

**PROPOSED REVISED REMEDIAL OBJECTIVES REPORT  
WEST CENTRAL PHOENIX NORTH CANAL PLUME  
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
ARS	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
COC	Contaminants of Concern
1,1-DCE	1,1-Dichloroethene
FS	Feasibility Study
HGC	Hydro Geo Chem, Inc.
LUST	Leaking Underground Storage Tank
LWUS	Land and Water Use Study
mg/kg	Milligrams per kilogram
NCP	North Canal Plume
PCE	Tetrachloroethene
RO	Remedial Objective
RI	Remedial Investigation
SRL	Soil Remediation Level
SRP	Salt River Project
SVE	Soil Vapor Extraction
TCE	Trichloroethene
µg/L	Micrograms per liter
WQARF	Water Quality Assurance Revolving Fund

## 1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this revised Remedial Objectives (ROs) Report for the West Central Phoenix (WCP) North Canal Plume (NCP) 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 RO Report relies upon the Land and Water Use Study (LWUS) contained in the Remedial Investigation (RI) Report dated February 2017 and prepared by Hydro Geo Chem, Inc. (HGC) 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 LWUS will have a corresponding RO. Uses identified in the LWUS 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 and water use specified by land owners and water providers.

Comments on this RO Report will be accepted for a period of 30 days following the publication.

## **2.0 REMEDIAL OBJECTIVES FOR LAND USE**

The Site is located in the City of Phoenix and is bounded approximately by Indian School Road to the north, Grand Avenue to the east, Flower Street to the south and 40<sup>rd</sup> Avenue to the west. Contaminants of concern (COCs) for the Site are tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), and chromium contained in three separate groundwater plumes, a West Plume, Central Plume and an East Plume. After several years of investigations, the source areas of the plumes were determined to be at multiple facilities. These include former Precise Metal Plating Company/Paraflex Machine and Tool Company and former Giltspur Exhibits at the West Plume; former Pyramid Industries, former Triad Trucking Company, former Osborn Products Company, former Southwest Metal Plating Industries, former Magic Metals Plating Company, Redburn Tire Company, and the former DJM Construction Company in the Central Plume; and an unknown source in the East Plume.

Remedial activities at the various facilities have included excavation of contaminated soil at former Osborn Products Company, former Magic Metals Plating Company, and operation of a soil vapor extraction (SVE) system and an air sparge system at the Triad Trucking Company as part of a leaking underground storage tank (LUST) investigation. These actions reduced the COCs detected in the vadose zone soil and subsequently in groundwater at the Site.

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. Soil data collected at various facilities indicate that the vadose zone is contaminated above regulatory standards for COCs. The groundwater is currently contaminated with COCs.

### **2.1 Summary of Current and Reasonably Foreseeable Land Use**

Generally, the Site is located in a mixed industrial, commercial and single/multiple family residential area. The City of Phoenix created the West Phoenix Revitalization Area (WPRA) in 2004 with the intention of improving living conditions in 52 square miles in West Phoenix, including the entire WCP complex of WQARF sites, by enhancing public safety, promoting economic development, and investing in cultural resources and educational opportunities for the West Phoenix community. The WPRA has been prioritized as a target area for EPA Brownfields Program assistance in redeveloping contaminated former industrial properties. The Isaac Redevelopment Area is located about 1.3 miles southeast of the Site and has also been targeted for redevelopment to reverse urban blight.

### **2.2 Soil Remedial Objective**

Vadose zone data indicate that concentrations of the COCs, PCE and TCE, were detected in soil at 26 mg/kg and 3.5 mg/kg respectively. These concentrations are greater than residential SRLs of 0.51 mg/kg for PCE and 3.0 mg/kg for TCE.

Based on the information presented above, COCs are present in soil at concentrations greater than Arizona remediation standards. Therefore, a remedial objective is needed for land use. PCE and TCE concentrations in soil samples collected from soil borings at the Site have exceeded applicable SRLs. Based on this information, the remedial objective for the soil is:

**Protect against the loss or impairment of land threatened by the contaminants of concern, PCE and TCE, at the WCP NCP WQARF Site and restore land that has been impaired by the contaminants of concern at the WCP NCP WQARF Site to below applicable remediation levels. Action is needed for the present time and for as long as necessary to ensure that the level of contamination in the soil associated with the Site no longer exceeds applicable remediation levels.**

### **3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE**

The groundwater use portion of the LWUS is an inclusive summary of information gathered from the Arizona Department of Water Resources (ADWR), water providers, municipalities, and land owners. The water providers within the Site are the City of Phoenix 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 is one non-exempt withdrawal well, an irrigation well, within the Site. ADWR records indicate that there are no exempt withdrawal wells within the Site and there are no grandfathered rights within the Site. The City of Phoenix and SRP have service area rights within the Site. However of the two, only SRP is currently pumping groundwater within the Site.

Questionnaires were mailed to the City of Phoenix, SRP, and land owners to obtain information regarding current and future uses of groundwater within the Site. The following paragraphs identify current and foreseeable groundwater uses within the Site and ROs.

The Site is in the City of Phoenix and the Phoenix AMA, an area where groundwater use is controlled and regulated. The City of Phoenix does not have groundwater wells within 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 City of Phoenix if the city wanted to use the groundwater for municipal purposes.

SRP currently owns one well (9.5E-7.7N) within the Site boundaries. TCE has been detected above the Arizona Water Quality Standard (AWQS) of 5.0 micrograms per liter ( $\mu$  g/L) in the well. Currently the well provides water for irrigation, however, 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. According to SRP, the SRP well is currently pumped intermittently and there may be anticipated changes in the pumping schedule.

#### **3.2 Groundwater Remedial Objective**

There is no threat to current groundwater use within the Site, however, the regional aquifer is considered to be a drinking water source for the City of Phoenix and SRP. Therefore, the current and future use of the regional aquifer must be protected.

**The remedial objective for groundwater at the Site is to protect for the use as a groundwater supply by the City of Phoenix, and SRP. This action is currently needed and will be needed if/when groundwater use changes to municipal/drinking water. 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**

Surface water within the Site occurs in engineered canals for irrigation use at schools. No other properties within the Site are irrigated by canal water. The canal water source is from a portion of the Grand Canal supplied by groundwater from SRP wells located outside the Site.

##### **4.1 Summary of Current and Reasonably Foreseeable Surface Water Use**

The only use of surface water within the Site is for irrigation at the schools located along the south side of the Grand Canal. This water is supplied by from SRP groundwater wells located outside the Site.

SRP well 9.5E-7.7N discharges into the Grand Canal and into the SRP lateral canal adjacent to 39<sup>th</sup> Avenue. Water is used for irrigation at properties outside of the Site. Future SRP plans for the Grand Canal include a possible drinking water treatment plant that may be constructed at the end of the Grand Canal

##### **4.2 Surface Water Remedial Objective**

Current surface water use within the Site is for irrigation and comes from groundwater sources outside the Site; SRP's reasonably foreseeable plans are to use the surface water for drinking water purposes. However, the primary source of this surface water is from groundwater outside the Site and is discharged to concrete lined canals. Therefore no RO for surface water is necessary.

## **Attachment A**

### **REMEDIAL OBJECTIVES RESPONSIVENESS SUMMARY**

**Attachment B**

**COPIES OF WRITTEN COMMENTS RECEIVED**