

State of Arizona
Office
of the
Auditor General

PERFORMANCE AUDIT

**ARIZONA
DEPARTMENT OF
WATER RESOURCES**

**Report to the Arizona Legislature
By Douglas R. Norton
Auditor General**

**April 1999
Report No. 99-8**



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AUDITOR GENERAL

**STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL**

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April 23, 1999

Members of the Arizona Legislature

The Honorable Jane Dee Hull, Governor

Ms. Rita P. Pearson, Director
Arizona Department of Water Resources

Transmitted herewith is a report of the Auditor General, A Performance Audit of the Arizona Department of Water Resources. This report is in response to a May 27, 1997, resolution of the Joint Legislative Audit Committee. The performance audit was conducted as part of the Sunset review set forth in A.R.S. §§41-2951 through 41-2957.

The report addresses the Department's efforts to ensure a long-term water supply for the State. The report discusses a number of statutory restrictions and exemptions that limit Arizona's ability to achieve the statutory goal of safe yield by 2025. Safe yield is achieved when no more groundwater is withdrawn from the aquifer than is annually replaced. Projections indicate that groundwater depletion will likely continue past 2025 in three of the State's most severely depleted areas. The report recommends that the Legislature consider establishing a study commission to address the State's ability to achieve the safe yield goal. Further, the report discusses regulatory limitations in the Groundwater Code that may result in water supply problems both now and in the future. Specifically, the consumer protections relating to sufficient water supply are lacking in certain areas of the State. The report recommends changes to statutes to enhance access to information about sufficiency of water supplies, to extend the assured water supply provision, and to establish well spacing requirements to those areas of the State lacking these protections. Finally, the report presents information on Arizona's water regulatory framework, which does not have authority over all types of water. Surface water, groundwater, and effluent (treated wastewater) are regulated as different types of water.

April 23, 1999

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As outlined in its response, the Department agrees with the findings. Further, although we recommend the Legislature establish a study commission to address ways to achieve safe yield, the Department is already moving forward to implement this recommendation administratively by creating a statewide task force for this purpose.

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

This report will be released to the public on April 26, 1999.

Sincerely,

A handwritten signature in dark ink, appearing to read "Douglas R. Norton". The signature is fluid and cursive, with the first name "Douglas" being more prominent and the last name "Norton" following in a similar style.

Douglas R. Norton
Auditor General

Enclosure

SUMMARY

The Office of the Auditor General has conducted a performance audit and Sunset review of the Arizona Department of Water Resources, pursuant to a May 27, 1997, resolution of the Joint Legislative Audit Committee. This performance audit was conducted as part of the Sunset review set forth in Arizona Revised Statutes (A.R.S.) §§41-2951 through 41-2957.

The Department of Water Resources (Department) was established in 1980. Its primary responsibilities are to ensure a long-term water supply for the State, to administer the State's water rights system, and to represent Arizona's water rights with the federal government. The Department has authority over groundwater (water beneath the surface). Conversely, the Department has no enforcement authority over surface water (lakes, streams, and reservoirs), and no statutory authority over effluent (treated wastewater). In fiscal year 1999, the Department had 252 full-time equivalent employees and an operating budget of approximately \$18.3 million.

The purpose of this audit was to evaluate the Department's efforts to ensure a long-term water supply for the State. The audit specifically identified barriers faced in accomplishing the safe yield goal and regulatory limitations that may impact future water supplies. Further, the audit discusses the 12 Sunset Factors the Legislature is to consider in determining whether to continue or terminate the Department.

Groundwater Depletion Is Likely to Continue (See pages 9 through 19)

Under the current regulatory structure, the statutory goal of "safe yield" will not likely be achieved by 2025 for the Prescott, Phoenix, and Tucson areas. Safe yield is accomplished when no more groundwater is withdrawn from the aquifer than is annually replaced. The Groundwater Code (Code), created in 1980 along with the Department, designates the State's most severely depleted areas as Active Management Areas (AMAs) and requires the Department to implement a series of Management Plans with conservation requirements for municipal, agricultural, and industrial users in each AMA. A review of the Management Plans indicates that they comply with the Code's mandates requiring the establishment of a water rights system and the continuing development of mandatory conservation requirements for water users. However, the Department projects that even if the Prescott, Phoenix,

and Tucson AMAs meet all requirements of the Management Plans currently being developed, they will not achieve this safe yield by 2025 because the Groundwater Code contains a number of statutory restrictions and exemptions that limit the AMA's ability to achieve safe yield. These include the following:

- The Code created several types of grandfathered rights, mainly for agricultural and industrial users. For these users, the Code allows the Department to make only slight reductions in annual groundwater allotments. Further, it does not give the Department authority to require these users to eventually increase their reliance on renewable water sources, such as lakes, rivers, or treated effluent, as a means to reduce their reliance on groundwater.
- Agricultural users with grandfathered rights can accrue credits for unused groundwater and carry the credits over for future use. These credits have created a lien against the groundwater supply that, if used, could increase groundwater depletion and hamper the AMAs' ability to achieve safe yield. In 1997, credits in the Prescott, Phoenix, and Tucson AMAs totaled more than 6 times the total groundwater consumption of all users in these AMAs in 1995.
- The Code created eight types of groundwater withdrawal permits that allow users without a grandfathered right to pump groundwater. For categories related to mineral extraction and industrial uses, the Department must issue a permit if the applicant meets certain criteria and must renew it as long as the applicant continues to do so.
- Provisions relating to the municipal sector also contribute to continued groundwater depletion. For example, the Code's conservation requirements focus on the water provider, not on water users. However, these providers have little ability to control the amount of water used by their customers.

The Legislature should consider forming a study commission to address the State's ability to achieve the safe yield goal. A study commission would allow input from water resource experts, civic leaders, and other important interests, such as municipalities, agriculture, and mining, that are impacted by the State's water resource policies. The commission could address the following issues:

- The advisability of purchasing and retiring grandfathered groundwater rights, and possible methods and timelines for doing so;
- The advisability of either eliminating agricultural flexibility credits or preventing additional credits from accruing;

- The advisability of limiting groundwater withdrawal permits and possible methods for doing so; and
- The advisability of encouraging municipal providers to rely on renewable water sources rather than groundwater, and possible methods for doing so.

Regulatory Limitations May Create Water Supply Problems As the Population Increases (See pages 21 through 24)

Although most of the State currently has a sufficient water supply, limitations in the regulatory structure may produce water supply concerns both now and in the future. The population outside of the AMAs is projected to grow by an additional 500,000 persons by 2025. However, limited consumer protections outside AMAs provide current and future residents with less assurance about future water supply than their counterparts in the AMAs. Specifically, the adequate water supply provision, applicable to areas outside of the AMAs, requires only that the original purchaser of a new subdivision lot receive notification of the sufficiency of the water supply. The provision does not prohibit new subdivisions from being developed or sold in the absence of sufficient water, and does not require that subsequent purchasers receive notification regarding insufficient water. To allow subsequent purchasers to receive notification of the sufficiency of the water supply during a title search, the Legislature should consider amending A.R.S. §32-2181(F) to require that developers record with the County Recorder's Office the determination regarding sufficiency of the subdivision's water supply.

In contrast, the assured water supply provision, applicable within the AMAs, prohibits new subdivisions from being developed and sold if there is insufficient water to meet the subdivision's needs for at least 100 years. To provide greater protection to areas outside of the AMAs, the Legislature should consider amending A.R.S. §45-576 to extend the assured water supply provision to these areas.

For areas outside of the AMAs, the Department does not regulate the spacing between wells or the impact of a new well on existing wells. In contrast, within AMAs the Code prevents wells from being drilled if they will excessively decrease the water supply of existing wells. As growth occurs in communities outside AMAs without renewable water supplies, most new residents will drill wells to obtain groundwater. If additional wells deplete the water supply, existing residents, new homeowners, municipalities, and industry will be affected. The Legislature should consider amending A.R.S. §45-598 to give the Department limited authority to establish well spacing requirements in areas outside of the AMAs.

The establishment of well spacing requirements in areas outside the AMAs would impact some new well applicants and require additional Department resources. Applicants for

wells that pump 35 or fewer gallons per minute, typically for residential use, would not have any additional requirements imposed upon them. However, the Department indicates that applicants for wells that pump more than 35 gallons per minute would be required to conduct a well-impact analysis at a cost of \$2,000 to \$4,000, based on Department estimates. The Department estimates it would need 2 additional hydrologist positions and 1 water resource specialist position to review these estimated 350 well applications and their hydrologic studies.

**Other Pertinent Information—
Arizona Does Not Regulate
All Types of Water
(See page 25)**

Currently, Arizona's water regulatory framework treats surface water, groundwater, and effluent (treated wastewater) as different types of water. The Department has neither enforcement authority over surface water nor statutory authority over effluent and is therefore not able to impose conservation requirements on these types of water.

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INTRODUCTION AND BACKGROUND

The Office of the Auditor General has conducted a performance audit and Sunset review of the Arizona Department of Water Resources, pursuant to a May 27, 1997, resolution of the Joint Legislative Audit Committee. This performance audit was conducted as part of the Sunset review set forth in Arizona Revised Statutes (A.R.S.) §§41-2951 through 41-2957.

The Department's Role in Arizona's Water Regulatory Framework

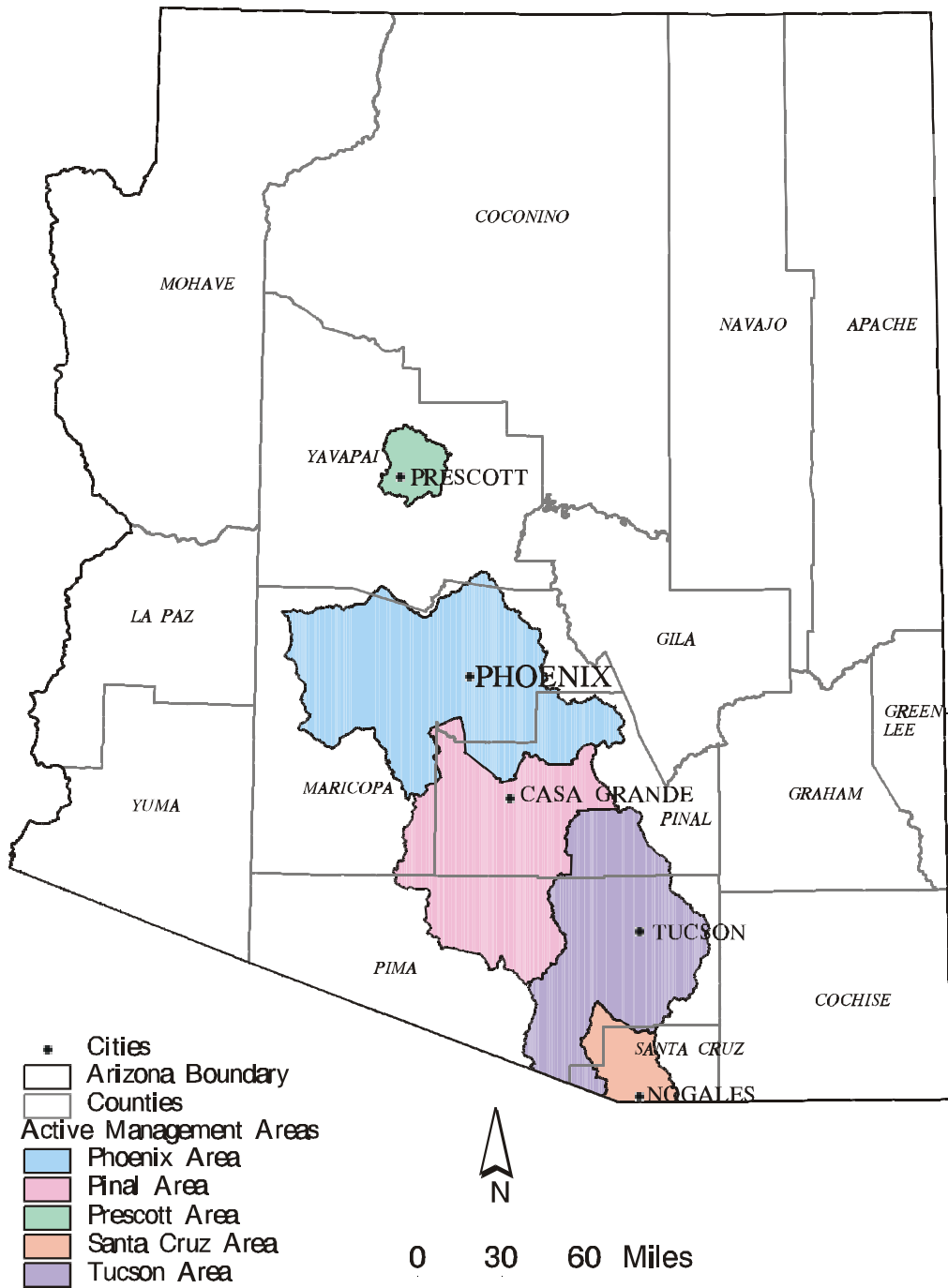
The Department was established in 1980 when the Groundwater Code became law. The Code's primary objectives are 1) to control severe groundwater depletion, or overdraft, and 2) to provide the means for allocating Arizona's limited groundwater resources to most effectively meet the State's changing water needs. The Department's responsibilities include ensuring a long-term water supply for the State, administering the State's water rights system, and representing Arizona's water rights with the federal government.

In Arizona, surface water and groundwater are regulated as separate substances. Surface water is water flowing in streams or canyons, in ravines or natural channels, in lakes or ponds, and in springs on the surface. Groundwater is water located in an aquifer under the earth's surface. Surface water rights are regulated under the "doctrine of prior appropriation." In summary, the first person to put surface water to a beneficial and reasonable use acquires a right to that water. The Department has no authority to enforce the use of surface water pursuant to those rights, although the Department maintains surface water rights registries and issues certificates for appropriated surface water rights. Conversely, the Department regulates groundwater under the statutory authority granted in A.R.S. §§45-401 through 45-704. Finally, the federal government regulates the Colorado River, and oversees contracts that allow each state through which the river flows to use a certain amount of water each year.

As part of Arizona's groundwater regulatory framework, the Groundwater Code initially established four Active Management Areas (AMA) administered by the Department. The AMAs are geographical boundaries surrounding groundwater basins where groundwater depletion is the most severe (see Figure 1, page 2). The initial AMAs were Phoenix, Pinal, Prescott, and Tucson. In 1994, the Santa Cruz AMA was formed by splitting from the Tucson AMA. The goals of the Phoenix, Tucson, and Prescott AMAs are to achieve safe yield of groundwater by the year 2025. "Safe yield" means that no more groundwater is withdrawn from the aquifer than is annually replaced.

Figure 1

Arizona Department of Water Resources
Active Management Areas
As of November 1998



Source: Arizona Department of Water Resources.

However, the Pinal and Santa Cruz AMAs have unique goals. The Pinal AMA is allowed to deplete a portion of its aquifers over a 100-year period to not only extend the agricultural economy but also to preserve water supplies for future nonagricultural uses. The Santa Cruz AMA, with its unique hydrologic conditions, has a goal to maintain its current status as a safe-yield AMA and to prevent local water tables from experiencing long-term declines. The balance of the State surrounding the AMA boundaries is not subject to the same regulatory requirements as the AMAs.

Further, the Groundwater Code requires the Department to implement a series of five sequential Management Plans for each AMA over a 45-year period that began in 1980 and will end in 2025. The Management Plans contain not only the required rules to administer the State's groundwater rights system for all groundwater users within the AMAs, but also the conservation requirements for the three principal groundwater user categories (municipal, agricultural, and industrial) for the purpose of achieving the water conservation goals. The Department is currently developing the Third Management Plans for all AMAs. The provisions of the Third Management Plans will be in effect from 2002-2010 and will include updated conservation requirements for groundwater users and updated programs to supplement the water supply.

Organization and Staffing

The Department of Water Resources is allocated 252 full-time equivalent positions (FTE) for fiscal year 1999. In addition to the six FTEs allocated to the Director's Office, the agency is divided into six divisions and one office staffed accordingly:

- **Groundwater Management**—This division is allocated 76 FTEs and consists of the five Active Management Areas, the Office of Assured and Adequate Water Supply Certifications, and the Groundwater Management Support Section. The five AMAs are responsible for development and implementation of groundwater management plans, regulations, and grant programs designed to reduce groundwater use to meet the goals of each AMA. The Office of Assured and Adequate Water Supply administers programs to ensure that water supplies are adequate to meet the long-term needs of new developments within the AMAs. The Groundwater Management Support Section manages groundwater rights, well drillers, well construction, and well registries.
- **Surface Water Management**—There are four sections within this division and a staff allocation of 47 FTEs. The Flood Mitigation Section provides assistance to local communities in developing flood control projects and flood warning systems. The Colorado River Management Section is responsible for negotiating with the federal government, other states, and Indian tribes on issues related to the allocation and use of Colorado River water, including Central Arizona Project water allotments. The Surface Water and Adjudication Section issues permits for the right to use surface water, maintains water

rights registries, and provides technical and administrative support to the Arizona courts presiding over the general adjudication of water rights in Arizona. The Dam Safety Section inspects and evaluates all nonfederal jurisdictional dams for safety deficiencies.

- **Statewide Water Planning**—This division is allocated 24 FTEs and consists of the Third Management Plan Development Group, the Water Resources Planning Section, the Water Protection Program, and the Water Quality Fund. The Third Management Plan Development Group compiles, edits, and distributes the management plans for public dissemination. The Water Resources Planning Section works with local communities to compile technical data and prepare planning studies to address water management needs outside of the AMAs. The Water Protection Program provides staff support for the Arizona Water Protection Fund Commission. The Water Quality Fund administers agency-mandated responsibilities relating to the Department of Environmental Quality's Water Quality Assurance Fund (WQARF).
- **Hydrology**—There are five sections and a staff allocation of 42 FTEs within this division: Water Resources, Basic Data, Surface Water and Recharge, Modeling, and Technical Support. This division is responsible for the collection of surface and groundwater data statewide. The collected information is then analyzed and disseminated in the form of technical documents, report publications, and special studies of critical areas. This division also provides technical assistance and hydrological reviews for federal and state governments, all areas of the agency, and local water users.
- **Legal Services**—The Legal Division operates with 13 FTEs. The Division both initiates and defends against various court actions relating to water matters. Other activities include legal support services on administrative rules, enforcement cases, grant programs, and Indian water settlements. To avoid conflicts of interest with other state agencies, the Attorney General's Office does not represent the agency, except for criminal prosecutions and civil tort actions.
- **Information Technology**—There are 21 FTEs and three sections within this division: Application Development, Network Support, and Geographic Information Systems. The division provides agency support in system operations, systems development, technical support, and a help desk for all information systems including mainframe, work stations, local-area, and wide-area networking.
- **Finance and Administration**—This office consists of 23 FTEs and is divided into three sections: Finance, Human Resources, and General Services. Agency management support functions provided include budget, personnel, fiscal services, payroll, purchasing, central records room management, mail delivery, copying, facilities, and sub-motor pool.

Department of Water Resources Revenues and Expenditures

Agency operations are funded primarily from General Fund appropriations. In fiscal year 1999, General Fund appropriations were approximately \$13.5 million. Other sources of revenue are intergovernmental; licenses, fees, and permits; fines and forfeitures; sales and charges for service; and investment interest. For fiscal year 1999, the Department budgeted that it will expend approximately \$18.3 million for its operations. Table 1 (see page 6) illustrates the Department's actual and estimated revenues and expenditures for fiscal years 1997 through 1999. In addition, the agency acts as a fiduciary for the Arizona Water Protection Fund, the Water Bank Fund, and several special funds.

Audit Scope and Methodology

This audit focused on evaluating barriers the Department faces in accomplishing the safe yield goal and regulatory limitations that may impact future water supplies. Time and resource limitations did not allow for the review of ongoing programs and activities such as well registries, dam safety, flood mitigation, and the collection of hydrology data. This performance audit presents findings and recommendations in two areas:

- Groundwater depletion is likely to continue past the safe yield goal date of 2025; and
- Limitations in the water regulatory framework may cause problems as the State's population increases.

In addition to these audit areas, the report contains Other Pertinent Information relating to Arizona's water regulatory structure, which does not regulate all types of water (see page 25). Finally, the report contains the responses to the 12 Sunset Factors that should be considered in determining whether the Arizona Department of Water Resources should be continued or terminated (see pages 27 through 32).

Table 1
Arizona Department of Water Resources
Statement of Revenues, Expenditures, and Changes in Fund Balance¹
Years Ended or Ending June 30, 1997, 1998, and 1999
(Unaudited)

	1997 (Actual)	1998 (Actual)	1999 (Estimated)
Revenues:			
State General Fund appropriations	\$12,961,300	\$13,279,200	\$13,477,200
Licenses, fees, and permits	4,822,025	1,278,104 ²	948,000
Intergovernmental	420,901	310,924	300,900
Sales and charges for services	23,372	21,357	
Fines and forfeits	57,493	70,150	70,000
Interest on investments ³	1,312,444	1,747,537	1,803,900
Other	<u>208,862</u>	<u>202,725</u>	<u>504,300</u>
Total revenues	<u>19,806,397</u>	<u>16,909,997</u>	<u>17,104,300</u>
Expenditures:			
Personal services	7,611,002	8,153,761	8,699,300
Employee related	1,625,484	1,704,170	1,849,500
Professional and outside services	3,572,074	2,869,647	3,601,100
Travel, in-state	289,745	290,103	283,200
Travel, out-of-state	40,436	46,120	75,300
Aid to organizations	301,105	53,029	50,000
Other operating	2,904,912	2,902,864	3,066,300
Capital outlay	<u>38,290</u>	<u>311,873</u>	<u>689,700</u>
Total expenditures	<u>16,383,048</u>	<u>16,331,567</u>	<u>18,314,400</u>
Excess of revenues over (under) expenditures	<u>3,423,349</u>	<u>578,430</u>	<u>(1,210,100)</u>
Other financing sources (uses):			
Net operating transfers in	75,649	217,805	
Remittances to the State General Fund	(2,344,005)	(485,376) ²	(405,200)
Reversions to the State General Fund	<u>(67,131)</u>	<u>(23,267)</u>	
Total other financing uses	<u>(2,335,487)</u>	<u>(290,838)</u>	<u>(405,200)</u>
Excess of revenues and other sources over (under) expenditures and other uses	1,087,862	287,592	(1,615,300)
Fund balance, beginning of year	<u>12,041,146</u>	<u>13,129,008</u>	<u>13,416,600</u>
Fund balance, end of year	<u>\$13,129,008</u>	<u>\$13,416,600</u> ⁴	<u>\$11,801,300</u>

¹ Includes the financial activity of the Ground Water Users Advisory and Council's Augmentation Funds because the Department has authority over these Funds. Excludes financial activity of the State Water Storage, Water Quality Assurance, Water Resources Flood Control Loan, and Water Resources Alternative Flood Control Funds because the Department holds these Funds' assets in either an agency or trustee capacity. Except for their administrative costs, the Arizona Water Protection and Water Bank Funds' financial activity is excluded for the same reason.

² 1997 amendments to A.R.S. §§45-611 and 612 caused a decrease of approximately \$3.5 million in 1998 Departmental revenues and a corresponding decrease of approximately \$1.8 million in remittances to the State General Fund. The amendments are expected to cause a further reduction in 1999.

³ Includes interest earned on Arizona Water Protection and Water Bank Funds' investments that pays for their administrative costs. The increase in interest revenue is based on an increase of approximately \$17 million in the Funds' cash balances available for investment.

⁴ The \$13.4 million fund balance is almost entirely reserved or designated for specific purposes: \$8.7 million for active management area assistance programs; \$2.3 million for nonemergency dam repairs; \$1.2 million to administer the Arizona Water Protection and Water Bank Funds; and \$.6 million for flood warning systems, federal grants, and adjudication activities.

Source: The Arizona Financial Information System (AFIS) Accounting Event Extract File, AFIS Revenues and Expenditures by Fund, Program, Organization, and Object report, AFIS Trial Balance by Fund report, AFIS Status of Appropriations and Expenditures report, and State of Arizona Appropriations Report for the years ended June 30, 1997 and 1998; and Department-prepared worksheets for estimated financial activity for the year ending June 30, 1999.

A variety of audit methods including site visits, interviews, and review of program documents were used to develop the findings and recommendations in this report. Specifically, the following audit tasks were performed:

- To assess the operations of the AMAs, auditors visited the five AMA offices and interviewed the AMA Directors. Further, auditors reviewed the Second and Draft Third Management Plans to understand the groundwater rights system, the required conservation programs, and the water use characteristics of the various water users.
- To become informed about water resource policy matters, auditors interviewed congressional staff, federal agencies, department officials and staff, five other states' water resource agencies, the Central Arizona Water Conservation District and other irrigation districts, the University of Arizona Water Resources Research Center, elected and appointed municipal officials, representatives of agri-business and mining, water law attorneys, and other water resource policy experts.¹
- To understand the water regulatory framework, auditors reviewed various documents including the Groundwater Code (A.R.S. Title 45), administrative rules, the Arizona Statewide Water Resources Assessment, State of the AMA Reports, newspaper and journal articles, and reports from other states.

This audit was conducted in accordance with government auditing standards.

The Auditor General and staff express their appreciation to the Department's Director, Deputy Director, and their staff for their cooperation and assistance throughout the audit.

¹ Other state water resource agencies contacted included California, Colorado, Nevada, New Mexico, and Utah.

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FINDING I

GROUNDWATER DEPLETION IS LIKELY TO CONTINUE

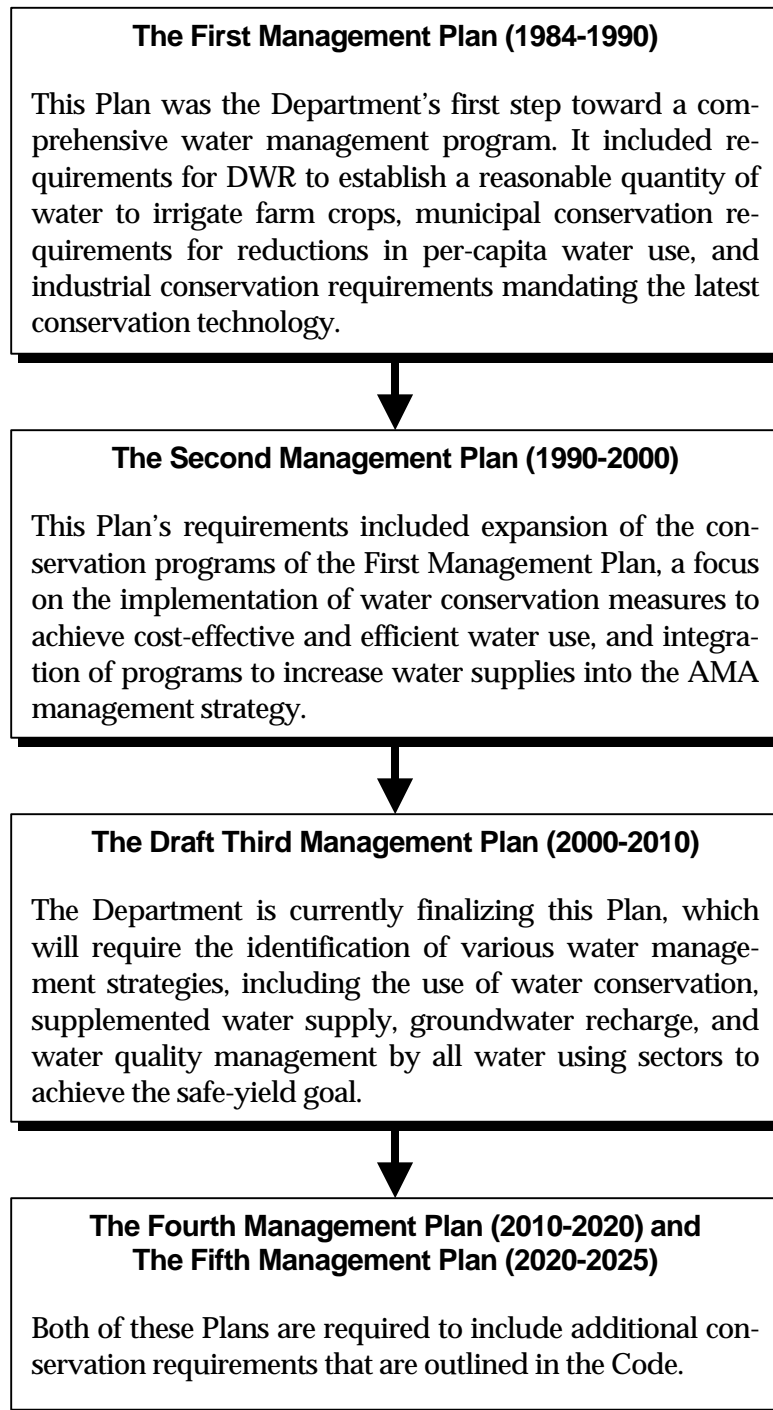
Although Arizona law has set a goal of achieving safe yield by 2025 for groundwater supplies in the State's most severely depleted areas, groundwater depletion is likely to continue past that date under the current regulatory structure. The Groundwater Code requires the Department to adopt Management Plans, which are the principal mechanism used to accomplish the water management goals. However, even though the Management Plans comply with the Code's requirements, safe yield will not be achieved by 2025 because the Code contains a number of statutory restrictions and exemptions that inhibit the ability to achieve safe yield. Therefore, projections indicate groundwater users will continue using more groundwater than is replaced. To address the issues affecting the State's ability to achieve the safe yield goal, the Legislature should consider forming a study commission.

Groundwater Code Sets Safe Yield Goal for Three AMAs

The Groundwater Code establishes a goal of safe yield by 2025 for the Prescott, Phoenix, and Tucson areas. Safe yield is accomplished when no more groundwater is withdrawn from the aquifer than is annually replaced. The Legislature created the Groundwater Code in 1980 to conserve, protect, and allocate the State's groundwater resources, to provide a framework for the comprehensive management and regulation of groundwater, and to protect the general economy and welfare of the State and its citizens. The Groundwater Code designates areas of the State with the most severe groundwater depletion as Active Management Areas (AMAs), which are subject to regulation under the Groundwater Code.

The Legislature, through A.R.S. §§45-562 through 45-568.02 of the Groundwater Code, requires the Department to adopt a series of five Management Plans for each AMA to be implemented in sequence from 1980 through 2025. The Department is currently finalizing the Third Management Plans, which it plans to implement in 2002. The Management Plans are the principal regulatory mechanism used by the AMAs to accomplish the water management goals. The Code mandates the inclusion of progressively more restrictive groundwater conservation requirements and methods to supplement groundwater supplies from one planning period to the next. The Code is specific as to what programs must be included in each sequential Management Plan. A review of the Second and Draft Third Management Plans indicates that they comply with the statutory mandates requiring the establishment of

a water rights system and the continuing development and refinement of mandatory conservation requirements for industrial, municipal, and agricultural water users. The Management Plan requirements and statutory time periods are summarized as follows:



Although the Management Plans prepared by the Department comply with the Code's mandated water management goals, the Department acknowledged as early as 1994 in its Arizona Water Resources Assessment that the mandatory conservation requirements as contained in the Plans may not be sufficient to reduce groundwater use to safe yield levels in the Active Management Areas. For example, from 1985 to 1995 in the Phoenix and Prescott AMAs, municipal water usage, as measured in gallons per capita per day, increased for the majority of water providers. Yet, the Draft Third Management Plans are required by the Code to assume increased conservation by municipal providers. In addition, the Phoenix AMA Draft Third Management Plan acknowledges that, "Although safe-yield is an attainable goal, it is apparent that sufficient progress has not been made toward this goal, nor have the statutory and institutional structures to succeed been fully established." Further, the Tucson AMA Draft Third Management Plan states, "[T]here are structural weaknesses in certain portions of the Groundwater Code...because few of the Code provisions are tied directly to achieving the [safe yield] goal." Finally, both the Phoenix AMA and Tucson AMA Draft Third Management Plans discuss alternative approaches or programs that should be evaluated to assist the AMAs in their efforts to achieve the safe yield goal. Possible programs or options to address water management problems include incentives for groundwater recharge into the aquifer and use of renewable resources, restrictions on new groundwater pumpage, and addressing the cost disparities between groundwater and renewable supplies.

Statutory Restrictions and Exemptions Inhibit the AMAs' Ability to Achieve Safe Yield

Even though the Management Plans comply with the Code's requirements, safe yield will not be achieved because the Groundwater Code contains a number of statutory restrictions and exemptions that inhibit the AMAs' ability to achieve the safe yield goal. When the Groundwater Code was created in 1980, it established grandfathered rights that allowed all historic groundwater users to continue using groundwater. The Groundwater Code further established a flexibility account that allows agricultural users to accrue credits for unused groundwater, and it created groundwater withdrawal permits that allow users without a grandfathered right to use groundwater. The Groundwater Code also contains provisions for the municipal sector that contribute to groundwater depletion.

The Department has limited ability to reduce grandfathered groundwater use—The Groundwater Code created several types of grandfathered rights, depending on the historic groundwater use, and established methods for determining the amount of groundwater associated with each grandfathered right. The majority of these grandfathered groundwater rights are associated with the agricultural and industrial sectors. While the Groundwater Code, through the Management Plan's conservation requirements, allows the Department to slightly reduce grandfathered right holders' annual groundwater allotments, the Code does not give the Department authority to significantly reduce the amount of groundwater associ-

ated with each grandfathered right. The Groundwater Code also does not give the Department authority to require grandfathered rights holders to eventually convert from groundwater to renewable water sources. The specific types of grandfathered rights are as follows:

- **Irrigation grandfathered rights** are granted to agricultural water users who irrigated land with groundwater prior to 1980. The amount of the water right is based on the crops that were grown and the greatest number of acres that were cultivated from 1975 to 1980. The groundwater associated with an irrigation grandfathered right is attached to the land, and may not be used in a different location. Irrigation grandfathered right holders in the Prescott, Phoenix, and Tucson AMAs were entitled to use a total of 1,961,070 acre feet of groundwater in 1995 pursuant to their grandfathered rights. This entitled amount is equivalent to 175 percent of the total groundwater used in the three AMAs in 1995.
- **Type I nonirrigation grandfathered rights** are associated with agricultural land that was retired from agricultural use between 1965 and 1980 with a plan to convert the land to a municipal or industrial use. Type I nonirrigation grandfathered rights are attached to the retired land, and holders of these rights are granted three acre feet of groundwater for each acre of retired land. Type I nonirrigation grandfathered right holders in the Prescott, Phoenix, and Tucson AMAs were entitled to use a total of 143,183 acre feet of groundwater in 1995 pursuant to their grandfathered rights. This entitled amount is equivalent to 13 percent of the total groundwater used in the three AMAs in 1995.
- **Type II nonirrigation grandfathered rights** are associated with industrial or municipal rather than agricultural uses. The Groundwater Code granted Type II rights to all people who owned land in the AMA and pumped groundwater from that land for nonagricultural uses prior to the creation of the AMA. The Groundwater Code entitles Type II grandfathered rights holders to annually use as much water as they used in any one of the five years prior to the AMA's creation. Unlike the other grandfathered rights, which are more restrictive, the Type II grandfathered right is not attached to the land and may be sold or leased to another user. Further, the Type II grandfathered right may be transferred to new locations within an AMA. Type II nonirrigation right holders in the Prescott, Phoenix, and Tucson AMAs were entitled to use 259,281 acre feet of groundwater in 1995. This amount is equivalent to 23 percent of the total groundwater used in the three AMAs in 1995.

Agricultural flexibility credits allow carryover to future years—The Groundwater Code established a flexibility account for agricultural groundwater users that allows agricultural users to accrue credits for unused groundwater entitlements and carry the credits over for use in the future. Any portion of each agricultural user's annual irrigation groundwater entitlement that is not used during the year is added to the user's credit balance. Agricultural users can accrue an indefinite amount of groundwater credits in their flexibility accounts, as

the Groundwater Code does not establish a maximum credit balance. These credits have created a lien against the groundwater supply that if used in the future could increase groundwater depletion, and further hamper the AMA's ability to achieve safe yield. In 1997, credits in the Prescott, Phoenix, and Tucson AMAs totaled more than 7.2 million acre feet, or more than 6 times the total groundwater consumption for these AMAs in 1995. The agricultural sector in the Phoenix AMA already has enough accrued credits to supply all agricultural water needs in the AMA until at least 2010. In addition, agricultural water users can use their accrued credits to exceed their annual groundwater allotments, which in turn allows them to not comply with the Management Plan's conservation requirements.

Groundwater withdrawal permits increase amount of groundwater not under the Department's control—In addition to grandfathered groundwater rights, the Groundwater Code created eight types of groundwater withdrawal permits that allow users without a grandfathered right to pump groundwater. Five of the permits allow groundwater to be pumped for reasons such as draining land for agricultural production or building stabilization, and generating emergency electrical energy. The remaining three permits allow groundwater to be used for mineral extraction and processing, and general industrial uses. These permits are for terms of up to 50 years each, and are indefinitely renewable. Statutes require the Department to issue permits for mineral extraction and industrial uses if the permit applicant meets certain criteria. Statutes further require the Department to renew these permits for as long as the applicant continues to meet the established criteria. All of the groundwater withdrawal permits allow groundwater to be used in addition to existing grandfathered rights uses. The withdrawal permits allowed an additional 144,488 acre feet of groundwater to be used in 1995 in the three AMAs, although only 28,906 acre feet of groundwater, or 20 percent of the allowance, was actually used.

Municipal sector provisions contribute to groundwater depletion—Provisions in the Groundwater Code relating to the municipal sector also contribute to continued groundwater depletion. First, the Groundwater Code's municipal conservation requirements focus on the municipal water provider, not the municipal water user. This indirect regulation, unlike the direct regulation of the agricultural and industrial sectors, is relatively ineffective since water providers cannot control the amount of water used by their customers. The amount of water that most providers are allowed to use, while remaining in compliance with the Groundwater Code's conservation requirements, is based on a per capita formula. The provider, however, has no authority to require water users to restrict water use to this per capita amount.

Additionally, the Groundwater Code establishes service area rights that allow municipal water providers to use groundwater to meet the needs of customers within the providers' service areas. The Department can encourage municipal providers to convert to renewable water sources through the assured water supply provisions, which require new subdivisions to demonstrate the availability of sufficient water to meet the subdivision's projected needs for at least 100 years. In demonstrating that they have an assured water supply, new subdivisions are allowed to use only a limited amount of groundwater. New subdivisions

may demonstrate that they have an assured water supply by obtaining a commitment for water service from a municipal provider that the Department has designated as having an assured water supply. Once a municipal provider is designated as having an assured water supply, rules require that the municipal provider use only a limited amount of groundwater and eventually convert to renewable water sources to meet customers' needs. Statutes and rules, however, do not require nondesignated providers to convert from groundwater to renewable water sources to meet customers' needs.

Groundwater Users Will Continue to Use More Groundwater Than Is Replaced

Within the three safe yield AMAs, all water-using sectors (municipal, agricultural, and industrial) are dependent on groundwater to some degree. Users in all three AMAs are continuing to deplete groundwater supplies, and current projections indicate that none of the three AMAs will achieve safe yield by 2025.

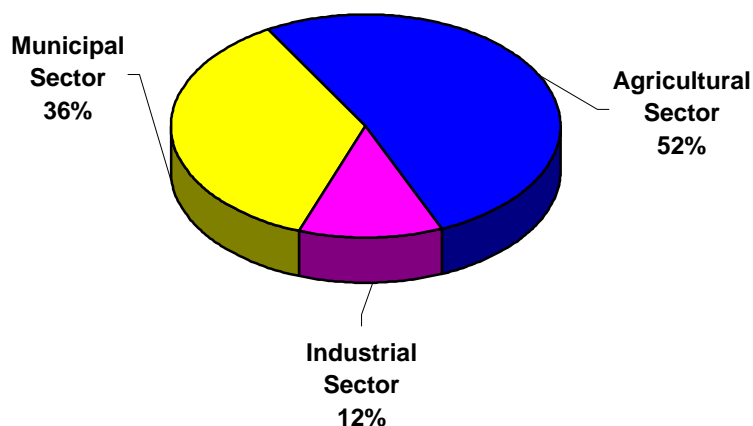
Water-using sectors depend on groundwater to varying degrees—The Groundwater Code divides water users into three sectors with varying degrees of reliance on groundwater. The three sectors are as follows:

- The **municipal sector** is comprised of cities, towns, and private water companies that deliver groundwater for residential and commercial uses.
- The **agricultural sector** is comprised of farm land that uses groundwater from grandfathered rights to irrigate crops.
- The **industrial sector** uses groundwater supplied by grandfathered rights and withdrawal permits for such things as sand and gravel facilities, dairy and feedlot operations, and landscape and turf watering.

Within the Prescott, Phoenix, and Tucson AMAs combined, agriculture took 52 percent of the total groundwater used in 1995, industries took 12 percent, and municipalities took 36 percent, as illustrated in Figure 2 (see page 15).

Figure 2

Arizona Department of Water Resources
Three Safe Yield Active Management Areas'
Reliance on Groundwater by Water-Management Sectors
Year Ended December 31, 1995



Source: The Prescott, Phoenix, and Tucson Active Management Areas' Draft Third Management Plans provided by the Arizona Department of Water Resources.

The degree to which each water-using sector relies on groundwater, as opposed to renewable water sources, such as lakes, rivers, or treated effluent, varies by AMA. Table 2 on page 16 describes the water-using sectors' varying dependence on groundwater in each of the three AMAs.

Safe yield goal not likely to be achieved as groundwater depletion continues—The Prescott, Phoenix, and Tucson AMAs are not approaching safe yield, as they continue to pump more groundwater than is replaced. Although the Prescott and Phoenix AMAs have reduced the amount of groundwater depleted yearly from 1990 to 1995, even these reductions have not brought them substantially closer to achieving safe yield. The Tucson AMA has not been able to achieve overall reductions at all; its amount of groundwater depletion actually increased from 1990 to 1995. Additionally, the Department projects that all three AMAs will continue to deplete groundwater, even while meeting all requirements of the Third Management Plans, and will not achieve safe yield by 2025. As mentioned previously, the Department acknowledges that the statutory and regulatory frameworks to meet safe yield have not been fully established. Further, the Third Management Plans are required to continue to focus on municipal conservation, even though, according to the Department, other options to address water management problems should be evaluated.

Table 2**Arizona Department of Water Resources
Three Safe Yield Active Management Areas'
Dependence on Groundwater by Sector
Year Ended December 31, 1995**

Area and Sector	Groundwater Use		Percentage of Total from Groundwater ²
	Acre Feet ¹	Percentage by Sector	
Prescott Area			
Municipal	10,303	64%	92%
Industrial	555	3	100
Agricultural	5,316	33	54
		100	
Phoenix Area			
Municipal	247,750	31	29
Industrial	71,285	9	89
Agricultural	482,151	60	47
		100	
Tucson Area			
Municipal	147,600	49	95
Industrial	59,400	19	99
Agricultural	96,200	32	98
		100	

¹ An acre foot of water is approximately 326,000 gallons, which will supply the needs of nearly four people for one year.

² This is the percentage of groundwater used compared to the total amount of water used and represents each sector's dependence on groundwater.

Source: The Prescott, Phoenix, and Tucson Active Management Areas' Draft Third Management Plans provided by the Arizona Department of Water Resources.

The Department projects that groundwater depletion will actually increase between 2000 and 2025 in the Phoenix and Prescott AMAs. The reasons for continuing depletion are mainly population growth and the resulting increase in groundwater use by industries and municipalities. For example, based on Department of Economic Security population projections, the Department estimates that the Phoenix AMA population will increase by 2 million between 2000 and 2025, an increase of 68 percent; the Prescott AMA is estimated to increase by over 46,000 for the same period, an increase of 46 percent. Groundwater depletion in the Tucson AMA, however, is projected to decrease between 2000 and 2025 due to the municipal sector's use of Central Arizona Project water in place of groundwater. Table 3 on page 17

illustrates the amount of groundwater used by each AMA in excess of the amount replaced in 1990 and 1995, as well as the Department's projections for excess groundwater use through 2025.

Table 3

**Arizona Department of Water Resources
Three Safe Yield Active Management Areas'
Groundwater Depletion in Acre Feet
Actual Amounts in Years Ended December 31, 1990 and 1995
and Projected Amounts in Years Ended December 31, 2000 and 2025**

Active Management Areas	Actual ¹		Projected	
	1990	1995	2000	2025
Prescott	11,705	4,065	9,155	11,068
Phoenix	592,952	365,707	245,974	372,932
Tucson	134,200	163,900	168,500	49,000

¹ Actual amounts in 1990 and 1995 are based on groundwater use reported by regulated users and calculations by the Department regarding the estimated amount of groundwater that was added to the aquifer in each of these years.

Source: The Prescott, Phoenix, and Tucson Active Management Areas' Draft Third Management Plans provided by the Arizona Department of Water Resources.

Commission Approach a Useful Way to Address Safe Yield Issues

The Legislature should consider forming a study commission to address issues that affect the State's ability to achieve the safe yield goal. A study commission would be beneficial in that it would allow for input from a wide cross section of water resource and water law experts, civic leaders, and other important interests such as municipalities, agriculture, and mining that could be impacted by the State's water resource policies. The study commission could address the following issues:

- The advisability of purchasing and retiring grandfathered groundwater rights, and possible methods and timelines for doing so without adverse condemnation of individuals' water rights. The Legislature has already given the Department statutory authority to purchase and retire grandfathered groundwater rights. A.R.S. §45-611 allows the Department to collect an annual fee from groundwater users, beginning in 2006, of up to \$2 per acre foot of groundwater withdrawn in an AMA to purchase and retire grandfa-

thered rights. The fee alone, however, is not likely to generate enough money to purchase a significant number of grandfathered rights, and the study commission should therefore research additional methods for financing grandfathered rights purchases. In addition, California has considered options for purchasing and retiring agricultural land in order to acquire the water rights, and addressed the following concerns that the study commission should address: 1) direct farm income losses; 2) secondary economic impacts; and 3) indirect income and employment effects on industries that provide farms with goods and services. The study commission should also address potential impacts to the environment that may result if agricultural land is removed from production, as well as the impact on recent initiatives to preserve open space.

- The advisability of either eliminating agricultural flexibility credits or preventing additional flexibility credits from accruing. The Groundwater Code established agricultural flexibility credits to allow farmers to better respond to climatic variations and market fluctuations, but did not establish a maximum credit balance that may be accrued. By contrast, the Department established a flexibility credit program in the Second Management Plans for municipal groundwater providers that allows water providers to accumulate credits only up to an established maximum balance. In addition to the possibility of eliminating credits, the study commission should review the municipal program's requirements and credit limits for possible use in the agricultural program to prevent additional agricultural credits from accruing.

The study commission could also study the impact of recent legislative changes on the accrual of credits. In 1998, the Legislature modified A.R.S. §45-566.02 to allow the Department to establish an alternative agriculture conservation plan for the Third Management Plan period (2000-2010), based on crops grown and other factors, including irrigation efficiency. The Department is planning to develop the alternative conservation program as a modification to the Third Management Plans, after the Plans' adoption. Therefore, it is not yet possible to estimate the impact of this program on the accrual of future flexibility credits.

- The advisability of limiting groundwater withdrawal permits and possible methods for doing so. The Groundwater Code currently requires the Department to issue permits for mineral extraction and general industrial uses if certain criteria are met. However, the established criteria give the Department little authority to deny applications. The study commission should research modifying the Code to allow the Department more authority to deny withdrawal permit applications to limit the number that are issued.
- Possible methods for encouraging municipal providers to convert to renewable water sources. One possible way of encouraging conversion to renewable sources is to provide additional technical assistance to municipal providers. The study commission should research the merits of the Department assisting municipal providers with cost-benefit analysis or rate modeling of capital and operating expenditures related to the financing and acquisition of renewable water sources. Valid financial data on water rate alterna-

tives would then be available to municipal officials, as they study the policy options that would enable conversion to renewable water supplies.

Recommendation

1. The Legislature should consider establishing a study commission to address the following issues:
 - a. Possible options and a timeline over which to finance, purchase, and retire grandfathered groundwater rights;
 - b. Possible options to address the continuing accrual of agricultural flexibility account credits;
 - c. Possible options for limiting the number or use of groundwater withdrawal permits; and
 - d. Possible methods to encourage municipal water providers to rely on renewable water sources.

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FINDING II

REGULATORY LIMITATIONS MAY CREATE WATER SUPPLY PROBLEMS AS THE POPULATION INCREASES

Although most of the State currently has a sufficient water supply, limitations in the regulatory structure may result in present and future water supply shortages. While consumers in the Active Management Areas (AMAs) have assurances that future development can occur only if sufficient water supplies are available, similar assurances are not in place in areas outside the AMAs.

Water resource problems that are currently minor may, in the coming decades, become major problems as the population and demand for water increase. Arizona currently has more than enough water due to the completion of the Central Arizona Project (CAP) and delivery of Colorado River water to the State. Additionally, the Department projects that most areas of the State will have enough water available for the next 40 years. However, the plentiful water supply will not last indefinitely. The Department of Economic Security projects that the State's population will more than double during the next 40 years and the Department of Water Resources projects that demand for water will increase by about 15 percent during that time. Since water in the State is a limited resource, shortages may develop or become more pervasive. For example, the Sierra Vista area is currently experiencing groundwater depletion, while Lake Havasu City could develop a water shortage as early as 2000.

Consumers Outside the AMAs Have Less Assurance of Water Supply

Limited consumer protections in areas outside of the AMAs provide residents with less assurance of a future water supply than their counterparts within the AMAs. Consumer protection is weaker in three ways. First, the adequate water supply provision, applicable to areas outside of the AMAs, requires only that the first purchaser of a new subdivision lot receive notification of the sufficiency of the water supply. Second, assured water supply provision, which prohibits the development and sale of new subdivisions that do not have a sufficient water supply, applies only to the AMAs. Third, well spacing is regulated in the AMAs but is not regulated in areas outside of the AMAs. The limited consumer protections in areas outside of the AMAs raise several concerns regarding the water supply on which homeowners rely.

Less assurance of sufficient water—The adequate water supply provisions for areas outside of the AMAs require only that the original purchaser be notified of the sufficiency of the water supply, whereas the assured water supply provision for the AMAs prohibits the creation of new subdivisions that have insufficient water. The adequate water supply provision, applicable to areas outside of the AMAs, requires subdivision developers to report on the sufficiency of the water supply, but does not prohibit the development or sale of subdivision lots in the absence of sufficient water. If the Department determines that the water supply is insufficient, the developer is required only to notify potential buyers by displaying the water supply information in promotional materials and subdivision lot sales contracts. Additionally, it appears that only the original purchaser is entitled to notification regarding the water supply, as there is no requirement that the water supply information be disclosed to purchasers when the subdivision lot is resold.

In contrast, the assured water supply provision, applicable within the AMAs, requires that new subdivisions have a sufficient quantity of water continuously available to meet the proposed subdivision's needs for at least 100 years. The provision prohibits the development or sale of subdivisions that do not have a sufficient water supply, thereby protecting consumers from purchasing a subdivision lot with insufficient water to meet their needs.

The Department of Economic Security projects that by 2025 there will be approximately 500,000 additional people living in areas of the State outside of the AMAs. As only the original purchaser of a subdivision lot in areas outside of the AMAs receives information regarding the sufficiency of the water supply, subsequent purchasers may not know that the water supply is insufficient. A partial solution would be recording the sufficient water supply determination with the County Recorder's Office. While this would not require that subsequent purchasers receive notification regarding the sufficiency of the water supply, it would provide notification during a title search. Therefore, the Legislature should consider amending A.R.S. §32-2181(F) to require that subdivision developers record with the appropriate County Recorder's Office the Department's determination of the sufficiency of the subdivision's water supply.

However, even with increased notification of the sufficiency of the water supply, some new residents in areas outside of the AMAs could still find themselves with insufficient water to meet their needs. The lack of an assured water supply provision in areas outside of the AMAs allows the development and sale of new subdivisions that do not have sufficient water. Therefore, new residents may be using an insufficient water supply, and may deplete the water upon which existing residents rely. To provide greater protection, the Legislature should consider amending A.R.S. §45-576 to extend the assured water supply provision to areas of the State outside of the AMAs. If this provision were extended to the areas outside the AMAs, there would be no need to amend A.R.S. §32-218(F) to require developers to record the Department's determination of the sufficiency of the water supply.

Well spacing and impact is unregulated—The Department does not regulate the spacing between wells or the impact that a new well will have on existing wells in areas outside the

AMAs. The Groundwater Code requires filing a notice of intent to drill a well, but does not require minimum spacing between wells, or prohibit new wells that will deplete the water supply of existing wells. In contrast, within the AMAs, statutes and rules require that the concentration of wells not cause unreasonable damage to surrounding land or other water users. The Department will not authorize a new well to be drilled within the AMAs if it will excessively decrease the water supply of an existing well.

As growth occurs in areas outside of the AMAs without renewable water supplies, most new residents will drill wells to obtain groundwater. If additional wells deplete the water supply, new homeowners, existing residents, municipalities, and industry will be affected; consequently, the Legislature should consider amending A.R.S. §45-598 to give the Department limited authority to establish well spacing requirements in areas outside of the AMAs.

If the current well spacing requirements were established in areas outside of the AMAs, there would be no effect on exempt well applicants.¹ All individuals in the State who want a new or replacement exempt well, whether residing within or outside of AMAs, must file a notice of intent to drill with the Department. The Department said it would not have any additional resource requirements to administratively review the exempt well form applications for areas outside AMAs, as they currently perform this function statewide.

Non-exempt well applicants outside AMAs would be affected if well spacing requirements were established.² If current well spacing requirements were established outside of the AMAs, the Department recommends that an independent hydrologic study be prepared by the applicant or their consultant for **all** new non-exempt wells outside AMAs, regardless of planned pumping capacity. Under the current procedures within AMAs, Department staff conduct, at no cost to the applicant, well-impact analyses for non-exempt wells that pump greater than 35 and fewer than 500 gallons per minute.³ The Department performs these analyses because of the minimal number of well applicants in this category. However, for non-exempt wells that pump 500 gallons or more within AMAs, an independent hydrologic study is required to be furnished by the applicant at a cost of \$2,000 to \$4,000, based on Department estimates.

According to the Department, in 1998 it received approximately 350 applications for non-exempt wells to be drilled outside of the AMAs. About 200 of these wells, or approximately 60 percent, had planned pumping capacities of fewer than 500 gallons per minute. The De-

¹ Exempt wells, typically for residential use, have a pumping capacity of 35 gallons per minute or less.

² Non-exempt wells, typically for municipal industrial, turf/recreational and irrigation uses, have a pumping capacity greater than 35 gallons per minute.

³ The purpose of a well-impact analysis is to protect nearby, already established wells. New non-exempt wells may not create greater than a 10 foot draw-down over 5 years (2 feet per year) without permission of any impacted well owners. According to the Department, applicants often reduce their planned pumping volumes to avoid this impact.

partment indicates it could not conduct the analyses for these non-exempt wells because the Department may not have the geological and hydrological data required to perform the studies. Instead, the applicants would have to furnish the necessary studies.

Finally, to perform the additional workload for reviewing well-impact studies of non-exempt wells outside AMAs, the Department estimates that two hydrologist positions and one water resource specialist position would be required to review the new non-exempt well applications and their hydrologic studies.

Recommendations

1. The Legislature should consider amending A.R.S. §45-576 to extend the assured water supply requirements to areas of the State outside of the AMAs.
2. If the Legislature does not amend A.R.S. §45-576, then it should consider amending A.R.S. §32-2181(F) to require that subdivision developers record with the appropriate County Recorder's Office the Department's determination of the sufficiency of the subdivision's water supply.
3. The Legislature should consider amending A.R.S. §45-598 to provide the Department with limited authority to establish well spacing requirements in areas of the State outside of the AMAs.

OTHER PERTINENT INFORMATION

During the course of the audit, other pertinent information was developed relating to the State's water regulatory framework, which does not regulate all types of water.

Arizona Does Not Regulate All Types of Water

Currently, Arizona's water regulatory framework treats surface water, groundwater, and effluent (treated wastewater) as different types of water. The Department has no enforcement authority over surface water and no statutory authority to manage effluent.

Surface water, groundwater, and effluent are treated as different types of water with varying levels of management and conservation requirements. The Department manages groundwater pursuant to the Groundwater Code the Legislature established in 1980. The Groundwater Code requires the Department to implement mandatory conservation requirements for most groundwater users in the Active Management Areas. In contrast, the Department does not have enforcement authority to require the conservation or efficient use of surface water. Since before statehood, most surface water has been governed by the doctrine of prior appropriation, which states that the first person to put the water to a beneficial use has the right to continue using that water. The Department issues certificates to appropriate surface water, but has no authority to manage or enforce the water's use pursuant to those certificates. Further, the Department does not have statutory authority to manage the use of effluent. A 1989 Arizona Supreme Court case concluded that effluent is unregulated and that the entity that created the effluent has control over its use.¹ The Court, however, also concluded that effluent is potentially a valuable water resource, and encouraged the State to enact laws for its regulation. Until the Department has statutory authority to manage effluent's use, it cannot require that effluent be conserved or used efficiently. Only about one-third of the effluent that is produced in the State each year is put to a direct use such as turf irrigation or groundwater recharge.

Although some areas of the State are already facing surface water shortages, the Department has limited authority to respond. For example, Lake Havasu City is totally dependent on surface water and may exceed its annual water allotment and face a water shortage by 2000. The Department has recommended, but has no statutory authority to mandate, that the City develop aggressive surface water conservation programs in order to stay within its annual water allotment and avoid future shortages.

¹ Arizona Public Service Company, et al v. Long, et al, 160 Ariz. 429, 773 P.2d 988 (1989).

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SUNSET FACTORS

In accordance with A.R.S. §41-2954, the Legislature should consider the following 12 factors in determining whether the Arizona Department of Water Resources (Department) should be continued or terminated.

1. The objective and purpose in establishing the agency.

The Department of Water Resources was established on June 12, 1980, when the Groundwater Code became law. The goal of the Groundwater Code is twofold: 1) to control severe groundwater depletion and 2) to provide the means for allocating Arizona's limited groundwater resources to meet the State's changing water needs.

To further refine the legislative mandate, the Department developed a mission statement as follows:

To ensure a long-term sufficient and secure water supply for the state; to develop public policy which promotes efficient use and equitable distribution of water in an environmentally and economically sound manner; and, to promote the management of floodplains and dams to reduce loss of life and damage to property.

2. The effectiveness with which the agency has met its objective and purpose and the efficiency with which it has operated.

The Department has generally been effective in implementing its water management responsibilities. Regarding groundwater management, the Department has promulgated the first two Management Plans and is currently promulgating the Third Management Plan containing conservation programs for the municipal, agricultural, and industrial sectors for implementation in 2002. The Management Plans comply with the Groundwater Code's requirements. Further, the Department was involved in the creation of the Central Arizona Groundwater Replenishment District in 1993. The Central Arizona Groundwater Replenishment District gives municipal providers or subdivisions a means to replenish groundwater that is withdrawn in excess of the amount of groundwater allocated to them. Other important areas of involvement include the creation of the Santa Cruz Active Management Area in 1994, along with the preparation of the Arizona Statewide Water Resources Assessment, a water planning document.

However, the Department needs to review its efficiency in processing permits. Various parties expressed concern with the amount of time it takes the Department to process water recharge and other permits. The Department should consider process-improvement efforts through the assistance of the Office of Excellence in Government.

3. The extent to which the agency has operated within the public interest.

The Department has operated within the public interest by administering the Groundwater Code and implementing groundwater conservation programs. Other programs that benefit the public are ensuring safe dams, flood mitigation, well registration, and the collection of hydrology data to make better-informed water management decisions.

4. The extent to which rules adopted by the agency are consistent with the legislative mandate.

At the request of the Office of the Auditor General, the Governor's Regulatory Review Council (GRRC) reviewed the Department's statutes and determined that the Department has not promulgated all rules mandated by statutes. The Department should work with GRRC to adopt the rules required by A.R.S. §45-605(E) relating to new or replacement wells and A.R.S. §45-1451(C)(8) relating to monies appropriated for flood control. Currently, pursuant to A.R.S. §45-1212(A), the Department is in the process of receiving public comments on a rule package regarding the maintenance and operation of dams.

5. The extent to which the agency has encouraged input from the public before adopting its rules, and the extent to which it has informed the public as to its actions and their expected impact on the public.

The Department adequately encourages public input when amending the Management Plans and when promulgating rules. The Department uses the statutorily required notices for public comment and public hearings before formal adoption of rules. According to the Department, in some cases it has delayed rules package implementation to allow for adequate public involvement. Further, the public is kept informed of departmental activities through a Web page on the Internet and through the publication of various public information materials. Finally, the Department, its commissions, and its advisory councils are in compliance with the Open Meeting Law requirements, including posting public meeting notices at least 24 hours in advance at the required location.

6. The extent to which the agency has been able to investigate and resolve complaints that are within its jurisdiction.

Generally, the Department has the authority to investigate and resolve complaints relating to Groundwater Code violations; however, the Department lacks authority over surface water violations. Pursuant to A.R.S. §§45-632 through 45-636, the Department has authority over Groundwater Code violations, including well inspection activities and the issuing of cease-and-desist orders for Code violations. The Department maintains a registry of surface water rights holders. However, if surface water rights are contested, the Department has no authority to resolve the dispute. This authority resides with the courts.

When the Department receives complaints on open wells, it evaluates and classifies the open well into one of four categories, depending on the threat to public safety. According to Department policy, open wells that pose an immediate threat to public safety are classified as an emergency hazard and are secured either by the property owner or the Department within a 48-hour period.

7. The extent to which the attorney general or any other applicable agency of state government has the authority to prosecute actions under the enabling legislation.

Pursuant to A.R.S. §45-104, the Department is authorized to employ its own legal counsel to advise and represent the Department in connection with legal matters before other departments and agencies of the State. This special circumstance is allowed primarily to avoid legal conflicts on water rights issues with other Arizona natural resource agencies also represented by the Attorney General, such as the State Land Department. The Department's legal counsel also represents the Department in litigation concerning department affairs. The Department's legal counsel does not prosecute criminal violations of the State's surface water laws nor does it represent the Department in civil tort actions. Further, the Attorney General provides assistance to the Department in litigation relating to noncriminal offenses.

8. The extent to which the agency has addressed deficiencies in its enabling statutes which prevent it from fulfilling its statutory mandate.

The Department has sought and accomplished numerous technical changes to the Groundwater Code. Annually, the Department supports a water omnibus bill to revise Title 45 and other water-related titles in the Arizona Revised Statutes to correct errors, clarify existing provisions, streamline administrative processes, and address other pertinent issues in response to the water community's changing needs. For example, legislative changes in past bills included clarification of plumbing fixture standards and the establishment of an emergency temporary well permit process for

recovery of Central Arizona Project water during a short-term, unplanned canal delivery stoppage. Further, the most recent bill established a Department Production and Copying Fund.

However, as discussed in Finding I (see pages 9 through 19), the Groundwater Code contains a number of statutory restrictions and exemptions that inhibit the AMAs' ability to achieve the safe yield goal. When the Code was created in 1980, it established grandfathered rights that allowed all historic groundwater users to continue using groundwater. The Code also established a flexibility account that allows agricultural users to accrue credits for unused groundwater. Further, the Code created groundwater withdrawal permits that allow groundwater use by users without a grandfathered right. Finally, provisions in the Code relating to the municipal sector also contribute to continued groundwater depletion. Legislative changes have not been enacted as necessary to achieve the safe yield goal, including expanding the Department's authority to require historic groundwater users within AMAs to reduce their reliance on groundwater and/or convert to renewable water supplies, eliminating or preventing additional agricultural flexibility credits from accruing, or giving the Department additional authority to limit groundwater withdrawal permits.

Further, as discussed in Finding II (see pages 21 through 24), consumers in areas of the State outside of the AMAs have less assurance of future water supply than their counterparts in the AMAs. New subdivisions can be built even if there is not a sufficient water supply. Further, only the first purchaser is informed of the sufficiency of the water supply. However, in AMAs, statutes prevent a subdivision from being developed if there is not a 100-year assured water supply. Finally, well spacing in the non-AMAs is not regulated. The Department has not sought legislative changes to better enable subsequent purchasers to know the sufficiency of the water supply or to require areas outside of AMAs to demonstrate an assured water supply before building new subdivisions, and to regulate well spacing.

9. The extent to which changes are necessary in the laws of the agency to adequately comply with the factors listed in the Sunset Law.

As discussed in Finding I (see pages 9 through 19), the Legislature may wish to establish a study commission to address several key policy issues that would assist the AMAs in accomplishing the safe yield goal. As discussed in Finding II (see pages 21 through 24), the Legislature should consider amending A.R.S. §32-2181(F) to require developers in areas outside of the AMAs to record with the appropriate County Recorder's Office the Department's determination regarding the sufficiency of the subdivision's water supply. However, to provide even greater assurance of a sufficient water supply, the Legislature should consider amending A.R.S. §45-576 to extend the assured water supply requirements to areas outside of the AMAs.

Finally, as also discussed in Finding II (see pages 21 through 24), the Legislature should consider amending A.R.S. §45-598 to provide the Department with limited authority to establish well-spacing requirements in areas outside of the AMAs.

10. The extent to which termination of the agency would significantly harm the public health, safety, or welfare.

Terminating the Department could cause a significant amount of harm to the public's health, safety, and welfare. The 1980 Groundwater Code recognized that it is in the interest of the "general economy and welfare of this state and its citizens" to provide a framework for the comprehensive management and regulation of the use of groundwater. The Department accomplishes this mandate through water rights allocation and the oversight of interstate compacts. Further, the five Active Management Areas have groundwater management goals that are intended to conserve groundwater for future use. The Department has developed conservation plans for municipalities, agriculture, and industry in an effort to achieve the goals for each Active Management Area. Finally, the Department also has a vital public health and safety role in ensuring the safety of dams and responding to identified unsafe well conditions.

According to the Department, there are some areas of overlap between it and other state agencies in the Department's role of protecting the public. For example, the Department of Environmental Quality regulates water quality while the Department of Water Resources provides hydrologic expertise about water quantity. There is also overlap between the Department and the State Mine Inspector regarding jurisdiction over dams located on mining properties.

11. The extent to which the level of regulation exercised by the agency is appropriate and whether less or more stringent levels of regulation would be appropriate.

As discussed in Finding II (see pages 21 through 24), amending A.R.S. §45-576 to extend the assured water supply requirements to areas outside of the AMAs and amending A.R.S. §45-598 to give the Department limited regulatory authority to establish well spacing requirements in the areas of the State outside of the AMAs may be appropriate.

The Department's level of regulation appears appropriate for the 77 types of licenses it currently issues. The Department regulates a wide range of activities including water rights, the transportation and storage of water, and the regulation of wells and well drillers.

- 12. The extent to which the agency has used private contractors in the performance of its duties and how effective use of private contractors could be accomplished.**

According to the Department, its regulatory and planning nature reduces the opportunity to use private contractors. However, the Department does use private contractors for development of computer technologies and for short-term projects where the agency lacks the necessary technical expertise. Further, the Department could consider either adding an economist position or contracting with an economic consulting firm to conduct cost/benefit studies of proposed regulations and perform rate modeling related to the financing and acquisition of renewable water sources.

Agency Response

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ARIZONA DEPARTMENT OF WATER RESOURCES

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JANE DEE HULL
Governor

RITA P. PEARSON
Director

April 19, 1999

Douglas R. Norton, Auditor General
2910 N. 44th Street, Suite 410
Phoenix, AZ 85018

Dear Mr. Norton:

This letter is the Department's response to the performance audit of the Arizona Department of Water Resources by the Office of the Auditor General.

The Department appreciates the efforts of the Office of the Auditor General in preparing the performance audit of the Department of Water Resources. Additionally, there are no significant differences between the conclusions of your agency and the position of the Department. With respect to the recommendations of the report, the following is submitted for your consideration:

1. Recommendation to Establish a Groundwater Code Study Commission. The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented. The Department concurs that the recommendation is extremely important and, rather than wait, the Department has initiated an effort to generate a statewide task force to address the issues outlined in the recommendation.
2. Recommendation that the Legislature should consider increased consumer protections and give greater assurances of a long-term reliable water supply to residents outside of the Active Management Areas (AMAs). The finding of the Auditor General is agreed to and the audit recommendations will be implemented, subject to statutory authority approved by the Governor and the Arizona Legislature. The recommendations of the audit will require significant study to determine the economic cost benefit of amending A.R.S. § 45-576 to extend the assured water supply requirements to areas outside of the AMAs and to amend A.R.S. § 45-598 to provide the Department with limited authority to establish well spacing requirements in areas of the State outside of the AMAs.

Thank you for the opportunity to comment on the performance audit of the Department. If I can provide any additional information, please contact me directly at 417-2410.

Sincerely,

Rita P. Pearson
Director

RPP:kad