G.M. CLEMENT
& ASSOCIATES, INC.

Feasibility Study Work Plan

West Central Phoenix, East Grand Avenue WQARF Site

Phoenix, Arizona

C.T.S. 221363

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Prepared for:
Univar USA Inc.
1804 North 20th Street
Nampa, Idaho 83687

July 2009

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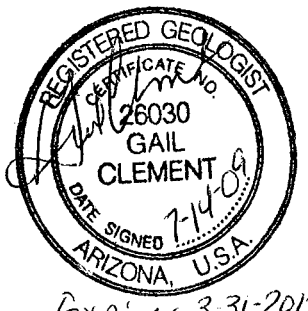
Prepared by:
G.M. Clement & Associates, Inc.
Sedona, Arizona



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ACRONYMS

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
ADWR	Arizona Department of Water Resources
ARS	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
bgs	below ground surface
BKH	Braun-Knecht-Heimann Company
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COCs	Chemicals of Concern
Danone	Danone Waters of North America
1,1-DCA	1,1 -dichloroethane
1,2-DCA	1,2-dichloroethane
1,1-DCE	1,1-dichloroethene or 1,1-dichloroethylene
cis-l,2-DCE	cis-1,2-dichloroethene or cis-l,2-dichloroethylene
EGA	East Grand Avenue
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
ft/ft	feet per foot
GCA	G.M. Clement & Associates, Inc.
GPLs	Groundwater Protection Levels
gpm	gallons per minute
IESI	Innovative Engineering Solutions, Inc.
LAU	Lower Alluvial Unit
MAU	Middle Alluvial Unit
MCL	Maximum Contaminant Level
MDL	method detection limit
MEK	methyl ethyl ketone
MTP	Michigan Trailer Park
ug/L	micrograms per liter
NAP	natural attenuation parameter
PCE	tetrachloroethene or tetrachloroethylene
PQL	practical qualitative limit

ACRONYMS (continued)

Property	2930 West Osborn Road, Phoenix, AZ
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROs	Remedial Objectives
RV	recreational vehicle
SRLs	Soil Remediation Levels
SRP	Salt River Project
SRV	Salt River Valley
SVE	soil vapor extraction
1,1,1-TCA	1,1,1-trichloroethane or chlorothene
TCE	trichloroethene or trichloroethylene
TICs	tentatively identified compounds
TOC	total organic carbon
UAU	Upper Alluvial Unit
Univar	Univar USA Inc.
UST	Underground Storage Tank
VOC	volatile organic compound
WCP	West Central Phoenix
Weston	Weston Solutions
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

This Feasibility Study (FS) Work Plan for the West Central Phoenix (WCP), East Grand Avenue (EGA) Water Quality Assurance Revolving Fund (WQARF) site (Site) was developed by G. M. Clement & Associates (GCA) with assistance from Innovative Engineering Solutions Inc. (IESI) for Univar USA Inc. (Univar). The FS Work Plan is being submitted pursuant to the Agreement between Univar and the Arizona Department of Environmental Quality (ADEQ) dated January 14, 2003 (Agreement). Univar formerly operated a chemical product warehouse, repackaging, and distribution facility (former Univar Facility) at 2930 West Osborn Road (Property), located within the EGA Site. Univar operated the former Facility from 1957 until the Property was purchased in 1970.

The FS Work Plan was prepared in accordance with the requirements of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Article 5, Remedial Actions, and Arizona Administrative Code (A.A.C.) Title 18, Chapter 16, Article 4, Remedy Selection. The Work Plan is based on the site characterization described in the June 2006 Final Remedial Investigation (RI) Report prepared by Weston Solutions (Weston) for ADEQ (Weston, 2006), and the results of periodic groundwater monitoring performed by GCA for Univar that began in January 2003.

1.1 WORK PLAN OBJECTIVES

Site Remedial Objectives (ROs) were established by ADEQ for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by a release of a hazardous substance [R18-16-406(I)]. The June 2006 Final Remedial Objectives Report, prepared and published by ADEQ, identifies the final land and water ROs for the EGA Site. The RO Report Is included as Appendix A. The primary objective of the FS Work Plan is to present a remedy selection process consistent with regulatory requirements that will result in selection of a proposed remedy capable of achievement of the final ROs for the EGA Site. The proposed remedy will: 1) assure the protection of public health and welfare; 2) 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; and 3) be reasonable, necessary, cost-effective and technically feasible [§49-282.06(A)].

1.2 FEASIBILITY STUDY PURPOSE

The FS is a process to identify a reference remedy and alternative remedies that appear to be capable of achieving the ROs and to evaluate the identified remedies based on comparison criteria to select a proposed remedy that complies with A.R.S. § 49-282.06 [R18-16-407(A)]. The FS will identify and evaluate a reference remedy and at least two alternative remedies that are capable of achieving all of the ROs to select a proposed remedy [R18-16-407(E), (H), and (I)]. In addition, the FS will evaluate a no action alternative, which is not required by ADEQ, but is consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or federal superfund FS process.

1.3 FEASIBILITY STUDY PROCESS

The three identified remedies and the no action alternative will be evaluated according to the prescribed comparison criteria, which include: practicability and reliability, risk, cost, and benefit or value [R18-16-407(H)(3)]. The proposed remedy will be evaluated to ensure it can achieve the ROs and is consistent with the water management plans of affected water providers and the general land use plans of local governments with land use restrictions [R18-16-407(H)(1) and (2)].

2.0 BACKGROUND

In 1982, trichloroethene (TCE), a volatile organic compound (VOC), was found in several City of Phoenix water supply wells located in the WCP area (Weston, 2006). During 1987, ADEQ designated an area of groundwater contamination in central Phoenix the West Central Phoenix WQARF site and placed the site on the WQARF Priority List. ADEQ and others conducted additional investigations of the WCP groundwater contamination, which resulted in identification of five distinct and separate areas within the WCP WQARF site. In 1998, five WQARF Registry Sites were established within the WCP WQARF area, including the EGA WQARF Site, to further investigate the five distinct areas.

2.1 SITE DESCRIPTION

The EGA Site is in an older commercial/industrial area of west Phoenix with numerous small to medium-sized businesses, including fabricators and manufacturers. A small number of residences, including single family homes and two trailer parks are located within or near the Site.

2.1.1 Location

The EGA Site is located in a commercial/industrial area of west Phoenix within Section 26, Township 2 North, Range 2 East of the Gila and Salt River Baseline and Meridian. The Site is generally bounded by the Salt River Project (SRP) Grand Canal to the north, 27th Avenue to the east, West Cheery Lynn Road to the south, and 33rd Avenue to the west. The former Univar Facility is located at 2930 West Osborn Road, east of Grand Avenue, within the Site. The Facility is bounded by a chain link fence on the north east and west, and is partially open to Osborn Road on the south. Figure 1 identifies the location of the Site and former Univar Facility.

2.1.2 Geology

The Site is located within the Lower Colorado River Region in the Basin and Range Lowlands Physiographic Province. Within this Province, isolated mountain blocks composed of granite,

gneiss, schist, and quartzite are separated by broad alluvium-filled valleys. Upthrown fault blocks form the mountains from which sediments have been eroded and deposited in basins below. In the centers of these alluvium-filled basins, depths to bedrock can exceed 10,000 feet.

The EGA Site lies within the West Salt River Valley (SRV) Sub-Basin of the Phoenix Active Management Area, a groundwater basin established by state statute. The SRV is bounded by generally northwest-southeast trending, fault-block mountain ranges (Corkhill and Corell, 1994). The SRV is underlain by a thick sequence of unconsolidated to semi-consolidated basin-fill deposits of interbedded gravel, sand, silt, clay, and evaporites of Late Tertiary to Quaternary age (Corkhill and Corell, 1994).

Subsurface geology beneath the Site is typical for the West SRV and for the Phoenix area. Soil borings have been completed to depths ranging from 121 to 182 feet below ground surface (bgs) at the former Univar Facility; and monitor wells have been completed to depths ranging from 125 to 245 feet bgs in the Site (Weston, 2006). Based on review of lithologic samples from these installations, subsurface sediments at the Site are predominantly fine sandy silts to silty sands with interbedded clays and gravels (Weston, 2006). Dense, highly calcified zones were also identified at depths ranging from approximately 60 to 90 feet bgs.

2.1.3 Hydrogeology

The Site is located in an arid region of rapid population growth, which is supplied by both surface water and groundwater to meet potable water demands.

2.1.3.1 Regional

The main sources of groundwater for the Phoenix area are the permeable sand and gravel beds in the uppermost sedimentary deposits within the alluvium-filled basins. The permeable sand and gravel deposits are interbedded with silt and clay layers of low permeability at different depths. The water-bearing beds generally appear to be hydraulically connected. In some places, however, these beds are almost completely separated by the less permeable units. The SRV

basin-fill deposits are divided into three units for hydrogeologic purposes (Corkhill and Corell, 1994).

- UAU: The upper unit or Upper Alluvial Unit (UAU) consists of mostly sands and gravels with interbedding of finer grained materials deposited in alluvial channel, terrace, and floodplain environments. Groundwater is typically found under water table conditions in the UAU.

- MAU: The middle unit or Middle Alluvial Unit (MAU) is predominately comprised of finer grained sediments, silts and clays deposited in playa, alluvial fan, and fluvial environments. The MAU is significantly finer grained than the UAU in most areas. Groundwater is found under confined to semi-confined conditions in the MAU.

- LAU: The lower unit or Lower Alluvial Unit (LAU) is mostly semi-consolidated sand, gravel, and silt. Groundwater is found under confined to semi-confined conditions in the LAU.

Groundwater is typically found under water table conditions in the UAU. In general, groundwater flows in the basins from the margins toward the central areas in a direction parallel to the surface drainage patterns. Regional groundwater flow in the west SRV is greatly influenced by groundwater pumping and localized sources of recharge. Typical recharge sources include infiltration from the Salt River, seepage from irrigation canals, and excess irrigation (Weston, 2006).

2.1.3.2 Local

The UAU is reported to be between 300 and 400 feet thick (Weston, 2006), which encompasses the entire thickness of potentially affected groundwater within the Site. The aquifer of concern at the Site is the UAU and no impacts to the MAU or LAU have been observed or are expected.

Inflow into the UAU beneath the Site is primarily from infiltration from the SRP Grand Canal and groundwater flow into the area. The SRP Grand Canal is an irrigation canal located across the northern boundary of the EGA Site. Portions of the Grand Canal have become lined in recent years, reducing the amount of infiltration and recharge of the UAU (Weston, 2006). Outflow from the UAU beneath the Site is from groundwater production by local water providers and

groundwater flow out of the area. Four active or recently active production wells have been identified within or near the Site. These include: the Michigan Trailer Park well, the Danone Waters of America well, and two SRP irrigation wells

Water level measurements in monitor wells have been routinely collected at the Site since April 1999. In September 2008, depths to water range from approximately 120 to 140 feet bgs. Depths to water have generally declined since routine water level measurements were initiated in 1999, which is consistent with other SRV groundwater data. In addition, seasonal fluctuations in water levels are apparent as groundwater production and recharge vary annually. Typically water levels are lowest in the summer and fall when groundwater production is greatest. Groundwater flow beneath the Site is generally to the southwest with September 2008 hydraulic gradients ranging between 0.004 feet per foot (ft/ft) at the former Univar Facility to 0.001 ft/ft downgradient of Grand Avenue (GCA, 2008). Figures 2 and 3 show the March and September 2008 groundwater elevations, respectively.

Weston conducted an aquifer test for ADEQ in May 2001 at the EGA Site using monitor wells (Weston, 2006). A number of test limitations have been identified that appear to have influenced the results of the Weston EGA aquifer test. In particular, the hydraulic conductivities and velocities calculated from the Weston aquifer test appear to be biased on the high side and are inconsistent with the aquifer lithology and hydraulic parameters calculated at other similar sites in the SRV and WCP. In addition, the range of hydraulic gradients used to calculate the range of groundwater velocities appear to be high in comparison to hydraulic gradients measured at the Site since Univar began groundwater monitoring in 2003. Because of the numerous limitations of this testing, aquifer testing at other WCP sites with similar hydrogeologic characteristics, including the West Osborn Complex, North Canal and North Plume sites, other published data, and recent hydraulic gradients will be used to determine applicable aquifer parameters for FS modeling purposes. No additional aquifer testing is planned to be performed.

2.2.2 Previous Site and Facility Investigations

Univar and ADEQ performed a number of investigations at the Site, most of which focused on the former Univar Facility. Previous Site investigations include:

- CERCLA Site Inspection (ADEQ, 1993)
- Soil Gas Survey (HLA, 1994)
- Subsurface Soil Investigation and Risk Assessment (HLA, 1995)
- Phase I Remedial Investigation (Fluor Daniel, 1997)
- Phase II Remedial Investigation (Weston, 1997)
- ADEQ WQARF RI (Weston, 1997 - 2006)
- Univar Groundwater Monitoring (GCA, 2003 – 2008)

Summaries of previous Site investigation activities are contained in the ADEQ RI Report (Weston, 2006). The results of Univar's groundwater monitoring program are summarized in semi-annual or annual reports, which are submitted to ADEQ (GCA, 2003, 2004, 2005, 2006, 2007 and 2008). A thorough investigation of other potential source areas, particularly the source of TCE found upgradient of the former Univar Facility, has never been completed.

2.3 NATURE AND EXTENT OF CONTAMINATION

Impacts to soil vapor, soil and groundwater have been identified at the Site.

2.3.1 Chemicals of Concern

Three specific VOCs have been identified as Chemicals of Concern (COCs) at the Site. These include: 1,1-dichloroethene (1,1-DCE), PCE and TCE (ADEQ, 2006). All three compounds have been found in soil vapor, soil and groundwater at the Site.

2.3.2 Soil and Soil Vapor Contamination

The extent of VOCs in soil and soil vapor has been fully defined at the former Univar Facility by investigation activities conducted by Univar and ADEQ. Low concentrations of 1,1-DCE, PCE

2.1.4. Surface Water

The Site has been heavily developed and natural surface water features are absent. The SRP Grand Canal is located to the north of the Site. The Grand Canal conveys irrigation water from SRP surface water and groundwater sources to its customers throughout the Phoenix metropolitan area. SRP is considering construction of a water treatment plant along the Grand Canal to treat canal water to potable standards (Weston, 2006). Portions of the Grand Canal remain unlined.

2.2 SITE HISTORY

The EGA Site is within an area of metropolitan Phoenix that has a long history of industrial and commercial development.

2.2.1 Historic Univar Facility Operations

The former Univar Facility was located at 2930 West Osborn Road within the EGA Site, and was operated by a predecessor company to Univar, Van Waters & Rogers Inc. Univar operated the Facility from 1957 until the Property was purchased by Motor Rim & Wheel Service of California in 1970. From approximately 1957 until the mid-1960s, Facility operations consisted primarily of warehousing and distribution of inventory maintained by Braun-Knecht-Heimen Company (BKH), a subsidiary company. BKH was a distributor of scientific and laboratory apparatus and equipment. In the mid-1960s, Facility operations expanded to include warehousing and distribution of agricultural chemical products, upholstery supplies, and laundry and dry cleaning supplies. Chemical products were, for the most part, received into inventory and distributed to customers in a wide variety of containers pre-packaged by the product manufacturers. In addition, tank trucks and rail tank cars delivered bulk chemicals to the Facility for repackaging. Based on available information, acetone, antifreeze, aqua ammonia, caustic soda, chlorothene (1,1,1-TCA), ferric chloride, methyl ethyl ketone (MEK), muriatic (hydrochloric) acid, sulfuric acid, and TCE, were delivered in bulk to the Facility and repackaged (Vopak, 2000). Five additional chemical products may also have been repackaged at the Facility, including tetrachloroethene (PCE) (Vopak, 2000).

and TCE were identified in soils and soil vapor at the former Univar Facility. No further investigation of soil and soil vapor at the Facility is necessary. No VOCs were identified above applicable regulatory standards, including the Arizona Soil Remediation Levels (SRLs) or minimum Groundwater Protection Levels (GPLs) at the Facility (Weston, 2006). No additional remediation of soil at the former Univar Facility is required.

Concentrations of TCE above the Aquifer Water Quality Standard (AWQS) of 5 micrograms per liter (ug/L) have been found consistently in monitor well WCP-83, which is located upgradient of the former Univar Facility. The source of this TCE is unknown, and no soil or soil vapor investigation has been conducted to identify the upgradient source of TCE.

2.3.3 Groundwater Quality

The ADEQ WQARF program primarily focuses on the point-source impacts to groundwater caused by anthropogenic activities. Ambient water quality conditions and water quality contamination resulting from non-point source discharges caused by anthropogenic activities are not generally evaluated. The following summarizes the water quality results for all tested compounds.

2.3.3.1 Contaminants of Concern

The three COCs, 1,1-DCE, PCE, and TCE, have been found at concentrations above their applicable AWQS in groundwater collected from Site monitor wells. The lateral extent of groundwater contamination by COCs has been defined in the uppermost aquifer at the former Univar Facility and down gradient of the Facility, by ADEQ during the RI and by the ongoing groundwater monitoring conducted by Univar. The September 2008 (the most recent annual sampling round) was used to show the extent of TCE contamination in groundwater on Figure 4 and the extent of PCE on Figure 5 (GCA, 2008). The full extent of TCE contamination in groundwater located upgradient of the former Univar Facility has not been defined.

The vertical extent of groundwater contamination by COCs was defined by the results of analyses of Hydropunch© samples collected by ADEQ and the results of groundwater monitoring at WCP-48. Hydropunch© samples were collected from borings SB-16 and SB-17 and during the installation of monitor wells WCP-87, WCP-100, and WCP-200. The deepest depth that VOCs were detected in Hydropunch© samples was at 153 feet bgs (ADEQ, 2006). WCP-48 is screened in a deeper portion of the aquifer than the other Site monitor wells, between 225 and 245 feet bgs. TCE and PCE have not been detected and 1,1-DCE has been found sporadically at concentrations below the AWQS of 7 ug/L in samples collected from WCP-48. The vertical extent of groundwater contamination is estimated to be between 153 and 225 feet bgs.

2.3.3.2 Other Volatile Organic Compounds

In addition to the COCs, other halogenated VOCs have been identified in groundwater in the EGA Site, including, bromodichloromethane, carbon tetrachloride, chlorodibromomethane, chloroform, 1,2-dibromoethane, dichlorodifluoromethane, 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), and cis-1,2-dichloroethene (cis-1,2-DCE) (GCA, 2003a, 2003b, 2004a, 2004b, 2005, 2006, 2007 and 2008). Vinyl chloride has not been found in groundwater samples collected from Site monitor wells. Acetone, a common laboratory contaminant, has also been found in some groundwater samples. None of the other VOCs that have been found in groundwater at the Site are considered COCs; and there are no ROs for their remediation.

Non-halogenated VOCs related to release of petroleum products and wastes have also been found in groundwater, including benzene, n-butylbenzene, sec-butylbenzene, ethylbenzene, 4-isopropyltoluene, naphthalene, n-propylbenzene, styrene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes (total) (GCA, 2003a, 2003b, 2004a, 2004b, 2005, 2006, 2007 and 2008). The specific sources of the benzene and other petroleum compounds in groundwater at the Site are attributed to releases of petroleum products and wastes from underground storage tanks (USTs), since there are a number of documented Underground Storage Tank (UST) releases in the immediate vicinity of the Site (Weston, 2006). None of the contaminants related to releases

of petroleum products and wastes are considered COCs at the Site; and there are no ROs for their remediation.

2.3.3.3 Inorganic Water Quality and Natural Attenuation Parameters

During the Remedial Investigation, groundwater at the Site was not analyzed for common inorganic water quality parameters. Instead, the results of previous regional studies were referenced and used as the basis to draw conclusions about the background and inorganic groundwater quality at the Site. In March 2003, during the first quarter of water quality monitoring performed by Univar, Site-specific groundwater samples were collected from nine monitor wells and analyzed for inorganic compounds, including arsenic, calcium, total chromium, hexavalent chromium, total iron, fluoride, and magnesium (GCA, 2003a). None of the concentrations of the tested inorganic analytes were above their respective Maximum Contaminant Level (MCL) or AWQS (GCA, 2003a). None of the groundwater samples contained concentrations of arsenic or hexavalent chromium above their respective method detection limits (MDLs) (GCA, 2003a). None of the inorganic parameters are considered COCs at the Site; and there are no ROs for their remediation.

In March 2003, groundwater samples were collected from six wells for Natural Attenuation Parameters (NAPs) analyses, including alkalinity, ammonia, chloride, dissolved organic carbon, ethane, ethene, ferrous iron, manganese, nitrate as N, nitrite as N, sulfate, sulfide, and total organic carbon (TOC) analyses (GCA, 2003a). Nitrate was found at concentrations near or above the primary MCL of 10 mg/L in the monitor wells that were sampled, except for the two wells (MW-7 and WCP-44) located in the area where the VOC plume commingles with the petroleum hydrocarbon plume originating from the historic UST release at the Shamrock property (GCA, 2003a). Nitrate concentrations were lower and nitrite concentrations were higher within the co-mingled VOC and petroleum hydrocarbon plumes as a result of reducing conditions (GCA, 2003a). Other than in the area of the commingled plumes, nitrate appears to be present in shallow groundwater at background concentrations near or above the MCL throughout the Site. The specific source of nitrates present in groundwater at the Site is

unknown, but the former Univar Facility is not a source of nitrates. None of the NAPs are considered COCs at the Site; and there are no ROs for their remediation.

In September 2006, samples were collected for additional NAP analyses for dissolved gases, including acetylene, ethane, ethene, and methane. All samples contained concentrations of methane (GCA, 2006). Ethane was found in one well, WCP-88, at a concentration of 0.3 ug/L, the Practical Quantitation Limit (PQL) (GCA, 2006). Acetylene and ethene were not detected in any of the wells. Because ethane was detected in the sample collected, the VOC data were further characterized by laboratory identification of the Tentatively Identified Compounds (TICs) (GCA, 2006). Six TICs were identified in the sample collected from WCP-88, including cyclopentane, 2-ethyl,1-hexanol, hexamethylcyclotrisiloxane, isobutene, 2-methylbutane, methylcyclopentane, and 2-morpholinophenazine (GCA, 2006). None of these parameters are considered COCs at the Site; and there are no ROs for their remediation.

2.3.4 COC Source Areas

Three source areas for COCs in groundwater are apparent within the Site: the former Univar Facility, the former Mogul facility, and an unknown source of TCE contamination located upgradient of the former Univar Facility. Several UST releases have been identified at properties located within the Site. Properties with reported UST releases include: Southwest Roofing/United Parcel Service facilities, former Fedmart/Sunbelt facility located at the Shamrock property, Levitz Furniture Store, ARCO Service Station, and the former Mogul facility. In addition, there appears to be an unknown source of benzene contamination in groundwater that may be related to a release of pure benzene.

2.3.4.1 Former Univar Facility

The former Univar Facility located at 2930 West Osborn Road is considered the primary source of COCs in groundwater in the EGA Site. The former Univar Facility is discussed in detail in Section 2.2.

2.3.4.2 Former Mogul Facility

An additional source of COCs in groundwater has been identified at the former Mogul facility located at 3030 North 30th Avenue (Figure 1). The results of soil and groundwater investigations at the former Mogul facility identified that metals and VOCs have been released at the facility (Weston, 2006). TCE, PCE, 1,1-DCE, dibromochloromethane, 1,2-DCA, benzene, and chromium have been detected in groundwater samples collected from Mogul monitor wells, and benzene, 1,2-DCA, and TCE have been found above their AWQS (Weston, 2006). Concentrations of VOCs detected in WCP-92 located downgradient of the former Mogul facility are attributed to the former Mogul facility (Weston, 2006). ADEQ has noted that the former Mogul facility is not considered part of the EGA Site (Weston, 2006), and ADEQ may conduct additional investigations in the future (Weston, 2006).

2.3.4.3 Unknown Upgradient TCE Source

Persistent concentrations of TCE have been found upgradient of the former Univar Facility in groundwater samples collected from monitor wells, WCP-41 and WCP-83. Concentrations of TCE found in groundwater samples from WCP-41 have been historically near or above 5 ug/L. Concentrations of TCE found in WCP-83, which is located further upgradient from the former Univar Facility than WCP-41, have been persistently above the TCE AWQS. TCE concentrations detected in WCP-83 have ranged from 10 ug/L to a maximum concentration of 20 ug/L (GCA, 2008). The VOC signature at WCP-88 does not include PCE, which is present in monitor wells at and downgradient from the former Univar Facility. The source of the upgradient TCE is unknown and is not attributable to the former Univar Facility.

2.3.4.4 Unknown Benzene Source

High concentrations of benzene have been consistently detected in WCP-202. The source of the benzene may be related to the release of pure benzene. The unknown benzene source also may have contributed to concentrations of benzene found historically in WCP-44. The source of this benzene is unknown and is not attributable to the former Univar Facility.

2.3.5 Uncertainties

Based on the completed investigation activities, there are two main uncertainties associated with COC contamination in the EGA Site RI:

1) Vertical Extent of Groundwater Contamination: The vertical extent of groundwater contamination is estimated to be between 153 and 225 feet bgs, which is an uncertainty of approximately 70 feet.

2) Upgradient Source(s) of TCE Contamination: The source(s) of the TCE found in WCP-41 and WCP-83, located upgradient of the former Univar Facility has not been identified. The maximum upgradient TCE concentration identified in groundwater was 20 ug/L at WCP-83 (GCA, 2008). The source(s) of this TCE is unknown. The water quality conditions both up and down gradient of the former Univar Facility will be considered during the FS.

2.3.6 Proposed Field Activities

A deeper monitoring well, EGA-2, is proposed to be installed to reduce the uncertainty associated with the vertical depth of contamination in groundwater. The deeper well is proposed to be installed at the location of WCP-88, dependent on access approval from the property owner. The WCP-88 location was selected because it is located in an unfenced, paved parking area between the former Facility and the furthest downgradient extent of groundwater contamination. The deeper well would be constructed in a similar manner to the other WCP monitoring wells. A monitoring well installation work plan will be prepared for ADEQ review. The work plan will include: the scope of work, well design, methodology for vertical investigation, and other installation specifics.

2.4 UNIVAR EARLY RESPONSE ACTION

In 2004, Univar initiated an Early Response Action at the former Facility, using soil vapor extraction (SVE) and carbon treatment. The Univar SVE system consists of four multi-screened SVE wells; a central control unit containing the SVE equipment, including the blower; four

2,500-pound carbon canisters for air treatment; and the associated piping. Each multi-screened SVE well is screened to extract from three separate intervals, a shallow interval, a middle interval, and a lower interval. In 2008 and 2009, the Univar SVE system was expanded to include extraction from two ADEQ groundwater monitoring wells, WCP-16 and WCP-17. WCP-16 and WCP-17 are screened to a maximum depth of 126 feet bgs, which is approximately ten feet above the current water level.

2.4.1 SVE System Installation and Operation

Installation of the SVE system began in 2003. The SVE system was tested during start up in January 2004; and it became fully operational in February 2004. The SVE system is operated according to the requirements of Maricopa County Air Quality Control Permit Number 020174. The specific wells and screened intervals that are used for vapor extraction have varied over time to maximize the amount of VOCs removed and to focus extraction where concentrations of VOCs in groundwater are the largest. As groundwater levels have declined, extraction has been focused on the lower intervals of the SVE wells and ADEQ wells, WCP-16 and WCP-17.

2.4.2 Total Mass Removed

Periodic air quality samples are collected from the SVE system and analyzed. The results of the air quality sampling are used to calculate the mass of VOCs removed during each month and the cumulative mass removed. A total of approximately 1,100 pounds of VOCs were removed by the SVE system between January 2004 and June 2009.

2.4.3 Groundwater Plume Stabilized

Since consistent, routine sampling methodologies have been employed and SVE was initiated, VOC concentrations in monitor wells located at the Univar source area have stabilized and declined to below their historic concentrations (GCA, 2008). A stabilized and decreasing plume at the source area is shown by the COC concentration trends for the Site monitoring wells, particularly WCP-93 and WCP-201. Figures 6 and 7 illustrate these concentration trends for wells WCP-93 and WCP-201, respectively.

3.0 FEASIBILITY STUDY SCOPING

3.1 REGULATORY PROCESS

A specific Arizona FS regulatory process for remediation of WQARF sites has been established by rule and statute. The requirements of the Arizona WQARF FS process are contained in A.R.S. Title 49, Chapter 2, Article 5, Remedial Actions, and A.A.C. Title 18, Chapter 16, Article 4, Remedy Selection. The WQARF FS process differs from the CERCLA FS process in many aspects, but most notably in the selection of a reference remedy and a minimum of two alternative remedies, all of which must be capable of achieving cleanup objectives. The specific requirements of the Arizona FS process are described in detail in the following sections.

3.2 AFFECTED MEDIA

3.2.1 Soil

Investigations have determined that concentrations of COCs in soils did not exceed ADEQ Soil Remediation Levels or Groundwater Protection Levels, the applicable regulatory standards. ADEQ concluded that no Remedial Objectives are needed for land use. Univar may continue or expand voluntary source control with SVE at its former Facility to augment other remedial measures. Once the active soil treatment is complete, Univar will seek a No Further Action designation for soil.

3.2.2 Groundwater

The primary focus of the FS will be on COC contamination of groundwater. There are three primary users of groundwater for water supplies in the EGA Site. These include: the Michigan Trailer Park, Sparkletts a division of DS Waters of America, Inc. and SRP.

The Michigan Trailer Park (MTP) is located at 3135 Grand Avenue, west of the former Univar Facility. The MTP is a 150-pad mobile home and recreational vehicle (RV) park with a current

average annual occupancy of 90 pads (ADEQ, 2006). The MTP is located within an area that is typically supplied with potable water by the City of Phoenix municipal water system. One on-site water supply well, MTP-1, is currently the sole source of potable water to the MTP, and it serves approximately 135 to 180 residents (ADEQ, 2006). MTP-1 was installed prior to 1946 and there are no well construction records available (Weston, 2006). The MTP well is located cross gradient to the Site, approximately 2,000 feet west of the Facility. The well depth is estimated to be 400 to 600 feet deep (Weston, 2006). MTP-1 has an approximate pumping capacity of 85 to 100 gallons per minute (gpm); and its pumping does not appear to influence the groundwater flow direction beneath the Site (ADEQ, 2006). Very low concentrations of TCE and PCE, at or slightly above the applicable MDL, have sporadically been detected in water samples collected from the well (ADEQ, 2005).

Sparkletts a division of DS Waters of America, Inc. (Sparkletts) [formerly Danone Waters of North America],operates a deep production well, the Sparkletts well, located approximately one-half mile southwest of the Site boundary. The Sparkletts well supplies water for the Sparkletts drinking water processing, bottling, and distribution plant. The Sparkletts production well is approximately 952 feet deep with a screened interval of 850 to 950 feet bgs. The Sparkletts well has a pumping capacity of 225 gpm; and its pumping does not appear to influence the groundwater flow direction beneath the Site (ADEQ, 2006). The well is sampled regularly by Sparkletts and no detectable concentrations of VOCs have been found in samples collected from the Sparkletts well (ADEQ, 2006).

Two SRP irrigation wells are located near the Site. SRP well, 10.5E-5.7N, is located cross gradient and SRP well, 11.2E-7.7N, is located upgradient of the Site. SRP well 10.5E-5.7N was drilled in 1949 and is screened from 210 to 685 feet bgs (Weston, 2006). SRP well 11.2E-7.7N was drilled in 1950 and is screened from 200 to 485 feet bgs (Weston, 2006). Available data indicate that the groundwater flow direction beneath the Site is influenced by production from SRP well 10.5E-5.7N, but there are no data showing an influence on the Site groundwater flow direction by SRP well 11.2E-7.7N (Weston, 2006). Based on SRP sampling between 1982

through 1999, TCE has been detected in groundwater samples collected from SRP well, 10.5E-5.7N, in concentrations from below the MDL to 4 ug/L, and TCE was found at concentrations from below the MDL to 40 ug/L in samples collected from SRP well, 11.2E-7.7N (ADEQ, 2006). SRP has stated that TCE concentrations increase in SRP well, 11.2E-7.7N when it is pumped (ADEQ, 2006). Since SRP well 11.2E-7.7N is located approximately 2,500 feet upgradient of the former Univar Facility and there are no data showing an influence on the Site groundwater flow direction by pumping this well, Univar is not believed to be the source of TCE contamination to this well. The source of the TCE identified in 11.2E-7.7N is unknown, and may be related to the unidentified source(s) of TCE located upgradient of the former Univar Facility.

In addition to the three users of groundwater identified by ADEQ in their 2006 Remedial Objectives Report, ADEQ has noted that the City of Phoenix may in the future, depending on demand and costs, seek groundwater in the WCP area as a drinking water source.

3.3 REMEDIAL OBJECTIVES

ROs are established by ADEQ for current and reasonable foreseeable uses of land and current and reasonable foreseeable beneficial uses of waters of the state that have been or are threatened to be impacted by a release of hazardous substances [(R18-16-406(D) and (I)]. The final ROs for the Site were developed by ADEQ based on the March 2004 Land and Water Use Study prepared by Weston, and comments received on the December 2005 Proposed ROs Report (ADEQ, 2006). Reasonably foreseeable uses were determined from information provided by water providers, well owners, land owners, government agencies, and others, and documented in the Land and Water Use Study report (ADEQ, 2006). The final Site ROs were published in the ADEQ Remedial Objectives Report dated June 2006.

3.3.1 Remedial Objectives for Land Use

Reasonably foreseeable land uses are land uses likely to occur at the Site within a reasonable time frame [(R18-16-406(D)]. Land uses for properties within the Site are expected to remain

predominantly industrial or light industrial (ADEQ, 2006). Because concentrations of COCs in soils were below applicable regulatory levels, there are no restrictions or limitations to the current or foreseeable future land uses. As a result, ADEQ determined that no ROs were needed for land use (ADEQ, 2006).

3.3.2 Remedial Objectives for Groundwater Use

Reasonably foreseeable water uses are water uses likely to occur within 100 years unless a longer time period is shown to be reasonable [(R18-16-406(D)]. The ROs will be generally consistent with the water management plans of all water providers whose water supplies are or may be impaired by the contamination [(R18-16-406(I)(3)].

Six current and/or potential groundwater uses were identified for the Site (ADEQ, 2006):

1. Current and future use of groundwater for drinking water at the Michigan Trailer Park.
The RO for the MTP well is (ADEQ, 2006):
"To protect, replace or otherwise provide alternative water supply should use of the MTP drinking water well be lost in the future due to changes in groundwater flow direction that would contaminate the well from PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA Site."

2. Current and future use of groundwater for drinking water by Sparkletts.
The RO for the Sparkletts well (formerly the Danone well) is (ADEQ, 2006):
"To protect, replace or otherwise provide alternative water supply should use of the Danone Waters drinking water well be lost in the future due to contamination of the deeper aquifer by PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA Site."

3. Current and future use of SRP wells, 10.5E-5.7N and 11.2E-7.7N.

The RO for the SRP wells is (ADEQ, 2006):
"To protect, replace or otherwise provide alternative water supply should use of the SRP wells be lost in the future due to contamination of the wells with PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA Site."

4.0 IDENTIFICATION AND SCREENING OF REMEDIATION TECHNOLOGIES

Appropriate remediation technologies will be identified to address the impacted groundwater. The identified technologies will be screened according to the following criteria:

- COC treatment effectiveness;
- Compatibility with current and reasonably foreseeable groundwater uses;
- Compatibility with current and reasonably foreseeable land use;
- Regulatory requirements;
- Constructability;
- Operations and maintenance requirements;
- Hazardous materials and other health and safety considerations;
- Generation and management of waste products;
- Flexibility and expandability; and
- Cost.

Treatment technologies that may be screened will include, but may not be limited to: 1) aeration based remedies such as in-well stripping, expanded deeper zone SVE and air sparging, 2) bioremediation based remedies such as co-metabolic aerobic treatment, enhanced anaerobic dechlorination and/or aerobic bioremediation. Natural attenuation and groundwater modeling will be a component of each technology evaluation.

The remedial technologies that rank the highest after screening will be retained for development of the reference remedy and alternative remedies. The retained technologies will be compiled with selected remedial strategies and measures to develop the reference remedy and alternative remedies.

4.1 REFERENCE REMEDY AND ALTERNATIVE REMEDIES

Based on the retained remedial technologies and the selected remedial strategies and measures, a minimum of three remedies that are capable of achieving all the ROs will be developed, including a reference remedy and at least two alternative remedies [R18-407(E)(1) and (3)]. At

least one of the alternative remedies will employ a remedial strategy or combination of strategies that is more aggressive than the reference remedy [R18-407(E)(3)].

Each remedy will consist of the remedial strategy and all remedial measures to be employed [R18-407(E)(1)]. A remedial strategy may incorporate more than one technology or methodology [R18-407(F)]. Remedial strategies are specifically identified in rule [R18-407(F)] and include:

1. Plume remediation to achieve water quality standards for COCs in waters of the state throughout the Site. This strategy has historically been identified as aquifer restoration.
2. Physical containment to contain contaminants within definite boundaries.
3. Controlled migrations to control the direction or rate of contaminant migration, but not necessarily to contain migration of contaminants.
4. Source control to eliminate or mitigate a continuing source of contamination.
5. Monitoring to observe and evaluate the contamination at the site through collection of data.
6. No action consists of performing no action at the Site.

Remedial measures necessary for each alternative remedy to achieve ROs or to satisfy the requirements of A.R.S. § 49-282.06(B)(4)(b) will be identified in consultation with the water providers or known well owners whose water supplies are affected by the release or threatened release of hazardous substances [R18-407(G)]. In identifying remedial measures, the needs of the well owners and water providers and their customers, including the quantity and quality of water, water rights and other legal constraints on water supplies, reliability of water supplies and any operational implications will be considered [R18-407(G)]. Remedial measures may include, but are not limited to, well replacement, well modification, water treatment, provision of replacement of alternative supplies, or engineering controls [R18-407(G)].

The combination of the remedial strategy and the remedial measures for each alternative remedy will be able to achieve the ROs. Each remedy to be evaluated will consist of a remedial strategy and all remedial measures to be employed [R18-407(E)]. Where appropriate, the reference

remedy and alternative remedies may incorporate different remedial strategies for different aquifers or portions of aquifers [R18-407(E)(1)]. The reference remedy and any alternative remedies may include contingent remedial strategies or remedial measures to address reasonable uncertainties regarding the achievement of ROs or uncertain time-frames in which ROs will be achieved [R18-407(E)(1)]. One of the alternative remedies may use the same strategy as the reference remedy, but with different viable technologies or a more intensive use of the same technology. Source control will be considered as an element of the reference remedy and all alternative remedies, except for the monitoring and no action alternatives [R18-407(F)]. Selected remedial strategies and measures will be combined with the retained technologies to develop the reference remedy and alternative remedies.

4.2 REFERENCE REMEDY

The reference remedy will be developed based on best professional judgment, considering the following [R18-407(E)(2)]:

1. RI information;
2. Best available scientific information concerning available remedial technologies; and
3. Preliminary analysis of the comparison criteria and the reference remedy to comply with A.R.S. § 49-282.06.

4.3 MORE AGGRESSIVE REMEDY

At least one of the alternative remedies will employ a remedial strategy or combination of strategies that is more aggressive than the reference remedy [R18-407(E)(3)]. A more aggressive strategy is a strategy that requires fewer remedial measures to achieve ROs, a strategy that achieves ROs in a shorter period of time, or a strategy that is more certain in the long term and requires fewer contingencies [R18-407(E)(3)].

4.4 LESS AGGRESSIVE REMEDY

At least one of the alternative remedies will employ a remedial strategy or combination of strategies that is less aggressive than the reference remedy [R18-407(E)(3)].

4.5 REFERENCE AND ALTERNATIVES REMEDY PROPOSAL

A preliminary draft Reference and Alternatives Remedy Proposal will be prepared and provided to the well owners, MTP, Sparkletts, and SRP for their review and comment. A revised draft Reference and Alternatives Remedy Proposal will be submitted to ADEQ for their review and comment. A final Reference and Alternatives Remedy Proposal will be prepared based on ADEQ comments.

5.0 EVALUATION OF REFERENCE REMEDY AND ALTERNATIVE REMEDIES

A comparative evaluation of the reference remedy and alternative remedies will be conducted and discussed in the FS report [R18-407(H)]. The evaluations will include:

1. A demonstration that the remedial alternative will achieve the ROs.
2. An analysis of consistency with the water management plans of the affected water providers and the general land use plans of local government with land use jurisdiction.
3. An evaluation of the comparison criteria.

5.1 EVALUATION OF COMPARISON CRITERIA

During the FS, each remedy will be evaluated according to the comparison criteria, which include practicability, risk, cost, and benefit or value [R18-407(H)(3)]. In order to evaluate the comparison criteria, a risk assessment and limited groundwater modeling will be performed. Dependent on the remedies selected for evaluation, a pilot study of a specific remedy may also be performed. A discussion of the comparison criteria, evaluated in relation to each other, with the associated uncertainties will be included in the FS report [R18-407(H)(3)(d)]. A summary of the risk assessment, groundwater modeling, and pilot study, if performed, will also be included in the FS report. The comparison criteria are described in the following.

5.1.1 Practicability

The practicability of the remedies, including their feasibility, short and long-term effectiveness, and reliability, will be evaluated [R18-407(H)(3)(a)]. The evaluation of practicability will consider site-specific conditions, characteristics of the contamination resulting from the release, performance capabilities of available technologies, and institutional considerations [R18-407(H)(3)(a)].

5.1.2 Risk

Risk of the remedies will be evaluated, including their overall protectiveness of public health and aquatic and terrestrial biota under reasonably foreseeable land use scenarios and end uses of water [R18-407(H)(3)(b)]. The risk evaluation will include [R18-407(H)(3)(b)]:

1. Fate and transport of contaminants and contaminant concentrations and toxicity over the life of the remediation;
2. Current and future land and resource use;
3. Exposure pathways, duration of exposure, and changes in risk over the lifetime of the remediation;
4. Protection of public health and aquatic and terrestrial biota while implementing the remedial action; and
5. Residual risk in the aquifer at the end of remediation.

5.1.3 Cost

Cost of the remedies will be evaluated, counting the expenses and losses including capital, operating, maintenance, and life cycle costs [R18-407(H)(3)(c)]. The cost analysis may include the analysis of uncertainties that may impact the cost of the remedial alternatives, analysis of projected water uses and costs associated with use-based treatment, other use impairment costs of water not remediated to water quality standards, and the cost of alternative water supply or treatment [R18-407(H)(3)(c)]. Transactional costs necessary to implement the remedial alternatives, including the transactional costs of establishing long-term financial mechanisms, such as trust funds for funding of an alternative remedy will be included in the cost evaluation [R18-407(H)(3)(c)].

5.1.4 Benefit or Value

An evaluation of the benefit or value of the remedies will be performed. The evaluation of benefit or value will include factors such as [R18-407(H)(3)(d)]:

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

5.2 PROPOSED REMEDY

Based on evaluation and comparison of the reference remedy and other alternative remedies, a Proposed Remedy will be developed and described [R18-16-407(I)]. The Proposed Remedy may be the reference remedy, any of the alternative remedies evaluated in the FS, or a different combination of remedial strategies and remedial measures that were included in the alternative remedies evaluated in the FS [R18-16-407(I)].

6.0 FEASIBILITY STUDY REPORT

The FS Report will be prepared to document the FS process and the development and description of the Proposed Remedy [R18-16-407(I)]. The reference remedy and alternative remedies will be developed and described in the FS report in sufficient detail to allow evaluation using the comparison criteria, but construction level plans are not required [R18-407(E)(1)]. The FS Report will describe the reasons for selection of the Proposed Remedy including [R18-16-407(I)]:

1. How the Proposed Remedy will achieve the ROs;
2. How the comparison criteria were considered; and
3. How the Proposed Remedy meets A.R.S. § 49-282.06.

A revised conceptual site model will be included in the FS Report to incorporate changes in aquifer parameters and other information acquired since the RI was completed. The preliminary draft FS Report, focusing on the selection and evaluation of the proposed remedy, will be provided to ADEQ for their review. After ADEQ review, the draft FS Report will be provided to the production well owners, MTP, Danone, and SRP, and the public for review and comment. A final FS report will be prepared to respond to comments and will be submitted to ADEQ for review and final approval.

7.0 COMMUNITY INVOLVEMENT

Community involvement activities will be performed in compliance with R18-16-404 and in cooperation with ADEQ [R18-16-407(J)]. Community involvement activities will generally follow the requirements of the 2007 WCP Community Involvement Plan (ADEQ, 2007). Specific community involvement activities may include preparation and distribution of public notices describing the availability of the draft and final FS Work Plans for public comment and review. Community involvement will also include Univar participation in public meetings scheduled to discuss the draft and final FS Work Plan.

8.0 SCHEDULE

The final revised FS Schedule was submitted to ADEQ on June 24, 2009. A copy of the final ADEQ-approved Schedule adjusted to the FS Work Plan approval is contained in Appendix B.

9.0 REFERENCES

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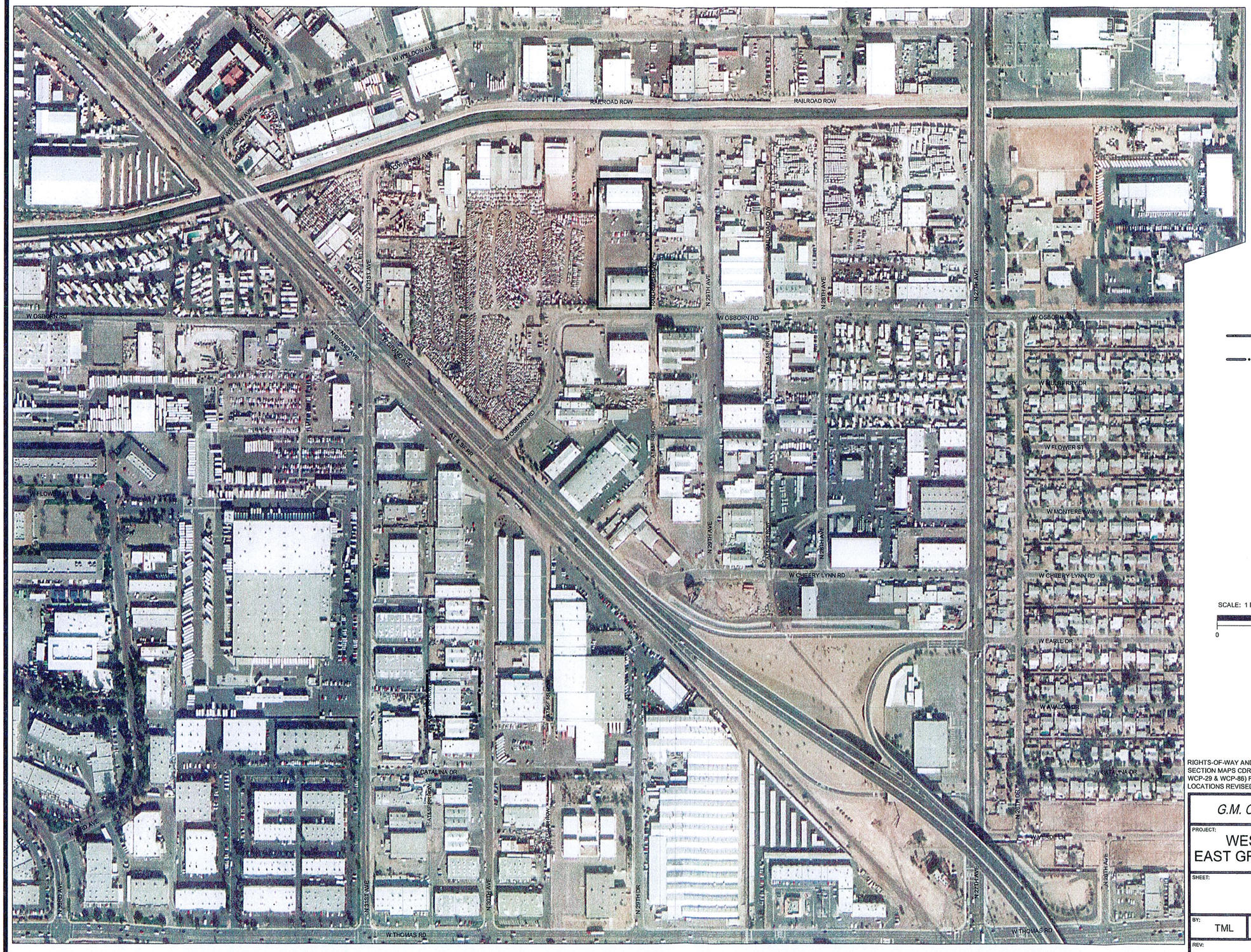
FIGURES



EXPLANATION

FORMER UNIVAR FACILITY

FORMER MOGUL FACILITY

N

SCALE: 1 INCH = 400 FEET

0 200 400 800

RIGHTS-OF-WAY AND PROPERTY LINES FROM THE CITY OF PHOENIX QUARTER SECTION MAPS CDROM, SEPT. 2002. WCP WELL LOCATIONS (EXCEPT WCP-28, WCP-29 & WCP-86) FROM GRAHAM SURVEYING, SEPT. 2003. OTHER WELL LOCATIONS REVISED FROM GEOTRANS, INC., OCT. 2002.

G.M. CLEMENT & ASSOCIATES, INC.

PROJECT:
WEST CENTRAL PHOENIX,
EAST GRAND AVENUE WQARF SITE

SHEET:
SITE LOCATIONS

BY:	CHK:	DATE:	FIGURE:
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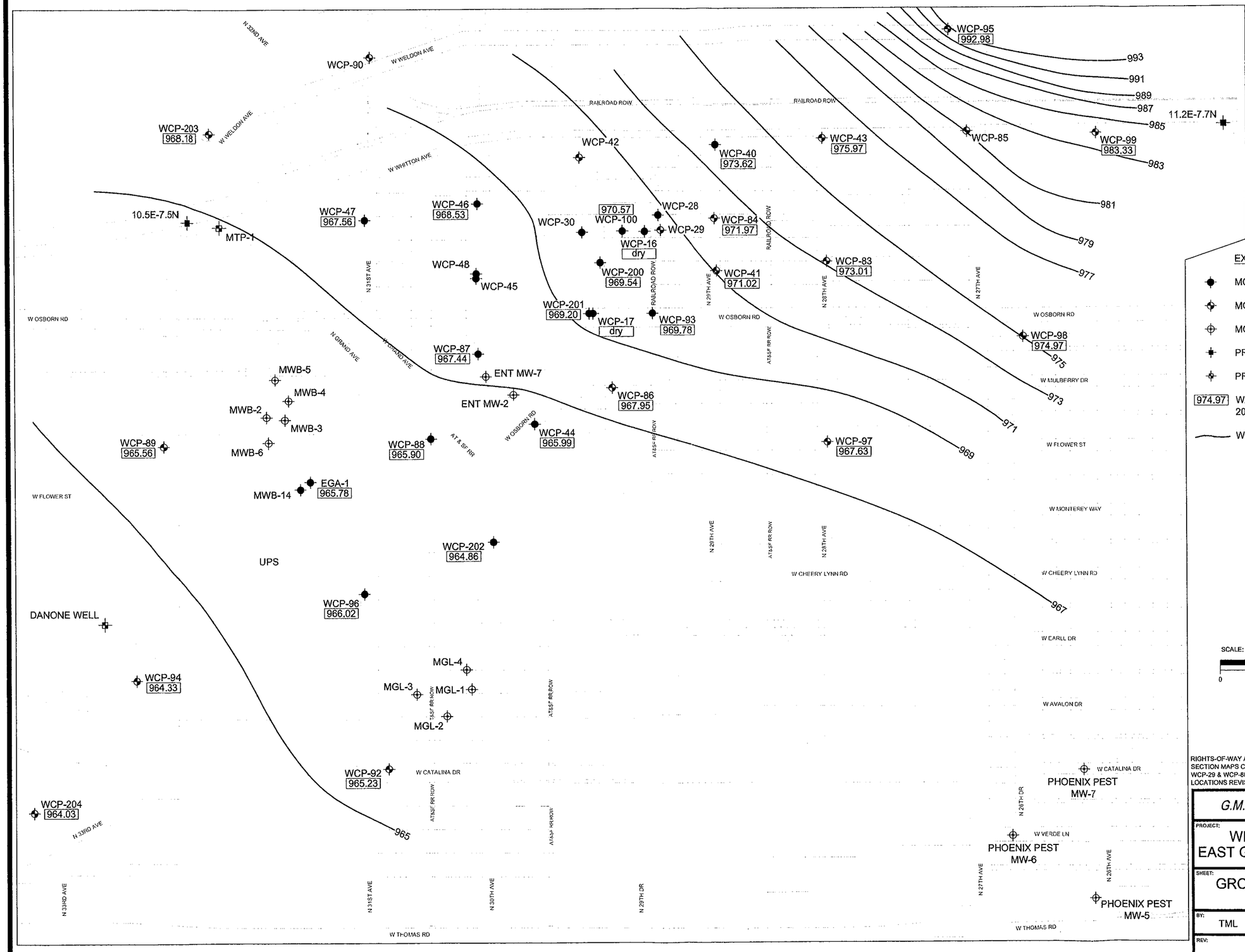

EXPLANATION

- MONITOR WELL, UNIVAR
- MONITOR WELL, NON-SITE SPECIFIC
- MONITOR WELL, OTHER
- PRODUCTION WELL, SRP
- PRODUCTION WELL, OTHER
- 974.97 WATER LEVEL ELEVATION, MARCH 2008, FEET ABOVE MEAN SEA LEVEL
- WATER LEVEL CONTOURS

N

SCALE: 1 INCH = 400 FEET

0 200 400 800

RIGHTS-OF-WAY AND PROPERTY LINES FROM THE CITY OF PHOENIX QUARTER SECTION MAPS CDROM, SEPT. 2002. WCP WELL LOCATIONS (EXCEPT WCP-28, WCP-29 & WCP-65) FROM GRAHAM SURVEYING, SEPT. 2003. OTHER WELL LOCATIONS REVISED FROM GEOTRANS, INC., OCT. 2002.

G.M. CLEMENT & ASSOCIATES, INC.

PROJECT:
WEST CENTRAL PHOENIX,
EAST GRAND AVENUE WQARF SITE

SHEET:
GROUNDWATER ELEVATIONS
MARCH 2008

BY:	CHK:	DATE:	FIGURE:
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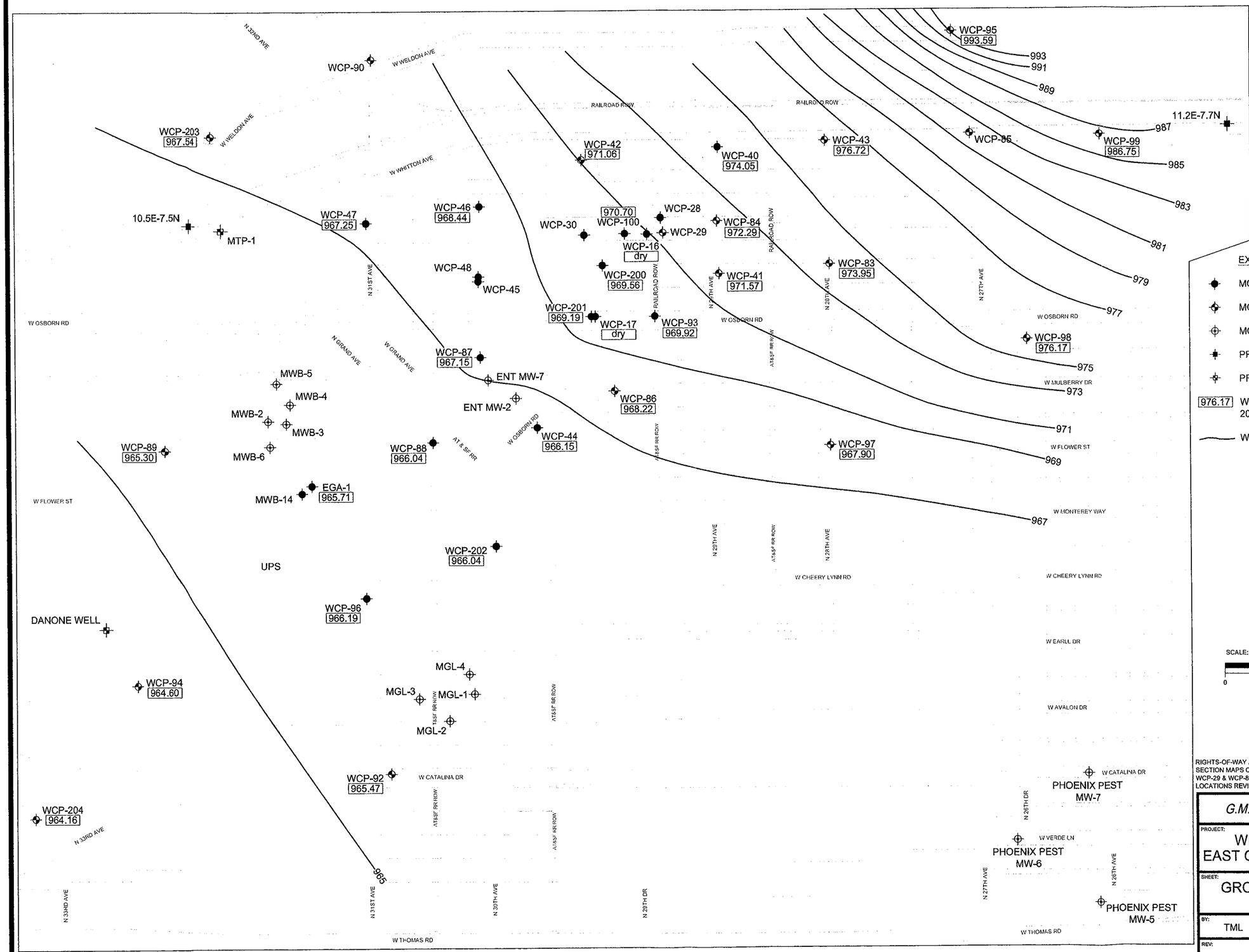

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G.M. CLEMENT & ASSOCIATES, INC.

PROJECT:
WEST CENTRAL PHOENIX,
EAST GRAND AVENUE WQARF SITE

SHEET:
GROUNDWATER ELEVATIONS
SEPTEMBER 2008

BY:	CHK:	DATE:	FIGURE:
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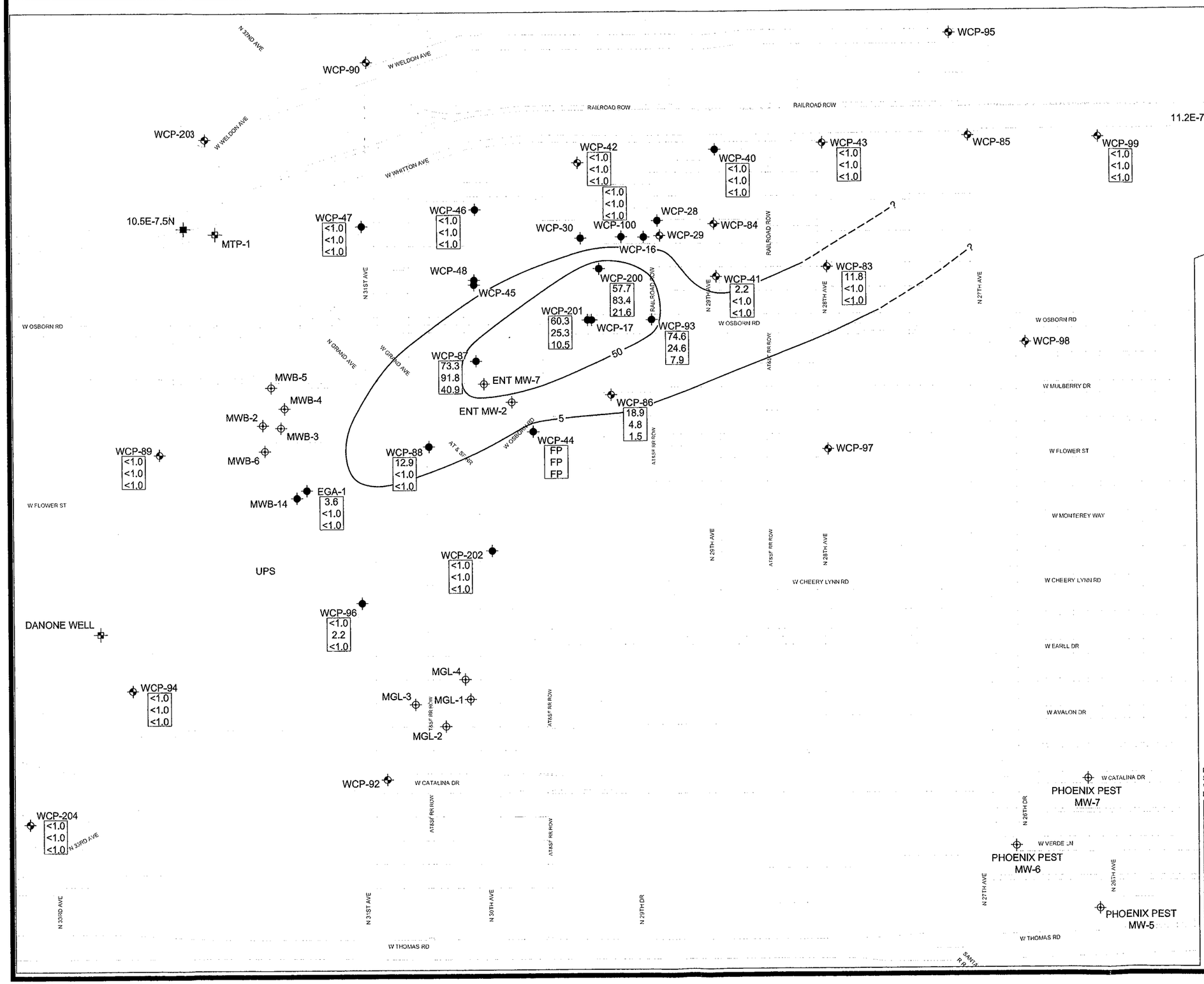

EXPLANATION

- MONITOR WELL, UNIVAR
- MONITOR WELL, NON-SITE SPECIFIC
- MONITOR WELL, OTHER
- PRODUCTION WELL, SRP
- PRODUCTION WELL, OTHER
- FP FREE PRODUCT
- 74.6 / 24.6 / 7.9 TRICHLOROETHENE / TETRACHLOROETHENE / 1,1-DICHLOROETHENE CONCENTRATIONS IN MICROGRAMS PER LITER MARCH 2008
- TCE ISOCONCENTRATION CONTOURS

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SCALE: 1 INCH = 400 FEET

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RIGHTS-OF-WAY AND PROPERTY LINES FROM THE CITY OF PHOENIX QUARTER SECTION MAPS CDROM, SEPT. 2002. WCP WELL LOCATIONS (EXCEPT WCP-28, WCP-29 & WCP-86) FROM GRAHAM SURVEYING, SEPT. 2003. OTHER WELL LOCATIONS REVISED FROM GEOTRANS, INC., OCT. 2002.

G.M. CLEMENT & ASSOCIATES, INC.

PROJECT: WEST CENTRAL PHOENIX, EAST GRAND AVENUE WQARF SITE

SHEET: TCE CONCENTRATION SEPTEMBER 2008

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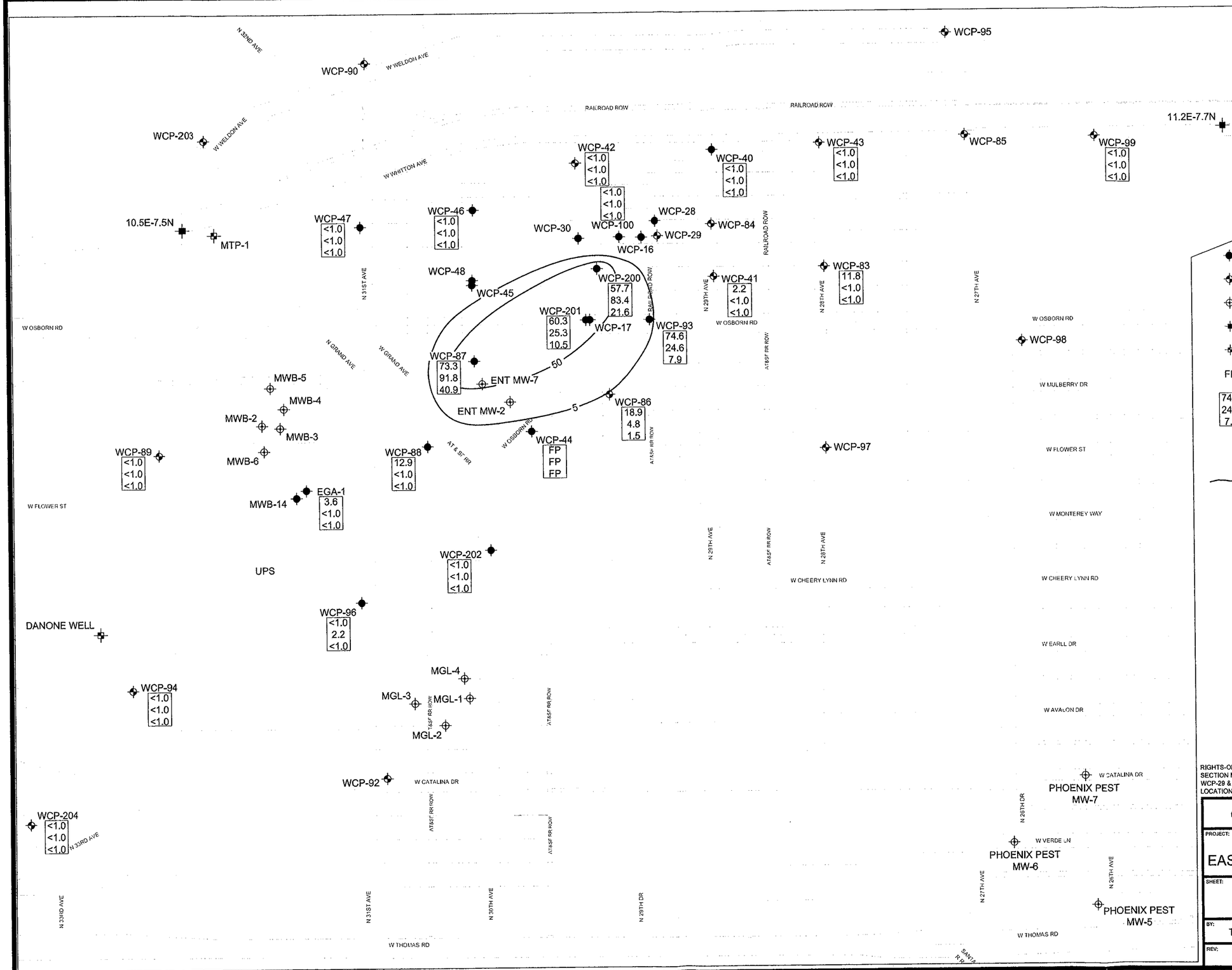

EXPLANATION

- MONITOR WELL, UNIVAR
- MONITOR WELL, NON-SITE SPECIFIC
- MONITOR WELL, OTHER
- PRODUCTION WELL, SRP
- PRODUCTION WELL, OTHER
- FP FREE PRODUCT
- 74.6 / 24.6 / 7.9 TRICHLOROETHENE / TETRACHLOROETHENE / 1,1-DICHLOROETHENE CONCENTRATIONS IN MICROGRAMS PER LITER MARCH 2008
- PCE ISOCONCENTRATION CONTOURS

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SCALE: 1 INCH = 400 FEET

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G.M. CLEMENT & ASSOCIATES, INC.

PROJECT:
WEST CENTRAL PHOENIX,
EAST GRAND AVENUE WQARF SITE

SHEET:
PCE CONCENTRATION
SEPTEMBER 2008

BY:	CHK:	DATE:	FIGURE:
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Figure 6
Concentration Trends, WCP-93

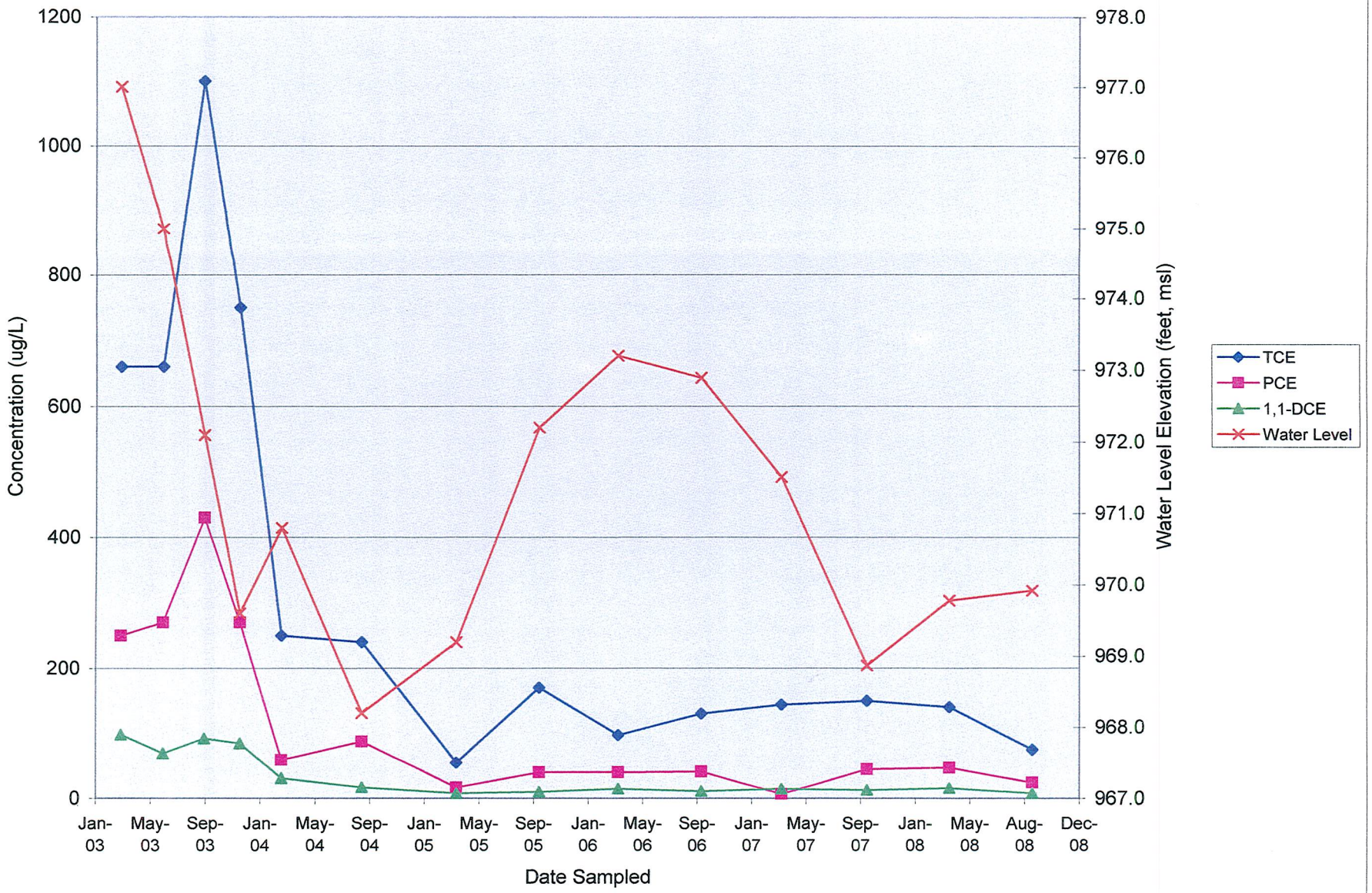
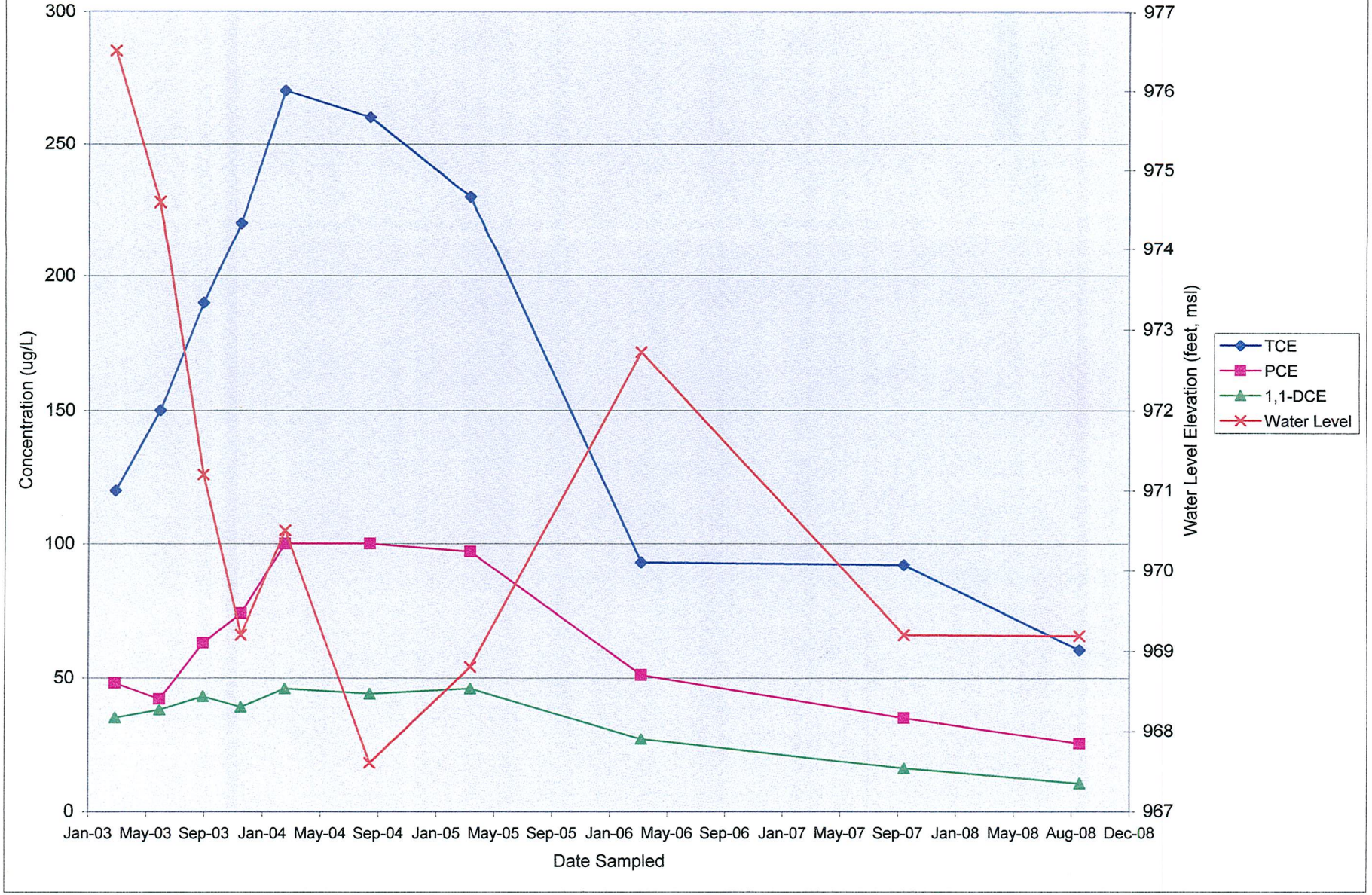


Figure 7
Concentration Trends, WCP-201

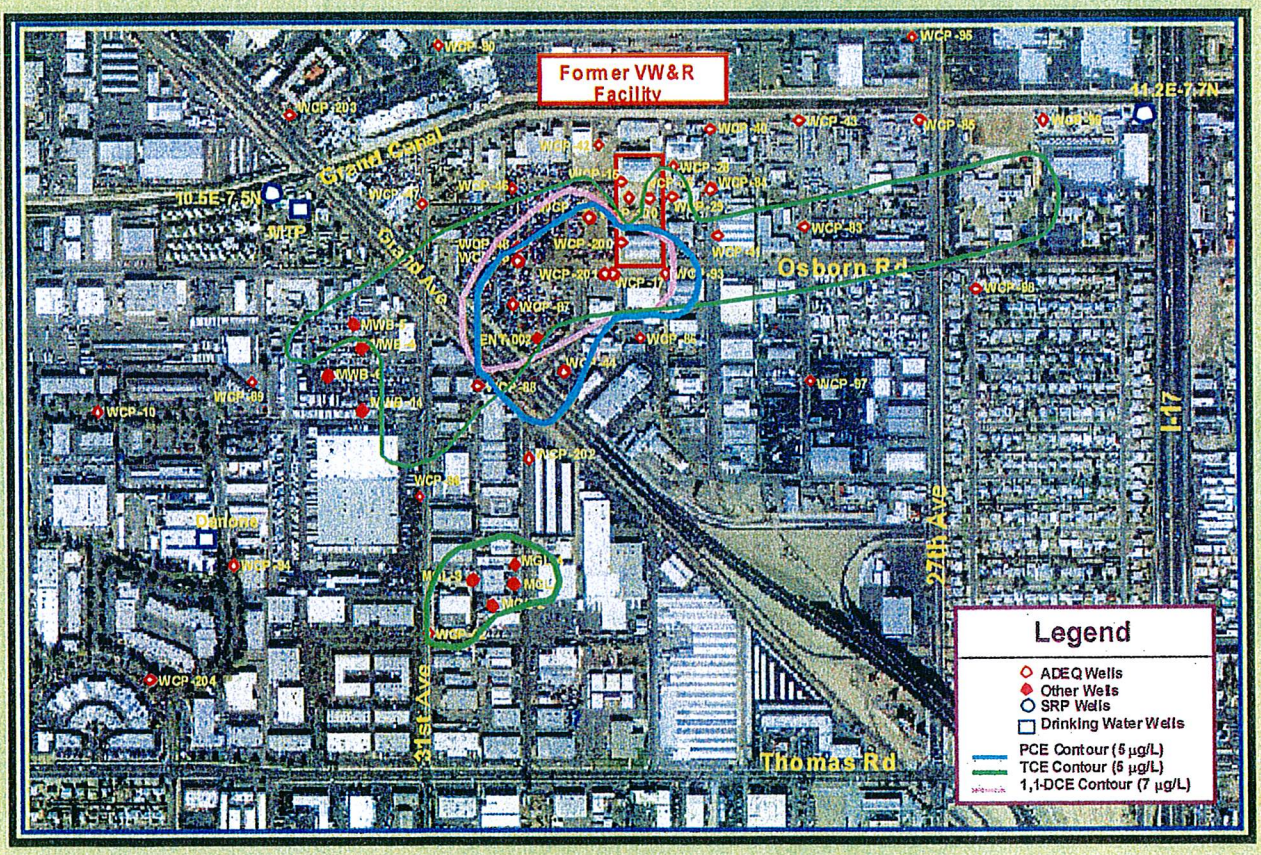


APPENDICES

APPENDIX A

Remedial Objectives Report

West Central Phoenix
East Grand Avenue Site
Phoenix, Arizona



June 2006

Prepared by
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, Arizona 85007
(602) 771-2300 • http://azdeq.gov

ADEQ Arizona Department of Environmental Quality

Remedial Objectives Report

West Central Phoenix
East Grand Avenue Site
Phoenix, Arizona

June 2006

Prepared by
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007
(602) 771-2300 • http://azdeq.gov

TABLE OF CONTENTS

ACRONYMS

A.A.C.	Arizona Administrative Code
A.R.S.	Arizona Revised Statutes
ADEQ	Arizona Department of Environmental Quality
1,1-DCE	1,1-dichloroethylene
EGA	East Grand Avenue
FS	feasibility study
GPL	groundwater protection level
PCE	tetrachloroethylene, tetrachloroethene, Perc
RI	remedial investigation
RO	remedial objective
SRL	soil remediation level
SRP	Salt River Project
SVE	soil vapor extraction
TCE	trichloroethylene, trichloroethene
VW&R	Van Waters & Rogers
WCP	West Central Phoenix
Weston	Weston Solutions, Inc.
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Proposed Remedial Objectives (RO) report for the West Central Phoenix (WCP) East Grand Avenue (EGA) Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406. This report relies upon the Land and Water Use Report (Use Report) prepared by Weston Solutions, Inc. (Weston) for the site dated March 2004 and the comments received on the Proposed RO report dated December 2005.

Remedial Objectives (ROs) are established for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by a release of a hazardous substance. The rule specifies that the reasonably foreseeable uses of land are those likely to occur at the site, and the reasonably foreseeable uses of water are those likely to occur within one hundred years unless site-specific information suggests a longer time period is more appropriate [R18-16-406(D)]. Reasonably foreseeable uses are those likely to occur, based on information provided by water providers, well owners, land owners, government agencies, and others. Not every use identified in the Use Report will have a corresponding RO. Uses identified in the Use Report may or may not be addressed based on information gathered during the public involvement process, limitations of WQARF, and whether the use is reasonably foreseeable.

The ROs chosen for the site will be evaluated in the feasibility study (FS). The FS will evaluate specific remedial measures and strategies required to meet the ROs and propose a reference remedy and at least two alternative remedies, all capable of meeting the ROs. The proposed remedies will also be generally compatible with the future land use specified by the land owner. Because the future land and water uses at the site are generally not specific, the mechanism to achieve the ROs may be an insurance policy or environmental protection fund that could be drawn on in the future. Possible mechanisms to achieve the ROs will be evaluated in the FS and presented in the FS report.

Definitions

Remedial Strategy: One or a combination of the six general strategies identified in Paragraph B.4 of A.R.S. §49-282.06 and further defined in rules promulgated in accordance with this statute. In general, these strategies are as follows: *plume remediation, physical containment, controlled migration, source control, monitoring, and no action.*

Remedial Measure: A specific action taken in conjunction with remedial strategies as part of the remedy to achieve one or more of the remedial objectives. For example, remedial measures may include well replacement, well modification, water treatment, provision of replacement water supplies, and engineering controls.

Reference Remedy: A combination of remedial strategies and remedial measures which, as a whole, is capable of achieving remedial objectives. The reference remedy is compared with the alternative remedies for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

Alternative Remedy: A combination of remedial strategies and remedial measures different from the reference remedy that is capable of achieving remedial objectives. The alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

This report has been prepared with stakeholder input gathered during the August 31, 2004 WCP community advisory board meeting and public meeting, as well as written comments received on the Proposed RO report 30-day public comment period. This final report includes a responsiveness summary to written comments received from the public during the comment period. Upon completion of the final RO Report, the final remedial investigation (RI) report will be available to the public.

The ROs must be stated in the following terms: 1) protecting against the loss or impairment of each use; 2) restoring, replacing, or otherwise providing for each use; 3) when action is needed to protect against or provide for the use; and 4) how long action is needed to protect or provide for the use.

2.0 REMEDIAL OBJECTIVES FOR LAND USE

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the properties and within the WCP EGA site area are expected to remain predominantly industrial (A-2) or light industrial (A-1).

Century Wheel and Rim, a distributor of undercarriage and transportation parts, currently occupies the former Van Waters & Rogers (V&R) facility and has stated that there are no foreseeable changes to the use of the property.

Soil sampling analytical results at the VW&R facility confirmed the presence of PCE, TCE, and 1,1-DCE beneath the facility; however detectable concentrations of the contaminants of concern in soil did not exceed their respective Arizona Soil Remediation Levels (SRLs) or minimum Groundwater Protection Levels (GPLs).

Based on the above information, no remedial objectives are needed for this use.

3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE

Six current and/or potential groundwater uses were identified within the WCP EGA site: 1) the current and future use of groundwater in the WCP EGA site for drinking water purposes by the Michigan Trailer Park; 2) the current and future use of groundwater in the WCP EGA site for drinking water purposes by Danone Waters of America; and 3) the current and future use of SRP irrigation wells.

The chemicals of concern in the groundwater at the WCP EGA site are tetrachloroethylene (PCE), trichloroethylene (TCE) and 1,1-dichloroethylene (1,1-DCE) (See Figures 1, 2 and 3). The concentrations in groundwater of the three primary contaminants of concern have exceeded the Arizona Aquifer Water Quality Standards (AWQSs) in several locations. Maximum concentrations of PCE, TCE, and 1,1-DCE detected in groundwater samples collected from around the WCP EGA site during the September 2004 sampling activities are 190 µg/L (WCP-200), 260 µg/L (WCP-201), and 68 µg/L (WCP-200), respectively. Historical concentrations (March and April 1997) of PCE and TCE detected in samples from monitor well WCP-16 located on the VW&R facility have been as high as 1,800 µg/L and 2,700 µg/L, respectively. VOC concentrations in groundwater have declined at the former VW&R facility since 2003. The aerial extent of the VOC plume contaminants were likely influenced by decreases in groundwater elevation and the continued operation of VW&R's source area treatment system. Note that decreases in groundwater elevation most likely enhanced the localized recovery of VOCs via VW&R's soil vapor extraction system.

Michigan Trailer Park

The Michigan Trailer Park (MTP), located west of the VW&R facility at 3135 Grand Avenue, is a 150-pad mobile home and RV park with a current average year-round occupancy of 90 pads. The sole water supply source for the park is from a 400-foot well (MTP-1) located on the MTP property. The well, which is cross gradient to the WCP EGA site and close to SRP Well 10.5E-7.5N, has an approximate pumping capacity of 85 to 100 gallons per minute and serves approximately 135 to 180 residents.

VOC analyses have also been conducted on samples collected from MTP-1. In the past, PCE and TCE have been detected below the AWQS of 5 µg/L established for each compound. PCE has been detected at a concentration of 0.8 µg/L and TCE has been detected at concentrations ranging from 0.3 µg/L to 0.6 µg/L. In September 2005, PCE and TCE were not detected above method reporting limits.

The RO for the MTP current and future drinking water use of the well is:

> **To protect, replace, or otherwise provide alternative water supply should use of the MTP drinking water well be lost in the future due to changes in groundwater flow direction that would contaminate the well with PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA site.**

Danone Waters of North America

Danone Waters of North America, formerly owned by McKesson Water Inc., operates a water processing, bottling, and distribution plant approximately one-half mile southwest (down gradient) of the WCP EGA site boundary. The business has been at their present location since 1974 and expanded their facility a couple of years ago. Danone operates a 952-foot well located on the property, which has a pumping capacity of 225 gallons per minute. Danone samples the well regularly and results have not shown detectable concentrations of VOCs. Prior to bottling, groundwater undergoes several treatment steps including reverse osmosis. The company has discussed the feasibility of installing an additional well on-site for back up purposes although no decisions have been made at this time.

The RO for the Danone Waters current and future drinking water use of the well is:

> **To protect, replace, or otherwise provide alternative water supply should use of the Danone Waters drinking water well be lost in the future due to contamination of the deeper aquifer by the PCE, TCE and/or 1,1-DCE contamination emanating from WCP EGA site.**

SRP Municipal and Irrigation Use

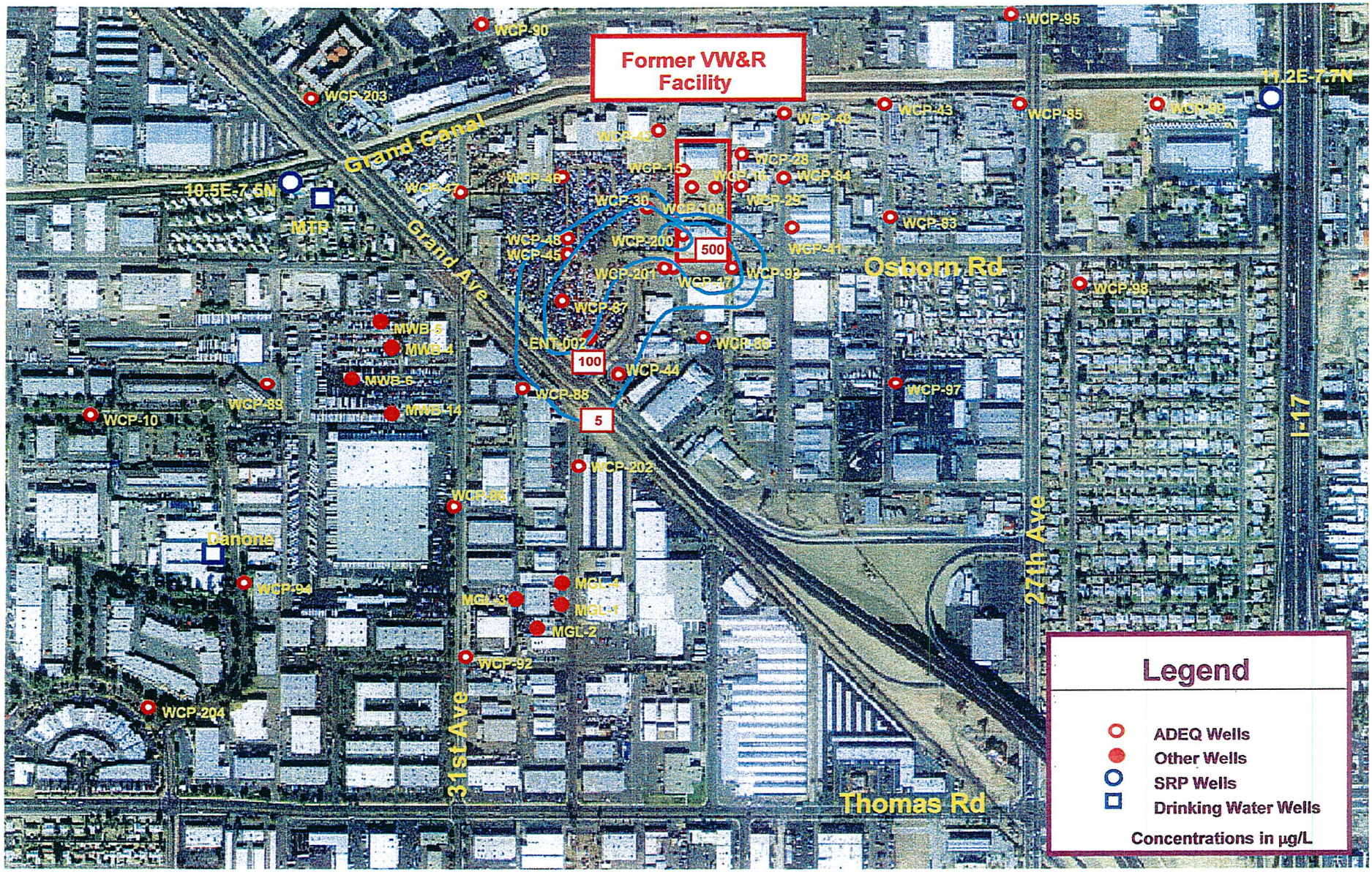
SRP owns several irrigation wells in the area and will continue to need operational wells to supplement surface water supplies. SRP wells 10.5E-5.7N and 11.2E-7.7N are located crossgradient and upgradient, respectively, from the contamination in the WCP EGA site.

Depth-to-groundwater data collected in April 1999 indicated that groundwater flow and gradient are influenced by the operation of the SRP irrigation wells. Groundwater flow directions during the April 1999 monitoring event, when SRP was pumping from 10.5E-7.5N, were toward the west-northwest beneath the WCP EGA Site. Groundwater elevation data for the remaining monthly monitoring events indicate that groundwater generally flows toward the west-southwest beneath the WCP EGA Site.

The RO for the SRP current and future municipal and irrigation use of the wells is:

> **To protect, replace, or otherwise provide alternative water supply should use of the SRP wells be lost in the future due to contamination of the wells with PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA site.**

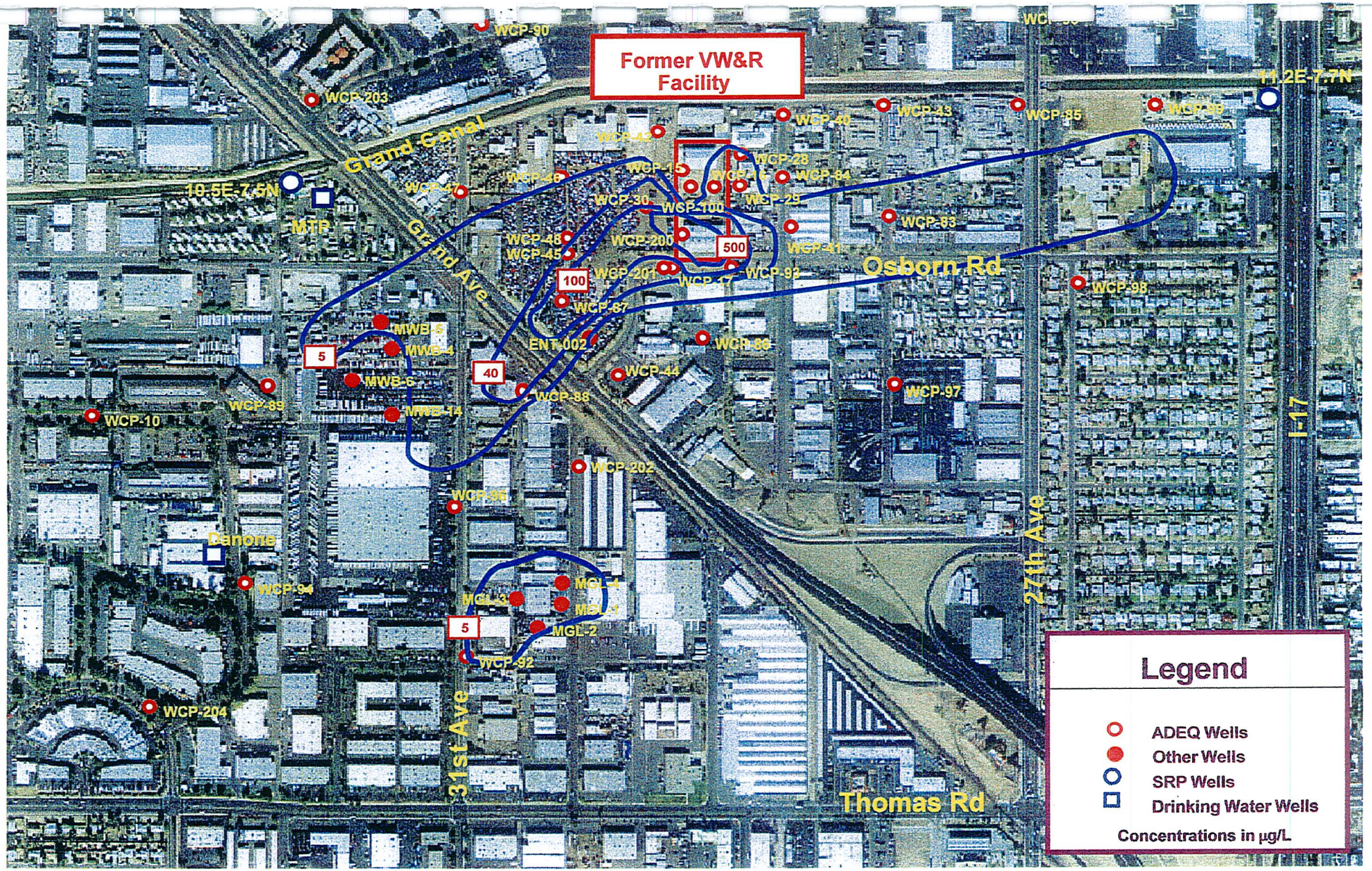
FIGURES



ADEQ Arizona Department of Environmental Quality

Figure 1

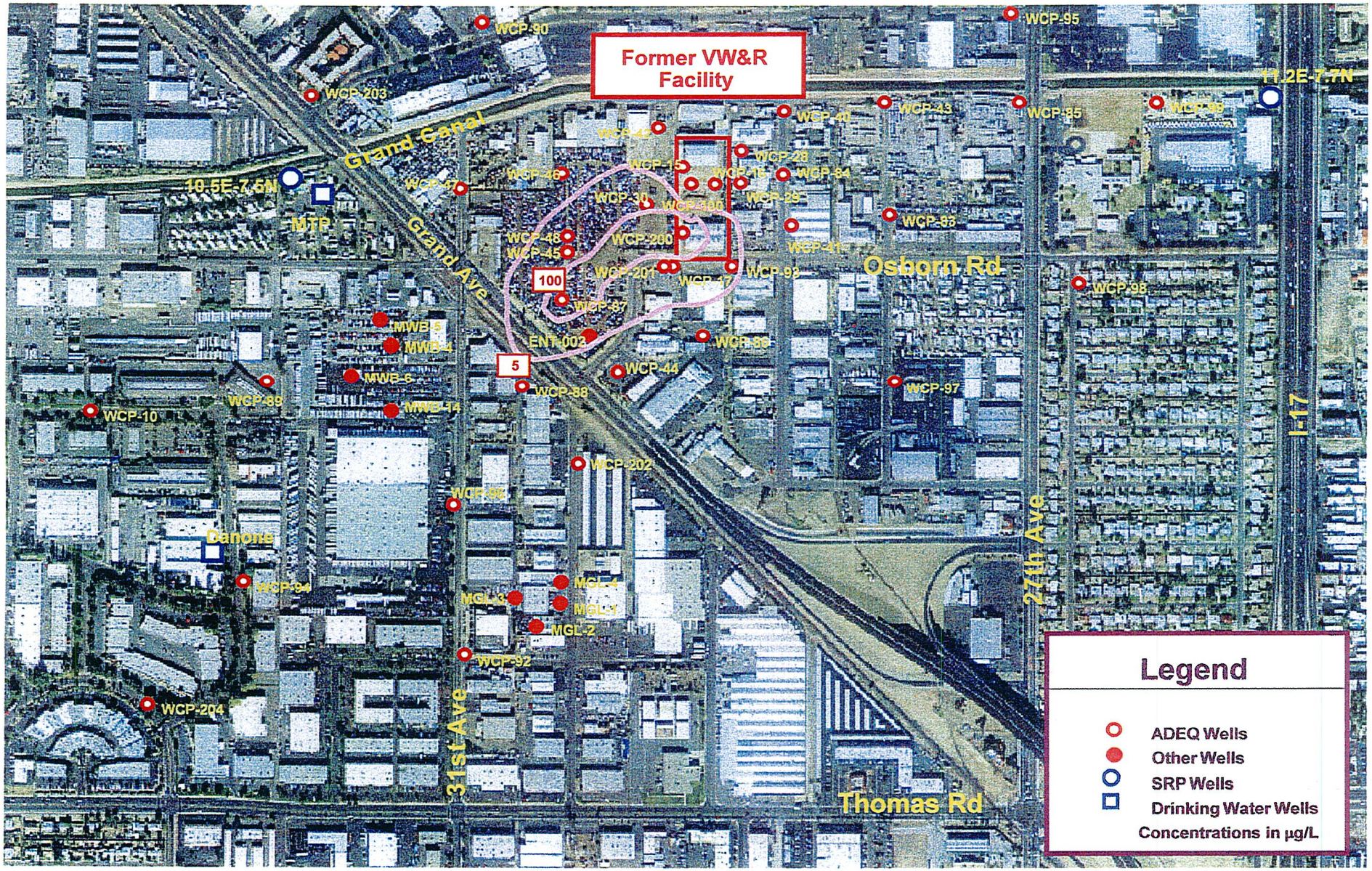
WCP EGA PCE Concentrations - January 2002



ADEQ Arizona Department of Environmental Quality

Figure 2

WCP EGA TCE Concentrations - January 2002



ADEQ Arizona Department of Environmental Quality

Figure 3

WCP EGA 1,1-DCE Concentrations - January 2002

APPENDIX A

PROPOSED RO REPORT COMMENTS

Univar USA Inc.
1804 N. 20th Street
Nampa, ID 83687

T 208 888 1094
F 208 884 1602
www.univarusa.com

C.T.S. 123137
1-33968

UNIVAR

February 6, 2006

Ms. Ana Vargas, Project Manager
Arizona Department of Environmental Quality
1110 W. Washington Street
4415B-1
Phoenix, AZ 85007

Re: Univar's Comments
Proposed Remedial Objectives Report
West Central Phoenix East Grand Avenue WQARF Site
Phoenix, Arizona

Dear Ms. Vargas:

Univar USA Inc. has prepared this letter to present comments pertaining to the Proposed Remedial Objectives Report for the West Central Phoenix East Grand Avenue WQARF site. Our comments are as follows:

Page #	Paragraph #	Comment
4	1	The Proposed RO report notes there are six current and/or potential groundwater uses, but the Proposed RO report does not clearly list or explain the six uses.
4	2	The wells that are associated with the highest PCE and TCE concentrations are not identified.
4	2	The dates of sampling when the highest PCE and TCE concentrations were found are not identified.
4	2	To provide current factual information regarding groundwater quality concentration trends, Univar suggests that a conclusion sentence be added noting that VOC concentrations in groundwater have declined at the former VW&R facility since 2003; and the aerial extent of the VOC plume has stabilized.
5 5	2 5	In addition to a source of VOCs at the former VW&R facility, there is an upgradient source of TCE as identified in Figure 2. The identity of the Responsible Party for this upgradient source of TCE is not known. What is ADEQ's process to determine responsibility if: • The MTP drinking water well is lost in the future?

6	2	• The Damone Waters drinking water well is lost in the future? • The SRP groundwater supply is threatened?
5	2	The word "contaminated" appears to be incorrect as used in this paragraph and should be replaced with the word "contaminate".
5	3	Have well design parameters such as the total well depth and the perforated intervals for the future Damone Waters production well been determined?
5	6	The identified SRP well numbers appear to be incorrect and are not the well numbers identified in the figures. It appears that SRP well number 10.5E-7.5N should replace SRP well number 9.5E-7.7N; and SRP well number 11.2E-7.7N should replace SRP well number 8.5E-7.5N.
5	6	There are no data to support the concern that the upgradient SRP well, SRP Well 11.2E-7.7N, has the potential to be affected by contamination originating from the WCP EGA site. Why is this SRP well included in the proposed RO Report?
6	2	The proposed RO for the SRP wells indicates that the groundwater supply "may be needed as soon as is technically feasible". The uppermost groundwater in this area is contaminated with inorganic compounds, including nitrates and total dissolved solids that do not originate from the WCP EGA Site. In light of the ambient inorganic water quality conditions, what specifically is meant by the phrase "may be needed as soon as is technically feasible"? How will the presence of inorganic contaminants such as nitrate and total dissolved solids affect SRP's ability to use the groundwater?

Univar appreciates the opportunity to provide comments on the Proposed Remedial Objectives Report for this site. We would also appreciate if you would share potential dates with us for any public meeting pertaining to the Proposed Remedial Objectives Report so we can attend. If you have any questions related to our comments, please contact our consultant, Gail Clement at 480/314-9499 or myself at 208/888-1094.

Sincerely,

Michael Gaudette
Senior Project Manager

cc: Jim Hooper, Univar, Director, Environmental Affairs Department
Gail Clement, G.M. Clement & Associates Inc.

West Central Phoenix, Proposed RO Report

Page	Para.	Comment	Response
4	1	The Proposed RO report notes there are six current and/or potential groundwater uses, but the Proposed RO report does not clearly list or explain the six uses.	*The six uses are:* *1. Current use of groundwater for drinking purposes by Michigan Trailer Park* *2. Future use of groundwater for drinking purposes by Michigan Trailer Park* *3. Current use of groundwater for drinking purposes by Danone Waters* *4. Future use of groundwater for drinking purposes by Danone Waters* *5. Current use of SRP irrigation wells* *6. Future use of SRP irrigation wells* *These are summarized in the 1st paragraph.*
4	2	The wells that are associated with the highest PCE and TCE concentrations are not identified.	*The well that is associated with the highest PCE and TCE concentrations is WCP-16. This information has been added to the text.*
4	2	The dates of sampling when the highest PCE and TCE concentrations were found are not identified.	*The highest PCE and TCE concentrations were found between March and April 1997. This information has been added to the text.*
4	2	To provide current factual information regarding groundwater quality concentration trends, Univar suggests that a conclusion sentence be added noting that VOC concentrations in groundwater have declined at the former VW&R facility since 2003; and the aerial extent of the VOC plume has stabilized.	*The following sentence has been added at the end of the paragraph: "VOC concentrations in groundwater have declined at the former VW&R facility since 2003. The aerial extent of the VOC plume contaminants were likely influenced by decreases in groundwater elevation and the continued operation of VW&R's source area treatment system. Note that decreases in groundwater elevation most likely enhanced the localized recovery of VOCs via VW&R's soil vapor extraction system."*
5 5 6	2 5 2	In addition to a source of VOCs at the former VW&R facility, there is an upgradient source of TCE as identified in Figure 2. The identity of the Responsible Party for this upgradient source of TCE is not known. What is ADEQ's process to determine responsibility if: • The MTP drinking water well is lost in the future? • The Danone Waters drinking water well is lost in the future? • The SRP groundwater supply is threatened?	*ADEQ has not been able to identify the source of TCE contamination upgradient to the VW&R facility. The low concentrations of TCE in groundwater attributable to the upgradient source do not allow identification of the source area by examining the concentration gradient. Further, ADEQ could not identify any facilities in the area of the upgradient TCE plume that would have used TCE. ADEQ is not aware of any other reasonable or cost effective investigative technique that would identify the source area for the upgradient TCE contamination.* *Because remedial investigations have not located the source area for the upgradient TCE contamination, a responsible party search cannot be conducted to determine who might be liable for this contamination.*
5	2	The word "contaminated" appears to be incorrect as used in this paragraph and should be replaced with the word "contaminate".	*The text has been corrected and the word changed from "contaminated" to "contaminate".*
5	3	Have well design parameters such as the total well depth and the perforated intervals for the future Danone Waters production well been determined?	*No.*
5	6	The identified SRP well numbers appear to be incorrect and are not the well numbers identified in the figures. It appears that SRP well number 10.5E-	*The text has been corrected.*

West Central Phoenix, Proposed RO Report			
Page	**Para.**	**Comment**	**Response**
		7.5N should replace SRP well number 9.5E-7.7N; and SRP well number11.2E-7.7N should replace SRP well number 8.5E-7.5N.	
5	6	There are no data to support the concern that the upgradient SRP well, SRP Well 11.2E-7.7.N, has the potential to be affected by contamination originating from the WCP EGA site. Why is this SRP well included in the proposed RO Report?	*Although direct evidence has not been found confirming 11.2E-7.7N's impact on groundwater, its impact can not be discounted. The only definitive way to confirm 11.2E-7.7N's influence on groundwater in the EGA is to pump the well and examine its effects on groundwater levels in EGA monitor wells.*
6	2	The proposed RO for the SRP wells indicates that the groundwater supply "may be needed as soon as is technically feasible". The uppermost groundwater in this area is contaminated with inorganic compounds, including nitrates and total dissolved solids that do not originate from the WCP EGA Site. In light of the ambient inorganic water quality conditions, what specifically is meant by the phrase "may be needed as soon as is technically feasible"? How will the presence of inorganic contaminants such as nitrate and total dissolved solids affect SRP's ability to use the groundwater?	*The following response to Univar's question was received from SRP in an e-mail to ADEQ dated May 11. 2006:* *"SRP does not anticipate naturally occurring inorganic compounds in the groundwater beneath the referenced project area to impact its ability to use groundwater from the production wells. Currently, the water is used for irrigation which is not a concern. However, there is the indication a municipal water treatment plant may be built near that area in the future to meet the water supply needs of the fast growing communities in the West Valley. Under that scenario, groundwater would be expected to be an important component as is the case elsewhere such plants currently operate. The presence of inorganic constituents would then be subjected to treatment and/or blending processes that meet the desired water quality standard."*

...Vargas - RE: WCP East Grand Avenue Site - Proposed Remedial Objectives (RO) Report

C.T.S. 123138
1-33968

...m: "AMADI PHILIP U (PHYL)" <puamadi@srpnet.com>
...o: "Ana Vargas" <Vargas.Ana@azdeq.gov>
...e: 2/15/06 4:51:25 PM
...ject: RE: WCP East Grand Avenue Site - Proposed Remedial Objectives (RO) Report
...C: "CASIRARO DANIEL J (DAN)" <djcasira@srpnet.com>

...na:

...ere are some comments on the proposed RO Report -

I. The figures you attached show SRP Well 10.5E-7.5N is located cross-gradient from the plume and Well 11.2E7.7N is located up-gradient from the plume. However, the text references SRP Well 9.5E-7.7N as being located cross-gradient from the plume and Well 8.5E-7.5N being located up-gradient; unfortunately none of these two (last referenced) Wells is shown on the figures. The report also says that pumping Well 9.5E-7.7N causes the lower sand and gravel system contamination to migrate to the northwest. Please have your consultant clarify and correct these confusing statements. Obviously, Wells 10.5E-7.5N and 11.2E-7.7N need to be protected based on their location relative to the plume.

II. SRP would also like to see more protection provided to its supply wells to the extent possible. What the RO is proposing for other wells likely to be impacted is to "protect, replace or otherwise provide an alternative water supply". However, for SRP wells, the RO is saying "protect for use of SRP --- as soon as technically feasible--- for as long as the level of contamination --- threatens or prohibits its use".

III. SRP's supply wells are very vital resource and obviously, the ADEQ recognizes that fact. SRP would demand equal protection of these wells just as proposed for the rest of non-SRP wells potentially threatened by the plume. The extent and degree of protection of SRP wells should not be limited by technical feasibility, fate and transport of contamination. The same conditions should apply as in the case of the other potentially exposed wells qualifying for replacement or alternative water supply source.

...ase keep us posted as you address these issues of concern. Thanks.

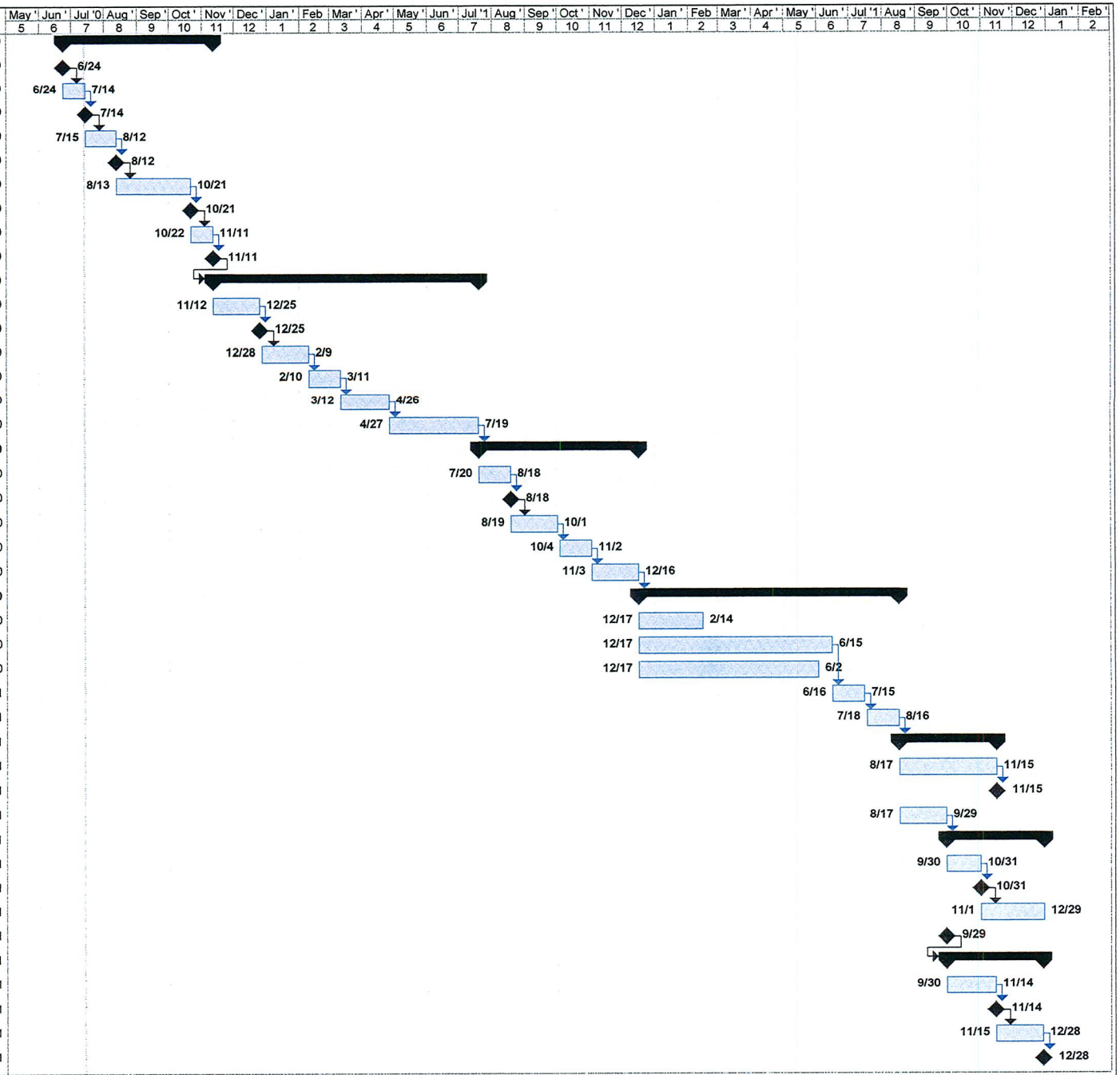
...ironmental Compliance Department
... t River Project, PAB 352
...21 N. Project Drive
... npe, AZ 85281-1206
... (602) 236-2183; Fax: (602) 236-3407
...-Mail: puamadi@srpnet.com

...rom: Ana Vargas [mailto:Vargas.Ana@azdeq.gov]
...nt: Tuesday, January 17, 2006 11:34 AM

West Central Phoenix, Proposed RO Report	
Comment	**Response**
The figures you attached show SRP Well 10.5E-7.5N is located cross gradient from the plume and Well 11.2E7.7N is located up-gradient from the plume. However, the text references SRP Well 9.5E-7.7N as being located cross-gradient from the plume and Well 8.5E-7.5N being located up-gradient; unfortunately none of these two (last referenced) Wells is shown on the figures. The report also says that pumping Well 9.5E-7.7 N causes the lower sand and gravel system contamination to migrate to the northwest. Please have your consultant clarify and correct these confusing statements. Obviously, Wells 10.5E-7.5N and 11.2E-7.7N need to be protected based on their location relative to the plume.	*The text has been corrected to indicate the correct wells are 10.5E-7.5N and 11.2E-7.7N.* *Depth-to-groundwater data collected in April 1999 indicated that groundwater flow and gradient are influenced by the operation of the SRP irrigation wells. Groundwater flow directions during the April 1999 monitoring event, when SRP was pumping from 10.5E-7.5N, were toward the west-northwest beneath the WCP East Grand Avenue WQARF Site. Groundwater elevation data for the remaining monthly monitoring events indicate that groundwater generally flows toward the west-southwest beneath the WCP East Grand Avenue WQARF Site.* *The statement referring to the lower sand and gravel system contamination was in error. It has been replaced with the information presented in the above paragraph.*
SRP would also like to see more protection provided to its supply wells to the extent possible. What the RO is proposing for other wells likely to be impacted is to "protect, replace or otherwise provide an alternative water supply". However, for SRP wells, the RO is saying "protect for use of SRP---as soon as technically feasible---for as long as the level of contamination---threatens or prohibits its use". SRP's supply wells are very vital resource and obviously, the ADEQ recognizes that fact. SRP would demand equal protection of these wells just as proposed for the rest of non-SRP wells potentially threatened by the plume. The extent and degree of protection of SRP wells should not be limited by technical feasibility, fate and transport of contamination. The same conditions should apply as in the case of the other potentially exposed wells qualifying for replacement or alternative water supply source.	*The RO for the SRP wells has been changed to read as follows:* *"To protect, replace, or otherwise provide alternative water supply should use of the SRP wells be lost in the future due to contamination of the wells with PCE, TCE and/or 1,1-DCE contamination emanating from the WCP EGA site."*

APPENDIX B

ID	Task Name	Duration	Start
1	**Final Feasibility Study Work Plan**	**101 days**	**Wed 6/24/09**
2	Submit Response Letter & Revised FS Schedule	0 days	Wed 6/24/09
3	Prepare revised draft FS Work Plan	15 days	Wed 6/24/09
4	Submit revised Draft FS Work Plan	0 days	Tue 7/14/09
5	ADEQ reviews draft FS Work Plan & Schedule	21 days	Wed 7/15/09
6	ADEQ provides public notice of FS WP availability	0 days	Wed 8/12/09
7	ADEQ completes Community Involvement	50 days	Thu 8/13/09
8	ADEQ approves draft FS Work Plan & Schedule	0 days	Wed 10/21/09
9	Revise Draft FS Work Plan & Schedule	15 days	Thu 10/22/09
10	Submit Final FS Work Plan & Schedule	0 days	Wed 11/11/09
11	**Well Installation Work Plan & Other Documents**	**178 days**	**Thu 11/12/09**
12	Prep Work Plan & Other Documents	32 days	Thu 11/12/09
13	Submit Work Plan	0 days	Fri 12/25/09
14	ADEQ Review Work Plan	32 days	Mon 12/28/09
15	Revise Work Plan	22 days	Wed 2/10/10
16	ADEQ Review & Approve Field Plans	32 days	Fri 3/12/10
17	Schedule & Complete Field Activities	60 days	Tue 4/27/10
18	**Reference & Alternative Remedies Proposal**	**108 days**	**Tue 7/20/10**
19	Prep Ref & Alt Remedies Proposal	22 days	Tue 7/20/10
20	Submit Remedies Proposal	0 days	Wed 8/18/10
21	ADEQ Review Remedies Proposal	32 days	Thu 8/19/10
22	Revise Remedies Proposal	22 days	Mon 10/4/10
23	ADEQ Review & Approve Remedies Proposal	32 days	Wed 11/3/10
24	**Feasibility Study**	**173 days**	**Fri 12/17/10**
25	Risk Assessment	42 days	Fri 12/17/10
26	Groundwater Modeling	129 days	Fri 12/17/10
27	Pilot Study	120 days	Fri 12/17/10
28	Compare Reference & Alternative Remedies	22 days	Thu 6/16/11
29	Select Proposed Remedy	22 days	Mon 7/18/11
30	**Draft Feasibility Study Report**	**65 days**	**Wed 8/17/11**
31	Prep Draft FS Report	65 days	Wed 8/17/11
32	Submit Draft FS Report	0 days	Tue 11/15/11
33	ADEQ Review Draft FS Report	32 days	Wed 8/17/11
34	**Community Involvement**	**65 days**	**Thu 9/29/11**
35	Provide ADEQ Public Notice Materials	22 days	Fri 9/30/11
36	Publish Draft FS Public Notice	0 days	Mon 10/31/11
37	Public Review Draft FS Report	43 days	Tue 11/1/11
38	ADEQ Public Meeting	0 days	Thu 9/29/11
39	**Final Feasibility Report**	**64 days**	**Fri 9/30/11**
40	Revise Draft FS Report - ADEQ & Public Comments	32 days	Fri 9/30/11
41	Submit Final FS Report	0 days	Mon 11/14/11
42	ADEQ Review & Approve Final FS Report	32 days	Tue 11/15/11
43	Distribute Final FS Report	0 days	Wed 12/28/11



EGA FS Schedule
June 24, 2009

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline