



# PHOENIX-GOODYEAR AIRPORT (NORTH) SUPERFUND SITE

U.S. Environmental Protection Agency · Region 9 · San Francisco, CA · October 2006

Goodyear, Maricopa County, Arizona

## FIVE-YEAR REVIEW COMPLETE

The United States Environmental Protection Agency (EPA) announces completion of a Five-Year Review for the Phoenix-Goodyear Airport (North) Superfund Site located in Goodyear, Maricopa County, Arizona. This review was conducted between April and September 2006. This fact sheet presents site background, the Five Year Review process, the Review findings, conclusions and recommendations, and contact information.

### Five-Year Review Process

A Five-Year Review of the Phoenix-Goodyear Airport (North) Superfund Site (PGAN) in Goodyear, Maricopa County, Arizona was completed in September 2006. The Five-Year Review is required due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels allowable for unrestricted use and unrestricted exposure. The purpose of the Five-Year Review was to evaluate whether the remedial action objectives (or cleanup goals) remain protective of human health and the environment. Remedial action objectives were described in the 1989 Record of Decision (ROD, the cleanup approach selected by EPA), and three Explanations of Significant Difference (ESDs) issued in 1991, 1993 and 2002.

From April 2006 through September 2006, the following components of the Five-year Review Process were performed:

- \$ Document Review
- \$ Data Review
- \$ Regulatory Review
- \$ Report Preparation

Because site inspections and interviews with site personnel are routinely carried out as part of the oversight for the remedial action conducted at the site, no separate inspections or interviews were conducted for this review.

### Document Review

As a part of the five-year review process, a brief review of numerous documents related to site activities was conducted. The documents chosen for review ranged in publication date from 1988 to 2006.

### Data Review

The following data collected during the operational history of the remedial action were reviewed: site characterization, **groundwater** monitoring, groundwater extraction, operation and maintenance of the treatment systems, soil vapor monitoring, and related data.

### Regulatory Review

The applicable or relevant and appropriate requirements and other standards to be considered (as presented in the 1989 ROD and the ESDs) for the selected remedies were reviewed for any changes, additions or deletions. It appears that there have been no significant changes in the regulations since issuance of the ROD that affect the protectiveness of the chosen remedies for groundwater and soil, with one exception: **perchlorate** has been detected in groundwater and a site-specific cleanup level is currently being developed. Groundwater monitoring for perchlorate and other chemicals found on site will be conducted for further evaluation. In addition, institutional controls – such as land use restrictions attached to the property deed – were not required by the ROD but may be necessary for continued protectiveness.

### Site Background

In 1983, the site was placed on EPA's National Priorities List (Superfund List) as the Litchfield Airport Area Superfund Site. After the airport property was transferred to the City of Phoenix, the site was renamed the Phoenix-Goodyear Airport Area Superfund site. Later, the site was divided into the Phoenix-Goodyear Airport North (PGAN) and South (PGAS) sites due to different contamination sources and different potentially responsible parties (PRPs),

companies identified to conduct the cleanup). Operations at the former Unidynamics Phoenix, Inc. (UPI) facility were determined to be the primary source of contamination for the PGAN site. Several types of chemicals, including **volatile organic compounds (VOCs)** were used at the facility in the testing and manufacture of defense system components. Solvents such as **trichloroethene (TCE)** were used for cleaning parts during the manufacturing process. Perchlorate was used as in the manufacturing of propellants. The UPI facility was operated from 1963 to 1994 by Crane Co. The PGAN site was the subject of this five-year review, and a separate five-year review was conducted for PGAS in 2005.

Groundwater beneath the site occurs at a depth ranging from 90 to 110 feet below ground surface (bgs). Most groundwater in the Goodyear area flows in one of four different **aquifer** zones or subunits:

- \$ Subunit A extends from the surface to approximately 160' bgs
- \$ Subunit B extends from 160' to approximately 220' bgs
- \$ Subunit C extends from 220' to 360' bgs
- \$ The Middle Alluvial Unit (MAU) extends from 360' to several hundred feet bgs.

The majority of the TCE and perchlorate contamination resides within Subunits A and C.

For PGAN, the 1989 ROD prescribed a remedy addressing VOCs, specifically TCE, methyl ethyl ketone, and acetone, in soil and groundwater in Subunits A, B and C. The objectives of the remedy included containment of the VOC-contaminated plume and treatment of groundwater to selected levels using groundwater extraction and air-stripping, and **soil vapor extraction (SVE)** to remove VOCs from soil.

Construction of the groundwater treatment system was completed and operation commenced in 1994. A map of the treatment system, including locations of **monitoring wells, extraction wells, and injection wells**, is shown in the figure on page 3. Current remedial system operations include pumping from several extraction wells located on or near the former UPI site to the Main Treatment System (MTS). The MTS uses air stripping columns to remove VOCs and two **ion-exchange** vessels to remove perchlorate. The vapor containing the contaminants removed during air stripping is then treated with **granular activated carbon (GAC)**. Treated groundwater from the system is reinjected into the aquifer through several injection wells.

A separate treatment system has been installed at well 33A, located about two miles north of the former UPI facility. This system uses liquid-phase GAC to remove VOCs from groundwater. For several years, treated water was conveyed to a nearby golf course for landscaping purposes, but since early 2006 has been directed to the nearby Roosevelt Irrigation District canal, where it is blended with other waters and used for irrigation.

Current remedial system operations for soil include 9 SVE wells and three vapor-phase GAC vessels. The system was started in 1994 and was shut down between 1998 and 2004 due to operational difficulties and community concerns about potential production of dioxins from the thermal oxidation unit. The system was restarted in 2004 without thermal oxidation and with GAC.

## Five-Year Review Results

Although treatment of soil and groundwater has been partially effective at the site, the remedy selected in the ROD and ESDs has not been completely implemented. The Partial **Consent Decree**, signed in June 2006 by EPA and Crane Co., includes a Scope of Work (SOW) that is intended to address limitations in site characterization and remediation. In particular, the current network of groundwater remediation extraction wells and monitoring wells does not provide complete plume capture or identification of plume boundaries. For example, TCE concentrations in Subunit A monitoring wells to the northeast and southeast of the UPI site are increasing. Additional monitoring wells on the perimeter of the plume are needed in these areas, and are being installed as part of an ongoing groundwater investigation called for in the SOW.

Only one well is being used for extraction in Subunit C, and it does not appear to capture the extent of the Subunit C plume, particularly to the north of the former UPI facility. TCE was detected above the maximum contaminant level (MCL) in City of Goodyear production well COG-10 during April 2005 and this well was taken out of service. Also, there is not a sufficient number of monitor wells to delineate the Subunit C plume to the north and west, and additional Subunit C monitoring wells are being installed as part of the ongoing groundwater investigation. Also, a model of groundwater flow is being developed to help place additional extraction wells for Subunits A and C.

Although the SVE system appears to have been effective in reducing the contaminant levels in soil, the system was not operated between 1998 and 2004, and contaminant levels

have rebounded somewhat during that time. However, concentrations have decreased again since restart of the system in 2004.

No ecological or human health risk assessments have been performed for PGAN. Currently unaffected production wells may require wellhead treatment or an alternative water supply if they are affected by the spread of contaminants from the site. The SOW calls for completion of these activities.

Recommendations for work required to address these issues have been made and incorporated into the SOW. Additional information on recent site progress may be found in the June 2006 Fact Sheet.

## Protectiveness Statement

The protectiveness of the remedy at PGAN cannot be determined at this time until further information is obtained. While remedial action is ongoing at the Site, EPA is implementing a supplemental Remedial Investigation to better characterize Site contamination and its extent and expects that there will be a supplemental Feasibility Study examining appropriate alternatives to treat contamination not being adequately addressed currently. It is expected that these actions will be completed by about 2011, at which time a protectiveness determination will be made.

To monitor progress of the supplemental investigation and treatment alternative evaluation, another review will be conducted in 2010, concurrent with the next five-year review at PGAS.

## Looking for New Community Involvement Group Members!

We are currently looking for new community members who are interested in being an active participant in the Community Advisory Group (CAG). There are no special skills needed to join and membership is free. The CAG meetings are open to the public and meet on a quarterly basis to collect information about Site cleanup activities and serve as a focal point for exchange of information among local community members. Applications and information on the CAG may be accessed through the Arizona Department of Environmental Quality's (ADEQ) website at: <http://www.azdeq.gov/environ/waste/sps/community.html> or Contact Linda Mariner at the information on the back page.

EPA and ADEQ will continue to update residents on the PGA North Site through fact sheets, public meetings, and regularly scheduled CAG meetings. Please feel free to call or write the EPA or ADEQ using the contact information below.

## New EPA Community Involvement Coordinator for PGAN

As of this November José García will be the new EPA Community Involvement Coordinator for the PGAN. Jose is happy to answer any questions you may have regarding the PGAN site. His contact information can be found at the bottom of this factsheet.

## Site Contacts

### U.S. EPA Contacts

**Mary Aycock**  
Remedial Project Manager  
USEPA Region 9  
75 Hawthorne Street, SFD-8-2  
San Francisco, CA 94105  
(415) 972-3289  
aycock.mary@epa.gov

**José García**  
Community Involvement Coordinator  
USEPA Region 9  
75 Hawthorne Street, SFD-3  
San Francisco, CA 94105  
(415) 972-3331 or (800) 231-3075  
garcia.jose@epa.gov



### ADEQ Contacts

**Linda Mariner**  
Community Involvement Coordinator  
ADEQ  
1110 West Washington St  
Phoenix, AZ 85007  
(602) 771-4294 or (800) 234-5677 x4710  
mariner.linda@azdeq.gov

**Cathy O'Connell**  
Remedial Project Manager  
1110 West Washington St  
Phoenix, AZ 85007  
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co1@azdeq.gov

## For more Information

Please visit the EPA Region 9 web page <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf>, select "Site Overviews" and click on Phoenix Goodyear Airport Area.



Interested parties can review information at the information repository located at: Avondale Public Library, 328 West Western Ave. Avondale (623) 932-9415, or at U.S. EPA Records Center, 95 Hawthorne St., Suite 403S, San Francisco, CA. 94104 (415) 536-2000

## Glossary

**Aquifer** is an underground geologic formation containing groundwater.

**Consent Decree** is a legal document often used for agreements negotiated between EPA and one or more Potentially Responsible Parties and is subject to approval by a federal court.

**Extraction Wells** are used to pump groundwater to the surface for cleanup or water supply purposes.

**Granulated Activated Carbon (GAC)** is a water treatment technology that uses pure carbon to remove various contaminants from water.

**Groundwater** is the supply of water found below the ground surface, usually in an aquifer.

**Injection Wells** are used to return treated groundwater to the aquifer.

**Ion Exchange** is a water treatment technology used to remove perchlorate and other inorganic contaminants from water.

**Monitoring Wells** are used to measure groundwater levels and collect water samples.

**Perchlorate** is a component of ammonium perchlorate and other inorganic salts used in rockets and other applications.

**Soil Vapor Extraction (SVE)** is a cleanup technology used to remove VOCs. A vacuum is applied through wells near the source of contamination, allowing the volatilization (or evaporation) of contaminant to be treated usually through carbon adsorption.

**Superfund** is the common name of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), to investigate and clean up abandoned or uncontrolled hazardous waste.

**Trichloroethylene (TCE)** is a VOC used primarily as a solvent to remove grease from metal parts.

**Volatile Organic Compounds (VOCs)** are carbon-containing chemical compounds, some of which evaporate readily at room temperature.

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United States Environmental Protection Agency  
Region 9  
75 Hawthorne Street (SFD-3)  
San Francisco, CA 94105  
Attn: José García (PGA-N 10/06)

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(WQARF)**

**Mailing List Form and  
Community Advisory Board (CAB)  
Membership Application**



Fill in Site Name: \_\_\_\_\_

If you would like to be added to the site mailing list, please fill out the top portion of this form and return it to ADEQ. If you would like to apply to serve on the CAB, please also complete the bottom portion of this form.

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Organization / Association: \_\_\_\_\_

Address: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Mailing Address: (if different from above) \_\_\_\_\_

Zip Code: \_\_\_\_\_ Email Address: \_\_\_\_\_

Occupation: \_\_\_\_\_ Employer: \_\_\_\_\_

Phone Numbers: (home:) \_\_\_\_\_ (work:) \_\_\_\_\_

(mobile:) \_\_\_\_\_ (other:) \_\_\_\_\_

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**Application for CAB Membership**

How long have you lived in or near the Site? \_\_\_\_\_

Are you willing to make a commitment to serve on the CAB for at least 1 year? \_\_\_\_\_

Are you able to attend at least four meetings a year? \_\_\_\_\_

What day(s) / time(s) would be best for you to attend meetings? \_\_\_\_\_

Please explain why you would like to serve on the CAB (attach a separate sheet if needed):

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**Return this application to:**

**ADEQ, Outreach Unit, 1110 West Washington, Phoenix, AZ 85007 or fax to 602-771-4138**

For more information, visit ADEQ's Web site at [www.azdeq.gov](http://www.azdeq.gov) or contact Wendy Flood at 602-771-4410.  
Thank you for your interest.