

## **DRAFT 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 proposed 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 local aquifer within 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 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 five parts per billion was first reported in the Pinetop-Lakeside area in 1994 from 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. In 2013 the BRUSD drilled a well to the deeper 'C' aquifer to provide additional water for irrigation at the school.

Subsequent investigation in 2003 continued to find TCE contamination above the applicable AWQS Standards in the BRUSD irrigation wells. 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 BRUSD irrigation wells in 2004 and 2005 detected TCE below standards. In 2004, no impacts were detected in groundwater samples collected from domestic drinking water wells located near BRUSD. 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 investigations in 2015 continued to find TCE contamination below the AWQS in the BRUSD irrigation wells.

However during the 2015 sampling, tetrachloroethene (PCE) and TCE were detected in private wells on properties near the intersection of Highway 260 and Johnson Lane. PCE was detected at concentrations ranging from 20 to 59 parts per billion in private wells used to supply drinking water and irrigation. The AWQS for PCE is five parts per billion. TCE was detected below the AWQS of five parts per billion.

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. Since 1985, a dry cleaning operation has been located near the intersection of 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 a 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(D). This Draft 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 domestic wells used to supply drinking water above the AWQS of five parts per billion.
- The source of PCE contamination may originate from a dry cleaning operation 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.