

North Indian Bend Wash

EPA National Priorities List (NPL) Site

Boundaries:

The North Indian Bend Wash (NIBW) Site (Site) 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.

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.

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.