# PROPOSED REMEDIAL OBJECTIVES REPORT
## 40TH STREET AND INDIAN SCHOOL 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 |
| COC | Chemicals of Concern |
| COP | City of Phoenix |
| 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 |
| the Site | 40th Street and Indian School Road |
| 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 Indian School 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 Site 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) and is bounded approximately by Devonshire Avenue to the north, 40th Street to the east, East Piccadilly Road to the south and 38th Place to the west. The contaminant of concern (COC) for the Site is tetrachloroethene (PCE). After several years of investigations, the source area of the PCE was determined to be at the Kachina Cleaners facility and the former Allen's Cleaners facility.

Early Response Actions (ERAs) performed at the Site included installation of three soil vapor extraction (SVE) wells and six air sparge (AS) wells in addition to the operation of a SVE/AS system. These ERAs reduced the PCE detected in the groundwater and vadose zone soil at the Site. In 2005, the SVE/AS system was decommissioned and removed from the former Allen's Cleaners removing approximately 33 pounds of PCE from the vadose zone throughout its operation.

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. Several phases of investigation have been conducted including soil and soil vapor sample collection, and groundwater monitoring well installation and sampling. The results of these investigations have indicated that volatile organic compounds (VOCs), primarily PCE, are present in soil, 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.

### 2.2 Soil Remedial Objective

Although the former drycleaner property is currently zoned for commercial use, reasonably foreseeable use may be residential. Therefore, residential SRLs apply and the ROs for land use at the former drycleaner property 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 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 seven (7) non-exempt withdrawal wells located within one mile of the Site; all owned and operated by SRP. ADWR records indicate ADWR records indicate that there are five (5) exempt withdrawal wells located within one-mile of the Site; all five wells have an intended use for domestic irrigation. There are no grandfathered rights in the Site. The City of Phoenix and SRP have service area rights in the Site, however, of the two, 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 the Site but has indicated that it may install wells, within the Site, in the future. Currently a portion of the groundwater within the Site is contaminated with PCE that would restrict use of the groundwater by the COP if the city wanted to use the groundwater for municipal purposes.

SRP operates and maintains seven (7) irrigation wells within approximately one-mile of the Site boundaries. The last groundwater sample collected from SRP well 17E-8N in June 2011 contained PCE at a concentration of 2.2 µg/L, and in April 2013, SRP reported PCE at a concentration of 3 µg/L in well 17.9E-7.5N. Groundwater quality data collected from these wells indicates that PCE concentrations in these two SRP wells are below the AWQS of 5 µg/L. Groundwater pumpage at these wells has been intermittent in the recent past, but the wells can be activated at any time.

Although recent use of the irrigation wells in and adjacent to the Site has been intermittent, SRP has no plans to eliminate any of these wells from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years. SRP anticipates all its properties in the vicinity of ECP WQARF Area will remain in use over the next 100 years. Additionally, SRP anticipates that its groundwater supply wells that are in the vicinity will transition from irrigation to municipal service (potable supply) within this time period.

## 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 and will be 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 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 for residential irrigation. The surface water source is outside the Site. SRP extracts groundwater from the site for agricultural irrigation outside the Site.

## 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. The water is used for residential irrigation. 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.**