Tucson Airport Remediation Project (TARP)

[Part of the Tucson International Airport Area (TIAA) EPA CERCLA Site]

Boundaries:

The northern operable unit of the Tucson International Airport Area (TIAA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Site contains a groundwater pump and treat system, and this project area is known as TARP. The TIAA Site is on the National Priorities List (NPL), which is periodically updated by the U.S. Environmental Protection Agency (EPA). This portion of the main plume extends from Los Reales Road northward just past Irvington Road in Tucson, Arizona. It is bounded on the west by Interstate 19 and the Santa Cruz River, and on the east by S. 6th Avenue and Nogales Highway (Route 89).

Site Status Update:

TARP Groundwater Treatment Plant

This project area is in the operation and maintenance phase of cleanup. A large-scale groundwater pump and treat system consisting of a southern well field of five extraction wells, a northern well field of four extraction wells, an air stripping water treatment plant and associated piping from the extraction wells to the treatment plant provides hydraulic control and remediation of the northern operable unit of the TIAA regional aquifer. Together, the nine wells pump an average of about 4,154 gallons per minute. Since the system was started in September 1994, over 31.7 billion gallons of groundwater have been treated, and over 3,855 pounds of trichloroethene (TCE) have been removed from the regional aquifer. Clean water from the TARP treatment plant is delivered to the Tucson Water distribution system.

The Air Force recently completed Phase I of a remedial investigation (RI) that focuses on 1,4-dioxane contamination north of Air Force Plant #44, including the TARP project area. Currently, Tucson Water operates the TARP treatment plant per Federal Drinking Water Act regulations. [A Maximum Contaminant Level (MCL) or Aquifer Water Quality Standard (AWQS) for 1,4-dioxane has not yet been developed. However, EPA has a Drinking Water Advisory Level of 3.0 parts per billion (ppb).] Phase II of the RI will commence in summer 2009.

Community Involvement Activities:

To provide community members with an opportunity to learn about the cleanup process and to obtain local perspective for decisions concerning the cleanup, a Unified Community Advisory Board (UCAB) was formed in 1995. The UCAB meets the third Wednesday of January, April,

July, and October. These meetings occur at 6:00 p.m. at the El Pueblo Community Center located at 101 W. Irvington Rd. in Tucson and are open to the public.

The U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44, which is upgradient (south) of TARP.

Site History:

1950s-1970s: Historic industrial and defense related activities resulted in the release of hazardous wastes into the groundwater leading to extensive contamination of the regional aquifer. The source of contamination for the TARP plume was Air Force Plant 44 (AFP-44) and the Airport Property Project Areas of TIAA.

1983: The TIAA Site was placed on the NPL on September 8, 1983.

1985: An RI, which characterized the extent and concentration of contaminants in the TARP groundwater plume, was completed by the Arizona Department of Health Services.

1988: A feasibility study (FS) was completed by the Arizona Department of Water Resources, and the EPA issued a site-wide Record of Decision (ROD) for volatile organic compounds contaminated groundwater.

1994: The TARP groundwater remediation system, including extraction wells, treatment plant, and associated piping, was completed.

2002: During the spring and summer, 1,4-dioxane up to approximately 12 ppb was discovered in the TARP project area. The 1,4-dioxane is thought to have originated from AFP-44.

2004-2005: In 2004, EPA asked Tucson Water and TARP representatives to begin a new RI/FS to evaluate 1,4-dioxane contamination and what remediation technology (if needed) would be applicable. However, in 2005 the U.S. Air Force agreed to conduct the RI/FS with cooperation from Tucson Water, the Tucson Airport Authority, and TARP.

2007: EPA initiated further discussions with the Air Force about conducting a new RI to focus on 1,4-dioxane contamination north of the Air Force Plant #44 boundary. The RI process will help determine if additional groundwater monitor wells are needed to confirm continued TCE plume capture, and to further characterize the 1,4-dioxane plume. Tucson Water uses a groundwater model to evaluate plume capture.

2008: The Air Force completed the Phase I focused RI for 1,4-dioxane contamination north of Los Reales road which includes the TARP area. The Phase I investigation included data acquisition and management, review of historical reports and models for the TIAA site, and evaluation of 1,4-dioxane water quality data collected by the U.S. Geological Survey. The City of Tucson continued to operate the TARP well field to minimize the amount of 1,4-dioxane entering the public water system.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds, mainly trichloroethene (TCE). TCE concentrations range from non-detect to around 100 ppb. Additionally, in 2002, 1,4-dioxane concentrations of up to approximately 12 ppb were discovered in the TARP project area. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

All municipal wells in the area that were contaminated with TCE have been shut down. Most of the domestic wells have either been shut down or converted to irrigation wells. However, a few residents with domestic wells with low levels of TCE and 1,4-dioxane have chosen to continue using their wells. If you are drinking water from a private well within the boundaries of the TIAA site, please contact the Arizona Department of Environmental Quality (ADEQ) Project Manager. Additionally, low levels (less than 2.0 ppb) of 1,4-dioxane are being delivered to municipal water consumers who receive their water from the TARP plant. [An MCL or AWQS for 1,4-dioxane has not yet been developed. However, EPA has a drinking water advisory level of 3.0 ppb.]

Site Hydrogeology:

The TARP project area is located in the northwestern portion of the TIAA Site. In the southern half of the project area, the regional aquifer is composed of two hydrostratigraphic units: the upper zone of the regional aquifer and the lower zone of the regional aquifer. The regional aquifer in the northern portion of the project area is composed of only one hydrostratigraphic unit called the undivided regional aquifer.

The upper zone of the regional aquifer is composed mainly of gravelly sand with some clayey sand and sandy clay, and it extends to a depth of about 200 feet below ground surface (bgs). The lower zone of the regional aquifer is composed mainly of relatively finer materials, including clayey sand with lenses of gravelly sand and sandy clay; it extends from about 300 feet bgs to an unknown depth. Separating the upper and lower zones of the regional aquifer is a thick clayey sequence termed the middle aquitard. This unit generally prevents contamination in the upper zone from reaching the lower zone.

The undivided regional aquifer (in the northern part of the TARP project area) is composed mainly of coarse-grained materials.

Depth to groundwater in the TARP project area varies from 80 to 240 feet bgs and generally gets deeper in a northward direction. The general groundwater flow direction is toward the north-northwest. More detailed descriptions of the hydrogeology of the TARP project area can be found in reports and studies available at the TIAA Information Repository.

Contacts:

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*In Arizona, but outside the Tucson area, call toll-free at (888) 271-9302.
**Call EPA's toll-free message line at (800) 231-3075.

Information Repository:

Interested parties can review select site documents at the TCE Superfund Information Library located at 101 W. Irvington Road, within the El Pueblo Branch Library in Tucson, (520) 594-5250. The complete official site file can be reviewed at the EPA Region IX, Records Center, Mail Stop SFD-7C, 95 Hawthorne Street, Room 403, San Francisco, CA 94105, (415) 536-2000.

The ADEQ site file is located in Phoenix at the ADEQ Central Office at 1110 W. Washington Street; however, select documents are also available in Tucson at the Southern Regional Office at 400 W. Congress, Suite 433. Files are available for review Monday through Friday from 8:30 a.m. to 4:30 p.m. To arrange for a time to review the site file at the main ADEQ office, please call the ADEQ Records Management Center with 24-hour notice at (602) 771-4380 or (800) 234-5677 (Arizona toll-free). Please call (520) 628-6715 to arrange a file review appointment at the Southern Regional Office.