



**PERFORMANCE AUDIT**

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**Office of Water Quality**

Report to the Arizona Legislature  
By the Auditor General  
September 1993  
93-5

September 30, 1993

Members of the Arizona Legislature

The Honorable Fife Symington, Governor

Mr. Edward Z. Fox, 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, Office of Water Quality. This report is in response to a September 2, 1992 resolution of the Joint Legislative Oversight Committee. This is the second in a series of four reports to be issued on the Arizona Department of Environmental Quality (ADEQ).

The Arizona Department of Environmental Quality oversees a number of programs which regulate and protect drinking water and ground and surface water. However, we found that ADEQ's efforts have generally been weak and untimely. Problems in many medium and small water companies have not been addressed, the Aquifer Protection Permit Program is badly behind schedule, and other water quality efforts are lagging. Although ADEQ's top management has initiated a number of changes, management problems at the program level are retarding program effectiveness. In addition, to fulfill its mission, ADEQ needs more resources and more experienced staff.

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 1.

Sincerely,



Douglas R. Norton  
Auditor General

## SUMMARY

The Office of the Auditor General has conducted a performance audit of the Arizona Department of Environmental Quality (ADEQ) - Office of Water Quality, pursuant to a September 3, 1992 resolution of the Joint Legislative Oversight Committee. This performance audit was conducted pursuant to A.R.S. §§41-2951 through 41-2957. This is the second in a series of four audits of ADEQ conducted by our Office.

ADEQ's Office of Water Quality (OWQ) oversees a number of programs that regulate and protect public health and the environment. ADEQ has primary responsibility for administering and enforcing the Federal safe drinking water program, regulating discharges that could contaminate Arizona's waters, and also monitoring the quality of surface and ground water. The OWQ employs approximately 218 full-time equivalent staff.

### **ADEQ Is Not Sufficiently Enforcing Safe Drinking Water Requirements (see pages 5 through 14)**

ADEQ needs to strengthen its ability to address drinking water quality problems. Although drinking water in Arizona's large urban areas met quality standards in 1992, ADEQ reports that 74 systems serving approximately 138,000 people did not comply with one or more of seven water quality standards. Failure to comply with water quality standards can lead to immediate and serious health problems. Even systems that complied with the standards experienced occasional problems: 185 systems serving over 199,000 people experienced bacteriological contamination in one to three months during the year.

ADEQ's efforts to address drinking water problems have been weak and untimely. During 1992, the Department took only 14 formal enforcement actions against systems with serious problems. In addition, ADEQ does not ensure that the public is properly notified when a system has problems. Based on our review of 56 serious contamination incidents during 1992 we estimate that proper notification occurred in only 22 cases. Moreover, enforcement takes a long time. In a sample of active enforcement cases, we found that they had been under investigation for an average of 602 days. We also found that few water systems properly notify their customers when contamination occurs. The primary causes of the program problems are an excessive workload and poor management. The workload is expected to increase as new Federal drinking water regulations take effect.



While the Department has begun to address some problems, more needs to be done. ADEQ has developed an enforcement policy, increased public notice efforts and is implementing a self-assessment exercise to identify improvements.

However, the Department still needs to resolve management problems, such as fragmented responsibilities, inadequate policies and procedures, and lack of management information, that hamper program efficiency and effectiveness. Once management problems are addressed, the Department can determine what additional resources are needed, and develop proposals to institute fees on drinking water systems similar to those used in other states to provide sufficient program funding.

### **The Aquifer Protection Permit Program Remains Critically Behind Schedule (see pages 15 through 23)**

Unless significant changes are made, ADEQ is unlikely to meet its year 2001 deadline for processing aquifer protection permits (APP's). The APP program was created by the 1986 Environmental Quality Act to protect Arizona's ground water resources by requiring facilities to use the best available technology to control pollutant discharge. In the six years since the program began, however, ADEQ has only permitted 63 facilities; between 650 and 900 facilities remain. With eight years to go, ADEQ has little chance of meeting its legislative mandate at current productivity rates. In fact, our analysis found processing time has increased rather than decreased in recent years. ADEQ's slow permit processing is the result of poor management, staffing problems, and failure to adopt clear permit guidelines.

Although ADEQ has initiated efforts to address some problems with the APP program, further actions are needed to meet the 2001 deadline. ADEQ needs to develop adequate guidelines for assessing the best available technology and ensure that staff have the technical backgrounds needed. In addition, ADEQ should develop policies and procedures to guide APP staff and develop effective methods for tracking permit development. The Department should also consider issuing general permits to those facilities (e.g., car washes, seasonal RV parks, and small wastewater treatment plants) that pose limited harm to the environment and do not need individual permits. Further, ADEQ should assess its resource needs to ensure sufficient resources are available to meet the deadline.

### **ADEQ's Efforts To Protect Water Quality Are Limited (see pages 25 through 31)**

APP's are an important element of Arizona's water pollution control program, but other key elements needed for effective regulation are lacking. Although the program is intended to ensure that facilities discharging pollutants comply with water quality



standards, only 538 of 2,328 facilities have active individual permits. Moreover, only 335 facilities are required to report water quality information to the Department and two-thirds of all active facilities have never been inspected. In addition, very few of the facilities that are actively regulated by the Department comply with applicable requirements. However, ADEQ's response to noncompliance is typically slow and weak -- some facilities remain out of compliance for years. As of March 1993, the 178 pending enforcement cases had been active an average of 887 days. ADEQ exercised formal enforcement action only 7 times in 1992. The water pollution control program's effectiveness suffers because ADEQ has not defined program goals and activities and has not addressed management and data problems. However, ADEQ management is taking steps to improve the water pollution control program. For example, the ADEQ Director recently issued a compliance and enforcement policy outlining steps and timeframes for taking enforcement action. In addition, an advisory team has been formed to review the program and make suggestions for improvement.

### **ADEQ Needs To Strengthen Its Program To Monitor Pesticides In Ground Water (see pages 33 through 36)**

ADEQ needs to do more to address recommendations made in our 1990 audit of its pesticide monitoring program. The pesticide program was enacted as part of the 1986 Environmental Quality Act in response to concern about pesticide contamination resulting from agricultural activities. The previous audit made a series of recommendations to strengthen pesticide monitoring, some of which have not been implemented. ADEQ still needs to develop a detailed plan to guide monitoring to ensure that limited resources are utilized most appropriately. We also found that ADEQ has yet to fully assess drinking water systems' vulnerability to pesticide contamination.

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# TABLE OF CONTENTS

	Page
<b>INTRODUCTION AND BACKGROUND</b> .....	1
<b>FINDING I: ADEQ IS NOT SUFFICIENTLY ENFORCING SAFE DRINKING WATER REQUIREMENTS</b> .....	5
ADEQ Weak In Addressing Serious Noncompliance .....	5
Drinking Water Program Poorly Managed And Overextended .....	9
Additional Resources And Enforcement Authority Needed .....	11
Recommendations .....	13
<b>FINDING II: THE AQUIFER PROTECTION PERMIT PROGRAM REMAINS CRITICALLY BEHIND SCHEDULE</b> .....	15
APP Program Is The Cornerstone Of Ground Water Protection Efforts .....	15
Few Permits Issued To Facilities That Could Contaminate Ground Water .....	16
Slow APP Processing Due To A Variety Of Factors .....	17
Additional Action Needed To Meet Program Deadline .....	20
Recommendations .....	22



## TABLE OF CONTENTS (Concl'd)

	Page
<b>FINDING III: ADEQ's EFFORTS TO PROTECT WATER QUALITY ARE LIMITED</b> .....	25
Water Pollution Control Program .....	25
Most Facilities Are Not Actively Regulated .....	26
Efforts To Address Noncompliance Are Weak And Limited .....	27
ADEQ Needs To Evaluate Resource Requirements .....	30
Recommendations .....	31
 <b>FINDING IV: ADEQ NEEDS TO STRENGTHEN ITS PROGRAM TO MONITOR PESTICIDES IN GROUND WATER</b> .....	 33
Recommendations .....	36

### AGENCY RESPONSE

#### LIST OF TABLES & FIGURES

Table 1:	Water Quality Status For Ten Largest Arizona Water Systems Calendar Year 1992 .....	7
Table 2:	Ten Largest Arizona Water Systems Out Of Compliance With Water Quality Standards In 1992 .....	8
Figure 1	Status Of Water-Related Recommendations Made In 1990 Auditor General Report On ADEQ Pesticide Regulation .....	34

## INTRODUCTION AND BACKGROUND

The Office of the Auditor General has conducted a performance audit of the Arizona Department of Environmental Quality (ADEQ) - Office of Water Quality, pursuant to a September 3, 1992 resolution of the Joint Legislative Oversight Committee. This performance audit was conducted pursuant to A.R.S. §§41-2951 through 41-2957. This is one of a series of four audits of ADEQ conducted by our Office.

The legislative intent for creating ADEQ in 1986 was

*" . . . to consolidate and focus responsibility for environmental management and administration of water quality, air quality, solid waste and hazardous waste regulation with the goal of increasing effectiveness, efficiency and public acceptance of environmental regulation."*

ADEQ describes its mandate as preserving, protecting, and enhancing the environment and public health, and developing public policy to maintain and improve the quality of Arizona's air, land, and water resources. The Department is organized into four Offices: Water Quality, Air Quality, Waste Management, and Administration.

ADEQ plays a critical role in ensuring that Arizona's surface and ground waters meet Federal and State water quality standards. Ground water quality is a major concern because it provides approximately 60 percent of Arizona's drinking water and is an important component of river and wetland environments. The Department has primary enforcement responsibility for the Federal Safe Drinking Water Act, works with the U.S. Environmental Protection Agency (EPA) to enforce Federal water pollution control laws for surface waters, and enforces Arizona's ground water protection statutes.

### **Water Quality Programs And Organization**

ADEQ's Office of Water Quality (OWQ) oversees a number of programs that regulate and protect public health and the environment. Some examples of important program responsibilities include the following:

- **SAFE DRINKING WATER** - This program is responsible for ensuring that regulated water systems provide safe drinking water free from bacteriological and other contaminants that could cause immediate or long-term health problems. ADEQ monitors drinking water quality by reviewing laboratory results of water samples taken by water systems. When problems are found, ADEQ can take enforcement action to resolve them. ADEQ also reviews construction plans, performs field inspections of systems, and tracks operator certification.



- **WATER POLLUTION CONTROL** - This program is responsible for ensuring that wastewater treatment plants, mines, industrial facilities, and other entities with the potential to contaminate Arizona's waters comply with permit requirements or water quality standards established by State and Federal law. Many water pollution control activities, such as reviewing laboratory results of water samples, reviewing construction plans, conducting field inspections, and monitoring compliance with operator certification requirements, are similar to drinking water program activities.
- **AQUIFER PROTECTION PERMITS** - Called the "cornerstone of Arizona's ground water protection program," the APP program requires facilities discharging pollutants that could contaminate ground water to utilize the best available technologies to reduce or eliminate the discharge. Statutes require that ADEQ analyze and permit facilities by the year 2001.
- **WATER ASSESSMENT** - This program performs a variety of activities to monitor and assess water quality. Statutes require ADEQ to monitor both surface water and ground water quality throughout the State and to report every five years on the level of pollutants in Arizona's aquifers and the effectiveness of various ground water protection programs.

Although the above programs may appear distinct and separate, their activities are interrelated in some key areas. The APP program was established as an integral part of the water pollution control program. APP's will establish the conditions under which many polluting facilities will operate, such as required technology, operation requirements, and discharge limits. Permits can serve as the basis for other components of the water pollution control program, such as monitoring and enforcement activities. However, ADEQ's regulatory oversight is not limited to permitted facilities only: the Department is responsible for ensuring that any activity with the potential to contaminate Arizona's waters complies with water quality standards.

The organization of OWQ also creates links between programs. The Office is divided into six sections: Compliance, Field Services, Water Assessment, Ground Water Hydrology, Plan Review and Permits, and Program Coordination and Certification. Staff in several of these sections have responsibilities that include several programs. For example, the Compliance Section's responsibilities include both drinking water and water pollution control program activities. Field Services Section staff inspect drinking water and pollution control facilities.

## **Staffing And Budget**

The OWQ employs approximately 218 full-time equivalent (FTE) staff in its six sections. Most of the staff are located at ADEQ's main office in Phoenix. The Field Services Section, however, has satellite offices in Tucson and Flagstaff.



The OWQ budget is allocated by the Department from its lump sum appropriation. Fiscal year 1992-93 expenditures for the OWQ were approximately \$12 million from all sources.

## **Audit Methodology And Scope**

Due to time constraints, we were unable to review all OWQ programs. Our audit report of ADEQ's OWQ focuses on three major water regulation programs: drinking water, aquifer protection permits, and water pollution control. In addition, we reviewed the Department's implementation of water-related recommendations made in our 1990 audit of pesticide regulation programs. The findings in this report address the extent to which:

- The drinking water program ensures that water systems are providing safe water
- ADEQ will meet its statutory mandate of providing APP's to over 1,000 facilities by the year 2001
- ADEQ's water pollution control program ensures that systems are complying with water quality standards and requirements
- ADEQ's pesticide program will adequately assess and protect ground water

The findings reflect similar problems. All programs suffer from lack of management direction and oversight, including inadequate goals and objectives, few policies and procedures, and insufficient data management systems. Staffing and workload issues were also raised in all four program areas. Finally, we found enforcement efforts to be slow and weak in the two program areas with compliance and enforcement responsibilities.

We encountered several problems in using departmental information. Our review of the water pollution control program identified limitations regarding information maintained on the Water Quality Protection Database (WQPD). Specifically, we determined that the database is incomplete. In addition, a limited comparison of field office information with WQPD information raised concerns about data reliability. However, the database is the only readily available source of information about ADEQ's water pollution control activities. As a result, we used information from this database in conducting our analysis of water pollution control activities in Finding III. Information about the APP program was also limited: we were unable to obtain reliable information about the time needed to complete the permit process, or project officer caseloads.

The audit was conducted in accordance with government auditing standards.

The Auditor General and staff express appreciation to the Director and staff of the ADEQ for their cooperation and assistance throughout the audit.

## FINDING I

### ADEQ IS NOT SUFFICIENTLY ENFORCING SAFE DRINKING WATER REQUIREMENTS

In July 1992, a town of 4,500 people in Arizona experienced bacteriological contamination in its water supply. Although required by law to notify the public within 72 hours, this Arizona town chose not to comply. ADEQ took no action to ensure that the public was properly notified because it does not monitor compliance with this requirement. Bacteriological contamination continued for at least four weeks during which townspeople consumed contaminated water without knowledge of the risks they were taking.

Although this town's experience reflects an example of a more severe violation, many Arizona drinking water systems did not comply with health standards in 1992. Our review found that ADEQ's response to noncompliance has been weak. Poor program management and a workload that exceeds available resources hamper ADEQ's regulatory efforts. Although ADEQ must improve program management, legislative action will also be needed to provide more resources and additional enforcement tools to meet current and future regulatory demands.

#### **ADEQ Weak In Addressing Serious Noncompliance**

ADEQ needs to improve its efforts to provide effective safe drinking water regulation. In 1992, ADEQ reported many water systems out of compliance with health or operation standards, some of which pose potentially serious health threats to the populations served<sup>1</sup>. ADEQ's response to serious noncompliance has been limited.

***System noncompliance in 1992*** - Some systems' failure to meet drinking water standards poses health risks to the populations they served.<sup>2</sup> Violations of water quality standards are of the greatest concern because of the potential direct threat to public health. In 1992, 74 systems serving almost 138,000 persons did not comply with

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1. Drinking water contamination can cause illness and even death. Microbiological contamination of the drinking water supply caused an estimated 12 deaths and 370,000 illnesses in Milwaukee, Wisconsin, in April 1993.
  2. ADEQ monitors water system performance using water sample information and field inspections. Water system operators sample their water, send it to a laboratory for analysis, and then provide the information to ADEQ. ADEQ enters the information on its database and compares the results against the health standards established by law and rule. In addition, ADEQ field officers inspect systems to assess operation and maintenance and verify that operators are certified.



one or more water quality standards. One hundred eighty-five systems serving more than 199,000 exceeded bacteriological limits in one to three months during the year.<sup>1</sup>

Another important compliance parameter is whether a system takes the appropriate number and type of water samples. In 1992, 579 systems serving a total population of nearly 353,000 did not comply with water sampling requirements. Without sampling information, ADEQ cannot determine the quality of water produced by a water system. For example, a town in Arizona serving over 17,000 people violated bacteriological standards five times in 1992. In addition, the system also failed to take the appropriate number of bacteriological samples in 6 of the 12 months. In total, 153 systems failed to take the appropriate number of bacteriological samples for 6 or more months in 1992.

Two other compliance parameters, proper system operation and maintenance and retaining a certified system operator, are important and can contribute to the quality of water produced. For 1992, 295 water systems serving over 77,000 persons did not comply with operation and maintenance standards. Seven hundred and twenty systems serving over 235,000 people either did not have a certified operator or the operator's certification level was inadequate. However, systems could have problems in either category but still be producing safe water.

Problems with water quality and sampling appear primarily in medium and smaller water systems. As shown in Table 1, page 7, the 10 largest water systems in the State serving almost 2.3 million people, or nearly two-thirds of the total State population, fully or substantially complied with water quality standards. Table 2 (see page 8), lists the biggest systems that did not comply with water quality standards in 1992, several of which serve substantial populations.

*Weak enforcement in addressing serious problems* - We found ADEQ's enforcement response to serious problems weak and untimely. In addition, ADEQ does little to ensure that the public is properly notified when their drinking water supply is contaminated. However, ADEQ has begun to address some of these problems.

ADEQ's enforcement process begins when a case is referred by the EPA or one of ADEQ's field offices. Following the referral, ADEQ issues a letter of warning to the water system requiring corrective action within 30 days. If a system corrects the

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1. Bacteriological contamination is one of seven categories of contamination a system may be required to test for. To be rated in noncompliance with bacteriological standards, systems must exceed bacteriological limits in four or more months during the year.

problem, the case is closed. If the system fails to correct problems, ADEQ can institute formal enforcement procedures, such as an administrative order or a referral to the Attorney General for prosecution.<sup>1</sup>

**TABLE 1**  
**Water Quality Status For Ten Largest**  
**Arizona Water Systems**  
**Calendar Year 1992**

<u>Water System(a)</u>	<u>Population Served</u>	<u>1992 Water Quality Status</u>
City of Phoenix	907,900	Full Compliance
City of Tucson	478,600	Full Compliance
City of Mesa	220,000	Full Compliance
City of Tempe	145,000	Full Compliance
City of Glendale	131,000	Full Compliance
City of Scottsdale	140,000	Full Compliance
City of Chandler	104,000	Full Compliance
City of Yuma	58,000	Full Compliance
Sun City Water Co.	48,000	Full Compliance
City of Flagstaff	<u>44,500</u>	Full Compliance
Total	<u>2,277,000</u>	

(a) ADEQ annually rates water system quality using three categories: Full Compliance, Substantial Compliance, or Noncompliance. Full compliance equates to no water quality violations during the year. Substantial compliance equates to one to three bacteriological violations, or one to two turbidity violations during the year. Noncompliance equates to four or more bacteriological violations, three or more turbidity violations or other specified violations, in any of the other five sampling categories during the year.

Source: ADEQ Drinking Water Database.

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1. Because ADEQ limits drinking water enforcement only to cases referred by EPA and field offices, other potentially serious cases in Arizona are not addressed. The U.S. General Accounting Office's 1990 analysis of EPA's drinking water program found that the EPA's case selection process excludes additional serious cases because its selection criteria identified only the worst violators. In March 1993 an enforcement officer reviewed the ADEQ drinking water compliance database and found an additional 105 systems with serious problems that had yet to be referred for enforcement action.



**TABLE 2**  
**Ten Largest Arizona Systems**  
**Out Of Compliance With**  
**Water Quality Standards In 1992**

<u>Water System</u>	<u>Population Served</u>	<u>1992 Water Quality Status(a)</u>
City of Peoria	39,000	Noncompliance
Az. Water Company - Casa Grande	26,100	Noncompliance
City of Douglas	17,300	Noncompliance
Avondale	7,000	Noncompliance
USAF - Luke AFB	5,900	Noncompliance
Doney Park Water - (Flagstaff area)	5,000	Noncompliance
City of St. Johns	3,600	Noncompliance
City of Florence	3,000	Noncompliance
Ray Water Co. - (Tucson area)	2,900	Noncompliance
Buckeye	<u>2,800</u>	Noncompliance
Total	<u>112,600</u>	

(a) These are ADEQ ratings for calendar year 1992 only, and may not reflect current status. Ratings for 1993 will not be compiled until early 1994.

Source: ADEQ Drinking Water Database.

Formal and strong enforcement action appears limited. The Department had a total of 251 continuing or new enforcement cases in 1992. Although the Department issued 80 letters of warning in 1992, formal action beyond that was limited. Only 14 systems were issued an administrative order in 1992. EPA guidelines require states to institute formal enforcement action within 8 to 14 months after the case is opened depending upon the type of violation.<sup>1</sup> However, a review of the Department's database revealed that formal action has been taken on less than one-half of the 118 cases over 14 months old.

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1. The EPA defines formal enforcement action as the issuance of an administrative order and/or referring a system for prosecution.



In addition to few formal enforcement actions, ADEQ appears to take a long time to work or process an enforcement case. We reviewed 26 case files and found 18 enforcement cases were still open as of April 1993, and had been open an average of 602 days. Eight of these cases were opened prior to 1992 and had been open an average of 1,032 days. Eight out of the 26 cases had been closed, averaging 508 days. Letters of warning were issued in 18 of the 26 cases, one-half of which required from 70 to 1,086 days to issue. Administrative orders were issued in only 2 of the 26 cases and were issued an average of 480 days after the letter of warning was sent.

Our review also found many systems do not notify the public when bacteriological contamination occurs. When this type of violation occurs, systems are required to notify consumers by radio or television within 72 hours. ADEQ also has the authority to notify the public if the system does not. Without proper and timely notification, water system users are exposed to potentially serious health threats without the knowledge or opportunity to seek alternate water sources. To test public notification compliance, we reviewed the 56 instances of confirmed fecal coliform violations in Arizona in 1992. We selected this violation because it is considered "acute" by the EPA, with the potential for causing immediate and serious health problems.

We estimated that public notification occurred in only 22 of the 56 cases. Further, some of the 22 cases that did provide notification either missed the 72 hour deadline or used a posted notice, rather than the required electronic media. Our finding of problems with public notification was consistent with information received from interviews with ADEQ officials. In addition, our survey of some other states' programs and a recent report by the U.S. General Accounting Office found other states have similar problems.

ADEQ has begun to address problems with enforcement and public notification. In May 1993, the Director issued a compliance and enforcement policy that outlines procedures and timeframes for enforcement. Resource limitations will, however, constrain full implementation of the policy. The Department has also streamlined the administrative order development process to reduce the time it takes to issue an order. To address the problem of water systems failing to notify the public when contamination occurs, the Department has indicated they will notify the media of these types of problems. In addition, the Department's agency-wide Total Quality Improvement effort is on-going in its safe drinking water program. The Department hopes to identify measures it can implement to improve program efficiency and effectiveness.

## **Drinking Water Program Poorly Managed And Overextended**

Several factors impact ADEQ's drinking water regulatory performance. The program's workload exceeds resources. In addition, management problems prevent the Department from using available resources efficiently and effectively.



*Workload exceeds available resources* - ADEQ's drinking water program has more regulatory responsibilities than it has resources to address them.

Our review focused on the backlog in the program's enforcement unit and found that the enforcement unit has many more cases assigned than it can investigate in a timely or effective manner. The enforcement unit has only three staff members devoted primarily to working enforcement cases. Enforcement officers stated that 50 cases at any given time would be a maximum case load that could be worked effectively. One staff member has over 130 cases assigned. Two staff members recently hired already have 50 or more cases assigned. However, another 105 important cases have yet to be assigned. Recently, the EPA delegated an additional 120 cases to the unit. Interviews with enforcement officers found that, because of the large case volume they are unable to address cases for months at a time.

ADEQ's current and future regulatory overload is well recognized. ADEQ management and staff shared their concerns with us during the course of the audit. According to ADEQ officials, the drinking water program is overloaded in the compliance and field services areas also. The EPA expressed concern about the Agency's declining ability to meet regulatory mandates in a 1991 review of ADEQ's drinking water program.

Increasing regulatory responsibilities arising from new EPA mandated rules will further strain the program. 1986 amendments to the Safe Drinking Water Act require that water systems test for an increasing number of contaminants (at least 25 added every three years) and follow other stricter requirements which ADEQ will be required to monitor and enforce. Recognizing the financial burden states face in maintaining viable drinking water programs, EPA is giving states a five-year grace period (1993 to 1998) to implement and regulate all current and future requirements.

*Management problems* - A variety of management problems also affect the drinking water program, which limit ADEQ's ability to effectively utilize the limited resources currently allocated. Significant management problems include:

- **FRAGMENTED ORGANIZATION** - Responsibility for drinking water regulation is divided among several groups within the Office of Water Quality. Both our review and ADEQ analysis found communication and coordination problems under the current arrangement. A 1990 peer review of Arizona's program by officials from other states found that "*fragmentation of drinking water activities . . . presents problems in communication, coordination and efficiency of operations.*"
- **INADEQUATE POLICIES AND PROCEDURES** - Policies and procedures are needed to guide staff so that essential activities are performed consistently.
- **INEFFECTIVE TRACKING MECHANISMS** - The two teams within the drinking water compliance unit cannot adequately track their activities. The compliance team could not tell us the extent of their workload, beyond describing what activities they



perform. The enforcement team's case tracking log does not provide management information on staff case loads, timeliness, and effectiveness.

- **DATA PROBLEMS** - Not all regulatory requirements are programmed into the compliance database. As a result, the Department does not track several key requirements, including public notification. In addition, one field office maintains its own separate database because they distrust the main database information. We also found some instances where updated inspection information was not captured on the compliance database.

## **Additional Resources And Enforcement Authority Needed**

Although ADEQ needs to strengthen management of the drinking water program, additional funding and enforcement tools will also be needed to achieve a viable program. Management deficiencies that limit effective utilization of existing resources should be addressed before more resources are given. However, even with improved management, the Department will need additional resources. In addition, providing ADEQ with two critical enforcement tools could promote greater compliance with water system regulations. Small water system compliance could remain tenuous, however, because of the financial and regulatory challenges facing them.

***Address management deficiencies*** - As noted in the previous section, the ADEQ drinking water program suffers from management and other problems that limit the Department's ability to effectively use its current resources. ADEQ needs to immediately begin correcting organizational fragmentation, inadequate policies and procedures, ineffective tracking and poor data. Strengthened management will enable the Department to assess the adequacy of available resources compared to its program responsibilities. In addition, the Department will be able to establish a performance baseline that can be used for developing a strategic plan for meeting its growing responsibilities in the drinking water program.

***Additional funding*** - After addressing its management problems, ADEQ will need additional funding to meet its regulatory duties. Our research shows that Arizona, along with other states, lacks the resources needed to meet current or future drinking water program requirements. During fiscal year 1992-93, ADEQ estimated that \$1.5 million and 36 full-time equivalent positions were devoted to the drinking water program. A 1991 study estimated that an additional \$2.6 million and 46 positions were needed to meet current responsibilities and future EPA requirements. ADEQ needs to update its estimates of program requirements to provide the Legislature with the information justifying the need for additional resources. This information should be developed as part of a strategic plan that establishes priorities among the various regulatory activities and demonstrates that the Department is taking steps taken to ensure that all program resources are effectively used.



Like many other states, Arizona could institute various alternatives to bolster the drinking water budget. The EPA recommends that states seek additional resources to meet drinking water program budget shortfalls. In response to funding shortages, 30 states have adopted some form of fee to supplement drinking water program budgets. An additional 12 states are considering adding fees. Examples of types of fees used by other states include service connection/per household fees, water system annual permit fees, water use fees, inspection fees, plan review and construction permit fees, certified operator fees, and enforcement fees.

Significant amounts of revenue can be generated through fees. For example, several states utilize a service connection fee (an annual fee per household collected on the water bill) ranging from less than \$1.00 to up to \$5.61 per household annually. As of May 1993, ADEQ's database indicated that community water systems had a total of 1,037,400 service connections. A \$1 to \$2 annual fee would increase households' monthly water bills between 9 and 18 cents.

To address drinking water program funding shortages, ADEQ is proposing fee related alternatives similar to those practiced in other states. Currently, ADEQ collects fees for water use, plan reviews and construction permits and for operator certification. These fees, however, are not dedicated to defraying program costs but are deposited in either the General Fund or the Water Quality Assurance Revolving Fund (WQARF). ADEQ is proposing statutory changes to establish a safe drinking water fund and directing the aforementioned fee monies into the fund to supplement the current program budget. The Department estimates that these fees would generate approximately \$1,360,000 annually. The bulk of the money would come from the water use fee currently deposited into WQARF. To replace lost WQARF funds the Department is proposing redirecting \$3 million annually from the Underground Storage Tank fund to the WQARF.

We recommend that ADEQ be required to report on a regular basis to the Legislature on the progress it is making addressing management deficiencies and the use of any additional monies that the Legislature may provide. Efficient fund utilization requires good management and tracking systems. Because ADEQ lacks many of the basic management items needed, strict accountability is necessary until the Department can demonstrate that systems are in place and progress is being made in addressing program deficiencies.

***Stronger enforcement tools*** - The Legislature should consider strengthening ADEQ's enforcement authority. Providing ADEQ with citation and administrative penalty authority would give ADEQ "more teeth" in its enforcement actions and could shorten the now lengthy process. Citations could be given immediately by field personnel when problems are spotted, providing the systems an immediate financial incentive to regain compliance. Currently, if a system ignores an ADEQ inspection report that identifies problems, the field staff are limited to trying to get the system to achieve compliance voluntarily or referring the system to the enforcement unit.

Authority to impose administrative penalties during the enforcement process would enable ADEQ to penalize systems that do not attempt to fix problems. Currently, financial incentives to comply can only be applied through a very lengthy legal process. Typically, if a system ignores ADEQ's enforcement efforts, ADEQ will refer the system to the Attorney General for prosecution. The Attorney General must then take the system to court and request a judgment against it. With administrative penalties, water systems would be less likely to wait the process out. The concept of administrative penalties appears to be well supported, and the National Conference of State Legislatures reports that 23 states have administrative penalty authority. The Association of State Drinking Water Administrators' 1990 peer review of Arizona's program recommended their adoption.

***Small water system compliance*** - Even with additional resources and enforcement tools, the Department will probably continue to experience problems with small water systems complying with regulatory requirements. Financial problems challenge small system viability. According to Department officials and national literature, some small systems do not have the economic base to properly maintain or refurbish their water plants and distribution systems. Expanding Federal requirements will further strain some small systems' inabilities to remain viable. To further exacerbate the problem, in Arizona, water system improvements must be made before a system can seek a rate increase from the Corporation Commission. Many of the 1,792 water systems regulated by ADEQ are classified as small systems.

## **RECOMMENDATIONS**

1. The Legislature should require ADEQ to regularly report on progress it is making in addressing management deficiencies. If the Legislature provides additional funds for the drinking water program, ADEQ should also report on the utilization of these monies.
2. ADEQ should ensure that systems are properly notifying the public when contamination and other problems occur.
3. To improve drinking water program management, ADEQ should:
  - Develop a strategic plan for the drinking water program that prioritizes regulatory activities to ensure that limited resources are utilized most effectively.
  - Develop policies and procedures to implement the regulatory activities identified in the strategic plan.
  - Establish goals and objectives and productivity measures for each of the regulatory activities identified.



- Develop management information systems to monitor workload, cost, timeliness, and effectiveness of each regulatory activity.
  - Review and amend the current Office of Water Quality organization structure to address communication and coordination problems.
4. ADEQ should update its database to ensure that all regulatory standards are included so that it can track water system compliance with all requirements.
  5. ADEQ should develop and present to the Legislature proposals to fully fund the drinking water program and increase its authority to enforce program rules and regulations.
  6. ADEQ needs to begin focusing on solutions to address the compliance problems experienced by small water systems due to increased regulatory requirements.



## FINDING II

### THE AQUIFER PROTECTION PERMIT PROGRAM REMAINS CRITICALLY BEHIND SCHEDULE

Unless significant program changes are made, ADEQ is not likely to meet its 2001 deadline for processing APP's. In the six years since the APP program's inception, permits have been issued to only 63 of an estimated 1,000 facilities that could impact ground water quality. The Department's poor performance in processing permits can be attributed to its failure to clearly define permit requirements, resolve program staffing problems, and adequately oversee the program. With only eight years remaining, ADEQ must quickly address these productivity roadblocks and take other steps to make the program more manageable.

#### APP Program Is The Cornerstone Of Ground Water Protection Efforts

The 1986 Environmental Quality Act required ADEQ to establish an APP program to regulate discharges to aquifers. The Act requires persons who discharge pollutants that could contaminate ground water to obtain an APP from the Department. In order to obtain an individual APP, applicants must design their facilities to incorporate the best available demonstrated control technology (commonly known as BADCT - pronounced "bad cat") for the types of pollutants that will be discharged to ground water. By requiring facilities to utilize the best available technologies, the APP program seeks to reduce or eliminate contaminant discharge. This unique program is considered a model for ground water protection by the U.S. Environmental Protection Agency. Few states have adopted such an ambitious program to prevent ground water contamination.<sup>1</sup>

The APP program is a key component of the State's ground water protection efforts. APP's will serve as a basis for regulating facilities with pollutant discharges that could impact ground water quality. Permits contain requirements for facility operation; ADEQ staff review compliance with these requirements during inspections. In addition, APP's typically require facilities to routinely submit monitoring data to the Department that can be used to assess compliance with discharge limits and Aquifer Water Quality Standards. Finally, APP's contribute to enforcement by specifying the requirements facilities must meet and documenting that facility owners have agreed

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1. Facilities regulated under this program include wastewater treatment plants, mines, solid waste disposal facilities, and industrial facilities. Both new and existing facilities are required to obtain a permit. New facilities must obtain an APP before they can begin operating. Existing facilities can continue to operate without a permit until ADEQ makes a permit decision.

to these requirements. ADEQ's compliance and enforcement activities are discussed in Finding III, (see page 25).

## **Few Permits Issued To Facilities That Could Contaminate Ground Water**

Most facilities that could impact ground water quality have yet to be permitted. ADEQ has issued very few APP's since the program began in 1987. Given the limited progress to date, it appears unlikely that ADEQ will meet the statutory deadline for permitting discharging facilities. Until permits are in place, the Department's ability to regulate facilities that could pollute ground water is limited.

*Few permits issued* - The Department has made little headway in issuing APP's. ADEQ issued only 63 individual permits between July 1987, and April 1993.<sup>1</sup> Moreover, most of the permits issued are for newly constructed facilities. Only 11 of the 1,067 existing facilities originally identified as needing a permit have received one. Concern about the Department's limited progress led the Legislature to require that ADEQ complete the issuance or denial of permits to all existing facilities by January 1, 2001.<sup>2</sup>

*Ability to meet the 2001 deadline is doubtful* - Although ADEQ staff maintain they will be able to meet the statutorily mandated 2001 deadline, progress to date does not support their optimism. ADEQ staff believe they will be able to meet the statutory deadline by decreasing the number of facilities requiring permits and correcting identified management deficiencies (see pages 19 through 20). An ADEQ manager recently estimated that only 650 of the identified 1,067 existing facilities will actually require an individual APP.<sup>3</sup> However, to process even 650 permits by 2001, ADEQ would need to issue or deny an average of 80 permits each year, more than three times the number issued in any given year to date.<sup>4</sup> In addition, the time taken to issue APP's has increased by almost 50 percent since 1990, from 381 days in 1990 to 561 in 1993.

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1. Two types of permits are issued under the APP program: individual permits and general permits. Individual APP's are customized permits issued to facilities that pose a significant threat to the environment or public health. General permits may be issued by rule to certain types of facilities in which the cost of issuing individual permits is not justified by any environmental or health concern.
  2. The Legislature also established interim deadlines requiring ADEQ to process one-third of all existing facilities by January 1, 1995, and two-thirds of all existing facilities by January 1, 1998.
  3. ADEQ staff have identified 148 facilities from the original list of 1,067 that do not require an individual APP because they were found to qualify for a general permit, were exempt from APP requirements, or could be removed from the list for other reasons. The Plan Review and Permits Section Manager expects further review of the list to identify another 250 to 300 facilities that do not require an individual APP.
  4. The Department has averaged 19 APP's per year since it issued the first permit in 1990.



*Ability to regulate facilities is limited* - Until permits are established, ADEQ cannot ensure that facilities are using suitable technologies to control the discharge of pollutants. For example, permits for landfills specify the type of liners and leachate collection systems that must be used to prevent pollutants from seeping into groundwater. However, currently operating landfills that have yet to obtain a permit may be unlined or inadequately lined, allowing contaminants to leach into ground water.

In addition, without permits in place ADEQ often lacks information needed to determine if ground water is being contaminated. As previously noted, APP's frequently require facilities to routinely monitor for pollutants in their discharges and ground water, and report monitoring results to ADEQ. In contrast, unpermitted facilities typically have no such monitoring and reporting requirements. As a result, ADEQ often lacks the water quality monitoring data needed to determine whether facilities are complying with Aquifer Water Quality Standards (see Finding III, page 25).

## **Slow APP Processing Due To A Variety of Factors**

ADEQ's poor performance in processing APP's has several causes. ADEQ's failure to adequately define permit requirements slows permit processing. Lack of staff expertise, vacant positions, and turnover also delay timely permit processing. Poor management oversight and direction allow problems to continue.

*Poorly defined permit requirements* - ADEQ's failure to develop adequate guidelines for determining BADCT has prolonged permit development efforts.<sup>1</sup> Although the Department has identified optimum treatment technologies for each major type of facility regulated under the APP program, it has not clearly specified treatment technologies that would be acceptable when site conditions reduce the likelihood of contaminants reaching ground water. Without adequate direction on what technologies are acceptable under varying site conditions, project officers are left to make BADCT determinations on their own. Representatives from the regulated community noted that ADEQ staff are often reluctant to make BADCT determinations, and typically require additional data from permit applicants prior to making a decision. The additional data can require significant time and expense. For example, one industry representative was asked to provide additional information concerning the soil and geological characteristics of the site of a proposed landfill, which required taking soil cores to a depth of 165 feet at a cost of approximately \$25,000. Collection

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1. To obtain an individual APP, applicants must demonstrate that facilities will utilize the best available demonstrated control technology, operating procedures, or other processes to reduce discharges to the greatest extent possible. Statutes require ADEQ to consider site-specific hydrological and geological characteristics and other environmental factors when making BADCT determinations.



of the soil cores, and analysis and interpretation of the data, took the applicant approximately two and one-half months.

ADEQ also has not adequately informed permit applicants about requirements for determining BADCT. While the Department has prepared BADCT guidance documents for each of the major types of facilities regulated under the program, we found these are insufficient.<sup>1</sup> For example:

- Fifty-three percent of the permit holders and applicants we surveyed said ADEQ does not clearly specify the information needed to meet BADCT requirements.<sup>2</sup>
- BADCT guidance documents are aimed at new facilities, and do not provide sufficient coverage of existing facilities.
- BADCT guidance has not been finalized by the Department. According to industry representatives, ADEQ staff sometimes disregard the guidance documents because they are considered to be drafts.

Although BADCT was identified as the biggest problem, focus group participants from the regulated community also noted that ADEQ has not adequately defined other permit requirements.<sup>3</sup> Focus group members said APP application requirements are generally unclear, which has led to a cumbersome process with multiple information requests. They said it is typical to receive a number of requests for additional data from DEQ during the permit process, each of which can lead to a two-month delay in obtaining a permit. One participant indicated that he has received requests for additional information from DEQ every four to six weeks.<sup>4</sup>

*Staffing problems delay permit issuance* - Program staffing problems have also hampered APP program implementation. APP program staff appear to lack the

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1. ADEQ has developed BADCT guidance documents for wastewater treatment plants, landfills, mines, and industrial wastes and wastestreams.
  2. A telephone survey was conducted of 75 permit holders and applicants. Sixty-eight responses were received, for a response rate of 91 percent.
  3. Auditor General staff organized focus groups, consisting of three to six individuals, to discuss problems with the APP program and recommendations for improvement. Separate focus group meetings were held with permittees and applicants, environmentalists, and ADEQ staff.
  4. Although ADEQ management acknowledges that information requests can lead to significant delays in the permit process, they believe these requests are often appropriate and necessary. In addition, they note that delays caused by information requests can be partially attributed to the applicants' failure to respond in a timely manner. However, due to the poor shape of files and databases within the APP program, we were unable to determine the extent to which delays were caused by ADEQ or applicants.

technical knowledge and experience needed to ensure timely and effective permit processing. Forty-three percent of the permit holders and applicants we surveyed rated the technical capability of APP staff as fair or poor. Focus group participants from both industry and environmental groups were also critical of the quality of staff in the APP program. They noted that APP staff often:

- Lack an adequate engineering background.
- Have little practical knowledge of the types of facilities they regulate.
- Lack sufficient expertise to make informed decisions, which leads to requests for excessive amounts of information.

Participants in these focus groups felt the key to addressing staffing problems within the APP program was to obtain better qualified staff, rather than simply increasing their number. In fact, they believe that fewer, more qualified staff could process permits in a more timely manner than at present. Focus group members suggested several alternatives for improving staff qualifications, including upgrading project officer positions and insuring that project officers have adequate engineering support.

Turnover and staff vacancies within the APP program also affect ADEQ's permit development efforts. As of April 30, more than 60 percent of all project officers had been with the APP program for a year and a half or less. In addition, two of three unit supervisors had been with the APP program for less than six months. Sixty-nine percent of the permittees and applicants we surveyed indicated staff turnover within the APP program has caused delays in obtaining permits. Nearly 39 percent of those surveyed said three or more different project officers had been assigned to work on their permit. ADEQ project officers agree that turnover and staff vacancies seriously affect their ability to write APP's in a timely manner.

***Inadequate program management*** - ADEQ's failure to provide adequate direction to, and oversight of, the APP program hampers timely permit processing. We found fundamental program management tools needed to guide and direct program staff have not been adequately developed. For example:

- Policies and procedures are not in place to clarify the steps program staff are to follow in the permit process.
- No training program has been developed for program staff on how to process and review APP's.
- Management information systems are insufficient and fail to track basic management information. We found ADEQ lacks accurate information regarding 1) the number of existing facilities requiring individual permits, 2) the current status of permit development efforts and project officer case loads, and 3) the time required to issue permits.



ADEQ is taking steps to address some of these management deficiencies. For example:

- ADEQ's Deputy Director has been assigned responsibility for overseeing the APP program until problems with the program have been adequately addressed. He will: 1) assess the need for regulatory changes, 2) coordinate Business Process Improvement efforts, and 3) oversee development of policies and procedures.
- An automated permit generation system that can produce draft APP's using boilerplate language has been partially developed.
- Program staff are in the process of updating the list of facilities requiring APPs. Facility files are being organized and updated, and a new facility database is being developed to provide more accurate and up-to-date information about facilities requiring permits.
- A program advisory team, comprised of ADEQ staff and representatives from the regulated community, will be established to review the APP process and identify opportunities for program improvement.

While these ADEQ efforts are positive, these changes have yet to be fully implemented, making it difficult to assess their impact on permit processing timeliness. However, given the magnitude of the program's workload and other unaddressed problems, it seems unlikely that these ADEQ initiatives alone will enable the Department to meet the 2001 deadline for processing permits.

### **Additional Action Needed To Meet Program Deadline**

In addition to addressing the deficiencies in the APP program previously described, other measures may be needed to meet the 2001 deadline. ADEQ needs to consider using more general permits to reduce the workload. The Department also needs to assess the adequacy of program funding and fees.

***Reduce workload*** - ADEQ should consider expanding the use of general permits to pare down the number of facilities that must obtain an individual APP. A.R.S. §49-245 authorizes the Department to establish general permit requirements in its rules for classes of facilities that meet certain criteria.<sup>1</sup> Obtaining a general permit involves considerably less time and effort than obtaining an individual permit for both the

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1. ADEQ has authority to develop general permit requirements for types of facilities that are large in number, similar in nature, and in which the cost of issuing individual permits is not justified by any environmental or public health concern.

applicant and ADEQ. Facilities that qualify for a general permit need not obtain an individual permit as long as they comply with the regulatory provisions in the rules. The owners of these facilities are not required to submit a permit application, conduct hydrological studies, prepare an assessment of BADCT alternatives, or provide demonstrations of financial and technical capability.

Although general permit requirements have been established for several types of facilities, the Department could make greater use of general permitting.<sup>1</sup> Establishment of general permit requirements for other types of facilities would allow the Department to reduce the number of facilities that must go through the lengthy process of obtaining an APP. ADEQ's Assistant Director for the Office of Water Quality suggested that general permit requirements could be established for facilities that pose limited risk to the environment, allowing ADEQ staff to focus their efforts on issuing individual permits to higher priority facilities. ADEQ staff and focus group participants identified several types of facilities for which general permit requirements could be established.<sup>2</sup>

Assess resource needs - The Department needs to assess the resource requirements for the APP program. Although ADEQ can improve its processing of APP's by addressing program deficiencies and taking steps to make the program's workload more manageable, additional resources may be needed to ensure the 2001 deadline is met. ADEQ has recognized the need to identify the program's workload and resource needs and plans to contract for a study of APP program workload and funding requirements. This study is expected to provide information on the program's staffing needs, the amount of revenue that can be expected from permit fees, and the cost of administrative and programmatic activities not covered by fees.

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1. General permit requirements have been developed for on-site sewage disposal (septic) systems with flows less than 20,000 gallons per day, pilot recharge and underground storage and recovery projects, the agricultural application of wastewater sludge, and other pollution sources such as placer mining and hydrostatic tests of pipelines.
  2. Facilities identified by ADEQ staff and focus group participants include small automotive facilities, seasonal RV parks, truck/car wash operations, small rural landfills, gas stations, and small wastewater treatment plants. The actual number of facilities that could be covered by general permit requirements is unknown because ADEQ does not categorize facilities in this manner in its databases.



## RECOMMENDATIONS

1. The Department should consider the following steps to clarify BADCT requirements.
  - Standardize BADCT by identifying specific control technologies that would be acceptable at each type of facility under varying site conditions.
  - Develop policies and procedures concerning BADCT determination that provide clear direction to APP staff.
  - Further develop BADCT guidance for permit applicants by:
    - Developing better BADCT guidance for existing facilities.
    - Establishing BADCT guidance documents as policy.
  
2. ADEQ should consider the following measures to address program staffing problems.
  - Evaluate whether project officer positions need to be upgraded to improve the technical knowledge and experience levels of staff in the APP program.
  - Reallocate or establish engineering support staff positions in the APP program to assist with the technical review of permit applications.
  
3. ADEQ should continue and expand efforts to address management deficiencies in the APP program. Specifically, ADEQ should:
  - Develop a policy and procedure manual that provides clear direction to APP staff.
  - Upgrade management information systems to ensure that the following information is captured:
    - The number of existing facilities that require individual permits.
    - The current status of permit development efforts.
    - Project officer case loads.
    - The timeliness of permit issuance.
  - Develop a comprehensive training program for APP staff as called for in the 1991 APP Strategy.
  
4. The Department should explore opportunities to reduce the facilities requiring an individual APP by expanding the use of general permits for lower priority facilities.

5. The Department should follow through on its plans to contract for a study of APP workload, fees, and funding requirements, and then present the findings to the Legislature.



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## FINDING III

### ADEQ'S EFFORTS TO PROTECT WATER QUALITY ARE LIMITED

Although the APP's discussed in the previous finding are important to protecting water quality, they are only one element of the ADEQ water pollution control program. However, the water pollution control program currently lacks essential components to effectively protect Arizona's water quality. The program actively regulates only a small proportion of facilities with the potential to pollute. In addition, ADEQ is slow to enforce water pollution control laws and seldom takes formal action against violators. To improve program operations, ADEQ needs to first address a number of management deficiencies and then evaluate resource requirements needed to run an effective program.

#### **Water Pollution Control Program**

The APP program is only a part of ADEQ's program to control water pollution. ADEQ estimates that from 650 to 1,000 facilities require APP's. However, ADEQ has identified more than 2,300 facilities which must be regulated to some extent to prevent water pollution. In addition, for many facilities receiving an APP, the APP is the first step of the regulatory process. Once a permit is issued ADEQ must conduct other regulatory activities, such as collecting and reviewing water quality information, inspecting facilities, and taking enforcement action against identified violators.<sup>1</sup> While permits provide specific criteria for regulating facilities, any activity that has the potential to contaminate Arizona's waters must comply with the water quality standards established by ADEQ<sup>2</sup>, whether the facility is required to obtain a permit or not.

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1. Several statutes give ADEQ responsibility for promoting and protecting Arizona's water quality and determining compliance with water quality standards. These statutes include A.R.S. §§49-104, 49-202, 49-203, 49-221, 49-225, 49-241, 49-361 and 49-362.
  2. Water pollution can result from a variety of activities and cause various environmental and health problems. There are a number of potential sources of water pollution, including agricultural activities, wastewater treatment plants, industries using hazardous materials, landfills, mining operations, and urban runoff.



## Most Facilities Are Not Actively Regulated

ADEQ does not actively regulate most facilities that could contaminate Arizona's water resources. Although ADEQ has identified and claims to regulate over 2,300 facilities that have the potential to affect water quality, most of these facilities do not have water quality permits, are not required to submit monitoring information to the Department, and have never been inspected. The lack of clear program direction appears to be the main cause of ADEQ's limited regulatory efforts.

*Few facilities permitted or monitored* - ADEQ does little to ensure that facilities comply with water quality laws. As of March 1993, only 538 of the 2,328 active facilities on the water quality protection database (WQPD) had active individual permits.<sup>1</sup> Only 335 of the 538 permits direct the facility to submit monitoring information to ADEQ.<sup>2</sup> Facilities without permits are not typically required to submit any water quality monitoring data. Thus, ADEQ's ability to evaluate these facilities' impact on water quality is minimal.

In addition, ADEQ inspects only a small percentage of active facilities. ADEQ reports 1,565 (67 percent) of the 2,328 facilities on the database have never been inspected. Another 850 on-site wastewater treatment facilities not included on the database are not being inspected as mandated by law.<sup>3</sup> When ADEQ does conduct inspections, major problems are frequently identified. For example, major violations such as consistently failing to adequately chlorinate effluent or significant plant operation problems were identified in 72 of the 184 facilities inspected in 1992. Without conducting inspections, the Department cannot ensure ongoing compliance with water quality laws, especially given the lack of reporting requirements discussed above.

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1. When asked, various management staff with the OWQ could not identify a) why only 538 facilities have an active individual permit and b) how many of the 2,328 facilities on the WQPD are projected to require a permit.
  2. According to ADEQ staff, most facilities with Ground Water Protection Permits (a predecessor to APP's) are not required to submit water quality information to ADEQ because their impact on water quality was deemed to be minimal. Those permitted facilities with reporting requirements must submit discharge monitoring reports to ADEQ indicating the volume, amount, and type of regulated substance(s) a facility is emitting. ADEQ enters this data onto the WQPD and compares it with allowed discharge limits to determine compliance. Facilities may also be required to sample ground water quality to assess compliance with Aquifer Water Quality Standards.
  3. An on-site wastewater treatment facility is a system installed at a site to treat and dispose of domestic wastewater generated at that site. These systems are typically associated with homeowners and are utilized where construction of a conventional septic system is not possible due to site characteristics, such as soil conditions or depth to ground water. Although A.R.S. §49-362 has required annual operation and maintenance inspections of these facilities since 1987, very few of these systems have ever received these inspections.

Incomplete and inaccurate data further limit ADEQ's ability to regulate facilities and ensure compliance with water quality laws. We found ADEQ cannot accurately identify the number and type of facilities it is required to regulate and lacks key information for many facilities. For example, although an ADEQ official believes most of the 2,328 facilities on the WQPD will require permits and some regulatory oversight, the Department does not know how many could be exempt or eliminated from the database for other reasons. In addition, other facilities may be operating and discharging pollutants without ADEQ's knowledge. Further, ADEQ lacks information regarding facility type, disposal methods, discharge flow levels, and population served for many of the discharging facilities. Finally, we found some data used by ADEQ to determine a facility's compliance status may be inaccurate.<sup>1</sup>

*Causes of regulatory limitations* - ADEQ's failure to adequately define and direct program operations has created a fragmented water pollution control program of narrow scope. The Department has yet to identify 1) the overall purpose of the water pollution control program, 2) which types of facilities should be regulated, 3) what regulation should entail, 4) how often monitoring activities should occur, 5) the resources needed to conduct identified regulatory functions and 6) how to coordinate responsibilities shared by multiple units. ADEQ may obtain valuable suggestions for addressing these problems from a recently organized program advisory team.<sup>2</sup> The team's mission is to review all aspects of the water pollution control program and make recommendations to streamline processes and increase the effectiveness and efficiency of the program.

## **Efforts To Address Noncompliance Are Weak And Limited**

Even when compliance problems are identified, ADEQ's response is untimely and weak, allowing some facilities to remain out of compliance for years. Although many facilities on the WQPD do not comply with established requirements, the Department does not effectively follow up on identified noncompliers. In addition, we found enforcement efforts take a long time and result in few formal actions. A variety of factors contribute to ADEQ's slow and limited efforts.

*High percentage of noncompliance among those facilities regulated* - Noncompliance is very high for the few facilities actively regulated by ADEQ. In 1992, we found 89 percent of actively regulated facilities were out of compliance for one

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1. A comparison of inspection data maintained on the central database with regional office inspection data revealed differences in inspection dates or inspection compliance status in 82 of 251 cases reviewed.
  2. The team consists of representatives from ADEQ, the regulated community, Maricopa County, and environmentalists.



reason or another.<sup>1</sup> A facility could be out of compliance for failing to submit monitoring information, exceeding permit limits, failing to have a certified operator, or failing an inspection.

Exceeding allowed permit limits is one of the more serious violations.<sup>2</sup> In 1992, ADEQ found about one out of every three facilities that reported monitoring information exceeded allowed permit limits. For example, one facility exceeded its permit limits for nitrogen every month in 1992. At one point in 1992, this facility was emitting effluent containing more than 15 times its allowed nitrogen limit.

*Inadequate follow up efforts* - Even when noncompliance is identified, we found ADEQ does not consistently notify facilities of violations and fails to perform necessary followup to ensure facilities return to compliance. ADEQ has developed a series of standard violation letters to notify facilities of their violations and requests documentation of compliance within 30 days. These notices are to be sent out quarterly. However, ADEQ staff indicated they have not consistently sent out violation notices. Furthermore, even when notices are sent out, ADEQ conducts no follow up to determine whether problems have been corrected.

*Enforcement efforts lengthy* - When enforcement action is needed, ADEQ is slow to resolve cases and seldom takes formal action. Our analysis of the 178 cases pending as of March 1993 revealed these cases have been open an average of 887 days. In addition, we found the 50 cases closed in 1992 remained open an average of 868 days. A few cases remained open more than five years. ADEQ's failure to initiate timely action contributes to the lengthy enforcement process. Some cases have received no attention in over two years; a few of these facilities failed inspections over three years ago, yet no enforcement action has been taken to bring them back into compliance.

Formal enforcement actions against noncompliant facilities are rare and untimely. ADEQ took formal enforcement action, such as issuing an administrative order or taking a facility to court, only seven times in 1992. These cases were pending an average of 612 days prior to formal action being taken; none of the cases has been closed. However, as the following example illustrates, even the taking of formal action does not immediately negate the problem:

- In April 1989, a major resort's inadequate septic system allegedly polluted its drinking water source and caused over 100 guests to become ill. Although the drinking water problem was immediately resolved, the wastewater system remains a problem and continues to pollute ground water.

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1. According to information obtained from the WQPD, 658 facilities had either a monitoring requirement, a certified operator requirement, or were inspected during 1992. Of these 658 facilities, 588 were out of compliance with at least one requirement.

2. Facility permits may include limits on a variety of chemicals and other factors including nitrogen, phosphorus, fecal coliform, pH, flow, and turbidity.

In September 1989, ADEQ negotiated a consent order requiring the resort to redesign and reconstruct the existing system in order to meet permit discharge limits. The resort made system modifications over the course of the next year; however, the modifications did not correct the problem and the resort continued to exceed its permit limits. In June 1991, a consent judgment was obtained which required the resort to either build a new wastewater treatment plant or connect to the city wastewater treatment plant currently under construction and pay penalties for exceeding discharge limits.<sup>1</sup> The resort is expected to connect to the city sewer system in August 1993.

***Enforcement limitations*** - Several factors hinder ADEQ's ability to take timely and effective enforcement action. ADEQ's enforcement philosophy of working with facilities to obtain voluntary compliance appears to contribute to their problems. We believe, and the section manager agrees, that this philosophy can create excessive delays in case resolution. To speed up case resolution and project a stronger enforcement image, she recently instructed compliance officers to issue administrative orders where initial voluntary compliance efforts fail. This directive has resulted in ADEQ issuing more administrative orders in a recent two-month period than in all of 1992.

ADEQ's limited administrative penalty authority may also contribute to its lengthy enforcement process. Currently, ADEQ has authority under A.R.S. §49-362 to impose limited administrative penalties for on-site wastewater facilities. However, to impose a penalty on other types of facilities ADEQ must request the Attorney General to pursue court action to recover the civil penalties, a lengthy and cumbersome process. Administrative penalty authority is already used in several other states.<sup>2</sup> Officials in these states believe the administrative penalty option strengthens their program and helps to bring violators into compliance more quickly.

In addition, the Department lacks the resources needed to conduct some basic enforcement activities. ADEQ currently takes limited action against facilities who fail to submit required monitoring information or those who violate permit limits because no State resources are dedicated to this activity. Further, compliance officers noted lack of time and higher case priorities cause some enforcement cases to go unattended for months.

Interviews with all five compliance officers and a review of the status of open cases revealed several other factors that also contribute to lengthy case resolution.

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1. Beginning at \$2,000 a month, the fine escalates an additional \$2,000 each month the resort violates its permit limits, up to a maximum of \$10,000 monthly. The fine is now \$10,000 monthly.
  2. California, New Hampshire, New Jersey, Oregon, and South Carolina all have administrative penalty authority. In 1992, New Jersey collected almost \$11 million in administrative fines.



- Problems in coordinating and obtaining needed technical advice and assistance from other units within the Department create delays in processing cases. Hydrologists, field engineers, and permit staff are frequently needed to take water samples, conduct inspections, and evaluate information submitted by facilities regarding compliance efforts.
- High turnover and redistributing cases among compliance officers creates delays in processing cases since staff must familiarize themselves with the details of newly acquired cases.
- Formal enforcement actions require the approval of managers at several levels in the organization, which delays enforcement efforts.
- No criteria have been developed to evaluate the merits of cases referred for enforcement action. Compliance officers identified several cases they felt should not have been referred to them.

## **ADEQ Needs To Evaluate Resource Requirements**

Timely and effective enforcement action is a Departmentwide issue and one that ADEQ is beginning to address. In May of 1993, the ADEQ Director issued a compliance and enforcement policy that outlines steps and timeframes for taking enforcement action and proposes mechanisms to ensure consistent and timely treatment of cases. However, staffing and workload issues may limit program staff's ability to comply with this new policy. Clearly, some activities are limited or not being performed at all due to lack of staff. Given the lack of program definition it is difficult to determine the extent to which resources are a problem. For example, ADEQ has not yet defined the additional workload and regulatory responsibilities associated with those facilities that obtain APP's. Once ADEQ clearly defines the water pollution control program and clarifies responsibilities, management will have a basis for evaluating the resources needed to perform required activities.

## RECOMMENDATIONS

1. To improve the water pollution control program, ADEQ needs to first develop program requirements. Specifically, ADEQ should:
  - Define the scope and responsibilities of the program, specifically identifying the types of facilities to regulate, what regulation should entail, and how often monitoring should occur.
  - Develop a comprehensive strategy to guide Department efforts, prioritizing regulatory activities to ensure effective utilization of limited resources.
  - Clarify roles and activities of the various units involved with regulating water pollution activities.
  - Identify and correct deficiencies on the Water Quality Protection Database.
  - Improve monitoring and followup activities for identified violators.
  - Utilize available information to target noncompliers for enforcement action.
2. Once program requirements are established, ADEQ needs to identify and compare the resources available with the resources needed to carry out identified program activities.
3. The Legislature should consider giving ADEQ statutory authority to impose administrative penalties for all types of water quality violations.



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## FINDING IV

### ADEQ NEEDS TO STRENGTHEN ITS PROGRAM TO MONITOR PESTICIDES IN GROUND WATER

The Arizona Department of Environmental Quality (ADEQ) needs to do more to implement recommendations made by the Auditor General in his report on the Department's pesticide monitoring programs (Report 90-8). Although recent legislation gives the Department greater flexibility in monitoring pesticides, ADEQ has not developed the detailed plans to direct its monitoring programs and to identify needed funding as recommended in the previous audit.

The 1986 Environmental Quality Act directed the Department to establish a Pesticide Contamination Prevention Program to monitor ground water in Arizona's agricultural areas. An important component of the program was the identification of active pesticide ingredients that could contaminate Arizona ground water. At the time of our 1990 audit, ADEQ had identified 133 ingredients that met the statutory definition for inclusion on the Ground Water Protection List (GWPL). However, a team of experts noted that such an extensive monitoring program was both unnecessary and prohibitively expensive. We recommended that the Legislature amend the pesticide statutes to allow the Department to focus its efforts on pesticides most likely to pollute ground water. The Legislature did not pass the recommended legislation until 1993. In the meantime, ADEQ promulgated the final GWPL, containing 152 ingredients, in September 1992.

Some progress toward implementing 1990 Auditor General recommendations has been made, as shown in Figure 1 (page 34). The 1993 Legislature gave the ADEQ Director authority to focus the Department's monitoring on pesticides that pose the greatest threat to ground water. However, the Department has only partially implemented some of the 1990 recommendations and not implemented others at all. ADEQ has not defined what constitutes adequate monitoring for the pesticide contamination prevention program and the cost of such a program. In addition, the Department has done little to assess the vulnerability of drinking water systems to pesticide contamination.

According to ADEQ staff and managers, budgetary constraints limit the Department's action in these areas. Staff also question the need for comprehensive monitoring plans, given the limited budgets available and the lack of any evidence of widespread pesticide contamination identified by monitoring to date. However, the 1990 audit noted that the costs of meeting the various statutory mandates are likely to be high. In order to fully inform the Legislature about monitoring costs and to guide its own decision making, the Department needs to develop detailed plans and cost estimates for carrying out its pesticide monitoring responsibilities.



**Figure 1**  
**Status of Water Related Recommendations Made in**  
**1990 Auditor General Report on ADEQ Pesticide Regulation**

<u>Recommendation</u>	<u>Action Taken</u>	<u>Comment</u>
1. The Legislature should consider revising the Pesticide Contamination statutes in A.R.S. §49-301 et. seq. to provide ADEQ with more flexibility in determining which pesticides are placed on the ground water protection list.	1993 Legislature passed SB1330 giving the ADEQ director flexibility to identify and monitor only pesticides that have a reasonable likelihood to leach into ground water.	Recommendation implemented
2. The Legislature should consider establishing a scientific advisory committee to provide technical assistance to ADEQ in determining which pesticides should be included on the ground water protection list.	SB1330 did not establish a scientific advisory committee. The bill requires the ADEQ director to consult with the Department(s) of Health Services, Water Resources and Agriculture in modifying the ground water protection list. In addition, changes must be made through the rule-making process which requires public input.	Recommendation substantively implemented
3. ADEQ should prepare detailed plans to direct all major monitoring programs. These plans should specify the resources needed to implement programs, and should also establish procedures for prioritizing monitoring efforts.	ADEQ has developed a series of plans for its pesticide contamination prevention program that identify areas to be sampled and numbers of samples to be collected. ADEQ has also prepared a plan for establishing a ground water monitoring program.	Recommendation not implemented for pesticide contamination prevention program. Annual plans developed to date focus largely on utilizing funds appropriated by the Legislature. Plans do not identify resources needed to implement the program or establish priorities for monitoring. Recommendation implemented for ground water monitoring program.

**Figure 1**  
**Status of Water Related Recommendations Made in**  
**1990 Auditor General Report on ADEQ Pesticide Regulation (con't)**

<u>Recommendation</u>	<u>Action Taken</u>	<u>Comment</u>
4. ADEQ should determine the amount of additional funding needed for sample collection and analysis to carry out the monitoring requirements of the pesticide contamination prevention program.	Although the pesticide unit has developed annual plans, these plans simply allocate available resources and do not provide an estimate of full implementation costs.	Recommendation not implemented
5. ADEQ should also determine the amount of additional funding that will be necessary to implement a Statewide, ground water quality monitoring program.	Ground water monitoring plan was published in 1991. Cost to implement monitoring specified in plan was estimated to be \$1.8 million annually.	Recommendation partially implemented. ADEQ has not requested funds needed to implement the plan.
6. ADEQ should develop plans for conducting vulnerability assessments of public drinking water systems, and determine the amount of additional funding needed to conduct these assessments.	ADEQ has not conducted any vulnerability assessments of drinking water systems. The Department has identified areas where aquifers are vulnerable to pesticide contamination and plans to target drinking water system vulnerability assessments in those areas. Department staff are seeking funding to develop plans for assessing the vulnerability of drinking water systems to pesticide contamination.	Recommendation partially implemented



## RECOMMENDATIONS

1. ADEQ should use the authority granted by SB 1330 to identify pesticides that are most likely to contaminate Arizona waters. Pesticides identified during this review should be included in the ground water protection list. Pesticides less likely to cause contamination problems should be deleted from the list.
2. ADEQ should use the results of the review recommended above to develop a comprehensive plan to direct sampling activities under the pesticide contamination prevention program. The plan should determine the appropriate number of samples to be collected in the various areas of the State and the funding needed to accomplish that level of sampling.
3. ADEQ should continue to seek or allocate resources needed to develop plans for conducting vulnerability assessments of public drinking water systems and determine the amount of additional funding needed to conduct these assessments.

## **Agency Response**



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# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor      Edward Z. Fox, Director

September 28, 1993

Mr. Douglas R. Norton  
Auditor General  
State of Arizona  
2910 North 44th Street  
Suite 410  
Phoenix, Arizona 85018

Dear Mr. Norton:

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

- Identify many of the problems as historical;
- Emphasize that many of the problems identified by the auditors and ADEQ require legislative solutions;
- Recognize the significant efforts underway to address those problems; and,
- Address the significant resource (staffing and financial) limitations on the Water Quality programs. For example, the report:
  - Criticizes ADEQ for not correcting historic management problems and for not increasing programmatic outputs (inspections/enforcement actions). With limited marginal dollars and staffing, ADEQ can only: 1) focus on a few problems at any one time thus taking years before ADEQ's management can address all the problems or 2) divert resources from other programs and, in the short term, fall further behind in its programmatic responsibilities; and,
  - Fails to acknowledge that major databases that contain inaccurate information (created by previous administrations) cannot be fixed without significant resources for ADEQ's Information Resources program.

Specifics regarding the above statements will be discussed in greater detail in our comments to each finding.

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 having basic business support systems (i.e. records management, activity tracking, policies and procedures, etc.). This is primarily due to the demanding nature of the legislative time frames for implementing programs and the lack of personnel who are trained in management systems. ADEQ management is aware of this predicament and has been working through a Total Quality Involvement/Business Process Improvement (TQI/BPI) effort to identify systems that are needed or must be fixed.

The TQI/BPI effort is widespread in the agency and will effect every program and nearly every individual. The effort has been successful in introducing improvements in one case that is particularly noteworthy. In the Program Advisory Team (PAT) for water facility plans it was recognized that much of the delay in processing approvals for wastewater and drinking water systems is related to the order in which projects are selected for review (i.e. first come first served). After performing a "cueing analysis", the PAT determined that overall processing time (actually, waiting time) can be reduced as much as 50% by simply varying the order in which projects are selected for review. We are now implementing the PAT's recommendations.

As I previously stated, ADEQ takes no exception to the four problems described on page three of the Report. We identified these problems early in this administration and continue to work to address them as indicated in our specific comments to the findings which follow:

**FINDING 1: ADEQ IS NOT SUFFICIENTLY ENFORCING SAFE DRINKING WATER REQUIREMENTS**

We concur with your findings and recommendations. However, many of the problems identified are historical in nature and are already being addressed by this administration. For example, through the creation and comparison of "as is" flowcharts. We were able to analyze how the program personnel process data on notifications. It was determined that some systems are advised of bacteriological problems as much as five times per incident. This led us to change the reporting mechanism and to eliminate the redundancy. Under the new process, a system will be advised only once before referral to enforcement.

The development of the compliance/enforcement policy was a year-long effort led by enforcement staff to identify and devise a consistent department-wide process. The year-long effort was required to ensure that it would apply to all programs because, as you know, each program has different mandates. In addition to implementing the policy, ADEQ has made the following improvements in the Drinking Water program:

- Developed "boilerplate Administrative Orders" with the Attorney General (AG).
- Issued, from January to July 1993, as many orders as were issued in all of 1992.
- Selected a new Section Manager to oversee this program;
- Developed a policy book which centralizes program policies and identifies new policy requirements;
- Developed a list of all systems that failed MCL's for nitrates, identified the systems from the list that are not in compliance and assigned them as enforcement cases.
- Increased the number of systems in full or substantial compliance to 625 serving 2,916,668 (80%) in 1993 from 386 systems serving 2,219,834 individuals compliance (61%) in 1991.

In addition to the actions listed above, in response to preliminary concerns raised during your audit, ADEQ has instituted the following:

- Adopted a policy to send press releases to media sources when systems violate bacterial standards.
- Assigned to enforcement officers, or otherwise resolved, the 105 cases referred to in the footnote on page 7.



The Report recognizes the burden imposed on the program by increasing federal mandates, but does not discuss the impact on small water systems. Because of the prescriptive nature of the Safe Drinking Water Act, monitoring requirements for all water systems have been increasing annually. Due to economies of scale, the greatest impact of these requirements will fall on the medium to small water systems. This predicament has been captured very well in an August 6, 1993 document issued by the Association of State Drinking Water Administrators.

"While states acknowledge that enforcement can be a very effective compliance "weapon," the reality is that enforcement in the drinking water program is slow, time-consuming, and very resource and manpower intensive. Many cases take years to resolve and if they ever come to court, many judges are reluctant to award large penalties because the reality is that a small mobile home park of 50 retired residents, living on a fixed income, has no money or real collateral from which to extract payment. Since water is usually not shut-off except in cases of acute contamination, the state has little leverage. An additional problem is that many AG's are not enthusiastic about taking drinking water cases because they are not "glamorous," nor will they typically result in large monetary settlements, and the publicity of the state coming in to harass and threaten a 'poor little mobile home park' is not the kind of publicity they want."

Based on these facts, the situation will likely get worse before it gets better.

Additionally, it is important to note that with regard to the overall concept of safe drinking water, enforcement is not the only viable tool. The Association of State Drinking Water Administrators in the same publication noted above indicates:

"This is not to say that enforcement is not a vital tool to be used by states. It is only to say that it is not a panacea, nor does it always result in compliance even after a long protracted legal battle. And, from the state's perspective, compliance is the ultimate goal, not the number of enforcement cases taken. In fact, most states consider enforcement actions as a sign of failure because they were unable to achieve compliance in a less costly, more effective manner. The state's goals are to reduce the number of enforcement actions, not increase them."

We support the legislative proposals in the Report. We do, however, support an additional proposal to modify current legislation, which authorizes ADEQ to charge fees for inspections, plan reviews and operator certification, to provide for reinvestment of these fees in water quality programs versus deposit into the general fund.

**FINDING II: THE AQUIFER PROTECTION PERMIT PROGRAM (APP) REMAINS CRITICALLY BEHIND SCHEDULE**

We disagree with the report characterization that the program is critically behind schedule. We now anticipate that we will be able to meet the statutory deadline due to: 1) the anticipated reduction of the number of facilities requiring individual permits by issuing general permits and 2) implementation of management changes such as those listed below.

- Project officers provide management with estimates of completion dates for facility permits;
- Section management sets monthly targets for issuance of new and existing facility permits thus helping to address the issue of timeliness;
- Project officers are required to track progress on individual permits and submit to managers weekly thus helping to address the issue of project officer case load; and,



- Solid waste facilities requiring APP's are being transferred by rule to the Solid Waste Program to reduce duplication of effort and improve customer service.

These changes have resulted in issuance of 17 permits from July 1, 1993 through September 30, 1993 compared to the 27 permits issued during the entire preceding fiscal year.

The time involved with reviewing applications and issuing APP permits is not unusual compared to other very controversial and complex permitting programs. For example, the Air Quality, Prevention of Significant Deterioration (PSD) permits, under the Federal Clean Air Act, require a Best Available Technology determination similar to BADCT. It is not uncommon for these permits to take 9 to 18 months to process even though EPA keeps a national database on acceptable technologies for industrial facilities.

We acknowledge that the guidance documents for the program need revision. The department, through the TQI/BPI process, will be refining the guidance documents and BADCT and developing a procedure for updating them. This will start in October 1993.

The work described at the bottom of page 17 may be totally appropriate if the applicant is relying on site specific conditions to demonstrate BADCT. BADCT in the existing guidance documents is defined absent any consideration for site specific criteria. Site specific criteria are allowed to be considered, but it is the statutory responsibility of the applicant to demonstrate how BADCT will be achieved.

There are many reasons for staff to ask for additional data (page 19). In many cases the relevant data an applicant provides gives rise to other legitimate issues which only become apparent through an analysis of the "new" data. Admittedly, there are instances where information may be requested that is not critical to the review, and the program is working to control this. However, it needs to be clear that the applicant's frustration with the process could be due to any combination of these situations, some of which may be due to a lack of co-operation.

On page 19 it is suggested that permit reviewers be upgraded to attract better qualified individuals. We support this process and in early 1993 requested that the Department of Administration develop senior technical positions for engineers, hydrologists and environmental scientists.

We also agree that more training is needed for staff and that policies and procedures and management information systems need to be developed or improved.

We appreciate the auditors support for our plan to contract for a study of APP workload, fees, and funding requirements. The request for proposals (RFP) was issued in September. ADEQ anticipates awarding the contract by October with a targeted completion date of mid January, 1994.

One area regarding funding which is overlooked in the report is fee caps. We feel that the report needs to address the concern over fee caps and the equity of the fees which tend to weigh heavier proportionately on the smaller dischargers.

### **FINDING III: ADEQ'S EFFORTS TO PROTECT WATER QUALITY ARE LIMITED**

We agree with the recommendations in this finding and anticipate that many of them will be implemented as part of our BPI process by the end of the year. We appreciate the recognition given for the effort the department is devoting toward addressing the issues. There are, however, some additional advances that have been made:



- The facility database will be updated through efforts in the APP program;
- Hardware and software have been provided to the regional offices to allow them access to the central database;
- Quarterly compliance letters were issued to facilities starting with the second quarter of calendar year 1993. Out of 156 letters of warning, we received 144 responses and all but 43 cases are resolved.

There is no question that the water pollution program needs to refocus. Much of the current problem is related to the transition of the agency from a sanitary facility orientation to a more holistic (industrial sources, non-point sources) orientation. Programs have also developed in response to federal mandates and mirror federal programs which are also very fragmented. Recent efforts by the federal government and states toward comprehensive groundwater protection programs and integrated watershed approaches to pollution control are helping to refocus water programs. Arizona is very active in these areas, a fact which is overlooked by this report.

Arizona is a pilot state for a major EPA initiative that looks at groundwater pollution from a comprehensive standpoint. The intent is to prioritize sources responsible for contamination (or for potential contamination) of specific aquifers and address controls or remedial efforts on a prioritized basis. This process could also lead to more flexible funding to allow the sources to be addressed more realistically.

The Arizona non-point source program is also a leading program in addressing surface water and groundwater pollution sources within the concept of watersheds (management zones). This approach is also being considered by Congress for promulgation through amendments to the Clean Water Act to better coordinate programs in addressing water pollution more comprehensively. Both the groundwater and non point source approaches are intended to focus programs and to overcome the problems associated with the traditional fragmented programs.

**FINDING IV: ADEQ NEEDS TO STRENGTHEN ITS PROGRAM TO MONITOR PESTICIDES IN GROUND WATER**

ADEQ has made considerable progress in its program to monitor pesticides in groundwater. The results show that pesticides in groundwater may not be of major concern in Arizona.

Our accomplishments include:

- Active support of the 1992 legislation that streamlined the program and focused the groundwater protection list (recommendation #1),
- Implementation of a requirement for ADEQ to consult with Health Services, Water Resources and Agriculture (Recommendation #2),
- Development of a ground water monitoring strategy which covers all programs (Recommendation #3),
- Development of a vulnerability analysis through DRATIC (see discussion below). This effort has involved coordinated effort between the drinking water and pesticide programs.

We disagree with the statement that there is no pesticide monitoring strategy. The program does in fact have a strategy. It was developed in 1987, and focused on basins of intensive irrigated agriculture. Samples have been taken, and are continuing to be taken, to determine whether the pesticides used in the areas are



Douglas R. Norton  
September 28, 1993  
Page 6

impacting groundwater resources. Annual strategies are also developed to define monitoring goals for the next year. This is consistent with the statute.

Additionally, the department is in the process of developing generic and chemical specific pesticide management plans with EPA and multiple state agencies. This will result in an integrated approach to the monitoring and management of pesticides in Arizona relative to groundwater contamination.

We question the need and validity of the Auditor General recommendation to project the lifetime costs for implementing the program. The pesticides program is focusing on areas of highest potential risk and results to date show little contamination by pesticides on the list. Additional effort beyond the current commitment is not warranted at this time.

With regard to the vulnerability assessment, considerable resources were devoted to modeling agricultural areas of the state vulnerable to pesticide groundwater contamination. Using the DRASTIC system, ADEQ considered pesticide usage, depth to groundwater, soil types, local recharge patterns, topography, infiltration rates and climate to determine vulnerability. At this time pesticide DRASTIC maps are available for La Paz, Yuma, Maricopa, Pinal and Pima Counties. The work on Graham County is in progress.

I believe that our new paradigm on how agencies and the Auditor General work together continues to benefit the citizens of Arizona. Your trained management analysts have provided needed insight to ADEQ management and 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.

Very truly yours,



Edward Z. Fox  
Director

c: Bill Wiley, Deputy Director, ADEQ  
Brian Munson, Assistant Director, Office of Water Quality,  
ADEQ  
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