

**PROPOSED REMEDIAL OBJECTIVES REPORT
40th STREET AND OSBORN ROAD
WATER QUALITY ASSURANCE REVOLVING FUND
REGISTRY SITE
PHOENIX, ARIZONA**



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LIST OF ABBREVIATIONS & ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
A.R.S.	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
bls	Below Land Surface
COC	Chemicals of Concern
1,1-DCE	1,1-dichloroethene
ERA	Early Response Action
FS	Feasibility Study
H+A	Hargis + Associates, Inc.
Use Report	Land and Water Use Report
PCE	Tetrachloroethene
RO	Remedial Objective
RI	Remedial Investigation
SRL	Soil Remediation Level
SRP	Salt River Project
SVE	Soil Vapor Extraction
µg/L	Micrograms per liter
VOCs	Volatile Organic Compounds
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Proposed Remedial Objectives (ROs) Report for the 40th Street and Osborn Road Water Quality Assurance Revolving Fund (WQARF) Registry Site (the Site) to meet requirements established under Arizona Administrative Code (A.A.C.) R18-16-406. This Proposed RO Report relies upon the Land and Water Use Study Report (Use Report) dated April 2014. The Use Report is contained in Appendix F of the 40th Street and Osborn Road Remedial Investigation (RI) Report prepared by Hargis + Associates, Inc. (H+A) for ADEQ.

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. Pursuant to A.A.C. R18-16-406(D), it is specified that 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.

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 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 or provide for the use; and (4) how long action is needed to protect or provide for the use.

The ROs chosen for the site will be evaluated in the feasibility study (FS) phase of the WQARF process. The FS will evaluate specific remedial measures and strategies required to meet ROs. A remedial strategy is one or a combination of six general strategies identified in Paragraph B.4 of Arizona Revised Statutes (A.R.S.) 49-282-06 (plume remediation, physical containment, controlled migration, source control, monitoring, and no action.) A remedial measure is a specific action taken in conjunction with remedial strategies to achieve one or more ROs (for example, well replacement, well modification, water treatment, water supply replacement, and engineering controls.)

The FS will propose at least three remedies (a reference remedy and generally two alternative remedies) capable of meeting ROs. A reference remedy is a combination of remedial strategies and measures capable of achieving ROs, and is compared with alternative remedies for purposes of selecting a proposed remedy. An alternative remedy is a combination of remedial strategies and measures different from the reference remedy; alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy. Proposed remedies will also be generally compatible with future land use specified by land owners.

Written comments on this Proposed RO Report will be accepted for a period of 30 days following the release. If significant public interest exists or if significant issues or information is brought to the attention of ADEQ, the comment period may be extended. The final report will include a responsiveness summary to written comments received from the public during the comment period. The Final RO Report will be an appendix to the Final RI Report.

2.0 REMEDIAL OBJECTIVES FOR LAND USE

The Site is located, in the City of Phoenix (COP), in the 3900 block of North 40th Street near the intersection of Osborn Road. The contaminant of concern (COC) for the Site is tetrachloroethene (PCE). After several years of investigations, the source of the PCE in groundwater, at the Site is unknown; however, several upgradient potential sources, including dry cleaning establishments, have been identified.

Between 2003 and 2014, fourteen groundwater monitor wells at seven locations have been installed and monitored. Historically, PCE has not been detected within the upper 25 feet to 30 feet of the water table surface. PCE has been detected in Site monitor wells starting from 42 feet below the water table surface to the bottom of screened intervals, suggesting that the PCE originates from an offsite source and has possibly migrated vertically at the source as it moves laterally toward Salt River Project (SRP) Well 17.9E 7.5N. During the most recent sampling events, PCE was only detected in monitor well BMW-02B above the Aquifer Water Quality Standard (AWQS) of 5 micrograms per liter ($\mu\text{g/L}$) in monitor well BMW-02B at 28 $\mu\text{g/L}$ and 17 $\mu\text{g/L}$ at depth of 90.7 feet below land surface (bls) and 96.7 feet bls, respectively. The vertical extent and the downgradient areal extent of monitor well BMW-02B with regard to PCE concentrations above the AWQS have not been delineated.

Typically, ROs for land use are established for those properties known to be contaminated with hazardous substances above a Soil Remediation Level (SRL) or a risk-based level. PCE is present in the soil vapor and groundwater, in the vicinity, of the Site.

2.1 Summary of Current and Reasonably Foreseeable Land Use

Generally, the Site is located in a mixed urban, commercial and residential area. Based on the current zoning maps provided by the COP, the Site is zoned as residential (single and multiple family) and commercial (restricted, retail, intermediate, and high density). Based on future land use plans provided by the COP, there are no immediate plans to change the land use or zoning for the areas of the COP within and adjacent to the Site. However, there may be possible redevelopment of the plant nursery to low-density multifamily residential.

2.2 Soil Remedial Objective

Residential SRLs apply and the ROs for land use are:

To restore soil conditions to the remediation standards for residential use specified in A.A.C. R18-7-203 (specifically background remediation standards prescribed in R18-7-204, predetermined remediation standards prescribed in R18-7-205, or site specific remediation standards prescribed in R18-7-206) that are applicable to the hazardous substances identified (PCE). This action is needed for the present time and for as long as the level of contamination in the soil threatens its use as a residential property.

3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE

The groundwater use portion of the Use Report is an inclusive summary of information gathered from the Arizona Department of Water Resources (ADWR), water providers and municipalities. The water providers within the Site are the COP and the Salt River Project (SRP).

3.1 Summary of Current and Reasonably Foreseeable Groundwater Use

The Site lies within the Phoenix Active Management Area (AMA). The Phoenix AMA was created by the Arizona Groundwater Management Code passed in 1980 and covers approximately 5,646 square miles in central Arizona. All groundwater withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well.

According to ADWR records, there are ten (10) non-exempt withdrawal wells located within one-mile of the Site; all owned and operated by SRP. ADWR records indicate that there are three (3) exempt withdrawal wells in the Site; all three wells have an intended use for domestic irrigation. There are no grandfathered rights in the Site. The COP and SRP have service area rights within the Site, however, only SRP is currently pumping groundwater in the Site.

Questionnaires were mailed to the COP, Maricopa County and SRP to obtain information regarding current and future uses of groundwater within the Site. The following sections identify current and foreseeable groundwater uses within the Site and proposed ROs.

The Site is in the COP and the Phoenix AMA, an area where groundwater use is controlled and regulated. The COP does not have groundwater wells within one mile of the Site but has indicated that it may install wells here in the future. Currently a portion of the groundwater within the Site is contaminated with COCs that would restrict use of the groundwater by the COP if the city wanted to use the groundwater for municipal purposes.

SRP currently owns one well (17.9E-7.5N) within the Site boundaries. In April 2013, PCE was detected in the well at 3 micrograms per liter ($\mu\text{g/L}$), below the Arizona Water Quality Standard (AWQS) of 5.0 $\mu\text{g/L}$. Currently, the SRP well is not pumped on a regular basis and according to SRP; there are no anticipated changes in the pumping schedule, but the wells can be activated at any time. While currently the well provides water for irrigation, SRP anticipates that the well will transition to drinking water supply in the reasonably foreseeable future, either by directly connecting the well to municipal water distribution systems or piping to municipal water treatment plants located on the SRP canal system.

3.2 Groundwater Remedial Objective

Current groundwater use in the Site is for irrigation, however, the regional aquifer is considered to be a drinking water source for the COP and SRP. Therefore, the current and future use of the regional aquifer must be protected.

The remedial objective for regional groundwater at the site is to protect for the use of the groundwater supply by the COP and SRP from contamination at the Site. This action is currently needed if/when groundwater use changes to municipal/drinking water uses. This action will be needed for as long as the level of contamination in the groundwater threatens the use of the regional groundwater for dewatering and/or municipal/drinking water uses.

4.0 REMEDIAL OBJECTIVES FOR SURFACE WATER USE

The surface water use portion of the Use Report indicates that surface water usage within the Site is only for residential irrigation.

4.1 Summary of Current and Reasonably Foreseeable Surface Water Use

Surface water for use in the Site is provided/distributed by an active flood irrigation district of SRP and the water is supplied by the SRP from sources outside the Site.

The nearest surface water body is the Arizona Canal, located approximately 1.25 miles to the northeast of the Site. The Site area is situated within an active flood irrigation district of SRP, which receives water from the Arizona Canal from SRP lateral canal 6.1 (Salt River Valley Water Users' Association, 1980). This water is used for residential irrigation (Figure F-10). SRP lateral 6.1 in the Site area receives water from the Arizona Canal, SRP well 17.9E-7.5N, and SRP 17E-8N. Water from the lateral canal is used for irrigation and also discharges into the Grand Canal. Grand Canal, also used for irrigation, is located approximately two (2) miles southwest of the Site. Future plans for the Grand Canal include a drinking water treatment plant that may be constructed at the end of the Grand Canal. The construction of the treatment plant would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.

4.2 Surface Water Remedial Objective

Current surface water use in the Site is for irrigation; however, SRP reasonably foreseeable plans are to possibly use the surface water for drinking water purposes. Therefore, future use of the regional aquifer must be protected.

The remedial objective for surface water use at the site is to protect for the use of the surface water supply by the SRP from contamination at the Site. This action is not needed for the present time but will be required if end use changes and will then be needed for as long as the level of contamination in the groundwater threatens the use of surface water for SRP foreseeable uses.