

## **SITE REGISTRY REPORT**

### **WATER QUALITY ASSURANCE REVOLVING FUND (WQARF) SITE**

**Lake Havasu Avenue and Holly Avenue  
Lake Havasu City, Mohave County, Arizona  
December 2017**

#### **Site Location**

The Lake Havasu Avenue and Holly Avenue Water Quality Revolving Fund (WQARF) Registry site (the Site) consists of a contaminated groundwater plume located in the vicinity of the intersection of Lake Havasu Avenue and Holly Avenue, Lake Havasu City, Arizona. The Site, as currently understood, is generally bounded to the north by Kiowa Boulevard, to the south by Holly Avenue, to the east by San Juan Drive, and to the west by Cactus Wren Drive. The site is in an urban setting that includes a mixture of commercial businesses, light industrial, warehouses, and residential neighborhoods.

#### **Background**

The site is located approximately one mile east of Lake Havasu and approximately 3/4 mile east of Lake Havasu City's north groundwater production well field, which contains eight production wells that are maintained as backup supply wells. The City's primary source of drinking water is supplied by a horizontal collector well that draws water from the Colorado River aquifer. Shallow groundwater occurs in coarse-grained alluvial and basin-fill deposits, composed of interbedded sand, gravel, cobbles, and silt, with minor clay. Groundwater flow direction is to the west, towards Lake Havasu, and the depth to groundwater is approximately 96 to 170 feet below ground surface (bgs). Kiowa Wash is located north of the Site and flows intermittently into Lake Havasu.

Based on hazardous waste inspections, site investigations and sampling reports, including the 1992 Subsurface/Analytical Investigation Report by STC Environmental, Inc., releases of regulated chemical compounds to soil and groundwater have been documented at the former McCulloch facility. During historical characterization activities, soils with elevated concentrations of metals, including chromium, were discovered beneath sumps and buildings. Groundwater at the facility was found to contain volatile organic compounds (VOCs), compounds associated with petroleum hydrocarbons (benzene, toluene, ethylbenzene, and xylene [BTEX]), chlorinated solvents tetrachloroethene (PCE) and trichloroethene (TCE), nitrate and chromium.

Numerous soil and groundwater investigations have been conducted since the early 1980's. Site investigations, in potential source areas, included soil gas surveys and soil sampling. In early 1990, approximately 20,000 pounds of soil contaminated with chromic acid was excavated from under the floor of the plating shop. During a 1992 investigation, chromium contaminated soil was identified to depths of 15 feet below ground surface (bgs) beneath a plating shop with total chromium concentrations in soil ranging from 43 milligrams per kilogram (mg/kg) to 40,700 mg/kg, exceeding the non-residential soil remediation level (NRSRL) of 65 mg/kg. In 1995, chromium was detected in soil samples to a vertical depth of 165 feet bgs, which was the approximate depth of groundwater at that time.

The 2014 groundwater monitoring and sampling report documented that TCE and PCE are present in the groundwater at levels that exceed the aquifer water quality standard (AWQS) of 5 micrograms per liter ( $\mu\text{g/L}$ ), which applies to both of these compounds. In 2014, maximum concentrations of

PCE, TCE, 1,1-DCE, and 1,2-DCA were 60 µg/L, 31 µg/L, 9 µg/L, and 18 µg/L, respectively. Maximum concentrations for all of these VOCs exceeded their respective AWQSSs. Nitrate was 14 mg/L, exceeding the AWQS of 10 mg/L. Concentrations for hexavalent chromium concentrations ranged from <0.0050 mg/L to 16 mg/L and dissolved chromium ranged from <0.010 mg/L to 16 mg/L.

Dissolved chromium concentrations, in at least 8 groundwater monitor wells, has increased between 2008 and 2014. In 2014, the concentration of dissolved chromium in one standby LHC drinking water production well (not in use) was 0.12 mg/L. In 2017, the well was resampled and the concentration was 0.030 mg/L.

The E&E score for the Site is 50 out of a possible 120. The Arizona Department of Environmental Quality (ADEQ) has added the Site to the WQARF Registry established pursuant to Arizona Revised Statutes (A.R.S.) § 49-287.01(D). This Site Registry Report (SRR) was prepared to meet the requirements of A.R.S. § 49-287.01(B).

#### **Rationale to list the Site on the WQARF Registry**

- PCE, TCE, Nitrate, 1, 1-DCE, 1, 2-DCA are present in the groundwater at levels that exceed their respective AWQSSs.
- Chromium was detected in soil samples to a vertical depth of 165 feet bgs, which historically was the approximate depth to groundwater.