Tyson Wash

Water Quality Assurance Revolving Fund (WQARF) Site

Boundaries:

The Tyson Wash WQARF Site (Site) contaminated groundwater plume is bounded by W. Sunset Street to the north, Oregon Avenue to the west, Main Street (Business I-10) to the south, and N. Central Boulevard (SR-95) to the east in the town of Quartzsite (Town), Arizona. The known groundwater contamination exists northwest of the intersection of State Hwy. 95 and Business Route I-10.

The plume boundaries depicted on the site map represent the Arizona Department of Environmental Quality's (ADEQ) interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the plume may change in the future as new information becomes available.

Site Status Update:

The ADEQ pump and treat system at the Site continues to operate and has reduced tetrachloroethene (PCE) and trichloroethene (TCE) contamination in the treatment area. In the most recent sampling event conducted in November 2010, the highest concentrations of PCE and TCE detected in groundwater beneath the Site were 49 micrograms per liter (µg/l) and 2.5 µg/l, respectively. The Aquifer Water Quality Standard for PCE and TCE is 5.0 µg/l.

Due to declining injection capacity, injection well # 2 was re-drilled in October 2010 to increase the injection capacity by increasing the screen length in the unsaturated sediments above the water table. Currently the system is pumping at a rate of approximately 10 gallons per minute, and approximately 4,800 gallons per day. Prior to the re-drilling of injection well # 2, the system was pumping approximately 8 gallons per minute and approximately 3,500 gallons per day.

In the November 2010 groundwater sampling, PCE was detected in extraction well # 5 at a concentration of 12 µg/l. A previous sample collected from extraction well # 5 in December 2008 did not detect PCE above 1 µg/l. Extraction well # 5 is the northernmost extraction well in the system. A pump was installed in extraction well # 5 in December 2010. Currently, extraction wells # 1, # 3, # 4 and # 5 are pumping.

Community Involvement Activities:

A community advisory board (CAB) has been formed for this Site. Its final meeting was held in August 2009 where ADEQ provided a presentation on the final Record of Decision (ROD) for the Site. Details of meeting agendas and minutes can be viewed at the ADEQ Web site. The most recent fact sheet can be found on the ADEQ Web site.

Site History:

1995: In August, ADEQ collected a groundwater sample from the private drinking water well at the Welcome RV Park. Analytical results indicated PCE concentrations in the wells at 200 µg/l and TCE concentration at 6.2 µg/l.

1996: In April, ADEQ installed three groundwater wells in the vicinity of the Welcome RV Park. ADEQ and La Paz County held a public meeting in the Town on Sept. 25, 1996. The purpose of the meeting was to inform the community about the current drinking water and groundwater issues.

Drill Rig at Tyson Wash Site

1996-1998: Additional site investigations were conducted between 1996 and 1998. ADEQ investigated the Welcome RV Park, Hi-Ali property, and the Cast property. Soil and soil vapor samples were collected at each of the properties in an effort to determine the source of contamination. Groundwater samples were collected from the private wells on the properties. ADEQ also installed temporary wells to collect groundwater samples.

1998: In March, ADEQ installed two additional groundwater wells at the Site. The Site was placed on the WQARF Registry in December 1998 with an eligibility and evaluation score of 46 out of a possible 120.

1999: In September, ADEQ began the remedial investigation (RI). The RI activities included installing five additional wells, completion of a health consultation to address the potential risk and completion of a groundwater flow and transport model.

2000: The health consultation indicated that the health risk from potential exposures at the Site was within EPA acceptable ranges. ADEQ began providing bottled water to the residents within the Site in December to prevent further exposure to the contaminants. In addition, signs warning of poor water quality were posted at each location where public access to the groundwater was possible. In-line water filters were provided to two residents whom were located on the outer edge of the plume.

2002: In March, ADEQ discontinued providing bottled water to the residents because residents within the Tyson Wash WQARF area were connected to the Town water supply. In October 2002, the draft RI report was completed and submitted for public comment. No comments were received. The report was finalized in June 2003. ADEQ began an early response action (ERA) at the Site in August 2002. The ERA was initiated to provide source control and remediate the groundwater beneath the Site.

2003: ADEQ installed two extraction wells and one injection well as part of the pump and treat remediation system. The remediation system was installed and startup began in March. ADEQ evaluated the use of bioremediation at this Site to be used in conjunction with the pump and treat system. After ADEQ's evaluation, it was determined that bioremediation at the Site is currently

not feasible. A pilot study was completed in October. The results indicate that the pump and treat system has been effective at reducing the contaminants in the treatment area.

2004: Two groundwater monitor wells were installed on the Hi-Ali property in September to determine sources of groundwater contamination.

2005: In September, an additional three extraction wells and one injection well were installed at the Site as an expansion to the treatment system in order to obtain capture of the contamination plume.

2007: In the May sampling event, the highest concentration of PCE and TCE in groundwater beneath the Site was 130 µg/l and 4.0 µg/l, respectively. At the end of November, the remote monitoring system, known as the AlarmAgent, failed. This resulted in an automatic system shutdown.

2008: The Alarm Agent was off-site for upgrades/repairs twice in 2008. In mid-May, the unit was removed and sent for repairs after a voltage spike caused it to lose programming. The unit was returned and re-installed in mid-June. The remediation system has been running since. Well EW-2 was taken offline, and the other wells were adjusted so the total pumping rate was between 7.5 and 8.0 gallons per minute.

2009: The remediation system continued to operate as the selected remedy. Some minor maintenance problems were encountered with the flow meter and the annual occurrence of algae in the holding tank. These were easily fixed and did not pose a threat to the normal operation and maintenance of the unit. On July 30, 2009, ADEQ issued a ROD that documents the long-term plan of action to remediate the Site. Due to budget constraints, groundwater sampling was temporarily suspended at the Site until such time as funding was available.

2010: The ADEQ pump and treat system at the Site continues to operate and has reduced tetrachloroethene (PCE) and trichloroethene (TCE) contamination in the treatment area. In the most recent sampling event conducted in November 2010, the highest concentrations of PCE and TCE detected in groundwater beneath the Site were 49 micrograms per liter (µg/l) and 2.5 µg/l, respectively. The Aquifer Water Quality Standard for PCE and TCE is 5.0 µg/l.

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Contaminants:

The current contaminants of concern in groundwater include PCE and TCE. Contaminants of concern at the Site may change as new data becomes available.

Public Health Impact:

The PCE contamination currently appears to be limited to groundwater in the upper aquifer located approximately 40 to 70 feet below the land surface. This aquifer is used as a source of drinking water for the area. There are 544 registered private wells within an approximately one-half mile radius of the Site. Nineteen privately owned wells are located within or on properties located immediately adjacent to the Site. Seven of the wells have been impacted by the volatile organic compound plume under investigation by ADEQ. An additional nine wells are considered to be threatened by the plume. The residents within the Site are connected to the Town of Quartzsite water system. Groundwater from the impacted wells may be used for irrigating yards and trees. The lower aquifer, 500 feet below ground surface (bgs), has shown no evidence of contamination to date.

A human health consultation was completed for the Site in October 2000. Based on this report, signs warning of non-potable water were posted at locations where public access to contaminated water is possible (e.g., outdoor spigots). Drinking water is provided by the Town and must meet all state and federal drinking water standards.

Site Hydrogeology:

Subsurface soils at the Site consist of two main units. Interbedded layers of well-cemented gravel, sand, silt, and clay exist from approximately ground surface to 70 feet bgs. Below 70 feet the soils consist of silty clay to clay, with the estimated clay percentage ranging from 50 percent to nearly 100 percent.

The groundwater system in the vicinity of Quartzsite consists of a shallow and a deep aquifer. The shallow aquifer exists from approximately 45 to 70 feet bgs. The depth to groundwater in the deep aquifer is encountered at approximately 400-500 feet bgs. The shallow aquifer beneath the Site has been impacted by PCE and TCE contamination.

The depth to the shallow groundwater aquifer beneath the Site ranges from approximately 41 to 55 feet bgs. In March 2002 the direction of groundwater was to the north/northeast. In September 2003, the direction of groundwater was to the north. The Town is currently providing water and sewer to the residents within the Site. Due to the residents receiving the Town water, their private well use has declined. The decline in use of the water in the shallow aquifer may be the reason the direction of groundwater flow is towards the north/northwest along Tyson Wash.

Contacts:

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*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.

Information Repository:

Interested parties can review select Site documents at the Quartzsite Library located at 465 N. Plymouth Avenue in Quartzsite, AZ, (928) 927-6593.

The complete official Site file can be reviewed at the ADEQ Main Office located at 1110 W. Washington Street, in Phoenix. Please contact (602) 771-4380 or (800) 234-5677 to schedule an appointment with 24-hour notice to review these documents. Once all documents requested have been collected, you will be contacted for a review Monday through Friday from 8:30 a.m. to 4:30 p.m. at the ADEQ Records Management Center, 1110 W. Washington Street in Phoenix, AZ.