

Water Quality Assurance Revolving Fund Report

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Water Quality Assurance Revolving Fund Report

A.R.S. §49-282.G

Under state and federal authorities, ADEQ's Superfund Programs Section identifies, assesses and cleans up soil and groundwater that is contaminated with hazardous substances. The program directs remediation activities using state and federal funds and oversees privately-funded cleanup efforts. Responsible parties are identified and notified, and legal and technical evidence is gathered for recovery of ADEQ's costs and for enforcement of cleanup requirements. The Arizona Attorney General's Office, the Arizona Department of Health Services, the Arizona Department of Water Resources and political subdivisions receive funding to assist ADEQ with its remediation efforts.

The program oversees the Water Quality Assurance Revolving Fund (WQARF, pronounced *wharf*), which was created under the Arizona Environmental Quality Act of 1986, in support of cleanup efforts in the state. The fund is dependent upon direct transfer of funds from legislative appropriations, corporate income tax, cost recovery and special fees.

Beginning in April 1998, a WQARF Registry was created to replace the WQARF Priority List, as required by A.R.S. § 49-287.01. Sites are added to the Registry through a listing process that includes scoring, notifying owners and operators within the site, and providing the public with a 30-day comment period.

At the end of FY 2001, there were 33 sites on the WQARF Registry. In addition to those sites, the program oversees 10 projects governed and funded by the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), commonly known as Superfund. Sites posing a significant threat to human health and the environment may be placed on the National Priorities List (NPL). Three of these sites are under Department of Defense jurisdiction. The program also manages 13 non-NPL Department of Defense sites.

The WQARF Program provides fiscal support to the Voluntary Remediation Program, which presently manages cleanup activities at more than 60 sites. This program provides an opportunity for property owners to remediate contamination and receive review and closure from ADEQ before a site is listed on the WQARF Registry.

Statute also requires that ADEQ develops numerous rules, policies and guidance documents to address site investigation and cleanup process. In conjunction with the WQARF Advisory Board and other interested stakeholders, the Superfund Programs Section has devoted significant resources to the development of these documents.

Annual Program Performance Measures

1. § 49-282.G.1: Accomplishments from expenditures of the fund in terms of reduction of contamination in the environment and actions taken to determine the nature and extent of contamination

<i>WQARF Sites Remedial Activities Completed in FY 2001</i>	
Sites added to the WQARF Registry	0
Groundwater monitor wells installed	78
Soil vapor wells installed	11
Billions of gallons of water treated	2.78
Pounds of volatile organic compounds removed	12,380
Pounds of metals removed	4,265,420
Pounds of other hazardous substances removed	11,260,000
Pounds of contaminated soil removed	89,800
Significant early response actions or final cleanup actions conducted	2

<i>WQARF Enforcement and Administrative Activities Completed in FY 2001</i>	
Access agreements completed	83
Consent decrees/consent orders completed	2
Prospective purchaser agreements completed	3
Potentially responsible party searches underway	33
Applicable or relevant and appropriate requirements determinations completed	3

<i>WQARF Community Involvement Activities Completed in FY 2001</i>	
Community Advisory Boards/Groups established	5
Factsheets completed	13
Public meetings/open houses conducted	90

<i>Federal Sites Remedial Activities Completed in FY 2001</i>	
Billions of gallons of water treated	11.4
Pounds of volatile organic compounds removed	46,226
Pounds of contaminated soil removed	1,187,000

<i>Federal Community Involvement Activities Completed in FY 2001</i>	
Factsheets completed	8
Public meetings/open houses conducted	25

2. **§ 49-282.G.2: The status of all sites on the Registry, including the site locations, the basis for establishing site boundaries and whether remedial actions taken to date would support a modification of the boundaries of the site**

The status of all sites on the Registry begins on Page 182. The site locations are denoted on the maps included at the end of this report. Site boundaries are determined by using existing site data to determine the boundary of contamination at the limit of the appropriate aquifer water quality standard or residential soil remediation level. During FY 2001, no Registry site boundaries were modified.

3. **§ 49-282.G.3: The number of settlements made with responsible parties and the terms of each settlement**

Number settled: 0

4. § 49-282.G.4: Number and types of settlements under 49-292.01 (qualified business) and 49-292.02 (financial hardship), as of the close of FY 2001

- a. Number of applications submitted in each category

Qualified business: 1
Financial hardship: 0

- b. Number of applications denied under each section

Qualified business: 0
Financial hardship: 0

- c. Number of applicants who settled under the qualified business formula, and the amount of the settlements

Number settled: 1
(Nine additional qualified business settlement settlements are in process)

- d. The number of settlements pursuant to 49-292.02 and the total amount of the settlements

Number of applications and settlements: 0

- e. The number of persons who met the definition of qualified business under section 49-292.01 but who settled pursuant to 49-292.02

Number of applicants and settlements: 0

WQARF Sites

These are the sites that ADEQ has determined will be actively addressed by the WQARF Program. The following 33 sites were on the WQARF Registry as of the end of FY 2001. Other sites will continue to be added to the Registry as the process described in § A.R.S. 49-287.01 is completed.

Seventh Street and Arizona Avenue

Boundaries: The Seventh Street and Arizona Avenue site is located in downtown Tucson, approximately one-third mile north of Broadway Boulevard and approximately three-quarters mile east of Interstate 10.

The site boundary is a northwest-trending oval extending approximately 1,200 feet from the former Oliver's Cleaners facility at 300 E. Seventh St. (southeast corner of Seventh Street and Fifth Avenue) to approximately 150 feet north of Sixth Street and approximately 100 feet east of Seventh Avenue. ADEQ staff used the eligibility and evaluation form to evaluate this site. The site was placed on the WQARF Registry on April 27, 2000 with a score of 40 out of a possible 120.

Contaminants: Groundwater in the Seventh Street and Arizona Avenue site has been affected by tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) at concentrations exceeding the Arizona aquifer water quality standards.

16th Street and Camelback

Site Boundaries: The 16th Street and Camelback site is bound 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: Investigations have discovered soil contaminated with total petroleum hydrocarbons (TPH). Tetrachloroethene (PCE) and dichloroethane (1,2, DCA) concentrations above the reporting limit remain in the groundwater.

20th Street and Factor Avenue

Boundaries: The 20th Street and Factor Avenue 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. The site boundary is a northwest-trending oval extending approximately 1,000 feet from the facility at 655 E. 20th St. on the southeast to 19th Street and Rail Avenue on the northwest. The site was placed on the WQARF Registry in 2000 with a score of 31 out of a possible 120.

Contaminants: Groundwater in the 20th Street and Factor Avenue site has been affected by tetrachloroethene (PCE).

Broadway-Pantano

Boundaries: The Broadway-Pantano site is located in east-central Tucson. The site is bound approximately by Speedway Boulevard to the

north, Pantano Wash to the east, Broadway Boulevard to the south, and Wilmot Road to the west. The Broadway North Landfill occupies approximately 130 acres of land in the northeast portion of the site area, north of Broadway Boulevard along the Pantano Wash. The site was placed on the WQARF Registry in 1998 with a score of 48 out of a possible 120. The site was reevaluated and the score was raised to 57 on July 6, 1999.

Contaminants: Groundwater at this site contains tetrachloroethene (PCE), trichloroethene (TCE) and vinyl chloride at concentrations that exceed drinking water standards. PCE and TCE are volatile solvents commonly used in dry cleaning and metal cleaning operations and vinyl chloride is often an end product when PCE and TCE chemically decompose in the environment.

Central and Camelback

Boundaries: The approximate boundary of the Central and Camelback WQARF Site is Missouri Avenue to the north, a line 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 in January 1999 with an eligibility and evaluation score of 31 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 32 and includes the southwest corner source area portion.

Contaminants: The groundwater beneath this site is contaminated with tetrachloroethene (PCE), a common dry cleaning solvent. Methyl tertiary butyl ether (MTBE), and benzene toluene, ethyl benzene and xylene (BTEX) from several leaking underground storage tank sites have also been detected in the groundwater. Groundwater found at approximately 45 feet below the ground surface.

East Central Phoenix 24th Street and Grand Canal

Boundaries: The boundaries of the 24th Street and Grand Canal site approximate a circle about 400 feet in diameter. The actual center of the circle 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: ADEQ plans to investigate this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site.

ECP 32nd Street and Indian School Road

Boundaries: The boundaries of the 32nd Street and Indian School Road site approximate a circle about 400 feet in diameter. The actual center of the circle is approximately 300 feet to the east of 32nd Street and 100 feet to the south of Indian School Road. The site was placed on the WQARF Registry in May 2000 with a score of 29 out of a possible 120.

Contaminants: ADEQ plans to investigate this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site.

ECP 38th Street and Indian School Road

Boundaries: The 38th Street and Indian School Road site is bound approximately by Indian School Road to the north, 38th Street to the east, Amelia Avenue 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. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 25.

Contaminants: ADEQ plans to investigate this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site. Contamination is present in the groundwater at depths between approximately 20-35 feet below the ground.

ECP 40th Street and Indian School Road

Boundaries: The 40th Street and Indian School Road site has these approximate boundaries: a diagonal starting near the intersection of 38th Street and Monterosa Street and ending near the intersection of 40th Street and Devonshire Avenue to the north, 40th Street to the east, a diagonal starting near the intersection of 38th Street and Piccadilly Road and ending northeast of the intersection of 40th Street and Indian School Road to the south, and 38th Street to the west. The site was placed on the WQARF Registry in 1998 with a score of 20 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 25.

Contaminants: ADEQ plans to investigate this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site. Contamination is present in the groundwater at depths between approximately 20-35 feet below the ground.

ECP 40th Street and Osborn Road

Boundaries: The boundaries of the 40th Street and Osborn Road site approximate a circle about 800 feet in diameter. The actual center of the circle 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: ADEQ plans to investigate this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site.

ECP 48th Street and Indian School Road

Boundaries: The site is bound 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. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 32.

Contaminants: ADEQ has investigated this site due to the presence of tetrachloroethene (PCE) in the groundwater beneath the site. The plume is small, appears to be stable and not moving.

East Washington Fluff

Boundaries: The site in Phoenix is approximately bound 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. The site was placed on the WQARF Registry in June 1999 with a score of 22 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 34.

Contaminants: The site is 10 acres in size and contains significant quantities of auto shredder fluff comingled with native soils. Contaminants known to exist at the site are lead and polychlorinated biphenyls (PCBs), a substance historically used as a cooling oil in electric components.

El Camino del Cerro

Boundaries: The El Camino del Cerro site is located in northwest Tucson. The site is approximately bound by the Rillito River on the north, Shannon Road on the east, El Camino del Cerro Road on the south, and the Santa Cruz River on the west. The closed El Camino del Cerro

Landfill occupies approximately 20 acres of land in the southwest portion of the site area, north of El Camino del Cerro road between the Santa Cruz River and I-10. The site was placed on the WQARF Registry in 1998 with a score of 71 out of a possible 120.

Contaminants: The primary contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride, benzene and methane.

Estes Landfill

Boundaries: The Estes Landfill site is located in Phoenix, south of Sky Harbor Airport. The landfill 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. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 50.

Contaminants: Compounds of Interest for the soil are arsenic, lead and thallium. Compounds of Interest for groundwater are vinyl chloride, cis-1,2-DCE, trichloroethene (TCE), benzene, bis (2-ethylhexyl) phthalate, arsenic, barium, chromium, cadmium, lead, manganese and nitrate as N. The unregulated landfill is reported to have accepted industrial, commercial, residential and liquid wastes.

Klondyke Tailings

Boundaries: The site, which is 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 boundaries of this site 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 bound to the east by Klondyke Road. The site was listed on the WQARF Registry in 1998 with a score of 69 out of a possible 120.

Contaminants: The contaminants present are various metals left in the tailings following processing for lead, zinc and copper recovery. The metals present at levels higher than regulatory standards include lead, cadmium, antimony, beryllium, copper, manganese and arsenic. 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.

Los Reales Landfill

Boundaries: The Los Reales Landfill site is bound approximately by Valencia Road on the north, Craycroft Road on the east, approximately one-quarter mile south of Los Reales Road on the south, and Alvernon Way on the west. Within the site boundary is the Los Reales Landfill, an active municipal sanitary landfill located at 5300 East Los Reales Road consisting of approximately 376 acres in southeast Tucson. The site was placed on the WQARF Registry in 1999 with a score of 32 out of a possible 120.

Contaminants: The impact to the environment at this site is the contamination of groundwater by volatile organic compounds (VOCs). Several VOCs have been detected in two downgradient monitor wells including: tetrachloroethene (PCE), trichloroethene (TCE), trichlorofluoromethane, dichlorofluoromethane, chloroethane, 1,1-dichloroethene (DCE), methene chloride, and 1,1-dichloroethane (DCA). PCE and TCE concentrations have exceeded drinking water maximum contaminant levels (MCL). Upgradient wells have not had detectable levels of VOCs.

Miracle Mile

Boundaries: The Miracle Mile site in Tucson is bound approximately by Roger Road on the north, Flowing Wells Road on the east, Prince Road on the south, and Bottletree Lane on the west. The site was placed on the WQARF Registry in 1998 with a score of 62 out of a possible 120.

Contaminants: Groundwater is contaminated by at least seven different volatile organic compounds (VOCs), several of which have been detected above the EPA maximum contaminant levels (MCL). The predominant contaminants of concern are trichloroethene (TCE), tetrachloroethene (PCE), dichlorodifluoromethane (Freon 12), trichlorofluoromethane (Freon 11), 1,1-dichloroethene (DCE), and methyl tertiary butyl ether (MTBE). Benzene and chromium have each been detected in at least one well in the site above the MCLs.

Park-Euclid

Boundaries: The site is located in Tucson and is bound approximately by Broadway Boulevard on the north, Santa Rita Avenue on the east, 14th Street on the south, and Euclid Avenue on the west. The site includes facilities located at both 299 and 301 S. Park, where several companies have conducted laundry and dry-cleaning operations since the late 1930s. The site was placed on the WQARF Registry in April 1999 with a score of 51 out of a possible 120.

Contaminants: Groundwater contamination from a combination of diesel free product and volatile organic compounds (VOCs), including tetrachloroethene (PCE), trichloroethene (TCE), and 1,1 dichloroethene (DCE) has been detected at the site. Both PCE and TCE were present in concentrations above aquifer water quality standards.

Payson PCE

Boundaries: The 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 with a score of 63 out of a possible 120.

Contaminants: The primary contaminant of concern is tetrachloroethene (PCE), a solvent commonly used in drycleaning. The PCE is present in the groundwater below the site's ground surface.

Pinal Creek

Boundaries: The site is located in the Globe-Miami area and 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 1,000 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. The site was placed on the WQARF Registry in 1998 with a score of 97 out of 120.

Contaminants: Numerous contaminants are present at the site in groundwater, surface water and soils. The most important contaminants are those hazardous and non-hazardous substances that are present at levels above regulatory standards or above background levels, and that generally require clean up. These include aluminum, arsenic, beryllium, cobalt, cadmium, copper, fluoride, iron, lead, sulfate, manganese, nickel, zinc and sulfuric acid. Contaminants can be found in the following locations:

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

Shannon Road-Rillito Creek

Boundaries: The Shannon Road-Rillito Creek site is located in northwest Tucson and extends approximately one quarter mile to the north and south of Rillito Creek, and is approximately bound by Meadowbrook Park to the east and Peglar Wash Park to the west. The site was placed on the WQARF Registry in April 1999 with a score of 53 out of a possible 120.

Contaminants: The contaminants present in the groundwater in the Shannon Road/Rillito Creek at levels above the regulatory limit are tetrachloroethene (PCE) and trichloroethene (TCE). Regulatory limits are set to protect public health and the environment. As the remedial investigation proceeds, the extent of contamination will be further

defined. In addition to PCE and TCE, there are other substances detected in the groundwater at the site below the regulatory limit. Any substance that is present below a regulatory limit does not pose a risk to the public or the environment. These substances are: 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene and dichlorodifluoromethane (Freon 12).

Silverbell Jail Annex Landfill

Boundaries: The Silverbell Jail Annex site lies between, but is not bound by Silverbell Road on the west, Sweetwater Drive on the north, Interstate 10 on the east and Grant Road/Ironwood Hill Drive on the south. The site was placed on the WQARF Registry in 1999 with a score of 51 out of a possible 120.

Contaminants: A groundwater contamination plume consisting primarily of the solvents tetrachloroethene (PCE) and trichloroethene (TCE) is present at the site. Other VOCs routinely detected in site monitor wells include vinyl chloride, dichlorodifluoromethane, trichlorofluoromethane, methylene chloride and cis-1,2- dichloroethene.

South Mesa

Boundaries: The site lies within southern Mesa and northern Gilbert within the boundaries of 10th Drive on the north, Stapley on the east, the railroad south of Baseline on the south and west. The site includes industrial, commercial and residential areas. The site was placed on the WQARF Registry in 1998 with a score of 26 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 31.

Contaminants: The contaminant of concern at the South Mesa site is tetrachloroethene (PCE), a solvent, which is present in the groundwater approximately 110-130 feet beneath the ground.

Tonto and Cherry

Boundaries: The Tonto and Cherry site is located in Payson, approximately 150 feet of Colcord Road just north of Frontier Street. The site boundary is a northwest-trending oval, extending approximately 850 feet from the intersection of Colcord Road and Frontier Street. This site was evaluated for listing on the WQARF Registry by ADEQ staff using the eligibility and evaluation form. The site was placed on the WQARF Registry on June 5, 2000 with a score of 45 out of a possible 120.

Contaminants: Groundwater at the Tonto and Cherry site has been affected by tetrachloroethene (PCE). PCE has been detected in five private drinking water wells at the site.

Tyson Wash

Boundaries: The known groundwater contamination exists northwest of the intersection of State Highway 95 and Business Route I-10 in the town of Quartzsite, Arizona. The site has boundaries approximately 300 feet to the north of Cowell Lane to the north, 400 feet east of Washington Boulevard to the east, 300 feet south of Cowell Lane to the south and 200 feet west of Oregon Avenue to the west. The site was added to the WQARF Registry in 1998 with a score of 46 out of a possible 120.

Contaminants: Tetrachloroethene (PCE), a solvent commonly used in dry cleaning, is present in the groundwater approximately 40-70 feet below the ground.

Vulture Mill

Boundaries: The Vulture Mill site is located just east of North Tegner (Highways 89 & 93) about 1 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 and consists of a former gold-ore milling. The tailings and affected soil are found in an area approximately 32 acres on five separate properties. The site was placed on the WQARF Registry in 1998 with a score of 65 out of 120.

Contaminants: The average concentration of lead in the mill tailings exceeds the concentration allowed on residential property (400 parts per million) or non-residential property (2,000 parts per million). The highest concentration of lead in the tailings is reported to be 14,000 parts per million.

West Central Phoenix (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 1998 with a score of 26 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 31.

Contaminants: Contaminants known to be present in groundwater at levels above regulatory limits include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride.

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 1998 with a score of 17 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 22.

Contaminants: Contaminants known to be present in groundwater at levels above regulatory limits include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride.

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 1998 with a score of 50 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 55.

Contaminants: Contaminants known to be present in groundwater at levels above regulatory limits include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride.

WCP North Canal Plume

Boundaries: The approximate boundaries of the North Canal Plume site are Indian School Road on the north, 36th Avenue on the east, Clarendon Avenue on the south and 40th Avenue on the west. The site was placed on the WQARF Registry in 1998 with a score of 22 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 27.

Contaminants: Contaminants known to be present in groundwater at levels above regulatory limits include the chlorinated solvents

tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride.

WCP West Osborn Complex (WOC)

Boundaries: The approximate boundaries of this site are the Grand Canal on the north, 34th Drive on the east, Pinchot Avenue on the south and 39th Drive on the west. The site was placed on the WQARF Registry in 1998 with a score of 47 out of a possible 120. The site was rescored for the June 2001 Registry with an eligibility and evaluation score of 52. ADEQ provides regulatory oversight and technical review of investigations and site activities performed by United Industrial Corporation at the WCP West Osborn Complex site.

Contaminants: Contaminants known to be present in groundwater at levels above regulatory limits include the chlorinated solvents tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride.

West Van Buren

Boundaries: The West Van Buren site is bound approximately by Van Buren Street on the north, Seventh Avenue on the east, Buckeye Road on the south and 83rd Avenue on the west. A finger-shaped plume also exists between Seventh and 27th Avenues between Buckeye and Lower Buckeye Road. The site was placed on the WQARF Registry in 1998 with a score of 50 out of a possible 120.

Contaminants: The groundwater contamination plume consists primarily of the solvents tetrachloroethene (PCE) and trichloroethene (TCE). The contamination is present in the groundwater approximately 40 to 80 feet below the surface.

Western Avenue Plume

Boundaries: The Western Avenue Plume 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 1998 with a score of 51.

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.

National Priorities List Sites (Federal Superfund)

The National Priority List (NPL) is EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response under Superfund. Inclusion of a site on the list is based primarily on the score the site receives under the hazard ranking system. Money from Superfund can be used for cleanup only at sites that are on the NPL. EPA is required to update the NPL at least once a year.

19th Avenue Landfill

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.

Contaminants: During the remedial investigation (RI), the groundwater was found to contain 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 (MCLs) is 1,1-dichloroethene (1,1-DCE). 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. During the RI, the most frequently detected VOCs were ethyl benzene, 1,4-dichlorobenzene, xylenes and toluene. This project is in the operations and maintenance phase, remediation activities have been completed. Quarterly groundwater monitoring, monthly methane monitoring, and inspections of the landfill cap, flood control structures and landscaping continue.

Apache Powder

Boundaries: The Apache Powder Superfund 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 towards the northwest.

Contaminants: Contaminants of Concern (COCs) found at the Apache Powder 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; as well as 2,4-DNT, 2,6-DNT and lead in Wash Area 3. 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 groundwater.

Hassayampa Landfill

Boundaries: The Hassayampa Landfill site is located about 10 miles west of Buckeye, Arizona and is approximately 6 miles east of the Palo Verde Nuclear Generating Station. The site consists of about 10 acres used for hazardous waste disposal which lies within a 47 acre landfill. The industrial waste disposal operations were independent of sanitary landfill activities.

Contaminants: Contaminants of concern (COCs) detected at Hassayampa that exceeded the federal maximum contamination levels (MCLs) for groundwater include: 1,1-dichloroethene; trichlorotrifluoroethane; 1,1,1-trichloroethane; 1,1-dichloroethane; trichloroethene; tetrachloroethene; trichlorofluoromethane; 1,2-dichloroethene; 1,2-dichloropropane; and toluene. Ambient air contains very low levels of VOCs. Groundwater sampling results also have identified various VOCs. Soils beneath the waste pits contain VOCs, heavy metals, pesticides and lime wastes.

Indian Bend Wash – North

Boundaries: North Indian Bend Wash (NIBW) is the northern part of the area designated by EPA as the Indian Bend Wash (IBW) Superfund Site. The boundaries of the site are approximately Chaparral Road to the north, Pima Road to the east, Scottsdale Road to the west and just south of Curry 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.

Contaminants: In 1981, volatile organic compounds (VOCs) were discovered in area wells in concentrations exceeding Arizona Department of Health Services action levels. VOCs were used as degreasing agents and solvents at various industrial facilities located in the study area.

Indian Bend Wash – South

Boundaries: The South Indian Bend Wash (SIBW) study area encompasses approximately 4 square miles in Tempe. SIBW adjoins the ten square mile area of North Indian Bend Wash (NIBW). SIBW and NIBW together form the Indian Bend Wash Superfund site. The site is primarily commercial and industrial north of University Avenue and residential to the south.

Contaminants: The groundwater in the SIBW area is mainly contaminated with VOCs. Soil is contaminated with VOCs, cyanides, acids and heavy metals including chromium and lead.

Luke Air Force Base

Boundaries: Luke Air Force Base (LAFB) is located on 4,198 acres 13 miles west of downtown Phoenix. The base is bordered on the north by Northern Avenue, Dysart Road to the east, Camelback Road to the south and Reems Road and 159th Avenue to the west. The cities of Sun City, Sun City West and Litchfield Park are located northeast, north and south of the base, with the White Tank Mountains to the west. Thirty-two areas of the base were subject to further investigation: two fire training areas; a waste oil and fuels underground storage tank area; three waste oil disposal trench areas; three surface drainage canals receiving oily wastes; a sewage treatment plant effluent canal; the site of an abandoned Defense Reutilization and Marking Office; thirteen land disposal sites (one of which contains a radiological disposal area); an old incinerator site; a former outside transformer storage site; two leaking underground storage tank sites; an abandoned surface impoundment; an ammunition storage area; a skeet range; and the base production wells. The Waterdog Recreation Annex, at Apache Lake, 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: Contaminants at the site include organic solvents and paint strippers, waste oil spills, petroleum spills, metal plating wastes, hydraulic fluids and radiological wastes.

Motorola 52nd Street

Boundaries: The Motorola 52nd Street site is located in a residential and commercial area in the eastern part of the city of Phoenix. 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. Responsible parties include both Motorola Inc. and Honeywell International.

Contaminants: Contaminants known to be present in the groundwater at levels above regulatory limits include the following chlorinated solvents: trichloroethene (TCE), trichloroethane (TCA), dichloroethene (DCE), dichloroethane (DCA) and vinyl chloride.

Phoenix-Goodyear Airport North

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 two 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 bound 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.

Contaminants: The contaminants identified at the PGA North site are: chlorinated solvents, mainly trichloroethene (TCE) and perchlorates. TCE is present in the soils located within the Unidynamics' property as well as in the groundwater. The perchlorates were discovered in the groundwater in August 1998.

Phoenix-Goodyear Airport South

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 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 approximate physical boundaries of the PGA South site are Yuma Road to the north, Litchfield Road to the east, Broadway Road to the south and Reems Road 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.

Tucson International Airport Area (TIAA)

Boundaries: The TIAA is a 24-square-mile site placed on the NPL in 1983. 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 Tucson Corporation, the former West-Cap property and West Plume B.

Contaminants: Groundwater investigations have defined a groundwater contamination plume (main plume) in the regional aquifer. The main plume, consisting mainly of trichloroethene (TCE), with smaller amounts of dichloroethene (DCE), chloroform and chromium, extends from AFP 44 north past Irvington Road.

162nd Air National Guard (TIAA Site)

Boundaries: The Arizona Air National Guard (AANG) 162nd Tactical Fighter Group, occupies 84 acres of the TIAA site and is located at 15008 Valencia Road, Tucson, Arizona. The base has been in operation since 1956 in training functions for various tactical fighter aircraft.

Contaminants: Trichloroethene (TCE) is the primary groundwater contaminant at this site. A groundwater pump, treat and reinjection system treats approximately 110 gallons per minute. A soil vapor extraction system was started on April 3, 1997 and shut down on Nov. 29, 1997, after achieving complete soil remediation.

Raytheon Air Force Plant #44 (TIAA Site)

Boundaries: Raytheon Air Force Plant #44, located in the southern portion of the TIAA site, is a federally owned weapons manufacturing facility operated under contract by the Raytheon Corporation (formerly Hughes). The plant is bound 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). The plant is permitted under the Resource Conservation and Recovery Act (RCRA).

Contaminants: Historic waste disposal operations at the plant resulted in soil and groundwater contamination of metals and volatile organic compounds (VOCs), including trichloroethene (TCE). Remediation activities include a large-scale pump, treat and reinjection system; soil vapor extraction systems; dual-phase extraction systems; and soil excavation and removal.

Williams Air Force Base

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.

Contaminants: Contaminants from base activities included organic solvents and paint strippers, petroleum spills, metal plating wastes, hydraulic fluids, pesticides and radiological wastes. Discharges and disposal at WAFB had resulted in soil and groundwater contamination. The remaining groundwater contaminant issue is a plume of jet fuel contamination.

Yuma Marine Corps Air Station

Boundaries: Marine Corps Air Station Yuma (MCAS Yuma) occupies approximately 3,000 acres within the city and county of Yuma, Arizona

(2nd Congressional District). The city of Yuma, the nearest municipality, is located approximately one mile northwest of the station.

Contaminants: For soil, the contaminant of concern is asbestos in the form of non-friable asbestos containing material (ACM). The ACM is scattered on top of and buried in the surface soil. For groundwater, the contaminants of concern are chlorinated solvents (TCE, DCE and PCE). The main groundwater plume is approximately one mile long and 500 feet wide, and has reached the downgradient edge of the base. The maximum concentration of total solvents is currently approximately 270 parts per billion (ppb). All of the groundwater contamination has been detected downgradient of the old on-station drinking water well. However, the on-station drinking water well is no longer used and none of the groundwater is used elsewhere on the base. If left untreated, the plume could potentially impact private groundwater wells downgradient from the station.

Department of Defense Sites

The Department of Defense sites are those sites that are located at either active duty bases or bases being closed under the base realignment and closure (BRAC) regulations and formerly used defense sites that are eligible for funding under the installation restoration program that ADEQ oversees.

161st Air National Guard

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 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.

Contaminants: Past aircraft maintenance and fueling operations at the site have led to surface and subsurface soil and groundwater contamination with petroleum products and volatile organic compounds (VOCs).

Barry M. Goldwater Range

Boundaries: The Barry M. Goldwater Range is an almost 2.7 million acre military training area formed from Bureau of Land Management and US

Fish and Wildlife Service lands in southwestern Arizona. The range is under the overall management of the United States Air Force, but is divided into two management units for the Air Force and the Marine Corps. The portion of Barry M. Goldwater Range managed by the US Fish and Wildlife Service is the Cabeza Prieta National Wildlife Refuge , and forms about 30 percent of the Barry M. Goldwater Range area.

Contaminants: Luke AFB conducted an installation restoration program on Barry M. Goldwater Range in 1992. The IRP identified 218 possible areas of concern. Of these sites, 130 required no further action and were closed, leaving 88 areas of concern. Of the 88 areas of concern, 45 are active operations and are managed under state and federal Resource Conservation and Recovery Act regulations. The other 43 sites were declared to be IRP sites. As part of a site investigation, additional investigations have been made at 12 of these sites. The site investigation includes two areas at the Gila Bend Auxiliary Air Field with the remaining ten sites dispersed at the former Ajo Air Station (within the national wildlife refuge), Sentinel Navy antenna site and various locations within the range.

Camp Navajo (Arizona Air National Guard)

Boundaries: The Navajo Depot Activity (NADA), designated Camp Navajo as of September 1993, 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. Facilities present at NADA include approximately 170 buildings of which 32 are currently used for administration, maintenance, operations and storage. There are 776 igloo structures for storage of conventional (and formerly chemical) munitions. There is a demolition area in the southern portion and buffer zones along the eastern and western borders of the base.

Contaminants: Contaminants of concern include heavy metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and constituents of explosives.

Davis-Monthan Air Force Base

Boundaries: Davis Monthan AFB (DMAFB) is located in eastern Tucson. The northern boundary gradually descends to the south from Golf Links Road to Irvington Road. The boundary to the east is Harrison Road with Alvernon Way as the western boundary. The southern most

boundary is Valencia Road on the east side of the site area. The study area consists of the entire base.

Contaminants: Contamination at the base has been primarily surface soil contamination with petroleum wastes, waste piles of hazardous aluminum dross and a large volume underground jet fuel leak. The aluminum dross (from past melting of obsolete aircraft) on the base has been treated by solidification/stabilization and transported to an off-site landfill.

Fort Huachuca

Boundaries: Fort Huachuca is an army post located in southeastern Arizona in Sierra Vista. Fort Huachuca has been in continuous operation since its establishment in 1877.

Contaminants: The areas of interest, as a result of two consent decrees with ADEQ involve four hazardous waste sites (Consent Order D-10-91) 18 underground storage tank or leaking underground storage tank sites (Consent Order L-58-96). Of the twenty sites considered to be solid waste sites from the original Consent Order (C-10-91), eleven sites remain. Six of these sites require no further action and are awaiting a decision document for closeout. The remaining five sites are undergoing remediation and/or monitoring.

Gila Bend Auxiliary Air Field

Boundaries: The Gila Bend Auxiliary Air Field is located approximately two miles south of Gila Bend off of State Highway 85.

Contaminants: In 1994, the Air Force conducted Site Investigations of two sites at the facility, the former fire training area FT-27 and a nearby maintenance area. Limited contamination was found at the former fire training area with a determination that it did not pose a threat to groundwater. Sampling of the maintenance area did not reveal any contamination warranting further action. The facility is managed, for environmental purposes, by Luke Air Force Base, Glendale, Ariz.

Yuma Army Proving Grounds (YPG)

Boundaries: The U.S. Army Yuma Proving Ground is located on the California-Arizona border north of Yuma. Yuma Proving Ground is located 32 miles northeast of Yuma and occupies approximately 870,000 acres in size in Yuma and La Paz counties. Its western edge is adjacent to the Colorado River.

Contaminants: Contaminants of concern include petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. Contaminated media are soil and groundwater. The U.S. Army has identified 19 solid waste management units for investigation under the YPG remedial investigation and feasibility study. The overall objective of the remedial investigation in the 19 solid waste management units sites is to characterize the nature and extent of the risks posed by contaminants present for each site. A pilot soil vapor extraction system is under operation at the fuel bladder site for the remediation of hydrocarbon contamination.