



**Water Quality Assurance  
Revolving Fund**

**Annual Report  
Fiscal Year 2011**

**September 2011**

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This annual report has been prepared pursuant to SB1612, Section 31 of Laws 2011, Chapter 24 making appropriations for the different departments of the state, for state institutions and for public schools; providing for certain reporting requirements. SB1612 requires that a report on the Water Quality Assurance Revolving Fund (WQARF) along with specific site budgets for FY2012 be submitted to the Joint Legislative Budget Committee (JLBC) members and to the Director of the JLBC by September 1, 2011. The FY2012 WQARF site budgets and FY2012 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, 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 cleanup 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 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 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 is collected, that may include soil and groundwater sampling and analysis of both the site property and adjoining areas that may also be contaminated. 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 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 2011

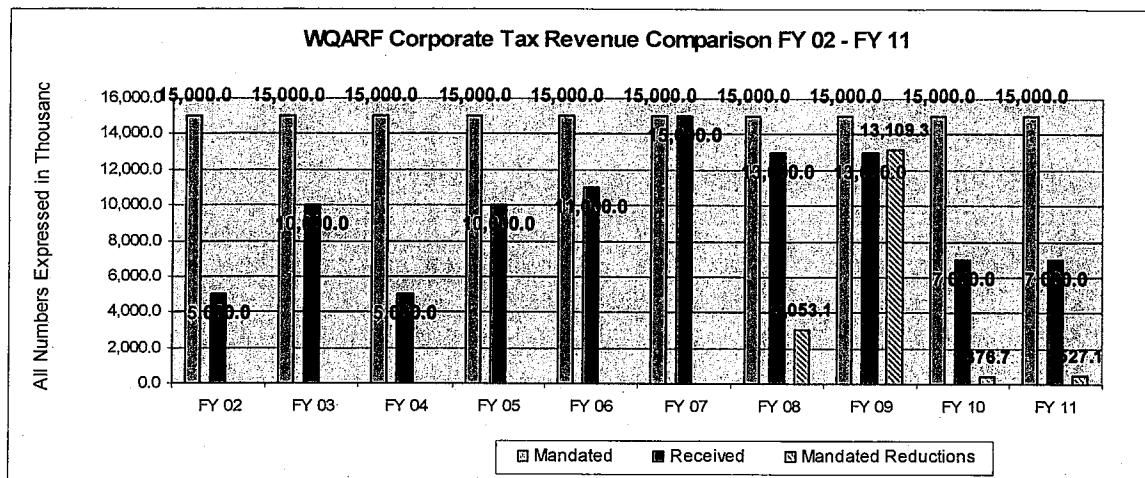
### **WQARF Funding**

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 Corporate Income Tax revenue. However, due to budget shortfalls, the WQARF Program received \$54 million less in Corporate Income Tax revenue for fiscal years 2002 through 2011 and funding was further reduced by legislative fund transfers in the amount of \$17 million. The only time during the last 10 fiscal years that the program received full Corporate Income Tax funding was in FY2007. In FY2007 ADEQ was able to prepare for early response actions at the Klondyke and Cooper and Commerce WQARF sites. The program was also able to complete several significant activities that year such as the first consent order at a WQARF site, first environmental lien, first ROD, and the first declaration of environmental use restriction (DEUR).

During the last four fiscal years the WQARF program's fund balance has been reduced by \$37 million through reductions in Corporate Income Tax transfers and legislative fund transfers. During FY2011 the Corporate Income Tax transfer was reduced by \$8 million and the program's fund balance was additionally reduced by legislative fund transfers of \$527,100.

The \$37 million reduction over the last four fiscal years has significantly delayed cleanup at WQARF sites. Although in FY2011 ADEQ was able to fund 13 sites where treatment systems were actively operating or being maintained, all other WQARF process activities at these sites were severely limited (e.g., groundwater monitoring, feasibility studies, design and construction of remediation systems, etc). This reduction in WQARF funding has had a negative impact on all sites and thus, in FY2011, many goals were not achieved.

The chart below depicts Corporate Income Tax funding of the WQARF program during the past ten fiscal years and also accounts for the additional reduction in program funding that resulted from the legislative fund transfers.



The following is a summary of FY2011 WQARF accomplishments:

### Early Response Actions (ERA)

ADEQ's WQARF program continues to place a high priority on early response actions (ERAs) at sites where human health is potentially impacted, where sources of contamination can cause significant environmental impact, or where early actions can reduce potential future costs to the WQARF program by limiting the spread of contamination. In FY2011, the WQARF program continued operation and maintenance (O&M) on numerous ERAs that were initiated in prior years.

In FY2011, the WQARF Program initiated the following ERA:

**56<sup>th</sup> Street and Earll Drive, Phoenix:** On April 22, 2011, ADEQ and Freescale Semiconductor, Inc. signed a Consent Order to design and implement an ERA for PCE groundwater contamination.

### Preliminary Investigation Remedial Actions (PI)

**Nogales Grand Avenue (not on WQARF registry), Nogales:** ADEQ coordinated with Valle Verde Water Company to design and build a wellhead treatment system on Valle Verde wellhead #2 to treat tetrachloroethene (PCE) contaminated groundwater. Construction of the wellhead treatment system for wellhead #2 (granular activated carbon treatment) was completed and became operational in October 2008. In addition the City of Nogales and Valle Verde emergency water interconnection (Interconnect) pipeline was completed in February 2009. Since startup of the

system, Wellhead #2 treated over 127 million gallons of groundwater. Valle Verde has completed construction of the elevated pad for the remediation system at Well #2 as required by Santa Cruz County Flood Control District.

**Main Street and Kofa (not on WQARF registry), Quartzsite:** ADEQ has installed 44 wells that are part of a remediation system that uses three different types of technologies. ADEQ initiated operation of the SVE system in December 2007. Approximately 2,579 pounds of volatile organic compounds (VOCs), were removed from the subsurface soils in FY2011 and the system has removed 91,516 pounds of VOCs since startup in February 2008. The dual phase system treated approximately 3,130,000 gallons of water in FY2011 and has treated more than 9,383,598 gallons of water since startup in February 2008. In addition, 233 gallons of free product were recovered during FY2008 and FY2009.

**7<sup>th</sup> Avenue and Missouri Road (not on WQARF registry), Phoenix:** In June 2010, ADEQ installed two monitor wells on the Cinema Park Property and one monitor well in the City of Phoenix right-of-way to further assess releases of PCE and TCE. PCE was detected in groundwater samples from the new wells west and northeast of the Cinema Park Property. In September 2010, monitoring included measuring depth to water and obtaining groundwater samples from the Salt River Project (SRP) well (342 14E-9.6N), six the wells owned by Circle K (Conoco Phillips) and three newly installed wells owned by ADEQ. The average depth to groundwater is 87 feet below ground surface. PCE ranged from non-detect to 802 µg/L. TCE ranged from non-detect to 7.72µg/L. The SRP well had PCE at 67.9 µg/L and TCE at 1.88 µg/L. Petroleum hydrocarbons and trihalomethanes were also detected in some of the samples. In June 2011, ADEQ took over ownership of the six monitor wells owned by Circle K (Conoco Phillips) to enable ADEQ to have additional monitoring wells for the site.

### **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:** 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 305 pounds of PCE have been removed since the system started operation 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 88 million gallons of water and removed 1 pound of VOCs in FY2011.

**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 203 million gallons of water were treated and 39 pounds of VOCs removed by this system in FY2011.

### **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 in FY2011:

- Broadway and Pantano (groundwater pump and treat)
- Central Avenue and Camelback Road (groundwater pump and treat and SVE system)
- Cooper and Commerce Avenue (groundwater pump & treat, SVE and air sparge)
- Miracle Mile (Flowing Wells wellhead treatment)
- Nogales Grand Avenue (Valle Verde wellhead treatment)
- Shannon Road/El Camino del Cerro (Metro Water wellhead treatment)
- Tyson Wash (groundwater pump and treat)
- Vulture Mill (soil cap maintenance)
- Main Street and Kofa [groundwater pump and treat (dual-phase extraction), ozone air sparge/SVE]
- West Central Phoenix - North Plume/F&B Manufacturing Co. (SVE)
- Mountain View Estates former NPL site (soil cap maintenance)

### **Remedial Investigations (RI)**

ADEQ initiated a remedial investigation at the following site in FY2011:

- None

ADEQ completed a remedial investigation at the following site in FY2011:

- 7<sup>th</sup> Avenue and Bethany Home Road

### **Feasibility Studies (FS)**

ADEQ initiated a feasibility study at the following sites in FY2011:

- 7<sup>th</sup> Avenue and Bethany Home Road

ADEQ completed a feasibility study at the following site in FY2011:

- None

### **Proposed Remedial Action Plan (PRAP)**

ADEQ completed a proposed remedial action plan at the following site in FY2011:

- None

### **Record of Decision (ROD)**

ADEQ issued a Record of Decision at the following site in FY2011:

- None

### **Parties conducting work with ADEQ oversight**

The following parties are conducting site investigations and remedial activities at WQARF sites with ADEQ project manager oversight. The work is being paid for by the parties and ADEQ costs are recoverable.

- West Van Buren WQARF site work is being conducted by Air Liquide America Specialty Gases LLC under an Amended Consent Order.
- West Van Buren WQARF site work is being conducted by Prudential Overall Supply under an Amended Consent Order.
- West Van Buren WQARF site work is being conducted by Roosevelt Irrigation District under a working agreement.
- 56<sup>th</sup> Street and Earll WQARF site work is being conducted by Freescale Semiconductor, Inc. under a Consent Order.
- West Central Phoenix – East Grand Avenue WQARF site work is being conducted by Univar under a working agreement.
- West Central Phoenix – West Osborn Complex WQARF site work is being conducted by United Industrial Corporation under a settlement agreement.
- Pinal Creek WQARF site work is being conducted by Freeport McMoRan Inc. as successors of interest under a consent decree.
- Pinal Creek WQARF site work is being conducted by the Pinal Creek Working Group under a consent decree.

- Pinal Creek WQARF site work is being conducted by BHP under a consent decree.
- Los Reales Landfill WQARF site work is being conducted by the City of Tucson under a remedial action plan
- Silverbell Landfill WQARF site work is being conducted by the City of Tucson under a remedial action plan

## FY 2011 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. Updates on the WQARF Registry Sites can be found in Appendix 4, which provides the site registry score, location, boundaries, and a brief description of investigation status or remedial action.

### **Remediation**

- Millions of gallons of groundwater treated:
 

320	Broadway-Pantano
20	Central and Camelback
38	Cooper and Commerce
46	Los Reales Landfill
88	Miracle Mile
56	Payson PCE
2,793	Pinal Creek
203	Shannon Rd/El Camino del Cerro
<u>1</u>	Tyson Wash
3,565	<b>FY 2011 Total</b>
- Pounds of volatile organic compounds removed from the environment:
 

2	Broadway -Pantano
425	Central and Camelback
473	Cooper and Commerce
3	Los Reales Landfill
1	Miracle Mile
1	Payson PCE
39	Shannon Road/El Camino del Cerro
<u>682</u>	West Central Phoenix - North Plume
1,626	<b>FY 2011 Total</b>

- Pounds of metals removed from the environment:

<u>2,039,544</u>	Pinal Creek
2,039,544	FY 2011 Total

#### Groundwater Wells Installed

2	Cooper and Commerce
4	Los Reales Landfill
6	Miracle Mile
5	Silverbell Landfill
<u>2</u>	Tyson Wash
19	FY2011 Total

#### Soil Vapor Wells Installed

1	Cooper and Commerce
<u>6</u>	Silverbell Landfill
7	FY2011 Total

#### Groundwater Samples Collected

1,450

#### Soil/Soil Gas Samples Collected

265

#### Community Involvement Activities

- Fact Sheets:  
0 FY 2011 Total
- Public Notices (Does Not Include Notices for CAB Meetings):  
2 7<sup>th</sup> Avenue and Bethany Home Road (solicitation of remedial objectives and Final RI report release)  
1 Cooper and Commerce (well drilling notice)  
1 South Mesa (solicitation of remedial objectives and comment period on draft RI report)  
1 West Van Buren (availability of proposed remedial objectives report)  
5 FY2011 Total
- Public Meetings:  
2 7<sup>th</sup> Avenue and Bethany Home Rd  
1 56<sup>th</sup> Street and Earll

1 Central and Camelback  
4 Cooper & Commerce  
1 West Van Buren  
7 Western Avenue  
16 FY 2011 Total

## Legal Activities

**56<sup>th</sup> Street and Earll Drive:** Freescale Semiconductor, Inc. signed a WQARF Consent Order with ADEQ.

**Broadway-Pantano:** In FY2009, ADEQ filed in the United States District Court in Tucson, Arizona a petition to perpetuate the testimony of one Ernest "Joe" Blankenship, an 81 year-old self-employed salvager who would testify about his solvent collection, recycling, disposal and sales activities from the end of World War II to around 1980. The deposition of the witness was conducted in FY2010. The direct examination of the witness was conducted in FY2011. The cross-examination of the witness was also conducted in FY2011, during 15 days during the months of January and June 2011. The cross-examination of the witness will be completed in FY2012.

In FY2011, ADEQ lodged 19 Consent Decrees in U.S. District Court with 23 companies to pay a total of \$542,000. The companies and settlements are: General Dynamics Corp. \$150,750; Goodyear Tire and Rubber Co./Lockheed Martin Corp. \$90,750; Tucson Dodge Inc. \$66,000; Textron Inc./ABB, Inc./Combustion Engineering, Inc. and R.E. Darling Co. Inc. \$30,000 each; Holmes Tuttle Ford, Inc. and Pima County Community College \$24,000 each; and Texas Instruments Inc. \$16,500. In addition, 12 companies will pay settlements of \$10,000 - Ashton Co. Inc.; Baldor Electric Co.; Don Mackey Oldsmobile-Cadillac Inc.; Dunn Edwards Corp.; Durodyne Inc.; Fersha Corp.; Fluor Enterprises Inc.; Industrial Pipe Fittings LLC/Tucson Foundry & Manufacturing Inc. (the two will pay a combined total of \$10,000); Rowe Enterprises Inc.; Rollings Corp.; and Warner Propeller & Governor Corp., LLC.

ADEQ requested the Court to enter the Consent Decrees on March 13, 2011. This motion has not been ruled on. Three Motions to Intervene have been filed by various parties: the City of Tucson filed on December 8, 2010; The Arizona Board of Regents; Raytheon Company; Tompkins Industries, Inc.; Tucson Airport Authority; and, Tucson Electric and Power filed on March 11, 2011; and Pima County filed on May 13, 2011. All motions were granted by the Court. There have been no further filings or rulings by the Court. Because there has been no ruling from the Court on ADEQ's Motion to Enter, ADEQ filed a Motion for Status Conference.

**West Van Buren:** Air Liquide LLC and Air Liquide America Specialty Gases LLC signed a WQARF Amended Consent Order with ADEQ.

Motorola 52<sup>nd</sup> Street OU2: Administrative Orders on Consent (AOCs) are being negotiated for Areas 9, 13 and 21 with Honeywell International, Inc.

- Total Consent Decrees/Consent Orders completed (ARS § 49-282.G.3): 19 Consent Decrees, one Consent Order, and one Amended Consent Order
- WQARF Environmental Liens Issued (ARS § 49-295): No WQARF Environmental Liens were issued in FY2011.
- Qualified Business or Financial Hardship Settlement applications received [ARS § 49-282(G)(4)(a)]: One application for a financial hardship settlement was received in FY2011: ChemResearch Co., Inc.
- 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 FY2011.
- Qualified Business Settlements completed [ARS § 49-282(G)(4)(c)]: No qualified business settlements were completed in FY 2011
- Financial Hardship Settlements completed [ARS § 49-282(G)(4)(d)]: No financial hardship settlements were completed in FY 2011.
- Prospective Purchaser Agreements Applications Received:  
3      FY 2011 Total
- Prospective Purchaser Agreements completed:  
0      FY 2011 Total

### FY2011 Cost Recovery Activity

Description	# of Packages	Dollar Amount	Total Dollar Amount
Packages at the beginning of the year:	0		\$ 0
New Packages:	39		\$ 358,179.30
19 <sup>th</sup> Avenue Landfill	1	\$ 47,596.21	
Air Liquide	2	\$ 3,439.02	
Asarco-Hayden	4	\$ 11,038.11	
Former 107 <sup>th</sup> Air Control Squad	1	\$ 14,615.00	
Honeywell	4	\$ 12,994.38	
ITT-Canon	2	\$ 2,548.29	
Motorola 52 <sup>nd</sup> Street	6	\$ 119,174.52	
North Indian Bend Wash	1	\$ 42,589.34	
PGA-South	4	\$ 42,440.39	
Pinal Creek	10	\$ 51,743.21	
Prudential	2	\$ 3,277.51	
United Industrial	2	\$ 6,723.32	
Payments Received	39		(\$358,179.30)
Balance at end of year	0		\$ 0

### FY 2011 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:
  - 66 Apache Powder
  - 2 Hassayampa Landfill

65	Motorola 52 <sup>nd</sup> St. - OU1
1,152	Motorola 52 <sup>nd</sup> St. - OU2
5,598	North Indian Bend Wash
1,152	Phoenix-Goodyear Airport - North
439	Phoenix-Goodyear Airport - South
1,972	TARP - Tucson Airport Remediation Project
57	TIAA/Air National Guard Tucson
37	TIAA/Zone E Three Hangers
<u>829</u>	US Air Force Plant 44, Tucson
11,369	<b>FY 2011 Total</b>

- Pounds of volatile organic compounds removed from the environment:

21,077	Hassayampa Landfill
770	Motorola 52 <sup>nd</sup> Street/OU1
859	Motorola 52 <sup>nd</sup> Street/OU2
2,825	North Indian Bend Wash
1,072	Phoenix-Goodyear Airport/North
66	Phoenix-Goodyear Airport - South
214	TARP - Tucson Airport Remediation Project
2	TIAA/Arizona Air National Guard Tucson
330	TIAA/Zone E Three Hangers and Vicinity
<u>123</u>	US Air Force Plant 44, Tucson
27,338	<b>FY 2011 Total</b>

- Pounds of other hazardous substances removed from the environment:

<u>42,520</u>	Apache Powder (nitrate)
42,520	<b>FY 2011 Total</b>

### Community Involvement Activities at Federal Sites

- Fact Sheets and Public Notices:

1	Hassayampa Landfill
4	Motorola 52 <sup>nd</sup> Street
<u>1</u>	North Indian Bend Wash
6	<b>FY 2011 Total</b>

- Public Meetings:

1	Camp Navajo
6	Motorola 52 <sup>nd</sup> Street
1	North Indian Bend Wash



7	Phoenix Goodyear Airport North and South
4	Tucson Airport Area Projects
<u>4</u>	Williams AFB
23	FY 2011 Total

## 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 2011 Activities and Accomplishments**

The Emergency Response Unit (ERU) was notified of 172 incidents, 19 of which required on-scene response actions. During the year the ERU also took part in several drills and exercises around the state.

Significant emergency response actions include:

#### **Hot Asphalt Emulsion Release near 19<sup>th</sup> Avenue and McDowell Road in the City of Phoenix:**

At the request of the Phoenix Fire Department, ERU personnel responded to a large release of hot asphalt emulsion at the Paramount Petroleum facility which is located near the intersection of 19<sup>th</sup> Avenue and McDowell Road in the City of Phoenix. Upon arriving ERU personnel found that a large amount of hot asphalt emulsion was leaking from a breach in a storage tank that contained an estimated 1,420,170 gallons of product. The spill materials were released into a secondary containment area that the damaged tank shared with another large storage tank. During the early stages of the incident crew were able to recover approximately 50,000 gallons of product before they were forced to exit the containment area. This material was transferred into an empty tank located at the facility. At that point the product was allowed to drain into the containment area until it reached a level below the breach point and therefore stabilizing the release. During this incident an estimated 370,000 gallons of product was released into a containment area that was designed to hold approximately 1,500,000 gallons of spilled product. During the next several days cleanup contractors were able to transfer the remaining product into another storage tank at the facility. During this incident no asphalt escaped the containment area and the materials were never a threat to ground water.

**Fuel Tanker Accident on Highway 97 near the Bagdad Mine:** At the request of the Arizona Department of Public Safety (ADPS) and the Arizona Department of Transportation (ADOT), ERU personnel responded to a fuel tanker accident on highway 97 near the Bagdad mine. During this accident the fully loaded tanker rolled over into a wash which crossed the highway. At that

point it is estimated that approximately 1,500 gallons of diesel fuel was released from the damaged tanker into the wash. During this incident onsite responders were able to recover and cross load the remaining 7,000 gallons of diesel from the damaged tanker onto an empty tanker that had been sent to the accident scene. The spill was contained to the ADOT Right of Way and none of the fuels made contact with any free standing waters. Cleanup contractors hired by the responsible trucking company were able to remove all of the spilled fuels and contaminated soils from the wash while ADOT provided oversight on the removal project.

**Wildfire Season of 2011:** The spring and summer of 2011 may go down as Arizona's worst fire season on record. During this time frame ERU personnel were requested to conduct hazardous materials risk assessments in the fire damaged areas around the communities of Alpine, Nutrioso and Greer. It should be noted that the ERU was the first state agency that was allowed into the Wallow Fire burn area to conduct any such damage assessment.

The ERU was then asked to deploy to southeastern Arizona to conduct similar assessments in areas affected by the Monument Fire.

At this time the ERU continues to work with federal, state, county and local agencies on wildfire related issues around the state.

A.R.S. § 49-282(E) (11) also provides for reimbursement to political subdivisions for costs 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 2011.

#### **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 2011 activities and accomplishments can be found in Appendix 5.

#### **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 2011 accomplishments of the Well Inspections and Approval Program can be found in Appendix 6.

### 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 2011 accomplishments of the Risk Assessment Program can be found in Appendix 7.

# APPENDIX 1

## FY 2012 WQARF Site Budgets

## FY 2012 WQARF Program Projected Budget

## FY2012 WQARF Site Budgets

7th Ave and Arizona	\$45,000
7th Avenue and Bethany Home Road	\$75,000
16th Street and Camelback	\$0
20th and Factor	\$440,000
56th Street and Earll Drive	\$0
Broadway Pantano	\$449,000
Central Avenue & Camelback Road	\$295,000
Cooper and Commerce	\$310,000
ECP-24th Street and Grand Canal	\$0
ECP-32nd Street and Indian School	\$2,000,000
ECP-38th Street and Indian School	\$0
ECP-40th Street and Indian School	\$0
ECP-40th Street and Osborn	\$0
ECP-48th Street and Indian School	\$500,000
East Washington Fluff	\$0
Estes Landfill	\$45,000
Klondyke Tailings	\$225,000
Main Street and Kofa	\$150,000
Miracle Mile	\$283,000
Mountain View	\$19,000
Nogales Grand Ave.	\$298,000
Park Euclid	\$10,000
Payson PCE	\$65,000
Pinal Creek	\$45,000
Shannon Road-Rillito Creek/El Camino del Cerro	\$205,000
South Mesa	\$75,000
Tonto & Cherry	\$25,000
Tyson Wash	\$55,000
Vulture Mill	\$5,000
WCP - North Canal Plume	\$0
WCP - North Plume	\$190,000
WCP - West Osborn Complex (site-specific)	\$30,000
WCP - East Grand Ave.	\$0
WCP - West Grand Avenue	\$0
Western Avenue PCE	\$75,000
West Van Buren	\$170,000
Proposed New Sites	\$450,000
Site specific community involvement	\$60,000
Federal Project Unit for cost recovery	\$250,000
<b>Total WQARF Budget FY2012</b>	<b>\$6,844,000</b>

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**FY 2011 Expenditures and FY 2012 Projected Spending Plan**

EXPENDITURE CATEGORIES	EXPENDITURES FY 2011	SPENDING PLAN FY 2012
<b>Core Expenditures:</b>		
WQARF Professional & Support Staff	3,518.9	3,616.2
Professional & Outside - Remedial Projects	50.7	34.0
Hydrologic Support & Assessment	347.3	394.7
Professional & Outside - Hydrologic Support & Assessment	50.8	70.0
Preliminary Investigations	239.1	128.9
Emergency Response	0.0	245.0
Attorney General's Office	526.3	720.0
PRP Identification/Liability	242.9	400.0
Litigation	147.9	101.0
Appeals	0.0	0.0
Advisory Board	0.0	0.0
Rule Development	0.0	0.0
Community Involvement/General WQARF	0.0	1.0
<b>Subtotal - Core Expenditures</b>	<b>5,123.9</b>	<b>5,710.8</b>
<b>Registry Sites</b>		
New Sites		450.0
RI/FS (RI, RO, FS, ERA & IRA Investigations)	2,851.3	6,120.0
Clean-up (PRAP/ROD, final O&M)	368.1	214.0
<b>Subtotal - Registry Sites</b>	<b>3,219.4</b>	<b>6,784.0</b>
Community Involvement (CAB)	0.1	60.0
Preliminary Investigation	238.1	50.0
<b>Subtotal - Registry Sites &amp; PI</b>	<b>3,457.5</b>	<b>6,894.0</b>
<b>Subtotal - WQARF Program</b>	<b>8,581.5</b>	<b>12,604.8</b>
Dept of Health Services - Risk Assessment	105.0	60.0
Dept of Water Resource - Appropriation Transfer Out	300.0	300.0
Emergency Response - Aid to Municipalities	0.0	35.0
Voluntary Program	0.0	0.0
<b>Total Disbursements</b>	<b>8,986.5</b>	<b>12,999.8</b>

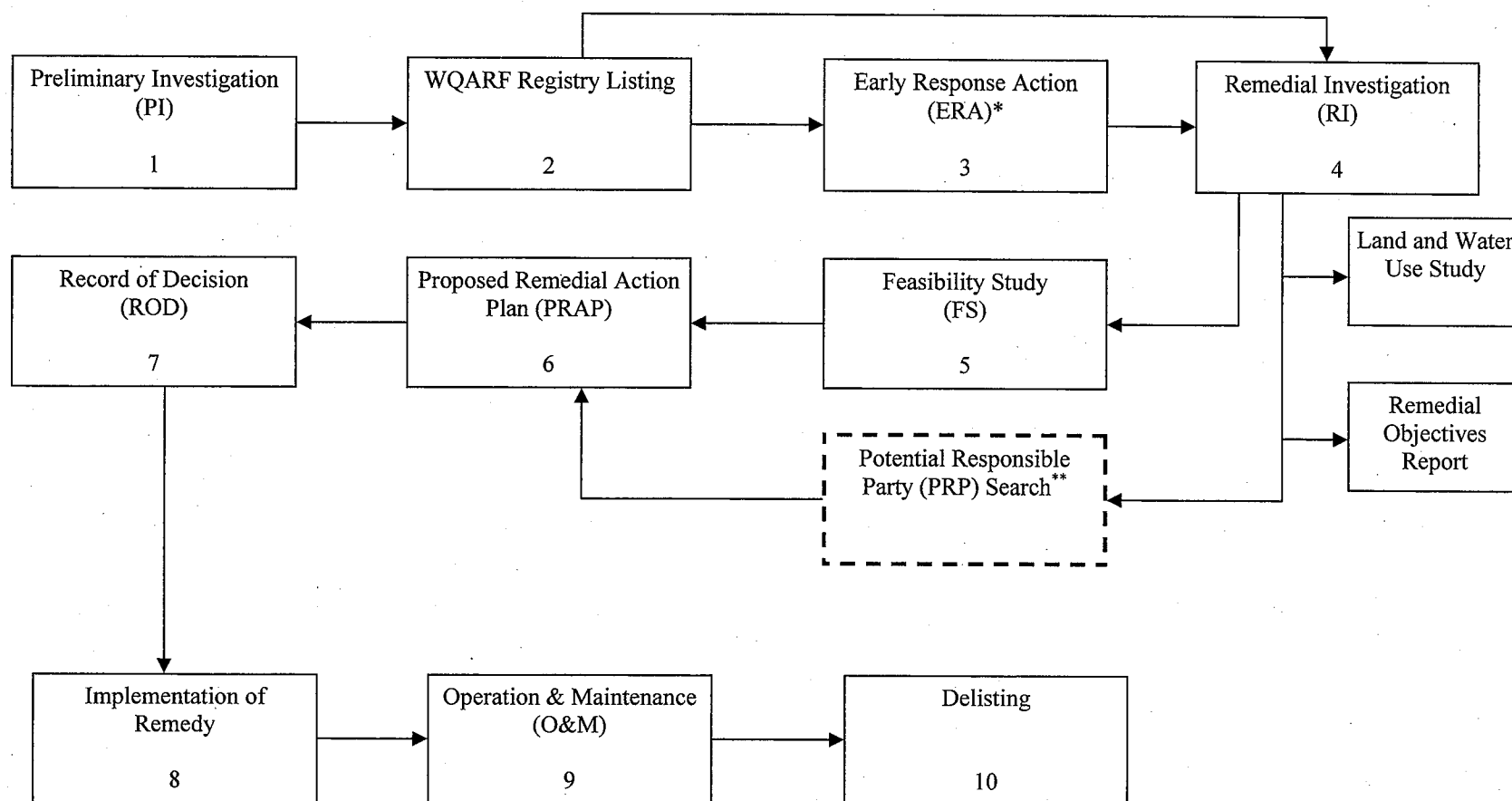
**Footnote:** Expenditures total does not include general fund sweep.

**All figures expressed in thousands.**

## APPENDIX 2

### WQARF Remedy Selection Phase Chart And Narrative Description

## WQARF Phases



\* - ERAs can occur anytime before a PRAP and can occur concurrently with the rest of phases

\*\* - PRP search proceeds concurrently with RI/FS



## **DESCRIPTION OF WQARF PHASES**

### **1. Preliminary Investigation (PI)**

The WQARF process begins when ADEQ receives information about a release or potential release of a hazardous substance. This information may come from a citizen complaint, from an investigation conducted by ADEQ or from an investigation conducted by an outside party. ADEQ assesses whether the information is credible, if another regulatory program has jurisdiction, or if the site is already being cleaned up voluntarily. If a potential release has occurred and no other regulatory program has jurisdiction, a WQARF PI is initiated.

The purpose of the PI is to confirm the release or potential release and determine whether further investigation or action is necessary. The PI is not a full investigation to determine the extent of the contamination nor is its purpose to identify the parties potentially responsible for the contamination. If ADEQ determines that no additional investigation or action is necessary, the site is removed from further consideration. If ADEQ determines that additional investigation or action is necessary, the site is scored using the eligibility and evaluation model and is eligible for listing on the WQARF registry.

### **2. WQARF Registry Listing**

The WQARF registry provides public access to information on WQARF sites. The registry replaces the former WQARF Priority List and provides a list of sites where groundwater and/or soil contamination is known to be present. Sites listed on the WQARF registry qualify for WQARF funds for investigation and/or clean up. The WQARF registry contains a brief description of each site, the site's score, and the current status of the cleanup. The date that a site is added to the registry does not necessarily indicate the date that a cleanup is started.

### **3. Early Response Actions (ERAs)**

Many years are normally required to conduct a full investigation of a site and select the remedy. ADEQ developed the ERA process to address contamination where human health or the environment 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. ERAs may be relatively inexpensive short-term actions, such as fencing or providing alternative water supplies, or they may involve an expensive large-scale groundwater treatment system.

An initial evaluation (ERA evaluation) of risks at a site occurs immediately after a site is listed in the WQARF registry. If a current or potential risk to human health or the environment exists through direct contact with a hazardous substance, an ERA may be implemented immediately. If there is no risk, ADEQ collects information about a site to determine if an ERA is appropriate to protect a water supply or to prevent the spread of contamination. A site is continuously reevaluated as more data becomes available and an ERA can be implemented at any time prior to the selection of a final remedy. Just as with the selection of a final remedy, the implementation of an ERA includes design and construction and may include a period of operation and maintenance.

#### 4. The Remedial Investigation (RI)

The purpose of a RI is to collect enough information to determine the appropriate cleanup actions needed at the site. The information collected includes the physical characteristics of the site; the nature, extent and sources of the contamination and the actual and potential impacts of contaminants on the site to public health, welfare and the environment. The RI also identifies present and reasonably foreseeable uses of land and waters of the state that have been or may be impacted by the contamination.

After conditions at the site are known, ADEQ holds public meetings to establish remedial objectives. ADEQ invites land owners, local governments, water providers, and the public to discuss land and water uses impaired or lost due to the contamination as well as future uses which could be impacted by the contamination. Based upon this input, ADEQ prepares a report of the proposed remedial objectives for the site that lists the uses, the time-frames when completion of cleanup is required to protect or provide for the use, and the duration of the required actions.

#### 5. The Feasibility Study (FS)

Using the information collected in the RI, the FS documents technologies and options that may achieve remedial objectives. Various options are identified and compared to facilitate selection of the most feasible and cost-effective cleanup method for the site.

#### 6. Proposed Remedial Action Plan (PRAP)

After the FS is completed, ADEQ prepares a PRAP to document the proposed cleanup or remedy. The plan describes the means by which the proposed remedy will meet each of the remedial objectives identified in the RI and how accomplishment of the remedial objectives is to be measured. The plan also provides an estimate of the cost of the cleanup.

If ADEQ intends to seek recovery of costs from potentially responsible parties, notice is provided to these parties of the opportunity to submit an accounting of cleanup costs they may have incurred at the site and of the opportunity to object to costs submitted by other potentially responsible parties. Any costs approved by ADEQ as reasonable and necessary may be used as a credit against potential liability in a settlement or allocation.

## 7. Record of Decision (ROD)

The ROD documents the selected remedy for a site. The ROD includes an estimated cost, time-frames for beginning and completing the cleanup process, and a demonstration that the selected remedy meets the remedial objectives. After the ROD is signed, an allocation process follows in which past and future costs are distributed among responsible parties.

## 8. Implementation of Remedy

The design and implementation stage includes the development of the engineered design of the selected remedy and implementation of the remedy through construction. A period of operation and maintenance may follow the design and construction activities.

## 9. Operation and Maintenance (O&M)

The O&M is conducted pursuant to a schedule applicable to the type of remedy completed. This includes performance of all operations and maintenance steps required for performance of the remedy.

## 10. Delisting

Once the remedy is completed at a site, or ADEQ determines that no further investigation or cleanup is needed, the site is eligible for delisting from the WQARF registry.

## APPENDIX 3

### Revenues and Expenditures

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
WQARF REVENUES AND EXPENDITURES  
THROUGH THE PERIOD ENDING: 13TH MONTH FY11  
PREPARED BY OFFICE OF FISCAL SERVICES August 2, 2011

	FY 10 Actual	FY 11 Projection	FY 11 Actual
<b>Balance</b>			
Beginning Fund Balance - WQARF & Priority Sites	250.4	4,180.8	4,180.8
Beginning Fund Balance - Site Specific Account	879.4	879.4	879.4
<b>Sub-Total: Funds Available</b>	<b>1,129.8</b>	<b>5,060.2</b>	<b>5,060.2</b>
Prior Year Corporate Income Tax Reversion	0.0	0.0	0.0
<b>Total: Balance from Prior Year</b>	<b>1,129.8</b>	<b>5,060.2</b>	<b>5,060.2</b>
<b>Revenue Subject to 18M Cap</b>			
Corporate Income Tax	7,000.0	7,000.0	7,000.0
<b>Fees:</b>			
Municipal Water (ARS 42-5302)	2,392.8	2,382.0	2,377.1
Fertilizer Registration (ARS 3-272)	51.6	43.0	47.5
HW Facility Registration Fee (ARS 49-929/49-930)	221.2	190.0	219.8
HW Manifest Resubmittal Fee (ARS 49-922.01)	(0.1)	0.0	0.0
Industrial Discharge Permit Fee (ARS 49-209)	36.4	35.0	35.4
Pesticide Registration (ARS 3-351)	883.6	910.0	1,069.3
Quality Assurance Fee (ARS 45-616)	271.2	350.0	336.5
<b>Fees Subtotal</b>	<b>3,856.7</b>	<b>3,910.0</b>	<b>4,085.5</b>
<b>Total: Revenue Subject to 18M Cap</b>	<b>10,856.7</b>	<b>10,910.0</b>	<b>11,085.5</b>
<b>Revenue Not Subject to 18M Cap</b>			
Consent Decrees	349.6	0.0	130.6
Cost Recovery (ARS 49-282)	288.5	50.0	358.2
<b>Responsible Parties Subtotal</b>	<b>638.1</b>	<b>50.0</b>	<b>488.8</b>
Prospective Purchaser Agreement (ARS 49-285.01)	21.0	0.0	8.6
Interest (ARS 49-282)	49.5	56.0	46.3
Prior Year Reimbursement (ADHS)		0.0	
<b>Other Revenue Subtotal</b>	<b>70.5</b>	<b>56.0</b>	<b>54.9</b>
<b>Total: Revenue Not Subject to 18M Cap</b>	<b>708.6</b>	<b>106.0</b>	<b>543.7</b>
<b>Beginning Balance and Revenue</b>	<b>12,695.1</b>	<b>16,076.2</b>	<b>16,689.4</b>
<b>Expenditures</b>			
Non-Site Expenditures	5,472.3	5,929.1	5,228.9
Site Expenditures	1,485.9	5,770.0	3,457.5
Transfers Out	300.0	300.0	300.0
General Fund Sweep	376.7	510.6	527.1
<b>Total Expenditures</b>	<b>7,634.9</b>	<b>12,509.7</b>	<b>9,513.6</b>
<b>Proposed Carry Forward</b>			
Beginning Balance and Revenue minus Expenditures	5,060.2	3,566.5	7,175.8
Revenue in Excess of 18M Cap to be Reverted	0.0		0.0
<b>Uncommitted Balance/Carry Forward</b>	<b>5,060.2</b>	<b>3,566.5</b>	<b>7,175.8</b>

NOTE: All figures expressed in thousands.

REVISED: 08/24/11

## APPENDIX 4

### WQARF Site Updates

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**Arizona Department of Environmental Quality  
FY2011 Water Quality Assurance Revolving Fund Site Updates**

**7<sup>th</sup> 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 W. Rose Lane, to the south by W. Bethany Home Road, to the east by North Fifth Avenue and to the west by N. Eighth 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 ten soil borings and 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 indicated that the source area soils had been successfully remediated to levels that are below ADEQ Soil Remediation Levels and Groundwater Protection Levels. ADEQ initiated an investigation of an additional dry cleaner in the area of the Site. A dry cleaner operated at 6022 N. 7th Avenue from the 1960s to approximately 1990. Field investigations in the early 1990s indicated a release of PCE but the impact to the groundwater was not evaluated at that time. During March 2008, two monitor wells were installed on and near the property, and four additional borings were drilled and sampled adjacent to the building that housed the dry cleaner. Results of the investigation indicate PCE has been released to the soil and groundwater beneath the site but concentrations remaining in the soil at the property did not warrant further remediation. Concentrations of PCE in the groundwater range from 8.0 to 24 ppb. Trichloroethene (TCE) and vinyl chloride are also present above their respective AWQS. 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 (SRP) irrigation wells near the site have been tested, and concentrations of PCE were detected, but concentrations are below the regulatory standard. ADEQ has established a Community Advisory Board (CAB) for the site, a Community Involvement area has been established and a fact sheet was distributed. ADEQ completed the draft RI report in April 2010 and the final RI report in April 2011. The feasibility study work plan was completed in May 2011. Contaminants of concern at the site include PCE and trichloroethene (TCE) and vinyl chloride.

**7<sup>th</sup> 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, approximately 1/3 mile north of Broadway Boulevard and approximately 3/4 mile east of Interstate 10. The site boundary is a northwest-trending oval extending approximately 1,200 feet from the former Oliver's Cleaners

facility at 300 E. Seventh Street to approximately 150 feet north of Sixth Street and approximately 100 feet east of Seventh Avenue.

ADEQ operated a soil vapor extraction (SVE) system from June 2006 to July 2009 as an Early Response Action (ERA) for the site. Over 700 pounds of VOCs were removed by the SVE system prior to the system being decommissioned in July 2009. No drinking water wells have been impacted by the contamination from the site. The remedial investigation (RI) 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, 17<sup>th</sup> Street to the east, and 15<sup>th</sup> Street to the west.

Based on the results of an early response action (ERA) evaluation conducted in 2003, ADEQ determined that soil vapor extraction (SVE) was not a feasible remedy for the site. Due to a lack of funding, no activities are being conducted at this site. The remedial investigation (RI) 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 one-half mile south of 16th Street and approximately three quarters of a mile east of Fourth 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 (ERA). ADEQ continues to investigate the Site to identify the extent of the groundwater contamination. A shallow soil vapor investigation was performed to help identify potential source areas. The soil vapor investigation included the installation of several permanent soil vapor monitor probes and performing a soil vapor survey. 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 & 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 near 56<sup>th</sup> Street and Earll Drive. The plume is bounded by Earll Drive to the north, Loop 202 - Red Mountain Freeway to the south, 56th Street to the east and 32nd Street to the west.



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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 negotiated a Consent Order with ADEQ. The working party submitted a work plan for a pump and treat groundwater system ERA. The working party has obtained the needed permits and is currently working on the pump and treat system's design. 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 Craycroft 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 (VOC). A groundwater containment system has been installed to prevent further westward migration of contaminated groundwater. Confirmed sources of the groundwater contamination are the former Broadway North and South Landfills. A soil vapor extraction (SVE) 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 boundaries of the site are approximately Missouri Avenue to the north, First Street to the east, Pierson Street to the south and Third Avenue to the west.

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. Cumulative PCE recovery is 274 pounds since start-up of this system in January 2003. 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. Cumulative PCE/TCE recoveries as of June 2011 are 2,874 pounds. The remedial investigation was initiated in 2007 and a community advisory board has been established for this site. A passive soil gas survey was conducted in the vicinity of the former drycleaner's building and data are being reviewed to enhance soil vapor recovery to possibly expedite remediation.

Contaminants of concern at the site include PCE, trichloroethene (TCE), and cis-1,2-dichloroethene (DCE). 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 & 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 Cooper Road and the plume is bounded to the north by West Encinas Street, to the south by the Neely Ranch Preserve, to the east by the North Neely Street and to the west by North Ocotillo Drive.

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 (AWQS). 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 twenty 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, groundwater pump and treat remediation system was completed in July 2008. Initial startup of the SVE system occurred on December 22, 2008. Start-up of the air sparge component of the system occurred in May 2009. Through FY11 approximately 4,430 pounds of PCE were recovered by the SVE/AS system. SRP and ADEQ finalized the agreement to discharge to the lateral south of the site in June 2010 and the construction of the conveyances of treated groundwater to the SRP lateral and Town of Gilbert sanitary sewer were also completed in June 2010. The groundwater pump and treat system began continuous operations on August 25, 2010. Through FY11, the groundwater pump and treat system has recovered approximately 25 pounds of PCE. 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) 24<sup>th</sup> 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 circle centered around the Salt River Project well 16E-6.8N.

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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.

In July 2008 CVS drilled a groundwater monitor well as part of their Prospective Purchaser Agreement. The well, approximately 800 feet north of the WQARF site, had a depth to water measurement of 86 feet and a PCE concentration of 300 µg/L.

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

**ECP 32<sup>nd</sup> Street and Indian School Road** - This site was placed on the WQARF Registry in May 2000, and has a score of 29. The site has two separate areas of groundwater contamination. The plumes are bounded by E. Monterosa Street to the north, 30<sup>th</sup> Street to the west, E. Clarendon Avenue to the south, and 32<sup>nd</sup> Place to the east.

ADEQ initiated a soil vapor extraction (SVE) early response action (ERA) in December 2004 and approximately 3,100 pounds of PCE had been removed through December 2006. The SVE equipment was dismantled at this site for use at another WQARF site. Recent groundwater data indicated PCE levels in the groundwater at 1,200 ppb.

ADEQ received access to the retail center on the southwest corner of 32nd Street and Indian School Road. A groundwater monitor well was installed for further plume definition. ADEQ continues to conduct a soil vapor investigation along 31<sup>st</sup> Street and Fairmont Avenue which will be used to help characterize contaminants in the shallow subsurface soil. Short-term soil vapor extraction (SVE) pilot tests were conducted behind Maroney's Cleaners and near the corner of 31<sup>st</sup> Street and Fairmont Avenue to determine if SVE is a viable remediation option. Upon analysis of soil vapor data, ADEQ may need to initiate an ERA at this 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.

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

**ECP 38<sup>th</sup> 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 plume is bounded by 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..

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

**ECP 40<sup>th</sup> 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 plume is bounded by Devonshire Avenue to the north, 41st Street to the east, Amelia Avenue to the south, and 38th Street to the west.

ADEQ conducted an early response action (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 tetrachloroethene (PCE) and trichloroethene (TCE).

**ECP 40<sup>th</sup> 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 circle centered around the Salt River Project well 17.9E-7.5N.

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 tetrachloroethene (PCE).

**ECP 48<sup>th</sup> 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 the plume is bounded by Devonshire Avenue to the north, 48th Street to the east, E. Fairmont Ave. to the south and 45th Place to the west.

ADEQ and the Salt River Project have entered into an agreement to conduct a source control interim remedial action (IRA). As part of the IRA, SRP constructed a soil vapor extraction system to remediate the source of tetrachloroethene (PCE) in soil at the site. Approximately 305 pounds of PCE have been removed since start-up in February 2006. ADEQ continues to conduct a soil vapor investigation along 45<sup>th</sup> Place and Indian School Road which will be used to help characterize contaminants in the shallow subsurface soil. Upon analysis of soil vapor data, ADEQ may need to initiate an ERA at this site. 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

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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 (RI), feasibility study (FS), and proposed remedial action plan (PRAP) have been completed. On May 18, 2007, a 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. The pad was removed in 2008 and the cap was extended. A modified DEUR was recorded in June 2009. ADEQ is currently working to finalize the PRAP and prepare a Record of Decision (ROD) for the site.

The property owner (Harrison Properties) placed chunks of concrete on top of the cap. They worked with ADEQ to prepare an engineering evaluation of the activity. The concrete will be crushed and then spread on the cap.

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 (RI), feasibility study (FS) and proposed remedial action plan (PRAP) have been completed. ADEQ is evaluating comments on the PRAP and preparing a responsiveness summary. After finalizing the responsive summary, ADEQ will prepare a ROD for the site. In January 2008, methane and VOC vapor samples were collected from the landfill. In 2011, water samples were collected from groundwater wells located at the site.

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 community of Klondyke, on the north bank of Aravaipa Creek, approximately 4.5 miles upstream of 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, directly adjacent to the tailings piles. The site is bounded to the east by Klondyke Road.

ADEQ has completed several studies during the remedial investigation (RI) phase of the site investigation including a bioavailability study, biological, 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 one-half mile from the site and impact nine properties adjacent to the site.

Early response action (ERA) 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 & 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. In June 2008, erosion protection installation was completed on the upper tailings pile and the clean soil cap was seeded. ADEQ, with the assistance of the EPA, is evaluating soil removal options on the residential properties located in the vicinity of the site. EPA collected additional samples in the immediate area surrounding five residences near the site in March 2010. A draft of the RI report was received from the contractor for ADEQ's review. ADEQ is working internally to finish the draft RI report. A community advisory board has been established for the site.

Contaminants of concern at the site include antimony, arsenic, cadmium, copper, lead, manganese, mercury, 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 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 completed additional site characterization and has expanded the pump and treat system to address the additional groundwater contamination that has been identified.

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, Pomona 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 (ERA) for the regional aquifer. In FY2011, the extent of contamination was delineated with the data provided by three new shallow-deep well pairs. The remedial investigation report is nearing completion. 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 Ninth Street to the north, 14<sup>th</sup> Street to the south, Santa Rita Avenue to the east, and Park Avenue to the west.

ADEQ successfully negotiated an Agreement to Conduct Work with PRPs. The work agreement is for a feasibility study (FS) to be conducted by the PRPs. 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 the plume is bounded approximately by Main Street to the north, Cedar Lane 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 (RI), feasibility study (FS), and proposed remedial action plan (PRAP) have been completed. ADEQ completed the record of decision (ROD) for the site in June 2007. ADEQ and the Town of Payson are renegotiating the Intergovernmental Agreement (IGA) for Payson to take over O&M cost and duties for the EGTS. Groundwater samples were collected from 62 wells in 2010. The EGTS system has been operating for five years. The five-year review is currently scheduled in 2011.

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

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**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 and Miami, Claypool and Wheatfields. The site includes the BHP Copper and Freeport McMoRan (formerly 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, Freeport McMoRan and Inspiration Copper, have been conducting remedial actions including source control since 1988 and have completed remedial investigations (RIs), risk assessments, a feasibility study (FS) and a recommended remedial action plan. They have also conducted a well replacement program for contaminated private and public supply wells. The PCG has been conducting groundwater extraction and treatment from the alluvial and the regional aquifers since 1988. In 2010 the Pinal Creek Group petitioned the U.S. District Court to modify the membership of the PCG to Freeport McMoRan and Inspiration Copper. BHP Copper is no longer a part of the group. BHP still is responsible for management of their properties in accordance with the governing consent decree. The PCG is still responsible for the site wide remedial actions.

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 Meadowbrook Park on the east, the Santa Cruz River on the west, El Camino del Cerro Road on the south, and on the north, a quarter mile north of Rillito Creek. 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 (VOCs) and arsenic in the groundwater in order to meet drinking water standards. The remedial investigation (RI) is in progress and a joint community advisory board has been established for the site.



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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 North Silverbell Road 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.

In 2001 the City of Tucson began operation of a full-scale soil vapor extraction system to remove and treat contaminated volatile organic compound (VOC) landfill gases contributing to the groundwater contamination. By December 2006, the system had removed over 2000 pounds of VOCs, including almost 750 pounds of PCE (tetrachloroethene). From December 2006 until 2008, the system was operated intermittently to control methane migration. In April 2008, the system was shut down and the equipment was removed. The city continues to conduct soil gas rebound testing periodically.

In 2010, the city proposed to install a pump-treat-inject system to address the central part of the site plume with the highest VOC concentrations. In 2011, the city also installed additional groundwater monitor well pairs to the northeast of the plume. A concern at this site is the overlapping of the northern part of the Kinder Morgan Silvercrock Wash Release Site methyl-tert butyl ether (MTBE) groundwater plume with the southern part of the Silverbell Landfill PCE groundwater plume. ADEQ, the city, and Kinder Morgan have been meeting to improve coordination regarding sampling of the two sites and cleanup of the two sites.

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 Tenth Avenue to the north, the railroad south of Baseline Road to the south, Stapley Road to the east, and the railroad west of Center Street to the west.

Two remedial action projects at the site have significantly reduced the contamination by treating pumped groundwater and extracting vapors from the soil. ADEQ began an early response action (ERA) 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) work has been completed and the draft RI report has been approved and is currently undergoing public 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 400 feet west of the Beeline Highway and immediately north of Main Street. The plume is a northwest-trending area, bounded by W. Cherry St. to the north, S. Colcord Rd. to the east, S. Tonto St. to the west and W. Frontier St. to the south.

The remedial investigation (RI), feasibility study (FS), Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD) reports have been completed. The site is at the O&M phase. Groundwater samples were collected and analyzed in 2011. Detected groundwater contaminants were below the respective Arizona Water Quality Standards (AWQS). Monitored natural attenuation is working.

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 the contaminated groundwater plume is bounded by W. Sunset Street to the north, Oregon Avenue to the west, Main Street (Business I-10) to the south, and N. Central Boulevard (SR-95) to the east. The known groundwater contamination exists northwest of the intersection of State Hwy 95 and Business Route I-10 in Quartzsite.

As part of an early response action (ERA) a groundwater treatment system was been constructed and is currently being operated to prevent migration of the plume to private drinking water wells. The remedial investigation (RI) has been completed for the site and the Proposed Remedial Action Plan (PRAP) was completed in June 2008 with no comments received from the public. The Record of Decision was completed and approved in June 2009. The site is in the operations and maintenance (O&M) phase. During FY 2011, the system pumped and treated approximately 1.3 million gallons of water. In October 2010, injection well #2 was modified to increase its effectiveness. In June 2011, an additional monitor well was added 100 feet north of the most northerly extraction well.

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 1 mile northwest of the center of the Town of Wickenburg. The eastern boundary of the site is approximately one-fourth mile west of the Hassayampa River channel.

The record of decision (ROD) was signed in September 1999. ADEQ has implemented the remedy, which consists of excavation of contaminated soil, placement in a consolidation pile, installation of a clean soil cover, and planting of vegetation to control erosion. Presently, the site

is used as pasture and inspected on a semi-annual basis. Contaminants of concern at the site include lead and arsenic.

**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 Whitton Avenue to the north, Osborn Road to the south, 29<sup>th</sup> Avenue to the east, and 30<sup>th</sup> 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 system at the former Van Waters & Rogers facility. To date, over 1,165 pounds of 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 on the north, 36th Avenue on the east, Clarendon Avenue on the south, and 40th Avenue on the west.

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

Contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (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 Turney Avenue to the north, Indian School Road to the south, 38th Avenue to the east, and 43rd Avenue to the west.

The remedial investigation (RI) is underway and a soil vapor extraction (SVE) system was installed at the F&B facility as part of an early response action (ERA). To date, the SVE system has removed over 42,723 pounds of VOCs. Further early response actions (ERA) evaluations are being conducted to address groundwater contamination.

Through a working party agreement, an SVE system was operated at the Hill Brothers Chemical Company. The system removed over 277 pounds of VOCs from the soils below the surface. A No Further Action (NFA) determination was issued for this facility following confirmation sampling and a public notice for review.

The RI report, along with the remedial objectives (RO) report, have been completed for this site. A community advisory board has been established for this site.

Contaminants of concern at the site include tetrachloroethene (PCE) and trichloroethene (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, Earll Drive to the south, 33rd Avenue to the east, and 35th Avenue to the west.

The 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 trichloroethene (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, Pinchot Avenue to the south, 34th Drive to the east, and 39th Drive to the west.

A remedial investigation (RI) report has been completed as well as the remedial objectives (ROs) for the site. Feasibility Study (FS) reports for the deep and shallow plumes for the project site have been submitted and have been evaluated by ADEQ. Comments by ADEQ on the FS reports have been submitted and ADEQ is currently working with United Industrial Corporation (United) to the address the comments to finalize the FS reports. A community advisory board has been established for this site.

Contaminants of concern at the site include trichloroethene (TCE) and tetrachloroethene (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 Van Buren Street to the north, Buckeye Road to the south, Seventh Avenue to the east, and 83rd Avenue to the west. Between Seventh Avenue and 27th Avenue, there is an extension of the plume south to Lower Buckeye Road.

Reynolds Metals Co. operated an SVE system periodically from 1989 to 1991. Approximately 3,100 tons of contaminated soil was excavated and hauled from the facility. No Further Action (NFA) for 14 release areas was issued to Reynolds Metals Co. in 2000. Maricopa County Materials Management operated a SVE system at their facility during the third and fourth quarter of 1997. In 2001 Maricopa County settled with ADEQ. 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. A SVE system was installed and operated periodically at the Van Waters and Rogers Inc. (VW&R) facility from 1992 to 1998. In August 2002, ADEQ issued a no further action (NFA) determination for the former Van Waters and Rogers facility. ChemResearch Company

Inc. excavated and disposed of contaminated soil from beneath their 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 (RI) is in progress and additional monitoring wells have been installed by ADEQ to delineate the extent of the contamination and further investigate potential source areas. A draft RI report was completed in October 2008 and submitted for public comment. A draft Remedial Objectives (RO) report was completed and submitted for public review. ADEQ is currently addressing comments and preparing responses to the comments and finalizing the reports. ADEQ conditionally approved an ERA on June 24, 2010 submitted by the Roosevelt Irrigation District (RID). RID is currently conducting investigations as part of the contingencies to the ERA. 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, Third 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 Remedial Investigation (RI) report, along with the remedial objectives (ROs) report, have been completed. A community advisory group has been established for this site in conjunction with the Phoenix-Goodyear Airport Superfund site.

Groundwater monitoring wells at the site are currently being sampled quarterly, along with the City of Goodyear water supply well COG-01, which is in the project area. Groundwater levels are measured on a monthly basis for all monitor wells.

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

## APPENDIX 5

### 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**

Debra Daniel, Manager 771-4665

ADEQ/Water Quality Division/Surface Water Section

July 1, 2010 through June 30, 2011

**FY 2011 ACCOMPLISHMENTS**

**Water Quality Assessment and Management**

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

- Integrated Report of the Status of Arizona's Water Quality: The 2010 Assessment is under development. Non-ADEQ data was loaded into the surface water quality database and the AZAC program was run to perform the initial assessment (simple result the water quality standard comparisons). Staff has completed the preliminary assessment (extended AZAC analysis to hardness dependent and other variable standards) on 7 out of 10 watersheds. Anticipated completion of the draft report is in December 2010. 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: FY11 monitoring focused on the Salt and Verde Watersheds. Approximately 120 samples were collected from 30 sites. Sample sites were used to fill in data gaps, monitor outstanding Arizona waters, and to monitor sites for reference conditions. The FY12 sample plan has been finalized and focuses efforts in the area impacted by the Wallow Fire as well as the Upper Gila, Lower Gila, Middle Gila, Santa Cruz and San Pedro watersheds. The Surface Water Section (SWS) continues to fund a Joint Cooperative Agreement with the USGS to sample 10 sites on the large rivers in the state from its gauging stations. (§49-225)
- Lakes Program: FY11 monitoring was conducted on Luna Lake and Big Lake. Samples were collected 2 to 3 times for each lake.
- Priority Pollutant sampling program: Seven water bodies were sampled for mercury and one for emergent contaminants in FY 2010. An ongoing special investigation into high levels of mercury in sport fish from a tributary to Roosevelt Lake was also initiated in FY2010 and will be concluded in FY2011.
- Status of ongoing water quality studies (§49-225 & §49-282):
- Status of ongoing water quality studies

TMDL Monitoring and Development- The TMDL Unit achieved the following in FY10

- Released 10 TMDLs for public comments
- Received Lyman Lake coring and Parker Canyon Lake modeling reports from contractor
- Continued monitoring for TMDL development on 23 TMDLs covering 13 water bodies
- Conducted effectiveness monitoring on 4 effectiveness monitoring projects
- Coordinated efforts with the WQIG Program to assist the Targeted Watershed Grants with training, data interpretation, and technical support

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

### **Ambient Groundwater Monitoring –**

Field staff is limited to one employee. Despite this, the groundwater program achieved the following in FY11:

- Over 32 wells/springs in Arizona were sampled with results provided to owners.
- Sampling for the Ranegras Plain basin is 95 percent complete
- The San Bernardino Valley basin report was completed and is in the review process.
- The report "Groundwater in Arizona" comprehensively examining the 1,477 wells and springs sampled by the ADEQ ambient program from 1995-2009 was completed and is in the review process.
- Final reports were approved for the McMullen Valley and Dripping Springs basins.

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

- The pesticide groundwater monitoring program continued its improved frequency and scope in FY10 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). ADEQ in collaboration with the Arizona Department of Agriculture and other stakeholders has developed and published Best Management Practices (BMPs) to mitigate or eliminate these "Pesticides of Concern" detects in groundwater. The Statewide groundwater monitoring network has been extended beyond the vulnerable areas in Yuma and Maricopa counties to Graham County where seven dedicated groundwater monitoring wells were installed in the Safford area in March 2010.
- The Pesticide Program continues to maintain an information submittal and review database for the pesticide data call-in program. Nine new pesticide active ingredients were added to the database in FY10.
- 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 2009 GWPL was published in the *Arizona Administrative Register* in July 2009 for public review and comment prior to finalization. The final 2009 List contains 73 active ingredients (1 additions) compared to 72 active ingredients on the 2008 List. The new List took effect on December 1, 2009.

## **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 6

### ADWR Well Inspection and Approval Program

**Arizona Department of Water Resources  
Arizona Water Quality Fund  
Year-End Summary - Fiscal Year 2011**

**1. Arizona Water Quality Fund (WQARF Support) Program Objectives**

- Perform technical review of well applications (Notices of Intent to Drill/Abandon/Deepen/Modify/Replace a Well, Applications to Drill and Operate a Non-Exempt Well, and Groundwater Withdrawal Permits)\* and consult with Arizona Department of Environmental Quality (ADEQ) regarding new wells, abandonments, modifications to wells near remedial action 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

**2. Arizona Water Quality Fund Program Accomplishments: Fiscal Year 2011**

- Well application and withdrawal permit review:
  - Reviewed 2,570 Notices of Intent (NOI) to Drill/Abandon/Deepen/Modify/Replace a Well for proximity to WQARF/CERCLA or other remedial action sites.
  - Performed technical review of 728 NOIs to Drill/Abandon/Deepen/Modify/Replace wells near or within WQARF/CERCLA sites for water quality concerns, potential contaminant plume migration, and well construction.
  - Reviewed 96 permit applications to withdraw groundwater for proximity to WQARF/CERCLA or other remedial action sites.
  - Performed technical review of 16 permit applications near or within WQARF/CERCLA sites for water quality concerns, potential contaminant plume migration, and well construction. These permits include Poor Quality Ground Water Withdraw Permits for remediation projects.
- Well inventories:
  - No well inventory activities were performed during fiscal year 2011.
- Other WQARF and Water Quality Activities
  - Submitted 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 2010.

**Arizona Department of Water Resources  
Arizona Water Quality Fund  
Year-End Summary - Fiscal Year 2011**

**3. Statement of Revenues and Expenditures – Fiscal Year 2011**

**Arizona Water Quality Fund**

**Statement of Revenues and Expenditures**

**FY 2011, For the period through 13th Month 2011**

Description	Amount
<b>Funds Available</b>	
Balance Forward 07/01/2010	\$3,710.05
Transfer from DEQ	300,000.00
Earnings on Investments	760.15
<b>Total Funds Available</b>	<b>\$304,470.20</b>
<b>Expenditure</b>	
Personal Services	\$80,035.55
Employee Related Expenditure	24,184.17
Professional & Outside Services	
In State Travel	
Out of State Travel	
Other Operating Expenditure	8,904.52
Capital Equipment	
Indirect	44,675.80
Legislative Transfers	93,000.00
<b>Total Expenditure</b>	<b>\$250,800.04</b>
<b>Cash Balance 06/30/2011</b>	<b>\$53,670.16</b>
<b>Indirect Costs for April - June 2011*</b>	<b>6,942.88</b>
<small>*costs were transferred in July 2011</small>	
<b>Fund Balance</b>	<b>\$46,727.28</b>

**4. Arizona Water Quality Fund (WQARF Support) Program Activities: Fiscal Year 2012**

- Continue technical review of Notices of Intent to Drill/Abandon/Deepen/ Modify/Replace a Well for water quality concerns and for compliance with applicable well construction requirements, or site-specific special well construction requirements, to prevent vertical cross-contamination between aquifers.
- Continue technical review of Applications to Drill and Operate a Non-Exempt Well and Groundwater Withdrawal Permit Applications for potential impacts to other wells of record from potential contaminant plume migration, and for compliance with applicable well construction requirements to prevent vertical cross-contamination between aquifers.
- Continue to coordinate with ADEQ regarding database needs in support of the WQARF Program.

**Arizona Department of Water Resources  
Arizona Water Quality Fund  
Year-End Summary - Fiscal Year 2011**

- Continue to prepare quarterly, annual and other reports as specified in the Inter-agency Service Agreement for fiscal year 2012.
- Submit annual report on ADWR WQARF activities to the Governor, Legislature, and WQARF Advisory Board for fiscal year 2011.

**5. ADWR Budget - Fiscal Year 2012**

**Arizona Water Quality Fund  
Budget - Fiscal Year 2012**

Description	Amount
<b>Funds Available</b>	
Balance Forward 07/01/11	\$53,670
Transfer from ADEQ	300,000
<b>Total Funds Available</b>	<u>\$353,670</u>
<b>Expenditures</b>	
Personal Services	\$81,517
Employee Related Expenditures	40,759
In State Travel	6,919
Other Operating Expenditures	9,708
Non-Capital Equipment	0
Indirect	68,597
Fund Taking by Legislature	93,000
<b>Total Expenditures</b>	<u>\$300,500</u>
<b>Fund Balance (06/30/12 estimate)</b>	<u><u>\$53,170</u></u>

\*FTE may need to be transferred to other funding sources when balance of fund approaches zero.

## APPENDIX 7

### ADHS Risk Assessment Program

# **FY 10-11 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

# 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



# 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
  - 2 staff funded = ~ 0.2 FTE (\$60,000 annually will provide this base availability)

# **FY 10-11 ISA Accomplishments**

- No specific assignments received from ADEQ programs under ISA.

# **FY 10-11 Non ISA Projects**

- Health Consultations under Agency for Toxic Substances and Disease Registry (ATSDR) Cooperative Agreement Grant
  - Agua Fria Mining, Maricopa County
  - Westwind Primary School, Phoenix, Maricopa County
  - Cibola, La Paz County
  - Corona del Sol, Maricopa County
  - Community Garden, Yavapai County

# **FY 10-11 Non ISA Projects Cont.**

- Technical Assists
  - Meth lab Cleanup Levels
  - Ephedrine & Pseudoephedrine
  - Dioxins
  - Barium
  - Fish Advisory Review
  - Iron King Resident
  - Personal Inquiry
  - Community Garden

# **FY 10-11 Non ISA Projects Cont.**

- **Health Education**
  - 34 activities, 13 site specific & 21 non-site specific

# FY 10-11 Budget & Expenditures

<b>Category</b>	<b>Budget</b>	<b>Spent</b>	<b>Est. Unused</b>
Personnel	26,100	9,353	16,747
Benefits	7,830	2,622	5,208
Travel	1,000	0	1,000
Operations	14,130	0	14,130
Indirect	10,940	3,327	7,613
<b>Total</b>	<b>\$60,000</b>	<b>16,255</b>	<b>44,698</b>

# FY 2011-2012 Budget

Category	Budget
Personnel	26,100
Benefits	7,830
Travel	1,000
Operations	14,130
Indirect	10,940
<b>Total</b>	<b>\$60,000</b>