



**Water Quality Assurance  
Revolving Fund**

**Annual Report  
Fiscal Year 2008**

**September 2008**

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This annual report has been prepared pursuant to HB 2781, Laws 2007, Chapter 255 making appropriations for the different departments of the state, for state institutions and for public schools; providing for certain reporting requirements. HB2781 requires that a report on the Water Quality Assurance Revolving Fund (WQARF) along with specific site budgets for FY2008 be submitted to the joint legislative budget committee (JLBC) members and to the Director of the JLBC by September 1, 2008. The FY2009 WQARF site budgets and FY2009 WQARF program projected budget can be found in Appendix 1.

## WQARF PROGRAM OVERVIEW

### **Program Description**

Through the WQARF Program, the Arizona Department of Environmental Quality (ADEQ) identifies, assesses, and cleans up soil and groundwater that is contaminated with hazardous substances. The program conducts these efforts state-wide using state funds and also oversees privately-funded cleanup efforts. Responsible parties are identified and notified, and then legal and technical evidence is gathered for recovery of ADEQ's costs and enforcement of cleanup requirements.

WQARF was created under the Environmental Quality Act of 1986 to support clean up efforts in the state. The program underwent significant revisions as a result of what is known as the WQARF Reform Legislation of 1997 (Laws 1997, Chapter 287). The major provisions of the WQARF Reform Legislation are as follows:

***Proportionate Liability*** - Liability for the costs of the cleanup of contaminated sites is proportionate, rather than joint. Cleanup costs are proportionately allocated among responsible parties using a process defined in statute. Identification of responsible parties and the allocation of cleanup costs are the responsibilities of ADEQ. A non-judicial allocation hearing process is available for the resolution of disputes regarding ADEQ's allocations.

***Program Funding*** - The adoption of a proportionate liability system increased the need for adequate and dedicated program funding. To ensure that WQARF program funding is sufficient to administer the program and to pay allocated, uncollectible orphan shares, the WQARF reform legislation provided for an annual \$18 million expenditure. The fund is dependent upon the direct transfer of funds from legislative appropriations, corporate income tax, cost recovery, and special fees.

***Site Prioritization*** – Sites are to be prioritized with a greater emphasis on risk to human health. The statute provides a process to score sites according to actual and potential exposure to hazardous substances. This score and other factors are considered when prioritizing the expenditure of WQARF funds.

***Cleanup Methods and Goals*** – WQARF Reform provided for increased flexibility in the selection of groundwater cleanup methods and levels. ADEQ has adopted remedy selection rules that incorporate analysis of a range of cleanup options, from remediation of the contamination to no action. Significantly, the statute clarifies that the cleanup need not always result in the achievement of drinking water standards within the aquifer.

***Community Involvement*** – Enhanced community involvement is required for at all stages of the cleanup process. The statute establishes a process to encourage active community involvement, including provisions for notices, community involvement plans, and the formation of a community advisory board for each site.

***Settlements*** – Prompt settlements as an alternative to litigation are encouraged. ADEQ is authorized to offer a 25 percent discount to responsible parties who settle after the Department provides notice to them of their proportionate share of liability.

In addition to the costs of administering the program and conducting remedial actions, A.R.S. § 49-282(E) authorizes WQARF funding for other uses. Descriptions of the following uses/programs and their accomplishments are discussed later in the report:

- Emergency Response Program
- Water Quality Monitoring Program
- State matching monies or to meet other obligations prescribed by § 104 of CERCLA
- Well Inspections and Approval Program at the Arizona Department of Water Resources
- Risk Assessment Program at the Arizona Department of Health Services

## **Program Process Overview**

Typically, upon addition of a site to the WQARF Registry, numerous investigative, planning, community involvement, risk assessment, and legal steps must be executed before a cleanup can begin. Exceptions to this sequence of steps are made when early response actions are taken to protect human health or the environment. The WQARF Remedy Selection Process is outlined in Appendix 2.

Once in the WQARF program, sites undergo a remedial investigation/feasibility study (RI/FS). An RI/FS is a two-phase investigation conducted by ADEQ or interested parties to investigate the

scope of contamination and determine the alternatives for remediation. During the RI/FS, extensive technical information, that may include soil and groundwater sampling and analysis of both the site property and adjoining areas that may also be contaminated, is collected. The objective of the RI/FS is to gather sufficient data to evaluate and select the most appropriate cleanup alternative for the site. Concurrently, ADEQ is required at most sites to conduct an extensive search to identify potentially responsible parties (PRPs).

During and following the RI/FS, legal negotiations may be undertaken in response to a party's request to settle liability early and to gain access to private properties for investigation or cleanup implementation. Community involvement is emphasized during investigations, prior to development of the proposed remedial action plan (PRAP), and at other times as appropriate depending on site specific issues. These community involvement efforts may include the formation of community advisory boards (CABs) to assist in relaying information and concerns between the public, ADEQ, and interested parties. The Arizona Department of Health Services (ADHS) may also provide input to the remedial investigation through evaluation of potential risks to human health.

Once the FS is completed and cleanup alternatives are identified, a PRAP is developed and is made available for public comment. A record of decision (ROD) documenting the selected cleanup alternative is finalized, followed by a liability allocation process in which past and future remediation costs are distributed among responsible parties.

After the ROD is finalized, extensive remedial system design development and review must be undertaken. Several months to several years may be needed to finalize a design, construct the remedy, and start the actual cleanup. After the remedial system is constructed, operation and maintenance may be conducted as appropriate to the remedy.

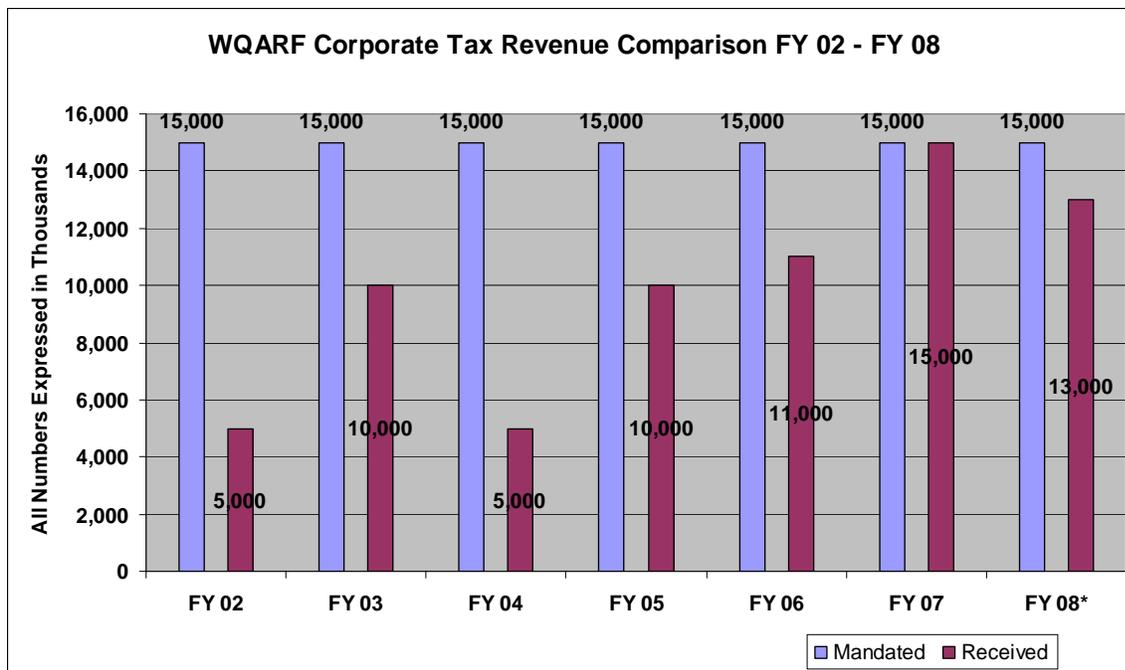
Because formal investigation and remediation can take many years, ADEQ developed a process to address contamination that requires immediate action. The early response action process can be used at any time prior to the implementation of a final remedy. Early response actions may be taken to address any of the following conditions:

- To mitigate an immediate threat to public health or the environment;
- To clean up a source of contamination;
- To prevent migration of contamination to uncontaminated areas; or
- To provide drinking water to residents whose drinking water supply has been contaminated.

## MAJOR ISSUES & ACCOMPLISHMENTS FOR FY 2008

### WQARF Funding

As described earlier in the report, ADEQ's ability to administer and implement the WQARF Program depends on \$18 million per year in dedicated funding. A.R.S. § 49-282(B) specifies that \$15 million of that \$18 million is transferred from the Corporate Income Tax. However, due to budget shortfalls, the WQARF Program received a combined total of \$56 million from the Corporate Income Tax for Fiscal Years 2002 through 2007. Without budget shortfalls, ADEQ would have received a total of \$90 million from the Corporate Income Tax for fiscal years 2002 through 2007. In FY2007, the program received full Corporate Income Tax funding. This is the first time in seven fiscal years this has occurred. As a result, ADEQ exceeded the \$18 million revenue target for the first time and was able to prepare for early response actions at the Klondyke and Cooper and Commerce sites. The program was also able to complete several paramount achievements such as the first consent order at a WQARF site, first environmental lien, first record of decision (ROD), and the first declaration of environmental use restriction (DEUR). During FY2008 the program once again experienced a \$2 million reduction in Corporate Income Tax transfer. The WQARF program's fund balance in FY2008 was additionally reduced by a \$3 million legislated fund transfer. This \$5 million reduction to available resources negatively impacts the program's ability to continue progress at some sites.



## Early Response Actions

ADEQ's WQARF Program continues to place a high priority on early response actions (ERAs) where human health is potentially impacted, where sources of contamination can cause significant environmental impact, or where early actions can save significant WQARF funds by limiting the spread of contamination. In FY2008, the WQARF Program continued operation and maintenance (O&M) on numerous ERAs that were initiated in prior years.

In FY2008, the WQARF Program initiated the following ERAs:

**Central & Camelback:** ADEQ began operation of a soil vapor extraction (SVE) system at the former Maroney's Dry Cleaning facility in November 2007 to remediate tetrachloroethene (PCE) contamination present in the subsurface soils at this site. As of June 30, 2008, the system removed approximately 1,200 pounds of volatile organic compounds (primarily PCE) from the soil. In addition to this ERA, ADEQ continues to operate the groundwater pump and treat system ERA at this site. The system treats approximately 130,000 gallons of groundwater per day.

**Klondyke Tailings:** In response to significant flooding in July 2006, ADEQ conducted a floodplain analysis which revealed that the "upstream" tailings pile was within, and subject to erosion from, the 25-, 50- and 100- year flood events on Aravaipa Creek. ADEQ initiated and completed an ERA of the upper tailings pile in FY08. The ERA completed in June 2008 consisted of consolidation, installation of erosion protection, and capping of the upper tailings pile. Protection of Aravaipa Creek is important as there are seven native species present in The Nature Conservancy Aravaipa Canyon Preserve, including the loach minnow, spokedace, sonoran sucker, desert sucker, speckled dace, longfin dace and roundtail chub. The loach minnow and spokedace are federally-listed Threatened Species and the remainder are Species of Concern. The preserve is located only two miles downstream of the tailing piles.

## WQARF Preliminary Investigation Remedial Actions

**Nogales Grand Avenue (not yet on WQARF registry):** In response to PCE concentrations above aquifer water quality standards detected in Valle Verde's supply wells, ADEQ developed a well inventory of the area, and approximately 30 public and private wells were sampled in December 2007. Concentrations ranged from non-detect to 21 µg/L PCE. Additionally, ADEQ is coordinating with Valle Verde Water Company to design and build wellhead treatment systems on two Valle Verde wells to treat PCE contaminated groundwater. Construction of this system has begun. In parallel to this effort, ADEQ and the City of Nogales reached an agreement for ADEQ to fund building interconnecting pipelines between Valle Verde's water system and the City's water system to act as an emergency backup.

**Main Street and Kofa (not yet on WQARF registry):** ADEQ installed five soil vapor extraction

wells, 19 ozone sparging wells and 20 dual-phase extraction wells. The wells are part of a remediation system that uses three different types of technologies. Due to the site specific technical challenges associated with the area, a remediation system was developed that would be able to clean up contaminants that are trapped in the vadose zone. ADEQ initiated start up of the SVE system in December 2007. Approximately 30,000 pounds (lbs) of volatile organic compounds (VOCs) were removed from the subsurface soils in FY08. ADEQ initiated start up of the dual phase system in February 2008 and approximately 162,000 gallons of water has been processed and 15 gallons of free product recovered. ADEQ initiated the ozone air sparging system in April 2008.

### **Interim Remedial Actions (IRA)**

IRAs are taken at a registry site to protect water supply wells, provide alternative water supplies, replace wells, or for water treatment. ADEQ has been working with the Salt River Project (SRP), Flowing Wells Irrigation District (FWID) and the Tucson Metropolitan Domestic Water Improvement District to implement interim remedial actions (IRAs) at the East Central Phoenix – 48<sup>th</sup> Street and Indian School, Miracle Mile, and Shannon Road/El Camino del Cerro WQARF sites, respectively.

**East Central Phoenix – 48<sup>th</sup> Street and Indian School Road:** As part of an agreement and funding from ADEQ, SRP is managing remediation activities at the site in order to protect a down-gradient SRP production well. A SVE system is in place and, approximately 295 pounds of PCE have been removed since system start-up in February 2006.

**Miracle Mile:** ADEQ entered into a cooperative agreement with FWID to provide wellhead treatment for the removal of VOCs at two FWID production wells. The treatment system was jointly designed and constructed by ADEQ and FWID and incorporated into FWID's arsenic treatment system. The 900 gallon per minute (gpm) system was put into operation in January 2007 and treated approximately 300 million gallons of water in FY08.

**Shannon Road/El Camino del Cerro:** Through a cooperative agreement with Metropolitan Domestic Water Irrigation District, ADEQ has been funding the wellhead treatment and operation and maintenance costs associated with a system designed to treat VOC contaminated groundwater. Approximately 175 million gallons of water were treated and 44 pound of VOCs removed by this system in FY08.

### **Operation & Maintenance (O&M)**

ADEQ continues to conduct or fund operation and maintenance (O&M) activities of the following groundwater pump and treat, soil cap maintenance, and soil vapor extraction systems:

- 7<sup>th</sup> Street and Arizona Avenue (SVE)

- Broadway and Pantano (groundwater pump and treat)
- Central Avenue and Camelback Road (groundwater pump and treat and SVE system)
- East Central Phoenix - 32<sup>nd</sup> Street and Indian School Road (SVE)
- Klondyke Tailings (upper tailings cap protection)
- Payson PCE (groundwater pump and treat)
- Tyson Wash (groundwater pump and treat)
- Vulture Mill (soil cap maintenance)
- Main Street and Kofa [groundwater pump and treat (dual-phase extraction), air sparge/SVE]

### Remedial Investigations (RI)

ADEQ initiated a remedial investigation at the following site in FY08:

- Central and Camelback

### Proposed Remedial Action Plans (PRAP)

- **Tyson Wash:** ADEQ issued the PRAP for public comment on June 4, 2008.
- **Tonto & Cherry:** ADEQ issued the PRAP for public comment on June 23, 2008.

### FY 2008 ACTIVITIES AND ACCOMPLISHMENTS AT WQARF SITES

Summaries are provided below of activities and accomplishments for sites on the WQARF Registry. The revenues and expenditures for the WQARF Program can be found in Appendix 3. A detailed description of activities and accomplishments of the Program can be found in Appendix 4. The 2008 Annual WQARF Registry Report is included in Appendix 5, which provides the site score, location, boundaries, and a brief description of investigation status or remedial action.

### Remediation

- Millions of gallons of groundwater treated:
 

386	Broadway-Pantano
38	Central and Camelback
15	Los Reales Landfill
301	Miracle Mile
67	Payson PCE
1,967	Pinal Creek
174	Shannon Rd/El Camino del Cerro
<u>0.5</u>	Tyson Wash
2,948	<b>FY 2008 Total</b>

- Pounds of volatile organic compounds removed from the environment:
 

77	7 <sup>th</sup> Street and Arizona Avenue
5	Broadway -Pantano
1223	Central and Camelback
10	East Central Phoenix (32 <sup>nd</sup> St. & Indian School)
6	Los Reales Landfill
0.5	Miracle Mile
2.5	Payson PCE
45	Shannon Road/El Camino del Cerro
6	South Mesa
0.3	Tyson Wash
45	West Central Phoenix - East Grand Avenue
<u>348</u>	West Central Phoenix - North Plume
1768	<b>FY 2008 Total</b>
  
- Pounds of metals removed from the environment:
 

<u>2,350,000</u>	Pinal Creek
2,350,000	<b>FY 2008 Total</b>

### Groundwater Wells Installed

- Installed by ADEQ
 

9	20 <sup>th</sup> Street & Factor
2	7 <sup>th</sup> Avenue & Bethany Home Road
2	7 <sup>th</sup> Street and Arizona Avenue
4	Broadway-Pantano
2	Central and Camelback
3	Cooper and Commerce
8	East Central Phoenix (5 sites)
1	Park Euclid
5	Shannon Road/El Camino del Cerro
1	West Central Phoenix North Canal Plume
<u>2</u>	West Van Buren
39	<b>FY2008 Total</b>
  
- Installed by potential responsible party (PRP)
 

<u>2</u>	Los Reales Landfill
2	<b>FY2008 Total</b>

## Groundwater Samples Collected

- Collected by ADEQ/EPA  
1652            **FY2008 Total**  
1653
- Collected by potential responsible party (PRP)  
904            **FY2008 Total**

## Soil/Soil Gas Samples Collected

- Collected by ADEQ  
522            **FY2008 Total**
- Collected by potential responsible party (PRP)  
12            **FY2008 Total**

## Community Involvement Activities

- Fact Sheets:
  - 1 7th Street and Arizona Avenue
  - 1 Broadway-Pantano
  - 1 Los Reales Landfill
  - 1 Miracle Mile
  - 1 Park Euclid
  - 1 Shannon Road/El Camino del Cerro
  - 1 Silverbell Landfill
  - 7 **FY 2008 Total**
- Public Notices (Does Not Include Notices for CAB Meetings):
  - 2 West Van Buren (soil NFA and draft RI)
  - 1 Tonto & Cherry (PRAP)
  - 1 Tyson Wash (PRAP)
  - 4 **FY2008 Total**
- Public Meetings:
  - 3 56<sup>th</sup> Street & Earll
  - 4 Broadway - Pantano
  - 3 Central & Camelback
  - 4 Cooper & Commerce

- 3 East Central Phoenix (6 Sites)
- 2 Klondyke Tailings
- 3 Miracle Mile
- 4 Park Euclid
- 2 Payson PCE
- 4 Shannon Road/El Camino del Cerro
- 1 South Mesa
- 2 Tonto Street and Cherry Avenue
- 3 Tyson Wash
- 2 West Van Buren
- 4 Western Avenue
- 44 **FY 2008 Total**

## Legal Activities

**West Van Buren:** A WQARF Consent order was issued on May 13, 2008 for the Prudential Overall Supply facility.

**Motorola 52<sup>nd</sup> Street OU2:** An Administrative Order of Consent was issued on June 2, 2008 for the ITT facility.

The following summarizes WQARF legal activities for FY2008:

- Total Consent Decrees/Consent Orders completed (ARS § 49-282.G.3):  
**2 FY 2008 Total**
- WQARF Environmental Liens Issued (ARS § 49-295): No WQARF Environmental Liens were issued in FY08.
- Qualified Business or Financial Hardship Settlement applications received [ARS § 49-282(G)(4)(a)]: No applications for qualified business or financial hardship settlements were received in FY 08.
- Qualified Business or Financial Hardship Settlements denied [ARS § 49-282(G)(4)(b)]: No applications for qualified business or financial hardship settlements were denied in FY 08.
- Qualified Business Settlements completed [ARS § 49-282(G)(4)(c)]: No qualified business settlements were completed in FY 2008.
- Financial Hardship Settlements completed [ARS § 49-282(G)(4)(d)]: No financial hardship settlements were completed in FY 2008.
- Prospective Purchaser Agreements Applications Received:  
**6 FY 2008 Total**
- Prospective Purchaser Agreements completed:

**4      FY 2008 Total**

- FY08 Cost Recovery Activity

Description	# of Packages	Dollar Amount	Total Dollar Amount
Packages at the beginning of the year:	0		\$ 0
New Packages:	22		\$ 410,054.80
19 <sup>th</sup> Avenue Landfill	1	\$ 9,503.87	
Honeywell	4	\$ 113,963.28	
Motorola 52 <sup>nd</sup> Street	4	\$ 157,725.69	
North Indian Bend Wash	1	\$ 34,078.48	
Pinal Creek	10	\$ 91,533.29	
United Industrial	2	\$ 3,250.19	
Payments Received	22		(\$ 410,054.80)
Balance at end of year	0		\$ 0

## FY 2008 ACTIVITIES AND ACCOMPLISHMENTS AT FEDERAL SITES

Pursuant to A.R.S. § 49-282(E)(1), WQARF can be used to provide state matching monies or to meet other obligations as prescribed by § 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). WQARF monies are also used for remedial actions at state-lead CERCLA sites which are reimbursed by the responsible parties. Summaries are provided below of activities and accomplishments at federal sites supported by ADEQ.

### Remediation

- Millions of gallons of groundwater treated:
  - 104 Apache Powder
  - 2.2 Hassayampa Landfill
  - 130 Motorola 52<sup>nd</sup> St. - OU1
  - 920 Motorola 52<sup>nd</sup> St. - OU2
  - 4,300 North Indian Bend Wash
  - 489 Phoenix-Goodyear Airport - North
  - 221 Phoenix-Goodyear Airport - South Subunit A
  - 241 Phoenix-Goodyear Airport - South Subunit C

1,938	TARP - Tucson Airport Remediation Project
56	TIAA/Arizona Air National Guard Tucson
8.4	TIAA/Burr Brown
13.6	TIAA/Zone E Three Hangers
<u>660</u>	US Air Force Plant 44, Tucson
9,083	<b>FY 2008 Total</b>

- Gallons of product removed

<u>134</u>	USAF Williams AFB
134	<b>FY 2008 Total</b>

- Pounds of volatile organic compounds removed from the environment:

22,104	Hassayampa Landfill
37,867	Davis-Monthan AFB - TPH (jet fuel)
830	Motorola 52 <sup>nd</sup> Street/OU1
1,090	Motorola 52 <sup>nd</sup> Street/OU2
3,760	North Indian Bend Wash
891	Phoenix-Goodyear Airport/North
92	Phoenix-Goodyear Airport - South Subunit A
8	Phoenix-Goodyear Airport - South Subunit C
278	TARP - Tucson Airport Remediation Project
2.4	TIAA/Arizona Air National Guard Tucson
2.9	TIAA/Burr Brown
2,462	TIAA/Zone E Three Hangers and Vicinity
97.2	US Air Force Plant 44, Tucson
226,000	USAF Williams AFB
<u>1,200</u>	Yuma Proving Grounds
296,685	<b>FY 2008 Total</b>

- Pounds of hazardous substances removed from the environment:

<u>47,668</u>	Apache Powder (nitrate)
47,668	<b>FY 2008 Total</b>

- Pounds of other contaminants removed from the environment:

9.4	Phoenix Goodyear Airport North (perchlorate)
<u>550</u>	Camp Navajo (metals and munitions ordnance)
559	<b>FY 2008 Total</b>

- Tons of contaminated soil removed:

117	Motorola 52 <sup>nd</sup> Street - Honeywell Operable Unit
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<u>1,381</u>	Camp Navajo
1498	<b>FY 2008 Total</b>

### Community Involvement Activities at Federal Sites

- Fact Sheets and Public Notices:
 

<u>2</u>	Motorola 52 <sup>nd</sup> Street
2	<b>FY 2008 Total</b>
  
- Public Meetings:
 

3	Camp Navajo
2	Davis-Monthan AFB
2	Motorola 52 <sup>nd</sup> Street
2	North Indian Bend Wash
4	Phoenix Goodyear Airport North and South
<u>3</u>	Williams AFB
16	<b>FY 2008 Total</b>

### EMERGENCY RESPONSE PROGRAM

Pursuant to A.R.S. 49-282(E) (8), WQARF monies may be used for all reasonable cost incurred for remedial actions taken in response to a release or threat of a release of a hazardous substance or pollutant that presents a threat to public health or the environment.

### FY 2008 Activities and Accomplishments

The Emergency Response Unit (ERU) was notified of 219 incidents, 20 of which required on-scene response actions. The ERU was also involved in several drills and exercises including TOPOFF 4 which was the largest Homeland Security exercise ever held. This exercise involved more than 15,000 participants from federal, state, territorial and local governments, as well as private sector and non-government organizations. In addition to Arizona, the state of Oregon and the U.S. Territory of Guam took part in this four-day exercise. The ERU provided support during the Super Bowl XLII.

Significant emergency response actions include:

Response to Transportation Accident: At the request of the Department of Public Safety, ERU personnel responded to a diesel fuel tanker accident just east of the Colorado River at the intersection of Highways 68 and 95 in Bullhead City. A tanker carrying approximately 6,000 gallons of diesel lost control while traveling east on Nevada Highway 163. After striking a vehicle on the Nevada side of the Colorado River, the vehicle continued on across the bridge and struck

two additional vehicles on the Arizona side before the tanker rolled over at the Hwy 68/95 intersection. It was estimated that 4,000 gallons of diesel fuel were released from the tanker as a result of this accident. Actions taken by response personnel at this incident prevented any of this fuel from entering the Colorado River.

Response to Large Transformer Fire: At the request off the Phoenix Fire Department, ERU personnel responded to a large electrical transformer fire located in a substation just south of Happy Valley Road and the Loop 303. Large volumes of heavy smoke generated by the fire prompted a response by the ADEQ Hazardous Air Emergency Response (HEAR) team. Public utilities officials asked that the fire be allowed to burn itself out because the foam and water needed to extinguish the fire could possibly damage the power grid. On-site ADEQ personnel agreed with that recommendation and the transformer was allowed to burn. It is estimated that between 8,000 and 20,000 gallons of mineral oil were burned during this fire.

A.R.S. 49-282(E) (11) also provides for reimbursement to political subdivisions for cost incurred in response to a release or a threat of a release of a hazardous substance or pollutant that presents an immediate and substantial endangerment to the public health or the environment. There were no new applications received in FY 2008.

### **WATER QUALITY ASSESSMENT AND MANAGEMENT PROGRAM**

Pursuant to A.R.S. § 49-282(E)(3), WQARF monies are used for the costs of monitoring, assessing, identifying, locating, and evaluating the degradation, destruction, loss of or threat to the waters of the state resulting from a release of a hazardous substance to the environment. Pursuant to A.R.S. § 49-282(E)(6), WQARF monies are also used for the costs of the water quality monitoring program described in A.R.S. § 49-225. A description of Water Quality Assessment and Management Program FY 2008 activities and accomplishments can be found in Appendix 6.

### **WELL INSPECTIONS AND APPROVAL PROGRAM**

Pursuant to A.R.S. 282(E)(12) WQARF monies are used to fund the Arizona Department of Water Resources to conduct well inspections and remedial actions, and for the review and approval of well construction design necessary to prevent vertical cross-contamination. The FY 2008 accomplishments of the Well Inspections and Approval Program can be found in Appendix 7.

### **RISK ASSESSMENT PROGRAM**

Pursuant to A.R.S. 282(E)(15) WQARF monies are used to fund the Arizona Department of Health Services to assess and evaluate the effect of a release or a threatened release of hazardous substances to the public health, welfare, or the environment. The FY 2008 accomplishments of the Risk Assessment Program can be found in Appendix 8.

# **APPENDIX 1**

## **FY 2009 WQARF Site Budgets**

## **FY 2009 WQARF Program Projected Budget**

## FY2009 WQARF Site Budgets

Site Name	Budget
16th Street and Camelback	\$71,000
7th Avenue and Bethany Home Road	\$107,000
Central Avenue & Camelback Road	\$480,000
Cooper and Commerce	\$712,000
ECP-24th Street and Grand Canal	\$208,000
ECP-32nd Street and Indian School	\$191,000
ECP-38th Street and Indian School	\$85,000
ECP-40th Street and Indian School	\$183,100
ECP-40th Street and Osborn	\$190,000
ECP-48th Street and Indian School	\$80,000
Estes Landfill	\$41,000
East Washington Fluff	\$200,000
Klondyke Tailings	\$3,046,000
Mountain View	\$13,800
Payson PCE	\$100,000
Tonto & Cherry/Payson	\$125,000
Pinal Creek	\$100,000
South Mesa	\$95,000
Ted's (500K to SAF/rest to WQARF)	\$651,200
Tonto & Cherry	\$20,000
Tyson Wash	\$75,000
WCP - North Canal Plume	\$165,000
WCP - North Plume	\$415,000
WCP - Osborn Complex	\$100,000
WCP - East Grand Ave.	50,000.00
West Van Buren	\$400,000
Western Avenue PCE	\$21,000
Vulture Mill	\$34,000
20th and Factor	\$1,035,000
Miracle Mile	\$405,000
7th Ave and Arizona	\$220,000
Shannon Road-Rillito Creek/El Camino del Cerro	\$660,000
Park Euclid	\$670,000
Broadway Pantano	\$830,000
Nogales Grand Ave.	\$1,305,000
West Cap	\$36,000
<b>Total</b>	<b>\$13,070,100</b>
Less Funding from SAF	\$500,000
	\$12,570,100
<b>Total WQARF Budget FY2009</b>	<b>\$12,570,100</b>

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**FY 09 Projected Spending Plan**  
**July 8, 2008**

EXPENDITURE CATEGORIES	EXPENDITURES FY 2008	FY 09 SPENDING PLAN
<b>Core Expenditures:</b>		
WQARF Professional & Support Staff	4,912.9	5,380.5
Professional & Outside - Remedial Projects	(91.5)	34.0
Hydrologic Support & Assessment	796.6	900.3
Professional & Outside - Hydrologic Support & Assessment	396.8	386.0
Preliminary Investigations	258.3	291.9
Emergency Response	0.0	250.0
Attorney General's Office	932.7	936.4
PRP Identification/Liability	909.6	700.0
Litigation	6.0	0.0
Appeals	0.0	0.0
Advisory Board	0.0	1.0
Rule Development	0.0	0.0
Community Involvement/General WQARF	1.9	5.0
Subtotal - Core Expenditures	8,123.4	8,885.1
<b>Registry Sites</b>		
New Sites		0.0
RI/FS (RI, RO, FS, ERA & IRA Investigations)	3,278.3	10,155.4
Clean-up (PRAP/ROD, all D/C, all O&M)	7,724.1	894.9
Subtotal - Registry Sites	11,002.4	11,050.3
Community Involvement (CAB)	29.8	63.6
Preliminary Investigation	363.1	1,456.2
Subtotal - Registry Sites & PI	11,395.2	12,570.1
Subtotal - WQARF Program	19,518.6	21,455.2
Dept of Health Services - Risk Assessment	(6.7)	100.0
Dept of Water Resource - Appropriation Transfer Out	600.0	600.0
Emergency Response - Aid to Municipalities	0.0	200.0
Voluntary Program	0.0	0.0
<b>Total Disbursements</b>	<b>20,111.9</b>	<b>22,355.2</b>

All figures expressed in thousands.

FY 09 Spending Plan includes full funding less an applied vacancy savings.

## **APPENDIX 2**

### **WQARF Remedy Selection Phase Chart**



## **APPENDIX 3**

### **Revenues and Expenditures**

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
WQARF REVENUES AND EXPENDITURES  
THROUGH THE PERIOD ENDING: 13TH MONTH FY08  
PREPARED BY OFFICE OF FISCAL SERVICES July 29, 2008**

	FY 07 Actual	FY 08 Projection	FY 08 Actual
<b>Balance</b>			
Beginning Fund Balance - WQARF & Priority Sites	6,784.3	11,864.7	11,864.7
Beginning Fund Balance - Site Specific Account	879.4	879.4	879.4
Sub-Total: Funds Available	7,663.7	12,744.1	12,744.1
Prior Year Corporate Income Tax Reversion		(1,029.6)	(1,029.6)
<b>Total: Balance from Prior Year</b>	7,663.7	11,714.5	11,714.5
<b>Revenue Subject to 18M Cap</b>			
Corporate Income Tax	15,000.0	15,000.0	15,000.0
HB2620 SEC20 Appropriated Reduction	0.0	0.0	(2,000.0)
State Assurance Fund	0.0	0.0	0.0
Subtotal	15,000.0	15,000.0	13,000.0
Municipal Water (ARS 42-5302)	2,449.3	2,449.3	2,920.3
Fertilizer Registration (ARS 3-272)	30.7	30.6	49.8
HW Facility Registration Fee (ARS 49-929/49-930)	198.3	198.3	243.0
HW Manifest Resubmittal Fee (ARS 49-922.01)	2.7	2.7	1.4
Industrial Discharge Permit Fee (ARS 49-209)	38.3	38.3	40.3
Pesticide Registration (ARS 3-351)	942.4	942.4	905.3
Quality Assurance Fee (ARS 45-616)	368.0	368.0	280.0
Fees Subtotal	4,029.6	4,029.6	4,440.1
<b>Total: Revenue Subject to 18M Cap</b>	19,029.6	19,029.6	17,440.1
<b>Revenue Not Subject to 18M Cap</b>			
Consent Decrees	490.0	0.0	953.5
Cost Recovery (ARS 49-282)	1,570.6	1,000.0	514.5
Responsible Parties Subtotal	2,060.6	1,000.0	1,468.0
Prospective Purchaser Agreement (ARS 49-285.01)	28.0	0.0	33.5
Interest (ARS 49-282)	478.3	500.0	601.1
Prior Year Reimbursement (ADHS)		0.0	
Other Revenue Subtotal	506.3	500.0	634.6
<b>Total: Revenue Not Subject to 18M Cap</b>	2,567.0	1,500.0	2,102.6
<b>Total: Beginning Balance and Revenue</b>	29,260.3	33,273.7	31,257.2
<b>Expenditures</b>			
Non-Site Expenditures	7,568.4	8,895.8	8,116.7
Site Expenditures	8,347.8	13,327.1	11,395.2
Transfers Out	600.0	800.0	600.0
General Fund Sweep			3,053.1
<b>Total Expenditures</b>	16,516.2	23,022.9	23,165.0
<b>Proposed Carry Forward</b>			
Beginning Balance and Revenue minus Expenditures	12,744.1	10,250.8	8,092.2
Revenue in Excess of 18M Cap to be Reverted			0.0
<b>Uncommitted Balance/Carry Forward</b>	12,744.1	10,250.8	8,092.2

**Note:** All figures expressed in thousands.

## **APPENDIX 4**

### **WQARF Advisory Board Year End Report**



## 2008 WQARF Accomplishments

- No Further Action
  - West Van Buren – ALSCO site
- SVE System Removal Evaluations
  - 7<sup>th</sup> Street and Arizona
  - Shannon Road
- Design and Construction
  - Cooper and Commerce

5

## FY08 Program Results

- Remediated over 2.7 billion gallons of water
- Removed the following contaminants from the environment
  - 60,000 pounds of volatile organic compounds (versus 2,100 pounds removed in FY07)
  - 2.3 million pounds of metals

6

## FY08 Program Activities

- **Operation & Maintenance**
  - Soil Vapor Extraction Systems
  - Pump and Treat Systems
  - Protective caps
- **Remedial Investigations**
  - Groundwater monitoring well installations
  - Groundwater monitoring and sampling

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## FY 08 Working Parties

- Broadway Pantano – City of Tucson
- ECP 48<sup>th</sup> St. & Indian School - SRP
- Shannon Road/El Camino del Cerro –
  - Metropolitan Domestic Water Improvement District
- Los Reales - City of Tucson
- Miracle Mile - Flowing Wells Irrigation District
- Park Euclid - Mission Linen
- Pinal Creek – Pinal Creek Working Group
- Silverbell Landfill - City of Tucson
- WCP East Grand Avenue - Univar
- WCP West Osborn Complex – United Industrial Corporation
- WCP North Plume - Hill Brothers
- West Van Buren – Air Liquide
- West Van Buren - Prudential Overall Supply

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## FY 08 Legal & PRP Activities

- Completed 47 witness interviews
- Completed 3 title reports by parcel
- Issued 7 \$288 information request letters
- Issued 83 \$287.03 notices
- Conducted 1 Industrial Survey
- Completed scanning of 36,921 images
- Issued one WQARF Consent Order
- Issued one Administrative Order on Consent (AOC)
- Currently processing one QBS application
- Prospective Purchase Agreements (PPA)
  - Completed 4
  - Currently Managing 13
- AGO Discussion

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## FY 08 Community Involvement Activities

- Administered 16 statewide CAB/CAGs
- Created 1 new CAB for East Central Phoenix
- Held 44 CAB/CAG meetings, 1 open house, 2 dedication ceremonies
- Developed and disseminated WQARF fact sheets for 7 sites and 6 public notices
- Finalized 2 Community Involvement Plans

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## FY 08 Community Involvement Activities continued

- Exhibited WQARF disclosure information at several Realtors EXPOs
- Participated in over 15 various outreach events
- Conducted the second CAB/CAG Co-Chair Workshop in Phoenix
- Coordinated ADEQ Web Site updates of site narratives and maps
- Generated updated WQARF Spanish/English Glossary for ADEQ Web Site

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## WQARF FY09 Objectives

- Final RI/FS (6 sites)
- Record of Decision (3 sites)
- ERA Implementation (2 sites)
- Decommissioning of SVE systems

12



## WQARF Preliminary Investigation (PI) Program

13

### FY08 PI Status & Program Results

- As of June 2008, there are 17 sites on the WQARF PI List:
  - 11 pending investigations
  - 6 active investigations
- Sites removed from the PI List:
  - Highway 260 & Main St. (Cottonwood)
  - Park Ave. & Broadway (Tucson)
  - Greenfield & Virginia TCE (Mesa)
  - Highway 69 & Kachina Place (Dewey-Humboldt)

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### FY08 PI Program Results- Misc.

- Screens completed for 28 sites
- Completed annual status reviews for all deferred PI sites
- Completed biannual groundwater monitoring at the Alameda & Priest Plume #2 (Budget Cleaners) site

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### WQARF PI Actions

- Main Street and Kofa
  - Multi-phase remediation system installed and began operation in January 2008
    - Over 50,000 lbs of petroleum hydrocarbons removed to date
- Nogales Grand Avenue
  - Wellhead Treatment (Valle Verde Water Company)

16

## FY09 Program Objectives and Issues

- Complete PI in Phoenix
- Complete two PIs in Tempe
- Complete biannual groundwater sampling at two suspended PI sites in Mesa and Dewey-Humboldt
- Continue two PIs in Mesa
- Continue PI in Nogales

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## FY09 Program Objectives and Issues

- Continue to use the Super Screen (covers WOARF and CERCLA) for site screening
- Maintain WOARF PI List
- Complete annual status reviews for all deferred PI sites

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## **APPENDIX 5**

### **FY 2008 Annual WQARF Registry Report**

**Arizona Department of Environmental Quality  
2008 Water Quality Assurance Revolving Fund Registry**

Pursuant to A.R.S. § 49-287.01 (E), the Arizona Department of Environmental Quality (ADEQ) is providing this annual report of the location, remedial status, and score of the sites on the Water Quality Assurance Revolving Fund (WQARF) Registry as of December 31, 2007. The Registry includes those sites within the state that may pose risk to public health, welfare or the environment from the release of hazardous substances and for which there is current or planned investigation and cleanup. There are 35 sites on the WQARF Registry:

22 in Maricopa County,  
7 in Pima County,  
3 in Gila County,  
1 in Graham County,  
1 in La Paz County, and  
1 in Yuma County

Sites on the Registry are scored based in part upon the type of contamination present, the location of the contamination, and the number of people that may be affected. The maximum score a site may receive is 120. Scores are used to help determine relative risk from the site and do not necessarily mean that there is direct exposure of contaminants. Whether the site is currently being remediated or is being investigated, ADEQ takes steps to identify the contamination and to prevent exposure.

The Registry and additional information regarding these sites is available on ADEQ's Web site at <http://www.azdeq.gov/environ/waste/sps/program.html>. With a 24 hour notice, an appointment to review the Registry and additional information is available Monday through Friday from 8:30 a.m. to 4:30 p.m., at ADEQ, Records Management Center, 1110 W. Washington St., Phoenix, AZ. Please contact (602) 771-4380 or 1(800) 234-5677, toll free in Arizona to schedule an appointment.

**7th Avenue and Bethany Home Road** – This site was placed on the WQARF Registry on August 25, 2004 and has a score of 29. The 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 6th Avenue, to the west by 8th Avenue and includes the 2.6-acre former shopping center that housed a dry cleaning facility.

ADEQ initiated an Early Response Action (ERA) Evaluation on the site in October 2004 to collect data necessary to characterize the source area of tetrachloroethene (PCE) contamination below the site. The ERA Evaluation consisted of drilling 10 soil borings and the installation of five soil vapor extraction wells and two groundwater monitor wells at the site. Additional off-site groundwater monitor wells were installed in 2005.

Based on the results of the ERA Evaluation, soil vapor extraction (SVE) was chosen for remediation of PCE contaminated soil beneath the site. The SVE system began operations in June 2005 and the SVE system was shut down in January 2006 after recovering approximately 380 pounds of volatile organic compounds. Confirmation soil samples confirmed that the source area soils had been successfully remediated to levels that are below ADEQ Soil Remediation Levels and Groundwater Protection Levels. Remediation strategies for PCE contaminated groundwater are currently being evaluated and quarterly groundwater monitoring is on-going. 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 regulatory standard.

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

**7th Street and Arizona Avenue** – This site was placed on the WQARF Registry in April 2000 and has a score of 40. The site is located in downtown Tucson at approximately 1/3 mile north of Broadway Boulevard and approximately 3/4 mile east of Interstate 10. The site boundary is a northwest-trending area extending approximately 1,200 feet from the former Oliver's Cleaners facility at 300 E. 7th St. to approximately 150 feet north of 6th Street and approximately 100 feet east of 7th Avenue.

ADEQ is currently operating a soil vapor extraction (SVE) system as an early response action for the site. To date, over 700 pounds of volatile organic compounds have been recovered by the SVE system. Additional monitoring wells are scheduled to be installed and groundwater monitoring activities are on-going. No drinking water wells have been impacted by the contamination from the site. The remedial investigation has not been initiated.

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE).

**16th Street and Camelback Road** – This site was placed on the WQARF Registry in April 1999 and has a score of 23. The site is located in Phoenix and is bounded approximately by Medlock Drive to the north, Highland Avenue to the south, 17th Street to the east and 14th Place to the west.

Based on the results of an Early Response Action Evaluation conducted in 2003, ADEQ determined that soil vapor extraction was not a feasible remedy for the site. ADEQ is currently evaluating other potential remedies for the site, and groundwater monitoring activities are on-going. The remedial investigation has not been initiated.

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

**20th Street and Factor Avenue** – This site was placed on the WQARF Registry in March 2000 and has a score of 31. The site is located in Yuma, approximately 1/2 mile south of 16th Street and approximately 3/4 mile east of 4th Avenue.

In 2002, ADEQ conducted a soil removal action and cleaned out sumps and septic tanks at an active facility as part of an early response action. Groundwater monitoring activities are on-going and no drinking water wells have been impacted by the contamination from the site.

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

**56th Street and Earll Drive** – This site was placed on the WQARF Registry on June 2, 2004 and has a score of 40. The site is located in Phoenix and bounded to the north by Earll Drive, to the south by McDowell Road, to the east by 56th Street, and to the west by 36th Street.

The site was originally investigated as part of the Motorola 52nd Street National Priorities List (NPL) Site. However, groundwater data from both sites indicate that the two trichloroethene (TCE) groundwater contaminant plumes are separate and distinct plumes. Therefore, the site was disassociated from the larger Motorola 52nd Street NPL Site. ADEQ is working cooperatively with a party potentially responsible for the contamination to further evaluate the site and develop a cleanup strategy. An Early Response Action (ERA) Evaluation has been completed, and the working party is currently designing an ERA groundwater pump and treat system. A community advisory board has been established for this site.

Contaminants of concern at the site include TCE.

**Broadway-Pantano** – This site was placed on the WQARF Registry in December 1998 and has a score of 57. The site is located in the east-central part of Tucson and is bounded approximately by

Speedway Boulevard to the north, Pantano Wash to the east, Broadway Boulevard to the south, and Sahuara Avenue (one half mile to the west of Wilmot Road) to the west.

The general groundwater flow direction is to the west. Four Tucson Water production wells have been removed from service as a result of groundwater contaminated with volatile organic compounds (VOCs). A groundwater containment system has been installed to prevent further westward migration of contaminated groundwater and impacts to additional wells. Confirmed sources of the groundwater contamination are the former Broadway North and South Landfills. A soil vapor extraction system was installed at the Broadway North Landfill in 2000 to remove and treat contaminated VOC landfill gases contributing to the groundwater contamination. This system was operated until 2002 and removed over 5,000 pounds of VOCs. The groundwater Remedial Investigation (RI) Report is nearing completion. The landfill RI is still in progress, and a community advisory board has been established for this site.

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), methylene chloride and vinyl chloride.

**Central Avenue and Camelback Road** – This site was placed on the WQARF Registry in June 2000 and has a score of 32. The site is located in Phoenix, and the boundaries of the site are approximately Missouri Avenue to the north, Central Avenue to the east, Pierson Street to the south, and approximately 600 feet west of Central Avenue as the western boundary.

In January 2003, ADEQ completed construction of a groundwater treatment system to remediate and control the migration of contaminated groundwater at the site as an early response action (ERA). The groundwater pump and treat system has been in operation since January 2003 and treats approximately 100 gallons per minute (gpm) of groundwater. In June 2004, ADEQ initiated an ERA Evaluation of the Maroney's Drycleaner facility. Based on the results of the ERA Evaluation, soil vapor extraction (SVE) was proposed for remediation of tetrachloroethene (PCE) contaminated soil beneath the site. The SVE system was installed in November 2007 and is currently in operation. The remedial investigation was initiated in 2007, and a community advisory board has been established for this site.

Contaminants of concern at the site include PCE, trichloroethene (TCE), cis-1,2-dichloroethene (DCE) and vinyl chloride. Other contaminants present due to past releases from gasoline underground storage tanks in the area include benzene, toluene, ethylbenzene, total xylenes, methyl tertiary butyl ether (MTBE), and 1,2-dichloroethane (DCA).

**Cooper Road and Commerce Avenue** – The site was listed on the WQARF Registry on June 14, 2004 and has a score of 33. The site is located in Gilbert near Guadalupe Road and Baseline and is

bounded approximately 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.

Tetrachloroethene (PCE) and trichloroethene (TCE) have been detected in the groundwater at the site. In 2001, groundwater samples collected from a Town of Gilbert monitoring well detected PCE concentrations above the aquifer water quality standard. A Town of Gilbert public supply well is located nearby. Installation of off-site monitor wells began in 2003, and quarterly groundwater monitoring has been conducted at the site since March 2005. ADEQ initiated an Early Response Action (ERA) Evaluation of the site in March 2006 to collect data necessary to characterize the source areas of volatile organic compounds and metals contamination at the site. The ERA Evaluation consisted of drilling and sampling 20 soil borings and installation of two soil vapor extraction/air sparge (SVE/AS) wells, a groundwater extraction well and three soil vapor monitor wells. Construction of the SVE/AS and groundwater pump and treat remediation system was completed in July 2008. A community advisory board has been established for the site.

Contaminants of concern at the site in groundwater include PCE and TCE. Contaminants of concern in the soils at the site include PCE, arsenic, chromium, copper, total petroleum hydrocarbons, mercury, and lead.

**East Central Phoenix (ECP) 24th Street and Grand Canal** – This site was placed on the WQARF Registry in May 2000 and has a score of 29. The site is located in Phoenix, and the current site boundary is a 400 foot diameter area surrounding the Salt River Project (SRP) Well 16E-6.8N, which is approximately 30 feet to the east of 24th Street and ten feet to the north of the Grand Canal.

ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the remedial investigation (RI) for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

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

**ECP 32nd Street and Indian School Road** – This site was placed on the WQARF Registry in May 2000 and has a score of 29. The site is located in Phoenix, and has two separate areas of groundwater contamination. The northwest 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 is approximately 200 feet wide by 500 feet long. The northeastern edge of this 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.

ADEQ initiated a soil vapor extraction (SVE) early response action (ERA) in December 2004, and approximately 3,100 pounds of PCE have been removed through December 2006. ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the RI for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

Contaminants of concern at the site include PCE.

**ECP 38th Street and Indian School Road** – This site was placed on the WQARF Registry in September 1998 and has a score of 25. The site is located in Phoenix, and the approximate site boundaries are Indian School Road to the north, 38th Street to the east, Picadilly Road to the south and 36th Street to the west.

ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the RI for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

Contaminants of concern at the site include PCE.

**ECP 40th Street and Indian School Road** – This site was placed on the WQARF Registry in September 1998 and has a score of 25. The site is located in Phoenix, and the approximate site boundaries are Devonshire Avenue on the north, 40th Street to the east, Amelia Avenue to the south, and 38th Street to the west.

ADEQ conducted an ERA, which consisted of a soil vapor extraction and air sparging system to remediate the source of PCE in the soil and groundwater. The system was started on December 20, 2004 and extracted approximately 35 pounds of PCE from the subsurface. The system was shut down in June 2005.

ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the RI for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

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

**ECP 40th Street and Osborn Road** – This site was placed on the WQARF Registry in May 2000 and has a score of 30. The site is located in Phoenix, and the current site boundary is an 800 foot diameter area surrounding the Salt River Project Well 17.9E-7.5N, which is approximately 400 feet to the west of 40th Street and 50 feet to the south of Osborn Road.

ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the RI for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

Contaminants of concern at the site include PCE.

**ECP 48th Street and Indian School Road** – This site was placed on the WQARF Registry in March 1999 and has a score of 32. The site is located in Phoenix and 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.

ADEQ and SRP have entered into an agreement to conduct a source control interim remedial action (IRA). As part of the IRA, SRP constructed an SVE system to remediate the source of PCE in soil at the site. Approximately 295 pounds of PCE have been removed since start-up in February 2006. Groundwater monitoring activities are currently being conducted at the site.

ADEQ prepared a fact sheet as part of the § 49-287.03 notification to begin the RI for the site. ADEQ sent all § 49-287.03 notices and fact sheets out on June 22, 2007. A community advisory board has been established for this site.

The contaminant of concern at the site is PCE.

**East Washington Fluff** – This site was placed on the WQARF Registry in June 1999 and has a score of 34. The site is located in Phoenix at 433 E. Buckeye Road and is 10 acres in size.

An early response action (ERA) was conducted to remove auto shredder fluff piles and install a protective cap to prevent exposure to contaminants. The ERA was completed in September 2001. The remedial investigation, feasibility study and proposed remedial action plan have been completed. On May 18, 2007, a declaration of environmental use restriction (DEUR) was placed on the site that provides for a non-residential use restriction and acknowledges that there is an engineering control on the site.

Contaminants of concern in soil at the site include arsenic, lead, cadmium and polychlorinated biphenyls (PCBs). The contaminants of concern have not been detected above aquifer water quality standards in groundwater beneath the site.

**Estes Landfill** – This site was placed on the WQARF Registry in April 1998 and has a score of 50. The site is located in Phoenix, south of Sky Harbor Airport and is bounded approximately by the Salt River to the north, Magnolia Street to the south, State Route 153 to the east, and 40th Street to the west.

The remedial investigation, feasibility study and proposed remedial action plan have been completed. ADEQ is evaluating comments on the PRAP and preparing a responsiveness summary. In January 2008, methane and volatile organic compound vapor samples were collected from the landfill.

Contaminants of concern at the site include vinyl chloride, cis-1,2-dichloroethene (DCE), trichloroethene (TCE), benzene, bis(2-ethylhexyl)phthalate, arsenic, barium, chromium, manganese, and lead in groundwater; in soil include lead, arsenic, and thallium.

**Klondyke Tailings** – This site was placed on the WQARF Registry in September 1998 and has a score of 69. The site is located in the unincorporated Town of Klondyke on the north bank of the Aravaipa Creek approximately 4.5 miles upstream of the Aravaipa Canyon Wilderness Area. 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, which is directly adjacent to the tailings piles. The Site is bounded to the east and north by the Klondyke County Road.

ADEQ has completed several studies during the remedial investigation phase of the site investigation including a bioavailability study, biological study, archeological & cultural resources surveys and an acid-base accounting study. Private wells in the area were sampled to help determine the impacts of the tailings on the groundwater. No contaminants were found in the groundwater above regulatory levels. Sampling to determine the extent of off-site soil contamination began in 2006. To date, approximately 2,500 soil samples have been collected from the site and adjacent properties and analyzed by x-ray fluorescence. The limits of the 400 mg/kg residential soil remediation level for lead have been defined to extend approximately 1/2 mile from the site and impact nine properties adjacent to the site.

Early response action activities continue at the site. These activities have included geophysical surveys to identify the presence of buried tanks or drums and minor repairs to the berms on the tailings piles to prevent erosion by rainfall. Aerial photography, topographic mapping, historic aerial photography analysis, floodplain delineation and analysis of the 10, 25, 50 and 100-year floodplains, and a geomorphology study of Aravaipa and Laurel Creeks were done to evaluate possible remedies due to the site's location near these creeks. ADEQ selected gabion mattresses for erosion protection in October 2007. Erosion protection installation began in March 2008. As of June 30, 2008, erosion protection installation is complete on the upper tailings pile, and the clean soil cap has been seeded. A community advisory board has been established for the site.

Contaminants of concern at the site include lead, cadmium, antimony, beryllium, copper, manganese, arsenic, and zinc.

**Los Reales Landfill** – This site was placed on the WQARF Registry in April 1999 and has a score of 32. The site is an active municipal sanitary landfill approximately 380 acres in size located in southeast Tucson and has been in operation since 1967.

The City of Tucson (City) has implemented a groundwater pump and treat system as required by an existing remedial action plan. A portion of the treated water is re-injected into the aquifer and a portion is used for dust control at the landfill. The City has identified additional groundwater contamination at the landfill and has completed additional site characterization. After the full extent of contamination is determined, the groundwater treatment system will be expanded to treat additional contaminated water.

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

**Miracle Mile** – This site was placed on the WQARF Registry in September 1998 and has a score of 62. The site is located in Tucson and is bounded approximately by Wetmore Road to the north, Prince Road to the south, Flowing Wells Road to the east, and La Cholla Boulevard to the west.

The local water provider is operating an ADEQ funded wellhead treatment system as an early response action for the regional aquifer. The Draft Remedial Investigation Report has been completed and submitted for public comment. ADEQ is currently working on finalizing the proposed remedial objectives for the site. A community advisory board has been established for this site.

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

**Park-Euclid** – This site was placed on the WQARF Registry in April 1999 and has a score of 51. The site is in Tucson and is approximately bounded by 9th Street to the north, 14th Street to the south, Santa Rita Avenue to the east, and Park Avenue to the west.

ADEQ is continuing to monitor groundwater conditions upgradient from the University of Arizona water supply wells. A feasibility study has been initiated and a community advisory board has been established for this site.

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE).

**Payson PCE** – This site was placed on the WQARF Registry in April 1998 and has a score of 63. The site is located in Payson and is bounded approximately by Frontier Street to the north, Aero Drive to the south, Beeline Highway (State Route 87) to the east, and McLane Road to the west.

Two groundwater treatment systems have been constructed. The Interim Groundwater Treatment System (IGTS) was constructed to remediate the contamination in the source area. The IGTS was operated from October 1998 to January 2003 and was shut down due to lowered levels of contamination. The Expanded Groundwater Treatment System (EGTS) began operation in October 1998 and continues to operate at the site treating contaminated water and preventing the contamination plume from migrating further. Treated water from the EGTS is delivered to the Town of Payson drinking water system. A soil vapor extraction system was installed in August 2001 and has been shut down after contaminants were removed. The remedial investigation, feasibility study and proposed remedial action plan have been completed. ADEQ completed the record of decision for the site in June 2007. The site is currently in the operation and maintenance phase.

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

**Pinal Creek** – This site was placed on the WQARF Registry in October 1998 and has a score of 97. The site is located in Gila County in and around the communities of Globe, 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 Pinal Creek Group (PCG), which consists of BHP, Phelps Dodge and Inspiration Copper, has been conducting remedial actions including source control since 1988. They have completed remedial investigations, risk assessments, a feasibility study and a recommended remedial action plan. They have also conducted a well replacement program for contaminated private and public supply wells. The PCG has been conducting groundwater extraction and treatment from the alluvial and the regional aquifers since 1988.

Contaminants of concern in groundwater at the site include heavy metals such as aluminum, iron, manganese, copper, cobalt, nickel, zinc, cadmium, and other contaminants such as sulfate, acidity and dissolved solids. Localized soil and stream sediment contamination are being investigated; contaminants of concern include arsenic, lead, copper, cadmium, manganese, nickel and zinc.

**Shannon Road/El Camino del Cerro** – The El Camino del Cerro WQARF Site and Shannon Road-Rillito Creek WQARF Site were administratively combined into one site (the Shannon Road/El Camino del Cerro WQARF Site) in January 2005 based on sampling results showing there is a single plume. The El Camino del Cerro Site was placed on the WQARF Registry in August 1998 and has a score of 71. The Shannon Road-Rillito Creek Site was placed on the WQARF Registry in April 1999, and has a score of 53.

This site is located in northwest Tucson and is bounded approximately by Orange “Grove Road on

the north, Meadowbrook Park on the east (north 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 site consists of industrial and residential properties and a former landfill which occupies approximately 20 acres in the southwest portion of the site.

The contaminant plume has impacted three community wells, which were removed from service. One of these wells now has a wellhead treatment system which removes volatile organic compounds and arsenic in the groundwater in order to meet drinking water standards. The remedial investigation is in progress, and a joint community advisory board has been established for the site.

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride, benzene, and lead.

**Silverbell Landfill** – This site was placed on the WQARF Registry in April 1999 and has a score of 51. The site is located in Tucson at 3200 N. Silverbell Rd. in northwest Tucson. The site is bounded approximately by Sweetwater Drive on the north, Grant Road/Ironwood Hills Drive on the south, Interstate 10 on the east, and Silverbell Road on the west, and is comprised of approximately 40 acres.

The City of Tucson (City) has installed a pump and treat system to extract and clean up groundwater and a soil vapor extraction system to treat soils beneath the landfill as required by an existing remedial action plan. The City is currently evaluating alternative methods for groundwater remediation at the landfill.

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride.

**South Mesa** – This site was placed on the WQARF Registry in August 1998 and has a score of 31. The site is located in Mesa and Gilbert and is bounded approximately by 10th Avenue to the north, Stapley Drive to the east, and the railroad south of Baseline Road to the south and west.

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 in June 2004 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. ADEQ shutdown the SVE system in November 2007 and removed it from the site in June 2008. The remedial investigation (RI) has been completed, and the Draft RI Report is undergoing ADEQ review. A community advisory board has been established for this site.

Contaminants of concern at the site include tetrachloroethene (PCE), chromium, nickel, and manganese.

**Tonto and Cherry** – This site was placed on the WQARF Registry in June 2000 and has a score of 45. The site is located in Payson, approximately 150 feet from Colcord Road just north of Frontier Street. The site boundary is a northwest-trending area, extending approximately 850 feet from the intersection of Colcord Road and Frontier Street.

The remedial investigation and feasibility study reports have been completed. The Proposed Remedial Action Plan was prepared and went out for public comment in July 2008. No public comments were received. ADEQ is currently preparing the Record of Decision for the site. A community advisory board has been established for this site.

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

**Tyson Wash** – This site was placed on the WQARF Registry in December 1998 and has a score of 46. The site is located in the Town of Quartzsite and 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.

As part of an early response action a groundwater treatment system has been constructed and is currently being operated to prevent migration of the plume to private drinking water wells. The remedial investigation has been completed for the site, and the Proposed Remedial Action Plan was completed in June 2008 with no comments received from the public. A community advisory board has been established for this site.

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

**Vulture Mill** – This site was placed on the WQARF Registry in April 1998 and has a score of 65. The site is located just east of U.S. Route 89/93 about one mile northwest of the center of the Town of Wickenburg. The eastern boundary of the site is approximately 1/4 mile west of the Hassayampa River Channel.

The Record of Decision was signed in September 1999, and ADEQ has implemented the remedy, which consists of excavation of contaminated soil, placement in a consolidation pile, installation of a clean soil cover, backfilling with clean soil, and groundwater monitoring and institutional controls for installation of new wells.

Contaminants of concern at the site include lead, arsenic and mercury.

**West Central Phoenix (WCP) East Grand Avenue** – This site was placed on the WQARF Registry in April 1998 and has a score of 31. The site is located in Phoenix and is bounded

approximately by the Grand Canal to the north, 27th Avenue to the east, Thomas Road to the south, and 35th Avenue to the west.

The field investigative activities were completed in December 2001. The Remedial Investigation (RI) Report has been completed. In 2004, a working party constructed and still operates a soil vapor extraction (SVE) system at the former Van Waters & Rogers facility. To date, over 1,000 pounds of volatile organic compounds (VOCs) have been removed. The working party is in the process of completing the feasibility study (FS). A community advisory board has been established for this site.

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

**WCP North Canal Plume** – This site was placed on the WQARF Registry in June 1998 and has a score of 27. The site is located in Phoenix, and the approximate boundaries of this site are Indian School Road to the north, Grand Avenue to the east, West Flower Street to the south, and 40th Avenue to the west.

The RI was initiated in February 2001, and ADEQ conducted early response action (ERA) evaluations in 2005. A Draft RI Report was completed for the project area, and the Final RI Report is in the process of completion. A community advisory board has been established for this site.

Contaminants of concern at the site include PCE, TCE and chromium.

**WCP North Plume** – This site was placed on the WQARF Registry in April 1998 and has a score of 55. The site is located in Phoenix and is bounded approximately by West Highland Avenue to the north, 37th Avenue to the east, Indian School Road to the south and 44th Avenue to the west.

The RI is underway, and an SVE system was installed at the F&B facility as part of an ERA. To date, the SVE system has removed over 41,000 pounds of VOCs. Further ERA evaluations are being conducted to address groundwater contamination. A community advisory board has been established for this site.

Contaminants of concern at the site include PCE and TCE.

**WCP West Grand Avenue** – This site was placed on the WQARF Registry in April 1998 and has a score of 22. The site is located in Phoenix and is bounded approximately by Osborn Road to the north, 31st Avenue to the east, Thomas Road to the south and 35th Drive to the west.

The RI has been completed and a Draft RI Report was completed along with the remedial objectives (ROs) for the site. A community advisory board has been established for this site.

The contaminant of concern at the site is TCE.

**WCP West Osborn Complex** – This site was placed on the WQARF Registry in August 1998 and has a score of 52. The site is located in Phoenix and is bounded approximately by the Grand Canal to the north, 31st Avenue to the east, McDowell Road to the south and 55th Avenue to the west.

A Draft RI Report has been completed as well as the ROs for the site. Work is being conducted to prepare an FS for the project area. A community advisory board has been established for this site.

Contaminants of concern at the site include TCE and PCE.

**West Van Buren** – This site was placed on the WQARF Registry in April 1998 and has a score of 50. The site is located in Phoenix and is bounded approximately by McDowell Road to the north, 7th Avenue to the east, Buckeye Road to the south and 75th Avenue to the west. In addition, a finger shaped plume exists between Seventh Avenue and 27th Avenue between Buckeye Road and Lower Buckeye Road.

Dolphin Incorporated 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. In August 2002, ADEQ issued a no further action (NFA) determination for the former Van Waters and Rogers facility. SVE/AS and groundwater pump and treat remediation systems 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. ADEQ granted ALSCo an NFA determination for soil on March 24, 2008.

The remedial investigation 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. A community advisory board has been established for this site.

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.

**Western Avenue Plume** – This site was placed on the WQARF Registry in December 1998 and has a score of 51. The site is located in Avondale and Goodyear and is bounded approximately by Hill Drive to the north, 3rd Street to the east, and Litchfield Road to the west. The southern boundary proceeds on a southwesterly angle approximately 1000 feet north of State Route 85 until it reaches the western boundary just north of the entrance to the Phoenix-Goodyear Airport.

The Draft Remedial Investigation Report has been completed. ADEQ is currently working on finalizing the remedial objectives for the site. A community advisory group has been established for this site in conjunction with the Phoenix-Goodyear Airport Superfund Site.

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

RI = remedial investigation

FS = feasibility study

ERA = early response action

PRAP = preliminary remedial action plan

ROD = Record of Decision

## **APPENDIX 6**

# **Water Quality Assessment and Management Program**

**WATER QUALITY ASSURANCE REVOLVING FUND**  
**ANNUAL REPORT TO THE JOINT LEGISLATIVE BUDGET COMMITTEE**  
**WATER QUALITY ASSESSMENT AND MANAGEMENT**  
**A.R.S. §§ 49-202 to 49-205; § 49-208; §§ 49-221 to 49-225; § 49-249; § 49-282**

Chris Varga, Manager 771-4665  
ADEQ/Water Quality Division/Surface Water Section

July 1, 2007 through June 30, 2008

**FY 2008 ACCOMPLISHMENTS**

**Water Quality Monitoring and Assessment**

**Surface Water Monitoring § 49-225 (Water quality monitoring) & § 49-282 (Remedial investigations)**

- Integrated Report of the Status of Arizona's Water Quality: This report has been completed and is scheduled for publication in the Arizona Administrative Register on August 22, 2008. This comprehensive report assesses water quality in streams, lakes and groundwater in Arizona's ten watersheds based on data collected since January 1, 2000. From this assessment, those waters not attaining surface water quality standards and/or designated uses are placed on the CWA 303(d) List of "impaired waters" for further investigation and remediation. (§49-225 & §49-282)
- Ambient Surface Water Program: FY08 monitoring focused on the Salt and Verde Watersheds. Approximately 200 samples (50 samples per quarter) were collected from 50 sites. Thirty-four percent of the sites were randomly selected while 66 percent were targeted sites used to fill in data gaps, monitor outstanding Arizona waters, and to monitor sites for reference conditions. The FY09 sample plan has been finalized and focuses efforts in the San Pedro, Santa Cruz, Upper, Middle and Lower Gila watersheds. The Surface Water Section (SWS) continues to fund a Joint Cooperative Agreement with the USGS to sample 11 sites on the large rivers in the state from its gauging stations. Most of the analytical work for this program is performed by the ADHS State Laboratory. Drought continues to significantly impact all surface water monitoring programs. (§49-225)
- Lakes Program: FY08 monitoring was conducted on Saguaro Lake, River Reservoir, Becker Lake, Show Low Lake, Soldier's Annex Lake, Roosevelt Lake, Canyon Lake, Lake Havasu, and Bartlett Lake in support of ongoing studies. The Lakes Program continues to collaborate with the University of Arizona Water Resources Center and the Arizona Game and Fish Department to provide field support in monitoring the Valley drinking water reservoirs (Roosevelt, Apache, Canyon, and Saguaro)(§49-225). The lakes program also sampled 21 lakes throughout Arizona as part of the EPA's National Lake Survey. A lakes classification system, nutrient matrix and implementation procedures have been developed and proposed in the current surface water quality standards rulemaking. These narrative standards, once adopted, will be used in future water quality assessments. (§49-221 & §49-222)
- Priority Pollutant sampling program: No new fish consumption advisories were issued in FY08. However, fish were collected from several lakes and sampled for mercury in on-going investigations which may lead to future advisories.
- Status of ongoing water quality studies (§49-225 & §49-282):

**Pinto Creek-** The proposed 42 ug/L site specific standard (SSS) for dissolved copper is included in the current surface water quality standards rulemaking. It is anticipated that the rulemaking process will be

completed in late 2008. Effectiveness monitoring of the Gibson tributary and sites along Pinto Creek indicate that remediation efforts at the Gibson mine have lowered copper loads emanating from the mine by approximately 30%. However, Pinto Creek below the Gibson tributary still exceeds the current, and the proposed standard, with an average concentration of 380 ug/L.

**Mule Gulch-** Modeling efforts are underway to determine site specific standards (SSSs) for copper, zinc, pH, lead, and cadmium applicable to Mule Gulch. Historic smelting operations are a complicating factor that will be addressed. Modeling is expected to be completed in Fall 2008. Any proposed SSSs will be adopted in a future rulemaking process.

**Queen Creek-** The 2007/08 winter storms provided ample runoff for sample collection. Hydrologic modeling is occurring in-house. Data compilation and verification are nearly complete; once completed, the model runs can begin. The TMDL modeling and associated report is anticipated to be finished by the end of calendar year '08.

**Lake Mary Regional Mercury TMDLs-** (Upper and Lower Lake Mary, Soldier's, Soldier's Annex, and Long Lake). Additional watershed soil sampling was completed to determine the appropriate background level of mercury. The model was rerun at the lower soil concentration to determine how methyl mercury levels in the lakes would be affected. The lake models will be further refined to determine how changes in atmospheric contributions directly to the lake will change methyl mercury levels in the lake. Originally walleye were the target fish species on which load reduction calculations were based; however, recent data suggest that walleye are no longer present in all of the lakes. Coordination with AZ Game and Fish is on-going to resolve this question as a change in target species will affect the TMDL calculations.

**Alamo Lake-** Additional watershed soil sampling was conducted to determine the appropriate natural background levels throughout the watershed. The TMDL model will be rerun to determine how these concentrations affect the loading to the lake.

**Parker Canyon Lake-** Data collection and modeling have been completed. ADEQ is awaiting the draft modeling report to be submitted by the contractor. TMDL completion is anticipated by Spring 2009.

Submittal of the Lake Mary Regional, Alamo Lake, and Parker Canyon mercury TMDLs to EPA Region 9 will be delayed until the adoption of the 0.3 mg/kg fish tissue standard, which is included in the upcoming Water Quality Standards rule package.

**Slide Rock State Park pathogen TMDL phase II** – Data analysis and TMDL calculations are anticipated to begin in late Summer 2008.

**Upper Gila River-** Data analysis has been completed and TMDL reports are being drafted.

**Lower San Pedro-** The sample and analysis plan (SAP) is being implemented. Sample collection will continue through the 2008/09 winter season.

**Santa Cruz River-** The Sampling and Analysis Plan (SAP) is near completion. Coordination continues with the Friends of the Santa Cruz and the National Park Service to collect *E. coli* data and nutrient data along the Santa Cruz River and Nogales Wash

**Lyman Lake-** In-lake sampling and tributary sampling will be completed Summer 2008 if sufficient runoff samples can be collected. Additional lake core analyses are underway to determine near-source mercury contributions.

**Little Colorado River-** Implementation of the Sampling and Analysis Plan is underway with sampling continuing through Summer 2009.

**Boulder Creek Cleanup Project** – Freeport McMoRan has tentatively expressed an interest in accepting the Hillside mine tailings material at their Bagdad facility. ADEQ Waste Program and EPA Region 9 are working on limiting Freeport’s liability should they dispose the material at their facility.

**Turkey Creek-** Effectiveness monitoring has found no exceedances of the total or dissolved copper standards, however total lead still occasionally exceeds standards. Remediation of the Golden Belt and Golden Turkey mines has been successful in removing copper from Turkey Creek.

**Tonto Creek-** Effectiveness monitoring continues through Summer 2008. Once the recent data has been analyzed, the TMDLs will be revised.

**Alum Gulch-** USFS remediation of the World’s Fair and Humboldt Canyon mines waste and tailings piles has been completed. Effectiveness monitoring under baseflow conditions indicates that the adit discharges in the watershed continue to degrade water quality. Stormwater sampling has not been completed, but should reflect any improvements from remedial efforts.

**Rainbow Lake-** ADEQ s sampled the lake during the peak productive season in order to apply the proposed Narrative Nutrient Standard for lakes. A local watershed group has installed buffer strips to reduce the amount of nutrients entering the lake from overland flow.

**Other studies-** Atmospheric Deposition of Mercury- An important component of mercury contamination is atmospheric deposition. Prior studies have relied upon national or regional model data extrapolated to Arizona. The SWS established the first Arizona Mercury Deposition Network (MDN) site in April 2006 and continues to operate the site. The MDN collects weekly precipitation composite samples to determine the wet deposition concentration of mercury. Additionally, to help determine the dry deposition rate of mercury, SWS has worked with US EPA Region 9 to deploy their mobile TEKTRAN equipment at three sites across the state. Previously collected TEKTRAN and MDN data are being analyzed by an EPA contractor to determine local wet and dry deposition rates. Using local deposition rates will increase the strength of mercury TMDLs.

## **Groundwater Monitoring § 49-225 (Water Quality Monitoring)**

Ambient Groundwater Monitoring – The SWS ambient groundwater program achieved the following in FY08:

- Sampling of over 75 wells/springs in Arizona with results provided to well owners
- Sampling for the Agua Fria Basin characterization included sampling 46 wells/springs to characterize the groundwater quality of the Agua Fria basin. A draft report on the Agua Fria study will be routed through ADEQ management in September, 2008.
- Sampling for the Bill Williams Basin included sampling 67 wells/springs to characterize the groundwater quality of Bill Williams basin. This basin is a huge area that stretches from just outside Prescott to the Colorado River; additional samples will need to be collected to adequately profile the area.
- Sampling for the McMullen Valley included sampling 76 wells to characterize the groundwater quality of the McMullen Valley basin. Some of these wells were sampled specifically to examine in depth potential elevated nitrogen concentrations in the Salome area.
- Completing final groundwater reports for the Hualapai Valley Basin and the Pinal Active Management Area.

- Entering approximately 5,711 water quality results into groundwater water quality database.

### **Pesticide Program § 49-249 (Pesticides)**

- The pesticide groundwater monitoring program continued its improved frequency and scope in '08 to acquire new baseline data for newly-emerging pesticides using the ASDH Laboratory's modern analytical technology with low detection limits. Well matching data confirmation has been completed, and new results of sampling are being compared to existing database information to establish trends in pesticide concentrations. A list of five "Pesticides of Concern" has been developed based on detections of the active ingredients in Arizona groundwater. The detections are still in very low concentrations (<1 ppb), but ADEQ has initiated preliminary discussions with the Arizona Department of Agriculture and other stakeholders on how to develop Best Management Practices (BMPs) to mitigate or eliminate these detects in groundwater. Plans are in progress to expand groundwater monitoring beyond the vulnerable areas in Yuma and Maricopa counties to similar areas in Cochise and La Paz counties. This may involve future installation of dedicated monitoring wells.
- The Pesticide Program continues to maintain an information submittal and review database for the pesticide data call-in program. Seventeen new pesticide active ingredients were added to the database in FY 08.
- Implementation of the new rules regarding pesticide registration has been completed. These rules provide for the use of expanded information and newer EPA protocols, modeling, and new science in determining whether a pesticide being registered in Arizona has the potential to leach and pollute groundwater. This streamlining has facilitated the pesticide registration process and the improvement has been noted by stakeholders. Most applications were completed within the approved time frames. Another significant change was removal of the GWPL ("List") from the rules which allow for timely addition and deletion of chemicals to and from the list as needed. The draft 2008 GWPL was published in the *Arizona Administrative Register* in July 2008 for public review and comment prior to finalization. The final 2008 List contains 72 active ingredients (3 additions) compared to 69 active ingredients on the 2007 List. The new List takes effect on December 1, 2008.

### **Quality Assurance/Quality Control (QA/QC) Activities**

- Served as WQD representative on QA/QC Advisory Committee for the redrafting of the agency's Quality Management Plan (QMP).
- The Surface Water Section (SWS) redrafted an integrated and comprehensive Quality Assurance Program Plan (QAPP) that covers SWS monitoring programs. This document was submitted to EPA for approval in June 07.

### **Other Technical Activities: § 49-202 through § 49-205**

- Continuing coordination with the remedial programs in Waste Programs Division to capture WQARF, CERCLA and UST groundwater quality data.
- Continue to develop performance measurement tools to determine effectiveness of several water quality programs including nonpoint source pollution control, best management practices and enhanced application of WQIP grants program to reduce impacts of pollutants in impaired areas (§49-225).

## **APPENDIX 7**

# **Well Inspection and Approval Program**

**Arizona Department of Water Resources  
Arizona Water Quality Fund  
Year-End Review Outline  
Fiscal Year 2008**

**1. Name of Program**

Arizona Water Quality Fund, Water Quality Assurance Revolving Fund Support Program, Arizona Department of Water Resources (ADWR), Hydrology Division, Water Quality Unit

**2. ADWR WQARF Support Program Objectives**

- Provide technical review of well applications (Notices of Intent to Drill or Abandon and Groundwater Withdrawal Permits)\* and consult with Arizona Department of Environmental Quality (ADEQ) regarding new wells near contaminant sites.
- Conduct well inventories to support ADEQ's WQARF Program.+
- Coordinate with ADEQ regarding database needs in support of ADEQ's WQARF Program.\*
- Establish mechanism to exchange verified well locations and GPS measurements within ADWR's Well Registry (WELLS55) database.+
- Perform other WQARF and water quality activities as required by statute, rule, or Interagency Service Agreement (ISA).

\*Required by statute or rule

+Recommended by Groundwater Cleanup Task Force

**3. ADWR WQARF Support Program Accomplishments: Fiscal Year 2008**

- Well application and withdrawal permit review:
  - Reviewed 3975 Notices of Intent (NOI) to Drill, Modify, or Abandon a Well for proximity to a WQARF/CERCLA or other contaminated sites (estimate for FY).
  - Performed technical review of 935 NOIs to Drill or Abandon wells near or within WQARF/CERCLA sites for water quality concerns and well construction (estimate for FY).
  - Reviewed 206 permit applications to withdraw groundwater, including Poor Quality Ground Water Withdraw Permits for remediation projects (estimate for FY).
- Well inventories:
  - Payson PCE – Reconciled database conflicts. 100% complete
  - 20<sup>th</sup> and Factor, Yuma – Prepared and submitted electronic data and letter

report to ADEQ. Resolved database conflicts. Some new data issues have surfaced, currently being resolved. 95% complete

- Vulture Mill, Wickenburg – Completed post-fieldwork quality control review. Submitted electronic data and letter report to ADEQ. Awaiting comments from ADEQ. 95% complete
- Central Phoenix – Comprised of three WQARF sites (7<sup>th</sup> Avenue and Bethany Home Road, Central and Camelback, and 16<sup>th</sup> Street and Camelback). Completed fieldwork and currently doing data review, database upload, and preparing ADEQ data submittal and report. 85% complete
- Other WQARF and Water Quality Activities
  - Submitted monthly and quarterly reports to ADEQ and the WQARF Advisory Board as required by the ADEQ-ADWR ISA.
  - Submitted annual report on ADWR WQARF activities to the Governor, Legislature, and WQARF Advisory Board for fiscal year 2007.

**4. Statement of Revenues and Expenditures – Fiscal Year 2008**

**Arizona Water Quality Fund**

**Statement of Revenues and Expenditures  
Fiscal Year 2008 for the period through June 2008**

(Estimate based on actual expenditures through  
May 2008 and projected expenditures in June 2008)

Description	Amount
<b>Funds Available</b>	
Balance Forward 07/01/07	\$ 409,694
Transfer from ADEQ	600,000
Earnings on Investments (estimate)	23,000
<b>Total Funds Available</b>	<u>1,032,694</u>
<b>Expenditures</b>	
Personal Services	241,810
Employee Related Expenditures	71,550
Professional & Outside Services	-
In State Travel	16,000
Out of State Travel	-
Other Operating Expenditures	14,000
Capital Equipment	-
Non-Capital Equipment	5,000
Indirect	150,804
<b>Total Expenditures</b>	<u>499,164</u>
<b>Fund Balance (06/30/08 estimate)</b>	<u>\$ 533,530</u>

5. **ADWR WQARF Support Program Activities: Fiscal Year 2009**

- Continue technical review of Notices of Intent to Drill, Abandon, or Modify a Well for water quality concerns and for compliance with applicable well construction requirements to prevent vertical cross-contamination between aquifers.
- Continue technical review of Groundwater Withdrawal Permit Applications for potential impacts to other wells of record from plume migration, and for compliance with applicable well construction requirements to prevent vertical cross-contamination between aquifers.
- Complete backlog of in process well inventories (Central Phoenix).
- Conduct well inventories at East Central Phoenix WQARF sites.
- Continue to coordinate with ADEQ regarding database needs in support of the WQARF Program.
- Continue to prepare monthly, quarterly, annual and other reports as specified in the Inter-agency Service Agreement for fiscal year 2009.
- Submit annual report on ADWR WQARF activities to the Governor, Legislature, and WQARF Advisory Board for fiscal year 2008.

6. **ADWR Budget - Fiscal Year 2009**

**Arizona Water Quality Fund  
Budget - Fiscal year 2009**

Description	Amount
<b>Funds Available</b>	
Balance Forward 07/01/08 (estimate)	\$ 533,530
Transfer from ADEQ	500,000
<b>Total Funds Available</b>	1,033,530
<b>Expenditures</b>	
Personal Services	266,486
Employee Related Expenditures	89,541
In State Travel	16,000
Other Operating Expenditures	7,459
Non-Capital Equipment	5,000
Indirect	178,014
<b>Total Expenditures</b>	562,500
<b>Fund Balance (06/30/09 estimate)</b>	\$ 471,030

# **APPENDIX 8**

## **Risk Assessment Program**

## FY 07-08 Risk Assessment Summary

Arizona Department of Health Services  
Risk Assessment & Health Consultation Program

Office of Environmental Health  
(602) 364-3118  
150 N. 18<sup>th</sup> Avenue, Phoenix, AZ

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## Program Objectives

- Program Created by A.R.S. §36-(1691-1694)
  - Analyze health risks from environmental exposure
  - Provide independent evaluation of strategies to prevent health risks from environmental exposures
  - Provide the ADEQ and others with information to address potential public health risks from environmental exposures

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## ADEQ/ADHS ISA Agreement

- ISA calls for \$15,000 minimum quarterly payments, maximum \$25,000
  - Extra \$10,000 is dependent on additional amount of work
- ISA is used to provide availability of ADHS staff on demand
  - 4 staff funded = ~ 0.6 FTE (\$60,000 annually will provide this base availability)

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## FY 07-08 ISA Accomplishments

- No specific assignments received from ADEQ programs under ISA.

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## FY 07-08 Non ISA Projects

- Health Consultations under Agency for Toxic Substances and Disease Registry (ATSDR) Cooperative Agreement Grant
  - Valle Verde Water Company, Nogales, Santa Cruz County
  - Aggregate Products Company, Glendale, Maricopa County
  - Tierra Verde Lake, City of Litchfield Park, Maricopa County
  - North Indian Bend Wash, Scottsdale, Maricopa County

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## FY 06-07 Non ISA Projects Cont.

- Technical Assists
  - NIBW Health Review Study
  - NIBW Hearing
  - Campo Bello School
  - TopOff 4 Exercises
  - CARE – Gila River Indian Community
  - Sanitarian's Conference

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## FY 06-07 Non ISA Projects Cont.

- Technical Assists (cont.)
  - Elsworth Elementary School
  - Tucson Indoor Air Quality
  - Mobile, AZ Tire Pile
  - Corona del Sol
  - Formaldehyde
  - Asbestos

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## FY 06-07 Budget & Expenditures

Category	Budget	Spent	Est. Unused
Personnel	55,000	17,526	37,474
Benefits	16,445	5,258	11,185
Travel	1,000	0	1,000
Operations	6,831	0	6,009
Indirect	20,724	6,926	14,622
<b>Total</b>	<b>\$100,000</b>	<b>\$29,710</b>	<b>\$70,290</b>

As of 6/12/2008, ADHS received \$48,357.02 and estimates returning \$18,647.02

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## FY 08-09 Budget

Category	Budget
Personnel	55,000
Benefits	17,600
Travel	1,000
Operations	3,706
Indirect	22,694
<b>Total</b>	<b>\$100,000</b>

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