North Indian Bend Wash

Boundaries:

The North Indian Bend Wash (NIBW) is the northern portion of the area designated as the Indian Bend Wash (IBW) Superfund site. The site is located in Scottsdale, Arizona, and is bounded by Chaparral Road to the north, Pima Road to the east, Scottsdale Road to the west, and just south of McKellips Road to the south. In some locations, groundwater contamination has extended beyond these boundaries, and those locations are considered part of the Superfund site.

Site History:

- The Indian Bend Wash site was listed on EPA's National Priorities List in September 1983 after the City of Scottsdale detected volatile organic compounds in municipal wells in the Scottsdale area in 1981.

- The EPA began remedial investigation (RI) of the site in two phases, referred to as Operable Units (OUs). The RI and the feasibility study (FS) for OU1 (middle and lower aquifers) began in July 1984 and were completed in April 1988. The RI/FS for OU2 (shallow aquifer and soil contamination) was completed in 1991.

- The majority of the cleanup activities are being addressed by Motorola and Siemens Corporations, known as the “Participating Companies” (PCs).

- In the September 1988 Record of Decision (ROD), EPA selected a remedy for the middle and lower alluvial units of the groundwater. The OU1, also designated the Scottsdale Operable Unit, involved operation of a groundwater treatment facility located at Pima Park (Thomas Road and 88th Street), and known as the City of Scottsdale Central Groundwater Treatment Facility (CGTF). The facility treats groundwater from four City of Scottsdale production wells by air-stripping. The treated water is added to Scottsdale's public water distribution system.

- In September 1991, EPA issued a ROD for Operable Unit 2 (OU2) to address contamination in the upper alluvial unit (UAU) of groundwater and contaminated soils. This ROD required soil vapor extraction and groundwater treatment systems at several source areas, particularly Areas 7 and 12.

- The OU1 remedy failed to contain the lower alluvial unit (LAU) groundwater plume. Hydrogeolgic data indicated that the plume was migrating to the north and would threaten the Paradise Valley well field.

- In 1994, the PCs, in cooperation with the Paradise Valley Water Company, constructed the Miller Road Treatment Facility (MRTF) at the northern end of the groundwater plume. The MRTF pumps and treats groundwater, and supplies treated water to the SRP Arizona Canal and to the Paradise Valley distribution system. Additionally, Motorola

and Siemens voluntarily installed on-site groundwater treatment systems at both Areas 7 and 12 to treat middle alluvial unit (MAU) groundwater at the source areas.

- The OU1 Consent Decree required the PCs to conduct a feasibility study addendum (FSA) to determine the effectiveness of the OU1 remedy and to recommend a final remedy. In 1995, the PCs initiated the FSA process including the completion of a site-wide groundwater flow and transport model. The final FSA was received in November 2000.

- In April 2001, the EPA issued a proposed plan. The proposed plan announced the required public meeting which took place on May 9, 2001. The EPA formally selected a remedy in the amended ROD which was received by ADEQ in July 2001. ADEQ concurred with the remedy as described in the amended ROD, and the EPA signed the ROD in September 2001.

- On October 9, 2002, negotiation and approval of the final consent decree was completed. All of the parties have signed the consent decree for the final groundwater remedy.

- The consent decree was lodged with the district court in Phoenix, Arizona on October 31, 2002.

- On November 19 and 20, 2002, the EPA and ADEQ conducted inspections of the MRTF, CGTF, Area 7 and Area 12 remediation sites. The inspections were conducted in order to certify the treatment facilities are operational and functional.

Site Status:

- Groundwater monitoring is continuing at three of four treatment facilities (CGTF, MRTF, Area 7) across the NIBW site area. Area 12 is currently not operating as the result of unresolved discharge permit issues. The groundwater treatment systems in operating are performing in a satisfactory manner as intended.

- The Consent Decree which was negotiated during 2001 and 2002 was signed by Judge and has become Final on June 5, 2003.

- Documents which are required to be submitted as part of the consent decree are being provided to EPA and ADEQ and are currently under review.

Site Hydrogeology

- The NIBW site is underlain by alluvial sediments which can be divided into three hydrostratigraphic units. These units consist of the upper alluvium unit (UAU), the middle alluvium unit (MAU), and the lower alluvium unit (IAU).

- The UAU varies in thickness; however, in the vicinity of the study area, the thickness of the UAU is approximately 120 to 160 feet. The UAU consists primarily of sand, coarse gravel, cobbles, and boulders in this area. Groundwater occurs at depths ranging from approximately 90 feet to approximately 130 feet, with up to 40 feet of saturated thickness. The saturated thickness of the unit changes with the time of year, but generally decreases to the north. Groundwater in the UAU appears to be flowing in a west-northwest direction.

- The MAU primarily consists of silt, clay, and interbedded fine sands. Relatively thin layers of coarser deposits are scattered throughout the unit. The thickness of the MAU ranges from approximately 360 to 660 feet. Groundwater flow in the MAU appears to be toward the north-northwest in the study area. Water levels in wells perforated in the MAU occur at depths of 140 to 180 feet.

- The LAU is less well defined. Samples collected during monitoring well installation indicate the unit consists of moderately to well-cemented sands and gravel. The depth of the unit is not well defined; however, it is known that the LAU is underlain by the red unit which consists primarily of fanglomerate, conglomerate, and sandstone. The direction of ground water flow in the LAU is thought to be similar to that of the MAU.

- Water level data indicate that there is a downward-directed, vertical hydraulic gradient between the UAU and the MAU, and between the MAU and the LAU.

- Groundwater quality data indicate contamination at NIBW has occurred from various organic solvents, particularly TCE, tetrachloroethene (PCE), 1,1-dichloroethene (1,1-DCE), and 1,1,1-trichloroethane (1,1,1-TCA).

- All of these chemicals have been found in monitoring wells at concentrations exceeding state action levels. TCE is the most widespread contaminant with a maximum reported concentration of 2,500 parts per billion (ppb) from a UAU monitoring well. The maximum concentration reported from a MAU or LAU monitoring well is 700 ppb. TCE has been detected in several municipal wells at concentrations up to 390 ppb and from depths as great as 1,100 feet below land surface.

Contaminants:

- The current contaminants of concern in groundwater include volatile organic compounds (VOCs). VOCs were used as degreasing agents and solvents at various industrial facilities located in the study area. Contaminants of concern at the site may change as new data become available.

- Six City of Scottsdale wells are affected by VOC contamination including TCE and lower levels of PCE, 1,1-DCE and chloroform. TCE is the only VOC quantified in samples from these wells at levels that exceed primary drinking water standards. As mentioned earlier, six of the seven affected wells are not currently operating and the seventh (City of Scottsdale No. 6) is equipped with a VOC treatment system.

Public Health Impact:

Groundwater at the site is used to irrigate various crops and feed livestock. In addition, contaminated groundwater is being treated to drinking water standards and supplied to the city of Scottsdale's municipal water supply.

Community Involvement Activities:

A community involvement group has been formed and meets periodically. The most recent meeting occurred during September 2002, where the attendees were informed about the signing of the consent decree amendment and associated issues.

Information Repository:

Interested parties can review site information at the information repository located at the Scottsdale Civic Center Library located at 3839 Drinkwater Boulevard in Scottsdale, (480) 312-2474. Site files are also located at the ADEQ main office located at 1110 West Washington Street, Phoenix. Site information at ADEQ is available for review on Monday through Friday from 8 a.m. to 5 p.m. To arrange for a time to review the public site file, please call the ADEQ Records Center (602) 771-4378 or (800) 234-5677 (Arizona toll free).

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*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.
**Call EPA’s toll-free message line at (800) 231-3075.