

## **SITE REGISTRY REPORT**

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

**Highway 260 and Johnson Lane  
Pinetop-Lakeside, Navajo County, Arizona  
April 2016**

#### **Site Location**

The Highway 260 and Johnson Lane Water Quality Revolving Fund (WQARF) Registry site (the Site) consists of a contaminated groundwater plume located in the vicinity of the intersection of State Route Highway 260 and Johnson Lane, Pinetop-Lakeside, Arizona. The Site is generally bounded to the north by the Rhoton Lane alignment, to the east by the western side of the Blue Ridge Unified School District property and Billy Creek, to the south by the east-west alignment of West White Mountain Boulevard (State Route Highway 260) and the Burke Lane alignment, and to the west by Rainbow View Drive.

#### **Background**

The Site is in the Silver Creek watershed, which is part of the larger Little Colorado River watershed. Contamination at the Site is found in the local Pinetop-Lakeside aquifer. The Pinetop-Lakeside aquifer is comprised of saturated Quaternary basalt flows with underlying Upper Cretaceous sedimentary rocks and Quaternary and Tertiary rim gravels. These formations are generally well-connected near the Site and function as a single water-bearing unit. However, clay layers between fractured basalt flows and shale beds between permeable sandstone beds may create locally perched conditions that result in shallower depths to water in wells that penetrate only the Quaternary basalts compared to wells that penetrate both the Quaternary basalts and Upper Cretaceous sedimentary rocks. Depth to groundwater in the aquifer near the Site ranges from as little as 10 feet below the surface near Billy Creek and Rainbow Lake to more than 150 feet below the surface in upland areas. Groundwater flow direction at the Site is to the west-northwest.

Most public water supply wells in the area access the deeper Coconino or "C" aquifer. The fine-grained Moenkopi and Chinle formations restrict downward migration of groundwater from the Pinetop-Lakeside aquifer to the Coconino aquifer.

Groundwater contamination by trichloroethene (TCE) above the Aquifer Water Quality Standard (AWQS) of 5 micrograms per liter ( $\mu\text{g/L}$ ) was reported in the Pinetop-Lakeside area in 1994 in a sample collected from the Blue Ridge Unified School District (BRUSD) drinking water well. In 1995, BRUSD began purchasing drinking water from Arizona Water Company (AWC) and the water from this well has been used solely for irrigation since that time.

Subsequent investigation in 2003 found that TCE contamination remained above the AWQS in BRUSD irrigation water. The United States Department of Health and Human Services evaluated potential public health hazards at the BRUSD in 2003, including potential hazards from irrigation water quality, drinking water quality and indoor air quality. No apparent public health hazards were found. Samples collected from two BRUSD irrigation wells in 2004 and 2005 contained TCE at concentrations below the AWQS. In 2004, groundwater samples were collected from domestic drinking water wells located near BRUSD and no TCE was detected. Also in 2004, soil, soil vapor, and creek sediments in the BRUSD area were analyzed and no significant contamination or potential TCE contamination sources were found.

Additional sampling conducted in 2015 showed TCE contamination remained below the AWQS in the BRUSD irrigation wells. However, during the 2015 sampling TCE and tetrachloroethene (PCE) were detected in private wells on properties west of the BRUSD property, near the intersection of Highway 260 and Johnson Lane. PCE was detected at concentrations ranging from 20 to 59 µg/L in private wells used for drinking water and irrigation. The AWQS for PCE is 5 µg/L. TCE was detected at concentrations below the AWQS.

PCE is a man-made solvent commonly used in the dry cleaning process, as a degreaser, and in many industrial applications. TCE is a solvent primarily used in metal degreasing and cleaning operations and can also be a degradation product of PCE. A dry cleaner and auto repair facilities have been located near State Route Highway 260 and Johnson Lane.

There are multiple privately owned water wells within the boundaries of the Site. No AWC supply wells are located within the boundaries of the Site and most AWC supply wells are completed in the deeper "C" aquifer that is not affected by this contamination.

The E&E score for the Site is 40 out of a possible 120. The Arizona Department of Environmental Quality (ADEQ) proposes that the Site be added to the WQARF Registry established pursuant to Arizona Revised Statutes (ARS) § 287.01. This Site Registry Report (SRR) was prepared to meet the requirements of ARS § 287.01(B).

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

- PCE has impacted two private drinking water wells at concentrations above the AWQS of 5 µg/L.
- The source of PCE contamination may originate from a dry cleaner or auto repair facilities located near the intersection of State Route Highway 260 and Johnson Lane.
- There are multiple privately owned domestic water wells within the boundaries of the Site.