



# SOUTH AREA OF PHOENIX GOODYEAR AIRPORT SUPERFUND SITE

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • January 1999

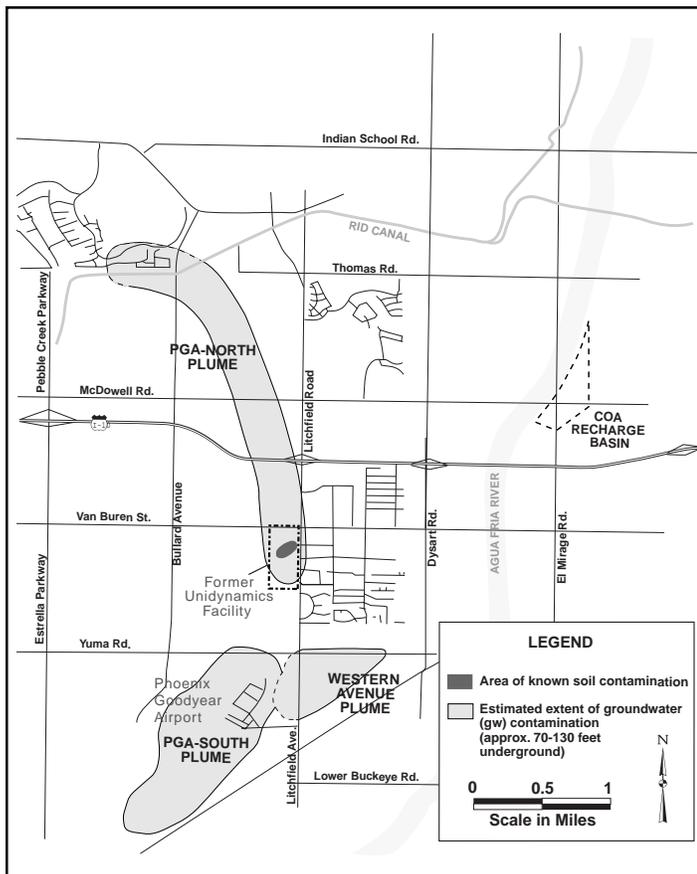
## Significant Environmental Cleanup Proceeds at Phoenix-Goodyear Airport

### Soil Cleanup Completed and Groundwater Cleanup Underway at South Area of Phoenix-Goodyear Airport Superfund Site

#### Introduction

**T**his U.S. Environmental Protection Agency (EPA) fact sheet provides an update on cleanup of environmental contamination at the

portion of the Phoenix-Goodyear Airport (PGA) Superfund site known as PGA-South (see Figure 1 for map of PGA Superfund site). The Superfund site is divided



**Figure 1:** Soil and groundwater contamination at Phoenix-Goodyear Airport (PGA) North and South Superfund site and Western Avenue Plume State Superfund site

into a northern area (PGA-North) and a southern area (PGA-South) by a groundwater divide running approximately under Yuma Road on the west side of the city of Goodyear. The EPA issued a fact sheet concerning the North portion of this Superfund site which includes the former Unidynamics-Phoenix facility on Litchfield Road near Van

*Cont'd. on pg. 2*

## PUBLIC MEETING

The EPA will hold an update meeting for community members to learn about the Phoenix-Goodyear Airport Superfund Site and meet project staff:

Thursday,  
February 18, 1999  
6:00 p.m.

Agua Fria Union  
High School  
District Offices  
530 E. Riley Drive

The Agua Fria Union High School District Offices are located in a red brick building at the corner of Dysart and Riley Roads in Avondale, AZ. Parking is available.

## Introduction, cont'd.

*Buren Street in January 1999. To obtain a copy of the EPA factsheet regarding the northern portion of this Superfund site, please contact any of the EPA staff listed on the back page of this fact sheet. The southern PGA site consists of the contamination found at the Phoenix-Goodyear Airport, formerly called the Litchfield Airfield when owned by the U.S. Navy. PGA-South is located in the southwest corner of Litchfield Road and Yuma Road in the city of Goodyear. EPA, in cooperation with the Goodyear Tire & Rubber Company (GTRC), has been working to clean up this contamination for over ten years. The primary contaminants at the PGA-South site are volatile organic compounds (VOCs), which include chemicals such as trichloroethylene, commonly known as TCE. The contamination was discovered in 1981. Since 1983, the Goodyear Tire & Rubber Company has cooperated with the EPA and state agencies to investigate the contamination and to clean up the groundwater and soil contamination at the site. The Western Avenue plume is a separate state Superfund site and not part of the federal PGA site. Additional information on the Western Avenue plume is provided on page 6 of this fact sheet.*

## Background to the Environmental Problem

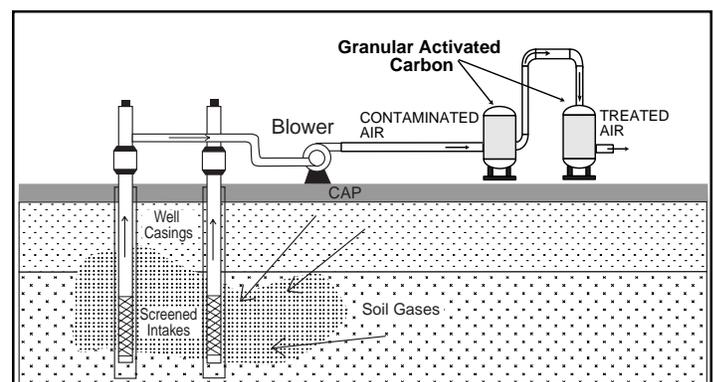
Investigations at the PGA site, which were begun in 1981 by the Arizona Department of Health Services (ADHS), indicated that the uppermost groundwater aquifer at the site was contaminated with TCE, a common industrial solvent and degreaser. In addition to TCE, the other primary contaminant is chromium, a metal used in plating operations. The EPA determined that the contamination at PGA-South was a result of industrial operations conducted by Goodyear Aerospace Corporation and the U.S. Navy at the airport more than forty years ago. In 1983, the PGA Site was added to the National Priorities List (NPL) for action under the Federal Superfund law known as the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA). Throughout the rest of the 1980s, the EPA and Goodyear Tire characterized the nature and extent of contamination at the PGA-South site and identified possible cleanup remedies for the site.

In 1989, the EPA decided that the cleanup activities at the site would consist of:

1. A soil cleanup system using soil vapor extraction (SVE), which removes residual TCE vapors from the soil above the groundwater table (see Figure 2).
2. A groundwater cleanup system which consists of pumping the contaminated groundwater to onsite treatment facilities to remove the VOCs and chromium to cleanup standards and reinjecting the clean water back into the aquifer (see Figure 3).

## Soil Cleanup at the Airport: *Mission Accomplished!*

Soils at the PGA-South site were contaminated with VOCs (hereafter referred to as TCE, the primary contaminant) in three specific locations and with chromium in one location. From 1996 to 1998, the Goodyear Tire & Rubber Company operated SVE equipment (see Figure 2) to remove TCE contamination to meet the EPA's soil cleanup standards for this Superfund site. The cleanup has been successfully completed. Approximately 2,000 pounds of



**Figure 2: Soil Vapor Extraction (SVE) technology**

# What Is Groundwater?

Groundwater is water found in significant amounts under the ground surface. Three primary bodies of groundwater underlie the PGA-South site. Only the Upper Alluvial Aquifer contains contaminated groundwater in certain areas within this Superfund site, separated into Subunits A, B, and C based on the type of groundwater found at each depth. Subunit A extends from 70 feet below the ground surface to a depth of approximately 130 feet. Water quality in Subunit A is poor due to high total dissolved solids (TDS) in the water, and is not used for drinking water supply by the city of Goodyear. Subunit B underlies Subunit A and averages 50-60 feet in thickness. Subunit B produces very little water and is likely a geological feature called an aquitard that restricts groundwater from moving from Subunit A to Subunit C. Subunit C extends downward from the base of Subunit B to about 300 feet below the ground surface. Subunit C contains groundwater that is considered high quality for the Phoenix Valley, and is used for drinking water, agricultural and industrial supplies. For purposes of this fact sheet, Subunit A will be referred to as the Upper Aquifer and

TCE were removed from the airport soils in the cleanup. All TCE removed from the soils was destroyed at an appropriate facility outside Maricopa County. In a previous fact sheet, the EPA reported that the Goodyear Tire & Rubber Company successfully treated over 2,000 cubic yards of soils contaminated with chromium sludge. In summary, airport soils formerly contaminated with chromium and TCE have been cleaned up to EPA's standards and no longer pose a threat to groundwater quality.

## Groundwater Cleanup at the Airport: *Beyond the Halfway Point!*

TCE and other chemicals were released to the environment during industrial operations at the airport in the 1940s through the 1970s. These chemicals leached through the soil and contaminated the Upper Aquifer. Concentrations of TCE above the EPA's cleanup standards have been detected in the Upper and Lower Aquifers. The contaminated ground-

water plume in the Upper Aquifer originally covered approximately 400 acres. Two smaller TCE plumes have been delineated in the Lower Aquifer and together they encompass approximately 75 acres. The Lower Aquifer contaminant plumes are the result of vertical migration of contaminants from the Upper Aquifer into the Lower Aquifer. It is believed that the vertical migration of TCE occurred through leaks or deteriorated casings that were installed in old production wells located at the airport. Four old production wells were found to have leaks in the casings. These wells were plugged and abandoned or sealed in 1992 so as to shut off the pathway for vertical contaminant migration from the Upper Aquifer to the Lower Aquifer.

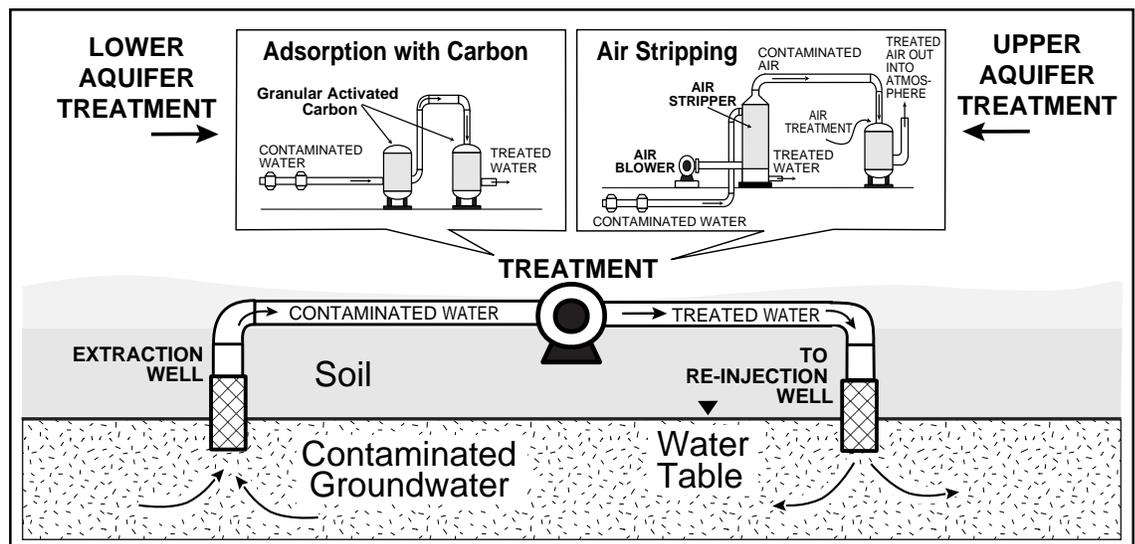
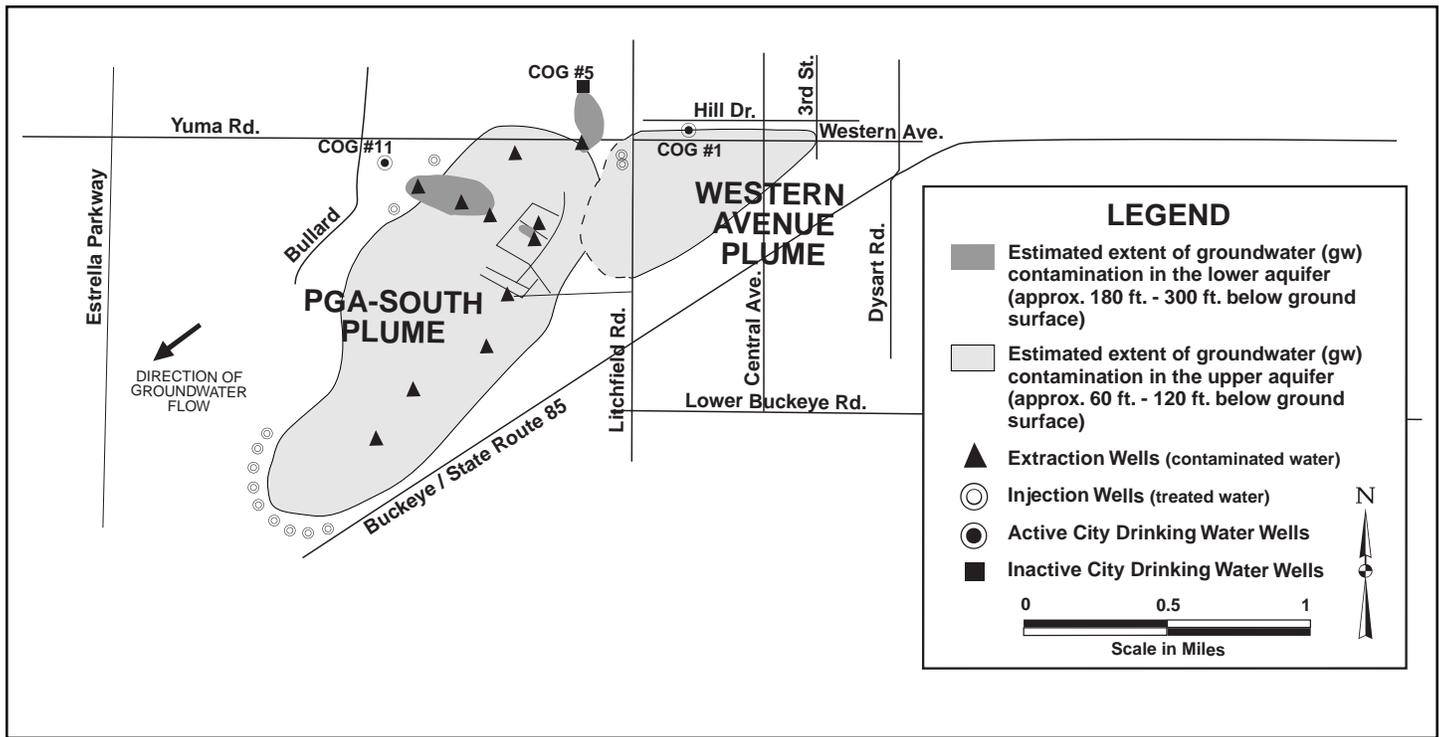


Figure 3: Pump and Treat Groundwater Treatment technology



**Figure 4:** Groundwater contamination at the south area of EPA's Phoenix Goodyear Airport (PGA) Superfund Site and ADEQ's Western Avenue Plume State Superfund Site

### Cleanup of the Upper Aquifer

In 1989, Goodyear began operating a groundwater treatment system (see Figure 3) which cleans the Upper Aquifer water, using air stripping technology, and reinjects it back into the aquifer. The lighter shaded areas of Figure 4 show the Upper Aquifer TCE groundwater contaminant plume. The plume boundary is the area in which groundwater contains a concentration of TCE of at least five parts per billion (5 ug/l). In 1990, calculations indicated that the Upper Aquifer plume contained approximately 4,600 lbs of TCE. Figure 4 presents the depiction of the TCE plume in August/September 1998, utilizing the analytical results derived from groundwater sampling of 37 monitor and extraction wells. The plume boundary (5 ug/l contour) now encompasses slightly less acreage (approximately 300 acres), however the concentrations of TCE within the plume have decreased dramatically. As of November 1998, an estimated 3,300 pounds of TCE have been removed from the Upper Aquifer plume, representing approximately 76% of the original estimate of dissolved TCE in the plume. Goodyear Tire's operation of this Upper Aquifer treatment plant continues today and is expected to operate for many years to come.

### Cleanup of the Lower Aquifer

There are two groundwater extraction and treatment systems for the Lower Aquifer: one to remediate the Northern plume, and one to remediate the Southern plume. Figure 3 provides a basic description of the groundwater treatment systems used at this Superfund site. The basic technology for the Lower Aquifer cleanup is the same as the Upper Aquifer cleanup except granular activated carbon treatment is used to remove the TCE instead of air stripping technology.

The darker shaded areas of Figure 4 present the most recent depiction of the Lower Aquifer TCE groundwater contaminant plumes (North and South). The figure is derived from analytical results of groundwater samples collected from monitoring and extraction wells for the first half of 1998. Observation wells that are down-gradient to the extraction wells continue to show no detection of TCE, indicating that extraction wells have stopped migration of the plume.

The original mass of TCE present in the Southern Lower Aquifer plume was estimated at 225 pounds. As of November 1998, an estimated 122 pounds of TCE have been removed from the Lower Aquifer-

Southern plume, representing approximately 54% of the original estimated dissolved TCE. Groundwater treatment for the Northern Lower Aquifer plume also began in 1994. As of early November 1998, an estimated 12 pounds of TCE have been removed from the Lower Aquifer - Northern plume, representing approximately 50% of the original estimated dissolved TCE.

## Removal of Chromium from the Groundwater

There are three areas of the Upper Aquifer within the TCE plume that also contain chromium above the cleanup standards. The Goodyear Tire and Rubber Company installed a chromium removal system, which began operation in January 1996. Calculations using analytical data derived from groundwater sampling activities performed in the first half of 1998 indicate that the system has treated and removed approximately 2.8 pounds of hexavalent chromium from the groundwater.

## Cleanup of Aviation Fuel Leak Proceeds at the Airport

Under the EPA's oversight, the city of Phoenix is remediating petroleum-contaminated soil and groundwater at the Phoenix-Goodyear Airport. The petroleum contamination was caused by a leaking 25,000 gallon underground storage tank (UST), used for aviation fuel, which was removed in 1988. The city operated a soil vapor extraction system from October 1992 until June 1996, during which time an estimated 70,000 pounds of hydrocarbons were removed from the subsurface. Due to the continued appearance of aviation fuel in the location of the former leaking tank, the vapor extraction system was restarted in August 1998, and is ongoing. The city has submitted a Corrective Action Plan (CAP) for the UST site, recommending biodegradation for further remediation of the aviation fuel in groundwater. Bioremediation is a process that uses natural microorganisms to digest contaminants and break them down into non-hazardous components. The EPA is currently reviewing the city's proposal.

## The PGA Site and the City of Goodyear

The presence of a Superfund site often creates apprehension and negative perceptions among community citizens as well as business people and developers. At the PGA Superfund site, the EPA is implementing the Superfund cleanup process in a way that alleviates community concerns and allows the city of Goodyear to grow, develop, and be an attractive location for business and residential developments alike. In cooperation with the EPA, the city of Goodyear has proven that a Superfund site and development are not mutually exclusive and that a community can flourish concurrently with large-scale environmental cleanups. Environmental issues are common in communities nationwide. Throughout the Superfund process, the EPA, the State of Arizona and the city of Goodyear have worked in a cooperative manner to ensure that city drinking water supplies are safe and that no one is exposed to the environmental contamination from the PGA site. Protection of public health and the environment has always been our priority throughout a Superfund cleanup. Now that the cleanup of the PGA Superfund site has entered its long-term operation mode, the EPA anticipates that Superfund issues in the city of Goodyear will diminish over time. Nevertheless, the EPA will continue its coordination with the state of Arizona and city to ensure the protection of public health and the environment. If you have any concern about how the PGA site may affect you, please do not hesitate to contact the EPA immediately (see back page for contact information). The EPA will provide personalized information and attention to ensure that concerns about the PGA Superfund site are addressed.

## ADEQ'S Western Avenue State Superfund Site

The Western Avenue site is a State of Arizona Superfund Site located in the cities of Avondale and Goodyear, Arizona. As shown in Figures 1 and 4, the site boundary extends approximately from Hill Drive (north of Western Avenue) to the north, Third Street to the east, approximately 1000 feet north of State Route 85 to the south, and Litchfield Road to the west. The principal contaminant is tetrachloroet-

hylene (PCE), a solvent commonly used in dry cleaning. Available data suggest that the PCE is currently present only in the upper groundwater aquifer which lies approximately 60 to 110 feet below ground surface.

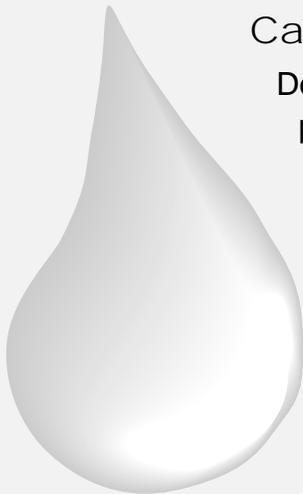
This PCE groundwater contamination was first detected in June 1993 in monitoring wells at the airport. Groundwater data indicate that the PCE source is at least one half mile east of the airport. In 1994, ADEQ conducted limited soil sampling at two suspected PCE spill locations in the cities of Goodyear and Avondale. However, sample results from both locations did not detect PCE contamination in soil.

In 1995, ADEQ continued its efforts to find the source of the PCE contamination and installed two groundwater monitoring wells, near the boundary between the cities of Avondale and Goodyear. Both wells showed PCE contamination.

In March 1996, ADEQ authorized funding to initiate a "Preliminary Investigation" (PI) under the Water Quality Assurance Revolving Fund (WQARF or State Superfund). The site was placed on the WQARF Registry, the state of Arizona's Superfund

list, in December 1998. ADEQ has initiated the Preliminary Investigation at the site, and continues to conduct semi-annual testing of four wells located within the PCE plume. Although the source of the PCE contamination still has not been located, groundwater data so far suggests that PCE concentrations are consistently declining. The highest concentration of PCE found was 85 parts per billion (ppb) in 1996, and has declined to concentrations between 5 and 36 ppb. The regulatory limit for PCE in groundwater is 5 ppb.

If you are connected to a public water system in the cities of Avondale or Goodyear, your public water provider is required by law to provide water that meets all state and federal drinking water standards. The water provider conducts regular testing of your drinking water to meet these standards and to ensure safe drinking water for the community. For more information on your water quality, please contact the EPA or ADEQ representatives listed on the back page of this fact sheet. ■



### Calling All Private Well Owners and Users!

Do you know where the water in your house comes from? The vast majority of people in the cities of Avondale and Goodyear get their water from municipal water suppliers such as a city water department. It is possible that at a few homes, water comes directly from a well in the backyard. These wells are private wells. If you are using a private well in the area of any of the groundwater contamination associated with the PGA site or the Western Ave Site shown in Figures 1 and 4, please contact the EPA or ADEQ representative shown on the back page of this factsheet. The EPA or ADEQ may be willing to test your well FREE OF CHARGE to ensure that your drinking water does not contain the groundwater contamination associated with the PGA or Western Avenue Superfund sites.

# INFORMATION REPOSITORIES .....

Additional copies of this fact sheet and other documents related to the Phoenix-Goodyear Airport Superfund Site are available for review at the locations listed below.

**Avondale Public Library**  
328 West Western Avenue  
Avondale, AZ 85323  
Tel: (602) 932-9415



Hours: Mon, Tu & Th: 9:00 a.m.-6:00 p.m.  
Wednesday: 9:00 a.m.-8:00 p.m.  
Friday: 9:00 a.m.-5:00 p.m.  
Saturday: 9:00 a.m.-1:00 p.m.  
Sunday: Closed

**Superfund Records Center**  
95 Hawthorne Street, Suite 403S  
San Francisco, CA 94105-3901  
Tel: (415) 536-2000

Hours: Mon to Fri: 8:00 a.m.-5:00 p.m.  
Sat & Sun: Closed

You may access certain EPA documents electronically on the Internet:

- EPA Web site: <http://www.epa.gov>
- EPA Superfund Web site: <http://www.epa.gov/superfund>
- EPA Brownfields Web site: <http://www.epa.gov/sweroops/bf/gdc.htm>
- Region 9 Web site: <http://www.epa.gov/region09>



# HOW TO ORDER EPA GUIDANCE DOCUMENTS.....

For a nominal fee, you may order copies of EPA guidance documents on Superfund law and liability from the National Technical Information Service:

**Mail:** National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161

**Telephone:** (703) 487-4650 for regular service, or (800) 553-NTIS for rush service

**Email:** [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov)

**World WideWeb site:** <http://www.ntis.gov>



## MAILING LIST COUPON.....

If you did not receive this fact sheet in the mail and would like to be included on the mailing list for the Phoenix-Goodyear Airport Superfund Site, please fill out this coupon and return it to the address below.

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

Optional items: \_\_\_\_\_

PHONE: \_\_\_\_\_

FAX: \_\_\_\_\_

EMAIL: \_\_\_\_\_

ORGANIZATIONAL AFFILIATION (if applicable): \_\_\_\_\_

Please return to: Catherine McCracken, Community Involvement Specialist, 75 Hawthorne Street (SFD-3), San Francisco, CA 94105-3901. You may also provide the above information via email to: [mccracken.catherine@epamail.epa.gov](mailto:mccracken.catherine@epamail.epa.gov)

# ..... *FOR MORE INFORMATION* .....

For additional information about the Phoenix-Goodyear Airport Superfund Site, please contact:

**Arizona Department of Environmental Quality**  
Kris Kommalan, Environmental Program Specialist  
3033 North Central Avenue  
Phoenix, AZ 85012  
Telephone: (602) 207-4193 or (800) 207-5677, ext. 4180

## **U.S. Environmental Protection Agency, Region 9**

### **PGA-North**

Emily Roth, Remedial Project Manager  
Telephone: (415) 744-2247

### **PGA-South**

Craig Cooper, Remedial Project Manager  
Telephone: (415) 744-2370

### **Community Involvement**

Catherine McCracken  
Community Involvement Specialist  
Telephone: (415) 744-2182  
Email: mccracken.catherine@epamail.epa.gov

### **Legal Issues**

Arthur Haubenstock, Attorney  
Telephone: (415) 744-1355

### **Underground storage tank activities**

Chris Prokop, Geologist  
Telephone: (415) 744-2104

### **Media Inquiries**

Lois Grunwald  
Public Affairs Specialist  
Telephone: (415) 744-1588

...or you may leave a message toll-free at **(800) 231-3075** and your call will be returned.



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