PERFORMANCE AUDIT

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Waste Programs

Report to the Arizona Legislature
By the Auditor General
October 1993
93-8

DOUGLAS R. NORTON, CPA
AUDITOR GENERAL

STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

DEBRA K. DAVENPORT, CPA
DEPUTY AUDITOR GENERAL

October 26, 1993

Members of the Arizona Legislature

The Honorable Fife Symington, Governor

Mr. Ed Fox, Director
Department of Environmental Quality

Transmitted herewith is a report of the Auditor General, A Performance Audit of the Arizona Department of Environmental Quality, Office of Waste Programs. This report is in response to a September 3, 1992, resolution of the Joint Legislative Oversight Committee and is the third in a series of four audits.

We found that ADEQ has taken too long to respond to hazardous waste violations and enforcement actions have been limited. The Department has also been slow to clean up contaminated sites. Insufficient monies available in the Water Quality Assurance Revolving Fund (WQARF) significantly impedes ADEQ's ability to clean up State superfund sites.

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

This report will be released to the public on October 27.

Sincerely,

Douglas R. Norton

Douglas R. Norton
Auditor General

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 (ADEQ), Office of Waste Programs (OWP), pursuant to a September 3, 1992, resolution of the Joint Legislative Oversight Committee. The audit was conducted pursuant to A.R.S. §§ 41-2951 through 41-2957. This is the third in a series of four performance audits of the Department.

Employees within the Office of Waste Programs (OWP) implement and oversee waste-related programs, including solid and hazardous waste management, Federal and State Superfunds, pollution prevention and recycling programs, and an underground storage tank program. The Office employs 221 full-time equivalent employees. State General Fund appropriations, dedicated taxes and user fees, and Federal grants finance OWP and the programs it administers. These sources provided OWP $23.7 million in revenue during fiscal year 1992-93.

Hazardous Waste Violations Continue For Years With Little Formal Enforcement By ADEQ (see pages 5 through 12)

ADEQ has been slow to resolve many cases where its inspectors have discovered violations of hazardous waste laws. In fact, the average high-priority, active case in ADEQ's data base had been under investigation for nearly three and one-half years. Since hazardous waste law violations (such as storing waste in unlabeled or corroded containers, failing to train personnel in safe waste-handling procedures, and failing to clean up spills) can result in exposing people or the environment to toxic or corrosive substances, timely resolution of these cases is important.

Several changes are needed to improve hazardous waste enforcement. For example, formal enforcement actions (consent orders and compliance orders) should be utilized more frequently. Soon after a violation is discovered, ADEQ should either negotiate a consent agreement in a timely manner or issue a compliance order. However, such actions were initiated by ADEQ in only 55 (6 percent) of the 916 cases opened since 1988.

ADEQ also needs to improve its consistency by developing clear policies and procedures for hazardous waste compliance officers to follow, and should develop a better system to help management track industry compliance with waste laws. Finally, the Legislature should consider expanding ADEQ's administrative penalty authority to strengthen the Department's ability to enforce hazardous waste laws.

ADEQ Takes Too Long To Clean Up Contaminated Sites (see pages 13 through 18)

ADEQ takes too long to clean up pollution at sites administered by the State Water Quality Assurance Revolving Fund (WQARF) program. Delays begin early in the process, when site characteristics and pollutants are studied and defined. Nearly three-quarters of the 36 sites we reviewed are bogged down in this phase, 9 of them since before the WQARF program began in 1987. These lengthy delays can add to further contamination of an area and higher future cleanup costs, as contaminants travel and spread through soil and ground water. Weak enforcement, limited funding, and the lack of a strict statutory liability standard have contributed to delays. ADEQ generally relies on responsible parties (landowners and others who contributed to the pollution) to conduct cleanup voluntarily, instead of using its enforcement authority to prompt remedial action.

Insufficient Funding Of The State Superfund Has Weakened ADEQ's Remedial Program (see pages 19 through 25)

The Water Quality Assurance Revolving Fund (WQARF), also know as the State Superfund, does not have sufficient funds to support an effective remediation program. While WQARF was originally financed with annual appropriations of about $5 million, more recent methods used to fund WQARF, such as dedicated fees and taxes, have not produced expected revenues. This has significantly contributed to WQARF's decreasing balance, which ADEQ expects to be at an all-time low of $1,400 by the close of fiscal year 1993-94. As a result, ADEQ has had to stop or delay remedial work at many sites and cannot initiate work on new sites. The Legislature should consider various options for financing WQARF, such as annual appropriations or a change in the fee structure supporting the Fund. In addition, as described in our previous report (Auditor General Performance Audit Report No. 93-4, Department of Environmental Quality, Management Issues, August 1993), ADEQ needs to improve its cost recovery from responsible parties.

ADEQ Should Increase Landfill Inspection Frequency (see pages 27 through 31)

Due to limited resources and a poorly allocated workload, ADEQ has failed to meet its goals of inspecting municipal landfills annually. Most other Western states conduct inspections more frequently than ADEQ, and solid waste experts recommended quarterly inspections to protect the public and the environment. While more effective

use of staff would help ensure more timely inspections, a better alternative might be to expand existing county delegation agreements to include inspections of municipal landfills.

(This Page Intentionally Left Blank)

TABLE OF CONTENTS

	Page
INTRODUCTION AND BACKGROUND	1
FINDING I: HAZARDOUS WASTE VIOLATIONS CONTINUE FOR YEARS WITH LITTLE FORMAL ENFORCEMENT BY ADEQ	5
ADEQ Is Responsible For Enforcing Hazardous Waste Laws	5
ADEQ Takes Few Formal Enforcement Actions And Cases Are Not Resolved In A Timely Manner	6
Lack Of A Strong Enforcement Philosophy And Other Factors Allowed Violations To Continue	9
Recommendations	12
FINDING II: ADEQ TAKES TOO LONG TO CLEAN UP CONTAMINATED SITES	13
ADEQ Coordinates Cleanup Of Contaminated Sites	13
ADEQ Has Made Little Progress Cleaning Up WQARF Sites	14
ADEQ Lacks The Elements Of An Effective Remediation Program	16
Recommendations	18

TABLE OF CONTENTS

	Page
FINDING III: INSUFFICIENT FUNDING OF THE STATE SUPERFUND HAS WEAKENED ADEQ'S REMEDIAL PROGRAM	19
WQARF Provides Funds For Cleanup Efforts	19
Remediation Efforts Cut Back Because WQARF Is Nearly Depleted	19
Policy For Funding WQARF Should Be Reconsidered	23
Recommendation	25
FINDING IV: ADEQ SHOULD INCREASE LANDFILL INSPECTION FREQUENCY	27
Landfill Inspections Are Important	27
ADEQ Does Not Inspect Landfills Often Enough	28
ADEQ Should Delegate Inspection Responsibility To Some Counties	30
Recommendations	31
AREA FOR FURTHER AUDIT WORK	33
AGENCY RESPONSE	

TABLES

		Page
Table 1	Number Of Unresolved Hazardous Waste Cases Still Open On April 13, 1993	7
Table 2	Progress Of 36 Cases Through The Remediation Process As Of May 1993	15
Table 3	WQARF Receipts, Disbursements, And Fund Balances For Fiscal Years 1990-91 Through 1993-94 (unaudited)	20
Table 4	WQARF Fee And Tax Revenues For Fiscal Years 1990-91 Through 1992-93	21
Table 5	State Superfund Funding Sources That Provide More Than 20 Percent Of Total Fund Revenues	24
Table 6	Number Of Landfills Uninspected By ADEQ For Two Years Or More As Of June 28, 1993	28

INTRODUCTION AND BACKGROUND

The Office of the Auditor General has conducted a performance audit of the Arizona Department of Environmental Quality (ADEQ), Office of Waste Programs, pursuant to a September 3, 1992, resolution of the Joint Legislative Oversight Committee. This performance audit, the third in a series of four on the Department of Environmental Quality, was conducted pursuant to Arizona Revised Statutes (A.R.S.) §§41-2951 through 41-2957.

Background

The Office of Waste Programs (OWP), one of four offices within ADEQ, manages ADEQ's waste-related programs. Waste regulation is important to protect public health and safety and the environment. For example, lack of toxic waste regulations in the past led to the well-known problem at New York's Love Canal, where heavy rains in 1976 caused chemicals dumped into a canal in the 1930's to leach into backyards and basements of homes and a school. Eventually, 239 homes nearest the canal had to be bulldozed. By 1990, $250 million had been spent to contain 22,000 tons of waste on the site, including dioxin and benzene. Studies found that residents showed elevated rates of birth defects, miscarriages, and other health problems associated with the dumped chemicals.

Even ordinary household and business garbage can become a menace if not properly handled. In January 1993, for example, the erosion of the Tri-City landfill[1] located near Phoenix released more than 140,000 cubic yards of waste, the equivalent of about 3,500 garbage truck loads, into the Salt River. In addition to short-term consequences such as insect and rodent breeding and aesthetic concerns, there is a potential for ground water contamination in the long term.

The Office's important program responsibilities include:

- ***Regulation of hazardous waste*** - administering both Federal and State laws governing ignitable, corrosive, reactive, and toxic wastes. To ensure proper handling and disposal of these wastes, OWP inspects facilities that generate the wastes as well as those that treat, store, and dispose of them.

---

1. The Tri-City situation, familiar to most Arizonans due to extensive news coverage, is mentioned only to illustrate the importance of landfill regulation. The landfill is located on tribal land and therefore is beyond the jurisdiction of ADEQ. However, ADEQ participated in organizing the "Great Salt River Cleanup," a volunteer effort where approximately 20,000 people helped to clean up the riverbed after the release occurred.

- ***Remediation of contaminated sites*** - managing cleanup of contaminated soil and water using State and Federal funds, and overseeing privately funded remediation efforts. The Water Quality Assurance Revolving Fund (WQARF), known as the State Superfund, helps pay for cleanup of sites not covered by the Federal Superfund Program and for ADEQ oversight of private and local government cleanup efforts. WQARF was established by the Environmental Quality Act in 1987.

  OWP also identifies and notifies responsible parties and gathers legal and technical evidence for recovery of ADEQ's remedial costs. This program focuses mostly on contamination resulting from handling and disposal practices prior to 1976, when the Federal hazardous waste laws were first enacted. ADEQ also responds to emergency situations (e.g., highway spills) involving hazardous substances.

- ***Regulation of solid waste*** - ensuring that landfills and other solid waste facilities meet the standards set by Arizona statutes and regulations. The Office reviews and approves construction plans, conducts inspections, and investigates complaints.

In addition, OWP has an underground storage tank program for preventing and responding to leaks, and a waste assessment program that compiles data on wastes, prepares the State's capacity assurance plan (a report required by Federal law showing that Arizona has the ability to dispose of all the hazardous waste generated in the State), and administers pollution prevention and recycling programs.

Organization And Staffing

The Office is headed by an Assistant Director and is organized into five sections: Solid Waste, Remedial Projects, Hazardous Waste, Waste Assessment, and Underground Storage Tanks. The Office is staffed with 221 full-time equivalent (FTE) employees.

Revenues And Expenditures

Funding is provided through a combination of State General Fund appropriations, various dedicated tax and user fees, and Federal grants. For fiscal year 1992-93, OWP's funding sources totaled $23.7 million.

Audit Scope

Our audit focused on three major program areas: hazardous waste, remedial projects, and solid waste. This report presents findings and recommendations in four areas:

- Does ADEQ effectively enforce requirements for facilities that generate, handle, or dispose of hazardous waste,
- Is ADEQ ensuring that contamination handled by the State Water Quality Assurance Revolving Fund program is remediated in a timely manner,
- Are Water Quality Assurance Revolving Fund revenues adequate, and
- Can ADEQ improve its oversight of landfills in the State.

In addition, we identified an area where further audit work is needed to determine whether enforcement of waste tire laws is adequate.

Due to time constraints, we were unable to review all OWP programs. In addition, we elected not to review the underground storage tank program because it is new and has very recently undergone operational changes.

As we note throughout our report, in May 1992, ADEQ began a Total Quality Involvement (TQI) Program to review and improve its operational practices and procedures. This initiative is based on the principles of Total Quality Management (TQM). For each targeted program, ADEQ brings together a Program Advisory Team (PAT) consisting of ADEQ managers, staff, and others familiar with the program, including representatives from industry, environmental groups, and cities and counties. To improve the program's efficiency and effectiveness, the PAT reviews operations using various techniques. At the time of the audit, TQI efforts were well under way in the underground storage tank program and had just begun in the remediation and hazardous waste programs. We cannot assess the ultimate impact of this effort at this time.

This audit was conducted in accordance with government auditing standards.

The Auditor General and staff express appreciation to the Director and staff of the Arizona Department of Environmental Quality, and the Assistant Director and staff of the Office of Waste Programs, for their cooperation and assistance during the audit.

(This Page Intentionally Left Blank)

FINDING I

HAZARDOUS WASTE VIOLATIONS CONTINUE FOR YEARS WITH LITTLE FORMAL ENFORCEMENT BY ADEQ

ADEQ takes few formal enforcement actions against violators of hazardous waste laws, and cases often drag on for years while companies continue to violate statutes and regulations. Regulation of hazardous waste is important to ADEQ's mission of protecting public health, safety, and the environment. However, the Department's policy of relying on voluntary compliance by facilities that generate or handle hazardous waste, coupled with inadequate legal authority and other problems, have led to delays in resolving cases. While ADEQ has taken some steps to strengthen and improve hazardous waste enforcement in recent years, more needs to be done.

ADEQ Is Responsible For Enforcing Hazardous Waste Laws

ADEQ regulates the handling of hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) of 1976, with authority delegated by the U.S. Environmental Protection Agency (EPA). Hazardous waste laws protect the public and the environment from flammable, corrosive, or toxic wastes by requirements such as emergency plans, employee training, labeled containers in good condition, and prompt cleanup of any spills. In 1990, Arizona facilities generated over 50,000 tons[1] of hazardous waste, including corrosive materials, sludge from electroplating operations, used-up solvents, and waste containing the metals cadmium, chromium, or lead. Electronics manufacturers are among the largest generators of hazardous waste in Arizona.

1. The information on Arizona's hazardous waste stream was developed by the Hazardous Waste Disposal Committee from shipping manifests submitted to ADEQ when wastes are moved from one place to another. It is unknown how much waste is double-counted as a result of counting it once when the waste is picked up from the primary generator, and then counted again on the waste handler's manifest.

ADEQ Takes Few Formal Enforcement Actions And Cases Are Not Resolved In A Timely Manner

Our analysis of ADEQ data found that the Department is slow to resolve many cases, and generally has chosen not to use formal options to encourage compliance. As a result, violations have continued for years, and the Department's workload is burdened with dozens of old, unresolved cases.

ADEQ staff can generally use either informal or formal enforcement techniques. Specific enforcement tools available depend on which laws apply to the situation, but in general, informal methods include meetings and phone calls to encourage violators to comply, and formal methods include administrative orders and court actions. When a facility violates RCRA regulations, the Hazardous Waste Section's Compliance Unit is responsible for bringing it into conformity. Informal enforcement tools available to ADEQ compliance officers include letters of warning, as well as phone calls, meetings and consent orders. Formal tools for RCRA enforcement include compliance orders and court orders.

To evaluate timeliness and effectiveness, we analyzed data from ADEQ's hazardous waste compliance logs for the period October 1988 to April 1993. We also examined the case files on a judgmental sample of seven high-priority enforcement cases to identify problems associated with compliance enforcement. In addition, we held focus groups of hazardous waste compliance officers and interviewed management to obtain further insight into compliance issues. Finally, we contacted other Western states to compare enforcement strategies.

Enforcement actions are slow and weak - ADEQ actions have not been timely. EPA standards adopted in 1992 require that at least 90 percent of high-priority cases[1], with some exceptions, must either be closed or have formal enforcement action taken within 135 days of the inspection date.[2] However, the average high-priority, active case in ADEQ's data base had been under investigation for nearly three and one-half years, while the average low-priority case had been open a little over two years (see Table 1, page 7). Analysis of closed cases showed high-priority cases that have been resolved

---

1. ADEQ uses EPA's priority system to rank the seriousness of violations. High priorities include imminent hazards, criminal violations, and violations with chronic or recalcitrant history; medium priorities include on-site contamination with no public exposure hazard and general waste management violations; and low priorities are any violations not meeting criteria for high or medium priority.

2. ADEQ has not been expected or required to meet this standard in most of the cases in its data base, because the standard is relatively new and it applies only to certain types of cases. However, the standard provides a useful benchmark for evaluating ADEQ's timeliness. We found that no more appropriate timeliness standard exists.

averaged over two years from inspection to close date, while low-priority cases averaged only six months.

TABLE 1

Number Of Unresolved Hazardous Waste Cases Still Open On April 13, 1993

Length of Time Since Open	High Priority	Medium Priority	Low Priority	Total
Less than 135 days(a)	0	0	0	0
135 days to 1 year	8	22	1	31
1 to 2 years	14	41	3	58
2 to 3 years	14	36	3	53
Over 3 years	37	51	2	90
Total	73	150	9	232(b)

(a) According to ADEQ staff, cases opened after about September 30, 1992, may not have been entered onto the data base at the time of our analysis. The data base showed only one open case aged less than 135 days, and it had no specified priority (see Note b).

(b) Eleven open cases are not included in the table because priorities for these cases were not specified in ADEQ's data base.

Source: Auditor General analysis of ADEQ Compliance Log data bases.

Further, ADEQ takes strong enforcement actions in very few cases. Formal enforcement actions (including both negotiated and unilateral enforcement orders) were initiated on only 55 (6 percent) of the 916 cases in the data base. In these 55 cases, the violations continued for an average of 2 years before ADEQ took formal action.

Our file review uncovered the following examples that illustrate how ADEQ's failure to take early formal enforcement action affects timely resolution of environmental problems.

- CASE EXAMPLE 1: ADEQ has not taken effective action against a fertilizer and explosives production plant with a history of environmental problems dating back to 1979. In 1980, samples taken at the site, which is located along a river, found ammonia, nitrate, and heavy metals; and nitrate was also found in the river downstream from the facility and in a nearby family's well. Nitrate is dangerous to humans because it takes away the bloodstream's ability to transport oxygen to the tissues, and thus can lead to suffocation. Infants up to 6 months of age are most susceptible to these harmful effects.

  The company was uncooperative with ADEQ and EPA during more than ten years of fruitless negotiations. Since 1980, the facility has denied that the waste it has been spilling is hazardous, and it has objected to studies finding evidence of contamination at the site. At the same time, it has twice refused to voluntarily conduct its own cleanup study, stating that the study "was not justified and was economically prohibitive." The facility refused to correct its operating procedures to prevent further leaks of nitrate to the ground.

  Despite the ongoing violations and the company's failure to demonstrate any willingness to voluntarily comply with RCRA, ADEQ has neither classified this as a case that requires formal enforcement nor issued an administrative order. By contrast, EPA issued a Superfund Compliance order in 1989 and initiated a study at Federal government expense. However, EPA's efforts are aimed at cleaning up existing contamination at the site, not the company's current operations. DEQ remains responsible for ensuring that the company does not continue to contaminate the site.

- CASE EXAMPLE 2: When we revisited a case we examined for our 1990 audit of ADEQ's pesticide program[1], we found little change. We reported that ADEQ had found numerous violations of RCRA regulations in every inspection since 1981 of a company that diluted and repackaged pesticides. Soil at the site was badly contaminated, and the company had accumulated thousands of barrels encrusted with pesticide residue. The company had not complied with several regulations designed to protect employees and the public from hazardous waste. We found that over a period of nearly ten years, ADEQ repeatedly requested that the facility clean up the site, and issued letters of warning about the various violations, but the facility declined to comply with ADEQ's requests. Although the facility had removed some of the barrels and has an agreement under an EPA order to spend $25,000 a year for cleanup efforts, the agreement did not address the daily operational violations discovered by ADEQ.

  In our current review, we found that a 1991 inspection report said the facility showed "*little or no improvement since the last inspection,*" and did not appear to have spent any funds, or made any attempt to comply with day-to-day

1. Auditor General Performance Audit Report No. 90-8, Pesticide Regulation, Department of Environmental Quality, November 1990.

operational issues that are now 12 years old. Our interview with the inspector confirmed that the same operational violations continued to exist at a 1993 inspection. ADEQ's efforts to bring the company into compliance with RCRA have had little effect.

Lack Of A Strong Enforcement Philosophy And Other Factors Allowed Violations To Continue

In the past, ADEQ's lack of a strong enforcement philosophy and inadequate authority to impose penalties, along with several other factors, have contributed to the slow resolution of enforcement problems. However, while top management appears more willing to take strong enforcement action now than before, and the Department has recently taken other steps toward improvement, we believe more needs to be done.

ADEQ relies on voluntary compliance - ADEQ's approach to RCRA enforcement has relied on obtaining voluntary compliance from facilities. As mentioned previously, ADEQ has used formal enforcement actions in only 6 percent of the cases in its compliance log since 1988. Even when formal actions were taken, ADEQ management has favored negotiating a consent order instead of issuing a compliance order.[1] Our review disclosed that this approach has often been ineffective. In fact, some violators have taken advantage of ADEQ's approach by negotiating in bad faith, stalling corrective actions, and even committing criminal acts. For example:

- At one electronics firm, the owner ordered employees to illegally alter the labels on containers of hazardous waste to show the waste had not been stored beyond the 90 days allowed for companies without storage permits. Only two months earlier, ADEQ and the firm had reached agreement on a consent order covering violations discovered in an inspection the previous year.

- At another company, the owner hid hazardous waste in a truck and tried to transport it out of state, but the waste was discovered when an accidental spill occurred. When this incident happened, the company and ADEQ were already engaged in lengthy discussions about decontaminating some of the company's tanks.

ADEQ properly referred these two cases to the Attorney General for both civil and criminal prosecution. However, these incidents demonstrate the danger of assuming all companies will act cooperatively and in good faith.

---

1. Both consent orders and compliance orders are administrative orders issued by the Director of ADEQ. However, in a consent order, the violator agrees to the statement of facts and other terms of the order, thereby waiving his or her right to a hearing.

Some states have adopted a more aggressive approach to enforcement. In five of the nine Western states we surveyed, officials reported they issue an order before negotiating with the facility. For example, Nevada issues its orders in cases with serious violations as soon as the violation determination is made. Likewise, in New Mexico, negotiated agreements are used only for remediation cases or unusual circumstances; unilateral orders are the norm. Oregon issues only unilateral orders in the early stages of the enforcement process, and has mandatory penalties for serious violations.

Lack of administrative penalty authority - Limited administrative penalty authority further weakens ADEQ's enforcement efforts. In most cases, ADEQ must seek penalties for RCRA violations through the courts, a difficult and time-consuming task. It cannot impose such penalties administratively when it discovers a violation, but instead must first put into place a consent order or compliance order. If the company then violates the terms of the order, ADEQ can collect penalties of up to $1,000 per day as specified in A.R.S. §49-923(B).

Most states have administrative penalty authority. This authority, which is recommended by EPA for all states that enforce RCRA, has enabled some states to encourage timely cooperation by facilities. For instance, Oregon and Idaho impose penalties early in the enforcement process, and allow facilities to earn a reduction in the penalties by agreeing to comply with the state's requirements.

Several other factors contribute to enforcement problems - During the course of our investigation, we discovered other factors that contribute to enforcement problems:

- ***High turnover among program staff and management*** - Staff turnover causes higher workloads when remaining staff cover cases for vacant positions, and can cause delays in case resolution while new staff are learning about these complex cases. Further, compliance officers told us that management turnover impacts compliance efforts because each new manager has different priorities and sets different policies. ADEQ attributes turnover to the high demand and high salaries in private industry for people with knowledge of hazardous waste regulations.

- ***Lack of a training program for compliance officers*** - New staff learn on the job about the complex regulations, informal ADEQ procedures, and technical issues associated with the cases assigned to them, in addition to the legal and other matters associated with enforcement.

- ***Poor coordination between ADEQ's compliance and inspections units*** - For example, a compliance officer may need reinspection results as evidence in an enforcement action, or an inspector may need compliance unit followup on a

violation. Our interviews with ADEQ staff indicate communication and cooperation has been inadequate between these units.

- ***Lack of clear policies and procedures*** - resulting in inconsistent handling of cases. No written manual is available to guide ADEQ's compliance officers.

- ***Inadequate electronic data systems*** - which do not track compliance by facility over time, thereby failing to give management the historical perspective needed to make enforcement decisions.

ADEQ has recently made efforts to improve - ADEQ has begun to step back from its complete reliance on voluntary compliance. ADEQ's Director issued an enforcement policy in May 1993 that sets out some guidelines for achieving "*strong, swift enforcement actions to deter and penalize violations.*" The new policy includes timeliness goals similar to the existing EPA goal that compliance officers should either bring the facility into compliance or begin formal enforcement action within 90 days of receiving the case.

The Department is also beginning efforts which may address some of the other factors that contribute to enforcement problems. For example, the Hazardous Waste Section has developed a new training program for compliance officers and has developed "boilerplate" consent and compliance orders. In addition, management reports that coordination between inspection and compliance units has recently improved. Further, ADEQ has initiated a review of the Section as part of its TQI program (see Introduction and Background, page 3), which may eventually help to resolve the lack of policies, poor coordination, and other management-related factors. At the time of this audit, however, the TQI evaluation in the Hazardous Waste Section was not complete, so the effects of this process are unknown.

RECOMMENDATIONS

1. The Legislature should consider revising A.R.S. §49-923 to expand ADEQ's administrative penalty authority so that the agency can impose penalties for violations of RCRA requirements when they are discovered.

2. ADEQ should strengthen program management by:

   - developing a policy and procedures manual for the Hazardous Waste Program, including:

     - *deadlines for negotiation of consent agreements, after which unilateral compliance orders should be issued*

     - *definitions of the circumstances in which formal enforcement can be avoided and voluntary compliance can be used,*

   - improving electronic data systems to give management better information regarding a facility's degree of compliance, and

   - incorporating into its TQI effort the evaluation of staffing and other management practices in order to reduce turnover, improve inter-unit coordination, and eliminate any inefficient practices.

FINDING II

ADEQ TAKES TOO LONG TO CLEAN UP CONTAMINATED SITES

ADEQ's remediation of contaminated sites takes too long. Sites polluted with hazardous waste threaten public health and the environment and need to be remediated in a timely manner. However, since its inception in 1987, ADEQ's remediation program has cleaned up few contaminated sites, and for the vast majority, cleanup may not begin for several more years. Various factors, including weak enforcement and inadequate funding, have delayed the progress of remediation efforts.

ADEQ Coordinates Cleanup Of Contaminated Sites

Although RCRA, the Federal law that sets out requirements for facilities that generate or handle hazardous waste, should prevent most new contamination of soil and water, many sites were polluted in the years before RCRA was enacted in 1976. In addition, accidents and noncompliance with RCRA can create new contamination, and sometimes those responsible for the pollution cannot be found, or are unable or unwilling to clean up these sites. The Federal Superfund and State programs such as the Water Quality Assurance Revolving Fund (WQARF) were established to provide a means of cleaning up such sites.

Contaminated sites can pose significant threats to public health and the environment. Heavy metals such as lead and chromium, agricultural pesticides such as DDT, and industrial solvents have been found in soil or surface water at some sites. In addition, pollutants at some sites have leached through soil to ground water, affecting sources of public drinking water. If uncontrolled, contaminants can migrate off-site, causing other sources of drinking water to be impacted. These pollutants can make the places unfit for wildlife or public use, and can cause health problems ranging from minor physical irritation to more serious disorders such as leukemia, other forms of cancer, and liver and kidney damage.

ADEQ is responsible for coordinating cleanup activities at a large number of diverse sites throughout Arizona. These sites are located in commercial and residential areas and vary in size from several hundred square yards to 25 square miles. The Department is presently coordinating activities at 45 contaminated sites Statewide which are administered by the WQARF program: 18 sites where ADEQ oversees private party efforts, 15 where ADEQ oversees efforts by political subdivisions, and 12 where ADEQ and its contractors are actually conducting the remediation. ADEQ

also oversees remediation conducted by the Department of Defense at active and inactive military installations, and has lesser responsibility for Superfund sites administered by the EPA. ADEQ's Remedial Projects Section also conducts emergency cleanup actions when there is an immediate threat to public health and safety or to the environment. It has conducted 38 such actions since 1987.

More than 400 other sites in Arizona may require cleanup in the future by WQARF, responsible parties, or the Federal Superfund. EPA provides funds to ADEQ to conduct assessments of a few of these sites each year to determine whether they qualify for inclusion on the National Priority List (NPL) for Federal Superfund cleanup. Sites that do not qualify for the NPL may be eligible for the WQARF program, but some contaminated sites may not fit the criteria for either program. Most Arizona sites do not meet Federal NPL criteria due to the State's low population density.

To determine ADEQ's progress in remediating contaminated sites, our analysis focused on 32 ongoing and 4 completed WQARF sites where ADEQ has or had substantial control over activities.[1] At these sites, ADEQ project managers oversee remediation work which is typically performed by a consulting firm under contract either to ADEQ or to the person, company, or other entity that caused the contamination.

ADEQ Has Made Little Progress Cleaning Up WQARF Sites

While ADEQ has made progress cleaning up some WQARF sites, many remain in the early phases of the remediation process. Information provided by the Environmental Protection Agency and other experts indicates that the remediation process should take less time than is currently the case in Arizona.

The remediation process begins with a brief screening phase to determine whether a site is contaminated, the characteristics of the site and its proximity to populations. If results of the screening indicate that further work is necessary, the site enters an investigative phase. In this phase, which can take from a few months to several years to complete, the source, type, and extent of contamination are identified, and a feasibility study is developed that describes cleanup alternatives and their cost. Finally, in the action phase, a detailed remediation plan is developed describing the techniques to be used, and cleanup action begins (after an opportunity for public comment on the plan). Cleanup itself can take as long as 30 years to complete, depending on the type and extent of contamination.

1. Nine of the 45 WQARF sites were excluded from our analysis. Four of the nine are not regular projects, and the other five were added to the WQARF project list after our analysis was completed.

Cleanup action has not begun at most contaminated sites - Most sites are bogged down in the investigative phase, which begins early in the remediation process. We found that more than two-thirds of the sites we reviewed were currently in this phase. Further, 36 percent of the sites that were in the investigative phase had been in it since before the inception of the WQARF program six years ago. Only about one-quarter of WQARF sites in this phase have any interim remediation taking place to reduce contamination before the investigation is completed. Table 2 provides the status of 36 cases we reviewed. ADEQ project managers told us that many sites currently in the investigative phase may have years of investigation and remedial design ahead of them before they can begin to undergo remedial action. Because ADEQ's resources are tied up in these existing projects, the Department cannot work on the other 400 contaminated or possibly contaminated sites in the State.

TABLE 2

Progress Of 36 Cases Through The Remediation Process As Of May 1993

Phase of Process	Number of Cases
Under Investigation	26
Investigation Completed, Action Phase Not Started	3
In Action Phase	3
Completely Remediated	4
Total	36

Source: Information received from ADEQ project managers.

The following example illustrates the length of time a site can remain in the investigative phase:

- In 1985, contaminants were found in ground water serving as a drinking water supply for some residents in metropolitan Phoenix. (The City of Phoenix has discontinued use of all affected drinking water wells to avoid any public exposure.) The area was officially designated a WQARF site by ADEQ and

investigation began in 1987. ADEQ believes the ground water contamination, which encompasses approximately 12 square miles, may have been caused by manufacturing operations improperly handling and disposing of solvents and other industrial wastes. ADEQ has identified numerous responsible parties and has obtained agreements from some to perform remedial activities; however, none have completed the investigative stage. Currently, no interim remediation of ground water is taking place.

Less time should be spent in the investigation phase - The EPA and other states report spending considerably less time during the investigative phase. An independent analysis of National Priority List sites conducted by the Rand Corporation found that, on average, this phase took about three years to complete. In addition, New Jersey, Minnesota, and Washington, considered by many to have effective programs for cleaning up contaminated sites, told us they spend an average of 18 months to about 3 years in this stage for State Superfund sites. In Arizona, the average for the few sites that have completed the investigation phase is nearly five years.

Experts we spoke with[1] also told us that spending too much time during the investigation phase could cause a variety of problems. For instance, because site conditions (such as the extent and concentration of contaminants in soil and ground water) often change over time, experts questioned whether data obtained during the early stages of the investigation phase would be useful in developing effective remedies years later. Also, a lengthy investigation phase may allow contaminants to spread and cause additional soil and ground water contamination, which may result in significantly higher cleanup costs.

ADEQ Lacks The Elements Of An Effective Remediation Program

ADEQ's ability to move contaminated sites through the remediation process has been hampered by weak enforcement, inadequate funding, and other factors. Experts familiar with state cleanup programs believe that states able to combine strong enforcement with sufficient funding have the greatest potential for effectively cleaning up contaminated sites. While ADEQ has taken some steps to improve its remediation program, it has yet to address fundamental problems.

---

1. We contacted knowledgeable people in the field of hazardous waste remediation from a variety of organizations including Rand Corporation, EPA, Association of State and Territorial Waste Management Officials, and the Environmental Law Institute.

Weak enforcement delays remediation - Although ADEQ has the authority to negotiate consent agreements or issue remedial action orders in cases where those responsible for contamination have been identified, management has not effectively used this authority.[1] Instead, as in its Hazardous Waste Program, ADEQ has generally relied on voluntary compliance. As of June 1993, ADEQ had negotiated a total of three consent agreements and issued one remedial action order for WQARF sites. Without enforceable consent agreements, ADEQ has little control over the completion and timeliness of remedial investigations.

According to the EPA and other states, consent agreements can be used to limit delays during the investigative and action phases. The EPA and other states also use remedial action order authority to compel responsible parties to perform remedial activities at a site.

EPA staff familiar with ADEQ's remediation program told us that ADEQ's enforcement policy has probably contributed to delays in site cleanup. Both ADEQ management and staff agree that some delays could be avoided if consent agreements were in place during the investigative phase.

Insufficient funding limits ADEQ's ability to clean up sites - Inadequate funding of WQARF has further hampered ADEQ's ability to remediate sites. Without adequate funding, ADEQ cannot threaten to take over remediation at a site when responsible parties fail to clean up their own contamination. Since states can charge responsible parties with cleanup costs plus punitive damages of up to three times these costs, experts told us that responsible parties often respond quickly if the state has the financial ability to conduct the cleanup. ADEQ management and staff believe insufficient funding has caused ADEQ to become too dependent on responsible parties to voluntarily conduct remedial activities, which can contribute to delays. (For more information on WQARF funding, see Finding III, page 21.)

Other factors also delay cleanups - ADEQ's ability to remediate contaminated sites in a timely and effective manner is further impacted by insufficient statutory authority and a lack of written policies and procedures.

The statutory definition of responsible party restricts ADEQ's ability to compel potentially responsible parties to clean up contaminated sites in a timely and effective manner. Specifically, WQARF statutes require ADEQ to prove that a person or company knowingly contributed to the contamination or allowed it to occur. By contrast, Federal law has a strict liability standard which requires only that a release

---

1. Enforcement tools available to the Remedial Projects Section are consent agreements and remedial action orders. Both are legally binding documents enforceable in court. Consent orders contain negotiated agreements between ADEQ and a responsible party, and typically describe the type and timing of the remedial activities to be performed, and outline penalties. Remedial action orders require a responsible party to stop a release or threat of a release of hazardous waste and take appropriate action to clean up the contamination, and failure to comply carries a civil penalty of as much as $5,000 for each day the violation continues.

has occurred or is threatened, and that the person or company contributed to the release. To prove responsibility under Arizona's weaker definition, ADEQ would have to gather extensive evidence. ADEQ's Attorney General representatives told us that for this reason, there has never been a complaint filed in court using WQARF statutes; instead, Federal statutes are used, which requires obtaining the EPA's cooperation.

In addition, ADEQ's lack of clear, written policies and procedures for managing cleanup efforts has also negatively impacted these efforts. Many project managers told us that, in the absence of written policies and procedures, they often refer to Federal remediation guidelines, which tend to be cumbersome and time-consuming. ADEQ management and staff, and environmental consultants familiar with ADEQ's remediation program, believe written policies and procedures would help reduce inconsistency and limit unnecessary delays.

ADEQ working toward improvement, but more needs to be done - ADEQ recognizes that problems exist and has taken some steps toward improving its remediation program. ADEQ is developing an enforcement workplan to ensure that limited staff and legal resources are expended on those sites most in need of enforcement. In addition, ADEQ has drafted guidelines to help standardize enforcement practices. Finally, TQI has recently begun in the Remedial Projects Section, although the outcome from this process is unknown at this time.

RECOMMENDATIONS

1. To improve ADEQ's ability to remediate contaminated sites, the Legislature should consider strengthening WQARF statutes by adopting a strict liability standard similar to that found in Federal law.

2. To improve the effectiveness of its remediation program, ADEQ should use its enforcement authority more effectively by negotiating enforceable consent agreements, issuing remedial action orders more regularly, and including time schedules and stipulated penalties in its agreements and orders.

3. To improve consistency and avoid unnecessary delays, ADEQ should develop a clear, written policies and procedures manual for project managers.

FINDING III

INSUFFICIENT FUNDING OF THE STATE SUPERFUND HAS WEAKENED ADEQ'S REMEDIAL PROGRAM

The Water Quality Assurance Revolving Fund does not have sufficient funds to support an effective remediation program. Revenues from the existing array of fees and other sources have not been adequate to support the Fund. As a result, the Legislature needs to consider restructuring how the Fund is financed.

WQARF Provides Funds For Cleanup Efforts

The Water Quality Assurance Revolving Fund (WQARF), also referred to as the State Superfund, supports cleanup efforts when hazardous substances either have contaminated or threaten to contaminate State waters. The Fund, created in 1986, complements the Federal Superfund program by addressing contaminated sites not included on the EPA's National Priority List. In addition to long-term remediation efforts, the Department uses WQARF for responding to emergency situations that pose an imminent and substantial danger to the public health and safety or the environment, regardless of impact on State waters. WQARF also funds the required State match on Federal sites.

Typically, WQARF monies pay for remediation of polluted sites when parties responsible for the contamination are unknown or are unable or unwilling to conduct the cleanup, and also for the costs of overseeing voluntary remediation by private parties. Examples of these costs include professional services, such as environmental consulting, laboratory analysis, paralegal and Attorney General assistance for identifying and pursuing responsible parties, and salaries of staff who manage remediation projects, such as geologists, engineers, and hydrologists.

Remediation Efforts Cut Back Because WQARF Is Nearly Depleted

ADEQ expects WQARF to be completely depleted soon, in part due to insufficient funding. The Fund's weak financial status has forced cutbacks in cleanup efforts on State sites.

WQARF nearly out of funds - WQARF program funds are critically short. Since reaching an ending fund balance high of $14,605,400 on June 30, 1990, the Fund's

balance has steadily decreased (see Table 3). In fact, ADEQ is projecting an all-time low balance of $1,400 by the end of fiscal year 1993-94. Furthermore, to simply break even by the end of fiscal year 1994-95, the Department's budget director told us WQARF must receive all monies designated for it, which includes a $2.9 million General Fund appropriation.

Funding problems have contributed to low Fund balance - Recent methods used to fund WQARF have resulted in lower than intended revenues. In creating WQARF, the Legislature supported the Fund with an annual appropriation of about $5 million, doing so for fiscal years 1986-87 through 1989-90. Since then, however, the Legislature discontinued the annual appropriation and replaced it with various fees and taxes also expected to provide WQARF with $5 million each year. Table 4 (page 21) shows, however, that this funding scheme never generated the expected revenues. For example, one particular tax, the "environmentally hazardous products surtax" (referred

TABLE 3

WQARF
Schedule Of Receipts, Disbursements, And Fund Balances
For Fiscal Years 1990-91 Through 1993-94
(unaudited)

	Fiscal Year 1990-91 (Actual)	Fiscal Year 1991-92 (Actual)	Fiscal Year 1992-93 (Estimated)	Fiscal Year 1993-94 (Estimated)
Fee Revenues	$ 1,675,008	$ 4,210,835	$ 3,123,410	$3,219,030
Other Revenues	257,192	620,965	1,407,190	1,844,070
Total Revenues	1,932,200	4,831,800	4,530,600	5,063,100
Expenditures	4,939,300	11,271,600	8,622,900	6,127,900
Expenditures in Excess of Revenues	3,007,100	6,439,800	4,092,300	1,064,800
Beginning Fund Balance	14,605,400	11,598,300	5,158,500	1,066,200
Ending Fund Balance	$11,598,300	$ 5,158,500	$1,066,200	$ 1,400

Source: Internal budget documents provided by the ADEQ Budget Director and ADEQ Assistant Director of Administration

to as the "Drano" tax), was expected to produce about $3 million annually. Shortly after its creation, however, it was changed from a surtax on hazardous products to a license fee for retailers of environmentally hazardous products, and then dropped

altogether due to its continued unpopularity. In total, only slightly over $1 million was ever received from this source.

To help make up these shortfalls, the Legislature passed S.B. 1364 (Laws 1992, Chapter 290) which outlined its intent to appropriate $2.9 million into WQARF beginning in fiscal year 1992-93. Again, Fund revenues fell short, because legislation actually appropriating the money was never passed. The Fund did not receive an appropriation in either fiscal year 1992-93 or 1993-94.

TABLE 4

WQARF Fee And Tax Revenues(a)
For Fiscal Years 1990-91 Through 1992-93
(unaudited)

	Fiscal Year 1990-91 (actual)	Fiscal Year 1991-92 (actual)	Fiscal Year 1992-93(b) (estimated)
Water User Tax	$ 830,679	$1,491,065	$1,380,000
Pesticide Registration Fees	547,650	569,625	570,000
Aquifer Protection Permit Fees (APP)	83,500	92,021	450,000
Hazardous Waste Facility Registration Fees	128,379	235,980	212,010
Solid Waste Landfill Registration Fees	51,000	122,256	115,590
APP Registration Fees		144,452	60,000
Industrial Discharge Registration Fees		89,500	39,000
Fertilizer License Fees	33,800	33,060	31,430
Manifest Resubmittal Fees			6,380
Environmental Products License Fee ("Drano tax")		1,172,486	
	$1,675,008	$4,210,835	$3,123,410

(a) WQARF fees and taxes include those collected by ADEQ, the Department of Water Resources, the Department of Agriculture, and the Department of Revenue.

(b) Total revenues for fiscal year 1993-94 and fiscal year 1994-95 are projected to be $3,219,030, a slight increase ($95,620) over fiscal year 1992-93. The difference represents a projected increase in APP fees of $102,000 and no receipts for manifest resubmittals.

Source: Internal budget documents obtained from the ADEQ Budget Director and Assistant Director of Administration.

In addition to fee-related revenues and past appropriations, other sources, such as civil and criminal penalties and cost recoveries from responsible parties, contribute to the Fund, but their impact on the Fund's balance can be small. Furthermore, it is often difficult to accurately predict how much revenue some of these sources will generate in any given year, making it hard for ADEQ to rely on them when planning remedial work. For example, both the amount and timing of cost recoveries are dependent on complex negotiations and court proceedings outside of ADEQ's control.[1]

Work on projects impacted - Low WQARF balances have adversely impacted work on remedial projects. For some existing projects, planned work has been halted, sometimes with the hope that the EPA or others will volunteer to conduct the work. On other projects, work is being delayed pending available funding. Specifically, during the last half of fiscal year 1992-93, ADEQ cut approximately $438,000 from 8 projects. The following examples illustrate the impact of these cuts.

- $107,590 was eliminated from a project designed to provide a treatment system for two wells of a small town. The wells were found to be highly contaminated with volatile organic compounds, and several private wells in the area were found to have lower levels of contamination. Though not currently used to provide municipal drinking water, treatment is needed to mitigate contamination in the aquifer and prevent further migration. ADEQ had intended to initiate the engineering work needed to design the remediation, but instead has referred the site to the EPA, hoping EPA will eventually adopt it as a national Superfund site. ADEQ officials expect this action to delay the cleanup.

- $28,883 was cut from a project within the metropolitan Phoenix area. ADEQ planned to use the money to continue testing a nearby town's wells and to install additional monitoring wells to track the movement of a contamination plume of industrial solvents toward the town's wells. ADEQ is now relying on responsible parties to conduct most of this work, but it has no assurances the work will be conducted in either the most appropriate way or in a timely manner.

- $17,330 was reduced from a project within metropolitan Phoenix where ADEQ found extremely high concentrations (thousands of times higher than drinking water standards) of industrial solvents. ADEQ planned to use the funds to install two monitoring wells and to conduct investigative work for developing evidence identifying responsible parties to fund the cleanup. As in the previous example, ADEQ is hoping previously identified responsible parties will conduct some of

---

1. ADEQ needs to improve its recovery of costs, as reported in Auditor General Performance Audit Report No. 93-4, Department of Environmental Quality: Management Issues, August 1993. Improvements in cost recovery could help to replenish the Fund's balance. However, costs may be recoverable only on projects where a financially able responsible party exists.

this work. However, the Department expects significant delays in this work being completed because it has been unable to secure a "good faith" agreement with those parties.

Furthermore, due to the projected lack of resources, the Department has not budgeted any WQARF monies for site-specific work on either existing or new projects for fiscal year 1993-94. Instead, the Fund will be slated for staff salaries and benefits (for enforcement and oversight of voluntary work conducted by responsible parties), various monitoring and laboratory work (partly for continued monitoring of existing sites), the Aquifer Protection Program, and legal and administrative costs.

Policy For Funding WQARF Should Be Reconsidered

For WQARF-related cleanup efforts to continue in a meaningful way, the Legislature should reconsider how it finances the Fund. Although Arizona's method of funding WQARF is in some ways similar to methods used by other states, important differences exist. Overall, however, Arizona's biggest obstacle for sufficiently funding WQARF has been its inability to identify and implement a sufficient, reliable revenue source for the Fund.

Financing of State Superfunds varies among states - Although we attempted to perform a detailed comparison of the financing methods used in other states, this proved difficult due to differences in the nature and scope of financing sources (such as fees) from state to state.[1] Furthermore, according to the Environmental Law Institute (Washington, D.C.), which conducted a recent national study of State Superfunds for the EPA, one-to-one comparisons of state funds (including revenues) can be misleading because of the funds' different purposes and secondary goals, such as encouraging waste reduction.

In general, however, we found both similarities and differences in the way Arizona finances its Superfund compared to other states. For example, reliance on fees, General Fund appropriations, and taxes to support State Superfunds is typical in most states (see Table 5, page 24.) In other ways, though, Arizona's funding scheme differs. For example, according to research conducted by the Environmental Law Institute, most states that rely on fees or taxes for a portion of funding utilize those related to the generation, transportation, treatment, and/or disposal of hazardous waste, hazardous

---

1. We reviewed various reports, including An Analysis of State Superfund Program: 50-State Study (1991 Update), and Enhancing State Superfund Capabilities, A Nine-State Study (December 1990), both conducted by the Environmental Law Institute in Washington D.C. with funding from the EPA. We also followed up with 11 states (those studied in the 9-state report and 2 other states identified to us as having strong cleanup programs.) In addition, we spoke with remediation experts at the EPA, the Environmental Law Institute, and the Association of State and Territorial Solid Waste Management Officials.

waste substances, or solid waste. This is not the case in Arizona. In fact, WQARF's largest revenue generator of recent years has been a tax on businesses operating municipal water delivery systems, rather than fees or taxes on hazardous or solid waste substances.

TABLE 5

State Superfund Funding Sources That Provide More Than 20 Percent Of Total Fund Revenues(a)

	Number of Funds(b)
Fees	25
Appropriations	19
Penalties/Fines	15
Bonds	15
Taxes	13
Cost Recovery	11

(a) In addition to the six categories of funding identified above, transfers from other funds or accounts, and interest, were noted as major funding areas for two states.
(b) Some States have more than one State Superfund.

Source: EPA, An Analysis of State Superfund Programs: 50-State Study, 1991 update (prepared by the Environmental Law Institute with funding by the EPA.)

Arizona also differs from some other states in that certain revenue sources they utilize are not currently an option for Arizona. For example, charges related to hazardous waste disposal provide significant revenues for some other State Superfunds. California finances nearly all of its State Superfund work with various disposal-related fees and taxes. A Minnesota fund administrator told us Minnesota expects to generate the majority of its Superfund's receipts from taxes on hazardous waste generators and waste brought into Minnesota for final disposal. In Illinois, fees on the transport and disposal of hazardous waste make up the majority of its Hazardous Waste Fund. Arizona, however, has no hazardous waste disposal capabilities (Arizona ships its hazardous waste to other states for disposal) so it cannot capitalize on this source.

WQARF lacks sufficient, reliable funding source - While there will likely always be considerable differences between WQARF funding and that of other states' Superfunds, it appears that the problem most greatly impacting funding is the lack of a steady, substantial revenue source. The Legislature apparently attempted to address this issue when it shifted from total reliance on General Fund appropriations to a fee and tax structure. As evidenced in recent years and confirmed by a national expert, appropriations are not as reliable as funding with designated sources. However, as mentioned earlier, legislative efforts to implement what was supposed to be the largest individual source of potential revenue for WQARF (the "Drano" tax) failed.

ADEQ recently developed a proposal to restructure WQARF funding. Although the proposal was not presented to the Legislature due to other priorities for use of the UST revenues, it could serve as a starting point for legislative discussion. The proposal should have streamlined the fee structure and identified a new, reliable funding source that would not require an immediate fee or tax increase. Some key features of the proposal included:

- Redirecting several existing fees and the water user tax from WQARF to other programs administered by ADEQ. According to ADEQ's director, other programs, like the Safe Drinking Water and the Solid Waste Programs, need additional monies; also, these fees and the tax are more closely related to the purpose of these other programs than to WQARF.

- Diverting 15 percent of the Underground Storage Tank (UST) excise tax revenue (A.R.S. §49-1031), amounting to approximately $3 million annually, into WQARF. This tax, levied at the rate of 1 cent per gallon of regulated substances, generates about $22 million each year. ADEQ's director believes this tax would be an appropriate revenue source for WQARF, in part because it is a broad-based tax. According to ADEQ officials, directing 15 percent of this tax to WQARF would not adversely impact the long-term goals of the UST Assurance Account.

The proposed funding scheme also relied on General Fund appropriations to WQARF. The Department plans to recommend a change in existing statutory language that would make the intended $2.9 million General Fund appropriation automatic.

RECOMMENDATION

The Legislature should reassess the adequacy of the mechanisms currently used to fund WQARF in order to provide reliable and sufficient funding for the program. In doing so, the Legislature should ensure that any fees, taxes, or other funding sources under consideration have a rational basis for financing WQARF.

(This Page Intentionally Left Blank)

FINDING IV

ADEQ SHOULD INCREASE LANDFILL INSPECTION FREQUENCY

The Department has not inspected solid waste landfills in a timely manner. Landfills can potentially harm the environment and the public and should be inspected three to four times per year. Due to limited resources and poor allocation of workload, however, many landfills have not been inspected at all over the past two years. ADEQ needs to increase inspection frequency by reallocating staff, requesting additional staff, and/or delegating responsibility for landfill inspections to some counties.

ADEQ's Solid Waste Section responsibilities include overseeing collection, storage, treatment, and disposal of solid and special waste, and operating recycling and used oil programs.[1] The Section has 23 FTEs with specialized duties such as reviewing and approving construction plans, overseeing waste tire collection sites, and inspecting landfills. In fiscal year 1993-94, the Section has a budget of $2,027,300.

Landfill Inspections Are Important

Regular inspections are needed to determine whether landfills operate in accordance with ADEQ-approved procedures. Specifically, inspections help to ensure that landfill operators routinely employ techniques designed to prevent ground water contamination. Techniques such as spreading, compacting and covering the waste, grading the landfill so that water does not flow toward the waste, and ensuring that leakage collection systems and landfill liners are properly maintained are crucial to protecting ground water. Landfills failing to comply with these procedures may risk rainwater filtering through the waste and carrying contaminants into ground water. In addition, regular inspections help prevent landfills from becoming environmental nuisances. Inspectors tour landfills to determine whether there is evidence of illegal burning or blowing litter, and to ensure that disease-carrying insect and rodent populations are being adequately controlled.

---

1. Special waste refers to materials, such as asbestos and automobile shredder waste, not defined as hazardous but requiring special handling.

ADEQ Does Not Inspect Landfills Often Enough

ADEQ has not conducted a sufficient number of inspections of municipal landfills, in part due to poor scheduling of staff. Furthermore, other responsibilities recently imposed on the Solid Waste Unit will make regular inspections unlikely in the future.

Frequency of inspections is inadequate - ADEQ has not met its goal of annual inspections. We interviewed the unit's inspection staff and reviewed landfill files to determine how many landfills were inspected during 1992. We found that ADEQ staff inspected only 52 (62 percent) of the 83 landfills in operation during 1992. In addition, we found that ADEQ has not inspected 19 of the remaining 31 landfills for more than 2 years, as shown in Table 6.

TABLE 6

Number Of Landfills Uninspected By ADEQ For Two Years Or More As Of June 28, 1993

Location	Years Since Last Inspection	
	2 to 4	More Than 4
Maricopa County	6	1
Pima County	2	-0-
All Other Counties	8	2
Total	16	3

Source: Auditor General analysis of ADEQ landfill files and interviews with ADEQ solid waste inspectors.

The following example illustrates a landfill that has gone uninspected by ADEQ for several years, despite important concerns.

- ADEQ did not inspect a landfill in Pinal County for more than three years although ADEQ's file on the landfill contained a report showing that hazardous materials, including chromium plating waste and unrinsed pesticide containers, had been illegally dumped there. Ground water samples found that EPA's Maximum Contaminant Levels (MCL) had been exceeded for several elements, including arsenic, chromium, iron, and lead. Since ADEQ has not inspected this

landfill for more than three years, they do not know whether the landfill has been complying with operating requirements that would help prevent further contamination.

Even if ADEQ did meet its annual inspection goal, ADEQ's solid waste managers believe that annual inspections do not adequately protect the public and the environment. Instead, they feel solid waste landfills should be inspected at least three to four times each year.

In many states, landfills are inspected frequently each year. Of the ten states we contacted[1], five said they inspect their landfills from semiannually to monthly. Another three states told us they conducted inspections annually at a minimum, with some landfills receiving as many as three to six inspections during a year's time. We also interviewed experts from national solid waste management associations to determine how often landfills should be inspected.[2] They told us that quarterly inspections are generally reasonable to protect the public and the environment.

Unequal distribution of workload among staff may have contributed to ADEQ's low inspection rate. Currently, ADEQ has assigned 2 staff to conduct annual inspections of 83 landfills in Arizona. However, about one-third of landfills are assigned to one inspector in the North region and about two-thirds to the other in the South region. In addition, the unit manager assigns numerous other tasks to the South region inspector; for instance, requests for special reports for top management. Consequently, in 1992, the North region inspector had time to inspect 17 small transfer stations in addition to all North region landfills. While the South region inspector conducted about the same number of landfill inspections, more than half of the South region landfills did not get inspected.

Additional responsibilities will increase workload - In the future, it will be even more difficult for ADEQ to conduct timely inspections. For example, beginning in fiscal year 1993-94, new Federal regulations will require ADEQ to inspect an additional 20 private landfills. ADEQ staff and experts specializing in solid waste management believe that the time it takes to conduct an inspection may also increase by as much as 25 percent

1. We contacted officials in New Mexico, Utah, Nevada, California, Texas, Oregon, Washington, Idaho, Montana, and Wyoming.

2. We interviewed representatives of the Association of State and Territorial Solid Waste Management Officials and the Solid Waste Association of North America.

because of the new Federal regulations. For example, inspectors will spend additional time making sure that landfill operators are randomly screening waste haulers for hazardous wastes and regularly sampling ground water and methane gas.

In addition, organizational changes within ADEQ may also increase the workload of ADEQ's landfill inspectors. For fiscal year 1993-94, ADEQ's Solid Waste Unit will be responsible for approximately 400 additional facilities and sites, most of which were formerly regulated by ADEQ's now-eliminated Special Waste Unit. However, the inspection requirements and other duties associated with these facilities are not yet fully defined, so the impact on the Unit is unknown at this time.

ADEQ Should Delegate Inspection Responsibility To Some Counties

While ADEQ might be able to improve its inspection capability by using staff more effectively, a better alternative may be to expand county delegation agreements to include solid waste landfill inspections. Some counties, especially those with established environmental programs, have sufficient resources and expertise to inspect landfills more frequently than ADEQ.

Current delegation agreements give 12 counties some regulatory authority for managing solid waste. Through delegation agreements, ADEQ has authorized all of these counties to issue permits to solid and liquid waste haulers. Two counties are also authorized to inspect other solid waste facilities, including construction debris landfills. For these facilities, counties are responsible for conducting regular inspections, writing inspection reports, and taking enforcement actions. ADEQ also relies on these counties to investigate citizen complaints. In addition, one county has been given the authority to regulate facilities generating hazardous waste and another has requested similar authority. Existing delegation agreements, however, do not give counties the authority to regulate solid waste landfills.

At least two counties have adequate staff and expertise to conduct more frequent inspections of solid waste landfills than those currently done by ADEQ. County environmental program managers in Maricopa and Pima counties told us they could inspect these landfills more frequently than ADEQ with little effect on existing workload. For example, one county official told us that the county would probably inspect solid waste landfills at least quarterly.

Other counties may lack the staff or expertise to conduct regular inspections of landfills. In these cases, ADEQ should be responsible for inspecting these landfills regularly. However, whether inspections are conducted by ADEQ or by counties, ADEQ needs to develop a system to ensure that inspections are adequate and timely, and to track information about landfill compliance. For example, ADEQ could conduct random inspections of delegated landfills to ensure that county-run and privately

operated landfills are inspected with equal vigor. In addition, ADEQ could improve upon its current information system, which does not provide management with each landfill's history of inspection dates, report dates, violations, whether corrective measures were taken, and the status of current enforcement actions.

RECOMMENDATIONS

1. ADEQ should delegate the authority to inspect solid waste landfills to those counties that have sufficient resources and are willing to accept the additional responsibility, and should oversee county activities to ensure these responsibilities are carried out effectively.

2. For those landfills not delegated to counties, ADEQ should conduct inspections at least annually. To make this possible, ADEQ should examine the inspection staff's workload and allocate landfill inspections and other duties more evenly among them.

3. ADEQ should develop and implement a system to monitor landfill inspections, and compliance and enforcement actions, whether inspections are conducted by ADEQ or by counties.

(This Page Intentionally Left Blank)

AREA FOR FURTHER AUDIT WORK

During the course of our audit, we identified an issue we were unable to fully pursue at this time.

- ***Has ADEQ Adequately Enforced Regulatory Requirements Governing Waste Tires?***

  In 1990, the Legislature granted ADEQ authority to establish a new regulatory program for waste tires, supported by a surcharge levied on new tire purchases. Under the program, each county is responsible for establishing at least one waste tire collection site. Owners or operators of waste tire collection sites must register and file a facility plan with ADEQ, and waste tires must be disposed of under proper conditions. Since landfills are no longer allowed to accept waste tires, the new program is designed, in part, to provide a legal disposal alternative and to control illegal dumping. Tire fires can release toxic substances to the air, surface water, and ground water, so operating standards include such requirements as limiting the size of tire piles, controlling the intermingling of dried brush with tires, and maintaining separation between tire piles.

  Our limited review of ADEQ's waste tire program revealed that several collection sites housed hundreds of thousands of waste tires, despite being out of compliance with statutory requirements. Of 32 collection sites that had registered with ADEQ, 6 did not meet operating standards established by law, and ADEQ was aware of 16 additional unregistered sites that may have been out of compliance as well. Four fires broke out within the past two years at sites that were out of compliance with ADEQ requirements. ADEQ appears to have taken significant steps toward addressing the waste tire problem, including issuing cease-and-desist orders, working with other agencies in a court action against one flagrant violator that resulted in a jail sentence and an order to pay restitution, and entering into discussions with Maricopa County about developing an Inter-Governmental Agreement to transfer some of ADEQ's Statewide responsibilities to the county. However, in the cases we reviewed, ADEQ's own enforcement actions seemed slow.

  Further audit work is required to determine whether Arizona has adequate legal disposal options for waste tires, whether ADEQ's enforcement of waste tire regulations is adequate, and to evaluate the success of the waste tire program as it matures.

(This Page Intentionally Left Blank)

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Edward Z. Fox, Director

October 20, 1993

Mr. Douglas R. Norton
Auditor General
State of Arizona
2910 N. 44th St.
Suite 410
Phoenix, AZ 85018

Dear Mr. Norton:

Thank you for the opportunity to respond to the Arizona Department of Environmental Quality (ADEQ) Office of Waste Programs Audit Report (the Report). As with the Management Audit Report and the Office of Water Quality Report, this Report has identified several areas that have been of concern to this administration as well as some additional problem areas. The analysis will help us focus our efforts. We feel, however, that the Report should:

- Identify many of the problems as historical;
- Recognize that ADEQ assisted in identifying and raising many of the problems raised by the Auditors;
- Recognize all the significant efforts underway to address those problems; and,
- Acknowledge the significant resource (staffing and financial) limitations on the Office of Waste Programs.

A recurring theme in the Report is the need for better management of programs. We agree. As the Auditors that worked here know, many of these programs were developed and implemented without basic business support systems (i.e. records management, activity tracking, policies and procedures, etc.). This was primarily due to the demanding nature of the legislative time frames for implementing programs and the lack of personnel trained in management systems. The current ADEQ management is aware of this situation and has been working a Total Quality Involvement/Business Process Improvement (TQI/BPI) effort to identify and build systems that are needed.

3033 North Central Avenue, Phoenix, Arizona 85012, (602)207-2300

The TQI/BPI effort is being undertaken throughout the agency. It effects every program and every individual. The effort has already borne fruits. The TQI/BPI process has been completed in three sections - Underground Storage Tanks, Waste Assessment and Solid Waste and implementation is under way.

FINDING I: HAZARDOUS WASTE VIOLATIONS CONTINUE FOR YEARS WITHOUT FORMAL ENFORCEMENT BY ADEQ

We agree that in the past the level of formal enforcement action related to hazardous waste has been less than satisfactory. However, we feel that the Report should recognize a number of initiatives undertaken in the Hazardous Waste Section which are already improving overall program performance. Program accomplishments include:

- Implementing the recently adopted ADEQ Enforcement Policy which establishes timeframes and procedures for returning facilities to compliance;
- Developing and implementing boiler plate consent and compliance orders;
- Closing 45% (104) of the 232 backlogged cases reported by your office;
- Establishing a TQI Team to develop an integrated local/RCRIS database system that will work for the entire program (permitting, inspections, compliance tracking and enforcement);
- Conducting bi-weekly policy development workshops to assure consistent regulatory interpretation, case prioritization and coordination among inspection, compliance, permitting and emergency response staff; and,
- Establishing a customer information line to better serve the public.

In reference to Case Example I - On August 26, 1993 the Department demanded in writing that the facility come into compliance with ADEQ air, waste and water requirements within 90 days or face judicial action.

FINDING II: ADEQ TAKES TOO LONG TO CLEAN UP CONTAMINATED SITES

ADEQ agrees that some WQARF sites have been in investigation stages for six years. In comparison to the Federal superfund program, however, this is not unusually long for sites with significant contamination. According to EPA's Superfund Section Manager for Arizona, it usually takes 10 years for a Federal superfund site to go from site discovery to remedial action. Arizona has eight large, area-wide WQARF sites with multiple sources and complicated hydrogeology. It is unlikely that these sites could have reached the remedial action phase any quicker than Federal NPL sites. Of the 26 sites identified in the Report as being in the investigative phase, seven have moved into the remediation phase. Substantial progress has been made on the 9 high priority sites which will result in movement of the projects toward remediation this next year (interim remediation, source control, removal, bioremediation, etc). Of the remaining ten sites which have been classified as lower priority, eight are being addressed by their responsible parties and two have relatively low levels of contamination. Under the leadership of this administration, the Remedial Projects Section has also:

- Formed steering committees to address area-wide contamination at two WQARF sites;
- Filed two civil complaints in U.S. District Court on two separate sites involving multiple responsible parties;
- Signed three WQARF consent decrees;
- Signed one EPA three-party consent decree;
- Signed three Intergovernmental Agreements with political subdivisions for remedial activities under their jurisdiction; and,
- Initiated negotiations with 24 responsible parties involving 24 individual facilities;

In addition, ADEQ recognizes the importance of interim remedial actions. During FY 1992, six of the sixty-five projects administered by the program were in the remedial design phase. This means that a remedy was selected and the engineering work to design and construct the remediation system was initiated. Additionally, remedial actions were conducted at 21 sites. For example, 122,329 tons of contaminated soil and waste were removed and/or treated. Lastly, groundwater pump and treat plants remediated approximately 4.5 billion gallons of water at 11 sites during FY 1992. For FY 1994, ten additional facilities are scheduled to begin remedial actions.

Although we recognize that there are 400 contaminated sites in Arizona, we have screened each of them and focused our resources on the 65 which pose the highest risk to human health and the environment. We acknowledge, however, that much additional cleanup work remains to be done.

FINDING III: INSUFFICIENT FUNDING OF THE STATE SUPERFUND HAS WEAKENED ADEQ'S REMEDIAL PROGRAM

We concur with the finding that the Water Quality Assurance Revolving Fund does not have sufficient funds to support an effective remediation program. We also agree that a dedicated funding source is critical to the long-term viability of this program. In addition, in order to recover expenditures of this program, I have made it a priority of my administration to build the tools necessary to perform aggressive cost recovery. The results of our efforts are now coming to fruition:

- Cost recovery revenue for FY 1993 ($1,052,490) doubled the cost recovery revenue from the previous year ($385,867);
- Cost recovery revenue for this year ($480,563) has already exceeded the amount collected during all of FY 1992 ($385,867); and,
- Current FY 1994 cost recovery revenue projections ($1,436,200), based upon the number of cost recovery packages completed and submitted to responsible parties, anticipate a 36% increase over the FY 1993 level of collections.

Despite the significant increase in cost recovery revenue, ADEQ concurs that "the Legislature should reassess the adequacy of the mechanisms currently used to fund WQARF in order to provide reliable and sufficient funding for the program". However, ADEQ's initial proposal to redirect part of the Underground Storage Tank (UST) excise tax revenue to WQARF is no longer feasible given the potential utilization of those funds for Urban Air Quality. Therefore, ADEQ has requested in its FY 1995 Executive Budget Request resumption of General Fund support for WQARF.

FINDING IV: ADEQ SHOULD INCREASE LANDFILL INSPECTION FREQUENCY

The Report highlighted concerns on the frequency of landfill inspections. ADEQ was aware, prior to the audit, of our inability to meet our unwritten goal of annual "random" inspections

for all landfills. However, inspection is only one area of a multi-faceted program. While we share the auditor's concerns, we feel that it is inappropriate to evaluate the inspection activity independently of the other program components. ADEQ has concentrated significant resources towards program approval and rule development as required by the United States Environmental Protection Agency. Additionally, in the overall program priority scheme, it is critical that landfills be properly designed and constructed. If we miss the opportunity to make these assurances during our plan review and permitting processes, we will lose this opportunity forever. It is much more difficult or impossible to correct design deficiencies, regardless of inspection frequency, after construction is completed.

Given ADEQ's balanced approach to program development and implementation, we believe that the current workload allocation is appropriate. Please note that additional resources are necessary for full program implementation.

On two specific issues, we disagree with the statement on page 29 that "... the NRO inspector had time to inspect 17 small transfer stations that ADEQ is not required to inspect..." The referenced transfer stations are "public facilities" that are a key element of solid waste management and are subject to State regulation and inspection.

Secondly, with respect to the Pinal County Landfill, the Report said ADEQ hadn't inspected this facility in over three years and that our files contained a report showing that hazardous materials, including chromium plating wastes and unrinsed pesticide containers had been illegally dumped there. Department records show that two undocumented incidents of hazardous materials disposal occurred between 1962 and 1964. The incidents of unrinsed pesticide containers occurred previous to 1978. RCRA became effective in 1981 and therefore these incidents were not illegal as stated in the Report. Five subsequent departmental inspections did not indicate illegal hazardous waste disposal.

Although ADEQ agrees that some of the landfill inspection authority and functions can be delegated to counties, currently 42 of the 91 public landfills are county owned or operated. This may result in a potential conflict of interest. Of the two counties mentioned in the Report as capable of handling additional inspection responsibilities, 1 regularly requests ADEQ to assist them in meeting their current delegated activities (illegal dumping). In addition, the Report did not address the resources necessary to oversee the delegation agreements. We currently delegate some aspects of the solid waste program to the counties but, to expand these delegations, we will need to develop an effective delegation oversight capability. This includes operating guidance and standards of performance to assure consistency of county implementation of ADEQ policies and objectives for this program.

As with the previous two reports, ADEQ takes no real exception with the balance of the problems described in the Report. We identified these problems and others early in this administration and continue to work to address them. I look forward to your continued assistance in providing greater protection to public health and the environment through more efficient and effective implementation of ADEQ programs.

Sincerely,

Edward Z. Fox
Director

EZF:tef

c: Bill Wiley, Deputy Director, ADEQ
Steve Johnson, Assistant Director, Office of Waste Programs
Bill Thomson, Director, Performance Audit Division, Auditor General's Office