# State of Arizona Office of the Auditor General

**PERFORMANCE AUDIT**

# DEPARTMENT OF ENVIRONMENTAL QUALITY

## Underground Storage Tank Program

**Report to the Arizona Legislature**
**By Douglas R. Norton**
**Auditor General**
**February 1998**
**Report #98-4**

DOUGLAS R. NORTON, CPA
AUDITOR GENERAL

STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

DEBRA K. DAVENPORT, CPA
DEPUTY AUDITOR GENERAL

February 27, 1998

Members of the Arizona Legislature

The Honorable Jane Dee Hull, Governor

Mr. Russell F. Rhoades, Director
Arizona Department of Environmental Quality

Transmitted herewith is a report of the Auditor General, A Performance Audit of the Arizona Department of Environmental Quality's (ADEQ) Underground Storage Tank Program. This report is in response to a May 27, 1997, resolution of the Joint Legislative Audit Committee. The performance audit was conducted under the authority vested in the Auditor General by Arizona Revised Statutes (A.R.S.) §41-1279.03.

The report addresses issues related to the State's program for cleaning up leaking underground storage tank sites. We found that the fund established to financially assist leaking tank owners with cleanup costs had a backlog of $48 million in claims as of October 1997, primarily because claims have far exceeded revenues. Either an increase in the current one cent-per gallon gas tax or a general fund appropriation is needed to address the current claims backlog and additional future claims estimated at $279 million in January 1997. Other options should also be considered to encourage tank owners to more quickly comply with more stringent federal standards that are upcoming and allow the assistance program to terminate sooner.

Arizona also needs to expedite implementation of a risk-based corrective action program that allows cleanup efforts to match the relative risk to public health and the environment rather than providing maximum cleanup as is currently mandated by statute. The EPA has recommended and at least 13 other states have implemented this type of risk-based program, resulting in more site closures and estimated cost savings of 10 to 40 percent. Further, ADEQ needs to assess whether program administrative costs are excessive, and address backlogs and delays in reviewing tank owner reports regarding site cleanup and requests for payment.

As outlined in its response, ADEQ agrees with most of the findings and recommendations. ADEQ is working with the Legislature, the UST Advisory Committee, and stakeholders to address funding concerns. In addition, ADEQ has begun efforts to implement a risk-based cleanup program. ADEQ disagrees with the finding regarding the need for better management reporting and tracking of its administrative backlog and delays, and also disagrees with the finding to reevaluate and monitor staff productivity standards. ADEQ, however, did agree to implement these two recommendations.

My staff and I will be pleased to discuss or clarify items in the report.

This report will be released to the public on March 2, 1998.

Sincerely,

Douglas R. Norton
Auditor General

Enclosure

2910 NORTH 44th STREET • SUITE 410 • PHOENIX, ARIZONA 85018 • (602) 553-0333 • FAX (602) 553-0051

# SUMMARY

The Office of the Auditor General has conducted a performance audit of the Arizona Department of Environmental Quality's (ADEQ) Underground Storage Tank Program, pursuant to a May 27, 1997, resolution of the Joint Legislative Audit Committee. This audit was conducted under the authority vested in the Auditor General by Arizona Revised Statutes (A.R.S.) §41-1279.03.

This audit focuses on issues relating to leaking underground storage tanks. Arizona, like most other states, continues to deal with the expensive problem of investigating and cleaning up leaking underground storage tank sites. Tanks leaking gasoline, petroleum solvents, or other regulated hazardous substances can pose a risk to human health and the environment due to soil, surface water, or groundwater contamination. To address the problems caused by these tanks, Arizona established an underground storage tank cleanup program in 1986. ADEQ provides regulatory oversight to ensure that leaking tanks are investigated and cleaned up according to statutory requirements. Tank owners are responsible for having the cleanup performed.

This audit addressed three problems: (1) the status of the State's financial assistance cleanup fund, (2) the need to move quickly to a risk-based approach to determine the extent of needed cleanups, and (3) improvements needed in ADEQ's oversight of the regulatory process.

## Arizona Needs to Address State Assurance Fund Problems

**(See pages 9 through 17)**

Arizona and 46 other states have established funding mechanisms to assist tank owners in paying for leaking underground storage tank cleanup costs. Created in 1990, Arizona's State Assurance Fund (Fund) receives approximately $25 million annually from a one-cent per-gallon tax on substances placed in underground storage tanks. Tank owners qualifying for financial assistance submit claims to ADEQ for payment of eligible cleanup expenses. Fund revenues, however, have not kept pace with claims. As a result, the Fund had a $48 million backlog of claims as of October 1997. Further, in January 1997, ADEQ estimated that the Fund would be liable for an additional $279 million in claims for leaks that had been reported, but for which claims had not yet been filed. Finally, there is an additional unknown number of potential claims from leaks that have yet to be reported.

At least three factors have contributed to the Fund's lack of monies to pay eligible claims. First, claims have far exceeded revenues. Second, ADEQ administrative expenses paid from

the Fund account were approximately $9.8 million in fiscal year 1997. Third, the State transferred $15.4 million from the Fund to other programs.

Only two options appear viable for providing additional monies to meet the claims backlog: increasing the Fund tax or providing monies from the General Fund. Other states have faced this same funding shortfall. Some states have raised their fees / taxes or employ a sliding scale tax rate to adjust the fee / tax rate to meet the revenue demand. Arizona's one-cent per-gallon tax falls in the mid-range of 27 states' fees or taxes on a per-gallon basis. Nine of these states have fees or taxes higher than Arizona, ranging from 1.1 to 4 cents per gallon. Providing monies from the General Fund is another option that has been used by other states. Texas partially resolved its claims backlog by providing two $120 million loans from its general fund. The Arizona Legislature could also repay to the Fund monies that have been transferred out of it.

Two other options that other states have considered to provide additional monies do not appear viable. Although bonding would provide monies up front to pay claims, there would be additional interest and other costs, and possible constitutional problems would first have to be resolved. The other option, transferring existing claim liabilities to private insurance companies, would also provide monies up front to pay claims, but once again at the expense of significant interest and other costs.

Arizona also needs to begin steps to eventually terminate the Fund. It appears that the Fund was originally intended to financially assist tank owners with cleanup of old tanks that did not meet the new 1998 federal tank safety standards. After all these old tanks had been cleaned up, the Fund was supposed to be terminated. This assistance was provided because obtaining private insurance for old tanks was not possible in the late 1980s as the number of leaks and the cost of cleanup soared. Once tanks are upgraded to 1998 standards, insurance rates will be lower, and the private insurance industry can resume providing coverage for tank leaks. This audit found that reasonable rates are now available for tanks meeting 1998 standards. However, statutes no longer provide for the Fund's termination, allowing claims to be filed against it indefinitely, even by owners of tanks meeting the new standards.

As part of a plan for terminating the Fund, ADEQ and the Legislature need to consider reducing the amount of money available per leak and increasing the tank owner copayment amount over time. These changes could reduce future claims and provide financial incentives to encourage owners to more quickly comply with 1998 standards. There are several policy options for determining the date and method of terminating the Fund.

## Further Work Is Needed to Implement a Risk-Based Approach to Cleaning Up Leaking Underground Storage Tank Sites

**(See pages 19 through 27)**

Arizona needs to expedite implementation of a risk-based corrective action program (RBCA) for cleaning up leaking underground storage tank sites. A risk-based approach requires contaminated sites that pose threats to human health and the environment to be thoroughly cleaned up, while allowing sites that pose little or no risk to receive lesser degrees of cleanup. Recognizing that states had limited monies for cleanup, the federal Environmental Protection Agency (EPA) has encouraged a risk-based approach since 1995. At least 13 other states have or are in the process of adopting a risk-based approach. While it is not clear what Arizona's cost savings may be, other states' experiences using a risk-based approach indicate an increase in site closures and are estimated to provide cost savings of 10 to 40 percent.

Although some initial efforts are being made to consider a risk-based approach, Arizona is still operating under a regulatory framework mandated by A.R.S. §§49-223 and 49-224 that requires all groundwater contamination to be cleaned up to strict drinking water standards. As a result, one groundwater-contaminated site in Cashion, Arizona, has a pending Fund claim of over $1.1 million for cleanup of soil and groundwater even though the site may never be used as a drinking water source, and the EPA does not require such stringent cleanup.

Time is of the essence in adopting a risk-based approach. The longer it takes ADEQ to implement risk-based decision-making into the regulatory process, the greater the impact in terms of State Assurance Fund monies expended on leak sites that may not have needed cleanup. Other states report a 4- to 18-month time frame for program implementation. ADEQ needs to develop a risk-based program implementation plan and include key components in the plan to help ensure its success. Key components needed in ADEQ's plan include administrative rules to allow closure of contaminated groundwater sites based on risk; more flexibility in determining how much of a site must be cleaned up; economic and other data to better assess a site; guidance documents for ADEQ staff, tank owners, and environmental consultants performing cleanup; and ADEQ staff training. ADEQ top management needs to provide more policy direction and input into determining the scientific, economic, and other parameters that will drive site closure policy.

Assistance is available to implement a risk-based program. The American Society for Testing and Materials has developed a detailed risk-based model, and a training consortium, Partnership in RBCA Implementation, has technical resources available to assist ADEQ with implementing a risk-based program.

## Management of Cases Awaiting Determinations Is Inefficient

**(See pages 29 through 35)**

There is not only a backlog of unpaid Fund claims, but also of leaking underground storage tank cases requiring ADEQ's review and approval of cleanup steps. As of December 1, 1997, ADEQ had a backlog of 756 site characterization reports that document the results of site investigation activities in order to define the extent of contamination. These reports involve 1,140 open storage tank cases awaiting review. Further, as of October 31, 1997, there was a backlog of over 900 open storage tank cases awaiting ADEQ's review for closure.

Backlogs occur for several reasons. ADEQ lacks adequate management reports and other information to determine open leaking underground storage tank case status and the timeliness of ADEQ processing. In addition, ADEQ's storage tank case information database was found to have missing or inaccurate information. Without accurate and comprehensive information, ADEQ managers cannot produce accurate management reports to identify case processing problems. Staff productivity may also be a concern in the unit that reviews the reports that document the results of site investigation activities. Another factor impacting case processing is the number of management and organizational changes that have occurred over the past few years. Finally, ADEQ staff have provided tank owners and environmental consultants with inconsistent administrative and technical guidance, which can also impede storage tank case processing.

# TABLE OF CONTENTS


Page

**Introduction and Background ..... 1**

**Finding I: Actions Needed to Address State Assurance Fund Problems ..... 9**

Backlog in Current Claims ..... 9

Factors Limiting Monies Available to Pay Claims ..... 11

Options Available to Address Short-Term Need ..... 13

Actions to Reduce Future Claims and Encourage Compliance ..... 14

Ultimately Need to Sunset the Fund ..... 16

Recommendations ..... 17

**Finding II: Further Work Is Needed to Implement a Risk-Based Approach to Cleaning Up Leaking Underground Storage Tank Sites ..... 19**

EPA Encourages Risk-Based Approach for Cleaning Leaking Tank Sites ..... 19

Arizona's Approach Is More Costly and Slower to Address Sites Posing the Most Risk ..... 20

Cost Considerations Require That ADEQ Move Quickly to Implement a Risk-Based Approach ..... 23

# TABLE OF CONTENTS (cont'd)


Page

**Finding II: (cont'd)**

Key Elements Needed for Effective Risk-Based Program ..... 24

Recommendations ..... 27

**Finding III: Management of Cases Awaiting Determinations Is Inefficient ..... 29**

Large Backlog of Cases ..... 29

Several Factors Contribute to the Backlog ..... 31

Recommendation ..... 35

**Agency Response**


## Tables


Table 1 Arizona Department of Environmental Quality
State Assurance Fund
Statement of Revenues, Expenditures, and Other Changes in Fund Balance
Years Ended June 30, 1995, 1996, and 1997 (Unaudited) ..... 3

Table 2 Arizona Department of Environmental Quality
Leaking Underground Storage Tank
Cases Received and Resolved
Years Ended June 30, 1994 through 1997 ..... 30

# TABLE OF CONTENTS (concl'd)

**Page**

## Figures


Figure 1 Arizona Department of Environmental Quality
Steps in the Leaking Underground Storage Tank
Investigation and Cleanup Process ..... 5

Figure 2 Arizona Department of Environmental Quality
Maricopa Fund Claims
Amount Requested for Payment vs. Amount Paid
October 1995 through October 1997 ..... 10

Figure 3 Arizona Department of Environmental Quality
Non-Maricopa Fund Claims
Amount Requested for Payment vs. Amount Paid
January 1997 through October 1997 ..... 10

**(This Page Intentionally Left Blank)**

# INTRODUCTION AND BACKGROUND

The Office of the Auditor General has conducted a performance audit of the Arizona Department of Environmental Quality's Underground Storage Tank Program, pursuant to a May 27, 1997, resolution of the Joint Legislative Audit Committee. This audit was conducted under the authority vested in the Auditor General by Arizona Revised Statutes (A.R.S.) §41-1279.03.

## Underground Storage Tank Program History and Mission

Arizona and other states continue to deal with the expensive problem of cleaning up leaking underground storage tank sites. Tank contents that could leak include gasoline and other motor vehicle fuels, aviation fuels, petroleum solvents, diesel fuel, used motor oil, and flammable solvents. A leaking tank can pose risk to human health and the environment due to soil, surface water, or groundwater contamination. Because of these concerns and the need to implement federal regulations, Arizona established an underground storage tank program in 1986 that is administered by the Arizona Department of Environmental Quality (ADEQ). Since that time through fiscal year 1997, ADEQ records showed 6,296 leaks reported by tank owners. Of these, 2,424 have been cleaned up. ADEQ reports there are a total of 25,335 registered tanks statewide. Of those, approximately 9,200 are either still in use or temporarily taken out of operation. The mission of ADEQ's Underground Storage Tank program is:

> *To protect human health and the environment by assuring the proper installation, operation and closure of [underground storage tanks], by ensuring the cleanup of contamination emanating from leaking underground storage tanks . . . and by providing public education and financial assistance.*

In the late 1980s, tank owners faced increasing costs because of the growing numbers of leaking underground storage tanks. Private insurance had been tank owners' primary source of money, but became less available as insurers declined to continue writing policies. Arizona, like other states, found that owners of leaking tanks did not have the financial means to clean up contaminated sites. In response, the Legislature established the Assurance Account, commonly referred to as the State Assurance Fund (Fund) in 1990, which provides financial assistance to owners of leaking underground storage tanks. The Fund is available to all eligible tank owners/operators regardless of financial need. A one-cent per-gallon tax on substances placed in underground storage tanks provides revenue to the Fund. Similar funds

were established in 46 other states. Qualifying tank owners receive up to $500,000 per leak, or $1 million in certain instances. The owner, however, must pay a 10 percent copayment.

This audit focused on ADEQ's responsibilities for processing cases filed by owners of underground storage tanks and for providing financial assistance in cleaning up sites where damage has occurred. The storage tank program has been reviewed over the past two years. The Arizona Department of Administration and the Office of the Ombudsman-Citizens' Aide have conducted reviews of various aspects of the program. In addition, the Legislature established an Advisory Committee on Prioritizing Underground Storage Tank Corrective Actions and State Assurance Fund Coverage to address various issues confronting the program. This audit addresses several program issues, including problems with the State Assurance Fund, the need to quickly implement a risk-based program to more efficiently use limited cleanup monies, and the need for ADEQ to improve its management of the tank cleanup program.

## Underground Storage Tank Program Funding

Fund revenues have hovered around $25 million annually over the past three fiscal years. The Fund pays for both site cleanup of leaking tanks, and ADEQ's administrative costs for the program. In fiscal year 1997, approximately 67.4 percent of expenditures were for cleanup costs and 32.6 percent were for administrative costs. In 1993, the Legislature subdivided the Fund into two portions: Area A, the Maricopa Fund for Maricopa County, and Non-Area A (commonly referred to as Area B), the Non-Maricopa Fund for the other 14 counties. Table 1 (see page 3) provides Fund revenue and expenditure information for the past three fiscal years.

The table, however, does not address the issue of the program's backlogged claims payments. As of October 1997, the program had a $48 million backlog in payments to tank owners who were seeking reimbursement for cleanup expenses. Almost 1,300 claims were not paid in October because the Fund did not have enough money. Finding I (see pages 9 through 17) addresses concerns about the Fund.

Recognizing that state monies were not sufficient to remediate all leaking sites, the EPA issued a directive in 1995 encouraging states to categorize leaking tank sites by risk and to use scarce resources on sites that pose a more significant risk to human health and the environment. For example, if groundwater was contaminated but no current or future use for that water was contemplated, then the site may be closed without cleanup. This risk-based approach saves expensive but unnecessary cleanup costs and allows limited state cleanup monies to be used for more dangerous sites. At least 13 states have implemented or are implementing a risk-based program. Further, although the impact to the Fund in Arizona is not

## Table 1

## Arizona Department of Environmental Quality
## State Assurance Fund
## Statement of Revenues, Expenditures, and Other Changes in Fund Balance
## Years Ended June 30, 1995, 1996, and 1997
## (Unaudited)

| | 1995 | 1996 | 1997 |
|---|---|---|---|
| Revenues: | | | |
| Underground storage tank contents tax | $22,943,560 | $24,626,111 | $23,061,796 |
| State General Fund appropriation [1] | | | 3,000,000 |
| Interest on investments | 1,989,181 | 1,804,953 | 1,308,747 |
| Other | | 16,134 | |
| Total revenues | 24,932,741 | 26,447,198 | 27,370,543 |
| Expenditures: | | | |
| Personal services | 1,248,400 | 1,595,554 | 1,811,663 |
| Employee related | 248,701 | 309,749 | 345,006 |
| Professional and outside services | 2,588,519 | 5,533,145 | 6,452,804 |
| Travel, in-state | 20,949 | 31,462 | 24,981 |
| Travel, out-of-state | 6,359 | 10,427 | 9,175 |
| Aid to individuals [2] | 18,595,979 | 27,170,110 | 20,204,306 |
| Other operating | 82,013 | 258,137 | 89,053 |
| Capital outlay | 203,897 | 148,410 | 52,742 |
| Allocated costs [3] | 591,528 | 965,085 | 1,001,536 |
| Total expenditures | 23,586,345 | 36,022,079 | 29,991,266 |
| Excess of revenues over (under) expenditures | 1,346,396 | (9,574,881) | (2,620,723) |
| Net operating transfers | (9,821,747)[4] | 39,731 | |
| Excess of revenues and transfers in over (under) expenditures and transfers out | (8,475,351) | (9,535,150) | (2,620,723) |
| Fund balance, beginning of year | 53,515,448 | 45,040,097 | 35,504,947 |
| Fund balance, end of year | $45,040,097 | $35,504,947 | $32,884,224 [5] |

[1] Appropriated to pay claims for partial coverage of corrective action costs incurred prior to May 1, 1996, pursuant to A.R.S. §49-1052.

[2] Reimbursements to owners / operators who can include individuals or companies for leaking underground storage tank cleanup costs.

[3] All Department funds except the General Fund are charged a portion of administrative costs (e.g., administrative staff support, telephones, rent, postage, and insurance charges) using a federally approved indirect cost rate. The approved rate is applied against applicable funds' personnel and employee-related expenditures. The approved rates for fiscal years 1995, 1996, and 1997 were 44.06 percent, 52.82 percent, and 52.82 percent, respectively.

[4] Includes $10 million transferred to the Emissions Inspection Fund.

[5] Includes $5.4 million reserved for a long-term loan to the Regional Public Transportation Authority, $18.6 million designated for payments to claimants for cleanup expenses, and $1.3 million designated for program operating expenditures. The remaining $7.5 million is unreserved and undesignated.

Source: The Uniform Statewide Accounting System *Revenues and Expenditures by Fund, Program, Organization, and Object* and *Trial Balance by Fund* reports for the years ended June 30, 1995, 1996, and 1997.

known, it is estimated that using a risk-based approach could save 10 to 40 percent of the state-provided cleanup monies. ADEQ is exploring a risk-based program and this audit recommends that approach (see Finding II, pages 19 through 27).

## Cleanup Process for Leaking Underground Storage Tanks

The investigation and cleanup process has several steps. Figure 1 (see page 5) illustrates the basic steps that underground storage tank owners/operators and ADEQ typically take in order to investigate and clean up a leaking underground storage tank site. Owners/operators seeking Fund monies can submit applications throughout the cleanup process. For eligible owners/operators seeking reimbursement from the Fund, reimbursement applications can be submitted once costs have been incurred. For owners/operators seeking ADEQ's preapproval of investigative and/or cleanup work to be performed, Fund preapproval applications are submitted with site characterization work plans that detail the work that must be done to define the extent of contamination and/or cleanup work plans. ADEQ reviews and approves the work plans and, when money is available, sets aside Fund monies to pay for the work outlined.

## ADEQ Leaking Underground Storage Tank Program Organization

The Fund provides 60 FTE to support the Leaking Underground Storage Tank Program. In fiscal year 1997, the Fund supported 51 FTE in the Waste Programs Division and 9 FTE in other ADEQ sections. Most of the FTE are located in the Leaking Underground Storage Tank Program, which is comprised of five units and one team.

- **Case Evaluation and Review Team (3 FTE)**—Owners of leaking tanks notify this team, who does such things as assigns case numbers, requests information from owners about the leak, and evaluates facilities for multiple leaks. In addition, the team determines if a case can be closed.

- **Site Investigations Unit (10 FTE)**—This unit is responsible for reviewing information related to leaking tank sites that are in the investigation or characterization process. Their primary responsibility is to review work plans owners/operators submit detailing the work needed to fully define the extent of contamination. The work plans also include cost estimates that ADEQ preapproves for payment from the Fund. This unit also reviews site characterization reports that define the full extent of contamination.

## Figure 1

### Arizona Department of Environmental Quality
### Steps in the Leaking Underground Storage Tank
### Investigation and Cleanup Process

| | Department | Owner/Operator |
|---|---|---|
| 1. | | Finds leak from underground storage tank. Within 24 hours, reports the leak to ADEQ. |
| 2. | | As soon as possible, takes action to stop the leak, begins removal of any liquid product seen in the soil and/or water, and mitigates any other hazards. |
| 3. | Requests 14-day report on known information about the leak. Also, requests a site characterization report that documents the full degree and extent of contamination resulting from the leak. | |
| 4. | | Completes 14-day report and sends to ADEQ. |
| 5. | | Submits site characterization report within 120 days or 240 days if groundwater is impacted. |
| 6. | Reviews site characterization report and approves, disapproves, or asks for additional information. | |
| 7. | Requests a corrective action plan for leaks that are in excess of the applicable standards and impact the groundwater. | |
| 8. | | Submits corrective action plan if required. |
| 9. | Reviews and approves corrective action plan following process of public notice, public comment, and public meeting, if necessary. | |
| 10. | | Continues cleanup of leak contamination of soil and/or groundwater, if necessary. |
| 11. | | Submits monitoring reports as necessary. |
| 12. | Receives and reviews monitoring reports. | |
| 13. | | Continues cleanup and monitoring efforts as necessary. When cleanup is complete, submits a case closure report and requests case closure. |
| 14. | Reviews case closure reports and requests additional information, additional cleanup, or approves closure and issues a closure letter. | |

Source: Auditor General staff summary of steps in the Arizona Department of Environmental Quality's leaking underground storage tank investigation and cleanup process.

- **Remedial Actions Unit (6 FTE)**—This unit oversees cleanup of soil and groundwater at leaking storage tank sites once the extent of contamination has been defined. This staff approves cleanup activities through a corrective action plan or remediation work plan.

- **State Lead Unit (8 FTE)**—This unit oversees cleanup at sites where the owner is unknown, unwilling, or incapable (financially or technically) of doing the work. The cleanup work is performed by outside contractors. Fund money is used to pay for some of these cleanups, but ADEQ attempts to recover some costs from the tank owner/operator (if known).

- **Enforcement Unit (12 FTE)**—This group acts on violations of federal and state laws by implementing ADEQ's Compliance and Enforcement Policy. Staff manage cases under informal and formal enforcement to bring the owner/operator back into compliance. At times, staff work with the Arizona Office of the Attorney General for cases that require civil enforcement.

- **Claims Review Unit (8 FTE)**—This unit is being formed to perform Fund claims review work and oversight. These reviews look at both technical and financial aspects of cleanup work that has been completed or needs to be done.

The program also receives assistance from staff located in the Technical Support, Customer Service-Underground Storage Tank Outreach, and the Information Management Units, within the Underground Storage Tank Section. Finally, administrative responsibilities for the State Assurance Fund are performed by the Underground Storage Tank Financial Services Unit, which is under the management of ADEQ's Office of Fiscal Services.

## Audit Scope and Methodology

The purpose of this audit was to evaluate the efficiency and effectiveness of ADEQ's Underground Storage Tank Program and State Assurance Fund. This performance audit presents findings and recommendations in three areas:

- Changes needed to address State Assurance Fund problems;

- Further work required to implement a risk-based approach to clean up leaking underground storage tanks; and

- More efficient management needed for the leaking underground storage tank cleanup program.

ADEQ data problems impacted the auditors' ability to conduct the audit. For example, ADEQ did not have data to determine the program's overall impact on protecting human health and the environment. In addition, the USTrack database had some missing and/or unreliable data. To obtain some of this information and develop a further understanding of the leaking underground storage tank process, a random sample of 60 leaking underground storage tank case files was manually reviewed.

Auditors used a variety of methods to study the issues presented in this report. They reviewed the Fund's monthly financial reports and used the October 1997 Fund report to determine how long claimants had been waiting for payment. Further, the auditors generated statistical projections for the amount of time it would take to pay the current claims against the Fund, as well as the amount of time to pay the estimated value of claims for known leaks as of January 1997. Additionally, the auditors analyzed state accounting system reports and contractor payments to determine the percentage of Fund expenditures used for administrative activities. Other state studies, as well as EPA and other documents, were reviewed to understand risk-based corrective action, as well as the impact, benefits, limitations, and resources available in using this approach for cleaning up contaminated sites. Sixty leaking tank cases were reviewed to determine where these cases are in the process, where any backlogs exist, and timeliness of review and response by ADEQ and the tank owners. In addition, case files were reviewed to determine the consistency of information ADEQ provided. Further, ADEQ USTrack computer data was assessed for accuracy and completeness. Finally, productivity standards for ADEQ units involved in the tank cleanup process were also reviewed.

Key persons interviewed during this audit include ADEQ management and staff, environmental consultants, oil industry and insurance industry representatives, and staff from the EPA, ADEQ's Fund claims processing contractor, and employees of underground storage tank cleanup programs in other states. In addition, meetings of stakeholder groups and the Advisory Committee on Prioritizing Underground Storage Tank Corrective Actions and State Assurance Fund Coverage were attended.

This audit was conducted in accordance with government auditing standards.

The Auditor General and staff express appreciation to the Arizona Department of Environmental Quality and the Underground Storage Tank Section management and staff for their cooperation and assistance throughout the audit.

**(This Page Intentionally Left Blank)**

# FINDING I

# ACTIONS NEEDED TO ADDRESS STATE ASSURANCE FUND PROBLEMS

Action is needed to ensure monies are available to pay for timely cleanup of leaking underground storage tank sites. Unable to pay but a few claims monthly due to funding shortfalls, the State Assurance Fund (Fund) had a $48 million backlog of claims as of October 1997, and faces hundreds of millions of dollars in future claims. The State needs to look at options for providing more monies to pay claims more quickly, and for reducing the number and size of future claims. Under current statutes, claimants will be able to continue to draw on state monies despite a viable private insurance market for tank owners. The State needs to take action to phase out the Fund and allow the private insurance market rather than state government to provide cleanup coverage.

## Backlog in Current Claims

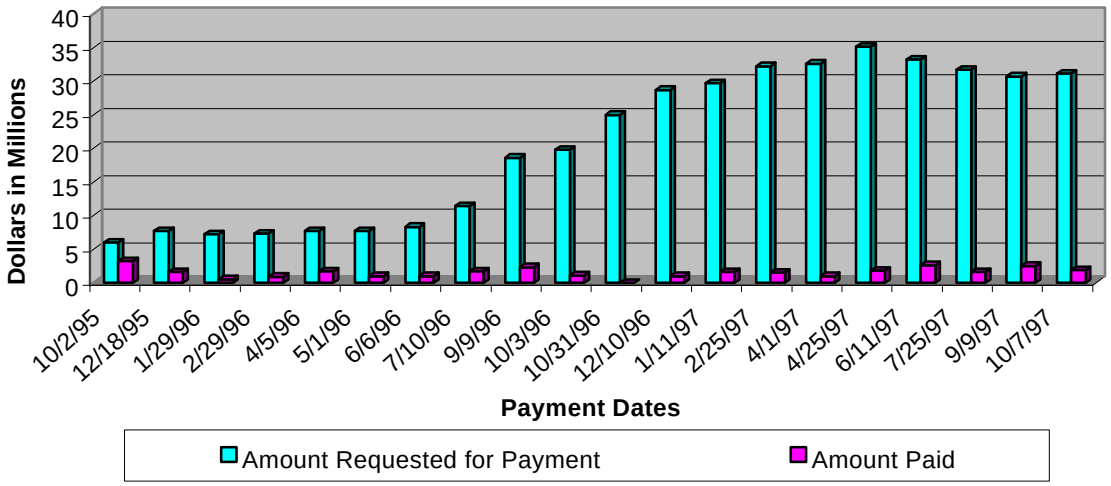
Currently, the Fund cannot pay claims promptly. As a result of this backlog, tank owners/operators are experiencing increasing payment delays. Future claims against the Fund are likely to exacerbate this problem.

***Large backlog in unpaid claims***—Both the Maricopa and Non-Maricopa Funds lack revenue to pay claims in a timely manner. In October 1997, the two funds had outstanding claims totaling $48 million that could not be paid. During that month, the Maricopa Fund was able to pay only 30 claims totaling approximately $1.9 million, with another 786 claims worth approximately $29 million going unpaid. Even worse, the Non-Maricopa Fund did not have sufficient monies to pay even one claim in October 1997. All 506 Non-Maricopa Fund claims, worth approximately $19 million, went unpaid. Figures 2 and 3 (see page 10) illustrate the amount of claims requested and determined to be eligible for payment and the amount actually paid for each Fund's payment periods since the Fund began prioritizing claims due to insufficient monies to pay all claims upon receipt.

As a result of this claims backlog, claimants are waiting a long time for payment. Claimants who received payments from the Maricopa Fund during October 1997 waited a median of 12 months from claim application to receive payment. The 786 claimants who were still waiting for payment had been waiting as long as 20 months. Assuming that the Maricopa Fund were to receive no new claims at all, and assuming that it would continue to pay claims at the

**Figure 2**

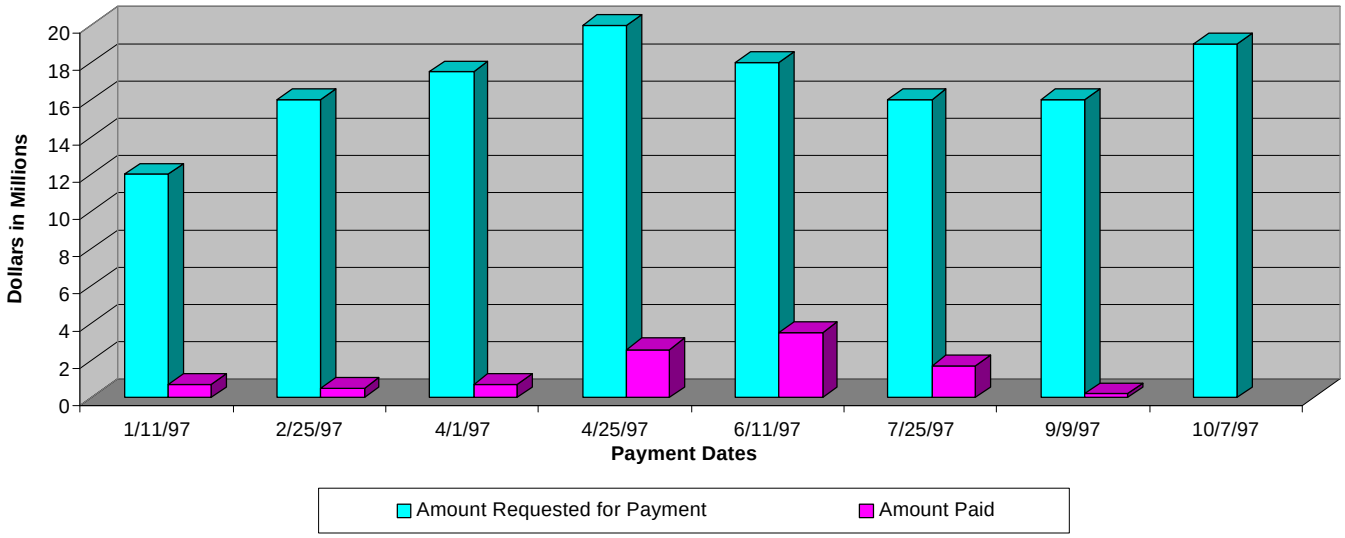
**Arizona Department of Environmental Quality**
**Maricopa Fund Claims**
**Amount Requested for Payment vs. Amount Paid**
**October 1995 through October 1997**




Source: Auditor General staff analysis of Maricopa Fund payment data from October 1995 through October 1997.

**Figure 3**

**Arizona Department of Environmental Quality**
**Non-Maricopa Fund Claims**
**Amount Requested for Payment vs. Amount Paid**
**January 1997 through October 1997**




Source: Auditor General staff analysis of Non-Maricopa Fund payment data from January through October 1997.

same rate as in the past, it would take 15 months to pay its approximately $29 million backlog. For the Non-Maricopa Fund, wait times for the 506 unpaid claims were as long as 13 months. Without any new claims, it would take the Non-Maricopa Fund 14 months to fully pay its approximately $19 million backlog.

***Future claims will worsen backlog*—**In addition to the backlog of current claims, the Fund faces a considerable cost for payment of future claims. In January 1997, ADEQ estimated that the Fund would be liable for an additional $279 million in claims (approximately $153 million for the Maricopa Fund, and approximately $126 million for the Non-Maricopa Fund). These estimates were for sites with reported leaks for which no claims had yet been submitted to the two funds. It is estimated that it could take the Maricopa Fund until October 2013 and the Non-Maricopa Fund until November 2007 to pay off these amounts.

Additional claims beyond the estimated $279 million will follow from leaks yet to be reported, further extending the length of time it will take for the Fund to pay for claims. However, it is not possible to accurately calculate this unknown liability. Most of these unknown leaks are likely to be reported by tank owners who have not yet upgraded to the new federal leak protection standards. The EPA has set a target of December 22, 1998, for tank owners to upgrade to the new standards. ADEQ estimates that 65 percent of the registered, operational tank systems have not yet been upgraded, leaving almost 6,000 that may potentially result in additional reported leaks. Additional unknown leaks could also be reported from old tanks not currently in operation and from upgraded tanks. Because statutes do not limit access to the Fund, even upgraded tanks experiencing leaks may be eligible for cleanup monies.

***Payment delays may result in problems*—**Payment delays may result in financial difficulties for some tank owners and environmental consultants, and can negatively impact human health and the environment. Most claims that are submitted to the Fund are for reimbursement of cleanup expenses. Without prompt payment, tank owners and environmental consultants could experience financial hardship since they have already expended monies "up front" for the cleanup activities. In addition, some tank owners have incurred debts to their consultants that remain unpaid. One consultant interviewed indicated an unwillingness to accept larger cleanup jobs because of long wait times for payment. Payment delays can also impact risk to human health and the environment, because they may cause some tank owners to postpone cleanup.

## Factors Limiting Monies Available to Pay Claims

Three factors have limited the amount of Fund monies available to pay claims. First, there are more claims than the revenues can support. Second, nearly one-third of the available monies went for administrative costs, leaving less money available to pay claims. Third, the Legislature transferred $15.4 million from the Fund to other programs.

***Claims exceed revenues*—**The major reason there is a backlog in paying claims is that there are more claims than can be supported by the Fund's revenues. As noted earlier, in October 1997, there was a $48 million backlog in eligible claims, but annual Fund revenues are only about $25 million. There is a mechanism in place to determine if a tax rate revision is necessary, but this mechanism has not been used. A.R.S. §49-1051(D) states that the ADEQ Director's annual report shall include his recommendation for any "revision of the underground storage tank tax rate necessary to maintain an average balance in the assurance account of thirty-six million dollars." For both fiscal years 1996 and 1997, the ADEQ annual report does not contain the Fund's average balance; therefore, the information to determine if a tax rate revision is needed is not available. ADEQ should compute the average balance for the Fund in order to determine if a tax rate revision should be made.

***Administrative costs absorb some of the available monies*—**In fiscal year 1997, administrative expenditures accounted for approximately $9.8 million, or 32.6 percent of total Fund monies expended. According to ADEQ, its administrative cost percentage could be lower if the Fund had sufficient monies to pay all claims. Taking into consideration the claims processed in fiscal year 1997, ADEQ's administrative costs percentage would decline from 32.6 percent to 12 percent.

About half of the administrative expenditures were for a claims processing contract. The program uses a private firm to process tank owner claims against the Fund. In fiscal year 1997, ADEQ paid the contractor approximately $4.5 million. ADEQ has made efforts to address concerns about the claims processing contract cost. In 1996, ADEQ negotiated with the contractor to voluntarily reduce its charges. Further, on September 25, 1997, ADEQ awarded a new contract with fewer claims processing responsibilities. Although it was awarded to the same contractor, the new contract transfers significant claim review responsibility to ADEQ. An analysis performed for ADEQ's contract team estimated the potential savings from the new contract at $1.7 million annually. This estimated savings includes ADEQ's increased cost for claims review.

The Fund also supports other ADEQ administrative costs. A.R.S. §49-1051(B) allows the Fund to pay the reasonable and necessary costs of administering corrective action requirements. In fiscal year 1997, the Fund supported 51 Waste Programs Division FTE and 9 FTE in other ADEQ sections. In addition, every ADEQ fund, except the General Fund, is charged indirect costs calculated at 52.82 percent of employees' salary and employee-related expenditures for Department expenditures such as rent and support services.

ADEQ needs to explore other states' administrative methods and assess its own processes to determine whether it can lower its administrative costs. Auditors contacted five states that paid administrative costs with monies from cleanup funds. These costs ranged from 7 percent in Michigan to 23 percent in Virginia. In addition, Virginia uses the same claims processing contractor as Arizona. Other states, however, may have different legal requirements,

administrative structures, and regulatory processes that could make comparison to Arizona difficult. Even so, Arizona may be able to use some innovative ideas from other states to reduce administrative costs.

***Cleanup monies transferred to other programs*—**The Legislature transferred $15.4 million from the Maricopa Fund to other programs, which further reduced monies available for claims. Legislation passed in 1993 required $10 million to be transferred from the Maricopa Fund to help finance the emissions inspection program. Also, in response to 1993 legislation, ADEQ loaned $5.4 million from the Maricopa Fund to the Regional Public Transportation Authority. This loan was to be paid from the Authority's lottery proceeds; however, to date, the Authority has not been able to repay ADEQ because of insufficient lottery revenues. Overall, the $15.4 million in transfers from the Maricopa Fund represent almost 10 percent of total Fund revenues from inception through fiscal year 1997.

## Options Available to Address Short-Term Need

Although a number of options exist to provide additional monies to speed current claims payment, only two, increasing the Fund tax or providing General Fund monies, appear viable.

***Increasing the Fund tax*—**One way to raise additional revenue would be to raise the Fund tax, which is currently 1 cent per gallon. A survey of other states found that 27 have a cleanup fund fee or tax comparable to Arizona's. Arizona's current Fund tax falls in the middle range of fee or tax amounts in the 27 states. Nine of the 27 other states have higher fees or taxes than Arizona, ranging from 1.1 to 4 cents per gallon.

Other states have adjusted their taxes to deal with revenue shortfalls. For instance, New Mexico addressed its $8 million claims backlog by raising its fee. The fee currently is $150 per 8,000 gallons, which equates to 1.875 cents per gallon. Texas doubled the bulk delivery fee that supports its program. In addition, four states, including Colorado, set their fees / taxes on a sliding scale that automatically increases when the fund balance falls below a set level. Colorado charges a fee on a per-truckload basis, ranging from $0 to $100. Currently, the fee is $25. The flexibility of this approach allows revenues to increase to match demand for cleanup monies, but to automatically reduce when demand slows.

Raising the Fund tax in Arizona could provide more revenue to meet short-term funding needs. In its 1996 legislative briefing, ADEQ reported that raising the current 1-cent tax to 1.96 cents per gallon would raise an estimated additional $17.8 million annually. In addition to the benefit of providing additional revenues, a tax increase adds no additional administrative costs, places responsibility for program costs on the consumers of regulated fuels, and appears to agree with the original legislative intent. A tax increase would require a two-thirds vote of the Legislature for passage.

***Use the State General Fund—***Another source for additional monies could be the State General Fund. Texas, for example, partially resolved its claims backlog by providing two $120 million loans from its state general fund. The loans are being repaid using proceeds from an increased fuel tax. Texas' Legislature did not charge interest on the loans. Further, ADEQ administrative costs for the leaking tank program, not including professional and outside services' costs, could be supported by the General Fund. In fiscal year 1997, this would have provided approximately $3.3 million. However, because this option would use existing state resources, fewer dollars would be available for other state programs.

In addition, the $15.4 million transferred from the Maricopa Fund could be repaid from the General Fund back to the Maricopa Fund. For fiscal year 1997, the Legislature appropriated $3 million to the Maricopa Fund. Further, for fiscal year 1998, the Legislature appropriated approximately $1.6 million to divide between the Maricopa and Non-Maricopa Funds. The Legislature could pay back to the State Assurance Fund any or all of the remaining monies transferred.

***Other options do not appear viable—***The other options for expediting payment researched as part of this audit do not seem viable. For example, some states raised money to pay their claims backlogs by bonding; however, Arizona has a constitutional limit on debt. To overcome this limit, an Arizona Attorney General's Office representative has stated that a constitutional amendment would be required to make the Fund a special fund, which could support bonds. Bonding also adds additional costs for interest and administration. For example, Iowa's bond interest rate was 5.6 percent when it took out a bond for additional cleanup monies. Administration costs can include such services as bond counsel, bond rating agencies, auditing, and underwriting costs. Underwriting costs alone can be 1 to 2 percent of the bond issue amount.

Another option could be to transfer the Fund's administration and claim liabilities to private insurance carriers. Although this would provide prompt claim payment and end ADEQ's administration of the Fund, it would entail additional costs. Insurance companies would expect to earn at least market rate for the capital plus a fee for claims processing services. In addition, private companies would expect an assured premium payment, as well as clear eligibility requirements and cleanup standards. Apparently, no other state has used this option, but Illinois did study it.

## Actions to Reduce Future Claims and Encourage Compliance

Arizona needs to consider invoking policy options other states use to reduce future claims and also to continue encouraging tank owner compliance with the 1998 tank safety standards. One option, adopting a risk-based approach that would focus expenditures where they are most needed, is discussed in detail in Finding II (see pages 19 through 27). Several other actions are also available. Other states have used (and a stakeholder group working in

Arizona has recommended), the option of lowering the dollar amount a tank owner can receive from the Fund and also increasing tank owner copayment requirements over time.[1] In addition, loopholes that allow some tank owners to circumvent financial responsibility requirements need to be eliminated.

***Lowering the claim ceiling*—**Lowering the claim ceiling, or the maximum amount the Fund will pay per leak, is one way to reduce the amount the Fund would pay for future claims. Arizona originally had a $225,000 claim ceiling. However, claimants are now eligible for $500,000 per leak, and in some cases $1 million. Florida lowered its claim ceiling incrementally between 1993 and 1999 from $1 million per site to $0, as a means of phasing out its fund. A stakeholder group working with ADEQ recommended lowering the claim ceiling incrementally from $500,000 to $300,000 in 1999, to $150,000 in 2001, to $50,000 in 2002, and to $0 in 2003 as a way of phasing out the Fund.

Not only could lowering the claim ceiling reduce the Fund's liability, but these gradual adjustments may encourage tank owners to complete cleanup prior to the decrease in coverage amounts. Most claimants submit claims for reimbursement, and would want to recover the maximum amount possible.

***Increasing copayment requirements*—**Increasing copayment requirements over time could also reduce future claim amounts and encourage tank owners to comply more quickly. Texas, for example, doubles copayments for each missed compliance deadline from $20,000 to $40,000 to $80,000. The Arizona stakeholder group recommended incrementally increasing copayment amounts from 10 to 20 percent in 1999, with another increase to 30 percent in 2001, as part of the plan to phase out the Fund and return to a system of relying on private insurers. Increasing the copayment amount over time will encourage tank owners to comply sooner, and could reduce the amount of Fund monies expended.

***Closing financial responsibility loopholes*—**Closing financial responsibility loopholes could also reduce the amount of claims against the Fund. Statutes already reduce the number of leaks eligible for Fund dollars in two ways. First, A.R.S. §49-1052(F)(5) requires owners/operators to comply with federal financial responsibility requirements to access the Fund for leaks reported on or after July 1, 1996. Owners/operators comply by demonstrating they have the financial means, through insurance or other approved methods, to pay for leak cleanup and compensation of third parties harmed by the contamination. In October 1997, ADEQ estimated that approximately 53 percent of owners had not demonstrated compliance with financial responsibility requirements. If these owners are not in compliance and report their leaks on or after July 1, 1996, they are not eligible to receive Fund monies. Second, A.R.S. §49-1054(E) requires that the Fund be placed in a secondary payment position behind any applicable insurance coverage. Owners/operators must first file claims against any applicable insurance coverage. The Fund then only pays for eligible costs not covered by the insurance.

---

[1] Stakeholders are tank owners, environmental consultants, and other interested parties who have been working with ADEQ on a number of issues related to the leaking underground storage tank program.

However, these statutes may not limit the Fund's liability as intended. First, according to ADEQ, owners/operators can become eligible for the Fund by retroactively obtaining a financial responsibility mechanism. There is no requirement that the retroactively obtained mechanism be used to pay for the cleanup. Second, the Fund is placed in the secondary payment position only behind applicable insurance. Contrarily, claimants who have any other type of financial responsibility mechanism, such as a self-funded liability fund (i.e., self-insurance), can continue to claim against the Fund first. By closing these loopholes, the Legislature could both reduce the Fund's future liability and encourage compliance with federal regulations.

## Ultimately Need to Sunset the Fund

The Fund was an attempt to deal with a situation in which private insurance was unavailable. The problems associated with leaking tanks were so prevalent and so costly that private insurance companies declined to continue writing policies in the late 1980s. However, an affordable private insurance market now exists for tanks that meet the 1998 federal safety standards. Unless the Legislature takes action to sunset the Fund, ADEQ will continue to accept claims indefinitely because the Fund has no termination date. Arizona could use any of several different methods to terminate the Fund.

***Fund lacks termination date—***Currently, access to the Fund by owners with leaking tanks has no end date. Originally, A.R.S. §49-1056 terminated ADEQ's authority to use Fund tax revenues to pay cleanup claims on December 31, 1999. However, in 1993, the Legislature extended this termination to 2003, and repealed it entirely in 1996. While future revenues are needed to pay current claims, the Legislature's intent may not have been to make the Fund permanently available to new claims. For example, tank owners who have complied with 1998 standards can continue to make claims against the Fund. In addition, tank owners who fail to meet the federal deadline, despite having ten years to comply, will also be able to file claims against the Fund indefinitely.

***Private insurance can resume coverage—***Tanks that meet the federal standards have a viable and affordable private insurance market available to them, and therefore do not require a government program to provide cleanup cost coverage. Coverage is available and reasonable for tank owners who have brought their tanks into compliance with the new 1998 safety standards. Underground storage tank insurance brokers provided quotes as low as $250 per year for insurance coverage for a tank meeting the new standards. The Fund was created to address a critical need to provide funding for cleaning up leaking tank sites because tank owners could not obtain insurance. When all tanks meet the new standards, the Fund will no longer be needed and the private sector can resume its traditional role in providing coverage.

***Several ways to end the State Assurance Fund—***Arizona has several options to terminate the Fund, as 14 other states have done or plan to do.

- **First,** the Legislature could implement the Arizona stakeholder plan to incrementally phase out the Fund. The plan recommends lowering claim ceilings and increasing copayments until 2003, after which no new leaks would be eligible for payment. This proposal would reduce the Fund's total liability and may encourage owners/operators to submit claims prior to the increases. However, the Fund's total liability would remain unknown until 2003.

- **Second,** the Fund could be closed to new leaks as of the federal tank upgrade deadline. For example, Texas has limited eligibility for its fund to leaks reported prior to December 1998. This option might encourage owners/operators to upgrade their tanks by the federal deadline if they want the Fund to pay their cleanup costs for any leaks they discover. In addition, this option is closer to the original Arizona termination date. It would also allow ADEQ to estimate total Fund liability as of the deadline.

- **Third,** rather than closing the Fund, the Fund could stop accepting claims by a certain date. For example, Michigan declared its fund insolvent in April 1995 due to insufficient monies. It informed owners/operators that claims would only be accepted as of the June 1995 sunset date. The fund paid only those claims. While this approach would provide a complete termination of the program and, if implemented immediately, significantly reduce the estimated Fund liability for reported leaks, many owners/operators would not be compensated for their cleanup costs.

## Recommendations

1. ADEQ should develop a plan outlining changes needed to the State Assurance Fund and provide recommendations to the Legislature. This plan should address, at a minimum, the following components:

   a. Adding more money from a Fund tax increase or the General Fund to pay current claims;

   b. Reducing future claims and encouraging more timely compliance with new tank standards by lowering claim ceilings and increasing copayments;

   c. Ending loopholes in A.R.S. §§49-1052(F)(5) and 49-1054(E) regarding financial responsibility requirements; and

   d. Terminating the Fund.

2. ADEQ needs to review and determine whether its costs for administering the leaking underground storage tank cleanup program could be reduced.

**(This Page Intentionally Left Blank)**

# FINDING II

# FURTHER WORK IS NEEDED TO IMPLEMENT A RISK-BASED APPROACH TO CLEANING UP LEAKING UNDERGROUND STORAGE TANK SITES

Besides the options discussed in Finding I (see pages 9 through 10), Arizona has another way to stretch its scarce dollars for cleaning up leaking underground storage tanks. The EPA has encouraged a risk-based approach since 1995, which allows states to use their limited resources on the riskiest sites. Under such an approach, the degree of cleanup a site receives is dependent upon the amount of risk posed.

Arizona currently operates on a different standard. ADEQ requires cleanup of any leaks impacting groundwater, even when risk to human health and the environment is low. Although ADEQ has a risk-based approach for leaks that do not affect groundwater, the process is not formalized. Implementing a broader, formalized, risk-based approach will have the greatest effect if implemented sooner, before further expenditures are made for full cleanup of sites that may not need such extensive treatment. Implementing such an approach requires several key program elements, such as administrative rules, guidance for evaluating risk, and training for personnel who will administer the program.

## EPA Encourages Risk-Based Approach for Cleaning Leaking Tank Sites

Recognizing that states across the nation lacked sufficient resources to clean up all underground storage tank leaks, the EPA in 1995 encouraged states to clean up only those sites that posed significant risk to human health and the environment. To assist states in implementing such a risk-based cleanup program, the American Society for Testing and Materials developed a risk-based corrective action model.[1] The goal of the risk-based model approach is to objectively evaluate a leak site's health risks, instead of automatically completely cleaning up the contamination caused by the leak. Thirteen states have implemented or are implementing such a risk-based process. This approach has saved significant cleanup fund monies and has allowed low-risk sites to be closed. Generally, no-risk leak sites are not cleaned up, low- or medium-risk leak sites are monitored, and high-risk leak sites are cleaned up to a reasonable standard.

---

[1] American Society for Testing and Materials. *Emergency Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*. ASTM E-1739. West Conshohocken, Pennsylvania:1995.

The American Society for Testing and Materials' risk-based model uses three evaluation levels (Tiers 1, 2, and 3) that involve a progressively more detailed evaluation of the contaminated site's characteristics in order to develop a cleanup plan.

- Tier 1 is used as a screening device. When contamination is below pre-set standards, no cleanup is required. When contamination exceeds the standards, cleanup can be done or a Tier 2 assessment may be performed.

- The goals of Tier 2 and Tier 3 are to establish more site-specific, less conservative cleanup standards; that is, typically higher contaminant levels are allowed, since more information is known about the leak and the potential health risks. Tier 2 involves decision-tree economic, exposure, and risk analysis. Additional types of data are collected and analyzed, including the level and extent of contaminates, whether the site may be used now or in the future as a source of drinking water, how likely it is that the contamination will affect human health, and how much it will cost to clean up the site.

- Tier 3 involves a complex and generally costly site assessment. Specific data is collected about the site's characteristics. Further, special engineering calculations and risk and exposure assumptions unique to the site are developed. Other means for risk reduction may be used, such as property use restrictions.

## Arizona's Approach Is More Costly and Slower to Address Sites Posing the Most Risk

Although the EPA's risk-based policy allows considerable flexibility in deciding how sites should be cleaned up, Arizona uses a less flexible approach. Arizona requires maximum cleanup for all sites where groundwater contamination has occurred, regardless of the level of threat to human health or the environment. A lesser degree of cleanup is acceptable for sites where groundwater is not affected and only soil contamination has occurred, but this approach has not been used often. Another impact of ADEQ's current approach is that cases are processed on a first-in, first-out basis, rather than first addressing sites that pose the most risk to human health and the environment. By adopting a risk-based approach to cleanup, Arizona could accrue significant cost savings and direct its limited resources to the riskiest sites.

***Leaks impacting groundwater require costly cleanup*—**In Arizona, all leaks that contaminate aquifers, or drinking water sources, are mandated by A.R.S. §§49-223 and 49-224 to be cleaned up to drinking water quality standards, even in cases where no future use of the aquifer is contemplated. This conservative approach in regulating leaking tanks that affect groundwater is very inflexible as it requires that all cleanups be made to strict standards. Therefore, cleanup efforts and expenditures from the State Assurance Fund and third parties

may be high in relation to potential health risks. The following example shows the expense that can be involved in cleaning up a site that appears to have little effect on the public's health or the environment:

- A leak occurred at a rural construction facility one mile northeast of Cashion, Arizona. The risk posed by the site is relatively low due to the absence of a drinking water source nearby and the land use, which is agricultural. Initial cleanup efforts involved the removal of 4,600 yards of contaminated soil. Further cleanup efforts involved bacteria and nutrient injection into the soil and groundwater. As of December 17, 1997, the State Assurance Fund had a pending claim of $1,120,357 for this site, which may never be used as a source of drinking water.

***Regulatory flexibility for leaks not affecting groundwater seldom used—***A more flexible regulatory framework is in place for sites involving leaks that contaminate soil and not groundwater. Since March 1996, a risk-based approach has been used for soil contamination under the interim soil rule. Tank owners and operators have had the option of using a risk assessment approach for sites that do not contaminate the groundwater. However, to date, few owners have used the risk assessment option. If more owners/operators conducted risk assessments allowable under the soil cleanup rule, owners/operators could possibly avoid unnecessary and costly cleanups of soil contamination that may not pose a health risk.

Further, the Department's Final Soil Remediation Standard Rule (Final Rule) for soil cleanups, issued on December 4, 1997, allows the owner/operator the option of choosing one of three cleanup levels:

- The first cleanup level is to reach already established cleanup standards, called soil remediation levels. The cleanup to soil remediation levels takes into account risk and exposure factors and is equivalent to a Tier 1 evaluation under the risk-based model.

- The second cleanup level is based on the particular characteristics of the site, called a site-specific risk assessment. The site assessment could allow the site to be closed without cleanup or to cleanup levels with contamination greater than the soil remediation levels, but that are still protective of human health. The Final Rule allows Tier 2 and Tier 3 evaluations although guidance has not yet been developed for Tier 2.

- The third cleanup level allowed under the Final Rule is to clean the site to the level of contamination naturally occurring in the soil.

***Tier 2 not formalized*—**While ADEQ's Final Rule demonstrates movement to a risk-based approach for soil cleanup, a Tier 2 evaluation is not yet formalized with guidance documents. A Tier 2 evaluation option is less costly than a Tier 3 risk assessment and can provide a quicker and more affordable method of evaluating site risk.

Further, while owners/operators since March of 1996 have had the option of using the risk assessment option under an interim rule, ADEQ staff reviewed only about ten risk assessments in the last year. According to ADEQ staff, few owners/operators have used the risk assessment option because ADEQ guidance documents are dated, lack key information, and cannot be used as the basis for risk assessments, and environmental consultants who prepare cleanup plans are not experienced with risk assessment requirements. For these reasons, owners/operators are still submitting soil cleanup plans, rather than conducting risk assessments.

***ADEQ does not evaluate and prioritize sites based on risk*—**Generally, ADEQ does not process or prioritize information related to leaking tanks based on risk. Due to deadlines required by administrative rules, the prevailing practice is to review incoming documents in the order they are received and as time permits. Therefore, low- and medium-risk sites receive the same priority as high-risk sites. Under this approach, staff resources may be directed at release sites that may not pose a high risk to human health or the environment. Further, as a result of not prioritizing sites, low- and medium-risk site investigation and cleanup costs may be paid from the Fund before the costs for high-risk sites.

***Replicating other states' experiences could have significant impact*—**Many states have implemented risk-based decision-making approaches into their underground storage tank programs with positive results. Further, other states have reported successes in the form of 1) reduced claims or claim amounts against state assurance funds, 2) closed leaking tank sites, and 3) staff resources refocused on other important tasks. For example, South Dakota reported savings of $2 million from 1995 to 1997. Texas reported a reduction in the number of open leaking tank cases from 12,000 in 1994 to 8,500 in 1997. South Carolina reported closure of 1,800 of 2,432 cases since 1995. In addition, South Carolina reported that staff now have more time for preventive tasks, such as tank permitting and inspection programs.

Additionally, several states have studied the potential impact of risk-based decision-making on the states' cleanup funds.[1] An engineer from an out-of-state environmental consulting firm that performed these studies estimated cleanup funds' range of savings to be from 10

[1] Iowa, Florida, Wisconsin, Missouri, and Connecticut have all conducted "predicted benefit" studies to evaluate the impact of risk-based decision-making on their underground storage tank programs and cleanup funds.

percent to 40 percent, using a risk-based approach. However, it is unknown what savings Arizona would realize. Further, an April 1995 study comparing Iowa's existing regulatory program with a risk-based approach identified a potential 37 percent, or $88 million, cost savings to the cleanup fund for high-risk sites.[1]

## Cost Considerations Require That ADEQ Move Quickly to Implement a Risk-Based Approach

ADEQ needs to act quickly to fully formalize and implement its risk-based program if such a program is to have a substantial effect on controlling costs. In addition, ADEQ needs to develop the type of approach it will use to implement a risk-based program. Various lessons learned from other states can assist program supervisors during the implementation phase.

***Implement program quickly—***Time is of the essence in adopting a risk-based approach. The longer it takes ADEQ to fully formalize and implement risk-based decision-making into the regulatory process, the greater the impact in terms of State Assurance Fund monies expended on leak sites that may not have needed cleanup or could have received lesser degrees of cleanup. ADEQ needs to formalize its risk-based approach for soil by developing Tier 2 guidance and needs to develop and implement a formal risk-based approach for groundwater. As previously discussed, other states have implemented risk-based approaches and have demonstrated positive results from these efforts. Several states were surveyed to discuss implementation time frames for introducing risk-based approaches into their programs. The range of responses varied from 4 months in South Carolina to 18 months in Texas and Hawaii. Moreover, ADEQ's proposal to revise the cleanup process to prioritize sites, which is part of a risk-based approach, contains a timeline that indicates legislative changes and rulemaking will occur in the spring of 1998. No other specific details exist. However, the financial consequences of further delay could be significant.

***Determine implementation plan—***Further, ADEQ has no detailed plan in place to implement a risk-based approach. The Department needs to develop an aggressive, detailed action plan with tasks, milestones, and staff assignments. Also, ADEQ needs more project planning and project management tools incorporated into its implementation approach to better manage its current caseload.

Other states have used creative methods and techniques to assist in program implementation. For example, Virginia's program staff took a three-month break in 1994 to clarify its existing regulatory policy regarding leaking tanks and, further, to get staff to reach a consensus on how to administer a risk-based approach on a daily basis. After reaching an agreement among staff on regulatory approach, all 7,000 open cases were reviewed. Virginia was then

---

[1] Groundwater Services, Inc. *Predicted Benefits of Risk-Based Corrective Action (RBCA): Iowa LUST Site Remediation Program*. Houston, Texas: Apr. 1995. 10-11.

able to close 3,000 of the 7,000 open cases. In Iowa, the state worked with a local university to develop software to evaluate Tier 1 cases.

## Key Elements Needed for Effective Risk-Based Program

This audit identified six key risk-based program elements that ADEQ needs to include for a successful risk-based program. ADEQ can also enhance program effectiveness and timeliness by using nationally recognized technical assistance for risk-based program development.

***Six key elements needed—***In order to increase a risk-based approach's chances of success, ADEQ needs to incorporate six key elements into its program.

- **New administrative rules for groundwater**—ADEQ needs to expedite issuing groundwater administrative rules to allow leak sites to exceed allowable contamination standards when there is no risk or limited risk to human health or the environment. Although ADEQ has had statutory authority under A.R.S. §49-1005(D) since April 29, 1997, to close sites without cleanup, ADEQ has yet to adopt the rule that is required to implement this authority. However, ADEQ initiated the rules development process in late November 1997. ADEQ also needs to seek legislation to exempt it from the Governor's Regulatory Review Council rule-making process for a one- or two-year interim period. A.R.S. §41-1026(A) provides for emergency rule making, unless "the emergency situation is created due to the agency's delay or inaction and the emergency situation could have been averted by timely compliance with the notice and public participation provisions of this chapter . . ." ADEQ's decision not to immediately promulgate groundwater rules would probably not allow the Department to use the emergency rule-making statute. Again, special legislation to permit an interim groundwater rule would probably be required to avoid conflict with this statute. During the interim period, ADEQ could also begin development of the final groundwater rule. Finally, the sooner ADEQ can get the rule in place, the sooner it can waive unnecessary cleanup costs.

- **More flexibility where cleanup must begin**—ADEQ also needs more flexibility in the location of where cleanup must begin on leaks into groundwater. The precise cleanup location is called the "point of compliance" and determining the point of compliance is an important policy decision that can have significant impacts on the cost of cleanup. Per A.R.S. §49-244, ADEQ has no legal authority to designate a point of compliance for leaking underground storage tanks. Therefore, ADEQ is required to clean up all groundwater sites where leaking occurs. This regulatory restriction requires cleanup efforts that may not be necessary to protect human health and the environment and can increase cleanup costs.

However, other states have the option of choosing an alternative point of compliance, such as the property line, when appropriate. Under such an option, for example, cleanup for some sites may be performed only on contamination extending beyond a property line, or for the portion of contamination that may affect an existing well. Further, the option of not cleaning up the contaminated property may make practical sense when the well is located a safe distance away from the leak and the contaminants will not impact human health and the environment. A February 1997 Florida study found that flexibility in moving the cleanup location could reduce cleanup costs by 12 to 64 percent.[1] In addition, Texas, Idaho, Michigan, and South Carolina have the authority in their underground storage tank programs to select an alternative point of compliance. Texas, Michigan, and South Carolina stated that they use this authority regularly in the administration of their programs. To ensure future property owners are aware of the potential contamination, both Florida and Michigan require deed restrictions to be placed on the properties.

- **Formalize guidance for Tier 2 evaluation option**—Arizona should formalize guidance for a Tier 2 (middle) site evaluation option into its regulatory process. A Tier 2 evaluation requires more data to be collected to assess a specific site, such as exposure and risk factors, as well as economic data on the cost of cleanup. This option avoids the cost and complexity requirements of a full risk assessment (equivalent to a Tier 3 evaluation).

- **Update guidance documents to evaluate risk**—ADEQ needs to update or rewrite program guidance documents based on the revised risk-based approach. These key documents are necessary to guide both the regulatory staff and the environmental consultants in the performance of their duties. Internal guidance documents for technical staff were initially prepared in 1993 and last updated in 1995. These key documents lack the clarity and content required to adequately direct the technical staff in the performance of their everyday monitoring and regulatory activities. The documents need to be updated to reflect the changes with the Final Rule for soil and explain in detail, for example, what levels of risk are acceptable or when it is appropriate for an owner/operator to escalate to a Tier 2 or a Tier 3 evaluation. South Carolina recently developed a concise 21-page guidance document for use by owners/operators and environmental consultants based on the risk-based model.[2]

---

1 Groundwater Services, Inc. *Florida RBCA Planning Study: Impact of RBCA Policy Options on LUST Site Remediation Cost*s. Houston, Texas: Feb. 1997. 4-5. The average cost for cleaning up a groundwater site contaminated with benzene in Florida was $193,000. Moving the point of compliance: 1) to the property line reduced average cleanup costs to $169,000; 2) across the road reduced average cleanup costs to $141,000; and 3) to the nearest existing well (within 750 feet) reduced cleanup costs to $69,000.

2 South Carolina Department of Health and Environmental Control, Bureau of Underground Storage Tank Management. *South Carolina Risk-Based Corrective Action for Petroleum Releases*. Columbia, South Carolina: Jan. 1998.

- **Senior management involvement**—ADEQ senior management has not been adequately involved in process redesign and implementation. Specifically, there has been limited direction from the Department's upper management regarding policy parameters for the revised program. Policy direction is important because it establishes the technical and economic parameters used to determine acceptable levels of risk. To date, Underground/Leaking Underground Storage Tank personnel have provided senior management with a briefing on the revised concept being developed and continuing e-mail updates on focus group progress, but little feedback has been received. Again, ADEQ should demonstrate more policy leadership and interest in risk-based decision-making and process redesign above the section level, or the revised program could lack departmental vision and flounder.

- **Staff training**—ADEQ staff generally does not have the training and experience to properly assess risk. Although ADEQ staff have had some initial risk-based training, ADEQ will need to upgrade training and make outside technical assistance available to the technical staff. For example, only one ADEQ technical staff person is qualified to review soil rule risk assessments. A risk-based approach requires a major shift in the program's regulatory orientation. The current technical staff possesses considerable knowledge of hydrology and water chemistry. This knowledge base was adequate when the program was focused on the removal and monitoring of contaminants. In the future, a risk-based approach will require the technical staff to also factor risk into their decision-making. Program staff will have to function not only as scientists, but also as risk managers. For example, staff will have to evaluate issues such as land use and calculate costs relating to cleanup. These knowledge and skill requirements will add considerable complexity to the technical staff's duties and responsibilities. Specifically, the technical staff will need training in how to administer and apply guidance documents written in a risk-based approach to their daily operations.

***Technical resources available—***To assist its implementation efforts, ADEQ needs to continue to use outside technical and training resources that are readily available, often at little or no cost to the Department. A training consortium, Partnership in RBCA Implementation (PIRI), has technical resources available to assist ADEQ in effective implementation of the risk-based model. Further, PIRI has assigned a liaison to each state, called a key stakeholder. ADEQ needs to coordinate and request additional technical assistance, as necessary, from the key stakeholder for Arizona, who is responsible for responding to state-specific needs.

Additionally, technical staff should use Tier 2 computer software applications in their regulatory activities. The Tier 2 software is readily available at nominal cost (approximately $500 per application), to assist ADEQ staff and the environmental consultants in performing the Tier 2 evaluation. This automated spreadsheet software contains fields to enter risk, exposure, and economic data and has the capacity to rapidly calculate a site risk "outcome." Further, this software would save staff time in evaluating a release site and add consistency to the regulatory process.

Finally, the key stakeholder liaison for Arizona has the capacity to form a group of interested parties, assist in raising money, and give support for (1) the development of Tier 2 software custom tailored for Arizona and (2) the preparation of updated guidance documents appropriate for a risk-based decision-making program. Again, there is no need to invent a new program for Arizona when a nationally recognized standard model exists.

## Recommendations

1. ADEQ should move more quickly to implement a risk-based approach for leaking underground storage tanks in Arizona. Specifically, ADEQ should develop a detailed action plan with tasks, milestones, and staff assignments to facilitate its implementation efforts.

2. ADEQ should transfer innovative ideas and concepts from other states into its risk-based implementation approach. For example, Virginia's program staff took a break from regular oversight responsibilities to regroup. After refocusing its program, it was able to close over 40 percent of its open cases within the next year.

3. ADEQ should incorporate key elements for a successful risk-based approach to cleaning up sites including:

   a) A rules change for groundwater;

   b) Flexibility in where cleanup must begin;

   c) A formalized Tier 2 evaluation option in the cleanup process;

   d) Updated guidance documents to evaluate risk;

   e) More senior management involvement in policy-making; and

   f) Additional staff training in risk-based decision-making.

4. ADEQ should continue to use available outside technical resources to assist in implementation assistance. This assistance could be in the form of coordination, development, and funding for:

   a) The development of state-specific risk-based Tier 2 modeling software; and

   b) The preparation of risk-based program key guidance documents.

**(This Page Intentionally Left Blank)**

# FINDING III

# MANAGEMENT OF CASES AWAITING DETERMINATIONS IS INEFFICIENT

Backlogs in case processing exist not only among claims awaiting payment (see Finding I, pages 9 through 17), but also among leaking underground storage tank cases awaiting ADEQ review or approval of cleanup actions. ADEQ's role typically involves reviewing and approving reports and work plans submitted by owners and environmental consultants, and also providing technical and administrative guidance. Several factors within ADEQ's control contribute to the backlogs. These factors include inadequate tracking of cases, inability to determine the adequacy of staff productivity, continual management changes in the program, and inconsistent guidance provided to those performing cleanups. ADEQ needs to process these cases efficiently to ensure that sites are cleaned up as soon as possible to lessen environmental and health risks. More efficient processing also allows owners to better market their property.

## Large Backlog of Cases

In addition to the backlog of cases awaiting Fund payments discussed in Finding I (see pages 9 through 17), ADEQ has a large backlog of open cases in the cleanup process. The approximately 3,900 unresolved cases have been open a median of four years. The audit identified backlogs in two parts of ADEQ's administrative process: site characterization report review and closure report review. A survey of environmental consultants revealed similar concerns with timeliness.

***Large number of open cases*—**At the end of fiscal year 1997, ADEQ had nearly 3,900 unresolved cases in its workload inventory. As shown in Table 2 (see page 30), ADEQ's inventory of unresolved cases has been consistently high in the past four fiscal years, with ADEQ resolving more cases than it received in the latest fiscal year. These unresolved cases have been open a long time. ADEQ data indicates that these cases have been open a median of approximately four years. ADEQ, however, has significantly increased the number of cases resolved annually, from 252 in fiscal year 1994 to 760 in fiscal year 1997.

***Backlogs in two areas*—**This audit's review of cases found backlogs exist in reviewing both site characterization reports and closure reports. Site characterization reports are used to de-

termine the full extent of the site's contamination. ADEQ reviews closure reports to determine whether the case should be closed or whether further information and/or cleanup efforts are needed.

**Table 2**

**Arizona Department of Environmental Quality**
**Leaking Underground Storage Tank**
**Cases Received and Resolved [1]**
**Years Ended June 30, 1994 through 1997**

| | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|
| Beginning of year | 2,711 | 3,275 | 3,660 | 4,043 |
| Received | 816 | 770 | 982 | 590 |
| Resolved | (252) | (385) | (599) | (760) |
| End of year | 3,275 | 3,660 | 4,043 | 3,873 |

[1] Suspected leaks, cases referred to another program, and cases that have been closed because they have been combined with other leaking underground storage tank cases at the facility are excluded.

Source: Auditor General staff summary of Arizona Department of Environmental Quality data.

- **Backlog in site characterization report review**—There is a significant backlog of site characterization reports awaiting ADEQ's review. As of December 1, 1997, ADEQ data indicates 756 site characterization reports, involving 1,140 cases, are waiting for ADEQ's evaluation.

ADEQ's review of a site characterization report is important. While cleanup may take place without an approved site characterization report, the owner/operator risks performing improper cleanup because the site may not have been correctly characterized.

- **Backlog in site closure report review**—According to ADEQ data, at the end of October 1997, over 900 cases were waiting to be reviewed for closure eligibility. This audit's review of 60 cases found 4 cases that have waited from approximately one-half year to nearly a year and-a-half for closure review. For example:

  In an August 23, 1996, letter ADEQ stated that the case would be reviewed for closure eligibility upon submittal of information indicating that an analytical laboratory referred to in a site characterization report was certified by the Arizona De-

partment of Health Services. On September 18, 1996, ADEQ received information indicating that the lab was certified. However, ADEQ has taken no further action to close this case.

***Survey notes similar problems with timeliness and delays—***Similar problems with timeliness and delays were noted in a recent telephone survey of 28 environmental consultants conducted by an environmental consultant for the Advisory Committee on Prioritizing Underground Storage Tank Corrective Actions and State Assurance Fund Coverage. Concerns included the length of time it takes to get a response from ADEQ, the long response time to written requests either for reviewing documents or setting up a meeting to discuss sites, and the need to expedite the site closure process.

## Several Factors Contribute to the Backlog

Several factors contribute to the backlog of open cases. Although some delays are outside of ADEQ's control, others are within its control. These include ADEQ's inability to properly monitor its caseload, low staff productivity standards, numerous organization and management changes, and inconsistent guidance provided to owners and environmental consultants.

***Tank owners may contribute to delays—***Some of the delays are outside of ADEQ's direct control. A review of 60 case files identified at least 25 cases where ADEQ was waiting for the owner to submit required documentation. For some cases, the file review identified instances where it took over 200 days for owners/operators to submit site characterization reports. Some consultants hired by tank owners were contacted and several reasons were found for delays in submitting required documentation. For example, one consultant understood that the required documentation had been given to ADEQ and another consultant felt that the required documentation was unwarranted.

***Pre-approval process contributes to backlog—***The pre-approval process for addressing claims has also contributed to the backlog. In 1996, rules were adopted that required most claimants to seek and obtain ADEQ approval for expenses that would occur during investigation and cleanup of a leaking tank site. This provision was added to address the concern that some costs were not being reimbursed because they were deemed unnecessary. This process requires reviews to be conducted within prescribed time frames. Time spent on pre-approval activities has delayed ADEQ from performing other case-related activities.

***Case tracking is inadequate—***This review found that ADEQ lacks necessary information needed to ensure that staffing resources are efficiently and effectively used to address backlogs and time delays in resolving cases. For example, ADEQ does not consistently generate adequate reports to determine information such as where backlogs occur, how long it takes to

move from one step to another in the process, and the current case status. In addition, the site investigations unit does not provide the section manager with reports indicating staff productivity and the timeliness in which site characterization reports are reviewed. In contrast, Texas has the ability to print daily backlog lists, track what staff have been working on, and track when the tasks are completed. Developing and using these reports will let each functional unit know the status of the cases and help them to better coordinate their efforts and use their resources more efficiently.

This audit's case file review identified some cases that suffered delays of approximately half a year to over 9 years because of inadequate tracking by ADEQ:

- On December 21, 1994, laboratory results confirmed an undetermined quantity of gasoline leaked from a 3,000-gallon tank. The next day ADEQ requested a 14-day report due January 4, 1995, and a site characterization report due March 21, 1995. On January 5, 1995, ADEQ received a 14-day report. Nearly two years later, in December 1996, the consultant submitted a tank closure report, not a site characterization report. As of November 1997, ADEQ still had not reviewed or taken action on this case. The Department considers this case low priority and is considering requesting additional information from the owner/operator.

- On November 1, 1988, an owner/operator reported corrosion holes found in two gasoline tanks. Approximately two weeks later, ADEQ sent a letter requesting a report by January 15, 1989, concerning the tank's removal and replacement. In August 1990, ADEQ received tank integrity test results. ADEQ took no action on this case until January 1995, when it sent a letter stating that staff reviewed information contained within the case file and had not yet received adequate documentation about this facility's suspected leak. ADEQ requested that documentation be submitted by March 2, 1995. This information was not submitted. As of November 1997, ADEQ has not reviewed or taken any action on this case.

Further, ADEQ's computer system used to process and manage cases has some inaccurate and incomplete data.[1] Auditors compared information on the computer system to the hard copy case files and found that the computer system lacked information in some data fields and had incorrect information in some other data fields. For example, at least 42 case files had some missing information on the computer. In addition, there appeared to be a time lag in recording recent actions. Further, for at least 24 cases, some dates in the computer database did not match dates found in the case files. According to ADEQ, data problems occurred when information from previous automated systems was converted to the current system.

[1] To help oversee the process, ADEQ uses a computer database called USTrack. Staff use this computer database to help track activities such as incoming and outgoing documents, process decisions, and other activities by date and person.

ADEQ has made some attempts to correct problems, but indicates that insufficient resources have not allowed them to adequately address the problem.

***Productivity requirements may be too low—***The site characterization unit and the case evaluation and review unit both have low productivity standards, which contribute to case backlogs. Staff productivity standards for the site characterization unit have been significantly reduced. Currently, to achieve a "standard" rating, an employee must complete an average of 4 to 4.8 work products, such as a site characterization report review, per month. In fiscal year 1997, the site investigations unit completed a total of 596 work products, or 6.2 per month for the 8 employees involved. In contrast, ADEQ staff indicated that in the past site investigations staff were expected to complete one work product per day. ADEQ should reevaluate its productivity standards to ensure that staff are as productive as possible.

The case evaluation and review team goal is difficult to assess. This team is primarily involved with reviewing and approving cases for closure. Instead of individual goals, the unit uses a group goal, which currently is to close 700 cases per year. In fiscal year 1997, the unit exceeded this goal, closing 760 cases. However, the unit has been using a consultant since December 1995 to assist with case closures. In fiscal year 1997, the consultant reviewed 950 cases for closure and recommended that 448 be closed, leaving unit staff with approximately 300 cases which they solely reviewed for closure.

ADEQ needs to reevaluate its productivity standards and determine the feasibility of readopting the previous work standards used in the site characterization unit. In addition, ADEQ needs to determine whether the group productivity goal for the case evaluation and review unit is appropriate and takes into consideration the consultant's work.

***Many management and organizational changes—***Frequent management turnover and various reorganizations at ADEQ may also contribute to the backlogs in the cleanup process. Since the underground/leaking underground storage tank section was established in 1991, it has had seven different managers. In addition, the Waste Programs Division, which is responsible for this section, has had five assistant directors during the same time period. Management turnover can lead to inexperienced managers, lack of program continuity, a hesitancy to take aggressive enforcement actions, and in general, delays in restoring smooth operations after changes are made.

Moreover, since 1991, ADEQ has reorganized its leaking underground storage tank program three times. When first established in 1991, the program used case managers to oversee specific cases throughout the cleanup process. In 1994, the case manager approach was changed to having case managers represent geographic areas. Later, in January 1996, the program reorganized itself along functional lines using units to accommodate different steps in the process. The current functional organization requires each unit to better coordinate its efforts

with other units, and could make it more difficult for outside parties to acquire information concerning their cases because they could end up speaking with several different ADEQ staff as their cases are processed.

***Inconsistent guidance provided to owners and consultants*—**Inconsistent guidance provided by ADEQ may also contribute to delays. Providing consistent information to owners and environmental consultants is important because it helps control costs, assists planning efforts, and reduces frustration.

Several reports have questioned the consistency of information provided by ADEQ. An October 1997 report issued by the Arizona Ombudsman-Citizens' Aide Office (Report #96-063) found numerous instances when guidance to an owner/operator changed when the case manager changed. However, ombudsman staff stated they were not technically qualified to determine whether this was the result of inconsistent standards, changing standards, or new developments at the site. In addition, environmental consultants noted in a telephone survey conducted for the Advisory Committee on Prioritizing Underground Storage Tank Corrective Actions and State Assurance Fund Coverage that the underground storage tank section's poor internal communication causes inconsistency in their actions. One consultant noted that submitting acceptable paperwork was a matter of trial and error. In addition, the survey noted that ADEQ's inconsistency in interpretation, direction, and response was a major concern among environmental consultants. Audit work also found problems with consistency in guidance, as illustrated by the following case example:

- On February 10, 1994, a gasoline leak was detected during the closure of an 8,000-gallon gasoline tank. On April 19, 1996, the consultant submitted a work plan to ADEQ to define the lateral extent of the contamination. In a letter dated July 12, 1996, ADEQ rejected this work plan because of the lateral borings' location. ADEQ requested the lateral borings be placed closer to the vertical borings. In an attempt to address this concern, the consultant submitted a second work plan on November 20, 1996. In February 1997, ADEQ denied the second work plan, stating that no lateral borings were necessary. In August 1996, ADEQ had amended its rules and policies requiring less stringent guidelines for lateral borings which, according to the consultant, he attempted to include in the second work plan.

ADEQ needs to take additional steps to address consistency concerns. ADEQ has developed a site characterization manual that is intended to provide more guidance to owners/operators and consultants, but as of January 6, 1998, this manual had not yet been finalized. In addition, staff may need additional training to better familiarize themselves with established standards. Further, environmental consultants familiar with ADEQ's tank cleanup process believe additional training would help reduce staff inconsistencies and limit unnecessary delays.

## Recommendation

1. ADEQ needs to address backlogs and delays in its Leaking Underground Storage Tank program by:

   a. Developing and using management information reports that provide information such as current case status, staff assigned, where backlogs occur, timeliness for all steps of the process, and staff productivity;

   b. Reviewing and ensuring that the data in its USTrack database is complete and accurate;

   c. Reevaluating staff work standards and monitoring productivity for both the Site Investigations Unit and the Case Evaluation and Review Team to ensure cases are efficiently processed;

   d. Providing training and guidance to staff to ensure that leaking underground storage tank policies and standards are consistently administered; and

   e. Completing its site characterization manual to provide more guidance to owners / operators and consultants.

# Agency Response

**(This Page Intentionally Left Blank)**

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Governor Jane Dee Hull  Russell F. Rhoades, Director

February 25, 1998

Mr. Douglas R. Norton
Office of the Auditor General
2910 North 44th Street, Suite 410
Phoenix, AZ 85018

Dear Mr. Norton:

Enclosed is the Arizona Department of Environmental Quality (ADEQ) response to the Auditor General.s report on the ADEQ Underground Storage Tank Program report dated February 18, 1998. If you have questions or concerns regarding this matter, please do not hesitate to contact me at 207-2203.

Sincerely,

Russell F. Rhoades
Director, ADEQ

cc:

Jean Calhoun
Ronald Kern
Michael Clark
Mark Santana

# Office of the Auditor General
February 18, 1998 Report

## Arizona Department of Environmental Quality
Final Response
**February 25, 1998**

## SUMMARY

**Page ii, First Paragraph**: With regard to the administrative costs incurred by the State Assurance Fund (SAF), it is misleading to compare the administrative expenses to the expenditures because the ADEQ must expend funds to process all applications received, while expenditures are limited by the availability of funds. A more meaningful comparison would be between the administrative costs and the amount of money requested by applicants. ADEQ processes many more claims than are actually paid in any given time period. In FY 97, dollars requested in SAF applications were: $ 40,624,691.00 (Maricopa) + $ 40,953,803.00 (Non-Maricopa) = $81,578,494.00 (total requested). In FY 97, the administrative expenses paid from the Fund were approximately $9.8 million, which is 12% of the total amount requested from the Fund.

## INTRODUCTION AND BACKGROUND

**Page 2, First Paragraph:** The two audits earlier in the same fiscal year are directly relevant background material, and should have been discussed as to their objectives, orientation, and overall results. Basically those audits found that the UST program was performing well in the absence of needed resources.

**Page 2, Third Paragraph**: See comment for Page ii, First Paragraph.

## FINDING I: ACTIONS NEEDED TO ADDRESS STATE ASSURANCE FUND PROBLEMS

**Page 12, Second Paragraph**: See comment for Page ii, First Paragraph.

## Recommendations

**1. ADEQ should develop a plan outlining changes needed to the State Assurance Fund and provide recommendations to the Legislature. This plan should address; at a minimum, the following components:**

**a) Adding more money from a Fund tax increase or the General Fund to pay current claims;**

**ADEQ Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented**.

**b) Reducing future claims and encouraging more timely compliance with new tank standards by lowering claim ceilings and increasing copayments;**

**ADEQ Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented**.

**c) Ending loopholes in A.R.S. 49-1052(F)(5) and 49-1054(E) regarding financial responsibility requirements; and**

**ADEQ Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented**.

**d) Terminating the Fund.**

**ADEQ Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented**.

The Department has been and continues to work with the UST Advisory Committee, the Legislature and stakeholders to address the funding concerns and make recommendations to the Governor and the legislature that will address the problem. The Department is currently working with a focus group on Senate Bill 1376. The Department hopes that this focus group can address these issues via the Senate Bill. The Department agrees that a plan should be developed to do all or some of the following: add more money to pay the backlog of claims, reduce future claims, enforce financial responsibility requirements and terminate or sunset the fund.

**2. ADEQ needs to review and determine whether its costs for administering the leaking underground storage tank cleanup program could be reduced.**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

ADEQ will continue to review and revise to reduce administrative costs for the leaking underground storage tank cleanup programs.

## FINDING II: FURTHER WORK IS NEEDED TO IMPLEMENT A RISK-BASED APPROACH TO CLEANING UP LEAKING UNDERGROUND STORAGE TANK SITES

## Recommendations

**1. ADEQ should move more quickly to implement a risk-based approach for leaking underground storage tanks in Arizona. Specifically, ADEQ should develop a detailed action plan with tasks, milestones, and staff assignments to facilitate its implementation efforts.**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

ADEQ has determined that RBCA implementation through the LUST Corrective Action Rule development is the best direction for the UST Section. Attachment 1 is a list of implementation task list and indicates those items completed and initiated towards RBCA implementation. The time frame for development of rules which will include: RBCA , the use of Certified Remediation Specialists and will allow for alternative cleanup levels following groundwater corrective action, is expected to be approximately 1 year, including considerable input from stakeholders. In the meantime, new department-wide risk assessment guidance for soils has been drafted and is currently being reviewed by Department staff. ADEQ believes RBCA implementation will be best served through rulemaking as opposed to use of only policy and guidance, as has occurred in some states. The schedule for this rulemaking process is included as Attachment 2.

**2. ADEQ should transfer innovative ideas and concepts from other states into its risk-based implementation approach. For example, Virginia.s program staff took a break from regular oversight responsibilities to regroup. After refocusing its program, it was able to close over 40 percent of its open cases within the next year.**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

However, the example given is not considered part of that recommendation. ADEQ would also like to clarify that ADEQ staff have been in contact with numerous other states (including South Carolina, Michigan, Texas, Illinois, Indiana, Oregon, Idaho, Utah, New York, Hawaii, and Iowa) regarding RBCA implementation and are using and will continue to use the RBCA rules or guidance documents available from these states in writing Arizona.s draft RBCA rules and guidance. Although studies to predict the increased number of closures or cost savings associated with implementation of RBCA have not been conducted for ADEQ, RBCA implementation would be expected to streamline site evaluations and perhaps increase case closures.

**3. ADEQ should incorporate key elements for a successful risk-based approach to cleaning up sites including:**

**a) A rules change for groundwater;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

Senate Bill 1452, passed in the first regular session of the 43rd Legislature, changed A.R.S. 49-1005.D, thereby requiring ADEQ to develop rules that would allow the Director to approve of corrective actions that may result in water quality to exceed the water quality standards. This issue will be addressed during the current development of the LUST Corrective Action Rules. These rules will go through stakeholder and public input prior to implementation.

**b) Flexibility in where cleanup must begin;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

ADEQ does not currently have the legal authority to change the point where UST cleanups must begin. However, this issue will be addressed during the current development of the LUST Corrective Action Rules.

**c) A formalized Tier 2 evaluation option in the cleanup process;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

This issue will be addressed during the current development of the LUST Corrective Action Rules. Draft ADEQ risk assessment guidance currently under review by Department staff is intended to describe the use of Tiers 2 and 3. The availability of computer software to aid in Tier 2 assessment will be determined. Current risk assessment guidance does not limit an owner or operator from preparing a Tier 2 risk assessment to evaluate a site.

**d) Updated guidance documents to evaluate risk;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

The UST Risk Assessment Guidance has not been updated; instead the UST Section has opted to wait for the Department-wide Risk Assessment Guidance to be finalized. The draft ADEQ risk assessment guidance document is currently under review by Department staff. The risk assessment guidance document the Department currently uses does not need to explain in detail .what levels of risk are acceptable. since these levels are listed in the final Soil Rule. The UST Section has contacted a number of other states regarding the financial gains, increases in closures, and streamlined file review following RBCA implementation. The UST Section has RBCA guidance or rule from the following states: South Carolina, Michigan, Texas, Illinois, Indiana, Oregon, Idaho, Utah, New York, Hawaii, and Iowa. These contacts have definitely increased the Section.s desire to implement RBCA in Arizona.

**e) More senior management involvement in policy-making;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

ADEQ senior management was involved in the development of the final soil remediation standards rule and in the policy decisions necessary for that rule. In addition, a meeting has been scheduled (February 26, 1998)

between ADEQ senior management, UST Section staff, the Partnership in RBCA Implementation (PIRI) representative and the EPA Region 9 staff to Facilitate expediting implementation of the Arizona RBCA process. ADEQ senior management will also be involved in the development of the LUST Corrective Action Rules.

**f) Additional staff training in risk-based decision-making.**

**<u>ADEQ Response</u>: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

The UST Section began RBCA training in September 1995 when existing UST Section staff received Module 1 training from ASTM certified trainers. In August and September 1996, UST Section staff received Module 2 and Module 3 RBCA training. In addition, individual staff members have attended risk assessment training off-site. Staff training regarding the final soil rule and risk-based decision-making has been planned for February and March 1998. Additional training of staff will be conducted once a full RBCA approach is implemented.

ADEQ has used some of the significant .outside technical and training resources. available. All three modules of training received by ADEQ staff were conducted by ASTM certified trainers and were sponsored by the PIRI. ADEQ staff have attended 2 PIRI meetings and taken advantage of the resources available through that group. ADEQ staff have been in contact with the State.s key stakeholder, EPA headquarters and regional staff, and ASTM trainers during implementation to answer questions and discuss policy issues and decisions.

**4. ADEQ should continue to use available outside technical resources to assist in implementation assistance. This assistance could be in the form of coordination, development, and funding for:**

**a) The development of state-specific risk-based Tier 2 modeling software: and**

**<u>ADEQ Response</u>: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

**b) The preparation of risk-based program key guidance documents.**

**<u>ADEQ Response</u>: The finding of the Auditor General is agreed to**

**and the audit recommendation will be implemented.**

ADEQ has and is using available outside technical resources to assist in RBCA implementation. The UST Section began RBCA training in September 1995 when existing UST Section staff received Module 1 training from ASTM certified trainers. In August and September 1996, UST Section staff received Module 2 and Module 3 RBCA training. In addition, individual staff members have attended risk assessment training off-site. Staff training regarding the final Soil Rule has been initiated. Additional training of staff will be conducted when a full RBCA approach is implemented. All three modules of training received by ADEQ staff were conducted by ASTM certified trainers and were sponsored by the PIRI. ADEQ staff have attended 2 PIRI meetings and taken advantage of the resources available through that group. ADEQ staff have been in contact with the State.s key stakeholder, EPA headquarters and regional staff, and ASTM trainers during implementation to answer questions and discuss policy issues and decisions.

## FINDING III: MANAGEMENT OF CASES AWAITING DETERMINATIONS IS INEFFICIENT

**Page 29, Third Paragraph:** The second sentence mentions that during the last fiscal year the ADEQ has resolved more cases than it received, although the positive aspect of this statistic is not stated. Additionally, the number of resolved cases has continued to increase over the last four fiscal years.

**Page 32, Productivity requirements may be too low:** The ADEQ will review productivity requirements in the program and revise them as necessary. However, the ADEQ does not agree totally that a major cause of case backlogs is due to low staff productivity. The ADEQ considers that the information and data used to support that conclusion are not completely accurate. This includes the statement that staff were previously required to complete one work product per day, which is not only misleading but is inaccurate. In addition, staff productivity standards have never been significantly reduced. The current standards for the Site Investigation Unit (SIU) referred to in the report were developed to apply only to some of the specific tasks performed by the Unit such as work plan reviews and site characterization reviews. Other tasks that staff are required to complete were counted in other ways. Also, the standards took into consideration the experience level of the staff in that given time period. The standards were not intended to be a strategic goal of the Unit. The previous standard, of one work product per day, was from the 1994 - 1995 period when the section was organized regionally and applied to file reviews that may not have included any documented work product and rarely involved work plan reviews.

A more accurate statement is that the complexity of reviews for the Unit.s staff has

significantly increased over time, which may have resulted in a reduction of the number of tasks completed. It should also be noted that SIU staff have always been required to give work plan reviews the number one priority because the Pre-approval Rules require that ADEQ respond to work plans within 60 days or the owner/operator may proceed before obtaining pre-approval. Site characterization reviews are a secondary priority and are conducted when time allows. The report should have indicated that ADEQ has no control over the number of work plans or site characterization reports that are submitted each month.

It is also not accurate to indicate that staff productivity is not tracked. SIU.s tracking system was used to generate the work products completed by the Unit in fiscal year 1997. Additionally, the Unit was not fully staffed by 8 hydrologists the entire year, so the average monthly output is lower than would be expected when fully staffed.

**Page 34, Second Paragraph:** Rules promulgated in August 1996 would not allow the installation of lateral borings until a single vertical boring was installed. The responses to both work plans in the example cited were consistent with the rules, policies and guidance documents in place at the time each work plan was received. While ADEQ staff bare the brunt of the criticism for changing requirements, most of the changes are the result of statute and rule changes over which staff have no control.

## Recommendation

**1. ADEQ needs to address backlogs and delays in its Leaking Underground Storage Tank program by:**

**a) Developing and using management information reports that provide information such as current case status, staff assigned, where backlogs occur, timeliness for all steps of the process, and staff productivity;**

**ADEQ Response: The finding of the Auditor General is not agreed to, but the recommendation will be implemented.**

The capability to produce accurate management reports in the USTrack Database Tracking System does exist, utilizing Foxfire. Foxfire is a query report generator. It enables staff to quickly create reports and queries within USTrack. The teaching and basic customizing procedures are straightforward and can be mastered quickly. Currently in USTrack, two options exist; 1) Canned Reports, pre-defined reports to retrieve current information within USTrack; and 2) Ad hoc Reports, each UST staff member has the option of creating their special reports that define specific information. A major function of this reporting application is to provide both the U.S. Environmental Protection Agency (EPA) and the Department of Environment Quality (DEQ) accurate statistical information related to registered USTs within the State of Arizona. In addition, SAF

module screens in USTrack were developed in January 1998, to assist in tracking of SAF applications and for preparation of management reports.

**b) Reviewing and ensuring that the data in its USTrack database is complete and accurate;**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

Several attempts have been made in the past three years to correct this problem; however, due to lack of resources and management turnover, the issue still remains. The UST USTrack Steering Committee which was formed in May 1997, identified the need to create standards for data entry operators and continues to define the process, tools and methods of .cleaning. existing data within the USTrack system. The committee will be re-established and performance measures have been developed which provide for .cleanup. of the database by January 1999. UST staff and management will be accountable through EPAS performance evaluations.

**c) Reevaluating staff work standards and monitoring productivity for both the Site Investigations Unit and the Case Evaluation and Review Team to ensure cases are efficiently processed;**

**ADEQ Response: The finding of the Auditor General is not agreed to, but the recommendation will be implemented.**

The State.s Employee Performance Appraisal System (EPAS) performance factor .Goals and Objectives. for the entire UST Program are currently being re-evaluated and will include increasing productivity and decreasing backlogs by January 1999. The Site Investigations Unit (SIU) and Case Evaluation and Ranking Team (CERT) processes are currently undergoing TQI procedures to address efficiency and productivity issues. SIU has also initiated a time study to prioritize tasks, evaluate inefficiencies and to determine realistic work product goals.

**d) Providing training and guidance to staff to ensure that leaking underground storage tank policies and standards are consistently administered; and**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

A training program, including both internal and external training, has been established, and at least one training session per month will be

conducted. Scheduled training includes: Rules and Regulation training (February 1998), ADEQ Soil Remediation Standard Rules training (February/March 1998), and Risk Assessment training (March 1998).

**e) Completing its site characterization manual to provide more guidance to owners/operators and consultants.**

**ADEQ Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.**

The draft LUST Site Characterization Manual will be revised in February 1998 and then distributed to stakeholders in March 1998 for review and comments. The document will then be sent to the ADEQ Policy Review Committee by the middle of March for finalization. The UST Program will provide training to Department staff regarding the document and will include a discussion on the final document at Consultants. Day during the summer of 1998.

# Attachment 1

# Risk-Based Corrective Action (RBCA) Implementation

## Program Design Tasks

**Completed:**
Chemicals of concern
Target risk limits
Risk management options
Data sources and uncertainty guidelines
Applicable exposure factors
Tier 1 RBCA equations

**Initiated:**
Site classification system (prioritization system)
Minimum site assessment data requirements
Point of compliance definitions
Source characterization requirements
Tier 2 and Tier 3 modeling requirements

**Not completed:**
Point of exposure definitions
Compliance monitoring specifications
Transition between Tiers (fund implications)

## Agency Guidance Documents

**Completed:**
Tier 1 lookup table

**Initiated:**
RBCA Guidance Manuals (includes all of the following):
Tier 2 modeling guidance
Tier 3 modeling guidance

**Not completed**:
Tier 1 lookup table instructions
Standardized report formats
Customized Tier 1/Tier 2 software
RBCA application review checklist

## Administrative/Institutional Tasks

**Completed:**
Legislative action

**Initiated:**
Regulatory action
Agency staff training
Coordination/review with stakeholders

**Not completed:**
Education/outreach to regulated community and contractors
RBCA demonstration studies

# Attachment 2

# LUST Corrective Action Rule

## Draft Rule Development Process

1. Open docket (completed November 1997)
2. Initial draft by John A. (completed December 1997)
3. Initial revision by John A., Martha M. and Joe D.
4. UST/LUST management input
5. UST/LUST staff input
6. Rule Development input
7. Straw document #1 created
8. Focus Group(s) input on straw document #1
9. Straw document #2 created
10. Stakeholder input on straw document #2
11. Draft rule created
12. Propose rule (January 1999)
13. Official public comment
14. Revise proposed rule
15. Director adopts rule
16. GRRC review
17. Rule filed with Secretary of State, becomes effective (July 1999)