



Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

Superfund Site Information Handbook

2007

Remedial Projects Section Superfund Programs

Safeguarding public health, protecting the environment and restoring natural resources through investigation and remediation of soil and groundwater contaminated with hazardous substances.



This information is current as of April 2007.

Pursuant to Arizona Revised Statutes (A.R.S.) §49-287.01,
the Arizona Department of Environmental Quality
is continually adding sites to the WQARF Registry.

Periodic updates are available by calling the ADEQ Information Desk
at (602) 771-2202 or toll-free in Arizona at (800) 234-5677.

For the most current information about Superfund sites in Arizona, visit
ADEQ's Waste Programs / Remedial Projects Section web page
at www.azdeq.gov/environ/waste/sps/index.html.

Publication number: C 07-04

A Message from the Director ...

The Arizona Department of Environmental Quality is committed to protecting the public health and environmental resources of our state. Critical to this mission is the agency's oversight of efforts to identify, assess and clean up sites where soil, groundwater and surface water have been contaminated with hazardous substances.

ADEQ's Remedial Projects Section currently manages remediation activities at 35 locations covered by the state's Water Quality Assurance Revolving Fund, 9 sites found on the federal National Priorities List, and 12 others belonging to the U.S. Department of Defense.

To keep citizens informed of our progress in conducting the investigations and remedial actions at these 56 sites, ADEQ publishes annual updates to this helpful Superfund Site Information handbook. This handbook has proven to be a valuable resource to real estate agents, property owners, buyers and sellers, environmental consultants and many others.

The information in this year's handbook is structured to help you better understand where state and federal Superfund sites are located and who to contact for more information.

For more detailed information about these sites and ADEQ's ongoing efforts to inform and involve communities affected by them, visit ADEQ's web site at www.azdeq.gov/environ/waste/sps/index.html.

Thank you for assisting ADEQ in achieving its cleanup goals and protecting Arizona's precious environmental resources.

Stephen A. Owens, Director
Arizona Department of Environmental Quality

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Superfund Site Information

Program Description

Through the Remedial Projects Section, the Arizona Department of Environmental Quality (ADEQ) identifies, assesses, and cleans up soil, groundwater and surface water contaminated with hazardous substances at Superfund sites. With support from state and federal funds, Superfund Programs are conducted at sites throughout Arizona. The Remedial Projects Section also oversees privately-funded cleanup efforts. ¹

WQARF SITES

The Remedial Projects Section uses the Arizona Water Quality Assurance Revolving Fund (WQARF), created under the Environmental Quality Act of 1986, to support hazardous substance cleanup efforts in the state. The fund is dependent upon legislative appropriations, cost recovery from responsible parties and some special fees. The program identifies sites that are most in need of cleanup and adds them to the WQARF Registry. Sites on the Registry receive first consideration for distribution of funds.

NPL & DoD SITES

Some sites in Arizona are governed and funded by the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), commonly known as Superfund. Sites that pose the greatest potential threat to human health and the environment are put on the National Priorities List (NPL). There are nine NPL Superfund sites in Arizona, two of which are divided into north and south portions. In addition to the NPL and the WQARF Registry sites, the Remedial Projects Section also provides state review and oversight at twelve Department of Defense (DoD) sites. ²

Tucson Sites

WQARF Registry Sites	EPA NPL Sites	DoD Site
7th St. & Arizona Ave. Broadway-Pantano Los Reales Landfill Miracle Mile Park-Euclid Shannon Road / El Camino del Cerro Silverbell Landfill	Tucson Int'l Airport Area (TIAA, 7 sites) <ul style="list-style-type: none">○ Air Force Plant 44 (AFP-44) / Raytheon Project Area○ Airport Property Project Area.○ AZ Air National Guard 162nd Project Area○ Texas Instruments Project Area (formerly Burr-Brown)○ Tucson Airport Remediation Project (TARP)○ West-Cap Project Area○ West Plume B Project Area	Davis-Monthan AFB

¹ Appendix I: WQARF, EPA NPL, and DoD Site Contacts.

² Appendix II: Superfund Today – Focus On Property Issues:
How Can a Superfund Site Affect My Property?

Phoenix Sites

WQARF Registry Sites	EPA NPL Sites	DoD Site
7th Avenue & Bethany Home 16th St. & Camelback 56th St. & Earll Central & Camelback Cooper & Commerce East Central Phoenix (6 sites) <ul style="list-style-type: none"> ○ 24th St. & Grand Canal ○ 32nd St. & Indian School ○ 38th St. & Indian School ○ 40th St. & Indian School ○ 40th St. & Osborn Road ○ 48th St. & Indian School East Washington Fluff Estes Landfill South Mesa West Central Phoenix (5 sites) <ul style="list-style-type: none"> ○ East Grand Ave. ○ West Grand Ave. ○ North Plume ○ North Canal Plume ○ West Osborn Complex West Van Buren Western Avenue PCE	* 19th Avenue Landfill North Indian Bend Wash South Indian Bend Wash Motorola 52nd St. Phoenix-Goodyear Airport North Phoenix-Goodyear Airport South Williams Air Force Base * In September 2006 the 19 th Avenue Landfill was delisted as a Superfund site.	161 st Air National Guard

Statewide Sites

WQARF Registry Sites	EPA NPL Sites	DoD Sites
20 th St. & Factor Ave.	Apache Powder	Camp Navajo <ul style="list-style-type: none"> ○ Camp Navajo OB/OD
Klondyke Tailings	Hassayampa Landfill	Formerly Used Defense Sites
Payson PCE	Yuma Marine Corps Air Station	Fort Huachuca
Pinal Creek		Luke Waterdog Recreation Annex
Tonto and Cherry		Yuma Army Proving Grounds
Tyson Wash		
Vulture Mill		

WQARF Registry

The sites that are currently being addressed by the state's Water Quality Assurance Revolving Fund (WQARF) program are listed on the WQARF Registry. Sites are scored and placed on the Registry using an approved eligibility and evaluation (E&E) model for evaluating risk and other environmental factors.

The Registry is updated as sites are added or cleaned up. The information provided includes the E&E score (out of a possible total score of 120), the site name, the city and county where the site is located, and the date the site was added to the Registry. There are currently 35 sites on the Registry.

COST RECOVERY

Parties responsible for causing contamination at sites in the WQARF and Superfund programs are identified and notified of potential liability. Legal and technical information is gathered for recovery of ADEQ's costs and for enforcement of cleanup requirements.

The parties ultimately found responsible in WQARF and Superfund actions are liable for paying costs of remedial actions required or monitored by ADEQ. The recovered dollars are then deposited back into WQARF.

Community Involvement

ADEQ is committed to involving citizens in the remediation of the hazardous substance contamination at sites throughout the state. The community involvement effort is based on two-way communication designed to keep citizens informed about site progress and give them the opportunity to provide their concerns, issues, and opinions to assist ADEQ in determining the best way to move forward with the remediation of the site. Community Involvement Coordinators are assigned to each site from the Outreach Unit.

COMMUNITY INVOLVEMENT FOR WQARF SITES

Within the Arizona Revised Statutes, there are several provisions for community involvement at WQARF sites. These provisions ensure that the public is informed of remedial action work that may be of interest to them and provided an opportunity to be directly involved in the process that leads to the determination of the final cleanup for a site.

For those sites where ADEQ may conduct a remedial investigation and feasibility study, a number of community involvement requirements must be met. The primary requirements are the creation of a Community Involvement Plan (CIP) for the site, the formation of a Community Advisory Board (CAB), numerous notices, and public meetings to be held statewide.³

COMMUNITY ADVISORY BOARD (CAB)

An important method for ADEQ to communicate with the public at WQARF sites is through the creation of CABs. ADEQ forms a CAB for each WQARF Registry Site where a remedial investigation is implemented. The main duty of a CAB is to advise ADEQ and the public of issues and concerns related to the remediation of the site. CABs will:

- o Review and comment on ADEQ reports related to cleanup goals, specific cleanup methods, and other issues related to the site.
- o Represent a diversified cross section of the community in and around the site.
- o Participate in outreach to the community.
- o May make site visits if desired.

The following WQARF sites hold CAB meetings:

Phoenix

56th Street & Earll
Central & Camelback
Cooper & Commerce
South Mesa
West Central Phoenix
West Van Buren

Tucson

Broadway-Pantano
Miracle Mile
Park Euclid
Shannon Road /
El Camino del Cerro

Statewide

Klondyke Tailings
Payson PCE
Tonto & Cherry
Tyson Wash

³ Appendix III: Frequently Asked Questions.

COMMUNITY ADVISORY BOARD (CAB) ACTIVITIES

CABs meet at least four times a year with representatives from ADEQ and receive up-to-date information about a project's status. Representatives from ADEQ provide the CAB with any needed technical explanations and facilitate discussion of the community's issues and concerns.

The CAB may make site visits, participate in public meetings, and coordinate with ADEQ to produce newsletters and establish information repositories for public use. In addition, CABs are required to elect officers and develop a charter. CAB members share information they have learned with their fellow community members and ask the community for feedback in order to ensure that all views are represented.

HOW ARE CABS ESTABLISHED?

By Arizona statute, the CABs are composed of five to 20 members who represent a diversified cross-section of the community, including interested parties and affected groups. Initially, these members are chosen from applications that are reviewed by a selection committee composed of an ADEQ representative, a local elected official, two community members, and an interested party (an owner or operator of a facility within the site or an affected business or industry).

It is preferred that members are willing to make at least a one year commitment to serve on a CAB. Determining terms of service, filling vacancies, electing officers, and other membership related decisions will be made by the CAB members through the CAB's charter.

HOW DO I APPLY?

For existing CABs, contact the appropriate CAB co-chairpersons for further information. A list of established CABs is available from the Superfund Programs Section. Where CABs are not formed, application forms are available in conjunction with the supply of fact sheets and other notices to the community members associated with the site location. Simply complete the application and return it by the requested date to ADEQ, as directed in the application. CAB members are only selected from applications that are received.

COMMUNITY INVOLVEMENT FOR SUPERFUND & DEPARTMENT OF DEFENSE SITES

Sites addressed under the federal Superfund or by the Department of Defense are also required to conduct community involvement and public notice activities. Please contact the individual site project manager or community involvement coordinator for information on community involvement activities at these sites.

MEETING INFORMATION

Information about the various meetings managed or attended by Community Outreach Coordinators is arranged by topic and date. Agendas for all meetings will be posted at least 24 hours in advance at:

- ADEQ's main office at 1110 W. Washington Street, Phoenix.
- ADEQ's Southern Regional Office at 400 W. Congress, Suite 433, Tucson.
- ADEQ's Northern Regional Office at 1801 W. Route 66, Suite 117, Flagstaff.
- ADEQ's web site, <http://azdeq.gov/enviro/waste/sps/meeting.html>

Prospective Purchaser Agreements

Arizona is one of a growing number of states to address, through statutes, the liability issues associated with buying, selling or developing property contaminated by hazardous substances.⁴

Because of the potential for liability as an owner of property contaminated with hazardous substances, property owners and other participants in property transactions (buyers, developers and their financial institutions) frequently need to determine if the property they are interested in is contaminated. When contamination is discovered, participants in property transactions may also want to know the extent of the ADEQ authority to take enforcement actions or to recover cleanup costs.

If the purchaser of the property did not contribute to the contamination at the site, potential WQARF and state CERCLA owner liability may be avoided through a written agreement with ADEQ. Pursuant to A.R.S. §49 285.01, ADEQ may enter into a Prospective Purchaser Agreement (PPA), which provides a written release and covenant not to sue for any potential WQARF liability for existing contamination, if certain statutory conditions are met.

Although this statute also refers to providing immunity from contribution claims, which can only be provided through a federal court approved consent decree, ADEQ lacks the independent authority to prevent other parties from pursuing claims. ADEQ recognizes that because of the time constraints involved in the purchase and sale of real property, decisions on PPA eligibility must be made quickly and efficiently. Only the purchaser of the property is eligible for a PPA. The decision to enter into a PPA is a decision solely within the ADEQ's discretion. A draft agreement must be received by ADEQ before the closing is complete in order to be eligible for consideration of a PPA.

PROSPECTIVE PURCHASER AGREEMENT FEES

ADEQ charges a fee for preparing the PPA. As of March 11, 2006, new fees will be assessed.

An applicant shall pay an initial charge of \$2,500 for an application for a PPA requiring minimal review for property within a site that is listed in the Water Quality Assurance Revolving Fund (WQARF) registry under A.R.S. §49-287.01.

For property that is not on the WQARF registry, an applicant shall pay an initial charge of \$3,600 for an application for a PPA. The initial charge covers direct and indirect Department costs.

An application for a PPA requiring minimal review is one that requires 34 or fewer hours of review time for a site on the WQARF registry or 49 or fewer hours for a site not on the WQARF registry. The applicant will be notified that extra time is required, and must agree to pay the additional costs before they are incurred.⁵

⁴ Appendix IV: EPA Policy Toward Owners of Property Containing Contaminated Aquifers.

⁵ Appendix V: Statements and Information to be Included in the Prospective Purchaser Agreement.

Settlement Options for Responsible Parties

In 1997, the state Legislature substantially amended the WQARF statute. As a result of this legislation, three settlement options are now available for resolving WQARF and CERCLA liability. These options include qualified business, financial hardship, and general settlements.

A 30-day public comment period is required for any of the three settlements. Notice will be provided by publication in a newspaper of general circulation. If contribution protection is requested, the settlement must be approved by a court.

QUALIFIED BUSINESS SETTLEMENTS

The qualified business settlement statute (A.R.S. §49-292.01) allows a person or business who is eligible under the statute to fully settle all WQARF/CERCLA liability with ADEQ. To be eligible, a person or business must have a gross income as reported to the IRS averaging less than \$2 million dollars per year during the two years preceding the investigation of the site and during the two years preceding the settlement application. If the person or business is eligible, the person or business pays ten percent of its gross income as a settlement amount. The settlement amount can be paid interest free for five years, or paid out over ten years with an interest rate of six percent per annum.

If ADEQ determines that a business does not qualify, ADEQ must notify the applicant in writing within 90 days of the receipt of the necessary information. The denial of a qualified business settlement is appealable to Office of Administrative Hearings pursuant to A.R.S. §49-298.

FINANCIAL HARDSHIP SETTLEMENTS

A person who is unable to pay his or her allocated share of liability may pay a reduced amount based upon the person's ability to pay. The financial hardship settlement is not available to a person whose liability arose from criminal acts or if the person failed to participate in the allocation process. The financial hardship settlement process does not begin until there has been an allocation of liability among the responsible parties.

To apply for a financial hardship settlement, an applicant must submit to ADEQ financial information sufficient to establish that the applicant cannot pay its allocated share. ADEQ has 90 days to determine whether the applicant qualifies for the financial hardship settlement. If ADEQ determines that a business does not qualify, ADEQ must notify the applicant in writing. The denial of a financial hardship settlement is appealable to the Office of Administrative Hearings pursuant to A.R.S. §49-298.

GENERAL SETTLEMENT

ADEQ's general settlement authority (A.R.S. §49-292) allows a person or business to settle its WQARF/CERCLA liability with the ADEQ. Under the general settlement provision, ADEQ has wide discretion to consider any offer of settlement.

For further information on how to apply for a qualified business, financial hardship or general settlement, please contact the Legal Support Unit at (602) 771-4178. Outside the Phoenix area, call (800) 234-5677.

Residential Liability Policy and Statutes

For properties included within the boundaries of state and federal superfund sites, the following policies lend clarification to liability concerns.⁶

The U.S. Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ) maintain a policy of not requiring residential homeowners to perform or pay for cleanup actions at state or federal Superfund sites. Homeowners may, however, be held liable for cleanup where their own actions have led to a release or threatened release of hazardous substances requiring a cleanup of their property, or where the property is used for non-residential purposes.

This policy is designed to alleviate concerns about cleanup liability for homeowners, as well as parties involved in real estate transactions, such as lenders and title insurers.

This information was adapted from the EPA Publication 9230.0-23FS, *"Homeowners Exempted From Cleanup Costs,"* dated November 1991, and Arizona Revised Statutes §49-283 (B).⁷

Off-Site Migration Liability Policy

In general, EPA will not take action to compel such property owners to perform cleanups or to reimburse the agency for cleanup costs where contamination to their property was caused solely by migration of contaminants from other property.

This information was adapted from the EPA Publication, *"Policy Toward Owners of Property Containing Contaminated Aquifers, November, 1995."*

Under Arizona law a person is not responsible for a hazardous substance that is located on or beneath the property if the hazardous substance that is located on or beneath the property is present solely because it migrated from property that is not owned or occupied by that person.

This statement adapted from A.R.S. §49-283.E.:

A.R.S. §49-283 (E) A person is not a responsible party with respect to a hazardous substance that is located on or beneath property that is owned or occupied by that person if the hazardous substance is present solely because it migrated from property that is not owned or occupied by that person and that person is not otherwise a responsible party as prescribed by subsection A, paragraph 2 or 3.

⁶ Appendix VII: Is Your Property Located Within a Superfund Site? Use GIS eMAPS to Find Out!

⁷ Appendix VI: Residential Liability Policy and Statutes.

Lender Liability

A.R.S. §49-283 (H). A person who maintains indicia of ownership in a property primarily to protect a security interest in a facility and who does not participate in the management of the facility is not liable as an owner or operator of that facility pursuant to this section.

This subsection does not apply to a person who does any of the following:

1. Through intentional misconduct or gross negligence causes, contributes to or aggravates the release of a hazardous substance.
2. Fails to disclose to the facility's purchaser the known presence of a release or a threatened release of a hazardous substance at the time of sale or divestiture of the facility or the security interest in the facility.
3. Fails to obtain a phase I environmental assessment of the facility that complies with standards adopted by rule pursuant to subsection K of this section at the time of or at a reasonable time before foreclosure. This paragraph does not apply to residential properties with fewer than five residential units.
4. Fails to do any of the following after acquiring ownership of the facility:
 - a. Provide the department reasonable access so that the necessary remedial actions may be conducted.
 - b. Undertake reasonable steps to control access to the area of known presence of a release of a hazardous substance to protect the public health and welfare and the environment.
 - c. Act diligently to sell or otherwise divest the property within two years of the lender's possession or ownership, whichever is earlier.

A.R.S. §49-283 (I). A fiduciary is not personally liable as an owner or operator pursuant to this section. This section does not preclude claims against assets held in an estate, a trust or other fiduciary capacity for the release or a threatened release of a hazardous substance from one of the assets.

This section does not apply if either of the following apply:

1. A fiduciary through intentional misconduct or gross negligence causes, aggravates or contributes to the release or threatened release of hazardous substances or permits others to do so, except that a fiduciary shall not be liable for the intentional misconduct or gross negligence of any non-employee agent or independent contractor if the fiduciary has not specifically directed the non-employee agent or independent contractor to perform the grossly negligent act or engage in the intentional misconduct.
2. The appointment of the fiduciary is for the purpose of avoiding liability under this article. It is prima facie evidence that the fiduciary was appointed to avoid liability under this article if the facility is the only substantial asset in the fiduciary estate.

A.R.S. §49-283 (J) Subsections (F), (G), (H), and (I) shall not be construed to affect the liability of any person who is otherwise liable with respect to the release or threat of release pursuant to this section.

A.R.S. §49-283 (L). A fiduciary may not be a fiduciary and grantor of the same fiduciary estate.

A.R.S. §49-283 (O). For purposes of this section:

1. "Fiduciary" means:
 - a. A trust company or bank certified or authorized to engage in the trust business pursuant to title 6, chapter 8, article 1.
 - b. Any person appointed by a court or testamentary act to act as personal representative, executor, trustee, administrator, guardian, conservator, receiver or trustee in bankruptcy.
 - c. Any person acting as a trustee of a deed of trust pursuant to section 33-803.
 - d. Any person acting as a trustee pursuant to title 14, chapter 7.
 - e. Any person acting pursuant to and subject to fiduciary obligations under the employee retirement income security act of 1974 (29 United States Code sections 1101 through 1114).
2. "Indicia of ownership" means legal or equitable title that has been acquired through or is incident to the default of a borrower.

Tucson Sites

Site Information Repository & File Locations

Narrative Information & Maps

WQARF Registry Sites

7th St. and Arizona Ave.

Broadway-Pantano

Los Reales Landfill

Miracle Mile

Park-Euclid

Shannon Road / El Camino del Cerro

Silverbell Landfill

Federal EPA NPL Sites

Tucson International Airport Area (7 sites)

- **Air Force Plant 44 (AFP- 44) Raytheon Project Area**
- **Airport Property Project Area**
- **Arizona Air National Guard 162nd Project Area**
- **Texas Instruments Project Area (formerly Burr-Brown)**
- **Tucson Airport Remediation Project (TARP)**
- **West Cap Project Area**
- **West Plume B**

DoD Site

Davis-Monthan Air Force Base



Site Information Repository & File Locations

Tucson

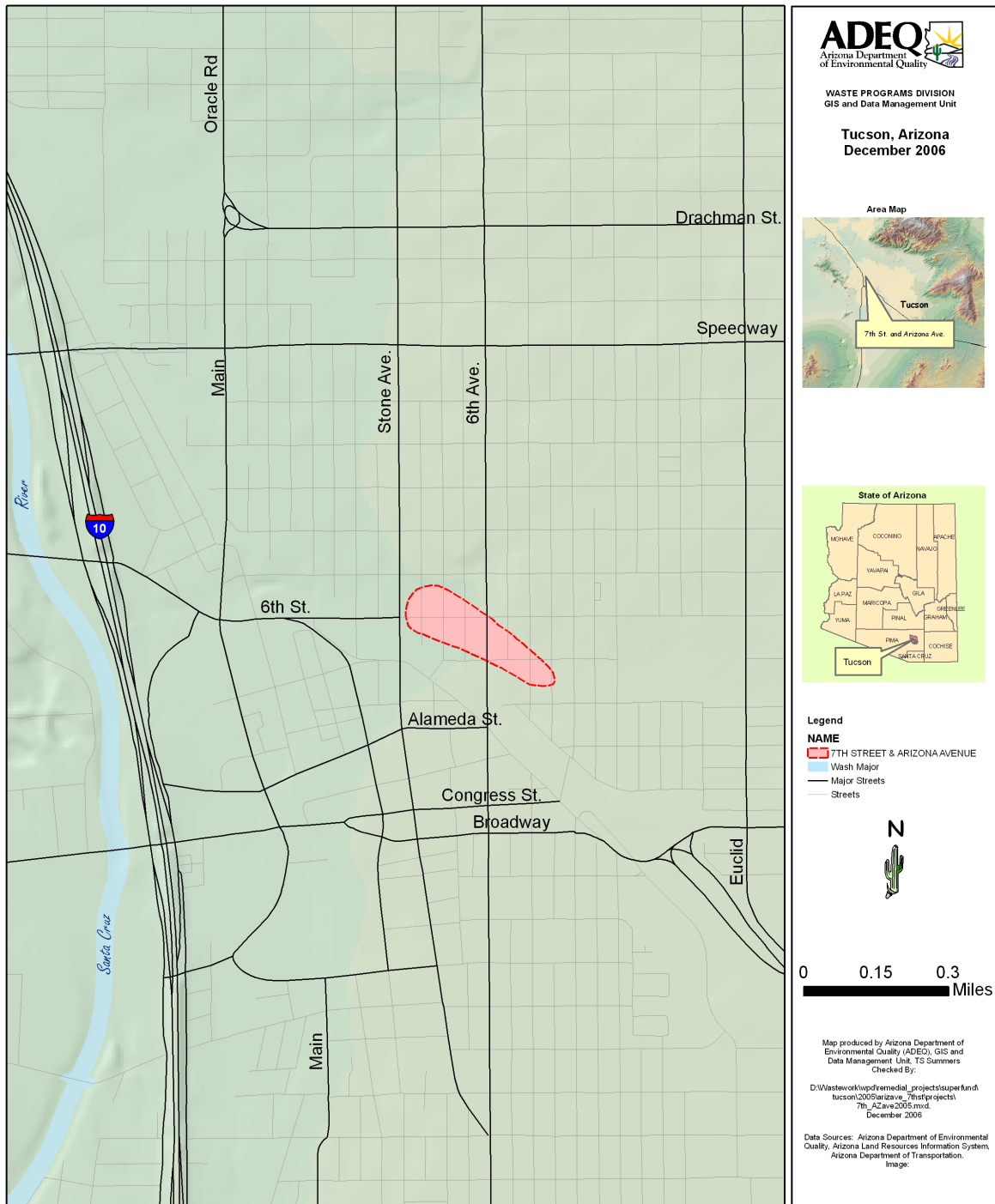
April 2007

WQARF Registry Sites	EPA NPL Sites	DoD Site
7th Street & Arizona Avenue	Tucson Int'l Airport Area (7 sites)	Davis-Monthan Air Force Base
Broadway–Pantano	<ul style="list-style-type: none"> ○ Air Force Plant 44 (AFP-44) Raytheon Project Area 	
Los Reales Landfill	<ul style="list-style-type: none"> ○ Airport Property Project Area 	
Miracle Mile	<ul style="list-style-type: none"> ○ Arizona Air National Guard 162nd Project Area 	
Park–Euclid	<ul style="list-style-type: none"> ○ Texas Instruments Project Area (formerly Burr-Brown) 	
Shannon Road / El Camino del Cerro	<ul style="list-style-type: none"> ○ Tucson Airport Remediation Project (TARP) 	
Silverbell Landfill	<ul style="list-style-type: none"> ○ West-Cap Project Area 	
	<ul style="list-style-type: none"> ○ West Plume B Project Area 	

Site Name	Site Type	File & Repository Locations		
7 th Street & Arizona Avenue	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Main Library, 3 rd Floor 101 N. Stone Avenue Tucson (520) 791- 4393
Broadway-Pantano	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Wilmot Library 530 N. Wilmot Road Tucson (520) 791- 4627
Los Reales Landfill	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	
Miracle Mile	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Woods Library 3455 N. 1 st Avenue Tucson (520) 791- 4548
Park-Euclid	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Main Library, 3 rd Floor 101 N. Stone Avenue Tucson (520) 791- 4393

Site Name	Site Type	File & Repository Locations		
Shannon Road / El Camino del Cerro	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Nanini Library 7300 N. Shannon Road Tucson (520) 791- 4626
Silverbell Landfill	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	
Tucson International Airport Area (TIAA), (7 sites) <ul style="list-style-type: none"> ○ Air Force Plant 44 (AFP-44) Raytheon Project Area ○ Airport Property Project Area ○ Arizona Air National Guard 162nd Project Area ○ Texas Instruments Project Area (formerly Burr-Brown) ○ Tucson Airport Remediation Project (TARP) ○ West-Cap Project Area ○ West Plume B Project Area 	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	TCE Superfund Library El Pueblo Library 101 W. Irvington Road Tucson (520) 791- 4733
Davis-Monthan Air Force Base	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	

7th Street and Arizona Avenue WQARF Site, Tucson, Arizona



7th Street & Arizona Avenue

WQARF Registry Site - Tucson

Boundaries:

The 7th Street and Arizona Avenue Site is located in downtown Tucson, north of Broadway Boulevard and east of Interstate 10, and is bounded approximately by 4th Street to the north, 4th Avenue to the east, 8th Street and the railroad to the south, and Ash Avenue to the west.

Contaminants of Concern:

The current contaminants of concern in groundwater include PCE, TCE and cis-1,2-dichloroethene (cis-1,2-DCE). Contaminants of concern at the site may change as new data become available.

Public Health Impact:

To ensure that no drinking water wells have been impacted by contamination from the site, ADEQ completed a drinking water well inventory. The nearest known drinking water wells are located one-half to one mile northeast of the site.

Remedial Activities:

Between January and May 2005, ADEQ conducted two groundwater monitoring events. Elevated concentrations of PCE and TCE exist in the surrounding perched groundwater monitor wells. No contaminants were detected above regulatory standards in the regional aquifer.

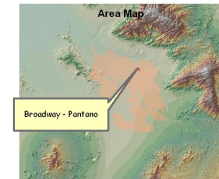
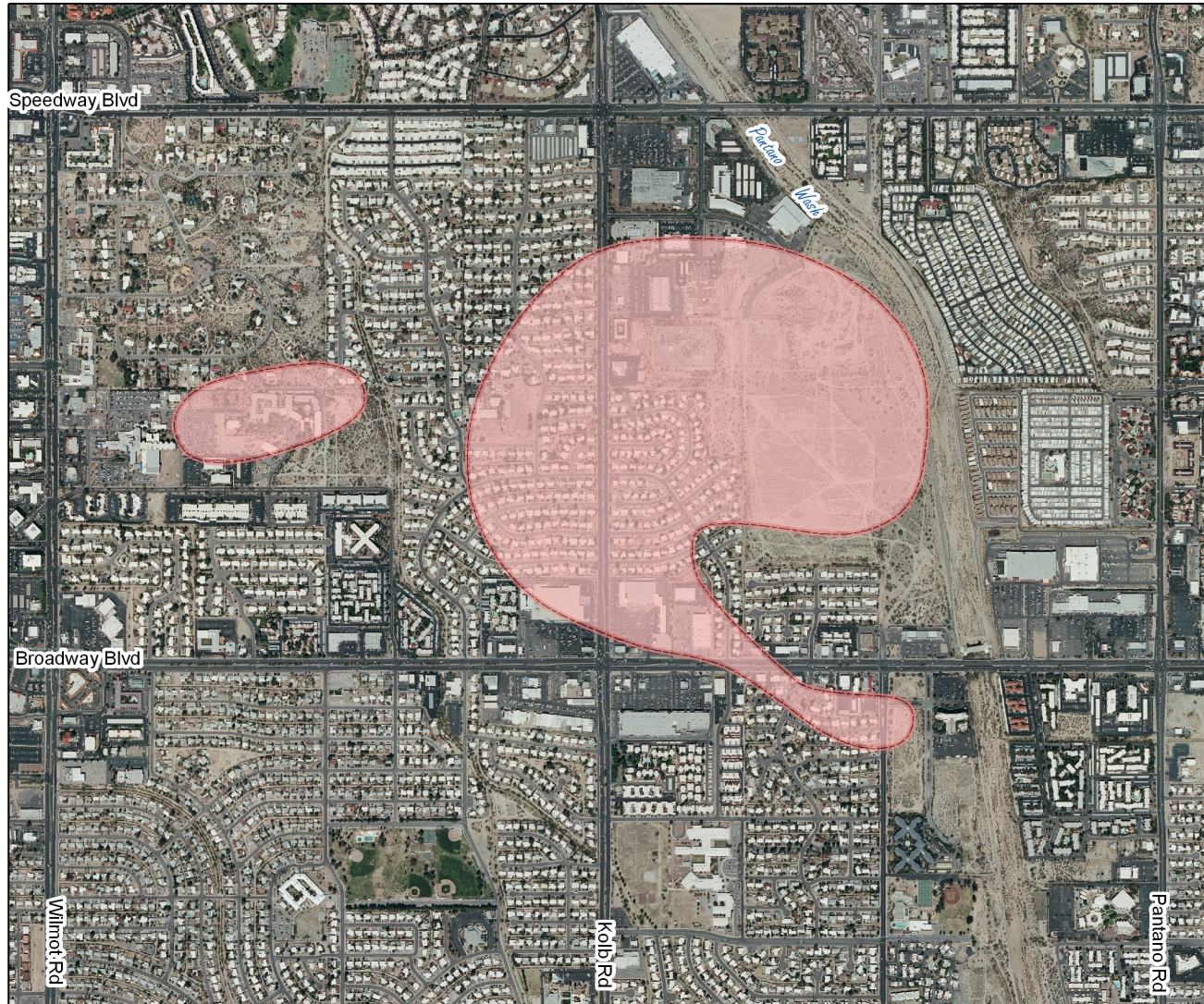
ADEQ reviewed and approved a proposal for the construction, operation and maintenance of a soil vapor extraction (SVE) system at the former Oliver's Cleaners, 300 E. 7th Street. In June 2006, ADEQ began operating the SVE system at the former Oliver's Cleaners. It is estimated the SVE system will operate for approximately two years.

Community Involvement Activities:

ADEQ distributes fact sheets and public notices to the nearby community when significant events occur. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Broadway - Pantano WQARF Site



Legend

Estimated Plume Boundary

N



500

Meters

**Tucson, Arizona
February, 2007**

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Statewide, 2004
Projection: UTM, NAD 83, Meters

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

Broadway-Pantano

WQARF Registry Site - Tucson

Boundaries:

The Broadway-Pantano Site is located in east-central Tucson and is bounded approximately by Speedway Boulevard to the north, Pantano Wash to the east, Calle Madero (south of Broadway Boulevard) to the south, and Sahuara Avenue (west of Wilmot Road) to the west. The site consists of the closed municipal Broadway North Landfill (BNL) and the tetrachloroethene (PCE) contaminant plume.

Contaminants:

The contaminants in groundwater currently exceeding the Aquifer Water Quality Standards (AWQSs) are PCE, trichloroethene, vinyl chloride, and methylene chloride. Cis-1,2-dichloroethene, which has historically been considered a groundwater contaminant of concern, has not been detected in site groundwater at a level exceeding the AWQS since 2003.

The contaminants in soil at the dross site currently exceeding the Arizona residential soil remediation levels are arsenic, cadmium, chromium, copper, and lead. Beryllium has also been found at a concentration exceeding the soil remediation level in one subsurface soil sample north of the dross site. Contaminants of concern for soil gas are being evaluated. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

No one is known to be drinking contaminated water from this site and therefore no one is known to be at risk of exposure to these groundwater contaminants. The City's policy is to shut down any City water supply well containing a VOC concentration that reaches one-half of the regulatory level. The St. Joseph's Hospital's well water treatment system removes the VOCs to non-detectable levels. If you are drinking water from a private well within the boundaries of the site, contact the ADEQ Project Manager to have your water tested. The City and County's 1998 landfill investigation report included the results of a risk assessment. This risk assessment was based on assumptions that were extremely protective of human health. It was concluded that there is no emergency risk to residents next to the landfill, yet the risk assessment did indicate that there is a possible future risk of VOC-contaminated landfill gases migrating underground toward residences next to the landfill if the landfill gases were left uncontrolled.

ADEQ has performed soil gas testing along the southwest perimeter of the landfill and is evaluating whether more testing is needed to evaluate this potential exposure pathway. The dross site is covered with soil and fenced with warning signs to prevent public exposure.

Remedial Activities:

Western Containment System (WCS): During the first year of operation, the WCS treated approximately 360 million gallons of PCE-contaminated groundwater. The WCS is presently pumping at approximately 800 gallons per minute (gpm) [400 gpm from the C-026B extraction well and 400 gpm from the R-092A extraction well]. In the summer of 2003, the injection capacities in the R-090A and R-091A injection wells decreased because of plugging. Subsequently, both wells were rehabilitated / redeveloped and injection capacities improved. Thus, back flushing of the injection wells is performed regularly to maintain performance.

Soil Vapor Extraction/Air Injection (SVE/AI) System: In June 2004, four deep soil gas monitoring wells were installed to provide sampling points for performance testing in large areas where there are no existing deep soil gas monitoring wells. These new wells and the entire SVE/AI soil gas monitoring network were sampled in mid-June 2004. The SVE/AI system was shut down in September 2002. Soil gas samples collected during three sampling rounds conducted since the SVE/AI system shut down showed negligible rebound of the constituents of concern. ADEQ has determined that bringing the SVE/AI system back on line is not necessary based on existing information.

Remedial Investigation (RI): In 2005, ADEQ determined that the Broadway South Landfill (BSL) groundwater contamination was contributing to the Broadway-Pantano WQARF Site groundwater contamination; therefore, ADEQ expanded the RI to include the BSL groundwater contamination and its source. During the spring of 2006, deep nested soil gas monitoring wells were installed in the northern half of the BSL to assess whether an ERA would be warranted. In fall 2006, this evaluation was still on-going.

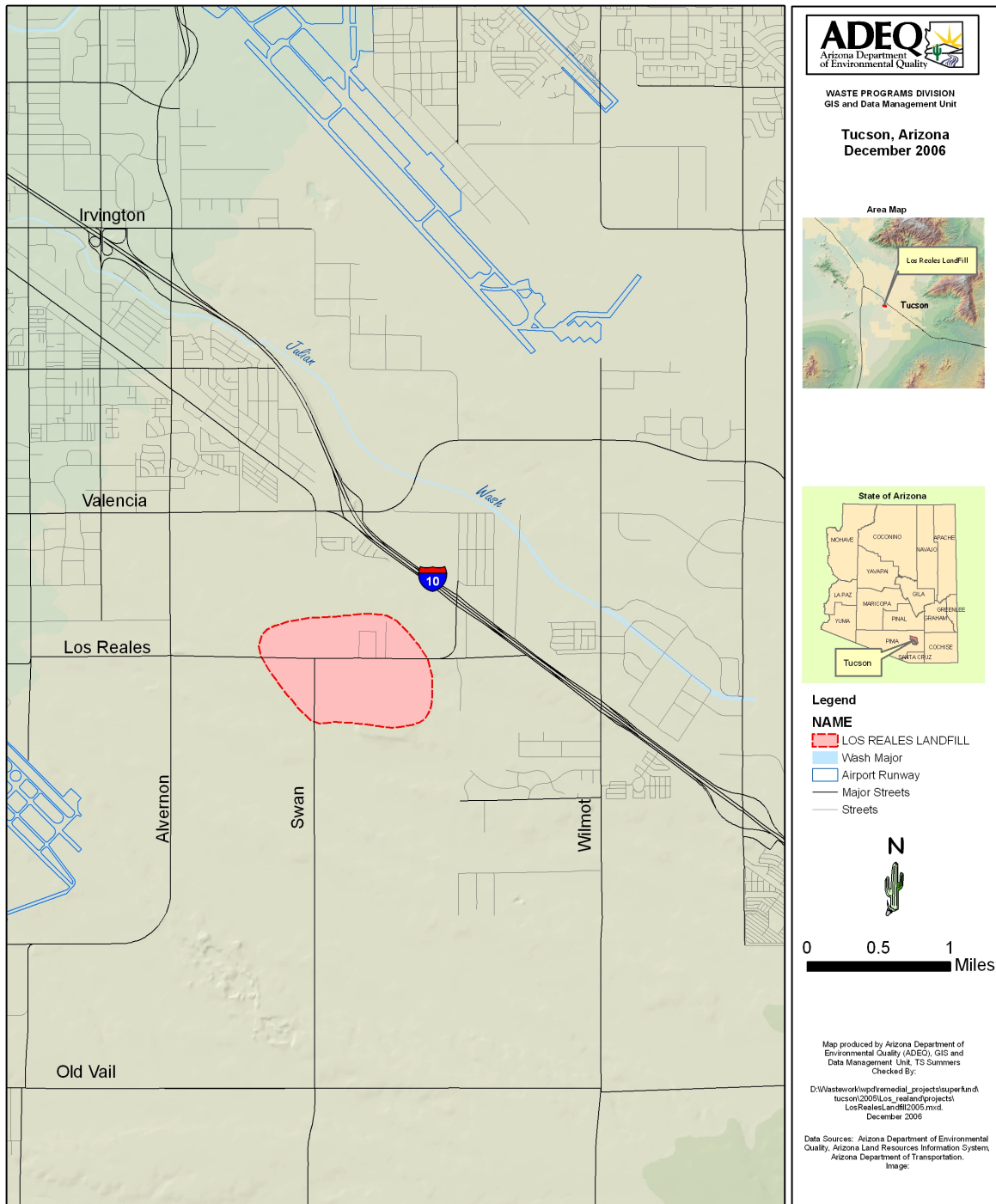
Two groundwater monitoring wells were also installed in the northern part of the BSL in spring 2006 to further delineate the groundwater contamination. At this time it appears that the only groundwater contaminant of concern at the BSL is PCE and the only exceedances of the AWQS for PCE are in the northern part of the BSL. Also, in the summer of 2006, ADEQ decided to separate the groundwater part of the RI from the landfill part of the RI and to expedite the groundwater cleanup at the site. ADEQ plans to complete the groundwater RI and Remedial Objectives for the site by the summer of 2007.

Community Involvement Activities:

A community advisory board (CAB) was formed in January 2000 and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/meeting.html>. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Los Reales Landfill WQARF Site, Tucson, Arizona



Los Reales Landfill

WQARF Registry Site - Tucson

Boundaries:

The Los Reales Landfill Site is located on the southeast side of Tucson, south of Interstate 10 at Craycroft Road (Craycroft turns into Los Reales Road going south from Interstate 10). The site includes an active municipal sanitary landfill located at 5300 East Los Reales Road consisting of approximately 380 acres. The City of Tucson owns and operates the landfill. The site was placed on the WQARF Registry in April 1999 with a score of 32 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include tetrachloroethene (PCE) and trichloroethene (TCE). Contaminants of concern at the site may change as new data becomes available.

Public Health Impact:

In March 1994, the risk assessment for the site was finalized by Arizona Department of Health Services (ADHS). Results from the assessment indicate that because contaminated water from the area is not currently being used for drinking water, there are no significant health risks associated with this site.

Remedial Activities:

Due to co-mingling plumes, this general area is currently regulated under two ADEQ programs. All SWDA soil issues will be reviewed and handled by VRP, while all groundwater issues will be regulated by WQARF. In May 2003, the City began operating a soil vapor extraction (SVE) system to address high soil gas concentrations in this area. On July 25, 2003, the SWDA was accepted into the Voluntary Remediation Program (VRP) of ADEQ.

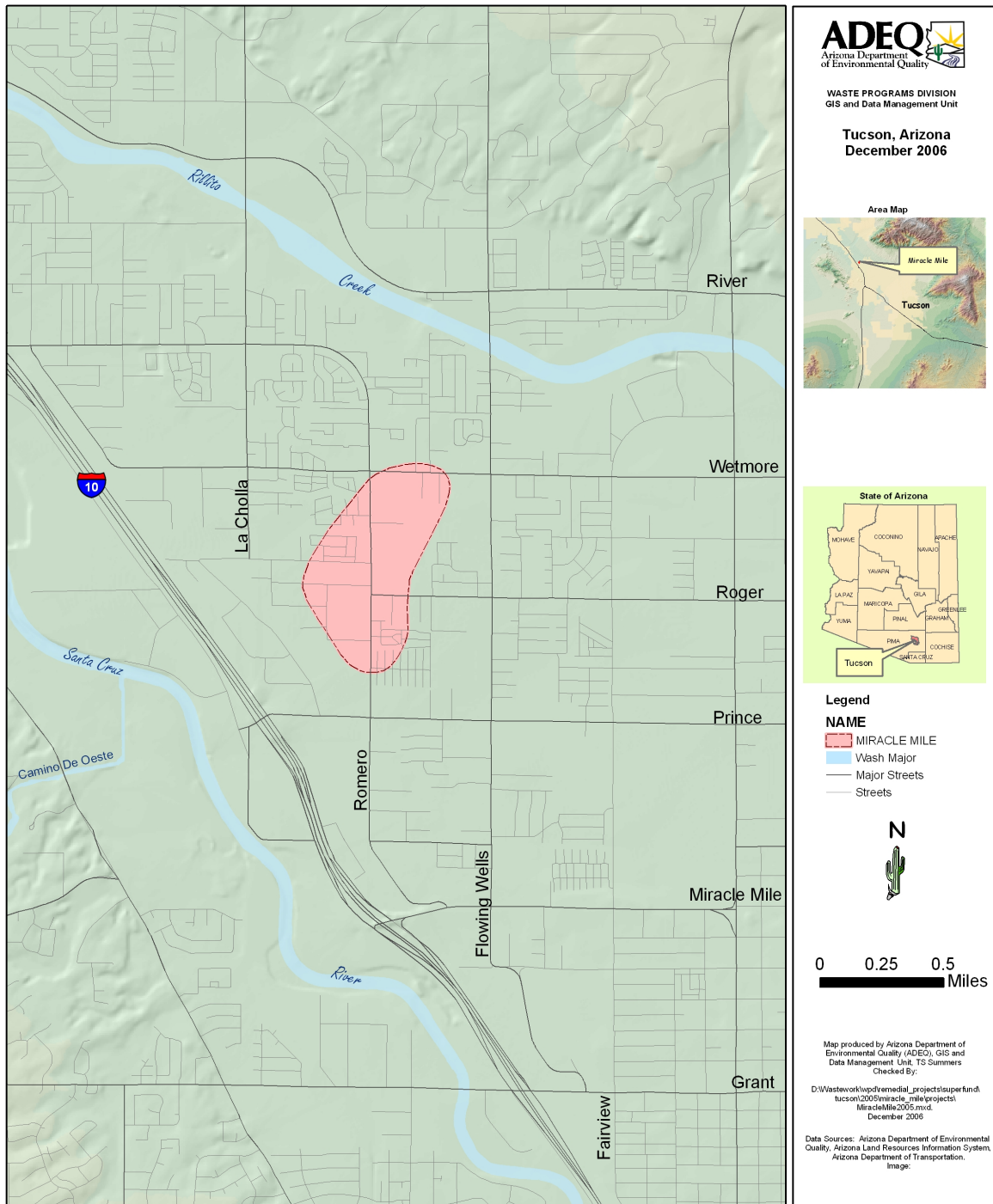
In August 2005, the City installed six new groundwater monitor wells to characterize the extent of groundwater contamination. With this new data, the City will assess options to modify the pump and treat system to treat additional groundwater. In October 2006, the city of Tucson made modifications to three existing wells (WR-048A, WR-049A and WR-175A) to seal off the lower water bearing zone and prevent contamination from migrating from the upper water bearing zone in these wells.

Community Involvement Activities:

The City involved the community throughout the remedial investigation/feasibility study process. However, if the RAP is significantly modified, additional public comment will be solicited. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Miracle Mile WQARF Site, Tucson, Arizona



Miracle Mile

WQARF Registry Site - Tucson

Boundaries:

The Miracle Mile Site is located in west Tucson, and is bounded approximately by Wetmore Road to the north, Flowing Wells Road to the east, Prince Road to the south and La Cholla Boulevard to the west. In September 1998, the site was placed on the WQARF Registry with an eligibility and evaluation (E&E) score of 62 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater are trichloroethene (TCE) and chromium. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

The Arizona Department of Health Services completed a draft baseline human health risk assessment in January 1995 on the Miracle Mile Interchange Area. No significant health risks associated with this site have been identified at this time. The FWID operates two production wells downgradient from the regional aquifer contaminant plume. ADEQ samples these FWID wells on a semi-annual basis to ensure these wells have not been impacted by contamination from the site.

The Crescent Manor Mobile Home Park was switched from a local supply well to Flowing Wells Irrigation District water in December 1993, when sampling indicated that the water exceeded the federal drinking water maximum contaminant level (MCL) for trichloroethene (TCE). Quarterly sampling, conducted by ADEQ since 1995, has not indicated exceedances for the TCE MCL. Crescent Manor Mobile Home Park is currently using water from its private well.

Remedial Activities:

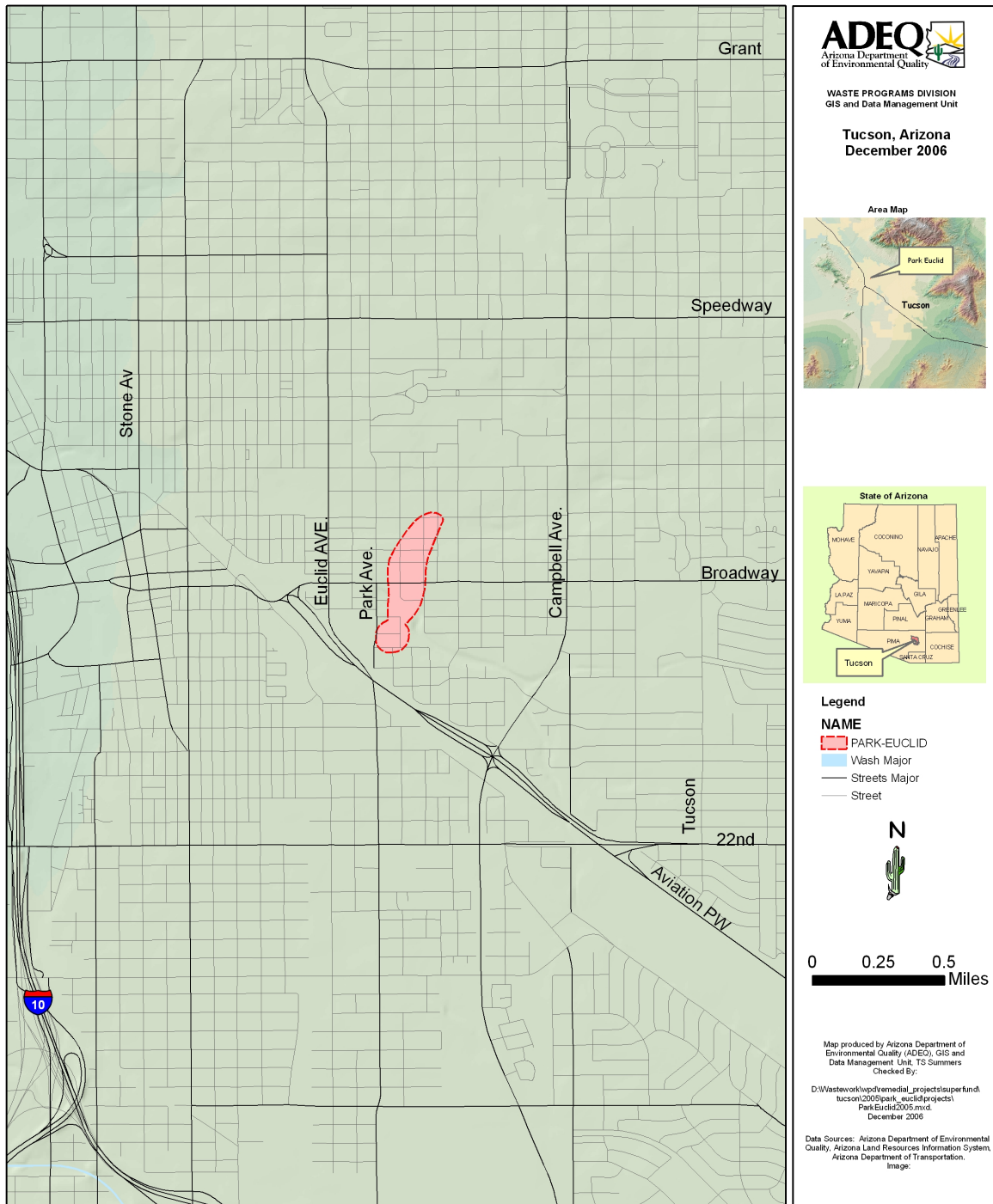
The Draft Remedial Investigation Report summarizing site characterization activities is expected to be completed in 2007. FWID and ADEQ have completed construction of a joint wellhead treatment system to remove arsenic and volatile organic compounds from water produced by two FWID water supply wells to minimize the risk of drinking contaminated water. The treatment system is expected to be operational in January 2007.

Community Involvement Activities:

A community advisory board (CAB) was formed in November 1999 and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/meeting.html>. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Park Euclid WQARF Site, Tucson, Arizona



Park-Euclid

WQARF Registry Site - Tucson

Boundaries:

The Park-Euclid Site is located east of downtown Tucson, and is bounded approximately by 8th Street on the north, Mountain Avenue on the east, 14th Street on the south, and Park Avenue on the west. The site includes facilities located at both 299 and 301 South Park, where three companies have conducted laundry and dry cleaning operations since the late 1930s. In April 1999, the site was placed on the WQARF Registry with an eligibility and evaluation score of 51 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include diesel free product and volatile organic compounds (VOCs), including tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2 dichloroethene (cis-1,2-DCE). PCE, TCE, and 1,2-DCE are present in concentrations above Aquifer Water Quality Standards (AWQS). Contaminants of concern at the site may change as new data become available.

Public Health Impact:

ADEQ conducted soil gas flux testing and sampling in February 2004 of soils overlying the contaminant plume in the perched aquifer to assess potential risks to human health due to vapor intrusion into overlying businesses and residences. Results of a screening health risk assessment indicated VOCs volatilizing from subsurface soils and groundwater did not pose a significant risk to current or future off-site residential structures; but could pose a significant risk to workers at the Mission Linen facility. Based on this risk assessment, Mission Linen performed ambient air quality sampling inside the Mission Linen facility that indicated vapor concentrations inside the building were significantly below applicable occupational health exposure limits. The University of Arizona (UA) operates three active production wells downgradient from the regional aquifer contaminant plume. ADEQ samples these UA wells on a monthly basis to ensure these wells have not been impacted by contamination from the site. No PCE contamination has been detected in these water supply wells.

Remedial Activities:

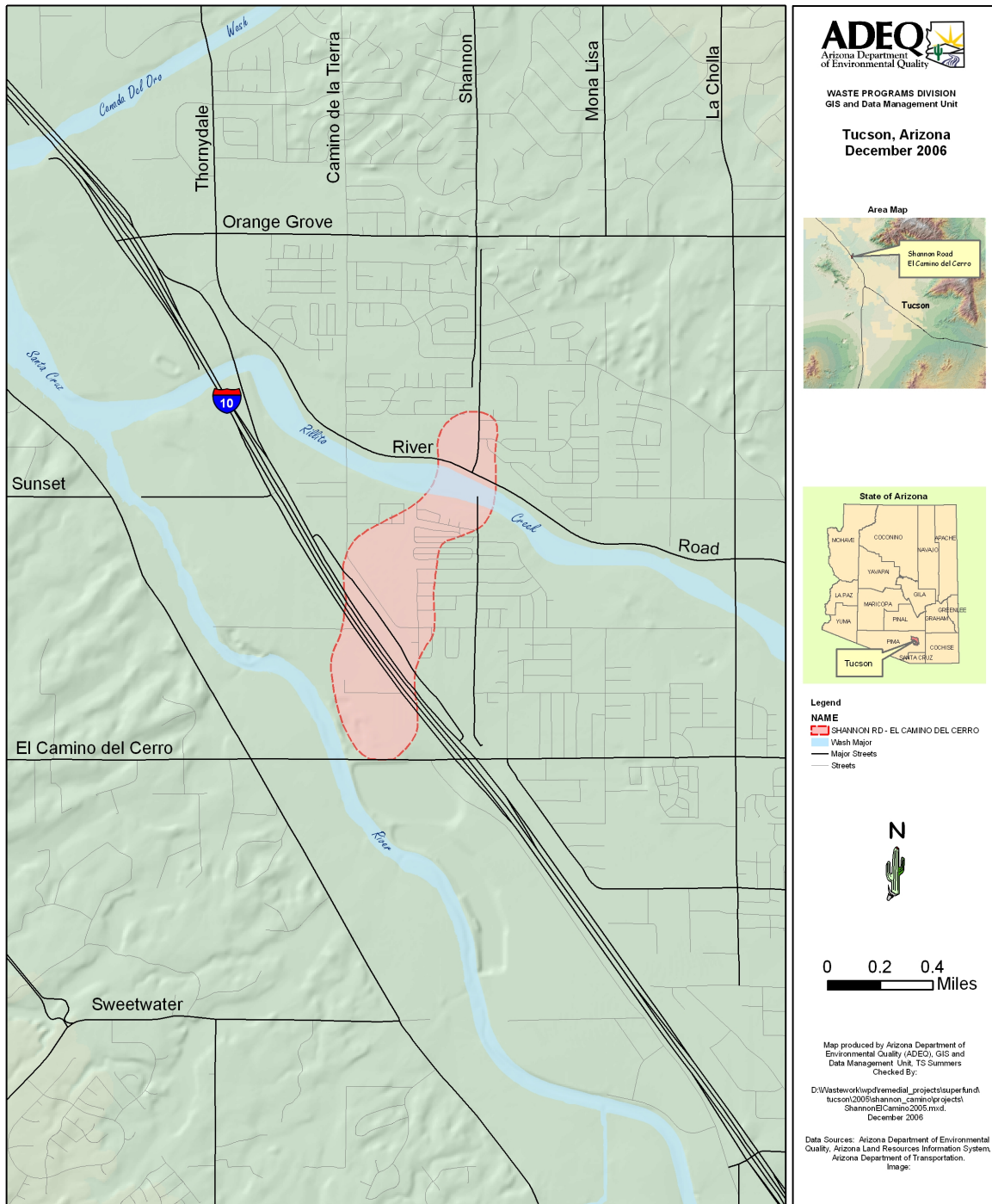
Mission Linen is currently expanding the multi-phase extraction system to remediate the diesel free product containing PCE that overlies the perched aquifer. In August 2006, ADEQ completed the Remedial Objectives Report following the completion of the public comment period. The remedial objective (RO) for land use beneath Mission Linen is to restore soil conditions to the non-residential remediation standards. The RO for drinking water use of groundwater from the regional aquifer is to protect the use of the groundwater supply by the University of Arizona and the City of Tucson from contamination from the Park-Euclid WQARF Site. ADEQ is completing the responsiveness summary for comments received for the Draft RI Report prior to releasing the Final RI Report in early 2007.

Community Involvement Activities:

A community advisory board was formed for the site in March 2000 and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://azdeq.gov/environ/waste/sps/meeting.html>. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Shannon Road/El Camino del Cerro WQARF Site, Tucson, Arizona



Shannon Road / El Camino del Cerro

WQARF Registry Site - Tucson

Boundaries:

The Shannon Road/El Camino del Cerro Site is located in northwest Tucson, and is bounded approximately by Rudasill Road on the north, Meadowbrook Park on the east (north of the Rillito River), Shannon Road on the east (south of the Rillito River), El Camino del Cerro Road on the south, and Camino de la Tierra and the Santa Cruz River on the west. The El Camino del Cerro Site was placed on the WQARF Registry in August 1998 with a score of 71 out of a possible 120. In April 1999, the Shannon Road-Rillito Creek Site was placed on the WQARF Registry with a score of 53 out of a possible 120.

Contaminants:

The current contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride, and benzene. Contaminants that have been detected in groundwater at the site below regulatory levels include: PCE, TCE, 1,1-DCE, 1,1-dichloroethane, cis-1,2-dichloroethene and dichlorodifluoromethane (Freon 12). Additionally, lead has been detected in soil samples collected from the former AMRI Oil property. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

There are risks associated with exposure to volatile organic compounds, principally through drinking contaminated groundwater. Many of the private wells along Casa Grande Highway and Highway Drive were impacted by the contamination. A water treatment system was used by Metro Water to ensure that drinking water met the drinking water standards. The treatment system and the South Shannon well it services have been shut down while an upgrade to the system is designed and constructed. Since no one is known to be drinking contaminated water, no one is known to be at risk of exposure to the contaminants.

The Arizona Department of Health Services (ADHS) conducted a preliminary risk assessment to address potential and/or current exposure to chemicals in groundwater and soil at the site. The preliminary risk assessment has been used to guide the investigation at the site as well as to help determine if a health effects study in the area is warranted. A final risk assessment will be completed prior to selection of a remedy for the site. Further risk assessment may also be completed at the site prior to selection of a remedy for the site.

Remedial Activities:

Monitor wells were recently installed at the site, and additional wells are planned to be installed as property access becomes available. The new wells were designed to more fully define the extent of contamination. Three of the new monitor wells will also serve as “sentinel” wells for monitoring possible contaminant migration toward Metro Water District wells. The data gathered will be used to complete ADEQ’s remedial investigation of the site.

The effectiveness of the treatment system at Metro Water’s South Shannon well was diminishing as concentrations rose in the well water. A feasibility study of upgrading the system was performed. The treatment system has been shut down, and Metro Water is currently upgrading the treatment system with two large granulated activated carbon filters. Water is being provided

to customers from other wells in the Metro Water network until the upgrade is completed in the Spring of 2006.

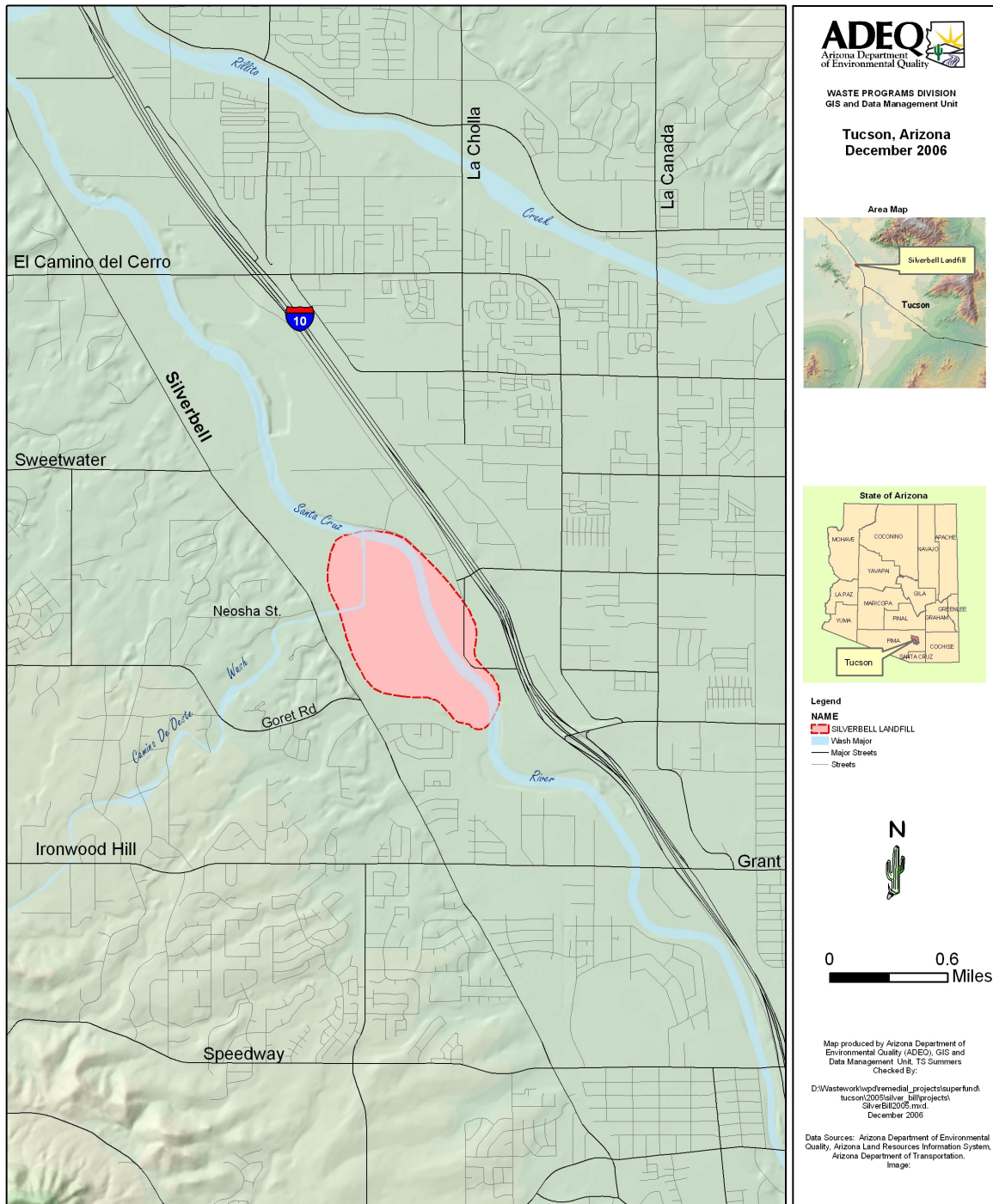
Soil vapor investigations at the former E.C. Winter Oil and AMRI Oil properties have been completed. The data gathered was analyzed to determine the significance of these potential contamination source areas and any risks they may pose. In June 2006 a soil vapor extraction (SVE) system was installed at the former E.C. Winter Oil property and began operating to remove VOCs in the soil.

Community Involvement Activities:

A joint community advisory board (CAB) was formed in October 2000 and meets on a regular basis. The CAB was combined at that time to include both the El Camino del Cerro WQARF Site and Shannon Road-Rillito Creek WQARF Site, which were separate WQARF Sites until fall 2004. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/meeting.html>. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Silverbell Landfill WQARF Site, Tucson, Arizona



Silverbell Landfill

WQARF Registry Site - Tucson

Boundaries:

The Silverbell Landfill Site is located in west Tucson, and is bounded approximately by Sweetwater Drive on the north, Interstate 10 on the east, Grant Road/Ironwood Hill Drive on the south, and Silverbell Road on the west. The site was placed on the WQARF Registry in April 1999 with an eligibility and evaluation (E&E) score of 51 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include PCE, TCE, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride. Contaminants of concern at the site may change as new data becomes available.

Public Health Impact:

In November 1993, the Arizona Department of Health Services completed the draft Baseline Human Health Risk Assessment. Even though no significant health risks were identified, the Risk Assessment noted concern for a possible exposure route through privately owned wells. Public and semi-public wells are regulated and are required to be sampled periodically. Private well owners are not required to sample their wells, and may be at risk of exposure in the vicinity of this site.

On July 30, 2003, a pipeline operated by Kinder Morgan Energy Partners (KMEP) broke, resulting in the release of gasoline to an area near the WQARF site. Cleanup of the gasoline contamination is not being conducted under WQARF, the proximity of the gasoline contamination to the existing PCE and TCE plume emanating from the Silverbell Landfill is being monitored. As of January 2007, Kinder Morgan had extracted approximately 48,000 gallons of gasoline from the groundwater and a SVE system is scheduled to be operational in March 2007. Kinder Morgan identified the presence of VOCs in the soil vapors within the Silver Creek subdivisions. ADEQ believes these soil vapors are unrelated to the gasoline pipeline rupture. ADEQ conducted additional soil vapor testing early October 2004 to confirm and expand upon the Kinder Morgan data. With that data, the Arizona Department of Health Services (ADHS) conducted a Health Consultation to evaluate whether soil vapors from VOCs in the subsurface at the Silver Creek Subdivision posed any health effects to residents. The report, released in June 2005, concluded that the observed concentrations of compounds in soil vapors pose no apparent public health hazard.

Remedial Activities:

From October 1999 to September 2005, the City operated a soil vapor extraction (SVE) system to mitigate the source. This system removed a total of 2,061 pounds of VOCs. The system has remained off since the contaminant concentrations have not shown rebound, but has operated occasionally to control methane migration.

The City is also evaluating a groundwater remedy consisting of monitored natural attenuation with enhanced bioremediation for the source areas. A pilot test using sodium benzoate to stimulate indigenous microbes began June 25, 2003. Depending on various factors such as groundwater flow and degradation of contaminants, the pilot test was expected to last up to two years for results. In July 2005, the City expanded the pilot by constructing an automatic mixing

and delivery system to the north cell area, and changed the added nutrient to sodium lactate.

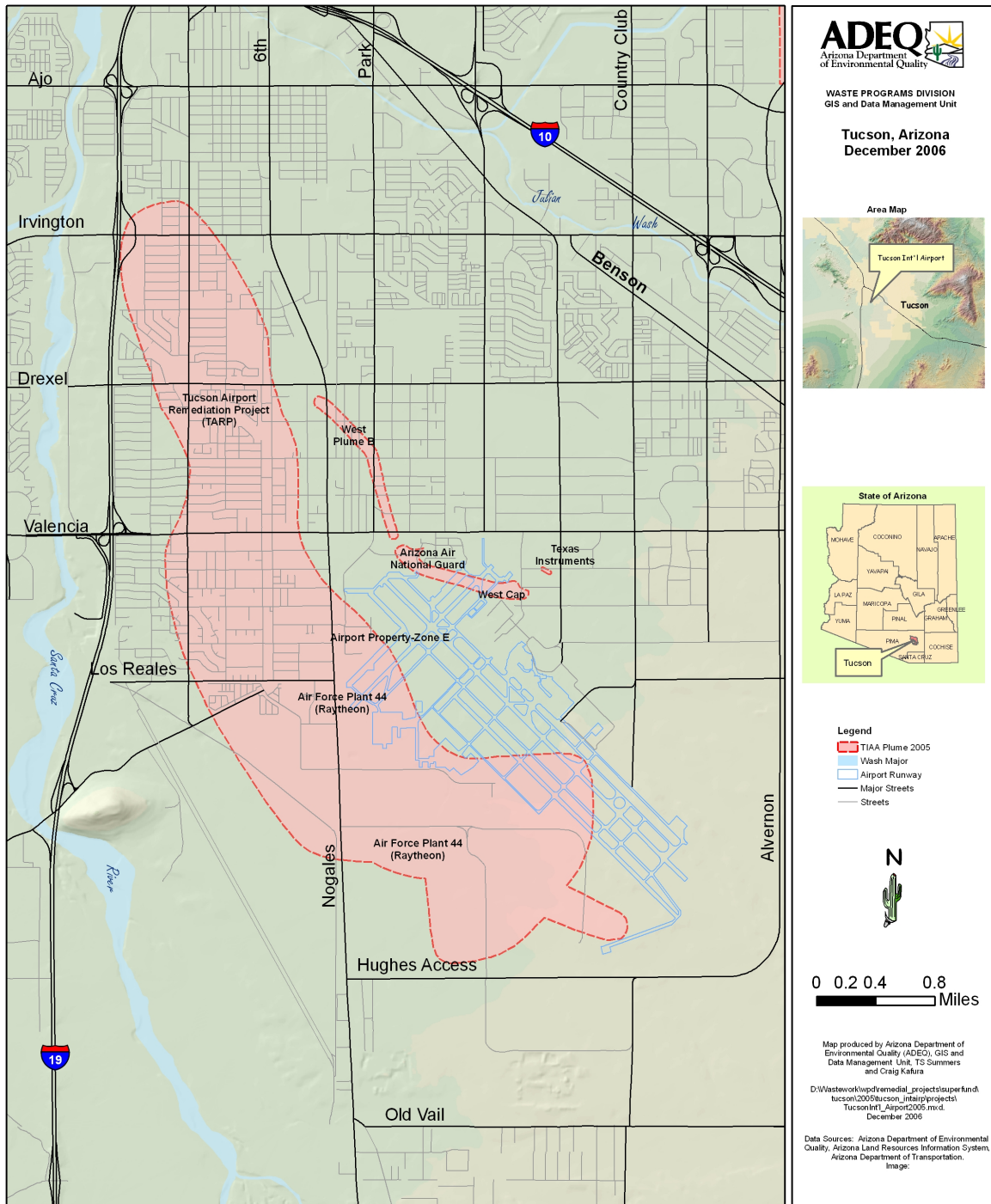
The City's Environmental Services is working with Tucson Water to develop an analytical groundwater model to evaluate the migration and fate of VOCs and develop predictions of potential impacts at the Sweetwater Recharge facility, to determine if hydraulic containment for the plume is necessary, and to design and implement a remedy focused on higher contaminated plume sources areas. This model is expected to be completed in early 2007.

Community Involvement Activities:

The City did involve the community throughout the remedial investigation/feasibility study process. However, if the RAP is significantly modified, additional public comment will be solicited. In March 2001, ADEQ mailed a fact sheet to the site mailing area. An updated 2006 fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Tucson Int'l Airport Area (TIAA) NPL Site, Tucson, Arizona



Tucson International Airport Area (TIAA)

EPA NPL Sites - Tucson

Boundaries:

The TIAA site contains seven major project areas including: Air Force Plant 44 (AFP 44), Tucson Airport Remediation Project (TARP), the Airport Property, the Arizona Air National Guard (AANG) 162nd facility, Texas Instruments, Inc. (formerly Burr-Brown Corporation), the former West-Cap property, and West Plume B. The site is located in the southern portion of Tucson, south of Ajo Way, north of Hughes Access Road, west of Alvernon Way, and east of Interstate 19.

Contaminants:

Contaminants of concern in groundwater include trichloroethene (TCE), dichloroethene (DCE), chloroform and chromium. Polychlorinated biphenyls (PCBs) and metals contamination have also been found in some soils at the site. During Spring and Summer 2002, 1,4-dioxane was discovered at the AFP-44, TARP and the Airport Property project areas. Contaminants of concern may change as new data become available.

Public Health Impact:

All municipal wells in the area that were contaminated with VOCs have been shut down. The municipal water supply in the area now comes from wells outside the site and water produced from these wells meets all state and federal drinking water standards. Some privately owned domestic wells in the area have been impacted but have either been shut down or converted to irrigation wells.

During late August and early September 2002, ADEQ sampled private wells for 1,4-dioxane. Four of these wells were impacted by 1,4-dioxane. Areas with soil contamination at or very close to the surface have been excavated so that currently there are no known public health impacts resulting from contaminated soils.

Remedial Activities:

Remediation systems are in operation at AFP-44, TARP, AANG 162nd, Texas Instruments, and West-Cap. Remediation systems are in the planning stages at the Airport Property, West-Cap, and West Plume B. The site was placed on the National Priorities List (NPL) in 1983. In 1988, EPA issued a site wide Record of Decision (ROD) for volatile organic compound (VOC) contaminated groundwater. Since that time, several additional decision documents have been issued by EPA for soil contamination.

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. Recent EPA fact sheets include: *"EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas"* (June 2002). In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Air Force Plant 44 (AFP-44) / Raytheon Project Area

Boundaries:

This project area is located in the southern portion of the Tucson International Airport Area (TIAA) site. The plant is located about eight miles south of downtown Tucson and is bounded to the north and east by the Tucson International Airport, to the south by Hughes Access Road and to the west by the Nogales Highway (Route 89).

Contaminants:

The current contaminants of concern in soil and groundwater include metals and volatile organic compounds (VOCs). The principal contaminants of concern are trichloroethene (TCE), 1,1-dichloroethylene (1,1-DCE) and chromium. In addition, 1,4-dioxane was recently discovered. 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 VOCs have been shut down. The municipal water supply in the area now comes from wells outside the site and water produced from these wells meets all state and federal drinking water standards. Some privately owned domestic use wells in the area have been impacted but have either been shut down or converted to irrigation wells. Areas with soil contamination at or very close to the surface have been excavated so that there are no known public health impacts from contaminated soils.

Remedial Activities:

During the spring and summer 2002, 1,4-dioxane was discovered at the site in concentrations ranging from 1.0 to 54 parts per billion (ppb). In 2004, an additional monitoring well at AFP-44 had 600 ppb 1,4-dioxane. Currently used remedial technologies are ineffective in removing 1,4-dioxane, therefore, this contaminant has inadvertently been reinjected into the aquifer and spread northward into the TARP plume. ADEQ, EPA, the U.S. Air Force and Raytheon are working together to determine what, if any, remedial actions might be necessary for 1,4-dioxane. There is no drinking water standard for 1,4-dioxane, but the U.S. EPA is developing a site-specific risk-based cleanup goal for 1,4-dioxane at the TIAA site. EPA has asked the U.S. Air Force to conduct a new RI / FS to focus on 1,4-dioxane contamination at the TIAA site. The US Geological Survey Arizona Water Science Center and the USAF Aeronautical Systems Command sampled several wells (in July 2006) to investigate 1,4-dioxane contamination of groundwater west of Air Force Plant 44 and to further define the extent of the 1,4-dioxane groundwater plume. In the 34 wells sampled, 1,4-dioxane concentrations ranged from non-detect to 11 ppb.

Community Involvement Activities:

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. Recent EPA fact sheets include: *EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002). In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Airport Property Project Area

Boundaries:

The Airport Property project area is located in the central part of the Tucson International Airport Area (TIAA) CERCLA site. The Airport Property includes several source areas which contribute to contamination in the regional aquifer (Tucson Airport Remediation Project [TARP] plume) and to a shallow groundwater zone. It is bounded approximately by Los Reales Road to the south and Elvira Road to the north. The Tucson International Airport lies just east of this project area.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE). TCE concentrations range from five to about 1600 ppb. In addition, 1,4-dioxane was recently discovered with concentrations of up to 36 ppb. 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.

Remedial Activities:

Pumping rates for the five extraction wells that have been installed have been lower than expected. At this time, it is uncertain whether additional wells will be needed to achieve full capture of the shallow groundwater zone. In 2002, low levels (approximately three parts per billion (ppb)) of 1,4-dioxane was detected in the upper zone of the regional aquifer, but it is thought to have originated from the AFP-44 site. In 2004, 1,4-dioxane was detected at up to 36 ppb.

Construction is underway on the groundwater treatment plant and SVE treatment plant for the Airport Property Remedial Action (RA). Start-up testing should occur in Spring 2007. This RA is particularly important for the TIAA Site because it addresses the last major known source area to the regional aquifer.

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.

Recent EPA fact sheets include: “*EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002).” In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Arizona Air National Guard (AANG) 162nd Project Area

Boundaries:

The AANG project area is located in Area B of the Tucson International Airport Area (TIAA) site. The property is located on the north-central side of the Tucson International Airport and is bounded on the north by Valencia Road, and on the west, south, and east by the Tucson International Airport.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE). On-site historical TCE concentrations have ranged from non-detect to 46 ppb. Currently, TCE concentrations range from non-detect to about 12 ppb. 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.

Remedial Activities:

Observed influent TCE concentrations at the treatment plant have recently been in the eight to ten parts per billion (ppb) range, and effluent has been non-detect. Since the groundwater treatment system began operation, a total of approximately 516 million gallons of groundwater have been treated, and approximately 29.1 pounds of TCE have been removed. AANG is currently analyzing groundwater data from the site and a large surrounding area. This effort is aimed at analyzing the capture area of the pump and treat system to ensure that contaminants are not migrating off site. In May 2002, EPA and ADEQ completed an RI report that identifies the AANG as a source for groundwater contamination at West Plume B. A Record of Decision (ROD) for West Plume B was completed in September 2004. The AANG has completed a five-year review of their groundwater remediation system to determine if any modifications or improvements are needed. One of the main conclusions of the five-year review is that the AANG cannot completely clean up the groundwater at their site until EPA achieves full capture of the up gradient West-Cap plume. EPA began Remedial Design of additional extraction wells at West-Cap in 2005. May, 2006 TCE sample results for the wells ranged from 3 ug/l to 7.8 ug/l. August 2006 sample results for the wells ranged from 1.5 ug/l to 7.3 ug/l. The locations and sampling results appear to fit ADEQ's plume interpretation very well and should be useful for the MNA monitoring well network at West Plume B.

Community Involvement Activities:

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. Recent EPA fact sheets include: "*EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002)." In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Texas Instruments (Formerly Burr-Brown) Project Area

Boundaries:

The Texas Instruments project area is located in Area B of the Tucson International Airport Area (TIAA) site. The property is located at 6730 South Tucson Boulevard - on the northeast side of the Tucson International Airport. It is bounded by Tucson Boulevard on the east, Aragon Road on the south, Plumer Boulevard on the west, and by Valencia Road on the north.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE), with smaller amounts of perchloroethene (PCE). TCE concentrations range from less than 0.5 ppb to about 12 parts per billion (ppb). 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.

Remedial Activities:

This project area is in the operation and maintenance (O&M) phase of cleanup. A groundwater pump and treat system extracts contaminated groundwater and treats it for use in manufacturing processes. Since 1992, this system has removed 13.3 pounds of TCE from approximately 149.4 million gallons of groundwater beneath the Texas Instruments project area. The Texas Instrument treatment plant has also removed approximately 3.8 pounds of VOCs from groundwater pumped by the West-Cap extraction wells. These wells have pumped a total of about 105.2 million gallons of water since they went on-line in October 1998. EPA installed two additional groundwater extraction wells at the West-Cap project area in 2006. Water from these wells will also be pumped to the Texas Instruments treatment plant and used in manufacturing processes.

EPA and ADEQ are assessing the possible interaction between the Texas Instruments extraction wells and those at West Cap just to the southwest. ADEQ has also recommended that a possible TCE source within the deep vadose zone be evaluated. If that source exists, the pump-and-treat system may need to run indefinitely because TCE could be moving from the vadose zone into the groundwater as fast as it is being removed.

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. Recent EPA fact sheets include: *“EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas (June 2002).”* In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Tucson Airport Remediation Project (TARP)

Boundaries:

The northern operable unit of the Tucson International Airport Area (TIAA) main plume consists of a groundwater pump and treat system known as TARP. This portion of the main plume extends from Los Reales Road northward just past Irvington Road. It is bounded on the west by Interstate 19 and the Santa Cruz River, and on the east by South 6th Avenue and Nogales Highway (Route 89).

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE). TCE concentrations range from five to about 160 ppb. In addition, 1,4-dioxane was recently discovered with concentrations of up to 12 ppb. 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.

Remedial Activities:

During the spring and summer of 2002, 1,4-dioxane up to approximately 12 parts per billion (ppb) was discovered in the TARP project area. The 1,4-dioxane is thought to have originated from AFP-44. The TARP treatment system was designed to remove VOCs, not 1,4-dioxane. Thus, low levels (less than two ppb) of 1,4-dioxane are being delivered to municipal water consumers who receive their water from the TARP plant.

In 2004 the U.S. EPA asked Tucson Water and TARP representatives to begin a new Remedial Investigation and Feasibility Study (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. Additional groundwater monitoring wells may be 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.

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.

Recent EPA fact sheets include: “*EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002).” In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

West-Cap Project Area

Boundaries:

The West-Cap project area is in Area B of the Tucson International Airport Area (TIAA) site, just south of the Texas Instruments project area and southeast of the Arizona Air National Guard (AANG) project area. It is located at 2207 East Elvira Road between Plumer Avenue and South Tucson Boulevard.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE). TCE concentrations range from non-detect to about 540 parts per billion (ppb). 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 have chosen to continue using their wells.

Remedial Activities:

Two groundwater monitoring wells were recently installed. One of these wells (WC-9) shows TCE contamination northwest of the West-Cap property on the Airport Property. Further investigations are needed to determine the extent of contamination on the Airport Property. Some groundwater contamination from West-Cap has apparently also migrated westward toward the AANG project area where it is extracted and treated in the AANG treatment plant. In May 2002, a Remedial Investigation (RI) addendum and a Feasibility Study (FS) report were completed. In September 2004, EPA issued an amended ROD for groundwater at this site (and West Plume B). EPA and ADEQ plan to begin Remedial Design (RD) of additional extraction wells and associated piping to the Texas Instruments treatment plant in 2005. The RD for the additional extraction wells was completed in early 2006. Two new extraction wells (and associated piping) were constructed in September, 2006 and one of these wells was constructed as dual-phase. In December, 2006 a two-week aquifer test was completed at the site. It is hoped that these additional extraction wells will capture all of the West-Cap plume and prevent any further migration of contaminants toward Texas Instruments or the AANG property. In 2006, ADEQ and EPA agreed to a State Superfund Contract for Remedial Action (RA) at West-Cap.

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 every other month (starting in January). 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. Recent EPA fact sheets include: “*EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002).” In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Plume B Project Area

Boundaries:

West Plume B is in Area B of the Tucson International Airport Area (TIAA) site. It is a narrow northwest trending plume located between Valencia Road and Drexel Road, and east of the main plume.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs) – mainly trichloroethene (TCE). TCE concentrations range from less than 0.5 ppb to about 12 ppb. 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 have chosen to continue using their wells.

Remedial Activities:

With technical support from ADEQ, EPA has installed numerous groundwater monitoring wells to investigate the extent and magnitude of the groundwater contamination in West Plume B. Seismic reflection data were used to help characterize the hydrogeology in the area. These data, along with borehole information, were then used by ADEQ to develop a computer model of West Plume B to help estimate the fate and transport of trichloroethene (TCE) in the plume and to simulate potential remedial strategies. In May 2002, ADEQ completed a Remedial Investigation (RI) report for West Plume B. The report describes the extent and magnitude of groundwater contamination, and it identifies the AANG as the probable source of this contamination. In May 2002, EPA completed a Feasibility Study (FS) report. The FS analyzed remedial alternatives ranging from no action to active pump and treat. In September 2004, EPA issued an amended ROD for groundwater at this site (and West-Cap). In early 2006, ADEQ did an MNA analysis and produced a report for the EPA that recommended implementing MNA at the site. The Arizona Air National Guard now samples West Plume B groundwater wells and includes laboratory results in their monitoring reports. Based on the semi-annual sampling event conducted in February, 2006, TCE concentrations detected at the West Plume B area range from less than 0.5 parts per billion (ppb) to 12 ppb. TCE concentrations at the site are now lower than historical levels and this suggests that MNA is working.

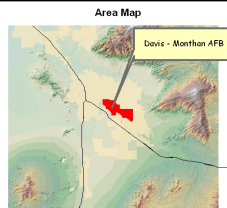
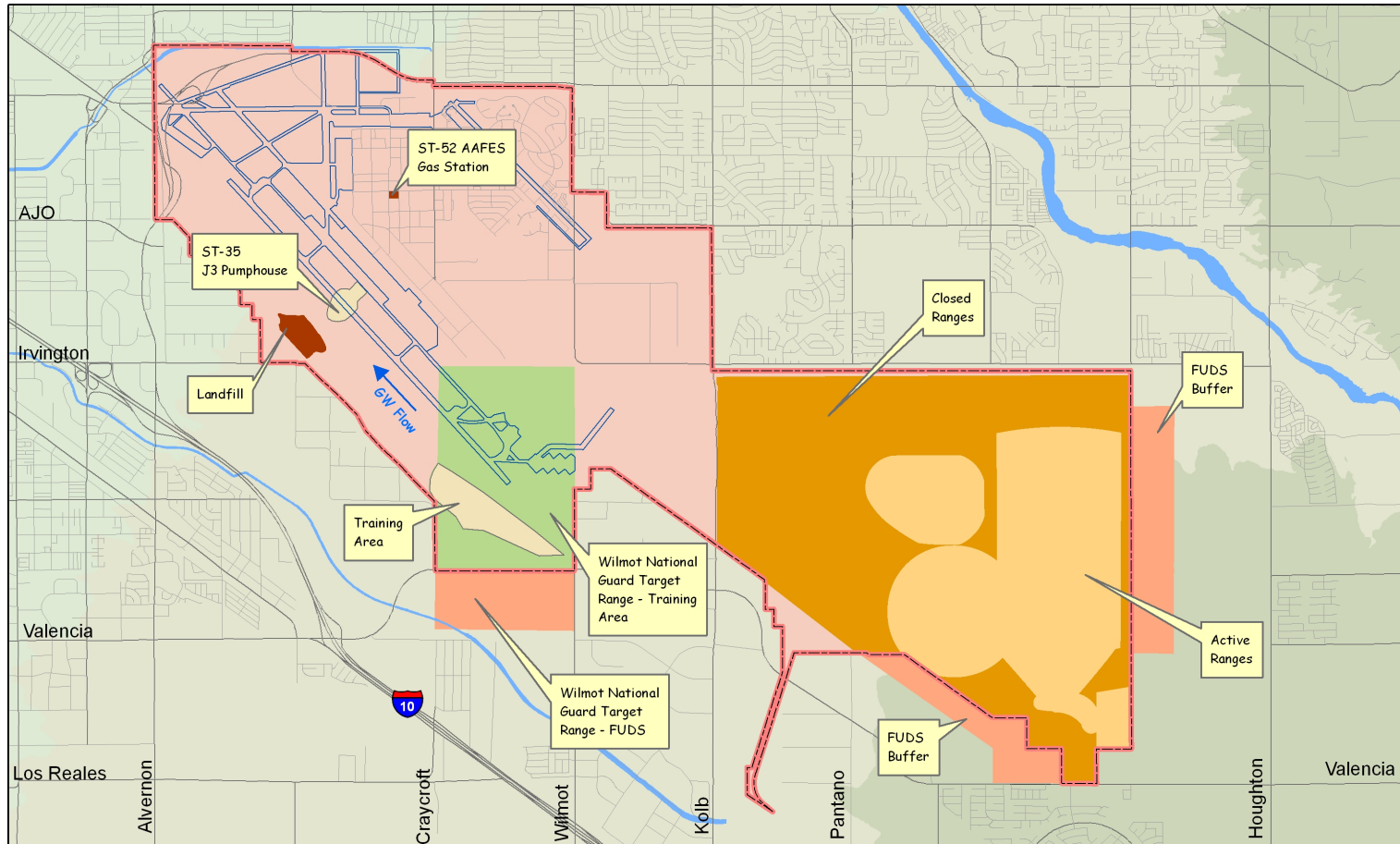
Community Involvement Activities:

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 every other month (starting in January). 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.

Recent EPA fact sheets include: “*EPA Proposes Plan to Address Groundwater Contamination at West-Cap and West Plume B Project Areas* (June 2002).” In addition, the U.S. Air Force publishes a semi-annual progress report for activities at Air Force Plant 44.

Note: Refer to [Site Information & File Repository Locations - Tucson](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Davis - Monthan AFB DOD Site, Tucson, Arizona



Legend

- Davis - Monthan Boundary
- Airport Runway
- Wash
- FUDS - Formerly Used Defense Site
- Major Roads
- Roads



WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Tucson, Arizona
June 2007



Map produced by Arizona Department of
Environmental Quality (ADEO), GIS and
Data Management Unit, TS Summers
Checked By:
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tucson\2005\davis_monthan\project\1
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May 2007

Data Sources: Arizona Department of Environmental
Quality, Arizona Land Resources Information System,
Arizona Department of Transportation,
Image.



Davis-Monthan AFB

DoD Site – Tucson

Boundaries:

Davis-Monthan Air Force Base (DMAFB) is located in eastern Tucson. The northern boundary gradually descends to the south from Golf Links Road to Irvington Road. The eastern boundary is Harrison Road, and Alvernon Way is the western boundary. The southern-most boundary is Valencia Road on the east side of the site area.

Contaminants:

The contaminants of concern at the jet fuel J3 Pumphouse, site ST-35 include petroleum hydrocarbons and benzene, toluene, ethyl benzene and xylene (BTEX) in soils. Contaminants of concern at the landfill (LF-01) include methane gas, volatile organic compounds (VOCs), and metals in soil. No contamination of the groundwater has been encountered. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

A long term groundwater monitoring program is in place and wells are monitored quarterly. Contamination is limited to the subsurface soil. Groundwater has not been impacted at either of these sites. There is no known risk to human health from the site.

Remedial Activities:

The jet fuel contamination in the subsurface soil at ST-35 (J3 Pumphouse) has been characterized both laterally and vertically. Several of the soil borings have been converted to vapor extraction wells. Investigations into the source of the JP-8 are ongoing. The SVE system has removed over 206,000 gallons of petroleum hydrocarbons from the soil and continues to operate. Groundwater monitoring wells at the site are sampled quarterly and continue to be non-detect for contaminants of concern.

A SVE system has been installed to remediate petroleum hydrocarbons in shallow soils at the former Army & Air Force Exchange Service (AAFES) gas station (ST-52).

The Main Base Landfill (LF-01) will continue maintenance of the cover vegetation and cap. A landfill gas collection, control, and treatment system operates about 20 hours per week to maintain minimum levels of methane beneath the control tower.

ADEQ recently commented on documents in support of No Further Action at nineteen Installation Restoration Program (IRP) Sites. In response to ADEQ's comments, DMAFB plans to collect additional field samples beginning in early 2007.

Community Involvement Activities:

A Restoration Advisory Board (RAB) was formed in 1994 and meets annually. The last meetings were held at DMAFB on October 13, 2004, April 19, 2005 and October 20, 2006.

Note: Refer to Site Information & File Repository Locations - Tucson, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Phoenix Sites

Site Information Repository & File Locations

Narrative Information & Maps

WQARF Registry Sites

7th Avenue & Bethany Home	East Washington Fluff
16th St. & Camelback	Estes Landfill
56th St. & Earll Drive	South Mesa
Central & Camelback	West Central Phoenix (5 sites)
Cooper & Commerce	○ East Grand Ave.
East Central Phoenix (6 sites)	○ West Grand Ave.
○ 24th St. & Grand Canal	○ North Plume
○ 32nd St. & Indian School	○ North Canal Plume
○ 38th St. & Indian School	○ West Osborn Complex
○ 40th St. & Indian School	West Van Buren
○ 40th St. & Osborn Road	Western Avenue PCE
○ 48th St. & Indian School	

Federal EPA NPL Sites

***19th Avenue Landfill**
North Indian Bend Wash
South Indian Bend Wash
Motorola 52nd Street
Phoenix-Goodyear Airport - North
Phoenix-Goodyear Airport - South
Williams Air Force Base

DoD Site

161st Air National Guard

** In September 2006 the 19th Avenue Landfill was delisted as a Superfund site.*



Site Information Repository & File Locations

Phoenix

April 2007

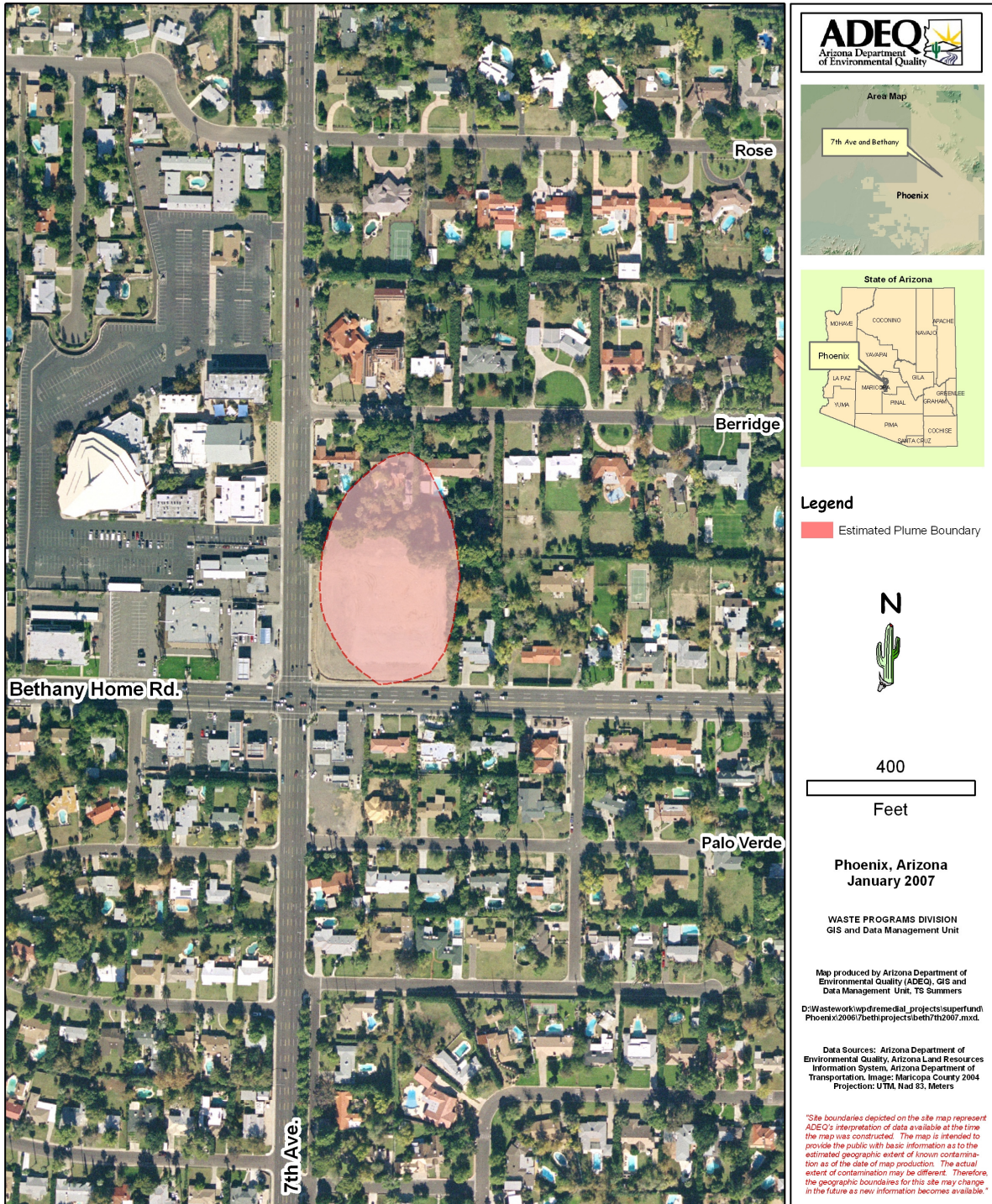
WQARF Registry Sites		EPA NPL Sites
7th Avenue & Bethany Home	East Washington Fluff	19th Avenue Landfill (Delisted in September 2006.)
16th St. & Camelback	Estes Landfill	North Indian Bend Wash
56th St. & Earll	South Mesa	South Indian Bend Wash
Central & Camelback	West Central Phoenix (5 sites)	Motorola 52nd St.
Cooper & Commerce	· East Grand Ave.	Phoenix-Goodyear Airport -North
East Central Phoenix (6 sites)	· West Grand Ave.	Phoenix-Goodyear Airport -South
· 24th St. and Grand Canal	· North Plume	Williams Air Force Base
· 32nd St. and Indian School	· North Canal Plume	
· 38th St. and Indian School	· West Osborn Complex	
· 40th St. and Indian School	West Van Buren	DoD Site
· 40th St. and Osborn Road	Western Avenue PCE	161st Air National Guard
· 48th St. and Indian School		

Site Name	Site Type	File & Repository Locations		
7 th Avenue & Bethany Home	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
16 th Street & Camelback	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
56 th Street & Earll	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Saguaro Library 7808 N. 46 th Street Phoenix (602) 534- 9521	
Central & Camelback	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
Cooper & Commerce	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Southeast Regional Library 775 N. Greenfield Rd. Gilbert (602) 652- 3000	
East Central Phoenix (6 sites) · 24th St. and Grand Canal · 32nd St. and Indian School · 38th St. and Indian School · 40th St. and Indian School · 40th St. and Osborn Road · 48th St. and Indian School	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		

Site Name	Site Type	File & Repository Locations		
East Washington Fluff	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Harmon Public Library 411 W. Yavapai Street Phoenix (602) 262- 6362	
Estes Landfill	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Ocotillo Library 102 W. Southern Avenue Phoenix (602) 262- 6694	Burton Barr Central Library 1221 N. Central Avenue Phoenix (602) 262- 4636
South Mesa	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
West Central Phoenix (five sites) <ul style="list-style-type: none"> ○ East Grand Ave. ○ West Grand Ave. ○ North Plume ○ North Canal Plume ○ West Osborn Complex 	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Burton Barr Central Library 1221 N. Central Avenue Phoenix (602) 262- 4636	
West Van Buren	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Harmon Public Library 411 W. Yavapai Street Phoenix (602) 262- 6362	
Western Avenue PCE	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Avondale Public Library 328 W. Western Avenue Avondale (623) 932- 9415	

Site Name	Site Type	File & Repository Locations		
19 th Avenue Landfill (In Sept. 2006 this site was delisted.)	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Burton Barr Central Library 1221 N. Central Avenue Phoenix (602) 262- 4636	
North Indian Bend Wash	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Scottsdale Civic Ctr. Library 3839 Drinkwater Blvd. Scottsdale (480) 312- 2474	
South Indian Bend Wash	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Tempe Public Library 3500 S. Rural Road Tempe (480) 350- 5500	
Motorola 52 nd Street	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Burton Barr Central Library 1221 N. Central Avenue Phoenix (602) 262- 4636	Saguaro Branch Library 2802 N. 46 th Street Phoenix (602) 262- 6801
Phoenix-Goodyear Airport North and Phoenix-Goodyear Airport South	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Avondale Public Library 328 W. Western Avenue Avondale (623) 932- 9415	
Williams Air Force Base	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Williams Gateway Airport 5835 S. Sossaman Road Mesa (480) 988- 1013	
161 st Air National Guard	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		

7th Avenue & Bethany Home Road WQARF Site



7th Avenue & Bethany Home Road

WQARF Registry Site - Phoenix

Boundaries:

The Seventh Avenue and Bethany Home Road Site is located in Phoenix and is bounded to the north by Berridge Lane, to the south by Bethany Home Road, to the east by Sixth Avenue and to the west by Eighth Avenue, and includes the 2.6-acre former shopping center that housed a dry cleaning facility. This site was placed on the WQARF Registry on August 25, 2004 and has a score of 29 out of a possible 120.

Contaminants:

Contaminants of concern at the site include PCE and trichloroethene (TCE).

Public Health Impact:

There are no drinking water production wells within the confines of the site, but ADEQ is closely monitoring the movement of the groundwater plume. Two Salt River Project irrigation wells near the site have been tested, and concentrations of PCE were not detected above the standard.

Remedial Activities:

ADEQ initiated an early response action (ERA) Evaluation on the site in October 2004 to collect data necessary to characterize the source area of PCE contamination below the site. The ERA Evaluation consisted of drilling ten soil borings and installation of five soil vapor extraction wells and two groundwater monitor wells at the site.

Based on the results of the ERA investigation, a soil vapor extraction (SVE) system was designed and constructed at the site. Operation of the SVE system began in June 2005 and was discontinued in January 2006. During operation of the system, approximately 380 pounds of PCE were removed from the subsurface soils. To determine if the volatile organic compounds (VOCs) remaining in the soil warranted further operation of the system, a rebound test was conducted in April 2006. The results of this test indicated there were not enough extractable VOCs remaining in the soils to warrant further operation of the system. Confirmation borings have been drilled and sampled in the areas of the SVE system confirming the concentrations of PCE remaining in the soils at the site are below residential soil remediation standards and groundwater protection levels.

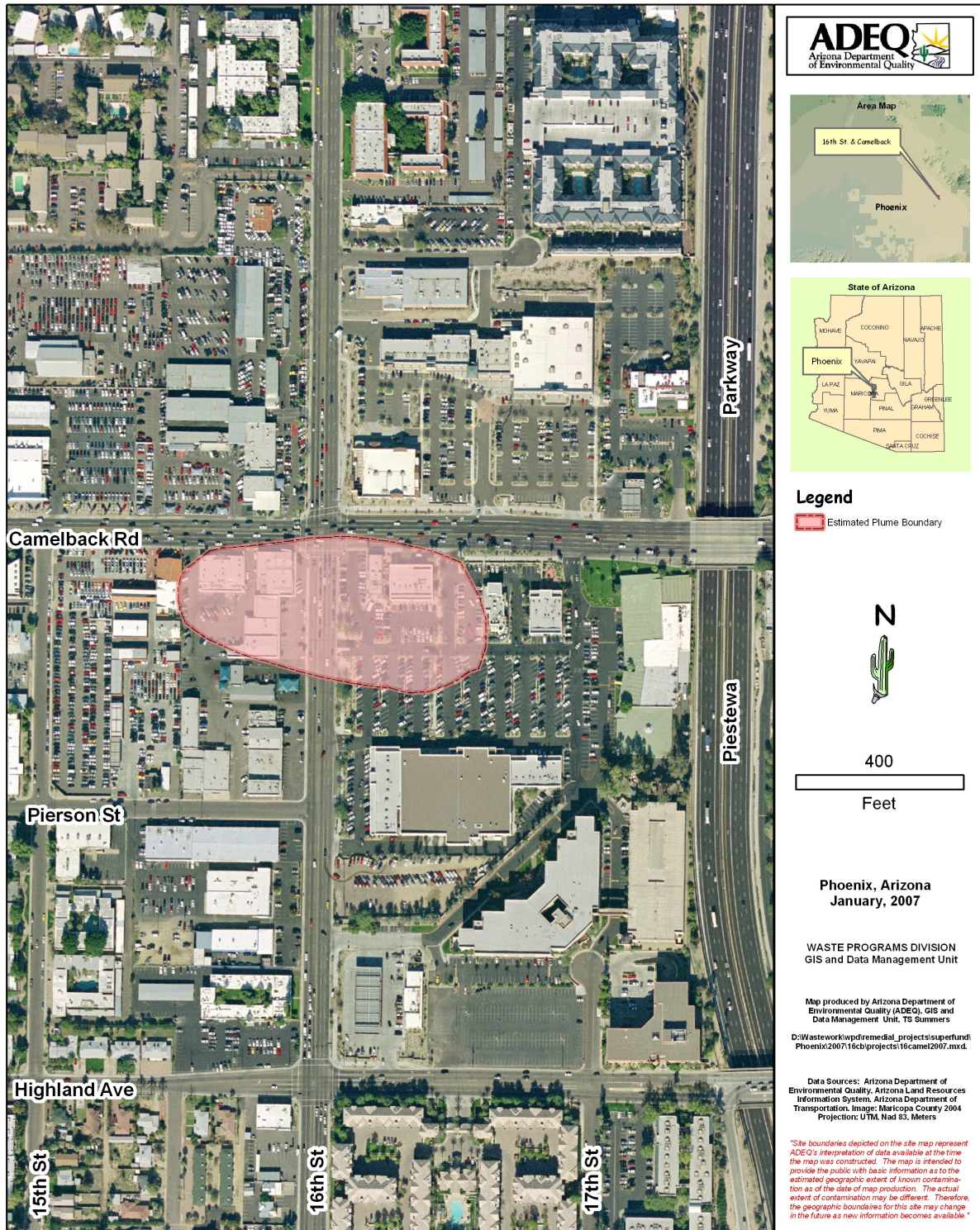
ADEQ's current plans for the site are to begin the Remedial Investigation (RI) phase of the project. During the RI, ADEQ plans to determine the depth of groundwater contamination at the site and fully determine the extent of groundwater contamination down gradient of the site. The site will then proceed through a feasibility study leading to a proposed remedial action plan and a final remedy.

Community Involvement Activities:

A newsletter on site activities was mailed to the community involvement area in January 2005. The remedial investigation phase of the project is just being initiated. A community advisory board will be formed soon.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

16th Street & Camelback Road WQARF Site



16th Street & Camelback

WQARF Registry Site - Phoenix

Boundaries:

The 16th Street and Camelback Site is bounded approximately by Medlock Drive to the north, 17th Street to the east, Pierson Street to the south, and 14th Place to the west. The site was placed on the WQARF Registry in April 1999 with a score of 23 out of a possible 120.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE), 1,2-dichloropropane and 1,2-dichloroethane (1,2-DCA).

Public Health Impact:

No one is known to be at risk of exposure to these contaminants. The contaminated groundwater is not used for drinking water purposes. Drinking water provided by the city of Phoenix is tested regularly to ensure that it meets all state and federal water quality standards.

Remedial Activities:

In 2003, ADEQ conducted an early response action (ERA) evaluation to determine the feasibility of installing a soil vapor extraction / air sparge remediation system. An ERA completion report has been completed. Groundwater monitoring of the well network will continue at the site. There are 13 wells that are monitored and sampled on the site as part of the monitoring well network.

Passive diffusion bags are currently being used at the site due to a drop in the depth of groundwater. Passive diffusion bags were first used during the 1st Quarter 2004 sampling event. The current highest concentration of PCE in groundwater at the site is 89 µg/l based on the August 2006 sampling event. The highest concentration of 1,2-DCA in groundwater was detected at 7 µg/l. No concentrations of 1,2-DCP have been detected above laboratory reporting limits. The aquifer water quality standards for PCE, 1,2-DCP, and 1,2-DCA is 5 µg/l.

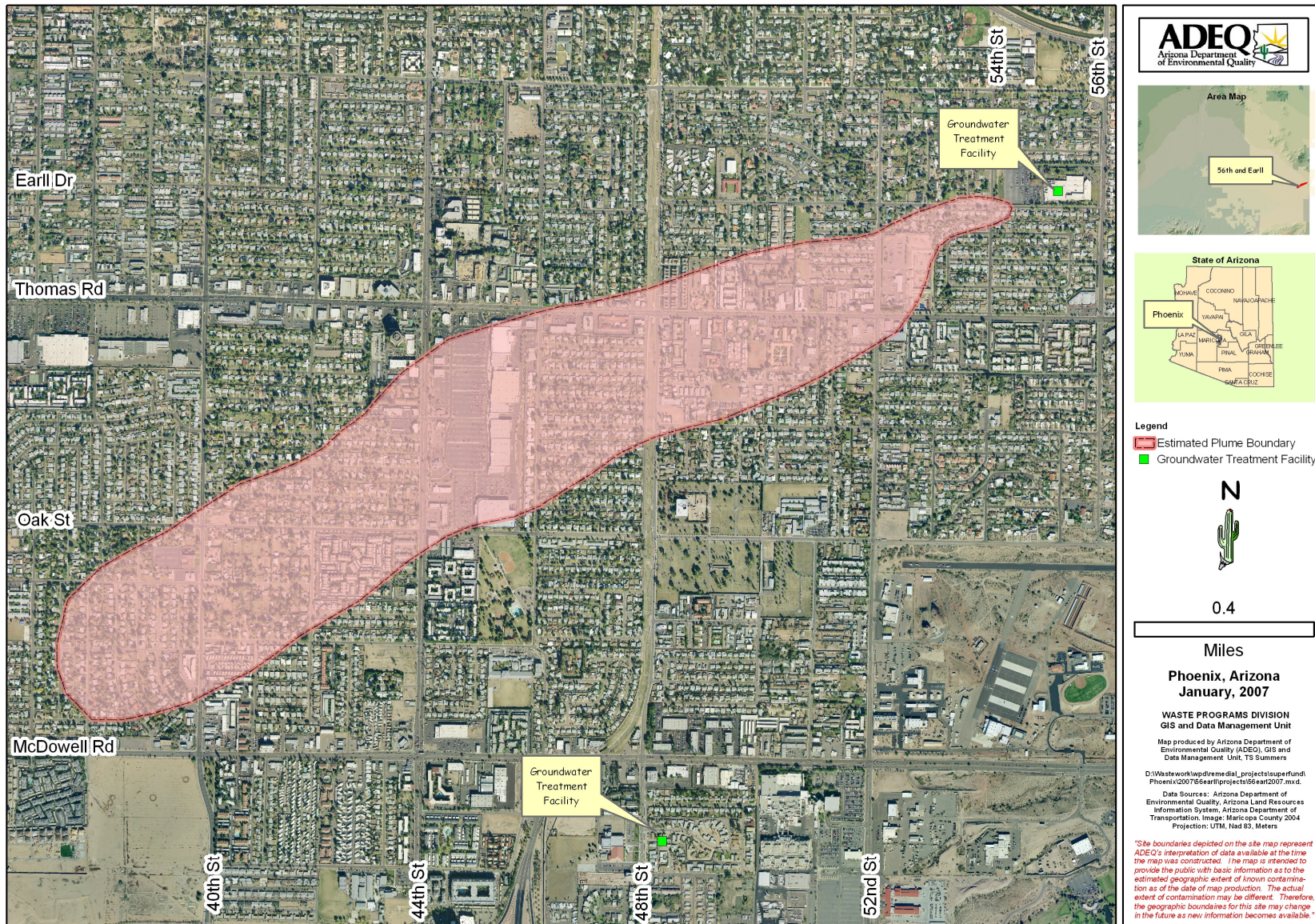
ADEQ installed an additional well (MW-12) in January 2004 on the property located on the southwest corner of 16th Street and Camelback. The purpose of the well was to aid in defining the down gradient extent of PCE contamination. Due to declining water levels, in April 2006 ADEQ installed well MW-3A to replace well MW-3. The purpose of well MW-3A is to collect contamination data from the source area of the southern plume. The remedial investigation (RI) has not been initiated, but groundwater monitoring continues.

Community Involvement Activities:

No community involvement activities are planned at this time. The community involvement process will begin when a remedial investigation is initiated at the site.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

56th St and Earll Dr WQARF Site



56th Street & Earll Drive

WQARF Registry Site - Phoenix

Boundaries:

The 56th Street and Earll Drive Site was originally investigated as part of the Motorola 52nd Street Superfund Site. However, groundwater data indicated that there were two separate and distinct areas of contamination. Therefore, the site was disassociated from the larger Motorola 52nd Street Superfund Site in 1989. The site is bounded approximately to the north by Earll Drive, to the south by State Route 202, to the east by 56th Street, and to the west by 36th Street. The site was placed on the WQARF Registry on June 2, 2004 with a score of 40 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include tetrachloroethene (PCE), trichloroethene (TCE) and arsenic. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

There is no known public health impact to drinking water because there are no known drinking water wells within site boundaries. A Public Health Consultation completed by the Arizona Department of Health Services determined that there is no public health threat associated with the use of water from the private irrigation wells located in the vicinity of the 56th Street and Earll Drive Site. All owners of the private irrigation wells are aware that these wells are not suitable for public drinking water purposes.

Remedial Activities:

Freescale Semiconductor Inc., a wholly owned subsidiary of Motorola Inc., has agreed to implement an early response action (ERA) evaluation for the site due to increasing levels of TCE along the western margin of the monitor well network. The current maximum PCE and TCE levels present in the groundwater are 46 ug/L and 770 ug/L, respectively. Arsenic has also been found in private irrigation wells near the site at levels that exceed the AWQS of 50 ug/L. At this time, it is not known if the arsenic is naturally occurring or is contamination from the site.

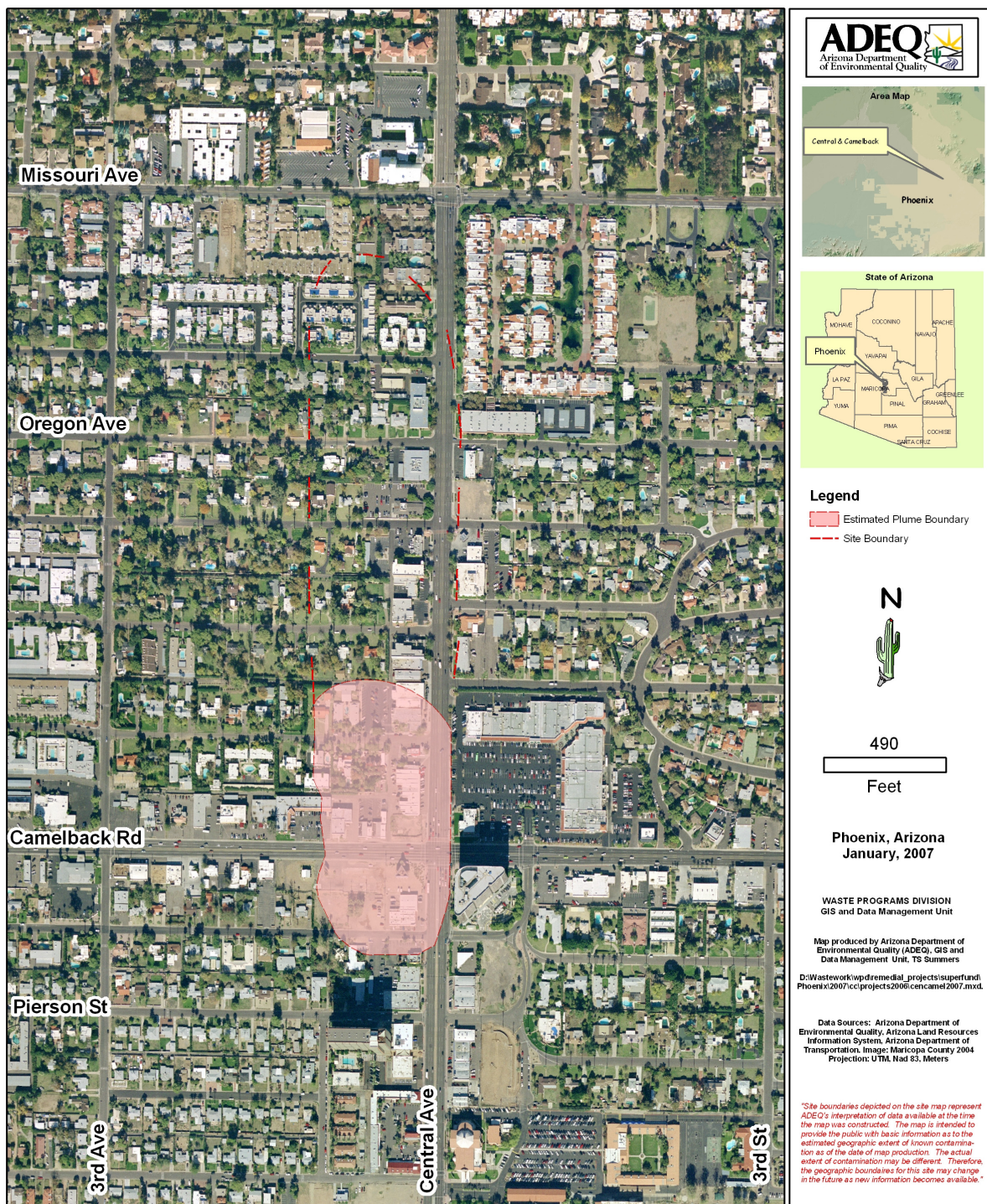
Freescale installed additional monitor wells during the 3rd Quarter 2005 to the west and southwest of TCE contaminant plume to further delineate the extent of groundwater contamination. Following installation and sampling of these wells, an ERA Evaluation will be conducted to evaluate potential impact to a down-gradient SRP well.

Community Involvement Activities:

A community advisory board has been formed for this site and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at: <http://azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Central Avenue & Camelback Road WQARF Site



Central & Camelback

WQARF Registry Site - Phoenix

Boundaries:

The Central and Camelback Site is approximately bounded by Missouri Avenue to the north, approximately 100 feet east of Central Avenue to the east, Pierson Street to the south, and by a line approximately 600 feet west of Central Avenue to the west. The site was placed on the WQARF Registry on January 20, 1999 with a score of 31 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride. Contaminants of concern at the site may change as new data become available. Other contaminants from past underground storage tank releases include: benzene, toluene, ethylbenzene, total xylenes, methyl tertiary butyl ether (MTBE), and 1,2-dichloroethane (1,2-DCA).

Public Health Impact:

There is no known public health impact to drinking water because there are no drinking water wells within site boundaries. There is an irrigation supply well approximately ½ mile down gradient that shows PCE at its depth of 400 feet.

Remedial Activities:

In January 2003, ADEQ constructed a groundwater treatment system to remediate and control the migration of contaminated groundwater at the site as an early response action (ERA). The treatment system is intended to remove volatile organic compounds (VOCs) by passing the contaminated groundwater through granular activated carbon (GAC). The treated water is discharged primarily to the SRP Grand Canal and, during canal dry-out periods, to the City of Phoenix sanitary sewer.

In June 2004, ADEQ initiated an ERA evaluation of the Maroney's Dry Cleaners facility. Based on the results of this evaluation, a soil vapor extraction (SVE) pilot test was conducted in January 2005 and SVE was chosen as an effective remedy for the subsurface soil contamination at the Maroney's facility. A remedial investigation has been initiated at the site. Wells at the former Texaco station located at the corner of Central Avenue and E. Colter Street had PCE detected in groundwater samples. The PCE detected in the Texaco station wells is not from the plume at the corner of Central Avenue and Camelback Road.

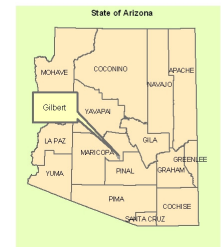
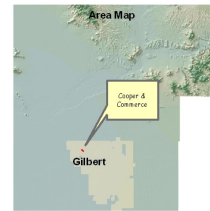
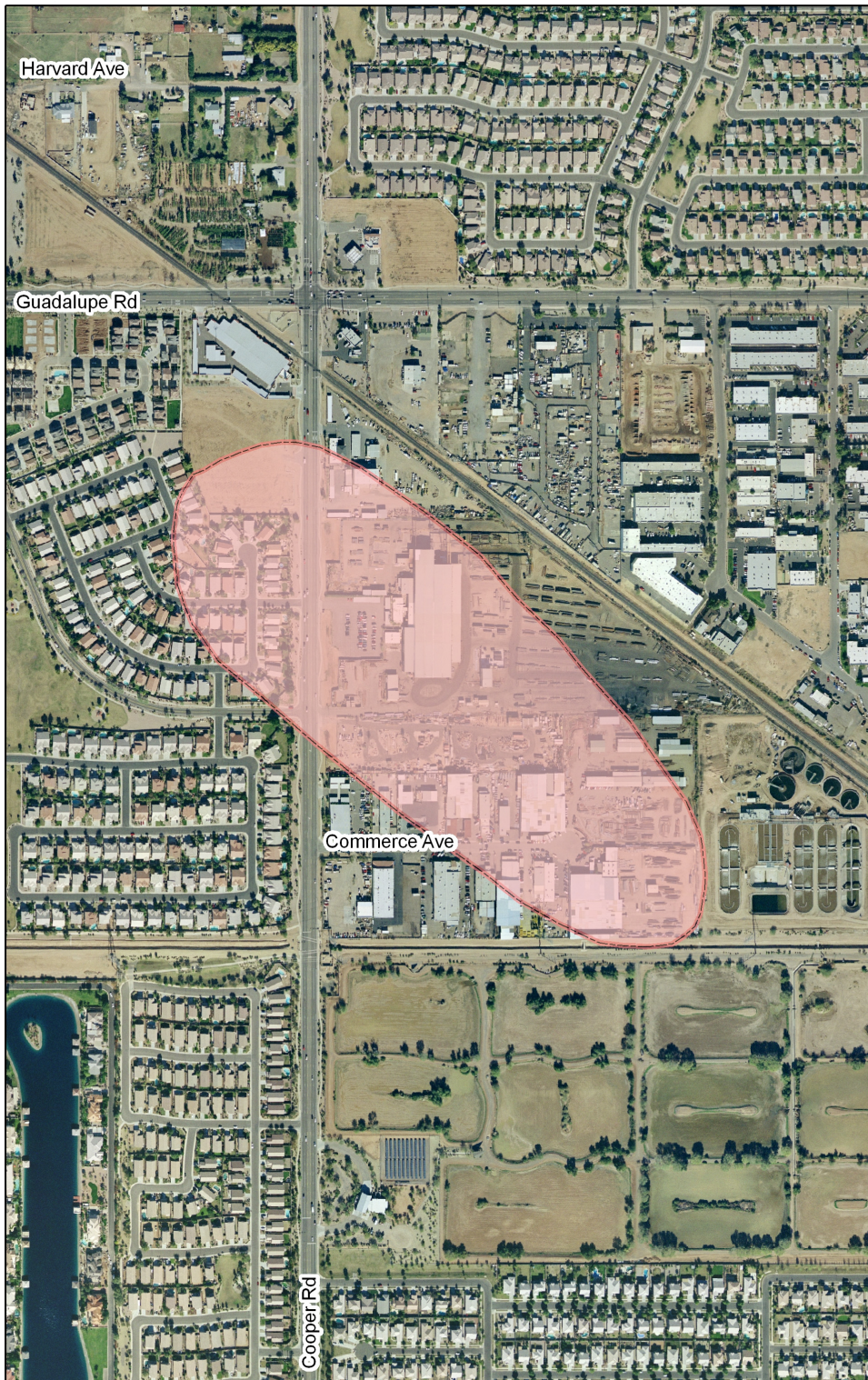
Community Involvement Activities:

A fact sheet was mailed to residents within the community involvement area in September 2006. A community advisory board has been established for this site and meets on a regular basis. The CAB meeting agendas and minutes can be viewed at:

<http://www.azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Cooper and Commerce WQARF Site



Legend

Estimated Plume Boundary

N



500

Feet

Gilbert, Arizona
January 2007

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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superfund\phoenix\2007\coopcomm\07.mxd.

Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Maricopa County 2004
Projection: UTM, NAD 83, Meters

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Cooper Road & Commerce Avenue

WQARF Registry Site - Phoenix

Boundaries:

The Cooper Road and Commerce Avenue Site is located in Gilbert near Guadalupe Road and Baseline. The site is bounded to the north by Guadalupe Road, to the south by the Western Canal, to the east by the Gilbert Wastewater Treatment Plant and to the west by Cooper Road. The site was listed on the WQARF Registry on June 14, 2004 and has a score of 33 out of a possible 120.

Contaminants:

The current contaminants of concern in the groundwater at the site include PCE and TCE. Contaminants of concern in the soils at the site include arsenic, chromium, copper, TPH, mercury and lead. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

No irrigation, drinking water or other production wells have been impacted by the volatile organic compound contamination from the site. However, PCE, TCE are present in the groundwater monitoring wells at or near the site at concentrations above the aquifer water quality standards (AWQS).

Remedial Activities:

During 2006, ADEQ completed an early response action (ERA) evaluation at the site. During this ERA evaluation, ADEQ investigated the depth of groundwater contamination at the site and installed extraction well (EW-101), located northwest of the drywell. ADEQ determined the concentrations of PCE in the soil and soil vapor at the site and installed several soil vapor monitor wells, soil vapor extraction (SVE) wells, and groundwater air sparge wells. ADEQ also collected and analyzed additional shallow soil samples to begin to define the extent of surface soil contamination indicated by previous samples collected. Based on the results of the ERA Evaluation, soil vapor extraction (SVE) is proposed for remediation of PCE contaminated soil beneath the site. Several shallow borings were also drilled at 15 locations across the site to define the extent of surface soil contamination indicated by previous samples collected from parcels 302-15-025A and 025B.

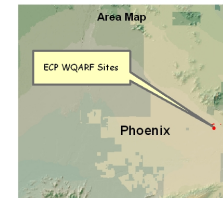
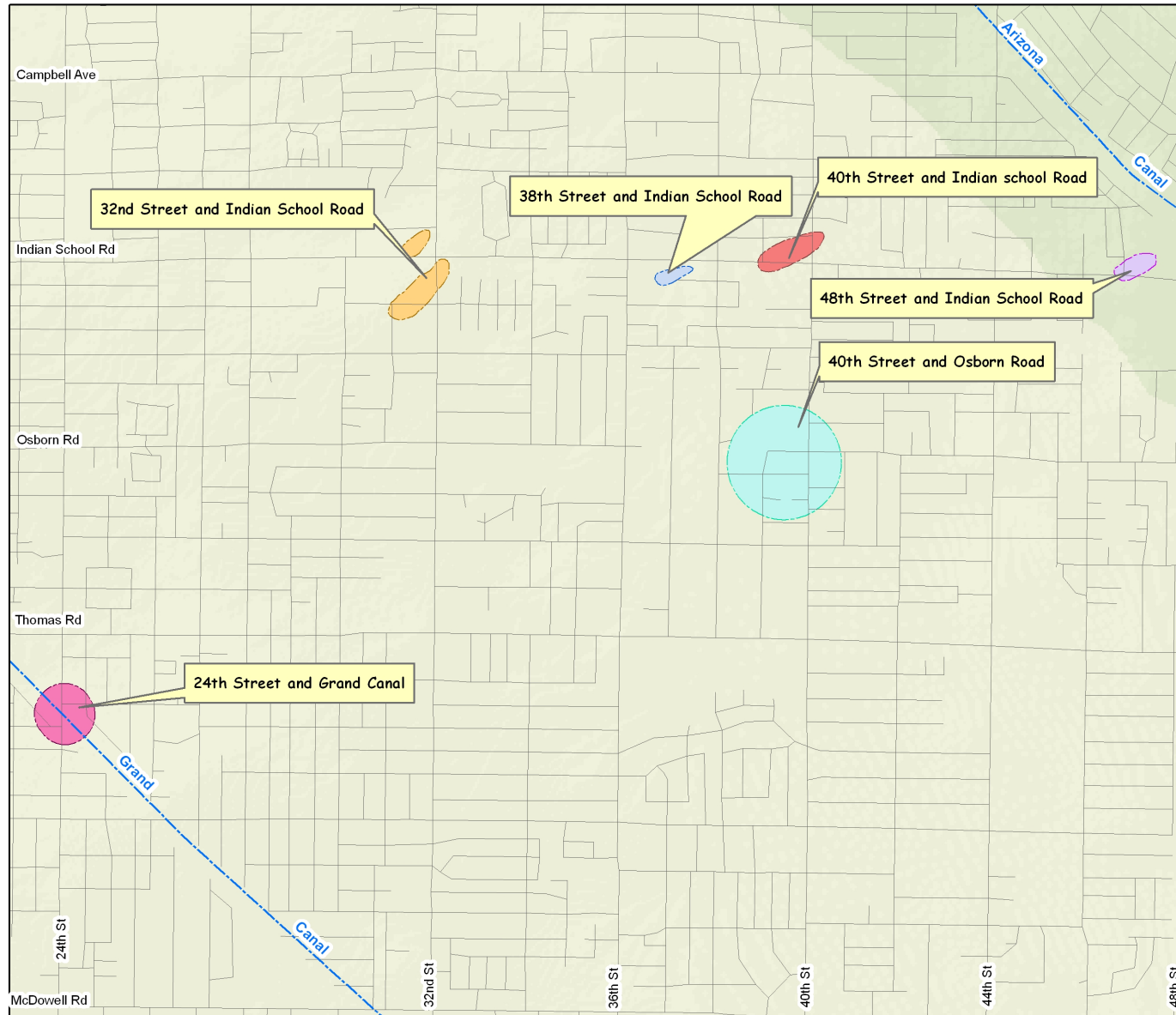
ADEQ's immediate plans are to conduct a SVE pilot test to determine unsaturated zone properties. ADEQ will then proceed to design and construct the SVE system. ADEQ will also conduct an aquifer test on EW-101. This data will be required to begin to design the groundwater extraction system. ADEQ will continue to install groundwater monitor wells off-site to continue to determine the extent of the plume.

Community Involvement Activities:

A community advisory board was formed and first met on June 14, 2006. They meet on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at: <http://azdeq.gov/environ/waste/sps/reg.html>. A fact sheet can be found on the ADEQ web site.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

East Central Phoenix (ECP) WQARF Sites



Legend

- 24th Street and Grand Canal Plume
- 32nd Street and Indian School Road Plume
- 38th Street and Indian School Road Plume
- 40th Street and Indian School Road Plume
- 40th Street and Osborn Road Plume
- 48th Street and Indian School Road Plume
- Roads
- Canals



0.4

Miles

Phoenix, Arizona
January, 2007

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

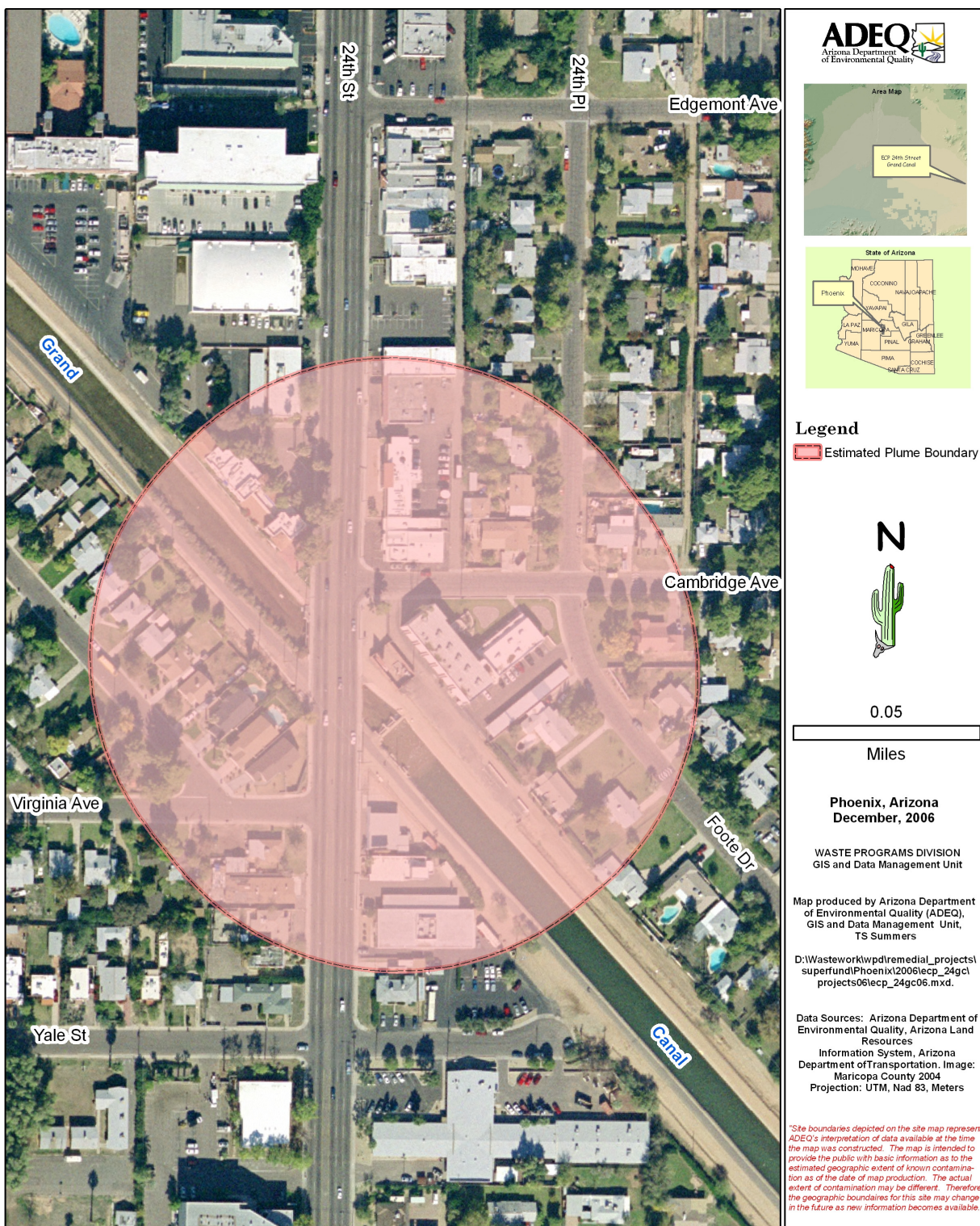
Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image, Maricopa County 2004
Projection: UTM, Nad 83, Meters

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East Central Phoenix (ECP) 24th Street and Grand Canal WQARF Site



East Central Phoenix (ECP)

WQARF Registry Sites - Phoenix

This former study area has been split into six sites that have been placed on the Registry. The sites are:

24th Street and Grand Canal (May 2000)
32nd Street and Indian School Road (May 2000)
38th Street and Indian School Road (September 1998)
40th Street and Indian School Road (September 1998)
40th Street and Osborn Road (May 2000)
48th Street and Indian School Road (April 1999)

ECP - 24th Street & Grand Canal

Boundaries:

The boundary of the 24th Street and Grand Canal Site approximates a circle about 400 feet in diameter surrounding a Salt River Project (SRP) production well. The production well is approximately 30 feet to the east of 24th Street and 10 feet to the north of the Grand Canal. The site was placed on the WQARF registry in May 2000 with a score of 29 out of a possible 120.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the East Central Phoenix sites. Salt River Project (SRP) occasionally pumps well 16E-6.8N for irrigation use. However, SRP monitors the well for contamination and will cease using the well if contamination is detected above allowable standards.

Remedial Activities:

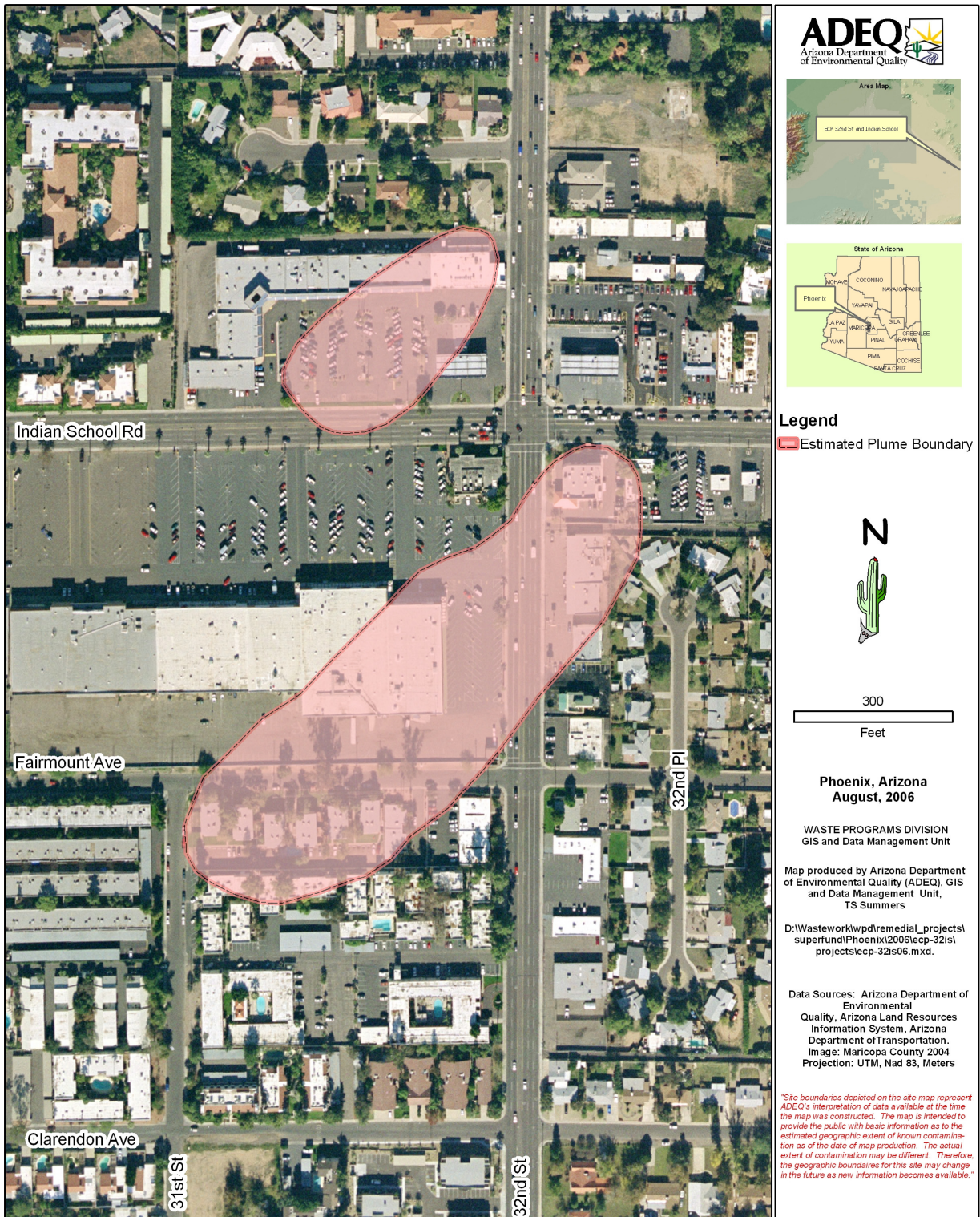
Groundwater is sampled using passive diffusion bags and is currently conducted on a semi-annual basis. SRP well 16E-6.8N contained a PCE concentration of 11 µg/l during the October 2006 sampling event. TCE was not detected above the AWQS in the SRP well during the sampling event. The remedial investigation has been initiated at the site.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

East Central Phoenix (ECP) 32nd St and Indian School Rd WQARF Site



ECP - 32nd Street & Indian School Road

Boundaries:

The 32nd Street and Indian School Road Site has two areas of groundwater contamination: The northwest plume flows from the northeast to southwest. The plume is approximately 200 feet wide by 300 feet long. The northeastern edge is approximately 150 feet south of Monterosa Street and 50 feet west of 32nd Street. The southwestern edge is approximately 75 feet north of Indian School Road and 350 feet west of 32nd Street. The southeastern plume also flows from the northeast to the southwest. The plume is approximately 200 feet wide by 500 feet long. The northeastern edge of this ellipse-shaped plume is approximately 25 feet south of Indian School Road and 100 feet east of 32nd Street. The southwestern edge is approximately 400 feet south of Indian School Road and 200 feet west of 32nd Street.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the East Central Phoenix sites.

Remedial Activities:

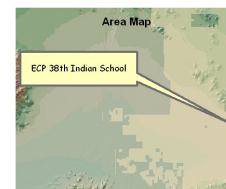
In June 2004, a soil vapor extraction (SVE)/air sparge (AS) system was installed at the site. The system consists of three nested pairs of SVE wells; three air sparge wells; a blower; a compressor; two granular activated carbon (GAC) vessels; and multiple safety shutdown control devices. An ERA investigation was conducted in January 2006 to determine what contamination remained in soil and groundwater near the Maroney's Cleaners facility. ADEQ installed three additional groundwater monitoring wells and soil vapor extraction wells. Initial groundwater sampling from one well indicated a PCE concentration of 100µg/L. The remedial investigation (RI) has been initiated and groundwater monitoring continues.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

East Central Phoenix (ECP) 38th St and Indian School Rd WQARF Site



Legend

 Estimated Plume Boundary

N



250

Feet

Phoenix, Arizona
December, 2006

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Maricopa County 2004
Projection: UTM, NAD 83, Meters

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ECP - 38th Street & Indian School Road

Boundaries:

The 38th Street and Indian School Road Site is bounded approximately by Indian School Road to the north, 38th Street to the east, Picadilly Road to the south and 36th Street to the west. The site was placed on the WQARF Registry in 1998 with a score of 20 out of a possible 120.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the site.

Remedial Activities:

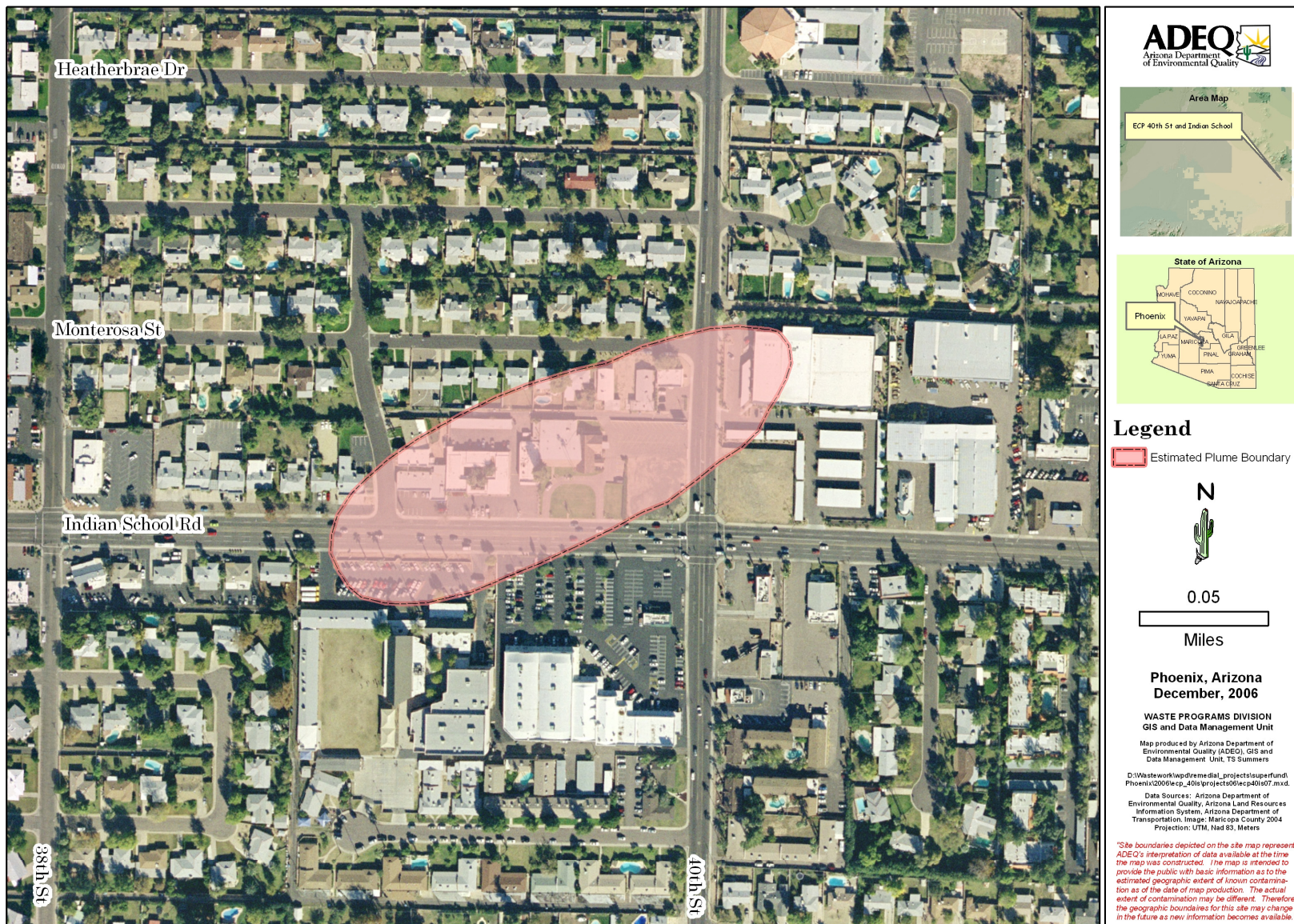
Groundwater sampling using passive diffusion bag samplers in the monitor wells is currently conducted on a semi-annual basis. PCE concentrations in groundwater during the October 2006 sampling event ranged from non-detect to 38µg/L. The remedial investigation (RI) has been initiated and groundwater monitoring continues.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

East Central Phoenix (ECP) 40th St and Indian School Rd WQARF Site



ECP - 40th Street & Indian School Road

Boundaries:

The 40th Street and Indian School Road Site is bounded approximately by Devonshire Avenue to the north, 40th Street to the east, Amelia Avenue to the south, and 38th Street to the west.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE) and trichloroethene (TCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the site.

Remedial Activities:

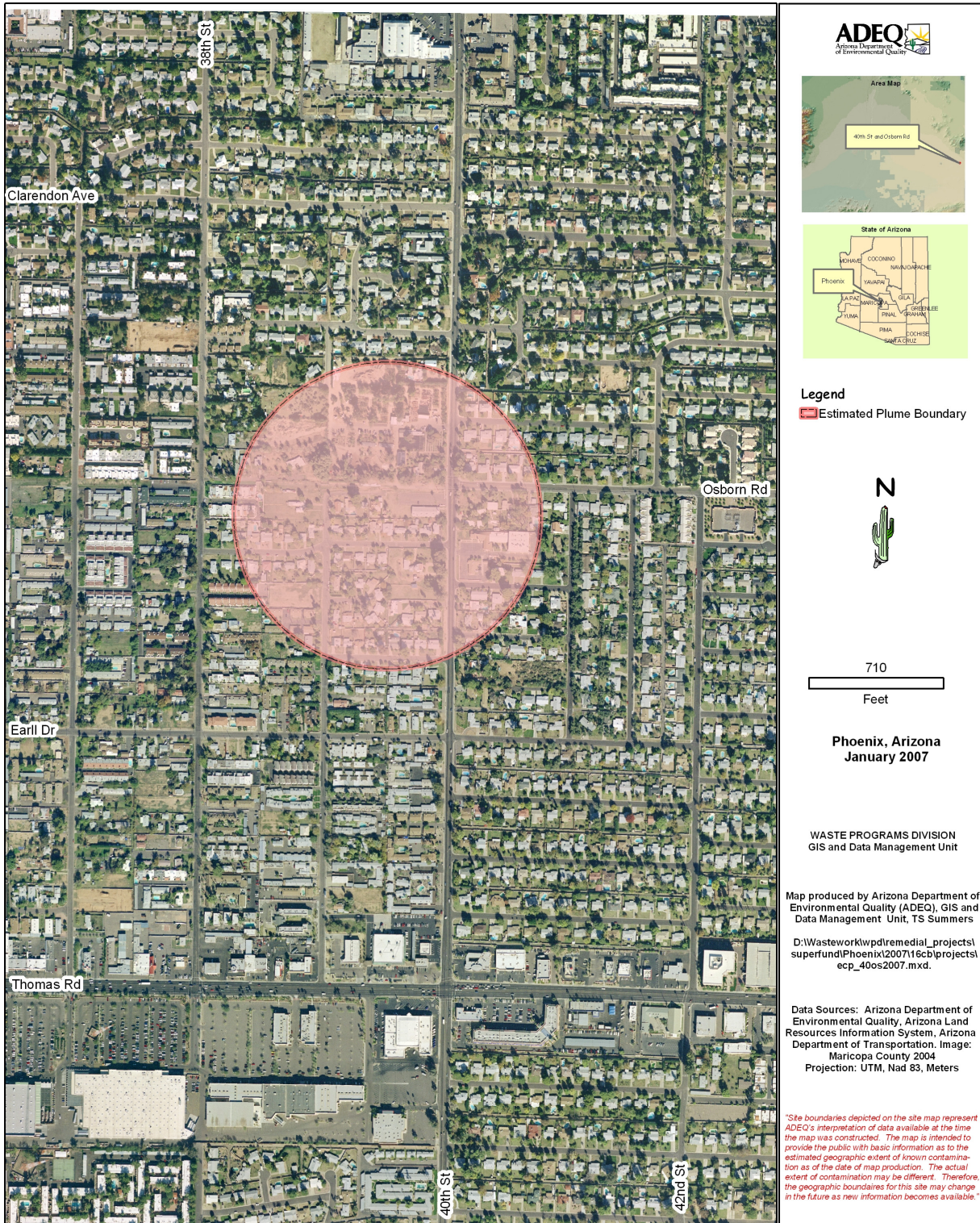
ADEQ is conducting an early response action (ERA), which consists of a soil vapor extraction and air sparging system to remediate the source of PCE in the soil and groundwater. The remedial investigation (RI) has been initiated and groundwater monitoring continues.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

East Central Phoenix (ECP) 40th St and Osborn Rd, WQARF Site



ECP - 40th Street & Osborn Road

Boundaries:

The boundaries of the 40th Street and Osborn Road Site approximate a circle about 800 feet in diameter surrounding a Salt River Project (SRP) production well. The SRP well is approximately 400 feet to the west of 40th Street and 50 feet to the south of the Osborn Road. The site was placed on the WQARF registry in May 2000 with a score of 30 out of a possible 120.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the site.

Remedial Activities:

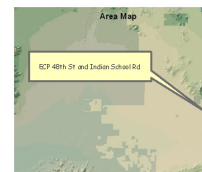
Groundwater sampling of the SRP well is currently conducted by ADEQ on a semi-annual basis. Groundwater samples are collected from one ADEQ well and SRP well 17.9E-7.5N. The most recent groundwater sample collected from the SRP well was during October 2006. The sample collected from the ADEQ well (BMW1) during October 2006 indicated that PCE and TCE were below detectable limits. An early response action (ERA) evaluation is being conducted for this site. The remedial investigation (RI) has been initiated and groundwater monitoring continues.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

An aerial photograph of a suburban area. A red shaded polygon highlights a property located between 46th St and 47th St, south of Devonshire Ave. The map shows surrounding streets, including 48th St, and landmarks such as the Arizona Canal and a large commercial building with a parking lot.



 Estimated Plume Boundary



300

Feet

Phoenix, Arizona
December, 2006

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of Environmental Quality, Arizona Land Resources Information System, Arizona Department of Transportation. Image: Maricopa County 2004
Projection: UTM, Nad 83, Meters

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ECP - 48th Street & Indian School Road

Boundaries:

The 48th Street and Indian School Road Site is bounded approximately by a line 450 feet north of Indian School Road to the north, a line 300 feet west of 48th Street to the east, a line 150 feet south of Indian School Road to the south, and 45th Place to the west. The site was placed on the WQARF Registry in April 1999 with a score of 27 out of a possible 120.

Contaminants: Contaminants of concern at the site include tetrachloroethene (PCE).

Public Health Impact:

There is currently no known threat of direct exposure to the public from the contamination at the site.

Remedial Activities:

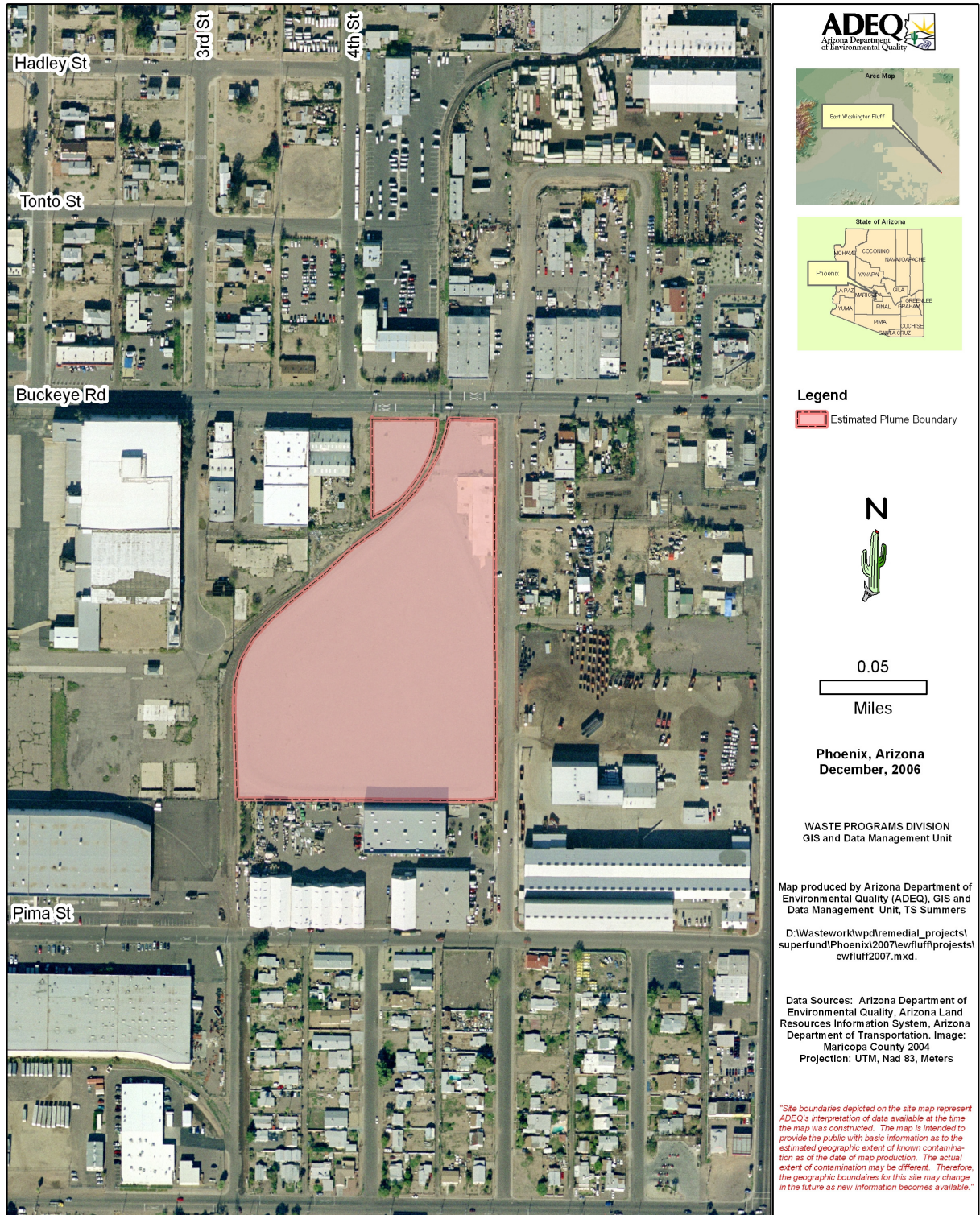
ADEQ and the Salt River Project have entered into an agreement to conduct a source control interim remedial action. SRP is operating a soil vapor extraction (SVE)/air sparging system to remediate the source of tetrachloroethene (PCE) in soil and groundwater at the site. The remedial investigation (RI) has been initiated and groundwater monitoring continues. The SVE system began operations in September 2006. Groundwater sampling at the site is currently conducted by ADEQ on a semi-annual basis.

Community Involvement Activities:

A community advisory board will be formed by June 2007. A newsletter is under development and will be mailed to residences and businesses in the community involvement area once completed.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

East Washington Fluff WQARF Site



East Washington Fluff

WQARF Registry Site - Phoenix

Boundaries:

The East Washington Fluff Site is located in Phoenix at 433 E. Buckeye Road and is bounded to the west by a set of railroad tracks, to the north by Buckeye Road, to the east by 5th Street and to the south by Pima Street. This site was placed on the WQARF Registry in June 1999 and has a score of 34 out of a possible 120.

Contaminants:

The site is ten acres in size and contains significant quantities of auto shredder fluff co-mingled with native soils. The current contaminants of concern (COCs) at the site include: lead, cadmium, arsenic and PCBs, a substance historically used as a cooling oil in electric components. The COCs are present in the soil only. No COCs have been detected in the groundwater above the aquifer water quality standards (AWQS). Contaminants of concern at the site may change as new data become available.

Public Health Impact:

The site has been abandoned for approximately 15 years, and contains significant quantities of auto shredder fluff. A twelve foot fence was installed by ADEQ around the site with signage in English and Spanish to warn the public that hazardous substances are present at the site.

All surface piles of auto shredder fluff, including the main fluff pile, have been removed from the site. A protective soil cap was installed at the site to prevent exposure to any contamination in the soil. The Arizona Department of Health Services (ADHS) has concluded that the soil cap will prevent future direct contact with the contaminants present in on-site soils and wastes at the site and that the cap should be protective of human health until a final remedy for the site is selected.

Remedial Activities:

An early response action (ERA) was conducted to remove fluff piles and install a protective cap to prevent exposure to contaminants. The ERA was completed in September 2001.

A remedial investigation (RI) and feasibility study (FS) have been completed. ADEQ is in the process of preparing a Responsiveness Summary to those comments received on the RI and a Proposed Remedial Action Plan in accordance with A.A.C. R18-16-408.

Community Involvement Activities:

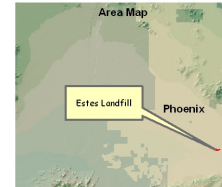
A community advisory board (CAB) has been formed for this site. They are no longer meeting on a regular basis. Past CAB meeting agendas and minutes can be viewed at the Information Repositories.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Estes Landfill WQARF Site



ADEQ
Arizona Department
of Environmental Quality



Legend

Estimated Plume Boundary

N



1,000

Feet

**Phoenix, Arizona
January 2007**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Maricopa County 2004
Projection: UTM, Nad 83, Meters

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Estes Landfill

WQARF Registry Site - Phoenix

Boundaries:

The Estes Landfill Site is located in Phoenix, south of Sky Harbor Airport. The landfill itself is bounded, approximately, by the Salt River to the North, the 153 Expressway to the East, Magnolia Street to the south, and 40th Street to the West.

Groundwater contamination from the landfill extends in an oval shape for approximately one-half mile to the west and north of the landfill. The site was placed on the WQARF Registry in 1998 with a score of 45 out of a possible 120.

Contaminants:

The current contaminants of concern in soil include arsenic, lead and thallium. The contaminants of concern in groundwater include vinyl chloride, cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethene (TCE), benzene, bis(2-ethylhexyl)phthalate, arsenic, barium, chromium, lead, and manganese. Contaminants of concern at the site may change as new data become available. The unregulated landfill is reported to have accepted industrial, commercial, residential, and liquid wastes.

Public Health Impact:

Although the groundwater beneath the landfill is contaminated, there are no known drinking water wells within the area of contamination. The city of Phoenix drinking water supply is required to meet all state and federal drinking water limits.

Remedial Activities:

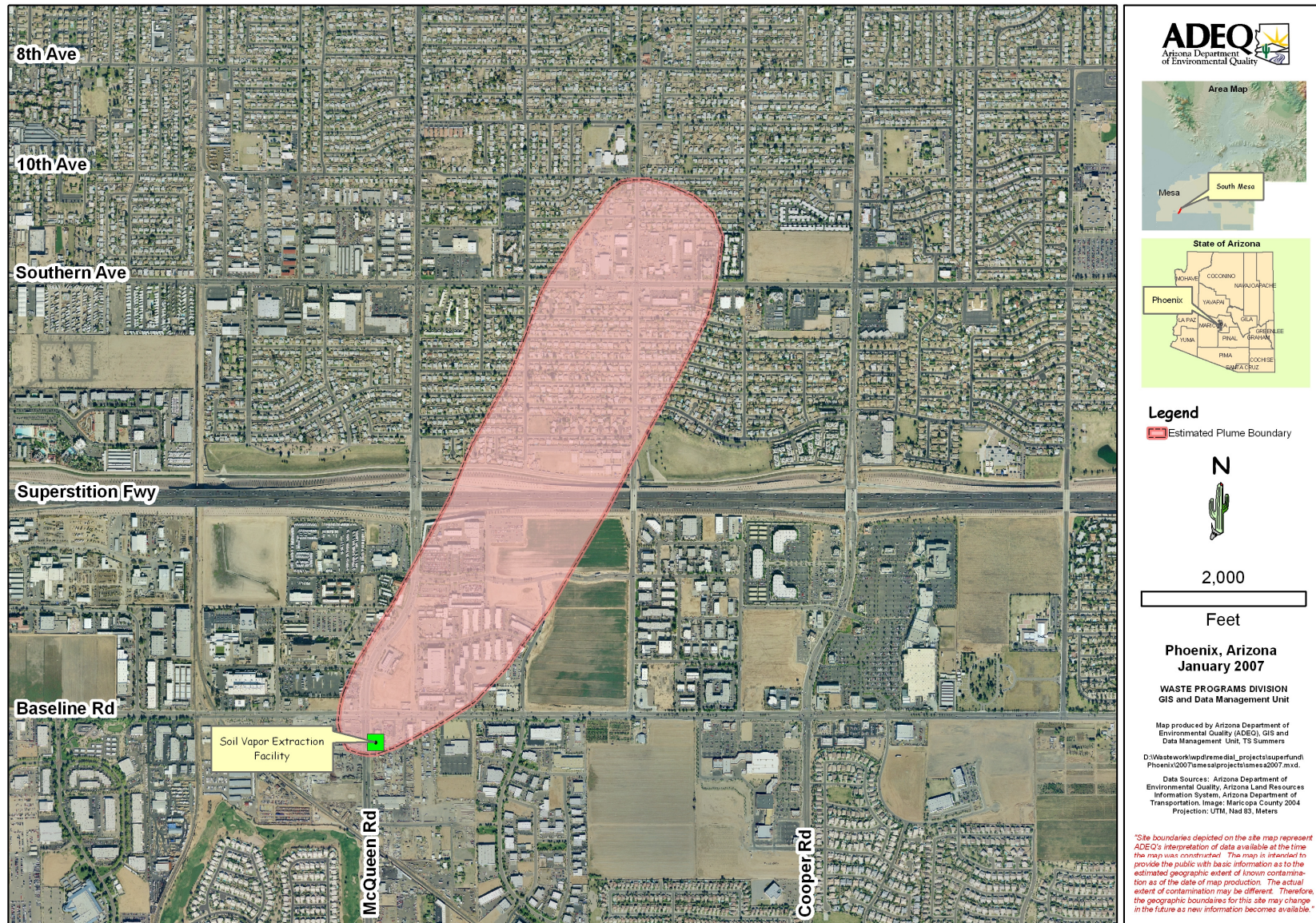
Until 1999, the Arizona Department of Environmental Quality (ADEQ) provided regulatory oversight and technical review of site investigations and site activities performed by the City. In March 1999, ADEQ took over responsibility of completing the remedial investigation, feasibility study and other site activities. The remedial investigation (RI)/ feasibility study (FS) and a proposed remedial action plan (PRAP) have been completed. ADEQ is evaluating comments on the PRAP.

Community Involvement Activities:

A community advisory board has been established for this site. The CAB is not currently meeting regularly. Past CAB meeting agendas and minutes can be viewed at the Information Repositories.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

South Mesa WQARF Site



South Mesa

WQARF Registry Site - Phoenix

Boundaries:

The South Mesa site is located in Mesa and Gilbert and is bounded approximately by Tenth Avenue to the north, the railroad south of Baseline Road to the south, Stapley Road to the east, and the railroad west of Center Street to the west. The site includes industrial, commercial, and residential areas. This site was placed on the WQARF Registry in August 1998 and has a score of 31 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include tetrachloroethene (PCE) and trichloroethene (TCE). Contaminants of concern at the site may change as new data become available. Other contaminants at the site include regionally high levels of nitrates due to past agricultural land use.

Public Health Impact:

No drinking water wells are threatened by this plume. The nearest drinking water well is approximately one-half mile from the downgradient plume edge.

As part of the SRP remedial action plan for the interim remediation of one of the two contaminated SRP wells, a preliminary risk assessment was conducted. Based on this risk assessment, the levels currently detected in the SRP wells are protective for irrigation use.

Remedial Activities:

Two remedial action projects at the site have significantly reduced the contamination by treating pumped groundwater and extracting vapors from the soil. ADEQ began an early response action (ERA) to address the remaining subsurface contamination. A soil vapor extraction (SVE) well was installed and connected to the existing SVE system and the system began operations in September 2004.

An Early Response Action (ERA) of the former Applied Metallics facility located at 1545 North McQueen was initiated in September 2004 to address remaining subsurface contamination at the facility. The SVE system remediates VOCs by passing the contaminated soil vapor through granular activated carbon (GAC). Periodic sampling of the effluent (treated) soil vapor is conducted to ensure that it complies with Maricopa County Air Permit discharge standards.

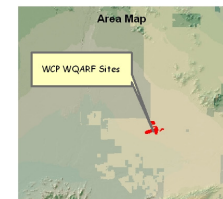
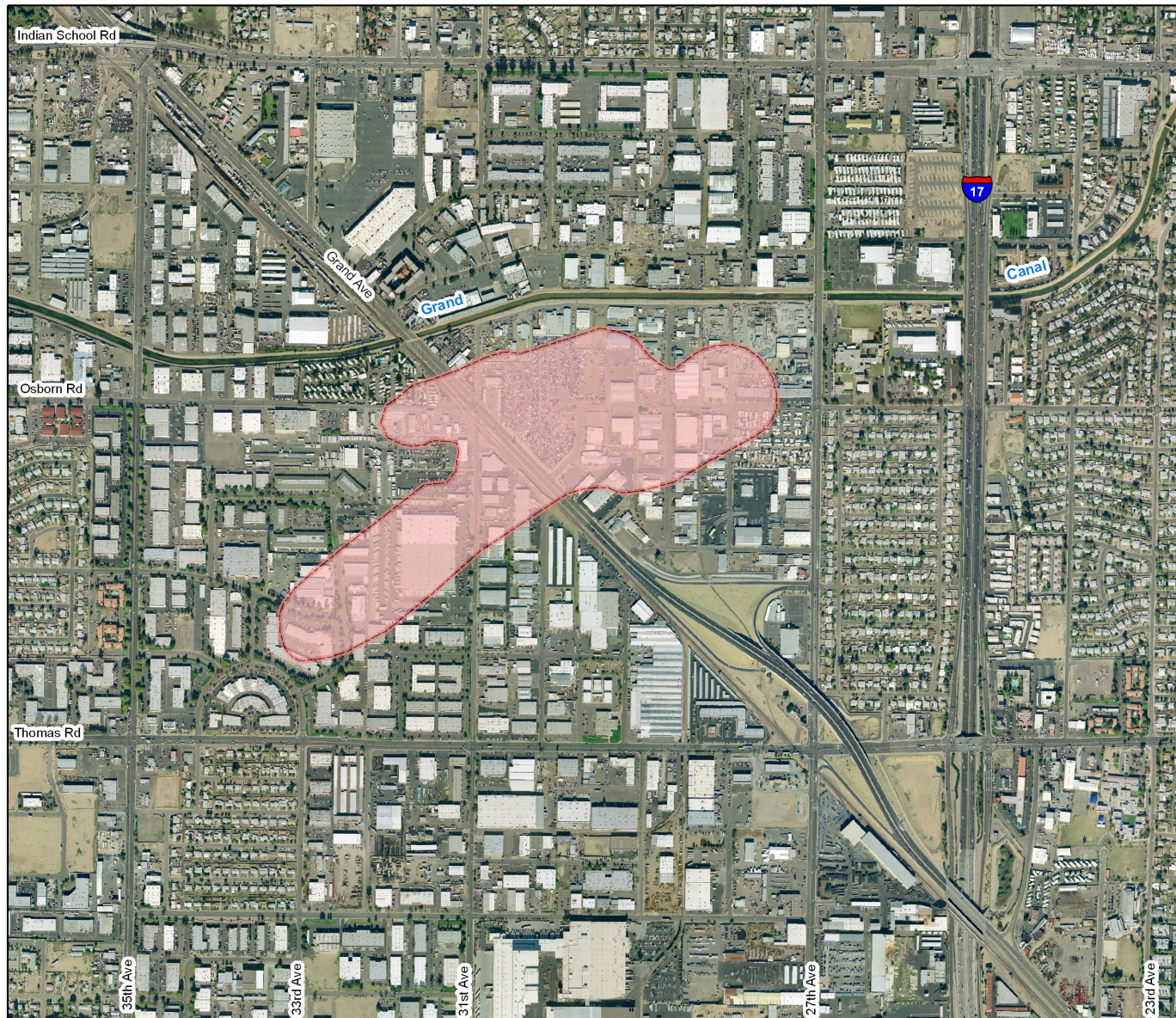
The remedial investigation (RI) has been completed. The Draft Remedial Investigation (RI) Report for the site is currently being reviewed by the Department.

Community Involvement Activities:

A community advisory board has been established for this site. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Central Phoenix (WCP) East Grand Avenue WQARF Sites



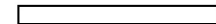
Legend

Estimated Plume Boundary

N



0.25



Miles

Phoenix, Arizona
November, 2006

WASTE PROGRAMS DIVISION
GIS and Data Management Unit
Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image, Maricopa County 2004
Projection: UTM, Nad 83, Meters

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

West Central Phoenix (WCP)

WQARF Registry Sites - Phoenix

In the summer of 1998, the West Central Phoenix (WCP) project area was split into the five sites listed below. Contaminants present at these sites include the solvents tetrachloroethene (PCE) and trichloroethene (TCE), which are present in the groundwater and in some soils.

WCP - East Grand Avenue

Boundaries:

The approximate boundaries of the East Grand Avenue Site are Whitton Avenue on the north, 29th Avenue on the east, Osborn Road on the south, and 30th Avenue on the west. The site was placed on the WQARF Registry in April of 1998 with a score of 31 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE) and 1,1-dichloroethene (1,1-DCE). Contaminants of concern at the site may change as new data become available. Other contaminants at the site include benzene, toluene, and ethylbenzene, and nitrates.

Public Health Impact:

So far, testing in the WCP area indicates almost no chance of human contact with the contamination. Sampling shows that the contaminated soils are under asphalt parking lots or asphalt-surfaced storage areas, or under the concrete floors of buildings. Contaminated drinking water wells in the area have been shut down. In addition, notices have been sent out to all known residences within the WCP area for the testing of domestic wells for contamination.

Remedial Activities:

The field investigative activities were completed in December 2001. The draft remedial investigation (RI) report has been completed and a working party has agreed to conduct the feasibility study (FS). In January 2006, ADEQ issued the Proposed Remedial Objectives (RO) Report for public comment to meet the requirements established under A.A.C. R18-16-406. Comments were received from the public and ADEQ issued the Final RO Report in June 2006.

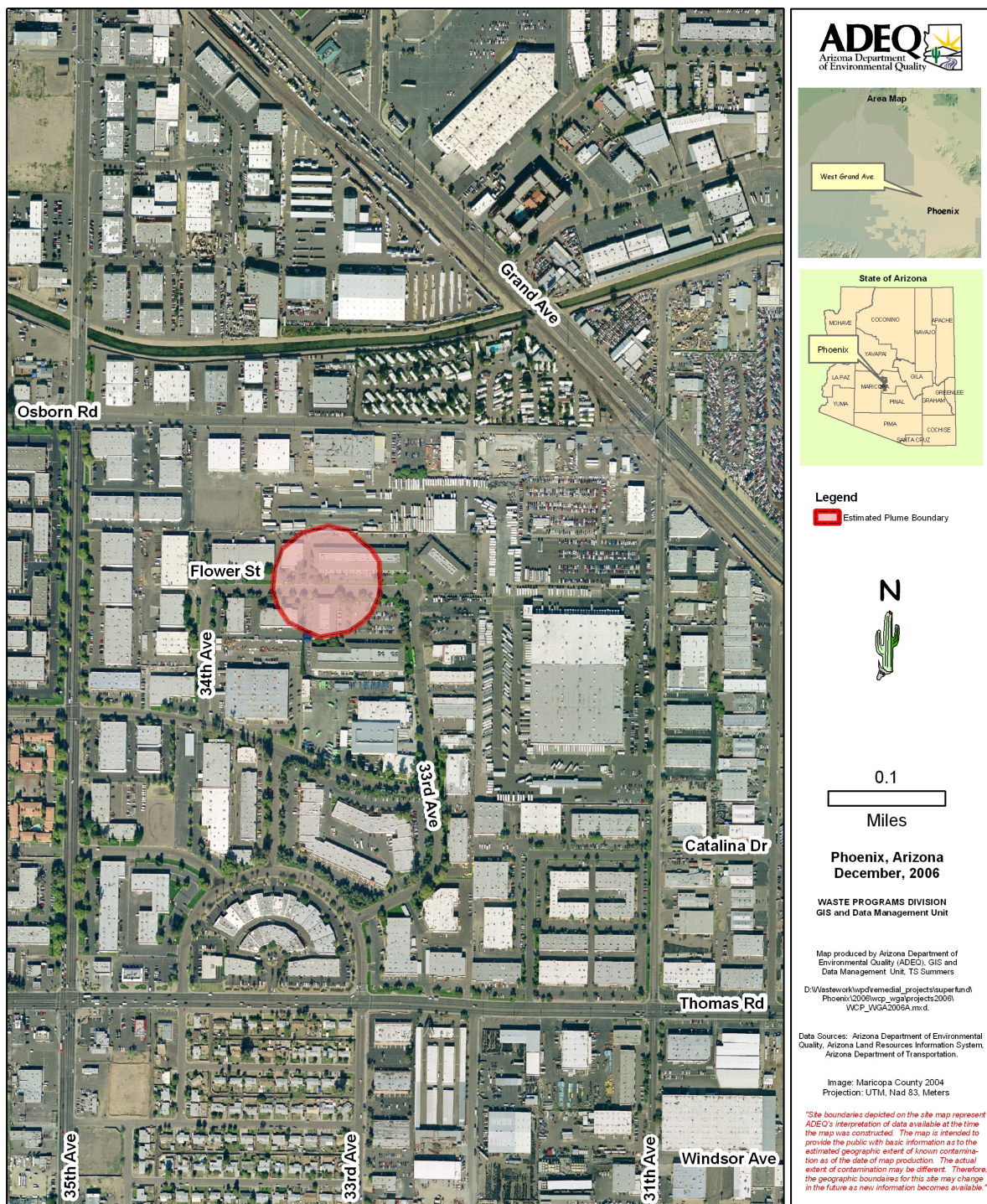
In addition, since comments were received on the Draft RI Report, a responsiveness summary was prepared and the Final RI Report for the site was also issued in July 2006. Univar will be conducting the FS to evaluate specific remedial measures and strategies required to meet the remedial objectives so that the groundwater can be remediated.

Community Involvement Activities:

A 2007 updated fact sheet can be found on the ADEQ web site. A community advisory board has been established for this site. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Central Phoenix - (WCP) West Grand Ave WQARF Site



WCP - West Grand Avenue

Boundaries:

The approximate boundaries of the West Grand Avenue Site are Osborn Road on the north, 33rd Avenue on the east, Earll Drive on the south, and 35th Avenue on the west. The site was placed on the WQARF Registry in April of 1998 with a score of 22 out of a possible 120.

Contaminants:

The current contaminant of concern in groundwater includes the chlorinated solvent trichloroethene (TCE). Contaminants of concern at the site may change as new data become available.

Public Health Impact:

To date, testing in the WCP area indicates no exposure to the contamination. Sampling shows that the contaminated soils are under asphalt parking lots or asphalt-surfaced storage areas, or under the concrete floors of buildings. Contaminated drinking water wells in the area have been shut down. In addition, notices have been sent out to all known residences within the WCP area for the testing of domestic wells for contamination.

Remedial Activities:

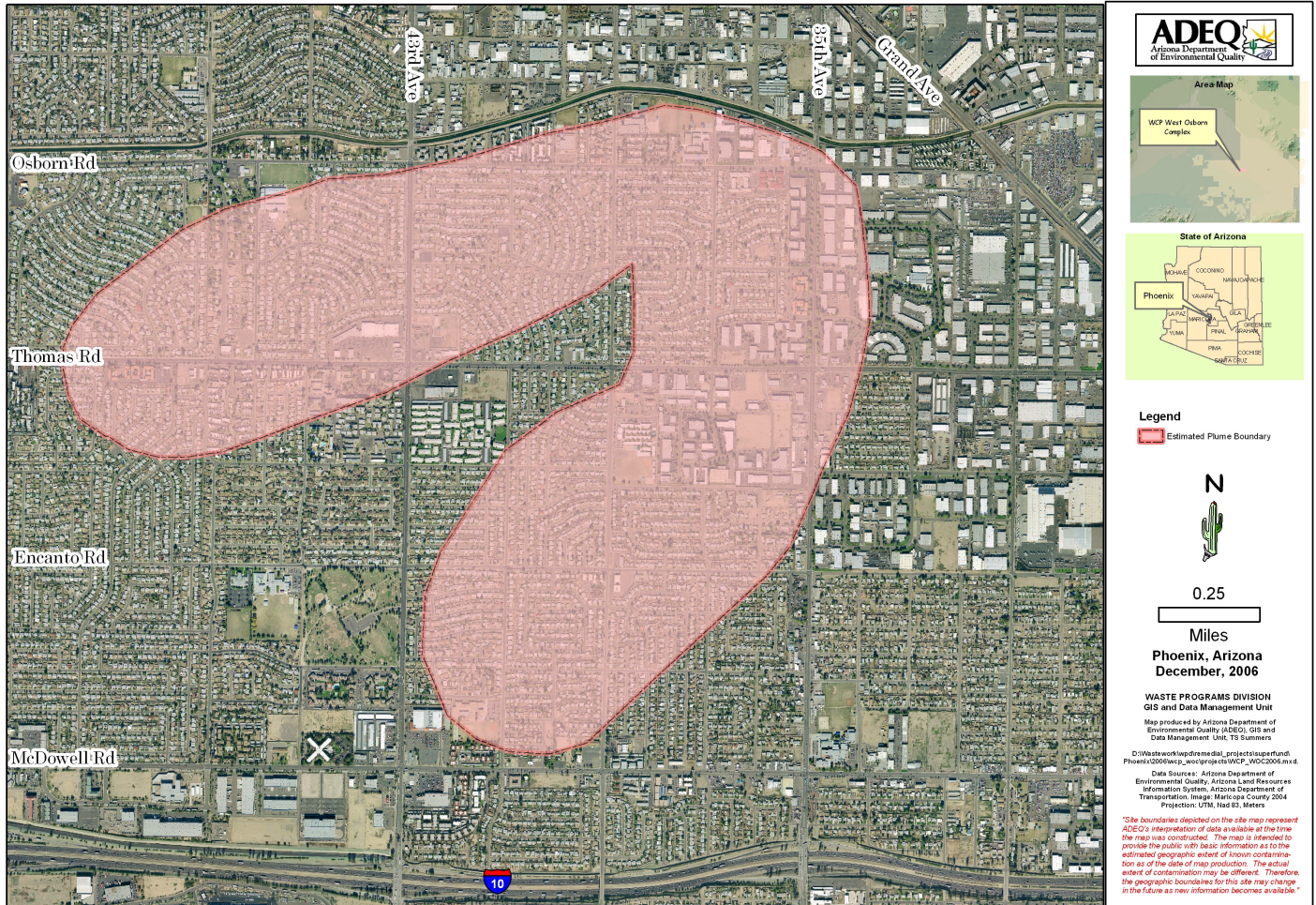
The remedial investigation (RI) has been completed and a draft RI report was completed in February 2004. In October 2005, ADEQ issued the Proposed Remedial Objectives (RO) Report for public comment to meet the requirements established under A.A.C. R18-16-406. No comments were received during the 30-day comment period. ADEQ has yet to issue the Final RO Report.

Community Involvement Activities:

A 2007 updated fact sheet can be found on the ADEQ web site. A community advisory board (CAB) has been established for this site. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Central Phoenix (WCP) West Osborn Complex WQARF Site



WCP - West Osborn Complex

Boundaries:

The approximate boundaries of the West Osborn Complex Site are the Grand Canal on the north, 34th Drive on the east, Pinchot Avenue on the south, and 39th Drive on the west. ADEQ provides regulatory oversight and technical review of investigations and site activities performed by United Industrial Corporation at the WCP West Osborn Complex site. The site was placed on the WQARF Registry in August 1998 with a score of 52 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include the chlorinated solvents tetrachloroethene (PCE) and trichloroethene (TCE). Contaminants of concern at the site may change as new data become available. Other contaminants at the site include methyl tertiary butyl ether (MTBE) and nitrates.

Public Health Impact:

To date, testing in the WCP area indicates almost no chance of human contact with the contamination. Sampling shows that the contaminated soils are under asphalt parking lots or asphalt-surfaced storage areas, or under the concrete floors of buildings. Contaminated drinking water wells in the area have been shut down. In addition, notices have been sent out to all known residences within the WCP Area for the testing of domestic wells for contamination.

Remedial Activities:

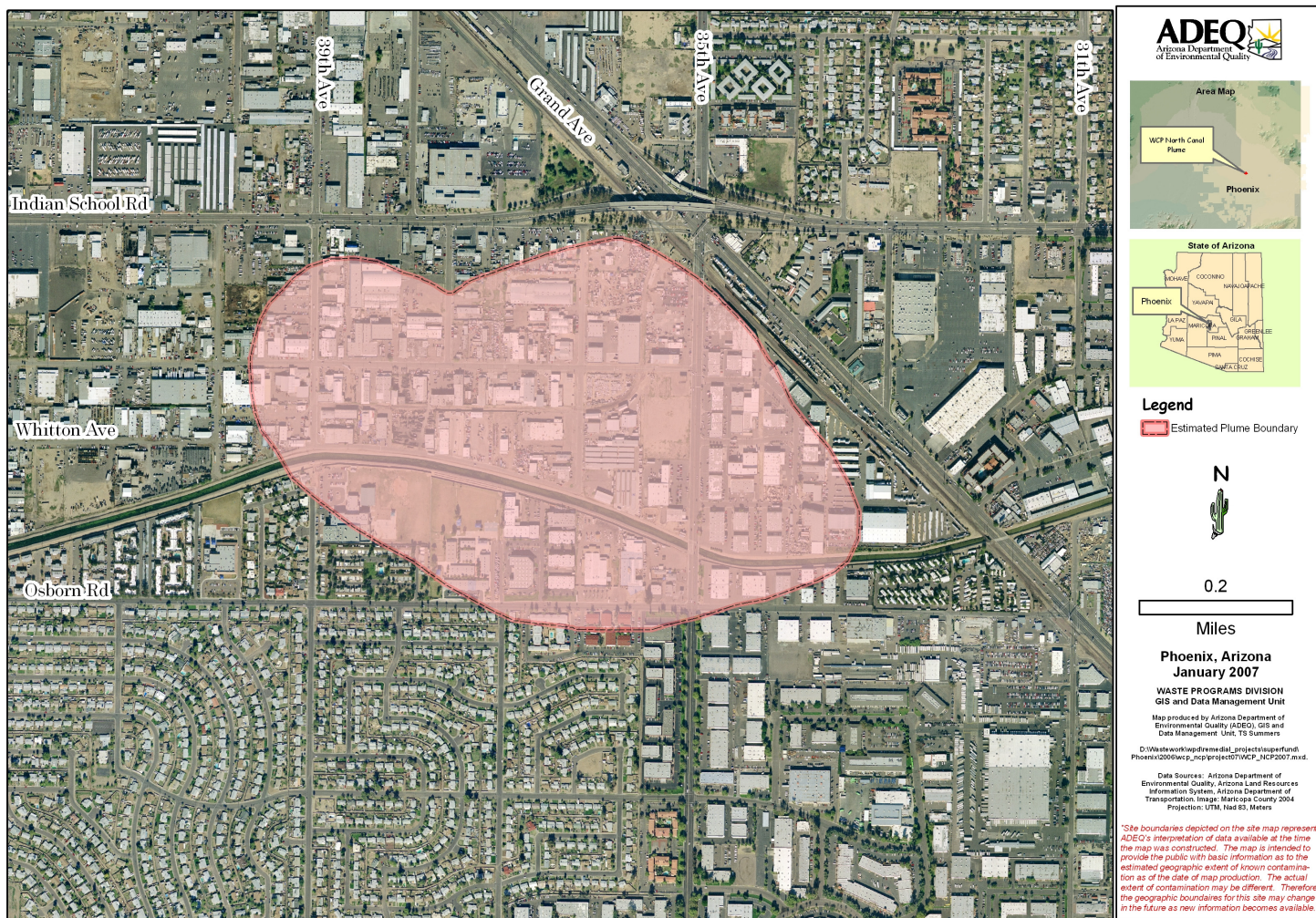
The final remedial objectives (RO) report was issued in May 2005. United Industrial Corporation submitted a proposal to ADEQ for the selection of the reference remedy; the most aggressive remedy and the least aggressive remedy. United is currently conducting the FS to evaluate specific remedial measures and strategies required to meet the remedial objectives so that the groundwater can be remediated. In June 2006, as part of the FS, United installed additional monitoring wells to further define the extent of shallow groundwater contamination emanating from the WOC property. These new wells showed concentrations of TCE above the Arizona Water Quality Standard of 5 micrograms per liter ($\mu\text{g/L}$). ADEQ is expecting to receive a new proposal for the installation of additional wells complete the definition of the extent of shallow contamination.

Community Involvement Activities:

A 2007 updated fact sheet can be found on the ADEQ web site. A Community Advisory Board has been formed for the site. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

West Central Phoenix (WCP) North Canal Plume WQARF Site



WCP - North Canal Plume

Boundaries:

The approximate boundaries of the North Canal Plume Site are Indian School Road on the north, Grand Avenue on the east, Osborn Road on the south, and 40th Avenue on the west. The site was placed on the WQARF Registry in June of 1998 with a score of 27 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE) and chromium. Contaminants of concern at the site may change as new data become available. Other contaminants at the site include methyl tertiary butyl ether (MTBE) and nitrates.

Public Health Impact:

To date, testing in the WCP area indicates almost no chance of human contact with the contamination. Sampling shows that the contaminated soils are under asphalt parking lots or asphalt-surfaced storage areas, or under the concrete floors of buildings. Contaminated drinking water wells in the area have been shut down. In addition, notices have been sent out to all known residences within the WCP Area for the testing of domestic wells for contamination.

Remedial Activities:

Early response action (ERA) evaluations were conducted at four facilities in the WCP North Canal: Magic Metals, Osborn Products, Southwest Metals, and Precise/Paraflex facilities. ADEQ continues with the early response action (ERA) evaluations at several facilities in the area to determine if they are sources of the groundwater contamination. The second ERA Evaluations and Technical Report was issued in October 2006 and is available to the public.

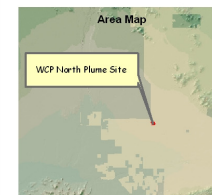
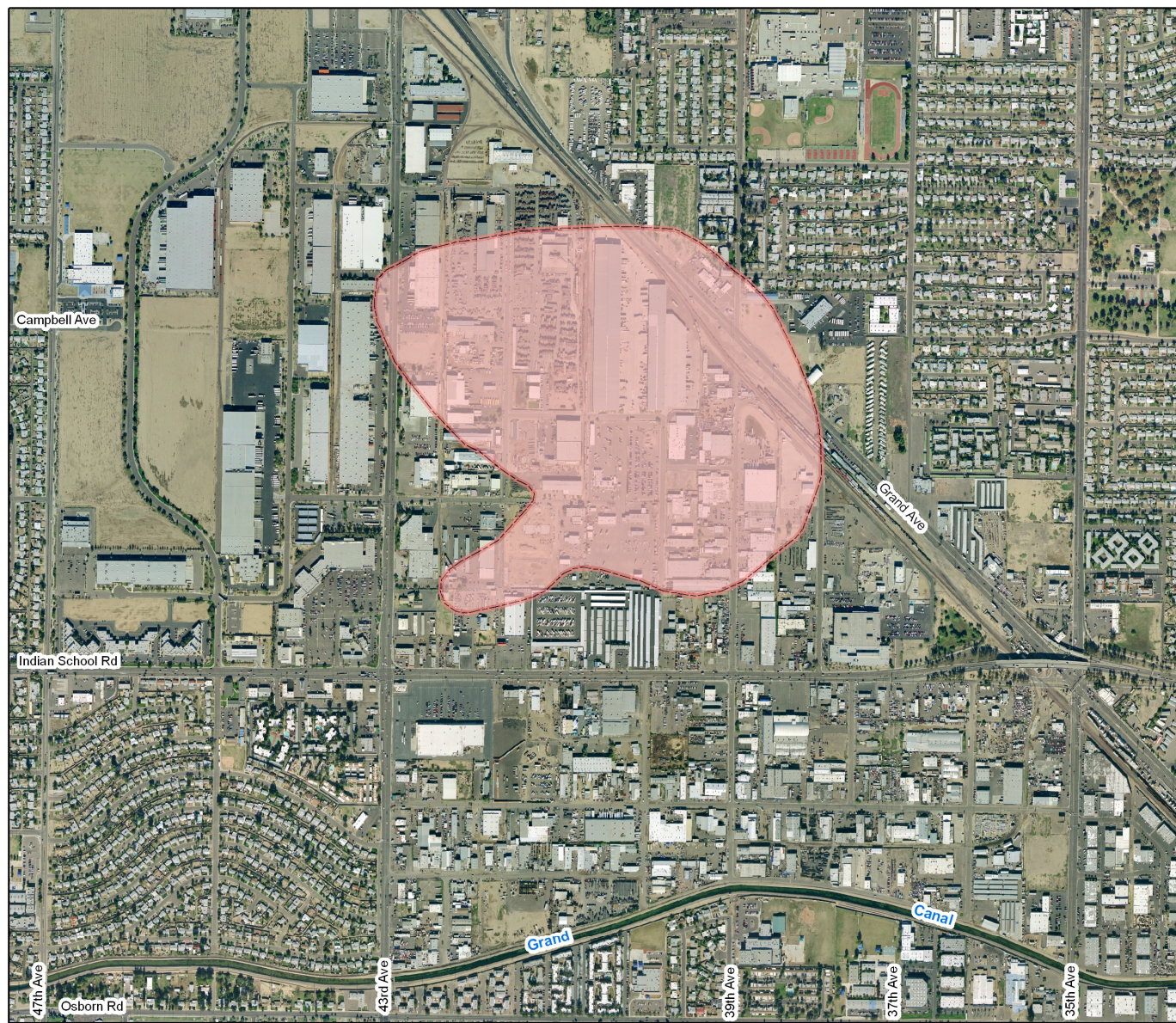
ADEQ continues to conduct the RI at the site by installing new groundwater monitoring wells, as well as collecting soil and soil-gas samples. ADEQ plans to complete the field investigative activities by December 2007, at which time, the Draft RI Report is expected to be issued for public comment. ADEQ will be installing an SVE system at the former Osborn Products facility to cleanup the soils beneath the property. A pilot test is expected to be conducted in February 2007 and ADEQ expects to design and install the system by June 2007. Groundwater monitoring is conducted quarterly. Groundwater monitoring reports documenting the results of the monitoring events are available to the public.

Community Involvement Activities:

A 2007 updated fact sheet can be found on the ADEQ web site. A Community Advisory Board has been formed for the site. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Central Phoenix (WCP) North Plume WQARF Sites



Legend

Estimated Plume Boundary



0.25

Miles

**Phoenix, Arizona
November, 2006**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Maricopa County 2004
Projection: UTM, Nad 83, Meters

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WCP - North Plume

Boundaries:

The approximate boundaries of the North Plume Site are Turney Avenue on the north, 38th Avenue on the east, Indian School Road on the south, and 43rd Avenue on the west. The site was placed on the WQARF Registry in April of 1998 with a score of 55 out of a possible 120.

Contaminants:

The current contaminants of concern in groundwater include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride, and chromium. Other contaminants at the site include: benzene, toluene, ethylbenzene, total xylenes, methyl tertiary butyl ether (MTBE), and nitrates. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

To date, testing in the WCP area indicates almost no chance of human contact with the contamination. Sampling shows that the contaminated soils are under asphalt parking lots or asphalt-surfaced storage areas, or under the concrete floors of buildings. Contaminated drinking water wells in the area have been shut down. In addition, notices have been sent out to all known residences within the WCP Area for the testing of domestic wells for contamination.

Remedial Activities:

ADEQ has been operating an SVE system at the F&B facility since August 2001 to remediate the PCE contamination beneath the vapor degreaser. ADEQ's contractor continues to submit Operation and Evaluation Reports evaluating the performance of the SVE system. In addition, ADEQ removed approximately 210 cubic yards of soil beneath the vapor degreaser during two excavations in July 2000 and September 2001. As of December 2006, over 41,000 pounds of PCE have been removed from the source area by the SVE system.

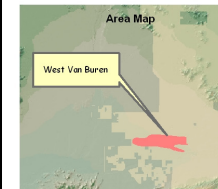
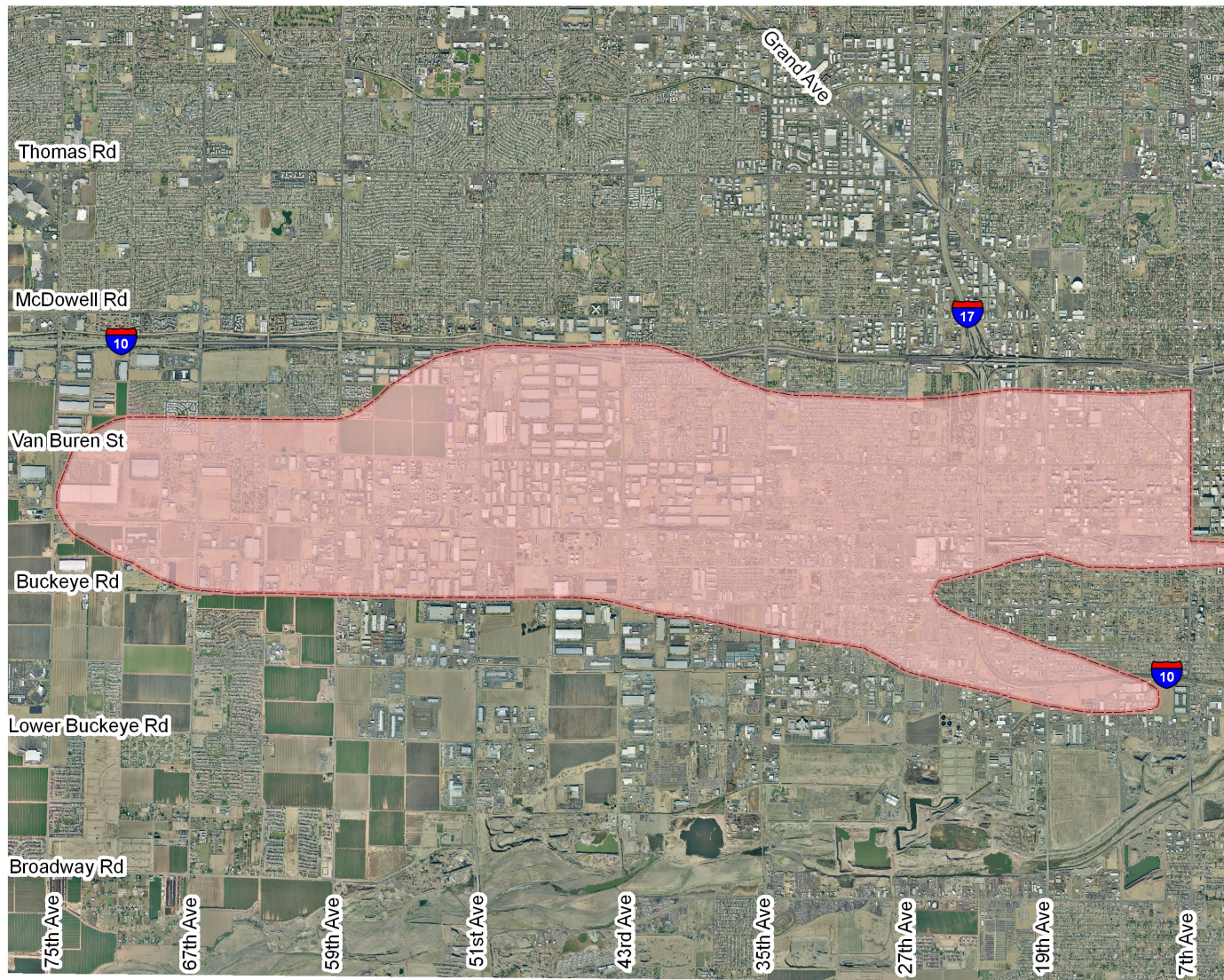
In August 2006, ADEQ issued the Draft RI Report for the WCP North Plume Site for public comment to meet the requirements established under A.R.S. §49-287.03 and A.A.C. R18-16-406. ADEQ expects to issue the Proposed Remedial Objectives (RO) Report in March 2007, and to issue the Final RO Report and Final RI Report by June 2007. Groundwater monitoring is conducted semiannually. The last groundwater samples and water level measurements were collected in September 2006. Groundwater monitoring reports documenting the results of the monitoring events are available to the public.

Community Involvement Activities:

A 2007 updated fact sheet can be found on the ADEQ web site. A community advisory board (CAB) has been formed for the site and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at:
<http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

West Van Buren WQARF Site



Legend

Estimated Plume Boundary

N



1



Miles

**Phoenix, Arizona
March, 2007**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Phoenix\2007\wv\projects\wv2007.mxd

Data Sources: Arizona Department of
Environmental Quality, Arizona Land Resources
Information System, Arizona Department of
Transportation, Image: Maricopa County 2004
Projection: UTM, Nad 83, Meters

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West Van Buren

WQARF Registry Site - Phoenix

Boundaries:

The West Van Buren Site is bounded approximately by Interstate 10 on the north, Seventh Avenue on the east, Buckeye Road on the south, and 75th Avenue on the west. In addition a finger shaped plume exists between Seventh and 27th Avenues between Buckeye and Lower Buckeye Road. The site was placed on the WQARF Registry in April of 1998 with a score of 50 out of a possible 120.

Contaminants:

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (DCE), 1,1-dichloroethane (DCA), cis-1,2-dichloroethene (cis-1,2-DCE) and chromium. The contamination is present in the groundwater approximately 40 to 80 feet below the surface.

Public Health Impact:

Groundwater in the area is not used for drinking water purposes. The entire area is served by the city of Phoenix municipal water system or other regulated systems. There should be no direct exposure to people living or working in the area of the site.

Remedial Activities:

Dolphin Inc. began operation of a soil vapor extract (SVE)/air sparge (AS) system at the Dolphin facility in October 1998. In December 2002, Dolphin received authorization from ADEQ for shut-down of the SVE/AS system. A SVE/AS and groundwater pump and treat remediation system began operation in March 2001 at the former American Linen Supply Company (ALSCo). The SVE/AS was discontinued in May 2003 because the response action objectives were attained. The groundwater pump and treat system continued operations until September 12, 2003, at which time ADEQ determined the system had reached its limit of effectiveness. In August 2002, ADEQ issued a no further action determination for the former Van Waters and Rogers facility. The remedial investigation (RI) is in progress and additional monitoring wells have been installed by ADEQ to delineate the extent of the contamination and further investigate potential source areas.

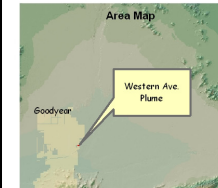
Water quality data and water elevation information are being collected semiannually throughout the area. Monitoring wells have been installed by ADEQ to delineate the extent of the groundwater contamination and to further investigate potential source areas. ADEQ continues to investigate new well locations that will assist in further delineating the plume. Since 2001, over 50 monitor wells have been installed to further delineate the plume. In September 2006, ADEQ sampled 125 groundwater monitoring wells as part of the semiannual sampling process.

Community Involvement Activities:

A newsletter was mailed to residences and businesses in the community involvement area in February 2006. A community advisory board has been established for this site and meets regularly. The CAB meeting agendas and minutes can be viewed at:
<http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Western Ave. PCE WQARF Site



Legend

Estimated Plume Boundary

N



800

Feet

**Goodyear, Arizona
May, 2007**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of Environmental Quality (ADEQ), GIS and Data Management Unit, TS Summers

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Data Sources: Arizona Department of Environmental Quality, Arizona Land Resources Information System, Arizona Department of Transportation, Image: Maricopa County 2004
Projection: UTM, Nad 83, Meters

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Western Avenue PCE

WQARF Registry Site - Phoenix

Boundaries:

The Western Avenue PCE Site is located in the cities of Avondale and Goodyear, Arizona. The physical boundaries of the Western Avenue Site are defined by the groundwater contamination plume which generally extends 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 the Phoenix-Goodyear Airport to the west. The site was placed on the WQARF Registry in December of 1998 with a score of 51 out of a possible 120.

Contaminants:

The principle contaminant at the site is tetrachloroethene (PCE), a solvent commonly used in dry cleaning. The available data suggests that the PCE is currently limited to the upper groundwater aquifer which is approximately 60-110 feet below ground surface.

Public Health Impact:

Due to high nitrate concentrations from historical agricultural land practices, the upper groundwater aquifer is used mainly as an irrigation source. Public drinking water supplied to the area is regularly tested to ensure compliance with regulatory standards.

Remedial Activities:

In October 2000, ADEQ installed five monitoring wells as part of an early response action (ERA) evaluation. The purpose of the ERA evaluation was to (1) better define the lateral and vertical extent of contamination, (2) gain a better understanding of where the source area may be located, and (3) to determine the approximate mass of PCE within the plume. In March 2001, ADEQ conducted a soil gas survey at the former Aladdin Dry Cleaners property. Results of the soil gas survey indicated minor concentrations of PCE. In July 2001, ADEQ began a remedial investigation (RI) at the site.

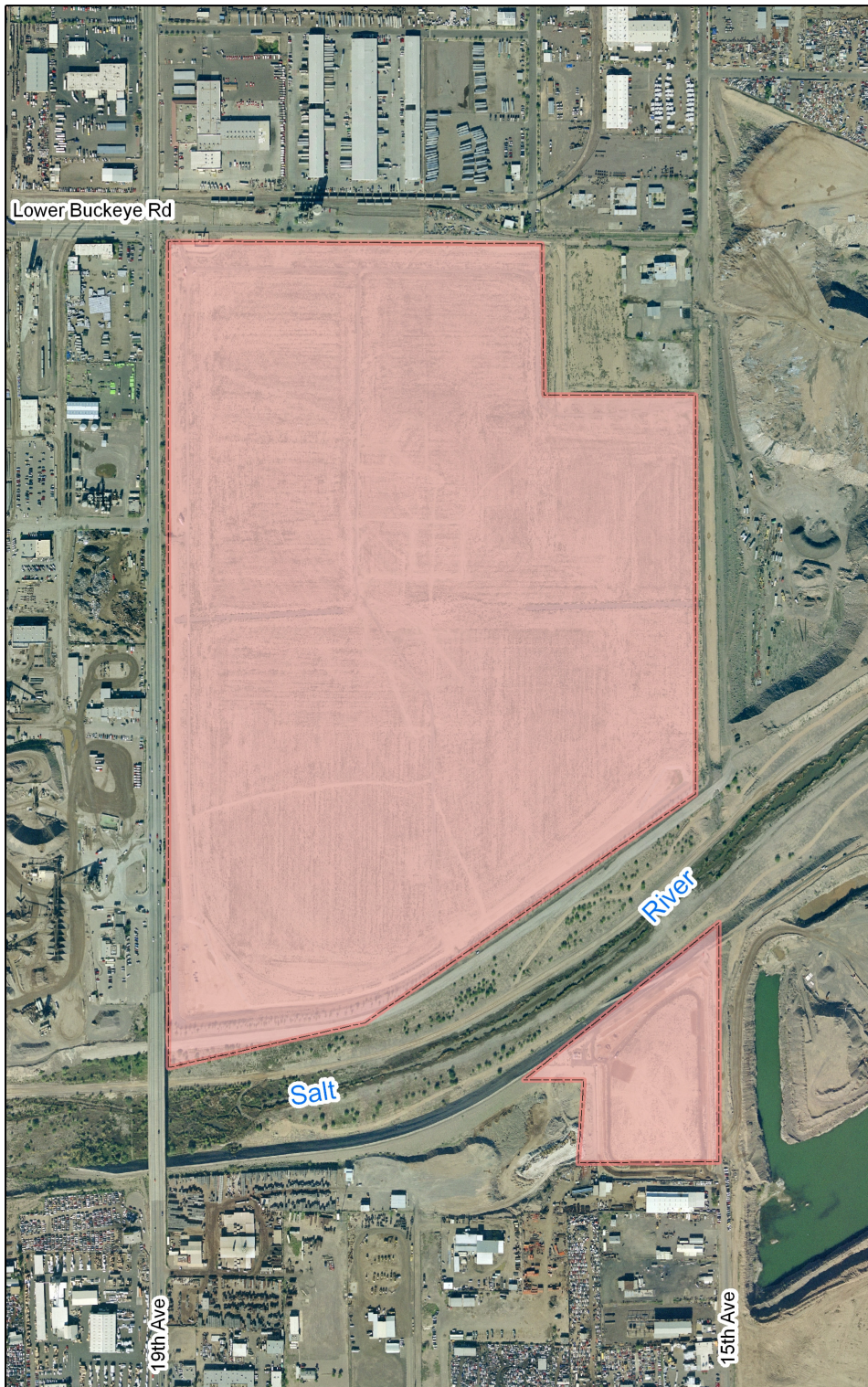
The PCE contaminated groundwater at the site is currently being remediated by the PGA-South treatment system. Currently the highest concentration of PCE in groundwater is 3.2 micrograms per liter ($\mu\text{g/l}$) as of March 2006. The aquifer water quality standard (AWQS) for PCE is 5 $\mu\text{g/l}$. The PCE contaminated groundwater at the site is currently being remediated by the PGA-South treatment system.

Community Involvement Activities:

A community advisory group has been established for this site in conjunction with the Phoenix-Goodyear Airport Superfund sites. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/enviro/waste/sps/reg.html>.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

19th Ave Landfill EPA NPL Site, (Delisted)



Legend

Estimated Site Boundary



800
Feet

Phoenix, Arizona
March 2007

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land
Resources Information System, Arizona
Department of Transportation. Image:
Maricopa County 2004
Projection: UTM, Nad 83, Meters

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extent of contamination may be different. Therefore,
the geographic boundaries for this site may change
in the future as new information becomes available."*

19th Avenue Landfill

(Delisted) EPA NPL Site - Phoenix

Boundaries:

The 19th Avenue Landfill Site covers approximately 213 acres and is located in Phoenix at the southeast corner of 19th Avenue and Lower Buckeye Road. Prior to its use as a landfill in the late-1950s, the site was mined for sand and gravel. The gravel pits were later filled with municipal waste from local industries. The 19th Avenue Landfill site was listed on EPA's National Priorities List (NPL) in September 1993.

Contaminants:

The current contaminants of concern in groundwater include very low levels of volatile organic compounds (VOCs), heavy metals including arsenic, barium, mercury, and nickel, and beta radiation. Currently, the only compound that is above drinking water standards is 1,1-dichloroethene (1,1-DCE) which does not originate from the landfill.

Contaminants of concern at the site may change as new data become available. Sampling of soil and refuse in the landfill indicated that the contents of the landfill are similar to those expected in municipal landfills, however, industrial wastes were also disposed of at the site.

Public Health Impact:

Groundwater in the area is used for industrial purposes only; it is not used as drinking water. Potential and future groundwater impacts will be mitigated by the groundwater contingency plan, so there will be no exposure pathway through any drinking water supplies. The area's primary drinking water is provided by the City of Phoenix water distribution system. The municipal system draws water from groundwater and surface water sources over thirty miles away. The nearest drinking water supply well is over three miles away. An industrial well and a down gradient agricultural well are located 200 feet and 800 feet, respectively, from the site. However, there is no known contamination of these wells at this time. Ambient air quality monitoring indicates no apparent risk to human health from landfill gas emissions.

Remedial Activities:

Remediation activities have been completed and this project is in the operations and maintenance phase. The five-year review was completed June 30, 2005 and found that the remedy remains protective. ADEQ, EPA and the City of Phoenix (COP) worked together to achieve the goal of removing the site from the National Priority List (NPL) as an active "Superfund Site" in September 2006. In order for the site to be removed from the NPL, EPA requires that the site must have appropriate "institutional controls" (ICs) to ensure that the protectiveness of the remedy is maintained in the future, regardless of any potential ownership change. The ICs will be attached to the property deed and will notify any potential future owner that specific restrictions are associated with the land use. The Declaration of Environmental Use Restriction (DEUR) pursuant to A.R.S. § 49-152 & § 49-152.01 will be used to accomplish these requirements. All requirements were met and the site was delisted in September 2006.

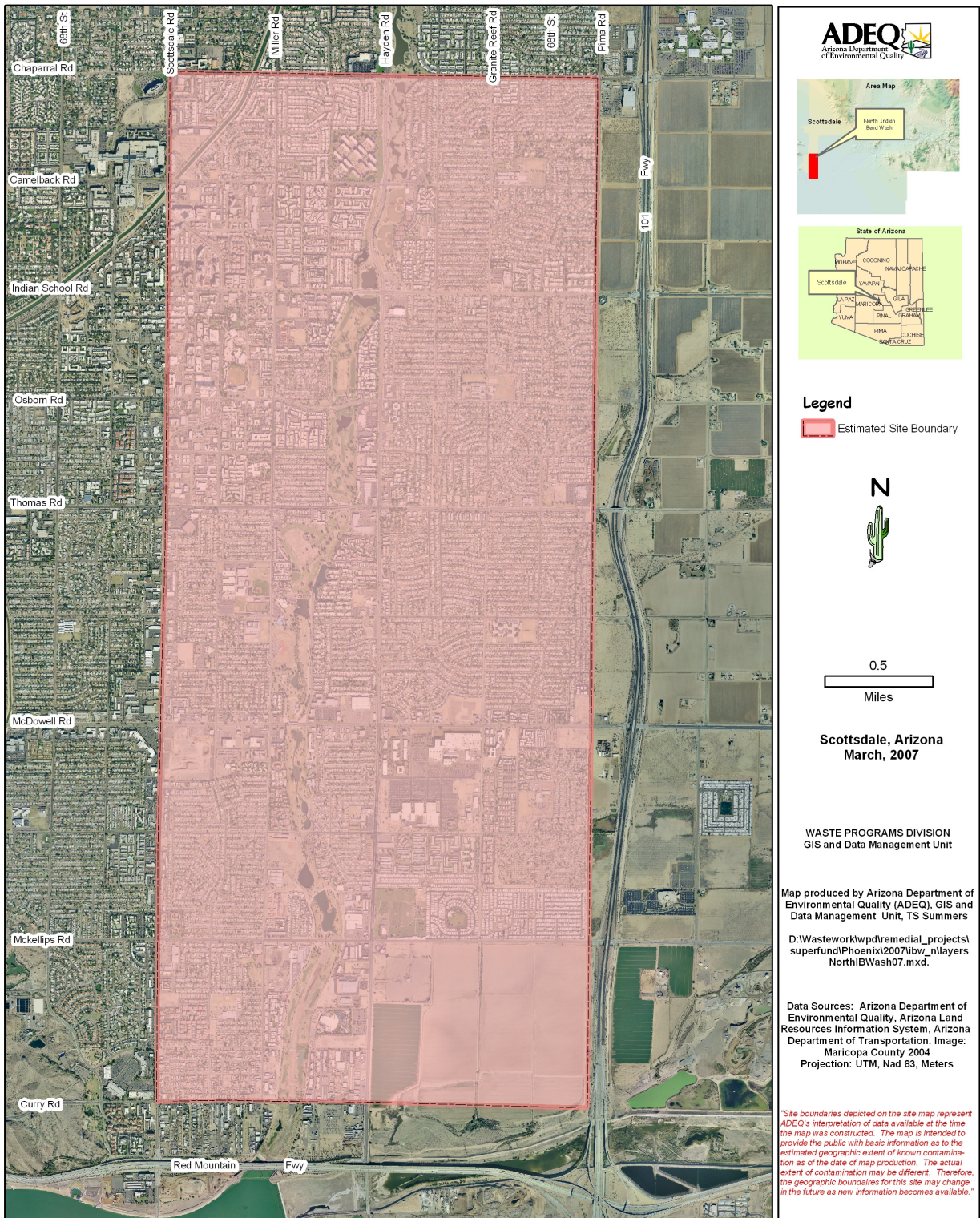
Community Involvement Activities:

Upon completion of the removal of the site from the NPL in September 2006, the residences and businesses in the community involvement area were notified by fact sheet and public notice in the

local paper. No future community involvement activities are planned. The community involvement plan will be updated to address delisting and five-year review activities.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

North Indian Bend Wash EPA NPL Site



North Indian Bend Wash

EPA NPL Site - Phoenix

Boundaries:

The North Indian Bend Wash (NIBW) 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. The area is fully developed, consisting primarily of residential and commercial properties and developed open areas such as parks. The Indian Bend Wash Site was listed on EPA's National Priorities List (NPL) in September 1983.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs). 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.

Remedial Activities:

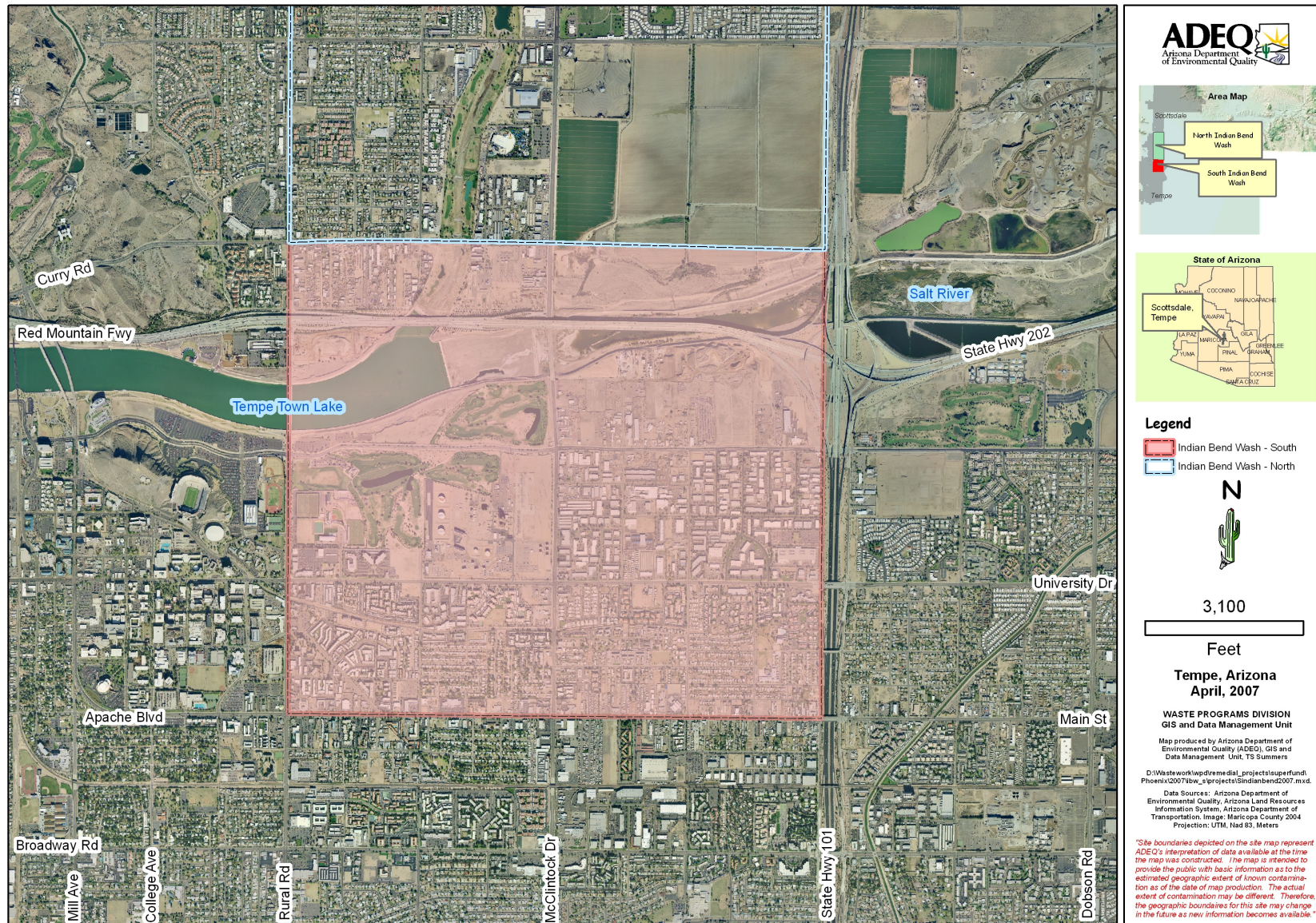
In 1994, Motorola and Siemens Corporations, in cooperation with the Paradise Valley Water Company, constructed the Miller Road Treatment Facility (MRTF) at the northern end of the groundwater plume. The MRTF pumps and treats groundwater, and supplies treated water to the SRP Arizona Canal and to the 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. In February 25, 2004, Motorola, Siemens Corporations, ADEQ and EPA entered an informal dispute relating to the requirements to maintain air emission control systems at the NIBW ground water treatment facilities. EPA and ADEQ have determined that the air emission control systems must remain in service at this time, and have agreed to look at the air emission data in March 2007. At that time, EPA and ADEQ will evaluate further the need to continue air emission control system operation at the NIBW groundwater treatment system sites.

Community Involvement Activities:

A Community Involvement Group has been formed and meets periodically. A fact sheet was mailed out by the EPA in May 2005. EPA and ADEQ have hosted Community Involvement Group (CIG) meetings to keep the community informed of the dispute resolution and the risk assessment outcomes. The most recent public meeting occurred in December 2006 followed by a construction completion ceremony.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

South Indian Bend Wash EPA NPL Site



South Indian Bend Wash

EPA NPL Site - Phoenix

Boundaries:

The South Indian Bend Wash (SIBW) Site represents the southern portion of the Indian Bend Wash Superfund Site, and encompasses approximately four square miles in Tempe, Arizona. SIBW is bounded by Apache Boulevard on the south, Rural/Scottsdale Road on the west, Price Road on the east, and Curry Road on the north. The site is primarily commercial and industrial north of University Avenue and residential to the south. SIBW was initially part of the Indian Bend Wash (IBW) Superfund Site that was placed on EPA's National Priorities List (NPL) in September 1983.

Contaminants:

The current contaminants of concern in groundwater include volatile organic compounds (VOCs). The current contaminants of concern in soil include VOCs, cyanides, acids, and heavy metals (chromium and lead). Contaminants of concern at the site may change as new data become available.

Public Health Impact:

All drinking water supply wells in the site boundary are inactive. Groundwater in the area is used for industrial purposes only. Drinking water is served by the city of Tempe municipal service from wells outside of the site boundaries.

Remedial Activities:

A Record of Decision (ROD) amendment in 2003 changed the previous remedy from groundwater pump and treat to Monitored Natural Attenuation (MNA). This is now the remedy for all 3 groundwater plumes in the SIBW area. ADEQ and EPA have completed work (monitor well installation) in the SIBW area which may allow the sites to attain "construction complete" status for the groundwater MNA remedy. The groundwater remedy is projected to result in contaminant concentrations reaching the maximum contaminant levels (MCLs) in 5 to 10 years across the Western, Central and Eastern groundwater plumes.

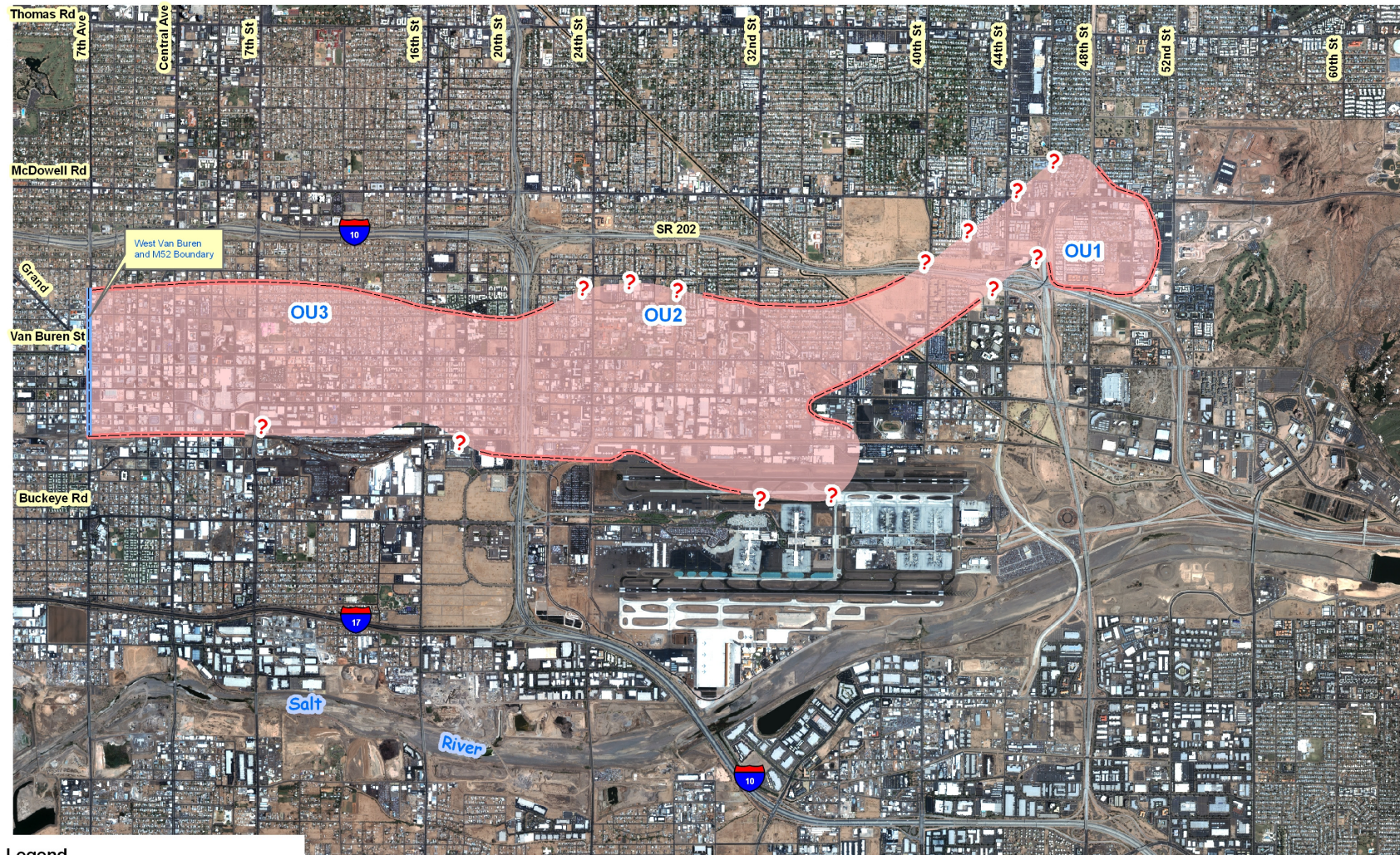
In December 2004, EPA conducted a removal action at DCE Circuits. A dry well which received hazardous waste in the 1980s was removed by soil boring. Several truck roll-off bins of soils were disposed as solid waste and several drums of waste were disposed as hazardous waste. Subsequent to the removal action at DCE Circuits, soil vapor samples were collected during 2005. The samples indicated levels of soil vapor which required remediation. A mobile soil vapor extraction system was installed and operated, and samples were again collected. The analyses of these samples will indicate if further remediation is necessary. EPA conducted a "plug-in" determination for soils at the Unitog sub-site in September 2005. EPA determined the Unitog soils do not meet the plug-in determination criteria and therefore can be considered for a close out.

Community Involvement Activities:

A construction completion ceremony and open house was held in December 2006.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

MOTOROLA 52ND STREET SUPERFUND SITE PHOENIX, ARIZONA



Legend

- Motorola 52nd St 2006 Contaminant Plume
- Contour represents area of volatile organic compounds in alluvial and bedrock groundwater that exceed the Aquifer Water Quality Standards.
- ? = Queried

0 0.5 1 2 Miles



Motorola 52nd Street

EPA NPL Site - Phoenix

Boundaries:

The Motorola 52nd Street Site is located in a residential and commercial area in the eastern part of the city of Phoenix. Major geographic features are the Papago Buttes to the east of the plant, the Salt River flowing westerly about one mile to the south, the Old Crosscut Canal located along 46th Street, and the Grand Canal which flows northwesterly through the area west of 40th Street and Van Buren Street. Phoenix Sky Harbor Airport is located approximately 1½ miles to the southwest. The Motorola 52nd Street site was listed on EPA's National Priorities List (NPL) in September 1989.

The site has been divided into three operable units:

The boundaries for Operable Unit 1 are 52nd Street to the east, Palm Lane to the north, Roosevelt Street to the south, and 46th Street to the west.

The approximate boundaries for Operable Unit 2 are Roosevelt Street to the north, 46th Street to the east, Buckeye Road to the south and 14th Street to the west.

The approximate study area of Operable Unit 3 is McDowell Road to the north, 14th Street to the east, Buckeye Road to the south, and Seventh Avenue to the west.

Contaminants:

The current contaminants of concern in groundwater include TCE, TCA, DCE, DCA, vinyl chloride, and PCE. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

No drinking water supply wells have been impacted by the site. Drinking water is currently supplied by the city of Phoenix distribution system from surface water located outside of the site. The contaminated groundwater in this area is not being used for drinking water. The drinking water supplied to homes in the Motorola area is regularly tested by the City of Phoenix.

Remedial Activities:

In 2004, ADEQ produced a Top of Bedrock Contour Map of the Area Surrounding the Honeywell 34th Street and the OU2 Treatment System. ADEQ produced a Site-Wide Lithology Table and Cross Sections. ADEQ maintains a site wide database of groundwater data, lithologic data, and Honeywell specific information regarding its potential sources.

- **OU1** – In 1992, Motorola placed a full scale groundwater treatment system in operation. The system is considered an interim remedy and the final remedy will be determined after the final OU1 feasibility study (FS) and Record of Decision (ROD) are completed.

Freescale Semiconductor (who took over the Motorola plant) continues to work on the FS to evaluate other remedial alternatives and optimizations of the current system. Freescale is conducting an additional evaluation of the OU1 system with regard to long term operation and sustainability and efficiency. The FS shall provide the information needed for the agencies to select a final remedy that will meet cleanup goals to be determined in the final or amended ROD.

As of March 2006, the groundwater treatment system has treated over 2.5 billion gallons of water and removed over 17,000 pounds of contaminants. The treated water is utilized by ON Semiconductor. Freescale is installing groundwater monitoring wells to better define the groundwater contamination and to evaluate the effectiveness of the treatment system. ADEQ will issue a Remedial Action Objectives Report that will identify all the ARARs that the final OU1 remedy will be required to meet. Freescale will provide a final Feasibility Study that satisfactorily addresses ADEQ's comments; ADEQ and EPA will then select the final remedy by September 2007. The public will have the opportunity to comment on the selected remedy prior to it becoming final.

- **OU2** - In July 2005, EPA concurred on Freescale Semiconductor's sale of a portion of the land at 12 N. 20th Street for the City of Phoenix Light Rail Project.

As of January 2006, the OU2 capture and treatment system has treated over 4.5 billion gallons of water and removed over 6,000 pounds of contamination. The treated water is discharged to the Salt River Project Grand Canal for irrigation use and has met all treatment standards. The treatment system is working well overall; however, there is uncertainty regarding the extent of capturing contaminated groundwater to the south of the system. Over the past few years, Honeywell and Freescale have installed 15 additional groundwater monitoring wells and four piezometers in order to more effectively measure the performance of the capture system. ADEQ completed the Five-Year Review in September 2006. ADEQ will complete the PRP Search in OU2. ADEQ will negotiate agreements with OU2 PRPs to conduct an RI/FS at their respective facilities.

- **OU3** - In August 2005, a groundwater monitoring report for the well network in the OU3 Study Area was submitted. Groundwater monitoring reports are prepared after each semi-annual sampling event. EPA's goal is to initiate the groundwater remedy selection process in 2007 and select a final remedy in late 2008.
- **Honeywell** - On February 7, 2005, Honeywell began installing 10 additional groundwater and soil vapor monitoring wells related to the free product investigation and remediation. In response to a request from the Superfund Program, Honeywell will submit its design of the BSVE system that is being implemented pursuant to the Corrective Action Plan under the UST Division of ADEQ. Honeywell submits ongoing weekly progress reports, semiannual groundwater monitoring reports, and bi-monthly water level measurements. Honeywell submitted its Draft Focused Remedial Investigation Report on September 30, 2004. In response to ADEQ comments, Honeywell submitted its Final Focused Remedial Investigation Report on December 30, 2005.

Community Involvement Activities:

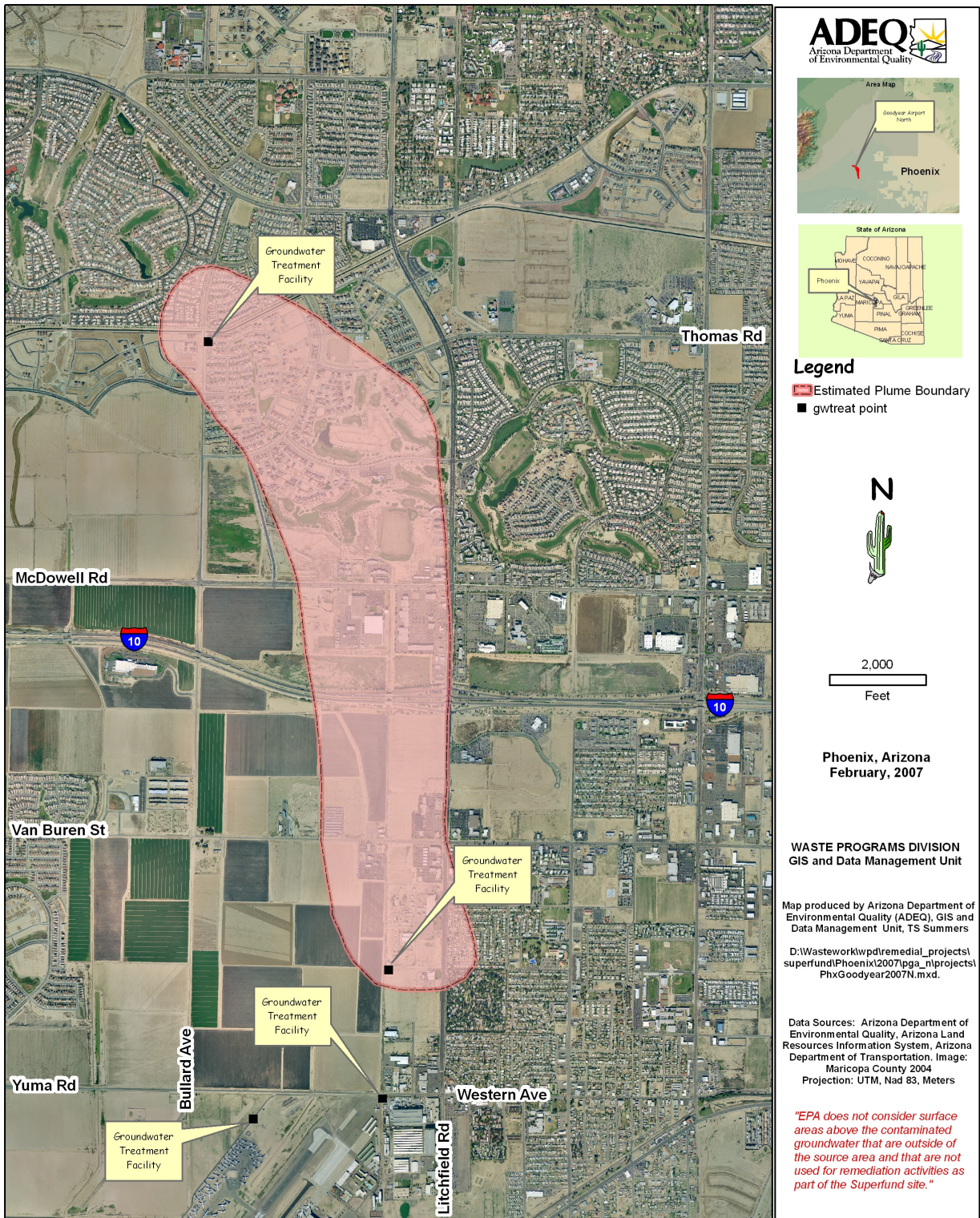
The following newsletters and fact sheets for the community have been distributed recently by ADEQ, EPA, Honeywell, and APS:

EPA & ADEQ Identify More Potentially Responsible Parties (February 2005); Honeywell 34th Street Jet Fuel Remediation Project (Spring 2005); Cleanup is Working at OU2 (March 2004); Environmental Report (Summer 2004).

A site-wide newsletter is under development and will be mailed to residences and businesses in the community involvement area. A Community Advisory Group (CAG) has been established for this site. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/enviro/waste/sps/eg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Phoenix Goodyear Airport North EPA NPL Site



Phoenix-Goodyear Airport North

EPA NPL Site - Phoenix

Boundaries:

The Phoenix-Goodyear Airport (PGA) Superfund Site is located approximately 17 miles due west of Phoenix, in the western part of the Salt River Valley in Central Arizona. The site study area covers a total area of about 35 square miles and is divided into a southern portion (PGA-South) and a northern portion (PGA-North). Contamination from these two areas is non-contiguous. Except for the airport, which is owned by the city of Phoenix, the PGA site lies almost entirely within the city of Goodyear, Arizona. The city of Avondale occupies about 2 square miles along the eastern border of the site.

The physical boundaries of the PGA North site are defined by the groundwater contamination plume which is generally bounded by Thomas Road to the north, Litchfield Road to the east, the Unidynamics property on Litchfield Road to the south, and Bullard Avenue to the west. The site consists of the Unidynamics property and any groundwater contamination emanating from this property. The Phoenix-Goodyear Airport North site was listed on EPA's National Priorities List (NPL) in September 1983.

Contaminants:

The current contaminants of concern at the site include chlorinated solvents, mainly TCE, and perchlorate. TCE is present in the subsurface soils located within the Unidynamics property, as well as in the groundwater. Perchlorate was discovered in the groundwater in August 1998. Acetone and MEK are found at trace levels in the groundwater; however, it is believed that the first soil vapor extraction system provided treatment for these contaminants. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

Potential health risks may exist for individuals who ingest the contaminated groundwater. No known drinking water wells are currently impacted by the contamination. Drinking water for the area is provided by the city of Goodyear or the Litchfield Park Service Corporation (LPSCO). The drinking water wells are monitored regularly, as required by law.

Remedial Activities:

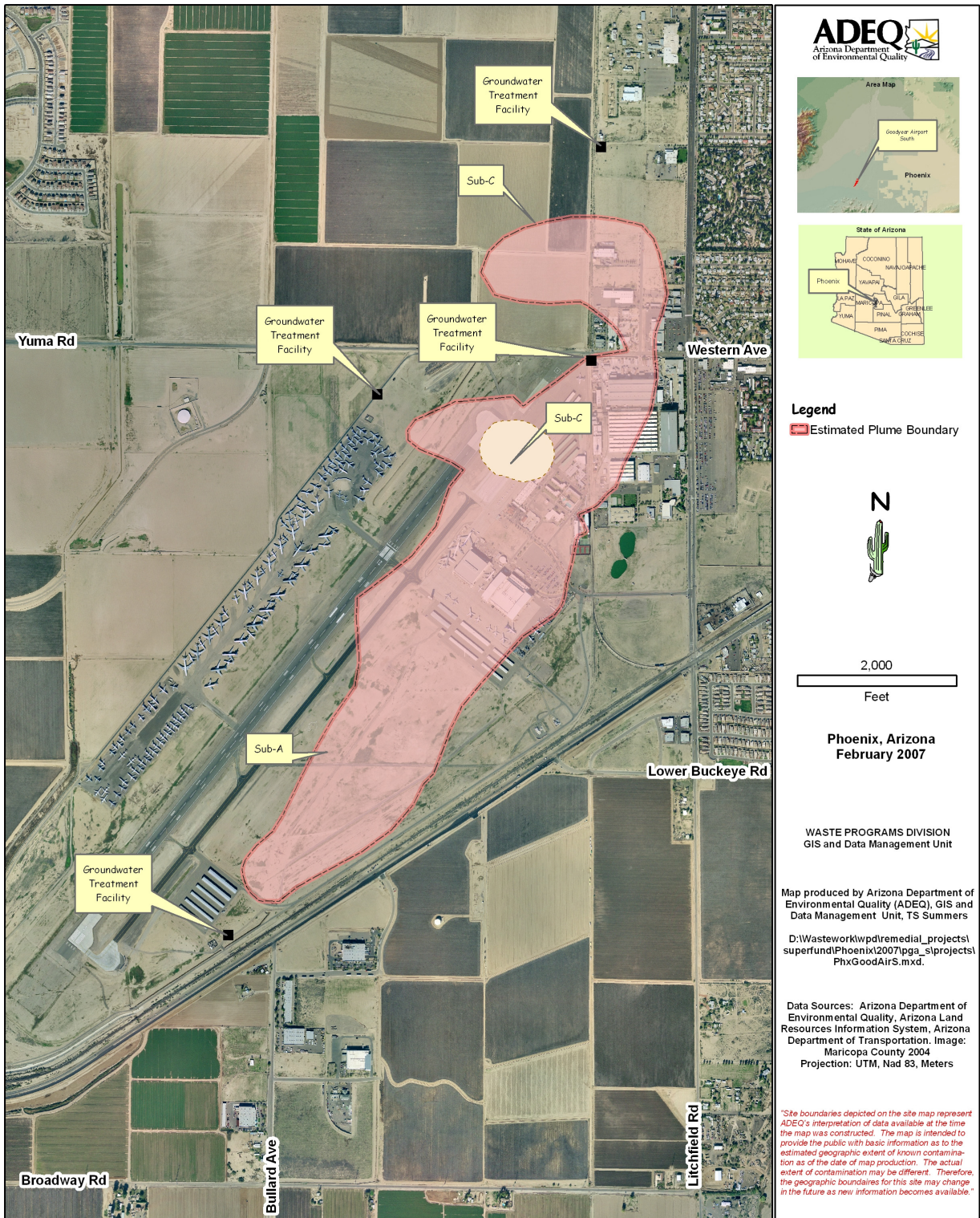
In 2003, the treated groundwater began being piped to the City of Goodyear Wastewater Treatment Facility in order to treat the water for perchlorate. This is a successful method of treatment. However, the City of Goodyear terminated Crane Co.'s ability to use its wastewater treatment plant to conduct perchlorate treatment effective Jan. 1, 2005. A reverse-osmosis system to treat the perchlorate is now utilized and the treated water is re-injected to the lower aquifer. EPA and Crane Co. concluded negotiations and entered into a Consent Decree that commits Crane Co. repay EPA for past expenses and directs Crane Co. to continue investigation and clean up of the site.

Community Involvement Activities:

A community advisory group has been established for this site in conjunction with the Western Avenue WQARF site and meets on a regular basis. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/enviro/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Phoenix Goodyear Airport South EPA NPL Site



Phoenix-Goodyear Airport South

EPA NPL Site - Phoenix

Boundaries:

The Phoenix-Goodyear Airport (PGA) Superfund Site is geographically situated approximately 17 miles due west of Phoenix, in the western part of the Salt River Valley in Central Arizona. The site study area is divided into a southern portion (PGA-South) and a northern portion (PGA-North). Contamination from these two areas is non-contiguous. Except for the airport, which is owned by the city of Phoenix, the PGA site lies almost entirely within the city of Goodyear, Arizona. The city of Avondale occupies about 2 square miles along the eastern border of the site.

The approximate physical boundaries of the PGA South site are Yuma Road to the north, Litchfield Road to the east, Broadway Road / Highway 85 and the railroad tracks to the south, and Reems Road / Estrella Parkway to the west. The site consists of the Loral Defense Systems-Arizona (Loral) property and the Phoenix-Goodyear Airport property and any groundwater contamination emanating from these areas.

Contaminants:

The contaminants identified in the groundwater at the PGA South Site are: trichloroethene (TCE), and chromium. The soils containing chromium and cadmium above the Health Based Guideline Levels (HBGLs) were stabilized, thereby eliminating the risk of exposure by ingestion and inhalation and preventing migration to groundwater.

Public Health Impact:

Potential health risks may exist for individuals who ingest the contaminated groundwater. There are no known drinking water supply wells on the site. The city of Goodyear regularly monitors their drinking water supply wells, as required by law.

Remedial Activities:

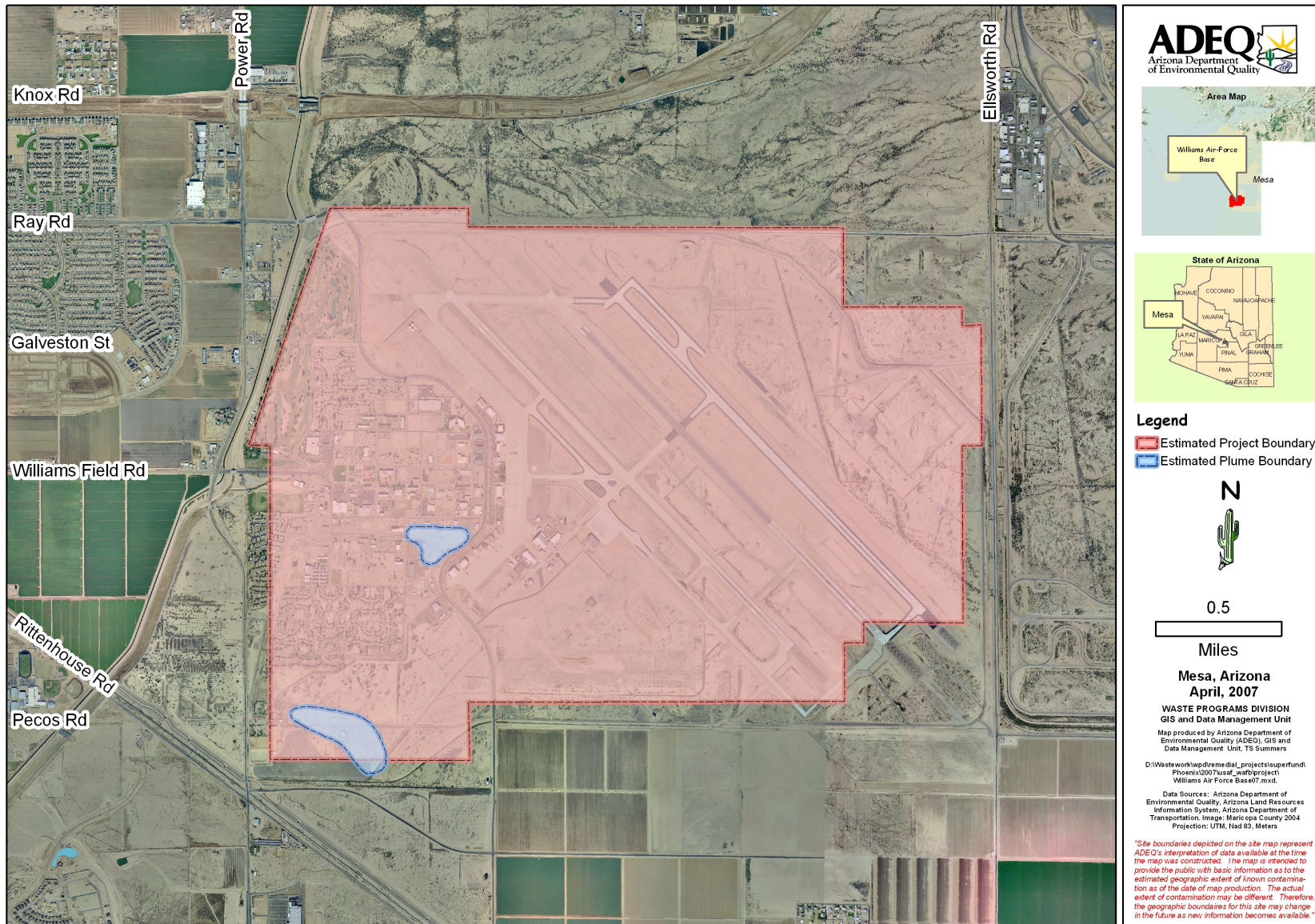
The Phoenix-Goodyear Airport South site was listed on EPA's National Priorities List (NPL) in September 1983. The Record of Decision (ROD) was signed in 1989. Groundwater monitoring on a regular basis continues at this site. There are currently 98 monitoring points associated with the site. The Five-Year Review Report was prepared and finalized by the EPA as of September 2005. This was an essential step in evaluating the status of the groundwater remedy and the need for improvement. EPA identified several issues to be addressed by the potential responsible party. Hydraulic capture of the plume has been completed and the plume is being contained.

Community Involvement Activities:

A community advisory group (CAG) has been established for this site in conjunction with the Western Avenue WQARF site and the PGA North Superfund site, and meets on a regular basis. The CAG meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Williams Air Force Base EPA NPL Site



Williams Air Force Base

EPA NPL Site - Phoenix

Boundaries:

The former Williams Air Force Base (WAFB) is located in Mesa, Arizona approximately 30 miles southeast of central Phoenix. It is approximately 4,127 acres in size and the study area includes the entire Base. WAFB is now utilized as the Williams Gateway Airport and the Arizona State University East and Maricopa Community College campus since the removal of military personnel and transition to educational and commercial uses. The Williams Air Force Base site was listed on EPA's National Priorities List (NPL) in November 1989.

Contaminants:

The contaminants of concern include organic solvents and paint strippers, petroleum, metal plating wastes, hydraulic fluids, pesticides, and radiological wastes. Discharges and disposal at WAFB resulted in soil and groundwater contamination. The remaining groundwater contaminant issue is a plume of jet fuel and aviation gas contamination at ST-12. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

There is no known risk to human health at this time. All exposure pathways have been eliminated through remediation or restricted access/use. No groundwater wells are known to be impacted.

Remedial Activities:

As of June 2005, approximately 3,960 acres (96%) of the former base have been transferred to public or private ownership.

The largest landowners of former WAFB land are: Williams Gateway Airport, Gila River Indian Community, Arizona State University East, and Maricopa Community College.

For cleanup purposes, the former base was divided into six operable units (OU), OU-1 through OU-6. Each OU consists of many sites of potential concern; the ADEQ website lists the sites of primary interest for each OU.

Community Involvement Activities:

A Restoration Advisory Board has been formed and meets on a quarterly basis.

Note: Refer to [Site Information & File Repository Locations - Phoenix](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

161st. Air National Guard DoD Site



Legend

Estimated Site Boundary



0.25
Miles

Phoenix, Arizona
March 2007

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of
Environmental Quality, Arizona Land
Resources Information System, Arizona
Department of Transportation. Image:
Maricopa County 2004
Projection: UTM, Nad 83, Meters

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

161st Air National Guard

DoD Site - Phoenix

Boundaries:

The 161st Air National Guard is located on the southwest corner of a 50.7 acre site at Phoenix Sky Harbor International Airport between the south runway and the Salt River Channel. The Air National Guard Base has been located just south of the airport since 1957.

The facility was relocated in 2001 for the expansion of the runway network at Phoenix Sky Harbor International Airport. The facility is currently used for a refueling group in support of Air Combat Command activities. Typical activities at the site have included aircraft fueling maintenance, ground equipment maintenance, and other associated activities. The 161st Air National Guard site was listed on EPA's DoD List in October 1990.

Contaminants:

Contaminants of concern include: benzene, toluene, ethylbenzene and xylenes (BTEX). Contaminants of concern may change as new data become available.

Public Health Impact:

The benzene groundwater plume is confined to the site and has not affected any water supply wells. This land is restricted to the public and is therefore protective of public health. The treatment systems are proving to be protective of the environment. Continued monitoring will provide insight as to the capture of the plume.

Remedial Activities:

The selected remedy included soil vapor extraction (SVE) and air sparging (AS) systems. In February 2001, the SVE / AS system was operational. In January 2003, the AS portion of the treatment system was shut down due to concentrations of benzene below Aquifer Water Quality Standard (AWQS) of five parts per billion (ppb) for the previous four quarters. This was due to the combined result of remedial activities and smearing caused by the historically low groundwater elevations. The soil vapor extraction (SVE) and air sparging (AS) systems were restarted in June 2005 because of detections of contaminants of concern after rebound, and the effect of rising groundwater levels.

The Draft 2006 Sampling and Analysis Plan, which was received September 2005, proposes that after four quarters of monitoring, the data will be assessed as to whether the treatment systems can be shut off again. Rebound monitoring will continue quarterly as agreed upon in the July 2005 meeting between ADEQ and the ANG. The most recent Groundwater Monitoring and Remedial Progress Report for the period April through June 2005 was dated August 10, 2005. During this reporting period, approximately 25 pounds of Total Non-Methane Organic Carbon (TNMOC) was removed by SVE, and 846 pounds by biodegradation. This reflects only the month of June after the SVE was re-started.

Community Involvement Activities:

No community involvement activities are planned at this time.

Note: Refer to Site Information & File Repository Locations - Phoenix, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Statewide Sites

Information Repository & File Locations

Narrative Information & Maps

WQARF Registry Sites

20th Street and Factor Avenue

Klondyke Tailings

Payson PCE

Pinal Creek

Tonto and Cherry

Tyson Wash

Vulture Mill

Federal EPA NPL Sites

Apache Powder

Hassayampa Landfill

Yuma Marine Corps Air Station

DoD Sites

Camp Navajo / Camp Navajo OB/OD

Formerly Used Defense Sites

Fort Huachuca

Luke AFB Waterdog Recreation Annex

Yuma Army Proving Grounds



Sites Information Repository & File Locations Statewide

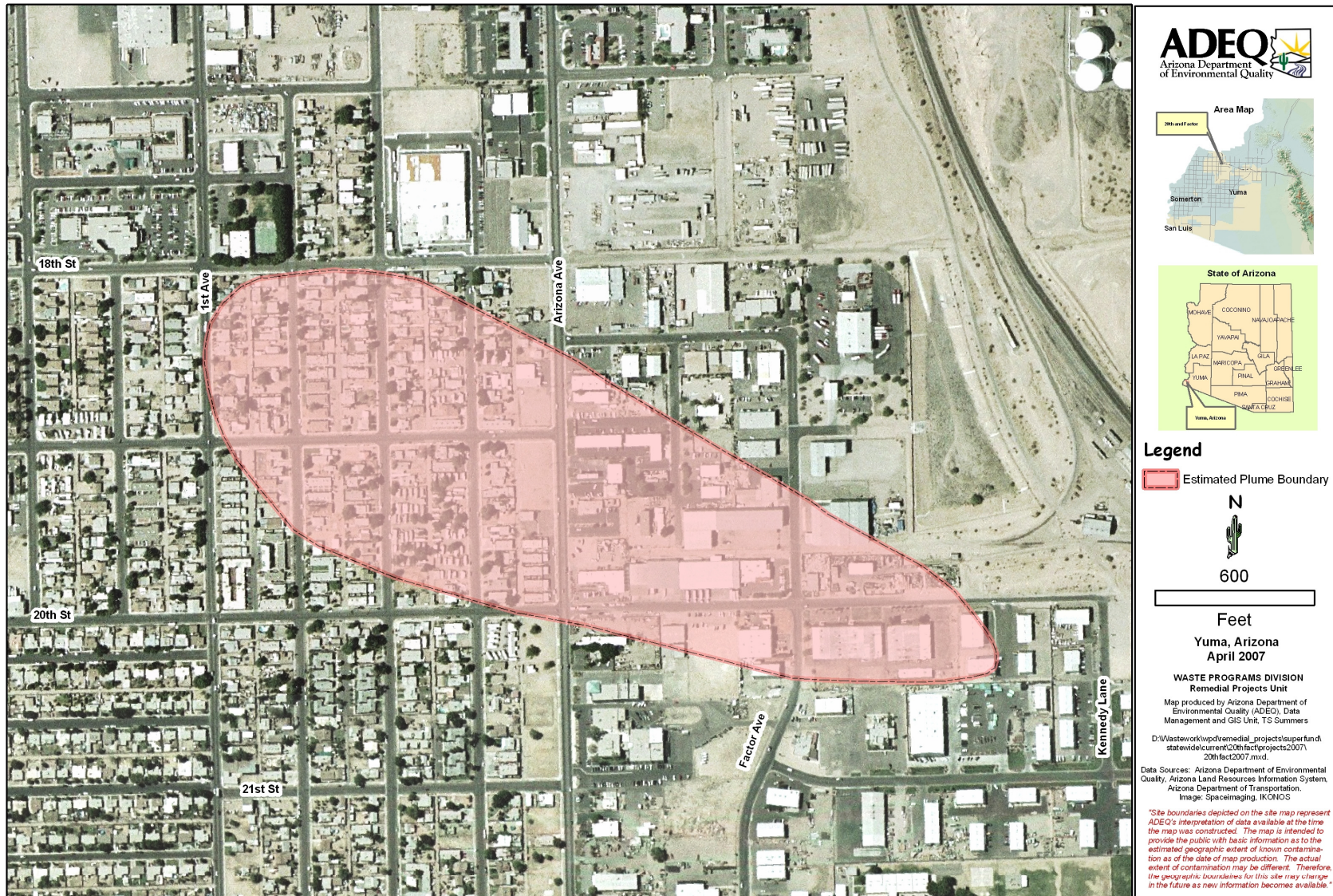
April 2007

WQARF Registry Sites	EPA NPL Sites	DoD Sites
20 th St. & Factor Ave.	Apache Powder	Camp Navajo
Klondyke Tailings	Hassayampa Landfill	○ Camp Navajo OB / OD
Payson PCE	Yuma Marine Corps Air Station	Formerly Used Defense Sites
Pinal Creek		Fort Huachuca
Tonto and Cherry		Luke Waterdog Recreation Annex
Tyson Wash		Yuma Army Proving Grounds
Vulture Mill		

Site Name	Site Type	File & Repository Location(s)		
20 th Street and Factor	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	
Klondyke Tailings	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Safford / Graham Library 828 7 th Avenue Safford (928) 348- 3202
Payson PCE	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Payson Public Library 328 N. McLane Road Payson (928) 474- 9260
Pinal Creek	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	Miami Memorial Library 1052 Adonis Road Miami (928) 473- 4403	(BHP Billiton Files) Globe Public Library 339 S. Broad Street Globe (928) 425- 6111
Tonto and Cherry	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Payson Public Library 328 N. McLane Road Payson (928) 474- 9260
Tyson Wash	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Quartzsite Library 465 N. Plymouth Avenue Quartzsite (928) 927- 6593
Vulture Mill	WQARF	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Wickenburg Library 164 E. Apache Street Wickenburg (928) 684- 2665
Apache Powder	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	ADEQ Southern Regional Office 400 W. Congress, # 433 Tucson (520) 628- 6715	Benson Library 300 S. Huachuca Benson (520) 586- 9535

Site Name	Site Type	File & Repository Location(s)		
Hassayampa Landfill	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Buckeye Library 310 N. 6 th Street Buckeye (602) 386- 2778
Yuma Marine Corps Air Station	EPA NPL	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380	EPA Superfund Records Center Mail Stop SFD-7C 95 Hawthorne Street, Room 403 San Francisco, CA 94105 (415) 536-2000	Yuma County Library 350 S. 3 rd Avenue Yuma (928) 782- 1871
Camp Navajo ○ Camp Navajo OB/OD (Open Burn/Open Detonation)	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		Cline Library 901 S. Knowles Dr., Bldg. 28 Flagstaff (928) 523- 4459
Formerly Used Defense Sites (FUDS)	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
Fort Huachuca	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
Luke Waterdog Recreation Annex	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		
Yuma Army Proving Grounds	DoD	ADEQ 1110 W. Washington St. Phoenix Records Center (602) 771- 4380		

20th Street and Factor Ave. WQARF Site



20th Street & Factor Avenue

WQARF Registry Site – Statewide

Boundaries:

The 20th Street and Factor Street Site is located approximately one-half mile south of 16th Street (U.S. Highway 95) and approximately three-quarters of a mile east of Fourth Avenue (Interstate 8 Business Loop) in Yuma, Arizona.

Contaminants of Concern:

The current contaminants of concern at the site include PCE, TCE and cyanide. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

No irrigation, drinking water or other production wells have been impacted by the volatile organic compounds or cyanide contamination from the site. However, PCE, TCE and cyanide are present in the groundwater monitoring wells at the site at concentrations above the AWQS. The cap prevents direct exposure to the underlying cyanide contaminated soils remaining at the site.

Remedial Activities:

June 2002, ADEQ completed an early response action (ERA) at the site. The ERA included excavation and disposal of the upper foot of cyanide contaminated surface soils. Approximately 1,700 tons of contaminated soils were removed from the site. A one foot cap of aggregate base course material was placed over the remaining cyanide contaminated soils. This stable cap will prevent direct exposure to the underlying contaminated soils remaining at the site. The ERA also included the removal of two unused sumps and the cleaning of three active septic systems at the site. The removal of approximately 15,000 gallons of PCE and cyanide contaminated wastewater and sludge from the disposal system addressed the continuing sources of groundwater contamination by removing the remaining source material.

In 2004, ADEQ drilled and sampled four deep borings beneath two of the remaining septic tanks and the former disposal pond area. The purpose of these boring was to evaluate the cyanide contamination at depth in these areas. Cyanide contamination above the non-residential SRL extends to a depth of approximately 17 feet bgs in some areas of the site. ADEQ will use this data and other information to develop GPLs for the cyanide contaminated soils remaining in place. In late 2006, ADEQ drilled and sampled six additional groundwater monitor wells to further define the extent of the contaminant plume. Laboratory analyses from these new monitor wells indicate that the plume has not yet been fully characterized. ADEQ's current plans for the site are to continue the Remedial Investigation (RI). During the RI, ADEQ will fully determine the extent of groundwater contamination down gradient of the site. The site will then proceed through a Feasibility Study leading to a proposed Remedial Action Plan and a final remedy.

Community Involvement Activities:

A community advisory board is in the process of being set up. A fact sheet was distributed to the community involvement area in March 2002.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Klondyke Tailings WQARF Site



Klondyke Tailings

WQARF Registry Site – Statewide

Boundaries:

The Klondyke Tailings site, in the unincorporated community of Klondyke, is on the north bank of Aravaipa Creek, approximately 4.5 miles upstream of the Aravaipa Canyon Wilderness Area. The site boundaries are irregular. The site is comprised of two piles of mine tailings, the soil between and adjacent to these piles, and the area approximately 50 feet into the stream bed of Aravaipa Creek, directly adjacent to the tailings piles. The site is bounded to the east by Klondyke Road. Klondyke was listed as a WQARF Registry Site in 1998 with a score of 69 out of a possible 120.

Contaminants of Concern:

Contaminants of concern at the site include lead, cadmium, antimony, beryllium, copper, manganese, arsenic, and zinc. Physical evidence and testing of the groundwater and soil in the area indicate that runoff and leaching into Aravaipa Creek from the tailings piles may be occurring; and, flooding of the creek could erode contaminated materials into the creek bed.

Public Health Impact:

Under a cooperative agreement with the Agency for Toxic Substances and Disease Registry, the Arizona Department of Health Services conducted a public health assessment of the Klondyke Tailings site. The results of the public health assessment suggest that the site does not pose a health risk to nearby residents, campers, swimmers, or ATV users, nor to those who consume fish from Aravaipa Creek. Based on the recent flooding, ADEQ is concerned that consolidating the tailings or constructing berms in the flood plain may have adversely impacted adjoining properties.

Remedial Activities:

In 2006 an early response action (ERA) was done to determine if any immediate actions were necessary at the site to protect the public health or the environment. ERA activities included minor earth moving repairs such as repairing berms around the tailings piles and correcting drainage problems to contain storm water runoff on the tailings piles. In addition, the ERA included characterization and removal of old laboratory reagents left on site and sampling, characterization and removal of any buried tanks, drums or other possible sources of contamination that were found during geophysical, magnetic and electromagnetic surveys previously conducted at the site.

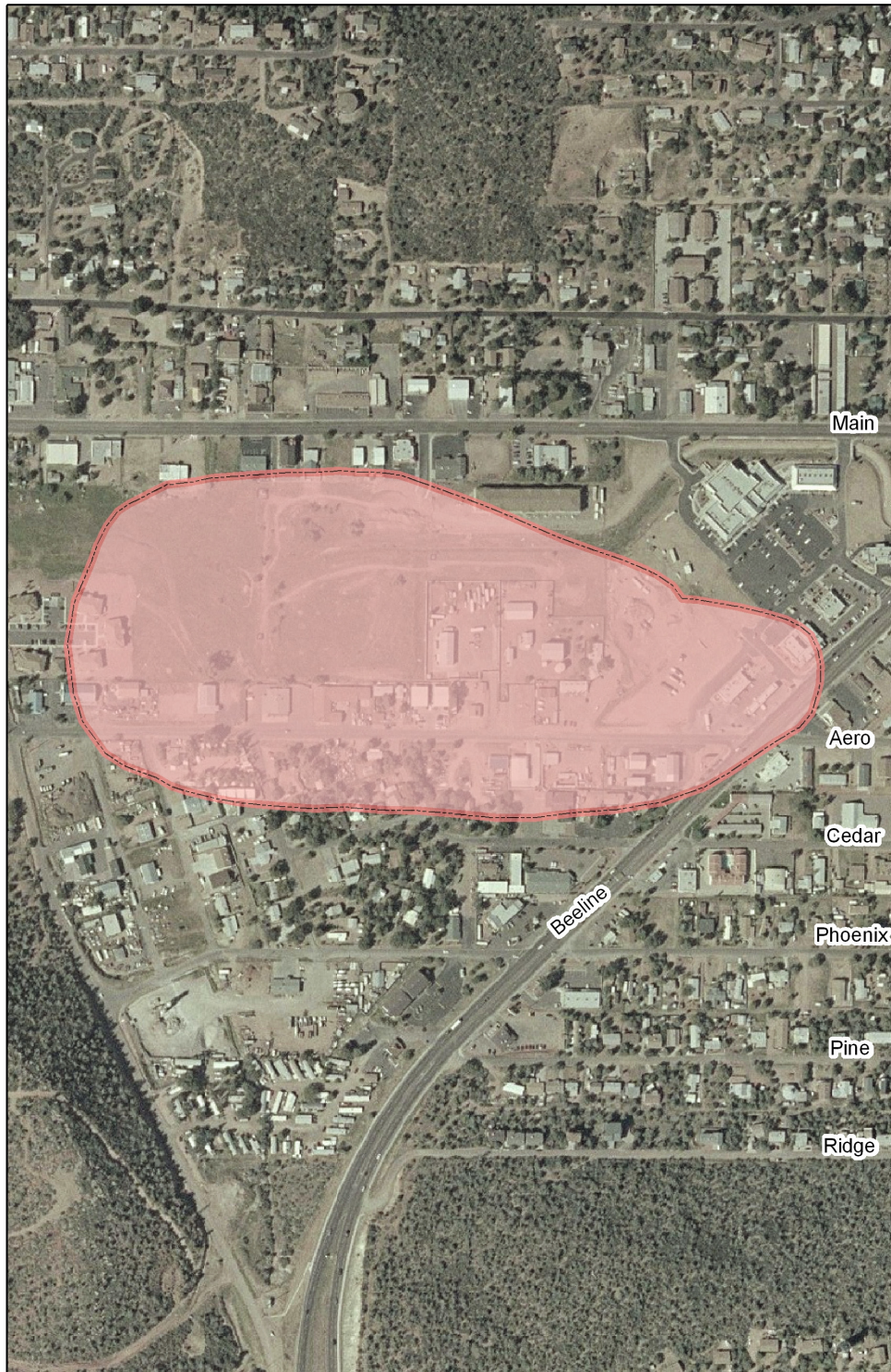
A remedial investigation (RI) is continuing at the site. RI activities that were conducted in 2006 included: sampling of the soils at the site and surrounding properties; installation of four groundwater monitoring wells at the site that are sampled on a quarterly basis; sampling of two private wells in the area; and stream sediment sampling in Aravaipa and Laurel creeks upstream and downstream of the site. In the immediate future, RI activities will include: Sampling of surface water in Aravaipa and Laurel creeks; additional sampling on adjacent properties to define the extent of impacted soils; and continuing sampling of monitor wells at the site and private wells in the area as requested.


Community Involvement Activities:

The latest newsletter providing an update on site activities was mailed to residences and businesses in the community involvement area in January 2006. A CAB has been formed for the site and meets regularly to discuss site activities. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/enviro/waste/sps/reg.html>.

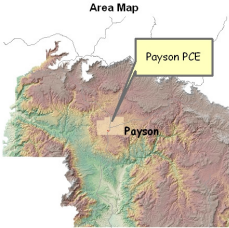
Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Payson PCE WQARF Site







Area Map




State of Arizona




Legend

 Estimated Plume Boundary

N



0.1
Miles



**Payson, Arizona
December 2006**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of Environmental Quality (ADEQ), GIS and Data Management Unit, TS Summers
Checked By:

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Data Sources: Arizona Department of Environmental Quality, Arizona Land Resources Information System, Arizona Department of Transportation.
Image: Statewide, 1 Meter

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

Payson PCE

WQARF Registry Site – Statewide

Boundaries:

The Payson PCE site is located in Payson with approximate boundaries of Frontier Street to the north, Beeline Highway (State Route 87) to the east, Aero Drive to the south, and McLane Road to the west. The site was placed on the WQARF Registry in April 1998 with a score of 63 out of a possible 120.

Contaminants:

The contaminant of concern in the groundwater at the site is tetrachloroethene (PCE).

Public Health Impact:

ADEQ and the town of Payson have taken precautions to prevent public exposure to the contamination. The heavily contaminated municipal wells have not been put into production for public supply without adequate treatment. The Arizona Department of Health Services (ADHS) has developed a "Statement of Risk" to address the risks associated with consumption of water from contaminated private wells in the area. The "Statement of Risk" is based on a number of assumptions regarding contaminant concentration, exposures, and toxicity information. The conclusions about health risks from residential use of contaminated private well water are considered tentative. While most of the private wells that have been found to be contaminated contained concentrations of PCE below the MCL (less than 5 µg/L), the owners of these wells have been advised that continued use of the water is not recommended.

In March 1997, the site boundaries were expanded to include additional private domestic wells located to the north and south of the site. Several of these wells were found to be contaminated with PCE above the MCL. ADEQ informed the owners that drinking the well water could be unhealthful, and that ADEQ would provide a temporary supply of bottled water for the owners' use until the owners could secure an alternative supply.

Remedial Activities:

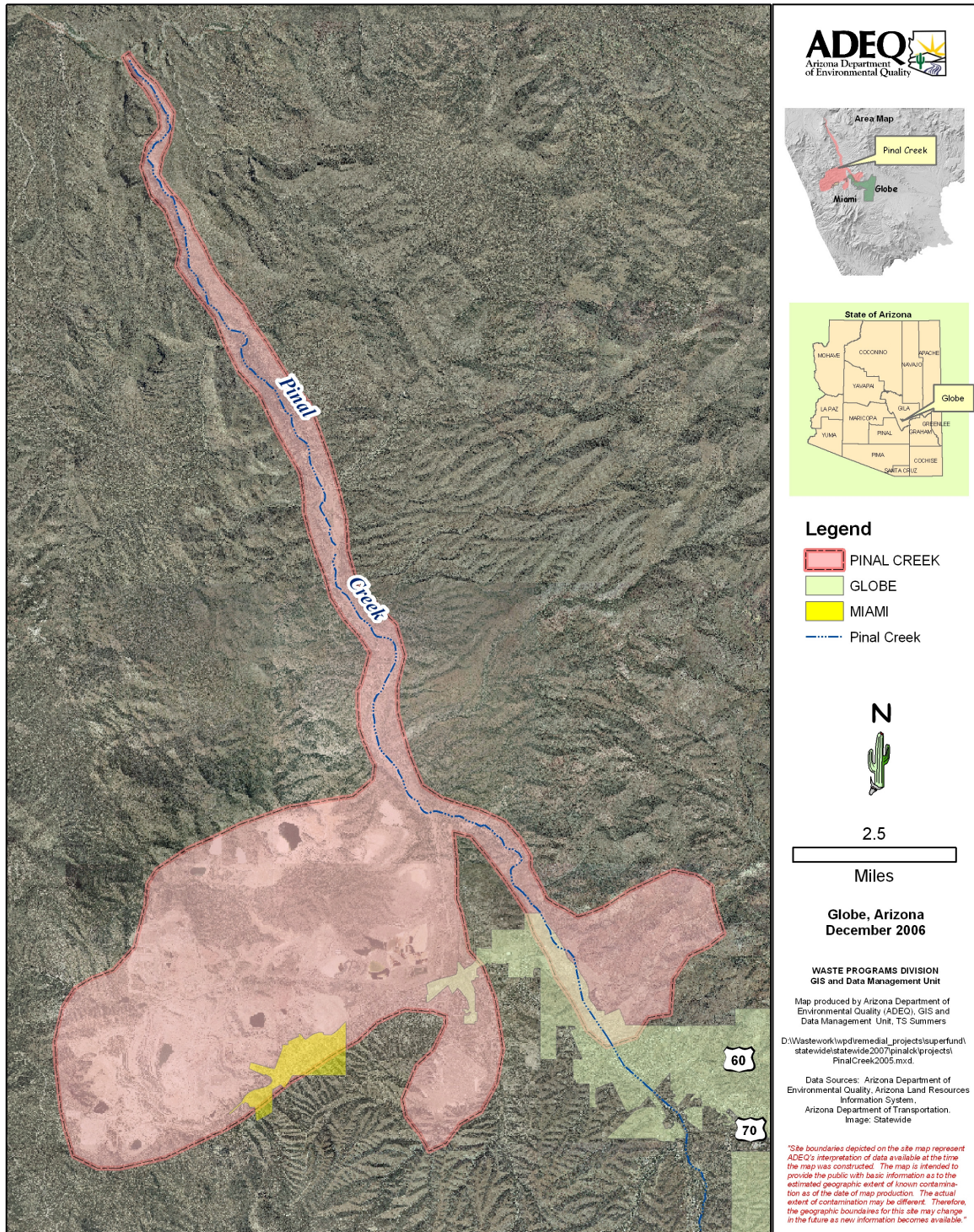
Two groundwater treatment systems have been constructed and due to decreased levels of contamination, only one system is currently operating. Clean water from these systems is delivered to the Town of Payson. Semi-annual groundwater sampling is conducted in March and September of every year. The Expanded Groundwater Treatment System continues to operate at the site. Groundwater is treated through carbon vessels and is distributed to a holding tank at the site. To ensure compliance with drinking water standards, water samples are collected on a monthly basis from the system. A soil vapor extraction system was installed in August 2001, and has been shut down after contaminants were removed. The remedial investigation (RI) / feasibility study (FS) and proposed remedial action plan (PRAP) have been completed.

Community Involvement Activities:

A community advisory board, which also incorporates the Tonto and Cherry site, has been established for this site and meets on a regular basis. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Pinal Creek WQARF Site



Pinal Creek

WQARF Registry Site – Statewide

Boundaries:

The Pinal Creek Site is located in Gila County in and around the communities of Globe and Miami, Claypool and Wheatfields. The site includes the BHP Copper and Phelps Dodge Miami mining properties, and the drainages and underlying aquifers of Miami Wash, Bloody Tanks Wash, Russell Gulch, and Pinal Creek. The site also includes the entire floodplain of Pinal Creek from the Old Dominion Mine to the Salt River, plus those portions of the communities underlain by contaminated groundwater. The site has irregular boundaries.

Within the southern portion of the site, the boundary follows and includes the entire mine sites of the Phelps Dodge Miami, Inc. (Phelps Dodge Miami Mine, formerly known as the Inspiration Mine) and BHP Copper, Inc. (the Miami Mine, the Copper Cities Mine, the Old Dominion Mine and related properties, and the Solitude Tailings). The southern boundary follows the southern margin of the floodplain of Bloody Tanks Wash through the town of Miami and the community of Claypool, then turns south to include the BHP Solitude Tailings.

The boundary follows the eastern margin of the floodplain of Russell Gulch and Miami Wash northward to the confluence with Pinal Creek. The boundary parallels both sides of upper Pinal Creek to the city of Globe, including the Old Dominion Mine and related mine properties in the Globe Hills.

North of the confluence of Miami Wash and Pinal Creek, the boundary parallels Pinal Creek on both sides including the floodplain of Pinal Creek plus a margin approximately 1000 feet wide surrounding the floodplain as far north as Inspiration Dam. North of Inspiration Dam, the boundary follows the floodplain of Pinal Creek. The northern boundary terminates at the Salt River. This site was placed on the WQARF registry in October 1998 and has a score of 97 out of a possible 120.

Contaminants:

The major contaminants of concern at this site include aluminum, arsenic, beryllium, cadmium, copper, cobalt, iron, manganese, nickel, sulfate, zinc, and sulfuric acid (acidity). Other contaminants of concern include radiochemicals (uranium, radium), fluoride, chromium, lead, mercury, and high levels of dissolved solids. Contaminants of concern at the site may change as new data become available.

Contaminants can be found:

- 1) in surface water of perennial Pinal Creek;
- 2) in intermittent or ephemeral (storm events) stream flow in Pinal Creek and its tributaries;
- 3) in alluvial aquifer groundwater at various depths, usually shallow, from 0 to 60 feet deep, along the length of Bloody Tanks Wash, Miami Wash, and Pinal Creek to Inspiration Dam;
- 4) locally in the Gila Conglomerate aquifer at various depths;

- 5) in stream sediments of major watercourses (Pinal Creek, Miami Wash, Bloody Tanks Wash);
- 6) in soils, mine waste (tailings, waste rock), and leach dumps at the mine and milling sites;
- 7) in solutions stored in open pit mines and other locations; and
- 8) in soils surrounding the mine and milling sites.

Although hazardous substances and other contaminants are present in all of these locations, they are not necessarily present at all locations above regulatory or background levels.

Public Health Impact:

Direct exposure to the contaminants could occur if contaminated surface water or groundwater were consumed, or from the ingestion or inhalation of contaminated soil particles. Water provided by the local water suppliers (the Arizona Water Co., the City of Globe, and others) comes from the deeper regional aquifer and meets both state and federal water quality standards. The Pinal Creek Group has implemented a private well replacement program since 1994 and offers free testing of private wells in the site. Approximately 90 wells have been replaced to date.

Remedial Activities:

The Pinal Creek Group, which consists of BHP, Phelps Dodge and Inspiration Copper, have been conducting remedial actions including source control since 1988 and have completed remedial investigations (RIs), risk assessments, a feasibility study (FS) and a recommended remedial action plan. They have also conducted a well replacement program for contaminated private and public supply wells.

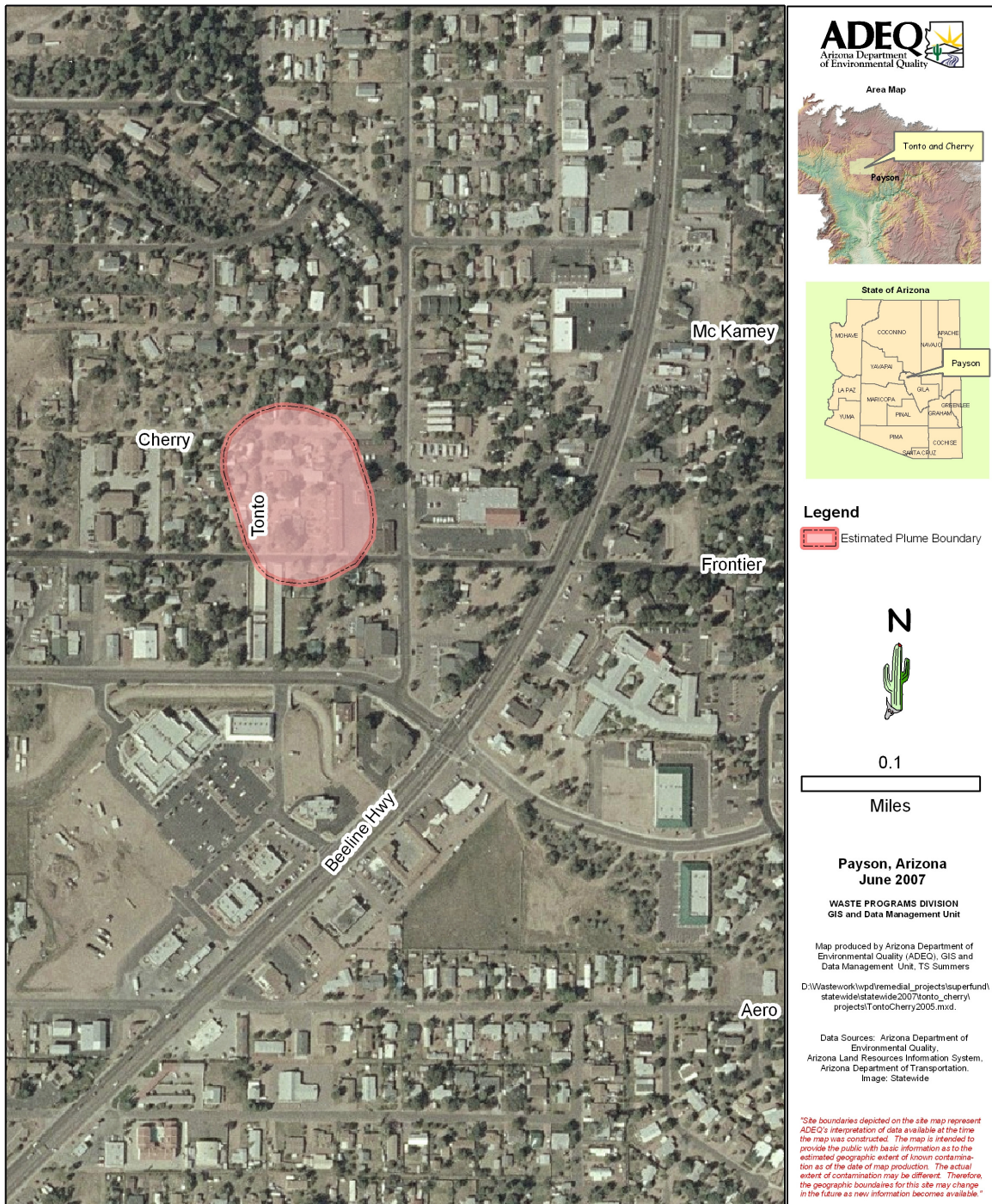
In early 2006 the capping and revegetation of the BHP Miami Unit No. 2 Tailings was completed. In mid 2006 Phelps Dodge-Miami began reclamation of the slag pile along Bloody Tanks Wash. The pile will be regraded, capped and revegetated. As of April 2006 approximately 105 million pounds of heavy metals (aluminum, beryllium, cadmium, cobalt, copper, iron, lead, manganese, nickel, and zinc) have been removed from aquifers at the site. This water has been treated and released to Pinal Creek, reused at the mines, or evaporated at the mines. ADEQ continues to review source control remedial investigations and feasibility studies at the Phelps Dodge and BHP Copper mining and processing facilities. Source control remedial actions are being implemented at all Phelps Dodge and BHP Copper mining facilities.

Community Involvement Activities:

Community outreach activities for this site are conducted by the Pinal Creek Group with ADEQ oversight and support. The Pinal Creek Group routinely generates newsletters, press releases, and fact sheets, conducts briefings for interested parties, conducts tours of treatment facilities, and participates in interviews on local radio stations.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Tonto and Cherry WQARF Site



Tonto & Cherry

WQARF Registry Site – Statewide

Boundaries:

The Tonto and Cherry site is located in Payson, approximately 400 feet west of the Beeline Highway and immediately north of Main Street. The site boundary is a northwest-trending oval, extending approximately 1,200 feet from the intersection of Main Street and Colcord Avenue. The site was placed on the WQARF Registry on June 5, 2000 with a score of 45 out of a possible 120.

Contaminants:

The contaminant of concern in the groundwater at the site is tetrachloroethene (PCE).

Public Health Impact:

The Maximum Contaminant Level (MCL) for PCE is 5.0 micrograms per liter. The PCE concentrations in three private wells at the site exceed this standard, and drinking water from these private wells poses a threat to the public health. The private well owners have been connected to the Town of Payson water system and the private wells are no longer used for consumption purposes.

Remedial Activities:

Semi-annual groundwater sampling has shown that the concentration of PCE in monitoring wells at the Site has generally decreased from approximately 24 µg/L in March 2001 to less than 5 µg/L in March 2006. The aquifer water quality standard (AWQS) for PCE is 5 µg/L.

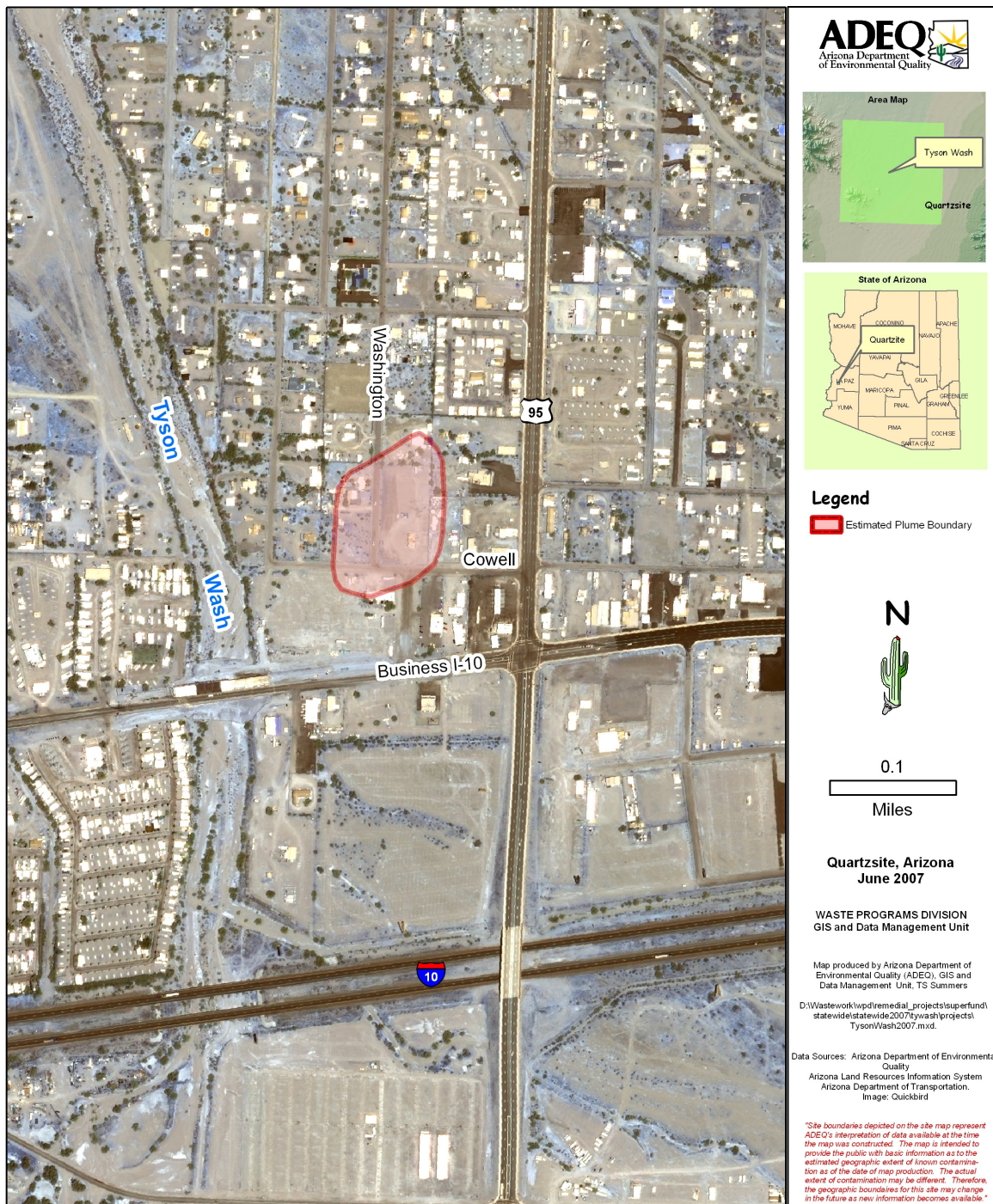
The concentration of PCE in monitoring wells at the site has generally decreased from approximately 24 µg/L in March 2001 to less than 5 µg/L in September 2006. The aquifer water quality standard (AWQS) for PCE is 5 µg/L. The Draft Remedial Investigation Report is being updated to be sent out for public comment. The Remedial Objectives (RO) Report is currently being prepared. Semi-annual groundwater sampling is conducted in March and September.

Community Involvement Activities:

A community advisory board has been established for this site in conjunction with the Payson PCE site and meets on a regular basis. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/envIRON/waste/sps/reg.html>.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Tyson Wash WQARF Site



Tyson Wash

WQARF Registry Site – Statewide

Boundaries:

The Tyson Wash site has boundaries approximately 300 feet to the north of Cowell Lane, 400 feet east of Washington Boulevard, 300 feet south of Cowell Lane, and 200 feet west of Oregon Avenue. The site was added to the WQARF Registry in 1998 with a score of 46 out of a possible 120.

Contaminants of Concern:

The current contaminants of concern in groundwater include PCE and TCE.

Public Health Impact:

The PCE contamination currently appears to be limited to groundwater in the upper aquifer located approximately 40 to 70 feet below the land surface. This aquifer is used as a source of drinking water for the area. There are 544 registered private wells within an approximately one-half mile radius of the site. Nineteen privately owned wells are located within, or on properties located immediately adjacent to the site. Seven of the wells have been impacted by the volatile organic compound (VOC) plume under investigation by ADEQ. An additional nine wells are considered to be threatened by the plume.

The residents within the WQARF site are connected to the town of Quartzsite water system. Groundwater from the impacted wells may be used for irrigating yards and trees. The lower aquifer, 500 feet below ground surface, has shown no evidence of contamination to date. A human health consultation was completed for the site in October 2000. Based on this report, signs warning of non-potable water were posted at locations where public access to contaminated water is possible (e.g., outdoor spigots). Drinking water is provided by the Town of Quartzsite and must meet all state and federal drinking water standards.

Remedial Activities:

The remedial investigation (RI) has been completed. As part of an early response action (ERA) a groundwater treatment system has been constructed to prevent migration of the plume to private drinking water wells. The pump and treat system at the site continues to operate and has reduced PCE and TCE contamination in the treatment area. The current highest concentration of PCE and TCE in groundwater beneath the site is 130 µg/l and 4.4 µg/l, respectively, based on the most recent sampling event conducted in November 2006. The aquifer water quality standard for PCE and TCE is 5 µg/l. The feasibility study (FS) report is currently being prepared.

Community Involvement Activities:

The latest newsletter providing an update on site activities was mailed to residences and businesses in the community involvement area in June 2005. A community advisory board (CAB) has been formed for the site and meets on a regular basis. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/enviro/waste/sps/meeting.html>.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Vulture Mill

WQARF Registry Site – Statewide

Boundaries:

The Vulture Mill Site is located just east of North Tegner (Highways 89 and 93) about one mile northwest of the center of the town of Wickenburg. The eastern boundary of the site is approximately one-quarter mile west of the Hassayampa River Channel. The site is on private land owned by four separate parties. The tailings and affected soil are found in an area about 35 acres on up to five separate properties. The site was placed on the WQARF Registry in April 1998 with an eligibility and evaluation score of 65 out of a possible 120.

Contaminants:

The current contaminants of concern at the site include lead and arsenic. The average concentration of lead in the mill tailings exceeds the concentration allowed on residential property (400 ppm) or non-residential property (2,000 ppm). The highest concentration of lead in the tailings is reported to be approximately 14,000 ppm. Other contaminants at the site include iron and manganese. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

Elevated levels of lead are found in the groundwater nearby, including areas in which private wells are used for drinking water. ADEQ has tested the water from potentially affected wells and found that properly constructed wells show no lead in concentrations known to be harmful to people. The town's drinking water supply is regularly tested and is required by law to meet all state and federal drinking water standards.

A human health risk assessment for the tailings/soils was completed in June 1999. This report documents that the site, in its current condition, presents an unacceptable risk. A key factor in this determination is the fact that bioavailability tests on the tailings found the lead to be, on average, 68% bioavailable. This result is higher than typical conservative estimates used in risk assessments on similar sites (typically 50%).

Remedial Activities:

All remedial activities at the site have been completed. Approximately 90,000 cubic yards of contaminated soil were excavated, compacted, and placed underneath two feet of clean soil. An irrigation system was installed and provides water to a grass cover, which was planted during the summer of 2005. Periodic operation and maintenance is being conducted to maintain the soil cover and site engineering features. ADEQ is coordinating with the Arizona Department of Transportation (ADOT) regarding the consolidation pile and the Highway 93 Wickenburg Interim Bypass.

Community Involvement Activities:

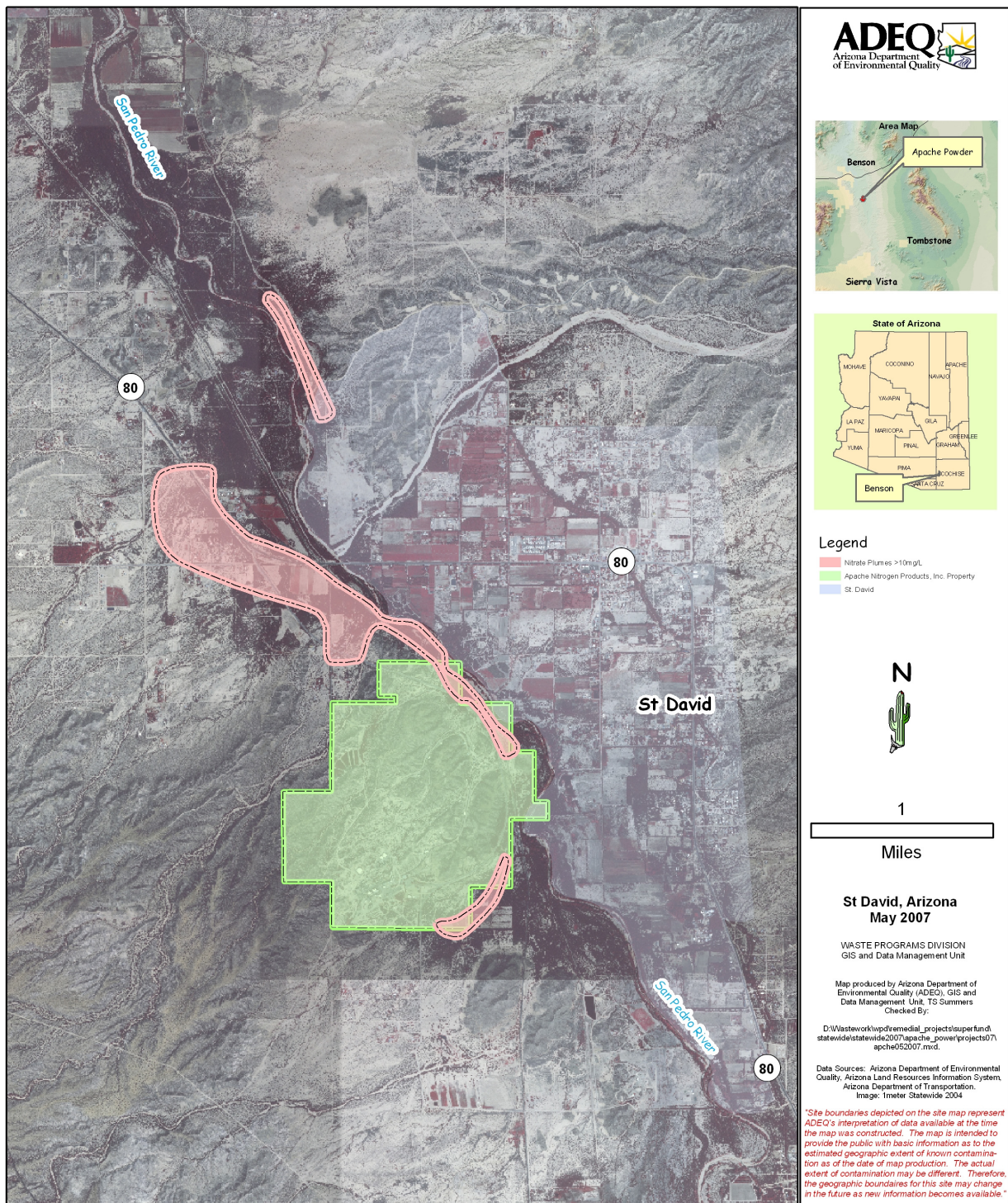
A community advisory board (CAB) had been formed for this site, met regularly in their community, and assisted in the remedial process. They no longer meet on a regular basis. These meeting minutes can be found in the official files at the Information Repositories.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Vulture Mill WQARF Site



Apache Powder EPA NPL Site



Apache Powder

EPA NPL Site – Statewide

Boundaries:

The Apache Powder Site is located in Cochise County, Arizona, approximately seven miles southeast of the incorporated town of Benson and 2.5 miles southwest of the unincorporated town of St. David. The site study area covers approximately nine square miles and includes 945 acres of land owned by Apache Nitrogen Products, Inc. (ANP), formerly known as the Apache Powder Company. The San Pedro River bounds the eastern side of the site, running from the southeast corner of the property toward the northwest.

Contaminants:

The current contaminants of concern at the site include arsenic, fluoride and nitrate in the perched groundwater; nitrate in the shallow groundwater aquifer; arsenic, antimony, barium, beryllium, chromium, lead, manganese and nitrate in the inactive pond soils and sediments; and 2,4-DNT, 2,6-DNT and lead in Wash 3 Area. Additionally, the waste materials vanadium pentoxide and TNT were found in soils on the site, and perchlorate has been found in the perched and shallow aquifer. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

Currently there are no known human exposures to groundwater contamination at this site. In 1995 Apache replaced a number of shallow aquifer domestic wells that had nitrate contamination with deeper regional aquifer wells and they are now supplying bottled water to two households. Perchlorate has not been detected in any domestic wells.

Remedial Activities:

Northern Area Groundwater

In September 1997, per the ROD, construction of a 4.5-acre Northern Area Treatment Wetland to treat 150 gallons per minute (80 million gallons per year) of nitrate-N contaminated groundwater in the northern portion of the site was completed. In late 2004 the wetland achieved full-scale startup. As of December 2006, the wetland has treated approximately 280 million gallons of groundwater and removed over 390,000 pounds of nitrate-N. Currently, the wetland is reliably treating nitrate-N contaminated groundwater to less than 10 mg/L (ppm).

The extent of nitrate-N contamination in this aquifer has not yet been fully determined, but its source is thought to be the Wash 5 area of Apache's property. EPA and ADEQ would like to complete all the remaining investigations of the Northern Area groundwater contamination and determine a final remedy enhancement to the existing remediation system by May 2008.

Southern Area Soils and Groundwater

The final remedy for the perched aquifer, the Southern Area shallow aquifer, and contaminated soils in the Southern Area was specified in a ROD Amendment in September 2005. The selected remedy for the Southern Area groundwater is Monitored Natural Attenuation (MNA). The remedy for the Southern Area contaminated soils is a low-permeability native soil cover with institutional controls including a deed restriction on the southern portion of the Apache property.

Soil borings installed in the summer of 2006 have shown that the shallow aquifer groundwater contamination in the Southern Area is somewhat less extensive than previously thought. These new data, along with previous data, also indicate that the contamination appears to be confined to a “hydraulic sink” where it is thought that the native vegetation is removing water as fast as it is replenished by natural recharge. Groundwater data in this area indicates that the groundwater levels near the San Pedro River are higher than those in the area of contamination. Therefore, the natural groundwater flow is away from the river toward the area of contamination. Construction of the native soil covers for the Southern Area soils began in the fall of 2006. These soil covers, along with the institutional controls called for in the Amended ROD, should be completed by March 2006.

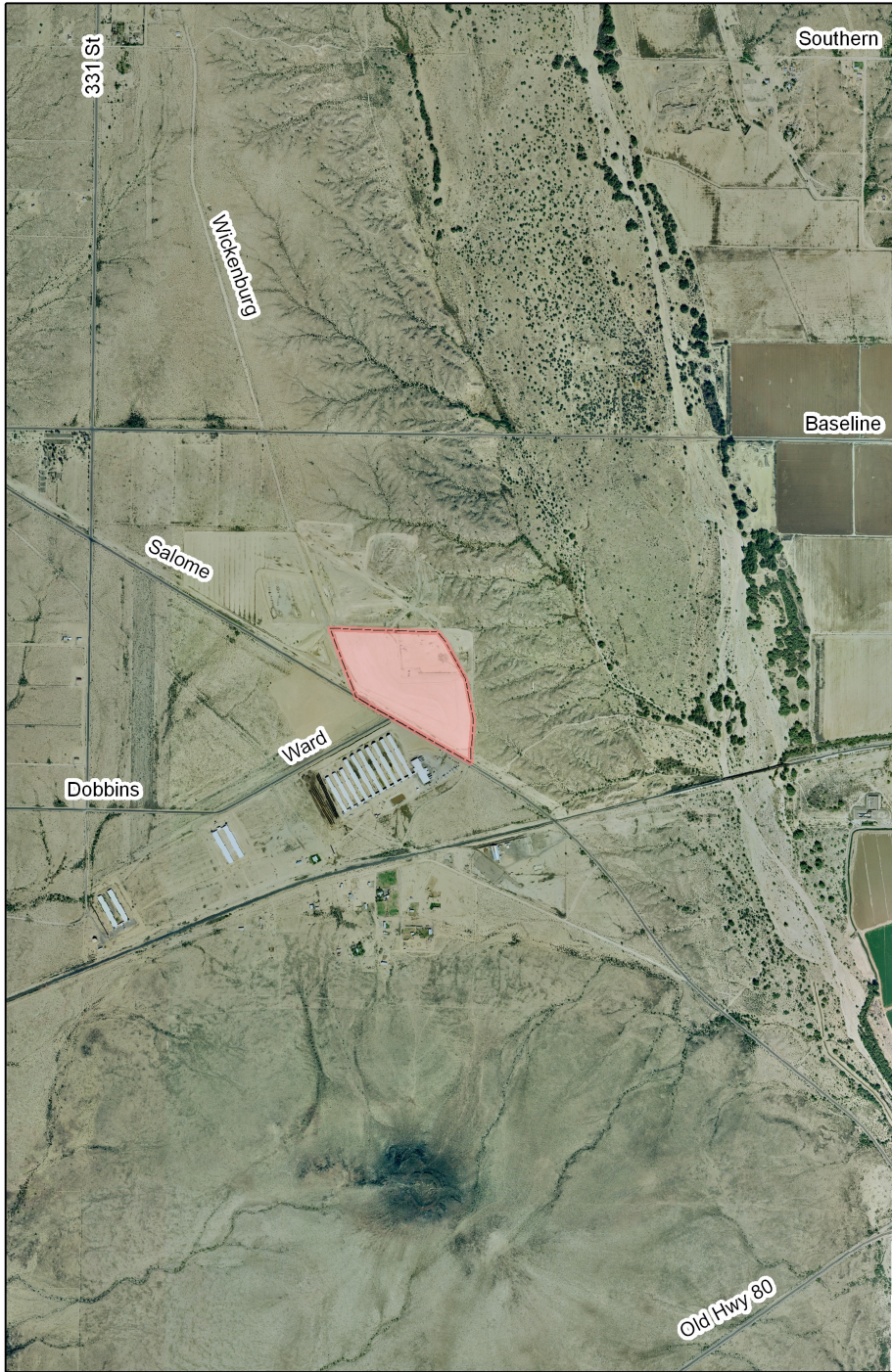
EPA and ADEQ hope to complete the design and implementation of the MNA remedy for the Southern Area groundwater by May 2007.

Community Involvement Activities:

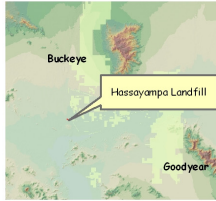
The Environmental Protection Agency (EPA) developed and distributed the following newsletters and fact sheets: “*Status of Apache Cleanup Activities - May 1999*,” “*TNT Removal Action Planned for December 1999 - November 1999*,” “*Update on Cleanup at Apache – March 2004*,” and “*EPA Announces Proposed Plan (for Soil and Groundwater Cleanup in the Southern Area of the site) – July 2005*,” “*Decision Made on Revising Cleanup of Southern Area*” – June 2006, and “*Northern Area Groundwater Remedy Update*” – October 2006. EPA and ADEQ participated in community meetings in St. David on October 14, 1999, July 19, 2005, September 1, 2005, and November 1, 2006.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Hassayampa Landfill EPA NPL- Site



Area Map



State of Arizona

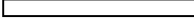


Legend

Estimated plume boundary



0.5



Miles

Maricopa County, Arizona
May, 2007

WASTE PROGRAMS DIVISION
GIS and Data Management Unit

Map produced by Arizona Department of
Environmental Quality (ADEQ), GIS and
Data Management Unit, TS Summers

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Data Sources: Arizona Department of Environmental
Quality, Arizona Land Resources Information System,
Arizona Department of Transportation,
Image: Maricopa County 1 foot

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

Hassayampa Landfill

EPA NPL Site – Statewide

Boundaries:

The Hassayampa Landfill site is located about 10 miles west of Buckeye, Arizona and is approximately six miles east of the Palo Verde Nuclear Generating Station. The site consists of about ten acres used for hazardous waste disposal which lies within a 47-acre landfill. The industrial waste disposal operations were independent of sanitary landfill activities. The Hassayampa Landfill site was listed on EPA's National Priorities List (NPL) in July 1987.

Contaminants:

The current contaminants of concern for groundwater include various volatile organic compounds (VOCs): 1,1-dichloroethene; trichlorotrifluoroethane; 1,1,1-trichloroethane; 1,1-dichloroethane; trichloroethene; tetrachloroethene; trichlorofluoromethane; 1,2-dichloroethene; 1,2-dichloropropane; and toluene. Soils beneath the waste pits contain VOCs, heavy metals, pesticides, and lime wastes. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

Risk assessment results indicate that potential health risks may exist for individuals who ingest the contaminated groundwater or come into direct contact with hazardous wastes present. The landfill is capped, therefore, there is no potential for adverse health effects due to inhalation of VOCs in the air. Contamination in the groundwater is contained within the site boundaries. The groundwater contamination is restricted to the shallow aquifer, which is not used as a potable water source.

Remedial Activities:

Since 1998, the Hassayampa Landfill Superfund site remedy has only removed approximately 35 pounds of the contaminants of concern from the groundwater each year. Soil vapor sampling and analyses indicate extremely high concentrations of volatile organic compounds (VOCs). Groundwater concentrations have been, and are currently increasing. ADEQ believes that the implementation of the originally designated remedy has failed.

ADEQ and EPA have determined that the existing site conceptual model (SCM) can no longer be supported by the current site conditions. Therefore, EPA and ADEQ requested the Hassayampa Steering Committee (HSC) to develop a new SCM. The HSC has recently selected a new "Supervising Contractor" (GeoSyntec Consultants). The selection was approved by ADEQ and EPA in accordance with the requirements of the existing consent decree (CD). The CD describes how the parties will work together to implement the remedy.

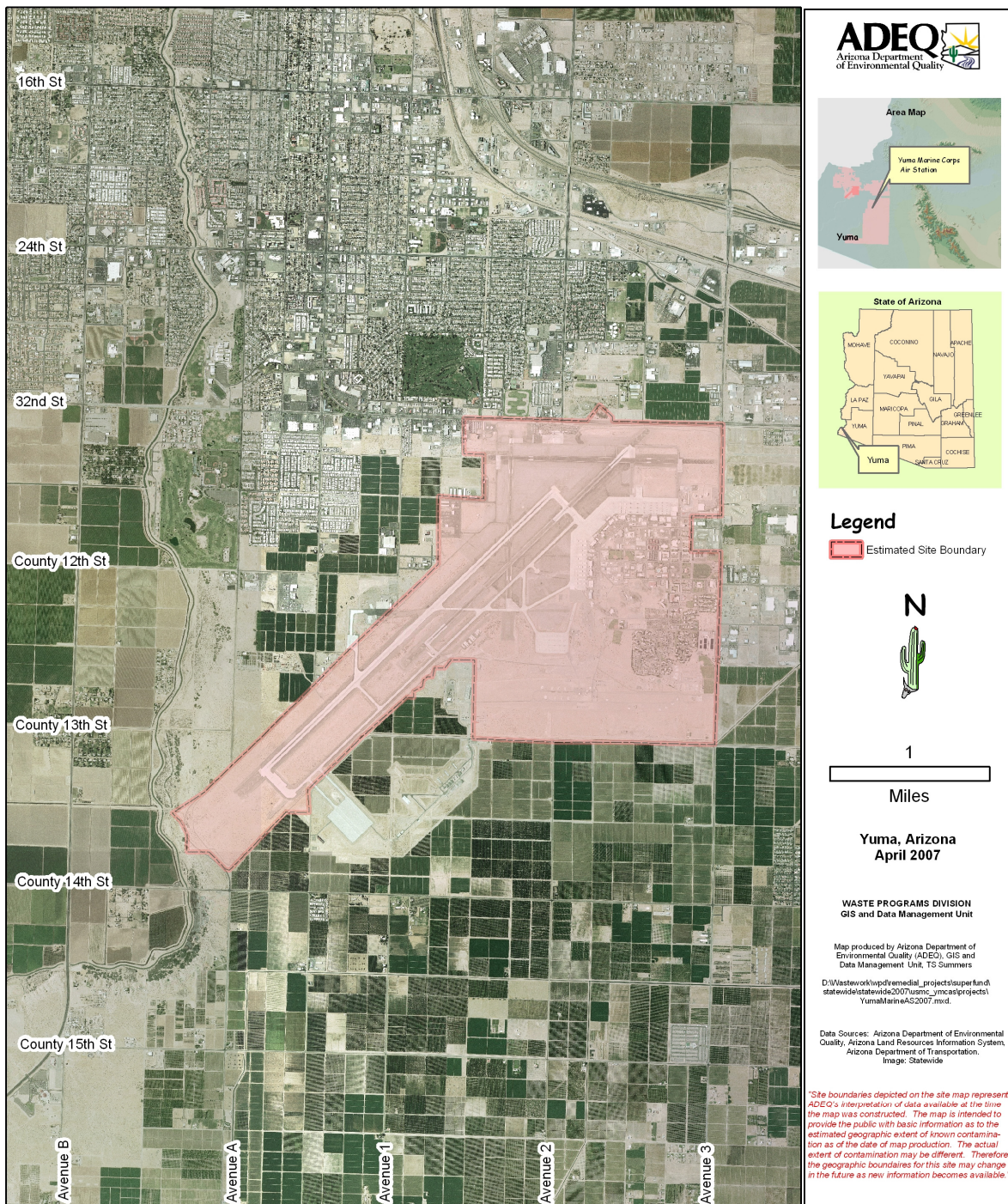
In January 2006, EPA initiated the second Five-Year Review of the cleanup remedy for the site. A report of their findings will be available when the review is finished.

Community Involvement Activities:

The site is located in a very sparsely populated area. A newsletter was distributed to residents and commercial businesses in the vicinity of the site in January 2006 to announce the start of the Five-Year Review. EPA held an Open House on January 11, 2006 for the community to come and learn about how the Five-Year Review will be conducted. No other community involvement activities are currently planned for this site.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Yuma Marine Corps Air Station EPA - NPL Site



Yuma Marine Corps Air Station

EPA NPL Site – Statewide

Boundaries:

The Yuma Marine Corps Air Station (YMCAS) occupies approximately 4,800 acres within the city and county of Yuma, Arizona. The City of Yuma, the nearest municipality, is located approximately one mile northwest of the station. The site boundaries are South Avenue 3E on the east, Interstate 8 on the north, East County 14th Street on the south, and the City of Yuma Main Canal on the west. The Yuma Mariner Corps Air Station site was listed on EPA's National Priorities List (NPL) in February 1990.

Contaminants:

The contaminants of concern in groundwater include trichloroethene (TCE), dichloroethene (DCE), tetrachloroethene (PCE) and petroleum hydrocarbons. During the 70 years of operation, YMCAS generated industrial wastes such as used oil, solvents, paint residues, battery acid, pesticides, herbicides, polychlorinated biphenyls (PCBs), asbestos in the form of non-friable asbestos containing material (ACM) and petroleum hydrocarbons from a jet fuel leak. The ACM was scattered on top of and buried in the surface soil, and remediated in 1999. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

There are no known public health risks at the site.

Remedial Activities:

As a result of a new Department of Defense policy, the Navy, in its Final Land Use Control Implementation Plan (LUCIP), was unable to fulfill the requirement for a deed restriction as required in the declaration of environmental use restriction (DEUR) for sites 1, 8A, and 10 in accordance with the ROD. EPA, ADEQ and the Navy have agreed to use an institutional control plan (ICP) as the recommended platform for developing and implementing the alternative land use control (LUC) mechanisms.

Area 1 Hot Spot (Source) Plume Area is located at the aircraft flight apron in the vicinity of Building 230, and is being treated by AS/SVE to remove contaminants from the groundwater. This system has been determined to be effective and will continue operation as well as long term monitoring (LTM) of the area. Area 1 Leading Edge Plume Area (LEPA) is located at the northwest boundary of YMCAS and is being treated by vertical recirculation to provide containment and treatment of relatively low concentrations. This system has been determined to be effective and will continue operation as well as LTM of the plume. LTM and monitored natural attenuation (MNA) of groundwater are being conducted to address very low levels of contaminants at Areas 2, 3, and 6.

Community Involvement Activities:

A restoration advisory board may be established for this site in the future.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

Camp Navajo (AZ Army National Guard)

DoD Site – Statewide

Boundaries:

Camp Navajo is located at Bellemont, in north-central Arizona. It is 12 miles west of Flagstaff and 17 miles east of Williams. The facility encompasses 28,347 acres and is situated in heavily forested to grassy, gently rolling to steep hilly terrain approximately 7,100 feet above mean sea level.

Excluding the open burning/open detonation area (OB/OD) area, military facilities present at Camp Navajo include approximately 170 buildings of which 32 are currently used for administration, maintenance, operations, and storage. There are 776 igloo structures that were used for storage of conventional and chemical munitions. There is a demolition area in the southern portion, and buffer zones along the eastern and western borders of the base. The Camp Navajo site was listed on EPA's DoD List in October 1993.

Contaminants:

Contaminants of concern associated with installation operations (excluding the OB/OD area), include heavy metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) such as pesticides and herbicides, residual from explosive waste, phosphorus, nitrates, nitrites and PCBs. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

A public health risk may exist by ingestion of contaminated soils or groundwater. This risk is managed by restricting site access to Arizona Army National Guard and National Guard Bureau personnel only. Land use at the installation will be non-residential for the foreseeable future.

Remedial Activities:

Decision Documents are pending for 29 of the sites. When the Decision Documents are approved, those sites will be considered closed. Five sites require long-term management (LTM). The LTM activities will include groundwater monitoring and Five-Year Reviews.

Community Involvement Activities:

Investigation and remediation activities are conducted in accordance with Camp Navajo's Community Relations Plan (CRP) which was finalized in March 2003. A community relations responsiveness summary is being prepared and included in the final decision documents.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Camp Navajo – Open Burn/Open Detonation Area

DoD Site – Statewide

Boundaries:

The Camp Navajo Army Depot is located in Bellemont, in north-central Arizona. It is 12 miles west of Flagstaff and 17 miles east of Williams. The facility encompasses 28,347 acres and is situated in heavily forested to grassy, gently rolling to steep hilly terrain approximately 7,100 feet above mean sea level. The Open Burn/Open Detonation (OB/OD) area is located in the southern part of Camp Navajo and abuts the Kaibab and Coconino National Forests to the south. The OB/OD area is estimated to be between 2,000 to 5,000 acres.

Contaminants:

The contaminants of concern in the OB/OD area include: metals, volatile organic compounds (VOCs), pesticides, white phosphorus, unexploded ordnance (UXO), and chemicals resulting from exploded ordnance.

Public Health Impact:

A public health risk exists due to UXO on the site. This risk is managed by restricting public access to the area; only AZ ARNG and NGB personnel with a UXO escort are allowed. In addition, fencing which includes warning signs is located around the OB/OD area and is maintained regularly by Camp Navajo personnel.

Remedial Activities:

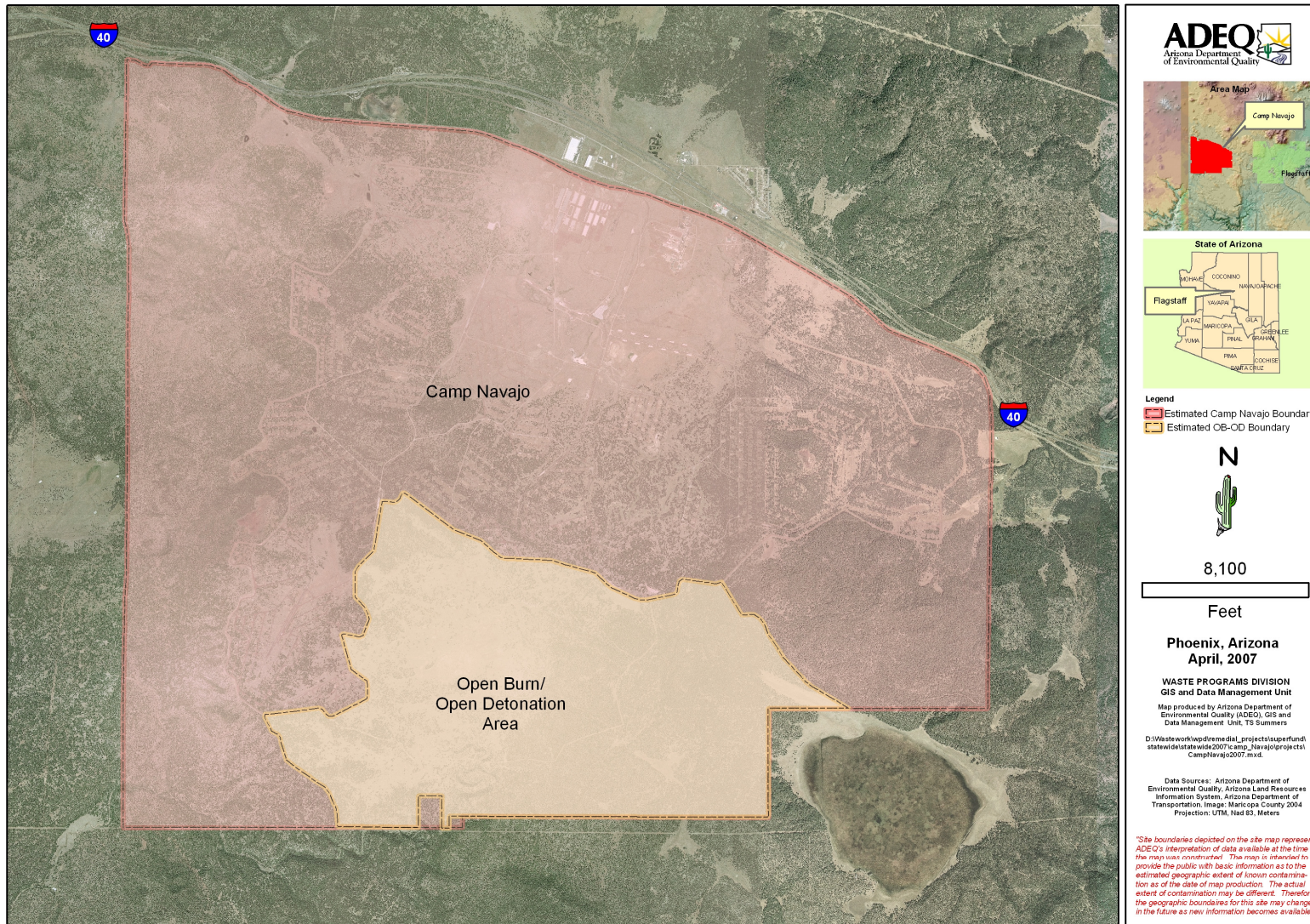
The removal action for the landfill began in January 2004 and was completed in September 2005. ADEQ is awaiting the results from the confirmation sampling. During the Phase I sampling in April 2005, NAADs 05 and 06 had contaminant levels above regulatory levels which, per the approved work plan, led to a Phase II vertical extent investigation in October 2005. In October 2004, the NGB's contractor began investigation at four of the open burn areas (NAADs 05, 06, 08B, and 09D) which are included in the RCRA permit. The investigation consisted of surface and subsurface soil sampling. Additional trenching was performed in NAAD 08B to investigate numerous historical trenches. In June 2005, ADEQ met with the NGB's contractor to discuss investigation activities in NAADs 10, 08A, 09A, E76, 04, and 01. These sites are not included in the RCRA permit and are being investigated under a fixed based contract. ADEQ received the work plan in October 2005 to address data gaps within each NAAD. Field work began in October 2005.

Community Involvement Activities:

In February of 2002, a Stakeholder's Advisory Group (SAG) was formed to assist the NGB with stakeholder concerns. The SAG consists of members from agencies such as the U.S. Fish and Wildlife Service, the Arizona Game and Fish Department, the U.S. Forest Service, the Arizona Army National Guard, and Grand Canyon Trust. All SAG meetings are open to the public. Meeting dates, agendas, and minutes are posted on ADEQ's website. In April of 2003, an ADEQ fact sheet was prepared and distributed to residents of Bellemont and the western portion of Flagstaff. If you would like to access any of these documents, please go to www.azdeq.gov/envIRON/waste/sps/index.html.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

US Army Camp Navajo DoD site



Fort Huachuca

DoD Site – Statewide

Boundaries:

Fort Huachuca is an Army post located west of Sierra Vista, in southeastern Arizona on the western flank of the San Pedro River Valley and consists of an irregularly shaped area of 115 square miles bisected by Arizona State Highway 90. Fort Huachuca has been in continuous operation since its establishment in 1877. The Fort Huachuca site was listed on EPA's DoD List in October 1991.

Contaminants:

The contaminants of concern in soils at the South Range Landfill and East Range Mine Shaft include organochlorine pesticides, several metals, several volatile organic compounds (VOCs), and petroleum hydrocarbons. Contaminants of concern may change as new data become available.

Public Health Impact:

Groundwater monitoring wells at the landfill are monitored semi-annually. Contamination is limited to the subsurface soil. Groundwater has not been impacted. There are no known health risks from this site.

Remedial Activities:

The ADEQ Hazardous Waste Program oversees the permit at the East Range Open Burn / Open Detonation area.

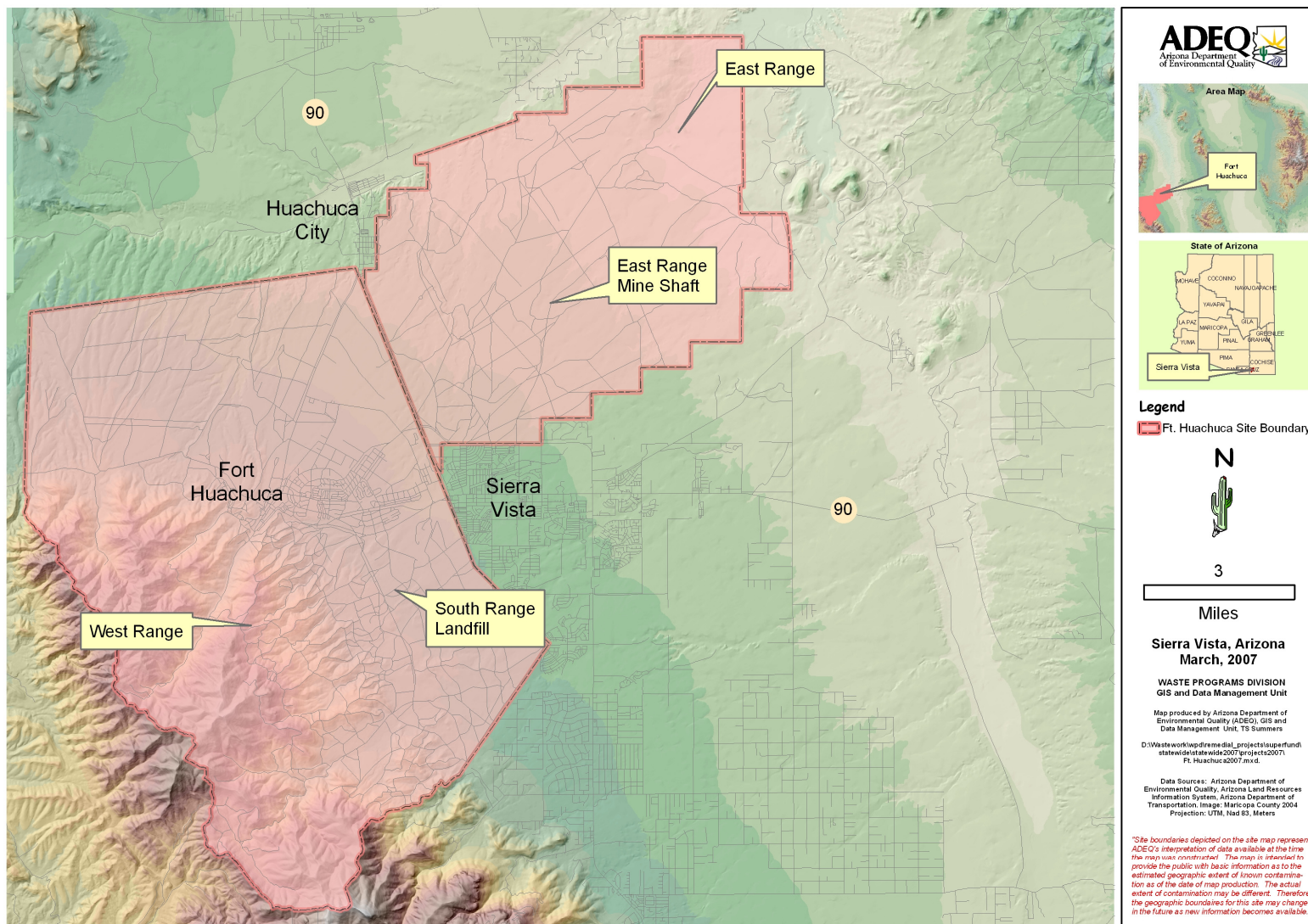
Fort Huachuca has begun a site investigation of eighteen closed or transferred ranges under the Military Munitions Response Program (MMRP). A kick-off meeting was held on September 21, 2005. The East Range Mine Shaft is being monitored by three groundwater monitoring wells and is currently undergoing 5-year reviews. No detections of volatile organic compounds (VOCs) have been reported in groundwater samples from this site at any time during the monitoring programs. A decision document summarizing the remedial investigation history and the change of status to 5-year reviews was prepared and signed by ADEQ on November 15, 2004.

Community Involvement Activities:

No community involvement activities are planned at this time.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

US Army Fort Huachuca DoD Site



Formerly Used Defense Sites (FUDS)

DoD Site – Statewide

Boundaries:

There are approximately 186 eligible properties known as Formerly Used Defense Sites (FUDS) located throughout Arizona.

Contaminants:

Contaminants in soil from UST spills include petroleum hydrocarbons and benzene. Dross contamination at the Kingman Airport site includes arsenic, cadmium, lead and other heavy metals in soil. There is a possibility of contamination from unexploded ordnance. Contaminants of concern at the site may change as new data become available.

Remedial Activities:

Kingman Airport: An asphalt cap was constructed at the Kingman Airport over several trenches containing dross material with elevated levels of arsenic, cadmium and other metals.

ADEQ is currently discussing requirements for a Declaration of Environmental Use Restriction (DEUR), and maintenance plans with USACE and the Kingman Airport Authority. ADEQ conducts annual inspections of the cap and is currently negotiating with USACE to repair several defects from the cap installation.

Williams Field Bomb Target Range #6: This is a one square mile area that was used for bomb practice in WWII. The site is located 22 miles east of Florence, Arizona just south of the Florence-Kelvin Highway. There are 18 similar practice bomb targets located throughout Arizona which were used during WWII that have confirmed 100 lb practice bombs or dummy bomb debris.

The USACE completed an ordnance investigation known as an Engineering Evaluation / Cost Analysis (EE / CA) to determine further remedial recommendations. A meeting with the stakeholders, public and property owners was held in November 15, 2005 in Florence to discuss the proposed plan of practice bomb surface debris removal and institutional controls. ADEQ has requested soil sampling during the removal action.

Kingman Gunnery Range: Two underground concrete storage tanks were removed at the Kingman Gunnery Range and further characterization and disposal of soils for UST #2 was completed in September of 2004. UST #1 still requires further characterization and approximately 60 cubic yards of soil removed.

Sahuarita Air Force Range: A kick-off meeting for the former Sahuarita Air Force Range located in the Town of Sahuarita, southeast of Tucson was held on September 8, 2005. A site investigation (SI) is being conducted under the Military Munitions Response Program (MMRP) for the four practice bomb targets, air to ground, ground to air range, and the landing strip. Twenty to thirty homes have been built within a mile of the north and south bomb targets. Limited surface water and soil samples will be taken at each of the ranges for contamination by munitions constituents.

Public Health Impact:

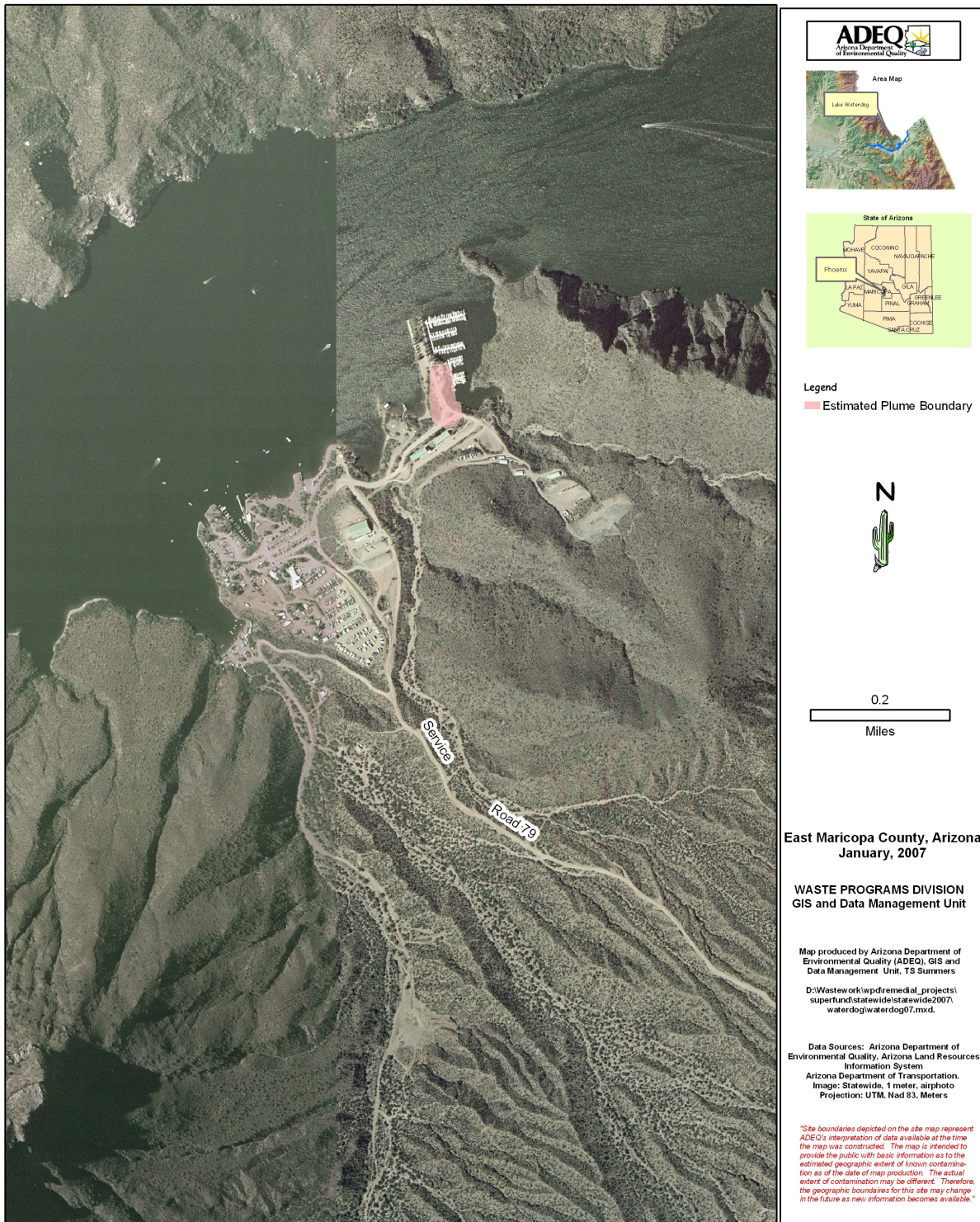
There is no known risk to human health from these sites. Ordnance debris may pose an explosive safety hazard. Discovery of ordnance should be reported to the local law enforcement authorities and left untouched.

Community Involvement Activities:

A stakeholders group has met several times since July 2001 with ADEQ, USACE and EPA. The stakeholder's group includes members of Tribal Nations, U.S. Fish and Wildlife, U.S. Forest Services, Arizona State Lands Department, Bureau of Indian Affairs, Department of the Interior, Bureau of Land Management (BLM) and Pinal County.

Note: Refer to Site Information & File Repository Locations - Statewide, or Appendix I: WQARF, EPA NPL, and DoD Site Contacts for additional information.

Luke Waterdog Recreation Annex (WRA) DoD Site



Luke Waterdog Recreation Annex (WRA)

DoD Site – Statewide

Boundaries:

The Waterdog Recreation Annex is situated on the east shore of Apache Lake in Maricopa County, Arizona. The WRA was passed on to Luke Air Force Base from the closed Williams AFB in order to continue the investigation and remediation of the area.

Contaminants:

The current contaminants of concern at this site include: benzene, toluene, ethylbenzene, and total xylenes (BTEX). The source of the benzene is believed to be gasoline smeared in the weathered and fractured bedrock below the water table. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

Based on the physicochemical properties of BTEX compounds and its minimal persistence in surface water, the exposure pathway from either ingestion or dermal absorption of water from Apache Lake by humans is not significant.

Remedial Activities:

A bioventing system was installed and began operation in June 1995. In March 1997, the bioventing system was converted to a soil vapor extraction (SVE) system.

From October 1, 2001 to January 2, 2004, 4,688 lbs of VOCs were removed using the SVE/ catalytic oxidation system. From July 1, 2004 to June 30, 2005, approximately 445 lbs of VOCs were removed using the SVE / catalytic oxidation system.

Community Involvement Activities:

No community involvement activities are planned at this time.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

ADEQ
Arizona Department of Environmental Quality

Area Map
Yuma Army Proving Grounds
Yuma

State of Arizona
MOHAVE COCONINO MARICOPA PINAL COCHISE SANTA CRUZ YAVAPAI GILA GREENLEE YUMA

Legend
Estimated Site Boundary

N
10
Miles

**Yuma, Arizona
June 2007**

**WASTE PROGRAMS DIVISION
GIS and Data Management Unit**

Map produced by Arizona Department of Environmental Quality (ADEQ), GIS and Data Management Unit, T.S. Summers
Checked By:

D:\Waste\working\remedial_projects\superfund\statewide\statewide2007\usarmy_yapg\projects\YumaArmyPG2007.mxd
June 2007

Data Sources: Arizona Department of Environmental Quality, Arizona Land Resources Information System, Arizona Department of Transportation.
Image: Landsat 4-7

"Site boundaries depicted on the site map represent ADEQ's interpretation of data available at the time the map was constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of map production. The actual extent of contamination may be different. Therefore, the geographic boundaries for this site may change in the future as new information becomes available."

Yuma Army Proving Grounds (YPG)

DoD Site – Statewide

Boundaries:

The U.S. Army Yuma Proving Ground (YPG) is located on the California-Arizona border north of Yuma. YPG is located 32 miles northeast of Yuma, Arizona, and occupies approximately 870,000 acres in size in Yuma and La Paz counties. Its western edge is adjacent to the Colorado River. The site is bounded on the west by the Colorado River and on the south by the Gila River. The U-shaped YPG is approximately 1,300 square miles in area and extends approximately 60 miles north-south and 50 miles east-west.

The YPG did not qualify for placement in the National Priorities List (NPL), but regulatory oversight is provided by ADEQ under the Army's Installation Restoration Program (IRP). The Yuma Army Proving Grounds site was listed on EPA's DoD List in April 1993.

Contaminants:

The current contaminants of concern at the site include petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals, in addition to propellants, explosives, and pyrotechnics (PEP). Contaminants of concern at the site may change as new data become available.

Remedial Activities:

The U.S. Army has conducted an assessment of the solid waste management units (SWMU) at YPG as part of the IRP and identified 19 units for investigation under the YPG remedial investigation / feasibility study (RI/FS). The sites were organized into four operable units based on their proximity to the main post at the YPG and/or opportunities for rapid and similarity for cleanup.

The overall objective of the remedial investigation (RI) in the 19 SWMU sites is to characterize the nature and extent of the risks posed by contaminants present for each site. This step involves collecting and analyzing soil and groundwater samples.

ADEQ approved a decision document proposing remedial action for vadose zone treatment at the fuel bladder test site (YPG-10) in 2005. Soil vapor extraction technology has been ongoing at the FBTA since July 2000.

Public Health Impact:

Most of the contaminated sites are fenced and public access is prohibited. Contaminated groundwater is limited to the site boundaries. There is no risk to the public drinking water supply wells of Yuma.

Community Involvement Activities:

A community involvement plan has been developed for the YPG site. Proposed activities include public meetings and open houses, fact sheets and development of a community advisory group.

Note: Refer to [Site Information & File Repository Locations - Statewide](#), or [Appendix I: WQARF, EPA NPL, and DoD Site Contacts](#) for additional information.

LIST of APPENDICIES

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Appendix V: Statements and Information to be Included in the Prospective Purchaser Agreement

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Appendix VII: Is Your Property Located Within a Superfund Site? Use GIS eMAPS to Find Out!

Appendix I: WQARF, EPA NPL, and DoD Site Contacts

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Appendix II: Superfund Today - Focus On Property Issues: How Can a Superfund Site Affect My Property?

United States Environmental Protection Agency
Office of Solid Waste and Emergency Response (5204G)
EPA 540-F-98-001
OSWER 9378.0-09AFS
PB98-963202
November 1998

Superfund Today

Focus On Property Issues: How Can a Superfund Site Affect My Property?

Answers to Frequently Asked Questions

If you are like most people faced with the possibility or certainty of a hazardous waste site in your community, you probably have many questions about what is happening and how you will be affected. Concerns about your property may be an issue. How will my property values be affected? Who pays for cleanup? Who can help me? This fact sheet answers many of these questions; however, the information applies only to sites under the U.S. Environmental Protection Agency's (EPA) Superfund program.

What Is Superfund?

EPA's mission is to protect human health and to safeguard the natural environment. In support of this mission, the Superfund program responds to threats posed by uncontrolled releases of hazardous substances into the air, water, and soil. Releases that pose immediate threats are responded to first. EPA then determines if there is a need for long-term cleanup of hazardous wastes. Sites that require a long-term cleanup are added to Superfund's National Priorities List (NPL). When a site is on the NPL, it undergoes a comprehensive evaluation to determine the nature and extent of contamination, an estimation of current and future risks, an analysis of cleanup alternatives, and the design and construction of the selected cleanup plan. EPA ensures that sites are cleaned up to a level that protects people who live, work, or play on or around the site, including community members who may be at greater risk, like the elderly and children.

While the Superfund program focuses on protecting a community's health and surroundings, EPA understands that cleanup activities may directly affect individual properties. Within the limits of the Superfund law, EPA works with the affected community to find a cleanup solution that is safe, effective, and minimally disruptive. EPA recognizes the importance of working closely with affected residents to provide accurate information about the site and respond to your concerns. EPA is always willing to answer any of your questions and invites your feedback.

The following pages provide the answers to questions most commonly asked about the effects of hazardous waste sites on people's property. The questions are divided into four areas: property owner rights; property values; buying and selling property; and liability. The answers will help you understand how EPA can assist you and direct you to other resources that are available to help you. By understanding Superfund's responsibility for hazardous waste sites in your area, you can take an active role in protecting the health of your community and the value of your property.

Property Owner Rights

If you are a property owner in a community near a Superfund site, you may be concerned about the potential effects the hazardous waste may have on your property and your daily routine. EPA assists neighborhoods by informing all concerned citizens about cleanup activities on or around a site, and by giving community members opportunities to voice their opinions and concerns. The following questions and answers provide information for property owners on private property rights, protection from liability, and available EPA assistance.

My property is located near a Superfund site. How can I find out if EPA has investigated pollution problems on my property?

EPA is responsible for keeping the community informed about site investigations and cleanup activities on or around the site. If a sampling program is planned for your area, EPA will notify you through a newspaper ad, or a fact sheet, or in person. EPA sets up an information repository for each Superfund site, so interested community members may review all

sampling results and other information known about a particular site. Information repositories are usually kept at a local library or government office. If the federal EPA program is not involved in a site in your area, your state or local environmental and health agencies may have information on pollution problems that may be affecting your property. Many, but not all, states have laws (called *disclosure* laws) that require owners to give information on known or possible pollution problems on or near their property. Also, local lending institutions or real estate agencies may have information on environmental investigations of your property.

My property is located near a Superfund site. Will EPA take samples on my property upon my request?

Living near a Superfund site does not necessarily mean that residential property is contaminated. When EPA first discovers a Superfund site, preliminary tests may be taken to determine if additional sampling is needed, including potential sampling of residential property. If EPA suspects that contamination from a Superfund site may be present on residential property, EPA may request permission from property owners to take samples. EPA will work with individual property owners to determine if there is a need to sample the property. Likewise, if property owners suspect contamination from a Superfund site is on their property, they should contact their regional EPA office (see contact list) or their state or local environmental agency. To report any immediate hazardous waste spill or problem, please contact the National Response Center at (800) 424-8802.

Will EPA release specific addresses at which samples have been taken?

EPA tries to respect individual's privacy concerns and does not release specific property owner's names to the general public. However, reports with address information and all other sampling data are made part of the public record. EPA will send letters with the sample results only to those whose property was sampled.

Can I refuse or limit EPA access to my property? If EPA uses my property for sampling or well installation, will I be paid?

Property owners can refuse to allow EPA onto their property. However, the Superfund law does give EPA the authority to conduct sampling activities at residential properties if there is a reasonable basis to believe that a threat to human health and the environment exists. EPA will work to accommodate property owners' schedules and to conduct investigative sampling activities with as little inconvenience to property owners as possible. EPA cannot pay property owners for taking samples from their property. To the extent possible, EPA tries not to disturb the property. In the event that property is disturbed during sampling or cleanup (e.g., damaged grass, back hoeing of soil during cleanup, etc.), EPA will restore the property to its original condition to the extent possible.

Can EPA move me from my property? How long can they keep me away from my property?

While it rarely happens, EPA can move residents as part of a cleanup action to protect human health and the environment. In the past, EPA has relocated residents because either an immediate risk existed that could not be minimized without moving people, a site cleanup was difficult or impossible because contamination was very near or under homes, houses were contaminated and EPA could not decontaminate them, or EPA personnel were safeguarding the health of residents during the cleanup action. Relocation may be temporary or permanent, depending on EPA's ability to clean property to a condition where the contaminant(s) no longer threaten human health or the environment.

Can EPA take part or all of my property? Will I be paid if EPA does take my property?

EPA makes every attempt to clean up sites with minimum inconvenience to property owners, and property is only acquired or taken from owners when necessary to protect citizens' health or environment. EPA has acquired all or part of a property in situations where it was necessary to address a serious health problem or a cleanup could not proceed without that property. In cases like these, EPA will provide an explanation to the property owner for this action. By law, EPA must pay the property owner fair market value for any land acquired.

Consult local experts about:

- Effects on Property Values
- Adjustments to Property Taxes
- Refinancing in Case of Devaluation
- Property Value Trends, Forecast, and Rebounds

Property Values

Property values can be affected by a number of environmental factors: perceived health risks; impacts on safe drinking water; air pollution; odor; construction activity; and noise. Factors that may reduce the impact on property values include distance from the site and the presence of a geographic buffer, such as a hill, railroad, river, forest, or divided highway. The following questions and answers provide more information on the effects of Superfund sites on property values.

What is happening to property values in my neighborhood?

EPA suggests you consult a professional in your community who can give you a more accurate and current answer. Real estate agents, banks and other lenders, appraisers, and public and private assessors should be able to answer this question for you. Local government agencies - such as your taxing authority or planning commission - may also be able to give you information on property values.

My property values have gone down as a result of being on or near a Superfund site. Can EPA pay me for the property value I have lost?

EPA is very concerned about potential adverse effects on property value that may result when a Superfund site exists near a community. However, the Superfund law does not authorize EPA to compensate individual homeowners for losses of property value or other potential damages associated with designating an area as a Superfund site.

What can I do if my property value goes down because of a Superfund site?

Property owners may want to consult with local government officials about the possibility of property tax abatements or adjustments, based on impacts on property values from pollution concerns; however, this is beyond the authority of the federal government. In some cases, property owners have consulted an attorney about the possibility of recovering the lost property value from the potentially responsible party or parties (the polluters). Based on past cleanups, EPA believes that a Superfund cleanup has an overall beneficial impact on the community, including rebounding property values.

My property sits above contaminated groundwater. How will this affect my property value?

EPA cannot predict how contaminated groundwater will affect individual property values. A good resource for property value information is a local government agency - such as your local taxing authority or planning commission - or a local real estate professional. They are more experienced in appraising property values and determining the effect of contamination on property values.

Will there be an immediate appraisal of my property to adjust my tax status?

Local and state tax authorities can best answer this question, because they are responsible for all appraisal activities in your community. It is beyond EPA's authority to appraise property or adjust tax status, and EPA does not request tax authorities to re-assess properties. Property owners may want to consult with local government officials about the possibility of property tax abatements or adjustments, based on impacts on property values from pollution concerns; however, this is beyond the authority of the federal government.

Will I be able to refinance my loan due to the devaluation of my property?

This is a question that is best answered by your lending institution.

Do property values rebound? How long will it take?

Previous research indicates that contaminated sites, including Superfund and other types of hazardous waste sites, are likely to affect nearby residential property values. Studies estimate property price reductions, due to nearby hazardous waste sites, range from two to eight percent of the value of the property. One study of several Superfund sites in Houston, Texas found that property values rebounded fairly quickly following completion of cleanup activities. Property values are most appropriately discussed with local authorities knowledgeable about the local economy and other local conditions that may influence property values.

Buying & Selling Property

When buying or selling property, people usually have questions about neighborhood property values -how changes in property value impact mortgages, taxes, and resale; how property owners can increase their property value; and what information a property owner must tell a potential purchaser. This section provides information on what environmental information either you or EPA needs to disclose about a specific site, how EPA can support you through the transfer of property, and actions you may choose to take to increase the value of your property.

What information can EPA provide to potential buyers of property located near a Superfund site?

EPA makes a wide variety of information available to potential buyers, including background information on the Superfund program, its activities and responsibilities, and opportunities for public participation. Site-specific information can be accessed from your neighborhood Superfund public information repository (usually at the local library or government office) and your regional EPA office (a list of regional phone numbers can be found at the end of this document) if there is a federal Superfund site in your neighborhood.

If my loan is denied because of concerns about contamination, can EPA call my banker or appraiser?

EPA does not become involved in individual real estate transactions; however, agency representatives can conduct presentations or provide information about site cleanup plans for the public, including the real estate and lending/financial community.

Do I have to disclose the contamination on my property to potential buyers?

Some states have disclosure laws that require owners to report pollution problems to buyers when they sell a property. Contact a real estate representative, state and/or local government agencies, or an attorney; they should be able to quickly tell you if your state has such a law or if there is a deed restriction on your property.

Can a homeowner perform a cleanup to ensure that he or she will be able to sell their property?

Yes, a homeowner can perform a cleanup, but it is not very common, for two reasons. First, in order for a homeowner to perform a cleanup, EPA must certify that the owner can meet national health and safety standards. Second, once the owner takes responsibility for a cleanup, it makes him/her liable for any future pollution problems (release or threat of release of contaminants) as a result of the cleanup - **forever**.

Liability

EPA understands that personal liability is also an area of concern when investigating cleanup sites adjacent to private property. This is especially important for new property owners and prospective purchasers, as well as for the lending institutions that will be responsible for the mortgage. By working with EPA in relation to a specific Superfund site, residential property owners and prospective purchasers can ensure they won't be held responsible for pollution that was present on a property prior to the time of purchase. The following questions and answers will help residential property owners understand potential liability issues.

Can I be held responsible for pollution on my residential property?

EPA will not take actions against a residential homeowner, unless the owner polluted the site or made existing pollution problems worse (a release or threat of release of hazardous substances) and forced a cleanup action by EPA at the site.

My property sits above contaminated groundwater. Am I liable?

You can be held liable for contaminated groundwater if you are responsible for the initial pollution, or if you have done anything to increase the amount or spread of contamination. EPA will assist property owners if someone tries to make them pay for groundwater contamination for which they are not responsible. EPA may exercise its enforcement discretion and enter into a *de minimis* settlement with an owner of property that has contaminated groundwater when that owner has been sued or threatened with a contribution suit. The property owner must also meet the conditions of the "Policy Toward Owners of Property Containing Contaminated Aquifers" (May 24, 1995 PB96109145). This document is available for free on OSRE's Internet site <http://www.epa.gov/OSRE/950524-1.html> or by contacting the Superfund Document Center at (703) 603-9232.

As a potential purchaser of a piece of property that is on or near a Superfund site, what would my responsibility be for contamination that existed at the time of purchase?

Your responsibility would be minimal if any. EPA will work with the individual and can enter into an agreement with potential purchasers not to sue the purchaser for contamination that existed at the time of purchase.

Is a bank or other lender liable for contamination if it lends money (or has lent money) to owners or developers of contaminated property?

It is EPA's policy not to pursue cleanup cost repayment from lenders who merely provide money to an owner or developer of a contaminated property, provided that lenders do not participate in daily management. If it meets the requirements of CERCLA's "secured creditor exemption," a bank or other lender that loans money to owners or developers of contaminated property will not be liable as an owner or operator of a Superfund facility. In general, the lender should avoid participating in the daily management of the facility. The secured creditor exemption describes various activities that lenders can undertake without losing their protection from owner/operator liability. For example, lenders can investigate a facility, require another person to clean up the facility, and provide financial advice to a borrower. For more frequently asked questions from EPA's web site see http://epa.custhelp.com/cgi-bin/epa.cfg/php/enduser/std_alp.php.

Appendix III: Frequently Asked Questions

Listed below are questions that we commonly receive from the public and the regulated community, and their answers.

What is a Remedial Investigation/Feasibility Study (RI/FS)?

The goal of the remedial investigation phase of a project is to determine the extent of the contamination and to consider remediation or cleanup options. This is typically the lengthiest portion of the process. The feasibility study will examine the range of options from no action through the most exhaustive cleanup.

Why does groundwater investigation take so long?

The information sought during a groundwater investigation includes the type and concentration of contamination, the horizontal and vertical extent of contamination, and characteristics such as rate and direction of flow in the aquifer. To do this typically requires the installation of numerous monitoring wells with the inherent problems of access and location. Often, these wells may have to be sampled for an extended period of time before decisions can be made regarding additional well locations.

What levels of contamination lead to remedial activity at a site?

Contaminants must be present at levels above regulatory thresholds in the groundwater and/or the soil to require remediation under WQARF.

Should I be concerned if there is groundwater contamination below me?

When the contamination is in the groundwater, at considerable depth below the ground, you are not at risk from the contamination without a route of exposure, such as drinking the water. While there may be the potential for vapors to reach the surface, this is seldom a concern. Drinking water supplied through public drinking water systems is required to meet all state and federal drinking water standards and is regularly tested to ensure compliance with the law. Even though there may be no direct threat to people above the contaminated groundwater, ADEQ works to remediate the site because of our responsibility to protect the quality of all the water resources of the state of Arizona, above and below the surface of the ground.

How is the safety of drinking water checked?

If you are connected to a public or regulated drinking water system, 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 your local water provider.

If you are using a private well in an area where groundwater contamination is known to exist, please contact the WQARF Remedial Projects Manager at (602) 771-7655 or (800) 234-5677 for further information.

What are the risks typically associated with drinking contaminated groundwater?

People who drink water contaminated above regulatory levels, or Maximum Contaminant Levels (MCLs), over many years could experience various problems. The effects vary with the contaminant and the amount of exposure. MCLs are very conservative regulatory levels set to protect public health. Any substances that are present below the levels or MCLs set by the state or federal government are presumed not to present a risk to the public.

What is the Water Quality Assurance Revolving Fund (WQARF)?

WQARF is a program established by the Arizona State Legislature to: 1) conduct statewide surface and groundwater monitoring; 2) study health effects; 3) perform emergency remedial actions; and 4) conduct long-term remedial action programs. The WQARF program is funded with state monies, fees, and funds recovered from parties responsible for contamination.

What is the WQARF Registry?

ADEQ established a Registry of sites in Arizona with groundwater and/or soil contamination. Sites appearing on this registry qualify for funds available from the state's Water Quality Assurance Revolving Fund for the remediation or cleanup of contamination. Sites on the Registry are given a score based in part upon the type of contaminant(s) present, the location of the contaminant(s), and the possibility for exposure to people of the contaminant. Scores are used to help determine relative risk at the site, but do not necessarily mean that there is direct risk to humans or the environment. The score for a site can range up to a possible 120.

What are the options regarding the cleanup of contaminated soil at a site?

ADEQ worked with the regulated community to establish standards for soil remediation throughout the department in order to advance the cleanup of soil and groundwater. The remediating party is provided several choices on how to select methods and levels for soil cleanup at a site. These are based upon the use of the property (residential or non-residential use) and differing methods of showing compliance with the standards.

Appendix IV: EPA Policy Toward Owners of Property Containing Contaminated Aquifers

EPA Liability Information

The following Policy states EPA's position that, subject to certain conditions, where hazardous substances have come to be located on or in a property solely as the result of subsurface migration in an aquifer from a source or sources outside the property, EPA will not take enforcement actions against the owner of such property to require the performance of response actions or the payment of response costs. Further, as outlined in the policy, EPA may consider de minimis settlements under Section 122(g)(1)(B) of CERCLA where necessary to protect such landowners from contribution suits.

The development of this policy was announced by the Administrator as part of the Superfund Administrative Reforms. It is also a component of the Agency's Brownfields Initiative to remove barriers to economic redevelopment. This Policy has been published in the Federal Register.

Policy Toward Owners of Property Containing Contaminated Aquifers

I. STATEMENT OF POLICY

Based on the Agency's interpretation of CERCLA, existing EPA guidance, and EPA's Superfund program expertise, it is the Agency's position that where hazardous substances have come to be located on or in a property solely as the result of subsurface migration in an aquifer from a source or sources outside the property, EPA will not take enforcement action against the owner of such property to require the performance of response actions or the payment of response costs.¹ Further, EPA may consider de minimis settlements under Section 122(g)(1)(B) of CERCLA where necessary to protect such landowners from contribution suits.

This Policy is subject to the following conditions:

- A)** The landowner did not cause, contribute to, or exacerbate the release or threat of release of any hazardous substances, through an act or omission. The failure to take affirmative steps to mitigate or address groundwater contamination, such as conducting groundwater investigations or installing groundwater remediation systems, will not, in the absence of exceptional circumstances, constitute an "omission" by the landowner within the meaning of this condition. This policy may not apply where the property contains a groundwater well, the existence or operation of which may affect the migration of contamination in the affected aquifer. These cases will require fact-specific analysis.
- B)** The person that caused the release is not an agent or employee of the landowner, and was not in a direct or indirect contractual relationship with the landowner. In cases where the landowner acquired the property, directly or indirectly, from a person that caused the original release, application of this Policy will require an analysis of whether, at the time the property was acquired, the landowner knew or had reason to know of the disposal of hazardous substances that gave rise to the contamination in the aquifer.
- C)** There is no alternative basis for the landowner's liability for the contaminated aquifer, such as liability as a generator or transporter under Section 107(a)(3) or (4) of CERCLA, or liability as an owner by reason of the existence of a source of contamination on the landowner's property other than the contamination that migrated in an aquifer from a source outside the property.

¹ By this Policy, EPA does not intend to compromise or affect any right it possesses to seek access pursuant to Section 104(e) of CERCLA.

In appropriate circumstances, EPA may exercise its discretion under Section 122(g)(1)(B) to consider de minimis settlements with a landowner that satisfies the foregoing conditions. Such settlements may be particularly appropriate where such a landowner has been sued or threatened with contribution suits. EPA's Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements² should be consulted in connection with this circumstance.

In exchange for a covenant not to sue from the Agency and statutory contribution protection under Sections 113(f)(2) and 122(g)(5) of CERCLA, EPA may seek consideration from the landowner³, such as the landowner's full cooperation (including but not limited to providing access) in evaluating the need for and implementing institutional controls or any other response actions at the site.⁴

The Agency intends to use its Section 104(e) information gathering authority under CERCLA, 42 U.S.C. § 9604(e), as appropriate, to verify the presence of the conditions under which the Policy would be applied, unless the source of contamination and lack of culpability of the property owner are otherwise clear⁵. Accordingly, failure by a property owner to provide certified responses to EPA's information requests may, by itself, be grounds for EPA to decline to offer a Section 122(g)(1)(B) de minimis settlement.

II. DISCUSSION

A. Background

Nationwide there are numerous sites that are the subject of response actions under CERCLA due to contaminated groundwater. Approximately 85% of the sites on the National Priorities List have some degree of groundwater contamination. Natural subsurface processes, such as infiltration and groundwater flow, often carry

² See Guidance on Landowner Liability Under Section 107(a)(1) of CERCLA, De Minimis Settlements under Section 122(g)(1)(B) of CERCLA, and Settlements with Prospective Purchasers of Contaminated Property, OSWER Directive No. 9835.9, June 6, 1989, 54 Fed. Reg. 34,235 (August 18, 1989) (hereinafter "Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements").

³ A more complete discussion of the appropriate consideration that may be sought under Section 122(g)(1)(B) settlements is contained in Section IV.B.3.a. of Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements, supra note 2.

⁴ The Agency has developed guidance which explains the authorities and procedures by which EPA obtains access or information. See Entry and Continued Access under CERCLA, OSWER Directive #9829.2, June 5, 1987; Guidance on Use and Enforcement of CERCLA Information Requests and Administrative Subpoenas, OSWER Directive 9834.4-A, August 25, 1988.

⁵ See Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements, supra note 2, for an outline of the types of information which should be provided by the landowner to support a request for a de minimis settlement.

contaminants relatively large distances from their sources. Thus, the plume of contaminated groundwater may be relatively long and/or extend over a large area. For this reason, it is sometimes difficult to determine the source or sources of such contamination.

Any person owning property to which contamination has migrated in an aquifer faces potential uncertainty with respect to liability as an "owner" under Section 107(a)(1) of CERCLA, 42 U.S.C. § 9601(a)(1), even where such owner has had no participation in the handling of hazardous substances, and has taken no action to exacerbate the release.

Some owners of property containing contaminated aquifers have experienced difficulty selling these properties or obtaining financing for development because prospective purchasers and lenders sometimes view the potential for CERCLA liability as a significant risk. The Agency is concerned that such unintended effects are having an adverse impact on property owners and on the ability of communities to develop or redevelop property.

EPA is issuing this policy to address the concerns raised by owners of property to which contamination has migrated in an aquifer, as well as lenders and prospective purchasers of such property. The intent of this policy is to lower the barriers to transfer of such property by reducing uncertainty regarding the possibility that EPA or third parties may take actions against these landowners.

B. Existing Agency Policy

This policy is related to other guidance that EPA has issued. The Agency has previously published guidance on issues of landowner liability and de minimis landowner settlements⁶. Moreover, in other EPA policies, EPA has asserted its enforcement discretion in determining which parties not to pursue.⁷

C. Basis for the Policy

1. The Section 107(b)(3) Defense

Section 107(a)(1) of CERCLA imposes liability on an owner or operator of a "facility" from which there is a release or threatened release of a hazardous substance⁸. A "facility" is defined under Section 101(9) as including any "area where a hazardous substance has . . . come to be located." The standard of liability imposed under Section 107 is strict, and the government need not prove that an owner contributed to the release in any manner to establish a *prima facie* case⁹. However, Section 107(b)(3) provides an affirmative defense to liability where the release or threat of release was caused solely by "an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship existing directly or indirectly with the defendant . . ." In order to invoke this defense, the defendant must additionally establish, by a preponderance of the evidence, that "(a) he exercised due care with respect to the hazardous substance concerned taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or

⁶ See Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements, *supra* note 2. This guidance analyzes the language in Sections 107(b)(3) and 122(g)(1)(B) of CERCLA.

⁷ See, e.g., Policy Towards Owners of Residential Property at Superfund Sites, OSWER Directive #9834.6, (July 3, 1991) (hereinafter "Residential Property Owners Policy") (stating Agency policy not to take enforcement actions against an owner of residential property unless homeowner's activities led to a release); National Priorities List for Uncontrolled Hazardous Waste Sites, 60 Fed. Reg. 20330, 20333 (April 25, 1995). In this notice the Residential Property Owners Policy was applied to "...residential property owners whose property is located above a groundwater plume that is proposed to or on the NPL, where the residential property owner did not contribute to the contamination of the site." See also, Interim Policy on CERCLA Settlements Involving Municipalities or Municipal Waste, OSWER Directive # 9834.13, (December 6, 1989).

⁸ EPA has taken the position that lessees may be "owners" for purposes of liability. See Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements, *supra* note 2, footnote 10.

⁹ See, e.g., U.S. v. R.W. Meyer, Inc., 889 F.2d 1497, 1507 (6th Cir. 1989) ("CERCLA contemplates strict liability for landowners").

omissions of any such third party and the consequences that could foreseeably result from such acts or omissions." 42 U.S.C. § 9607(b)(3).

a. Due Care and Precautions

An owner of property may typically be unable to detect by reasonable means when or whether hazardous substances have come to be located beneath the property due to subsurface migration in an aquifer from a source or sources outside the property. Based on EPA's interpretation of CERCLA, it is the Agency's position that where the release or threat of release was caused solely by an unrelated third party at a location off the landowner's property, the landowner is not required to take any affirmative steps to investigate or prevent the activities that gave rise to the original release in order to satisfy the "due care" or "precautions" elements of the Section 107(b)(3) defense.

Not only is groundwater contamination difficult to detect, but once identified, it is often difficult to mitigate or address without extensive studies and pump and treat remediation. Based on EPA's technical experience and the Agency's interpretation of CERCLA, EPA has concluded that the failure by such an owner to take affirmative actions, such as conducting groundwater investigations or installing groundwater remediation systems, is not, in the absence of exceptional circumstances, a failure to exercise "due care" or "take precautions" within the meaning of Section 107(b)(3).

The latter conclusion does not necessarily apply in the case where the property contains a groundwater well and the existence or operation of this well may affect the migration of contamination in the affected aquifer. In such a case, application of the "due care" and "precautions" tests of Section 107(b)(3) and evaluation of the appropriateness of a de minimis settlement under Section 122(g)(1)(B) require a fact-specific analysis of the circumstances, including, but not limited to, the impact of the well and/or the owner's use of it on the spread or containment of the contamination in the aquifer. Accordingly, this Policy does not apply in the case where the property contains a groundwater well, the existence or operation of which may affect the migration of contamination in the affected aquifer. In such a case, however, the landowner may choose to assert a Section 107(b)(3) defense, depending on the case-specific facts and circumstances, and EPA may still exercise its discretion to enter into a Section 122(g)(1)(B) de minimis settlement.

b. Contractual Relationship

The Section 107(b)(3) defense is not available if the act or omission causing the release occurred in connection with a direct or indirect contractual relationship between the defendant and the third party that caused the release. Under Section 101(35)(A) of CERCLA, a "contractual relationship" for this purpose includes any land contract, deed, or instrument transferring title to or possession of real property, except in limited specified circumstances. Thus, application of the defense in the circumstances addressed by this Policy requires an examination of whether the landowner acquired the property, directly or indirectly, from a person that caused the original release. An example of this scenario would be where the property at issue was originally part of a larger parcel owned by the person that caused the release. If the larger parcel was subsequently subdivided, and the subdivided property was eventually sold to the current landowner, there may be a direct or indirect "contractual relationship" between the person that caused the release and the current landowner.

Even if the landowner acquired the property, directly or indirectly, from a person that caused the original release, this may or may not constitute a "contractual relationship" within the meaning of Section 101(35)(A), precluding the availability of the Section 107(b)(3) defense. Land contracts or instruments transferring title are **not** considered "contractual relationships" if the land was acquired after the disposal or placement of the hazardous substances on, in or at the facility under Section 101(35)(A) and the landowner establishes, pursuant to Section 101(35)(A)(i), that, at the time of the acquisition, the landowner "did not know and had no reason to know that any hazardous substance which is the subject of the release . . . was disposed of on, in, or at the facility"¹⁰. Thus, in the subdivision scenario described above, the current landowner might still qualify for the Section 107(b)(3) defense if he or she did not know or have reason to know that the original landowner had disposed of hazardous substances elsewhere on the larger parcel.

¹⁰ Section 101(35) (A) also excludes from the definition of "contractual relationship" certain acquisitions of property by government entities and certain acquisitions by inheritance or bequest, so long as the other requirements of Section 101(35) (A) are met. See 42 U.S.C. § 101(35) (A) (ii) and (iii).

2. Settlements Under Section 122(g)(1)(B)

To address concerns that strict liability under Section 107(a)(1) could cause inequitable results with respect to landowners who had not been involved in hazardous substance disposal activities, Congress authorized the Agency to enter into de minimis settlements with certain property owners under Section 122(g)(1)(B) of CERCLA, 42 U.S.C. § 9622 (g)(1)(B). Under this Section, when the Agency determines that a settlement is "practicable and in the public interest," it "shall as promptly as possible reach a final settlement" if the settlement "involves only a minor portion of the response costs at the facility concerned" and the Agency determines that the potentially responsible party: "(i) is an owner of the real property on or in which the facility is located; (ii) did not conduct or permit the generation, transportation, storage, treatment or disposal of any hazardous substance at the facility; and (iii) did not contribute to the release or threat of release through any act or omission¹¹."

The requirements which must be satisfied in order for the Agency to consider a settlement with landowners under the de minimis settlement provisions of Section 122(g)(1)(B) are substantially the same as the elements which must be proved at trial in order for a landowner to establish a third party defense under Section 107(b)(3), as described above¹².

D. Use of the Policy

This Policy does not constitute rulemaking by the Agency and is not intended and cannot be relied on to create a right or a benefit, substantive or procedural, enforceable at law or in equity, by any person. Furthermore, the Agency may take action at variance with this Policy.

For further information concerning this Policy, please contact Ellen Kandell in the Office of Site Remediation Enforcement at (703) 603-8996.

¹¹ A detailed discussion of each of these components of Section 122(g)(1)(B) and guidance on structuring settlements under this Section are provided in the Guidance on Landowner Liability and Section 122(g)(1)(B) De Minimis Settlements, supra note 2.

¹² Id.

Appendix V: Statements and Information to be Included in the Prospective Purchaser Agreement

Statements:

- 1) A statement that identifies if the facility is within a site on the WQARF Priority List or Registry List.
- 2) A statement that identifies the owner, prior to the transaction, of the property or facility.
- 3) A statement that identifies, if known, past owners/operators that may potentially be liable for an existing or threatened release of a hazardous substance at the facility.
- 4) A statement that the entity requesting the PPA is not liable for an existing or threatened release of a hazardous substance at the facility.
- 5) A statement concerning ownership of the entity requesting a PPA including affiliations, interests and status of Incorporation, if applicable.
- 6) A statement that the prospective purchaser of a facility is not affiliated with any other person(s) who is a party responsible for the release or threatened release of a hazardous substance, through any familial relationship or any corporate or contractual relationship other than a contract to protect a security interest.
- 7) Information concerning the proposed redevelopment or reuse of the facility.
- 8) A statement that the proposed redevelopment or reuse of the facility will not contribute to or exacerbate existing known contamination or unreasonably interfere with remedial measures necessary at the facility or cause the contamination to present a substantial health risk to the public. A statement that fully identifies the extent of contamination at the facility (under A.R.S. Article 5 [§49-281- 298] or CERCLA).
- 9) Identification of the proposed substantial public benefit, which may include:
 - a. Substantial funding or other resources to perform or facilitate remedial measures at the facility;
 - b. Performance by the prospective purchaser of substantial remedial measures at the facility;
 - c. Productive reuse of a vacant or abandoned industrial or commercial facility;
 - d. Development of a facility by a governmental entity or nonprofit organization to address an important public purpose;
 - e. Creation of conservation or recreation areas;
 - f. Other public benefit which ADEQ considers sufficient.

Exhibits to Include:

- A copy of the legal description which can be found on the deed to the property.
- A copy of the site map.

Additional Documents to be Submitted:

- Documentation that will support the statements within the agreement as to the extent of contamination at the facility (under A.R.S. Article 5 [§49-281-298] or CERCLA).
- Documentation that demonstrate the legal structure of the entity of the prospective purchaser (i.e., Articles of Incorporation, L.L.C. or partnership documentation, etc.).
- Documentation that identifies the local planning and zoning authorities with jurisdiction over the facility so that ADEQ may identify and consider the reasonably anticipated future land uses at the facility and surrounding properties.

For more information, call toll-free at (800) 234-5677.

Appendix VI: Residential Liability Policy and Statutes.

A.R.S. §49-283 (B). Notwithstanding the provisions of subsection A, a person that owns real property is not a responsible party if there is a release or threatened release of a hazardous substance from a facility in or on the property unless one or more of the following applies to that person:

1. Was engaged in the business of generating, transporting, storing, treating or disposing of a hazardous substance at the facility or disposing of waste at the facility, or knowingly permitted others to engage in such a business at the facility.
2. Permitted any person to use the facility for disposal of a hazardous substance.
3. Knew or reasonably should have known that a hazardous substance was located in or on the facility at the time right, title or interest in the property was first acquired by the person and engaged in conduct by which he associated himself with the release.
4. For the purpose of this paragraph, a written warranty, representation or undertaking, which is set forth in an instrument conveying any right, title or interest in the real property and which is executed by the person conveying the right, title or interest, or which is set forth in any memorandum of any such instrument executed for the purpose of recording, is admissible as evidence of whether the person acquiring any right, title or interest in the real property knew or reasonably should have known that a hazardous substance was located in or on the facility. For purposes of this paragraph, "associated himself with the release" means having actual knowledge of the release and taking action or failing to take action that the person is authorized to take and that increases the volume or toxicity of the hazardous substance that has been released.
5. Took action which significantly contributed to the release after he knew or reasonably should have known that a hazardous substance was located in or on the facility.

A.R.S. §49-283 (C). Any liability which accrues to an owner of real property under this section does not accrue to any other person who is not an owner of the real property merely because the other person holds some right, title or interest in the real property. An owner of real property on which a public utility easement is located is not a responsible party with respect to any release caused by any act or omission of the public utility which holds the easement in carrying out the specific use for which the easement was granted.

A.R.S. §49-283 (D). Person otherwise deemed a responsible party is not liable under this article if he can establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the resulting damages were caused solely by:

1. An act of God.

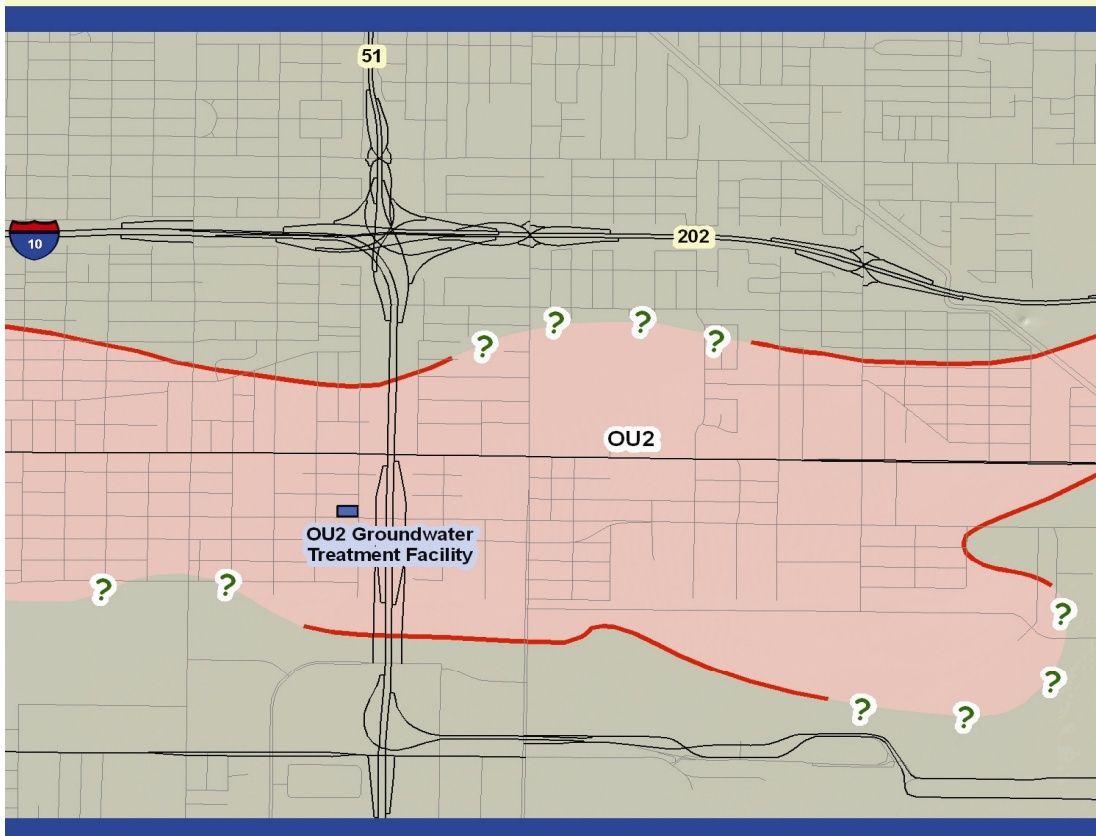
2. An act of war.
3. An act or omission of a third party, whether lawful or unlawful including acts of vandalism or unlawful disposal of hazardous waste or hazardous substances, other than an employee or agent of that person or other than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with that person, unless the sole contractual arrangement arises from a published tariff and acceptance for carriage by a common carrier by rail, if that person establishes by a preponderance of the evidence that:
 - a. He exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of the hazardous substance in light of all relevant facts and circumstances.
 - b. He took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions.
4. A release or threatened release which was subject to limits or conditions in a federal permit or a state permit relating to the protection of public health or the environment and the operation of the releasing facility has been and is in compliance with applicable limits or conditions.
5. The application of a pesticide product registered under the federal insecticide, fungicide, and rodenticide act (61 Stat. 163) and applied according to label requirements.
6. Liability has been assumed by the federal postclosure liability fund established under 42 United States Code section 9607(k).
7. Any combination of paragraphs 1 through 6 of this subsection.

Appendix VII:

Is Your Property Located Within a Superfund Site?
Use GIS eMaps to Find Out!

Is Your Property Located Within A Superfund Site?

Use GIS eMAPS
To Find Out!



GIS eMAPS Superfund Site Example

1. Go to the ADEQ home page at www.azdeq.gov

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- » [2/1/06: ADEQ Extends High Pollution Advisory for PM10 Particulates for Phoenix Metro Area for Thursday, February 2](#)
- » [2/1/06: ADEQ Director Steve Owens Announces Yuma Union High School District's Participation in School Bus Idling Program](#)
- » [1/31/06: ADEQ Issues High Pollution Advisory for PM10 Particulates for Phoenix Metro Area for Wednesday, February 1](#)
- » [1/31/06: Ajo Meets Federal Air Quality Standard for PM10](#)
- » [more news...](#)

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- » [Updated list of open burn permitting authorities](#)
- » [Arsenic Fact Sheets for Consumers and Water Systems now available](#)
- » [The Route 66 Initiative has been instrumental in removing Leaking Underground Storage Tanks](#)

Key Topics

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DIRECTOR'S PAGE



ADEQ Director Steve Owens

Welcome to the Arizona Department of Environmental Quality, where our mission is to protect public health and the environment. We welcome your comments or suggestions on ways to improve our services.

[GIS e-MAPS](#)

2. Click on
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ABOUT ADEQ: AGENCY-WIDE PROJECTS: INTERACTIVE GIS eMAPS

ADEQ created this Geographic Information System (GIS) tool to make environmental data and information easily accessible and available to the public.

eMaps features information from all of ADEQ's program divisions - Air Quality, Tank Programs, Waste Programs and Water Quality.

If you are looking for specific data from one of ADEQ's divisions, click the appropriate link below.

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- All Air Quality Features
- Monitoring Sites
- Monitoring Areas A and B
- Non-attainment Areas
- Vehicle Emission Testing

TANKS

- All Tank Programs Features
- Underground Storage Tanks

WASTE

- All Waste Programs Features
- Brownfields
- Declaration of Environmental Use Restriction (DEUR)
- Hazardous Waste LQG & TSD
- Landfills
- Material Recovery Facilities
- Superfund

WATER

- All Water Quality Features
- Impaired Waters
- Watersheds
- Improvement Grant Projects

ADEQ

- Schools (Learning Sites)
- All places viewable on eMaps
- Air/Waste/Water Permits

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3. Under **WASTE** click on **Superfund**

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4. Click on

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 - Boundaries
 - Hydrography
 - PLSS
 - Political
 - Schools
 - Transportation
 - Raster
 - ADEQ Layers
 - Air Quality
 - Tank Programs
 - Waste Programs
 - Brownfields
 - DEURS
 - Hazardous Waste - LQG
 - Hazardous Waste - TSD
 - Material Recovery Facilities
 - Municipal Landfills
 - Non-Municipal Landfills
 - ☒ Superfund
 - Water Quality
 - AZURITE
 - Permits

Help:

- An open group, click to close.
- A closed group, click to open.
- ☒ A visible group or layer, click to hide.
- ☒ A partially visible group, click to make all layers visible.
- ☒ A visible layer, but not at this scale.
- ☒ A hidden group or layer, click to make visible.
- ☒ The active layer.
- ☒ An inactive layer, click to make active.

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5. Make your selection from the **Quick Finder** drop down menu
(choose county, city, town & country,
zip code or legislative district)

then click the **Zoom** button
at the bottom of the menu.

Internet Explorer

Address: http://www.adeq.gov/website/maps/vpd/superfund/

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Quick Finder Zoom In Zoom Out Auto Redraw Legend Layers

Quick Finder

Zoom to County: (15)
-- Select a County --

Zoom to City: (87)
-- Select a City --

Zoom to Town: (591)
-- Select a Town (County) --

Zoom to Zip Code: (400)
-- Select a Zip Code --

Zoom to Legislative District: (30)
-- Select a District --

Zoom to Address Zoom to T/R/S Zoom to ZIP

Zoom Cancel

Zoom
button

OR

6. If you are looking for a specific address, click on the **Zoom to Address** button near the bottom of the drop down menu.

Map of Arizona showing county boundaries and names: COCONINO, MOHAVE, ARIZONA, NAVALJO, APACHE, GILBERT, GILIA, GREENLEE, CLIFTON, GRAHAM, PINAL, PIMA, COCHISE, SANTA CRUZ, SONORA, BAJA CALIFORNIA NORTE.

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7. (specific address example)

Address or Intersection

4221 N. Scottsdale Rd.

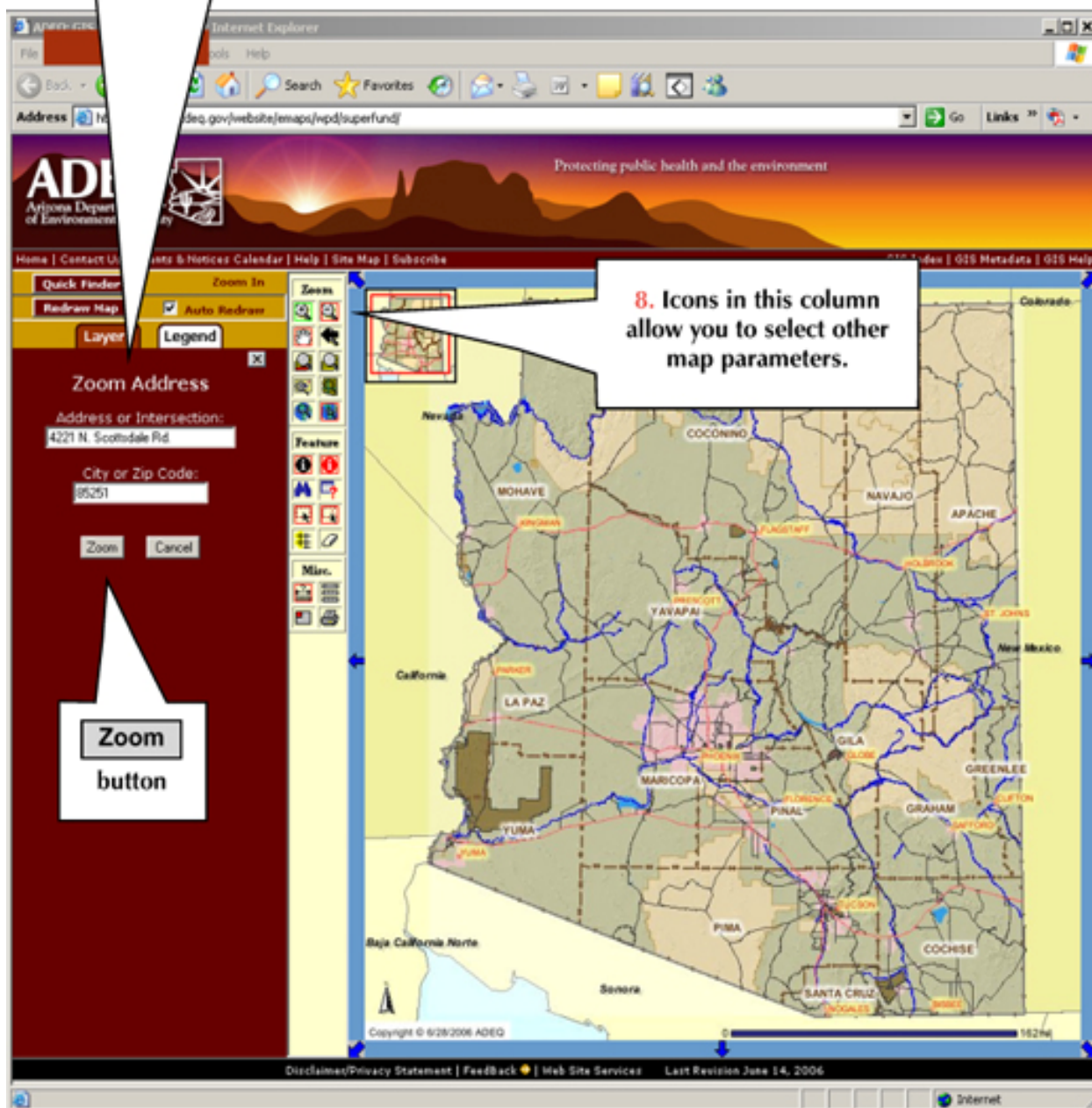
City or Zip Code

85251

then click the **Zoom** button.



8. Icons in this column
allow you to select other
map parameters.

Zoom
button



9. ★ Indicates the exact Location and Address



10. Click on  identify feature and move the  cursor to the ★ property address and click.

11. If the property is within a Superfund site boundary, it will be indicated here. If not it will read:

Superfund
No features found.

ADEQ: GIS eMaps - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://gisweb.adeq.gov/website/emaps/mpd/superfund/>

Go Links

Superfund

Rec	NAME
1	INDIAN BEND WASH - NORTH

Close

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Quick Finder Identify Feature

Redraw Map ☒ Auto Redraw

Layers Legend

- All Layers
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 - Waste Programs
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 - Hazardous Waste - TSD
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Glossary of Terms

Air sparging – Air sparging is an innovative in situ treatment technology that uses injected air to help remove harmful vapors from polluted soil and groundwater below the water table by injecting air directly into the saturated subsurface to encourage the solvents and gasoline to evaporate faster, which makes them easier to remove with a vacuum or air stripping.

Aquifer – An aquifer is an underground rock formation composed of such materials as sand, soil, or gravel, that can store groundwater and supply it to wells and springs. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

Aquifer Water Quality Standard (AWQS) -- AWQSs are state of Arizona maximum levels for contaminants which apply to groundwater in aquifers designated for drinking water use. For example, the AWQS for tetrachloroethene (PCE) is 5 micrograms per liter (µg/L).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) -- CERCLA is a federal law passed in 1980 that created a special tax that funds a trust fund, commonly known as Superfund, to be used to investigate and clean up abandoned or uncontrolled hazardous waste sites.

CERCLA required for the first time that EPA step beyond its traditional regulatory role and provide response authority to clean up hazardous waste sites. EPA has primary responsibility for managing cleanup and enforcement activities authorized under CERCLA. Under the program, EPA can pay for cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work, or take legal action to force parties responsible for contamination to clean up the site or reimburse the federal government for the cost of the cleanup.

Contaminant -- A contaminant is any physical, chemical, biological or radiological substance or matter present in any media at concentrations that may result in adverse effects on air, water or soil.

Contamination – Contamination is any hazardous or regulated substance released into the environment.

Declaration of Environmental Use Restriction (DEUR) – A DEUR is a restrictive covenant that runs with and burdens the land and requires maintenance of any institutional or engineering control. It must be approved and signed by ADEQ before it may be recorded.

Dichloroethane (DCA) -- A manufactured chemical not found naturally in the environment. This chemical can be manufactured as either 1,1-DCA or 1,2-DCA. 1,1-DCA was historically used as a surgical anesthetic.

Today it is used primarily to make other chemicals and as a solvent used to dissolve substances such as paint, varnish, and finish removers, and to remove grease. 1, 2-DCA is primarily used in the production of vinyl chloride, which is used to make a variety of plastic and vinyl products including polyvinyl chloride (PVC) pipes, furniture and automobile upholstery, wall coverings, housewares, and automobile parts. It is also used as a solvent and is added to leaded gasoline to remove lead. DCA can also be a degradation by-product of trichloroethene (TCE).

Downgradient -- Downgradient is the direction that groundwater flows, similar to “downstream” for rivers. The direction of groundwater flow does not necessarily reflect the topography of the surface.

Dross – Dross is the waste product from molten metal.

Early Response Action (ERA) – An early response action is remedial action that is performed prior to the final remedy and often prior to the remedial investigation because timeliness of response is particularly important in order to control or contain contamination to protect a supply of water or to address a current risk to public health or the environment.

Feasibility Study (FS) -- The feasibility study (FS) is the evaluation of potential remediation methods for achieving the remedial goals determined during the remedial investigation. The selection of a remedial action under WQARF involves the comparison of alternative remedial actions as well as consideration of the following factors.

- (1) population, environmental and welfare concerns at risk
- (2) routes of exposure
- (3) amount, concentration, hazardous properties, environmental fate, such as the ability to bioaccumulate, persistence and probability of reaching waters of the state, and form of the substance present.
- (4) physical factors affecting human and environmental exposure such as hydrogeology, climate and the extent of previous and expected migration.
- (5) the extent to which the amount of water available for beneficial use will be preserved by a particular type of remedial action
- (6) the technical practicality and cost-effectiveness of alternative remedial actions applicable to a site
- (7) The availability of other appropriate federal or state remedial action and enforcement mechanisms, including to the extent consistent with this article, funding sources established under CERCLA to respond to the release.

Five-Year Review – A periodic review of a Superfund site conducted after a response action has been initiated; the purpose of a five-year review is to evaluate whether the response action remains protective of public health and the environment.

Groundwater – Groundwater is water found beneath the earth’s surface that fills pores between materials such as sand, clay, or gravel and that often supplies wells and springs.

Hazardous Substance – A hazardous substance is any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment. These materials are further defined in a number of state and federal acts, regulations, and codes.

Health Based Guidance Level (HBGL) -- The drinking water Arizona HBGLs represent human ingestion (drinking) levels that are unlikely to result in adverse health effects during long-term exposure. The HBGLs are recommended maximum levels and not legally enforceable. However, the HBGLs can be referred to when there are no regulatory levels specified by law or regulation. The HBGLs were developed by the Office of Environmental Health, Arizona Department of Health

Services. For more information, please visit the public health assessments and consultation page on Arizona Department of Health Services website at http://www.azdhs.gov/phs/oeh/atsdr_reports.htm.

Heavy Metal -- The term heavy metal refers to a group of toxic metals including arsenic, chromium, copper, lead, mercury, silver, and zinc. Heavy metals often are present at industrial sites at which operations have included battery recycling and metal plating.

Lead -- Lead is a heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations.

Maximum Contaminant Level (MCL) -- The MCL is a federally-designated, enforceable drinking water standard based on adverse health effects. The MCL varies for each contaminant being analyzed.

Methane -- Methane is a colorless, nonpoisonous, flammable gas created by anaerobic decomposition of organic compounds.

Monitoring Well -- A monitoring well is a well drilled at a specific location on or off a hazardous waste site at which groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and quantities of contaminants present in the groundwater.

Parts Per Million (ppm) -- Part per Million is a unit of concentration commonly used to express low concentrations of contaminants. For example: One minute in two years is 1 ppm.

Polychlorinated Biphenyl (PCB) -- PCBs are a group of toxic, persistent chemicals, produced by chlorination of biphenyl, that once were used in high voltage electrical transformers because they conducted heat well while being fire resistant and good electrical insulators. These contaminants are typically generated from metal degreasing, printed circuit board cleaning, gasoline, and wood preserving processes. Further sale or use of PCBs was banned in 1979.

Preliminary Investigation -- A preliminary investigation is the process of collecting and reviewing available information about a known or suspected hazardous waste site or release.

Public Drinking Water System -- Public water systems include water systems which provide water to at least 15 service connections used by year-round residents or which provide water to at least 25 year-round residents.

Pump and Treat -- Pump and treat is a common method for cleaning up groundwater using pumps to bring polluted groundwater to the surface where it can be cleaned up or treated more easily.

Remedial Investigation (RI) -- A remedial Investigation is an in-depth investigation designed to determine (1) the nature and extent of contamination at a WQARF or Superfund site, (2) the sources of the contamination, (3) the potential risks posed to humans and the environment, and (4) appropriate remedial objectives (cleanup goals) for the contaminants of concern at the site.

Remedial Action -- This is any action taken to investigate, monitor, assess and evaluate the release or threat of release of hazardous substances or contaminants to the environment. It also includes the actual "cleanup" of the environment by various removal, treatment,

monitored remediation or corrective actions. The term cleanup is sometimes used interchangeably with the terms remedial actions, removal actions, response action, remedy, remediation or corrective action.

Risk Assessment -- A risk assessment is a scientific evaluation of the probability of harm resulting from exposure to a hazardous substance. The contaminant exposure pathways examined are inhalation (breathing the contaminant), ingestion (drinking/eating contaminant), and dermal (skin having contact with contaminant).

Site -- A site is the geographical area (two dimension, horizontal) extent of contamination.

Soil Vapor -- Soil gas and soil vapor are the gaseous elements and compounds that occur in the small spaces between soil particles. Such gases can move through or leave the soil or rock, depending on changes in pressure.

Soil Vapor Extraction -- Soil vapor extraction is a commonly used technique for cleaning up contaminated soils. It is a process that physically separates contaminants from soil in a vapor form by exerting a vacuum through the soil formation. Soil vapor extraction removes volatile organic compounds and semi-volatile organic compounds from the ground surface. The term soil vapor extraction is often used interchangeably with soil gas extraction.

Solvent -- A solvent is a substance, usually a liquid, which is capable of dissolving or dispersing one or more other substances. PCE is a common solvent used in the dry cleaning business and in cleaning auto and airplane parts.

Superfund -- Superfund is the trust fund that provides for the cleanup of hazardous substances released into the environment, regardless of fault. The Superfund was established under CERCLA and subsequent amendments to CERCLA. The term Superfund also is used to refer to cleanup programs designed and conducted under CERCLA and its subsequent amendments.

Surface Water -- Surface water is all water naturally open to the atmosphere, such as rivers, lakes, reservoirs, streams and seas.

Tetrachloroethene (PCE) -- PCE is a clear, colorless, liquid with a chloroform or sweet odor and a low boiling point. PCE is a solvent used for dry-cleaning; degreasing and drying metals and other solids; dissolving waxes, greases, oils, fats, and gums, and in other industrial applications. PCE is a potential occupational carcinogen. Evaporation of PCE increases as temperature increases.

Total Petroleum Hydrocarbons (TPH) -- TPH refers to a measure of concentration or mass of petroleum hydrocarbon constituents present in a given amount of air, soil or water.

Trichloroethane (TCA) -- TCA is a chlorinated solvent similar to TCE used mainly for the degreasing/drying of metals and electronic components.

Trichloroethene (TCE) -- TCE is a stable, low-boiling colorless liquid that is used as a solvent, metal degreasing agent, and in other industrial applications.

Upgradient -- Upgradient is the direction that groundwater is flowing from (opposite the direction that the groundwater flows). This is similar to “upstream” for rivers. The direction of groundwater flow does not necessarily reflect the topography of the surface.

Vadose Zone – The vadose zone is the area between the ground surface and the water table. The pores are filled with air although some water may be present. Vadose zone may be referred to as the unsaturated zone.

Volatile Organic Compounds (VOCs) -- A VOC is one of a group of carbon-containing compounds that evaporate readily at room temperature. Examples of VOCs include trichloroethene, benzene, toluene, ethylbenzene and xylene (BTEX). The contaminants typically are generated from metal degreasing, printed circuit board cleaning, gasoline, and wood preserving processes.

Vinyl Chloride -- Vinyl chloride is a flammable, colorless gas at room temperatures. It is used to make polyvinyl chloride (PVC), which is used to make plastic products. Also, vinyl chloride is often an end product when tetrachloroethene (PCE) and trichloroethene (TCE) chemically decompose in the environment.

Water Quality Assurance Revolving Fund (WQARF) -- WQARF is the program and funding which is used to address hazardous substance releases within the state that are not covered by other specific programs. (Also known as the State Superfund)