-105	Canal W of 83A	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-18	W-19
Date Collected	9/17/2012	9/17/2012	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/29/2011	6/27/2011
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sample Type	SURFACE WATER	SPLIT	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
1,1,1,2-Tetrachloroethane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,1,1-Trichloroethane (TCA)	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,1,2,2-Tetrachloroethane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,1,2-Trichloroethane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane (1,1-DCA)	**0.52**	<0.50	<0.500	--	<0.500	<0.500	**0.64**	--	--	--
1,1-Dichloroethene (1,1-DCE)	<0.50	**0.8**	**0.74**	<0.50	<0.500	<0.500	**1.43**	**0.94**	**3.2**	**1.5**
1,1-Dichloropropene	<1.0	<1.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	<5.0	<2.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
1,2,3-Trichloropropane	<1.0	<2.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
1,2,4-Trichlorobenzene	<5.0	<2.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
1,2,4-Trimethylbenzene	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
1,2-Dibromo-3-chloropropane	<2.0	<5.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
1,2-Dibromoethane (EDB)	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,2-Dichlorobenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
1,2-Dichloroethane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	**2.9**	**0.62**
1,2-Dichloropropane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
1,3,5-Trimethylbenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
1,3-Dichlorobenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
1,3-Dichloropropane	<1.0	<1.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
1,4-Dichlorobenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
2,2-Dichloropropane	<0.50	<2.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
2-Butanone (MEK)	<5.0	<5.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
2-Hexanone	<5.0	<5.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
4-Chlorotoluene	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
4-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
Acetone	<20	<20	<20	--	<20	<20	<20	--	--	--
Benzene	<0.50	<1.0	<0.500	--	<0.500	<0.500	**0.7**	--	--	--
Bromobenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
Bromochloromethane	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Bromodichloromethane	<0.50	<2.0	**1.25**	--	**2.69**	**2.21**	<0.500	--	<0.50	<0.50
Bromoform	<1.0	<5.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
Carbon Disulfide	<0.50	<5.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Carbon Tetrachloride	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Chlorobenzene	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Chloroethane	<4.0	<1.0	<4.00	--	<4.00	<4.00	<4.00	--	--	--
Chloroform	**1.11**	**1.5**	**3.68**	--	**5.23**	**4.61**	**2.15**	--	**2.1**	**2.2**

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Salt Canal In Manhole (Near RID-114)**	**Open Section of Salt Canal (W of RID-105)**
Sample ID	Salt Canal	SC West of RID-105	Canal W of 83A	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-18	W-19
Date Collected	9/17/2012	9/17/2012	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/29/2011	6/27/2011
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sample Type	SURFACE WATER	SPLIT	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
cis-1,2-Dichloroethene	**0.72**	**0.7**	**1.2**	--	<0.500	<0.500	**2.25**	--	**12**	**2.2**
cis-1,3-Dichloropropene	<1.0	<1.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
Dibromochloromethane	<0.50	<1.0	<0.500	--	**0.84**	**0.68**	<0.500	--	<0.50	<0.50
Dichlorodifluoromethane (CFC 12)	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50
Ethylbenzene	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
Hexachlorobutadiene	<5.0	<2.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
Isopropylbenzene	<2.5	<1.0	<2.50	--	<2.50	<2.50	<2.50	--	--	--
m,p-Xylenes	<2.0	NA	<2.00	--	<2.00	<2.00	<2.00	--	--	--
Methyl Bromide (Bromomethane)	<5.0	<5.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
Methyl Chloride (Cloromethane)	<5.00	<0.50	<5.00	--	<5.00	<5.00	<5.00	--	--	--
Methyl Iodide (Idomethane)	<2.0	NA	<2.00	--	<2.00	<2.00	<2.00	--	--	--
Methylene Bromide (Dibromomethane)	<0.50	NA	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Methylene chloride	<3.0	<5.0	<3.00	--	<3.00	<3.00	<3.00	--	--	--
MTBE	<2.00	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50
Napthalene	<5.0	<2.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
n-Butylbenzene	<2.5	<1.0	<2.50	--	<2.50	<2.50	<2.50	--	--	--
n-Propylbenzene	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
o-Xylene	<1.0	NA	<1.00	--	<1.00	<1.00	<1.00	--	--	--
p-Isopropyltoluene	<1.5	NA	<1.50	--	<1.50	<1.50	<1.50	--	--	--
sec-Butylbenzene	<1.5	<1.0	<1.50	--	<1.50	<1.50	<1.50	--	--	--
Styrene	<1.0	<1.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--
tert-Butylbenzene	<2.5	<1.0	<2.50	--	<2.50	<2.50	<2.50	--	--	--
Tetrachloroethene (PCE)	**3.79**	**3.9**	**2.6**	**2.1**	**1.51**	**1.19**	**4.63**	**3.9**	**2.9**	**5.9**
Toluene	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	--	--
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
trans-1,3-Dichloropropene	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Trichloroethene (TCE)	**2.01**	**2.5**	**5.57**	**4.4**	**2.59**	**2.3**	**11.8**	**9.8**	**61**	**14**
Trichlorofluoromethane (CFC 11)	<2.0	<1.0	<2.00	--	<2.00	<2.00	<2.00	--	<0.50	<0.50
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	<5.0	<1.0	<5.00	--	<5.00	<5.00	<5.00	--	--	--
Vinyl Chloride	<0.50	<1.0	<0.500	--	<0.500	<0.500	<0.500	--	--	--
Total Chromium	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	<1.0	<3.0	<1.00	--	<1.00	<1.00	<1.00	--	--	--

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Open Section of RID-92 Lateral	RID-92 Lateral Discharge to Main Canal	500 ft Downstream of Salt Canal Discharge	RID Canal W of 83rd Ave	RID Canal W of 43rd Ave	RID Canal W of 67th Ave	Salt Canal W of RID-105	Main Canal, Upstream of Salt Canal	Main Canal, Upstream of Salt Canal	Salt Canal W of RID-105
Sample ID	W-20	W-21	W-22	83A Canal	43A Canal	67A Canal	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)	Salt Canal E. of 8310
Date Collected	6/28/2011	6/28/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011	9/13/2011	6/7/2010	6/7/2010	6/7/2010
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	105
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
1,1,1,2-Tetrachloroethane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,1,1-Trichloroethane (TCA)	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,1,2,2-Tetrachloroethane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,1,2-Trichloroethane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	na	--	na
1,1-Dichloroethane (1,1-DCA)	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,1-Dichloroethene (1,1-DCE)	**3.1**	**2.6**	<0.50	**0.74**	**0.55**	<0.500	**1.24**	<0.50	<0.50	**1.5**
1,1-Dichloropropene	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
1,2,3-Trichloropropane	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
1,2,4-Trichlorobenzene	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
1,2,4-Trimethylbenzene	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
1,2-Dibromo-3-chloropropane	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
1,2-Dibromoethane (EDB)	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,2-Dichlorobenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
1,2-Dichloroethane	**1.6**	**1.6**	<0.50	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,2-Dichloropropane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
1,3,5-Trimethylbenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
1,3-Dichlorobenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
1,3-Dichloropropane	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
1,4-Dichlorobenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
2,2-Dichloropropane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
2-Butanone (MEK)	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
2-Hexanone	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
4-Chlorotoluene	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
4-Isopropyltoluene	--	--	--	--	--	--	--	<1.5	--	<1.5
4-Methyl-2-pentanone (MIBK)	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
Acetone	--	--	--	<20	<20	<20	<20	<20	--	<20
Benzene	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Bromobenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
Bromochloromethane	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Bromodichloromethane	<0.50	<0.50	**1.7**	**2.24**	**5.7**	**3.74**	<0.500	**2.2**	--	<0.50
Bromoform	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
Carbon Disulfide	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Carbon Tetrachloride	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Chlorobenzene	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Chloroethane	--	--	--	<4.00	<4.00	<4.00	<4.00	<4.0	--	<4.0
Chloroform	**2.9**	**2.9**	**3**	**3.3**	**6.19**	**4.78**	**1.6**	**4.6**	--	**1.9**

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Open Section of RID-92 Lateral	RID-92 Lateral Discharge to Main Canal	500 ft Downstream of Salt Canal Discharge	RID Canal W of 83rd Ave	RID Canal W of 43rd Ave	RID Canal W of 67th Ave	Salt Canal W of RID-105	Main Canal, Upstream of Salt Canal	Main Canal, Upstream of Salt Canal	Salt Canal W of RID-105
Sample ID	W-20	W-21	W-22	83A Canal	43A Canal	67A Canal	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)	Salt Canal E. of 8310
Date Collected	6/28/2011	6/28/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011	9/13/2011	6/7/2010	6/7/2010	6/7/2010
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	105
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
cis-1,2-Dichloroethene	**6.4**	**6.2**	**0.74**	**0.92**	**0.71**	<0.500	**1.66**	<0.50	--	**2**
cis-1,3-Dichloropropene	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
Dibromochloromethane	<0.50	<0.50	**0.7**	**1.21**	**3.19**	**2.07**	<0.500	**0.8**	--	<0.50
Dichlorodifluoromethane (CFC 12)	<0.50	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Ethylbenzene	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Hexachlorobutadiene	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
Isopropylbenzene	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--	<2.5
m,p-Xylenes	--	--	--	<2.00	<2.00	<2.00	<2.00	na	--	na
Methyl Bromide (Bromomethane)	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
Methyl Chloride (Cloromethane)	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
Methyl Iodide (Idomethane)	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Methylene Bromide (Dibromomethane)	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Methylene chloride	--	--	--	<3.00	<3.00	<3.00	<3.00	<3.0	--	<3.0
MTBE	<0.50	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Napthalene	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
n-Butylbenzene	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--	<2.5
n-Propylbenzene	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
o-Xylene	--	--	--	<1.00	<1.00	<1.00	<1.00	na	--	na
p-Isopropyltoluene	--	--	--	<1.50	<1.50	<1.50	<1.50	na	--	na
sec-Butylbenzene	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--	<1.5
Styrene	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--	<1.0
tert-Butylbenzene	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--	<2.5
Tetrachloroethene (PCE)	**9.7**	**8.6**	**1.9**	**2.08**	**1.19**	**0.99**	**4.47**	**1.5**	**1.4**	**6.1**
Toluene	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Total Trihalomethanes	--	--	--	--	--	--	--	**7.6**	--	<2.5
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
trans-1,3-Dichloropropene	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Trichloroethene (TCE)	**56**	**54**	**4.2**	**4.73**	**3.5**	**3.06**	**8.58**	**2.5**	**2.5**	**12**
Trichlorofluoromethane (CFC 11)	<0.50	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--	<2.0
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--	<5.0
Vinyl Chloride	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--	<0.50
Total Chromium	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	--	--	--	<1.00	<1.00	<1.00	<1.00	<3.0	--	<3.0

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**Salt Canal W of RID-105**	**Main Canal, W of RID-84**	**Main Canal, W of RID-84**	**Main Canal, W of 67th Ave/RID-85**	**Main Canal, W of 67th Ave/RID-85**	**Open Lateral, S of RID-92**	**Open Lateral, S of RID-92**	**RID-84**	**RID-89**	**RID-92**
Sample ID	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)	4310 Ave Lateral	4310 Ave Lateral (split)	RID-84-Canal	RID-89-DITCH	RID-92-DITCH
Date Collected	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/9/2003	6/9/2003	6/9/2003
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	105	84	84	85	85	92	92	84	89	92
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
1,1,1,2-Tetrachloroethane	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
1,1,1-Trichloroethane (TCA)	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	<0.50	--	<0.50	--	<0.50	--	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	--	<0.50	--	<0.50	--	<0.50	--	<1.0	<1.0	<1.0
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	na	--	na	--	na	--	**1.6**	**2.2**	**2.5**
1,1-Dichloroethane (1,1-DCA)	--	<0.50	--	<0.50	--	**1.5**	--	<0.50	**0.69**	<0.50
1,1-Dichloroethene (1,1-DCE)	**1.4**	<0.50	<0.50	<0.50	<0.50	**2.2**	**1.4**	<1.0	**3.1**	**2.5**
1,1-Dichloropropene	--	<1.0	--	<1.0	--	<1.0	--	<0.50	<0.50	<0.50
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	<5.0	--	<5.0	--	<5.0	--	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	<1.0	--	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	--	<5.0	--	<5.0	--	<5.0	--	<0.50	<0.50	<0.50
1,2,4-Trimethylbenzene	--	<2.0	--	<2.0	--	<2.0	--	<0.50	<0.50	<0.50
1,2-Dibromo-3-chloropropane	--	<2.0	--	<2.0	--	<2.0	--	<5.0	<5.0	<5.0
1,2-Dibromoethane (EDB)	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	**0.51**
1,2-Dichloropropane	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	<1.0	--	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	<0.50	--	<0.50	--	<0.50	--	<2.0	<2.0	<2.0
2-Butanone (MEK)	--	<5.0	--	<5.0	--	<5.0	--	<8.0	<8.0	<8.0
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
2-Hexanone	--	<5.0	--	<5.0	--	<5.0	--	<5.0	<5.0	<5.0
4-Chlorotoluene	--	<2.0	--	<2.0	--	<2.0	--	<0.50	<0.50	<0.50
4-Isopropyltoluene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
4-Methyl-2-pentanone (MIBK)	--	<5.0	--	<5.0	--	<5.0	--	<8.0	<8.0	<8.0
Acetone	--	<20	--	<20	--	<20	--	<10	<10	<10
Benzene	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
Bromobenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
Bromochloromethane	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
Bromodichloromethane	--	**2.5**	--	**2.6**	--	<0.50	--	**2.1**	<0.50	<0.50
Bromoform	--	<1.0	--	<1.0	--	<1.0	--	<0.50	<0.50	<0.50
Carbon Disulfide	--	<0.50	--	<0.50	--	<0.50	--	<2.0	<2.0	<2.0
Carbon Tetrachloride	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
Chlorobenzene	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
Chloroethane	--	<4.0	--	<4.0	--	<4.0	--	<1.0	<1.0	<1.0
Chloroform	--	**5.1**	--	**5.2**	--	**3.1**	--	**2.7**	**2.9**	**2.1**

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Salt Canal W of RID-105	Main Canal, W of RID-84	Main Canal, W of RID-84	Main Canal, W of 67th Ave/RID-85	Main Canal, W of 67th Ave/RID-85	Open Lateral, S of RID-92	Open Lateral, S of RID-92	RID-84	RID-89	RID-92
Sample ID	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)	4310 Ave Lateral	4310 Ave Lateral (split)	RID-84-Canal	RID-89-DITCH	RID-92-DITCH
Date Collected	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/9/2003	6/9/2003	6/9/2003
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	105	84	84	85	85	92	92	84	89	92
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
cis-1,2-Dichloroethene	--	<0.50	--	<0.50	--	**5.8**	--	**0.68**	**1.8**	**3**
cis-1,3-Dichloropropene	--	<1.0	--	<1.0	--	<1.0	--	<0.50	<0.50	<0.50
Dibromochloromethane	--	**0.88**	--	**0.88**	--	<0.50	--	**1.1**	<0.50	<0.50
Dichlorodifluoromethane (CFC 12)	--	<2.0	--	<2.0	--	<2.0	--	<3.0	<3.0	<3.0
Ethylbenzene	--	<2.0	--	<2.0	--	<2.0	--	<0.50	<0.50	<0.50
Hexachlorobutadiene	--	<5.0	--	<5.0	--	<5.0	--	<1.0	<1.0	<1.0
Isopropylbenzene	--	<2.5	--	<2.5	--	<2.5	--	<0.50	<0.50	<0.50
m,p-Xylenes	--	na	--	na	--	na	--	<1.0	<1.0	<1.0
Methyl Bromide (Bromomethane)	--	<5.0	--	<5.0	--	<5.0	--	<1.0	<1.0	<1.0
Methyl Chloride (Cloromethane)	--	<5.0	--	<5.0	--	<5.0	--	<2.0	<2.0	<2.0
Methyl Iodide (Idomethane)	--	<2.0	--	<2.0	--	<2.0	--	<2.0	<2.0	<2.0
Methylene Bromide (Dibromomethane)	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
Methylene chloride	--	<3.0	--	<3.0	--	<3.0	--	<1.0	<1.0	<1.0
MTBE	--	<2.0	--	<2.0	--	<2.0	--	<1.0	<1.0	<1.0
Napthalene	--	<5.0	--	<5.0	--	<5.0	--	<3.0	<3.0	<3.0
n-Butylbenzene	--	<2.5	--	<2.5	--	<2.5	--	<0.50	<0.50	<0.50
n-Propylbenzene	--	<2.0	--	<2.0	--	<2.0	--	<0.50	<0.50	<0.50
o-Xylene	--	na	--	na	--	na	--	<0.50	<0.50	<0.50
p-Isopropyltoluene	--	na	--	na	--	na	--	--	--	--
sec-Butylbenzene	--	<1.5	--	<1.5	--	<1.5	--	<0.50	<0.50	<0.50
Styrene	--	<1.0	--	<1.0	--	<1.0	--	<0.50	<0.50	<0.50
tert-Butylbenzene	--	<2.5	--	<2.5	--	<2.5	--	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	**5.9**	**1.4**	**1.4**	**1.5**	**1.4**	**12**	**11**	**4**	**15**	**21**
Toluene	--	<2.0	--	<2.0	--	<2.0	--	<0.50	<0.50	<0.50
Total Trihalomethanes	--	**8.48**	--	**8.68**	--	**3.1**	--	**--**	**--**	**--**
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	--	<0.50	--	<0.50	--	<0.50	--	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	<0.50	--	<0.50	--	<0.50	--	<1.0	<1.0	<1.0
Trichloroethene (TCE)	**11**	**2.6**	**2.7**	**2.7**	**2.8**	**70**	**56**	**4**	**34**	**70**
Trichlorofluoromethane (CFC 11)	--	<2.0	--	<2.0	--	<2.0	--	<1.0	**1.6**	**1.4**
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	--	<5.0	--	<5.0	--	<5.0	--	<3.0	<3.0	<3.0
Vinyl Chloride	--	<0.50	--	<0.50	--	<0.50	--	<1.0	<1.0	<1.0
Total Chromium	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	--	<3.0	--	<3.0	--	<3.0	--	--	--	--

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**RID-103**	**RID-105**	**RID-106**	**RID-107**	**200 ft Downstream of 92**	**500 ft Downstream of 92**	**1,000 ft Downstream of 92**	**25 ft Upstream of 84**	**10 ft Downstream of 84**	**125 ft Downstream of 84**
Sample ID	RID-103-DITCH	RID-105-DITCH	RID-106-DITCH	RID-107-DITCH						
Date Collected	6/9/2003	6/9/2003	6/9/2003	6/9/2003	6/26/2000	6/26/2000	6/26/2000	7/1/2000	7/1/2000	7/1/2000
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	103	105	106	107	92	92	92	94	84	84
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
1,1,1,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane (TCA)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichlorotrifluoroethane (CFC 113)	**1.7**	**2**	**2**	**2.2**	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane (1,1-DCA)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene (1,1-DCE)	**1.3**	**2.1**	**2.4**	**2**	**1.9**	**2.0**	**1.9**	<1.0	**1.3**	<1.0
1,1-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	NA	NA	NA
1,2 & 1,4-Dichlorobenzene	--	--	--	--	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<8.0	<8.0	<8.0	<8.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloroethyl Vinyl Ether	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chlorotoluene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
2-Hexanone	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Chlorotoluene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	<8.0	<8.0	<8.0	<8.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acetone	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Bromochloromethane	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Bromodichloromethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**3.4**	**3.0**	**3.7**
Bromoform	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Disulfide	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	**1.9**	**2.2**	**2.9**	**1.5**	**1.5**	**1.5**	**3.4**	**3.3**	**3.8**

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**RID-103**	**RID-105**	**RID-106**	**RID-107**	**200 ft Downstream of 92**	**500 ft Downstream of 92**	**1,000 ft Downstream of 92**	**25 ft Upstream of 84**	**10 ft Downstream of 84**	**125 ft Downstream of 84**
Sample ID	RID-103-DITCH	RID-105-DITCH	RID-106-DITCH	RID-107-DITCH						
Date Collected	6/9/2003	6/9/2003	6/9/2003	6/9/2003	6/26/2000	6/26/2000	6/26/2000	7/1/2000	7/1/2000	7/1/2000
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	103	105	106	107	92	92	92	94	84	84
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
cis-1,2-Dichloroethene	<0.50	**1.6**	**1.8**	**2.2**	**2.5**	**2.6**	**2.4**	**0.61**	**0.88**	**0.61**
cis-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**2.9**	**2.7**	**3.2**
Dichlorodifluoromethane (CFC 12)	<3.0	<3.0	<3.0	<3.0	NA	NA	NA	NA	NA	NA
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA	NA
Isopropylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
m,p-Xylenes	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA	NA
Methyl Bromide (Bromomethane)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Chloride (Cloromethane)	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Iodide (Idomethane)	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA
Methylene Bromide (Dibromomethane)	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MTBE	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Napthalene	<3.0	<3.0	<3.0	<3.0	NA	NA	NA	NA	NA	NA
n-Butylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
o-Xylene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Styrene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
tert-Butylbenzene	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA
Tetrachloroethene (PCE)	**7.6**	**8.7**	**9.5**	**9**	**15**	**15**	**15**	**2.1**	**8.8**	**4.0**
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Trihalomethanes	**--**	**--**	**--**	**--**	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene (TCE)	**1**	**13**	**14**	**18**	**56**	**56**	**54**	**3.0**	**3.8**	**3.5**
Trichlorofluoromethane (CFC 11)	<1.0	**1.5**	**1.6**	**1.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorotrifluoroethane	--	--	--	--	NA	NA	NA	NA	NA	NA
Vinyl Acetate	<3.0	<3.0	<3.0	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Chromium	--	--	--	--	NA	NA	NA	NA	NA	NA
Dissolved Chromium	--	--	--	--	NA	NA	NA	NA	NA	NA
Xylenes, Total	--	--	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**125 ft Downstream of 84**	**200 ft Downstream of 84**	**500 ft Downstream of 84**	**1,000 ft Downstream of 84**	**Canal at 83rd Ave**	**Adjacent to RID-104**	**Adjacent to RID-103**	**Adjacent to RID-98**
Sample ID	Duplicate							
Date Collected	7/1/2000	7/1/2000	7/1/2000	7/1/2000	7/1/2000	8/10/1995	8/10/1995	8/10/1995
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	84	84	84	84	84	104	103	98
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane (TCA)	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
1,1,2-Trichlorotrifluoroethane (CFC 113)	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane (1,1-DCA)	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,1-Dichloroethene (1,1-DCE)	<1.0	<1.0	<1.0	**1.0**	<1.0	<5.0	<5.0	<5.0
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
1,2 & 1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,2-Dichloropropane	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	<5.0	<5.0	<5.0	<5.0	<5.0	<20	<20	<20
2-Chloroethyl Vinyl Ether	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	<5.0	<5.0	<5.0	<5.0	<5.0	<20	<20	<20
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.0	<5.0	<5.0	<20	<20	<20
Acetone	NA	NA	NA	NA	NA	<20	<20	<20
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Bromobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	**3.5**	**3.7**	**3.9**	**3.6**	**3.4**	<5.0	<5.0	**7.4**
Bromoform	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	**75**
Carbon Disulfide	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
Carbon Tetrachloride	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Chlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10
Chloroform	**3.8**	**3.9**	**3.7**	**3.8**	**3.6**	<5.0	<5.0	<5.0

TABLE A-7
SUMMARY OF SURFACE WATER CONCENTRATIONS
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	125 ft Downstream of 84	200 ft Downstream of 84	500 ft Downstream of 84	1,000 ft Downstream of 84	Canal at 83rd Ave	Adjacent to RID-104	Adjacent to RID-103	Adjacent to RID-98
Sample ID	Duplicate							
Date Collected	7/1/2000	7/1/2000	7/1/2000	7/1/2000	7/1/2000	8/10/1995	8/10/1995	8/10/1995
Owner/Facility	RID	RID	RID	RID	RID	RID	RID	RID
Facility Well No.	84	84	84	84	84	104	103	98
Sample Type	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER	SURFACE WATER
cis-1,2-Dichloroethene	<0.50	**0.65**	**0.60**	**0.51**	**0.64**	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Dibromochloromethane	**2.9**	**3.1**	**2.8**	**3.1**	**3.0**	<5.0	<5.0	**35**
Dichlorodifluoromethane (CFC 12)	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Bromide (Bromomethane)	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10
Methyl Chloride (Cloromethane)	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10
Methyl Iodide (Idomethane)	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Bromide (Dibromomethane)	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
MTBE	<2.0	<2.0	<2.0	<2.0	<2.0	NA	NA	NA
Napthalene	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	--	--	--	--	--	--	--	--
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
tert-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene (PCE)	**3.2**	**3.4**	**3.4**	**3.5**	**3.4**	**5.6**	<5.0	**6.1**
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
Total Trihalomethanes	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
Trichloroethene (TCE)	**3.2**	**3.4**	**3.2**	**3.2**	**3.0**	<5.0	<5.0	<5.0
Trichlorofluoromethane (CFC 11)	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0
Trichlorotrifluoroethane	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<20	<20
Vinyl Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10
Total Chromium	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Chromium	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10

Concentrations in µg/L
NE - Not Established
Shading indicates AWQS equaled or exceeded
na = not analyzed
-- = No lab report

Yellow shade indicates chemical was selected as a COPC based on 2009 - 2013 detections or historical detections
Concentrations in µg/L

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**RID Canal W of 83rd Ave**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave	Salt Canal	SC West of RID-105	Canal W of 83A
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	4/7/2011
1,1,1,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,1,1-Trichloroethane (TCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane (1,1-DCA)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.52**	<0.50	<0.500
1,1-Dichloroethene (1,1-DCE)	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	**0.5**	<0.50	<0.50	<0.50	**0.8**	**0.74**
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.00
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.00
1,2,4-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.00
1,2,4-Trimethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
1,2-Dibromo-3-chloropropane	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.00
1,2-Dibromoethane (EDB)	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,2-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
1,3,5-Trimethylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
1,3-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
1,3-Dichloropropane	<1.0	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
1,4-Dichlorobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
2,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.500
2-Butanone (MEK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.00
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
2-Hexanone	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.00
4-Chlorotoluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
4-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.00
Acetone	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Bromobenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
Bromochloromethane	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Bromodichloromethane	**3.87**	<0.5	**0.82**	<0.5	**3.24**	**3.4**	**3.83**	**3.8**	**4.13**	**3.9**	<0.50	<2.0	**1.25**
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.00
Carbon Disulfide	<0.5	<0.5	<0.5	<0.5	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0	<0.500
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Chloroethane	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<4.0	<1.0	<4.0	<1.0	<4.00
Chloroform	**5.92**	**0.93**	<0.5	<0.5	**4.91**	**4.7**	**5.21**	**4.7**	**6.07**	**5.3**	**1.11**	**1.5**	**3.68**
cis-1,2-Dichloroethene	<0.5	**1.02**	<0.5	**0.52**	<0.50	<0.50	**0.82**	**0.7**	**0.56**	<0.50	**0.72**	**0.7**	**1.2**
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
Dibromochloromethane	**1.41**	<0.5	<0.5	<0.5	**1.76**	**1.6**	**1.9**	**1.6**	**2.24**	**1.8**	<0.50	<1.0	<0.500
Dichlorodifluoromethane (CFC 12)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
Hexachlorobutadiene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.00
Isopropylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.50
m,p-Xylenes	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	<2.0	NA	<2.00

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**43A Canal**	**Salt Canal**	**67A Canal**	**83A Canal**	**RID Canal W of 83rd Ave**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**RID Canal W of 83rd Ave**
Sample ID	43A Canal	Salt Canal	67A Canal	83A Canal	83A Canal	MC West of 83rd Ave	43A Canal	MC West of 43rd Ave	67A Canal	MC West of 67th Ave	Salt Canal	SC West of RID-105	Canal W of 83A
Date Collected	4/2/2013	4/2/2013	4/2/2013	4/2/2013	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	9/17/2012	4/7/2011
Methyl Bromide (Bromomethane)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.00
Methyl Chloride (Cloromethane)	<5.0	<5.0	<5.0	<5.0	<5.00	<0.50	<5.00	<0.50	<5.00	<0.50	<5.00	<0.50	<5.00
Methyl Iodide (Idomethane)	<2.0	<2.0	<2.0	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	<2.0	NA	<2.00
Methylene Bromide (Dibromomethane)	<0.5	<0.5	<0.5	<0.5	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA	<0.500
Methylene chloride	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<5.0	<3.0	<5.0	<3.0	<5.0	<3.00
MTBE	<2.0	<2.0	<2.0	<2.0	<2.00	<1.0	<2.00	<1.0	<2.00	<1.0	<2.00	<1.0	<2.00
Napthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<5.00
n-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.50
n-Propylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
o-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	<1.0	NA	<1.00
p-Isopropyltoluene	<1.5	<1.5	<1.5	<1.5	<1.5	NA	<1.5	NA	<1.5	NA	<1.5	NA	<1.50
sec-Butylbenzene	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.5	<1.0	<1.50
Styrene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00
tert-Butylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.5	<1.0	<2.50
Tetrachloroethene (PCE)	<0.5	**2.75**	<0.5	**0.56**	**0.59**	**0.8**	**0.89**	**1.1**	<0.50	**0.5**	**3.79**	**3.9**	**2.6**
Toluene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--	--	--	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Trichloroethene (TCE)	**0.6**	**2.97**	<0.5	**1.24**	**0.73**	**1.2**	**2.65**	**2.8**	**0.75**	**1.2**	**2.01**	**2.5**	**5.57**
Trichlorofluoromethane (CFC 11)	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.0	<1.0	<2.00
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.0	<1.0	<5.00
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.50	<1.0	<0.500
Total Chromium	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<3.0	<1.0	<3.0	<1.00

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	RID Canal W of 83rd Ave	RID Canal W of 43rd Ave	RID Canal W of 67th Ave	Salt Canal W of RID-105	Salt Canal W of RID-105	Open Section of Salt Canal (W of RID-105)	500 ft Downstream of Salt Canal Discharge	RID Canal W of 83rd Ave	RID Canal W of 43rd Ave	RID Canal W of 67th Ave	Salt Canal W of RID-105	Main Canal Upstream of Salt Canal	Main Canal Upstream of Salt Canal
Sample ID	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-19	W-22	83A Canal	43A Canal	67A Canal	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)
Date Collected	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/27/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011	9/13/2011	6/7/2010	6/7/2010
1,1,1,2-Tetrachloroethane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,1,1-Trichloroethane (TCA)	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,1,2,2-Tetrachloroethane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,1,2-Trichloroethane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,1,2-Trichlorotrifluoroethane (CFC 113)	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1-Dichloroethane (1,1-DCA)	--	<0.500	<0.500	**0.64**	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,1-Dichloroethene (1,1-DCE)	<0.50	<0.500	<0.500	**1.43**	**0.94**	**1.5**	<0.50	**0.74**	**0.55**	<0.500	**1.24**	<0.50	<0.50
1,1-Dichloropropene	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
1,2,3-Trichloropropane	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
1,2,4-Trichlorobenzene	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
1,2,4-Trimethylbenzene	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
1,2-Dibromo-3-chloropropane	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
1,2-Dibromoethane (EDB)	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,2-Dichlorobenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
1,2-Dichloroethane	--	<0.500	<0.500	<0.500	--	**0.62**	<0.50	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,2-Dichloropropane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
1,3,5-Trimethylbenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
1,3-Dichlorobenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
1,3-Dichloropropane	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
1,4-Dichlorobenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
2,2-Dichloropropane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
2-Butanone (MEK)	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
2-Hexanone	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
4-Chlorotoluene	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
4-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--	--	<1.5	--
4-Methyl-2-pentanone (MIBK)	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
Acetone	--	<20	<20	<20	--	--	--	<20	<20	<20	<20	<20	--
Benzene	--	<0.500	<0.500	**0.7**	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Bromobenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
Bromochloromethane	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Bromodichloromethane	--	**2.69**	**2.21**	<0.500	--	<0.50	**1.7**	**2.24**	**5.7**	**3.74**	<0.500	**2.2**	--
Bromoform	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
Carbon Disulfide	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Carbon Tetrachloride	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Chlorobenzene	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Chloroethane	--	<4.00	<4.00	<4.00	--	--	--	<4.00	<4.00	<4.00	<4.00	<4.0	--
Chloroform	--	**5.23**	**4.61**	**2.15**	--	**2.2**	**3**	**3.3**	**6.19**	**4.78**	**1.6**	**4.6**	--
cis-1,2-Dichloroethene	--	<0.500	<0.500	**2.25**	--	**2.2**	**0.74**	**0.92**	**0.71**	<0.500	**1.66**	<0.50	--
cis-1,3-Dichloropropene	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
Dibromochloromethane	--	**0.84**	**0.68**	<0.500	--	<0.50	**0.7**	**1.21**	**3.19**	**2.07**	<0.500	**0.8**	--
Dichlorodifluoromethane (CFC 12)	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--
Ethylbenzene	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
Hexachlorobutadiene	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
Isopropylbenzene	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--
m,p-Xylenes	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	na	--

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Salt Canal W of RID-105**	**Open Section of Salt Canal (W of RID-105)**	**500 ft Downstream of Salt Canal Discharge**	**RID Canal W of 83rd Ave**	**RID Canal W of 43rd Ave**	**RID Canal W of 67th Ave**	**Salt Canal W of RID-105**	**Main Canal Upstream of Salt Canal**	**Main Canal Upstream of Salt Canal**
Sample ID	Canal W of 83A (split)	Canal W of 43A	Canal W of 67A	Salt Canal	Salt Canal (split)	W-19	W-22	83A Canal	43A Canal	67A Canal	Salt Canal	Canal E. of 8310	Canal E. of 8310 (split)
Date Collected	4/7/2011	4/7/2011	4/7/2011	4/7/2011	4/7/2011	6/27/2011	6/27/2011	9/13/2011	9/13/2011	9/13/2011	9/13/2011	6/7/2010	6/7/2010
Methyl Bromide (Bromomethane)	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
Methyl Chloride (Cloromethane)	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
Methyl Iodide (Idomethane)	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
Methylene Bromide (Dibromomethane)	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Methylene chloride	--	<3.00	<3.00	<3.00	--	--	--	<3.00	<3.00	<3.00	<3.00	<3.0	--
MTBE	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--
Napthalene	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
n-Butylbenzene	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--
n-Propylbenzene	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
o-Xylene	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	na	--
p-Isopropyltoluene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	na	--
sec-Butylbenzene	--	<1.50	<1.50	<1.50	--	--	--	<1.50	<1.50	<1.50	<1.50	<1.5	--
Styrene	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<1.0	--
tert-Butylbenzene	--	<2.50	<2.50	<2.50	--	--	--	<2.50	<2.50	<2.50	<2.50	<2.5	--
Tetrachloroethene (PCE)	**2.1**	**1.51**	**1.19**	**4.63**	**3.9**	**5.9**	**1.9**	**2.08**	**1.19**	**0.99**	**4.47**	**1.5**	**1.4**
Toluene	--	<2.00	<2.00	<2.00	--	--	--	<2.00	<2.00	<2.00	<2.00	<2.0	--
Total Trihalomethanes	--	--	--	--	--	--	--	--	--	--	--	**7.6**	--
total-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
trans-1,3-Dichloropropene	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Trichloroethene (TCE)	**4.4**	**2.59**	**2.3**	**11.8**	**9.8**	**14**	**4.2**	**4.73**	**3.5**	**3.06**	**8.58**	**2.5**	**2.5**
Trichlorofluoromethane (CFC 11)	--	<2.00	<2.00	<2.00	--	<0.50	<0.50	<2.00	<2.00	<2.00	<2.00	<2.0	--
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	--	<5.00	<5.00	<5.00	--	--	--	<5.00	<5.00	<5.00	<5.00	<5.0	--
Vinyl Chloride	--	<0.500	<0.500	<0.500	--	--	--	<0.500	<0.500	<0.500	<0.500	<0.50	--
Total Chromium	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Chromium	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes, Total	--	<1.00	<1.00	<1.00	--	--	--	<1.00	<1.00	<1.00	<1.00	<3.0	--

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Salt Canal W of RID-105	Salt Canal W of RID-105	Main Canal, W of RID-84	Main Canal W of RID-84	Main Canal W of 67th Ave/RID-85	Main Canal W of 67th Ave/RID-85	Minimum Detected Concentration over Last 5 Years	Maximum Detected Concentration over Last 5 Years	Minimum Detection Limit over Last 5 Years	Maximum Detection Limit over Last 5 Years
Sample ID	Salt Canal E. of 8310	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)				
Date Collected	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010				
1,1,1,2-Tetrachloroethane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,1,1-Trichloroethane (TCA)	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,1,2,2-Tetrachloroethane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,1,2-Trichloroethane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,1,2-Trichlorotrifluoroethane (CFC 113)	na	--	na	--	na	--	---	---	---	---
1,1-Dichloroethane (1,1-DCA)	<0.50	--	<0.50	--	<0.50	--	0.52	0.64	0.5	0.5
1,1-Dichloroethene (1,1-DCE)	**1.5**	**1.4**	<0.50	<0.50	<0.50	<0.50	0.5	1.5	0.5	0.5
1,1-Dichloropropene	<1.0	--	<1.0	--	<1.0	--	---	---	1	1
1,2 & 1,4-Dichlorobenzene	--	--	--	--	--	--	---	---	---	---
1,2,3-Trichlorobenzene	<5.0	--	<5.0	--	<5.0	--	---	---	2	5
1,2,3-Trichloropropane	<1.0	--	<1.0	--	<1.0	--	---	---	1	2
1,2,4-Trichlorobenzene	<5.0	--	<5.0	--	<5.0	--	---	---	2	5
1,2,4-Trimethylbenzene	<2.0	--	<2.0	--	<2.0	--	---	---	1	2
1,2-Dibromo-3-chloropropane	<2.0	--	<2.0	--	<2.0	--	---	---	2	5
1,2-Dibromoethane (EDB)	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,2-Dichlorobenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
1,2-Dichloroethane	<0.50	--	<0.50	--	<0.50	--	0.62	0.62	0.5	1
1,2-Dichloropropane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
1,3,5-Trimethylbenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
1,3-Dichlorobenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
1,3-Dichloropropane	<1.0	--	<1.0	--	<1.0	--	---	---	1	1
1,4-Dichlorobenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
2,2-Dichloropropane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	2
2-Butanone (MEK)	<5.0	--	<5.0	--	<5.0	--	---	---	5	5
2-Chloroethyl Vinyl Ether	--	--	--	--	--	--	---	---	---	---
2-Chlorotoluene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
2-Hexanone	<5.0	--	<5.0	--	<5.0	--	---	---	5	5
4-Chlorotoluene	<2.0	--	<2.0	--	<2.0	--	---	---	1	2
4-Isopropyltoluene	<1.5	--	<1.5	--	<1.5	--	---	---	1.5	1.5
4-Methyl-2-pentanone (MIBK)	<5.0	--	<5.0	--	<5.0	--	---	---	5	5
Acetone	<20	--	<20	--	<20	--	---	---	20	20
Benzene	<0.50	--	<0.50	--	<0.50	--	0.7	0.7	0.5	1
Bromobenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
Bromochloromethane	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
Bromodichloromethane	<0.50	--	**2.5**	--	**2.6**	--	0.82	5.7	0.5	2
Bromoform	<1.0	--	<1.0	--	<1.0	--	---	---	1	5
Carbon Disulfide	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	5
Carbon Tetrachloride	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
Chlorobenzene	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
Chloroethane	<4.0	--	<4.0	--	<4.0	--	---	---	1	4
Chloroform	**1.9**	--	**5.1**	--	**5.2**	--	0.93	6.19	0.5	0.5
cis-1,2-Dichloroethene	**2**	--	<0.50	--	<0.50	--	0.52	2.25	0.5	0.5
cis-1,3-Dichloropropene	<1.0	--	<1.0	--	<1.0	--	---	---	1	1
Dibromochloromethane	<0.50	--	**0.88**	--	**0.88**	--	0.68	3.19	0.5	1
Dichlorodifluoromethane (CFC 12)	<2.0	--	<2.0	--	<2.0	--	---	---	0.5	2
Ethylbenzene	<2.0	--	<2.0	--	<2.0	--	---	---	1	2
Hexachlorobutadiene	<5.0	--	<5.0	--	<5.0	--	---	---	2	5
Isopropylbenzene	<2.5	--	<2.5	--	<2.5	--	---	---	1	2.5
m,p-Xylenes	na	--	na	--	na	--	---	---	2	2

TABLE A-8
OPEN CANAL SURFACE WATER CONCENTRATIONS - 2009 THROUGH 2013
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Salt Canal W of RID-105	Salt Canal W of RID-105	Main Canal, W of RID-84	Main Canal W of RID-84	Main Canal W of 67th Ave/RID-85	Main Canal W of 67th Ave/RID-85	Minimum Detected Concentration over Last 5 Years	Maximum Detected Concentration over Last 5 Years	Minimum Detection Limit over Last 5 Years	Maximum Detection Limit over Last 5 Years
Sample ID	Salt Canal E. of 8310	Salt Canal E. of 8310 (split)	RID 84 Canal	RID 84 Canal (split)	RID 85 Canal	RID 85 Canal (split)				
Date Collected	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010	6/7/2010				
Methyl Bromide (Bromomethane)	<5.0	--	<5.0	--	<5.0	--	---	---	5	5
Methyl Chloride (Cloromethane)	<5.0	--	<5.0	--	<5.0	--	---	---	0.5	5
Methyl Iodide (Idomethane)	<2.0	--	<2.0	--	<2.0	--	---	---	2	2
Methylene Bromide (Dibromomethane)	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	0.5
Methylene chloride	<3.0	--	<3.0	--	<3.0	--	---	---	3	5
MTBE	<2.0	--	<2.0	--	<2.0	--	---	---	0.5	2
Napthalene	<5.0	--	<5.0	--	<5.0	--	---	---	2	5
n-Butylbenzene	<2.5	--	<2.5	--	<2.5	--	---	---	1	2.5
n-Propylbenzene	<2.0	--	<2.0	--	<2.0	--	---	---	1	2
o-Xylene	na	--	na	--	na	--	---	---	1	1
p-Isopropyltoluene	na	--	na	--	na	--	---	---	1.5	1.5
sec-Butylbenzene	<1.5	--	<1.5	--	<1.5	--	---	---	1	1.5
Styrene	<1.0	--	<1.0	--	<1.0	--	---	---	1	1
tert-Butylbenzene	<2.5	--	<2.5	--	<2.5	--	---	---	1	2.5
Tetrachloroethene (PCE)	**6.1**	**5.9**	**1.4**	**1.4**	**1.5**	**1.4**	0.5	6.1	0.5	0.5
Toluene	<2.0	--	<2.0	--	<2.0	--	---	---	1	2
Total Trihalomethanes	<2.5	--	**8.48**	--	**8.68**	--	7.6	8.68	2.5	2.5
total-1,2-Dichloroethene	--	--	--	--	--	--	---	---	---	---
trans-1,2-Dichloroethene	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
trans-1,3-Dichloropropene	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
Trichloroethene (TCE)	**12**	**11**	**2.6**	**2.7**	**2.7**	**2.8**	0.6	14	0.5	0.5
Trichlorofluoromethane (CFC 11)	<2.0	--	<2.0	--	<2.0	--	---	---	0.5	2
Trichlorotrifluoroethane	--	--	--	--	--	--	---	---	---	---
Vinyl Acetate	<5.0	--	<5.0	--	<5.0	--	---	---	1	5
Vinyl Chloride	<0.50	--	<0.50	--	<0.50	--	---	---	0.5	1
Total Chromium	--	--	--	--	--	--	---	---	---	---
Dissolved Chromium	--	--	--	--	--	--	---	---	---	---
Xylenes, Total	<3.0	--	<3.0	--	<3.0	--	---	---	1	3

Notes:
Concentrations in micrograms per liter (µg/L)
-- = No lab report

TABLE A-9
AMBIENT AIR CONCENTRATIONS, JUNE 2011
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

SAMPLE LOCATION	Sample ID	Date Collected	1,1-Dichloroethene (1,1-DCE)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	SAMPLE DESCRIPTION
			µg/m^3	µg/m^3	µg/m^3	
Headspace @ RID-114 Receiver Box	A1	6/29/2011	1390	115	4080	Air sample from headspace of the concrete receiver box that channels the well discharge at RID-114
Headspace @ RID-92 Receiver Box	A2	6/28/2011	990	62.4	2040	Air sample from headspace of the concrete receiver box that channels the well discharge at RID-92
Breathing Zone @ RID-114 Receiver Box	A3	6/29/2011	0.87	0.95	7.52	Air sample from the breathing zone adjacent to the RID-114 concrete receiver box
Breathing Zone @ RID-92 Receiver Box	A4	6/28/2011	1.35	5.22	10.7	Air sample from breathing zone immediately adjacent to the concrete receiver box at RID-92
Breathing Zone @ RID-114 Fence Line (N)	A5	6/29/2011	0.67	0.88	6.44	Air samples from the four "virtual" fence-line locations (north, south, east, west) at RID-114 breathing zone
Breathing Zone @ RID-114 Fence Line (E)	A6	6/29/2011	0.67	0.95	6.44	
Breathing Zone @ RID-114 Fence Line (W)	A7	6/29/2011	1.19	1.08	10.2	
Breathing Zone @ RID-114 Fence Line (S)	A8	6/29/2011	1.07	1.22	10.7	
Breathing Zone @ RID-92 Fence Line (N)	A9	6/28/2011	0.51	1.97	5.53	Air samples from the four "virtual" fence-line locations (north, south, east, west) at RID-92 breathing zone
Breathing Zone @ RID-92 Fence Line (E)	A10	6/28/2011	1.15	4.27	9.13	
Breathing Zone @ RID-92 Fence Line (S)	A11	6/28/2011	0.71	2.64	7.79	
Breathing Zone @ RID-92 Fence Line (W)	A12	6/28/2011	0.2	0.81	1.88	
Background Sample Location North of RID-114	A13	6/29/2011	<0.16	<0.27	<0.21	Air sample from the open turf area in the cemetery north of Van Buren Street at a location approximately 1/2 mile northwest of RID-114
Background Sample Location South of RID-92	A14	6/28/2011	<0.16	<0.27	<0.21	Air sample from vacant, unimproved dirt lot on the west side of 43rd Avenue located approximately 1,700 feet south of the RID Main Canal
Headspace in RID-114 Diversion Box	A15	6/29/2011	1620	35.3	3110	Air sample from the headspace of the diversion box
Breathing Zone @ RID-114 Diversion Box	A16	6/29/2011	3.92	4.07	29	Air sample from the breathing zone immediately adjacent to the concrete diversion box
Headspace in Salt Canal Manhole	A17	6/29/2011	2570	1020	17700	Air sample from the headspace under one of the first manhole covers that provides reasonable exposure potential downstream from RID-114
Headspace in Salt Canal Pipe @ Opening (79th Ave)	A18	6/29/2011	5.15	4.88	25.2	Air sample from the headspace inside the Salt Canal pipeline where the pipeline becomes open canal
	A18 (duplicate)	6/29/2011	5.94	7.46	26.9	
Surface of Salt Canal @ Open Section	A19	6/29/2011	2.18	5.09	17.7	Air sample above the water surface immediately downstream of the point of discharge from the enclosed pipeline to the open canal
Headspace in RID-92 Lateral @ Opening	A20	6/28/2011	2730	461	5210	Air sample from the headspace of the enclosed lateral pipeline where the RID-92 pipeline transitions into open lateral
	A20 (duplicate)	6/28/2011	2460	285	5100	
Surface of RID-92 Lateral @ Open Section	A21	6/28/2011	0.95	3.86	11.8	Air sample above the water surface in open section of the RID-92 lateral
Surface of Main Canal @ RID-92 Discharge	A22	6/28/2011	51.5	31.2	199	Air sample above the water surface on the Main Canal, approximately 10 feet downstream from the point of discharge of the lateral serving RID-92, above the inferred mixing zone
Surface of Main Canal @ Salt Canal Discharge	A23	6/29/2011	0.79	1.7	6.44	Air sample above the water surface in the Main Canal at the point of discharge of the Salt Canal in the Main Canal

TABLE A-10

SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES

WEST VAN BUREN AREA WQARF SITE

PHOENIX, ARIZONA

CompoundName	Statistic	For All Wells	AVB100-01	AVB10-01	AVB10-02	AVB101-01	AVB103-02	AVB106-01	AVB106-02	AVB106-03	AVB107-01	AVB108-01	AVB108-02	AVB111-01	AVB112-05	AVB115-01	AVB116-01	AVB116-02	AVB117-01	AVB118-01
1,1,1,2-TETRACHLOROETHANE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	Maximum	13	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,1,1-TCA	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	Maximum	13	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	Maximum	5																		
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	Minimum	5																		
1,1,2-TRICHLOROETHANE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	Maximum	25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5	
1,1-DCA	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5	
1,1-DCE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	
1,1-DCE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	
1,1-DICHLOROPROPENE	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	Minimum	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	Minimum	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	Minimum	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	Maximum	50	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	Minimum	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2-DIBROMOETHANE (EDB)	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	Minimum	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	Maximum	25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROETHANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2-DICHLOROPROPANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	Minimum	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	Minimum	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	Minimum	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE	Maximum	50		4	4	50	4	4	4	4	4	50	4		4	4	4	4	4	
1,4-DIOXANE	Minimum	4		4	4	50	4	4	4	4	4	4	4		4	4	4	4	4	
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	Minimum	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2,2-DICHLOROPROPANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE	Maximum	130	5	10	10		10	10	5	5		10	10		10	5	5	5	5	
2-HEXANONE	Minimum	5	5	5	5		5	5	5	5		5	5		5	5	5	5	5	
4-CHLOROTOLUENE	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	Minimum	0.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	Statistic	For All Wells	AVB100-01	AVB10-01	AVB10-02	AVB101-01	AVB103-02	AVB106-01	AVB106-02	AVB106-03	AVB107-01	AVB108-01	AVB108-02	AVB111-01	AVB112-05	AVB115-01	AVB116-01	AVB116-02	AVB117-01	AVB118-01
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	Minimum	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	Maximum	500	20	20	20		20	20	20	20		20	20		20	20	20	20	20	
ACETONE	Minimum	0.5	20	20	20		20	20	20	20		20	20		20	20	20	20	20	
BENZENE	Maximum	20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	Minimum	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMODICHLOROMETHANE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOFORM	Minimum	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	Minimum	0.5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	Maximum	13	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CARBON DISULFIDE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	Maximum	100	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	Minimum	0.5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	Maximum	13	1	1	1	0.5	0.5		1	1	0.5	0.5		1	1	0.5	1	1		1
CHLOROFORM	Minimum	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5
CHLOROMETHANE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	Minimum	0.5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM	Maximum	10		10	10		10	10				10			10					
CHROMIUM	Minimum	0.01		10	10		10	10				10			10					
CHROMIUM, DISSOLVED	Maximum	10		10	10		10	10				10			10					
CHROMIUM, DISSOLVED	Minimum	0.01		10	10		10	10				10			10					
CHROMIUM, HEXAVALENT	Maximum	0.01																		
CHROMIUM, HEXAVALENT	Minimum	0.005																		
CHROMIUM, TOTAL	Maximum	10		10	10		10	10				10			10					
CHROMIUM, TOTAL	Minimum	0.01		10	10		10	10				10			10					
CHROMIUM, TRIVALENT	Maximum	0.01																		
CHROMIUM, TRIVALENT	Minimum	0.01																		
CIS-1,2-DCE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5			0.5	
CIS-1,2-DCE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5			0.5	
CIS-1,3-DICHLOROPROPENE	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	Minimum	0.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM	Maximum	10		10	10		10	10				10			10					
DISSOLVED CHROMIUM	Minimum	0.01		10	10		10	10				10			10					
ETHYLBENZENE	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	Minimum	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	Minimum	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	Maximum	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	Minimum	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	Statistic	For All Wells	AVB100-01	AVB10-01	AVB10-02	AVB101-01	AVB103-02	AVB106-01	AVB106-02	AVB106-03	AVB107-01	AVB108-01	AVB108-02	AVB111-01	AVB112-05	AVB115-01	AVB116-01	AVB116-02	AVB117-01	AVB118-01
M,P-XYLENES	Maximum	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	Minimum	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	Maximum	130	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
METHYL ETHYL KETONE (2-BUTANONE)	Minimum	0.5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	Minimum	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)	Maximum	130	5	10	10		10	10	5	5		10	10		10	5	5	5	5	
METHYL ISOBUTYL KETONE (MIBK)	Minimum	5	5	5	5		5	5	5	5		5	5		5	5	5	5	5	
METHYL TERT-BUTYL ETHER (MTBE)	Maximum	50	2	2	2		2	2	2	2		2	2		2	2	2	2	2	
METHYL TERT-BUTYL ETHER (MTBE)	Minimum	0.5	2	2	2		2	2	2	2		2	2		2	2	2	2	2	
METHYLENE BROMIDE (DIBROMOMETHANE)	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
METHYLENE BROMIDE (DIBROMOMETHANE)	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	Maximum	75	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYLENE CHLORIDE (DICHLOROMETHANE)	Minimum	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	Maximum	130	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	Minimum	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	Maximum	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	Minimum	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	Minimum	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE	Maximum	1.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O-XYLENE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	Maximum	1		0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5		
PCE	Minimum	0.5		0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5		
SEC-BUTYLBENZENE	Maximum	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	Minimum	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	Maximum	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STYRENE	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	Maximum	13	0.5	0.5		0.5			0.5	0.5		0.5		0.5	0.5	0.5			0.5	
TCE	Minimum	0.5	0.5	0.5		0.5			0.5	0.5		0.5		0.5	0.5	0.5			0.5	
TERT-BUTYLBENZENE	Maximum	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	Minimum	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	Minimum	0.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM	Maximum	10		10	10		10	10				10			10					
TOTAL CHROMIUM	Minimum	0.01		10	10		10	10				10			10					
TOTAL TRIHALOMETHANES	Maximum	25	2.5	2.5	2.5				2.5	2.5				2.5	2.5					
TOTAL TRIHALOMETHANES	Minimum	0.5	2.5	2.5	2.5				2.5	2.5				2.5	0.5					
TRANS-1,2-DICHLOROETHENE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	Maximum	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TRANS-1,3-DICHLOROPROPENE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE	Maximum	5																		
TRANS-1,4-DICHLORO-2-BUTENE	Minimum	5																		
TRICHLOROFLUOROMETHANE (FREON 11)	Maximum	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	Minimum	0.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	Maximum	130	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
VINYL ACETATE	Minimum	1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	Maximum	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	Maximum	75	3	3	3	3	1	3	3	3	1	3	3	3	3	3	1	1	3	1
XYLENES, TOTAL	Minimum	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB119-01	AVB120-01	AVB120-02	AVB120-03	AVB12-01	AVB121-01	AVB121-02	AVB122-01	AVB122-02	AVB122-03	AVB123-01	AVB124-01	AVB124-02	AVB125-01	AVB126-01	AVB126-02	AVB126-03	AVB127-01	AVB128-01	AVB129-01
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	0.5		0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
1,1-DCA	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
1,1-DCE	0.5		0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
1,1-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	2	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	2	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	3	3	3	10	3	3	2	3	10	3	3	3	2	3	3	2	2	3	3	3
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	1	1	1	2	1	1	0.5	1	2	1	1	1	0.5	1	1	0.5	0.5	1	1	1
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE			5	5	10	5	5	5	10	10	5	5	10	5	10	10	10	10		5
2-HEXANONE			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB119-01	AVB120-01	AVB120-02	AVB120-03	AVB12-01	AVB121-01	AVB121-02	AVB122-01	AVB122-02	AVB122-03	AVB123-01	AVB124-01	AVB124-02	AVB125-01	AVB126-01	AVB126-02	AVB126-03	AVB127-01	AVB128-01	AVB129-01
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE			20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20
ACETONE			20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20
BENZENE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	1	1	1	5	1	1	0.5	1	5	1	1	1	0.5	1	1	0.5	0.5	1	1	1
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	5	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	2.5	2.5	2.5	5	2.5	2.5	0.5	2.5	5	2.5	2.5	2.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	1	4	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	1		1	5	1	1	0.5		5	1	0.5	0.5	1	1	1	0.5	0.5			1
CHLOROFORM	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	2	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM				10	10		10		10	10			10		10	10	10	10		
CHROMIUM				10	10		10		10	10			10		10	10	10	10		
CHROMIUM, DISSOLVED				10	10		10		10	10			10		10	10	10	10		
CHROMIUM, DISSOLVED				10	10		10		10	10			10		10	10	10	10		
CHROMIUM, HEXAVALENT																				
CHROMIUM, HEXAVALENT																				
CHROMIUM, TOTAL				10	10		10		10	10			10		10	10	10	10		
CHROMIUM, TOTAL				10	10		10		10	10			10		10	10	10	10		
CHROMIUM, TRIVALENT																				
CHROMIUM, TRIVALENT																				
CIS-1,2-DCE	0.5		0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
CIS-1,2-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM				10	10		10		10	10			10		10	10	10	10		
DISSOLVED CHROMIUM				10	10		10		10	10			10		10	10	10	10		
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	2	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB119-01	AVB120-01	AVB120-02	AVB120-03	AVB12-01	AVB121-01	AVB121-02	AVB122-01	AVB122-02	AVB122-03	AVB123-01	AVB124-01	AVB124-02	AVB125-01	AVB126-01	AVB126-02	AVB126-03	AVB127-01	AVB128-01	AVB129-01
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	10	10	10	10	10	10	5	10	10	10	10	10	5	10	10	5	5	10	10	10
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	5	2	2	2	2	5	2	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)			5	5	10	5	5	5	10	10	5	5	10	5	10	10	10	10		5
METHYL ISOBUTYL KETONE (MIBK)			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		5
METHYL TERT-BUTYL ETHER (MTBE)			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		2
METHYL TERT-BUTYL ETHER (MTBE)			2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2		2
METHYLENE BROMIDE (DIBROMOMETHANE)	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	5	5	5	5	5	5	3	5	5	5	5	5	3	5	5	3	3	5	5	5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	2	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	0.5			0.5		0.5	0.5		1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5
PCE	0.5			0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	0.5					0.5	0.5		1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5
TCE	0.5					0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM				10	10		10		10	10			10		10	10	10	10		
TOTAL CHROMIUM				10	10		10		10	10			10		10	10	10	10		
TOTAL TRIHALOMETHANES	2.5		2.5		2.5	2.5	2.5	2.5	2.5						2.5	2.5	2.5			
TOTAL TRIHALOMETHANES	2.5		2.5		2.5	2.5	0.5	2.5	2.5						2.5	2.5	0.5			
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5	1	1	0.5	0.5	1	1	1
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE																				
TRANS-1,4-DICHLORO-2-BUTENE																				
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	10	10	10	10	10	10	5	10	10	10	10	10	5	10	10	5	5	10	10	10
VINYL ACETATE	5	5	5	1	5	5	5	5	1	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	3	3	3	3	3	3	3	3	1	1	1	1	1	3	3	3	3	1	1
XYLENES, TOTAL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB129-02	AVB130-01	AVB131-01	AVB132-01	AVB132-02	AVB133-01	AVB134-01	AVB134-02	AVB135-01	AVB136-01	AVB137-01	AVB138-01	AVB139-01	AVB140-01	AVB14-01	AVB141-01	AVB142-01	AVB15-01	AVB18-01	AVB20-03
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	5	5	5	5	5	5	5	5	5	5	5	0.5	5	5	5	5	5	5	5	5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	2	0.5	0.5	0.5	0.5	0.5			0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	1.5	0.5	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	2	5	2	2	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	2	5	2	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	3	3	2	3	2	2	3	10	3	10	3	2	3	3	3	3	3	3	3	3
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	5	1	0.5	1	0.5	0.5	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	2	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	4	1	0.5	1	0.5	0.5	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE		4	4	50	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4
1,4-DIOXANE		4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	1	1	0.5	1	0.5	0.5	1	2	1	2	1	0.5	1	1	1	1	1	1	1	1
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE		5	10	5	10	10	5	5	10	10	10	5	10	10	10	10	10	10	5	10
2-HEXANONE		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	0.5	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB129-02	AVB130-01	AVB131-01	AVB132-01	AVB132-02	AVB133-01	AVB134-01	AVB134-02	AVB135-01	AVB136-01	AVB137-01	AVB138-01	AVB139-01	AVB140-01	AVB14-01	AVB141-01	AVB142-01	AVB15-01	AVB18-01	AVB20-03
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	0.5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
ACETONE	0.5	20	20	20	20	20	20	20	20	20	0.5	20	20	20	20	20	20	20	20	20
BENZENE	1.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	2.5	1	0.5	1	0.5	0.5	1	5	1	5	1	0.5	1	1	1	1	1	1	1	1
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	2.5	1	1	1	1	1	1	5	1	5	1	1	1	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	0.5	5	5	5	5	5	5	5	5	5	1	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	2.5	2.5	2.5	2.5	0.5	0.5	2.5	5	2.5	5	2.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	1.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	2	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	5	1	0.5	1	0.5	0.5	1	1	1	1	1.5	0.5	1	1	1	1	1	1	1	1
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	2.5	1	0.5	1	0.5	0.5	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	0.5	4	4	4	4	4	4	1	4	1	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	1	0.5		0.5	0.5	0.5		5	1	5	1	0.5	1	1	0.5	1	1		1	0.5
CHLOROFORM	0.5	0.5		0.5	0.5	0.5		5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	0.5	5	5	5	5	5	5	2	5	2	5	5	5	5	5	5	5	5	5	5
CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM, DISSOLVED			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM, DISSOLVED			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM, HEXAVALENT																				
CHROMIUM, HEXAVALENT																				
CHROMIUM, TOTAL			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM, TOTAL			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
CHROMIUM, TRIVALENT																				
CHROMIUM, TRIVALENT																				
CIS-1,2-DCE	5	0.5	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
CIS-1,2-DCE	0.5	0.5	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	0.5	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
DISSOLVED CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	2	5	2	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB129-02	AVB130-01	AVB131-01	AVB132-01	AVB132-02	AVB133-01	AVB134-01	AVB134-02	AVB135-01	AVB136-01	AVB137-01	AVB138-01	AVB139-01	AVB140-01	AVB14-01	AVB141-01	AVB142-01	AVB15-01	AVB18-01	AVB20-03
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	10	10	5	10	5	5	10	10	10	5	10	5	10	10	10	10	10	10	10	10
METHYL ETHYL KETONE (2-BUTANONE)	0.5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	5	2	5	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)		5	10	5	10	10	5	5	10	10	10	5	10	10	10	10	10	10	5	10
METHYL ISOBUTYL KETONE (MIBK)		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)	5	2	2	2	2	2	2	2	2	2	5	2	2	2	2	2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)	0.5	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	2	1	0.5	1	0.5	0.5	1	1	1	0.5	1	0.5	1	1	1	1	1	1	1	1
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	5	5	3	5	3	3	5	5	5	3	5	3	5	5	5	5	5	5	5	5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	2	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	1.5	2.5	2.5	2.5	2.5	2.5	2.5	1	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	5	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1.5	1	1	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	0.5			0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
PCE	0.5			0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	0.5		0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
TCE	0.5		0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	0.5	2.5	2.5	2.5	2.5	2.5	2.5	1	2.5	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2	1	2	1	0.5	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
TOTAL CHROMIUM			10	10	10	10	10	10	10	10	10		10	10	10	10	10	10		10
TOTAL TRIHALOMETHANES				2.5	2.5		2.5		2.5	2.5	2.5	0.5	2.5	2.5	2.5	2.5	2.5			
TOTAL TRIHALOMETHANES				2.5	0.5		2.5		0.5	2.5	0.5	0.5	0.5	0.5	2.5	0.5	0.5			
TRANS-1,2-DICHLOROETHENE	1	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	1	1	0.5	1	0.5	0.5	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE																				
TRANS-1,4-DICHLORO-2-BUTENE																				
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	0.5	2	2	2	1	2	1	0.5	2	2	2	2	2	2	2	2	2
VINYL ACETATE	10	10	5	10	5	5	10	10	10	5	10	5	10	10	10	10	10	10	10	10
VINYL ACETATE	5	5	5	5	5	5	5	1	5	1	2	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	1	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	1	1	1	3	3	1	3	3	3	3	3	1	3	3	3	3	3	3	1	3
XYLENES, TOTAL	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB26-01	AVB37-04	AVB38-04	AVB40-05	AVB40-06	AVB40-07	AVB40-08	AVB47-01	AVB53-01	AVB57-01	AVB60-01	AVB61-01	AVB65-01	AVB68-02	AVB68-04	AVB69-01	AVB69-02	AVB70-01	AVB71-01	AVB72-01
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	5	0.5	5	5	5	5	5	0.5	0.5	5	5	5	0.5	5	5	5	5	5	5	5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5
1,1-DCA	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	3	2	2	3	3	3	3	2	2	3	3	3	2	3	3	3	3	3	3	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE	4		4	4	4	4	4			4	4	4		4	4	4	4	4	4	4
1,4-DIOXANE	4		4	4	4	4	4			4	4	4		4	4	4	4	4	4	4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE		5	5				10	5	5	10	5	10	5	10	5	5	10	10	10	5
2-HEXANONE		5	5				5	5	5	5	5	5	5	5	5	5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB26-01	AVB37-04	AVB38-04	AVB40-05	AVB40-06	AVB40-07	AVB40-08	AVB47-01	AVB53-01	AVB57-01	AVB60-01	AVB61-01	AVB65-01	AVB68-02	AVB68-04	AVB69-01	AVB69-02	AVB70-01	AVB71-01	AVB72-01
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE		20	20				20	20	20	20	20	20	20	20	20	20	20	20	20	20
ACETONE		20	20				20	20	20	20	20	20	20	20	20	20	20	20	20	20
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	2.5	0.5	0.5	2.5	2.5	2.5	2.5	0.5	0.5	2.5	2.5	2.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	0.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	1			1	1	1	1	0.5		1	1	1		1	1	1	1	1	1	0.5
CHLOROFORM	0.5			0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM		10					10		10	10	10	10	10				10	10	10	10
CHROMIUM		10					10		10	10	10	10	10				0.01	10	10	10
CHROMIUM, DISSOLVED		10					10		10	10	10	10	10				10	10	10	10
CHROMIUM, DISSOLVED		10					10		10	10	10	10	10				0.01	10	10	10
CHROMIUM, HEXAVALENT																	0.01			
CHROMIUM, HEXAVALENT																	0.005			
CHROMIUM, TOTAL		10					10		10	10	10	10	10				10	10	10	10
CHROMIUM, TOTAL		10					10		10	10	10	10	10				0.01	10	10	10
CHROMIUM, TRIVALENT																	0.01			
CHROMIUM, TRIVALENT																	0.01			
CIS-1,2-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,2-DCE	0.5		0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM		10					10		10	10	10	10	10				10	10	10	10
DISSOLVED CHROMIUM		10					10		10	10	10	10	10				0.01	10	10	10
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB26-01	AVB37-04	AVB38-04	AVB40-05	AVB40-06	AVB40-07	AVB40-08	AVB47-01	AVB53-01	AVB57-01	AVB60-01	AVB61-01	AVB65-01	AVB68-02	AVB68-04	AVB69-01	AVB69-02	AVB70-01	AVB71-01	AVB72-01
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	10	5	5	10	10	10	10	5	5	10	10	10	5	10	10	10	10	10	10	5
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)		5	5				10	5	5	10	5	10	5	10	5	5	10	10	10	5
METHYL ISOBUTYL KETONE (MIBK)		5	5				5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)		2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)		2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	1	1	1	1	0.5
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	5	3	3	5	5	5	5	3	3	5	5	5	3	5	5	5	5	5	5	3
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	0.5			0.5						0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5	0.5
PCE	0.5			0.5						0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5	0.5
SEC-BUTYLBENZENE	1.5		1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5		1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	0.5			0.5				0.5		0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5
TCE	0.5			0.5				0.5		0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM		10					10		10	10	10	10	10				10	10	10	10
TOTAL CHROMIUM		10					10		10	10	10	10	10				0.01	10	10	10
TOTAL TRIHALOMETHANES	2.5		2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	
TOTAL TRIHALOMETHANES	2.5		2.5	2.5	2.5	2.5	2.5	2.5		2.5	0.5	0.5		2.5	2.5	0.5	0.5	2.5	0.5	
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	0.5	1	1	0.5	1	1	1	0.5
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE																				
TRANS-1,4-DICHLORO-2-BUTENE																				
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	10	5	5	10	10	10	10	5	5	10	10	10	5	10	10	10	10	10	10	5
VINYL ACETATE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	1	3	3	3	3	3	3	1	3	3	3	1	3	3	3	3	3	3	3
XYLENES, TOTAL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB73-01	AVB74-01	AVB75-01	AVB76-01	AVB77-01	AVB77-02	AVB77-03	AVB81-01	AVB81-02	AVB82-01	AVB82-02	AVB83-01	AVB84-01	AVB85-01	AVB87-01	AVB88-01	AVB91-01	AVB91-02	AVB91-03	AVB92-01
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																				
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	50	4	4	4	4	4
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	50	4	4	4	4	4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE	10	10	10	10	5	5	5	5	5	10	10	5	5	5		10	10	5	10	10
2-HEXANONE	5	5	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB73-01	AVB74-01	AVB75-01	AVB76-01	AVB77-01	AVB77-02	AVB77-03	AVB81-01	AVB81-02	AVB82-01	AVB82-02	AVB83-01	AVB84-01	AVB85-01	AVB87-01	AVB88-01	AVB91-01	AVB91-02	AVB91-03	AVB92-01
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20	20	20
ACETONE	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20	20	20
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	1	1	1	1	1	1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	1		1	1	1	1	1
CHLOROFORM	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM	10		10	10					10	10	10					10			10	10
CHROMIUM	10		10	10					10	10	10					0.01			10	10
CHROMIUM, DISSOLVED	10		10	10					10	10	10					10			10	10
CHROMIUM, DISSOLVED	10		10	10					10	10	10					0.01			10	10
CHROMIUM, HEXAVALENT																0.01				
CHROMIUM, HEXAVALENT																0.005				
CHROMIUM, TOTAL	10		10	10					10	10	10					10			10	10
CHROMIUM, TOTAL	10		10	10					10	10	10					0.01			10	10
CHROMIUM, TRIVALENT																0.01				
CHROMIUM, TRIVALENT																0.01				
CIS-1,2-DCE	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,2-DCE	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM	10		10	10					10	10	10					10			10	10
DISSOLVED CHROMIUM	10		10	10					10	10	10					0.01			10	10
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB73-01	AVB74-01	AVB75-01	AVB76-01	AVB77-01	AVB77-02	AVB77-03	AVB81-01	AVB81-02	AVB82-01	AVB82-02	AVB83-01	AVB84-01	AVB85-01	AVB87-01	AVB88-01	AVB91-01	AVB91-02	AVB91-03	AVB92-01
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)	10	10	10	10	5	5	5	5	5	10	10	5	5	5		10	10	5	10	10
METHYL ISOBUTYL KETONE (MIBK)	5	5	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2		2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2		2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	0.5	0.5		0.5		0.5	0.5	0.5	0.5				0.5			0.5	0.5		0.5	0.5
PCE	0.5	0.5		0.5		0.5	0.5	0.5	0.5				0.5			0.5	0.5		0.5	0.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	0.5	0.5		0.5		0.5		0.5	0.5		0.5					0.5	0.5		0.5	0.5
TCE	0.5	0.5		0.5		0.5		0.5	0.5		0.5					0.5	0.5		0.5	0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM	10		10	10					10	10	10					10			10	10
TOTAL CHROMIUM	10		10	10					10	10	10					0.01			10	10
TOTAL TRIHALOMETHANES		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		0.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5
TOTAL TRIHALOMETHANES		2.5	2.5	0.5	2.5	2.5	2.5	2.5	0.5		0.5	2.5	2.5	2.5		0.5	0.5	2.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE																				
TRANS-1,4-DICHLORO-2-BUTENE																				
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
VINYL ACETATE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	3	3	3	3
XYLENES, TOTAL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB92-02	AVB93-01	AVB94-01	AVB94-02	AVB95-01	AVB95-02	AVB96-01	AVB96-02	AVB97-01	AVB98-01	AVB99-01	CMW-1	CMW-1D	CMW-1D (BOT)	CMW-2	CMW-4	CMW-5	DIMW-1 (115-125)	DIMW-1 (160-170)
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	5	5	5	5	5	5	5	5	5	5	5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																		5	5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)																		5	5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	25	1	1	1	1	1	1	1
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	3	3	3	3	3	3	3	3	3	3	3	50	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	25	1	1	1	1	1	1	1
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4								
1,4-DIOXANE	4	4	4	4	4	4	4	4	4	4	4								
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE	5	10		5	5	5	5	5	10	5	5	130	5	5	5	5	5	5	5
2-HEXANONE	5	5		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB92-02	AVB93-01	AVB94-01	AVB94-02	AVB95-01	AVB95-02	AVB96-01	AVB96-02	AVB97-01	AVB98-01	AVB99-01	CMW-1	CMW-1D	CMW-1D (BOT)	CMW-2	CMW-4	CMW-5	DIMW-1 (115-125)	DIMW-1 (160-170)
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	20	20		20	20	20	20	20	20	20	20	500	20	20	20	20	20	20	20
ACETONE	20	20		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	100	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	1	1	1	0.5	0.5	1	1	1	1	1	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROFORM	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM		10							10				0.01		0.01				
CHROMIUM		10							10				0.01		0.01				
CHROMIUM, DISSOLVED		10							10				0.01		0.01				
CHROMIUM, DISSOLVED		10							10				0.01		0.01				
CHROMIUM, HEXAVALENT													0.01		0.01	0.01			
CHROMIUM, HEXAVALENT													0.005		0.005	0.01			
CHROMIUM, TOTAL		10							10				0.01		0.01				
CHROMIUM, TOTAL		10							10				0.01		0.01				
CHROMIUM, TRIVALENT												0.01	0.01		0.01	0.01	0.01		
CHROMIUM, TRIVALENT												0.01	0.01		0.01	0.01	0.01		
CIS-1,2-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,2-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM		10							10				0.01		0.01				
DISSOLVED CHROMIUM		10							10				0.01		0.01				
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	AVB92-02	AVB93-01	AVB94-01	AVB94-02	AVB95-01	AVB95-02	AVB96-01	AVB96-02	AVB97-01	AVB98-01	AVB99-01	CMW-1	CMW-1D	CMW-1D (BOT)	CMW-2	CMW-4	CMW-5	DIMW-1 (115-125)	DIMW-1 (160-170)
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	10	10	10	10	10	10	10	10	10	10	10	130	5	5	5	5	5	5	5
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)	5	10		5	5	5	5	5	10	5	5	130	5	5	5	5	5	5	5
METHYL ISOBUTYL KETONE (MIBK)	5	5		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)	2	2		2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)	2	2		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	5	5	5	5	5	5	5	5	5	5	5	75	3	3	3	3	3	3	3
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	130	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PCE	0.5		0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5						
PCE	0.5		0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5						
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	1	25	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TCE		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	63	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM		10							10				0.01		0.01				
TOTAL CHROMIUM		10							10				0.01		0.01				
TOTAL TRIHALOMETHANES	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	2.5	2.5	2.5	2.5	0.5	0.5
TOTAL TRIHALOMETHANES	2.5	0.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE																			
TRANS-1,4-DICHLORO-2-BUTENE																			
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	50	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	10	10	10	10	10	10	10	10	10	10	10	130	5	5	5	5	5	5	5
VINYL ACETATE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	13	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	3	3	3	3	3	3	3	3	3	3	75	3	3	3	3	3	3	3
XYLENES, TOTAL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	DIMW-1 (235-245)	DIMW-1 (340-350)	DIMW-1 (405-415)	DIMW-2 (162-172)	DIMW-2 (237-247)	DIMW-2 (340-350)	DIMW-2 (403-413)	DIMW-3 (162-172)	DIMW-3 (237-247)	DIMW-3 (340-350)	DIMW-3 (403-413)	DIMW-4A	DIMW-5A	DIMW-6A	DIMW-7A	DIMW-8D	DIMW-9D	PS-1
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1,1-DCA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
1,1-DCE	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5
1,2-DICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE																		
1,4-DIOXANE																		
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2-HEXANONE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	DIMW-1 (235-245)	DIMW-1 (340-350)	DIMW-1 (405-415)	DIMW-2 (162-172)	DIMW-2 (237-247)	DIMW-2 (340-350)	DIMW-2 (403-413)	DIMW-3 (162-172)	DIMW-3 (237-247)	DIMW-3 (340-350)	DIMW-3 (403-413)	DIMW-4A	DIMW-5A	DIMW-6A	DIMW-7A	DIMW-8D	DIMW-9D	PS-1
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
ACETONE	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CHLOROFORM	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
CHLOROFORM	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CHROMIUM																		10
CHROMIUM																		10
CHROMIUM, DISSOLVED																		10
CHROMIUM, DISSOLVED																		10
CHROMIUM, HEXAVALENT																		
CHROMIUM, HEXAVALENT																		
CHROMIUM, TOTAL																		10
CHROMIUM, TOTAL																		10
CHROMIUM, TRIVALENT																		
CHROMIUM, TRIVALENT																		
CIS-1,2-DCE	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,2-DCE	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DISSOLVED CHROMIUM																		10
DISSOLVED CHROMIUM																		10
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	DIMW-1 (235-245)	DIMW-1 (340-350)	DIMW-1 (405-415)	DIMW-2 (162-172)	DIMW-2 (237-247)	DIMW-2 (340-350)	DIMW-2 (403-413)	DIMW-3 (162-172)	DIMW-3 (237-247)	DIMW-3 (340-350)	DIMW-3 (403-413)	DIMW-4A	DIMW-5A	DIMW-6A	DIMW-7A	DIMW-8D	DIMW-9D	PS-1
M,P-XYLENES		2	2	2		2	2	2		2	2	2	2	2	2	2	2	2
M,P-XYLENES		2	2	2		2	2	2		2	2	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL ISOBUTYL KETONE (MIBK)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
O-XYLENE		1	1	1		1	1	1		1	1	1	1	1	1	1	1	1
O-XYLENE		1	1	1		1	1	1		1	1	1	1	1	1	1	1	1
PCE							0.5			0.5	0.5					0.5	0.5	
PCE							0.5			0.5	0.5					0.5	0.5	
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TCE	0.5		0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
TCE	0.5		0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL CHROMIUM																		10
TOTAL CHROMIUM																		10
TOTAL TRIHALOMETHANES		0.5	0.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.5	0.5	0.5		0.5	0.5	2.5
TOTAL TRIHALOMETHANES		0.5	0.5		2.5	0.5	0.5	0.5	2.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	2.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE				5	5	5	5	5	5	5	5							
TRANS-1,4-DICHLORO-2-BUTENE				5	5	5	5	5	5	5	5							
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VINYL ACETATE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL ACETATE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
XYLENES, TOTAL	3	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1

Concentrations in micrograms per liter (µg/L)

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	PS-2	PS-3	PS-4	PS-5	PS-6	PS-7	PS-9
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,1-TCA		0.5	0.5	0.5	5	5	5
1,1,1-TCA		0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2,2-TETRACHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)							
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)							
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1,2-TRICHLOROETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA		0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCA		0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DCE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1
1,1-DICHLOROPROPENE	1	1	1	1	1	1	1
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5
1,2,3-TRICHLOROBENZENE	5	5	5	5	5	5	5
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1
1,2,3-TRICHLOROPROPANE	1	1	1	1	1	1	1
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5
1,2,4-TRICHLOROBENZENE	5	5	5	5	5	5	5
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2
1,2,4-TRIMETHYLBENZENE	2	2	2	2	2	2	2
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	3	3	3
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	2	2	2	2	2	2	2
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	1	1	1
1,2-DIBROMOETHANE (EDB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-DICHLOROETHANE	0.5	0.5		0.5	0.5	0.5	0.5
1,2-DICHLOROETHANE	0.5	0.5		0.5	0.5	0.5	0.5
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	1	1	1
1,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3,5-TRIMETHYLBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1
1,3-DICHLOROPROPANE	1	1	1	1	1	1	1
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DICHLOROBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,4-DIOXANE					50	50	4
1,4-DIOXANE					4	4	4
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1-METHYL-2-CHLOROBENZENE (2-CHLOROTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	1	1	1
2,2-DICHLOROPROPANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2-HEXANONE	5	5	5	5	10	10	10
2-HEXANONE	5	5	5	5	5	5	5
4-CHLOROTOLUENE	2	2	2	2	2	2	2
4-CHLOROTOLUENE	2	2	2	2	2	2	2
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	PS-2	PS-3	PS-4	PS-5	PS-6	PS-7	PS-9
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
ACETONE	20	20	20	20	20	20	20
ACETONE	20	20	20	20	20	20	20
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMOBENZENE	1.5	1.5	1.5	1.5	1.5	1.5	1.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	1	1	0.5
BROMODICHLOROMETHANE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BROMOFORM	1	1	1	1	1	1	1
BROMOFORM	1	1	1	1	1	1	1
BROMOMETHANE	5	5	5	5	5	5	5
BROMOMETHANE	5	5	5	5	5	5	5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	2.5	2.5	2.5
CARBON DISULFIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CARBON TETRACHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBENZENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	1	1	1
CHLOROBROMOMETHANE (BROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	1	1	1
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CHLOROETHANE	4	4	4	4	4	4	4
CHLOROETHANE	4	4	4	4	4	4	4
CHLOROFORM						0.5	
CHLOROFORM						0.5	
CHLOROMETHANE	5	5	5	5	5	5	5
CHLOROMETHANE	5	5	5	5	5	5	5
CHROMIUM	10	10	10	10	10	10	10
CHROMIUM	10	10	10	10	10	10	10
CHROMIUM, DISSOLVED	10	10	10	10	10	10	10
CHROMIUM, DISSOLVED	10	10	10	10	10	10	10
CHROMIUM, HEXAVALENT							
CHROMIUM, HEXAVALENT							
CHROMIUM, TOTAL	10	10	10	10	10	10	10
CHROMIUM, TOTAL	10	10	10	10	10	10	10
CHROMIUM, TRIVALENT							
CHROMIUM, TRIVALENT							
CIS-1,2-DCE	0.5	0.5		0.5	0.5	0.5	0.5
CIS-1,2-DCE	0.5	0.5		0.5	0.5	0.5	0.5
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1
CIS-1,3-DICHLOROPROPENE	1	1	1	1	1	1	1
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2
DICHLORODIFLUOROMETHANE (FREON 12)	2	2	2	2	2	2	2
DISSOLVED CHROMIUM	10	10	10	10	10	10	10
DISSOLVED CHROMIUM	10	10	10	10	10	10	10
ETHYLBENZENE	2	2	2	2	2	2	2
ETHYLBENZENE	2	2	2	2	2	2	2
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5
HEXACHLOROBUTADIENE	5	5	5	5	5	5	5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5
ISOPROPYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5

TABLE A-10
SUMMARY OF DETECTION LIMITS IN GROUNDWATER SAMPLES
WEST VAN BUREN AREA WQARF SITE
PHOENIX, ARIZONA

CompoundName	PS-2	PS-3	PS-4	PS-5	PS-6	PS-7	PS-9
M,P-XYLENES	2	2	2	2	2	2	2
M,P-XYLENES	2	2	2	2	2	2	2
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	10	10	10
METHYL ETHYL KETONE (2-BUTANONE)	5	5	5	5	5	5	5
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2
METHYL IODIDE (IODOMETHANE)	2	2	2	2	2	2	2
METHYL ISOBUTYL KETONE (MIBK)	5	5	5	5	10	10	10
METHYL ISOBUTYL KETONE (MIBK)	5	5	5	5	5	5	5
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2
METHYL TERT-BUTYL ETHER (MTBE)	2	2	2	2	2	2	2
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	1	1	1
METHYLENE BROMIDE (DIBROMOMETHANE)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	5	5	5
METHYLENE CHLORIDE (DICHLOROMETHANE)	3	3	3	3	3	3	3
NAPHTHALENE	5	5	5	5	5	5	5
NAPHTHALENE	5	5	5	5	5	5	5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5
N-PROPYLBENZENE	2	2	2	2	2	2	2
N-PROPYLBENZENE	2	2	2	2	2	2	2
O-XYLENE	1	1	1	1	1	1	1
O-XYLENE	1	1	1	1	1	1	1
PCE						0.5	0.5
PCE						0.5	0.5
SEC-BUTYLBENZENE	1.5	1.5	1.5		1.5	1.5	1.5
SEC-BUTYLBENZENE	1.5	1.5	1.5		1.5	1.5	1.5
STYRENE	1	1	1	1	1	1	1
STYRENE	1	1	1	1	1	1	1
TCE		0.5		0.5		0.5	0.5
TCE		0.5		0.5		0.5	0.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TERT-BUTYLBENZENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TOLUENE	2	2	2	2	2	2	2
TOLUENE	2	2	2	2	2	2	2
TOTAL CHROMIUM	10	10	10	10	10	10	10
TOTAL CHROMIUM	10	10	10	10	10	10	10
TOTAL TRIHALOMETHANES			2.5				
TOTAL TRIHALOMETHANES			2.5				
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,2-DICHLOROETHENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	1	1	1
TRANS-1,3-DICHLOROPROPENE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRANS-1,4-DICHLORO-2-BUTENE							
TRANS-1,4-DICHLORO-2-BUTENE							
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2
TRICHLOROFLUOROMETHANE (FREON 11)	2	2	2	2	2	2	2
VINYL ACETATE	5	5	5	5	10	10	10
VINYL ACETATE	5	5	5	5	5	5	5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
VINYL CHLORIDE	0.5	0.5	0.5	0.5	0.5	0.5	0.5
XYLENES, TOTAL	3	3	3	1	3	3	3
XYLENES, TOTAL	1	1	1	1	1	1	1

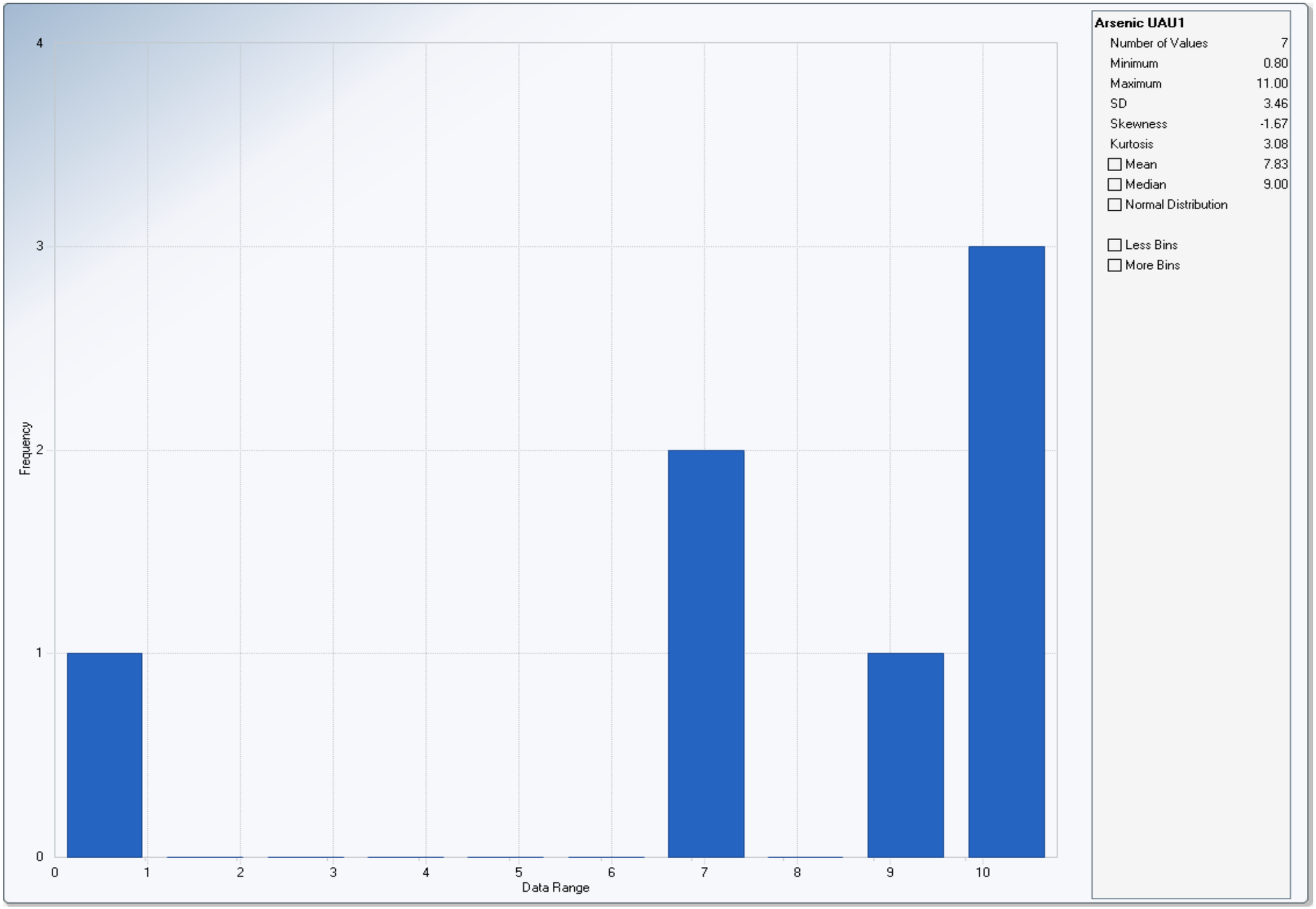
Concentrations in micrograms per liter (µg/L)

ATTACHMENT B

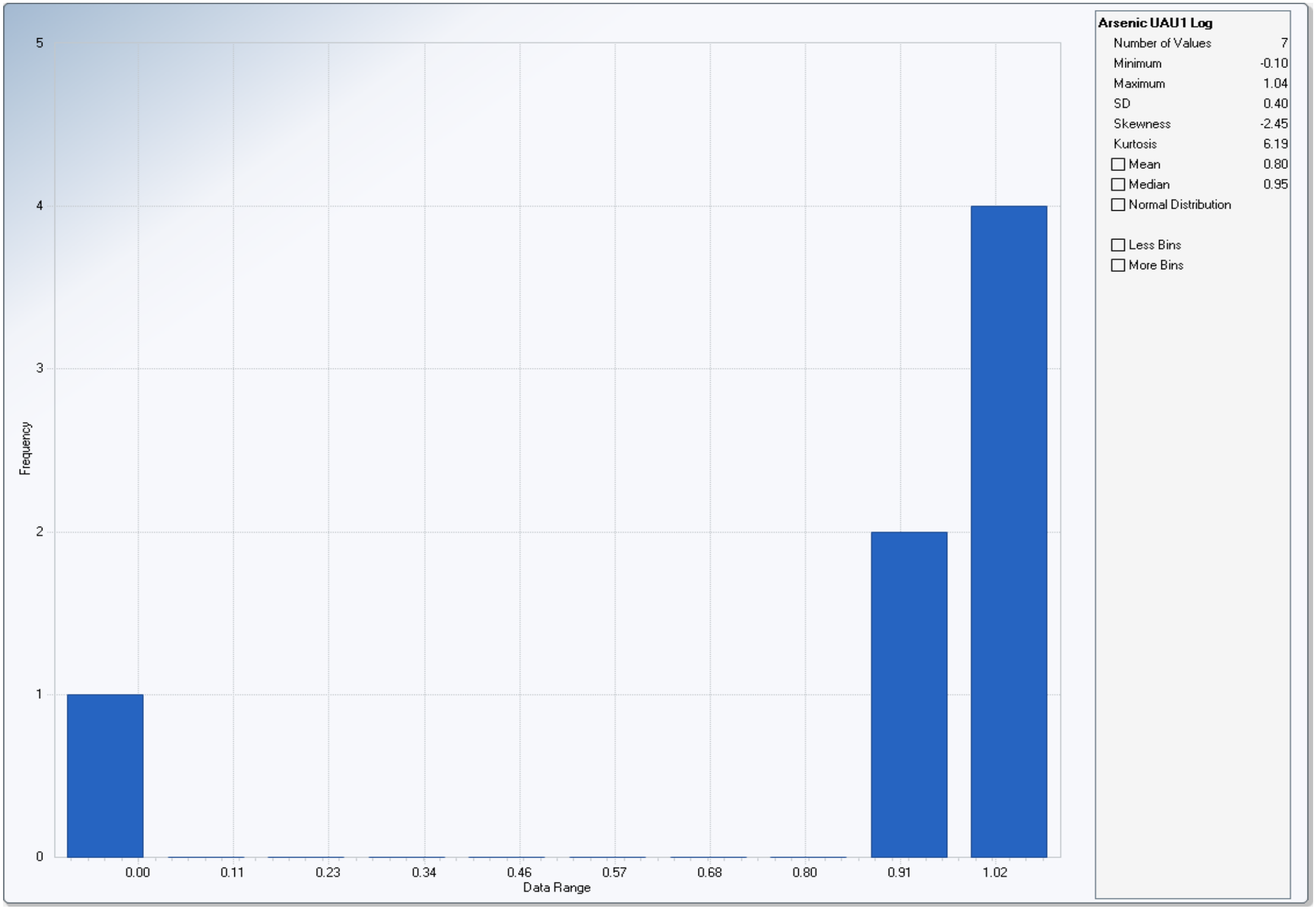
Background Metals Evaluation

Without Nondetects

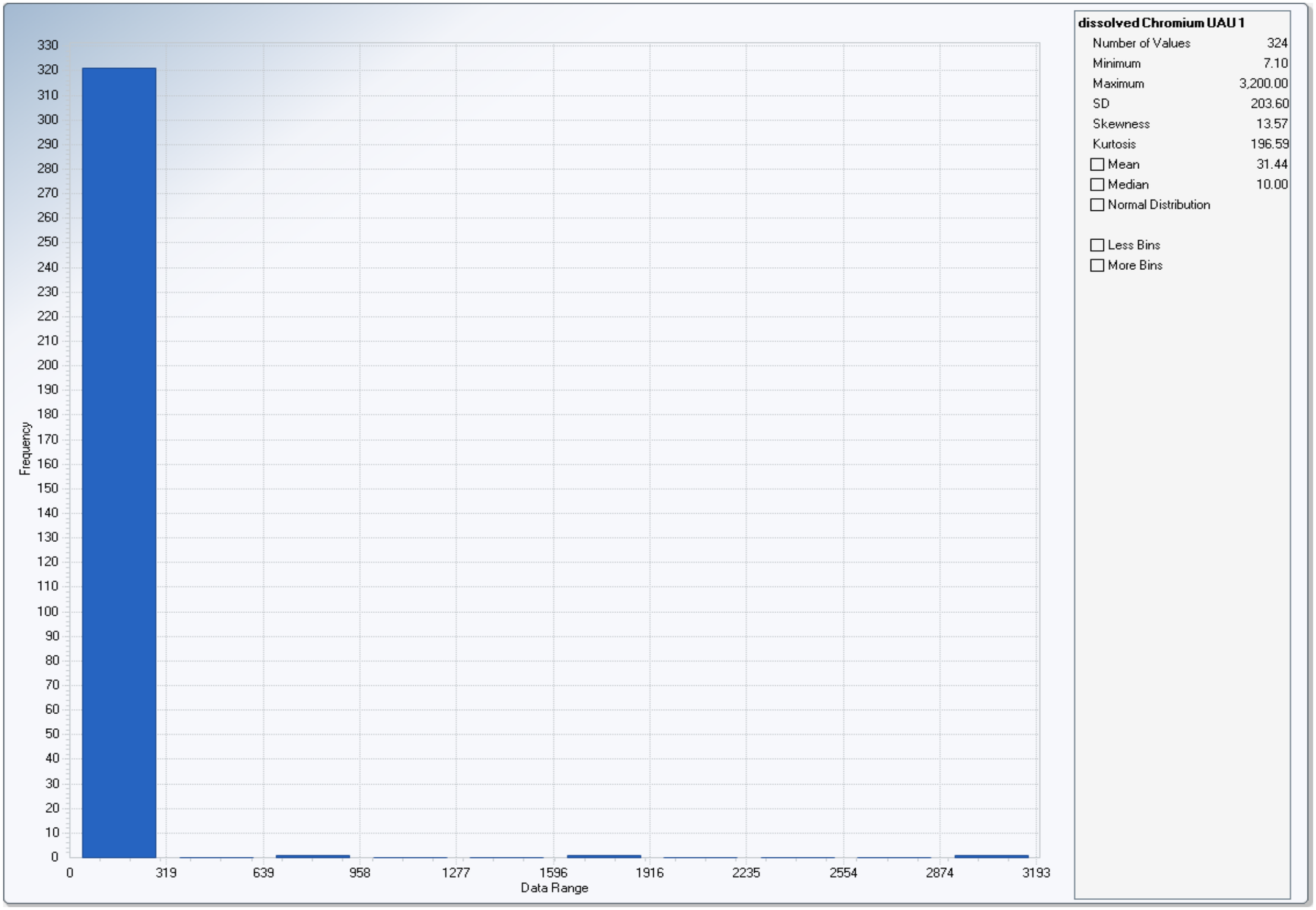
Histogram for Arsenic without Non-Detects in UAU1: All Years
Untransformed



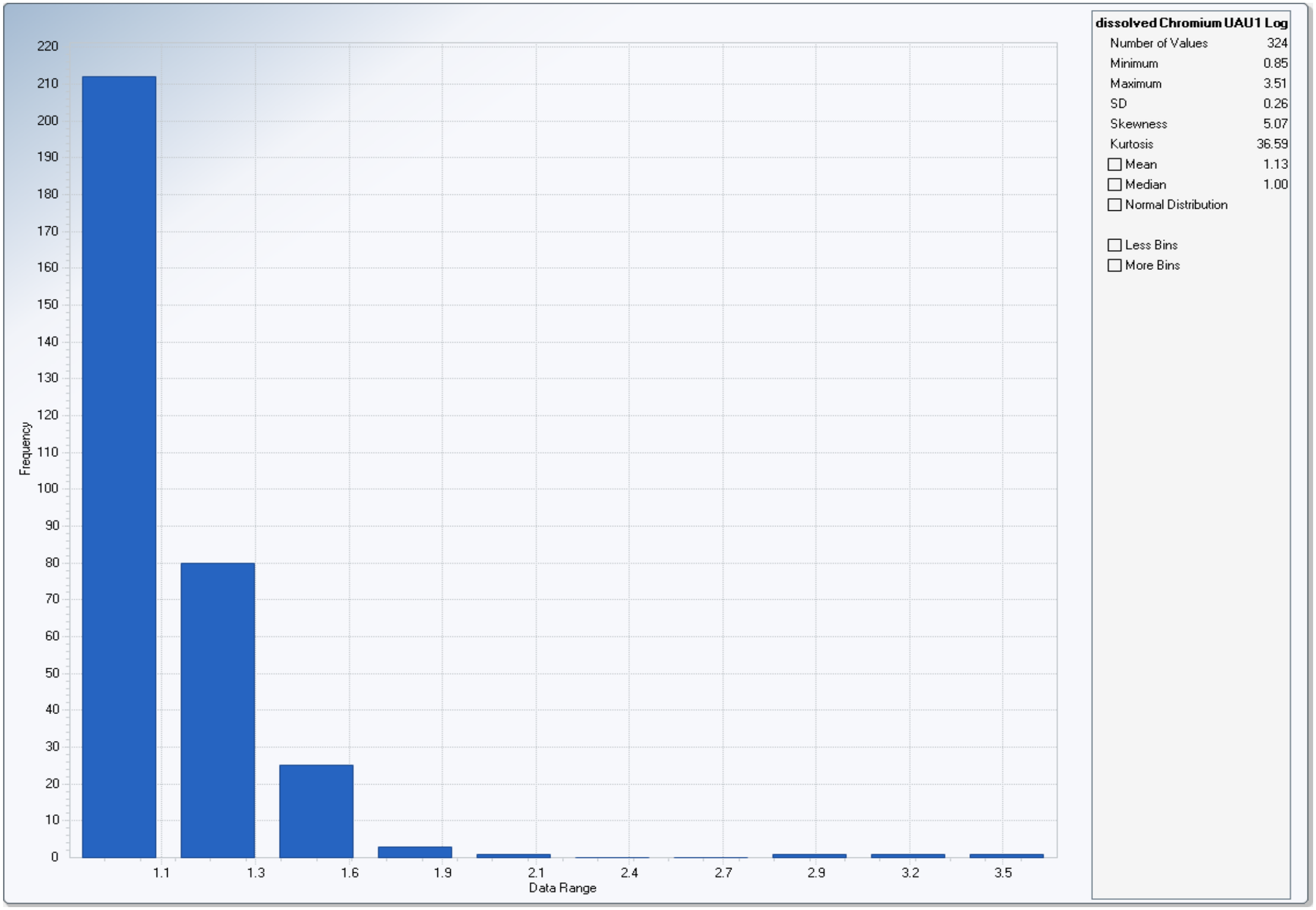
Histogram for Arsenic without Non-Detects in UAU1: All Years
Log Transformed



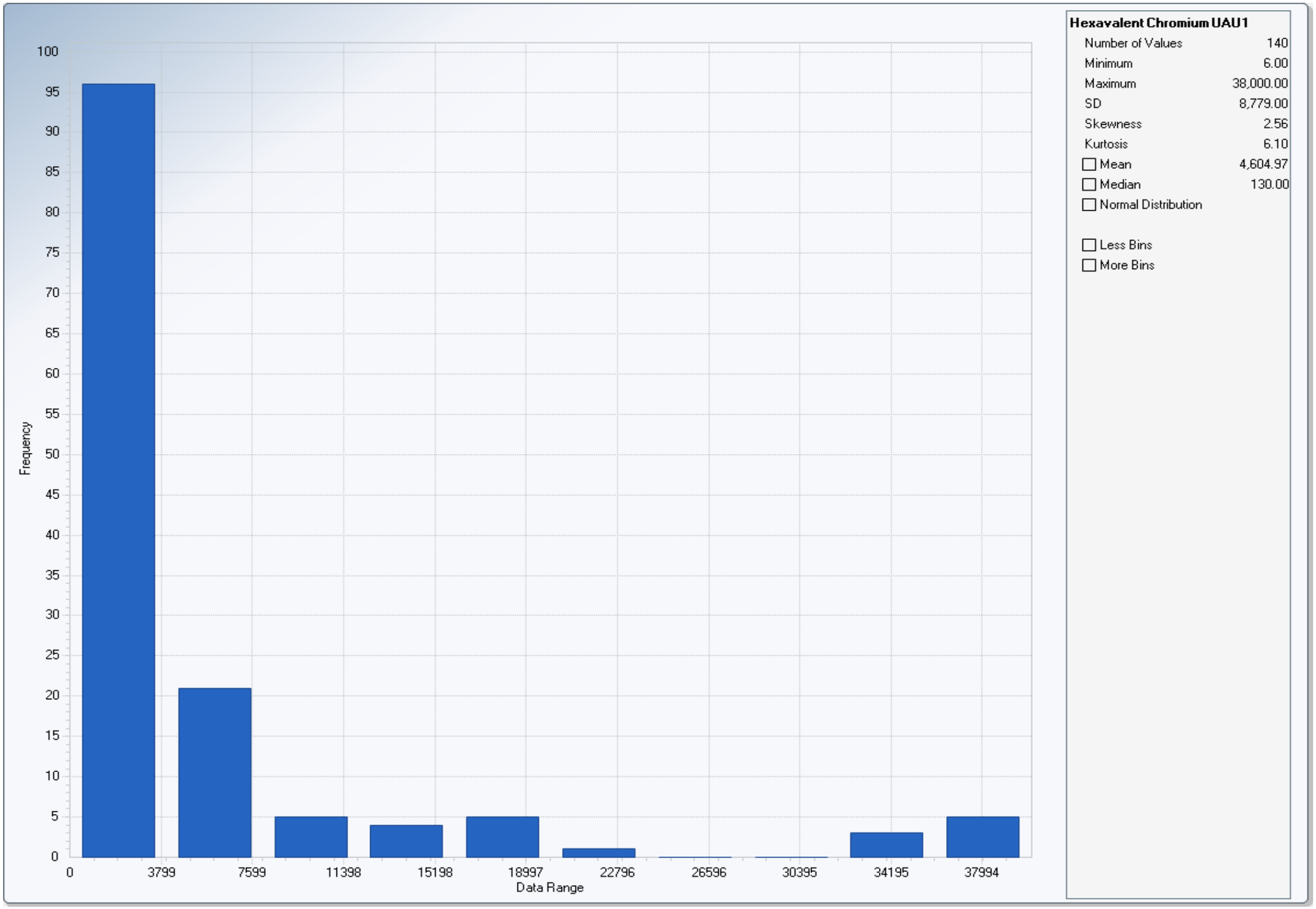
Histogram for Dissolved Total Chromium without Non-Detects in UAU1: All Years
Untransformed



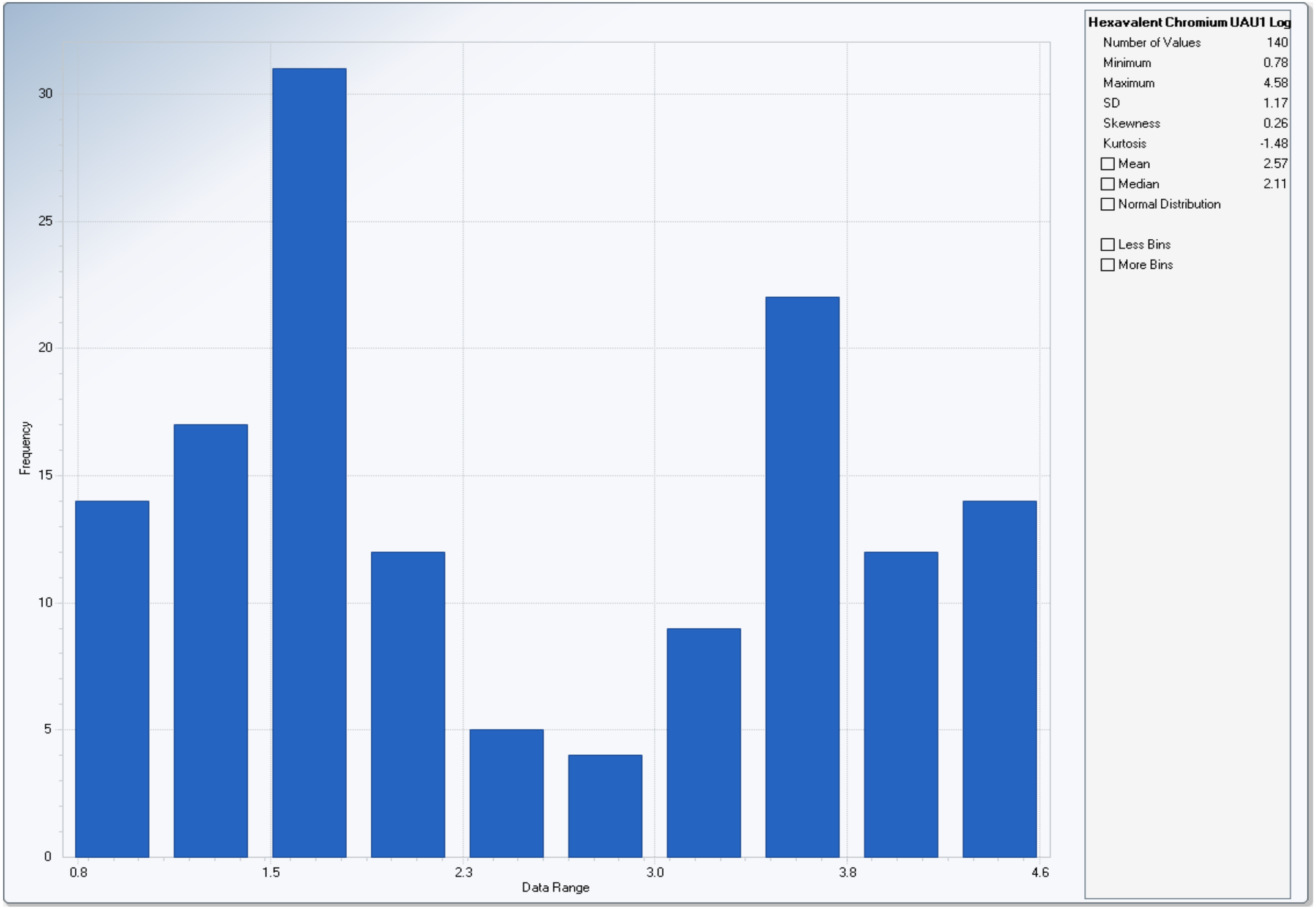
Histogram for Dissolved Total Chromium without Non-Detects in UAU1: All Years
Log Transformed



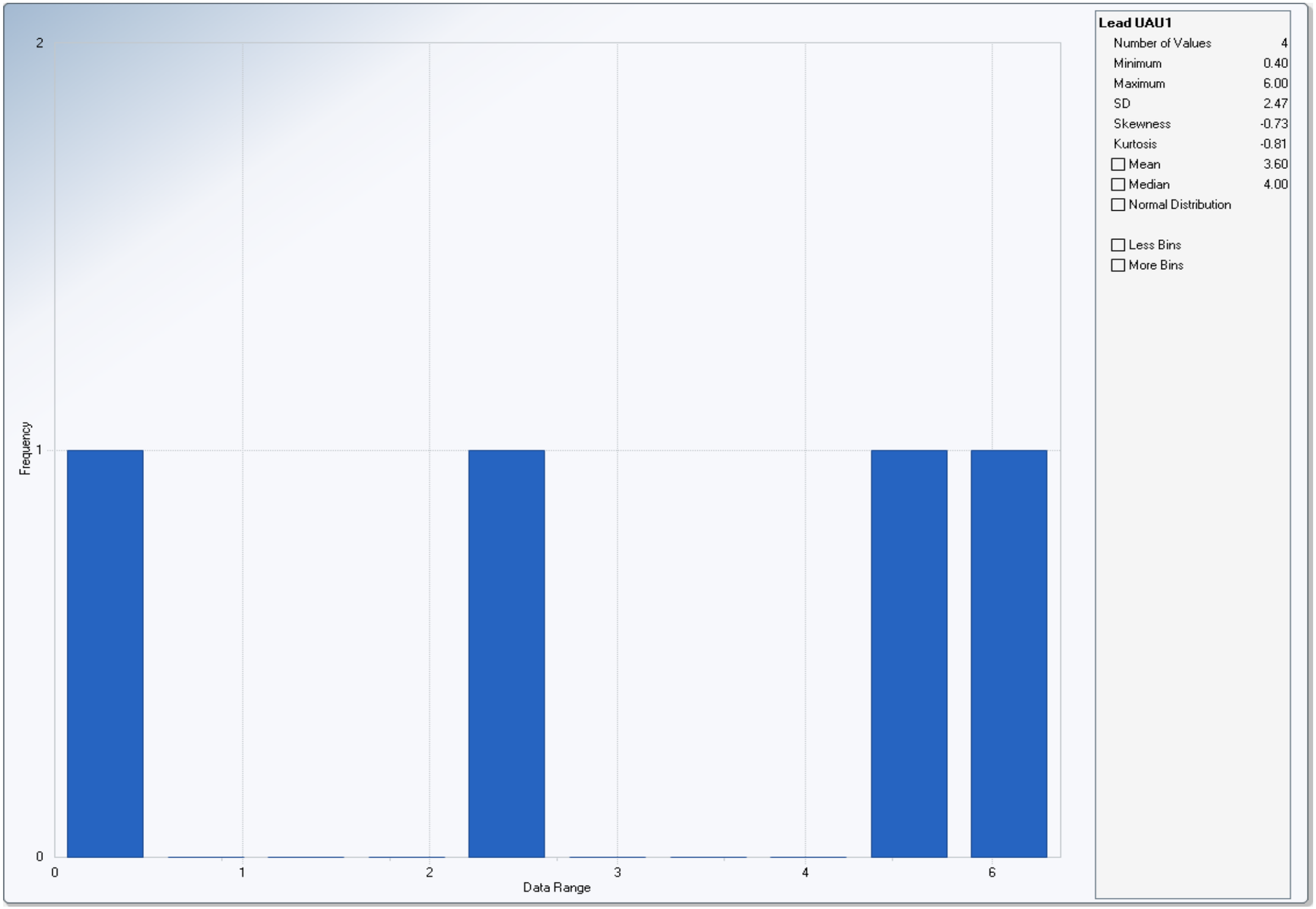
Histogram for Hexavalent Chromium without Non-Detects in UAU1: All Years
Untransformed



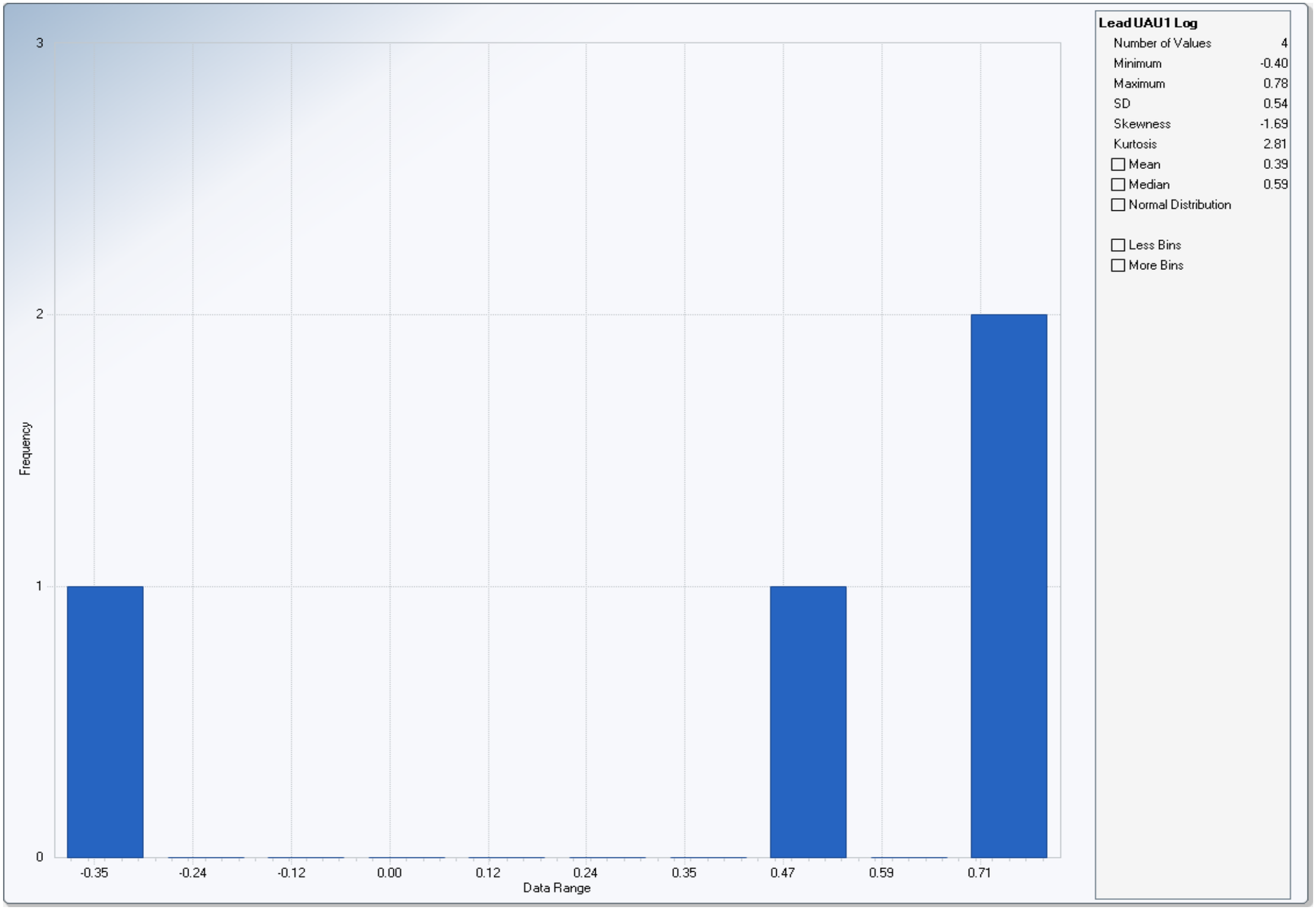
Histogram for Hexavalent Chromium without Non-Detects in UAU1: All Years
Log Transformed



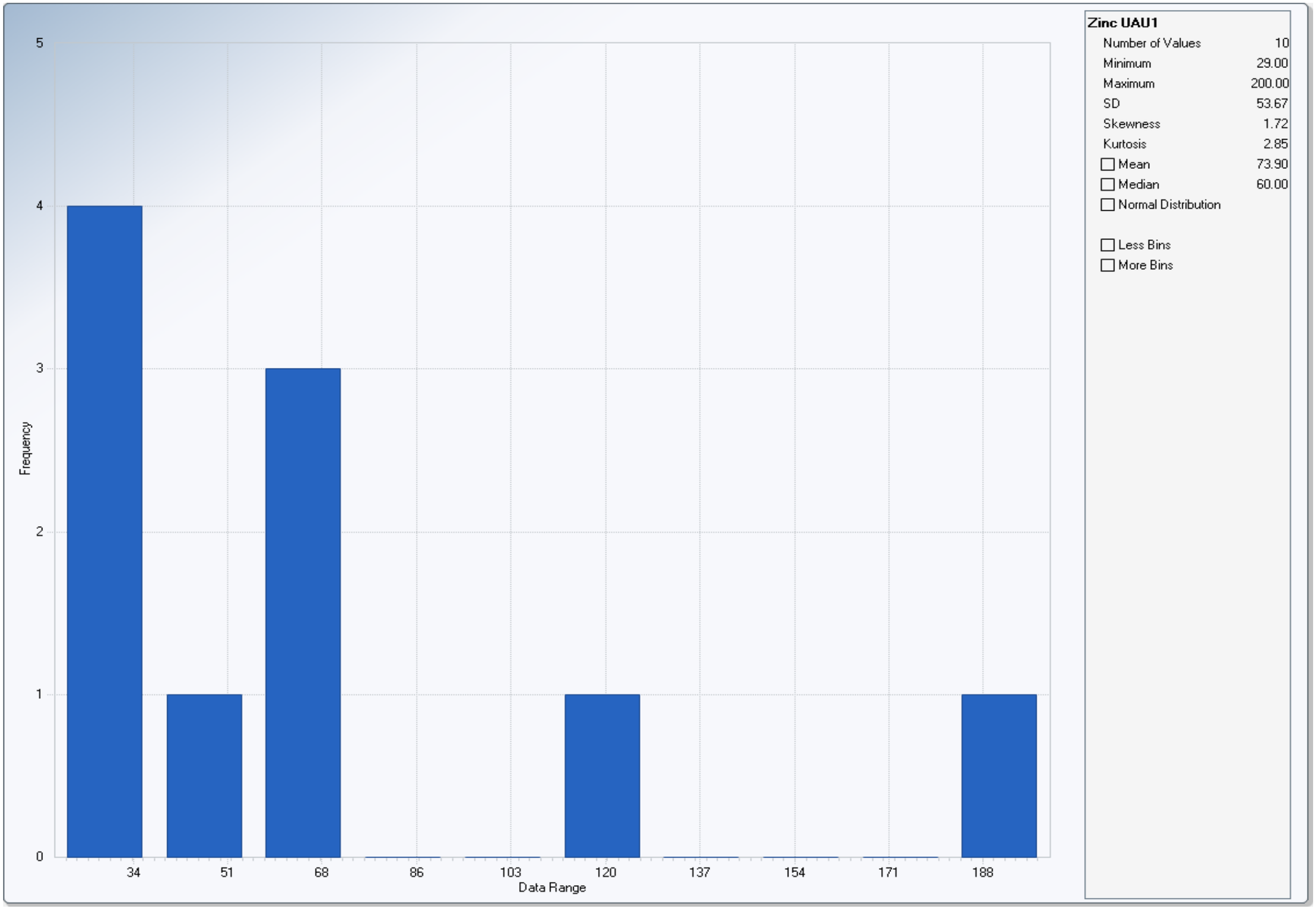
Histogram for Lead without Non-Detects in UAU1: All Years
Untransformed



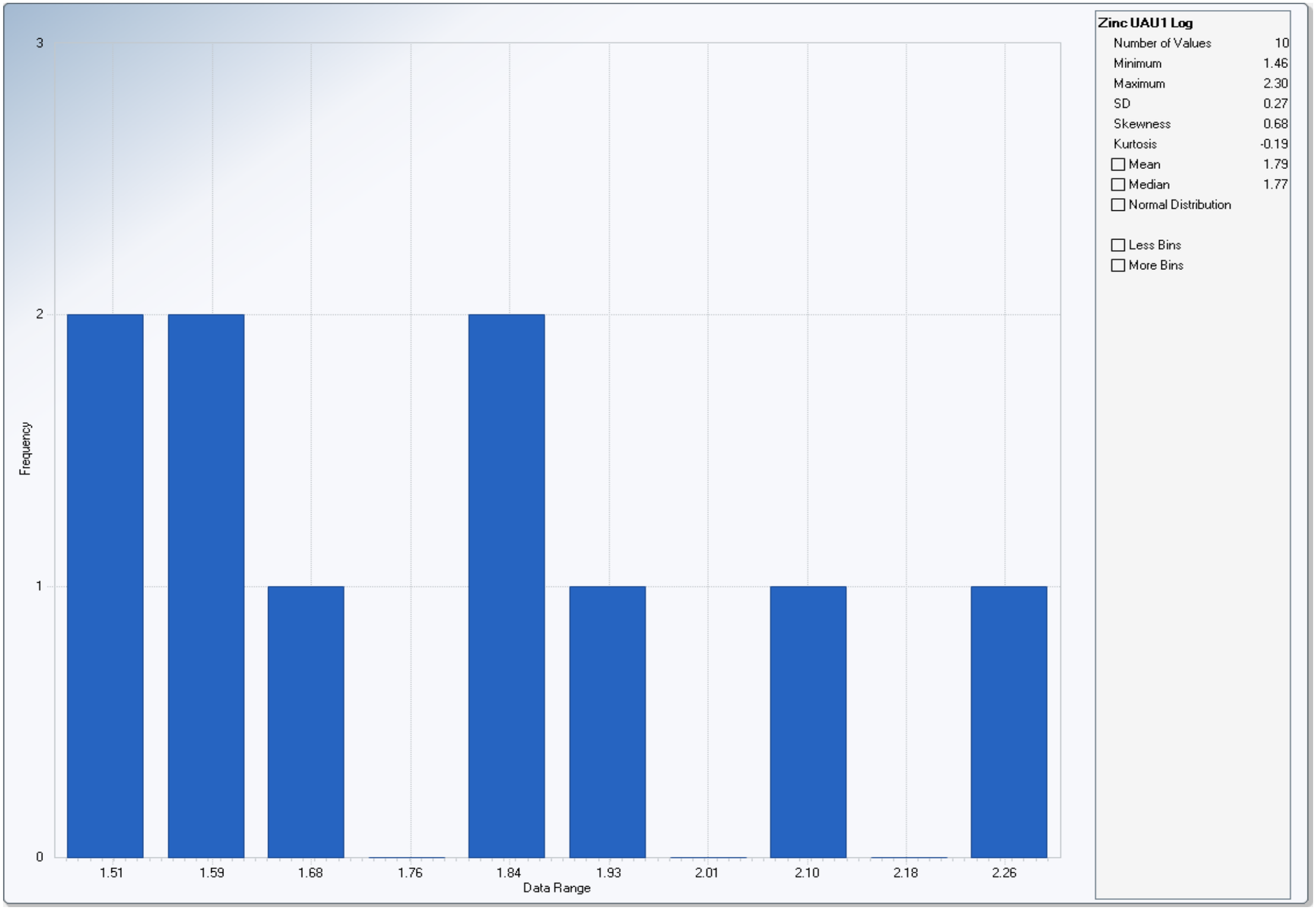
Histogram for Lead without Non-Detects in UAU1: All Years
Log Transformed



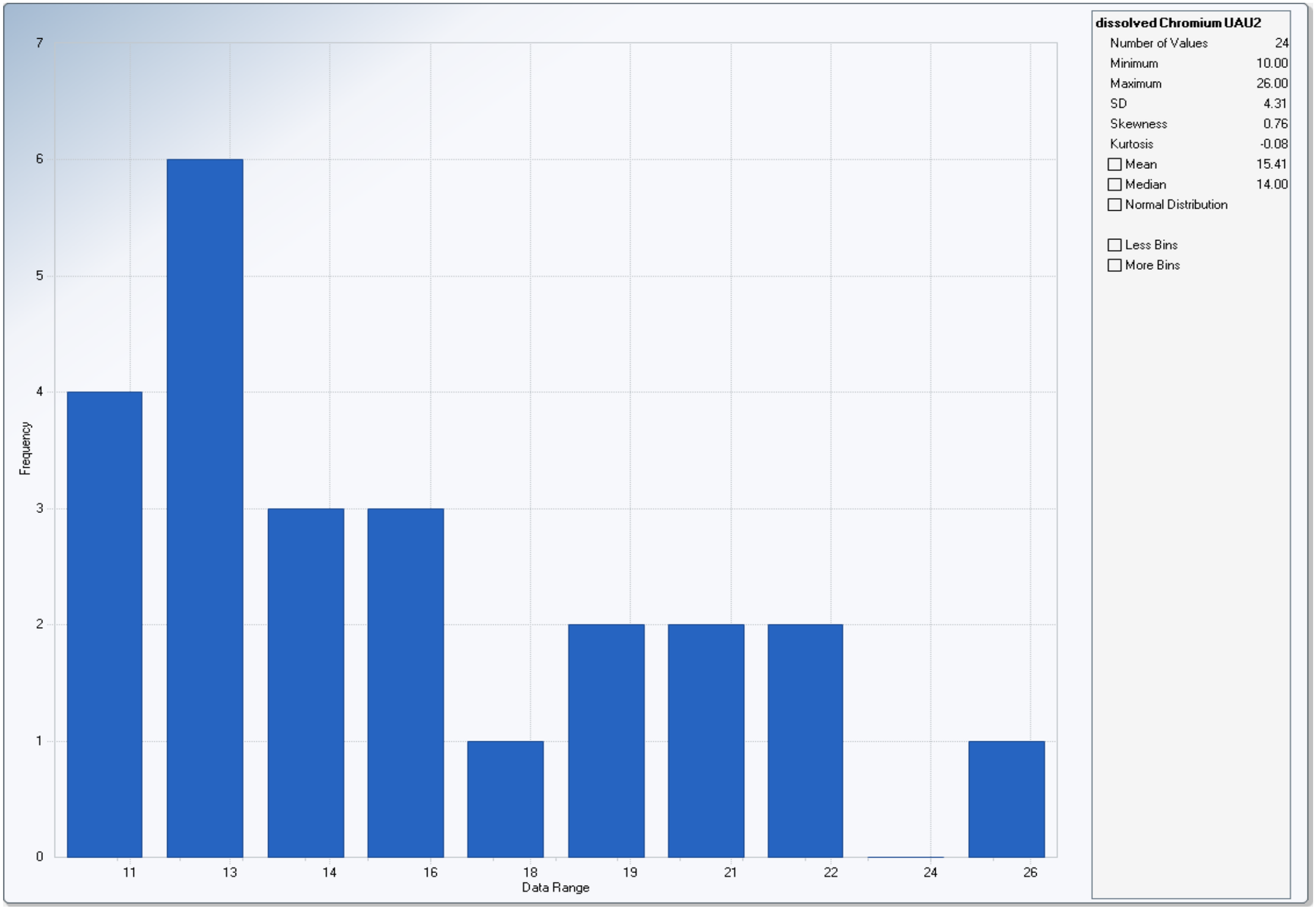
Histogram for Zinc without Non-Detects in UAU1: All Years
Untransformed



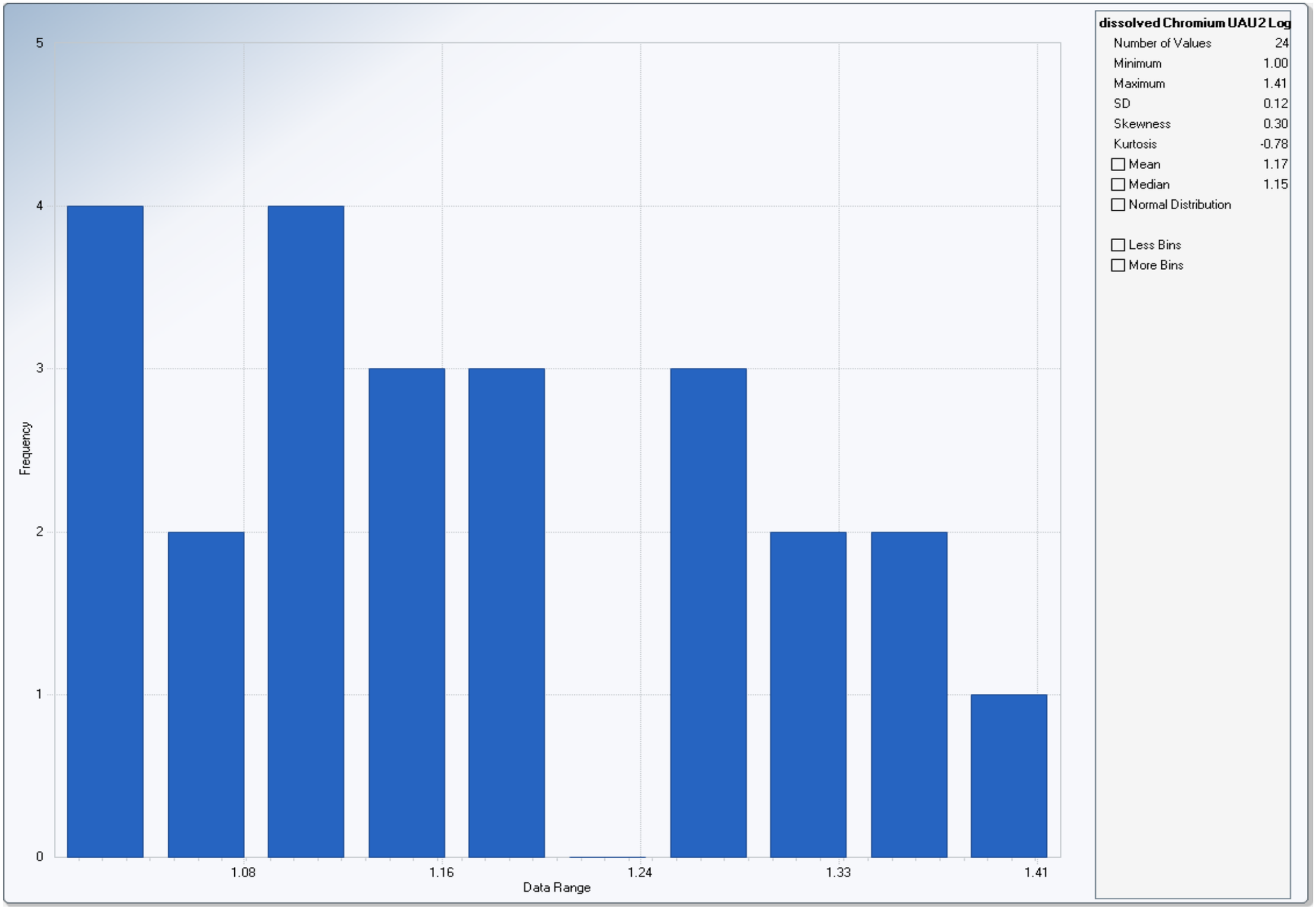
Histogram for Zinc without Non-Detects in UAU1: All Years
Log Transformed



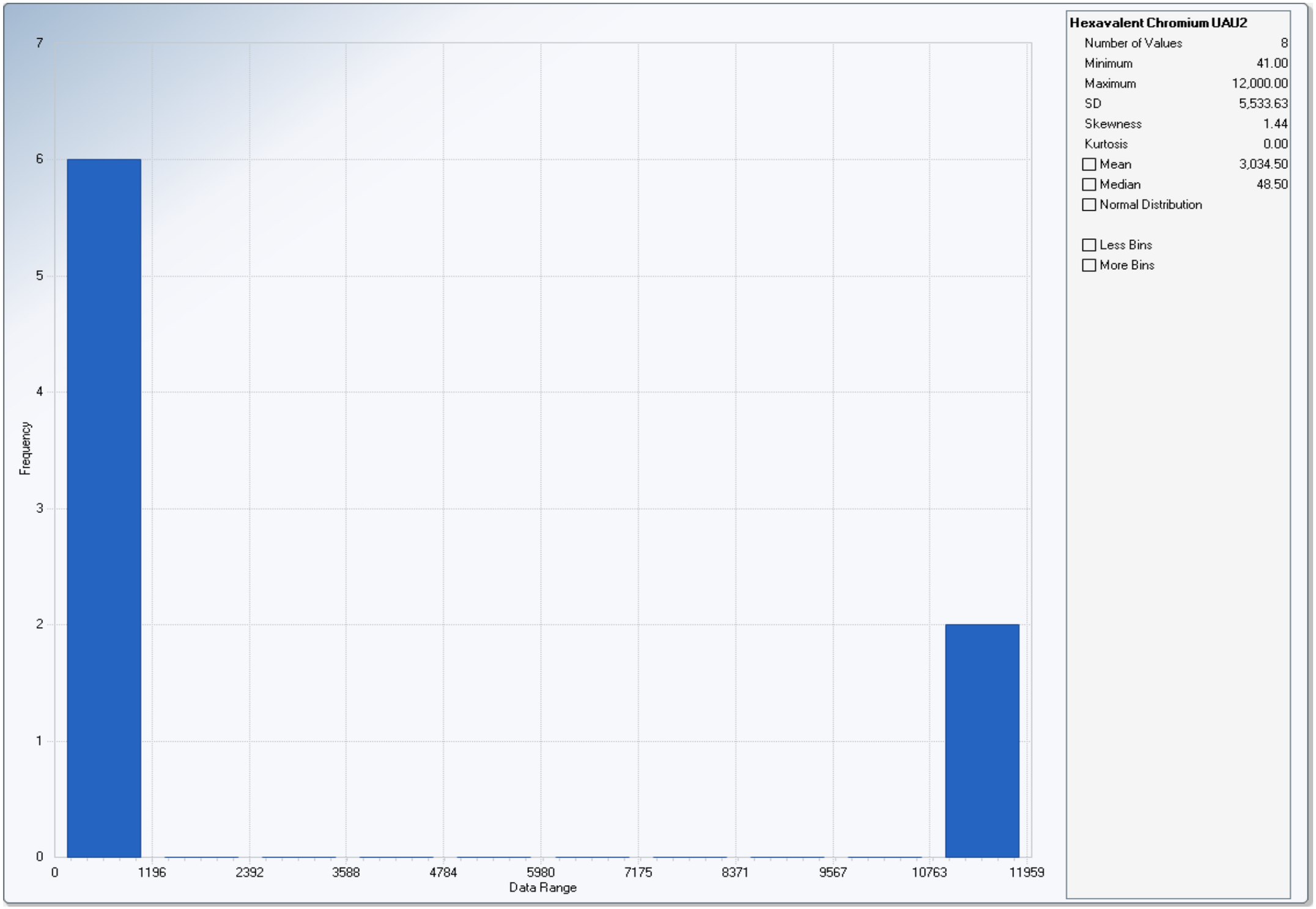
Histogram for Dissolved Total Chromium without Non-Detects in UAU2: All Years
Untransformed



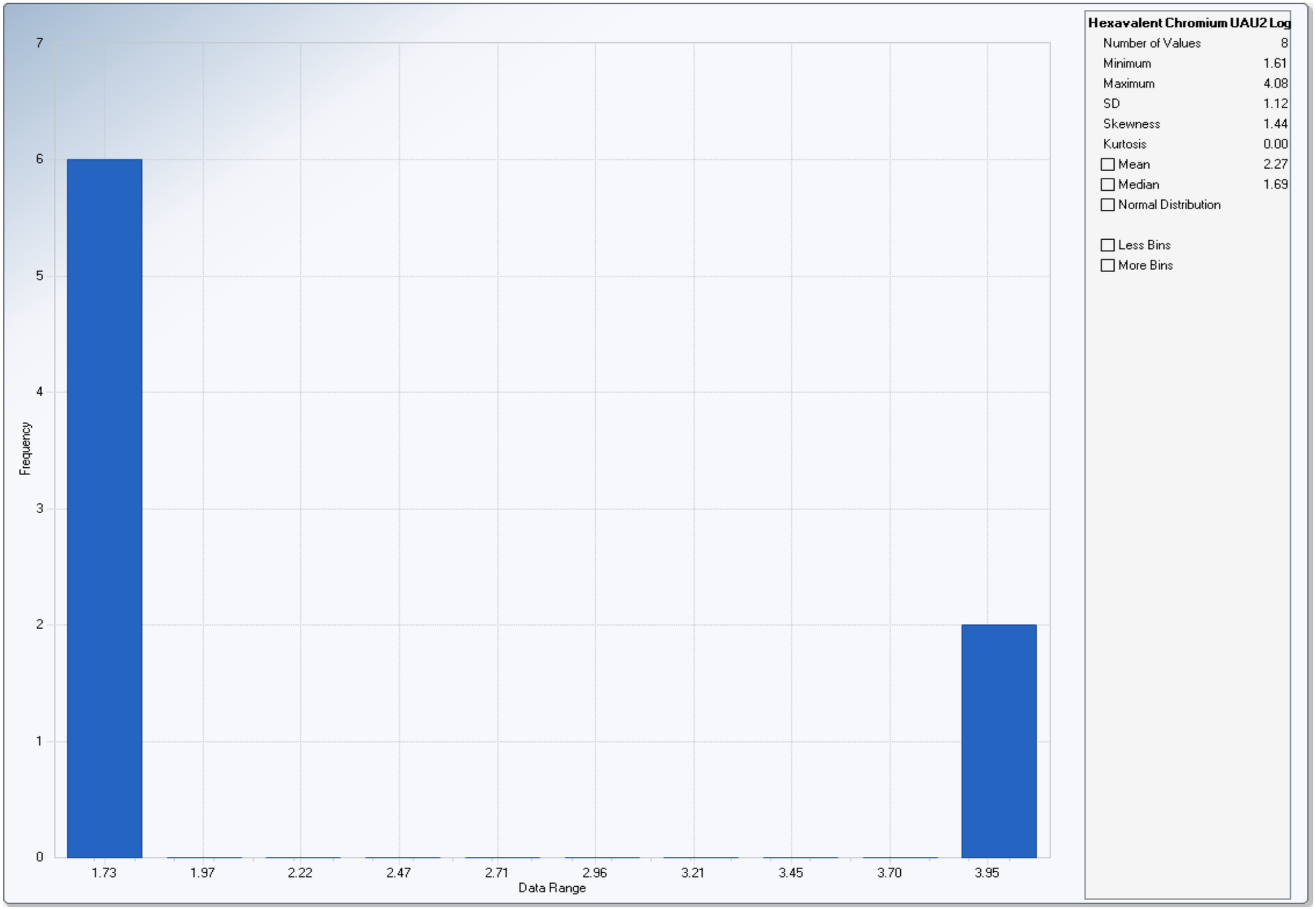
Histogram for Dissolved Total Chromium without Non-Detects in UAU2: All Years
Log Transformed



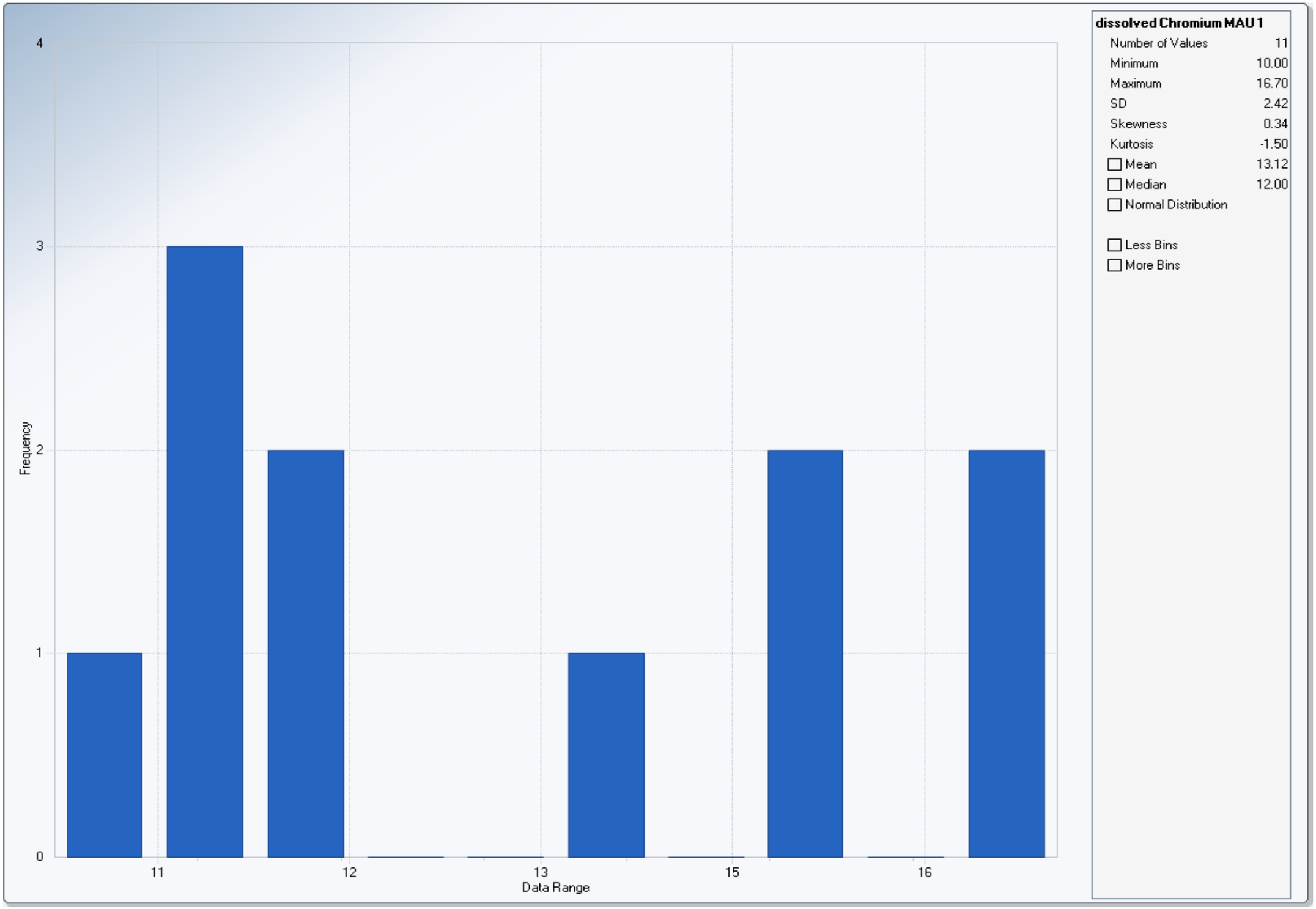
Histogram for Hexavalent Chromium without Non-Detects in UAU2: All Years
Untransformed



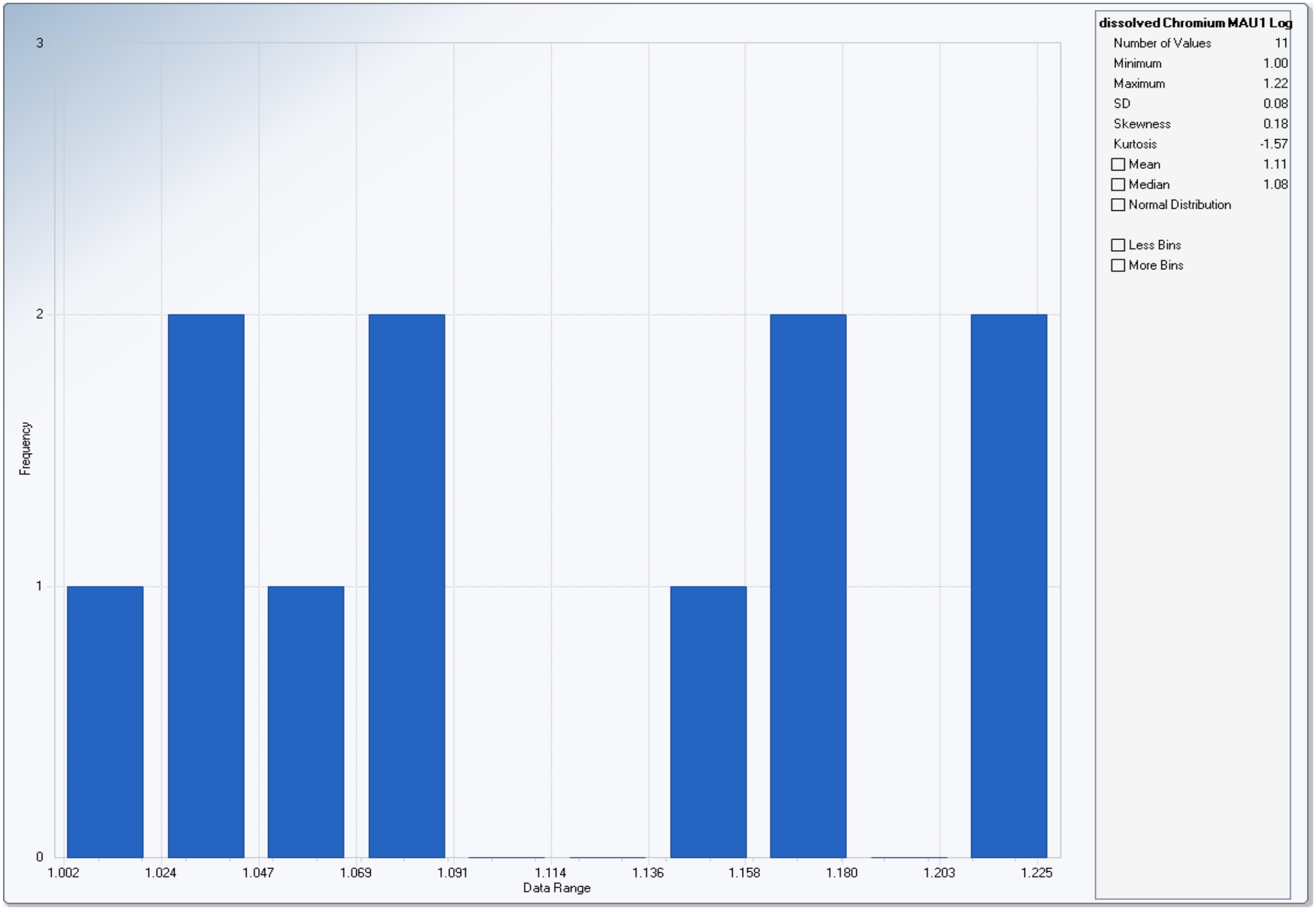
Histogram for Hexavalent Chromium without Non-Detects in UAU2: All Years
Log Transformed



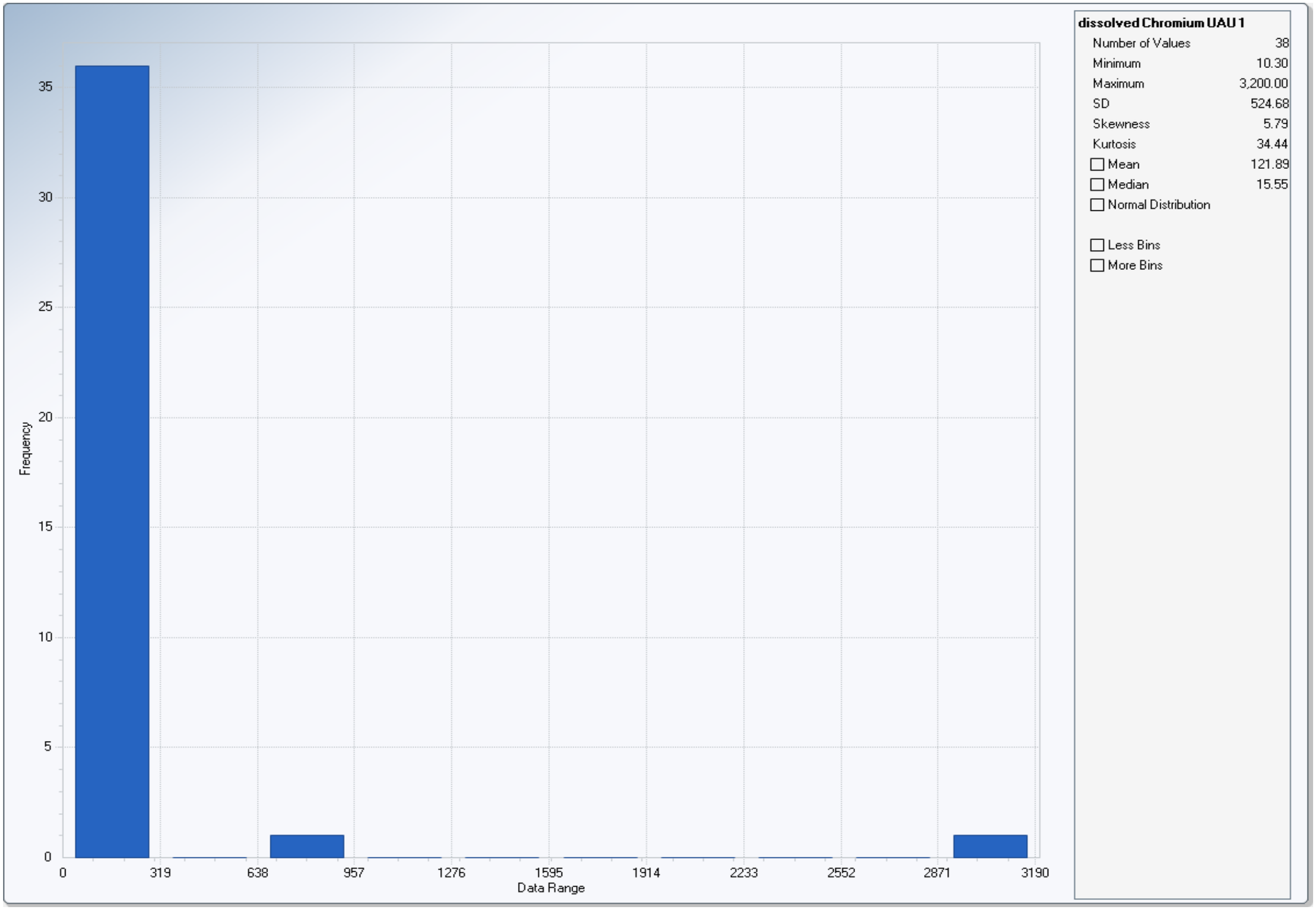
Histogram for Dissolved Total Chromium without Non-Detects in MAU1: All Years
Untransformed



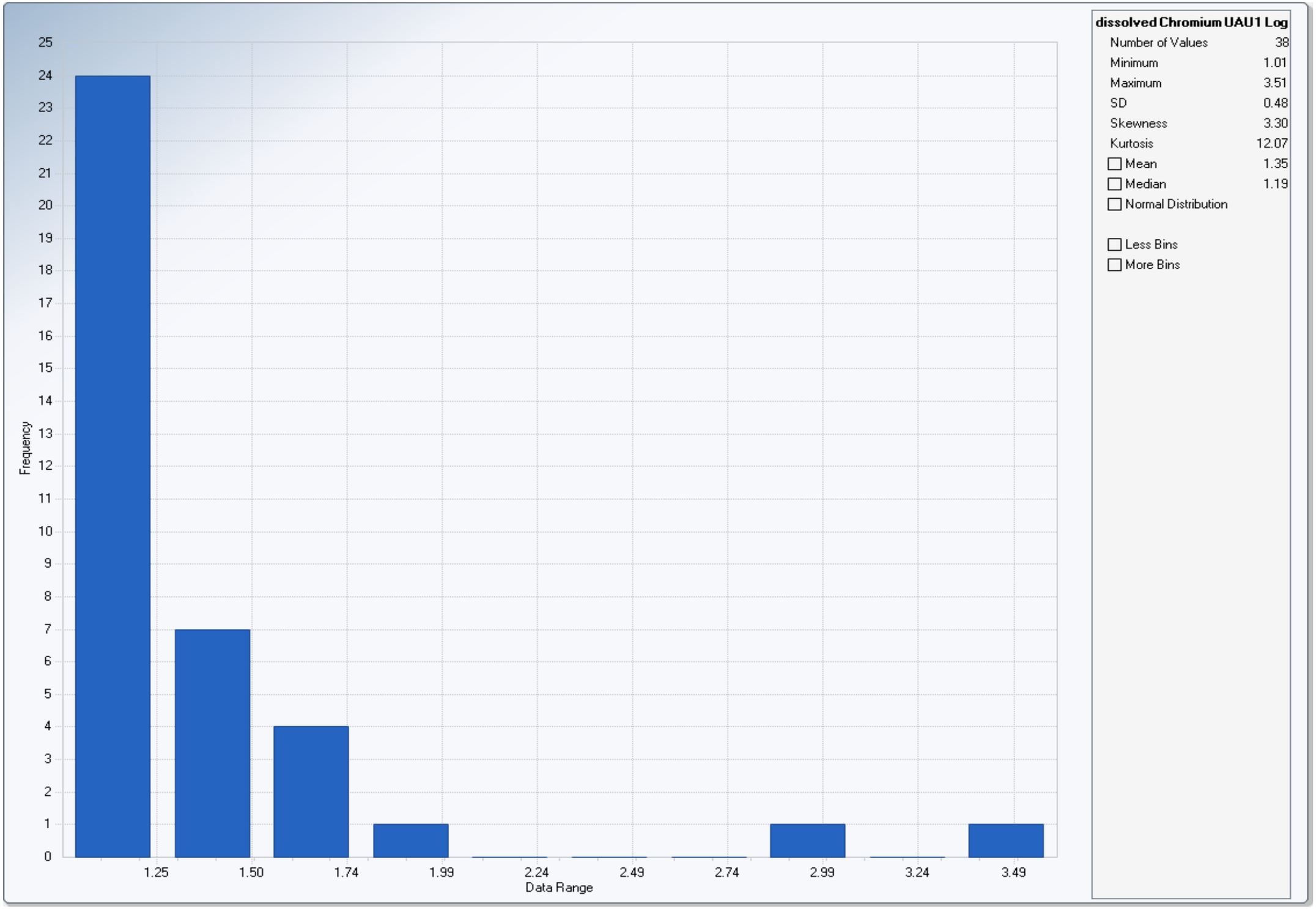
Histogram for Dissolved Total Chromium without Non-Detects in MAU1: All Years
Log Transformed



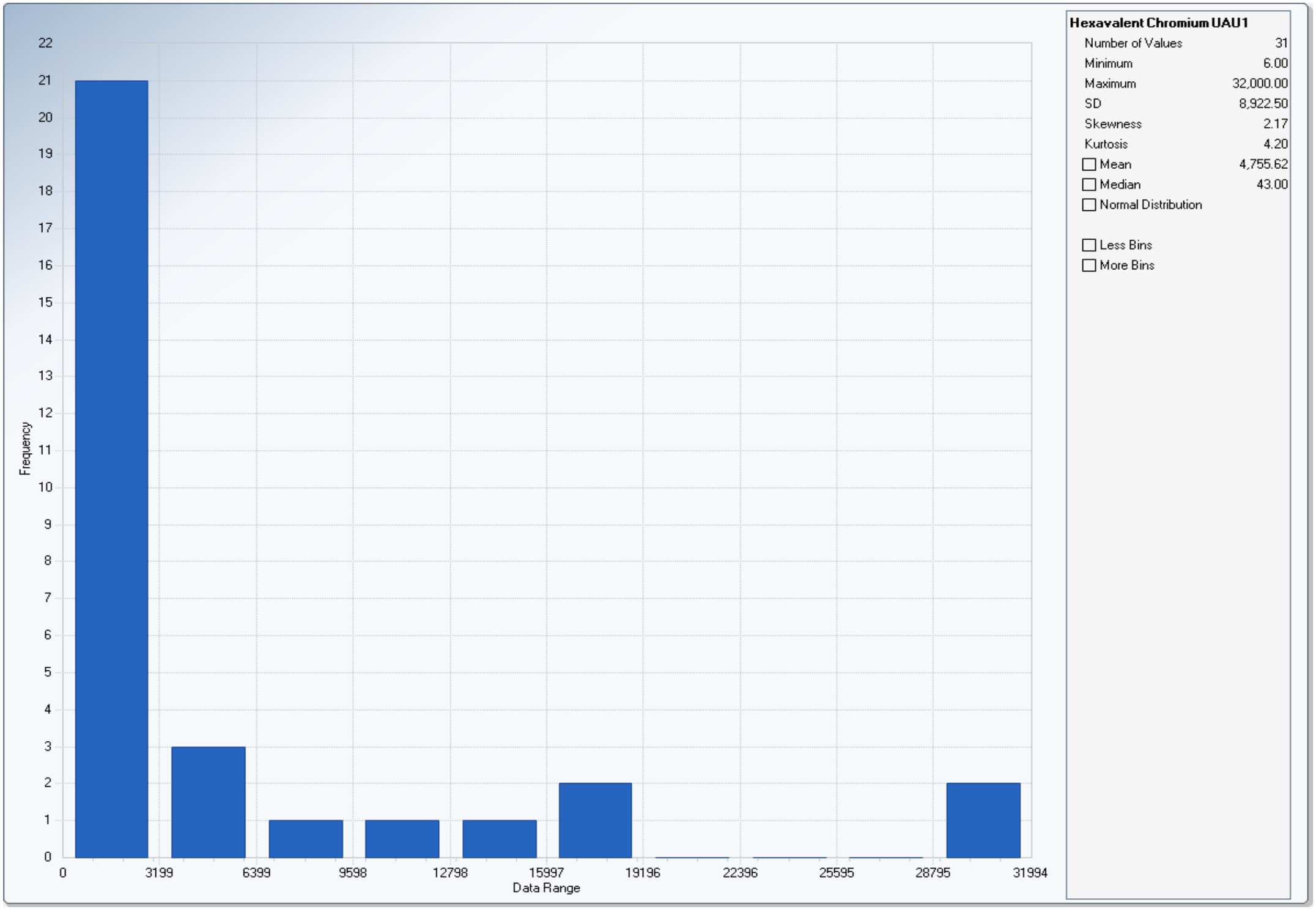
Histogram for Dissolved Total Chromium without Non-Detects in UAU1: Last 5 Years
Untransformed



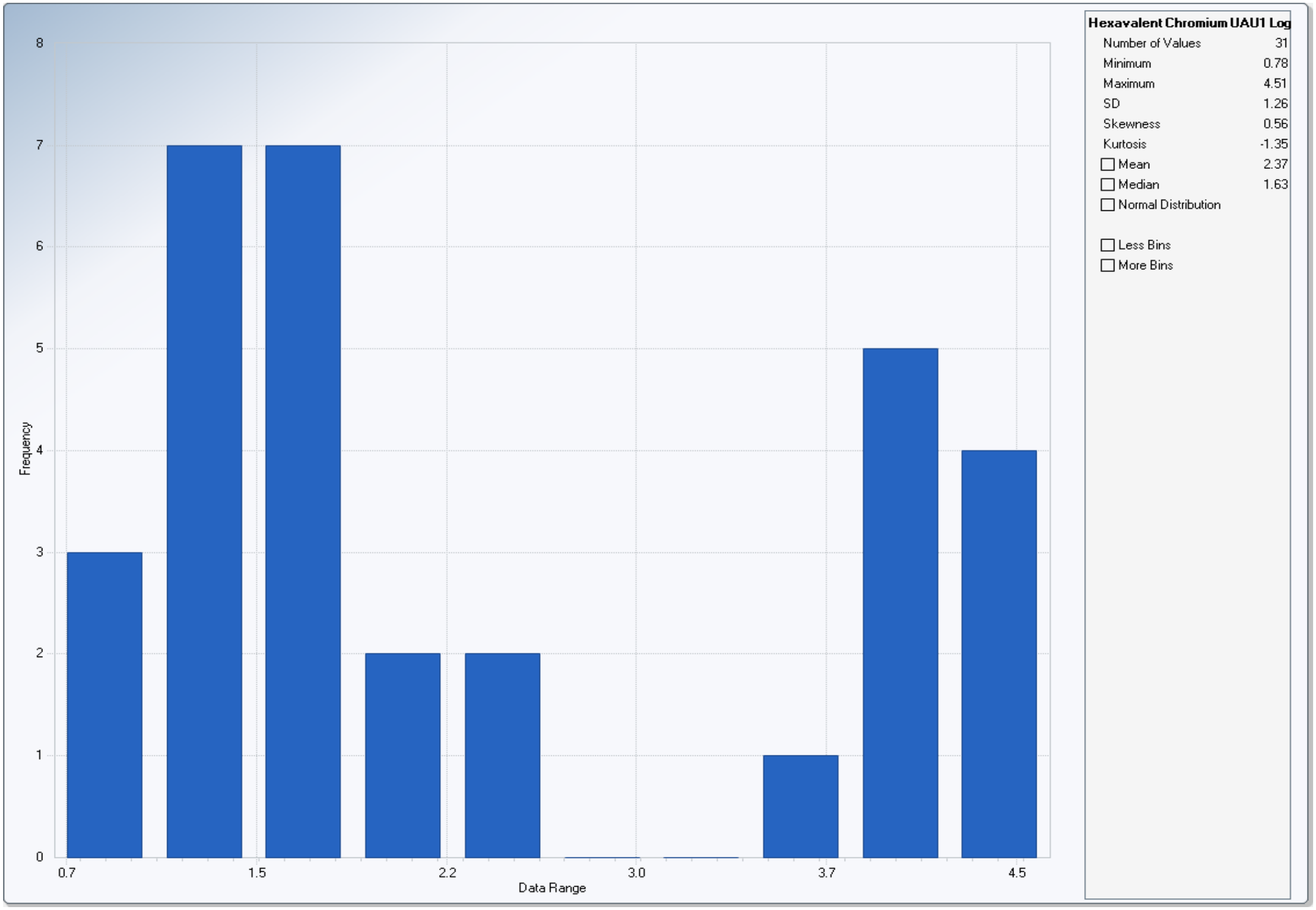
Histogram for Dissolved Total Chromium without Non-Detects in UAU1: Last 5 Years
Log Transformed



Histogram for Hexavalent Chromium without Non-Detects in UAU1: Last 5 Years
Untransformed



Histogram for Hexavalent Chromium without Non-Detects in UAU1: Last 5 Years
Log Transformed



Histogram for Dissolved Total Chromium without Non-Detects in UAU2: Last 5 Years
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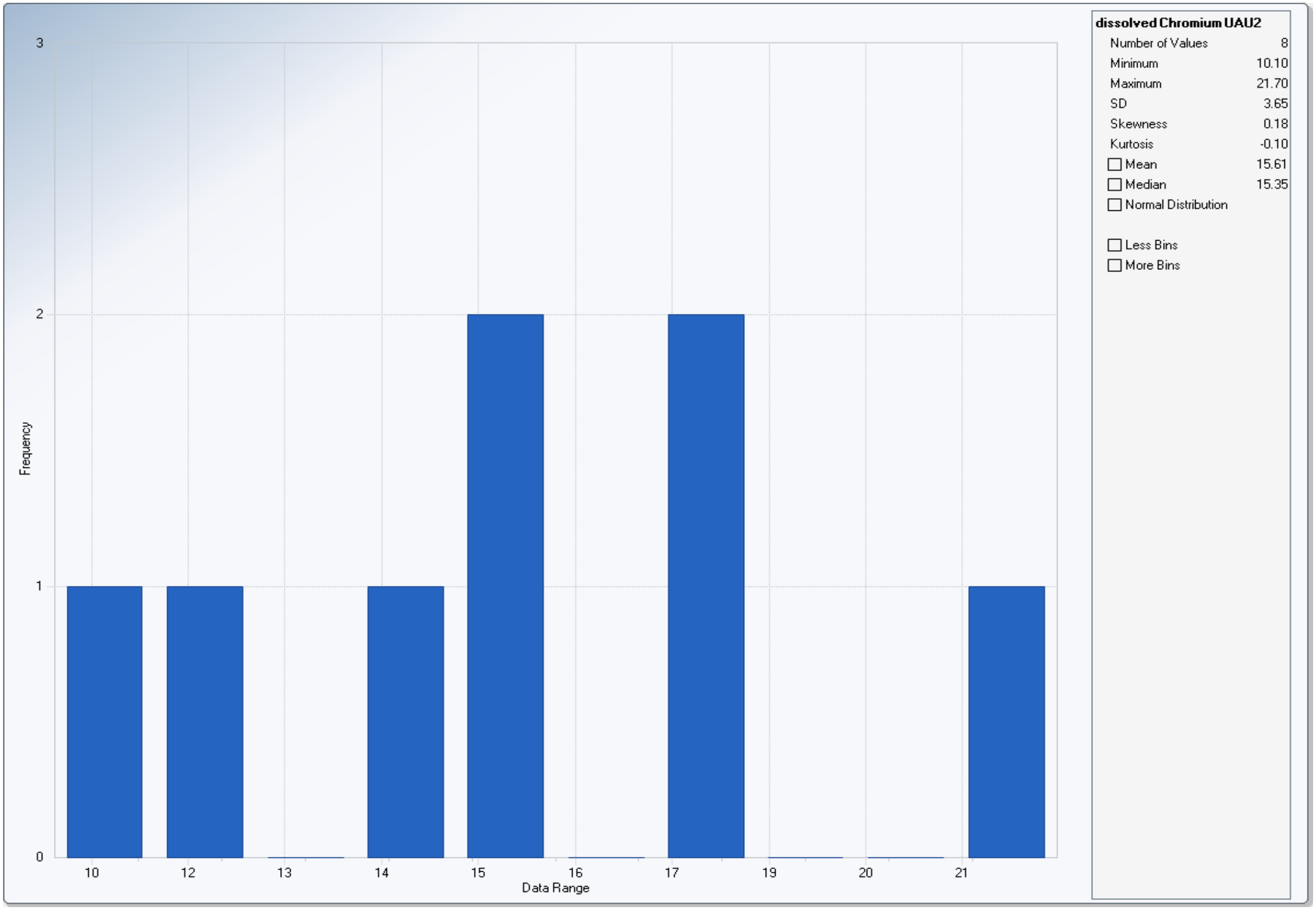
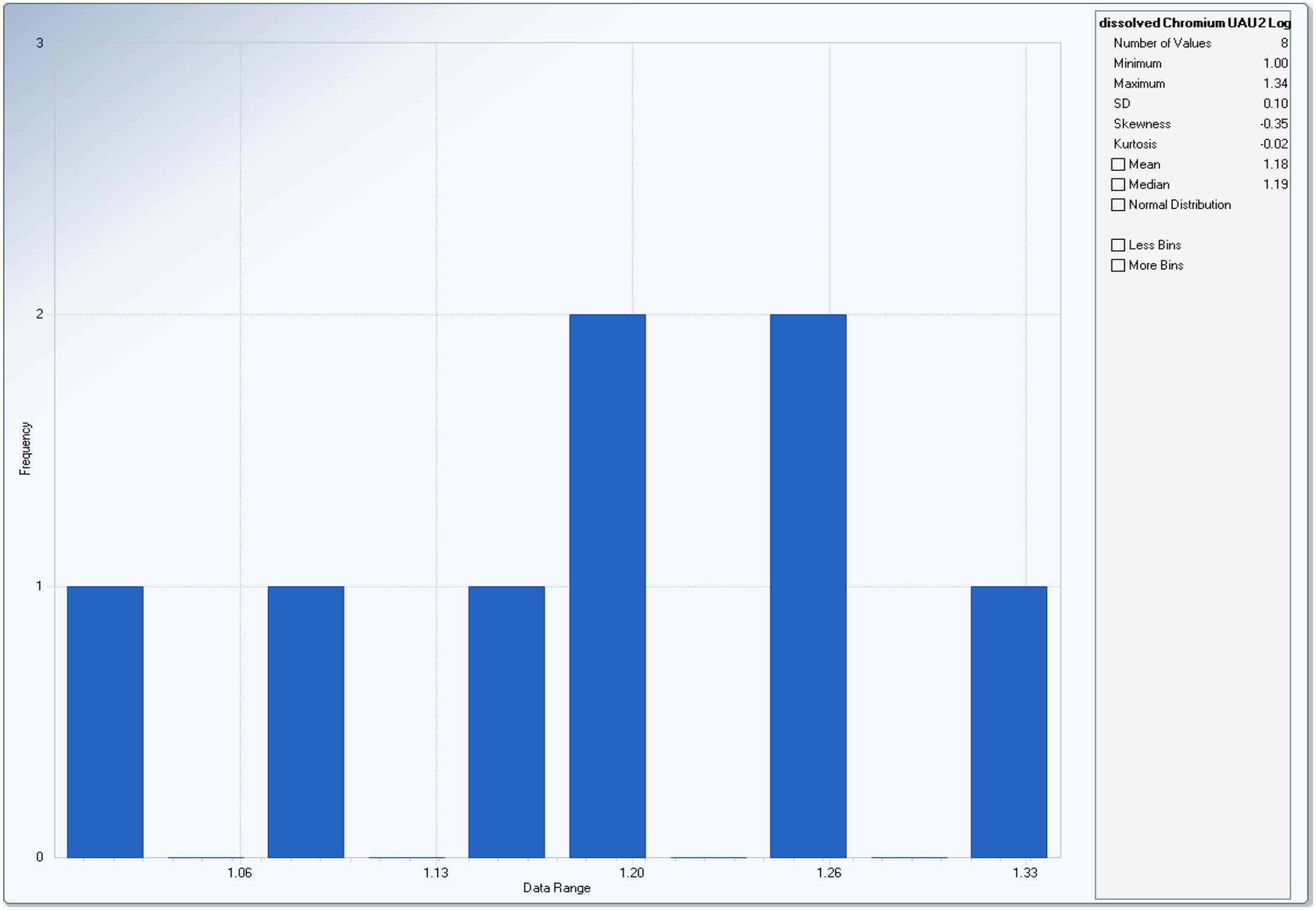
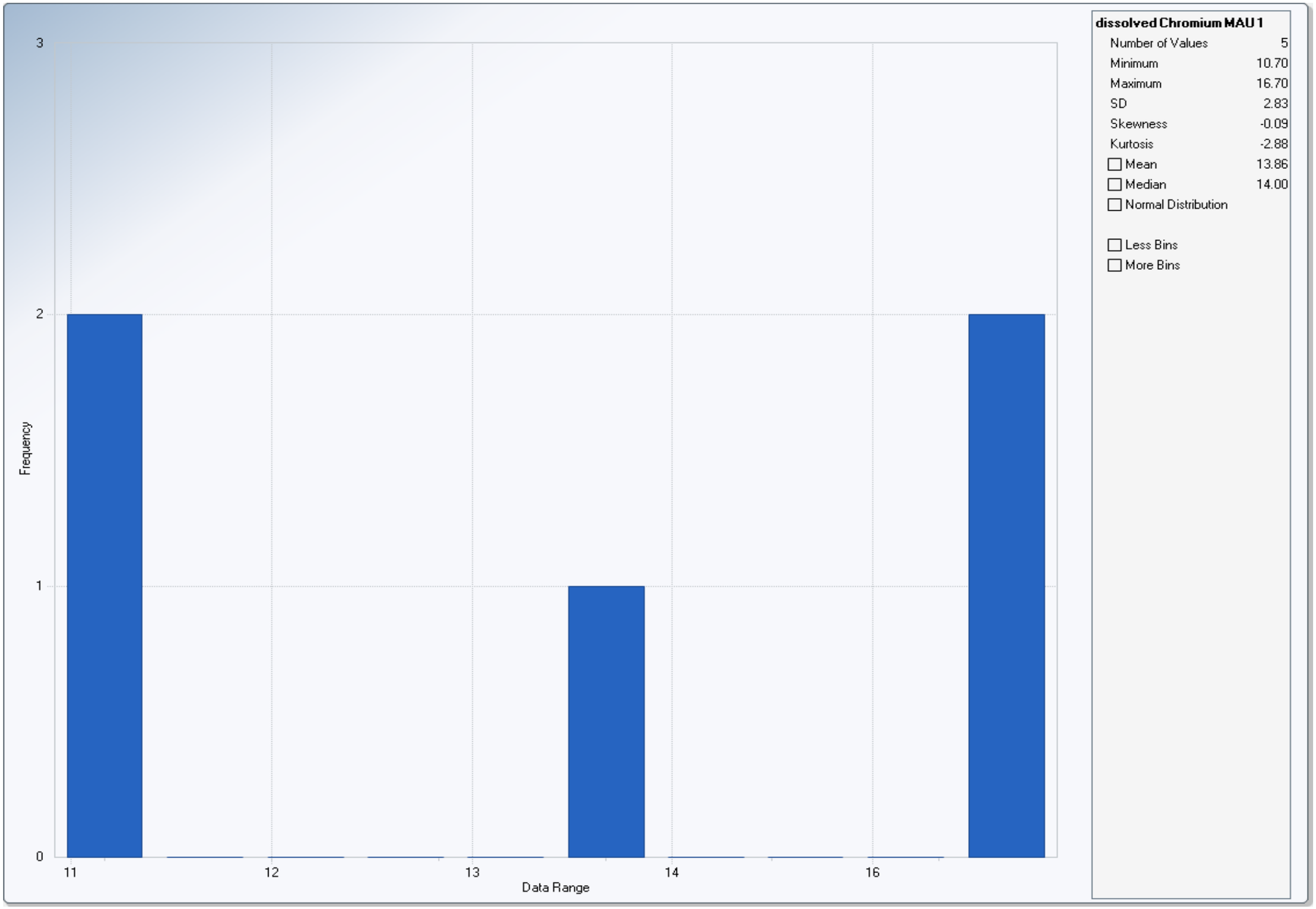


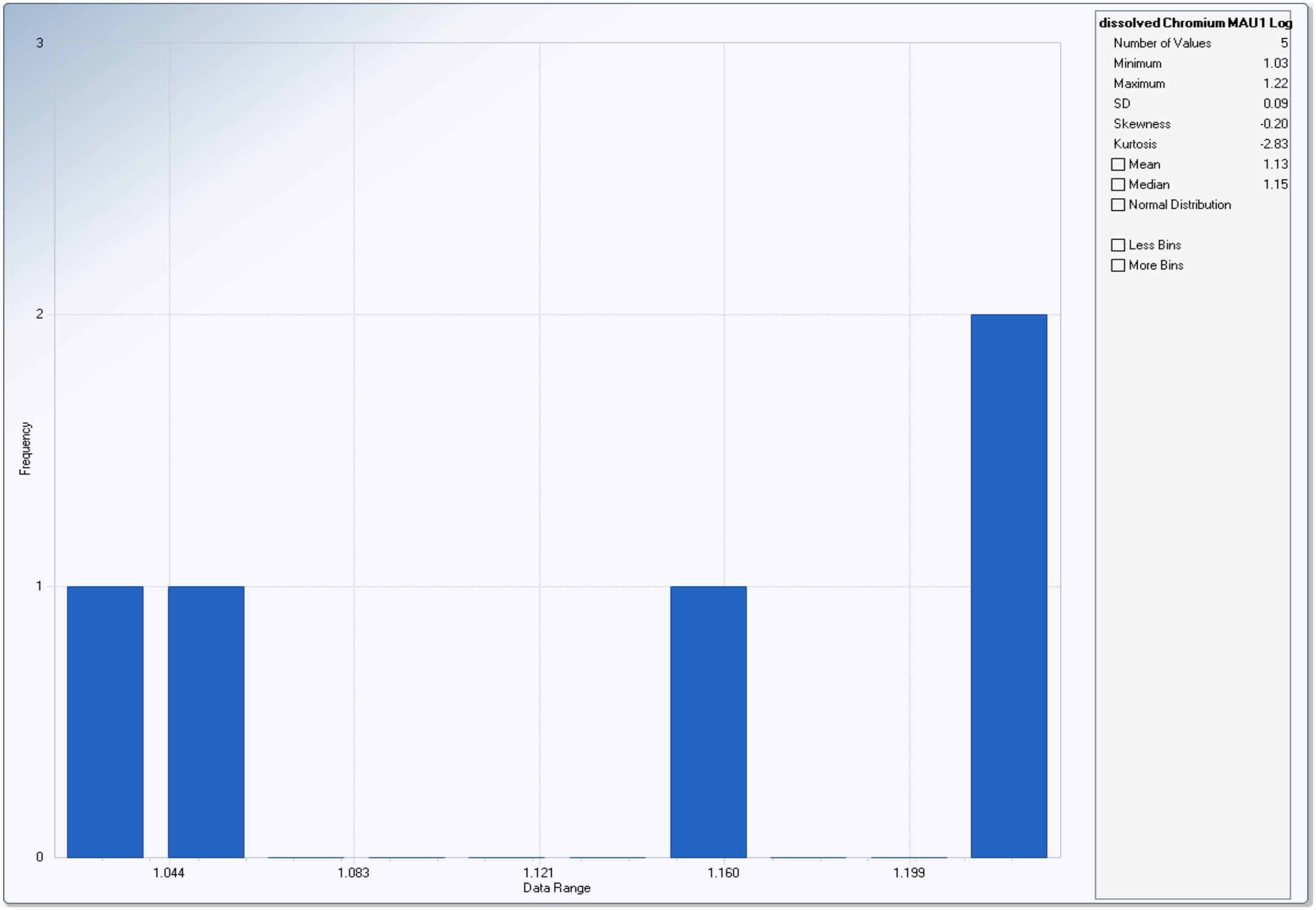
Histogram for Dissolved Total Chromium without Non-Detects in UAU2: Last 5 Years
Log Transformed



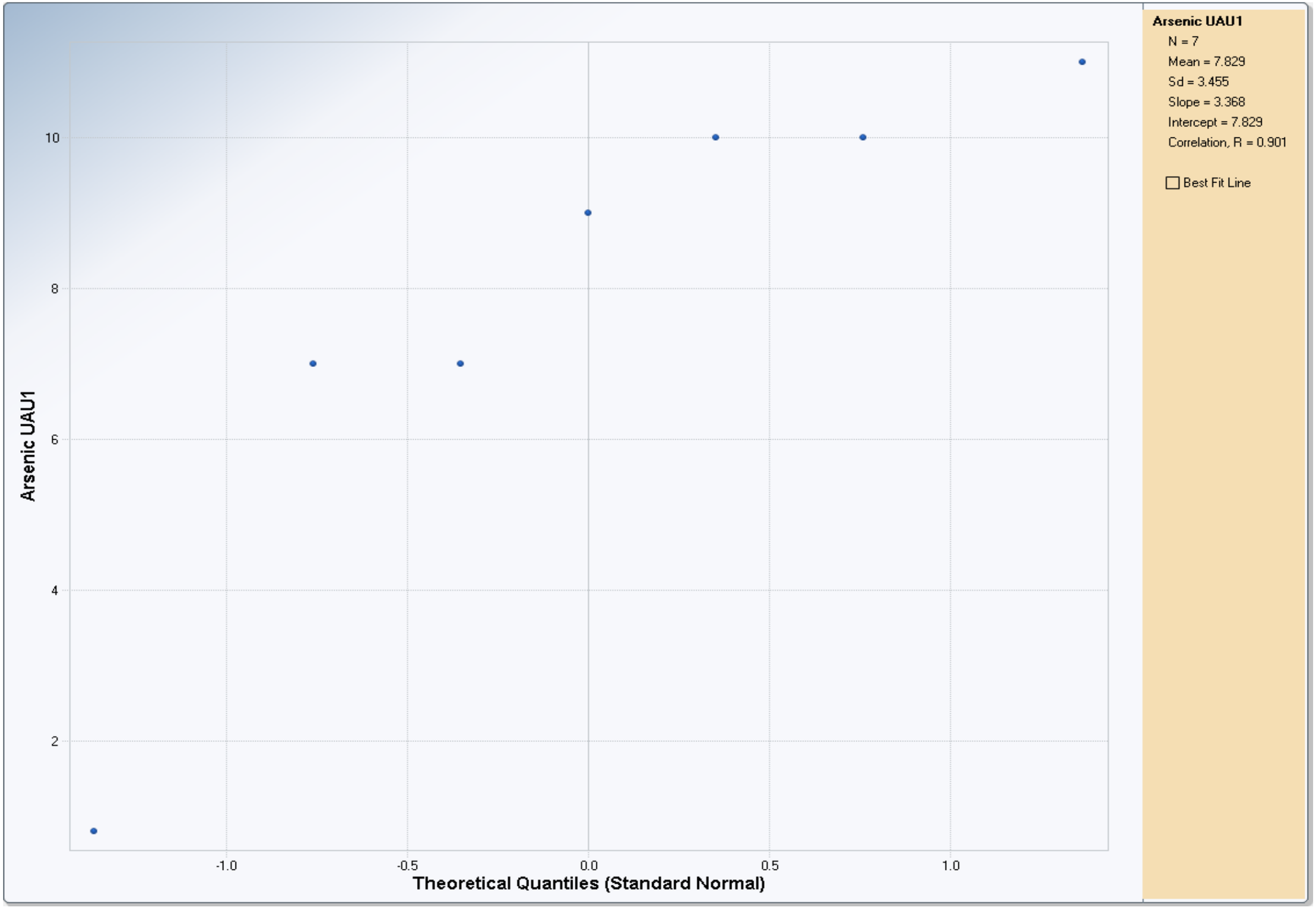
Histogram for Dissolved Total Chromium without Non-Detects in MAU1: Last 5 Years
Untransformed



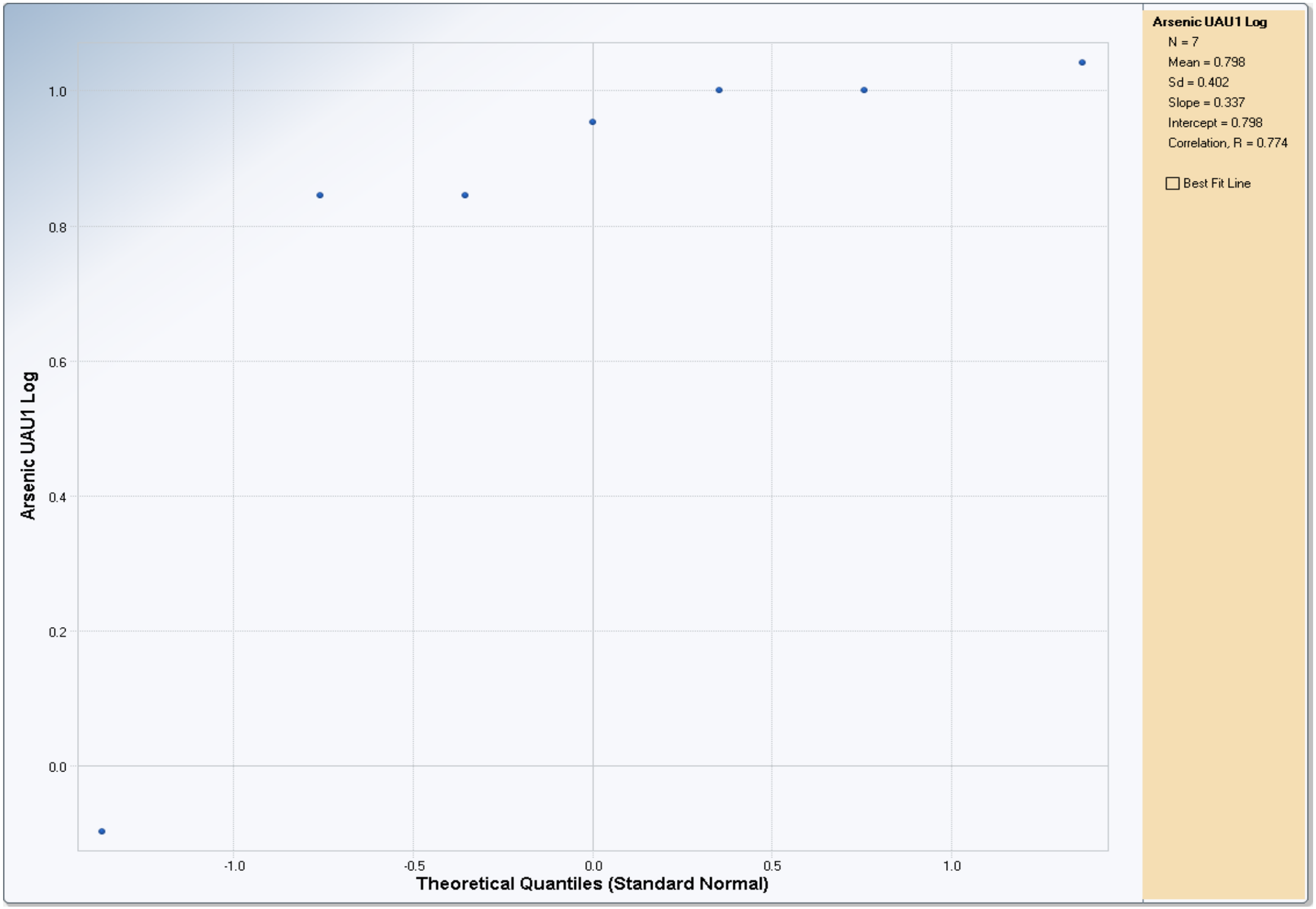
Histogram for Dissolved Total Chromium without Non-Detects in MAU1: Last 5 Years
Log Transformed



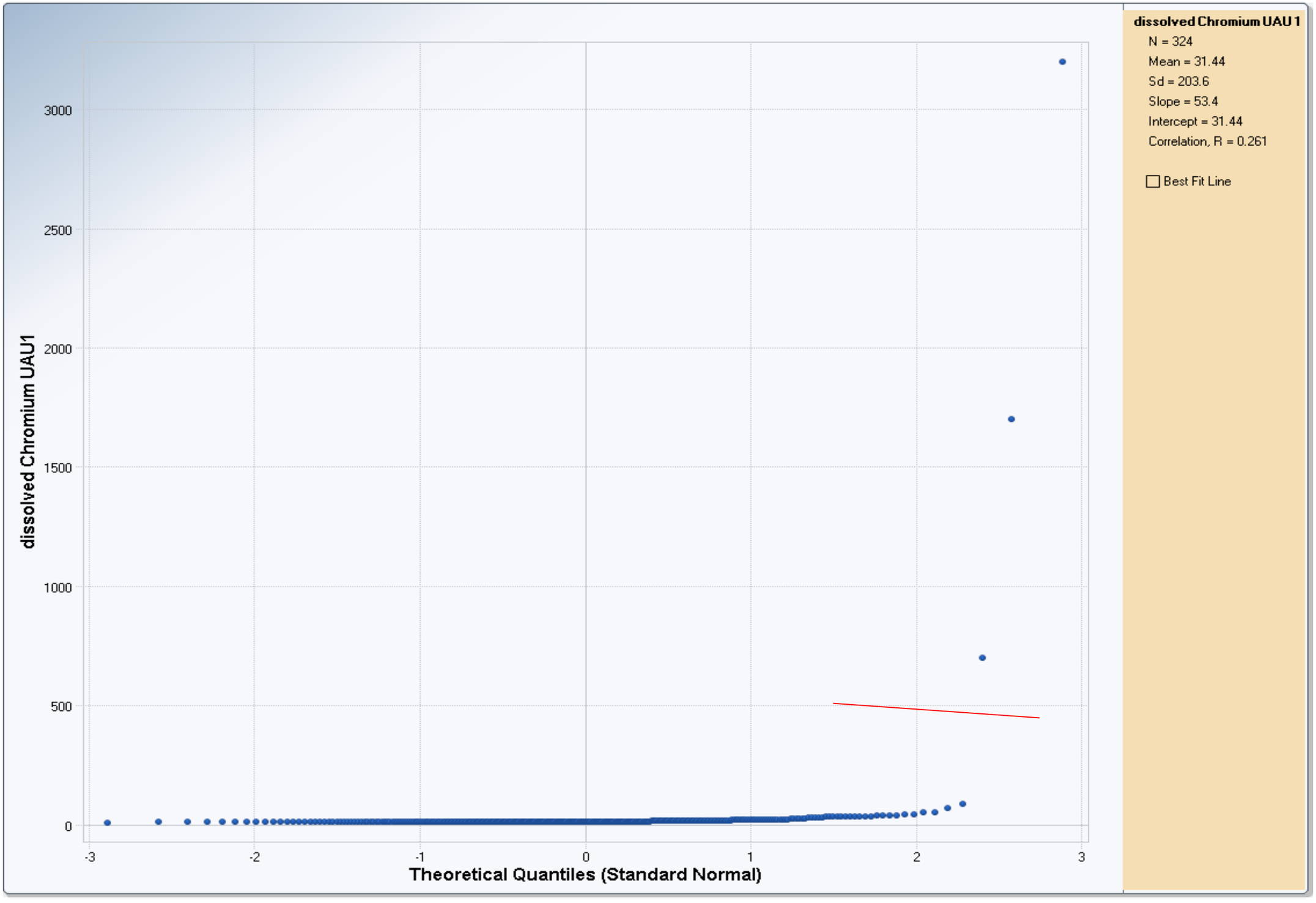
Q-Q Plot for Arsenic without Non-Detects in UAU1: All Years
Untransformed



Q-Q Plot for Arsenic without Non-Detects in UAU1: All Years
Log Transformed

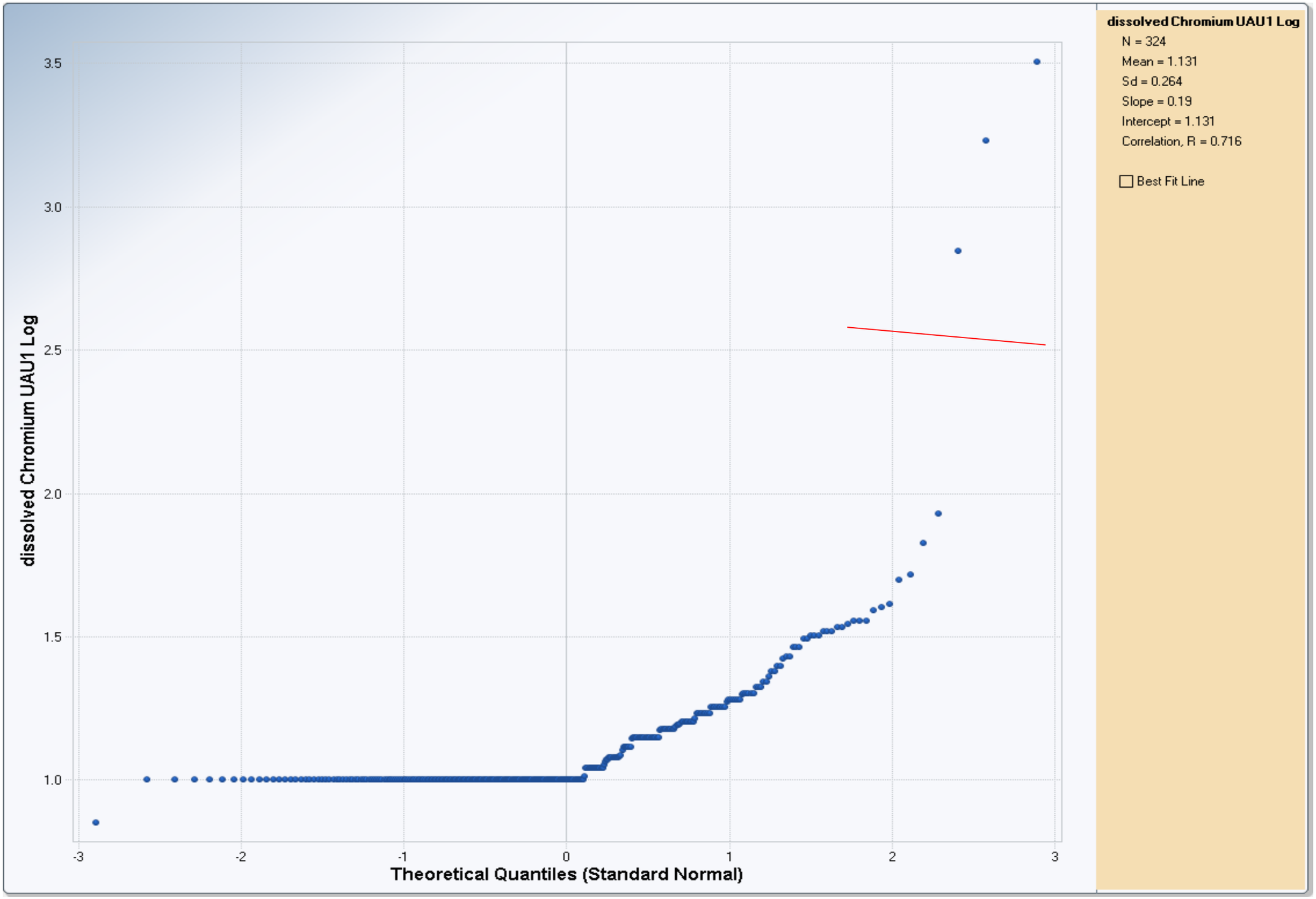


Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU1: All Years
Untransformed



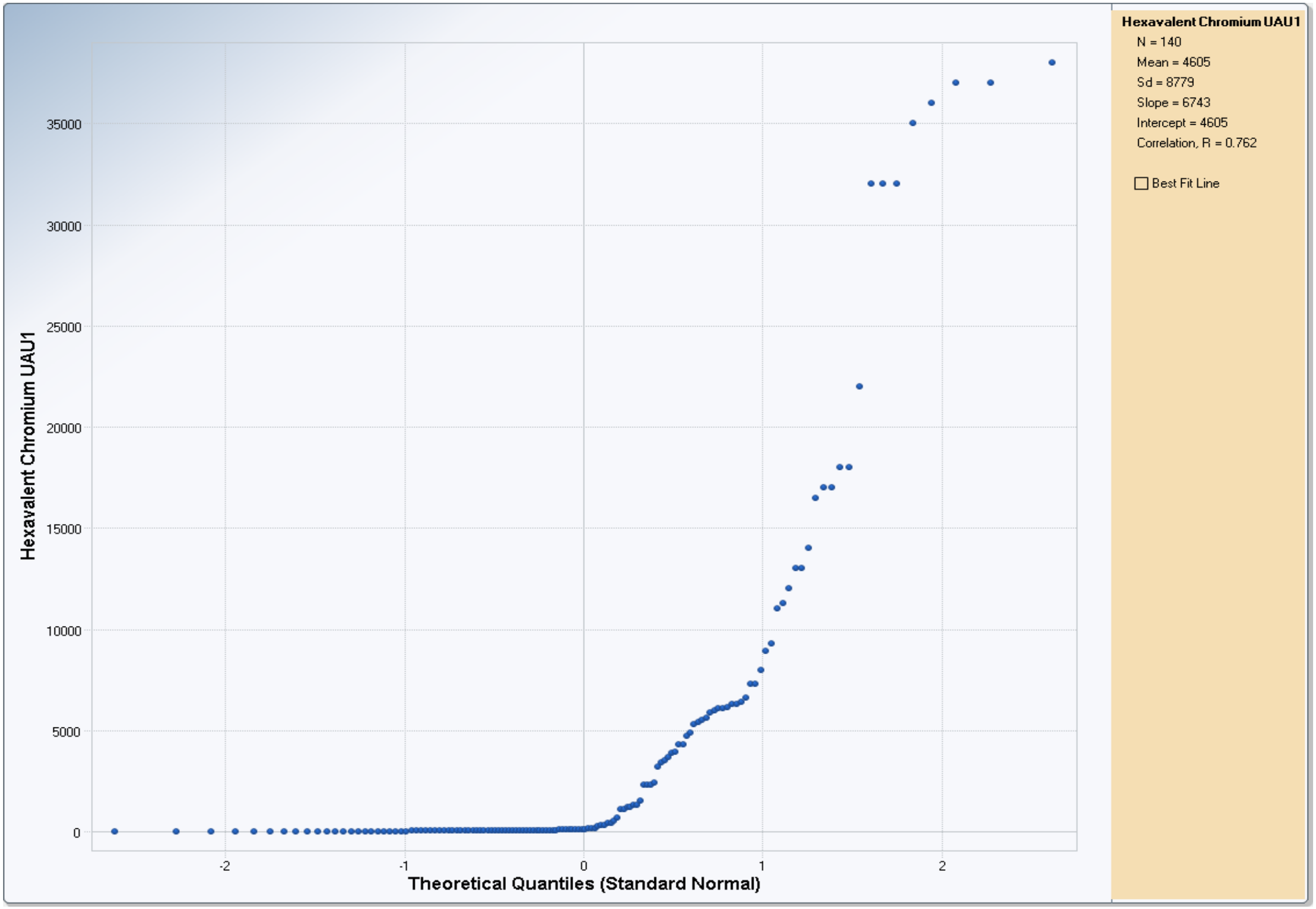
Line indicates where there is a point-of-departure or significant break in the slope

Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU1: All Years
Log Transformed

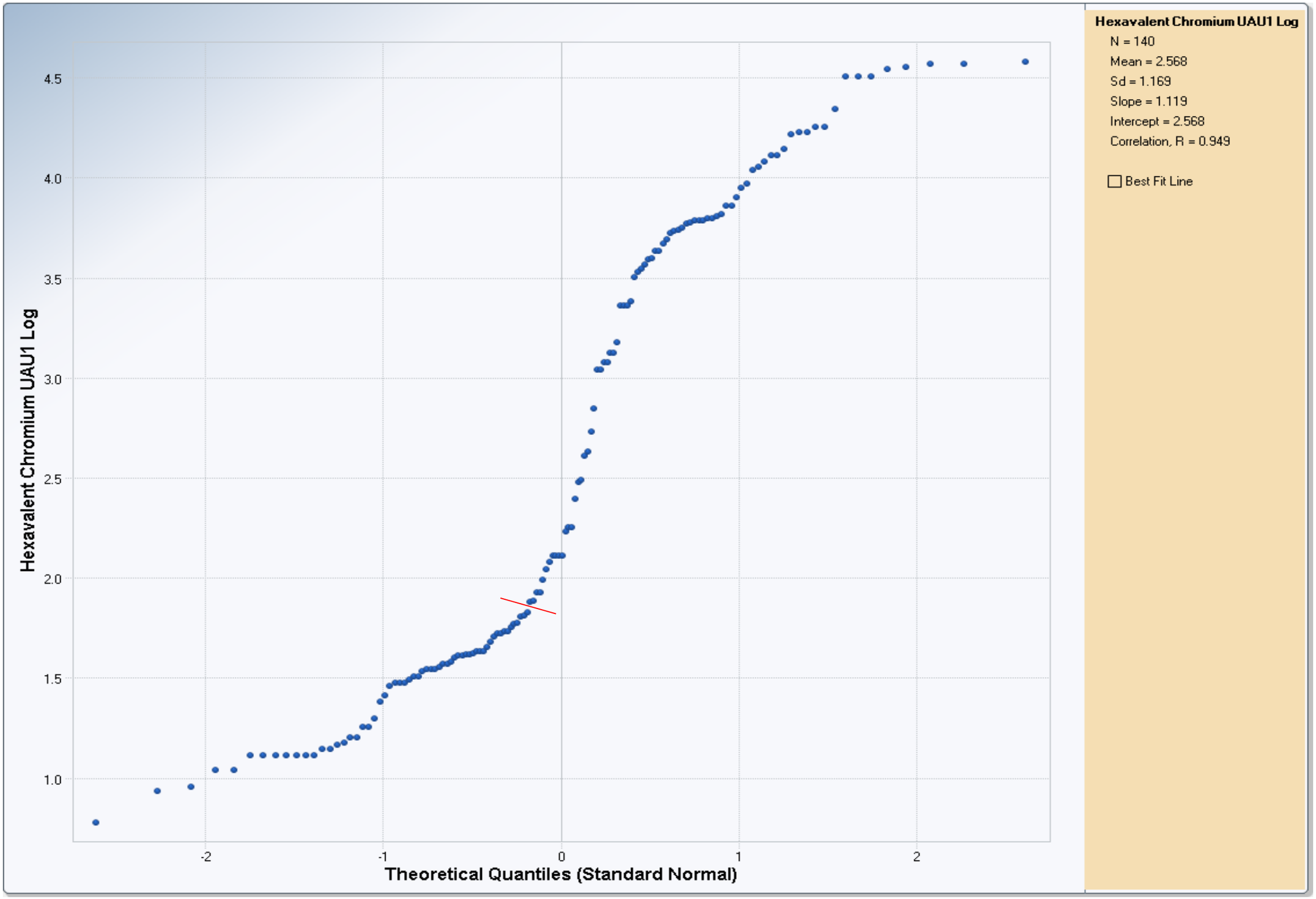


Line indicates where there is a point-of-departure or significant break in the slope

Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU1: All Years
Untransformed

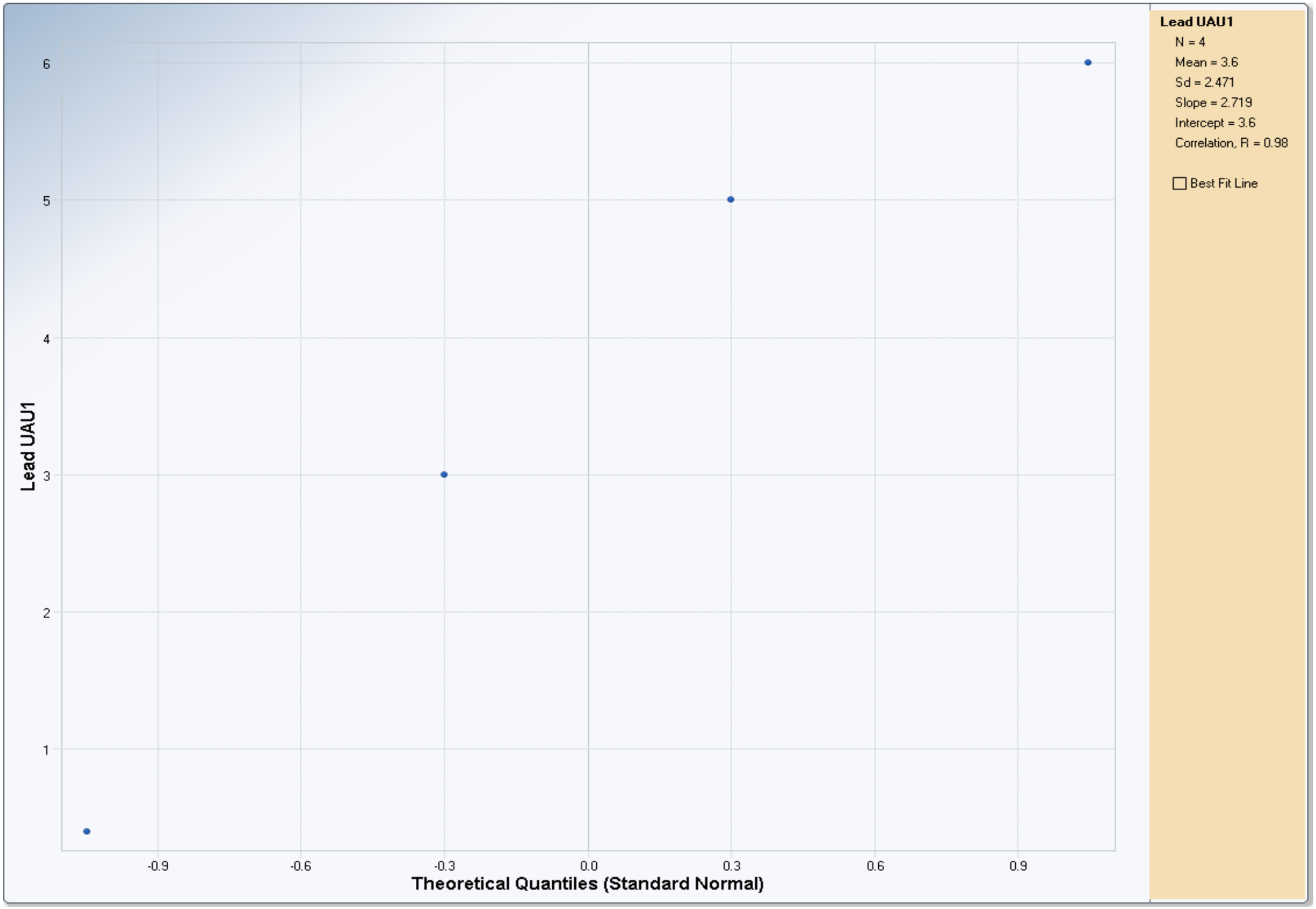


Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU1: All Years
Log Transformed

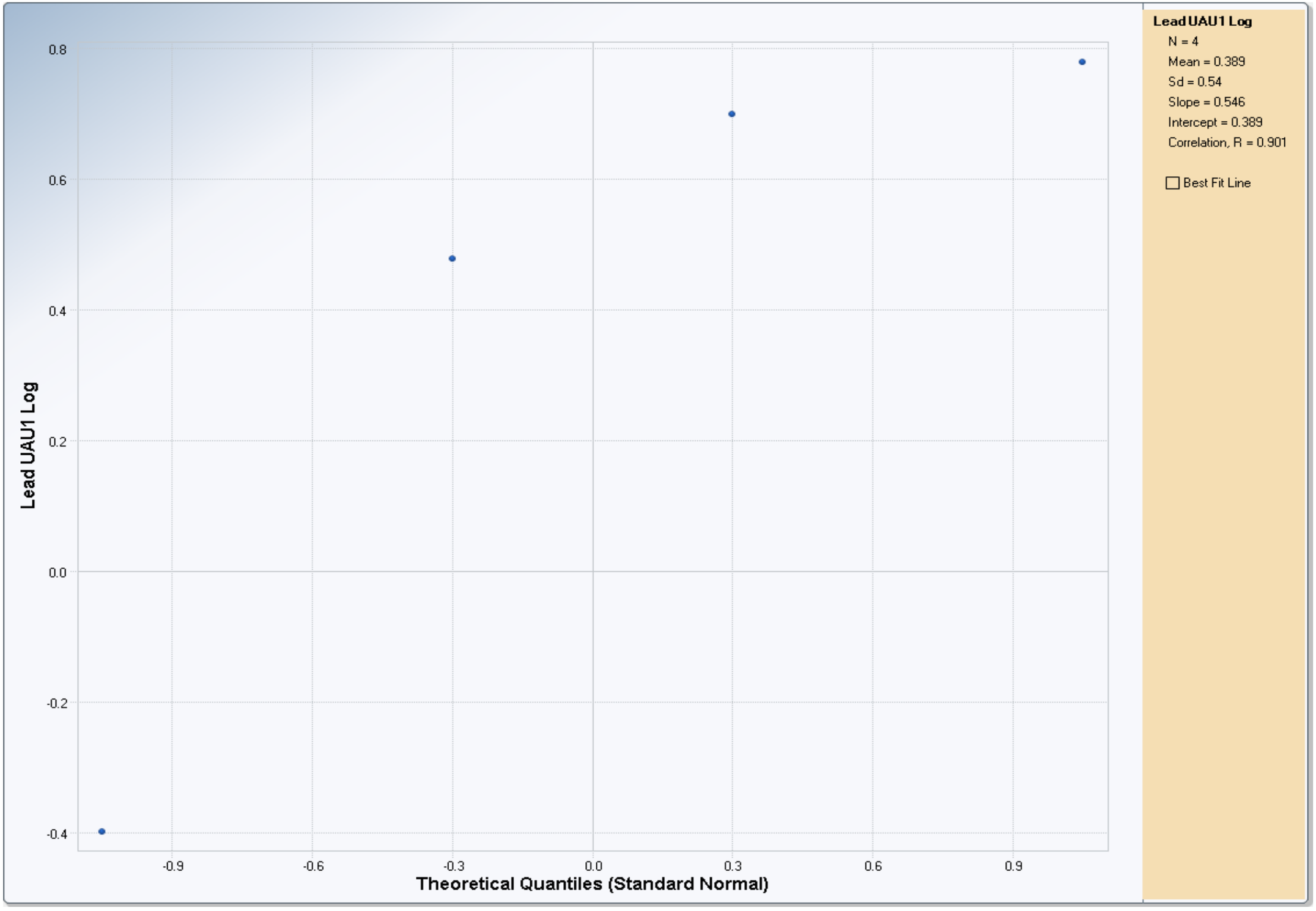


Line indicates where there is a point-of-departure or significant break in the slope

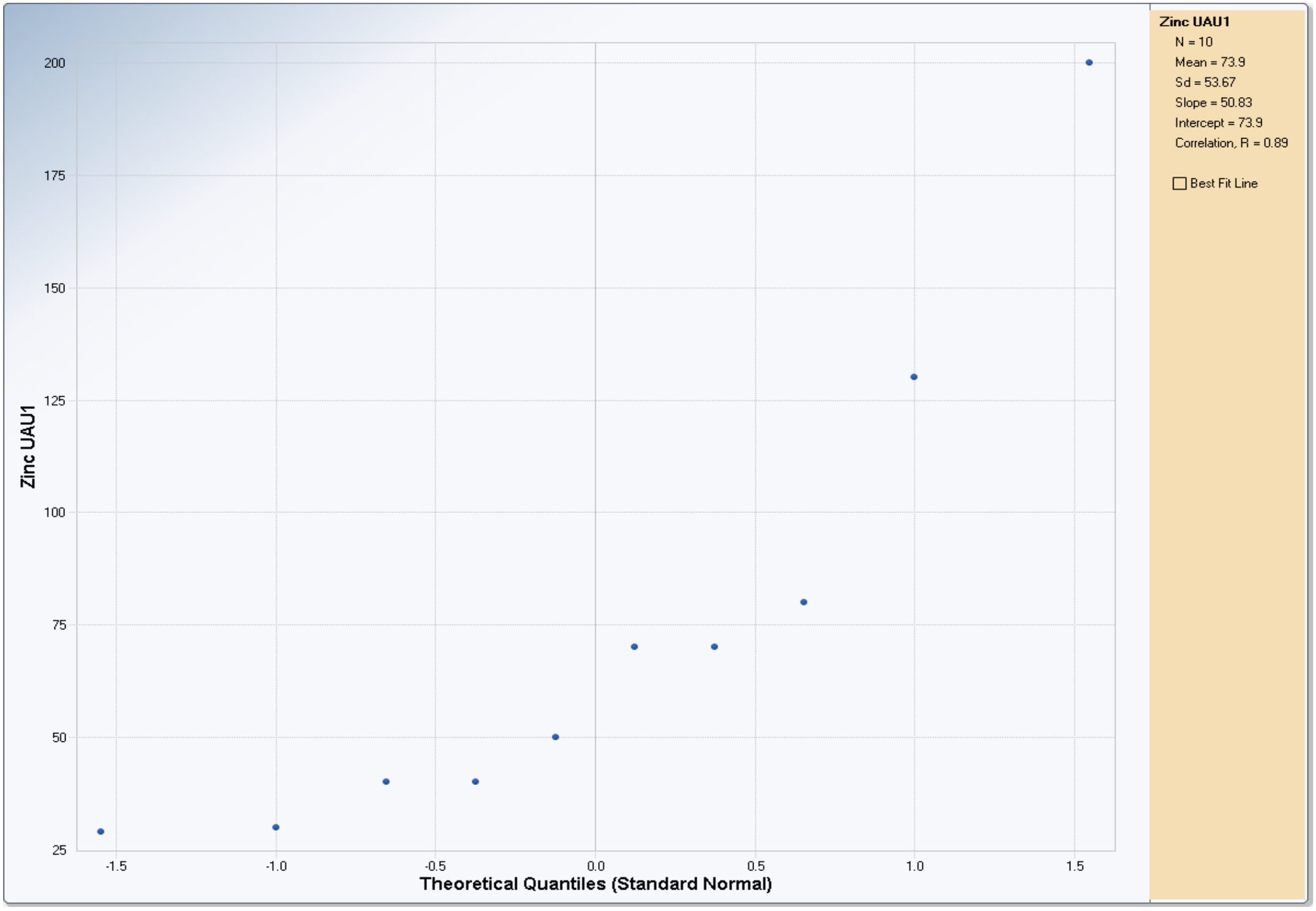
Q-Q Plot for Lead without Non-Detects in UAU1: All Years
Untransformed



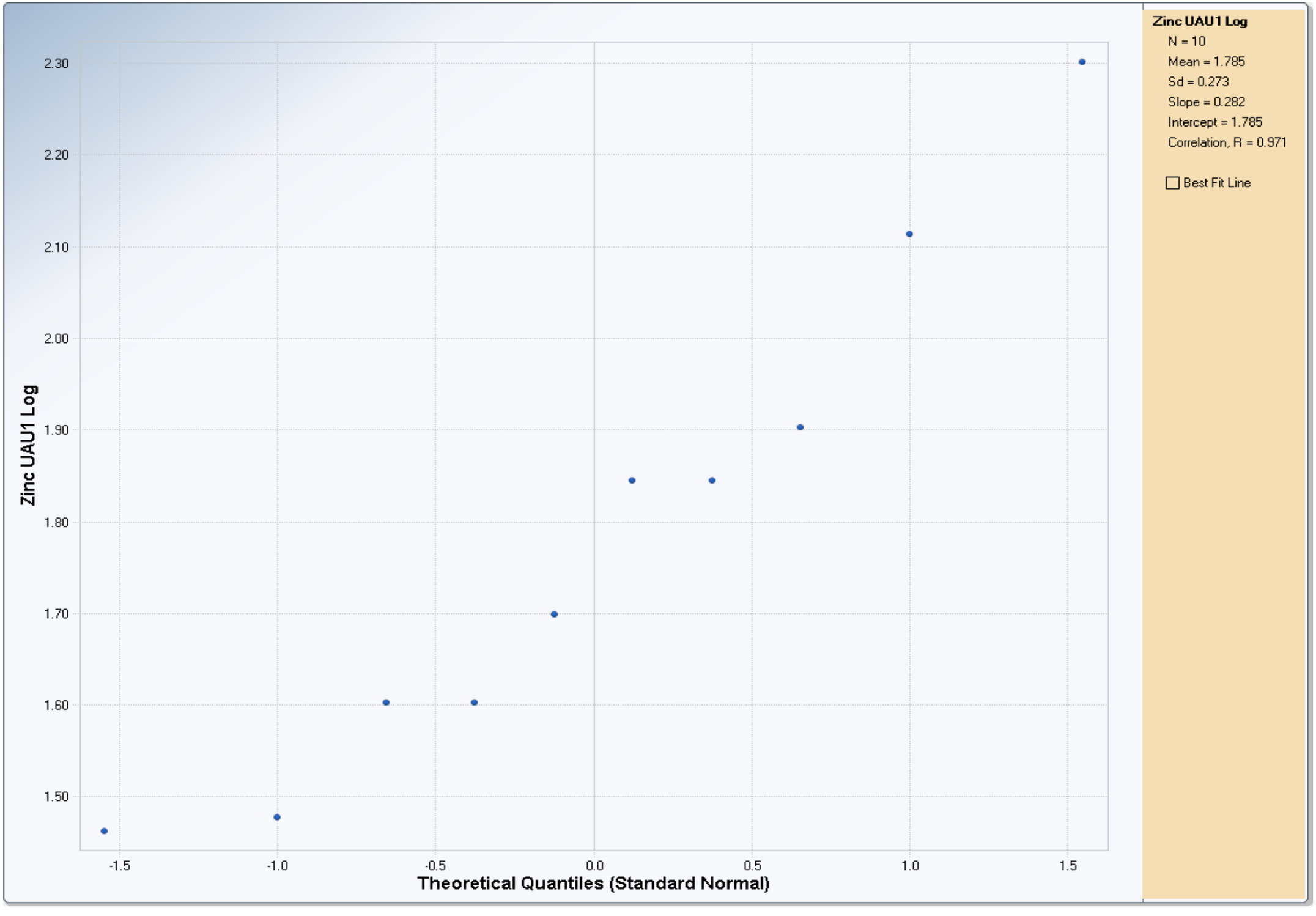
Q-Q Plot for Lead without Non-Detects in UAU1: All Years
Log Transformed



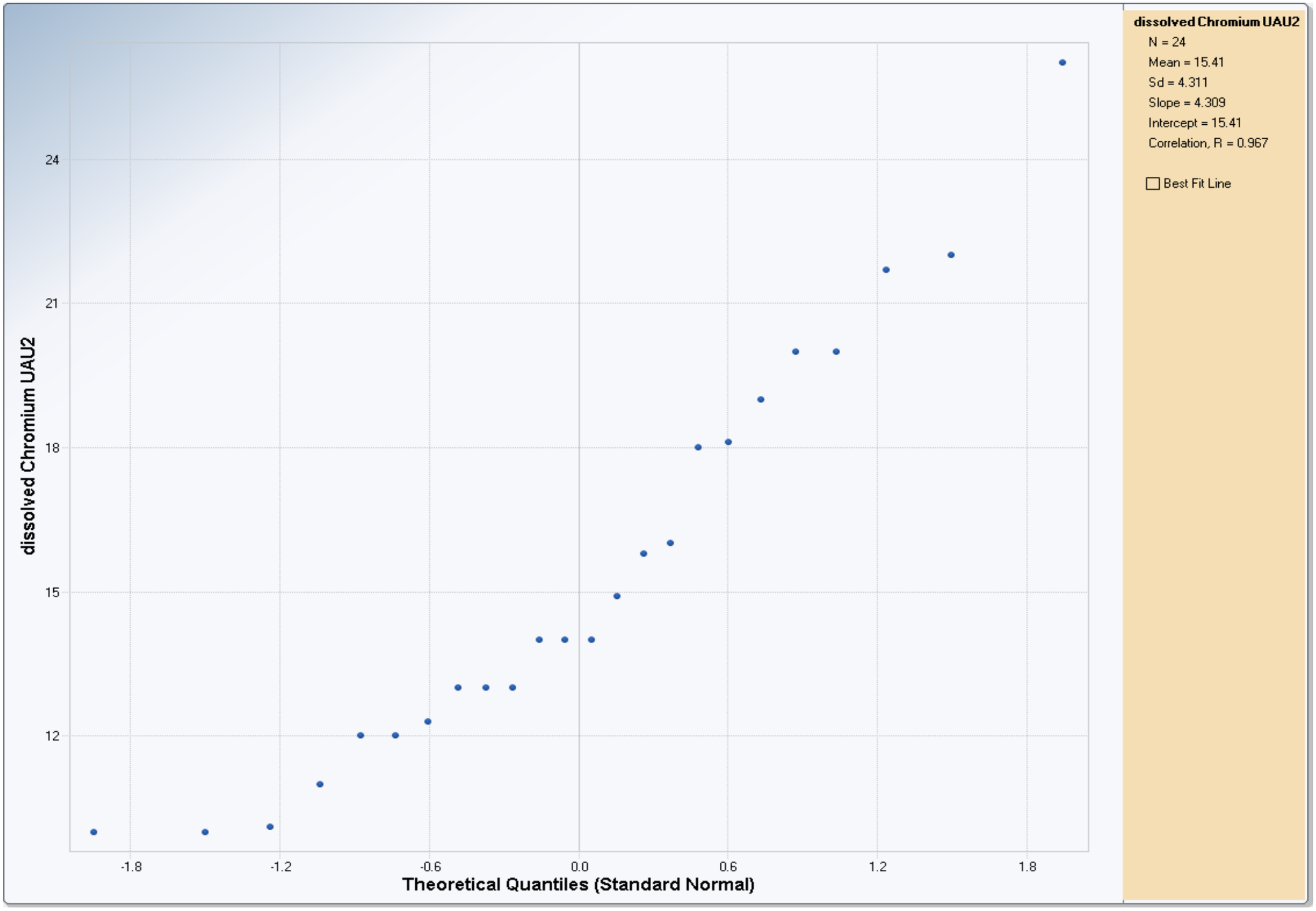
Q-Q Plot for Zinc without Non-Detects in UAU1: All Years
Untransformed



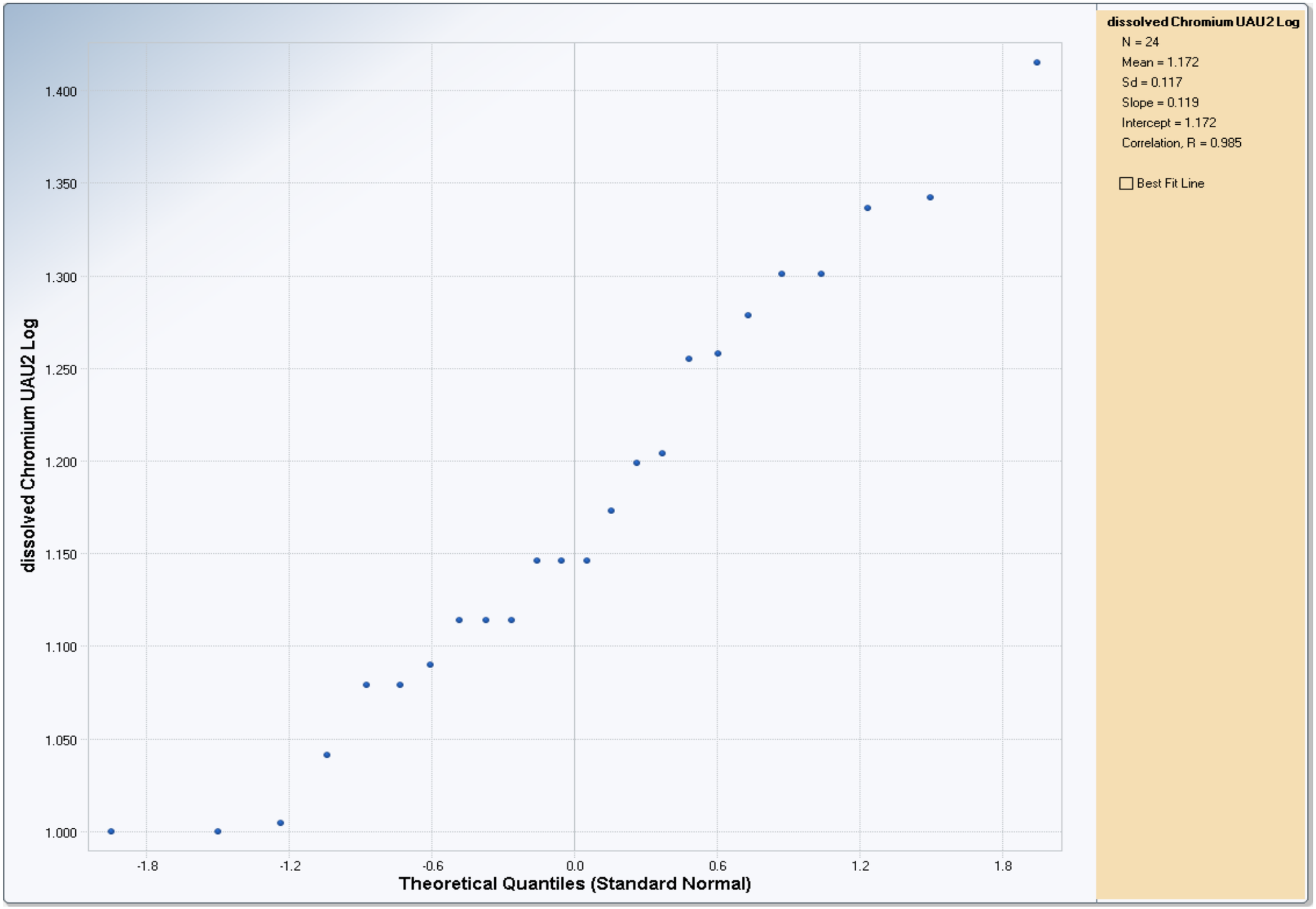
Q-Q Plot for Zinc without Non-Detects in UAU1: All Years
Log Transformed



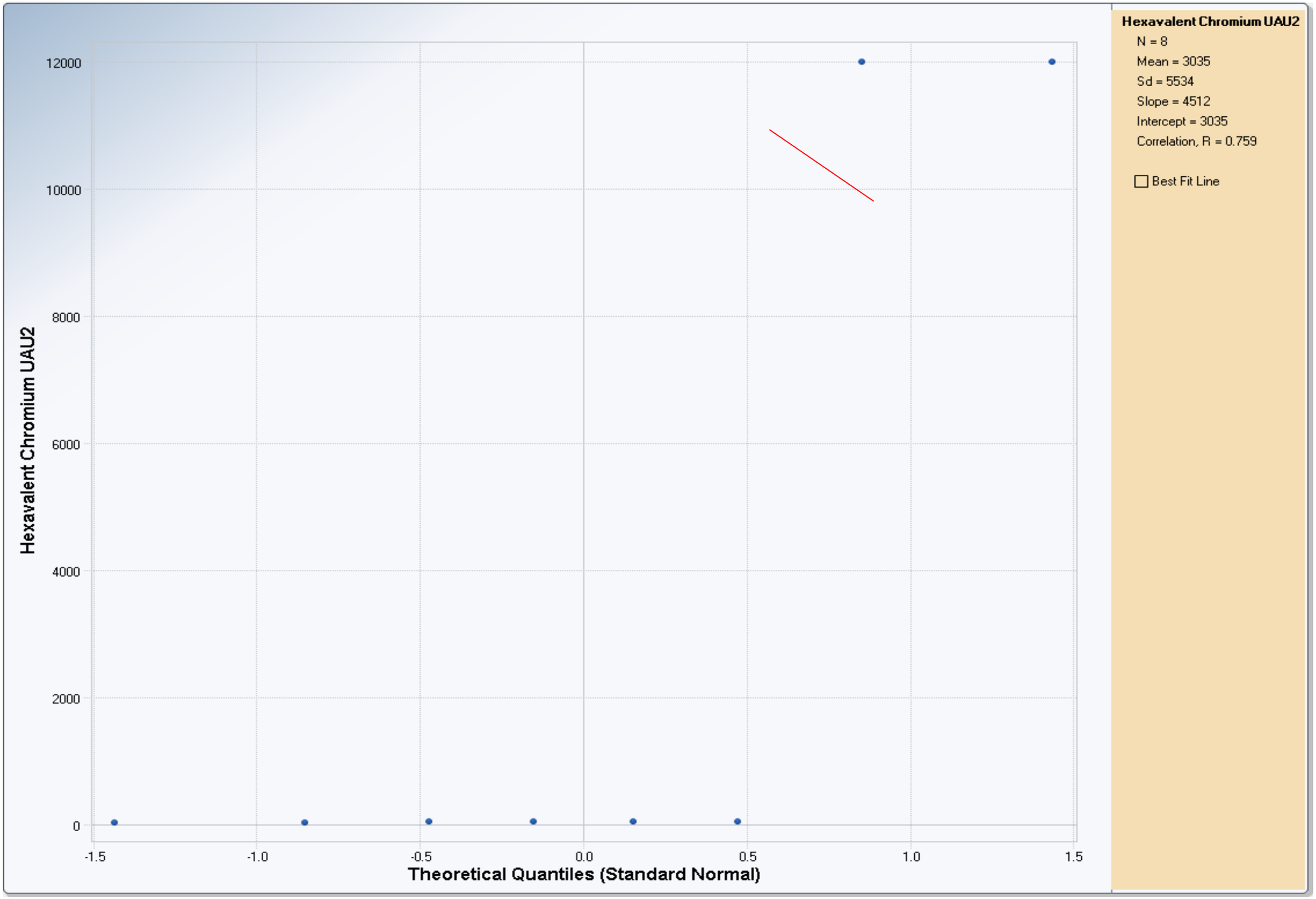
Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU2: All Years
Untransformed



Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU2: All Years
Log Transformed

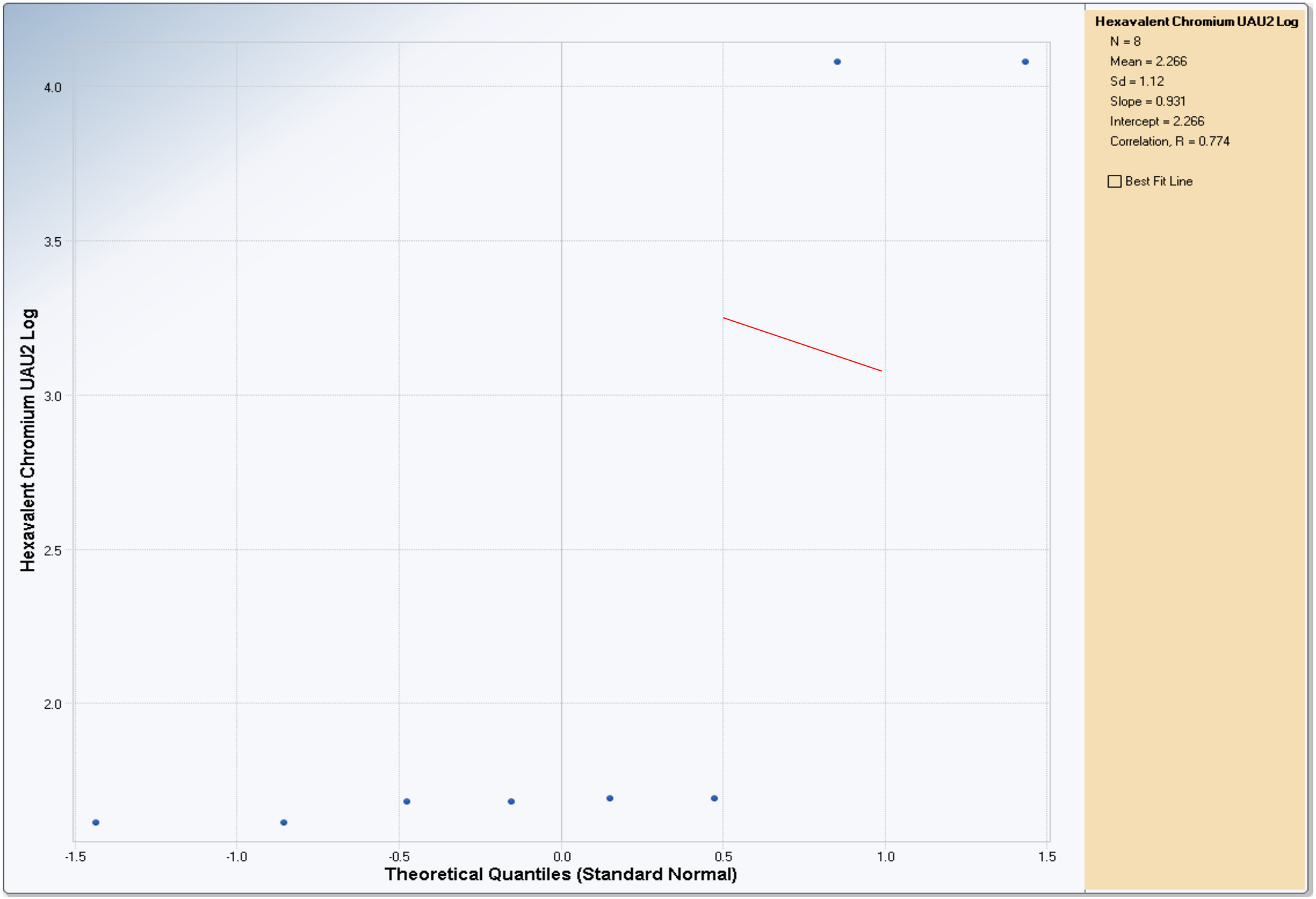


Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU2: All Years
Untransformed



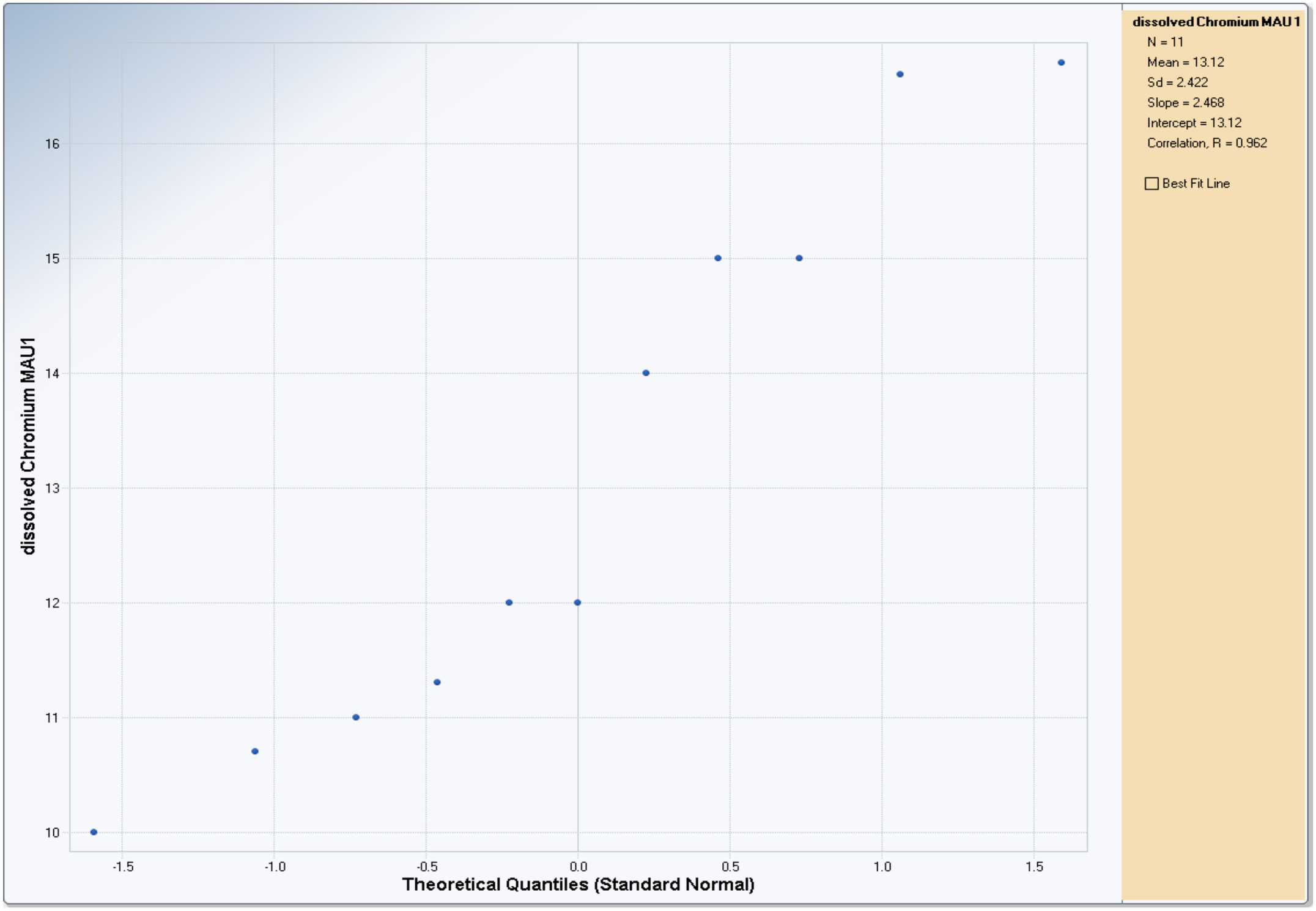
Line indicates where there is a point-of-departure or significant break in the slope

Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU2: All Years
Log Transformed

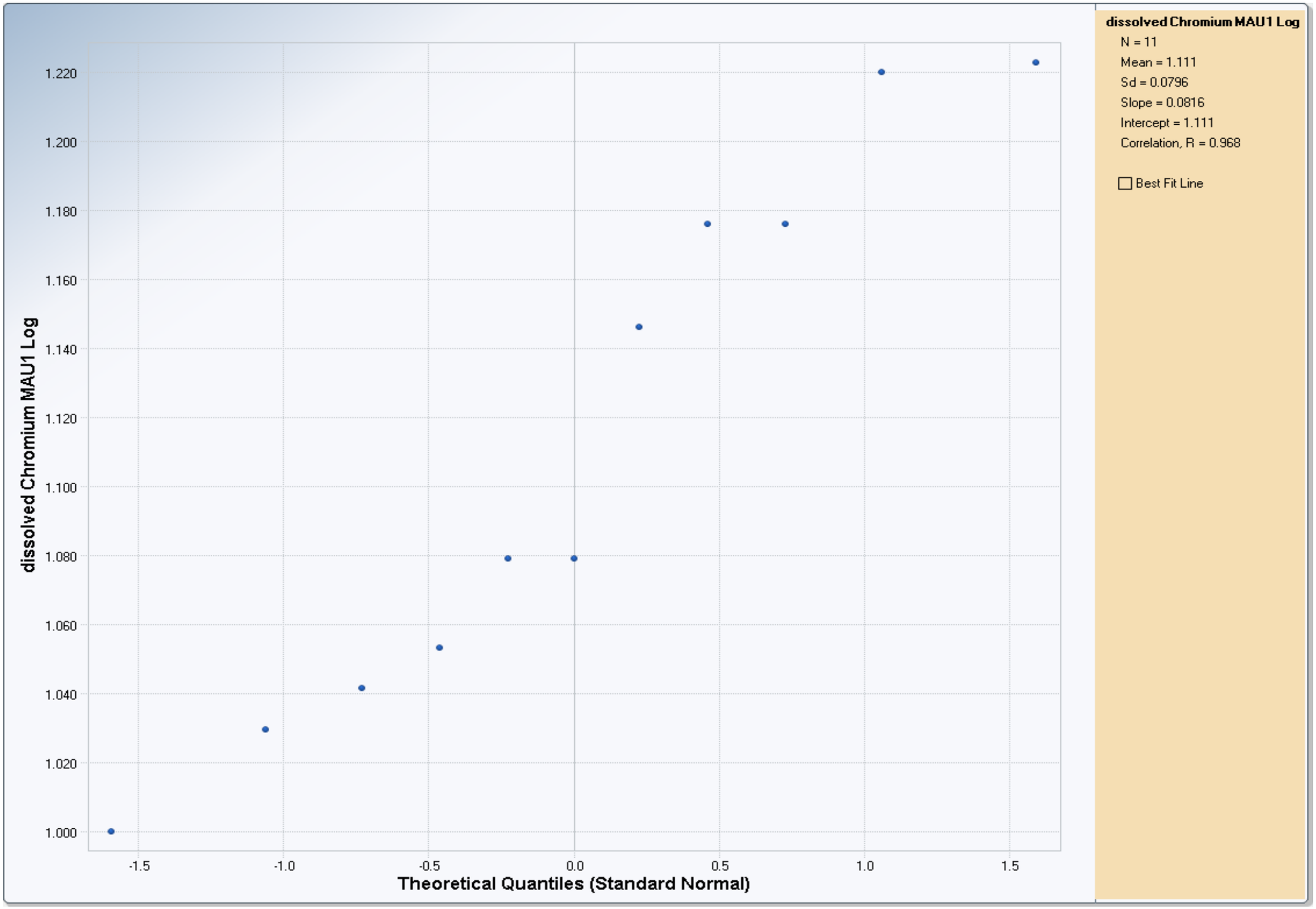


Line indicates where there is a point-of-departure or significant break in the slope

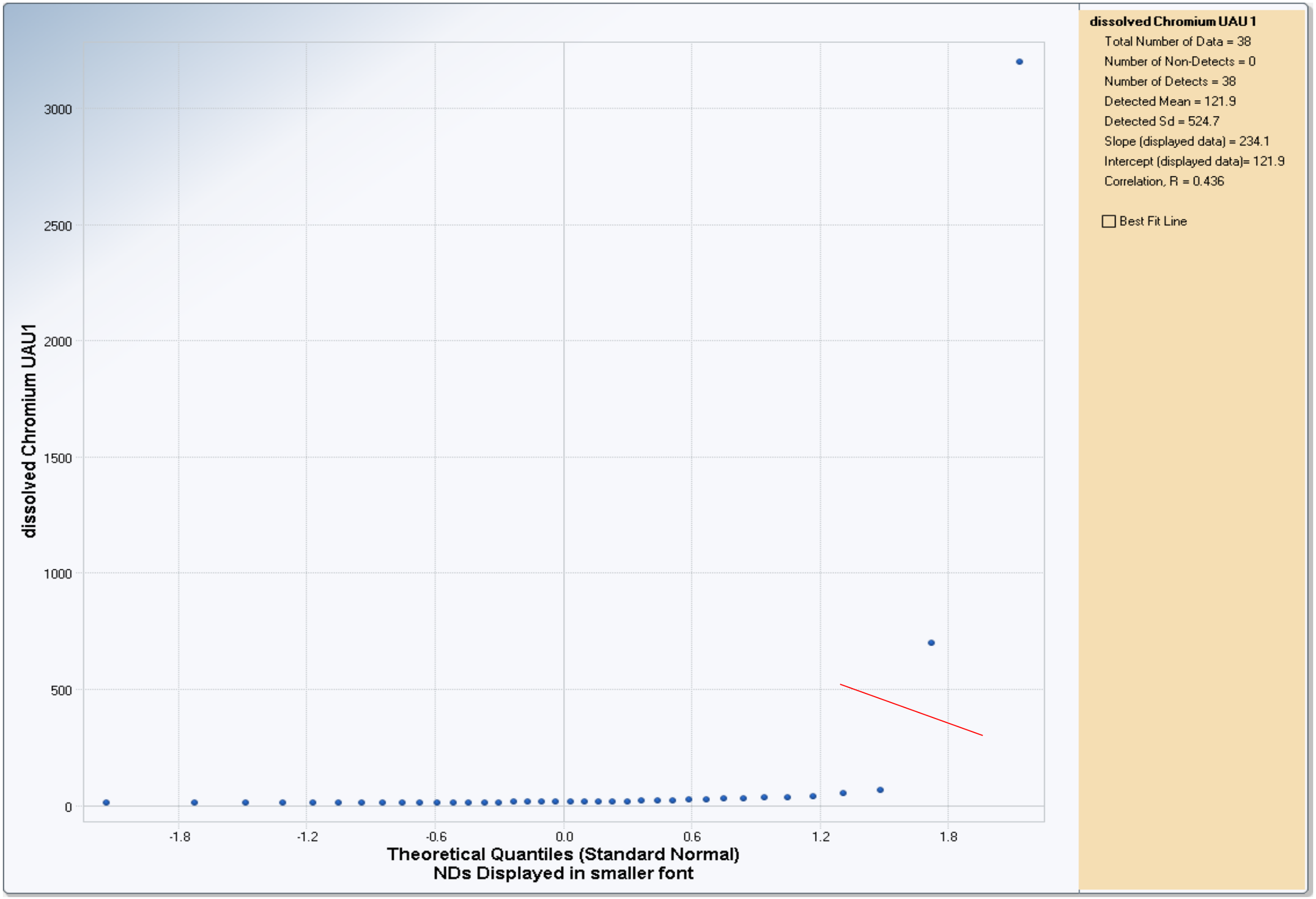
Q-Q Plot for Dissolved Total Chromium without Non-Detects in MAU1: All Years
Untransformed



Q-Q Plot for Dissolved Total Chromium without Non-Detects in MAU1: All Years
Log Transformed

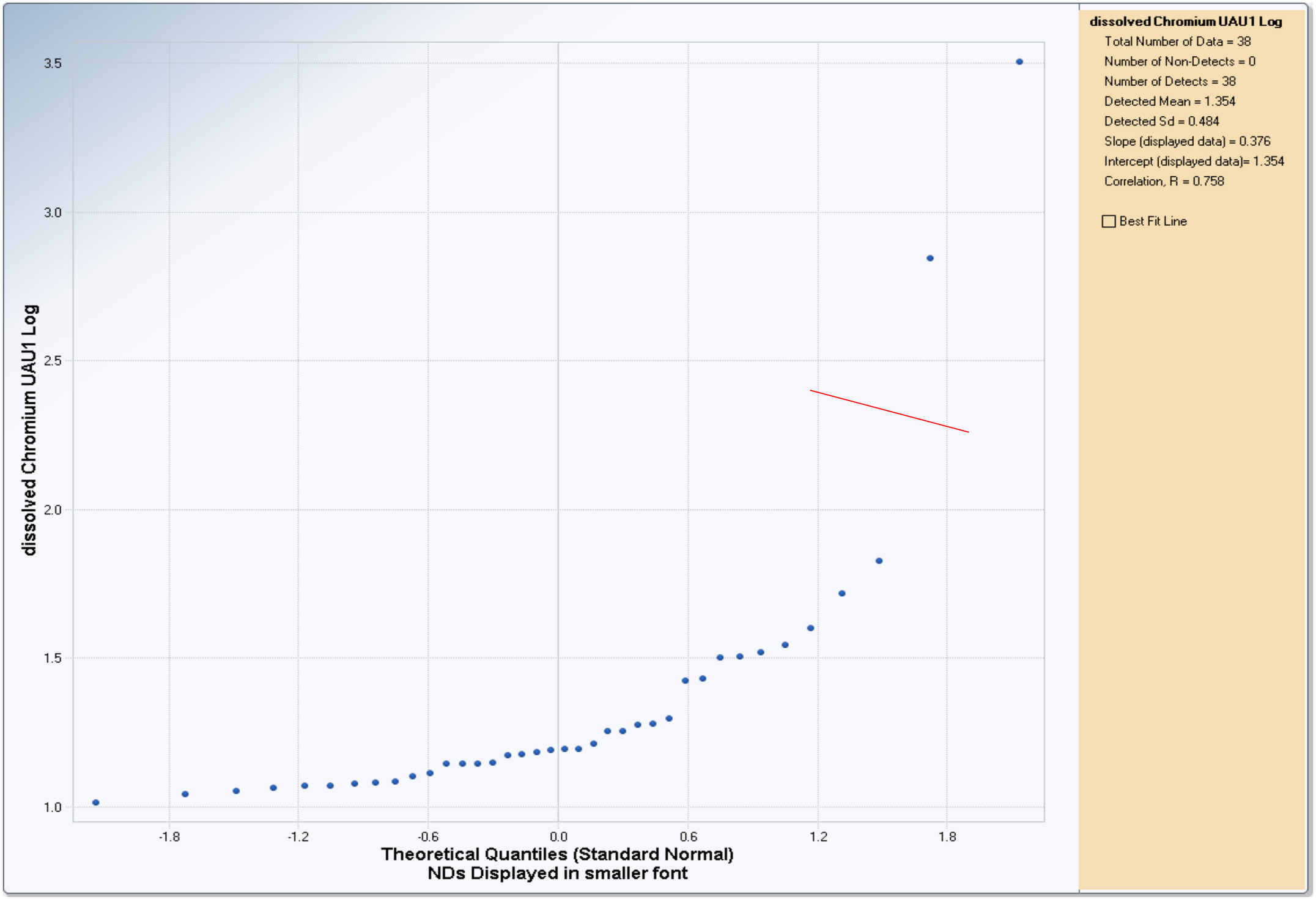


Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU1: Last 5 Years
Untransformed



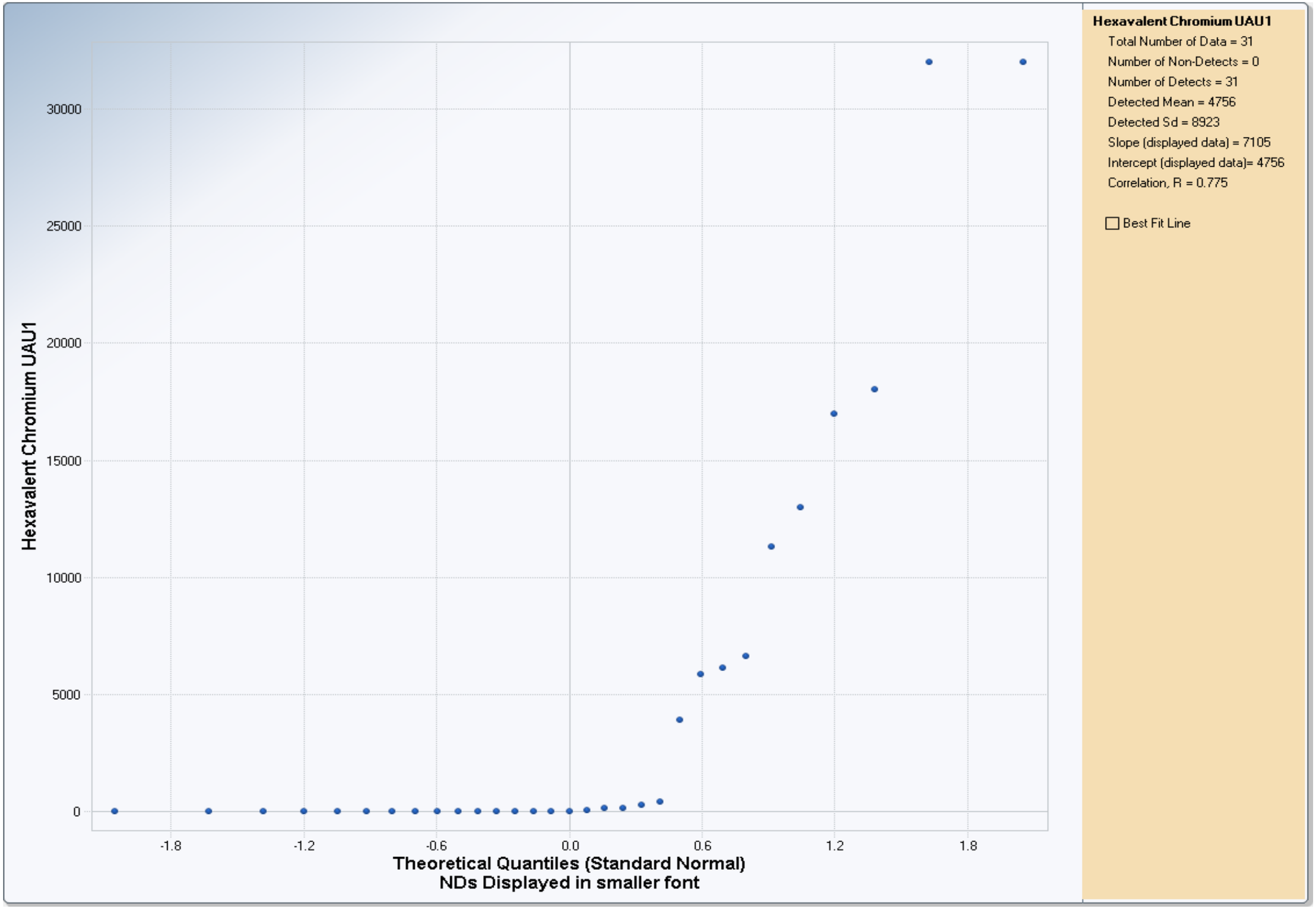
Line indicates where there is a point-of-departure or significant break in the slope

Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU1: Last 5 Years
Log Transformed

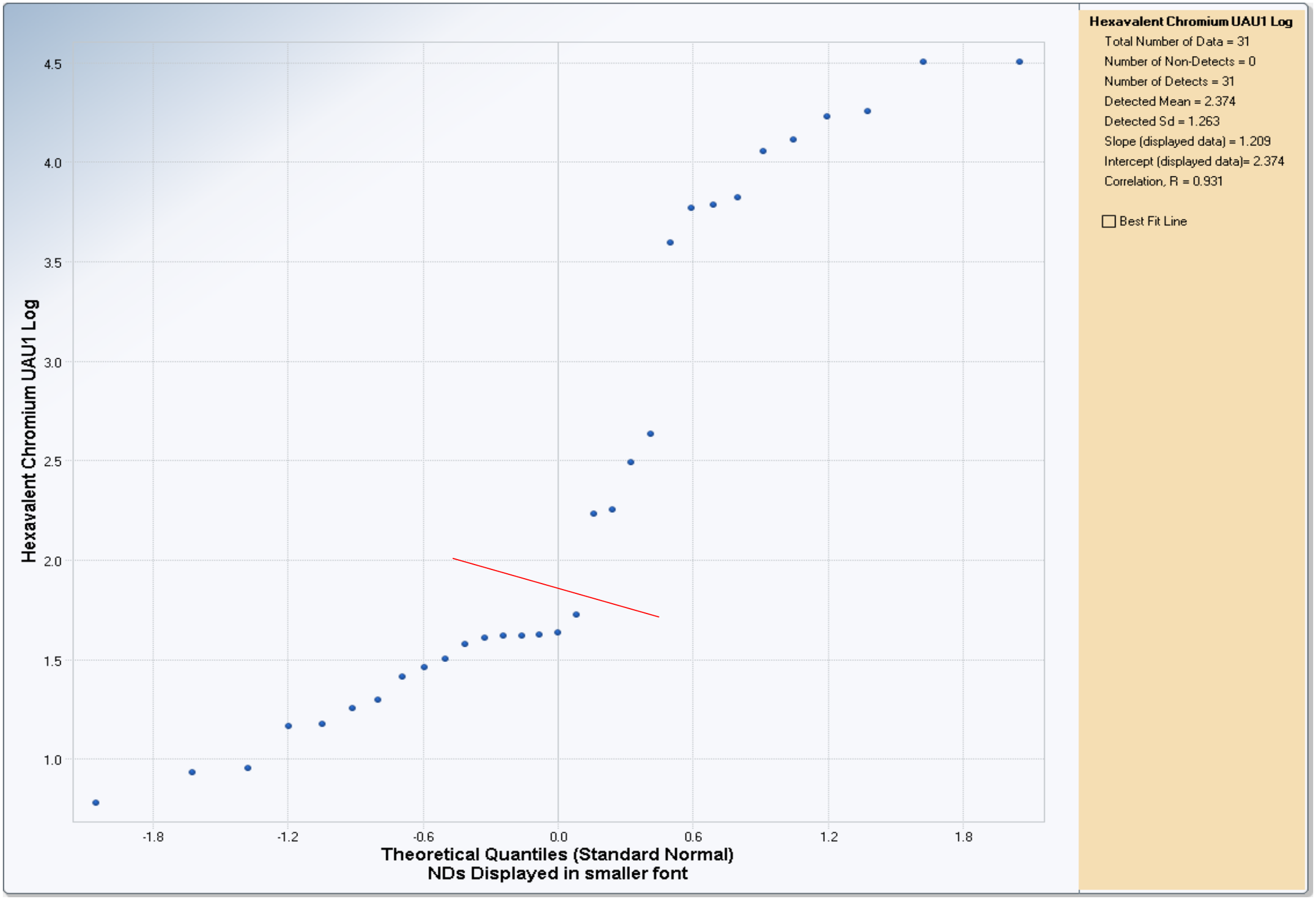


Line indicates where there is a point-of-departure or significant break in the slope

Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU1: Last 5 Years
Untransformed

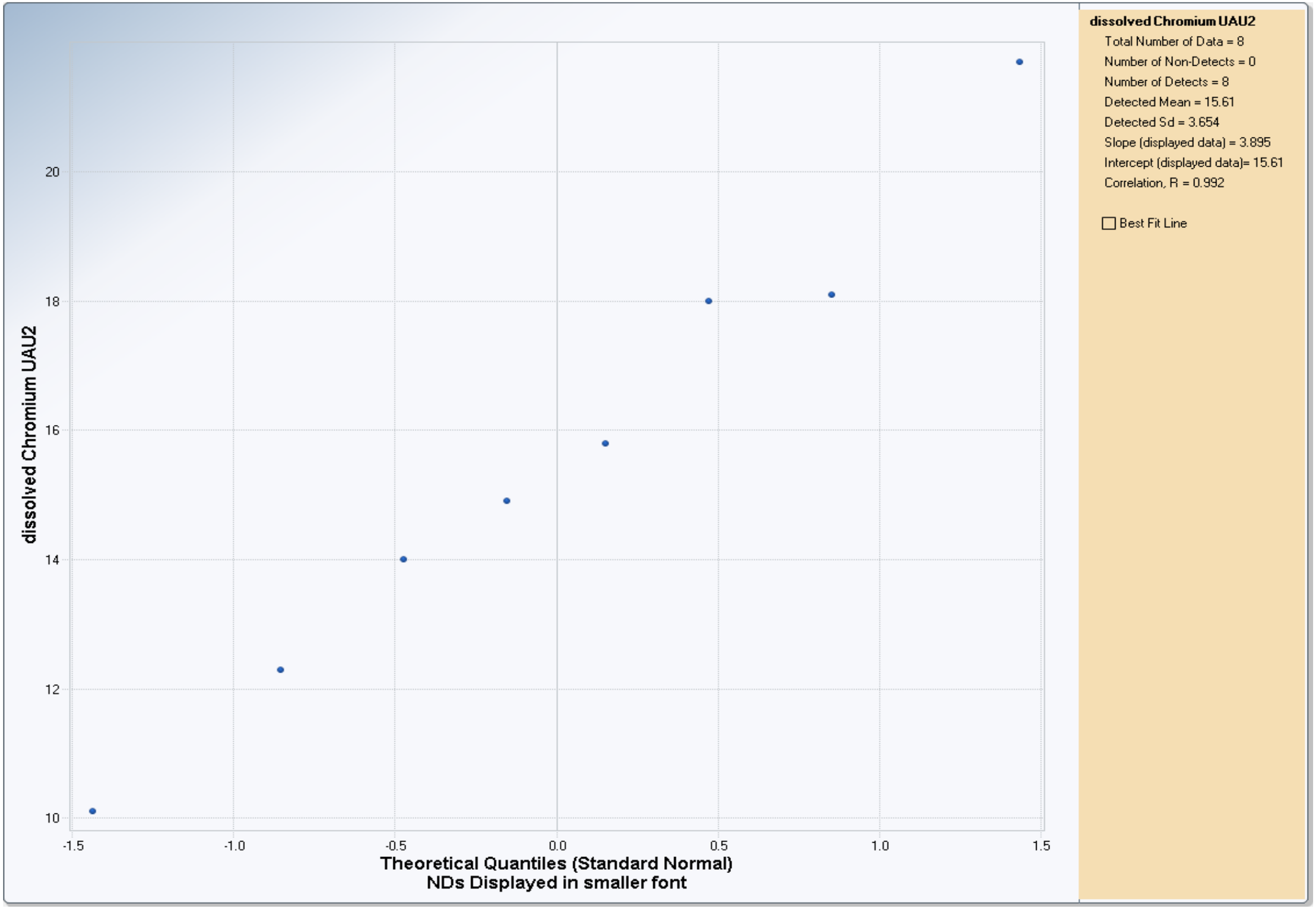


Q-Q Plot for Hexavalent Chromium without Non-Detects in UAU1: Last 5 Years
Log Transformed

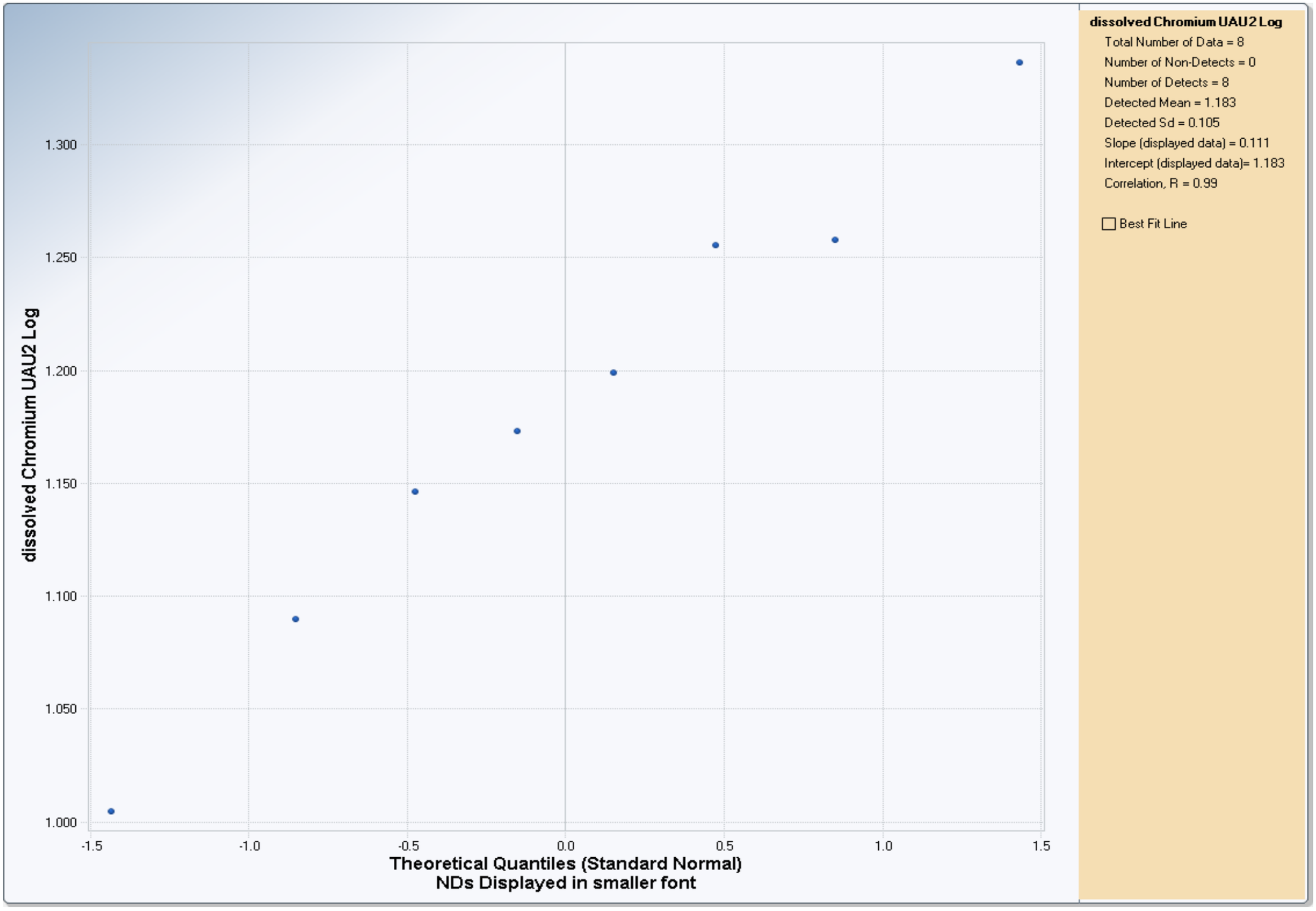


Line indicates where there is a point-of-departure or significant break in the slope

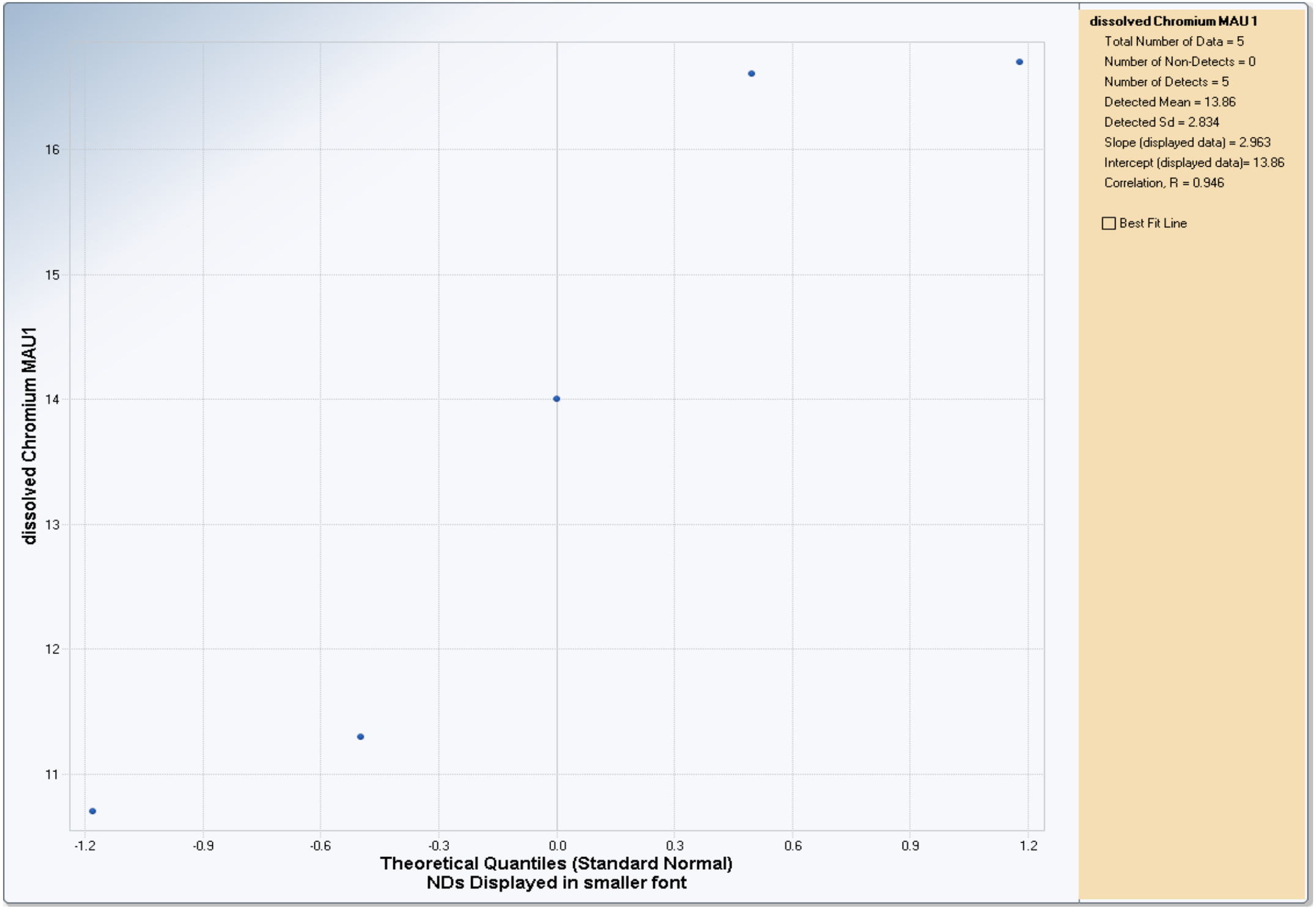
Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU2: Last 5 Years
Untransformed



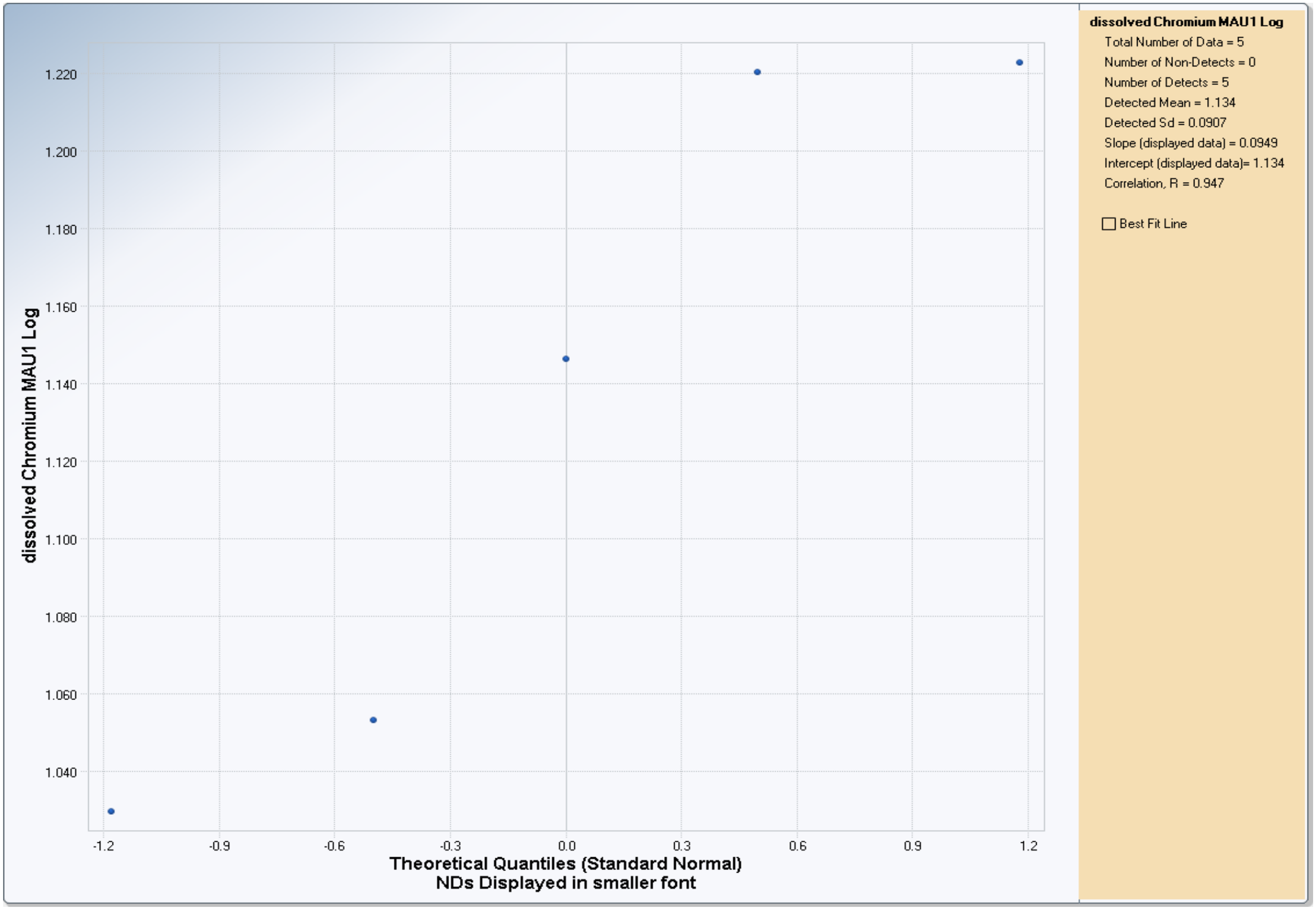
Q-Q Plot for Dissolved Total Chromium without Non-Detects in UAU2: Last 5 Years
Log Transformed



Q-Q Plot for Dissolved Total Chromium without Non-Detects in MAU1: Last 5 Years
Untransformed

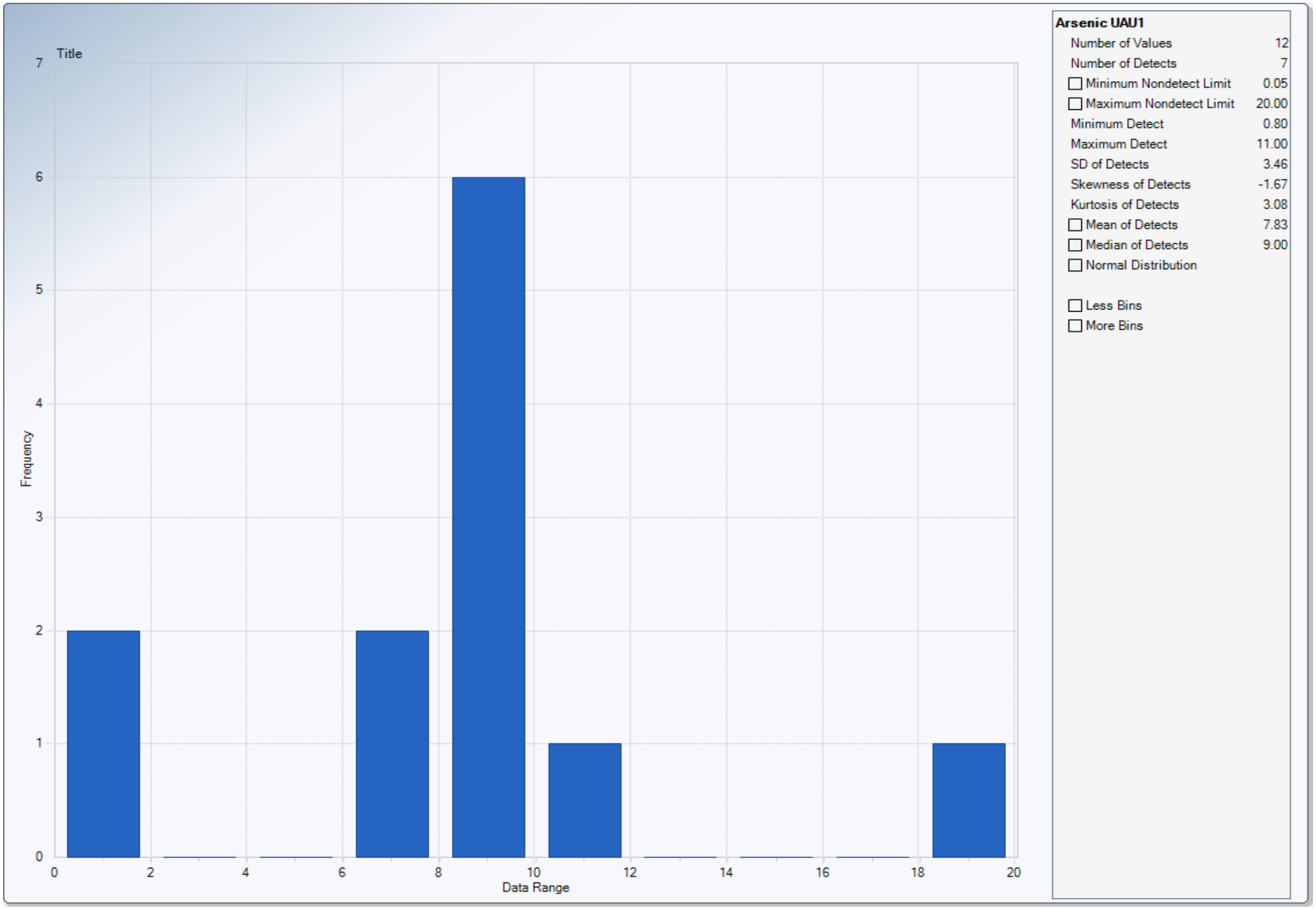


Q-Q Plot for Dissolved Total Chromium without Non-Detects in MAU1: Last 5 Years
Log Transformed

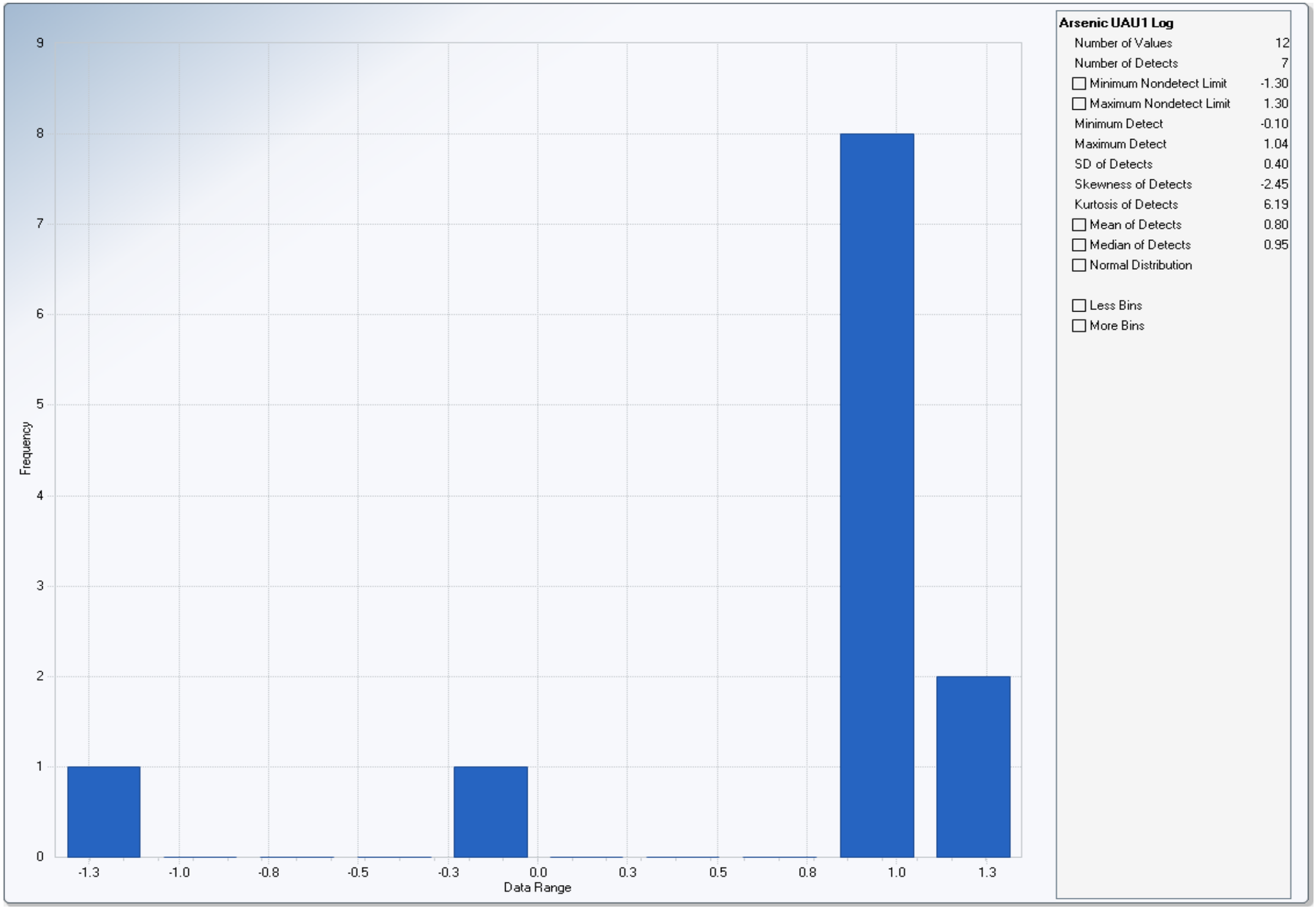


With Nondetects

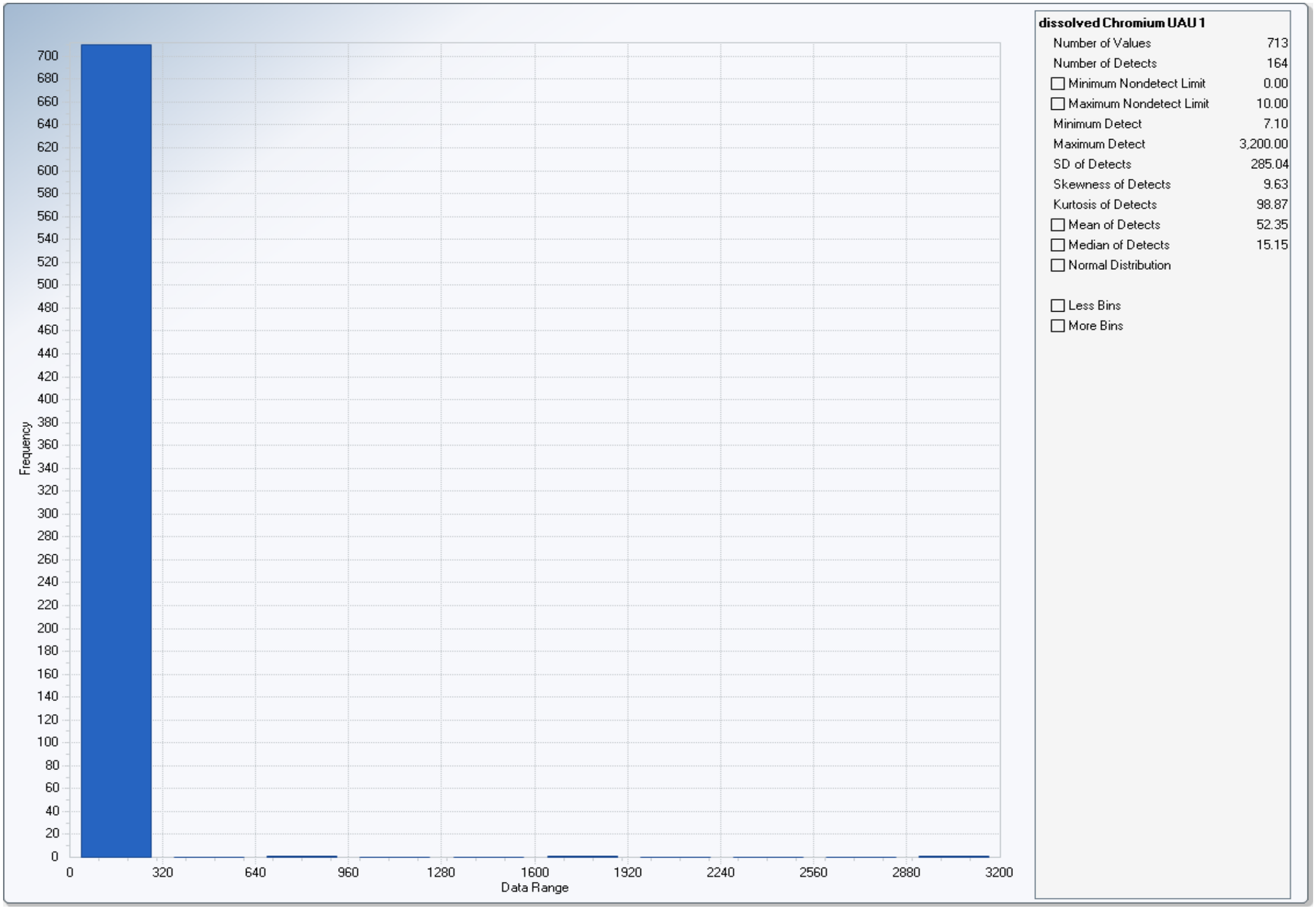
Histogram for Arsenic with Non-Detects in UAU1: All Years
Untransformed



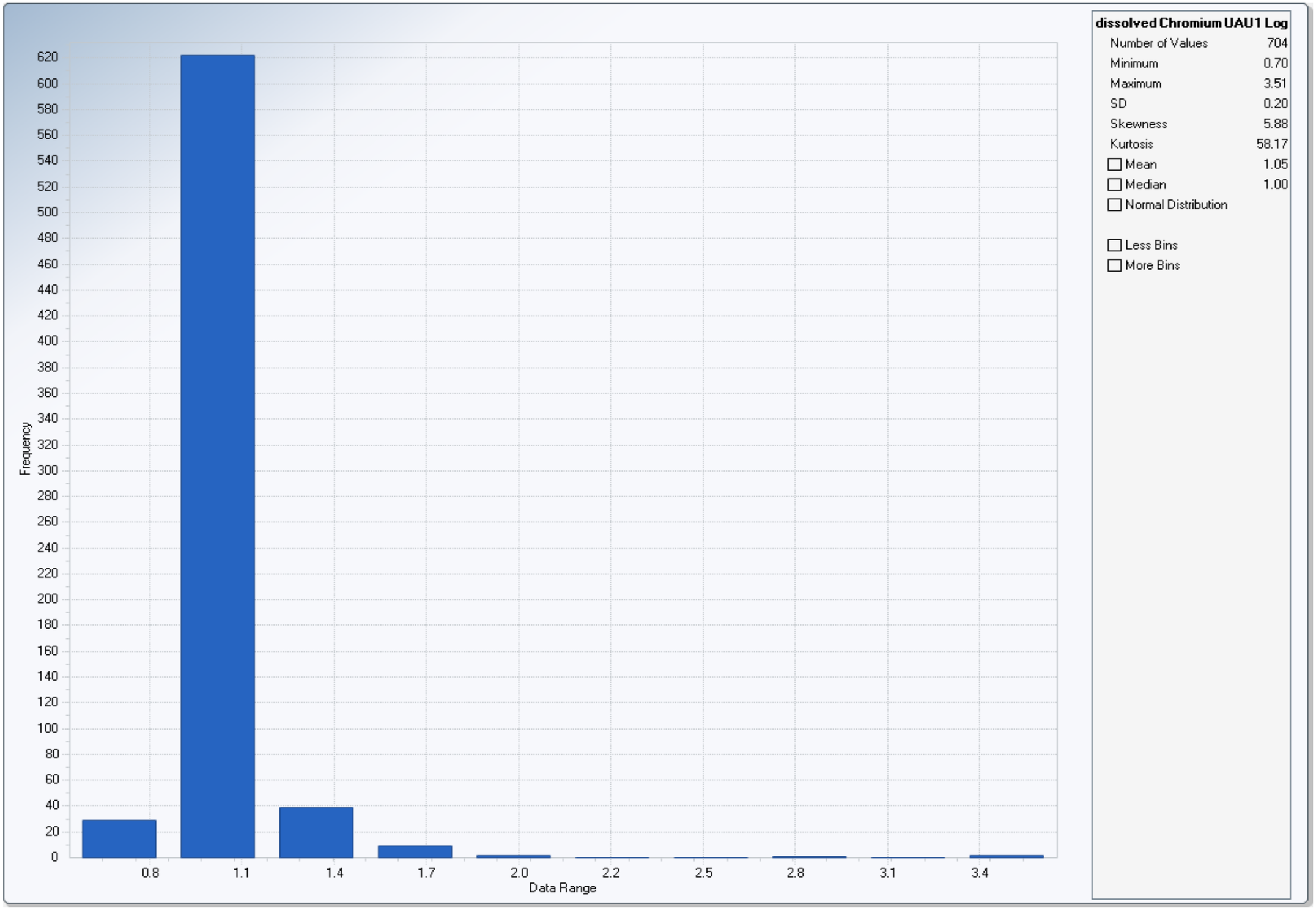
Histogram for Arsenic with Non-Detects in UAU1: All Years
Log Transformed



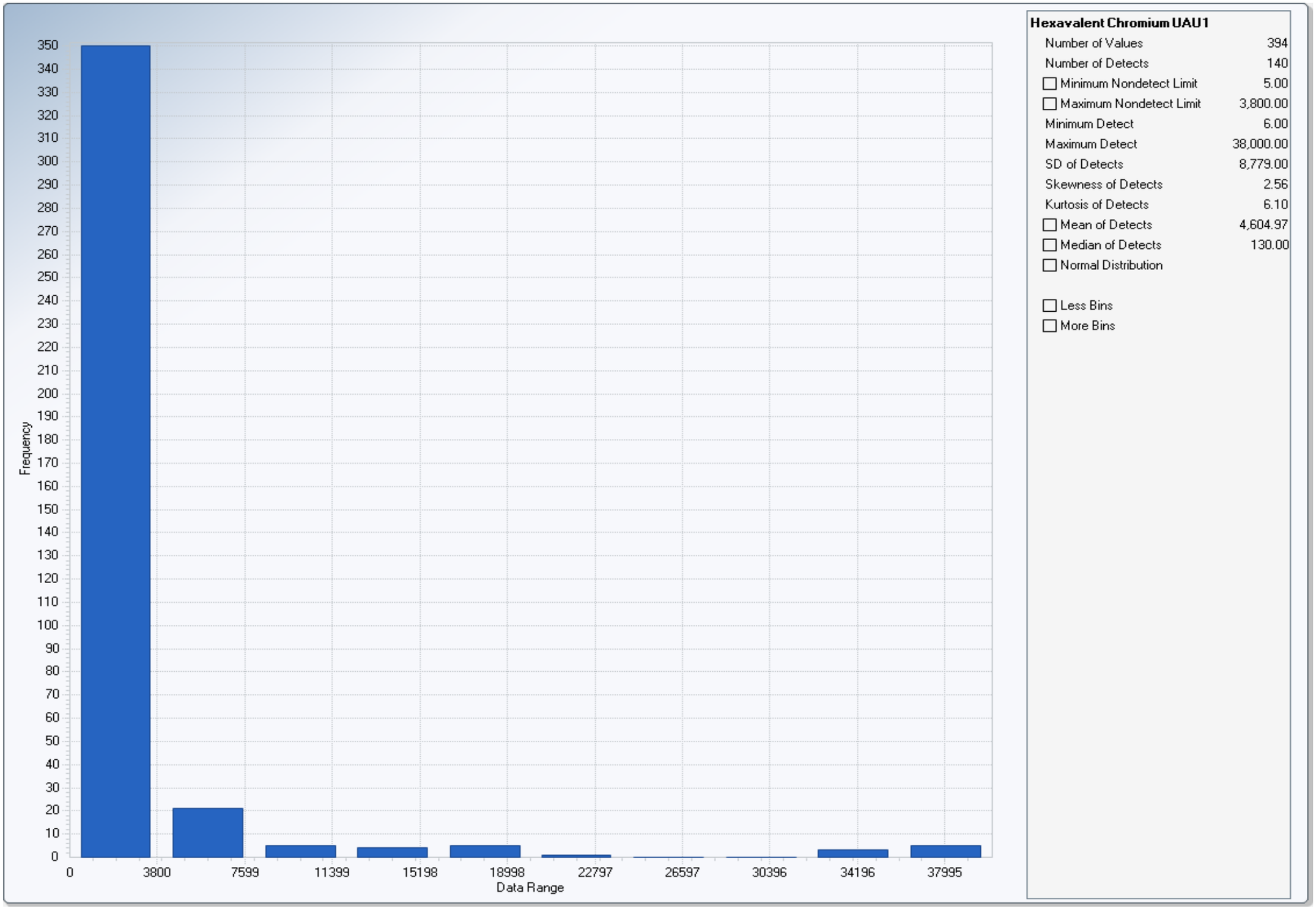
Histogram for Dissolved Total Chromium with Non-Detects in UAU1: All Years
Untransformed



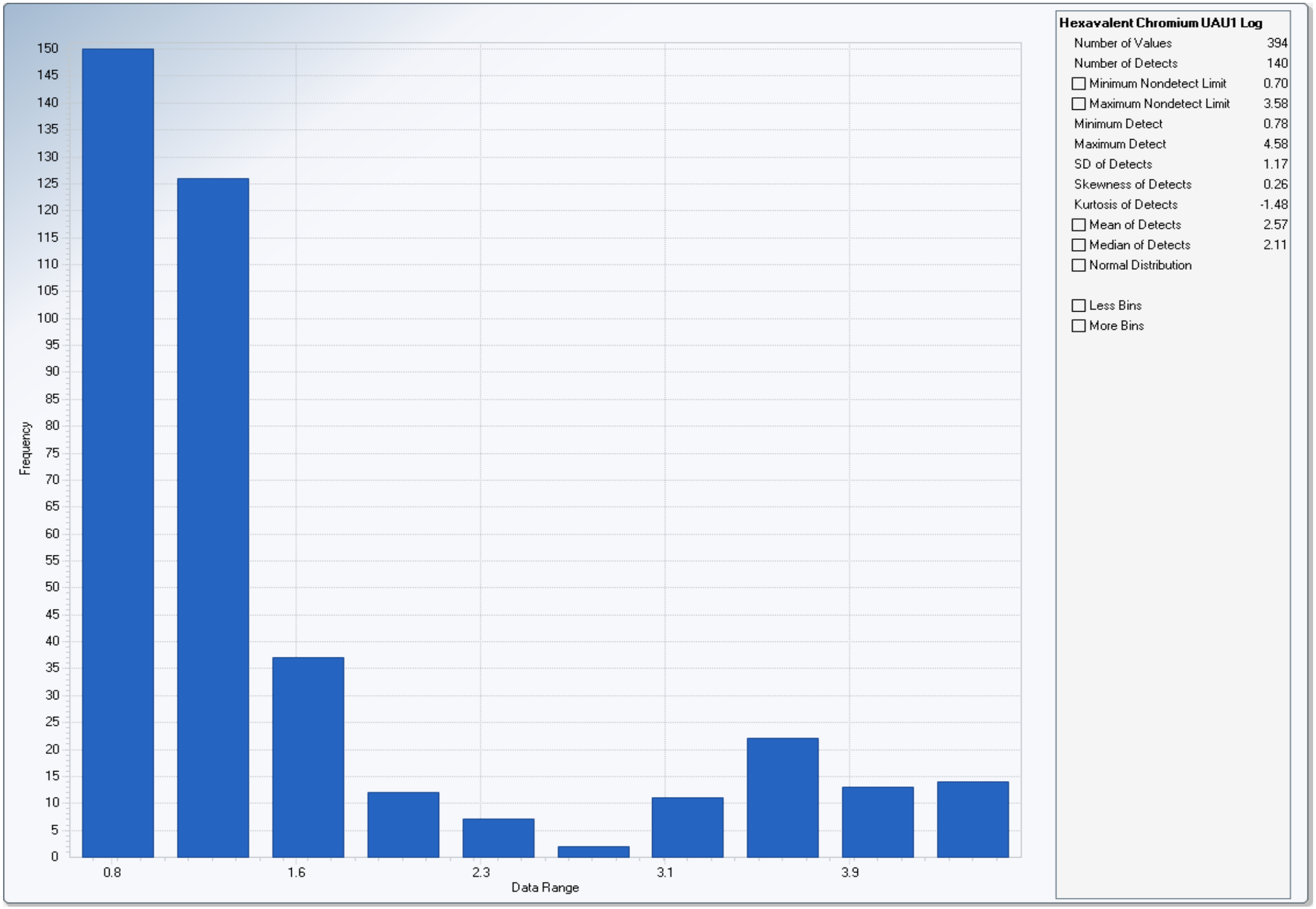
Histogram for Dissolved Total Chromium with Non-Detects in UAU1: All Years
Log Transformed



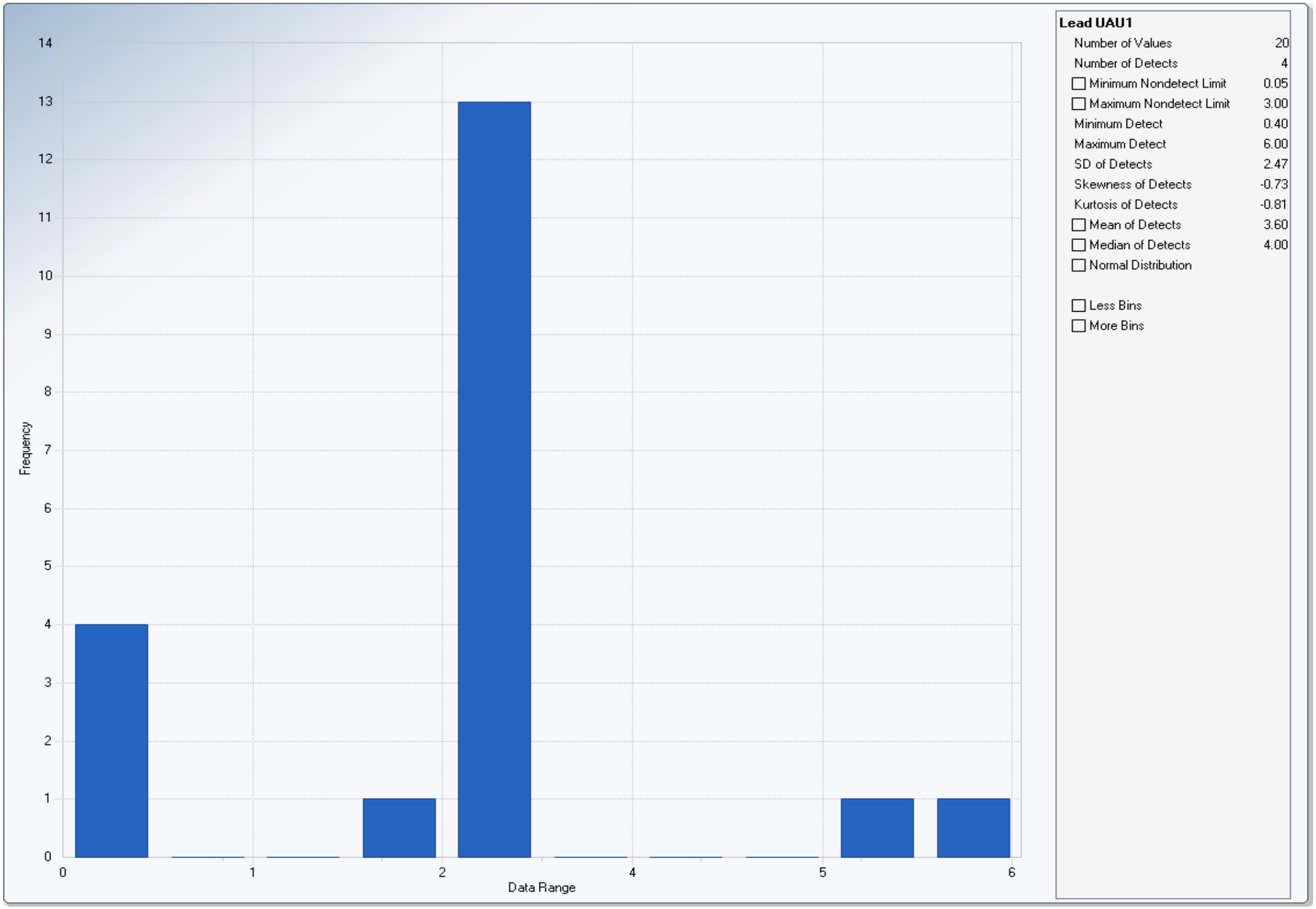
Histogram for Hexavalent Chromium with Non-Detects in UAU1: All Years
Untransformed



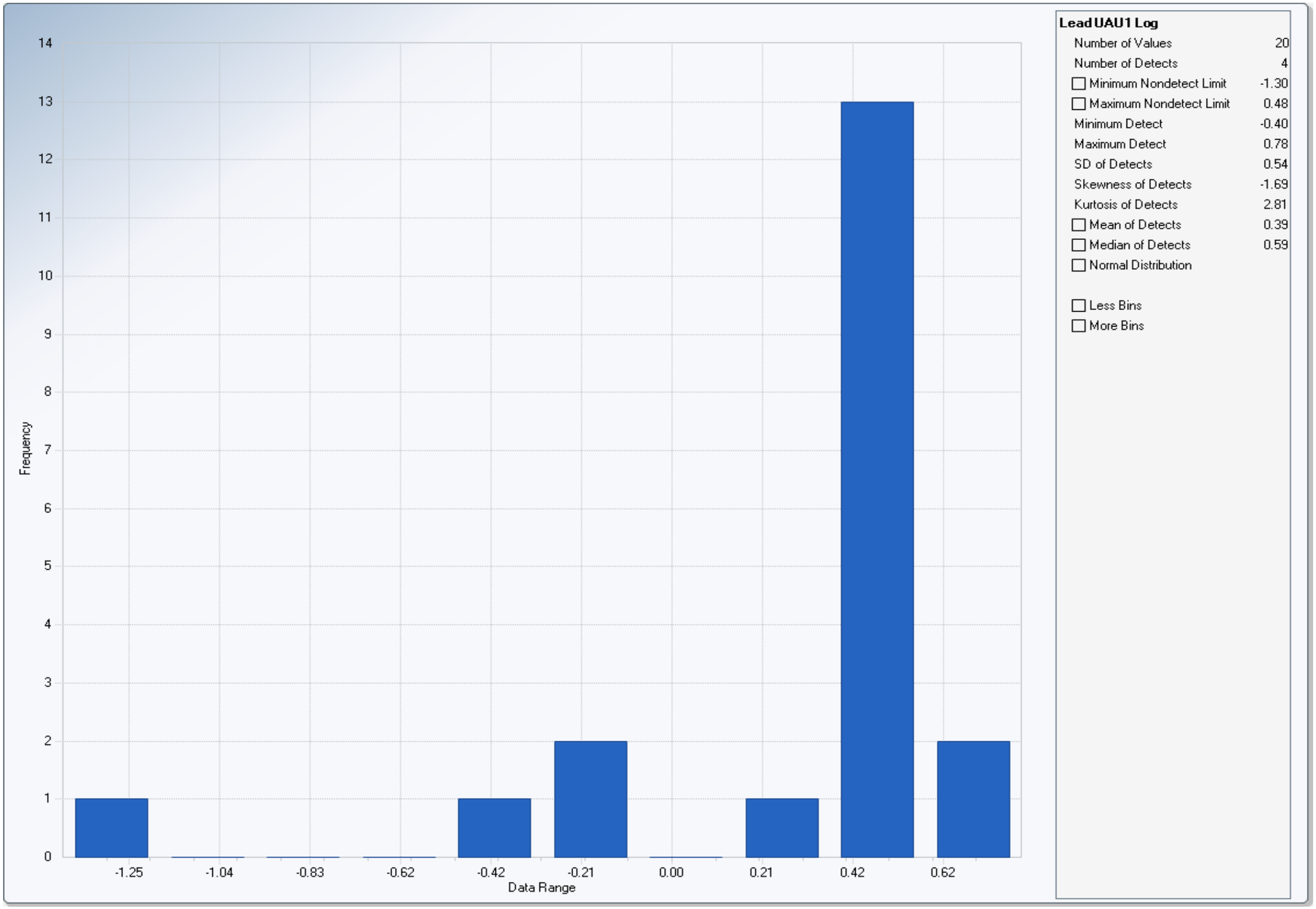
Histogram for Hexavalent Chromium with Non-Detects in UAU1: All Years
Log Transformed



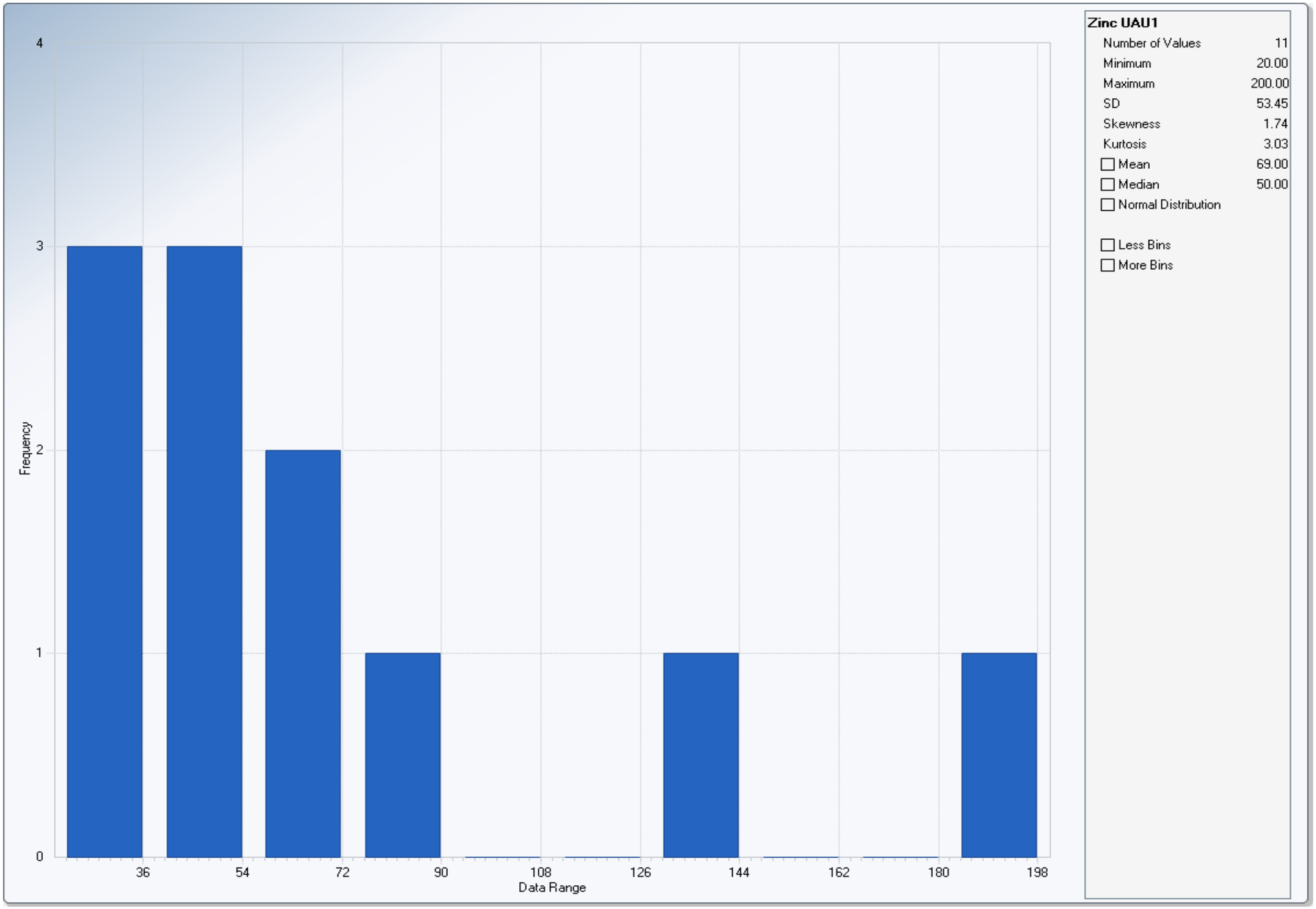
Histogram for Lead with Non-Detects in UAU1: All Years
Untransformed



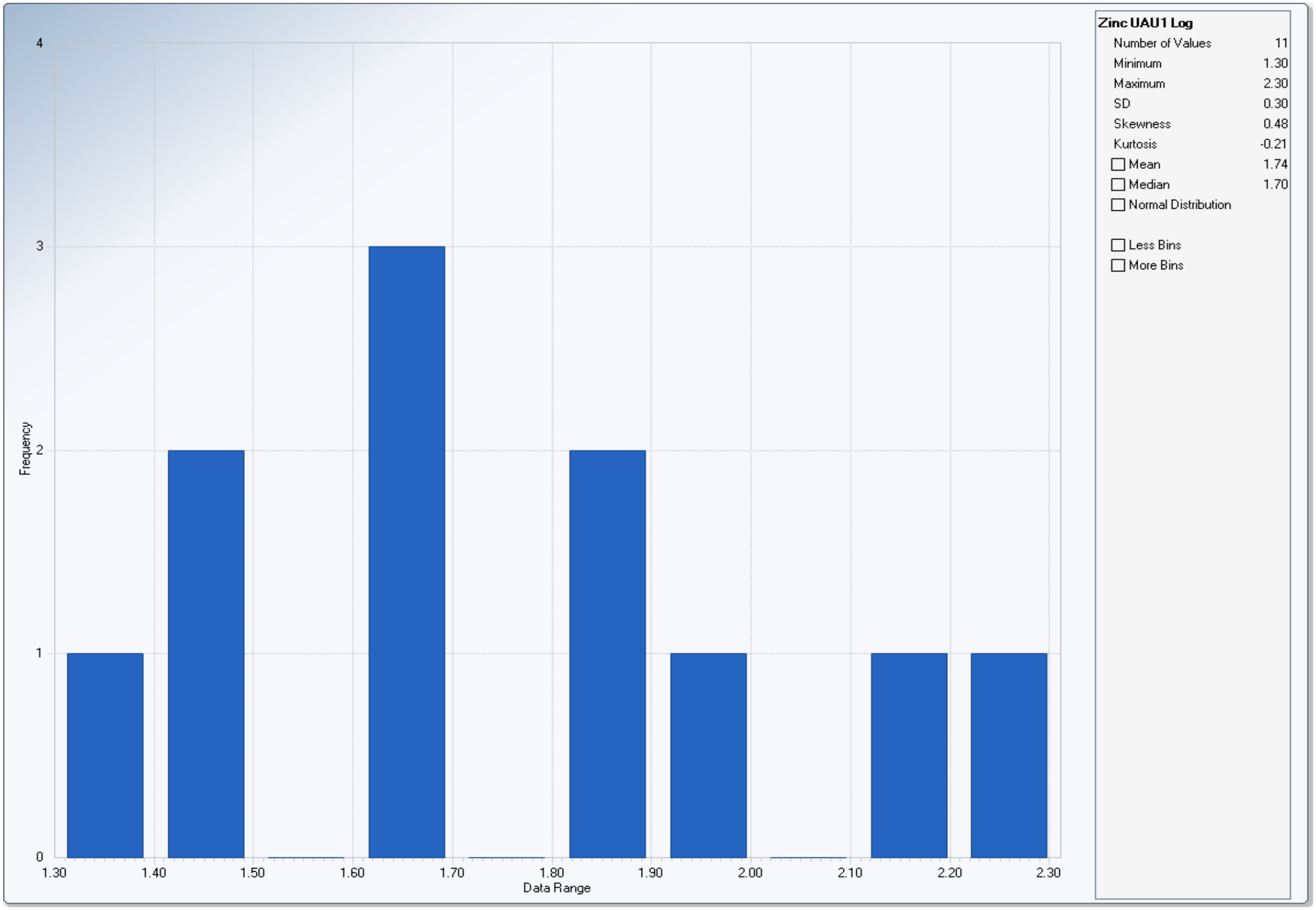
Histogram for Lead with Non-Detects in UAU1: All Years
Log Transformed



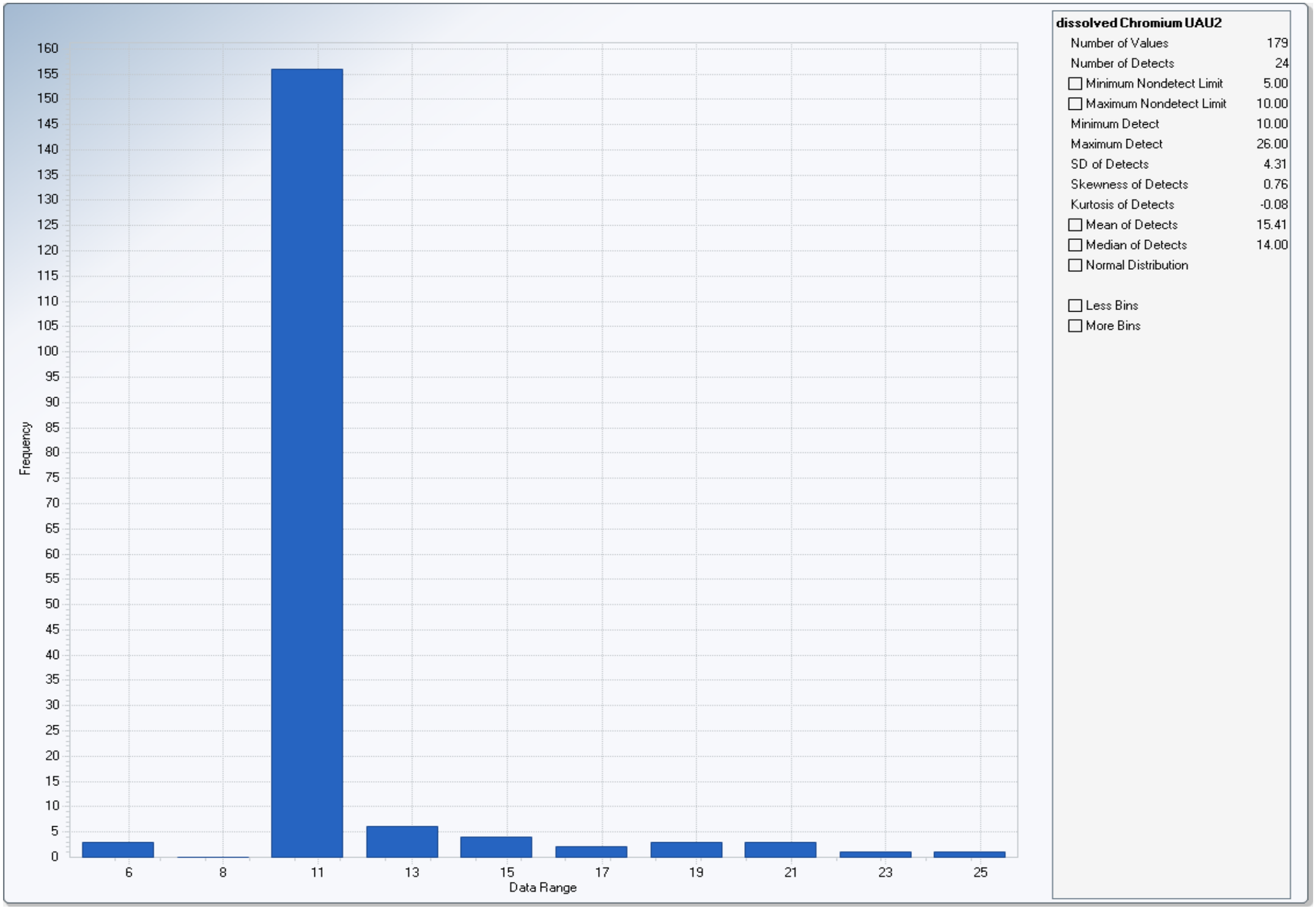
Histogram for Zinc with Non-Detects in UAU1: All Years
Untransformed



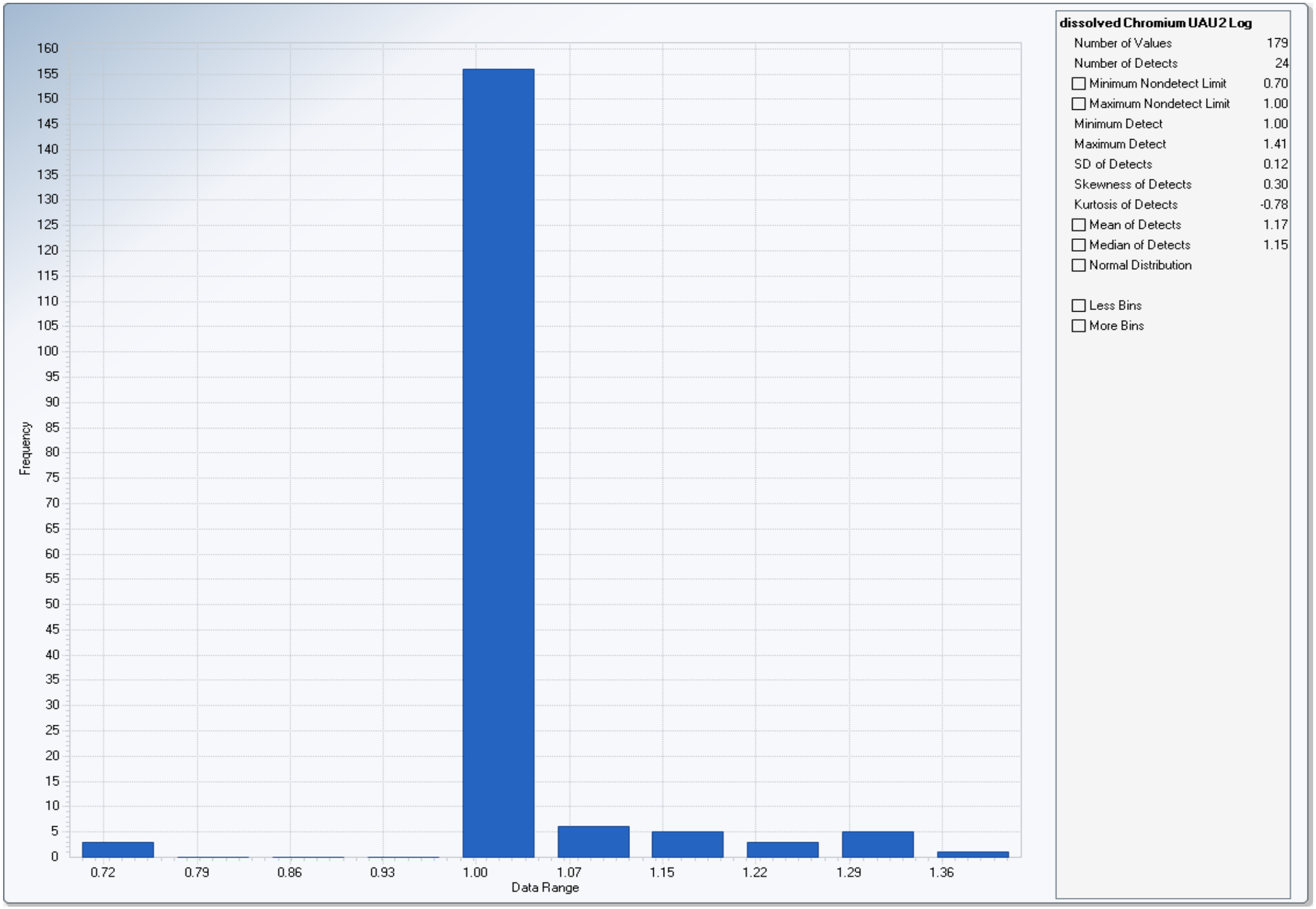
Histogram for Zinc with Non-Detects in UAU1: All Years
Log Transformed



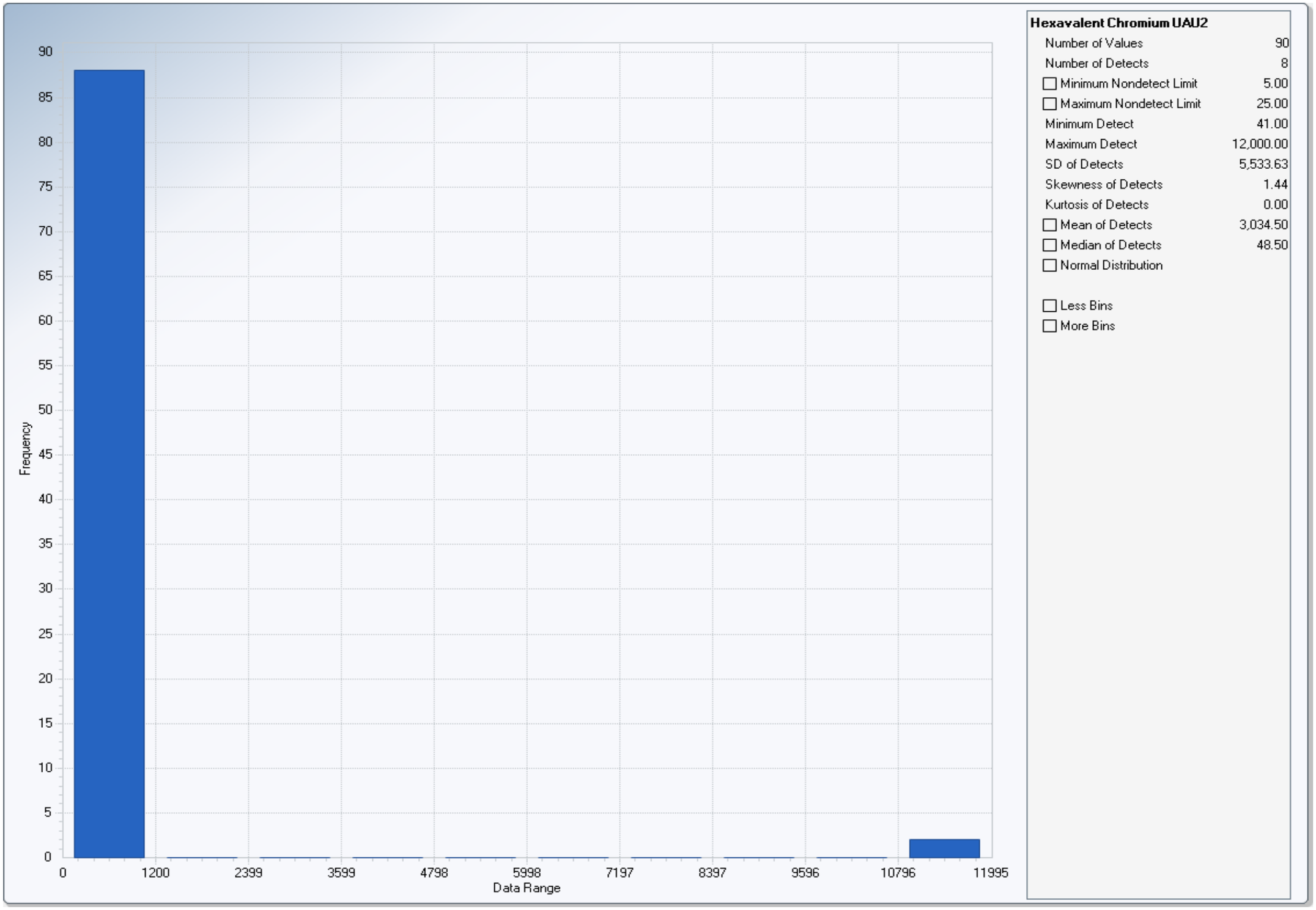
Histogram for Dissolved Total Chromium with Non-Detects in UAU2: All Years
Untransformed



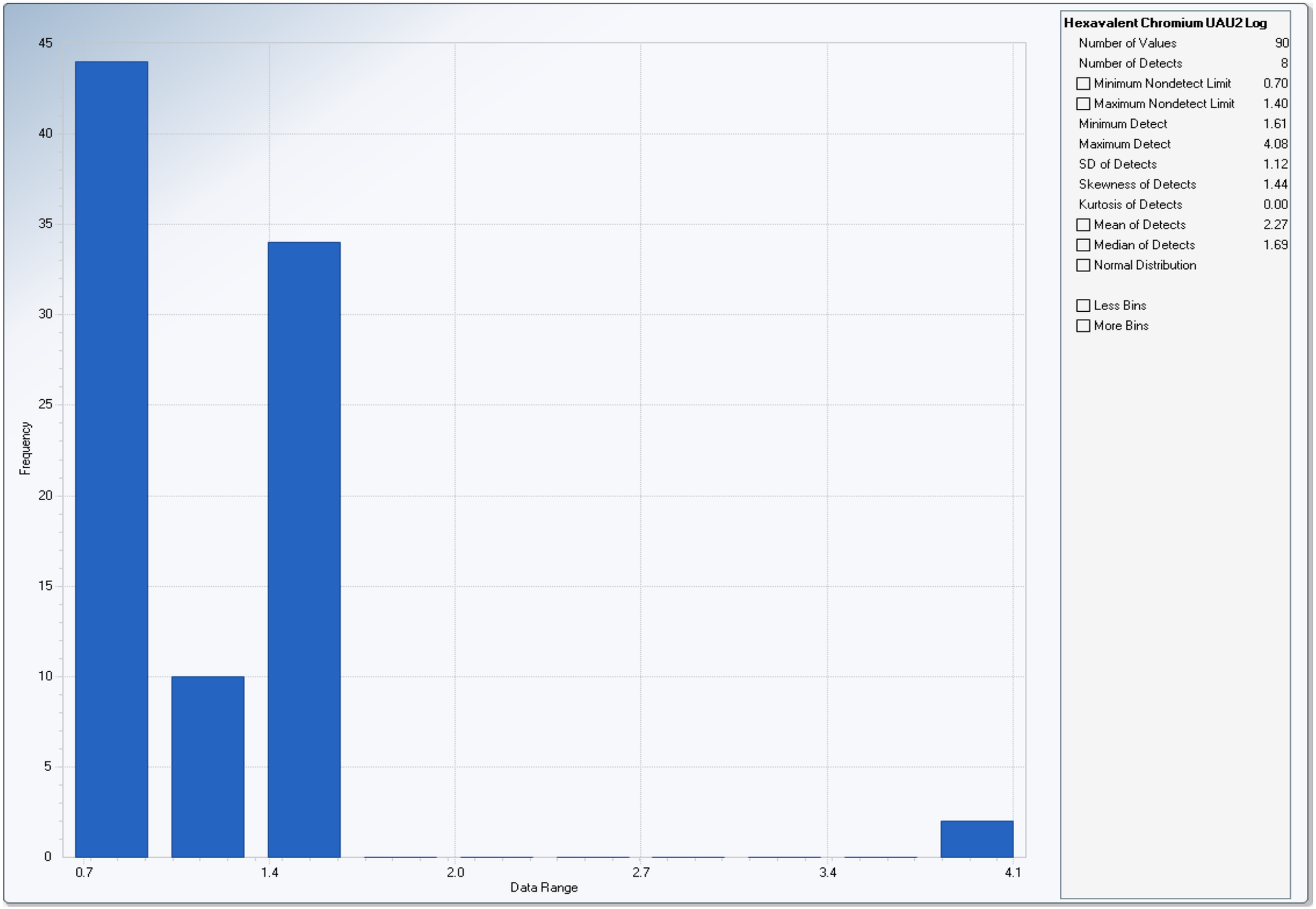
Histogram for Dissolved Total Chromium with Non-Detects in UAU2: All Years
Log Transformed



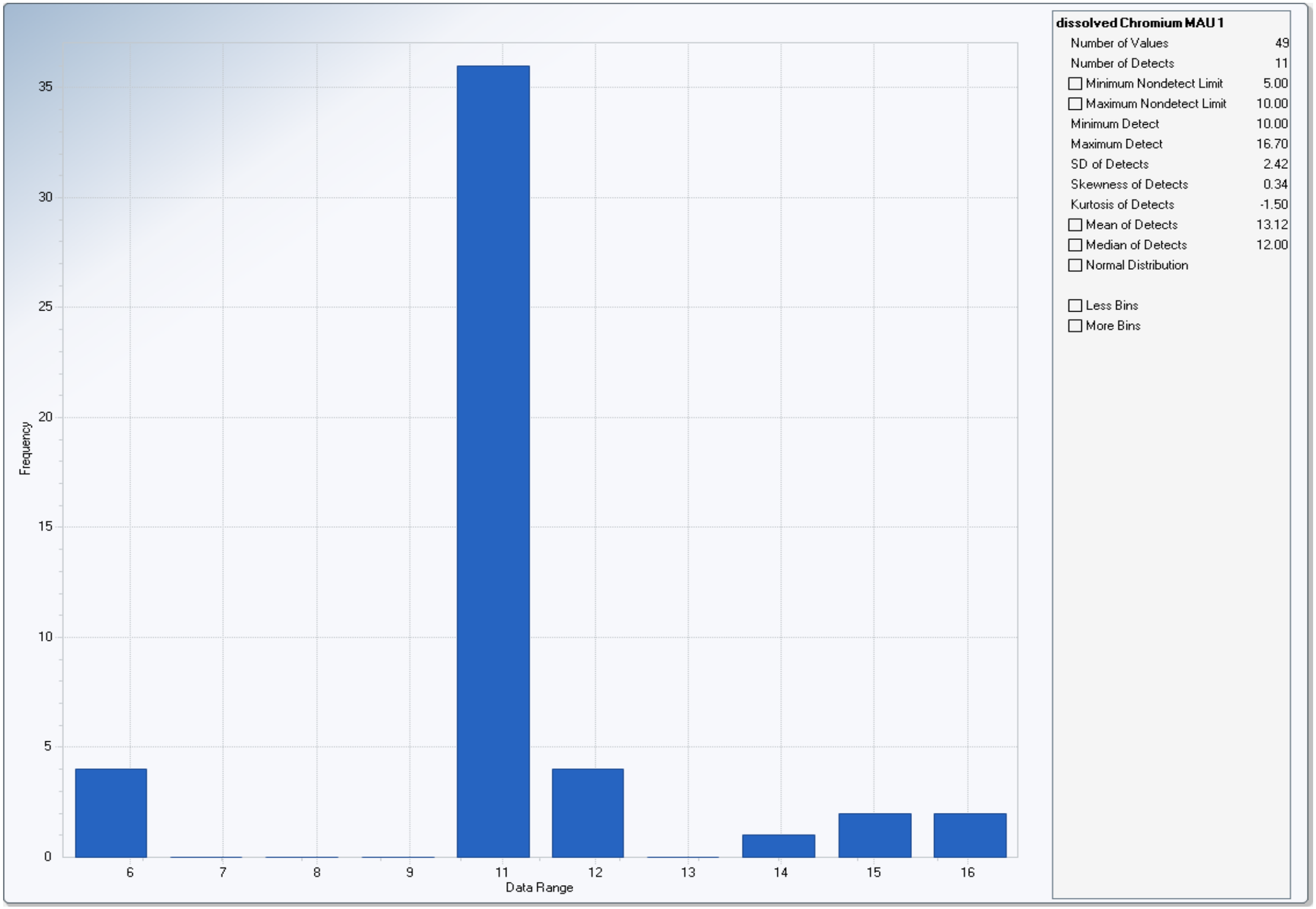
Histogram for Hexavalent Chromium with Non-Detects in UAU2: All Years
Untransformed



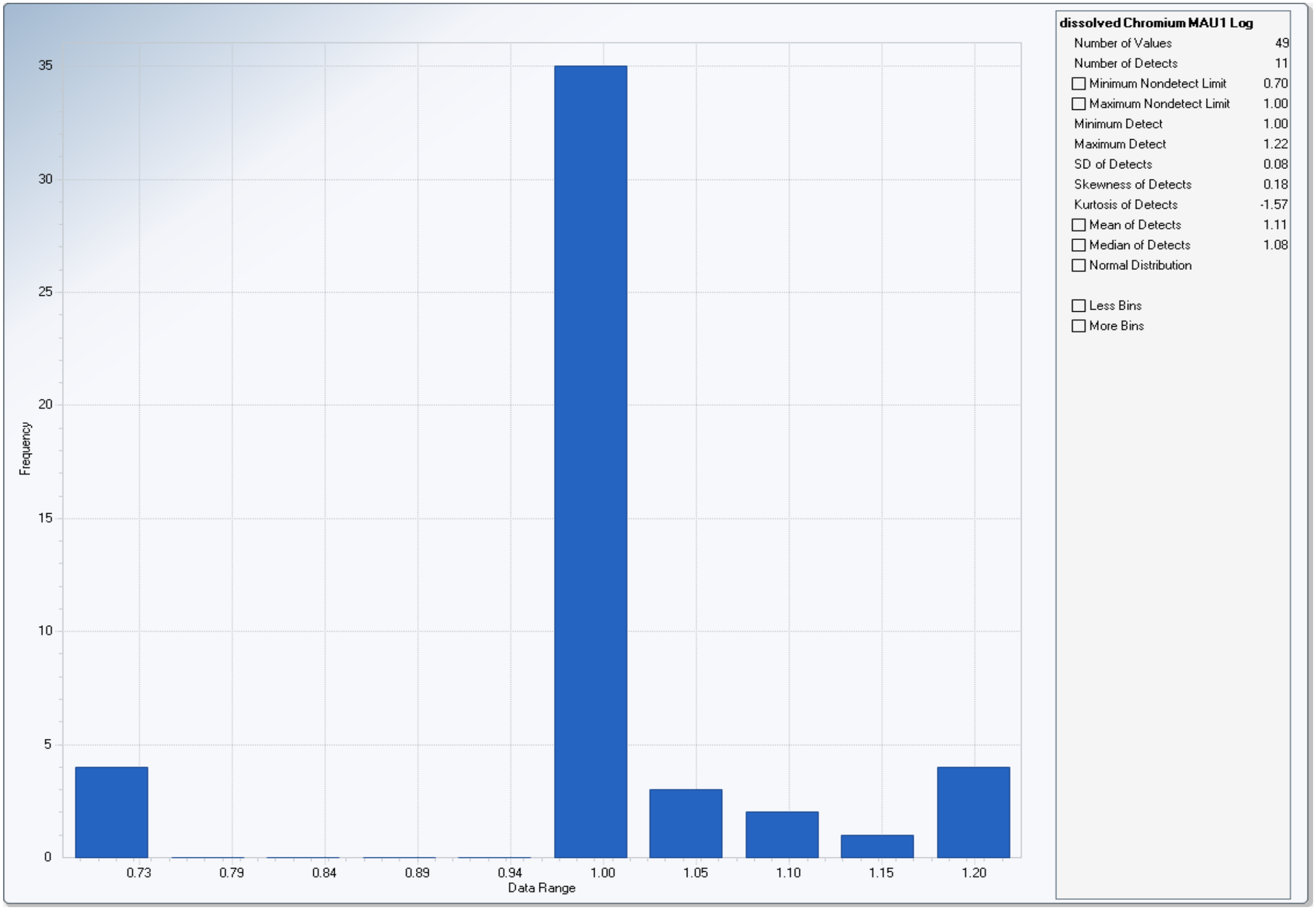
Histogram for Hexavalent Chromium with Non-Detects in UAU2: All Years
Log Transformed



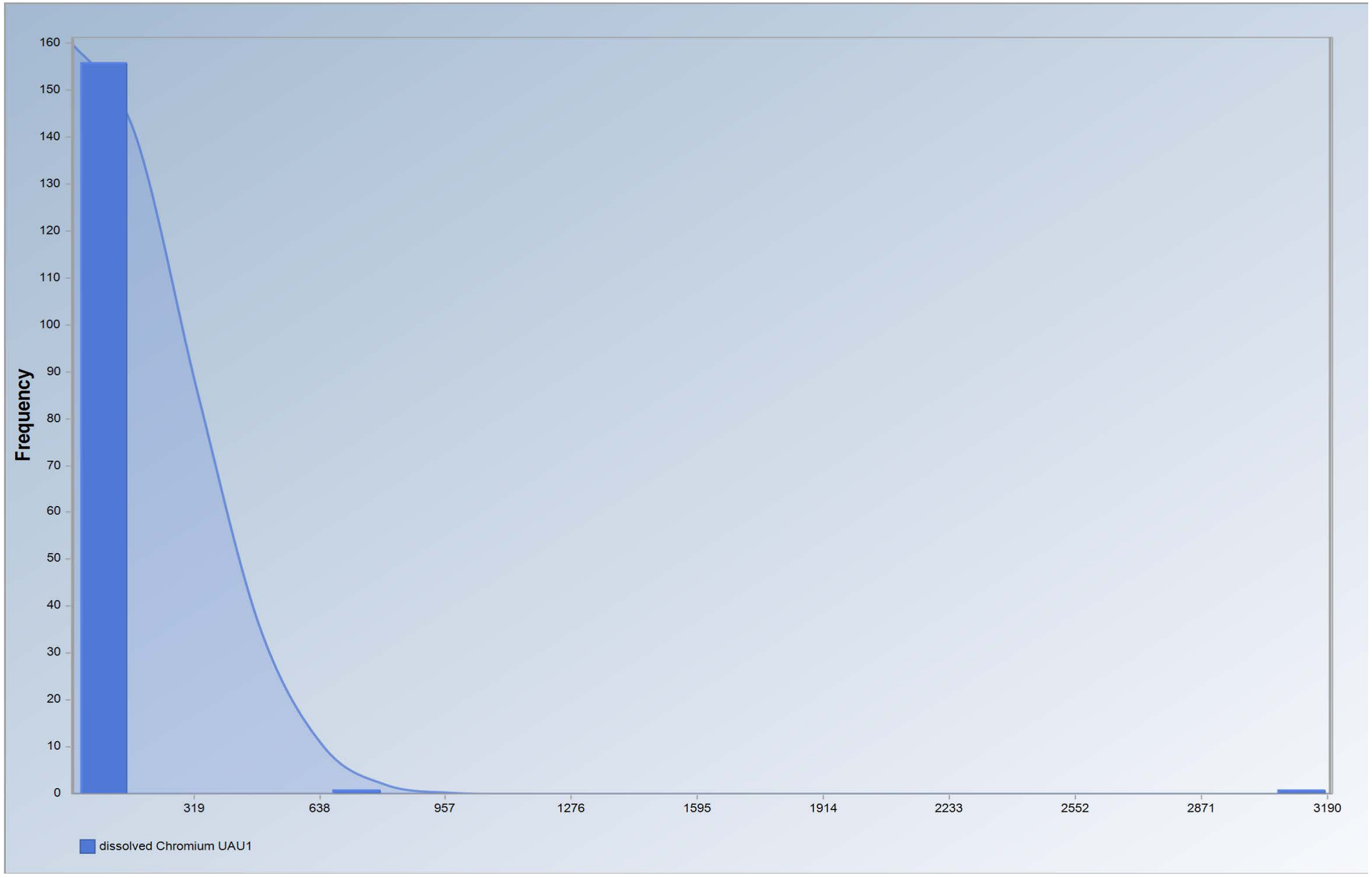
Histogram for Dissolved Total Chromium with Non-Detects in MAU1: All Years
Untransformed



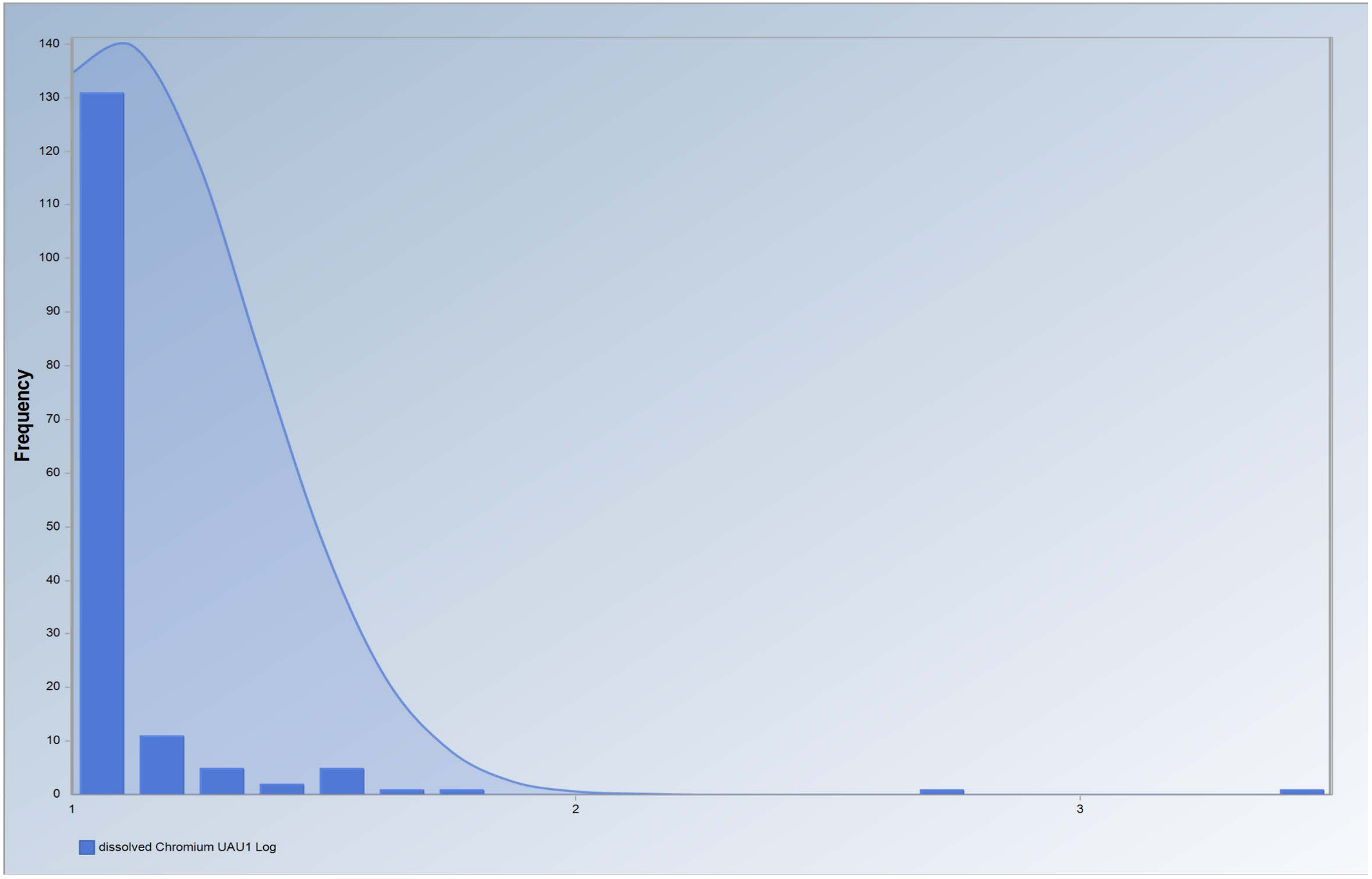
Histogram for Dissolved Total Chromium with Non-Detects in MAU1: All Years
Log Transformed



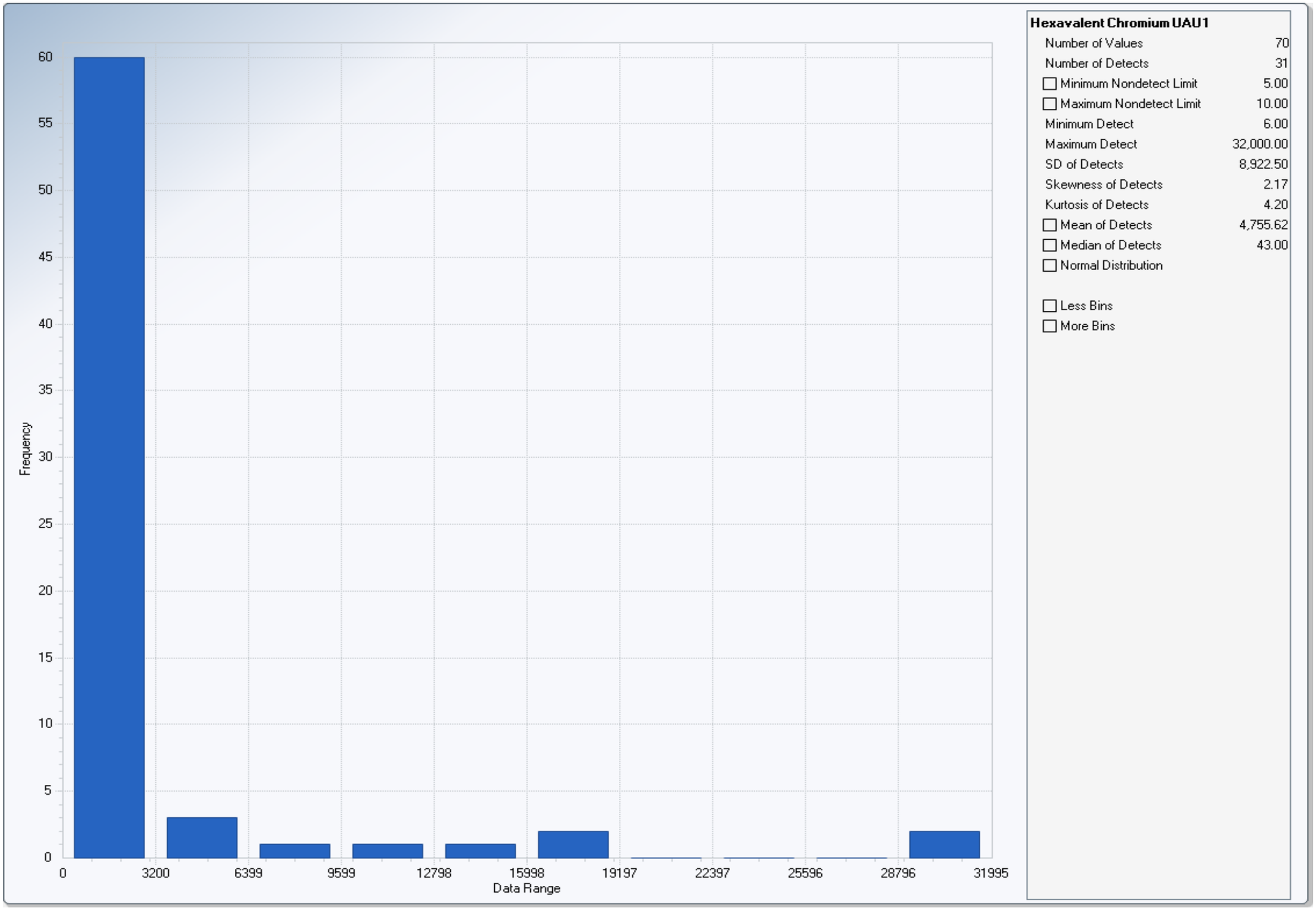
Histogram for Dissolved Total Chromium with Non-Detects in UAU1: Last 5 Years
Untransformed



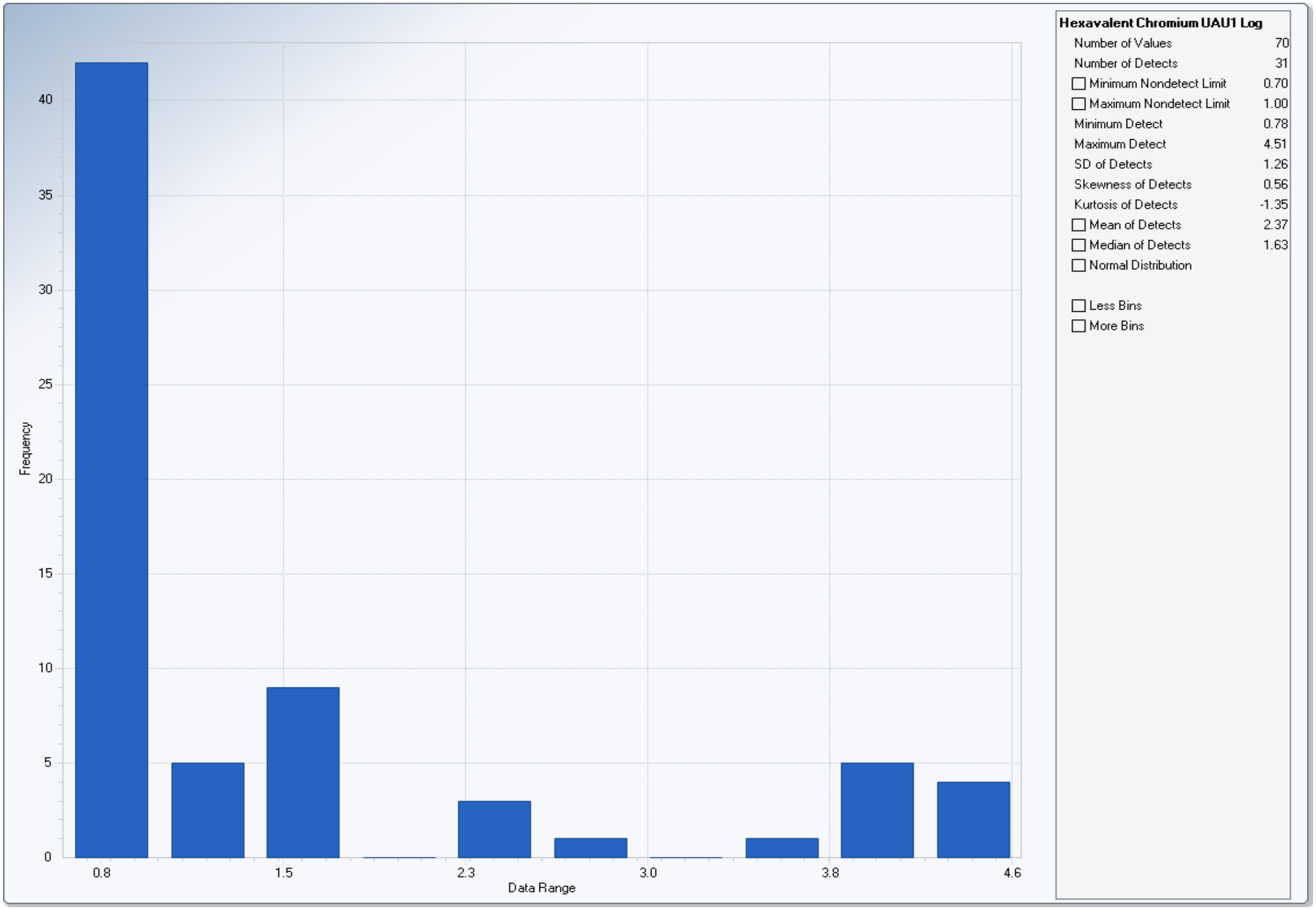
Histogram for Dissolved Total Chromium with Non-Detects in UAU1: Last 5 Years
Log Transformed



Histogram for Hexavalent Chromium with Non-Detects in UAU1: Last 5 Years
Untransformed



Histogram for Hexavalent Chromium with Non-Detects in UAU1: Last 5 Years
Log Transformed



Histogram for Dissolved Total Chromium with Non-Detects in UAU2: Last 5 Years
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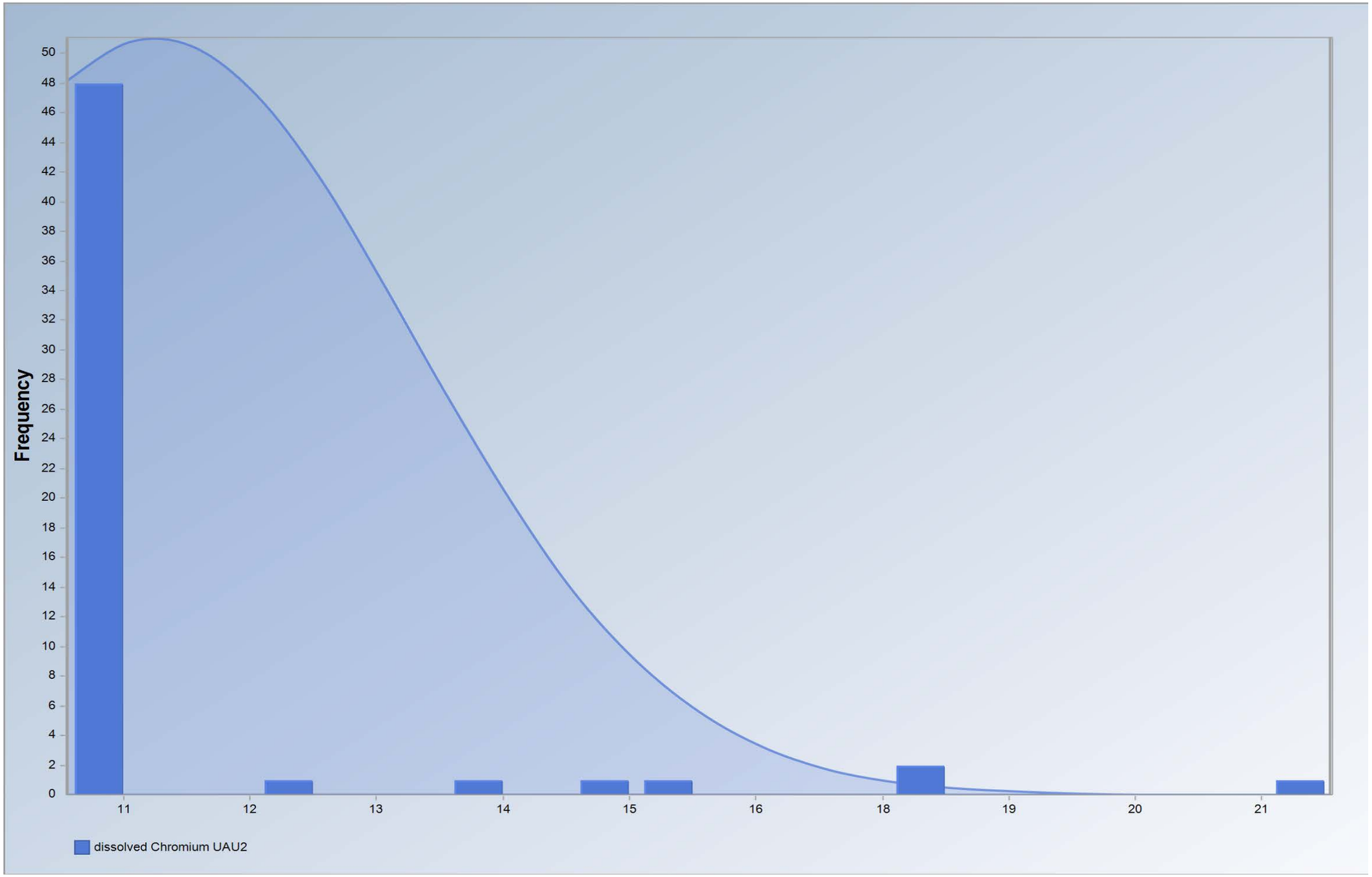
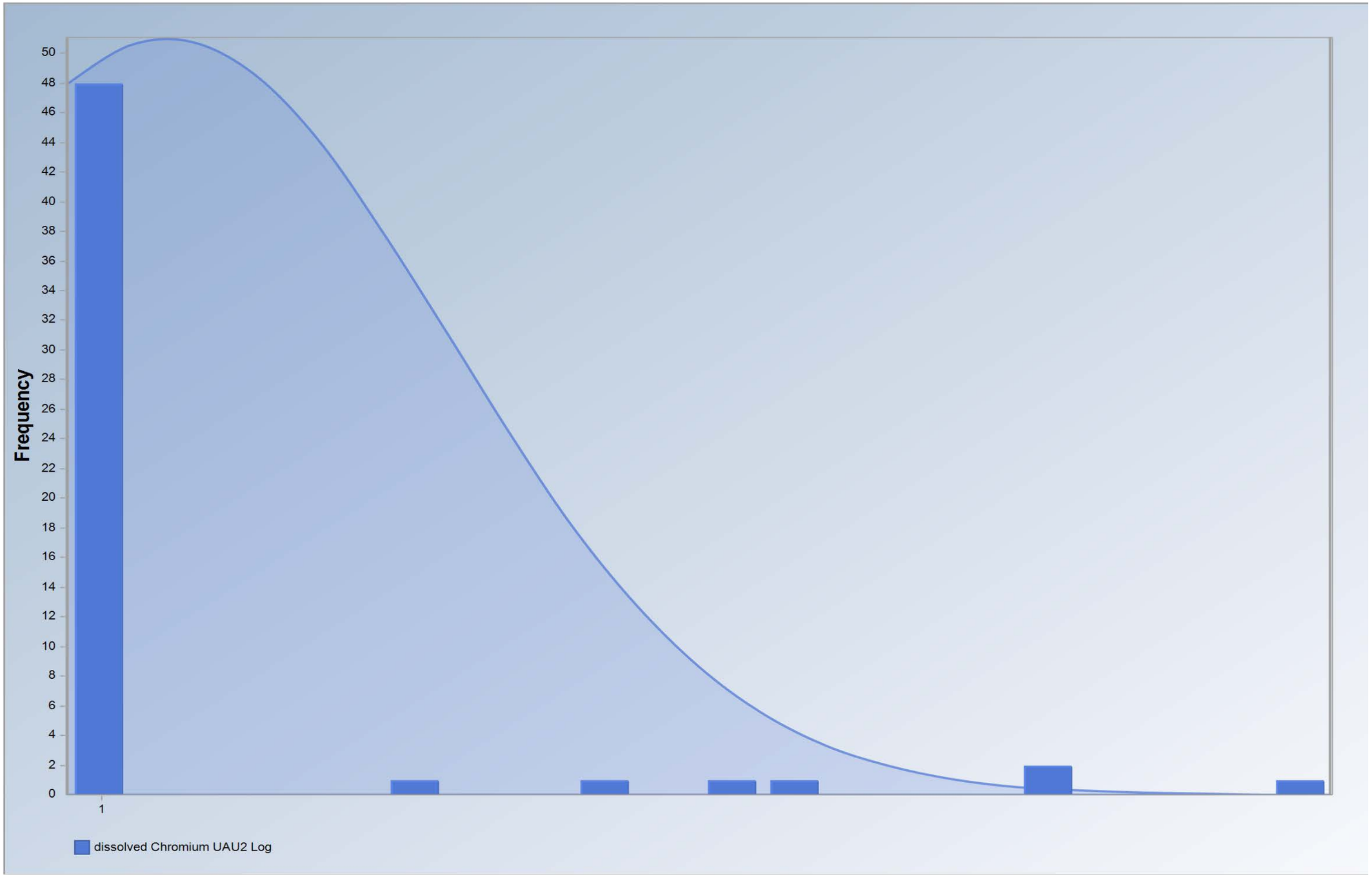
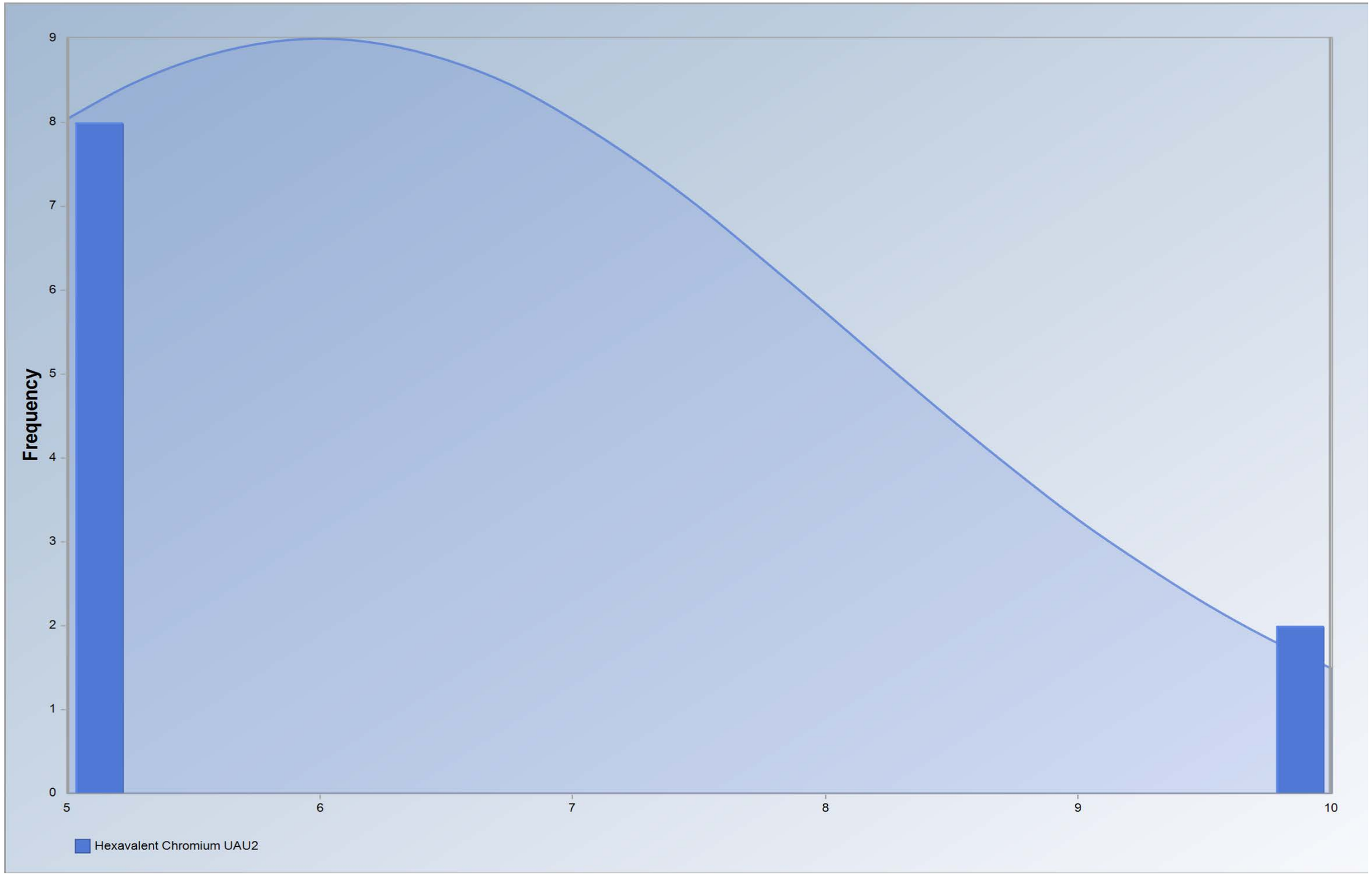


Histogram for Dissolved Total Chromium with Non-Detects in UAU2: Last 5 Years
Log Transformed

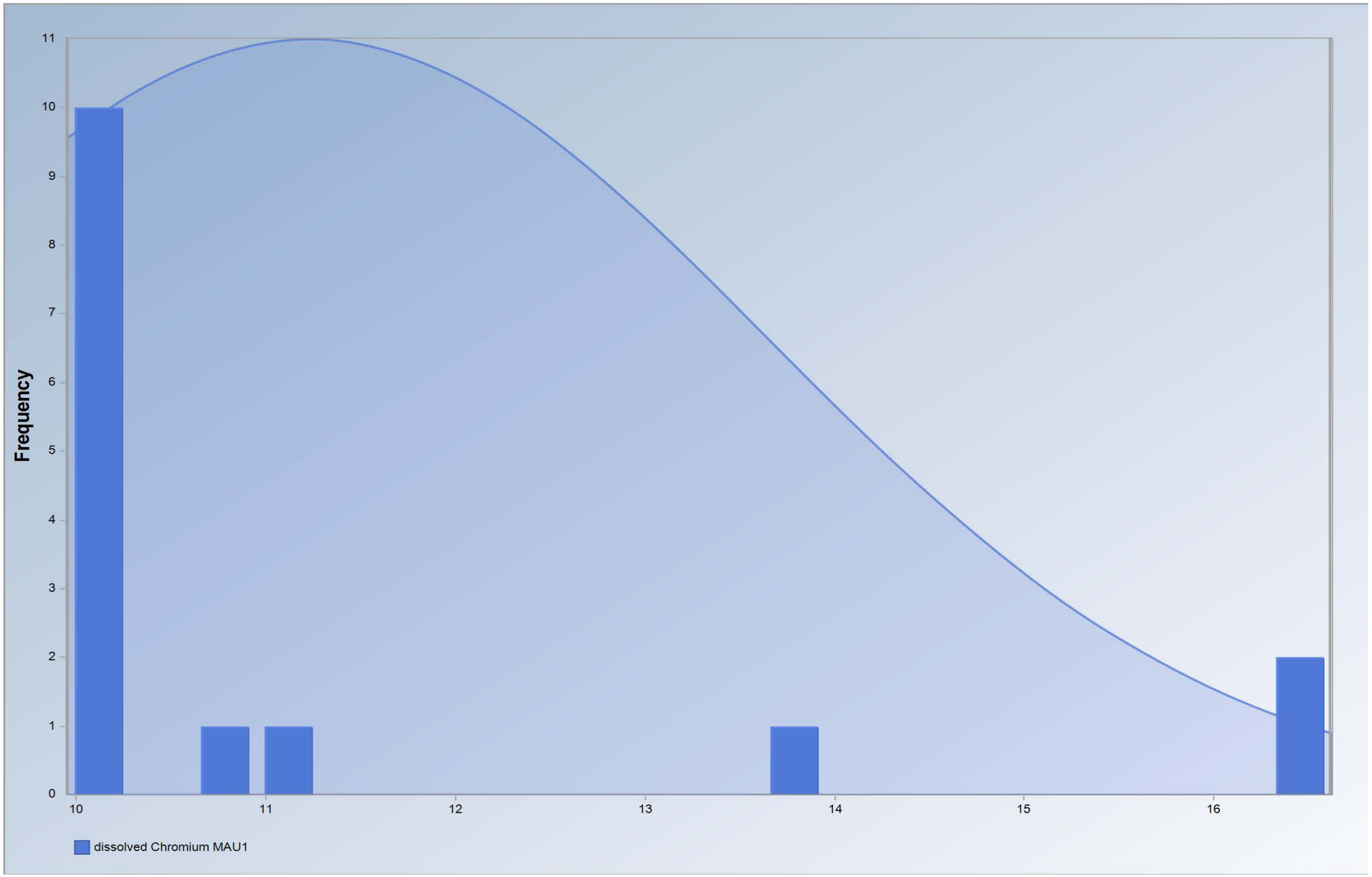


Histogram for Hexavalent Chromium with Non-Detects in UAU2: Last 5 Years
Untransformed

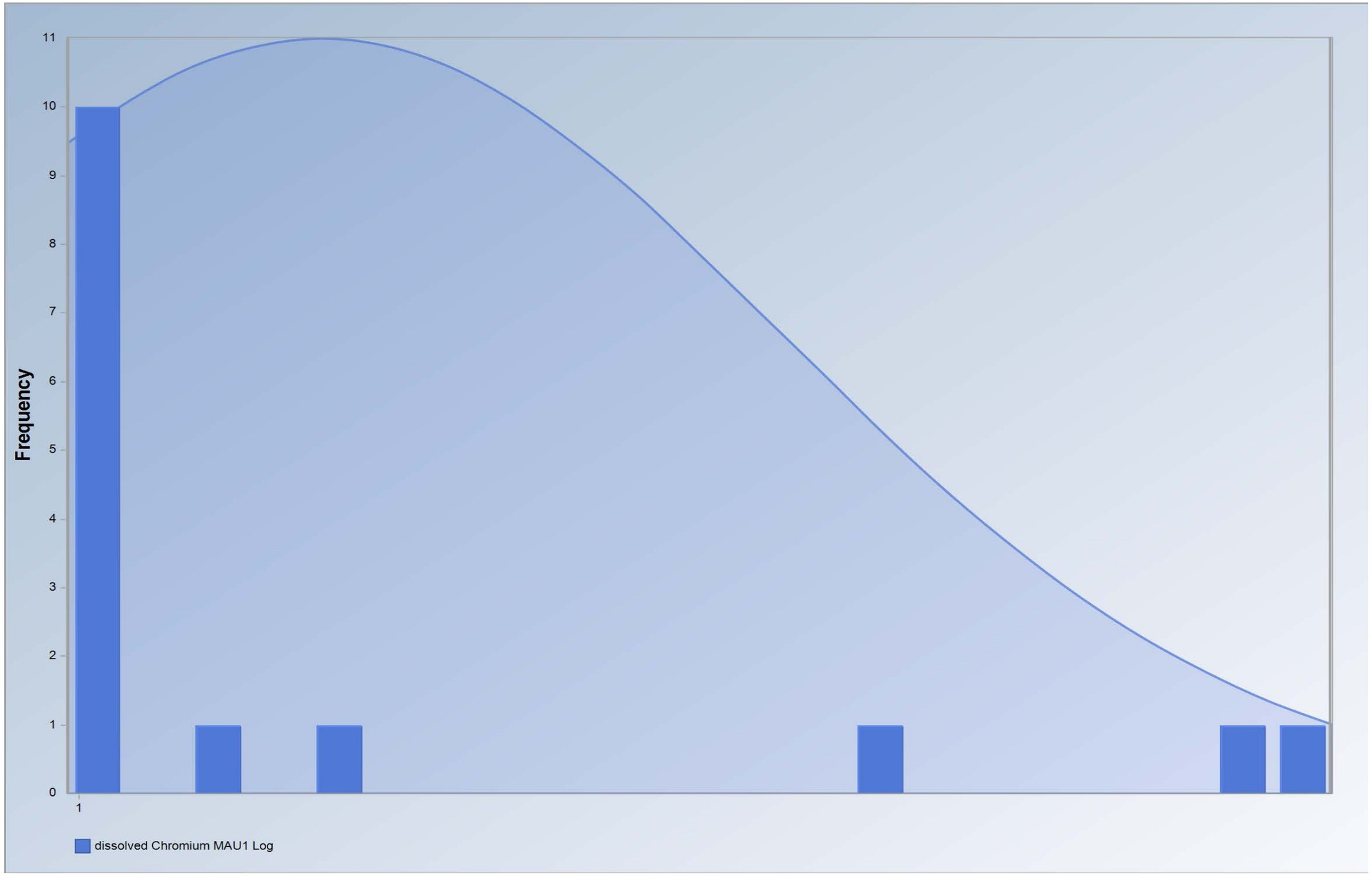


Histogram for Hexavalent Chromium with Non-Detects in UAU2: Last 5 Years
Log Transformed

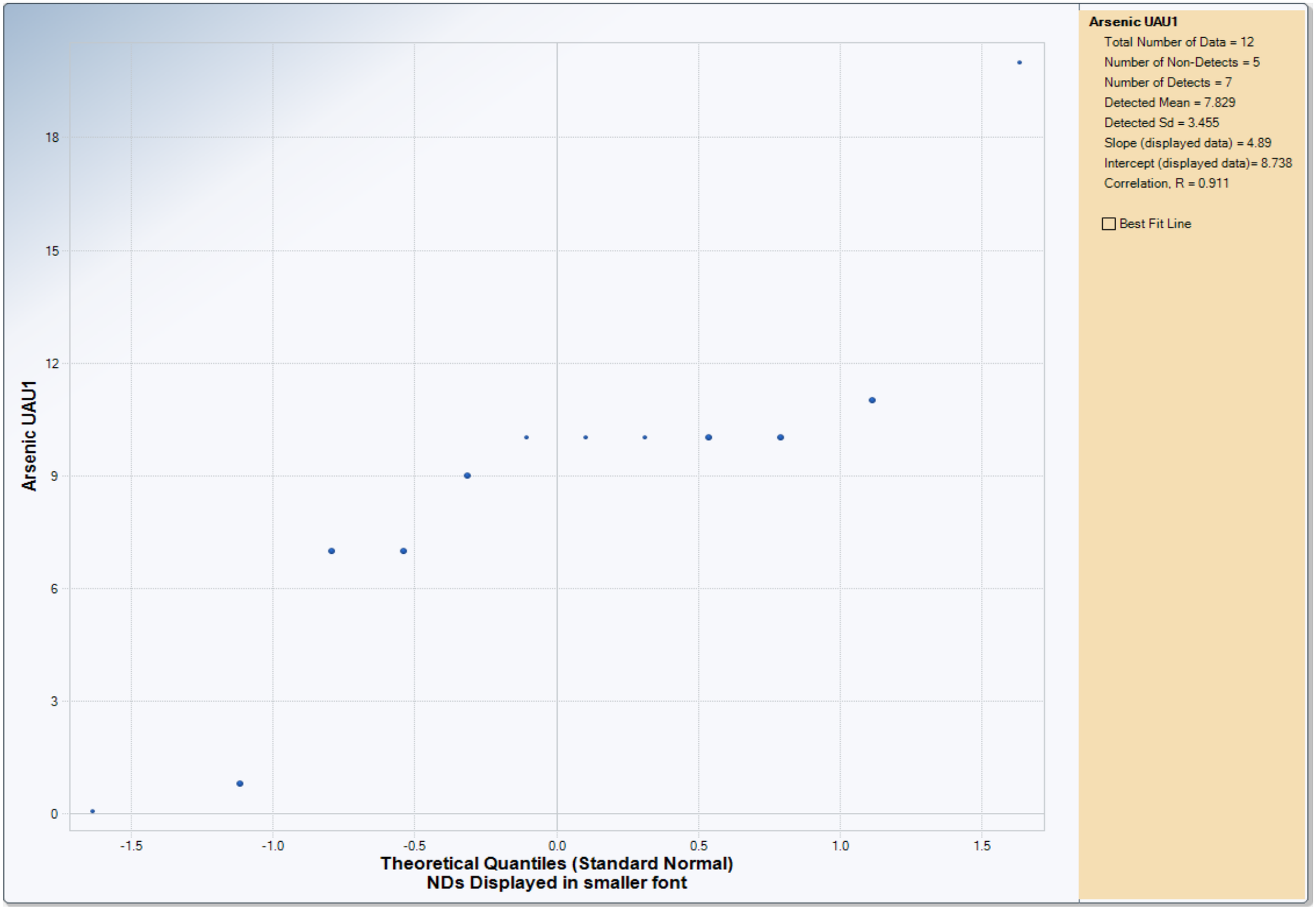
Histogram for Dissolved Total Chromium with Non-Detects in MAU1: Last 5 Years
Untransformed



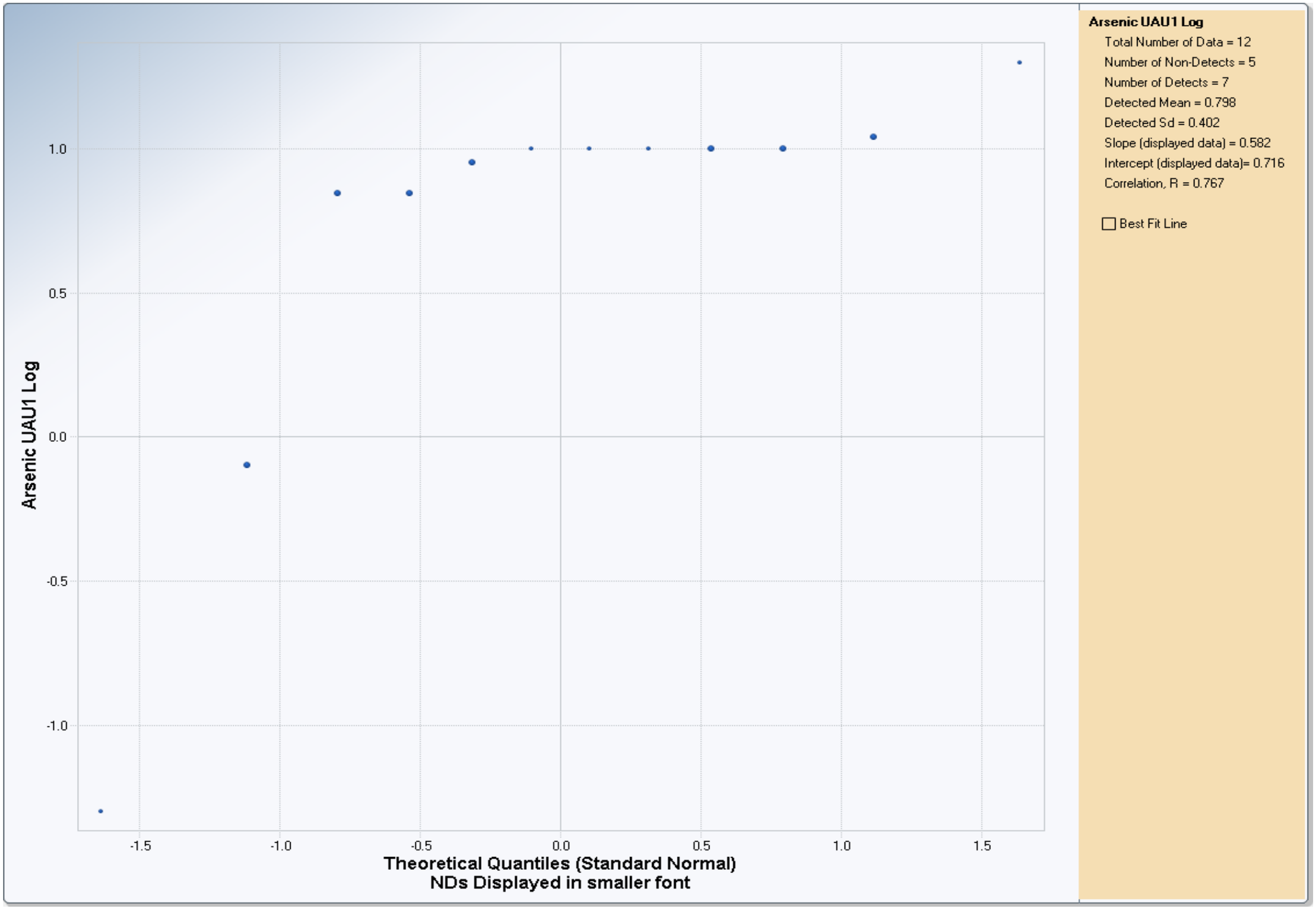
Histogram for Dissolved Total Chromium with Non-Detects in MAU1: Last 5 Years
Log Transformed



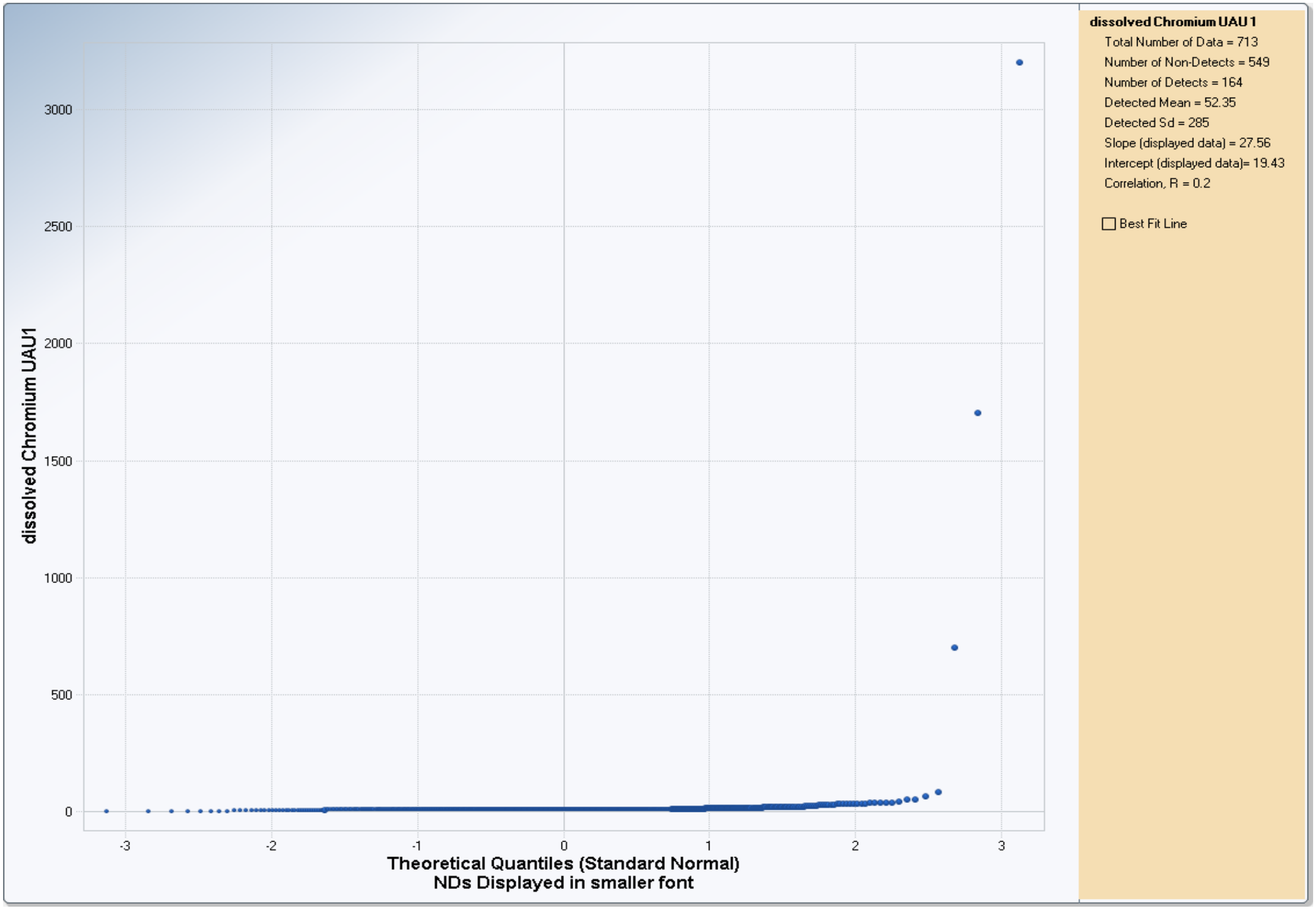
Q-Q Plot for Arsenic with Non-Detects in UAU1: All Years
Untransformed



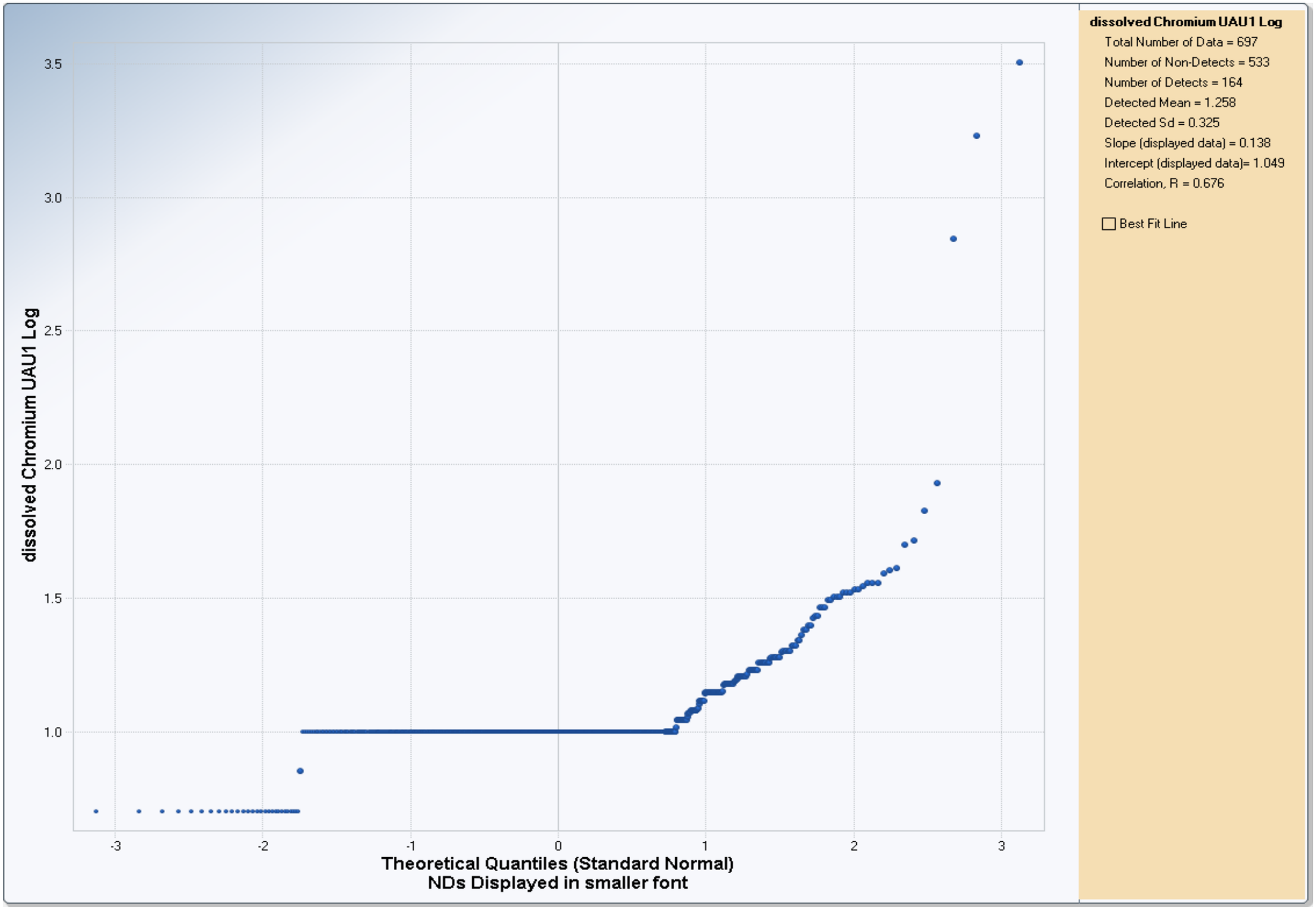
Q-Q Plot for Arsenic with Non-Detects in UAU1: All Years
Log Transformed



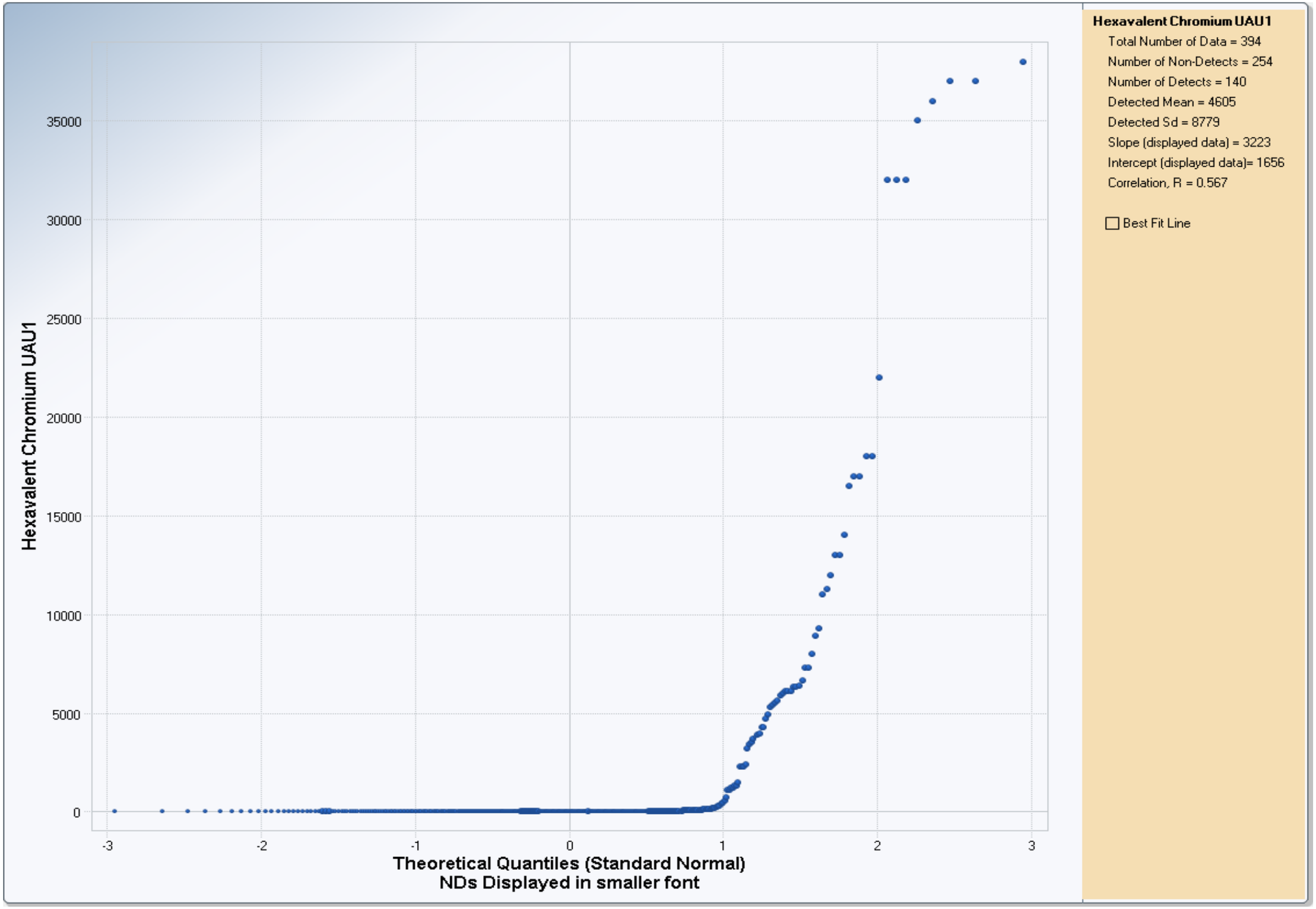
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU1: All Years
Untransformed



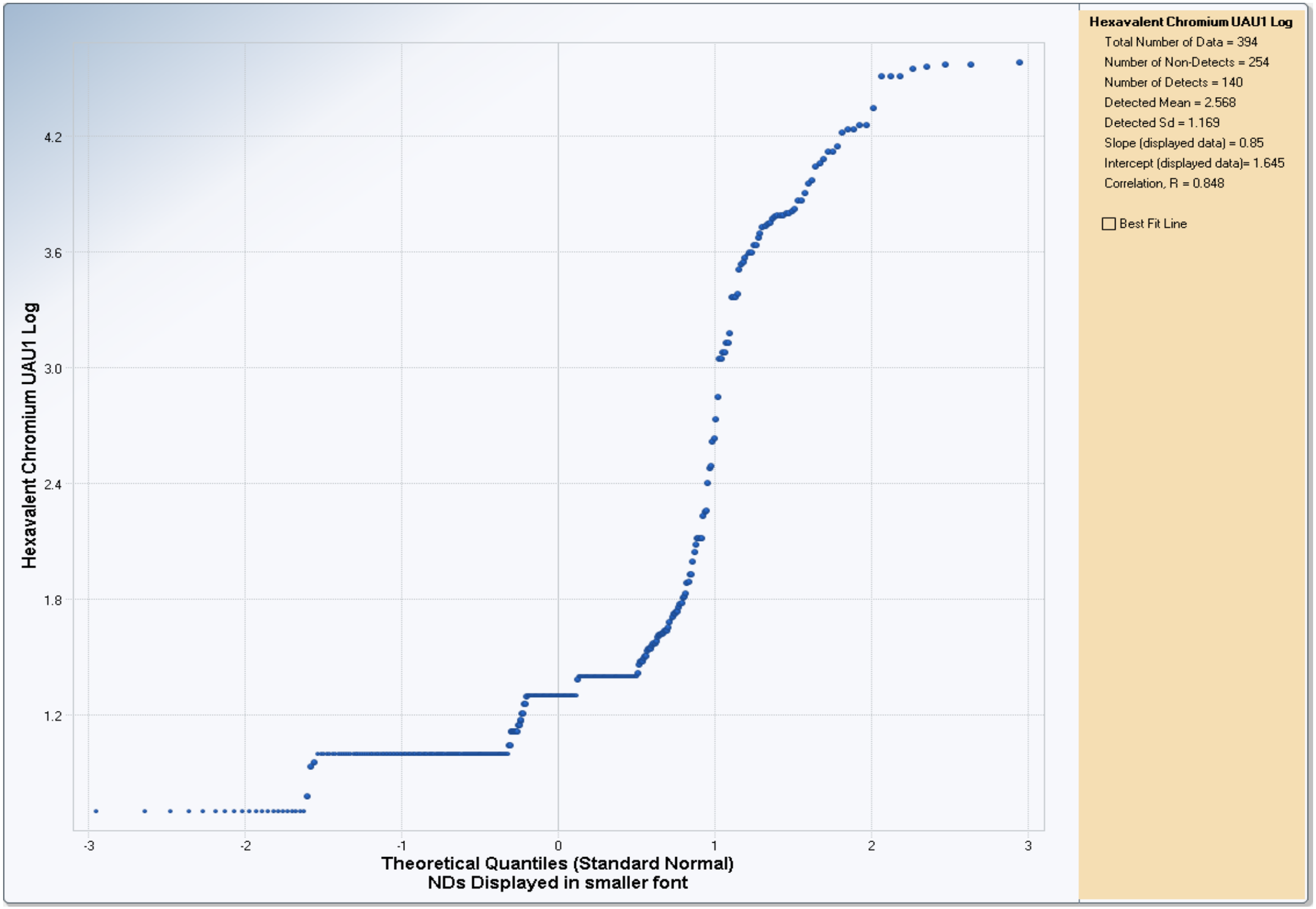
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU1: All Years
Log Transformed



Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU1: All Years
Untransformed



Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU1: All Years
Log Transformed



Q-Q Plot for Lead with Non-Detects in UAU1: All Years
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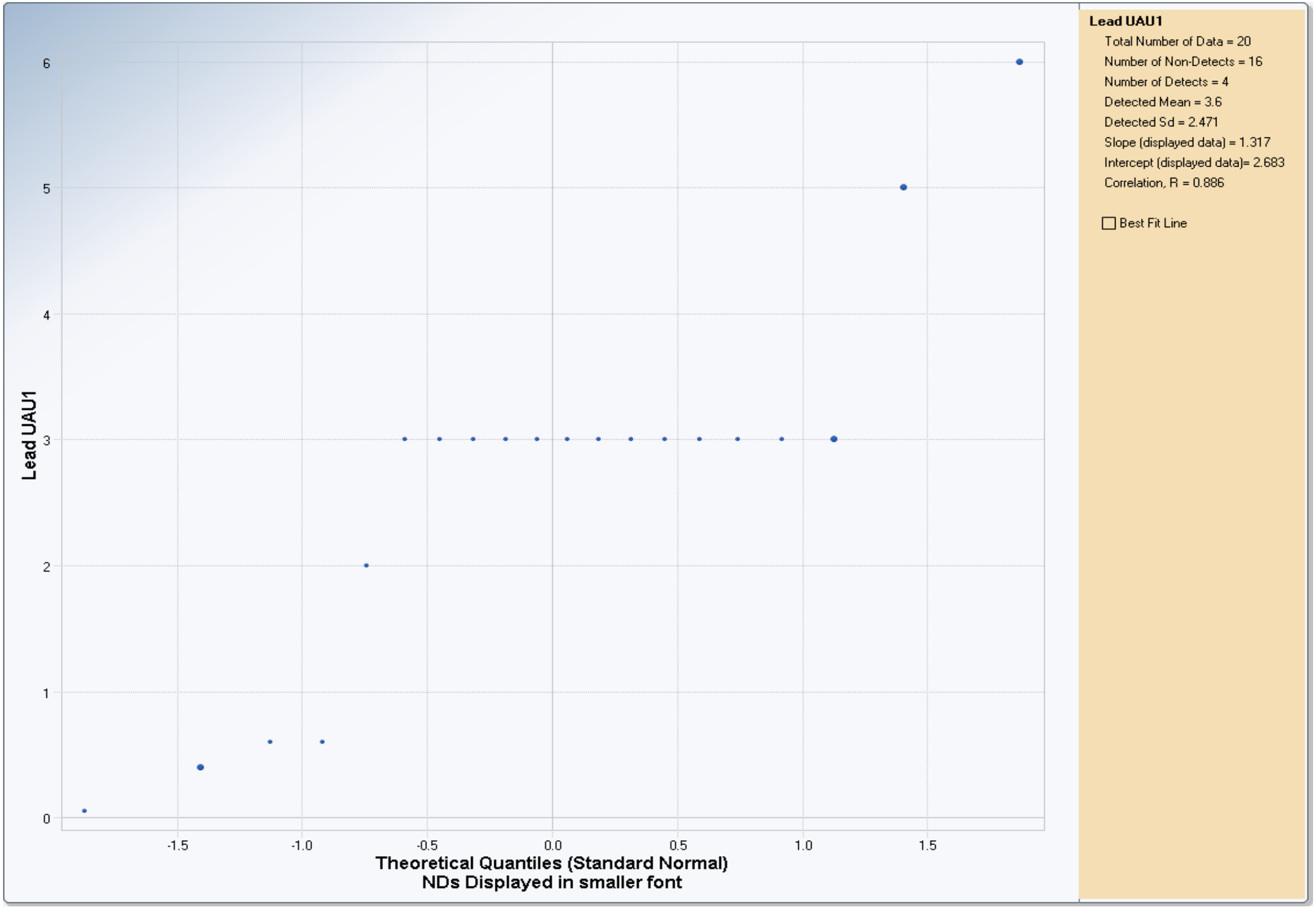
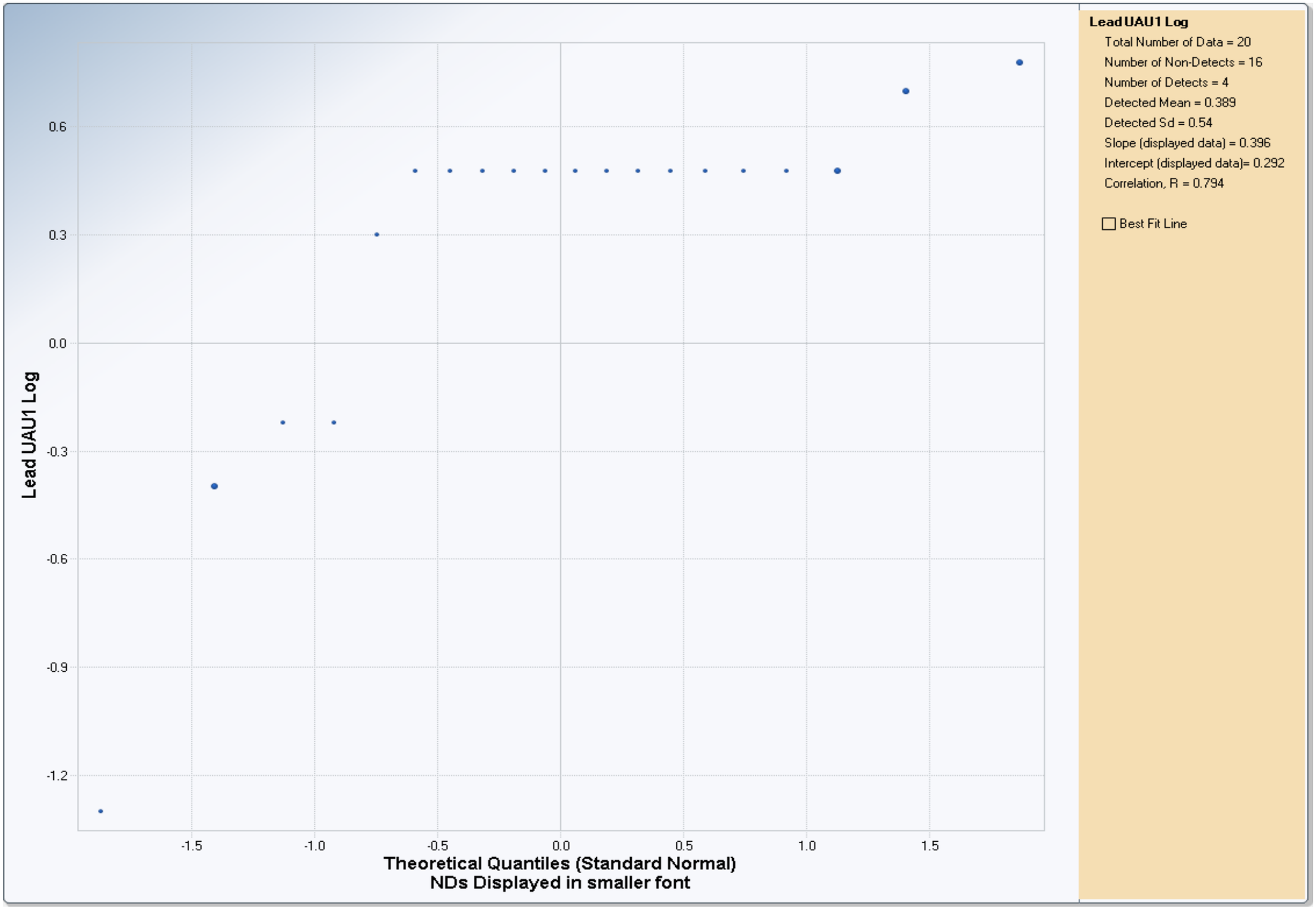


Q-Q Plot for Lead with Non-Detects in UAU1: All Years
Log Transformed



Q-Q Plot for Zinc with Non-Detects in UAU1: All Years
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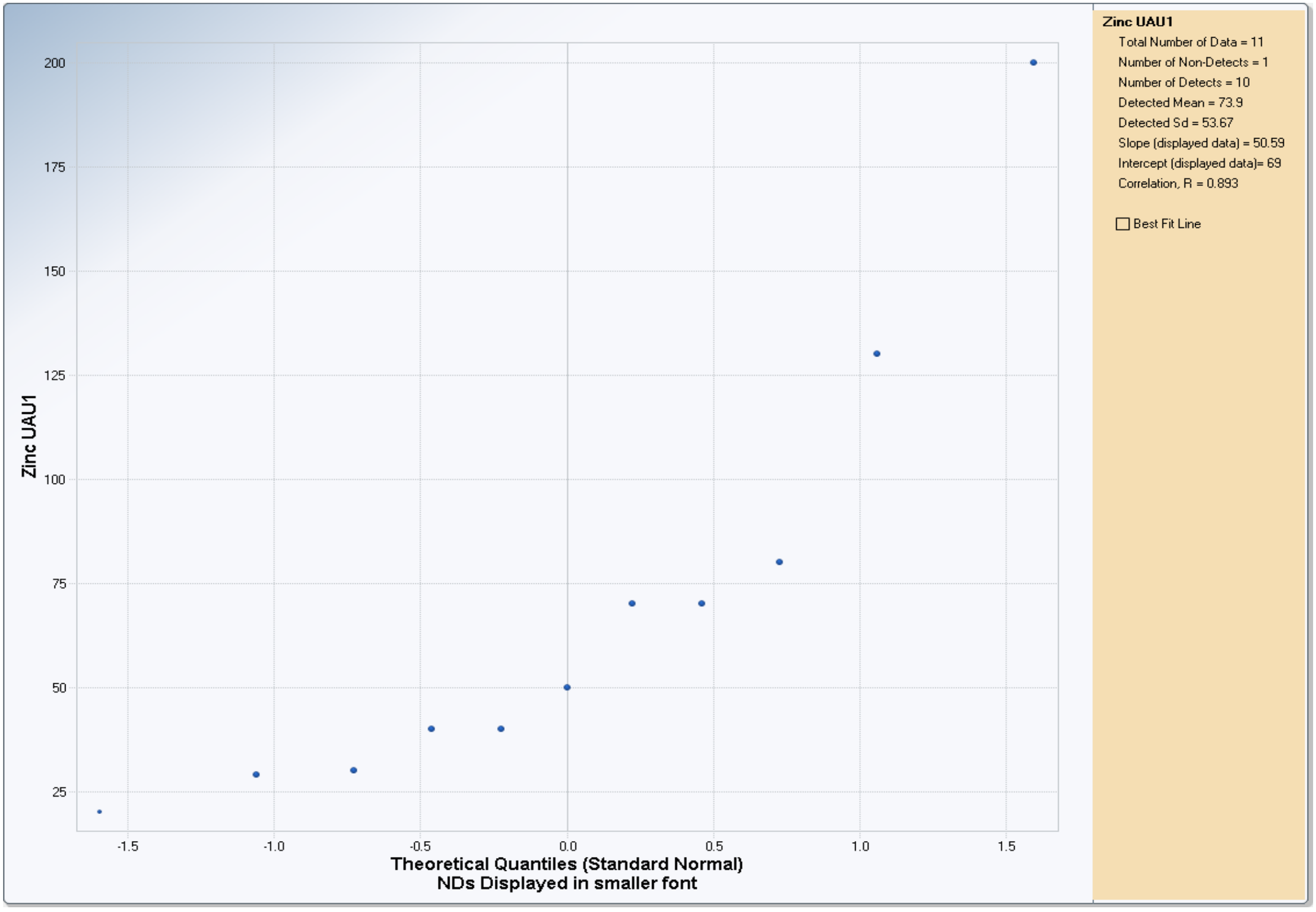
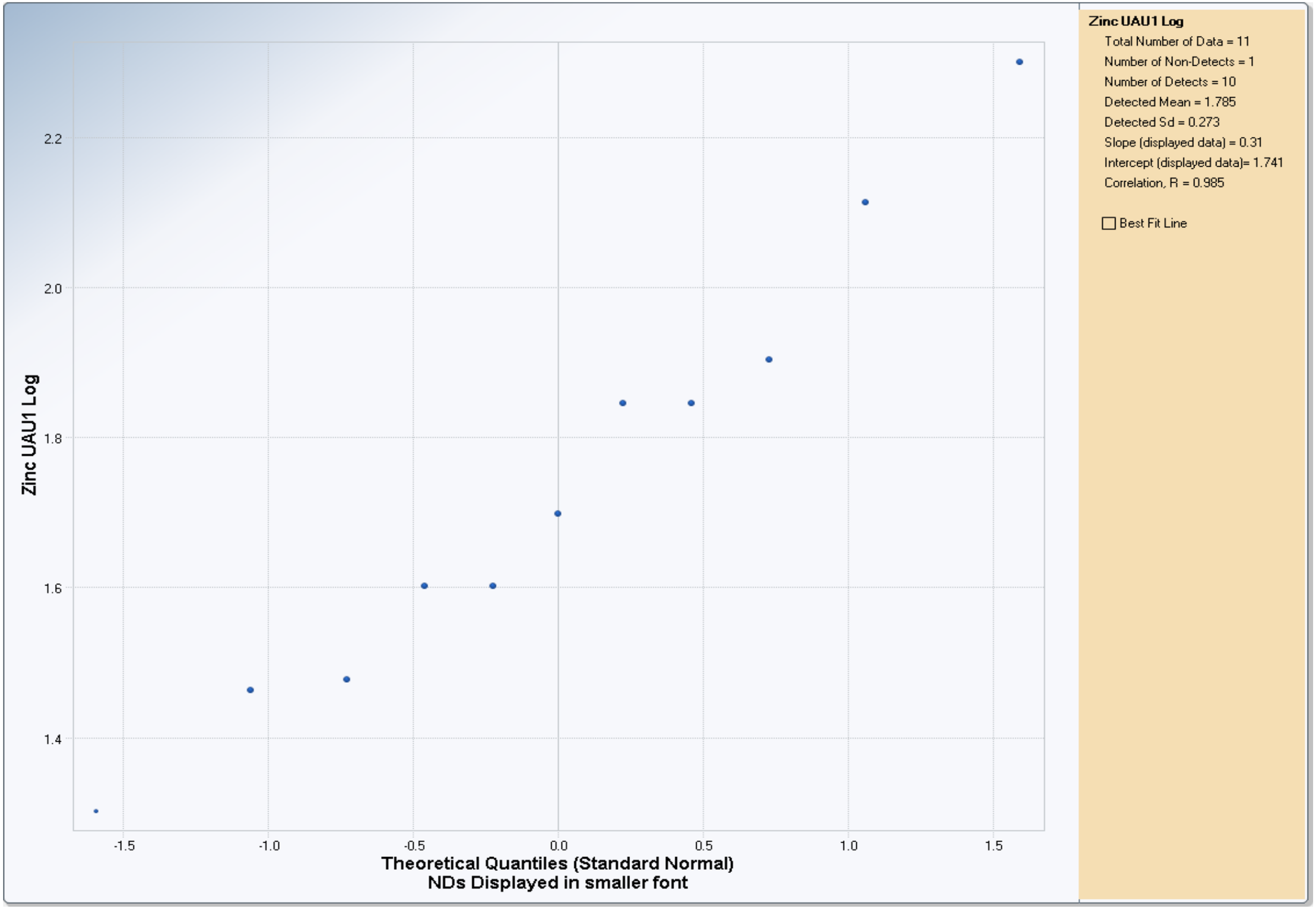


Q-Q Plot for Zinc with Non-Detects in UAU1: All Years
Log Transformed



Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU2: All Years
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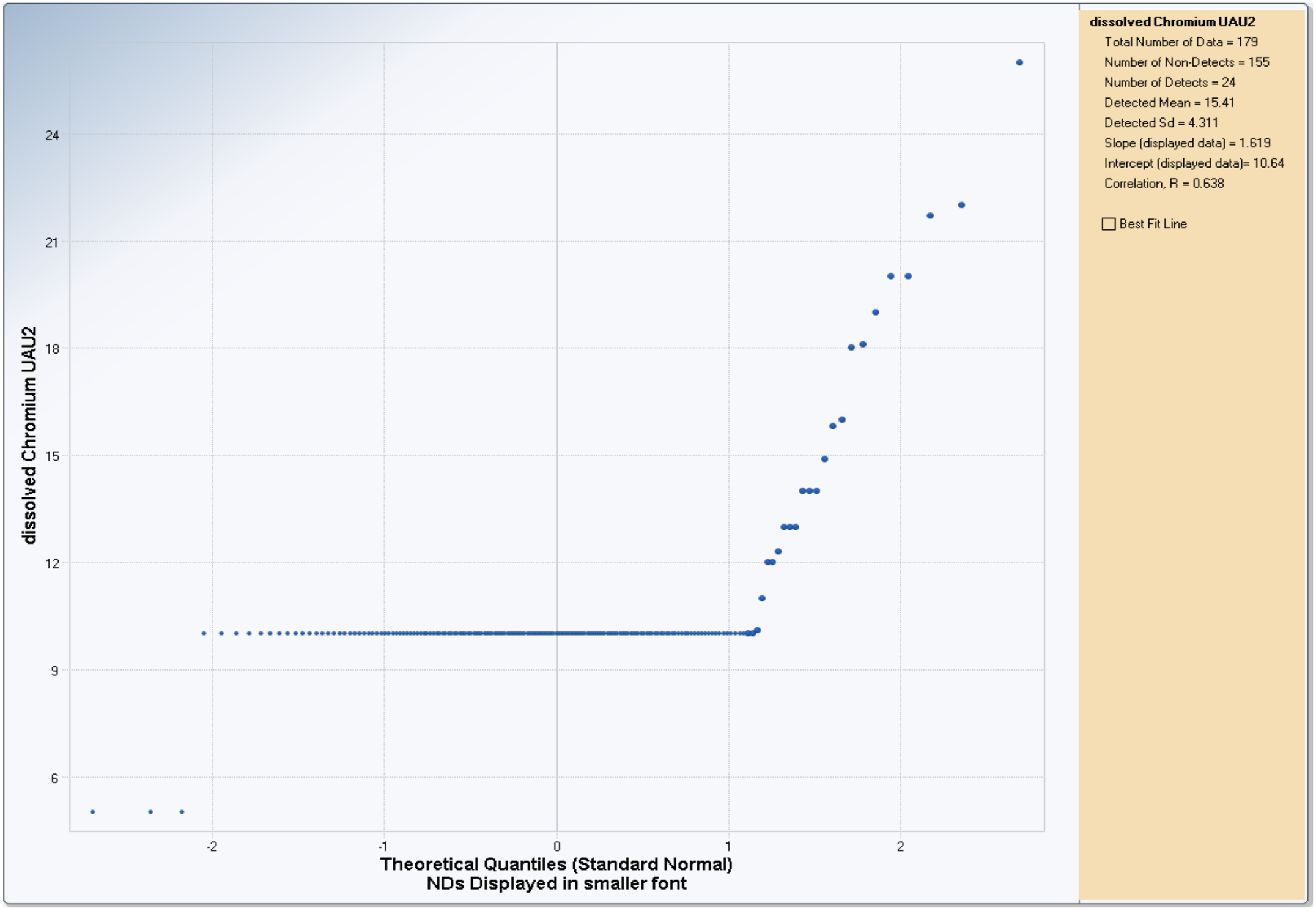
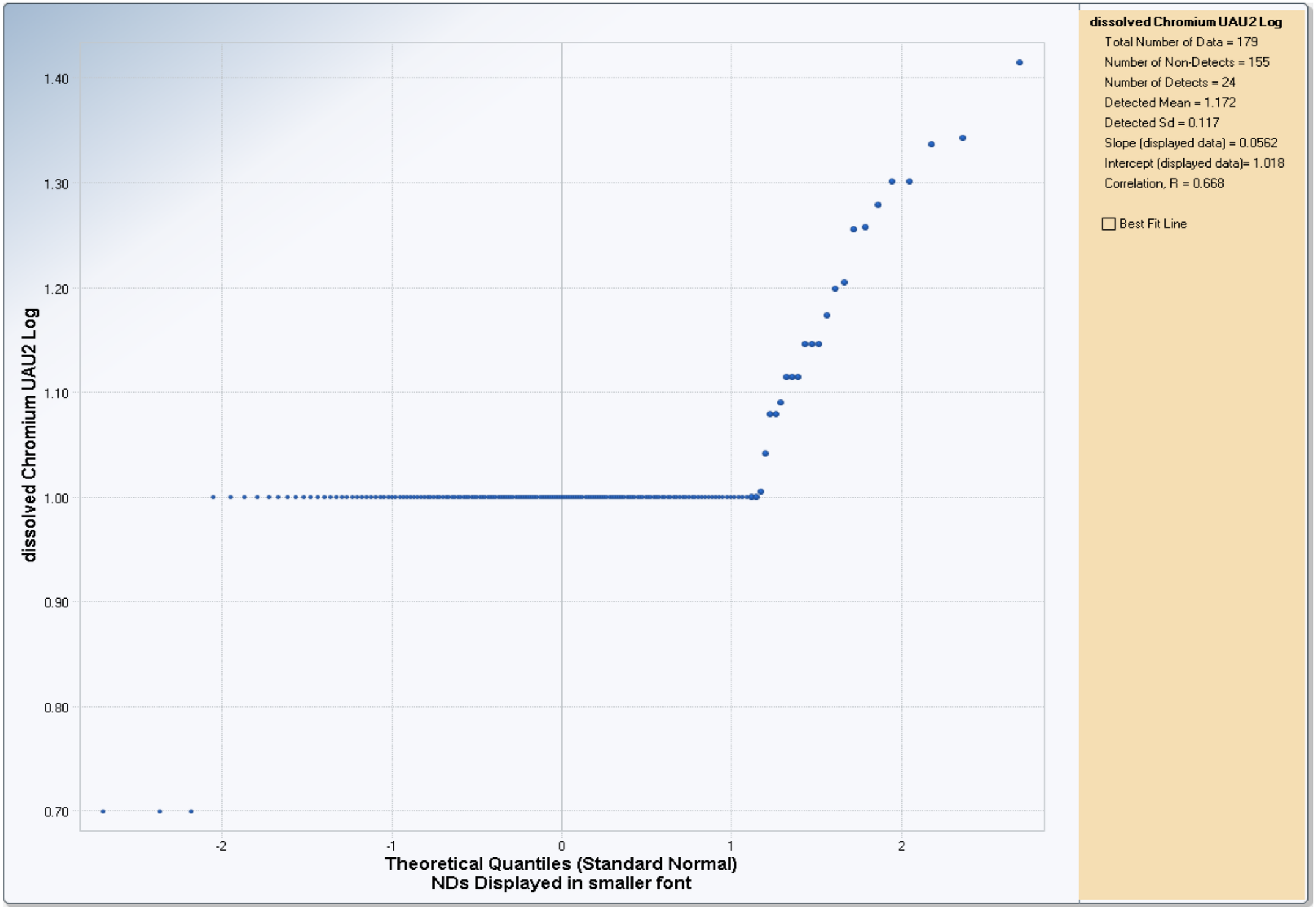
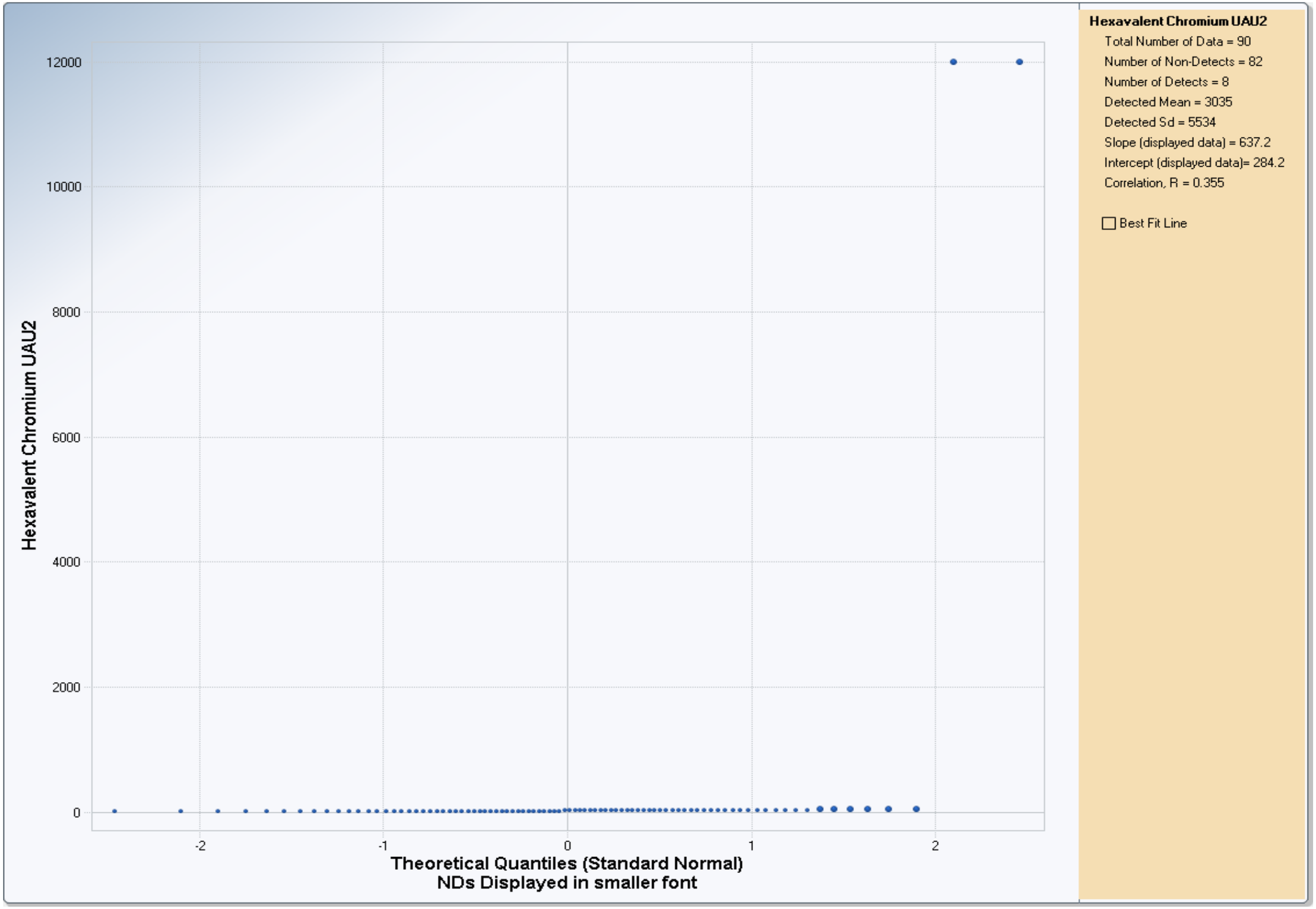


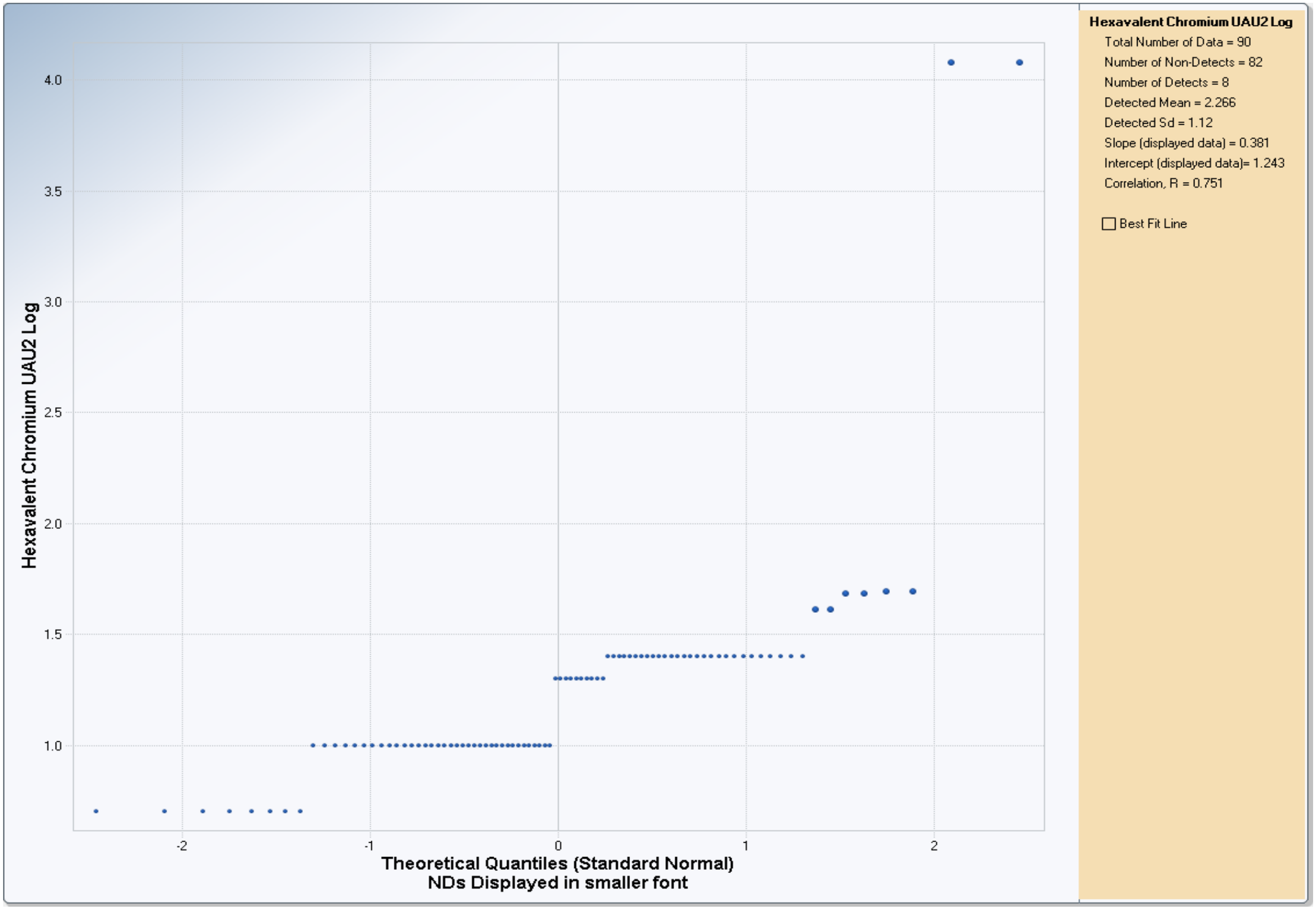
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU2: All Years
Log Transformed



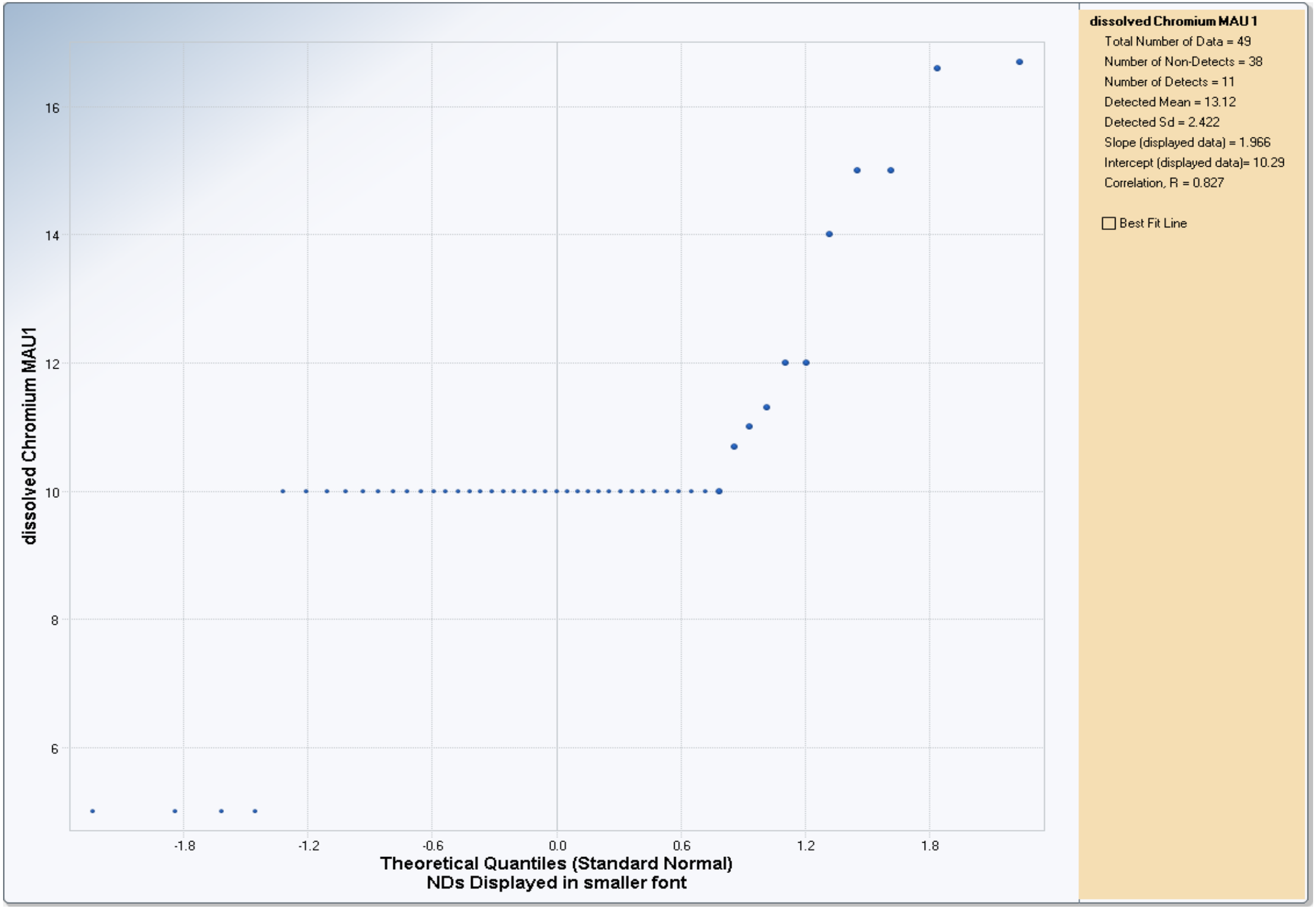
Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU2: All Years
Untransformed



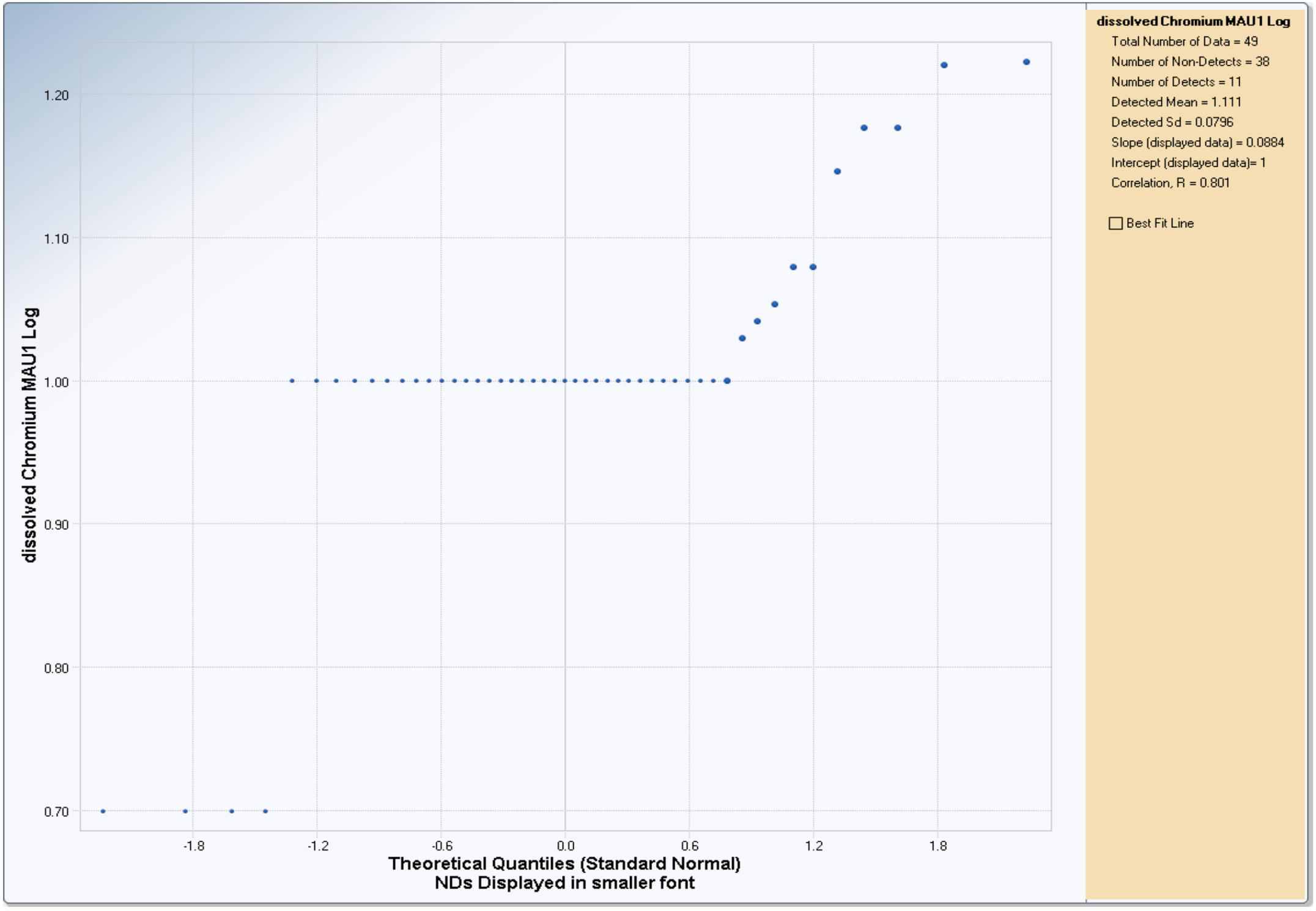
Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU2: All Years
Log Transformed



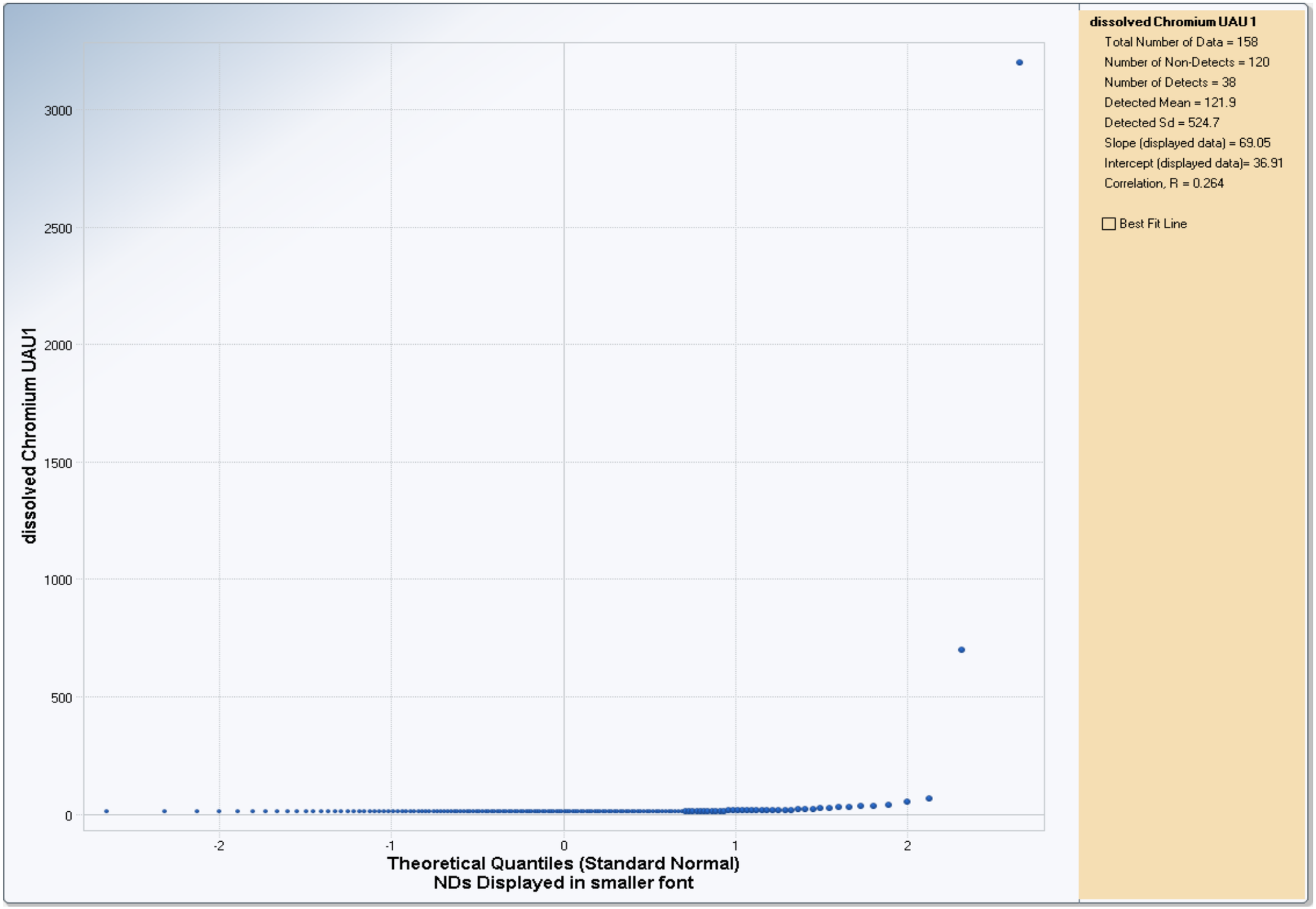
Q-Q Plot for Dissolved Total Chromium with Non-Detects in MAU1: All Years
Untransformed



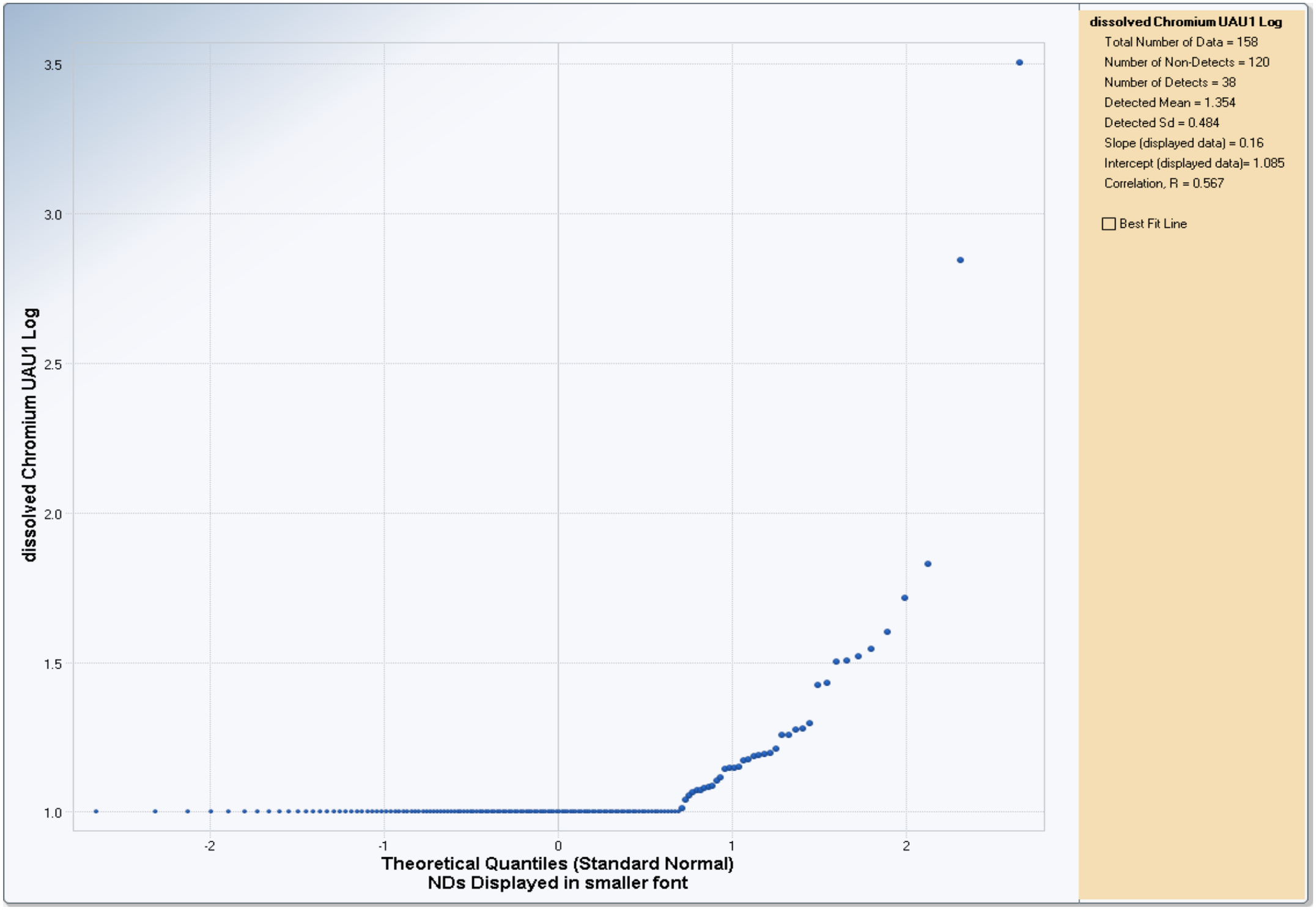
Q-Q Plot for Dissolved Total Chromium with Non-Detects in MAU1: All Years
Log Transformed



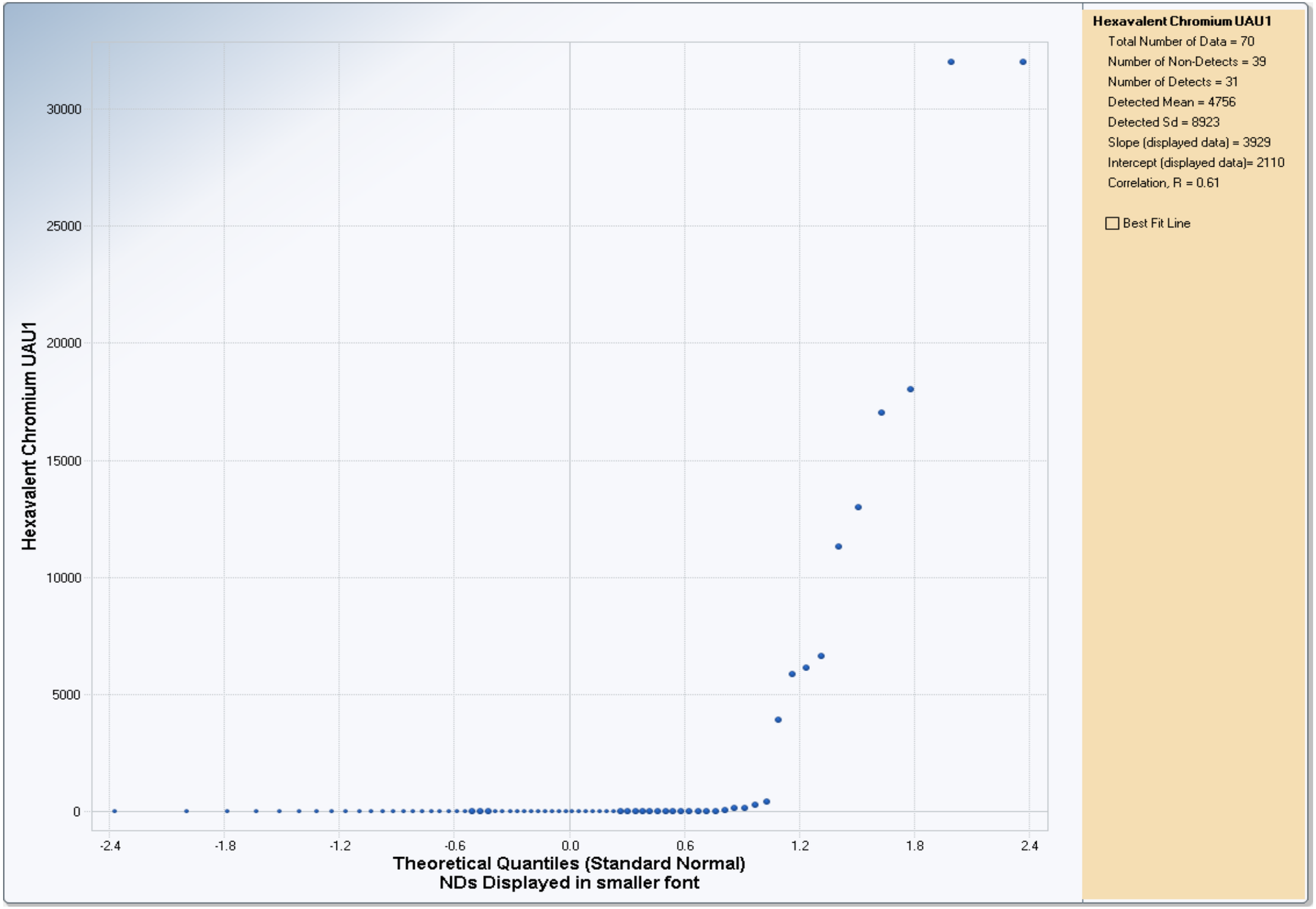
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU1: Last 5 Years
Untransformed



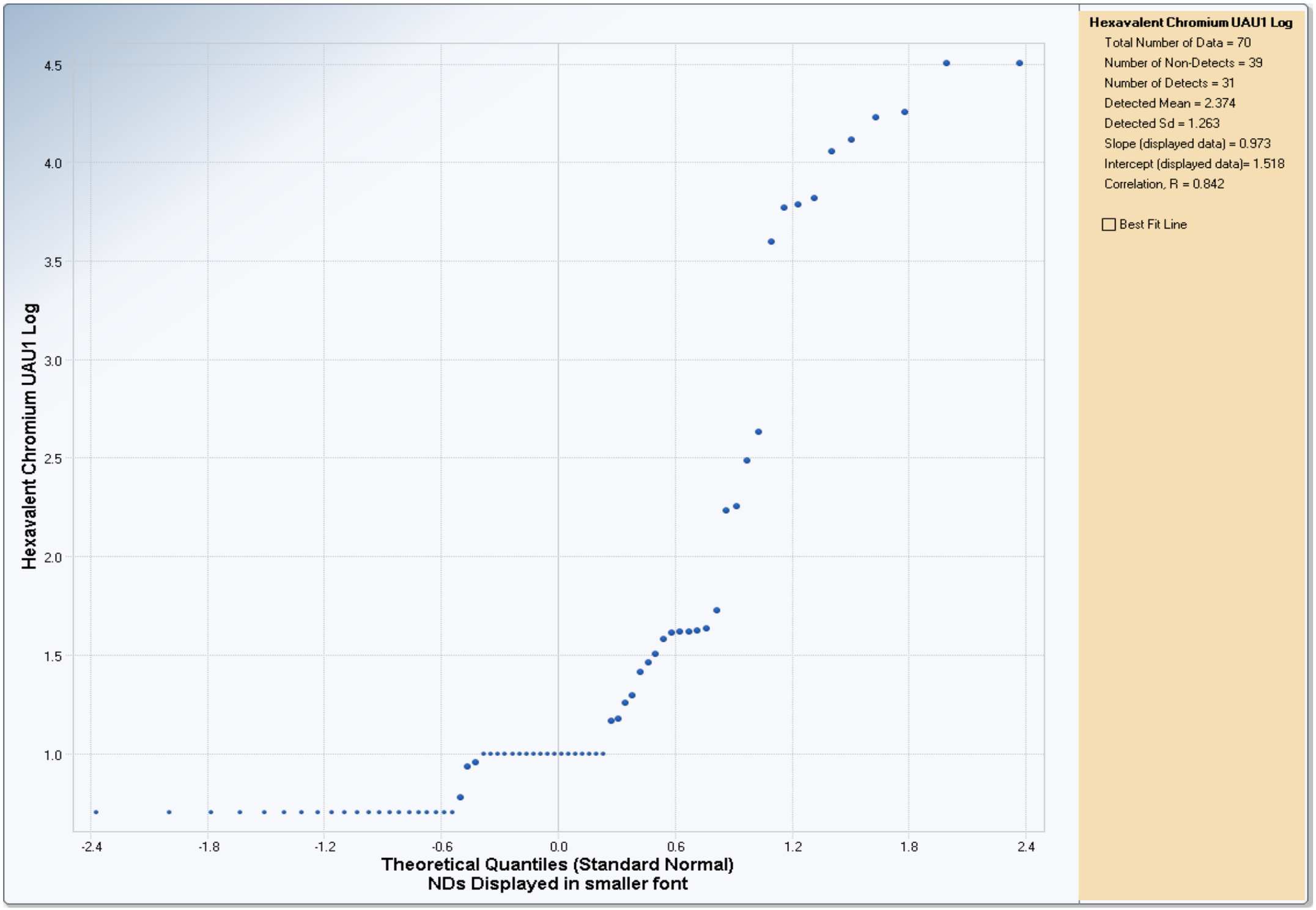
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU1: Last 5 Years
Log Transformed



Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU1: Last 5 Years
Untransformed



Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU1: Last 5 Years
Log Transformed



Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU2: Last 5 Years
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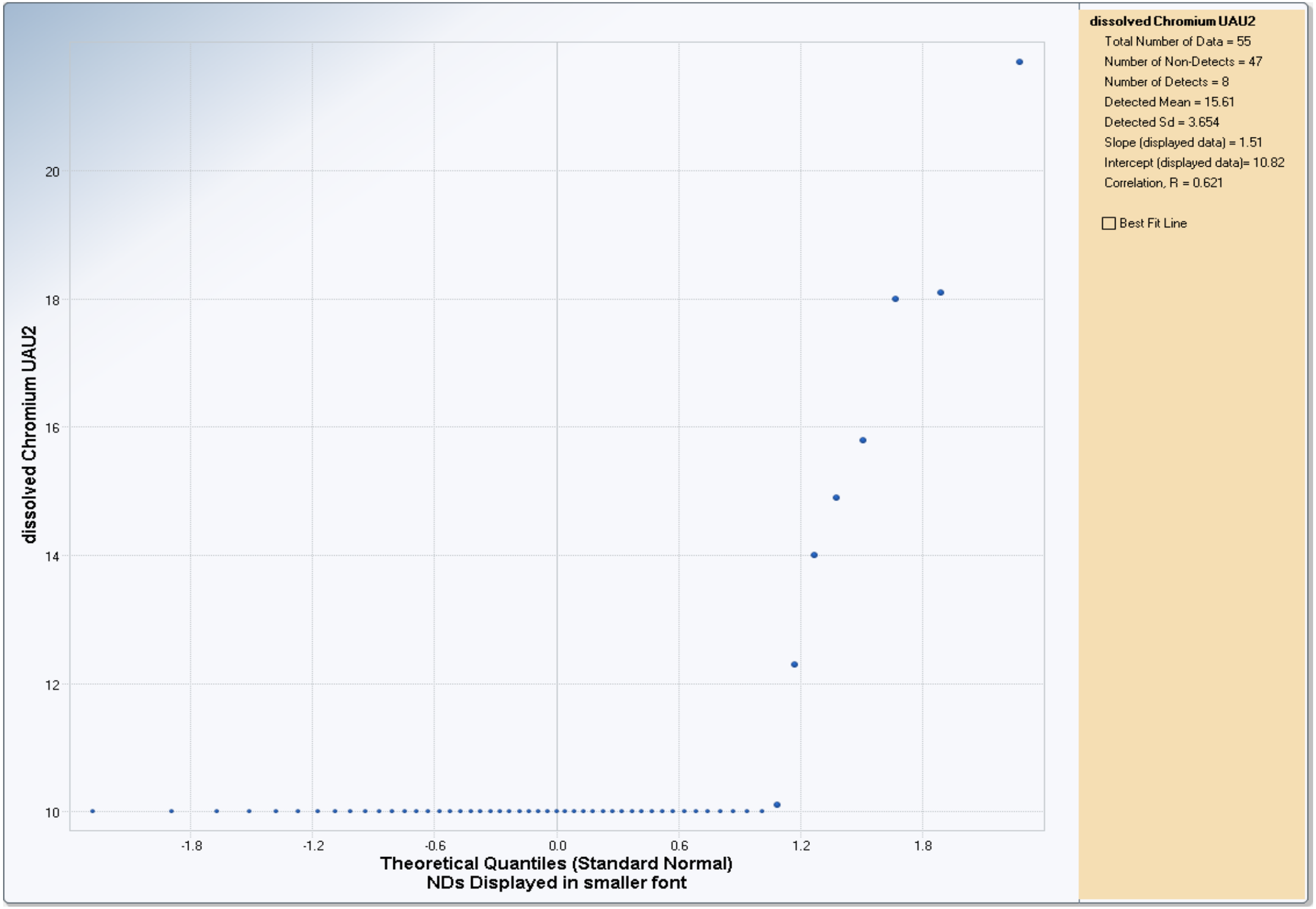
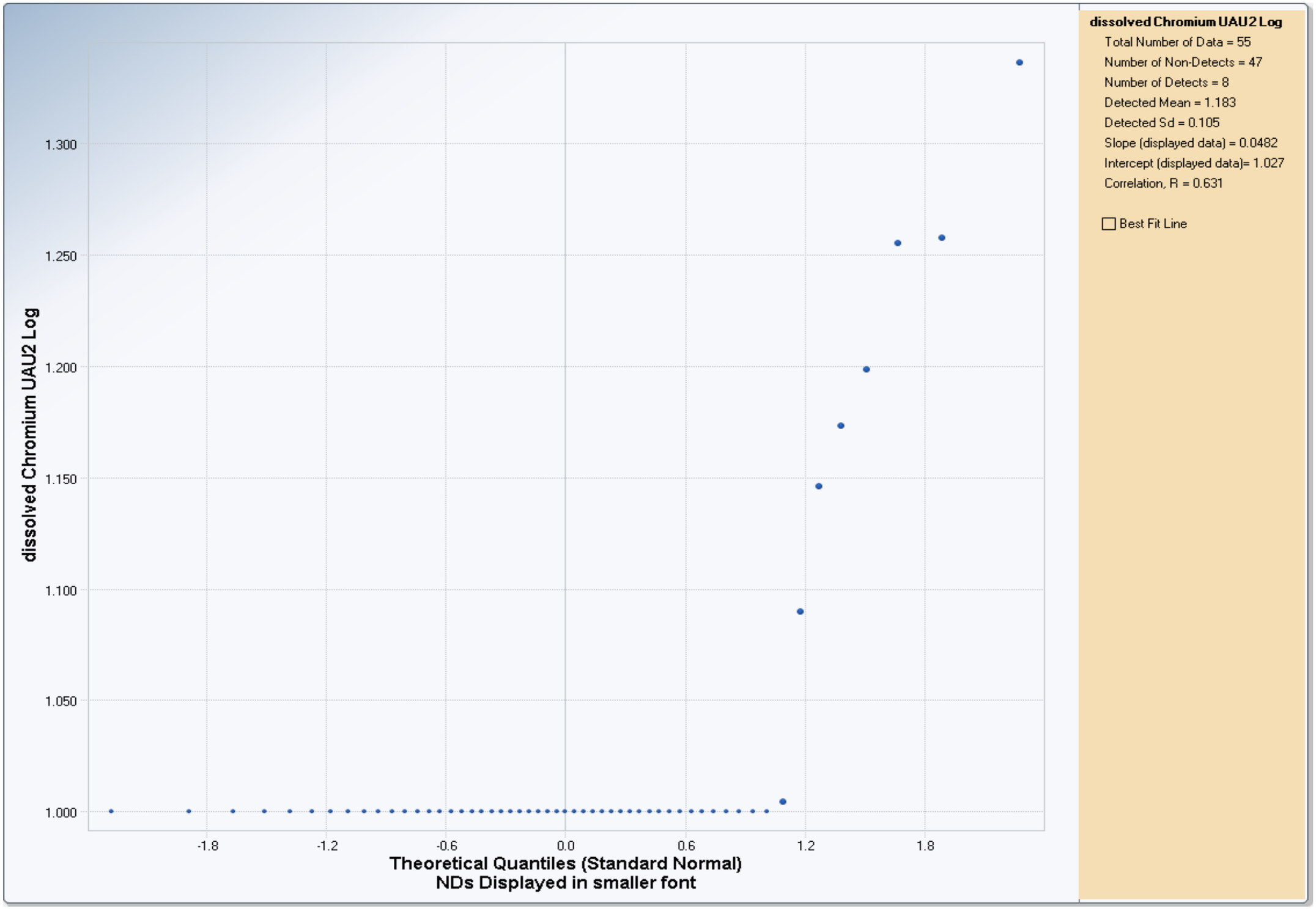
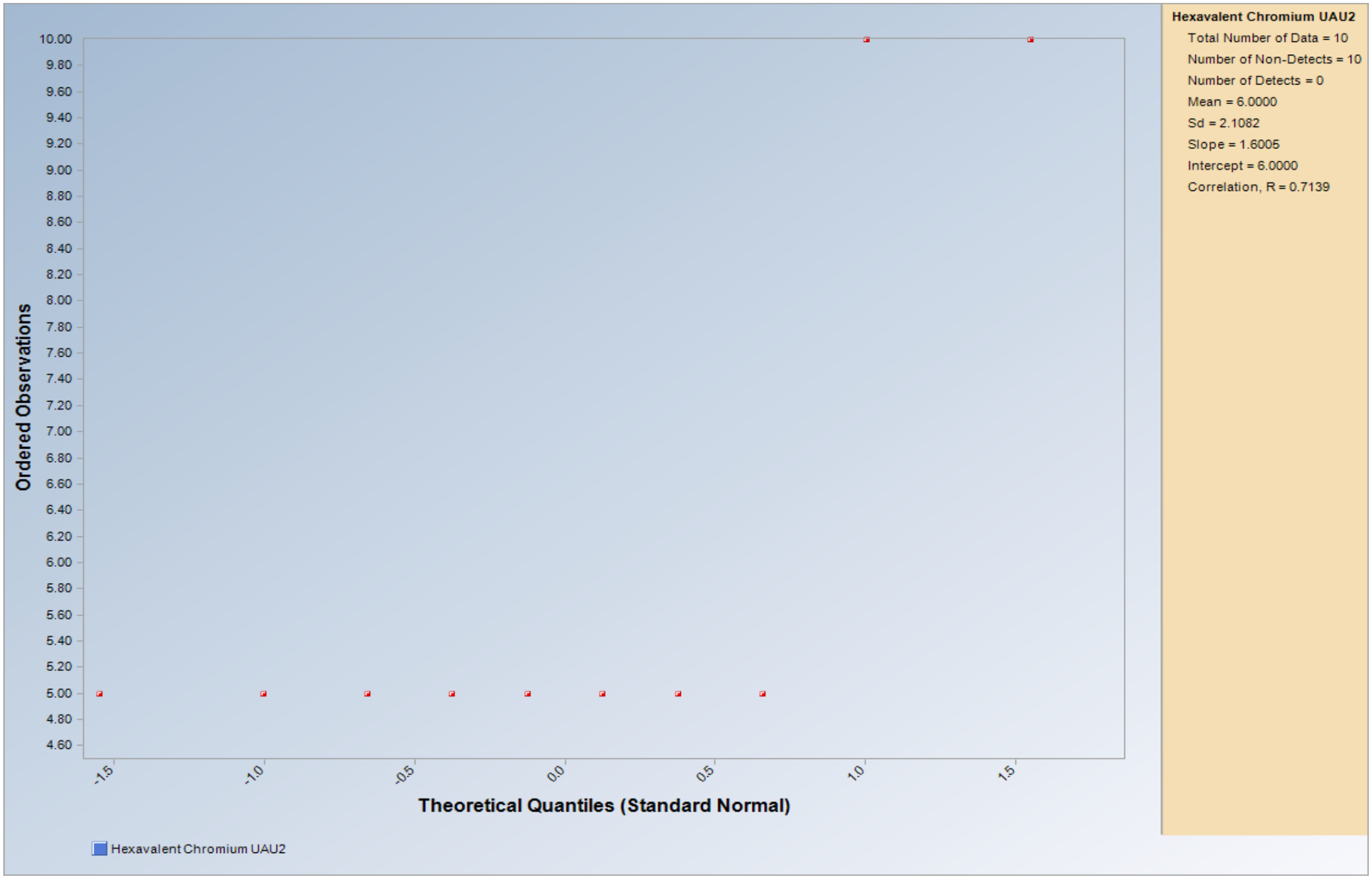


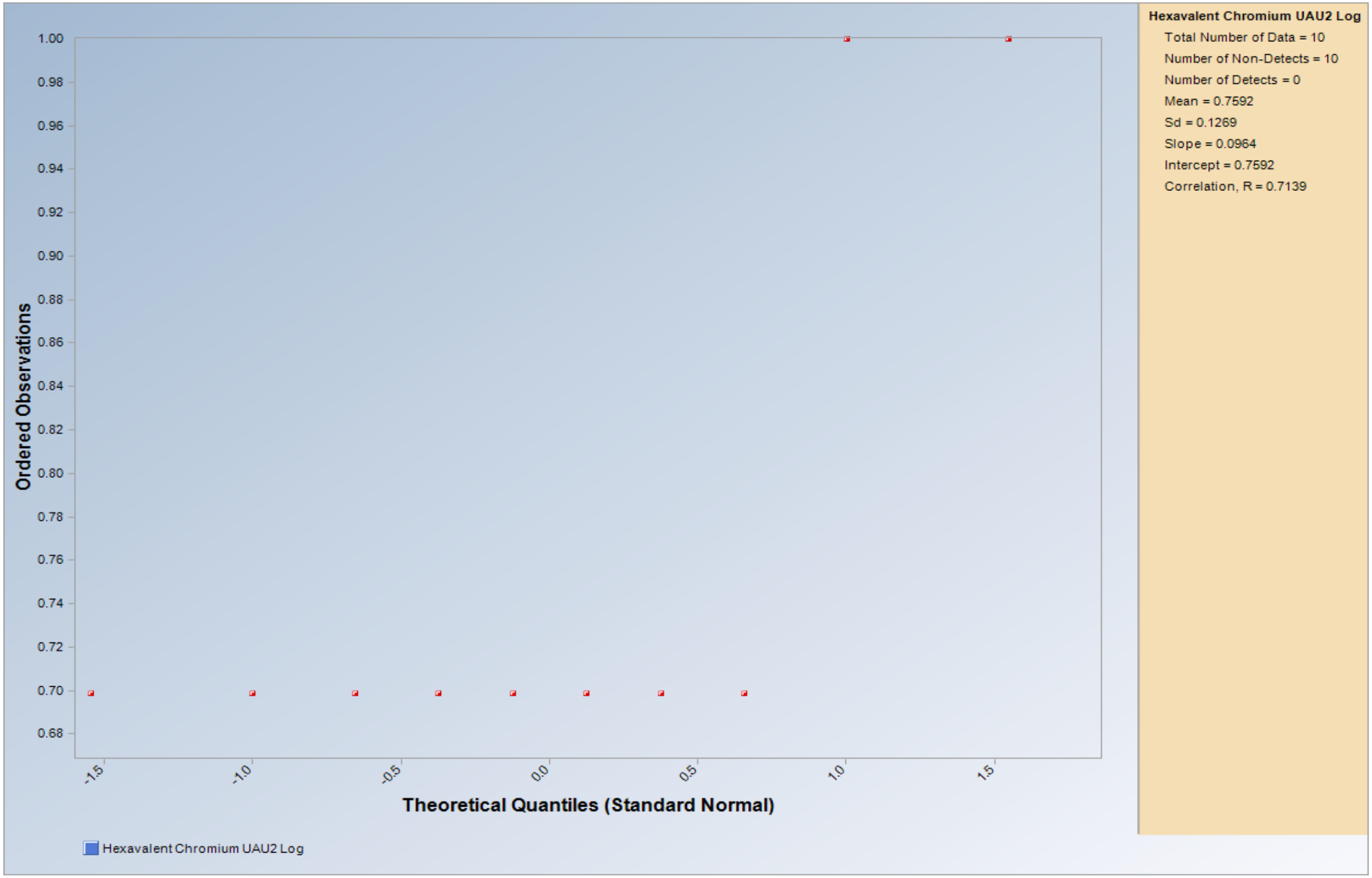
Q-Q Plot for Dissolved Total Chromium with Non-Detects in UAU2: Last 5 Years
Log Transformed



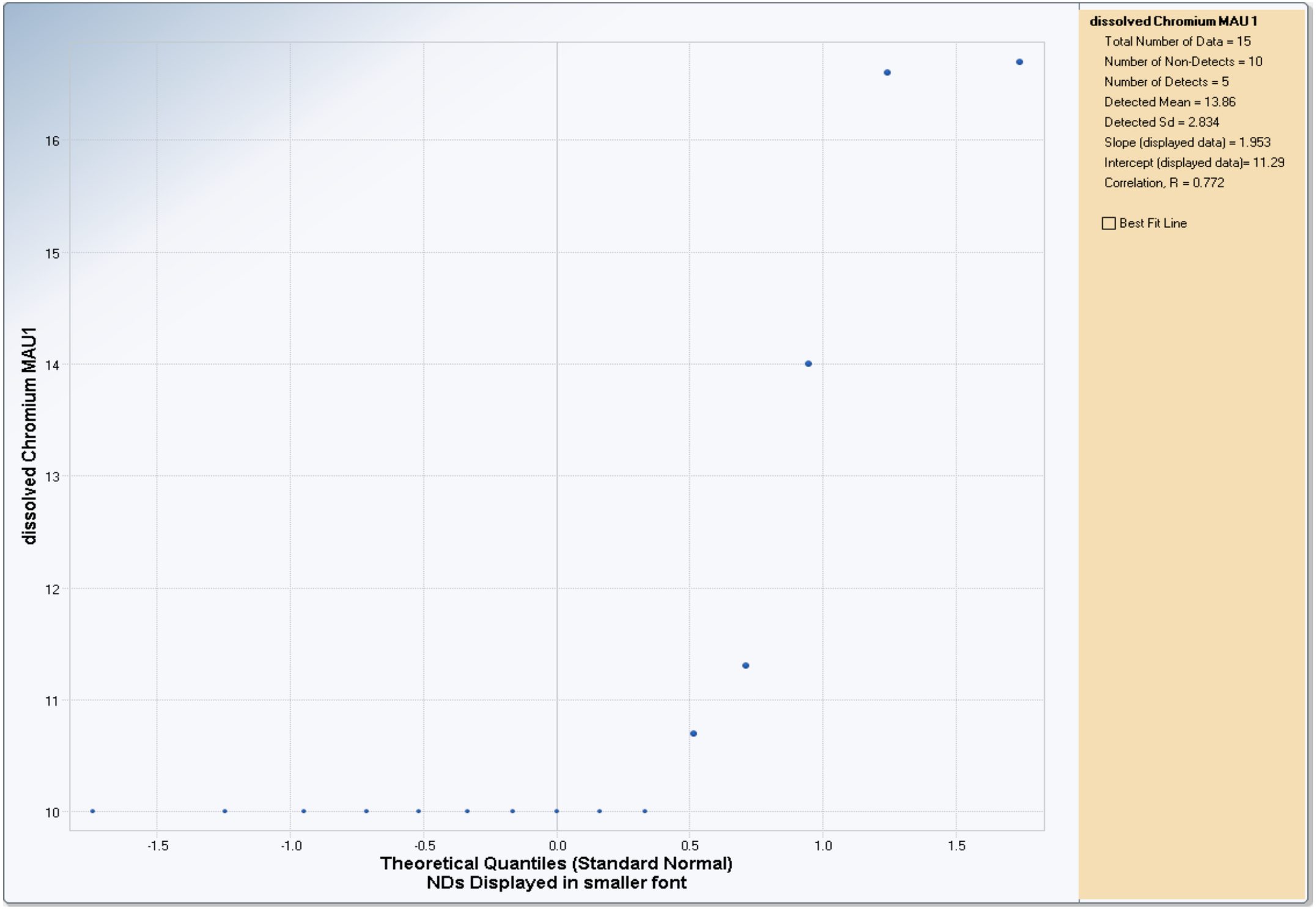
Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU2: Last 5 Years
Untransformed



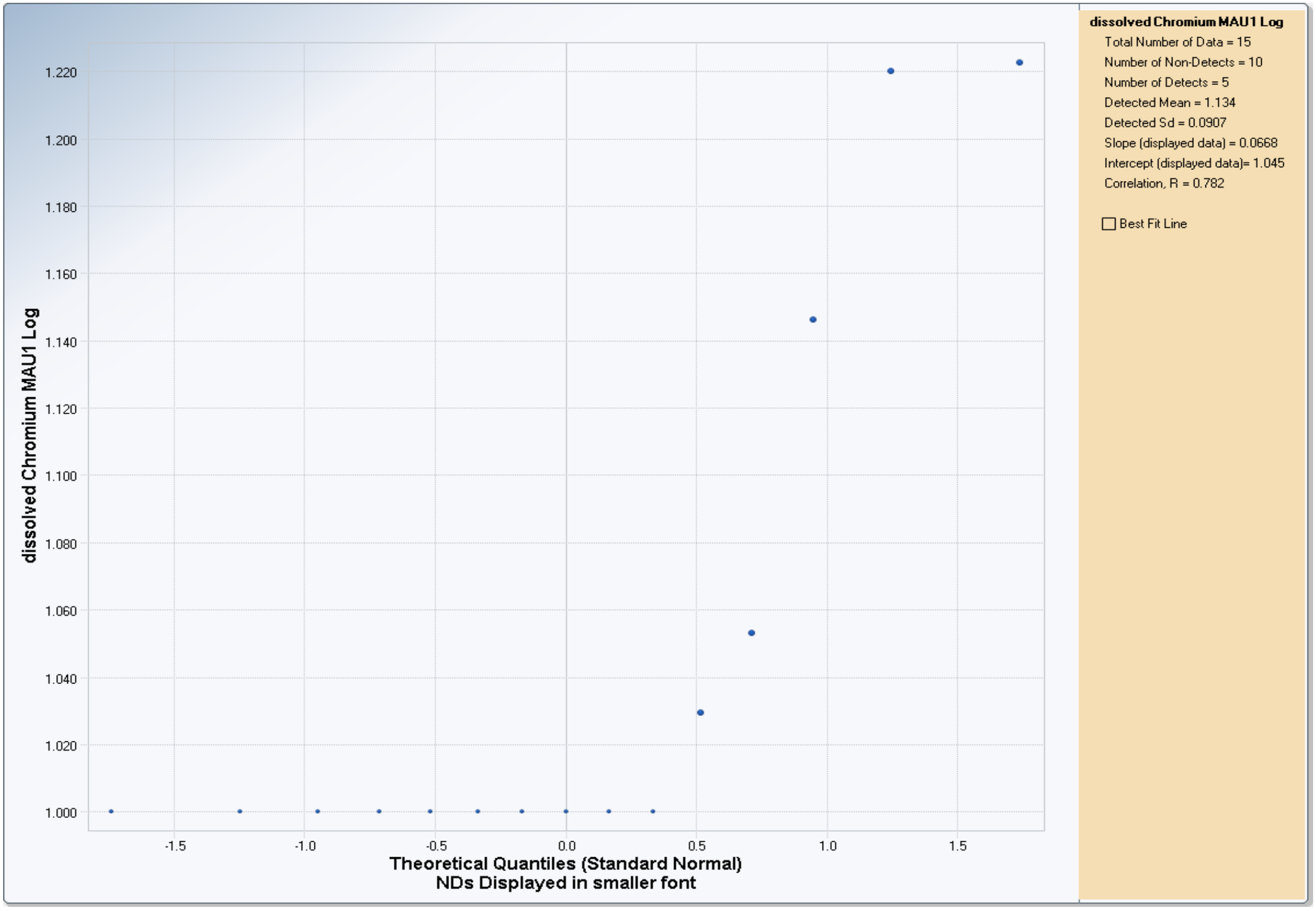
Q-Q Plot for Hexavalent Chromium with Non-Detects in UAU2: Last 5 Years
Log Transformed



Q-Q Plot for Dissolved Total Chromium with Non-Detects in MAU1: Last 5 Years
Untransformed



Q-Q Plot for Dissolved Total Chromium with Non-Detects in MAU1: Last 5 Years
Log Transformed



ATTACHMENT C

Calculation of Modeled Air Concentration for Comparison to Measured Air Concentration

CALCULATION OF VAPOR EMISSIONS FROM RID WELL WATER INTO AMBIENT AIR
RID WELL 92
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cas No.	**Groundwater VOC**		**Molecular Weight**	**Henry's Law Constant (atm-m3/mol)**	**(Cw) Max Groundwater Concentration (ug/L)**	**Kl Liquid Mass Transfer Coefficient (cm/sec)**	**Kg Gas-phase Mass Transfer Coefficient (cm/sec)**	**K Mass Transfer Coefficient (cm/sec)**	**Wa Width of Exposure Area (m)**	**La Length of Exposure Area (m)**	**A Area of Exposure Area (m^2)**	**CF Conversion factor (10 L/cm/m^2)**	**T Turbulence Factor (unitless)**	**ER Emission Rate at the Surface (ug/sec) Note #1**	**WS Wind Speed (mps)**	**Wp Width Perpendicular to Wind (m)**	**H Height of Breathing Zone (m)**	**Ca-w Outdoor Air Concentration (ug/m3) Note #2**
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)		9.7E+01	2.6E-02	5	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.0E+01	2.8E+00	6.0E+00	2.0E+00	6.1E-01
127-18-4	TETRACHLOROETHENE (PCE)		1.7E+02	1.8E-02	14	8.6E-04	3.9E-01	8.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	4.3E+01	2.8E+00	6.0E+00	2.0E+00	1.3E+00
79-01-6	TRICHLOROETHENE (TCE)		1.3E+02	9.9E-03	75	9.6E-04	4.2E-01	9.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.6E+02	2.8E+00	6.0E+00	2.0E+00	7.8E+00

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

CALCULATION OF VAPOR EMISSIONS FROM RID WELL WATER INTO AMBIENT AIR
RID WELL 114
WEST VAN BURAN AREA WQARF
PHOENIX, ARIZONA

1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cas No.	**Groundwater VOC**		**Molecular Weight**	**Henry's Law Constant (atm-m3/mol)**	**(Cw) Max Groundwater Concentration (ug/L)**	**Kl Liquid Mass Transfer Coefficient (cm/sec)**	**Kg Gas-phase Mass Transfer Coefficient (cm/sec)**	**K Mass Transfer Coefficient (cm/sec)**	**Wa Width of Exposure Area (m)**	**La Length of Exposure Area (m)**	**A Area of Exposure Area (m^2)**	**CF Conversion factor (10 L/cm/m^2)**	**T Turbulence Factor (unitless)**	**ER Emission Rate at the Surface (ug/sec) Note #1**	**WS Wind Speed (mps)**	**Wp Width Perpendicular to Wind (m)**	**H Height of Breathing Zone (m)**	**Ca-w Outdoor Air Concentration (ug/m3) Note #2**
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)		9.7E+01	2.6E-02	4.4	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	1.8E+01	2.8E+00	6.0E+00	2.0E+00	5.3E-01
127-18-4	TETRACHLOROETHENE (PCE)		1.7E+02	1.8E-02	3.9	8.6E-04	3.9E-01	8.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	1.2E+01	2.8E+00	6.0E+00	2.0E+00	3.6E-01
79-01-6	TRICHLOROETHENE (TCE)		1.3E+02	9.9E-03	71	9.6E-04	4.2E-01	9.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.4E+02	2.8E+00	6.0E+00	2.0E+00	7.4E+00

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

Cas No.	Groundwater VOC	Molecular Weight	Henry's Law Constant (atm-m3/mol)	(Cw) Max Surface Water Concentration (ug/L)	Kl Liquid Mass Transfer Coefficient (cm/sec)	Kg Gas-phase Mass Transfer Coefficient (cm/sec)	K Mass Transfer Coefficient (cm/sec)	Wa Width of Exposure Area (m)	La Length of Exposure Area (m)	A Area of Exposure Area (m^2)	CF Conversion factor (10 L/cm/m^2)	ER Emission Rate at the Surface (ug/sec) Note #1	WS Wind Speed (mps)	Wp Width Perpendicular to Wind (m)	H Height of Breathing Zone (m)	Ca-sw Outdoor Air Concentration (ug/m3) Note #2
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	9.7E+01	2.6E-02	3.1	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	4.1E+00	2.8E+00	6.5E+00	1.5E-01	1.5E+00
127-18-4	TETRACHLOROETHENE (PCE)	1.7E+02	1.8E-02	9.7	8.6E-04	3.9E-01	8.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	9.7E+00	2.8E+00	6.5E+00	1.5E-01	3.6E+00
79-01-6	TRICHLOROETHENE (TCE)	1.3E+02	9.9E-03	56	9.6E-04	4.2E-01	9.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	6.3E+01	2.8E+00	6.5E+00	1.5E-01	2.3E+01

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

ATTACHMENT D

Risk Assessment Calculations: RID Worker

SUMMARY OF RISK ASSESSMENT RESULTS
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

CAS	Chemical	Concentration in Groundwater (µg/L)	Dermal Contact with Groundwater	Inhalation of VOCs in Ambient Air from Groundwater	Hazard Quotient	Dermal Contact with Groundwater	Inhalation of Volatiles in Ambient Air from Groundwater	Excess Lifetime Cancer Risk
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	*0.25*	4.0E-08	1.1E-07	1.5E-07	NA	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	***1.3***	1.1E-06	NA	1.1E-06	4E-10	2E-09	2E-09
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	***2.7***	1.5E-05	3.6E-05	5.1E-05	NA	NA	NA
107-06-2	1,2-DICHLOROETHANE	***1.2***	2.1E-05	4.3E-04	4.5E-04	4E-09	3E-08	3E-08
71-43-2	BENZENE	**8.11**	7.1E-04	7.9E-04	1.5E-03	6E-08	7E-08	1E-07
75-15-0	CARBON DISULFIDE	**0.51**	2.0E-06	2.2E-06	4.2E-06	NA	NA	NA
56-23-5	CARBON TETRACHLORIDE	*0.25*	2.6E-05	5.3E-06	3.2E-05	3E-09	1E-09	4E-09
67-66-3	CHLOROFORM	***2.2***	3.8E-05	5.3E-05	9.1E-05	4E-09	4E-08	5E-08
156-59-2	CIS-1,2-DICHLOROETHENE	***6.7***	6.3E-04	NA	6.3E-04	NA	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	**2.6**	2.9E-06	6.2E-05	6.5E-05	NA	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	**11**	NA	9.3E-06	9.3E-06	4E-10	3E-09	3E-09
127-18-4	TETRACHLOROETHENE (PCE)	***8.1***	1.2E-03	4.1E-04	1.6E-03	5E-09	2E-09	7E-09
79-01-6	TRICHLOROETHENE (TCE)	***28***	1.6E-02	3.2E-02	4.8E-02	1E-07	9E-08	2E-07
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	**0.93**	1.0E-06	3.0E-06	4.0E-06	NA	NA	NA
	TOTALS		**1.9E-02**	**3.4E-02**	**5.3E-02**	**2E-07**	**2E-07**	**4E-07**

Notes:
Non-bold italicized EPCs are half the maximum reported detection limit
Bolded EPCs are the maximum detected concentration
Bold italicized EPCs are 95% upper confidence level (95%UCL) concentrations

DERMAL CONTACT WITH SURFACE WATER
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

		(Cw) Concentration in Surface Water (ug/l)	(CF1) Conversion Factor ($1x10^{-3}$L/cm^3)	(CF2) Conversion Factor ($1x10^{-3}$mg/ug)	(Cw) Concentration in Surface Water (mg/cm^3)	(DA_{event}) Absorbed dose per event (mg/cm^2-event)	(SA) Exposed Skin Surface Area (cm^2)	(EV) Event Frequency (events/day)	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Dose (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(HQ) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Dose (mg/kg-day) Note #3	(SFo) Slope Factor (mg/kg-day)$^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.25	0.001	0.001	2.50E-07	2.79E-08	3,470	1	24	25	80	9,125	8.0E-08	2.0E+00	4.0E-08	25,550	2.8E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	1.3	0.001	0.001	1.30E-06	7.53E-08	3,470	1	24	25	80	9,125	2.1E-07	2.0E-01	1.1E-06	25,550	7.7E-08	5.7E-03	4.4E-10
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	2.7	0.001	0.001	2.70E-06	2.66E-07	3,470	1	24	25	80	9,125	7.6E-07	5.0E-02	1.5E-05	25,550	2.7E-07	NA	NA
107-06-2	1,2-DICHLOROETHANE	1.2	0.001	0.001	1.20E-06	4.36E-08	3,470	1	24	25	80	9,125	1.2E-07	6.0E-03	2.1E-05	25,550	4.4E-08	9.1E-02	4.0E-09
71-43-2	BENZENE	8.11	0.001	0.001	8.11E-06	9.92E-07	3,470	1	24	25	80	9,125	2.8E-06	4.0E-03	7.1E-04	25,550	1.0E-06	5.5E-02	5.6E-08
75-15-0	CARBON DISULFIDE	0.51	0.001	0.001	5.10E-07	7.17E-08	3,470	1	24	25	80	9,125	2.0E-07	1.0E-01	2.0E-06	25,550	7.3E-08	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.25	0.001	0.001	2.50E-07	3.71E-08	3,470	1	24	25	80	9,125	1.1E-07	4.0E-03	2.6E-05	25,550	3.8E-08	7.0E-02	2.6E-09
67-66-3	CHLOROFORM	2.2	0.001	0.001	2.20E-06	1.32E-07	3,470	1	24	25	80	9,125	3.8E-07	1.0E-02	3.8E-05	25,550	1.3E-07	3.1E-02	4.2E-09
156-59-2	CIS-1,2-DICHLOROETHENE	6.7	0.001	0.001	6.70E-06	4.41E-07	3,470	1	24	25	80	9,125	1.3E-06	2.0E-03	6.3E-04	25,550	4.5E-07	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	2.6	0.001	0.001	2.60E-06	2.04E-07	3,470	1	24	25	80	9,125	5.8E-07	2.0E-01	2.9E-06	25,550	2.1E-07	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	11	0.001	0.001	1.10E-05	2.19E-07	3,470	1	24	25	80	9,125	6.3E-07	NA	NA	25,550	2.2E-07	1.8E-03	4.0E-10
127-18-4	TETRACHLOROETHENE (PCE)	8.1	0.001	0.001	8.10E-06	2.43E-06	3,470	1	24	25	80	9,125	6.9E-06	6.0E-03	1.2E-03	25,550	2.5E-06	2.1E-03	5.2E-09
79-01-6	TRICHLOROETHENE (TCE)	28	0.001	0.001	2.80E-05	2.88E-06	3,470	1	24	25	80	9,125	8.2E-06	5.0E-04	1.6E-02	25,550	2.9E-06	4.6E-02	1.3E-07
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	0.93	0.001	0.001	9.30E-07	1.05E-07	3,470	1	24	25	80	9,125	3.0E-07	3.0E-01	1.0E-06	25,550	1.1E-07	NA	NA
														Total Hazard - Dermal Contact with Surface Water	**1.9E-02**				
																		Cumulative Risk - Dermal Contact with Surface Water	**2E-07**

Notes

#1: Average Daily Dose (mg/kg-day) = (DA_{event} x SA x EV x ED x EF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (DA_{event} x SA x EV x ED x EF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

DERMAL CONTACT WITH SURFACE WATER
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

FOR ORGANIC CHEMICALS IN WATER (latest version 04/01)
Event time (hr/event): **t_event = 8.00 hr/event**
Skin thickness (assumed to be 10 um): lsc = 1.00E-03 cm

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data
as evaluated using MLAB (Civilized Software, Bethesda, MD)
95% LCI and UCI are evaluated using STATA

(**): halogenated chemicals.
Note:

CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Special Chemicals (*) or (**)	B	tau (hr)	t_star (hr)	FA	Conc (mg/cm3)	Kp used in DA_event (cm/hr)	DA_event (mg/cm2-evt)	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Trichloroethane, 1,1,1-	71-55-6	133.4	2.49	5.1E-04	1.3E-02		3.1E-01	**	0.1	0.60	1.43	1.0	2.5E-07	1.3E-02	2.8E-08	-3.6E+00	2.79E-04	2.79E-07	3.4E-01	3.7E-01	#NUM!	1.43
Dichloroethane, 1,1-	75-34-3	99.0	1.79	2.7E-04	6.7E-03		1.7E-01	**	0.0	0.38	0.92	1.0	1.3E-06	6.7E-03	7.5E-08	-3.4E+00	4.36E-04	4.36E-07	3.2E-01	3.5E-01	#NUM!	0.92
Dichloroethylene, 1,1-	75-35-4	96.9	2.13	4.7E-04	1.2E-02		2.9E-01	**	0.0	0.37	0.89	1.0	2.7E-06	1.2E-02	2.7E-07	-3.3E+00	4.48E-04	4.48E-07	3.3E-01	3.6E-01	#NUM!	0.89
Dichloroethane, 1,2-	107-06-2	99.0	1.48	1.7E-04	4.2E-03		1.0E-01	**	0.0	0.38	0.92	1.0	1.2E-06	4.2E-03	4.4E-08	-3.4E+00	4.36E-04	4.36E-07	3.1E-01	3.4E-01	#NUM!	0.92
Benzene	71-43-2	78.1	2.13	5.9E-04	1.5E-02		3.7E-01		0.1	0.29	0.70	1.0	8.1E-06	1.5E-02	9.9E-07	-3.2E+00	5.71E-04	5.71E-07	3.3E-01	3.7E-01	#NUM!	0.70
Carbon disulfide	75-15-0	80.0	2.24	6.9E-04	1.7E-02		4.3E-01		0.059	0.30	0.72	1.0	5.1E-07	1.7E-02	7.2E-08	-3.3E+00	5.57E-04	5.57E-07	3.4E-01	3.7E-01	#NUM!	0.72
Carbon tetrachloride	56-23-5	153.8	2.83	6.6E-04	1.6E-02		4.0E-01	**	0.078	0.78	1.86	1.0	2.5E-07	1.6E-02	3.7E-08	-3.7E+00	2.15E-04	2.15E-07	3.5E-01	3.9E-01	#NUM!	1.86
Chloroform	67-66-3	119.4	1.97	2.8E-04	6.8E-03		1.7E-01	**	0.029	0.50	1.19	1.0	2.2E-06	6.8E-03	1.3E-07	-3.5E+00	3.35E-04	3.35E-07	3.2E-01	3.5E-01	#NUM!	1.19
Dichloroethylene, 1,2- (trans) [syn for cis-1,2-DCE]	156-59-2	96.9	1.86	3.1E-04	7.7E-03		1.9E-01	**	0.0	0.37	0.89	1.0	6.7E-06	7.7E-03	4.4E-07	-3.3E+00	4.48E-04	4.48E-07	3.2E-01	3.5E-01	#NUM!	0.89
Dichlorodifluoromethane	75-71-8	120.9	2.16	3.6E-04	9.0E-03		2.2E-01	**	0.0	0.51	1.22	1.0	2.6E-06	9.0E-03	2.0E-07	-3.5E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	#NUM!	1.22
Ethyl ether [syn for MTBE]	1634-04-4	74.1	0.89	1.4E-03	2.3E-03	1.6E-02	4.0E-03		0.0	0.28	0.67	1.0	1.1E-05	2.3E-03	2.2E-07	-3.2E+00	6.01E-04	6.01E-07	3.1E-01	3.4E-01	#NUM!	0.67
Tetrachlorethylene	127-18-4	165.8	3.40	1.3E-03	3.3E-02		8.4E-01	**	0.2	0.91	2.18	1.0	8.1E-06	3.3E-02	2.4E-06	-3.7E+00	1.84E-04	1.84E-07	4.1E-01	4.5E-01	#NUM!	2.18
Trichloroethylene	79-01-6	131.4	2.42	4.7E-04	1.2E-02		2.9E-01	**	0.1	0.58	1.39	1.0	2.8E-05	1.2E-02	2.9E-06	-3.5E+00	2.87E-04	2.87E-07	3.4E-01	3.7E-01	#NUM!	1.39
Trichlorofluoromethane	75-69-4	137.4	2.53	5.1E-04	1.3E-02		3.2E-01	**	0.1	0.63	1.51	1.0	9.3E-07	1.3E-02	1.1E-07	-3.6E+00	2.65E-04	2.65E-07	3.4E-01	3.7E-01	#NUM!	1.51

INHALATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR FROM SURFACE WATER
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

		(Cw) Concentration in Groundwater (ug/L)	(Ca-w) Concentration in Air from Groundwater (ug/m^3)	(ET) Exposure Time (hours/day)	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(ATn) Averaging Time (hours)	(EC) Exposure Concentration (ug/m^3) Note #1	(RfCi) Reference Concentration (ug/m^3)	(HQ) Hazard Quotient Note #2	(AT$_c$) Averaging Time (hours)	(EC) Exposure Concentration (ug/m^3) Note #3	IUR Inhalation Unit Risk (ug/m3)$^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.25	2.6E-02	8	24	25	219,000	5.7E-04	5.0E+03	1.1E-07	613,200	2.0E-04	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	1.3	1.5E-01	8	24	25	219,000	3.4E-03	NA	NA	613,200	1.2E-03	1.6E-06	1.9E-09
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	2.7	3.3E-01	8	24	25	219,000	7.2E-03	2.0E+02	3.6E-05	613,200	2.6E-03	NA	NA
107-06-2	1,2-DICHLOROETHANE	1.2	1.4E-01	8	24	25	219,000	3.0E-03	7.0E+00	4.3E-04	613,200	1.1E-03	2.6E-05	2.8E-08
71-43-2	BENZENE	8.11	1.1E+00	8	24	25	219,000	2.4E-02	3.0E+01	7.9E-04	613,200	8.5E-03	7.8E-06	6.6E-08
75-15-0	CARBON DISULFIDE	0.51	7.0E-02	8	24	25	219,000	1.5E-03	7.0E+02	2.2E-06	613,200	5.4E-04	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.25	2.4E-02	8	24	25	219,000	5.3E-04	1.0E+02	5.3E-06	613,200	1.9E-04	6.0E-06	1.1E-09
67-66-3	CHLOROFORM	2.2	2.4E-01	8	24	25	219,000	5.2E-03	9.8E+01	5.3E-05	613,200	1.9E-03	2.3E-05	4.3E-08
156-59-2	CIS-1,2-DICHLOROETHENE	6.7	8.0E-01	8	24	25	219,000	1.8E-02	NA	NA	613,200	6.3E-03	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	2.6	2.8E-01	8	24	25	219,000	6.2E-03	1.0E+02	6.2E-05	613,200	2.2E-03	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	11	1.3E+00	8	24	25	219,000	2.8E-02	3.0E+03	9.3E-06	613,200	1.0E-02	2.6E-07	2.6E-09
127-18-4	TETRACHLOROETHENE (PCE)	8.1	7.5E-01	8	24	25	219,000	1.6E-02	4.0E+01	4.1E-04	613,200	5.9E-03	2.6E-07	1.5E-09
79-01-6	TRICHLOROETHENE (TCE)	28	2.9E+00	8	24	25	219,000	6.4E-02	2.0E+00	3.2E-02	613,200	2.3E-02	4.1E-06	9.3E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	0.93	9.5E-02	8	24	25	219,000	2.1E-03	7.0E+02	3.0E-06	613,200	7.4E-04	NA	NA
									Total Hazard - Inhalation of Volatiles from Groundwater	**3.4E-02**				
										Cumulative Risk - Inhalation of Volatiles from Groundwater				**2E-07**

Notes

#1: Exposure Concentration (ug/m^3) = (Ca-w x ET x EF x ED) / (ATn)
#2: Hazard Index = Exposure Concentration/Reference Concentration
#3: Exposure Concentration (ug/m^3) = (Ca-w x ET x EF x ED) / (ATc)
#4: Excess Lifetime Cancer Risk = Reference Concentration x Inhalation Unit Risk

CALCULATION OF VAPOR EMISSIONS FROM SURFACE WATER INTO AMBIENT AIR
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
				(Cw)	Kl	Kg	K	Wa	La	A	CF	T	ER	WS	Wp	H	Ca-w
Cas No.	**Groundwater VOC**	**Molecular Weight**	**Henry's Law Constant (atm-m3/mol)**	**Max Groundwater Concentration (ug/L)**	**Liquid Mass Transfer Coefficient (cm/sec)**	**Gas-phase Mass Transfer Coefficient (cm/sec)**	**Mass Transfer Coefficient (cm/sec)**	**Width of Exposure Area (m)**	**Length of Exposure Area (m)**	**Area of Exposure Area (m^2)**	**Conversion factor (10 L/cm/m^2)**	**Turbulence Factor (unitless)**	**Emission Rate at the Surface (ug/sec) Note #1**	**Wind Speed (mps)**	**Width Perpendicular to Wind (m)**	**Height of Breathing Zone (m)**	**Outdoor Air Concentration (ug/m3) Note #2**
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	1.3E+02	1.7E-02	0.25	9.6E-04	4.2E-01	9.5E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	8.6E-01	2.8E+00	6.0E+00	2.0E+00	2.6E-02
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	9.9E+01	5.6E-03	1.3	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	5.1E+00	2.8E+00	6.0E+00	2.0E+00	1.5E-01
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	9.7E+01	2.6E-02	2.7	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	1.1E+01	2.8E+00	6.0E+00	2.0E+00	3.3E-01
107-06-2	1,2-DICHLOROETHANE	9.9E+01	1.2E-03	1.2	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	4.6E+00	2.8E+00	6.0E+00	2.0E+00	1.4E-01
71-43-2	BENZENE	7.8E+01	5.6E-03	8.11	1.3E-03	5.0E-01	1.2E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	3.6E+01	2.8E+00	6.0E+00	2.0E+00	1.1E+00
75-15-0	CARBON DISULFIDE	7.6E+01	1.4E-02	0.51	1.3E-03	5.0E-01	1.3E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.3E+00	2.8E+00	6.0E+00	2.0E+00	7.0E-02
56-23-5	CARBON TETRACHLORIDE	1.5E+02	2.8E-02	0.25	8.9E-04	4.0E-01	8.9E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	8.0E-01	2.8E+00	6.0E+00	2.0E+00	2.4E-02
67-66-3	CHLOROFORM	1.2E+02	3.7E-03	2.2	1.0E-03	4.3E-01	1.0E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	7.9E+00	2.8E+00	6.0E+00	2.0E+00	2.4E-01
156-59-2	CIS-1,2-DICHLOROETHENE	9.7E+01	4.1E-03	6.7	1.1E-03	4.6E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.7E+01	2.8E+00	6.0E+00	2.0E+00	8.0E-01
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.2E+02	3.4E-01	2.6	1.0E-03	4.3E-01	1.0E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	9.4E+00	2.8E+00	6.0E+00	2.0E+00	2.8E-01
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	8.8E+01	5.9E-04	11	1.2E-03	4.8E-01	1.1E-03	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	4.2E+01	2.8E+00	6.0E+00	2.0E+00	1.3E+00
127-18-4	TETRACHLOROETHENE (PCE)	1.7E+02	1.8E-02	8.1	8.6E-04	3.9E-01	8.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	2.5E+01	2.8E+00	6.0E+00	2.0E+00	7.5E-01
79-01-6	TRICHLOROETHENE (TCE)	1.3E+02	9.9E-03	28	9.6E-04	4.2E-01	9.6E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	9.7E+01	2.8E+00	6.0E+00	2.0E+00	2.9E+00
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.4E+02	9.7E-02	0.93	9.4E-04	4.1E-01	9.4E-04	6.0E+00	6.0E+00	3.6E+01	1.0E+01	1.0E+01	3.2E+00	2.8E+00	6.0E+00	2.0E+00	9.5E-02

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

CHEMICAL PHYSICAL PROPERTY INFORMATION
RID WORKER
95%UCL CONCENTRATIONS IN RID WELLS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: WORKING AT AND IN PROXIMITY TO RID WELLS

COLUMN	2	3	4	5	6	7	8	9
CAS NUMBER	**CHEMICAL**	**SFo (mg/kg-day)$^{-1}$**	**IUR (ug/m^3)$^{-1}$**	**RfDo (mg/kg-day)**	**RfCi (ug/m^3)**	**Molecular Weight**	**Henry's Law Constant (atm-m^3/mole)**	**Water Permeability Contant (K_p) (cm/hr)**
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	NA	NA	2.0E+00	5.0E+03	1.33E+02	1.72E-02	1.26E-02
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	5.7E-03	1.6E-06	2.0E-01	NA	9.90E+01	5.62E-03	6.75E-03
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	NA	NA	5.0E-02	2.0E+02	9.69E+01	2.61E-02	1.17E-02
107-06-2	1,2-DICHLOROETHANE	9.1E-02	2.6E-05	6.0E-03	7.0E+00	9.90E+01	1.18E-03	4.20E-03
71-43-2	BENZENE	5.5E-02	7.8E-06	4.0E-03	3.0E+01	7.81E+01	5.55E-03	1.49E-02
75-15-0	CARBON DISULFIDE	NA	NA	1.0E-01	7.0E+02	7.61E+01	1.44E-02	1.14E-02
56-23-5	CARBON TETRACHLORIDE	7.0E-02	6.0E-06	4.0E-03	1.0E+02	1.54E+02	2.76E-02	1.63E-02
67-66-3	CHLOROFORM	3.1E-02	2.3E-05	1.0E-02	9.8E+01	1.19E+02	3.67E-03	6.83E-03
156-59-2	CIS-1,2-DICHLOROETHENE	NA	NA	2.0E-03	NA	9.69E+01	4.08E-03	1.10E-02
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	NA	NA	2.0E-01	1.0E+02	1.21E+02	3.43E-01	8.95E-03
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.8E-03	2.6E-07	NA	3.0E+03	8.82E+01	5.87E-04	2.11E-03
127-18-4	TETRACHLOROETHENE (PCE)	2.1E-03	2.6E-07	6.0E-03	4.0E+01	1.66E+02	1.77E-02	3.34E-02
79-01-6	TRICHLOROETHENE (TCE)	4.6E-02	4.1E-06	5.0E-04	2.0E+00	1.31E+02	9.85E-03	1.16E-02
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	NA	NA	3.0E-01	7.0E+02	1.37E+02	9.70E-02	1.27E-02

95% UCL Input and Output Sheets

DATA USED TO CALCULATION 95% UCL CONCENTRATIONS
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

PARAMETER_NAME	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	1,2-DICHLOROETHANE	BENZENE	CARBON DISULFIDE	CHLOROFORM	CIS-1,2-DCE	DICHLORODIFLUOROMETHANE (FREON 12)	METHYL TERT-BUTYL ETHER (MTBE)	TETRACHLOROETHENE	TRICHLOROETHENE	TRICHLOROFLUOROMETHANE (FREON 11)
RID-100	2.5	4.2	2.6	<0.5	<0.5	1.4	5.4	<0.5	<0.5	7.1	17	<0.5
RID-101	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-102	<0.5	<0.5	<0.5	<0.5	<0.5	0.73	0.81	<0.5	<0.5	17	0.72	<0.5
RID-103	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-104	<0.5	0.76	<0.5	<0.5	<0.5	1.13	<0.5	<0.5	<0.5	6	0.79	<0.5
RID-105	<0.5	0.68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.5	0.58	<0.5
RID-106	<0.5	5.7	<0.5	<0.5	<0.5	2.2	1.5	<0.5	<0.5	27	10	0.93
RID-107	<0.5	3.6	<0.5	<0.5	<0.5	1.7	<0.5	0.65	<0.5	10	9.5	0.8
RID-108	<0.5	0.96	<0.5	8.11	<0.5	1.2	<0.5	<0.5	11	8.7	3.1	<0.5
RID-109	<0.5	3	<0.5	<0.5	0.51	3.09	0.95	2.46	<0.5	6.9	7	<0.5
RID-110	<0.5	<0.5	<0.5	<0.5	<0.5	4.5	0.86	2.6	<0.5	7.9	1.9	<0.5
RID-112	<0.5	0.76	<0.5	<0.5	<0.5	4.2	2.5	<0.5	<0.5	4.5	17	<0.5
RID-113	1.38	2.45	1.1	<0.5	<0.5	3.01	4.82	<0.5	<0.5	3.2	29.2	<0.5
RID-114	3.7	5.5	3.2	<0.5	<0.5	7.3	15	<0.5	<0.5	4.3	87	0.82
RID-83	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-84	<0.5	0.98	<0.5	<0.5	<0.5	0.83	<0.5	<0.5	<0.5	9.7	1.4	<0.5
RID-85	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-86	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-88	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-89	0.87	2.75	0.81	<0.5	<0.5	3.17	3	<0.5	<0.5	11	34.1	<0.5
RID-90	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	<0.5	<2
RID-91	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	0.57	<2	<2	<0.5	2.99	<2
RID-92	2.1	5.17	2	<0.5	<0.5	3.4	7.58	<0.5	<0.5	17	84	0.52
RID-93	<0.5	0.57	<0.5	<0.5	<0.5	0.52	0.52	<2	<2	0.6	1.85	<2
RID-94	<0.5	0.94	<0.5	<0.5	<0.5	<0.5	0.85	<2	<2	1.2	0.88	<2
RID-95	4.53	9.23	4.4	<0.5	<0.5	1.2	11.2	<0.5	<0.5	4.6	60.2	<0.5
RID-99	<0.5	1.4	<0.5	<0.5	<0.5	0.54	0.91	<2	<2	8.85	<0.5	<2

1,2-DICHLOROETHANE	d_1,2-DICHLOROETHANE	BENZENE	d_BENZENE	CHLOROFORM	d_CHLOROFORM	TETRACHLOROETHENE	d_TETRACHLOROETHENE	TRICHLOROETHENE	d_TRICHLOROETHENE	1,1-DICHLOROETHANE	d_1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	d_1,1-DICHLOROETHENE	CARBON DISULFIDE	d_CARBON DISULFIDE	CIS-1,2-DCE	d_CIS-1,2-DCE	DICHLORODIFLUOROMETHANE (FREON 12)	d_DICHLORODIFLUORDMETHANE (FREON 12)	METHYL TERT-BUTYL ETHER (MTBE)	d_METHYL TERT-BUTYL ETHER (MTBE)	TRICHLOROFLUOROMETHANE (FREON 11)	d_TRICHLOROFLUOROMETHANE (FREON 11)
2.6	1	0.5	0	1.4	1	7.1	1	17	1	2.5	1	4.2	1	0.5	0	5.4	1	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	0.73	1	17	1	0.72	1	0.5	0	0.5	0	0.5	0	0.81	1	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	1.4	1	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	1.13	1	6	1	0.79	1	0.5	0	0.76	1	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.5	0	3.5	1	0.58	1	0.5	0	0.68	1	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	2.2	1	27	1	10	1	0.5	0	5.7	1	0.5	0	1.5	1	0.5	0	0.5	0	0.93	1
0.5	0	0.5	0	1.7	1	10	1	9.5	1	0.5	0	3.6	1	0.5	0	0.5	0	0.65	1	0.5	0	0.8	1
0.5	0	8.11	1	1.2	1	8.7	1	3.1	1	0.5	0	0.96	1	0.5	0	0.5	0	0.5	0	11	1	0.5	0
0.5	0	0.5	0	3.09	1	6.9	1	7	1	0.5	0	3	1	0.51	1	0.95	1	2.46	1	0.5	0	0.5	0
0.5	0	0.5	0	4.5	1	7.9	1	1.9	1	0.5	0	0.5	0	0.5	0	0.86	1	2.6	1	0.5	0	0.5	0
0.5	0	0.5	0	4.2	1	4.5	1	17	1	0.5	0	0.76	1	0.5	0	2.5	1	0.5	0	0.5	0	0.5	0
1.1	1	0.5	0	3.01	1	3.2	1	29.2	1	1.38	1	2.45	1	0.5	0	4.82	1	0.5	0	0.5	0	0.5	0
3.2	1	0.5	0	7.3	1	4.3	1	87	1	3.7	1	5.5	1	0.5	0	15	1	0.5	0	0.5	0	0.82	1
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	0.83	1	9.7	1	1.4	1	0.5	0	0.98	1	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.81	1	0.5	0	3.17	1	11	1	34.1	1	0.87	1	2.75	1	0.5	0	3	1	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	2	0	2	0	2	0
0.5	0	0.5	0	0.5	0	0.5	0	2.99	1	0.5	0	0.58	1	0.5	0	0.57	1	2	0	2	0	2	0
2	1	0.5	0	3.4	1	17	1	84	1	2.1	1	5.17	1	0.5	0	7.58	1	0.5	0	0.5	0	0.52	1
0.5	0	0.5	0	0.52	1	0.6	1	1.85	1	0.5	0	0.57	1	0.5	0	0.52	1	2	0	2	0	2	0
0.5	0	0.5	0	0.5	0	1.2	1	0.88	1	0.5	0	0.94	1	0.5	0	0.85	1	2	0	2	0	2	0
4.4	1	0.5	0	1.2	1	4.6	1	60.2	1	4.53	1	9.23	1	0.5	0	11.2	1	0.5	0	0.5	0	0.5	0
0.5	0	0.5	0	0.54	1	8.85	1	0.5	0	0.5	0	1.4	1	0.5	0	0.91	1	2	0	2	0	2	0

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			4/17/2014 4:55:08 PM								
5	From File			RID_95UCL_input.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	1,2-DICHLOROETHANE											
11												
12	General Statistics											
13	Total Number of Observations					27	Number of Distinct Observations					7
14	Number of Detects					6	Number of Non-Detects					21
15	Number of Distinct Detects					6	Number of Distinct Non-Detects					1
16	Minimum Detect					0.81	Minimum Non-Detect					0.5
17	Maximum Detect					4.4	Maximum Non-Detect					0.5
18	Variance Detects					1.809	Percent Non-Detects					77.78%
19	Mean Detects					2.352	SD Detects					1.345
20	Median Detects					2.3	CV Detects					0.572
21	Skewness Detects					0.438	Kurtosis Detects					-0.635
22	Mean of Logged Detects					0.696	SD of Logged Detects					0.646
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic					0.963	Shapiro Wilk GOF Test					
26	5% Shapiro Wilk Critical Value					0.788	Detected Data appear Normal at 5% Significance Level					
27	Lilliefors Test Statistic					0.157	Lilliefors GOF Test					
28	5% Lilliefors Critical Value					0.362	Detected Data appear Normal at 5% Significance Level					
29	Detected Data appear Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	Mean					0.911	Standard Error of Mean					0.203
33	SD					0.963	95% KM (BCA) UCL					1.222
34	95% KM (t) UCL					1.258	95% KM (Percentile Bootstrap) UCL					1.245
35	95% KM (z) UCL					1.245	95% KM Bootstrap t UCL					1.33
36	90% KM Chebyshev UCL					1.521	95% KM Chebyshev UCL					1.797
37	97.5% KM Chebyshev UCL					2.179	99% KM Chebyshev UCL					2.932
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic					0.21	Anderson-Darling GOF Test					
41	5% A-D Critical Value					0.701	Detected data appear Gamma Distributed at 5% Significance Level					
42	K-S Test Statistic					0.182	Kolmogrov-Smirnoff GOF					
43	5% K-S Critical Value					0.334	Detected data appear Gamma Distributed at 5% Significance Level					
44	Detected data appear Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)					3.306	k star (bias corrected MLE)					1.764
48	Theta hat (MLE)					0.711	Theta star (bias corrected MLE)					1.333
49	nu hat (MLE)					39.67	nu star (bias corrected)					21.17
50	MLE Mean (bias corrected)					2.352	MLE Sd (bias corrected)					1.771
51												
52	Gamma Kaplan-Meier (KM) Statistics											
53	k hat (KM)					0.896	nu hat (KM)					48.37

	A–E	F	G–K	L
54	Approximate Chi Square Value (48.37, α)	33.4	Adjusted Chi Square Value (48.37, β)	32.61
55	95% Gamma Approximate KM-UCL (use when n>=50)	1.32	95% Gamma Adjusted KM-UCL (use when n<50)	1.352
56				
57	**Gamma ROS Statistics using Imputed Non-Detects**			
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
59	GROS may not be used when kstar of detected data is small such as < 0.1			
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
62	Minimum	0.01	Mean	0.538
63	Maximum	4.4	Median	0.01
64	SD	1.151	CV	2.139
65	k hat (MLE)	0.262	k star (bias corrected MLE)	0.257
66	Theta hat (MLE)	2.056	Theta star (bias corrected MLE)	2.091
67	nu hat (MLE)	14.14	nu star (bias corrected)	13.9
68	MLE Mean (bias corrected)	0.538	MLE Sd (bias corrected)	1.061
69			Adjusted Level of Significance (β)	0.0401
70	Approximate Chi Square Value (13.90, α)	6.503	Adjusted Chi Square Value (13.90, β)	6.181
71	95% Gamma Approximate UCL (use when n>=50)	1.15	95% Gamma Adjusted UCL (use when n<50)	1.21
72				
73	**Lognormal GOF Test on Detected Observations Only**			
74	Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk GOF Test**	
75	5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level	
76	Lilliefors Test Statistic	0.165	**Lilliefors GOF Test**	
77	5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level	
78	**Detected Data appear Lognormal at 5% Significance Level**			
79				
80	**Lognormal ROS Statistics Using Imputed Non-Detects**			
81	Mean in Original Scale	0.684	Mean in Log Scale	-1.473
82	SD in Original Scale	1.096	SD in Log Scale	1.586
83	95% t UCL (assumes normality of ROS data)	1.044	95% Percentile Bootstrap UCL	1.057
84	95% BCA Bootstrap UCL	1.134	95% Bootstrap t UCL	1.257
85	95% H-UCL (Log ROS)	2.298		
86				
87	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
88	KM Mean (logged)	-0.384	95% H-UCL (KM -Log)	1.089
89	KM SD (logged)	0.641	95% Critical H Value (KM-Log)	2.102
90	KM Standard Error of Mean (logged)	0.135		
91				
92	**DL/2 Statistics**			
93	**DL/2 Normal**		**DL/2 Log-Transformed**	
94	Mean in Original Scale	0.717	Mean in Log Scale	-0.923
95	SD in Original Scale	1.068	SD in Log Scale	0.927
96	95% t UCL (Assumes normality)	1.068	95% H-Stat UCL	0.948
97	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
98				
99	**Nonparametric Distribution Free UCL Statistics**			
100	**Detected Data appear Normal Distributed at 5% Significance Level**			
101				
102	**Suggested UCL to Use**			
103	95% KM (t) UCL	1.258	95% KM (Percentile Bootstrap) UCL	1.245
104				
105	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
106	Recommendations are based upon data size, data distribution, and skewness.			

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZENE

General Statistics

Total Number of Observations	27	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	26
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable BENZENE was not processed!

CHLOROFORM

General Statistics

Total Number of Observations	27	Number of Distinct Observations	17
Number of Detects	17	Number of Non-Detects	10
Number of Distinct Detects	16	Number of Distinct Non-Detects	1
Minimum Detect	0.52	Minimum Non-Detect	0.5
Maximum Detect	7.3	Maximum Non-Detect	0.5
Variance Detects	3.272	Percent Non-Detects	37.04%
Mean Detects	2.36	SD Detects	1.809
Median Detects	1.7	CV Detects	0.766
Skewness Detects	1.348	Kurtosis Detects	2.061
Mean of Logged Detects	0.583	SD of Logged Detects	0.785

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.892	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.215	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1.671	Standard Error of Mean	0.329
SD	1.657	95% KM (BCA) UCL	2.237
95% KM (t) UCL	2.232	95% KM (Percentile Bootstrap) UCL	2.217
95% KM (z) UCL	2.212	95% KM Bootstrap t UCL	2.415
90% KM Chebyshev UCL	2.657	95% KM Chebyshev UCL	3.104
97.5% KM Chebyshev UCL	3.724	99% KM Chebyshev UCL	4.942

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.332	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.212	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

	A	B	C	D	E	F	G	H	I	J	K	L
160					k hat (MLE)	1.962					k star (bias corrected MLE)	1.655
161					Theta hat (MLE)	1.203					Theta star (bias corrected MLE)	1.426
162					nu hat (MLE)	66.71					nu star (bias corrected)	56.27
163					MLE Mean (bias corrected)	2.36					MLE Sd (bias corrected)	1.834
164												
165					**Gamma Kaplan-Meier (KM) Statistics**							
166					k hat (KM)	1.017					nu hat (KM)	54.93
167					Approximate Chi Square Value (54.93, α)	38.9					Adjusted Chi Square Value (54.93, β)	38.03
168					95% Gamma Approximate KM-UCL (use when n>=50)	2.36					95% Gamma Adjusted KM-UCL (use when n<50)	2.413
169												
170					**Gamma ROS Statistics using Imputed Non-Detects**							
171					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
172					GROS may not be used when kstar of detected data is small such as < 0.1							
173					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
174					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
175					Minimum	0.01					Mean	1.49
176					Maximum	7.3					Median	0.83
177					SD	1.83					CV	1.229
178					k hat (MLE)	0.382					k star (bias corrected MLE)	0.364
179					Theta hat (MLE)	3.903					Theta star (bias corrected MLE)	4.093
180					nu hat (MLE)	20.61					nu star (bias corrected)	19.65
181					MLE Mean (bias corrected)	1.49					MLE Sd (bias corrected)	2.469
182											Adjusted Level of Significance (β)	0.0401
183					Approximate Chi Square Value (19.65, α)	10.6					Adjusted Chi Square Value (19.65, β)	10.17
184					95% Gamma Approximate UCL (use when n>=50)	2.763					95% Gamma Adjusted UCL (use when n<50)	2.878
185												
186					**Lognormal GOF Test on Detected Observations Only**							
187					Shapiro Wilk Test Statistic	0.96					**Shapiro Wilk GOF Test**	
188					5% Shapiro Wilk Critical Value	0.892					Detected Data appear Lognormal at 5% Significance Level	
189					Lilliefors Test Statistic	0.158					**Lilliefors GOF Test**	
190					5% Lilliefors Critical Value	0.215					Detected Data appear Lognormal at 5% Significance Level	
191					**Detected Data appear Lognormal at 5% Significance Level**							
192												
193					**Lognormal ROS Statistics Using Imputed Non-Detects**							
194					Mean in Original Scale	1.589					Mean in Log Scale	-0.157
195					SD in Original Scale	1.752					SD in Log Scale	1.209
196					95% t UCL (assumes normality of ROS data)	2.164					95% Percentile Bootstrap UCL	2.174
197					95% BCA Bootstrap UCL	2.228					95% Bootstrap t UCL	2.318
198					95% H-UCL (Log ROS)	3.455						
199												
200					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
201					KM Mean (logged)	0.11					95% H-UCL (KM -Log)	2.411
202					KM SD (logged)	0.863					95% Critical H Value (KM-Log)	2.349
203					KM Standard Error of Mean (logged)	0.171						
204												
205					**DL/2 Statistics**							
206					**DL/2 Normal**						**DL/2 Log-Transformed**	
207					Mean in Original Scale	1.579					Mean in Log Scale	-0.147
208					SD in Original Scale	1.758					SD in Log Scale	1.148
209					95% t UCL (Assumes normality)	2.156					95% H-Stat UCL	3.079
210					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
211												
212					**Nonparametric Distribution Free UCL Statistics**							

	A	B	C	D	E	F	G	H	I	J	K	L
213	Detected Data appear Approximate Normal Distributed at 5% Significance Level											
214												
215	Suggested UCL to Use											
216					95% KM (t) UCL	2.232			95% KM (Percentile Bootstrap) UCL			2.217
217												
218	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
219	Recommendations are based upon data size, data distribution, and skewness.											
220	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
221	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
222												
223	TETRACHLOROETHENE											
224												
225	General Statistics											
226					Total Number of Observations	27			Number of Distinct Observations			19
227					Number of Detects	19			Number of Non-Detects			8
228					Number of Distinct Detects	18			Number of Distinct Non-Detects			1
229					Minimum Detect	0.6			Minimum Non-Detect			0.5
230					Maximum Detect	27			Maximum Non-Detect			0.5
231					Variance Detects	40.29			Percent Non-Detects			29.63%
232					Mean Detects	8.371			SD Detects			6.348
233					Median Detects	7.1			CV Detects			0.758
234					Skewness Detects	1.574			Kurtosis Detects			3.114
235					Mean of Logged Detects	1.821			SD of Logged Detects			0.898
236												
237	Normal GOF Test on Detects Only											
238					Shapiro Wilk Test Statistic	0.866			Shapiro Wilk GOF Test			
239					5% Shapiro Wilk Critical Value	0.901			Detected Data Not Normal at 5% Significance Level			
240					Lilliefors Test Statistic	0.188			Lilliefors GOF Test			
241					5% Lilliefors Critical Value	0.203			Detected Data appear Normal at 5% Significance Level			
242	Detected Data appear Approximate Normal at 5% Significance Level											
243												
244	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
245					Mean	6.039			Standard Error of Mean			1.247
246					SD	6.307			95% KM (BCA) UCL			8.081
247					95% KM (t) UCL	8.166			95% KM (Percentile Bootstrap) UCL			8.093
248					95% KM (z) UCL	8.09			95% KM Bootstrap t UCL			8.83
249					90% KM Chebyshev UCL	9.78			95% KM Chebyshev UCL			11.47
250					97.5% KM Chebyshev UCL	13.83			99% KM Chebyshev UCL			18.45
251												
252	Gamma GOF Tests on Detected Observations Only											
253					A-D Test Statistic	0.259			Anderson-Darling GOF Test			
254					5% A-D Critical Value	0.754			Detected data appear Gamma Distributed at 5% Significance Level			
255					K-S Test Statistic	0.107			Kolmogrov-Smirnoff GOF			
256					5% K-S Critical Value	0.201			Detected data appear Gamma Distributed at 5% Significance Level			
257	Detected data appear Gamma Distributed at 5% Significance Level											
258												
259	Gamma Statistics on Detected Data Only											
260					k hat (MLE)	1.796			k star (bias corrected MLE)			1.548
261					Theta hat (MLE)	4.66			Theta star (bias corrected MLE)			5.408
262					nu hat (MLE)	68.26			nu star (bias corrected)			58.82
263					MLE Mean (bias corrected)	8.371			MLE Sd (bias corrected)			6.729
264												
265	Gamma Kaplan-Meier (KM) Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
266					k hat (KM)	0.917					nu hat (KM)	49.5
267					Approximate Chi Square Value (49.50, α)	34.35					Adjusted Chi Square Value (49.50, β)	33.54
268					95% Gamma Approximate KM-UCL (use when n>=50)	8.703					95% Gamma Adjusted KM-UCL (use when n<50)	8.912
269												
270					**Gamma ROS Statistics using Imputed Non-Detects**							
271					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
272					GROS may not be used when kstar of detected data is small such as < 0.1							
273					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
274					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
275					Minimum	0.01					Mean	5.899
276					Maximum	27					Median	4.5
277					SD	6.555					CV	1.111
278					k hat (MLE)	0.378					k star (bias corrected MLE)	0.36
279					Theta hat (MLE)	15.62					Theta star (bias corrected MLE)	16.37
280					nu hat (MLE)	20.4					nu star (bias corrected)	19.46
281					MLE Mean (bias corrected)	5.899					MLE Sd (bias corrected)	9.825
282											Adjusted Level of Significance (β)	0.0401
283					Approximate Chi Square Value (19.46, α)	10.46					Adjusted Chi Square Value (19.46, β)	10.03
284					95% Gamma Approximate UCL (use when n>=50)	10.98					95% Gamma Adjusted UCL (use when n<50)	11.44
285												
286					**Lognormal GOF Test on Detected Observations Only**							
287					Shapiro Wilk Test Statistic	0.929			**Shapiro Wilk GOF Test**			
288					5% Shapiro Wilk Critical Value	0.901			Detected Data appear Lognormal at 5% Significance Level			
289					Lilliefors Test Statistic	0.133			**Lilliefors GOF Test**			
290					5% Lilliefors Critical Value	0.203			Detected Data appear Lognormal at 5% Significance Level			
291					**Detected Data appear Lognormal at 5% Significance Level**							
292												
293					**Lognormal ROS Statistics Using Imputed Non-Detects**							
294					Mean in Original Scale	6.161					Mean in Log Scale	1.222
295					SD in Original Scale	6.324					SD in Log Scale	1.232
296					95% t UCL (assumes normality of ROS data)	8.237					95% Percentile Bootstrap UCL	8.231
297					95% BCA Bootstrap UCL	8.526					95% Bootstrap t UCL	8.912
298					95% H-UCL (Log ROS)	14.39						
299												
300					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
301					KM Mean (logged)	1.076					95% H-UCL (KM -Log)	16.67
302					KM SD (logged)	1.362					95% Critical H Value (KM-Log)	3.029
303					KM Standard Error of Mean (logged)	0.269						
304												
305					**DL/2 Statistics**							
306					**DL/2 Normal**				**DL/2 Log-Transformed**			
307					Mean in Original Scale	5.965					Mean in Log Scale	0.871
308					SD in Original Scale	6.494					SD in Log Scale	1.669
309					95% t UCL (Assumes normality)	8.097					95% H-Stat UCL	30.29
310					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
311												
312					**Nonparametric Distribution Free UCL Statistics**							
313					**Detected Data appear Approximate Normal Distributed at 5% Significance Level**							
314												
315					**Suggested UCL to Use**							
316					95% KM (t) UCL	8.166					95% KM (Percentile Bootstrap) UCL	8.093
317												
318					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							

	A	B	C	D	E	F	G	H	I	J	K	L
319	Recommendations are based upon data size, data distribution, and skewness.											
320	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
321	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
322												
323	TRICHLOROETHENE											
324												
325	General Statistics											
326	Total Number of Observations					27	Number of Distinct Observations					19
327	Number of Detects					19	Number of Non-Detects					8
328	Number of Distinct Detects					18	Number of Distinct Non-Detects					1
329	Minimum Detect					0.58	Minimum Non-Detect					0.5
330	Maximum Detect					87	Maximum Non-Detect					0.5
331	Variance Detects					774.3	Percent Non-Detects					29.63%
332	Mean Detects					19.43	SD Detects					27.83
333	Median Detects					7	CV Detects					1.432
334	Skewness Detects					1.712	Kurtosis Detects					1.865
335	Mean of Logged Detects					1.824	SD of Logged Detects					1.685
336												
337	Normal GOF Test on Detects Only											
338	Shapiro Wilk Test Statistic					0.704	Shapiro Wilk GOF Test					
339	5% Shapiro Wilk Critical Value					0.901	Detected Data Not Normal at 5% Significance Level					
340	Lilliefors Test Statistic					0.272	Lilliefors GOF Test					
341	5% Lilliefors Critical Value					0.203	Detected Data Not Normal at 5% Significance Level					
342	Detected Data Not Normal at 5% Significance Level											
343												
344	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
345	Mean					13.82	Standard Error of Mean					4.806
346	SD					24.31	95% KM (BCA) UCL					22.72
347	95% KM (t) UCL					22.02	95% KM (Percentile Bootstrap) UCL					21.99
348	95% KM (z) UCL					21.73	95% KM Bootstrap t UCL					26.81
349	90% KM Chebyshev UCL					28.24	95% KM Chebyshev UCL					34.77
350	97.5% KM Chebyshev UCL					43.84	99% KM Chebyshev UCL					61.65
351												
352	Gamma GOF Tests on Detected Observations Only											
353	A-D Test Statistic					0.663	Anderson-Darling GOF Test					
354	5% A-D Critical Value					0.798	Detected data appear Gamma Distributed at 5% Significance Level					
355	K-S Test Statistic					0.187	Kolmogrov-Smirnoff GOF					
356	5% K-S Critical Value					0.209	Detected data appear Gamma Distributed at 5% Significance Level					
357	Detected data appear Gamma Distributed at 5% Significance Level											
358												
359	Gamma Statistics on Detected Data Only											
360	k hat (MLE)					0.548	k star (bias corrected MLE)					0.496
361	Theta hat (MLE)					35.47	Theta star (bias corrected MLE)					39.15
362	nu hat (MLE)					20.82	nu star (bias corrected)					18.86
363	MLE Mean (bias corrected)					19.43	MLE Sd (bias corrected)					27.58
364												
365	Gamma Kaplan-Meier (KM) Statistics											
366	k hat (KM)					0.323	nu hat (KM)					17.46
367	Approximate Chi Square Value (17.46, α)					9.002	Adjusted Chi Square Value (17.46, β)					8.614
368	95% Gamma Approximate KM-UCL (use when n>=50)					26.81	95% Gamma Adjusted KM-UCL (use when n<50)					28.02
369												
370	Gamma ROS Statistics using Imputed Non-Detects											
371	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											

	A	B	C	D	E	F	G	H	I	J	K	L
372	GROS may not be used when kstar of detected data is small such as < 0.1											
373	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
374	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
375					Minimum	0.01				Mean		13.68
376					Maximum	87				Median		1.85
377					SD	24.85				CV		1.817
378					k hat (MLE)	0.261				k star (bias corrected MLE)		0.257
379					Theta hat (MLE)	52.31				Theta star (bias corrected MLE)		53.2
380					nu hat (MLE)	14.12				nu star (bias corrected)		13.88
381					MLE Mean (bias corrected)	13.68				MLE Sd (bias corrected)		26.97
382										Adjusted Level of Significance (β)		0.0401
383					Approximate Chi Square Value (13.88, α)	6.492				Adjusted Chi Square Value (13.88, β)		6.17
384					95% Gamma Approximate UCL (use when n>=50)	29.25				95% Gamma Adjusted UCL (use when n<50)		30.78
385												
386	**Lognormal GOF Test on Detected Observations Only**											
387					Shapiro Wilk Test Statistic	0.932				**Shapiro Wilk GOF Test**		
388					5% Shapiro Wilk Critical Value	0.901				Detected Data appear Lognormal at 5% Significance Level		
389					Lilliefors Test Statistic	0.133				**Lilliefors GOF Test**		
390					5% Lilliefors Critical Value	0.203				Detected Data appear Lognormal at 5% Significance Level		
391	**Detected Data appear Lognormal at 5% Significance Level**											
392												
393	**Lognormal ROS Statistics Using Imputed Non-Detects**											
394					Mean in Original Scale	13.72				Mean in Log Scale		0.603
395					SD in Original Scale	24.83				SD in Log Scale		2.439
396					95% t UCL (assumes normality of ROS data)	21.87				95% Percentile Bootstrap UCL		22.18
397					95% BCA Bootstrap UCL	23.63				95% Bootstrap t UCL		26.51
398					95% H-UCL (Log ROS)	350.7						
399												
400	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
401					KM Mean (logged)	1.078				95% H-UCL (KM -Log)		53.78
402					KM SD (logged)	1.793				95% Critical H Value (KM-Log)		3.699
403					KM Standard Error of Mean (logged)	0.354						
404												
405	**DL/2 Statistics**											
406					**DL/2 Normal**					**DL/2 Log-Transformed**		
407					Mean in Original Scale	13.75				Mean in Log Scale		0.872
408					SD in Original Scale	24.81				SD in Log Scale		2.048
409					95% t UCL (Assumes normality)	21.89				95% H-Stat UCL		102
410	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
411												
412	**Nonparametric Distribution Free UCL Statistics**											
413	**Detected Data appear Gamma Distributed at 5% Significance Level**											
414												
415	**Suggested UCL to Use**											
416					95% KM (Chebyshev) UCL	34.77				95% GROS Adjusted Gamma UCL		30.78
417					95% Adjusted Gamma KM-UCL	28.02						
418												
419	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
420	Recommendations are based upon data size, data distribution, and skewness.											
421	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
422	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
423												
424	1,1-DICHLOROETHANE											

	A	B	C	D	E	F	G	H	I	J	K	L
425												
426	**General Statistics**											
427	Total Number of Observations					27	Number of Distinct Observations					7
428	Number of Detects					6	Number of Non-Detects					21
429	Number of Distinct Detects					6	Number of Distinct Non-Detects					1
430	Minimum Detect					0.87	Minimum Non-Detect					0.5
431	Maximum Detect					4.53	Maximum Non-Detect					0.5
432	Variance Detects					1.926	Percent Non-Detects					77.78%
433	Mean Detects					2.513	SD Detects					1.388
434	Median Detects					2.3	CV Detects					0.552
435	Skewness Detects					0.439	Kurtosis Detects					-1.063
436	Mean of Logged Detects					0.777	SD of Logged Detects					0.614
437												
438	**Normal GOF Test on Detects Only**											
439	Shapiro Wilk Test Statistic					0.959	**Shapiro Wilk GOF Test**					
440	5% Shapiro Wilk Critical Value					0.788	Detected Data appear Normal at 5% Significance Level					
441	Lilliefors Test Statistic					0.17	**Lilliefors GOF Test**					
442	5% Lilliefors Critical Value					0.362	Detected Data appear Normal at 5% Significance Level					
443	**Detected Data appear Normal at 5% Significance Level**											
444												
445	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
446	Mean					0.947	Standard Error of Mean					0.217
447	SD					1.028	95% KM (BCA) UCL					1.289
448	95% KM (t) UCL					1.317	95% KM (Percentile Bootstrap) UCL					1.307
449	95% KM (z) UCL					1.304	95% KM Bootstrap t UCL					1.333
450	90% KM Chebyshev UCL					1.598	95% KM Chebyshev UCL					1.892
451	97.5% KM Chebyshev UCL					2.301	99% KM Chebyshev UCL					3.104
452												
453	**Gamma GOF Tests on Detected Observations Only**											
454	A-D Test Statistic					0.181	**Anderson-Darling GOF Test**					
455	5% A-D Critical Value					0.701	Detected data appear Gamma Distributed at 5% Significance Level					
456	K-S Test Statistic					0.164	**Kolmogrov-Smirnoff GOF**					
457	5% K-S Critical Value					0.334	Detected data appear Gamma Distributed at 5% Significance Level					
458	**Detected data appear Gamma Distributed at 5% Significance Level**											
459												
460	**Gamma Statistics on Detected Data Only**											
461	k hat (MLE)					3.608	k star (bias corrected MLE)					1.915
462	Theta hat (MLE)					0.697	Theta star (bias corrected MLE)					1.312
463	nu hat (MLE)					43.3	nu star (bias corrected)					22.98
464	MLE Mean (bias corrected)					2.513	MLE Sd (bias corrected)					1.816
465												
466	**Gamma Kaplan-Meier (KM) Statistics**											
467	k hat (KM)					0.849	nu hat (KM)					45.84
468	Approximate Chi Square Value (45.84, α)					31.31	Adjusted Chi Square Value (45.84, β)					30.54
469	95% Gamma Approximate KM-UCL (use when n>=50)					1.387	95% Gamma Adjusted KM-UCL (use when n<50)					1.422
470												
471	**Gamma ROS Statistics using Imputed Non-Detects**											
472	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
473	GROS may not be used when kstar of detected data is small such as < 0.1											
474	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
475	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
476	Minimum					0.01	Mean					0.578
477	Maximum					4.53	Median					0.01

	A	B	C	D	E	F	G	H	I	J	K	L
478					SD	1.219					CV	2.111
479					k hat (MLE)	0.259					k star (bias corrected MLE)	0.254
480					Theta hat (MLE)	2.234					Theta star (bias corrected MLE)	2.269
481					nu hat (MLE)	13.96					nu star (bias corrected)	13.74
482					MLE Mean (bias corrected)	0.578					MLE Sd (bias corrected)	1.145
483											Adjusted Level of Significance (β)	0.0401
484					Approximate Chi Square Value (13.74, α)	6.395					Adjusted Chi Square Value (13.74, β)	6.076
485					95% Gamma Approximate UCL (use when n>=50)	1.241					95% Gamma Adjusted UCL (use when n<50)	1.306
486												
487					**Lognormal GOF Test on Detected Observations Only**							
488					Shapiro Wilk Test Statistic	0.97			**Shapiro Wilk GOF Test**			
489					5% Shapiro Wilk Critical Value	0.788			Detected Data appear Lognormal at 5% Significance Level			
490					Lilliefors Test Statistic	0.144			**Lilliefors GOF Test**			
491					5% Lilliefors Critical Value	0.362			Detected Data appear Lognormal at 5% Significance Level			
492					**Detected Data appear Lognormal at 5% Significance Level**							
493												
494					**Lognormal ROS Statistics Using Imputed Non-Detects**							
495					Mean in Original Scale	0.749					Mean in Log Scale	-1.295
496					SD in Original Scale	1.154					SD in Log Scale	1.514
497					95% t UCL (assumes normality of ROS data)	1.127					95% Percentile Bootstrap UCL	1.142
498					95% BCA Bootstrap UCL	1.233					95% Bootstrap t UCL	1.368
499					95% H-UCL (Log ROS)	2.268						
500												
501					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
502					KM Mean (logged)	-0.367					95% H-UCL (KM -Log)	1.142
503					KM SD (logged)	0.666					95% Critical H Value (KM-Log)	2.126
504					KM Standard Error of Mean (logged)	0.14						
505												
506					**DL/2 Statistics**							
507					**DL/2 Normal**				**DL/2 Log-Transformed**			
508					Mean in Original Scale	0.753					Mean in Log Scale	-0.906
509					SD in Original Scale	1.136					SD in Log Scale	0.955
510					95% t UCL (Assumes normality)	1.126					95% H-Stat UCL	1.012
511					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
512												
513					**Nonparametric Distribution Free UCL Statistics**							
514					**Detected Data appear Normal Distributed at 5% Significance Level**							
515												
516					**Suggested UCL to Use**							
517					95% KM (t) UCL	1.317					95% KM (Percentile Bootstrap) UCL	1.307
518												
519					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
520					Recommendations are based upon data size, data distribution, and skewness.							
521					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
522					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
523												
524	**1,1-DICHLOROETHENE**											
525												
526					**General Statistics**							
527					Total Number of Observations	27					Number of Distinct Observations	18
528					Number of Detects	19					Number of Non-Detects	8
529					Number of Distinct Detects	17					Number of Distinct Non-Detects	1
530					Minimum Detect	0.57					Minimum Non-Detect	0.5

	A–E	F	G–K	L
531	Maximum Detect	9.23	Maximum Non-Detect	0.5
532	Variance Detects	5.66	Percent Non-Detects	29.63%
533	Mean Detects	2.665	SD Detects	2.379
534	Median Detects	1.4	CV Detects	0.893
535	Skewness Detects	1.361	Kurtosis Detects	1.669
536	Mean of Logged Detects	0.607	SD of Logged Detects	0.896
537				
538	**Normal GOF Test on Detects Only**			
539	Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**	
540	5% Shapiro Wilk Critical Value	0.901	Detected Data Not Normal at 5% Significance Level	
541	Lilliefors Test Statistic	0.229	**Lilliefors GOF Test**	
542	5% Lilliefors Critical Value	0.203	Detected Data Not Normal at 5% Significance Level	
543	**Detected Data Not Normal at 5% Significance Level**			
544				
545	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
546	Mean	2.023	Standard Error of Mean	0.431
547	SD	2.18	95% KM (BCA) UCL	2.774
548	95% KM (t) UCL	2.758	95% KM (Percentile Bootstrap) UCL	2.725
549	95% KM (z) UCL	2.732	95% KM Bootstrap t UCL	3.079
550	90% KM Chebyshev UCL	3.316	95% KM Chebyshev UCL	3.902
551	97.5% KM Chebyshev UCL	4.715	99% KM Chebyshev UCL	6.311
552				
553	**Gamma GOF Tests on Detected Observations Only**			
554	A-D Test Statistic	0.693	**Anderson-Darling GOF Test**	
555	5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level	
556	K-S Test Statistic	0.196	**Kolmogrov-Smirnoff GOF**	
557	5% K-S Critical Value	0.202	Detected data appear Gamma Distributed at 5% Significance Level	
558	**Detected data appear Gamma Distributed at 5% Significance Level**			
559				
560	**Gamma Statistics on Detected Data Only**			
561	k hat (MLE)	1.486	k star (bias corrected MLE)	1.287
562	Theta hat (MLE)	1.793	Theta star (bias corrected MLE)	2.071
563	nu hat (MLE)	56.48	nu star (bias corrected)	48.9
564	MLE Mean (bias corrected)	2.665	MLE Sd (bias corrected)	2.349
565				
566	**Gamma Kaplan-Meier (KM) Statistics**			
567	k hat (KM)	0.862	nu hat (KM)	46.54
568	Approximate Chi Square Value (46.54, α)	31.89	Adjusted Chi Square Value (46.54, β)	31.11
569	95% Gamma Approximate KM-UCL (use when n>=50)	2.953	95% Gamma Adjusted KM-UCL (use when n<50)	3.027
570				
571	**Gamma ROS Statistics using Imputed Non-Detects**			
572	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
573	GROS may not be used when kstar of detected data is small such as < 0.1			
574	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
575	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
576	Minimum	0.01	Mean	1.878
577	Maximum	9.23	Median	0.94
578	SD	2.333	CV	1.242
579	k hat (MLE)	0.417	k star (bias corrected MLE)	0.395
580	Theta hat (MLE)	4.503	Theta star (bias corrected MLE)	4.75
581	nu hat (MLE)	22.52	nu star (bias corrected)	21.35
582	MLE Mean (bias corrected)	1.878	MLE Sd (bias corrected)	2.987
583			Adjusted Level of Significance (β)	0.0401

584	Approximate Chi Square Value (21.35, α)					11.85	Adjusted Chi Square Value (21.35, β)					11.4
585	95% Gamma Approximate UCL (use when n>=50)					3.383	95% Gamma Adjusted UCL (use when n<50)					3.517
586												
587	**Lognormal GOF Test on Detected Observations Only**											
588	Shapiro Wilk Test Statistic					0.92	**Shapiro Wilk GOF Test**					
589	5% Shapiro Wilk Critical Value					0.901	Detected Data appear Lognormal at 5% Significance Level					
590	Lilliefors Test Statistic					0.179	**Lilliefors GOF Test**					
591	5% Lilliefors Critical Value					0.203	Detected Data appear Lognormal at 5% Significance Level					
592	**Detected Data appear Lognormal at 5% Significance Level**											
593												
594	**Lognormal ROS Statistics Using Imputed Non-Detects**											
595	Mean in Original Scale					1.944	Mean in Log Scale					-0.0399
596	SD in Original Scale					2.281	SD in Log Scale					1.294
597	95% t UCL (assumes normality of ROS data)					2.693	95% Percentile Bootstrap UCL					2.714
598	95% BCA Bootstrap UCL					2.891	95% Bootstrap t UCL					2.936
599	95% H-UCL (Log ROS)					4.668						
600												
601	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
602	KM Mean (logged)					0.222	95% H-UCL (KM -Log)					3.058
603	KM SD (logged)					0.942	95% Critical H Value (KM-Log)					2.446
604	KM Standard Error of Mean (logged)					0.186						
605												
606	**DL/2 Statistics**											
607	**DL/2 Normal**						**DL/2 Log-Transformed**					
608	Mean in Original Scale					1.949	Mean in Log Scale					0.0167
609	SD in Original Scale					2.276	SD in Log Scale					1.19
610	95% t UCL (Assumes normality)					2.696	95% H-Stat UCL					3.948
611	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
612												
613	**Nonparametric Distribution Free UCL Statistics**											
614	**Detected Data appear Gamma Distributed at 5% Significance Level**											
615												
616	**Suggested UCL to Use**											
617	95% KM (Percentile Bootstrap) UCL					2.725	95% GROS Adjusted Gamma UCL					3.517
618	95% Adjusted Gamma KM-UCL					3.027						
619												
620	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
621	Recommendations are based upon data size, data distribution, and skewness.											
622	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
623	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
624												
625	CARBON DISULFIDE											
626												
627	**General Statistics**											
628	Total Number of Observations					27	Number of Distinct Observations					2
629	Number of Detects					1	Number of Non-Detects					26
630	Number of Distinct Detects					1	Number of Distinct Non-Detects					1
631												
632	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
633	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
634												
635	**The data set for variable CARBON DISULFIDE was not processed!**											
636												

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	CIS-1,2-DCE											
639												
640	General Statistics											
641	Total Number of Observations					27	Number of Distinct Observations					16
642	Number of Detects					15	Number of Non-Detects					12
643	Number of Distinct Detects					15	Number of Distinct Non-Detects					1
644	Minimum Detect					0.52	Minimum Non-Detect					0.5
645	Maximum Detect					15	Maximum Non-Detect					0.5
646	Variance Detects					19.26	Percent Non-Detects					44.44%
647	Mean Detects					3.765	SD Detects					4.389
648	Median Detects					1.5	CV Detects					1.166
649	Skewness Detects					1.647	Kurtosis Detects					2.098
650	Mean of Logged Detects					0.73	SD of Logged Detects					1.123
651												
652	Normal GOF Test on Detects Only											
653	Shapiro Wilk Test Statistic					0.759	Shapiro Wilk GOF Test					
654	5% Shapiro Wilk Critical Value					0.881	Detected Data Not Normal at 5% Significance Level					
655	Lilliefors Test Statistic					0.236	Lilliefors GOF Test					
656	5% Lilliefors Critical Value					0.229	Detected Data Not Normal at 5% Significance Level					
657	Detected Data Not Normal at 5% Significance Level											
658												
659	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
660	Mean					2.314	Standard Error of Mean					0.708
661	SD					3.552	95% KM (BCA) UCL					3.565
662	95% KM (t) UCL					3.521	95% KM (Percentile Bootstrap) UCL					3.488
663	95% KM (z) UCL					3.478	95% KM Bootstrap t UCL					4.55
664	90% KM Chebyshev UCL					4.437	95% KM Chebyshev UCL					5.398
665	97.5% KM Chebyshev UCL					6.733	99% KM Chebyshev UCL					9.354
666												
667	Gamma GOF Tests on Detected Observations Only											
668	A-D Test Statistic					0.784	Anderson-Darling GOF Test					
669	5% A-D Critical Value					0.764	Detected Data Not Gamma Distributed at 5% Significance Level					
670	K-S Test Statistic					0.237	Kolmogrov-Smirnoff GOF					
671	5% K-S Critical Value					0.228	Detected Data Not Gamma Distributed at 5% Significance Level					
672	Detected Data Not Gamma Distributed at 5% Significance Level											
673												
674	Gamma Statistics on Detected Data Only											
675	k hat (MLE)					0.972	k star (bias corrected MLE)					0.822
676	Theta hat (MLE)					3.875	Theta star (bias corrected MLE)					4.581
677	nu hat (MLE)					29.15	nu star (bias corrected)					24.65
678	MLE Mean (bias corrected)					3.765	MLE Sd (bias corrected)					4.153
679												
680	Gamma Kaplan-Meier (KM) Statistics											
681	k hat (KM)					0.424	nu hat (KM)					22.91
682	Approximate Chi Square Value (22.91, α)					13.02	Adjusted Chi Square Value (22.91, β)					12.55
683	95% Gamma Approximate KM-UCL (use when n>=50)					4.07	95% Gamma Adjusted KM-UCL (use when n<50)					4.225
684												
685	Gamma ROS Statistics using Imputed Non-Detects											
686	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
687	GROS may not be used when kstar of detected data is small such as < 0.1											
688	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
689	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

	A	B	C	D	E	F	G	H	I	J	K	L
690					Minimum	0.01					Mean	2.096
691					Maximum	15					Median	0.57
692					SD	3.74					CV	1.784
693					k hat (MLE)	0.291					k star (bias corrected MLE)	0.283
694					Theta hat (MLE)	7.202					Theta star (bias corrected MLE)	7.397
695					nu hat (MLE)	15.71					nu star (bias corrected)	15.3
696					MLE Mean (bias corrected)	2.096					MLE Sd (bias corrected)	3.937
697											Adjusted Level of Significance (β)	0.0401
698					Approximate Chi Square Value (15.30, α)	7.472					Adjusted Chi Square Value (15.30, β)	7.123
699					95% Gamma Approximate UCL (use when n>=50)	4.292					95% Gamma Adjusted UCL (use when n<50)	4.503
700												
701					**Lognormal GOF Test on Detected Observations Only**							
702					Shapiro Wilk Test Statistic	0.906			**Shapiro Wilk GOF Test**			
703					5% Shapiro Wilk Critical Value	0.881			Detected Data appear Lognormal at 5% Significance Level			
704					Lilliefors Test Statistic	0.223			**Lilliefors GOF Test**			
705					5% Lilliefors Critical Value	0.229			Detected Data appear Lognormal at 5% Significance Level			
706					**Detected Data appear Lognormal at 5% Significance Level**							
707												
708					**Lognormal ROS Statistics Using Imputed Non-Detects**							
709					Mean in Original Scale	2.153					Mean in Log Scale	-0.631
710					SD in Original Scale	3.708					SD in Log Scale	1.869
711					95% t UCL (assumes normality of ROS data)	3.37					95% Percentile Bootstrap UCL	3.376
712					95% BCA Bootstrap UCL	3.638					95% Bootstrap t UCL	4.238
713					95% H-UCL (Log ROS)	12.38						
714												
715					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
716					KM Mean (logged)	0.0972					95% H-UCL (KM -Log)	3.408
717					KM SD (logged)	1.074					95% Critical H Value (KM-Log)	2.619
718					KM Standard Error of Mean (logged)	0.214						
719												
720					**DL/2 Statistics**							
721					**DL/2 Normal**				**DL/2 Log-Transformed**			
722					Mean in Original Scale	2.203					Mean in Log Scale	-0.211
723					SD in Original Scale	3.679					SD in Log Scale	1.352
724					95% t UCL (Assumes normality)	3.41					95% H-Stat UCL	4.489
725					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
726												
727					**Nonparametric Distribution Free UCL Statistics**							
728					**Detected Data appear Lognormal Distributed at 5% Significance Level**							
729												
730					**Suggested UCL to Use**							
731					97.5% KM (Chebyshev) UCL	6.733						
732												
733					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
734					Recommendations are based upon data size, data distribution, and skewness.							
735					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
736					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
737												
738	DICHLORODIFLUOROMETHANE (FREON 12)											
739												
740					**General Statistics**							
741					Total Number of Observations	27					Number of Distinct Observations	5
742					Number of Detects	3					Number of Non-Detects	24

	A	B	C	D	E	F	G	H	I	J	K	L
743					Number of Distinct Detects	3					Number of Distinct Non-Detects	2
744					Minimum Detect	0.65					Minimum Non-Detect	0.5
745					Maximum Detect	2.6					Maximum Non-Detect	2
746					Variance Detects	1.183					Percent Non-Detects	88.89%
747					Mean Detects	1.903					SD Detects	1.088
748					Median Detects	2.46					CV Detects	0.571
749					Skewness Detects	-1.7					Kurtosis Detects	N/A
750					Mean of Logged Detects	0.475					SD of Logged Detects	0.785
751												
752					**Warning: Data set has only 3 Detected Values.**							
753					**This is not enough to compute meaningful or reliable statistics and estimates.**							
754												
755												
756					**Normal GOF Test on Detects Only**							
757					Shapiro Wilk Test Statistic	0.804	**Shapiro Wilk GOF Test**					
758					5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level					
759					Lilliefors Test Statistic	0.362	**Lilliefors GOF Test**					
760					5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level					
761					**Detected Data appear Normal at 5% Significance Level**							
762												
763					**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**							
764					Mean	0.66	Standard Error of Mean					0.125
765					SD	0.53	95% KM (BCA) UCL					N/A
766					95% KM (t) UCL	0.874	95% KM (Percentile Bootstrap) UCL					N/A
767					95% KM (z) UCL	0.866	95% KM Bootstrap t UCL					N/A
768					90% KM Chebyshev UCL	1.036	95% KM Chebyshev UCL					1.206
769					97.5% KM Chebyshev UCL	1.443	99% KM Chebyshev UCL					1.907
770												
771					**Gamma GOF Tests on Detected Observations Only**							
772					**Not Enough Data to Perform GOF Test**							
773												
774					**Gamma Statistics on Detected Data Only**							
775					k hat (MLE)	3.122	k star (bias corrected MLE)					N/A
776					Theta hat (MLE)	0.61	Theta star (bias corrected MLE)					N/A
777					nu hat (MLE)	18.73	nu star (bias corrected)					N/A
778					MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)					N/A
779												
780					**Gamma Kaplan-Meier (KM) Statistics**							
781					k hat (KM)	1.549	nu hat (KM)					83.66
782							Adjusted Level of Significance (β)					0.0401
783					Approximate Chi Square Value (83.66, α)	63.58	Adjusted Chi Square Value (83.66, β)					62.46
784					95% Gamma Approximate KM-UCL (use when n>=50)	0.869	95% Gamma Adjusted KM-UCL (use when n<50)					0.884
785												
786					**Lognormal GOF Test on Detected Observations Only**							
787					Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk GOF Test**					
788					5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level					
789					Lilliefors Test Statistic	0.373	**Lilliefors GOF Test**					
790					5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level					
791					**Detected Data appear Lognormal at 5% Significance Level**							
792												
793					**Lognormal ROS Statistics Using Imputed Non-Detects**							
794					Mean in Original Scale	0.302	Mean in Log Scale					-2.698
795					SD in Original Scale	0.662	SD in Log Scale					1.777

	A	B	C	D	E	F	G	H	I	J	K	L
796					95% t UCL (assumes normality of ROS data)	0.519					95% Percentile Bootstrap UCL	0.533
797					95% BCA Bootstrap UCL	0.621					95% Bootstrap t UCL	1.16
798					95% H-UCL (Log ROS)	1.177						
799												
800					UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed							
801					KM Mean (logged)	-0.556					95% H-UCL (KM -Log)	0.736
802					KM SD (logged)	0.425					95% Critical H Value (KM-Log)	1.909
803					KM Standard Error of Mean (logged)	0.101						
804												
805					DL/2 Statistics							
806					DL/2 Normal				DL/2 Log-Transformed			
807					Mean in Original Scale	0.739					Mean in Log Scale	-0.615
808					SD in Original Scale	0.629					SD in Log Scale	0.801
809					95% t UCL (Assumes normality)	0.946					95% H-Stat UCL	1.066
810					DL/2 is not a recommended method, provided for comparisons and historical reasons							
811												
812					Nonparametric Distribution Free UCL Statistics							
813					Detected Data appear Normal Distributed at 5% Significance Level							
814												
815					Suggested UCL to Use							
816					95% KM (t) UCL	0.874					95% KM (Percentile Bootstrap) UCL	N/A
817					Warning: One or more Recommended UCL(s) not available!							
818												
819					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
820					Recommendations are based upon data size, data distribution, and skewness.							
821					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
822					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
823												
824	METHYL TERT-BUTYL ETHER (MTBE)											
825												
826					General Statistics							
827					Total Number of Observations	27					Number of Distinct Observations	3
828					Number of Detects	1					Number of Non-Detects	26
829					Number of Distinct Detects	1					Number of Distinct Non-Detects	2
830												
831					Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!							
832					It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).							
833												
834					The data set for variable METHYL TERT-BUTYL ETHER (MTBE) was not processed!							
835												
836												
837	TRICHLOROFLUOROMETHANE (FREON 11)											
838												
839					General Statistics							
840					Total Number of Observations	27					Number of Distinct Observations	6
841					Number of Detects	4					Number of Non-Detects	23
842					Number of Distinct Detects	4					Number of Distinct Non-Detects	2
843					Minimum Detect	0.52					Minimum Non-Detect	0.5
844					Maximum Detect	0.93					Maximum Non-Detect	2
845					Variance Detects	0.0305					Percent Non-Detects	85.19%
846					Mean Detects	0.768					SD Detects	0.175
847					Median Detects	0.81					CV Detects	0.228
848					Skewness Detects	-1.339					Kurtosis Detects	2.484

	A	B	C	D	E	F	G	H	I	J	K	L
849					Mean of Logged Detects	-0.287					SD of Logged Detects	0.253
850												
851					Normal GOF Test on Detects Only							
852					Shapiro Wilk Test Statistic	0.889	Shapiro Wilk GOF Test					
853					5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level					
854					Lilliefors Test Statistic	0.324	Lilliefors GOF Test					
855					5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level					
856					Detected Data appear Normal at 5% Significance Level							
857												
858					Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs							
859					Mean	0.567	Standard Error of Mean					0.0399
860					SD	0.138	95% KM (BCA) UCL					N/A
861					95% KM (t) UCL	0.635	95% KM (Percentile Bootstrap) UCL					N/A
862					95% KM (z) UCL	0.633	95% KM Bootstrap t UCL					N/A
863					90% KM Chebyshev UCL	0.687	95% KM Chebyshev UCL					0.741
864					97.5% KM Chebyshev UCL	0.816	99% KM Chebyshev UCL					0.964
865												
866					Gamma GOF Tests on Detected Observations Only							
867					A-D Test Statistic	0.471	Anderson-Darling GOF Test					
868					5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level					
869					K-S Test Statistic	0.356	Kolmogrov-Smirnoff GOF					
870					5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level					
871					Detected data appear Gamma Distributed at 5% Significance Level							
872												
873					Gamma Statistics on Detected Data Only							
874					k hat (MLE)	22.48	k star (bias corrected MLE)					5.787
875					Theta hat (MLE)	0.0341	Theta star (bias corrected MLE)					0.133
876					nu hat (MLE)	179.8	nu star (bias corrected)					46.29
877					MLE Mean (bias corrected)	0.768	MLE Sd (bias corrected)					0.319
878												
879					Gamma Kaplan-Meier (KM) Statistics							
880					k hat (KM)	16.79	nu hat (KM)					906.9
881					Approximate Chi Square Value (906.91, α)	838	Adjusted Chi Square Value (906.91, β)					833.8
882					95% Gamma Approximate KM-UCL (use when n>=50)	0.613	95% Gamma Adjusted KM-UCL (use when n<50)					0.617
883												
884					Gamma ROS Statistics using Imputed Non-Detects							
885					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
886					GROS may not be used when kstar of detected data is small such as < 0.1							
887					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
888					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
889					Minimum	0.01	Mean					0.326
890					Maximum	0.93	Median					0.277
891					SD	0.292	CV					0.895
892					k hat (MLE)	0.772	k star (bias corrected MLE)					0.711
893					Theta hat (MLE)	0.422	Theta star (bias corrected MLE)					0.458
894					nu hat (MLE)	41.67	nu star (bias corrected)					38.37
895					MLE Mean (bias corrected)	0.326	MLE Sd (bias corrected)					0.386
896							Adjusted Level of Significance (β)					0.0401
897					Approximate Chi Square Value (38.37, α)	25.19	Adjusted Chi Square Value (38.37, β)					24.5
898					95% Gamma Approximate UCL (use when n>=50)	0.496	95% Gamma Adjusted UCL (use when n<50)					N/A
899												
900					Lognormal GOF Test on Detected Observations Only							
901					Shapiro Wilk Test Statistic	0.846	Shapiro Wilk GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
902					5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level					
903					Lilliefors Test Statistic	0.35	**Lilliefors GOF Test**					
904					5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level					
905	**Detected Data appear Lognormal at 5% Significance Level**											
906												
907	**Lognormal ROS Statistics Using Imputed Non-Detects**											
908					Mean in Original Scale	0.41			Mean in Log Scale			-1.03
909					SD in Original Scale	0.226			SD in Log Scale			0.54
910					95% t UCL (assumes normality of ROS data)	0.484			95% Percentile Bootstrap UCL			0.485
911					95% BCA Bootstrap UCL	0.49			95% Bootstrap t UCL			0.492
912					95% H-UCL (Log ROS)	0.511						
913												
914	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
915					KM Mean (logged)	-0.592			95% H-UCL (KM -Log)			0.607
916					KM SD (logged)	0.207			95% Critical H Value (KM-Log)			1.765
917					KM Standard Error of Mean (logged)	0.0598						
918												
919	**DL/2 Statistics**											
920		**DL/2 Normal**					**DL/2 Log-Transformed**					
921					Mean in Original Scale	0.632			Mean in Log Scale			-0.659
922					SD in Original Scale	0.362			SD in Log Scale			0.676
923					95% t UCL (Assumes normality)	0.751			95% H-Stat UCL			0.863
924	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
925												
926	**Nonparametric Distribution Free UCL Statistics**											
927	**Detected Data appear Normal Distributed at 5% Significance Level**											
928												
929	**Suggested UCL to Use**											
930					95% KM (t) UCL	0.635			95% KM (Percentile Bootstrap) UCL			N/A
931	**Warning: One or more Recommended UCL(s) not available!**											
932												
933	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
934	Recommendations are based upon data size, data distribution, and skewness.											
935	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
936	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
937												

ATTACHMENT E

Risk Assessment Calculations: Resident

SUMMARY OF RISK ASSESSMENT RESULTS
RESIDENT (CHILD AND ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

			Child Resident					Child and Adult Resident				
			Noncancer Hazard					Cancer Risk				
CAS	Chemical	Concentration in Surface Water (ug/L)	Ingestion of Surface Water	Dermal Contact with Surface Water	Inhalation of VOCs in Ambient Air from Surface Water	Ingestion of Fish	Hazard Quotient	Ingestion of Surface Water	Dermal Contact with Surface Water	Inhalation of Volatiles in Ambient Air from Surface Water	Ingestion of Fish	Excess Lifetime Cancer Risk
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	*0.5*	6.3E-08	1.6E-07	8.5E-07	3.8E-07	1.4E-06	NA	NA	NA	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	**0.64**	8.0E-07	9.6E-07	NA	1.4E-06	3.2E-06	9E-11	2E-10	2E-09	3E-10	3E-09
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	**1.5**	7.5E-06	1.5E-05	7.5E-05	2.2E-05	1.2E-04	NA	NA	NA	NA	NA
107-06-2	1,2-DICHLOROETHANE	**0.62**	2.6E-05	1.9E-05	8.3E-04	2.6E-05	9.1E-04	1E-09	2E-09	3E-08	2E-09	4E-08
71-43-2	BENZENE	**0.70**	4.4E-05	1.1E-04	2.6E-04	1.3E-04	5.4E-04	9E-10	4E-09	1E-08	5E-09	2E-08
75-15-0	CARBON DISULFIDE	2.5	6.3E-06	1.8E-05	4.0E-05	2.2E-05	8.6E-05	NA	NA	NA	NA	NA
56-23-5	CARBON TETRACHLORIDE	*0.5*	3.1E-05	1.2E-04	4.0E-05	3.2E-04	5.1E-04	8E-10	5E-09	5E-09	2E-08	3E-08
67-66-3	CHLOROFORM	**6.19**	1.6E-04	2.0E-04	5.6E-04	3.8E-04	1.3E-03	5E-09	1E-08	3E-07	2E-08	3E-07
156-59-2	CIS-1,2-DICHLOROETHENE	**2.25**	2.8E-04	3.8E-04	NA	5.8E-04	1.2E-03	NA	NA	NA	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	*1*	1.3E-06	2.2E-06	8.9E-05	4.1E-06	9.7E-05	NA	NA	NA	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	*1*	NA	NA	3.2E-06	NA	3.2E-06	4E-11	3E-11	6E-10	4E-11	7E-10
127-18-4	TETRACHLOROETHENE (PCE)	**6.1**	2.5E-04	2.1E-03	1.2E-03	7.5E-03	1.1E-02	3E-10	4E-09	3E-09	2E-08	2E-08
79-01-6	TRICHLOROETHENE (TCE)	**14**	7.0E-03	1.7E-02	6.0E-02	3.5E-02	1.2E-01	2E-08	6E-08	1E-07	1E-07	3E-07
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	*1*	8.4E-07	2.2E-06	1.2E-05	5.0E-06	2.0E-05	NA	NA	NA	NA	NA
	TOTALS		**7.8E-03**	**2.0E-02**	**6.3E-02**	**4.4E-02**	**1.3E-01**	**2E-08**	**9E-08**	**5E-07**	**2E-07**	**8E-07**
			Total Hazard - Exposure to Surface Water					**Cumulative Risk - Exposure to Surface Water**				

Notes:
Italicized EPCs are half the maximum reported detection limit
Bolded EPCs are the maximum detected concentration
NA = Not applicable

INADVERTANT INGESTION OF SURFACE WATER
RESIDENT (CHILD)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009 - 2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (ug/L)	(Cw) Concentration in Surface Water (mg/L)	(IR) Ingestion Rate of Surface Water (L/hour)	(EF_1) Exposure Frequency (hrs/event)	(EF_2) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(RAF) Relative Absorption Factor (fraction)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Intake (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(Risk) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Intake (mg/kg-day) Note #3	(SFo) Slope Factor $(mg/kg\text{-}day)^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.5	5.0E-04	0.049	2	14	6	1	15	2,190	1.3E-07	2.0E+00	6.3E-08	25,550	1.1E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	0.64	6.4E-04	0.049	2	14	6	1	15	2,190	1.6E-07	2.0E-01	8.0E-07	25,550	1.4E-08	5.7E-03	8E-11
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5	1.5E-03	0.049	2	14	6	1	15	2,190	3.8E-07	5.0E-02	7.5E-06	25,550	3.2E-08	NA	NA
107-06-2	1,2-DICHLOROETHANE	0.62	6.2E-04	0.049	2	14	6	1	15	2,190	1.6E-07	6.0E-03	2.6E-05	25,550	1.3E-08	9.1E-02	1E-09
71-43-2	BENZENE	0.70	7.0E-04	0.049	2	14	6	1	15	2,190	1.8E-07	4.0E-03	4.4E-05	25,550	1.5E-08	5.5E-02	8E-10
75-15-0	CARBON DISULFIDE	2.5	2.5E-03	0.049	2	14	6	1	15	2,190	6.3E-07	1.0E-01	6.3E-06	25,550	5.4E-08	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.5	5.0E-04	0.049	2	14	6	1	15	2,190	1.3E-07	4.0E-03	3.1E-05	25,550	1.1E-08	7.0E-02	8E-10
67-66-3	CHLOROFORM	6.19	6.2E-03	0.049	2	14	6	1	15	2,190	1.6E-06	1.0E-02	1.6E-04	25,550	1.3E-07	3.1E-02	4E-09
156-59-2	CIS-1,2-DICHLOROETHENE	2.25	2.3E-03	0.049	2	14	6	1	15	2,190	5.6E-07	2.0E-03	2.8E-04	25,550	4.8E-08	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	1.0E-03	0.049	2	14	6	1	15	2,190	2.5E-07	2.0E-01	1.3E-06	25,550	2.1E-08	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1	1.0E-03	0.049	2	14	6	1	15	2,190	2.5E-07	NA	NA	25,550	2.1E-08	1.8E-03	4E-11
127-18-4	TETRACHLOROETHENE (PCE)	6.1	6.1E-03	0.049	2	14	6	1	15	2,190	1.5E-06	6.0E-03	2.5E-04	25,550	1.3E-07	2.1E-03	3E-10
79-01-6	TRICHLOROETHENE (TCE)	14	1.4E-02	0.049	2	14	6	1	15	2,190	3.5E-06	5.0E-04	7.0E-03	25,550	3.0E-07	4.6E-02	1E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	1.0E-03	0.049	2	14	6	1	15	2,190	2.5E-07	3.0E-01	8.4E-07	25,550	2.1E-08	NA	NA
												Total Hazard - Ingestion of Surface Water	**7.8E-03**				
															Cumulative Risk - Ingestion of Surface Water		**2E-08**

Notes

#1: Average Daily Intake (mg/kg-day) = (Cw x IR x EF_1 x EF_2 x ED x RAF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (Cw x IR x EF1 x EF2 x ED x RAF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

INADVERTANT INGESTION OF SURFACE WATER
RESIDENT (ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009 - 2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (ug/L)	(Cw) Concentration in Surface Water (mg/L)	(IR) Ingestion Rate of Surface Water (L/hour)	(EF_1) Exposure Frequency (hrs/event)	(EF_2) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(RAF) Relative Absorption Factor (fraction)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Intake (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(Risk) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Intake (mg/kg-day) Note #3	(SFo) Slope Factor $(mg/kg\text{-}day)^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.5	5.0E-04	0.021	2	14	9	1	80	3,285	1.0E-08	2.0E+00	5.0E-09	25,550	1.3E-09	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	0.64	6.4E-04	0.021	2	14	9	1	80	3,285	1.3E-08	2.0E-01	6.4E-08	25,550	1.7E-09	5.7E-03	9E-12
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5	1.5E-03	0.021	2	14	9	1	80	3,285	3.0E-08	5.0E-02	6.0E-07	25,550	3.9E-09	NA	NA
107-06-2	1,2-DICHLOROETHANE	0.62	6.2E-04	0.021	2	14	9	1	80	3,285	1.2E-08	6.0E-03	2.1E-06	25,550	1.6E-09	9.1E-02	1E-10
71-43-2	BENZENE	0.70	7.0E-04	0.021	2	14	9	1	80	3,285	1.4E-08	4.0E-03	3.5E-06	25,550	1.8E-09	5.5E-02	1E-10
75-15-0	CARBON DISULFIDE	2.5	2.5E-03	0.021	2	14	9	1	80	3,285	5.0E-08	1.0E-01	5.0E-07	25,550	6.5E-09	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.5	5.0E-04	0.021	2	14	9	1	80	3,285	1.0E-08	4.0E-03	2.5E-06	25,550	1.3E-09	7.0E-02	9E-11
67-66-3	CHLOROFORM	6.19	6.2E-03	0.021	2	14	9	1	80	3,285	1.2E-07	1.0E-02	1.2E-05	25,550	1.6E-08	3.1E-02	5E-10
156-59-2	CIS-1,2-DICHLOROETHENE	2.25	2.3E-03	0.021	2	14	9	1	80	3,285	4.5E-08	2.0E-03	2.3E-05	25,550	5.8E-09	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	1.0E-03	0.021	2	14	9	1	80	3,285	2.0E-08	2.0E-01	1.0E-07	25,550	2.6E-09	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1	1.0E-03	0.021	2	14	9	1	80	3,285	2.0E-08	NA	NA	25,550	2.6E-09	1.8E-03	5E-12
127-18-4	TETRACHLOROETHENE (PCE)	6.1	6.1E-03	0.021	2	14	9	1	80	3,285	1.2E-07	6.0E-03	2.0E-05	25,550	1.6E-08	2.1E-03	3E-11
79-01-6	TRICHLOROETHENE (TCE)	14	1.4E-02	0.021	2	14	9	1	80	3,285	2.8E-07	5.0E-04	5.6E-04	25,550	3.6E-08	4.6E-02	2E-09
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	1.0E-03	0.021	2	14	9	1	80	3,285	2.0E-08	3.0E-01	6.7E-08	25,550	2.6E-09	NA	NA
												Total Hazard - Ingestion of Surface Water	**6.3E-04**				
																Cumulative Risk - Ingestion of Surface Water	**3E-09**

Notes

#1: Average Daily Intake (mg/kg-day) = (Cw x IR x EF_1 x EF_2 x ED x RAF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (Cw x IR x EF1 x EF2 x ED x RAF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

INGESTION OF FISH
RESIDENT (CHILD)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (µg/L)	(Cw) Concentration in Surface Water (mg/L)	(BCF) Fish Bioconcentration Factor (L/kg)	(Cf) Concentration in Fish (mg/kg)	(IR) Ingestion Rate of Fish (mg/day)	(CF) Conversion Factor ($1x10^{-6}$ kg/mg)	Fishing Events/ Year	Frequency of Catching and Ingesting Fish	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(RAF) Relative Absorption Factor (fraction)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Intake (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(Risk) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Intake (mg/kg-day) Note #3	(SFo) Slope Factor $(mg/kg\text{-}day)^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	5.0E-01	5.0E-04	1.7E+01	8.4E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	7.5E-07	2.0E+00	3.8E-07	25,550	6.4E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	6.4E-01	6.4E-04	4.9E+00	3.1E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	2.8E-07	2.0E-01	1.4E-06	25,550	2.4E-08	5.7E-03	1E-10
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5E+00	1.5E-03	8.3E+00	1.2E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.1E-06	5.0E-02	2.2E-05	25,550	9.5E-08	NA	NA
107-06-2	1,2-DICHLOROETHANE	6.2E-01	6.2E-04	2.9E+00	1.8E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	1.6E-07	6.0E-03	2.6E-05	25,550	1.4E-08	9.1E-02	1E-09
71-43-2	BENZENE	7.0E-01	7.0E-04	8.3E+00	5.8E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	5.2E-07	4.0E-03	1.3E-04	25,550	4.4E-08	5.5E-02	2E-09
75-15-0	CARBON DISULFIDE	2.5E+00	2.5E-03	9.9E+00	2.5E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	2.2E-06	1.0E-01	2.2E-05	25,550	1.9E-07	NA	NA
56-23-5	CARBON TETRACHLORIDE	5.0E-01	5.0E-04	2.9E+01	1.4E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.3E-06	4.0E-03	3.2E-04	25,550	1.1E-07	7.0E-02	8E-09
67-66-3	CHLOROFORM	6.2E+00	6.2E-03	6.9E+00	4.3E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	3.8E-06	1.0E-02	3.8E-04	25,550	3.3E-07	3.1E-02	1E-08
156-59-2	CIS-1,2-DICHLOROETHENE	2.3E+00	2.3E-03	5.8E+00	1.3E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.2E-06	2.0E-03	5.8E-04	25,550	1.0E-07	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.0E+00	1.0E-03	9.2E+00	9.2E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	8.2E-07	2.0E-01	4.1E-06	25,550	7.0E-08	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.0E+00	1.0E-03	1.5E+00	1.5E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	1.4E-07	NA	NA	25,550	1.2E-08	1.8E-03	2E-11
127-18-4	TETRACHLOROETHENE (PCE)	6.1E+00	6.1E-03	8.3E+01	5.1E-01	70,000	1E-06	14	50%	7	6	1	15	2,190	4.5E-05	6.0E-03	7.5E-03	25,550	3.9E-06	2.1E-03	8E-09
79-01-6	TRICHLOROETHENE (TCE)	1.4E+01	1.4E-02	1.4E+01	2.0E-01	70,000	1E-06	14	50%	7	6	1	15	2,190	1.8E-05	5.0E-04	3.5E-02	25,550	1.5E-06	4.6E-02	7E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.0E+00	1.0E-03	1.7E+01	1.7E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.5E-06	3.0E-01	5.0E-06	25,550	1.3E-07	NA	NA
																Total Hazard - Ingestion of Fish	**4.4E-02**				
																	Cumulative Risk - Ingestion of Fish				**1E-07**

Notes

#1: Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

DERMAL CONTACT WITH SURFACE WATER
RESIDENT (ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (µg/l)	(CF1) Conversion Factor ($1x10^{-3}$L/cm^3)	(CF2) Conversion Factor ($1x10^{-3}$mg/µg)	(Cw) Concentration in Surface Water (mg/cm^3)	(DA_{event}) Absorbed dose per event (mg/cm^2-event)	(SA) Exposed Skin Surface Area (cm^2)	(EV) Event Frequency (events/day)	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Dose (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(HQ) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Dose (mg/kg-day) Note #3	(SFo) Slope Factor (mg/kg-day)$^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.5	0.001	0.001	5.00E-07	1.99E-08	20,900	1	14	9	80	3,285	2.0E-07	2.0E+00	1.0E-07	25,550	2.6E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	0.64	0.001	0.001	6.40E-07	1.18E-08	20,900	1	14	9	80	3,285	1.2E-07	2.0E-01	5.9E-07	25,550	1.5E-08	5.7E-03	8.7E-11
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5	0.001	0.001	1.50E-06	4.71E-08	20,900	1	14	9	80	3,285	4.7E-07	5.0E-02	9.4E-06	25,550	6.1E-08	NA	NA
107-06-2	1,2-DICHLOROETHANE	0.62	0.001	0.001	6.20E-07	7.14E-09	20,900	1	14	9	80	3,285	7.2E-08	6.0E-03	1.2E-05	25,550	9.2E-09	9.1E-02	8.4E-10
71-43-2	BENZENE	0.70	0.001	0.001	7.00E-07	2.62E-08	20,900	1	14	9	80	3,285	2.6E-07	4.0E-03	6.6E-05	25,550	3.4E-08	5.5E-02	1.9E-09
75-15-0	CARBON DISULFIDE	2.5	0.001	0.001	2.50E-06	1.08E-07	20,900	1	14	9	80	3,285	1.1E-06	1.0E-01	1.1E-05	25,550	1.4E-07	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.5	0.001	0.001	5.00E-07	2.88E-08	20,900	1	14	9	80	3,285	2.9E-07	4.0E-03	7.2E-05	25,550	3.7E-08	7.0E-02	2.6E-09
67-66-3	CHLOROFORM	6.19	0.001	0.001	6.19E-06	1.25E-07	20,900	1	14	9	80	3,285	1.3E-06	1.0E-02	1.3E-04	25,550	1.6E-07	3.1E-02	5.0E-09
156-59-2	CIS-1,2-DICHLOROETHENE	2.25	0.001	0.001	2.25E-06	4.70E-08	20,900	1	14	9	80	3,285	4.7E-07	2.0E-03	2.4E-04	25,550	6.1E-08	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	0.001	0.001	1.00E-06	2.67E-08	20,900	1	14	9	80	3,285	2.7E-07	2.0E-01	1.3E-06	25,550	3.4E-08	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1	0.001	0.001	1.00E-06	5.97E-09	20,900	1	14	9	80	3,285	6.0E-08	NA	NA	25,550	7.7E-09	1.8E-03	1.4E-11
127-18-4	TETRACHLOROETHENE (PCE)	6.1	0.001	0.001	6.10E-06	7.59E-07	20,900	1	14	9	80	3,285	7.6E-06	6.0E-03	1.3E-03	25,550	9.8E-07	2.1E-03	2.1E-09
79-01-6	TRICHLOROETHENE (TCE)	14	0.001	0.001	1.40E-05	5.09E-07	20,900	1	14	9	80	3,285	5.1E-06	5.0E-04	1.0E-02	25,550	6.6E-07	4.6E-02	3.0E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	0.001	0.001	1.00E-06	4.10E-08	20,900	1	14	9	80	3,285	4.1E-07	3.0E-01	1.4E-06	25,550	5.3E-08	NA	NA
														Total Hazard - Dermal Contact with Surface Water	**1.2E-02**				
																		Cumulative Risk - Dermal Contact with Surface Water	**4E-08**

Notes

#1: Average Daily Dose (mg/kg-day) = (DA_{event} x SA x EV x ED x EF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (DA_{event} x SA x EV x ED x EF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

DERMAL CONTACT WITH SURFACE WATER
RESIDENT (CHILD AND ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009 - 2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

FOR ORGANIC CHEMICALS IN WATER (latest version 04/01)
Event time (hr/event): **t_event = 2.00 hr/event**
Skin thickness (assumed to be 10 um): lsc = 1.00E-03 cm

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data
as evaluated using MLAB (Civilized Software, Bethesda, MD)
95% LCI and UCI are evaluated using STATA

(**): halogenated chemicals.
Note:

CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Special Chemicals (*) or (**)	B	tau (hr)	t_star (hr)	FA	Conc (mg/cm3)	Kp used in DA_event (cm/hr)	DA_event (mg/cm2-evt)	log(Ds/lsc)	Dsc/lsc	Dsc	b	c	t_star1 B>0.6	t_star3 B<=0.6
Trichloroethane, 1,1,1-	71-55-6	133.4	2.49	5.1E-04	1.3E-02		3.1E-01	**	0.1	0.60	1.43	1.0	5.0E-07	1.3E-02	2.0E-08	-3.6E+00	2.79E-04	2.79E-07	3.4E-01	3.7E-01	#NUM!	1.43
Dichloroethane, 1,1-	75-34-3	99.0	1.79	2.7E-04	6.7E-03		1.7E-01	**	0.0	0.38	0.92	1.0	6.4E-07	6.7E-03	1.2E-08	-3.4E+00	4.36E-04	4.36E-07	3.2E-01	3.5E-01	#NUM!	0.92
Dichloroethylene, 1,1-	75-35-4	96.9	2.13	4.7E-04	1.2E-02		2.9E-01	**	0.0	0.37	0.89	1.0	1.5E-06	1.2E-02	4.7E-08	-3.3E+00	4.48E-04	4.48E-07	3.3E-01	3.6E-01	#NUM!	0.89
Dichloroethane, 1,2-	107-06-2	99.0	1.48	1.7E-04	4.2E-03		1.0E-01	**	0.0	0.38	0.92	1.0	6.2E-07	4.2E-03	7.1E-09	-3.4E+00	4.36E-04	4.36E-07	3.1E-01	3.4E-01	#NUM!	0.92
Benzene	71-43-2	78.1	2.13	5.9E-04	1.5E-02		3.7E-01		0.1	0.29	0.70	1.0	7.0E-07	1.5E-02	2.6E-08	-3.2E+00	5.71E-04	5.71E-07	3.3E-01	3.7E-01	#NUM!	0.70
Carbon disulfide	75-15-0	80.0	2.24	6.9E-04	1.7E-02		4.3E-01		0.059	0.30	0.72	1.0	2.5E-06	1.7E-02	1.1E-07	-3.3E+00	5.57E-04	5.57E-07	3.4E-01	3.7E-01	#NUM!	0.72
Carbon tetrachloride	56-23-5	153.8	2.83	6.6E-04	1.6E-02		4.0E-01	**	0.078	0.78	1.86	1.0	5.0E-07	1.6E-02	2.9E-08	-3.7E+00	2.15E-04	2.15E-07	3.5E-01	3.9E-01	#NUM!	1.86
Chloroform	67-66-3	119.4	1.97	2.8E-04	6.8E-03		1.7E-01	**	0.029	0.50	1.19	1.0	6.2E-06	6.8E-03	1.3E-07	-3.5E+00	3.35E-04	3.35E-07	3.2E-01	3.5E-01	#NUM!	1.19
Dichloroethylene, 1,2- (trans) [syn for cis-1,2-DCE]	156-59-2	96.9	1.86	3.1E-04	7.7E-03		1.9E-01	**	0.0	0.37	0.89	1.0	2.3E-06	7.7E-03	4.7E-08	-3.3E+00	4.48E-04	4.48E-07	3.2E-01	3.5E-01	#NUM!	0.89
Dichlorodifluoromethane	75-71-8	120.9	2.16	3.6E-04	9.0E-03		2.2E-01	**	0.0	0.51	1.22	1.0	1.0E-06	9.0E-03	2.7E-08	-3.5E+00	3.28E-04	3.28E-07	3.3E-01	3.6E-01	#NUM!	1.22
Ethyl ether [syn for MTBE]	1634-04-4	74.1	0.89	1.4E-03	2.3E-03	1.6E-02	4.0E-03		0.0	0.28	0.67	1.0	1.0E-06	2.3E-03	6.0E-09	-3.2E+00	6.01E-04	6.01E-07	3.1E-01	3.4E-01	#NUM!	0.67
Tetrachlorethylene	127-18-4	165.8	3.40	1.3E-03	3.3E-02		8.4E-01	**	0.2	0.91	2.18	1.0	6.1E-06	3.3E-02	7.6E-07	-3.7E+00	1.84E-04	1.84E-07	4.1E-01	4.5E-01	#NUM!	2.18
Trichloroethylene	79-01-6	131.4	2.42	4.7E-04	1.2E-02		2.9E-01	**	0.1	0.58	1.39	1.0	1.4E-05	1.2E-02	5.1E-07	-3.5E+00	2.87E-04	2.87E-07	3.4E-01	3.7E-01	#NUM!	1.39
Trichlorofluoromethane	75-69-4	137.4	2.53	5.1E-04	1.3E-02		3.2E-01	**	0.1	0.63	1.51	1.0	1.0E-06	1.3E-02	4.1E-08	-3.6E+00	2.65E-04	2.65E-07	3.4E-01	3.7E-01	#NUM!	1.51

INHALATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR FROM SURFACE WATER
RESIDENT (CHILD)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (µg/L)	(Cw-ca) Concentration in Air from Surface Water (ug/m^3)	(ET) Exposure Time (hours/day)	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(ATn) Averaging Time (hours)	(EC) Exposure Concentration (µg/m^3) Note #1	(RfCi) Reference Concentration (ug/m^3)	(HQ) Hazard Quotient Note #2	(AT$_c$) Averaging Time (hours)	(EC) Exposure Concentration (µg/m^3) Note #3	IUR Inhalation Unit Risk (µg/m3)$^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.5	4.4E-03	24	350	6	52,560	4.2E-03	5.0E+03	8.5E-07	613,200	3.6E-04	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	0.64	6.5E-03	24	350	6	52,560	6.3E-03	NA	NA	613,200	5.4E-04	1.6E-06	8.6E-10
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5	1.6E-02	24	350	6	52,560	1.5E-02	2.0E+02	7.5E-05	613,200	1.3E-03	NA	NA
107-06-2	1,2-DICHLOROETHANE	0.62	6.1E-03	24	350	6	52,560	5.8E-03	7.0E+00	8.3E-04	613,200	5.0E-04	2.6E-05	1.3E-08
71-43-2	BENZENE	0.70	8.0E-03	24	350	6	52,560	7.7E-03	3.0E+01	2.6E-04	613,200	6.6E-04	7.8E-06	5.1E-09
75-15-0	CARBON DISULFIDE	2.5	2.9E-02	24	350	6	52,560	2.8E-02	7.0E+02	4.0E-05	613,200	2.4E-03	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.5	4.1E-03	24	350	6	52,560	4.0E-03	1.0E+02	4.0E-05	613,200	3.4E-04	6.0E-06	2.0E-09
67-66-3	CHLOROFORM	6.19	5.7E-02	24	350	6	52,560	5.5E-02	9.8E+01	5.6E-04	613,200	4.7E-03	2.3E-05	1.1E-07
156-59-2	CIS-1,2-DICHLOROETHENE	2.25	2.3E-02	24	350	6	52,560	2.2E-02	NA	NA	613,200	1.9E-03	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	9.3E-03	24	350	6	52,560	8.9E-03	1.0E+02	8.9E-05	613,200	7.7E-04	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1	9.9E-03	24	350	6	52,560	9.5E-03	3.0E+03	3.2E-06	613,200	8.2E-04	2.6E-07	2.1E-10
127-18-4	TETRACHLOROETHENE (PCE)	6.1	4.8E-02	24	350	6	52,560	4.6E-02	4.0E+01	1.2E-03	613,200	4.0E-03	2.6E-07	1.0E-09
79-01-6	TRICHLOROETHENE (TCE)	14	1.2E-01	24	350	6	52,560	1.2E-01	2.0E+00	6.0E-02	613,200	1.0E-02	4.1E-06	4.2E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	8.7E-03	24	350	6	52,560	8.4E-03	7.0E+02	1.2E-05	613,200	7.2E-04	NA	NA
									Total Hazard - Inhalation of Volatiles from Surface Water	**6.3E-02**				
													Cumulative Risk - Inhalation of Volatiles from Surface Water	**2E-07**

Notes

#1: Exposure Concentration (ug/m^3) = (Cw-ca x ET x EF x ED) / (ATn)
#2: Hazard Index = Exposure Concentration/Reference Concentration
#3: Exposure Concentration (ug/m^3) = (Cw-ca x ET x EF x ED) / (ATc)
#4: Excess Lifetime Cancer Risk = Reference Concentration x Inhalation Unit Risk

CALCULATION OF VAPOR EMISSIONS FROM SURFACE WATER INTO AMBIENT AIR
RESIDENT (CHILD)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009 - 2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

Cas No.	Groundwater VOC	Molecular Weight	Henry's Law Constant (atm-m3/mol)	(Cw) Max Surface Water Concentration (µg/L)	Kl Liquid Mass Transfer Coefficient (cm/sec)	Kg Gas-phase Mass Transfer Coefficient (cm/sec)	K Mass Transfer Coefficient (cm/sec)	Wa Width of Canal (m)	La Length of Exposure Area (m)	A Area of Emission Area (m^2)	CF Conversion factor (10 L/cm/m^2)	ER Emission Rate at the Surface (µg/sec) Note #1	WS Wind Speed (mps)	Wp Width Perpendicular to Wind (canal and adjacent residential property) (m)	H Height of Breathing Zone (m)	Ca-sw Outdoor Air Concentration (ug/m3) Note #2
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	1.3E+02	1.7E-02	0.5	9.6E-04	4.2E-01	9.5E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	5.6E-01	2.8E+00	4.6E+01	1.0E+00	4.4E-03
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	9.9E+01	5.6E-03	0.64	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	8.2E-01	2.8E+00	4.6E+01	1.0E+00	6.5E-03
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	9.7E+01	2.6E-02	1.5	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	2.0E+00	2.8E+00	4.6E+01	1.0E+00	1.6E-02
107-06-2	1,2-DICHLOROETHANE	9.9E+01	1.2E-03	0.62	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	7.7E-01	2.8E+00	4.6E+01	1.0E+00	6.1E-03
71-43-2	BENZENE	7.8E+01	5.6E-03	0.7	1.3E-03	5.0E-01	1.2E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.0E+00	2.8E+00	4.6E+01	1.0E+00	8.0E-03
75-15-0	CARBON DISULFIDE	7.6E+01	1.4E-02	2.5	1.3E-03	5.0E-01	1.3E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	3.7E+00	2.8E+00	4.6E+01	1.0E+00	2.9E-02
56-23-5	CARBON TETRACHLORIDE	1.5E+02	2.8E-02	0.5	8.9E-04	4.0E-01	8.9E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	5.2E-01	2.8E+00	4.6E+01	1.0E+00	4.1E-03
67-66-3	CHLOROFORM	1.2E+02	3.7E-03	6.19	1.0E-03	4.3E-01	1.0E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	7.2E+00	2.8E+00	4.6E+01	1.0E+00	5.7E-02
156-59-2	CIS-1,2-DICHLOROETHENE	9.7E+01	4.1E-03	2.25	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	2.9E+00	2.8E+00	4.6E+01	1.0E+00	2.3E-02
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.2E+02	3.4E-01	1	1.0E-03	4.3E-01	1.0E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.2E+00	2.8E+00	4.6E+01	1.0E+00	9.3E-03
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	8.8E+01	5.9E-04	1	1.2E-03	4.8E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.3E+00	2.8E+00	4.6E+01	1.0E+00	9.9E-03
127-18-4	TETRACHLOROETHENE (PCE)	1.7E+02	1.8E-02	6.1	8.6E-04	3.9E-01	8.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	6.1E+00	2.8E+00	4.6E+01	1.0E+00	4.8E-02
79-01-6	TRICHLOROETHENE (TCE)	1.3E+02	9.9E-03	14	9.6E-04	4.2E-01	9.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.6E+01	2.8E+00	4.6E+01	1.0E+00	1.2E-01
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.4E+02	9.7E-02	1	9.4E-04	4.1E-01	9.4E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.1E+00	2.8E+00	4.6E+01	1.0E+00	8.7E-03

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

INHALATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR FROM SURFACE WATER
RESIDENT (ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009 - 2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (ug/L)	(Cw-ca) Concentration in Air from Surface Water (ug/m^3)	(ET) Exposure Time (hours/day)	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(ATn) Averaging Time (hours)	(EC) Exposure Concentration (ug/m^3) Note #1	(RfCi) Reference Concentration (ug/m^3)	(HQ) Hazard Quotient Note #2	(AT$_c$) Averaging Time (hours)	(EC) Exposure Concentration (ug/m^3) Note #3	IUR Inhalation Unit Risk (ug/m3)$^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	0.5	2.2E-03	24	350	20	175,200	2.1E-03	5.0E+03	4.2E-07	613,200	6.1E-04	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	0.64	3.3E-03	24	350	20	175,200	3.1E-03	NA	NA	613,200	8.9E-04	1.6E-06	1.4E-09
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5	7.8E-03	24	350	20	175,200	7.5E-03	2.0E+02	3.7E-05	613,200	2.1E-03	NA	NA
107-06-2	1,2-DICHLOROETHANE	0.62	3.0E-03	24	350	20	175,200	2.9E-03	7.0E+00	4.2E-04	613,200	8.3E-04	2.6E-05	2.2E-08
71-43-2	BENZENE	0.7	4.0E-03	24	350	20	175,200	3.9E-03	3.0E+01	1.3E-04	613,200	1.1E-03	7.8E-06	8.6E-09
75-15-0	CARBON DISULFIDE	2.5	1.5E-02	24	350	20	175,200	1.4E-02	7.0E+02	2.0E-05	613,200	4.0E-03	NA	NA
56-23-5	CARBON TETRACHLORIDE	0.5	2.1E-03	24	350	20	175,200	2.0E-03	1.0E+02	2.0E-05	613,200	5.6E-04	6.0E-06	3.4E-09
67-66-3	CHLOROFORM	6.19	2.9E-02	24	350	20	175,200	2.7E-02	9.8E+01	2.8E-04	613,200	7.8E-03	2.3E-05	1.8E-07
156-59-2	CIS-1,2-DICHLOROETHENE	2.25	1.2E-02	24	350	20	175,200	1.1E-02	NA	NA	613,200	3.2E-03	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1	4.7E-03	24	350	20	175,200	4.5E-03	1.0E+02	4.5E-05	613,200	1.3E-03	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1	5.0E-03	24	350	20	175,200	4.8E-03	3.0E+03	1.6E-06	613,200	1.4E-03	2.6E-07	3.5E-10
127-18-4	TETRACHLOROETHENE (PCE)	6.1	2.4E-02	24	350	20	175,200	2.3E-02	4.0E+01	5.8E-04	613,200	6.6E-03	2.6E-07	1.7E-09
79-01-6	TRICHLOROETHENE (TCE)	14	6.2E-02	24	350	20	175,200	6.0E-02	2.0E+00	3.0E-02	613,200	1.7E-02	4.1E-06	7.0E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1	4.4E-03	24	350	20	175,200	4.2E-03	7.0E+02	6.0E-06	613,200	1.2E-03	NA	NA
									Total Hazard - Inhalation of Volatiles from Surface Water	**3.1E-02**				
										Cumulative Risk - Inhalation of Volatiles from Surface Water				**3E-07**

Notes

#1: Exposure Concentration (ug/m^3) = (Cw-ca x ET x EF x ED) / (ATn)
#2: Hazard Index = Exposure Concentration/Reference Concentration
#3: Exposure Concentration (ug/m^3) = (Cw-ca x ET x EF x ED) / (ATc)
#4: Excess Lifetime Cancer Risk = Reference Concentration x Inhalation Unit Risk

CALCULATION OF VAPOR EMISSIONS FROM SURFACE WATER INTO AMBIENT AIR
RESIDENT (ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

Cas No.	Groundwater VOC	Molecular Weight	Henry's Law Constant (atm-m3/mol)	(Cw) Max Surface Water Concentration (µg/L)	Kl Liquid Mass Transfer Coefficient (cm/sec)	Kg Gas-phase Mass Transfer Coefficient (cm/sec)	K Mass Transfer Coefficient (cm/sec)	Wa Width of Canal (m)	La Length of Exposure Area (m)	A Area of Emission Area (m^2)	CF Conversion factor (10 L/cm/m^2)	ER Emission Rate at the Surface (ug/sec) Note #1	WS Wind Speed (mps)	Wp Width Perpendicular to Wind (canal and adjacent residential property) (m)	H Height of Breathing Zone (m)	Ca-sw Outdoor Air Concentration (ug/m3) Note #2
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	1.3E+02	1.7E-02	0.5	9.6E-04	4.2E-01	9.5E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	5.6E-01	2.8E+00	4.6E+01	2.0E+00	2.2E-03
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	9.9E+01	5.6E-03	0.64	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	8.2E-01	2.8E+00	4.6E+01	2.0E+00	3.3E-03
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	9.7E+01	2.6E-02	1.5	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	2.0E+00	2.8E+00	4.6E+01	2.0E+00	7.8E-03
107-06-2	1,2-DICHLOROETHANE	9.9E+01	1.2E-03	0.62	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	7.7E-01	2.8E+00	4.6E+01	2.0E+00	3.0E-03
71-43-2	BENZENE	7.8E+01	5.6E-03	0.7	1.3E-03	5.0E-01	1.2E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.0E+00	2.8E+00	4.6E+01	2.0E+00	4.0E-03
75-15-0	CARBON DISULFIDE	7.6E+01	1.4E-02	2.5	1.3E-03	5.0E-01	1.3E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	3.7E+00	2.8E+00	4.6E+01	2.0E+00	1.5E-02
56-23-5	CARBON TETRACHLORIDE	1.5E+02	2.8E-02	0.5	8.9E-04	4.0E-01	8.9E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	5.2E-01	2.8E+00	4.6E+01	2.0E+00	2.1E-03
67-66-3	CHLOROFORM	1.2E+02	3.7E-03	6.19	1.0E-03	4.3E-01	1.0E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	7.2E+00	2.8E+00	4.6E+01	2.0E+00	2.9E-02
156-59-2	CIS-1,2-DICHLOROETHENE	9.7E+01	4.1E-03	2.25	1.1E-03	4.6E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	2.9E+00	2.8E+00	4.6E+01	2.0E+00	1.2E-02
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.2E+02	3.4E-01	1	1.0E-03	4.3E-01	1.0E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.2E+00	2.8E+00	4.6E+01	2.0E+00	4.7E-03
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	8.8E+01	5.9E-04	1	1.2E-03	4.8E-01	1.1E-03	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.3E+00	2.8E+00	4.6E+01	2.0E+00	5.0E-03
127-18-4	TETRACHLOROETHENE (PCE)	1.7E+02	1.8E-02	6.1	8.6E-04	3.9E-01	8.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	6.1E+00	2.8E+00	4.6E+01	2.0E+00	2.4E-02
79-01-6	TRICHLOROETHENE (TCE)	1.3E+02	9.9E-03	14	9.6E-04	4.2E-01	9.6E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.6E+01	2.8E+00	4.6E+01	2.0E+00	6.2E-02
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.4E+02	9.7E-02	1	9.4E-04	4.1E-01	9.4E-04	6.5E+00	1.8E+01	1.2E+02	1.0E+01	1.1E+00	2.8E+00	4.6E+01	2.0E+00	4.4E-03

Notes

#1: Emission Rate (ER) = K x Cw x A x CF
#2: Concentration in air = ER/(WS x Wp x H)

INGESTION OF FISH
RESIDENT (CHILD)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (µg/L)	(Cw) Concentration in Surface Water (mg/L)	(BCF) Fish Bioconcentration Factor (L/kg)	(Cf) Concentration in Fish (mg/kg)	(IR) Ingestion Rate of Fish (mg/day)	(CF) Conversion Factor ($1x10^{-6}$ kg/mg)	Fishing Events/ Year	Frequency of Catching and Ingesting Fish	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(RAF) Relative Absorption Factor (fraction)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Intake (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(Risk) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Intake (mg/kg-day) Note #3	(SFo) Slope Factor $(mg/kg\text{-}day)^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	5.0E-01	5.0E-04	1.7E+01	8.4E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	7.5E-07	2.0E+00	3.8E-07	25,550	6.4E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	6.4E-01	6.4E-04	4.9E+00	3.1E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	2.8E-07	2.0E-01	1.4E-06	25,550	2.4E-08	5.7E-03	1E-10
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5E+00	1.5E-03	8.3E+00	1.2E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.1E-06	5.0E-02	2.2E-05	25,550	9.5E-08	NA	NA
107-06-2	1,2-DICHLOROETHANE	6.2E-01	6.2E-04	2.9E+00	1.8E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	1.6E-07	6.0E-03	2.6E-05	25,550	1.4E-08	9.1E-02	1E-09
71-43-2	BENZENE	7.0E-01	7.0E-04	8.3E+00	5.8E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	5.2E-07	4.0E-03	1.3E-04	25,550	4.4E-08	5.5E-02	2E-09
75-15-0	CARBON DISULFIDE	2.5E+00	2.5E-03	9.9E+00	2.5E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	2.2E-06	1.0E-01	2.2E-05	25,550	1.9E-07	NA	NA
56-23-5	CARBON TETRACHLORIDE	5.0E-01	5.0E-04	2.9E+01	1.4E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.3E-06	4.0E-03	3.2E-04	25,550	1.1E-07	7.0E-02	8E-09
67-66-3	CHLOROFORM	6.2E+00	6.2E-03	6.9E+00	4.3E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	3.8E-06	1.0E-02	3.8E-04	25,550	3.3E-07	3.1E-02	1E-08
156-59-2	CIS-1,2-DICHLOROETHENE	2.3E+00	2.3E-03	5.8E+00	1.3E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.2E-06	2.0E-03	5.8E-04	25,550	1.0E-07	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.0E+00	1.0E-03	9.2E+00	9.2E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	8.2E-07	2.0E-01	4.1E-06	25,550	7.0E-08	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.0E+00	1.0E-03	1.5E+00	1.5E-03	70,000	1E-06	14	50%	7	6	1	15	2,190	1.4E-07	NA	NA	25,550	1.2E-08	1.8E-03	2E-11
127-18-4	TETRACHLOROETHENE (PCE)	6.1E+00	6.1E-03	8.3E+01	5.1E-01	70,000	1E-06	14	50%	7	6	1	15	2,190	4.5E-05	6.0E-03	7.5E-03	25,550	3.9E-06	2.1E-03	8E-09
79-01-6	TRICHLOROETHENE (TCE)	1.4E+01	1.4E-02	1.4E+01	2.0E-01	70,000	1E-06	14	50%	7	6	1	15	2,190	1.8E-05	5.0E-04	3.5E-02	25,550	1.5E-06	4.6E-02	7E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.0E+00	1.0E-03	1.7E+01	1.7E-02	70,000	1E-06	14	50%	7	6	1	15	2,190	1.5E-06	3.0E-01	5.0E-06	25,550	1.3E-07	NA	NA
																Total Hazard - Ingestion of Fish	**4.4E-02**				
																				Cumulative Risk - Ingestion of Fish	**1E-07**

Notes

#1: Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

INGESTION OF FISH
RESIDENT (ADULT)
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

		(Cw) Concentration in Surface Water (ug/L)	(Cw) Concentration in Surface Water (mg/L)	(BCF) Fish Bioconcentration Factor (L/kg)	(Cf) Concentration in Fish (mg/kg)	(IR) Ingestion Rate of Fish (mg/day)	(CF) Conversion Factor ($1x10^{-6}$ kg/mg)	Fishing Events/ Year	Frequency of Catching and Ingesting Fish	(EF) Exposure Frequency (days/year)	(ED) Exposure Duration (years)	(RAF) Relative Absorption Factor (fraction)	(BW) Average Body Weight (kg)	(ATn) Averaging Time (days)	(Intake) Average Daily Intake (mg/kg-day) Note #1	(RfDo) Reference Dose (mg/kg-day)	(Risk) Hazard Quotient Note #2	(AT_c) Averaging Time (days)	(Intake) Lifetime Average Daily Intake (mg/kg-day) Note #3	(SFo) Slope Factor $(mg/kg\text{-}day)^{-1}$	(Risk) Excess Lifetime Cancer Risk Note #4
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	5.0E-01	5.0E-04	1.7E+01	8.4E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	2.3E-07	2.0E+00	1.1E-07	25,550	6.6E-08	NA	NA
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	6.4E-01	6.4E-04	4.9E+00	3.1E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	8.5E-08	2.0E-01	4.2E-07	25,550	2.4E-08	5.7E-03	1E-10
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	1.5E+00	1.5E-03	8.3E+00	1.2E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	3.4E-07	5.0E-02	6.8E-06	25,550	9.7E-08	NA	NA
107-06-2	1,2-DICHLOROETHANE	6.2E-01	6.2E-04	2.9E+00	1.8E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	4.8E-08	6.0E-03	8.0E-06	25,550	1.4E-08	9.1E-02	1E-09
71-43-2	BENZENE	7.0E-01	7.0E-04	8.3E+00	5.8E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	1.6E-07	4.0E-03	4.0E-05	25,550	4.5E-08	5.5E-02	2E-09
75-15-0	CARBON DISULFIDE	2.5E+00	2.5E-03	9.9E+00	2.5E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	6.7E-07	1.0E-01	6.7E-06	25,550	1.9E-07	NA	NA
56-23-5	CARBON TETRACHLORIDE	5.0E-01	5.0E-04	2.9E+01	1.4E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	3.9E-07	4.0E-03	9.8E-05	25,550	1.1E-07	7.0E-02	8E-09
67-66-3	CHLOROFORM	6.2E+00	6.2E-03	6.9E+00	4.3E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	1.2E-06	1.0E-02	1.2E-04	25,550	3.3E-07	3.1E-02	1E-08
156-59-2	CIS-1,2-DICHLOROETHENE	2.3E+00	2.3E-03	5.8E+00	1.3E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	3.6E-07	2.0E-03	1.8E-04	25,550	1.0E-07	NA	NA
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	1.0E+00	1.0E-03	9.2E+00	9.2E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	2.5E-07	2.0E-01	1.3E-06	25,550	7.2E-08	NA	NA
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.0E+00	1.0E-03	1.5E+00	1.5E-03	114,000	1E-06	14	50%	7	20	1	80	7,300	4.1E-08	NA	NA	25,550	1.2E-08	1.8E-03	2E-11
127-18-4	TETRACHLOROETHENE (PCE)	6.1E+00	6.1E-03	8.3E+01	5.1E-01	114,000	1E-06	14	50%	7	20	1	80	7,300	1.4E-05	6.0E-03	2.3E-03	25,550	3.9E-06	2.1E-03	8E-09
79-01-6	TRICHLOROETHENE (TCE)	1.4E+01	1.4E-02	1.4E+01	2.0E-01	114,000	1E-06	14	50%	7	20	1	80	7,300	5.4E-06	5.0E-04	1.1E-02	25,550	1.5E-06	4.6E-02	7E-08
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	1.0E+00	1.0E-03	1.7E+01	1.7E-02	114,000	1E-06	14	50%	7	20	1	80	7,300	4.6E-07	3.0E-01	1.5E-06	25,550	1.3E-07	NA	NA
																Total Hazard - Ingestion of Fish	**1.4E-02**				
																			Cumulative Risk - Ingestion of Fish		**1E-07**

Notes

#1: Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATn)
#2: Hazard Index = Average Daily Intake/Reference Dose
#3: Lifetime Average Daily Intake (mg/kg-day) = (Cw x BCF x Cf x IR x CF x EF x ED x RAF) / (BW x ATc)
#4: Excess Lifetime Cancer Risk = Lifetime Average Daily Intake x Slope Factor

CHEMICAL PHYSICAL PROPERTY INFORMATION
RESIDENT
MAXIMUM CONCENTRATIONS THROUGHOUT OPEN CANAL SECTIONS (2009-2013)
WEST VAN BUREN AREA WQARF
PHOENIX, ARIZONA

LOCATION: AT AND ADJACENT TO OPEN SALT CANAL AND OPEN MAIN CANAL

COLUMN	2	3	4	5	6	7	8	9	10
CAS NUMBER	**CHEMICAL**	**SFo (mg/kg-day)$^{-1}$**	**IUR (µg/m^3)$^{-1}$**	**RfDo (mg/kg-day)**	**RfCi (µg/m^3)**	**Molecular Weight**	**Henry's Law Constant (atm-m^3/mole)**	**Water Permeability Contant (K_p) (cm/hr)**	**Fish Bioconcentration Factor (BCF) (L/kg)**
71-55-6	1,1,1-TRICHLOROETHANE (TCA)	NA	NA	2.0E+00	5.0E+03	1.33E+02	1.72E-02	1.26E-02	1.68E+01
75-34-3	1,1-DICHLOROETHANE (1,1-DCA)	5.7E-03	1.6E-06	2.0E-01	NA	9.90E+01	5.62E-03	6.75E-03	4.85E+00
75-35-4	1,1-DICHLOROETHENE (1,1-DCE)	NA	NA	5.0E-02	2.0E+02	9.69E+01	2.61E-02	1.17E-02	8.26E+00
107-06-2	1,2-DICHLOROETHANE	9.1E-02	2.6E-05	6.0E-03	7.0E+00	9.90E+01	1.18E-03	4.20E-03	2.85E+00
71-43-2	BENZENE	5.5E-02	7.8E-06	4.0E-03	3.0E+01	7.81E+01	5.55E-03	1.49E-02	8.26E+00
75-15-0	CARBON DISULFIDE	NA	NA	1.0E-01	7.0E+02	7.61E+01	1.44E-02	1.14E-02	9.86E+00
56-23-5	CARBON TETRACHLORIDE	7.0E-02	6.0E-06	4.0E-03	1.0E+02	1.54E+02	2.76E-02	1.63E-02	2.86E+01
67-66-3	CHLOROFORM	3.1E-02	2.3E-05	1.0E-02	9.8E+01	1.19E+02	3.67E-03	6.83E-03	6.92E+00
156-59-2	CIS-1,2-DICHLOROETHENE	NA	NA	2.0E-03	NA	9.69E+01	4.08E-03	1.10E-02	5.79E+00
75-71-8	DICHLORODIFLUOROMETHANE (FREON 12)	NA	NA	2.0E-01	1.0E+02	1.21E+02	3.43E-01	8.95E-03	9.19E+00
1634-04-4	METHYL TERT-BUTYL ETHER (MTBE)	1.8E-03	2.6E-07	NA	3.0E+03	8.82E+01	5.87E-04	2.11E-03	1.51E+00
127-18-4	TETRACHLOROETHENE (PCE)	2.1E-03	2.6E-07	6.0E-03	4.0E+01	1.66E+02	1.77E-02	3.34E-02	8.28E+01
79-01-6	TRICHLOROETHENE (TCE)	4.6E-02	4.1E-06	5.0E-04	2.0E+00	1.31E+02	9.85E-03	1.16E-02	1.41E+01
75-69-4	TRICHLOROFLUOROMETHANE (FREON 11)	NA	NA	3.0E-01	7.0E+02	1.37E+02	9.70E-02	1.27E-02	1.68E+01

APPENDIX E

Costing Detail Worksheets

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module A
Groundwater Monitoring Program

Capital	$ -	Investment Return Rate=	9%
O&M (Yr 1)	$ 210,816	Inflation Rate=	3%
Tab	Module A	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -					
1	2015				$ 210,816	$ 217,140		$198,883	
2	2016				$ 210,816	$ 223,654		$187,625	
3	2017				$ 210,816	$ 230,364		$177,005	
4	2018				$ 210,816	$ 237,275		$166,986	
5	2019				$ 210,816	$ 244,393		$157,534	
6	2020				$ 210,816	$ 251,725		$148,617	
7	2021				$ 210,816	$ 259,277		$140,204	
8	2022				$ 210,816	$ 267,055		$132,268	
9	2023				$ 210,816	$ 275,067		$124,782	
10	2024				$ 210,816	$ 283,319		$117,718	
11	2025				$ 210,816	$ 291,818		$111,055	
12	2026	$ -	$ -	$ -	$ 210,816	$ 300,573	$ 3,081,660	$104,769	$ 1,767,446
13	2027				$ 210,816	$ 309,590		$98,839	
14	2028				$ 210,816	$ 318,878		$93,244	
15	2029				$ 210,816	$ 328,444		$87,966	
16	2030				$ 210,816	$ 338,297		$82,987	
17	2031				$ 210,816	$ 348,446		$78,289	
18	2032				$ 210,816	$ 358,900		$73,858	
19	2033				$ 210,816	$ 369,667		$69,677	
20	2034				$ 210,816	$ 380,757		$65,733	
21	2035				$ 210,816	$ 392,179		$62,013	
22	2036				$ 210,816	$ 403,945		$58,502	
23	2037				$ 210,816	$ 416,063		$55,191	
24	2038				$ 210,816	$ 428,545		$52,067	
25	2039				$ 210,816	$ 441,401		$49,120	
26	2040				$ 210,816	$ 454,643		$46,339	
27	2041				$ 210,816	$ 468,283		$43,716	
28	2042				$ 210,816	$ 482,331		$41,242	
29	2043				$ 210,816	$ 496,801		$38,907	
30	2044				$ 210,816	$ 511,705	$ 7,248,875	$36,705	$ 1,134,397
	Total	**$ -**	**$ -**	**$ -**	**$ 6,324,472**	**$ 10,330,535**	**$ 10,330,535**	**$ 2,901,843**	**$ 2,901,843**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module B
Connect five (5) impaired private wells within the WVBA to COP municipal system

Connecting bldg to municipal water supply (each)	$	10,000

Capital	$	50,000	Investment Return Rate=	9%
O&M (Yr 1)	$	-	Inflation Rate=	3%
Tab	Detail this page		Discount Rate=	6%

		Capital			Operations & Maintenance					
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ 50,000	NA	$ 50,000					
1	2015				$ -	$ -		$0	
2	2016				$ -	$ -		$0	
3	2017				$ -	$ -		$0	
4	2018				$ -	$ -		$0	
5	2019	$ -	$ -	$ -	$ -	$ -		$0	
6	2020				$ -	$ -		$0	
7	2021				$ -	$ -		$0	
8	2022				$ -	$ -		$0	
9	2023				$ -	$ -		$0	
10	2024				$ -	$ -		$0	
11	2025				$ -	$ -		$0	
12	2026	$ -	$ -	$ -	$ -	$ -	$ -	$0	$ -
13	2027				$ -	$ -		$0	
14	2028				$ -	$ -		$0	
15	2029				$ -	$ -		$0	
16	2030				$ -	$ -		$0	
17	2031				$ -	$ -		$0	
18	2032				$ -	$ -		$0	
19	2033				$ -	$ -		$0	
20	2034				$ -	$ -		$0	
21	2035				$ -	$ -		$0	
22	2036				$ -	$ -		$0	
23	2037				$ -	$ -		$0	
24	2038				$ -	$ -		$0	
25	2039				$ -	$ -		$0	
26	2040				$ -	$ -		$0	
27	2041				$ -	$ -		$0	
28	2042				$ -	$ -		$0	
29	2043				$ -	$ -		$0	
30	2044				$ -	$ -	$ -	$0	$ -
	Total	**$ 50,000**	**$ -**	**$ 50,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module C (500 gpm)
Reinject 500 gpm treated water

Capital	$ 2,635,223	Investment Return Rate=	9%
O&M (Yr 1)	$ 43,700	Inflation Rate=	3%
Tab	Module C (1 @ 500 gpm)	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ 43,700	$ 45,011		$41,226	
2	2016				$ 43,700	$ 46,361		$38,893	
3	2017				$ 43,700	$ 47,752		$36,691	
4	2018				$ 43,700	$ 49,185		$34,614	
5	2019				$ 43,700	$ 50,660		$32,655	
6	2020				$ 43,700	$ 52,180		$30,807	
7	2021				$ 43,700	$ 53,745		$29,063	
8	2022				$ 43,700	$ 55,358		$27,418	
9	2023				$ 43,700	$ 57,019		$25,866	
10	2024				$ 43,700	$ 58,729		$24,402	
11	2025				$ 43,700	$ 60,491		$23,021	
12	2026	$ 2,635,223	$ 3,757,197	$ 1,309,625	$ 43,700	$ 62,306	$ 638,797	$21,718	$ 366,374
13	2027				$ 43,700	$ 64,175		$20,488	
14	2028				$ 43,700	$ 66,100		$19,329	
15	2029				$ 43,700	$ 68,083		$18,234	
16	2030				$ 43,700	$ 70,126		$17,202	
17	2031				$ 43,700	$ 72,229		$16,229	
18	2032				$ 43,700	$ 74,396		$15,310	
19	2033				$ 43,700	$ 76,628		$14,443	
20	2034				$ 43,700	$ 78,927		$13,626	
21	2035				$ 43,700	$ 81,295		$12,855	
22	2036				$ 43,700	$ 83,734		$12,127	
23	2037				$ 43,700	$ 86,246		$11,441	
24	2038				$ 43,700	$ 88,833		$10,793	
25	2039				$ 43,700	$ 91,498		$10,182	
26	2040				$ 43,700	$ 94,243		$9,606	
27	2041				$ 43,700	$ 97,070		$9,062	
28	2042				$ 43,700	$ 99,982		$8,549	
29	2043				$ 43,700	$ 102,982		$8,065	
30	2044				$ 43,700	$ 106,071	$ 1,502,620	$7,609	$ 235,149
	Total	**$ 2,635,223**	**$ 3,757,197**	**$ 1,309,625**	**$ 1,311,000**	**$ 2,141,417**	**$ 2,141,417**	**$ 601,523**	**$ 601,523**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module C (1 @ 1,000 gpm)
Reinject 1,000 gpm treated water

Capital	$ 4,195,345	Investment Return Rate=	9%
O&M (Yr 1)	$ 73,600	Inflation Rate=	3%
Tab	Module C (1 @ 1,000 gpm)	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ 73,600	$ 75,808		$69,434	
2	2016				$ 73,600	$ 78,082		$65,504	
3	2017				$ 73,600	$ 80,425		$61,796	
4	2018				$ 73,600	$ 82,837		$58,298	
5	2019				$ 73,600	$ 85,323		$54,998	
6	2020				$ 73,600	$ 87,882		$51,885	
7	2021				$ 73,600	$ 90,519		$48,948	
8	2022				$ 73,600	$ 93,234		$46,178	
9	2023				$ 73,600	$ 96,031		$43,564	
10	2024				$ 73,600	$ 98,912		$41,098	
11	2025				$ 73,600	$ 101,880		$38,772	
12	2026	$ 4,195,345	$ 5,981,559	$ 2,084,958	$ 73,600	$ 104,936	$ 1,075,869	$36,577	$ 617,051
13	2027				$ 73,600	$ 108,084		$34,507	
14	2028				$ 73,600	$ 111,327		$32,553	
15	2029				$ 73,600	$ 114,666		$30,711	
16	2030				$ 73,600	$ 118,106		$28,972	
17	2031				$ 73,600	$ 121,650		$27,332	
18	2032				$ 73,600	$ 125,299		$25,785	
19	2033				$ 73,600	$ 129,058		$24,326	
20	2034				$ 73,600	$ 132,930		$22,949	
21	2035				$ 73,600	$ 136,918		$21,650	
22	2036				$ 73,600	$ 141,025		$20,424	
23	2037				$ 73,600	$ 145,256		$19,268	
24	2038				$ 73,600	$ 149,614		$18,178	
25	2039				$ 73,600	$ 154,102		$17,149	
26	2040				$ 73,600	$ 158,725		$16,178	
27	2041				$ 73,600	$ 163,487		$15,262	
28	2042				$ 73,600	$ 168,391		$14,398	
29	2043				$ 73,600	$ 173,443		$13,583	
30	2044				$ 73,600	$ 178,647	$ 2,530,728	$12,815	$ 396,041
	Total	**$ 4,195,345**	**$ 5,981,559**	**$ 2,084,958**	**$ 2,208,000**	**$ 3,606,597**	**$ 3,606,597**	**$ 1,013,092**	**$ 1,013,092**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module C (2,000 gpm)
Reinject 2,000 gpm treated water

Capital	$ 8,390,690	Investment Return Rate=	9%
O&M (Yr 1)	$ 147,200	Inflation Rate=	3%
Tab	Module C (2 @ 1,000 gpm ea.)	Discount Rate=	6%

		Capital			Operations & Maintenance					
									Discounted	
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	NPV Annual Total	Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ 147,200	$ 151,616		$138,868	
2	2016				$ 147,200	$ 156,164		$131,007	
3	2017				$ 147,200	$ 160,849		$123,592	
4	2018				$ 147,200	$ 165,675		$116,596	
5	2019				$ 147,200	$ 170,645		$109,996	
6	2020				$ 147,200	$ 175,764		$103,770	
7	2021				$ 147,200	$ 181,037		$97,896	
8	2022				$ 147,200	$ 186,469		$92,355	
9	2023				$ 147,200	$ 192,063		$87,127	
10	2024				$ 147,200	$ 197,824		$82,196	
11	2025				$ 147,200	$ 203,759		$77,543	
12	2026	$ 8,390,690	$ 11,963,118	$ 4,169,916	$ 147,200	$ 209,872	$ 2,151,739	$73,154	$ 1,234,102
13	2027				$ 147,200	$ 216,168		$69,013	
14	2028				$ 147,200	$ 222,653		$65,107	
15	2029				$ 147,200	$ 229,333		$61,421	
16	2030				$ 147,200	$ 236,213		$57,945	
17	2031				$ 147,200	$ 243,299		$54,665	
18	2032				$ 147,200	$ 250,598		$51,571	
19	2033				$ 147,200	$ 258,116		$48,652	
20	2034				$ 147,200	$ 265,860		$45,898	
21	2035				$ 147,200	$ 273,835		$43,300	
22	2036				$ 147,200	$ 282,050		$40,849	
23	2037				$ 147,200	$ 290,512		$38,537	
24	2038				$ 147,200	$ 299,227		$36,355	
25	2039				$ 147,200	$ 308,204		$34,297	
26	2040				$ 147,200	$ 317,450		$32,356	
27	2041				$ 147,200	$ 326,974		$30,525	
28	2042				$ 147,200	$ 336,783		$28,797	
29	2043				$ 147,200	$ 346,886		$27,167	
30	2044				$ 147,200	$ 357,293	$ 5,061,455	$25,629	$ 792,081
	Total	**$ 8,390,690**	**$ 11,963,118**	**$ 4,169,916**	**$ 4,416,000**	**$ 7,213,194**	**$ 7,213,194**	**$ 2,026,183**	**$ 2,026,183**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module E (500 gpm)
One plume core extraction well at 500 gpm

Capital	$ 2,454,095	Investment Return Rate=	9%
O&M (Yr 1)	$ 524,445	Inflation Rate=	3%
Tab	Module E (500 gpm)	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ -	$ -		$0	
2	2016	$ 2,454,095	$ 2,603,549	$ 2,184,136	$ -	$ -		$0	
3	2017				$ 524,445	$ 573,076		$440,334	
4	2018				$ 524,445	$ 590,268		$415,410	
5	2019				$ 524,445	$ 607,976		$391,896	
6	2020				$ 524,445	$ 626,215		$369,713	
7	2021				$ 524,445	$ 645,002		$348,786	
8	2022				$ 524,445	$ 664,352		$329,043	
9	2023				$ 524,445	$ 684,282		$310,418	
10	2024				$ 524,445	$ 704,811		$292,848	
11	2025				$ 524,445	$ 725,955		$276,271	
12	2026	$ -	$ -	$ -	$ 524,445	$ 747,734	$ 6,569,669	$260,633	$ 3,435,353
13	2027				$ 524,445	$ 770,166		$245,880	
14	2028				$ 524,445	$ 793,271		$231,963	
15	2029				$ 524,445	$ 817,069		$218,833	
16	2030				$ 524,445	$ 841,581		$206,446	
17	2031				$ 524,445	$ 866,828		$194,760	
18	2032				$ 524,445	$ 892,833		$183,736	
19	2033				$ 524,445	$ 919,618		$173,336	
20	2034				$ 524,445	$ 947,207		$163,525	
21	2035				$ 524,445	$ 975,623		$154,268	
22	2036				$ 524,445	$ 1,004,891		$145,536	
23	2037				$ 524,445	$ 1,035,038		$137,298	
24	2038				$ 524,445	$ 1,066,089		$129,527	
25	2039				$ 524,445	$ 1,098,072		$122,195	
26	2040				$ 524,445	$ 1,131,014		$115,278	
27	2041				$ 524,445	$ 1,164,945		$108,753	
28	2042				$ 524,445	$ 1,199,893		$102,597	
29	2043				$ 524,445	$ 1,235,890		$96,790	
30	2044				$ 524,445	$ 1,272,966	$ 18,032,993	$91,311	$ 2,822,033
	Total	**$ 2,454,095**	**$ 2,603,549**	**$ 2,184,136**	**$ 14,684,468**	**$ 24,602,661**	**$ 24,602,661**	**$ 6,257,387**	**$ 6,257,387**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module E (1 @ 1,000 gpm)
Add one plume core extraction well at 1,000 gpm

Capital	$ 2,575,095	Investment Return Rate=	9%
O&M (Yr 1)	$ 710,346	Inflation Rate=	3%
Tab	Module E (1 @ 1,000 gpm)	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ 710,346	$ 731,656		$670,138	
2	2016	$ -	$ -	$ -	$ 710,346	$ 753,606		$632,205	
3	2017				$ 710,346	$ 776,214		$596,420	
4	2018				$ 710,346	$ 799,501		$562,661	
5	2019				$ 710,346	$ 823,486		$530,812	
6	2020				$ 710,346	$ 848,190		$500,766	
7	2021				$ 710,346	$ 873,636		$472,421	
8	2022				$ 710,346	$ 899,845		$445,680	
9	2023				$ 710,346	$ 926,840		$420,453	
10	2024				$ 710,346	$ 954,646		$396,653	
11	2025				$ 710,346	$ 983,285		$374,201	
12	2026	$ 2,575,095	$ 3,671,469	$ 1,279,743	$ 710,346	$ 1,012,783	$ 10,383,688	$353,020	$ 5,955,430
13	2027				$ 710,346	$ 1,043,167		$333,038	
14	2028				$ 710,346	$ 1,074,462		$314,187	
15	2029				$ 710,346	$ 1,106,696		$296,403	
16	2030				$ 710,346	$ 1,139,897		$279,625	
17	2031				$ 710,346	$ 1,174,094		$263,797	
18	2032				$ 710,346	$ 1,209,316		$248,865	
19	2033				$ 710,346	$ 1,245,596		$234,779	
20	2034				$ 710,346	$ 1,282,964		$221,489	
21	2035				$ 710,346	$ 1,321,453		$208,952	
22	2036				$ 710,346	$ 1,361,096		$197,125	
23	2037				$ 710,346	$ 1,401,929		$185,967	
24	2038				$ 710,346	$ 1,443,987		$175,440	
25	2039				$ 710,346	$ 1,487,307		$165,510	
26	2040				$ 710,346	$ 1,531,926		$156,141	
27	2041				$ 710,346	$ 1,577,884		$147,303	
28	2042				$ 710,346	$ 1,625,220		$138,965	
29	2043				$ 710,346	$ 1,673,977		$131,099	
30	2044				$ 710,346	$ 1,724,196	$ 24,425,166	$123,678	$ 3,822,362
	Total	**$ 2,575,095**	**$ 3,671,469**	**$ 1,279,743**	**$ 21,310,379**	**$ 34,808,854**	**$ 34,808,854**	**$ 9,777,792**	**$ 9,777,792**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module E (2 @ 1,000 gpm)
Two plume core extraction wells at 1,000 gpm each

Capital	$ 5,016,065	Investment Return Rate=	9%
O&M (Yr 1)	$ 1,305,692	Inflation Rate=	3%
Tab	Module E (2 @ 1,000 gpm)	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -		$ -			
1	2015				$ -	$ -		$0	
2	2016	$ 5,016,065	$ 5,321,543	$ 4,464,280	$ -	$ -		$0	
3	2017				$ 1,305,692	$ 1,426,765		$1,096,284	
4	2018				$ 1,305,692	$ 1,469,568		$1,034,230	
5	2019				$ 1,305,692	$ 1,513,655		$975,689	
6	2020				$ 1,305,692	$ 1,559,064		$920,461	
7	2021				$ 1,305,692	$ 1,605,836		$868,360	
8	2022				$ 1,305,692	$ 1,654,011		$819,207	
9	2023				$ 1,305,692	$ 1,703,632		$772,837	
10	2024				$ 1,305,692	$ 1,754,741		$729,092	
11	2025				$ 1,305,692	$ 1,807,383		$687,822	
12	2026	$ -	$ -	$ -	$ 1,305,692	$ 1,861,604	$ 16,356,260	$648,889	$ 8,552,871
13	2027				$ 1,305,692	$ 1,917,453		$612,159	
14	2028				$ 1,305,692	$ 1,974,976		$577,509	
15	2029				$ 1,305,692	$ 2,034,225		$544,820	
16	2030				$ 1,305,692	$ 2,095,252		$513,981	
17	2031				$ 1,305,692	$ 2,158,110		$484,888	
18	2032				$ 1,305,692	$ 2,222,853		$457,441	
19	2033				$ 1,305,692	$ 2,289,539		$431,548	
20	2034				$ 1,305,692	$ 2,358,225		$407,121	
21	2035				$ 1,305,692	$ 2,428,972		$384,076	
22	2036				$ 1,305,692	$ 2,501,841		$362,336	
23	2037				$ 1,305,692	$ 2,576,896		$341,827	
24	2038				$ 1,305,692	$ 2,654,203		$322,478	
25	2039				$ 1,305,692	$ 2,733,829		$304,224	
26	2040				$ 1,305,692	$ 2,815,844		$287,004	
27	2041				$ 1,305,692	$ 2,900,319		$270,759	
28	2042				$ 1,305,692	$ 2,987,329		$255,433	
29	2043				$ 1,305,692	$ 3,076,949		$240,974	
30	2044				$ 1,305,692	$ 3,169,257	$ 44,896,070	$227,334	$ 7,025,911
	Total	**$ 5,016,065**	**$ 5,321,543**	**$ 4,464,280**	**$ 36,559,373**	**$ 61,252,329**	**$ 61,252,329**	**$ 15,578,783**	**$ 15,578,783**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module F
Replace two (2) or four (4) SRP wells with new, collocated LAU wells

Capital	$ 1,673,768	Investment Return Rate=	9%
O&M (Yr 1)	$ -	Inflation Rate=	3%
Tab	Module F	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Period Subtotal
0		$ -	NA	$ -					
1	2015				$ -	$ -		$0	
2	2016				$ -	$ -		$0	
3	2017				$ -	$ -		$0	
4	2018				$ -	$ -		$0	
5	2019	$ -	$ -	$ -	$ -	$ -		$0	
6	2020				$ -	$ -		$0	
7	2021				$ -	$ -		$0	
8	2022				$ -	$ -		$0	
9	2023				$ -	$ -		$0	
10	2024				$ -	$ -		$0	
11	2025				$ -	$ -		$0	
12	2026	$ -	$ -	$ -	$ -	$ -	$ -	$0	$ -
13	2027				$ -	$ -		$0	
14	2028				$ -	$ -		$0	
15	2029				$ -	$ -		$0	
16	2030	$ 1,673,768	$ 2,685,905	$ 658,872	$ -	$ -		$0	
17	2031				$ -	$ -		$0	
18	2032				$ -	$ -		$0	
19	2033				$ -	$ -		$0	
20	2034				$ -	$ -		$0	
21	2035				$ -	$ -		$0	
22	2036				$ -	$ -		$0	
23	2037				$ -	$ -		$0	
24	2038				$ -	$ -		$0	
25	2039				$ -	$ -		$0	
26	2040				$ -	$ -		$0	
27	2041				$ -	$ -		$0	
28	2042				$ -	$ -		$0	
29	2043				$ -	$ -		$0	
30	2044				$ -	$ -	$ -	$0	$ -
Total per well		**$ 1,673,768**	**$ 2,685,905**	**$ 658,872**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
# Wells	**2**	**$ 3,347,535**	**$ 5,371,811**	**$ 1,317,745**					
# Wells	**4**	**$ 6,695,070**	**$ 10,743,622**	**$ 2,635,489**					

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module G
Replace RID-114 with a new UAU production well at different location

Capital	$ 1,057,270	Investment Return Rate=	9%
O&M (Yr 1)	$ -	Inflation Rate=	3%
Tab	Module G	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Period Subtotal
0		$ -	NA	$ -					
1	2015				$ -	$ -		$0	
2	2016				$ -	$ -		$0	
3	2017				$ -	$ -		$0	
4	2018				$ -	$ -		$0	
5	2019	$ 1,057,270	$ 1,225,665	$ 790,053	$ -	$ -		$0	
6	2020				$ -	$ -		$0	
7	2021				$ -	$ -		$0	
8	2022				$ -	$ -		$0	
9	2023				$ -	$ -		$0	
10	2024				$ -	$ -		$0	
11	2025				$ -	$ -		$0	
12	2026	$ -	$ -	$ -	$ -	$ -	$ -	$0	$ -
13	2027				$ -	$ -		$0	
14	2028				$ -	$ -		$0	
15	2029				$ -	$ -		$0	
16	2030				$ -	$ -		$0	
17	2031				$ -	$ -		$0	
18	2032				$ -	$ -		$0	
19	2033				$ -	$ -		$0	
20	2034				$ -	$ -		$0	
21	2035				$ -	$ -		$0	
22	2036				$ -	$ -		$0	
23	2037				$ -	$ -		$0	
24	2038				$ -	$ -		$0	
25	2039				$ -	$ -		$0	
26	2040				$ -	$ -		$0	
27	2041				$ -	$ -		$0	
28	2042				$ -	$ -		$0	
29	2043				$ -	$ -		$0	
30	2044				$ -	$ -	$ -	$0	$ -
	Total	**$ 1,057,270**	**$ 1,225,665**	**$ 790,053**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module H
Drill and construct five (5) or nine (9) new sentinel monitoring wells

Capital	$ 50,946	Investment Return Rate= 9%
O&M (Yr 1)	$ -	Inflation Rate= 3%
Tab	Module H	Discount Rate= 6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Period Subtotal
0		$ -	NA	$ -					
1	2015				$ -	$ -		$0	
2	2016				$ -	$ -		$0	
3	2017				$ -	$ -		$0	
4	2018				$ -	$ -		$0	
5	2019	$ -	$ -	$ -	$ -	$ -		$0	
6	2020				$ -	$ -		$0	
7	2021				$ -	$ -		$0	
8	2022				$ -	$ -		$0	
9	2023				$ -	$ -		$0	
10	2024				$ -	$ -		$0	
11	2025				$ -	$ -		$0	
12	2026	$ 50,946	$ 72,637	$ 25,319	$ -	$ -	$ -	$0	$ -
13	2027				$ -	$ -		$0	
14	2028				$ -	$ -		$0	
15	2029				$ -	$ -		$0	
16	2030	$ -	$ -	$ -	$ -	$ -		$0	
17	2031				$ -	$ -		$0	
18	2032				$ -	$ -		$0	
19	2033				$ -	$ -		$0	
20	2034				$ -	$ -		$0	
21	2035				$ -	$ -		$0	
22	2036				$ -	$ -		$0	
23	2037				$ -	$ -		$0	
24	2038				$ -	$ -		$0	
25	2039				$ -	$ -		$0	
26	2040				$ -	$ -		$0	
27	2041				$ -	$ -		$0	
28	2042				$ -	$ -		$0	
29	2043				$ -	$ -		$0	
30	2044				$ -	$ -	$ -	$0	$ -
Total per well		**$ 50,946**	**$ 72,637**	**$ 25,319**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
# Wells	**9**	**$ 458,514**	**$ 653,731**	**$ 227,867**					
# Wells	**5**	**$ 254,730**	**$ 363,184**	**$ 126,593**					

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module J
Quarterly sentinel well monitoring at twelve (12) monitoring wells and eleven (11) SRP wells

Capital	$ -	Investment Return Rate=	9%
O&M (Yr 1)	$ 43,401	Inflation Rate=	3%
Tab	Module J	Discount Rate=	6%

		Capital			Operations & Maintenance				
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -					
1	2015				$ 43,401	$ 44,703		$40,944	
2	2016				$ 43,401	$ 46,044		$38,626	
3	2017				$ 43,401	$ 47,425		$36,440	
4	2018				$ 43,401	$ 48,848		$34,377	
5	2019				$ 43,401	$ 50,313		$32,431	
6	2020				$ 43,401	$ 51,823		$30,596	
7	2021				$ 43,401	$ 53,377		$28,864	
8	2022				$ 43,401	$ 54,979		$27,230	
9	2023				$ 43,401	$ 56,628		$25,689	
10	2024				$ 43,401	$ 58,327		$24,235	
11	2025				$ 43,401	$ 60,077		$22,863	
12	2026	$ -	$ -	$ -	$ 43,401	$ 61,879	$ 634,421	$21,569	$ 363,864
13	2027				$ 43,401	$ 63,735		$20,348	
14	2028				$ 43,401	$ 65,647		$19,196	
15	2029				$ 43,401	$ 67,617		$18,110	
16	2030				$ 43,401	$ 69,645		$17,085	
17	2031				$ 43,401	$ 71,735		$16,117	
18	2032				$ 43,401	$ 73,887		$15,205	
19	2033				$ 43,401	$ 76,103		$14,344	
20	2034				$ 43,401	$ 78,386		$13,533	
21	2035				$ 43,401	$ 80,738		$12,767	
22	2036				$ 43,401	$ 83,160		$12,044	
23	2037				$ 43,401	$ 85,655		$11,362	
24	2038				$ 43,401	$ 88,225		$10,719	
25	2039				$ 43,401	$ 90,871		$10,112	
26	2040				$ 43,401	$ 93,597		$9,540	
27	2041				$ 43,401	$ 96,405		$9,000	
28	2042				$ 43,401	$ 99,298		$8,490	
29	2043				$ 43,401	$ 102,276		$8,010	
30	2044				$ 43,401	$ 105,345	$ 1,492,326	$7,556	$ 233,538
	Total	**$ -**	**$ -**	**$ -**	**$ 1,302,019**	**$ 2,126,748**	**$ 2,126,748**	**$ 597,402**	**$ 597,402**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module K
Connect five (5) impaired private wells within the WVBA to COP municipal system

Connecting bldg to municipal water supply (each)	$	10,000	

Capital	$	50,000	Investment Return Rate=	9%
O&M (Yr 1)	$	-	Inflation Rate=	3%
Tab	Detail this page		Discount Rate=	6%

		Capital			Operations & Maintenance					
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV	O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -					
1	2015				$ -	$ -		$0	
2	2016				$ -	$ -		$0	
3	2017				$ -	$ -		$0	
4	2018				$ -	$ -		$0	
5	2019				$ -	$ -		$0	
6	2020				$ -	$ -		$0	
7	2021				$ -	$ -		$0	
8	2022				$ -	$ -		$0	
9	2023				$ -	$ -		$0	
10	2024				$ -	$ -		$0	
11	2025				$ -	$ -		$0	
12	2026	$ 50,000	$ 71,288	$ 24,848	$ -	$ -	$ -	$0	$ -
13	2027				$ -	$ -		$0	
14	2028				$ -	$ -		$0	
15	2029				$ -	$ -		$0	
16	2030				$ -	$ -		$0	
17	2031				$ -	$ -		$0	
18	2032				$ -	$ -		$0	
19	2033				$ -	$ -		$0	
20	2034				$ -	$ -		$0	
21	2035				$ -	$ -		$0	
22	2036				$ -	$ -		$0	
23	2037				$ -	$ -		$0	
24	2038				$ -	$ -		$0	
25	2039				$ -	$ -		$0	
26	2040				$ -	$ -		$0	
27	2041				$ -	$ -		$0	
28	2042				$ -	$ -		$0	
29	2043				$ -	$ -		$0	
30	2044				$ -	$ -	$ -	$0	$ -
	Total	**$ 50,000**	**$ 71,288**	**$ 24,848**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Cash Flow Summaries in Inflation-adjusted and Net Present Value Terms over the 30-yr Cost Estimation Period
Feasibility Study
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Module L
Quarterly sentinel well monitoring at sixteen (16) monitoring wells and eleven (11) SRP wells

Capital	$ -	Investment Return Rate=	9%
O&M (Yr 1)	$ 52,683	Inflation Rate=	3%
Tab	Module L	Discount Rate=	6%

		Capital				Operations & Maintenance					
Year		Current Est. (Year Spent)	Inflation-Adj.	NPV		O&M (Yr 1)	Inflation-Adj.	Period Subtotal	Discounted NPV Annual Total	Discounted Period Subtotal
0		$ -	NA	$ -						
1	2015					$ 52,683	$ 54,264		$49,701	
2	2016					$ 52,683	$ 55,892		$46,888	
3	2017					$ 52,683	$ 57,568		$44,234	
4	2018					$ 52,683	$ 59,295		$41,730	
5	2019					$ 52,683	$ 61,074		$39,368	
6	2020					$ 52,683	$ 62,906		$37,140	
7	2021					$ 52,683	$ 64,794		$35,037	
8	2022					$ 52,683	$ 66,738		$33,054	
9	2023					$ 52,683	$ 68,740		$31,183	
10	2024					$ 52,683	$ 70,802		$29,418	
11	2025					$ 52,683	$ 72,926		$27,753	
12	2026	$ -	$ -	$ -		$ 52,683	$ 75,114	$ 770,112	$26,182	$ 441,688
13	2027					$ 52,683	$ 77,367		$24,700	
14	2028					$ 52,683	$ 79,688		$23,302	
15	2029					$ 52,683	$ 82,079		$21,983	
16	2030					$ 52,683	$ 84,541		$20,739	
17	2031					$ 52,683	$ 87,077		$19,565	
18	2032					$ 52,683	$ 89,690		$18,457	
19	2033					$ 52,683	$ 92,380		$17,412	
20	2034					$ 52,683	$ 95,152		$16,427	
21	2035					$ 52,683	$ 98,006		$15,497	
22	2036					$ 52,683	$ 100,946		$14,620	
23	2037					$ 52,683	$ 103,975		$13,792	
24	2038					$ 52,683	$ 107,094		$13,012	
25	2039					$ 52,683	$ 110,307		$12,275	
26	2040					$ 52,683	$ 113,616		$11,580	
27	2041					$ 52,683	$ 117,025		$10,925	
28	2042					$ 52,683	$ 120,535		$10,306	
29	2043					$ 52,683	$ 124,151		$9,723	
30	2044					$ 52,683	$ 127,876	$ 1,811,506	$9,173	$ 283,488
	Total	**$ -**	**$ -**	**$ -**		**$ 1,580,496**	**$ 2,581,618**	**$ 2,581,618**	**$ 725,175**	**$ 725,175**

Module A
Groundwater Monitoring Program
Feasibility Study
Scope of Work: First year of 16-year, Less Aggressive quarterly sentinel well monitoring
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
ESTIMATED ANNUALMONITORING COSTS					
	Consultant Labor Costs				
	Vice President 1	34	Hour	$ 202	$ 6,868
	Sr. Professional 8	174	Hour	$ 178	$ 30,972
	Staff Professional 5	124	Hour	$ 128	$ 15,872
	Professional 3	120	Hour	$ 111	$ 13,320
	Professional 2	55	Hour	$ 98	$ 5,390
	Field /Lab Engr Tech/Geol. 6-8	352	Hour	$ 96	$ 33,792
	Field /Lab Engr Tech/Geol. 1-3	352	Hour	$ 77	$ 27,104
	CAD Operator	60	Hour	$ 104	$ 6,240
	Office Support	60	Hour	$ 77	$ 4,620
		0			
	Sub Contractors/Major Equipment				
	Laboratory--without MNA	1	LS	$ 13,800	$ 13,800
	Laboratory--with MNA	1	LS	$ 21,850	$ 21,850
					$ -
	Internal Equipment/Fees				$ -
	WL meter 1-1200'	40	Day	$ 60	$ 2,400
	Communication Fee (% of Labor)	$ 144,178	Percent of labor	4%	$ 5,767
	External Equipment & Fees				
	Vehicle rental	40	day	$ 115	$ 4,600
	PID	8	week	$ 311	$ 2,484
	Multimeter field parameters	40	day	$ 29	$ 1,150
	In-line filters	202	each	$ 20	$ 3,949
	Level D Personnel Protective Equipment	40	each	$ 29	$ 1,150
	Barrier/Caution Tape	12	each	$ 17	$ 207
	Miscellaneous supplies	40	day	$ 29	$ 1,150
	Hydrasleeves	202	day	$ 40	$ 8,131
		Subtotal for Monitoring			**$ 210,816**
		Engineering Cost		**0%**	**$ -**
		Contingency Cost:		**0%**	**$ -**
		Total Cost for Monitoring:			**$ 210,816**

Module C (500 gpm)
Reinject 500 gpm treated water
Feasibility Study
Scope of Work: One Injection well to deliver 500 gpm to the deep aquifer at the well-head treatment center;
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Injection Well Costs					
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 475	$ 19,000
	Borehole Drilling w/ casing advance	1110	LF	$ 350	$ 388,500
	Borehole Geophysical Logging	1	LS	$ 10,000	$ 10,000
	F&I 16-inch HSLA Casing	900	LF	$ 250	$ 225,000
	Dissimilar metals adapter	1	LS	$ 3,000	$ 3,000
	F&I 16-inch SS Wirewrap Screen	200	LF	$ 350	$ 70,000
	F&I 2 3/8-inch Sounding Tube	1000	LF	$ 12	$ 12,000
	F&I 2 3/8-inch Gravel Pack Tube	1000	LF	$ 12	$ 12,000
	F&I Silica Sand Filter Pack	27	TN	$ 550	$ 14,850
	F&I Bentonite Seal	45	CF	$ 15	$ 675
	F&I Cement Seal	73	CY	$ 325	$ 23,725
	Swab & Airlift Development	34	HR	$ 350	$ 11,900
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Injection Testing Equipment	1	LS	$ 20,000	$ 20,000
	Injection Testing Period	40	HR	$ 250	$ 10,000
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 112,000	$ 112,000
	Waste Management Estimated Total	1	LS	$ 60,000	$ 60,000
	Total Inject Wells Constructed:	**1**	**Wells**	**$ 1,153,150**	**$ 1,153,150**
		Subtotal for Extraction Well Installation:			**$ 1,153,150**
		Engineering Cost		**5%**	**$ 57,658**
		Contingency Cost:		**10%**	**$ 115,315**
		Total Cost for Extraction Well Installation:			**$ 1,326,123**
Injection Well Site Work					
	Monitoring Well (Deep)	1	EA	$ 250,000	$ 250,000
	General Contractor Allowance	1	LS	$ 100,000	$ 100,000
	Piping/Valving	1	LS	$ 150,000	$ 150,000
	Site Work	1	LS	$ 20,000	$ 20,000
	Canopies/buildings	1	LS	$ 20,000	$ 20,000
	Concrete Pads	1	LS	$ 20,000	$ 20,000
	Pump and Motor for backwash	1	EA	$ 100,000	$ 100,000
	Well site fence & gate	1	LS	$ 30,000	$ 30,000
	Electrical	1	LS	$ 150,000	$ 150,000
	Instrumentation	1	LS	$ 90,000	$ 90,000
	Connection to COP	1	LS	$ 2,000	$ 2,000
	Underground Storage Facility Permit	1	LS	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**1**	**Compounds**	**$ 1,007,000**	**$ 1,007,000**
		Subtotal for Injection Well System Installation:			**$ 1,007,000**
		Engineering Cost		**10%**	**$ 100,700**
		Contingency Cost:		**20%**	**$ 201,400**
		Total Cost for Injection Well System Installation:			**$ 1,309,100**
	ESTIMATED ANNUAL O & M COSTS (Injection Well)				
					$ -
	Quarterly Re-Injection Sampling/Reporting	4	EA	$ 2,000	$ 8,000
	Injection well Maintence (Weekly; 4 hrs per well)	52	Week	$ 500	$ 26,000
	Non Routine Visits for System Maintenance and Alarm Response	4	EST	$ 1,000	$ 4,000
					$ -
				Subtotal for IW O&M	**$ 38,000**
		Subtotal for O&M:			**$ 38,000**
	Number of 1 Injection Well	**Engineering Cost**		**5%**	**$ 1,900**
	Number of 1 Compound	**Contingency Cost:**		**10%**	**$ 3,800**
		Total Cost for O&M:			**$ 43,700**

Total Captial Subtotal	**$ 2,160,150**
Total Capital Engineering	**$ 158,358**
Total Capital Contingency:	**$ 316,715**
Total Capital Cost for Module	**$ 2,635,223**

Module C (2 Inj. wells to deliver 1,000 gpm for one treatment compound)
Reinject 1,000 gpm treated water
Feasibility Study
Scope of Work: Two Injection wells to deliver 1,000 gpm to the deep aquifer at one well-head treatment center ;
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Injection Well Costs					
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 475	$ 19,000
	Borehole Drilling w/ casing advance	1110	LF	$ 350	$ 388,500
	Borehole Geophysical Logging	1	LS	$ 10,000	$ 10,000
	F&I 16-inch HSLA Casing	900	LF	$ 250	$ 225,000
	Dissimilar metals adapter	1	LS	$ 3,000	$ 3,000
	F&I 16-inch SS Wirewrap Screen	200	LF	$ 350	$ 70,000
	F&I 2 3/8-inch Sounding Tube	1000	LF	$ 12	$ 12,000
	F&I 2 3/8-inch Gravel Pack Tube	1000	LF	$ 12	$ 12,000
	F&I Silica Sand Filter Pack	27	TN	$ 550	$ 14,850
	F&I Bentonite Seal	45	CF	$ 15	$ 675
	F&I Cement Seal	73	CY	$ 325	$ 23,725
	Swab & Airlift Development	34	HR	$ 350	$ 11,900
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Injection Testing Equipment	1	LS	$ 20,000	$ 20,000
	Injection Testing Period	40	HR	$ 250	$ 10,000
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 112,000	$ 112,000
	Waste Management Estimated Total	1	LS	$ 60,000	$ 60,000
	Total Inject Wells Constructed:	**2**	**Wells**	**$ 1,153,150**	**$ 2,306,300**
		Subtotal for Injection Well Installation:			**$ 2,306,300**
		Engineering Cost		**5%**	**$ 115,315**
		Contingency Cost:		**10%**	**$ 230,630**
		Total Cost for Injection Well Installation:			**$ 2,652,245**
Injection Well Reinjection System Site Work					
	Monitoring Well (Deep)	1	EA	$ 250,000	$ 250,000
	General Contractor Allowance	1	LS	$ 100,000	$ 100,000
	Piping/Valving	1	LS	$ 175,000	$ 175,000
	Site Work	1	LS	$ 25,000	$ 25,000
	Canopies/buildings	1	LS	$ 20,000	$ 20,000
	Concrete Pads	1	LS	$ 20,000	$ 20,000
	Pump and Motor for backwash	2	EA	$ 100,000	$ 200,000
	Well site fence & gate	1	LS	$ 30,000	$ 30,000
	Electrical	1	LS	$ 200,000	$ 200,000
	Instrumentation	1	LS	$ 90,000	$ 90,000
	Connection to COP	1	LS	$ 2,000	$ 2,000
	Underground Storage Facility Permit	1	LS	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**1**	**Compounds**	**$ 1,187,000**	**$ 1,187,000**
		Subtotal for Injection Well System Installation:			**$ 1,187,000**
		Engineering Cost		**10%**	**$ 118,700**
		Contingency Cost:		**20%**	**$ 237,400**
		Total Cost for Injection Well System Installation:			**$ 1,543,100**
	ESTIMATED ANNUAL O & M COSTS (Injection Well)				
					$ -
	Quarterly Re-Injection Sampling/Reporting	4	EA	$ 2,000	$ 8,000
	Injection well Maintence (Weekly; 4 hrs per well)	52	Week	$ 1,000	$ 52,000
	Non Routine Visits for System Maintenance and Alarm Response	4	EST	$ 1,000	$ 4,000
					$ -
				Subtotal for IW O&M	**$ 64,000**
		Subtotal for O&M:			**$ 64,000**
	Number of 2 Injection Wells	**Engineering Cost**		**5%**	**$ 3,200**
	Number of 1 Compounds	**Contingency Cost:**		**10%**	**$ 6,400**
		Total Cost for O&M:			**$ 73,600**

Total Captial Subtotal	**$ 3,493,300**
Total Capital Engineering	**$ 234,015**
Total Capital Contingency:	**$ 468,030**
Total Capital Cost for Module	**$ 4,195,345**

Module C (2 Inj. wells to deliver 1,000 gpm for each of two treatment compounds)
Reinject 2,000 gpm treated water
Feasibility Study
Scope of Work: Two Injection wells to deliver 1,000 gpm to the deep aquifer at each well-head treatment center (total of two);
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Injection Well Costs					
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 475	$ 19,000
	Borehole Drilling w/ casing advance	1110	LF	$ 350	$ 388,500
	Borehole Geophysical Logging	1	LS	$ 10,000	$ 10,000
	F&I 16-inch HSLA Casing	900	LF	$ 250	$ 225,000
	Dissimilar metals adapter	1	LS	$ 3,000	$ 3,000
	F&I 16-inch SS Wirewrap Screen	200	LF	$ 350	$ 70,000
	F&I 2 3/8-inch Sounding Tube	1000	LF	$ 12	$ 12,000
	F&I 2 3/8-inch Gravel Pack Tube	1000	LF	$ 12	$ 12,000
	F&I Silica Sand Filter Pack	27	TN	$ 550	$ 14,850
	F&I Bentonite Seal	45	CF	$ 15	$ 675
	F&I Cement Seal	73	CY	$ 325	$ 23,725
	Swab & Airlift Development	34	HR	$ 350	$ 11,900
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Injection Testing Equipment	1	LS	$ 20,000	$ 20,000
	Injection Testing Period	40	HR	$ 250	$ 10,000
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 112,000	$ 112,000
	Waste Management Estimated Total	1	LS	$ 60,000	$ 60,000
	Total Inject Wells Constructed:	**4**	**Wells**	**$ 1,153,150**	**$ 4,612,600**
		Subtotal for Injection Well Installation:			**$ 4,612,600**
		Engineering Cost		**5%**	**$ 230,630**
		Contingency Cost:		**10%**	**$ 461,260**
		Total Cost for Injection Well Installation:			**$ 5,304,490**

Injection Well Reinjection System Site Work					
	Monitoring Well (Deep)	1	EA	$ 250,000	$ 250,000
	General Contractor Allowance	1	LS	$ 100,000	$ 100,000
	Piping/Valving	1	LS	$ 175,000	$ 175,000
	Site Work	1	LS	$ 25,000	$ 25,000
	Canopies/buildings	1	LS	$ 20,000	$ 20,000
	Concrete Pads	1	LS	$ 20,000	$ 20,000
	Pump and Motor for backwash	2	EA	$ 100,000	$ 200,000
	Well site fence & gate	1	LS	$ 30,000	$ 30,000
	Electrical	1	LS	$ 200,000	$ 200,000
	Instrumentation	1	LS	$ 90,000	$ 90,000
	Connection to COP	1	LS	$ 2,000	$ 2,000
	Underground Storage Facility Permit	1	LS	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**2**	**Compounds**	**$ 1,187,000**	**$ 2,374,000**
		Subtotal for Injection Well System Installation:			**$ 2,374,000**
		Engineering Cost		**10%**	**$ 237,400**
		Contingency Cost:		**20%**	**$ 474,800**
		Total Cost for Injection Well System Installation:			**$ 3,086,200**

	ESTIMATED ANNUAL O & M COSTS (Injection Well)				
					$ -
	Quarterly Re-Injection Sampling/Reporting	4	EA	$ 4,000	$ 16,000
	Injection well Maintence (Weekly; 4 hrs per well)	52	Week	$ 2,000	$ 104,000
	Non Routine Visits for System Maintenance and Alarm Response	8	EST	$ 1,000	$ 8,000
					$ -
				Subtotal for IW O&M	**$ 128,000**
		Subtotal for O&M:			**$ 128,000**
	Number of 4 Injection Wells	**Engineering Cost**		**5%**	**$ 6,400**
	Number of 2 Compounds	**Contingency Cost:**		**10%**	**$ 12,800**
		Total Cost for O&M:			**$ 147,200**

Total Captial Subtotal	**$ 6,986,600**
Total Capital Engineering	**$ 468,030**
Total Capital Contingency:	**$ 936,060**
Total Capital Cost for Module	**$ 8,390,690**

Module E (500 gpm)
One plume core extraction well at 500 gpm
Feasibility Study
Scope of Work: One Extraction Well and Pump Head Treatment Center; Use of Existing conveyances to carry flow to the RID Main Canal
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Extraction Well Costs					
	Well Construction				
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 500	$ 20,000
	Pilot Borehole Drilling	460	LF	$ 70	$ 32,200
	Borehole Geophysical Logging	1	LS	$ 8,000	$ 8,000
	Borehole Reaming	460	LF	$ 80	$ 36,800
	F&I 20-inch HSLA Blank Casing	150	LF	$ 300	$ 45,000
	F&I 20-inch HSLA Louvered Casing	350	LF	$ 350	$ 122,500
	F&I 2 3/8-inch Sounding Tube	160	LF	$ 12	$ 1,920
	F&I 2 3/8-inch Gravel Pack Tube	160	LF	$ 12	$ 1,920
	F&I Silica Sand Filter Pack	57	TN	$ 550	$ 31,350
	F&I Bentonite Seal	60	CF	$ 15	$ 900
	F&I Cement Seal	17	CY	$ 325	$ 5,525
	Swab & Airlift Development	60	HR	$ 350	$ 21,000
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 92,000	$ 92,000
	Waste Management Estimated Total	1	LS	$ 28,750	$ 28,750
	Pump Contractor Estimated Total	1	LS	$ 120,000	$ 120,000
	Pump Engineer	1	LS	$ 10,000	$ 10,000
	Total Extraction Well Pumps Constructed:	**1**	**Wells**	**$ 738,365**	**$ 738,365**
		Subtotal for Extraction Well Installation:			**$ 738,365**
		Engineering Cost		**5%**	**$ 36,918**
		Contingency Cost:		**10%**	**$ 73,837**
		Total Cost for Extraction Well Installation:			**$ 849,120**
#VALUE!					
	Planning and Permitting				
	Workplan for ADEQ Approval	1	LS	$ 15,000	$ 15,000
	Prepare NPDES Permit (confirm groundwater parameter compatibility with permit)	1	LS	$ 25,000	$ 25,000
	Geotechnical Investigation (to obtain data for structural design of compound)	1	LS	$ 25,000	$ 25,000
	Engineering Design	15	Sheet	$ 4,000	$ 60,000
	Construction Permitting	1	Est	$ 10,000	$ 10,000
	Total Planning and Permitting:	**1**	**Compounds**	**$ 135,000**	**$ 135,000**
	Compound Construction and Equipment Purchase				
	Land (assume 200' x 200')	1	Est	$ 156,000	$ 156,000
	Equipment Compound Construction	1	Est	$ 200,000	$ 200,000
	Siemens HP810 SYS GAC Vessels (Pair)	1	Per Pair	$ 245,000	$ 245,000
	Particulate Filters	1	Each	$ 25,000	$ 25,000
	Above Ground Piping in Compound	1	Est	$ 100,000	$ 100,000
	Piping to post treatment EQ tank	50	Ft	$ 200	$ 10,000
	Controls System (instrumentation, PLC, Programming, Etc)	1	Est	$ 175,000	$ 175,000
	Power Service Connection	1	Est	$ 25,000	$ 25,000
	Pump to Push Water through System	1	EA	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**1**	**Compounds**	**$ 1,011,000**	**$ 1,011,000**
		Subtotal for Well Head Treatment Installation:			**$ 1,146,000**
		Engineering Cost		**0%**	**$ -**
		Contingency Cost:		**10%**	**$ 114,600**
		Total Cost for Well Head Treatment Installation:			**$ 1,260,600**
Conveyance Installation					
	Construction Monitoring	2	Per Week	$ 10,000	$ 20,000
	Connections to Existing Canals	1	EA	$ 25,000	$ 25,000
	Pump Stations	1	EA	$ 20,000	$ 20,000
	Small Pump	1	EA	$ 70,000	$ 70,000
	Pump Controls System	1	EA	$ 30,000	$ 30,000
	Pump Power Connection (Exiting Treatment Center or Power Drop nearby)	1	EA	$ 10,000	$ 10,000
	Existing Canal Easement	2.5	Per Mile	$ 25,000	$ 62,500
		Subtotal for Conveyance Installation:			**$ 237,500**
		Engineering Cost		**20%**	**$ 47,500**
		Contingency Cost:		**25%**	**$ 59,375**
		Total Cost for Piping and Conveyance Installation:			**$ 344,375**

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
	ESTIMATED ANNUAL O & M COSTS (Well and Well Head Treatment)				
	Annual Costs				
	NPDES Permit Renewal Fee	1	LS	$ 5,500	$ 5,500
	Annual Withdrawl Report to ADWR	1	LS	$ 5,500	$ 5,500
	Annual NPDES Permit Compliance Sampling and Analysis	1	LS	$ 2,500	$ 2,500
	GAC Replacement (Total for all wells / Number of Wells)	3	EA	$ 20,000	$ 60,000
	Cost of Water (Extraction Fee)	807	Acre-Ft	$ 5.12	$ 4,132
	Monthly System Management and Permit Compliance Sampling	12	Month	$ 7,000	$ 84,000
	Quarterly NPDES Reporting	4	EA	$ 2,500	$ 10,000
	Electricity (Pump for Extraction Well)	200,026	Kw/Hr (year)	$ 0.240	$ 48,006
	Electricity (Pump for Treatment Facility)	143,810	Kw/Hr (year)	$ 0.240	$ 34,514
	System Equipment Replacement (average over 30 years)	1	EST	$ 70,000	$ 70,000
	Non Routine Visits for System Maintenance and Alarm Response	6	EST	$ 1,000	$ 6,000
	Particulate filters	4	Per Year	$ 2,400	$ 9,600
	Total Costs for Well and Well Treatment Annual O&M:	**1**	**WELLS**	**$ 339,753**	**$ 339,753**
	ESTIMATED ANNUAL O& M COSTS (Piping systems)				
	Electric cost for pump	26,194	Kw/Hr (year)	$ 0.240	$ 6,287
	Pump Station Maintence	2	Per Pump Station	$ 5,000	$ 10,000
	Pipeline Maintence	1	Per Year	$ 50,000	$ 50,000
	System Equipment Replacement (average over 30 years)	2	Per Pump Station	$ 25,000	$ 50,000
	Total Costs for Piping and Conveyance Systems O&M:	**1**	**Systems**	**$ 116,287**	**$ 116,287**
		Subtotal for O&M:			**$ 456,039**
		Engineering Cost		**5%**	**$ 22,802**
		Contingency Cost:		**10%**	**$ 45,604**
		Total Cost for O&M:			**$ 524,445**

Total Captial Subtotal	**$ 2,121,865**
Total Capital Engineering	**$ 84,418**
Total Capital Contingency:	**$ 247,812**
Total Capital Cost for Module	**$ 2,454,095**

Module E (1 @ 1,000 gpm)
Add one plume core extraction well at 1,000 gpm
Feasibility Study
Scope of Work: One Extraction Well and Pump Head Treatment Center; Use of Existing conveyances to carry flow to the RID Main Canal
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Extraction Well Costs					
	Well Construction				
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 500	$ 20,000
	Pilot Borehole Drilling	460	LF	$ 70	$ 32,200
	Borehole Geophysical Logging	1	LS	$ 8,000	$ 8,000
	Borehole Reaming	460	LF	$ 80	$ 36,800
	F&I 20-inch HSLA Blank Casing	150	LF	$ 300	$ 45,000
	F&I 20-inch HSLA Louvered Casing	350	LF	$ 350	$ 122,500
	F&I 2 3/8-inch Sounding Tube	160	LF	$ 12	$ 1,920
	F&I 2 3/8-inch Gravel Pack Tube	160	LF	$ 12	$ 1,920
	F&I Silica Sand Filter Pack	57	TN	$ 550	$ 31,350
	F&I Bentonite Seal	60	CF	$ 15	$ 900
	F&I Cement Seal	17	CY	$ 325	$ 5,525
	Swab & Airlift Development	60	HR	$ 350	$ 21,000
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 92,000	$ 92,000
	Waste Management Estimated Total	1	LS	$ 28,750	$ 28,750
	Pump Contractor Estimated Total	1	LS	$ 120,000	$ 120,000
	Pump Engineer	1	LS	$ 10,000	$ 10,000
	Total Extraction Well Pumps Constructed:	**1**	**Wells**	**$ 738,365**	**$ 738,365**
		Subtotal for Extraction Well Installation:			**$ 738,365**
		Engineering Cost		**5%**	**$ 36,918**
		Contingency Cost:		**10%**	**$ 73,837**
		Total Cost for Extraction Well Installation:			**$ 849,120**
#VALUE!					
	Planning and Permitting				
	Workplan for ADEQ Approval	1	LS	$ 15,000	$ 15,000
	Prepare NPDES Permit (confirm groundwater parameter compatibility wit	1	LS	$ 25,000	$ 25,000
	Geotechnical Investigation (to obtain data for structural design of compou	1	LS	$ 25,000	$ 25,000
	Engineering Design	15	Sheet	$ 4,000	$ 60,000
	Construction Permitting	1	Est	$ 10,000	$ 10,000
	Total Planning and Permitting:	**1**	**Compounds**	**$ 135,000**	**$ 135,000**
	Compound Construction and Equipment Purchase				
	Land (assume 200' x 200')	1	Est	$ 156,000	$ 156,000
	Equipment Compound Construction	1	Est	$ 200,000	$ 200,000
	Siemens HP1220 SYS GAC Vessels (Pair)	1	Per Pair	$ 330,000	$ 330,000
	Particulate Filters	1	Each	$ 50,000	$ 50,000
	Above Ground Piping in Compound	1	Est	$ 100,000	$ 100,000
	Piping to post treatment EQ tank	50	Ft	$ 200	$ 10,000
	Controls System (instrumentation, PLC, Programming, Etc)	1	Est	$ 175,000	$ 175,000
	Power Service Connection	1	Est	$ 25,000	$ 25,000
	Pump to Push Water through System	1	EA	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**1**	**Compounds**	**$ 1,121,000**	**$ 1,121,000**
		Subtotal for Well Head Treatment Installation:			**$ 1,256,000**
		Engineering Cost		**0%**	**$ -**
		Contingency Cost:		**10%**	**$ 125,600**
		Total Cost for Well Head Treatment Installation:			**$ 1,381,600**
Conveyance Installation					
	Construction Monitoring	2	Per Week	$ 10,000	$ 20,000
	Connections to Existing Canals	1	EA	$ 25,000	$ 25,000
	Pump Stations	1	EA	$ 20,000	$ 20,000
	Small Pump	1	EA	$ 70,000	$ 70,000
	Pump Controls System	1	EA	$ 30,000	$ 30,000
	Pump Power Connection (Exiting Treatment Center or Power Drop nearb	1	EA	$ 10,000	$ 10,000
	Existing Canal Easement	2.5	Per Mile	$ 25,000	$ 62,500
		Subtotal for Conveyance Installation:			**$ 237,500**
		Engineering Cost		**20%**	**$ 47,500**
		Contingency Cost:		**25%**	**$ 59,375**
		Total Cost for Piping and Conveyance Installation:			**$ 344,375**
	ESTIMATED ANNUAL O & M COSTS (Well and Well Head Treatment)				
	Annual Costs				
	NPDES Permit Renewal Fee	1	LS	$ 5,500	$ 5,500
	Annual Withdrawl Report to ADWR	1	LS	$ 5,500	$ 5,500
	Annual NPDES Permit Compliance Sampling and Analysis	1	LS	$ 2,500	$ 2,500
	GAC Replacement (Total for all wells / Number of Wells)	7	EA	$ 20,000	$ 140,000
	Cost of Water (Extraction Fee)	1,614	Acre-Ft	$ 5.12	$ 8,264
	Monthly System Management and Permit Compliance Sampling	12	Month	$ 7,000	$ 84,000
	Quarterly NPDES Reporting	4	EA	$ 2,500	$ 10,000
	Electricity (Pump for Extraction Well)	400,052	Kw/Hr (year)	$ 0.240	$ 96,013
	Electricity (Pump for Treatment Facility)	287,619	Kw/Hr (year)	$ 0.240	$ 69,029
	System Equipment Replacement (average over 30 years)	1	EST	$ 70,000	$ 70,000
	Non Routine Visits for System Maintenance and Alarm Response	6	EST	$ 1,000	$ 6,000
	Particulate filters	4	Per Year	$ 2,400	$ 9,600
	Total Costs for Well and Well Treatment Annual O&M:	**1**	**WELLS**	**$ 506,405**	**$ 506,405**
	ESTIMATED ANNUAL O& M COSTS (Piping systems)				
	Electric cost for pump	26,194	Kw/Hr (year)	$ 0.240	$ 6,287
	Pump Station Maintence	1	Per Pump Station	$ 5,000	$ 5,000
	Pipeline Maintence	1	Per Year	$ 50,000	$ 50,000
	System Equipment Replacement (average over 30 years)	2	Per Pump Station	$ 25,000	$ 50,000
	Total Costs for Piping and Conveyance Systems O&M:	**1**	**Systems**	**$ 111,287**	**$ 111,287**
		Subtotal for O&M:			**$ 617,692**
		Engineering Cost		**5%**	**$ 30,885**
		Contingency Cost:		**10%**	**$ 61,769**
		Total Cost for O&M:			**$ 710,346**

Total Captial Subtotal	**$ 2,231,865**
Total Capital Engineering	**$ 84,418**
Total Capital Contingency:	**$ 258,812**
Total Capital Cost for Module	**$ 2,575,095**

Module E (2 @ 1,000 gpm each)
Two plume core extraction wells at 1,000 gpm each
Feasibility Study
Scope of Work: Two Extraction Wells and Pump Head Treatment Centers; Use of Existing conveyances to carry flow to the RID Main Canal
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Extraction Well Costs					
	Well Construction				
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 500	$ 20,000
	Pilot Borehole Drilling	460	LF	$ 70	$ 32,200
	Borehole Geophysical Logging	1	LS	$ 8,000	$ 8,000
	Borehole Reaming	460	LF	$ 80	$ 36,800
	F&I 20-inch HSLA Blank Casing	150	LF	$ 300	$ 45,000
	F&I 20-inch HSLA Louvered Casing	350	LF	$ 350	$ 122,500
	F&I 2 3/8-inch Sounding Tube	160	LF	$ 12	$ 1,920
	F&I 2 3/8-inch Gravel Pack Tube	160	LF	$ 12	$ 1,920
	F&I Silica Sand Filter Pack	57	TN	$ 550	$ 31,350
	F&I Bentonite Seal	60	CF	$ 15	$ 900
	F&I Cement Seal	17	CY	$ 325	$ 5,525
	Swab & Airlift Development	60	HR	$ 350	$ 21,000
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Consultant Oversight Estimated Total	1	LS	$ 92,000	$ 92,000
	Waste Management Estimated Total	1	LS	$ 28,750	$ 28,750
	Pump Contractor Estimated Total	1	LS	$ 120,000	$ 120,000
	Pump Engineer	1	LS	$ 10,000	$ 10,000
	Total Extraction Well Pumps Constructed:	**2**	**Wells**	**$ 738,365**	**$ 1,476,730**
		Subtotal for Extraction Well Installation:			**$ 1,476,730**
		Engineering Cost		**5%**	**$ 73,837**
		Contingency Cost:		**10%**	**$ 147,673**
		Total Cost for Extraction Well Installation:			**$ 1,698,240**
#VALUE!					
	Planning and Permitting				
	Workplan for ADEQ Approval	1	LS	$ 15,000	$ 15,000
	Prepare NPDES Permit (confirm groundwater parameter compatibility wit	1	LS	$ 25,000	$ 25,000
	Geotechnical Investigation (to obtain data for structural design of compou	1	LS	$ 25,000	$ 25,000
	Engineering Design	15	Sheet	$ 4,000	$ 60,000
	Construction Permitting	1	Est	$ 10,000	$ 10,000
	Total Planning and Permitting:	**2**	**Compounds**	**$ 135,000**	**$ 270,000**
	Compound Construction and Equipment Purchase				
	Land (assume 200' x 200')	1	Est	$ 156,000	$ 156,000
	Equipment Compound Construction	1	Est	$ 200,000	$ 200,000
	Siemens HP1220 SYS GAC Vessels (Pair)	1	Per Pair	$ 330,000	$ 330,000
	Particulate Filters	1	Each	$ 50,000	$ 50,000
	Above Ground Piping in Compound	1	Est	$ 100,000	$ 100,000
	Piping to post treatment EQ tank	50	Ft	$ 200	$ 10,000
	Controls System (instrumentation, PLC, Programming, Etc)	1	Est	$ 175,000	$ 175,000
	Power Service Connection	1	Est	$ 25,000	$ 25,000
	Pump to Push Water through System	1	EA	$ 75,000	$ 75,000
	Total Compound Construction and Equipment Purchaces:	**2**	**Compounds**	**$ 1,121,000**	**$ 2,242,000**
		Subtotal for Well Head Treatment Installation:			**$ 2,512,000**
		Engineering Cost		**0%**	**$ -**
		Contingency Cost:		**10%**	**$ 251,200**
		Total Cost for Well Head Treatment Installation:			**$ 2,763,200**
Conveyance Installation					
	Construction Monitoring	4	Per Week	$ 10,000	$ 40,000
	Connections to Existing Canals	2	EA	$ 25,000	$ 50,000
	Pump Stations	2	EA	$ 20,000	$ 40,000
	Small Pump	2	EA	$ 70,000	$ 140,000
	Pump Controls System	1	EA	$ 30,000	$ 30,000
	Pump Power Connection (Exiting Treatment Center or Power Drop nearb	2	EA	$ 10,000	$ 20,000
	Existing Canal Easement	2.5	Per Mile	$ 25,000	$ 62,500
		Subtotal for Conveyance Installation:			**$ 382,500**
		Engineering Cost		**20%**	**$ 76,500**
		Contingency Cost:		**25%**	**$ 95,625**
		Total Cost for Piping and Conveyance Installation:			**$ 554,625**
	ESTIMATED ANNUAL O & M COSTS (Well and Well Head Treatment)				
	Annual Costs				
	NPDES Permit Renewal Fee	1	LS	$ 5,500	$ 5,500
	Annual Withdrawl Report to ADWR	1	LS	$ 5,500	$ 5,500
	Annual NPDES Permit Compliance Sampling and Analysis	1	LS	$ 2,500	$ 2,500
	GAC Replacement (Total for all wells / Number of Wells)	7	EA	$ 20,000	$ 140,000
	Cost of Water (Extraction Fee)	1,614	Acre-Ft	$ 5.12	$ 8,264
	Monthly System Management and Permit Compliance Sampling	12	Month	$ 7,000	$ 84,000
	Quarterly NPDES Reporting	4	EA	$ 2,500	$ 10,000
	Electricity (Pump for Extraction Well)	400,052	Kw/Hr (year)	$ 0.240	$ 96,013
	Electricity (Pump for Treatment Facility)	287,619	Kw/Hr (year)	$ 0.240	$ 69,029
	System Equipment Replacement (average over 30 years)	1	EST	$ 70,000	$ 70,000
	Non Routine Visits for System Maintenance and Alarm Response	6	EST	$ 1,000	$ 6,000
	Particulate filters	4	Per Year	$ 2,400	$ 9,600
	Total Costs for Well and Well Treatment Annual O&M:	**2**	**WELLS**	**$ 506,405**	**$ 1,012,811**
	ESTIMATED ANNUAL O& M COSTS (Piping systems)				
	Electric cost for pump	52,389	Kw/Hr (year)	$ 0.240	$ 12,573
	Pump Station Maintence	2	Per Pump Station	$ 5,000	$ 10,000
	Pipeline Maintence	1	Per Year	$ 50,000	$ 50,000
	System Equipment Replacement (average over 30 years)	2	Per Pump Station	$ 25,000	$ 50,000
	Total Costs for Piping and Conveyance Systems O&M:	**1**	**Systems**	**$ 122,573**	**$ 122,573**
		Subtotal for O&M:			**$ 1,135,384**
		Engineering Cost		**5%**	**$ 56,769**
		Contingency Cost:		**10%**	**$ 113,538**
		Total Cost for O&M:			**$ 1,305,692**

Total Captial Subtotal	**$ 4,371,230**
Total Capital Engineering	**$ 150,337**
Total Capital Contingency:	**$ 494,498**
Total Capital Cost for Module	**$ 5,016,065**

Module F
LAU Replacement Well Cost (EA)
Feasibility Study
Scope of Work: Replacing LAU extraction well
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
ESTIMATED WELL REPLACEMENT COSTS					
	Mobilization/Demobilization	1	LS	$ 150,000	$ 150,000
	Surface Casing Construction	20	LF	$ 1,000	$ 20,000
	Pilot Borehole Drilling	1500	LF	$ 70	$ 105,000
	Borehole Geophysical Logging	1	LS	$ 12,000	$ 12,000
	Borehole Reaming	1500	LF	$ 80	$ 120,000
	20-inch HSLA Blank Casing	1000	LF	$ 300	$ 300,000
	20-inch HSLA Louvered Casing	500	LF	$ 350	$ 175,000
	F&I 2 3/8-inch Sounding Tube	1000	LF	$ 12	$ 12,000
	F&I 2 3/8-inch Gravel Pack Tube	1000	LF	$ 12	$ 12,000
	F&I Silica Sand Filter Pack	68	TN	$ 550	$ 37,400
	F&I Bentonite Seal	60	CF	$ 15	$ 900
	F&I Cement Seal	100	CY	$ 325	$ 32,500
	Swab & Airlift Development	84	HR	$ 350	$ 29,400
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Final Well Testing (plumbness, video)	1	LS	$ 5,000	$ 5,000
	Prepare Existing Well for Abandonment	1	LS	$ 15,000	$ 15,000
	Abandon Existing Well	270	CY	$ 325	$ 87,750
	Consultant Oversight Estimated Total	1	LS	$ 100,000	$ 100,000
	Waste Management Estimated Total	1	LS	$ 45,000	$ 45,000
	Pump Contractor Estimated Total	1	LS	$ 150,000	$ 150,000
	Pump Engineer	1	LS	$ 10,000	$ 10,000
		Subtotal for Replacement Costs			**$ 1,455,450**
		Engineering Cost		**5%**	**$ 72,772.50**
		Contingency Cost:		**10%**	**$ 145,545**
		Total Cost for Well Replacement:			**$ 1,673,768**

Module G
UAU Well Replacement Installation Cost (EA)
Feasibility Study
Scope of Work: Replacing extraction well with UAU extraction well, including land
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
ESTIMATED WELL REPLACEMENT COSTS					
	Installation Costs				
	Mobilization/Demobilization	1	LS	$ 120,000	$ 120,000
	Surface Casing Construction	40	LF	$ 500	$ 20,000
	Pilot Borehole Drilling	460	LF	$ 70	$ 32,200
	Borehole Geophysical Logging	1	LS	$ 8,000	$ 8,000
	Borehole Reaming	460	LF	$ 80	$ 36,800
	F&I 20-inch HSLA Blank Casing	150	LF	$ 300	$ 45,000
	F&I 20-inch HSLA Louvered Casing	350	LF	$ 350	$ 122,500
	F&I 2 3/8-inch Sounding Tube	160	LF	$ 12	$ 1,920
	F&I 2 3/8-inch Gravel Pack Tube	160	LF	$ 12	$ 1,920
	F&I Silica Sand Filter Pack	57	TN	$ 550	$ 31,350
	F&I Bentonite Seal	60	CF	$ 15	$ 900
	F&I Cement Seal	17	CY	$ 325	$ 5,525
	Swab & Airlift Development	60	HR	$ 350	$ 21,000
	Test Pumping Equipment	1	LS	$ 20,000	$ 20,000
	Pumping Period	66	HR	$ 250	$ 16,500
	Final Well Testing	1	LS	$ 4,000	$ 4,000
	Prepare Existing Well for Abandonment	1	LS	$ 10,000	$ 10,000
	Abandon Existing Well	50	CY	$ 300	$ 15,000
	Land 200x200	1	LS	$ 156,000	$ 156,000
	Consultant Oversight Estimated Total	1	LS	$ 92,000	$ 92,000
	Waste Management Estimated Total	1	LS	$ 28,750	$ 28,750
	Pump Contractor Estimated Total	1	LS	$ 120,000	$ 120,000
	Pump Engineer	1	LS	$ 10,000	$ 10,000
		Subtotal for Replacement Costs			**$ 919,365**
		Engineering Cost		**5%**	**$ 45,968**
		Contingency Cost:		**10%**	**$ 91,937**
		Total Cost for Well Replacement:			**$ 1,057,270**

Module H
Monitoring Well Installation Cost (EA)
Feasibility Study
Scope of Work: Sentinel monitoring well installation
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

NO.	ITEM	ESTIMATED QUANTITY	UNIT (EA, LF, LS)	UNIT PRICE	ESTIMATED COST
Monitoring Well Installation Costs					
	Consultant Labor Costs				
	Mob/Demob	1	LS	$ 2,500	$ 2,500
	AZ DWR Permit	1	LS	$ 225	$ 225
	Drill 9 5/8-inch borehole	200	FT	$ 40	$ 8,000
	Install 4-inch SCH 40 PVC Well	200	FT	$ 30	$ 6,000
	Surface Completion	1	EA	$ 750	$ 750
	Development rig mob/demob	1	LS	$ 800	$ 800
	Well Development	6	HR	$ 250	$ 1,500
	Roll-off - soil disposal	1	LS	$ 1,200	$ 1,200
	Drums - development water	4	EA	$ 120	$ 480
	Prep and Oversight	1	EA	$ 21,000	$ 21,000
	Total Number of Wells:	**1**	**Wells**	**$ 42,455**	**$ 42,455**
		Subtotal for Monitoring Well Cost:			**$ 42,455**
		Engineering Cost		**10%**	**$ 4,245.50**
		Contingency Cost:		**10%**	**$ 4,246**
		Total Cost for Monitoring Well Installation			**$ 50,946**

Module J
Quarterly sentinel well monitoring at twelve (12) monitoring wells and eleven (11) SRP wells
Feasibility Study
Scope of Work: First year of 16-year, Less Aggressive quarterly sentinel well monitoring
Site Name: West Van Buren WQARF Site
Location: Phoenix, AZ
File No: 37503-204

Cost Element	Rate Schedule		Task 1 - Field Prep for Quarterly Events		Task 2 - Quarterly Field Event		Task 3 - Data Validation and Inclusion into Semiannual Report		Task 4 - Data Validation and Inclusion into Annual Report		Task 5 - Project Management			
H&A Labor Costs		UNIT	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS
Vice President 1	$202.00	hr	0	$0	0	$0	0	$0	0	$0	1	$202	1.0	$ 202.00
Sr. Professional 8	$178.00	hr	1	$178	1	$178	0	$0	0	$0	6	$1,068	8.0	$ 1,424.00
Staff Professional 5	$128.00	hr	0	$0	1	$128	2	$256	1	$128	0	$0	4.0	$ 512.00
Professional 3	$111.00	hr	0	$0	0	$0	8	$888	8	$888	0	$0	16.0	$ 1,776.00
Professional 2	$98.00	hr	0	$0	0	$0	4	$392	2	$196	0	$0	6.0	$ 588.00
Field /Lab Engr Tech/Geol. 6-8	$96.00	hr	4	$384	30	$2,880	0	$0	0	$0	0	$0	34.0	$ 3,264.00
Field /Lab Engr Tech/Geol. 1-3	$77.00	hr	2	$154	0	$0	0	$0	0	$0	0	$0	2.0	$ 154.00
Office Support	$77.00	hr	1	$77	0	$0	1	$77	1	$77	2	$154	5.0	$ 385.00
Total H&A Labor			**8.0**	**$793**	**32.0**	**$3,186**	**15.0**	**$1,613**	**12.0**	**$1,289**	**9.0**	**$1,424**	**76.0**	**$ 8,305.00**
Subcontractors/Major Equipment	Cost w/Markup		**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**
Laboratory	$ 2,243	ls	0	$0	1	$2,243	0	$0	0	$0	0	$0	1.0	$ 2,243
Total Subcontractors				**$0**		**$2,243**		**$0**		**$0**		**$0**		**$ 2,242.50**
Other Direct Costs (ODCs)			**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**
Internal Equipment/Fees (no markup)	Cost	0%												
WL meter 1-1200'	$60.00	day	0	$0	3	$180	0	$0	0	$0	0	$0	3.0	$ 180
Communication Fee (% of Labor)	4.0%			$32		$127		$65		$52		$57	0.0	$ 332.20
External Equipment & Fees	Cost w/Markup													
Vehicle rental	$ 115.00	day	0	$0	3	$345	0	$0	0	$0	0	$0	3.0	$ 345
PID	$ 310.50	each	0	$0	1	$311	0	$0	0	$0	0	$0	1.0	$ 311
Multimeter field parameters	$ 28.75	day	0	$0	3	$86	0	$0	0	$0	0	$0	3.0	$ 86
Level D Personnel Protective Equipment	$ 28.75	each	0	$0	1	$29	0	$0	0	$0	0	$0	1.0	$ 29
Barrier/Caution Tape	$ 17.25	each	0	$0	1	$17	0	$0	0	$0	0	$0	1.0	$ 17
Miscellaneous supplies	$ 28.75	day	0	$0	1	$29	0	$0	0	$0	0	$0	1.0	$ 29
Hydrasleeves	$ 40.25	each	0	$0	12	$483	0	$0	0	$0	0	$0	12.0	$ 483
Total ODCs				**$32**		**$1,607**		**$65**		**$52**		**$57**		**$ 1,811.70**
			Task 1 - Field Prep for Quarterly Events		**Task 2 - Quarterly Field Event**		**Task 3 - Data Validation and Inclusion into Semiannual Report**		**Task 4 - Data Validation and Inclusion into Annual Report**		**Task 5 - Project Management**			
TOTAL UNIT COSTS				**$825**		**$7,035**		**$1,678**		**$1,341**		**$1,481**		**$12,359.20**
NUMBER OF UNITS / EVENTS			4	**$3,299**	4	**$28,142**	2	**$3,355**	2	**$2,681**	4	**$5,924**		**$43,400.64**
TOTAL COSTS				**$3,299**		**$28,142**		**$3,355**		**$2,681**		**$5,924**		**$43,400.64**

Module L
Quarterly sentinel well monitoring at sixteen (16) monitoring wells and eleven (11) SRP wells
Feasibility Study
Scope of Work: First year of 16-year, Reference Remedy quarterly sentinel well monitoring
Site Name: West Van Buren WQARF Site
Location: Phoenix, Arizona
File No: 37503-204

Cost Element	Rate Schedule		Task 1 - Field Prep for Quarterly Events		Task 2 - Quarterly Field Event		Task 3 - Data Validation and Inclusion into Semiannual Report		Task 4 - Data Validation and Inclusion into Annual Report		Task 5 - Project Management		Total	
H&A Labor Costs		UNIT	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS	HOURS	DOLLARS
Vice President 1	$202.00	hr	0	$0	0	$0	0	$0	0	$0	1	$202	1.0	$ 202.00
Sr. Professional 8	$178.00	hr	1	$178	1	$178	0	$0	0	$0	6	$1,068	8.0	$ 1,424.00
Staff Professional 5	$128.00	hr	0	$0	2	$256	1	$128	1	$128	0	$0	4.0	$ 512.00
Professional 3	$111.00	hr	0	$0	0	$0	12	$1,332	12	$1,332	0	$0	24.0	$ 2,664.00
Professional 2	$98.00	hr	0	$0	0	$0	2	$196	2	$196	0	$0	4.0	$ 392.00
Field /Lab Engr Tech/Geol. 6-8	$96.00	hr	5	$480	40	$3,840	0	$0	0	$0	0	$0	45.0	$ 4,320.00
Field /Lab Engr Tech/Geol. 1-3	$77.00	hr	2	$154	0	$0	0	$0	0	$0	0	$0	2.0	$ 154.00
Office Support	$77.00	hr	1	$77	0	$0	1	$77	1	$77	2	$154	5.0	$ 385.00
Total H&A Labor			**9.0**	**$889**	**43.0**	**$4,274**	**16.0**	**$1,733**	**16.0**	**$1,733**	**9.0**	**$1,424**	**93.0**	**$ 10,053.00**
Subcontractors/Major Equipment	Cost w/Markup		**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**
Laboratory	$ 2,674	ls	0	$0	1	$2,674	0	$0	0	$0	0	$0	1.0	$ 2,674
Total Subcontractors				**$0**		**$2,674**		**$0**		**$0**		**$0**		**$ 2,673.75**
Other Direct Costs (ODCs)			**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**	**UNITS**	**DOLLARS**
Internal Equipment/Fees (no markup)	Cost	0%												
WL meter 1-1200'	$60.00	day	0	$0	4	$240	0	$0	0	$0	0	$0	4.0	$ 240
Communication Fee (% of Labor)	4.0%			$36		$171		$69		$69		$57	0.0	$ 402.12
External Equipment & Fees	Cost w/Markup													
Vehicle rental	$ 115.00	day	0	$0	4	$460	0	$0	0	$0	0	$0	4.0	$ 460
PID	$ 310.50	each	0	$0	1	$311	0	$0	0	$0	0	$0	1.0	$ 311
Multimeter field parameters	$ 28.75	day	0	$0	4	$115	0	$0	0	$0	0	$0	4.0	$ 115
Level D Personnel Protective Equipment	$ 28.75	each	0	$0	1	$29	0	$0	0	$0	0	$0	1.0	$ 29
Barrier/Caution Tape	$ 17.25	each	0	$0	1	$17	0	$0	0	$0	0	$0	1.0	$ 17
Miscellaneous supplies	$ 28.75	day	0	$0	1	$29	0	$0	0	$0	0	$0	1.0	$ 29
Hydrasleeves	$ 40.25	each	0	$0	16	$644	0	$0	0	$0	0	$0	16.0	$ 644
Total ODCs				**$36**		**$2,015**		**$69**		**$69**		**$57**		**$ 2,246.37**
			Task 1 - Field Prep for Quarterly Events		**Task 2 - Quarterly Field Event**		**Task 3 - Data Validation and Inclusion into Semiannual Report**		**Task 4 - Data Validation and Inclusion into Annual Report**		**Task 5 - Project Management**			
TOTAL UNIT COSTS				**$925**		**$8,963**		**$1,802**		**$1,802**		**$1,481**		**$14,973.12**
NUMBER OF UNITS / EVENTS			4	**$3,698**	4	**$35,852**	2	**$3,605**	2	**$3,605**	4	**$5,924**		**$52,683.20**
TOTAL COSTS				**$3,698**		**$35,852**		**$3,605**		**$3,605**		**$5,924**		**$52,683.20**

APPENDIX F

WVB Working Group Orphan/PRP Search

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Re: *West Van Buren Working Group Orphan Search*

Dear Mr. Young and Ms. LePage:

The West Van Buren Working Group is an unincorporated association of regional stakeholders interested in ADEQ's selection of a remedy for the West Van Buren WQARF Site. The Working Group's common consultant recently submitted to ADEQ a Feasibility Study and proposed remedy for the Site. The Working Group now submits the accompanying table, source documents, and background information to supplement the PRP search that ADEQ has conducted for the Site. We believe it contains significant new information about orphan facilities and other PRPs. We hope it also contains information that will be helpful to ADEQ in its efforts to oversee source control efforts for the site.[1]

[1] The manner in which the table was compiled resulted in the inclusion of entities listed in the West Van Buren Remedial Investigation Report, ADEQ industrial surveys, and entities that have been historically involved in the Motorola 52nd Street Superfund Site who are not "orphans" as that word is used in the WQARF statute. Because of time constraints, extracting these entries from the orphan table was not feasible.

Scope and Background

1. Search Area

Because the groundwater trough created by RID pumping influences the entire West Van Buren area and has done so for many decades, sites with the potential for releases of COCs within that entire area were included. This includes (1) some facilities that are outside the current ADEQ WVB plume boundary to the north, south to the Salt River, and to the east between M52 OU3 and the ADEQ WVB plume; and (2) several previously-uninvestigated areas that either ADEQ or the Working Group's common consultant indicated interest in as potential ongoing source areas.

Because ADEQ has indicated that it believes contaminants from M52 may have contributed to the WVB plume historically, the Working Group's search included M52 OU3 facilities, and even though it is a matter of contention, facilities located in OU2 and some in OU1. We also searched areas to the south of OU2 and OU3 down to the Salt River.

Because ADEQ has indicated that facilities in the West Central Phoenix WQARF areas may have contributed to contamination in WVB, the Working Group also conducted a limited search of facilities in that area.[2]

2. Sources of Information

The Working Group did not conduct a comprehensive PRP search. The information being provided today was gathered as part of an expedited review of sources that were reportedly not accessed by ADEQ, and should be considered along with other information already included in ADEQ's PRP search. Because this review was expedited, there was insufficient time to exhaust all available information. For example, the City Of Phoenix has voluminous records of facility applications and incident reports. Review of these records is slow and difficult. Only a portion of these records was reviewed. We have included below a more detailed list of sources reviewed, as well as a list of additional valuable sources of information that could not be reviewed in the time available. These are recommended to ADEQ for further consideration.

The Working Group attempted to focus its efforts on sources of information that do not appear to have been accessed by ADEQ. It is our understanding, based on

[2] The collective area included with the Working Group's search is hereafter referred to collectively as the "Orphan Search Area."

information from the Attorney General's office, that ADEQ already has investigated the sources in Table 1 in its WVB PRP search. In addition, we understand that ADEQ conducted limited review of the EPA Superfund Management System database, Baker-Lofgren litigation files, and reported cases.

TABLE 1: Records Accessed by ADEQ

ADEQ Enforcement Records
ADEQ Inspection Records
ADEQ Drywell Database
ADEQ Compliance Logs
ADEQ UST/LUST Files
ADEQ DEUR Database
City/Business Directories
Historical Yellow Pages directories
Historical newspapers
City of Phoenix Fire Department Records
City of Phoenix Wastewater/Industrial Discharge Records
Maricopa County Environmental Services Septic Records
Maricopa County Air Quality Records
Chemical Waste Manifests
Chemical Purchase Records

For its review, the Working Group first retained EDR to provide a database search of the WVB area, including historical city directory listings. The resulting report has been provided in the attached DVDs. The Working Group followed up with a review of the following sources:

- City of Phoenix Fire Department Records. Although ADEQ requested these records from the City of Phoenix, our understanding from fire department personnel is that ADEQ was only given hazardous material permits and occupancy records. Therefore our review included some of the records that were not provided to ADEQ, including hazardous material permit applications, incident and inspection reports, MSDSs in the file, and similar records.
- City of Phoenix Wastewater Records: Our review included partial review of both industrial discharge and commercial discharge records.
- Hill Brothers Chemical Company Invoices. ADEQ apparently reviewed some limited chemical purchase records, but it was not clear that ADEQ reviewed Hill Brothers invoices disclosed during the Baker-Lofgren litigation. These

records identified numerous facilities that purchased and used PCE, TCE and TCA in the 1960s, 1970s, and 1980s.

- ADEQ's 2006 Drycleaner Inventory Report.
- ADEQ hazardous incident, drywell and DEUR databases.
- City of Phoenix Environmental Assessments. The City has performed dozens of EAs over the years for property in OU2 and OU3 and made many of those EAs available for the Working Group's review.
- Maricopa County Air Quality Records.
- EPA's ECHO database and associated enforcement and Toxic Release Inventory reporting databases.
- ADEQ's Toxic Release Inventory annual summaries for available years.
- Limited portions of the Baker-Lofgren litigation file.
- Limited portions of landfill litigation files, including parts of the Estes, Bradley, and Broadway-Pantano files.
- Historical city directories, including the Yellow pages, for select years above and beyond the information in the EDR report.

In addition, members of the Working Group provided information from their files relevant to facilities within the Orphan Search Area.

Chronologically, information sources were reviewed for entities operating as far back as the 1920s, although the focus was on entities operating after World War II, when use of chlorinated solvents increased exponentially in the United States.

3. Scope of Information Provided

The Working Group included facilities listed in the WVB RI and ADEQ's industrial surveys in order to make a more comprehensive database. But we did not focus on a review of available information for these facilities, especially those discussed in the WVB RI. The assumption was that these facilities are already known to ADEQ. On the other hand, no effort was made to eliminate those parties from the database or to redact information found for those parties. To the extent new information was found for those parties that ADEQ might not have seen, it has been provided. Every effort was made to present the information in a straight-forward, objective manner. No facilities, companies, or organizations were targeted - nor were any filtered from review.

An effort was made to refine the search results and eliminate irrelevant and duplicative information. For instance, the search revealed numerous office and commercial complexes that contained drywells but did not appear to conduct activities

associated with solvent use. These and similar facilities were eliminated from the database. Another category eliminated from the database was historical entities whose business activities could not be determined and for which no documentation of chlorinated solvent use was found. Additionally, information on petroleum storage and distribution facilities, including gas stations that did not conduct auto maintenance, were eliminated except where there was evidence of solvent use. In all, well over 1000 entities were eliminated from the original tables after further investigation and review because they fell outside of the scope of the search.

4. Additional Information Sources

The Working Group is aware of additional sources of information that were not accessed during our expedited review. For instance, records may be available from a bankrupt aerospace company that operated locally. We also have electronic documents from historical litigation that are in an outdated format and are difficult, but not impossible, to access. We will provide relevant documents from that repository in a follow-up to this submittal.

Additionally, it is likely that significant relevant information can be found in sources that may already be available to ADEQ, such as the 19th Avenue Landfill litigation files, Baker-Lofgren litigation files, and Estes Landfill files. We also have been told that ADEQ is in possession of a complete copy of Maricopa County's historical septic tank records. We will provide any new information relevant to this search as it becomes available, but we encourage ADEQ to review these and other sources of information to which it has access.

Overview of Working Group Search Results

The table accompanying this letter includes information on approximately 3,800 individual businesses or entities that operated throughout the Orphan Search Area. Dates of operation range from the 1920s to present day. Although multiple entities often operated at a given address over time, the database still contains information on well over 2,000 individual street addresses.

Facilities were broadly categorized into several business or operational types. Although the categorization was in some cases relatively arbitrary, the results provide an overview of the relative number of entities in the industries reviewed in the search. A breakdown, in approximate numbers, of the business categories is provided in Table 2.

Table 2: Business Categories and Facilities Found

Auto Maintenance & Repair	1025
Aviation Services	35
Chemical Manufacturing & Distribution	120
Dry cleaning & Laundry	525
Electronics Manufacturing & Repair	110
Food Industry	30
Furniture Manufacturing, Stripping & Finishing	30
Government & Military	70
Industrial Gas Manufacturing	15
Machinery Manufacturing & Repair	280
Manufacturing - Other	110
Mechanical and Architectural Contracting & Construction	55
Metal Working, Fabrication, Manufacturing & Plating	335
Other / Miscellaneous	215
Paint Manufacturing & Distribution	50
Painting & Coatings	30
Petroleum Storage & Distribution (solvent use indicated)	15
Plastics Manufacturing	35
Plumbing, Heating & Air Conditioning	35
Printing, Publishing & Copying	175
Roofing, Pavement & Asphalt	30
Testing & Laboratories	40
Transportation & Warehousing	174
Unknown	300
Utilities	25
Waste Management, Recycling & Reclamation (includes auto salvage)	145

Without delving into a detailed analysis of the search results, the following sections provide a brief summary of the information collected on a few industry segments that are known to have used chlorinated solvents historically. These are provided simply as examples of the types and amount of new information developed through this search that is relevant to the identification of PRPs and orphans.

1. **Drycleaners**

The Orphan search identified over 525 dry cleaning businesses that operated historically within the Orphan search area, representing approximately 13% of all

facilities identified in the search. Operating dates could not be determined for approximately 60 of the facilities listed. These facilities existed at approximately 360 separate addresses within the search area and represent both large industrial cleaners and small neighborhood shops. Of the 525 drycleaners in the database, ADEQ had previously evaluated approximately 35 of them in its investigative reports to date on WVB. Specific documentary evidence of PCE, TCE or TCA use was found for over 150 of the remaining approximately 490 facilities.

Many of the dry cleaning facilities in the orphan list were identified in ADEQ's 2006 inventory of Arizona dry cleaning facilities. But this orphan search identified many facilities that were not included in that inventory, including approximately 150 facilities that operated after 1946.

2. Automotive Repair & Maintenance

Historically, a wide variety of solvents have been used to clean engines and parts in the automotive and transportation industries. Cleaning involved both vapor degreasing and cold cleaning. Solvents used ranged from alcohol to petroleum-based products to chlorinated solvents.[3] Numerous auto repair shops and garages in the Orphan Search Area bought PCE, TCA and TCE in bulk during the 1960s, 1970s and 1980s, as evidenced in the Hill Brothers Chemical Company invoices provided with this letter. This same documentation indicates that numerous other auto repair facilities used Safety Kleen solvent degreasing systems, which are known to have contained COCs in some earlier formulations. Furthermore, all of these facilities would have used aerosols, cans of brake and carburetor cleaner, and similar products that contained COCs.

The search found over 1,000 facilities believed to be involved in automobile maintenance and repair. Of these, less than 75 appear to have been evaluated by ADEQ in previous WVB PRP searches and inventories.

3. Machinery-Manufacturing and Repair Facilities

Approximately 280 machinery-manufacturing and repair facilities were identified in the orphan search area. These facilities ranged from small, family-owned shops to large industrial facilities. Many of the facilities manufactured parts and machinery for the aerospace and defense industries. The search identified documented use of PCE, TCE, or TCA at 44 facilities not previously identified by ADEQ.

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[3] Morrison and Murphy, *Chlorinated Solvents*, at 292-312 (2013).

Of the approximately two dozen machinery-manufacturing facilities identified inside the WVB plume, it appears that about five or six have been previously identified by ADEQ. At least five of the newly-identified facilities are known to have used TCE, TCA or other solvents.

Another two dozen or so machinery-manufacturing and repair shops were identified in the area north of the WVB plume, along the Grand Avenue corridor and to the west. Only one of those appears to have been previously identified by ADEQ. At least ten of these facilities are known to have used TCE, PCE, TCA or other solvents. The bulk of these facilities are located within OU3 and OU2 or to the immediate south, with approximately 170 machinery manufacturing and repair facilities identified in the two OUs.

4. Metal Plating, Working, Welding, and Fabrication

Approximately 340 metal plating and coating operations, metal working shops, sheet metal fabricators, foundries, welding shops and similar operations were identified within the search area. ADEQ appears to have previously identified approximately 55 of those facilities in its investigation of the WVB area. Evidence exists for more than 65 of the remaining facilities demonstrating that those facilities used PCE, TCE or TCA.

Key to Database and Source Documents

With this letter, the Working Group is providing to ADEQ several DVDs containing the information collected during our search in electronic format. First, there is an Excel spreadsheet with several tabs. The first tab contains a complete listing of facilities by facility address. The following tabs break down the list into business categories for easier review.

The spreadsheet contains the facility address and operator name; the current site owner and parcel information where available; business categories; and regulatory program identifying numbers where available. In addition, there is a column indicating whether the facility appears to have been previously assessed by ADEQ in its WVB investigation. There is a column for notes with relevant significant information about the site or facility and a column indicating source documents for the information in the spreadsheet.

The Working Group has checked the information for accuracy, but due to the scope of this review and the expedited time period in which it was conducted, some errors, inconsistencies or omissions may not have been corrected. As part of its continuing review, the Working Group will update the table as it identifies any such errors or omissions in the table and will advise ADEQ accordingly.

The Working Group plans to convert the information in the spreadsheet into an Access database file to assist ADEQ in integrating the information into existing PRP databases that the agency might maintain. If another format would be better, we would be happy to discuss that with ADEQ. Once the information is in a database, the Working Group intends to generate a series of maps to assist in the review of the information. Any database or maps generated will be provided to ADEQ at a later date.

Very truly yours,

Karen S. Gaylord
Ronnie P. Hawks

RPH/lm
cc: David Armstrong, Ballard Spahr LLP, Counsel for Salt River Project
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