

Arizona Department of Water Resources

Department is behind schedule in adopting groundwater management plans for the State's active management areas and should enhance processes for collecting or issuing some required reports

Performance Audit and
Sunset Review

January 2019
Report 19-101

A Report to the Arizona Legislature

Lindsey A. Perry
Auditor General





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Members of the Arizona Legislature

The Honorable Doug Ducey, Governor

Mr. Thomas Buschatzke, Director
Arizona Department of Water Resources

Transmitted herewith is a report of the Auditor General, *A Performance Audit and Sunset Review of the Arizona Department of Water Resources*. This report is in response to a September 14, 2016, resolution of the Joint Legislative Audit Committee. The performance audit was conducted as part of the sunset review process prescribed in Arizona Revised Statutes §41-2951 et seq. I am also transmitting within this report a copy of the Report Highlights for this audit to provide a quick summary for your convenience.

As outlined in its response, the Arizona Department of Water Resources agrees with all of the findings and plans to implement all of the recommendations.

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

Sincerely,

Lindsey Perry, CPA, CFE
Auditor General



Arizona Department of Water Resources

CONCLUSION: The Arizona Department of Water Resources (Department) was established to manage Arizona's water resources and has various responsibilities related to groundwater regulation, surface water rights, and state-wide water planning. We found that the Department should adopt the remaining management plans for the State's active management areas (AMAs). Additionally, the Department should improve its collection of required reports from well owners and well drillers, follow up with potential groundwater users within the State's irrigation nonexpansion areas (INAs) to ensure required reports are submitted, and issue a statutorily required water conservation report. We also provide information on the Department's Colorado River management responsibilities.

Department behind schedule in adopting AMA management plans

The Department is required to adopt and publish a management plan for each AMA for each of the five management periods established in statute: 1980 to 1990, 1990 to 2000, 2000 to 2010, 2010 to 2020, and 2020 to 2025. These plans include mandatory conservation programs for withdrawing, distributing, or receiving groundwater for agricultural, industrial, and municipal users to help achieve each AMA's statutorily defined management goal(s), such as attempting to achieve and maintain a long-term balance between the annual amounts of groundwater withdrawn and returned to the ground.

AMAs—Designated areas of the State where groundwater decline was heaviest and that are subject to groundwater regulation under state law. There are five AMAs in the State: Phoenix, Pinal, Prescott, Santa Cruz, and Tucson.

INAs—Areas designated as having insufficient groundwater to provide a reasonably safe supply for irrigation at the current rate of withdrawal. Once an INA is established, additional land may not be irrigated to preserve the existing irrigation of cultivated lands. There are three INAs in the State: Douglas, Harquahala, and Joseph City.

The AMAs' fourth management plans should have been adopted by January 1, 2008, in order to have become effective at the start of the fourth management period in 2010. However, as of October 2018, the Department had adopted the fourth management plans for only two of the five AMAs—one in 2014 and another in 2016—although the plan for a third AMA was in development. As a result, the AMAs have operated or will have operated under the third management plans for much longer than the 10-year period specified in statute. Additionally, given the status of the fourth management plans, development of the fifth management plans will be several years behind schedule.

The Department uses the management plan development process as an opportunity to assess an AMA's progress toward achieving its management goal(s), but its untimely development of the fourth management plans has delayed this. Similarly, statute requires or allows for additional or increased conservation measures in each subsequent management plan. Delayed development of the management plans thus delays the implementation of any additional or increased conservation measures.

Between 2009 and 2014, the Legislature reduced the Department's appropriated staff positions by 61 percent, although a portion of these staff positions have since been reappropriated to the Department. As a result, the Department has allocated fewer staff to work on the management plans than in the past, and these staff also assist with other department duties.

Recommendations

The Department should:

- Comply with its statutory requirements to develop and promulgate the remaining management plans for the five AMAs.
- Complete a staffing analysis to determine the appropriate level of AMA staffing needed to complete the AMA management plans, including whether cross-training could help address staffing needs, and assign staff resources accordingly.

Other department actions needed

As reported in the Sunset Factors section, the Department generally met its statutory objectives and purposes for key department functions we reviewed. However, we identified the following areas for improvement:

Department should collect outstanding reports from well owners and well drillers—Well owners and well drillers are required to file various reports after completing a department-approved project, such as drilling or deepening a well. These reports provide the Department with information about the actual condition of the wells. However, we identified instances where well owners and well drillers did not file the required reports. The Department lacked formal procedures for following up on outstanding reports.

Recommendation

The Department should develop and implement written policies and procedures to routinely follow up on and collect outstanding post-project reports from well owners and well drillers.

Department should follow up with groundwater-use nonreporters in INAs—Statute requires groundwater right holders who withdraw groundwater from a nonexempt well within an INA to file annual groundwater-use reports with the Department by March 31 of the following year. Those who do not withdraw groundwater are not required to file any report with the Department. Because the Department does not follow up with nonreporters but assumes that they did not use groundwater, it does not know whether it should have received additional reports. Given a decline in the percentage of potential reporters who filed an annual report for calendar years 2015 through 2017, it is possible that some nonreporters are pumping groundwater but not reporting as required.

Recommendation

The Department should develop and implement written policies and procedures to follow up with nonreporting groundwater right holders in INAs, including requesting them to voluntarily report nonusage.

Department should issue water conservation report—Statute requires the Director to publish a report every 3 years on municipal providers' per capita water use and water conservation efforts within the AMAs. This report provides information that allows the public and the Department to assess and compare municipal providers' water conservation efforts. However, the Department has not published this report since October 2011.

Recommendation

The Department should complete and issue the report on municipal providers' water conservation programs every 3 years, as required by Arizona Revised Statutes §45-563.01.

Department's duties include Colorado River management

The Department's authority to manage and protect the State's claim to Colorado River water is evidenced through legislative intent and statute, which gives the Department's director the authority to consult, advise, and cooperate with the Secretary of the Interior. Under this authority, the Department has managed Arizona's supply of Colorado River water through cooperation and negotiation with the U.S. Bureau of Reclamation (Reclamation), the six other Colorado River Basin States (California, Colorado, Nevada, New Mexico, Utah, and Wyoming), tribes and Indian communities, and Mexico.

The Colorado River system is overallocated, and Lake Mead is in structural deficit, which did not become issues until a growing population increased demand and periods of prolonged drought stressed the water supply. In 2007, Reclamation adopted guidelines to define what constitutes a water shortage and how to manage supplies in the reservoirs should a shortage be declared. However, because of ongoing drought, the Colorado River Basin States have developed a set of proposed Drought Contingency Plan (DCP) agreements that supplement the 2007 guidelines. The Legislature must authorize the Department's director to sign the DCP agreements on behalf of the State. To that end, the Department has worked with various stakeholders to achieve consensus on how to implement the DCP agreements in Arizona. As of this report's issuance, the terms of an Arizona implementation plan were still under negotiation.



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Mission

The Arizona Department of Water Resources (Department) was established in 1980 to manage Arizona's water resources. Its mission is to be the steward of Arizona's water future and ensure long-term, reliable water supplies to support the continued economic prosperity of the State.

The Department has various responsibilities related to groundwater regulation, surface water rights, state-wide water planning, dam safety and flood warning, and providing support to other entities.¹ These responsibilities are further discussed below.

Department responsibilities related to groundwater regulation

In 1980, the Legislature determined that groundwater was an important water supply for Arizonans and that overpumping of the groundwater could lead to a decline in the State's welfare and economy. That same year, the Legislature passed the Arizona Groundwater Code (Code) to conserve and protect groundwater, as well as to provide for general regulation state-wide, by managing and regulating its use in specific geographical areas of the State that had overrelied on groundwater. As described in the textbox, these areas are designated as active management areas (AMAs) and irrigation nonexpansion areas (INAs). Figure 1 on page 2 shows a map of the State's AMAs and INAs. Groundwater that is withdrawn from within an AMA or INA can be subject to fees, well metering, annual reporting of groundwater use, conservation requirements, and other restrictions.

Groundwater that is withdrawn from outside an AMA or INA is generally subject only to the requirement that it be put to reasonable and beneficial use and statutory restrictions on transporting groundwater between basins or sub-basins. The Department does not have authority to intervene when groundwater levels diminish outside of AMAs or INAs, which is a concern in some areas of the State. Auditors observed and reviewed recordings from a "listening tour" organized by legislators in 2018 to obtain public input on state-wide water issues. The tour visited cities and towns both inside and outside of AMAs. One of the prevailing concerns outside of AMAs is the growth of industrial farming and manufacturing that use large quantities of water pumped from deep wells. Some domestic well owners reported that their wells

AMAs—Areas of the State identified in the Code where groundwater decline was heaviest. These areas are subject to groundwater regulation under the Code's statutes, such as pumping limitations and demonstration of assured water supplies. There are five AMAs in the State: Phoenix, Pinal, Prescott, Santa Cruz, and Tucson.¹ According to department information, AMAs comprise 13 percent of the State's land area, 80 percent of its population, 53 percent of its total water use, and 51 percent of its groundwater use.

INAs—Areas designated as having insufficient groundwater to provide a reasonably safe supply for irrigation at the current rate of withdrawal. Once an INA is established, additional land may not be irrigated to preserve the existing irrigation of cultivated lands. There are three INAs in the State: Joseph City and Douglas, which were established in 1980, and Harquahala, which was established in 1982.

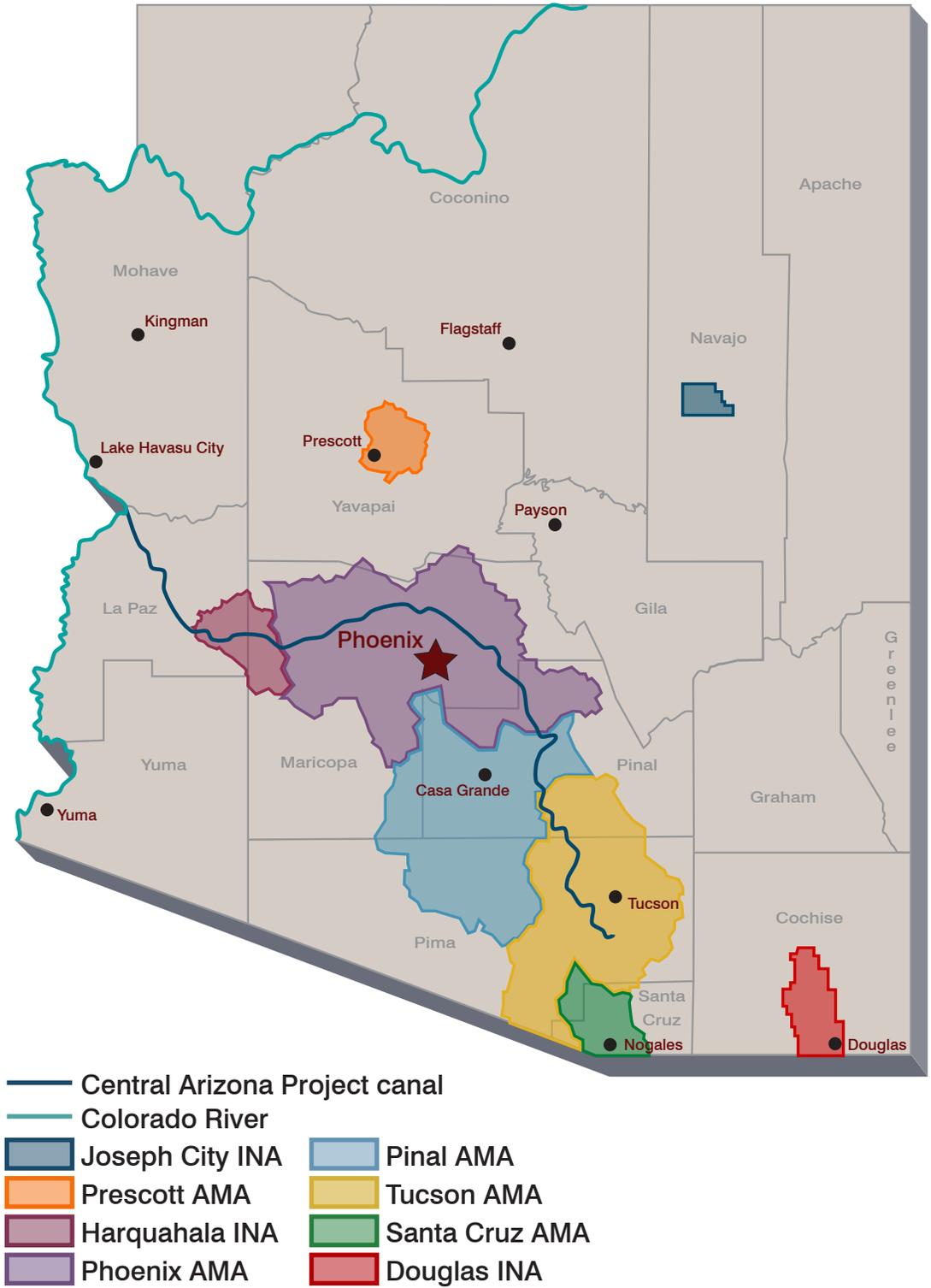
¹ The Code originally identified four AMAs, but in 1994, the Tucson AMA was split into the Tucson and Santa Cruz AMAs.

Source: Auditor General staff review of statutes, department documents, and department-provided information.

¹ The Department does not have responsibilities with respect to water quality or effluent. The Arizona Department of Environmental Quality is responsible for water quality. Effluent is water that has been used, collected as sewage, and then treated. However, if the effluent is treated and used to recharge groundwater, it is subject to department regulation. See page 3 for more information about recharge and recovery.

Figure 1

Locations of the Colorado River, AMAs, INAs, and the Central Arizona Project^{1,2}



¹ The Central Arizona Project is a 336-mile aqueduct that delivers Colorado River water to entities in Maricopa, Pinal, and Pima Counties.

² Groundwater that is withdrawn from outside of an AMA or INA is subject to limited regulation and may be pumped in any quantity that the well owner can prove is for reasonable and beneficial use.

Source: Auditor General staff review of department documents.

are not deep enough to reach diminishing groundwater. For example, during a tour stop in Kingman in June 2018, some stakeholders communicated concerns about a Saudi Arabian company that bought acreage in La Paz County, which is outside an AMA. The company grows water-intensive crops such as alfalfa that it ships to Saudi Arabia to feed livestock. Citizens may request that the department director consider establishing an AMA or INA in these areas. However, if an AMA were established, statute would allow existing groundwater users to establish a right to a specified amount of groundwater based on historical use, although these groundwater users would also become subject to any applicable conservation requirements specified in the AMA's management plan. Further, if an INA were established, statute would allow existing groundwater use for irrigation to continue but prohibit new irrigation use, although it would not prohibit new groundwater use for nonirrigation purposes.

The Department's groundwater regulation responsibilities include:

- **Developing management plans for each AMA**—These plans outline conservation programs and requirements for agricultural, industrial, and municipal groundwater users in each AMA (see Finding 1, pages 7 through 9, for additional information about the AMA management plans).
- **Collecting groundwater use reports**—Most groundwater users in AMAs and INAs are required to report annual groundwater use to the Department (see Sunset Factor 2, pages 19 through 20, for additional information).
- **Issuing certificates of assured and adequate water supply**—The Department evaluates the availability of water for new housing or commercial developments, which provides some consumer protection for property buyers. Specifically:
 - To sell subdivided land within an AMA, developers must demonstrate to the Department that the land has a 100-year assured water supply by meeting seven criteria. These criteria include the physical, continuous, and legal availability of water; the financial capacity to deliver water to the land; and consistency with AMA water conservation goals (see Finding 1, page 7, for additional information about these goals).
 - For most land outside AMAs, developers may apply for a determination from the Department on whether the land has an adequate water supply, which is sufficient water for that new development. However, unlike the assured water supply requirements within AMAs, developers do not need to obtain a designation of adequate water supply so long as the lack of designation and/or lack of adequate water supply is disclosed to potential buyers the first time the lots are sold.²
- **Issuing water storage, underground storage facility (USF), and groundwater savings facility (GSF) permits**—The Department issues permits for storing and recovering renewable water supplies, such as surface water from rivers and streams and effluent (i.e., treated wastewater). The purpose of this program is to store renewable water supplies for future use and to encourage use of surface water in lieu of groundwater. These water supplies are recharged through USFs or used in place of groundwater at GSFs. USFs are facilities where water is added to an aquifer by injecting the water into the aquifer or letting water soak into the ground in a designated location. In contrast, GSFs are not actual facilities but entities, such as irrigation districts, that receive renewable water supplies (such as surface water) for use, rather than pumping groundwater, to allow the groundwater to remain in the aquifer. Water storage permits allow permit holders to recharge water in a USF or a GSF. Some recharged water may be retrieved in the future.
- **Issuing well driller licenses, groundwater withdrawal permits, and authority to drill, modify, or abandon wells**—To help manage and protect groundwater and protect public safety throughout the State, the Department issues well driller licenses to qualified well drillers and grants authority to licensed well drillers to drill, abandon, and modify wells. The Department also issues groundwater withdrawal permits and processes ownership transfers (i.e., conveyances) of groundwater rights and well registrations. In addition, the Department manages and maintains a registry of groundwater rights and well information. As of November 2018, the Department reported that there were approximately 213,000 wells registered with the Department.

² State law does not require a certificate of assured or adequate water supply for developments of five or fewer lots.

Department responsibilities related to surface water rights

The Department issues permits for the right to use in-state surface water, which includes all rivers and streams except for the Lower Colorado River.³ In addition, the Department maintains water rights registries and hydrologic records of conditions to help manage and plan future surface water supplies.

The Department also provides technical and administrative support to the superior court judge and the Special Master appointed by the Arizona Superior Court to facilitate water rights adjudications. These adjudications are judicial proceedings conducted to determine the extent and priority of the water rights of all persons in a river system. Department staff assist the Arizona Superior Court and the Special Master by conducting special projects, providing information, and acting as expert witnesses during hearings. As of 2018, the Court was conducting general stream adjudications of surface water rights in two major river systems in the State: the Gila River System and Little Colorado River System.

Department responsibilities related to state-wide water planning

The Department collects, analyzes, and provides data on water conditions throughout the State to assist the public and stakeholders with water management decisions. For example, the Department collects and analyzes hydrologic data by measuring groundwater levels at index wells throughout the State and provides this information on its website (see Sunset Factor 2, page 19, for more information).⁴ In addition, the Department creates groundwater flow models that are peer reviewed and follow U.S. Geological Survey guidelines. The Department also performs geographic information system analysis of hydrologic data and publishes related reports.

Further, Executive Order 2015-13 directed the Department to work with stakeholders state-wide to implement two tracks of the Governor's water-planning initiative. The first track requires the Department to partner with stakeholders in the State's 22 water-planning areas to analyze water demand and supply imbalances and develop strategies to address those imbalances. The second track requires the Department to provide staffing and technical assistance to the Governor's Water Augmentation Council, which is responsible for investigating long-term water augmentation strategies, additional water conservation opportunities, and funding and infrastructure needs to help secure water supplies for Arizona. The Governor's Water Augmentation Council is responsible for proposing recommendations to the Governor.

In addition, the Department promotes and protects Arizona's entitlement of Colorado River water by negotiating with the U.S. Bureau of Reclamation, the six other Colorado River Basin States, tribes and Indian communities, and Mexico.⁵ The Department also monitors the use of other interstate rivers and snowpack conditions as they affect Arizona. See Other Pertinent Information, pages 11 through 16, for additional information.

Department responsibilities related to dam safety and flood warning

The Department oversees all nonfederal and nonexempt dams in Arizona.⁶ Specifically, the Department is responsible for reviewing applications for new dams and monitoring their construction. In addition, the Department is responsible for inspecting and evaluating operating dams to determine if safety deficiencies exist and if so, reporting the results to dam owners. Dam owners are responsible for developing actions to remove those deficiencies.

³ The U.S. Bureau of Reclamation manages and oversees Colorado River water rights.

⁴ Index wells are a subset of all wells in the State, consisting of approximately 1,800 wells that the Department designated to create a long-term record of groundwater level fluctuations by measuring depth to groundwater at least once per year.

⁵ The seven Colorado River Basin States are Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.

⁶ Arizona Administrative Code (AAC) R12-15-1203 lists eight factors that define exempt structures. For example, the Department does not regulate dams that the United States government owns and/or operates. The Federal Emergency Management Agency administers the National Dam Safety Program, which coordinates all federal dam safety programs.

The Department also serves as a liaison between the Federal Emergency Management Agency and local Arizona communities. The Department coordinates the federally funded National Flood Insurance Program (NFIP) in Arizona by assisting local communities in the NFIP and publishes guidelines for local floodplain management.

Other department responsibilities

The Department is statutorily required to provide administrative, technical, and legal support to the following:

- **Arizona Water Banking Authority (Bank)**—The Legislature created the Bank in 1996 to store Arizona’s unused Colorado River water for future use, provide California and Nevada with the opportunity to store their unused Colorado River water in Arizona, and facilitate water storage for Arizona water users, including tribes. USFs and GSFs are the mechanisms used to recharge water into aquifers where it is stored until needed. The Bank receives excess Colorado River water from the Central Arizona Water Conservation District (District), a multi-county water conservation district that operates the Central Arizona Project—a 336-mile aqueduct—to deliver Colorado River water. The Bank is overseen by a Commission that, per statute, comprises the Department’s director, the District’s board president, and three governor-appointed members.⁷
- **Arizona Water Protection Fund (AWPF)**—The Legislature created the AWPF to provide financial resources through grants to appropriate public and private entities to assist in water resource management activities. Funding for the AWPF is subject to availability and can come from State General Fund appropriations, donations, and in-lieu fees from the District.⁸ Because the AWPF’s funding had not been predictable or sizable, the AWPF conducts grant cycles as monies are available. Applications for the fiscal year 2019 cycle were due in September 2018, and the AWPF received applications from various entities, including cities and towns, irrigation districts, water-related organizations, and state agencies. Goals of active grant projects in fiscal year 2018 included removal of invasive, nonnative plants to restore river and stream environments. The AWPF is overseen by a Commission comprising three members who are appointed by the Governor, two members who are appointed by the Speaker of the House, two members who are appointed by the President of the Senate, one member who is appointed by the Intertribal Council of Arizona, and one member of the District. The Commission also includes four nonvoting members, two of whom are ex-officio members (the Department’s director and the state land commissioner).

Staffing and organization

As of December 2018, the Department had 142 full-time equivalent (FTE) positions with 8 vacancies. The Director is appointed by the Governor and is assisted by a deputy director and three assistant directors. Organizationally, the Department has created several divisions that carry out its various responsibilities. It also has various administrative support functions, including its finance and administration division, information technology division, public information officer and legislative liaison, and legal staff.

Budget

As shown in Table 1 (see page 6), the Department’s revenue sources include State General Fund appropriations; charges for goods and services; fees for licenses and permits; and intergovernmental revenues, including federal grants. The Department’s expenditures include payroll and related benefits, aid to organizations, and other operating costs. The aid to organizations was a new expenditure for fiscal year 2018. This money represented Arizona’s financial contribution to incentivize voluntary water conservation in Lake Mead. Specifically, this money was paid to the U.S. Bureau of Reclamation to pay water users to keep their water in Lake Mead to reduce the likelihood of lake elevations dropping below levels that could result in substantially reduced deliveries of Colorado River water to Arizona users.⁹

⁷ Per A.R.S. §48-3710, the District’s board president is selected from among its board membership, which comprises 15 elected members.

⁸ The Legislature appropriates State General Fund monies to the AWPF as pass-through monies in the Department’s annual budget.

⁹ For other programs with the goal of conserving water in Lake Mead to prevent shortages, see Other Pertinent Information, pages 11 through 16.

Table 1
Schedule of revenues, expenditures, and change in fund balance
Fiscal years 2016 through 2018
(Unaudited)

	2016 (Actual)	2017 (Actual)	2018 (Actual)
Revenues			
State General Fund appropriations	\$ 11,944,234	\$ 12,170,408	\$ 15,283,642
Charges for goods and services	1,512,643	1,490,248	1,640,184
Licenses, fees, and permits	1,505,513	1,790,927	1,151,754
Intergovernmental revenue, including federal grants	1,425,285	798,886	543,002
Interest income	87,345	128,006	211,518
Fines, forfeits, and penalties	126,812	22,638	25,573
Restricted donations	132,075	64,200	12,660
Other revenues	12,468	11,433	96
Reimbursements from the Bank ¹			379,396
Legal expenditure reimbursements ²			117,000
Total gross revenues	16,746,375	16,476,745	19,364,823
Less: Credit card transaction fees	(8,141)	(9,523)	(6,828)
Remittances to the State General Fund	(473,869)	(372,807)	(357,552)
Total net revenues	16,264,366	16,094,415	19,000,443
Expenditures			
Payroll and related benefits	9,407,839	10,409,012	11,523,216
Professional and outside services	1,284,630	1,174,523	1,459,524
Travel	247,548	285,024	275,558
Aid to organizations			2,000,000
Other operating	2,968,952	1,694,251	1,501,287
Furniture, equipment, and software	241,172	497,161	487,854
Total expenditures	14,150,140	14,059,971	17,247,438
Transfers to AWPFF ³		250,000	250,000
Transfer to the State General Fund			117,000
Total expenditures and transfers	14,150,140	14,309,971	17,614,438
Excess of revenues over (under) expenditures	2,114,225	1,784,444	1,386,005
Fund balance, beginning of year	12,514,873	14,629,099	16,413,542
Fund balance, end of year⁴	\$ 14,629,099	\$ 16,413,542	\$ 17,799,547

¹ In fiscal year 2018, the Department received \$379,396 in operating transfers from the Bank. This amount represents the Department's recovery of payroll and related benefit costs for the Bank FTEs. The amount covers \$30,884 for fiscal year 2015, \$138,353 for fiscal year 2016, \$138,962 for fiscal year 2017, and \$71,197 for the first two quarters of fiscal year 2018.

² The legal expenditure reimbursement of \$117,000 in fiscal year 2018 is monies received from Mohave County to reimburse the Department for its fees and costs incurred in the matter of *Mohave County v Arizona Department of Water Resources and Freeport Minerals Corporation, LC2014-000624-001*, which sought judicial review of a final agency decision the Department issued.

³ The Legislature appropriates State General Fund monies to the AWPFF as pass-through monies in the Department's annual budget. The Legislature appropriated a one-time amount of \$250,000 from the State General Fund to the AWPFF in fiscal year 2017 and made this an ongoing appropriation in fiscal year 2018.

⁴ At the end of fiscal year 2018, the Department had a fund balance of \$17.8 million. Most of the Department's fund balance (approximately \$14.8 million) must be spent for specific purposes or requires legislative approval before monies can be spent. For example, \$4.9 million of this amount is dedicated to dam repairs that protect life and property, meaning the Department can use the money for only that specified purpose. Auditors also determined that \$4.5 million can be spent on expenditures that meet the Department's mission; however, use of these monies requires legislative approval before it can be spent.

Source: Auditor General staff analysis of information from the Arizona Financial Information System for fiscal years 2016 through 2018, appropriation reports for fiscal years 2016 through 2018, and department-provided financial information.



Department behind schedule in adopting AMA management plans, thus delaying its assessment of progress toward achieving AMA goals and modification of plans' conservation requirements

Department responsible for adopting AMA management plans

As discussed in the Introduction (see page 1), the Arizona Groundwater Code (Code) has established five active management areas (AMAs) in the State: Phoenix, Pinal, Prescott, Santa Cruz, and Tucson (see Figure 1 on page 2).¹⁰ The Code also established management goals for each AMA (see textbox) and five management periods for managing groundwater use in the AMAs: 1980 to 1990, 1990 to 2000, 2000 to 2010, 2010 to 2020, and 2020 to 2025.¹¹ The Department is required to adopt and publish a management plan for each AMA for each management period.¹²

A.R.S. §§45-563 through 568 require the plans to include mandatory conservation programs for withdrawing, distributing, or receiving groundwater for agricultural, industrial, and municipal users. The conservation programs are intended to help reduce the amount of groundwater withdrawn and ultimately help achieve an AMA's management goal(s).

Generally, statutes for the first management period directed the Department to establish conservation programs for groundwater use. Statutes for the second and third periods required the implementation of additional conservation programs in each plan; however, statutory requirements for the fourth period do not generally increase conservation from the third plan. In most instances, statutes state that additional conservation requirements may be implemented, if

AMA management goals

AMA	Management goal(s)
Phoenix	Attain safe yield by January 1, 2025. ¹
Prescott	Attain safe yield by January 1, 2025.
Tucson	Attain safe yield by January 1, 2025.
Pinal	Allow land development for nonirrigation uses and preserve existing agriculture in the AMA for as long as feasible, consistent with preserving future water supplies for nonirrigation uses.
Santa Cruz	Maintain the AMA's safe-yield condition and prevent local water tables from experiencing long-term declines.

¹ Safe yield means a groundwater management goal that attempts to achieve and thereafter maintain a long-term balance between the annual amounts of groundwater withdrawn and recharged (i.e., returned to the ground).

Source: Auditor General staff review of statute and department documents.

¹⁰ The Code also established a five-member, governor-appointed council for each AMA called a Groundwater Users Advisory Council (GUAC). Each GUAC provides advice and recommendations on groundwater management programs and policies within the AMA.

¹¹ The Department sought legislation in the 2018 session that would establish a sixth management period through 2035 to help the AMAs achieve or maintain their management goals through conservation measures. The legislation did not become law.

¹² Once drafted, a management plan must follow an administrative review process before being promulgated. This process includes presenting the plan to the public and the AMA's GUAC, updating the plan based on feedback, and the Department reviewing the plan throughout the process. Thereafter, the plan must go through the legal promulgation process. This entire process can take approximately 16 to 17 months to complete. Once a management plan is adopted, a period of 2 years must pass before new conservation requirements are enforceable.

feasible, but they do not require increased conservation measures. For the fifth management period, statutes state the Department may adjust some requirements related to irrigation.

Department several years behind schedule in adopting the fourth and fifth management plans

According to statute, management plan conservation requirements do not become enforceable until approximately 2 years after they are adopted. Thus, the fourth management plans should have been adopted by January 1, 2008, so that they would have become effective at the start of the fourth management period in 2010. However, as of October 2018, the Department had adopted fourth management plans for only two of the five AMAs, although the plan for a third AMA was in development. Additionally, both adopted plans were several years late: the fourth management plan for the Prescott AMA was adopted in July 2014 and became enforceable on January 1, 2017, and the fourth management plan for the Tucson AMA was adopted in July 2016 and became enforceable as of January 1, 2019. The plan for the Pinal AMA had been drafted but not yet adopted. As a result, all the AMAs have operated or will have operated under the third management plans for much longer than the 10-year period specified in statute.

The Department reported that it still intends to adopt the fourth management plans for the Phoenix and Santa Cruz AMAs, as well as the fifth management plans for all the AMAs. Given the current status of the fourth management plans, development of the fifth management plans will be several years behind schedule, and the plans may not be adopted until well into the fifth management period at the earliest.¹³

Untimely plan development delays assessment of progress toward achieving AMA management goals and modification of conservation requirements

The Department uses the management plan development process as an opportunity to assess an AMA's progress toward achieving its management goal(s); however, the Department's untimely development of the fourth management plans has delayed these assessments. For example, although both the third and fourth management plans for the Prescott AMA indicated that it was not on track to meet its safe yield goal by 2025, the fourth management plan elaborated that the goal could not be met without additional water supplies, cooperative regional water resource management, and/or a combination of water management programs, policies, rules, and incentives. Because the fourth management plans for three of the AMAs are either in development or not yet developed, the Department has not determined what additional steps, if any, might be taken in the management plans to help achieve the respective management goals in those AMAs.

Similarly, statute requires or allows for additional or increased conservation measures in each subsequent management plan, as discussed previously. Delayed development of the management plans results in delayed implementation of any additional or increased measures. For example, auditors compared the fourth management plans to the third management plans for the Prescott and Tucson AMAs to determine if their untimely development resulted in the delay of new or modified conservation measures. Auditors found a change in only one conservation measure related to groundwater delivered for irrigation use, but this change did not impact applicable water providers in those two AMAs.¹⁴ However, department staff reported that this same conservation measure change related to groundwater delivered for irrigation use could potentially have an impact in the Phoenix AMA, but the

¹³ Per A.R.S. §45-568, the management plans for the fifth management period, 2020 to 2025, should be promulgated no later than January 1, 2019, and all nonexempt parties shall remain in compliance with the requirements of the fifth management plan until the Legislature determines otherwise.

¹⁴ This change expanded the applicability of the conservation measure from irrigation districts and private water companies that distribute 20 percent or more of their total deliveries for irrigation use to irrigation districts and private water companies that distribute any amount of water for irrigation use. However, because water providers that distribute water for irrigation use in these AMAs were already subject to the 20 percent requirement, this conservation measure change did not increase the number of applicable water providers that would need to adhere to the new requirement.

Department will not know the effect of such a change until it develops the fourth management plan and identifies all applicable water providers.

Reduced staffing contributed to untimely management plan development

Between 1988 and 2008, the Department allocated an average of about 40 staff to its AMA section. These staff were responsible for writing and publishing the AMA management plans, as well as performing other duties related to the AMAs, such as collecting and recording annual groundwater pumping data. Additionally, the Department dedicated specific staff to each AMA. During this time, the Department published the second and third management plans within 2 years of the statutory deadlines.

However, between 2009 and 2014, the Legislature reduced the Department's appropriated FTE by 141.7 positions, a loss of 61 percent of the Department's workforce.¹⁵ As a result, the Department reduced the number of staff it had allocated to its AMA section from an average of about 40 staff to a reported 9.5 staff when the fourth management plans were prepared for the Prescott and Tucson AMAs. Additionally, the Department no longer dedicated specific staff to each AMA. As of July 2018, the Department had increased the number of AMA staff to 11.5.¹⁶

In addition to the reductions in workforce, the Department uses its AMA staff to assist with other department state-wide water-planning efforts, which the Department reported has resulted in an inconsistent amount of staff time dedicated to the management plans.

The Department reported that it has not conducted a staffing analysis to determine the appropriate level of AMA staffing but indicated that doing so would be beneficial. The Department also indicated that cross-training other department staff to assist with the AMAs could help ensure more timely management plan development.

Recommendations

The Department should:

1. Comply with its statutory requirements to develop and promulgate the remaining management plans for the five AMAs.
2. Complete a staffing analysis to determine the appropriate level of AMA staffing needed to complete the AMA management plans, including whether cross-training could help address staffing needs, and assign staff resources accordingly.

Agency response: As outlined in its [response](#), the Department agrees with the finding and will implement the recommendations.

¹⁵ Staffing levels presented here are based on the Department's appropriated FTE positions outlined in the Joint Legislative Budget Committee's *Fiscal Year 2011 Appropriations Report* and *Fiscal Year 2014 Appropriations Report*.

¹⁶ Between fiscal years 2015 and 2017, the Legislature increased the Department's appropriated FTE by 39 positions.



OTHER PERTINENT INFORMATION

Department’s role in Colorado River management

Auditors reviewed the Department’s role with respect to negotiations with the U.S. government, the Colorado River Basin States, and Mexico for the terms of agreements designed to manage the Colorado River. This report section has no recommendations but provides information regarding the Department’s responsibilities and how it has exercised them since the Colorado River Basin began to experience drought conditions in 2000.

Department’s duties include Colorado River management

The Department was created in 1980 to assume the responsibilities of the Arizona Water Commission (Commission). The Commission was created in 1971 “[to place] within one state agency, the responsibility for the development, cooperation, coordination and approval of plans for the future use of waters of the state, for devising means and plans for development, conservation, utilization of all waters now within, or which may at a future date come within state jurisdiction, and for supervision of dams under jurisdiction of the state.” This included the responsibilities of the Interstate Stream Commission, which was created in 1948 to protect, prosecute, and defend Arizona’s rights, privileges, and claims to interstate streams, including the Colorado River.^{17,18} The Department’s authority to manage and protect the State’s claim to Colorado River water is evidenced through legislative intent and A.R.S. §45-107, which gives the Department’s director the authority to consult, advise, and cooperate with the Secretary of the Interior (Secretary).¹⁹

Department cooperates with other governments on Colorado River management

Under this authority, the Department and its directors have managed Arizona’s supply of Colorado River water through cooperation and negotiation with the U.S. Bureau of Reclamation (Reclamation), the six other Basin States (California, Colorado, Nevada, New Mexico, Utah, and Wyoming), tribes and Indian communities, and Mexico (see Figure 2, page 12, for a map of the Colorado River Basin). The Law of the River—which is a collection of laws, including interstate water compacts, an international treaty and its minutes, court decisions and decrees, contracts, federal and state laws, and Indian water rights settlements—establishes each entity’s, state’s, and nation’s rights to Colorado River water. These laws, including the 1922 Colorado River Compact, which made allocations to the Upper and Lower Basins, govern how much water each entity is entitled to and under what conditions they are entitled to it.

In addition to cooperating with other governments to manage Colorado River water supplies as discussed in this Other Pertinent Information section, the Department also works with these governments to implement environmental programs that effectuate compliance with applicable laws or mitigate the impacts of dam operations. For example, the Department, along with the Arizona Game and Fish Department, represents Arizona on the Glen Canyon Dam Adaptive Management Program Work Group, a federal advisory committee

¹⁷ The Interstate Stream Commission is the entity that initiated *Arizona v. California* before the U.S. Supreme Court to establish Arizona’s right to 2.8 million acre-feet of water per the 1928 Boulder Canyon Project Act.

¹⁸ A.R.S. §45-105(A)(9) allows the Department to prosecute and defend all rights, claims, and privileges with respect to interstate streams.

¹⁹ A.R.S. §45-106 places a limitation on the department director’s authority by requiring legislative approval by concurrent resolution to enter into agreements with the U.S. or a state or government involving a sovereign right or claim of the State.

Figure 2

Colorado River Basin with allocations for the Basin States and Mexico, in millions of acre-feet (MAF)¹

(Unaudited)



¹ An acre-foot of water is enough water to cover 1 acre of land to a depth of 1 foot. This is approximately 326,000 gallons, which would supply about three average homes for 1 year based on the Department's analysis of 2017 annual water withdrawal and use report data from large municipal providers in AMAs.

² Allocations to Upper Basin States presented in this figure are based on the Upper Basin's full allocation of 7.5 MAF less 50,000 acre-feet allocated to Arizona per the 1948 Upper Colorado River Basin Compact. The full allocation is then multiplied by the percentage allocations to each Upper Basin State per this compact. For example, the compact allocates 51.75 percent of the 7.45 MAF to Colorado, which is about 3.86 MAF.

Source: Auditor General staff review of U.S. Geological Survey documentation, 1922 Colorado River Compact, 1928 Boulder Canyon Project Act, 1948 Upper Colorado River Basin Compact, and department documents.

that makes recommendations to the Secretary on how to operate Glen Canyon Dam in a manner that reduces negative impacts to downstream resources, such as riparian ecosystems and tribal artifacts. In addition, the Department and the Arizona Department of Environmental Quality on behalf of Arizona, and the Central Arizona Water Conservation District (District), participate on the Colorado River Basin Salinity Control Advisory Council (Council), which assists the Secretaries of the Interior and Agriculture and the U.S. Environmental Protection Agency in implementing the 1974 Colorado River Basin Salinity Control Act.²⁰ A goal of this act is to help ensure that water that flows from the Colorado River is of sufficient quality through measures to control water salinity, which affects agricultural, municipal, and industrial water users.

Department also cooperates with Arizona water users on Colorado River management

The terms negotiated in interstate and international agreements have impacts on Colorado River water users in the State. These users include tribes, municipal water providers, industries, private water companies, and irrigation districts. The Department cooperates with these users to solicit input on potential terms for agreements to manage the river and to oversee negotiations between in-state users to mitigate potential negative impacts of those agreements. These users are entities that hold contracts with the federal government for Colorado River water and entities that subcontract with the District for delivery of Colorado River water. In 1971, the Legislature authorized the formation of the District, which was created to repay the U.S. government for Arizona's share of construction costs for the Central Arizona Project (CAP).^{21,22} The District operates the CAP and delivers about half of Arizona's Colorado River water allocation to contractors and subcontractors in its service area of Maricopa, Pima, and Pinal Counties.

Colorado River system is overallocated, and Lake Mead is in structural deficit

The Colorado River system is overallocated. The 1922 Compact allocated 15 million acre-feet each year to the seven Colorado River Basin States; however, this allocation amount was based on unusually wet conditions present when the supply estimates were developed.²³ This estimated water supply was also allocated prior to settling tribal water rights claims or making an allocation to Mexico.²⁴ In addition to the overallocation, Lake Mead is also in a state of structural deficit. According to Reclamation, factors such as evaporation result in water losses of about 1.2 million acre-feet each year, which in turn has caused an annual decline of about 12 feet in the Lake Mead reservoir. However, the overallocation and structural deficit did not become issues until a growing population increased demand and periods of prolonged drought stressed the supply. In January

²⁰ Representatives from these agencies are also members of the Colorado River Basin Salinity Control Forum (Forum). The Forum was created in 1973 to coordinate salinity control efforts by the seven Colorado River Basin States and work with federal agencies to implement the Colorado River Basin Salinity Control Program. The Forum is composed of up to three representatives who are appointed by each state's governor. According to the Forum's website, because the Council and Forum memberships are generally the same, they hold their biannual meetings in conjunction with each other.

²¹ The CAP is a 336-mile aqueduct that delivers Colorado River water to entities in Maricopa, Pima, and Pinal Counties. See Figure 1 on page 2 of the Introduction for the aqueduct's path through Arizona.

²² The laws that enabled the District's creation were passed in the same legislation that created the Arizona Water Commission in 1971. The statutes for establishing a multicounty conservation district allow the District to contract with the Secretary for water from the CAP and to levy a tax to repay the CAP's construction costs. The legislation also requires the District to cooperate and contract with the Secretary to carry out the provisions of the 1902 Reclamation Act.

²³ Gelt, J. (1997). Sharing Colorado River water: History, public policy, and the Colorado River Compact. *The Arroyo*, 10(1). Tucson, AZ: University of Arizona, Water Resources Research Council.

²⁴ According to department counsel, as of November 2018, 11 of Arizona's 22 federally recognized Indian tribes have unsettled water rights claims. In addition, the 1922 Compact permits but does not require the U.S. to recognize Mexican water rights. It indicates that if an allocation is made to Mexico, it shall come from any water in excess of the 15 million acre-feet allocated to the Upper and Lower Basins, and if the surplus is insufficient, each basin shall supply one-half of the deficiency. The 1944 Water Treaty with Mexico allocates 1.5 million acre-feet to Mexico but does not prescribe other allocations that should be reduced to create it.

2000, the Colorado River's two main reservoirs, Lake Mead and Lake Powell, were about 96 and 89 percent full, respectively. By January 2005, they had declined to about 55 and 36 percent full, respectively.

In addition to the overallocation and structural deficit, the Colorado River experienced historically low river flow in 2002.²⁵ According to the U.S. Geological Survey, warmer weather in 2002 and 2003 resulted in below-average runoff to the river.

Water shortage guidelines were developed in response to drought

In light of increased demand, declining reservoir levels, and record low runoff, the Secretary directed Reclamation in 2005 to develop a framework for action. Despite a prior contentious relationship, representatives from the seven Basin States, including a former department director on the Governor's behalf, collaborated and negotiated the Seven Basin States' Preliminary Proposal Regarding Colorado River Interim Operations in 2006.²⁶ The Secretary used the proposal as the basis for the 2007 Interim Guidelines. The key features of these guidelines are:

- **Criteria for shortage and corresponding mandatory reductions**—If the water level in Lake Mead falls below certain thresholds, the Secretary would declare a shortage and inform Arizona and Nevada that their deliveries would be reduced in order to leave water in the reservoir. For example, at or below 1,075 feet, Arizona's allocation of 2.8 million acre-feet would be reduced by 320,000 acre-feet. If the shortage became worse, the Secretary would further reduce deliveries (see Table 2 on page 16 for the reductions to deliveries under the 2007 Interim Guidelines). As junior water rights holders, some entities that receive water deliveries through the CAP would have their deliveries reduced and increasingly be affected as levels in Lake Mead drop below 1,050 feet and 1,025 feet. In addition, Arizona water users with senior rights to Colorado River water that receive deliveries directly from the river have also agreed to take reductions to their water deliveries in the event of a shortage declaration at certain levels.
- **Coordinated operation of Lakes Mead and Powell**—The Basin States and Reclamation developed guidelines to improve coordination of the two reservoirs' operations. The guidelines help to ensure that the contents of the Colorado River system's reservoirs will be balanced (i.e., each reservoir will contain the same proportion of water, and releases from the Upper Basin to the Lower Basin will meet the requirements of the 1922 Compact and other federal law).
- **Introduction of Intentionally Created Surplus (ICS)**—As proposed by the Basin States, the 2007 Interim Guidelines include a mechanism to create a new category of water: ICS. This program was established so that a Colorado River water contractor could reduce its existing water use and not take delivery of the conserved water. The water would be available to the contractor in the future, but until it is ordered, the water would remain in Lake Mead, where it would potentially help to prevent a shortage declaration.

It is this ability to conserve water that prompted the International Boundary and Water Commission (IBWC) to execute minutes to the 1944 Water Treaty with Mexico to adopt a program similar to the ICS.²⁷ The terms of the 1944 Water Treaty allow the IBWC to adapt to changing conditions. Both the American and Mexican commissioners jointly propose substantive decisions, referred to as "minutes," that implement treaty provisions upon approval by both governments. Minutes executed in 2010 and 2012 authorized Mexico to defer deliveries in order to establish intentionally created Mexican allocations. In addition to the 2007 Interim Guidelines, an impetus for the minutes was a 2010 earthquake in Mexicali that damaged canals that divert water from the Colorado River to Mexico.

²⁵ The flow measurements were taken at Lees Ferry, the same point where allocation estimates were developed for the 1922 Compact.

²⁶ An example of a contentious relationship is the one between Arizona and California. As mentioned earlier in footnote 17 on page 11, Arizona sued California to establish its rights to Colorado River water, and they would continue to be adversaries as California attempted to block the CAP's authorization and construction.

²⁷ The IBWC is a binational body composed of American and Mexican representatives who are responsible for applying the 1944 Water Treaty and other water and boundary treaties between the U.S. and Mexico.

Drought has persisted, resulting in need for additional planning

In 2015, persistent drought conditions led Reclamation to update its model of Colorado River water supply with a set of assumptions about historic data on river flows from 1988 to 2015. When compared to the study conducted for the 2007 Interim Guidelines, Reclamation concluded that declaring a shortage at 1,075 feet was not only a possibility, but likely. In addition, needing to declare shortages at 1,050 feet and 1,025 feet were also likely. At these shortage declarations, junior water rights holders such as Nevada and some Arizona entities that receive their water deliveries through the CAP would face steep reductions. In light of the revised projections, the Basin States held discussions about how to plan for the ongoing drought and negotiated the terms of a set of proposed Drought Contingency Plan (DCP) agreements.

The Upper Basin States developed a proposed Upper Basin Drought Contingency Plan (UBDCP) that makes refinements to Upper Basin operations. These refinements include how best to operate reservoirs in the Upper Basin to help ensure that Lake Powell contains sufficient water to release into Lake Mead to satisfy the requirements of the 1922 Compact.

The Lower Basin States' representatives, including the Department's Director, developed a Lower Basin Drought Contingency Plan (LBDCP). The proposed LBDCP is intended to be a supplement to the 2007 Interim Guidelines that provides for additional contributions and additional flexibility with respect to water conservation in Lake Mead, thereby protecting the reservoir (see Table 2, page 16, for mandatory reductions under both the 2007 Interim Guidelines and the proposed LBDCP). The terms of the proposed LBDCP include:

- Allowing states to request delivery of ICS even if shortages are declared at 1,075 or 1,050 feet, which they may not do under the 2007 Interim Guidelines. The rationale for this is to incentivize states to continue creating ICS without fear of losing access to that water up until the water level falls to 1,025 feet.
- In addition to the reductions mandated by the 2007 Interim Guidelines, requiring additional reductions to deliveries from Lake Mead at higher elevations. As of August 2018, Lake Mead is below the proposed new shortage declaration level of 1,090 feet, so immediate mandatory reductions would be required upon approval of the proposed LBDCP.
- Requiring mandatory reductions to California in the event that Lake Mead is projected to fall below 1,045 feet. As shown in Table 2 on page 16, as reservoir levels progressively fall, the delivery amounts will be further reduced. This provision is notable in that the Law of the River, including the 2007 Interim Guidelines, does not require California to take mandatory reductions, but the state has offered to do so in the proposed LBDCP.

Director requires legislative approval to sign DCP

In order for the Director to sign the proposed DCP agreements, he must have legislative approval. However, to gain this approval, he must achieve consensus on how to implement the proposed LBDCP in Arizona. In May 2018, the Department and the District announced that they would work collaboratively on terms for an Arizona implementation plan and expand the collaboration to include stakeholder participation. The process consisted of public meetings to educate stakeholders on the terms of the proposed LBDCP followed by meetings of a 38-member steering committee. The steering committee comprised members of various sectors, including agricultural, municipal, and industrial, as well as representatives of three tribes, Reclamation, and the Arizona Water Banking Authority. The purpose of the meetings was to develop a unified plan for the State to bring together entities that had sufficient supply to conserve water in Lake Mead and to identify other entities that had sufficient supplies of water to offer sectors that would lose their supplies of Colorado River water under the proposed LBDCP. In addition, the steering committee was charged with developing frameworks for the creation of ICS and compensated conservation under the proposed LBDCP.

As of this report's issuance, stakeholders continued to negotiate the terms of an Arizona implementation plan. Auditors will follow up on the status of Arizona's signing the DCP agreements during the initial followup to this audit report in 6 months.

Table 2

Mandatory reductions for Lower Basin States per the 2007 Interim Guidelines and proposed LBDCP
(In acre-feet)

Lake Mead elevation (feet)	Arizona participation			California participation ¹	Nevada participation
	2007 Interim Guidelines	Proposed LBDCP	Total mandatory reduction		
At 1,090	0	192,000	192,000	No reductions are required under the proposed LBDCP.	Mandatory reductions under 2007 Interim Guidelines plus the proposed LBDCP ranges from 8,000 to 30,000 at each level.
At 1,075	320,000	192,000	512,000		
At 1,050	400,000	192,000	592,000		
At 1,045	400,000	240,000	640,000	200,000	
At 1,040	400,000	240,000	640,000	250,000	
At 1,035	400,000	240,000	640,000	300,000	
At 1,030	400,000	240,000	640,000	350,000	
Below 1,025	480,000	240,000	720,000	350,000	

¹ The 2007 Interim Guidelines do not require reductions from California during shortage conditions.

Source: Auditor General staff review of the 2007 Interim Guidelines and the September 2018 LBDCP draft.



In accordance with A.R.S. §41-2954, the Legislature should consider the following factors in determining whether the Department should be continued or terminated. The sunset factor analysis includes additional findings and recommendations not discussed earlier in the report.

1. The objective and purpose in establishing the Department and the extent to which the objective and purpose are met by private enterprises in other states.

The Department was established in 1980 by the Groundwater Management Act and assumed the authority, powers, duties, and responsibilities of the Arizona Water Commission and the State Water Engineer. Its mission is to be the steward of Arizona's water future and ensure long-term, reliable water supplies to support the continued economic prosperity of the State.

The Department accomplishes its mission by administering state water laws (except those related to water quality), exploring methods of augmenting water supplies to meet future demands, managing floodplains and dams to reduce loss of life and property, and developing public policies that promote water conservation. The Department oversees the use of surface and groundwater resources under state jurisdiction and provides support for water rights adjudication proceedings. The Department also represents the State on issues related to the Colorado River.

Auditors did not identify any states that met the Department's objective and purpose through private enterprises.

2. The extent to which the Department has met its statutory objective and purpose and the efficiency with which it has operated.

Auditors reviewed some key department functions performed during calendar years 2016 and 2017 and determined that the Department generally met several of its statutory objectives and purposes related to

Key terms used in the sunset factor analysis

Active management areas (AMAs)—Areas of the State identified in the 1980 Arizona Groundwater Code (Code) where groundwater pumping was heaviest. These areas are subject to groundwater regulation under the Code's statutes, such as pumping limitations and demonstration of assured water supplies. There are five AMAs in the State: Phoenix, Pinal, Prescott, Santa Cruz, and Tucson.¹

Groundwater savings facilities—These are not actual facilities but are irrigation districts that receive water from entities with a legal right to renewable water (such as the Colorado River) to use in lieu of pumped groundwater for irrigation.

Index wells—A subset of all wells in the State, these consist of approximately 1,800 wells that the Department designated to create a long-term record of groundwater level fluctuations by measuring depth to groundwater at least once per year.

Irrigation nonexpansion areas (INAs)—Areas designated as having insufficient groundwater to provide a reasonably safe supply for irrigation at the current rate of withdrawal. Once an INA is established, additional land may not be irrigated to preserve the existing irrigation of cultivated lands. There are three INAs in the State: Douglas, Harquahala, and Joseph City.

Underground storage facilities—Constructed facilities where water can be stored in an aquifer by injecting water into the aquifer or letting water soak into the ground in a designated location, or a managed facility where groundwater is naturally recharged through a stream or river.

¹ The Code originally identified four AMAs, but in 1994, the Tucson AMA was split into the Tucson and Santa Cruz AMAs.

Source: Auditor General staff review of statute and department documents.

these functions but also made some recommendations in specified areas.²⁸ Specifically:

- **Assured Water Supply Program**—This program is established in A.R.S. §45-576, et seq., to help ensure that there will be enough water to support the future needs of new residential and commercial developments within the AMAs. One of the program’s responsibilities is to issue Certificates of Assured Water Supply (certificates) when a land developer or water provider demonstrates continuous legal access to a 100-year water supply. Certificates are required for new developments within AMAs unless the development will be served by a water provider the Department has designated as having an assured water supply. Auditors reviewed a random sample of five applications for certificates the Department issued and determined that all applicants met statutory and rule requirements prior to certification and that the applications were processed within the time frames allowed by rule. In addition, auditors reviewed the Department’s policies and procedures for processing and approving certificates and determined they were adequate.

Auditors also reviewed the Department’s licensing time frame report for assured water-supply-related applications filed for the Pinal AMA. According to the Department, as of September 2018, the Department had notified 17 land developers, utilities, and municipal water providers that their applications will not be approved or denied until the Department revises its groundwater models for the Pinal AMA. The current models project that there is insufficient groundwater to provide continuous access to a 100-year supply for new land developments.²⁹ Per stakeholder request, the Department is considering revising the models to determine if groundwater could be made available for new land developments.³⁰

- **Recharge Program**—Per A.R.S. §45-801.01, et seq., this program allows entities to store renewable water supplies underground for later recovery and use (underground storage facilities) and to allow entities to deliver their renewable water supplies to other entities, such as irrigation districts, whose customers will use the water in lieu of using groundwater (groundwater savings facilities). The program issues permits for the construction and use of underground storage facilities and use of groundwater savings facilities.³¹ Requirements vary by permit type, but in general, applicants must demonstrate that there is capacity in the aquifer to store the amount of water they wish to recharge and that recharging the water will not damage nearby facilities, such as landfills or quarries. Auditors reviewed a random sample of four underground storage facility and two groundwater savings facility permit applications the Department issued and determined that applicants met all statutory requirements and the applications were processed within the statutory time frames.

Auditors also reviewed five approved water storage permit applications. Water storage permits are issued to entities that have renewable water to store at underground storage or groundwater savings facilities. In general, applicants must demonstrate there is sufficient capacity at the facility for the amount they want to recharge and that they have a legal right to the water. Auditors determined that these applications were also issued to applicants that met statutory requirements and were processed within the statutory time frames. Auditors also reviewed one application that was denied in the same time frame and determined it was denied appropriately because the applicant failed to demonstrate it met one of the requirements for a permit.

²⁸ Auditors’ findings are based on sample test work. See Appendix A, pages a-1 through a-2, for additional information about auditors’ sampling methodology.

²⁹ The Department has developed a groundwater model that geographically covers the Pinal AMA. The model indicates that when groundwater demand (from approved assured water supply applications, long-term storage credits, and irrigation grandfathered rights) is compared to projected groundwater levels (calculated with historic information for groundwater level measurement and recharge capabilities), there is insufficient supply to meet demand.

³⁰ Groundwater models rely on assumptions that may be adjusted. These assumptions include how many acres of farmland will be irrigated and for how long, how much water homes use, expected rainfall, and availability of water from other sources (such as from the Central Arizona Project).

³¹ The Department also issues managed underground storage facility permits for entities to recharge groundwater by releasing water into a stream’s natural flow. For example, the Department issued a permit to recharge the Lower Hassayampa River Sub-basin by releasing CAP water into the Hassayampa River.

- **Wells**—Per A.R.S. Title 45, Ch. 2, Art. 10, the Department is responsible for setting minimum well-construction standards, licensing well drillers, and processing well permit applications to drill, deepen, modify, and abandon wells. When processing the applications, department staff should verify that a licensed well-drilling contractor will perform the work and that it complies with applicable laws and rules over construction standards. Auditors reviewed 10 well driller license applications or renewals the Department processed and determined that the Department issued the well driller licenses and renewals to qualified applicants in a timely manner. Additionally, auditors reviewed 20 applications for well permits and determined that the Department issued permits to qualified applicants in a timely manner. In some instances, well drillers or well owners may request a variance from the construction standards. Auditors reviewed five variance requests and determined that the Department reviewed the requests in a timely manner and granted the applicants the appropriate drilling authorities.

Statute and rule also require well owners and/or well drillers to file various post-project completion reports that report on the well's actual condition. Auditors reviewed the same 20 applications for well permits to determine if well owners and/or well drillers filed the appropriate post-project reports. Well owners did not file a post-project report in 10 of 12 instances where they were required to do so. Further, well drillers did not file a post project report in 3 of 17 instances where they were required to do so. Although the Department lacked formal procedures to follow up on outstanding post-project reports, in March 2018, it followed up on 541 outstanding reports from five well drillers for calendar years 2014 through 2017. Department staff reported that all five well drillers promptly submitted the missing reports or letters stating that the specified wells had not been drilled.

- **Field Services**—Per A.R.S. §45-105(A), the Department's field services section collects and measures water quantity data throughout the State. The Department is responsible for measuring groundwater levels of about 1,800 index wells—which the Department selects—on an annual, semiannual, or quarterly basis. These index wells are measured to create a continuity of data for monitoring groundwater levels over time. Department staff also maintain approximately 130 automatic wells that record real-time data for the Department. In addition, staff periodically measures groundwater depths of hundreds of wells in water-critical basins or an AMA. Auditors reviewed the Department's procedures for its well-monitoring process and index well selection and found that they are consistent with U.S. Geological Survey practices and other state practices.

Auditors also reviewed index wells the Department visited in 2016 and 2017 and found that the Department generally visited most index wells per its internal timeliness guidelines. Based on auditors' review of department data, department staff could not measure some index wells because the well was pumping at the time of staff's visit or access to the well was obstructed.

- **Annual Reporting**—Per the Code, groundwater right holders who withdraw groundwater from a nonexempt well within an AMA are required to submit annual reports on March 31 every year detailing how much groundwater they used during the previous year.³² Groundwater right holders who do not withdraw any groundwater in the year are also statutorily required to submit a zero-use report stating no groundwater was used. Although not statutorily required to do so, the Department sends two failure-to-file notices in April and July to right holders who still have not submitted their report by that date. For the 2015, 2016, and 2017 annual reports, the Department's follow-up notices helped ensure that 93 to 94 percent of right holders submitted reports for each year. Some right holders never submitted their reports despite the Department's follow-up efforts.³³

³² Nonexempt wells have a pumping capacity exceeding 35 gallons per minute and are generally used for irrigation, municipal use, or industry. Exempt wells have a maximum pumping capacity of not more than 35 gallons per minute and are generally less regulated than nonexempt wells.

³³ For 2015, 307 of 5,497 groundwater right holders within the AMAs did not submit annual reports. For 2016, 352 of 5,482 groundwater right holders did not submit annual reports. For 2017, 379 of 5,491 groundwater right holders did not submit annual reports. The 2017 annual report data is as of December 2018.

Similarly, the Code also requires groundwater right holders who withdraw groundwater from a nonexempt well within an INA to submit annual reports on March 31 every year detailing how much groundwater they used during the previous year. However, unlike for groundwater right holders within an AMA, those within an INA who do not withdraw groundwater are not required to file any report with the Department. The Department received annual reports from 65 percent of potential reporters in INAs for groundwater used in 2015, from 60 percent of potential reporters in INAs for groundwater used in 2016, and from 56 percent of potential reporters in INAs for groundwater use in 2017, as of December 2018. According to the Department, it does not follow up with nonreporters but assumes that they did not use groundwater and, therefore, are not required to report. Consequently, the Department does not know whether it should have received additional reports. Given the decline in the percentage of potential reporters who filed an annual report, it is possible that some nonreporters are pumping groundwater but not reporting as required. Following up with nonreporters would help ensure that annual reports are filed when required.

Further, auditors identified an instance where the Department did not comply with a statutory requirement to report on municipal providers' water conservation programs. Specifically, A.R.S. §45-563.01 requires the Director to publish a report every 3 years on municipal providers' per capita water use and water conservation efforts within the AMAs. Although the Department individually monitors some municipal providers' conservation efforts through other reporting mechanisms, this report should provide information about how well the municipalities are implementing water management best practices collectively to allow the public and the Department to assess and compare municipal providers' water conservation efforts. However, the Department has not published this report since October 2011.³⁴

In addition, auditors also recommended that the Department should:

- Comply with its statutory requirements to develop and promulgate the remaining management plans for the five AMAs (see Finding 1, pages 7 through 9).
- Complete a staffing analysis to determine the appropriate level of AMA staffing needed to complete the AMA management plans, including whether cross-training could help address staffing needs, and assign staff resources accordingly (see Finding 1, pages 7 through 9).

Recommendations

The Department should:

3. Develop and implement written policies and procedures to routinely follow up on and collect outstanding post-project reports from well owners and well drillers.
4. Develop and implement written policies and procedures to follow up with nonreporting groundwater right holders in INAs, including requesting them to voluntarily report nonusage.
5. Complete and issue the report on municipal providers' water conservation programs every 3 years, as required by A.R.S. §45-563.01.

Agency response: As outlined in its [response](#), the Department agrees with the findings and will implement the recommendations.

3. The extent to which the Department serves the entire State rather than specific interests.

The Department is responsible for managing water supplies and ensuring the safety of water infrastructure throughout the State. The Department negotiates with Reclamation, other states, and Mexico to protect the State's Colorado River water, which benefits communities along the Colorado River and 80 percent of the State's population in Maricopa, Pima, and Pinal Counties. The Department also provides technical and administrative assistance to the Arizona Superior Court and the Special Master for general stream adjudications for settling

³⁴ According to the Department, it failed to reassign the responsibility for completing this report after the employee who had this responsibility left department employment.

claims of rights to surface water from rivers and streams throughout the State (see Introduction, page 4, for more information about the general stream adjudications). In addition, the Department manages state-wide water supplies by monitoring groundwater levels, groundwater basin changes, and stream flows and using the resulting data to ensure assured water supplies for property buyers within AMAs and information for water users outside of the AMAs. The Department also permits groundwater recharge facilities throughout the State to help ensure availability of water in the future. Finally, the Department ensures the safety of water infrastructure by regulating the drilling of wells, inspecting nonfederal dams, and assisting communities with floodplain management.

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

A review of the Department's statutes and rules found that the Department's rules are generally consistent with the legislative mandate. However, the Department has not developed some rules required by statute. Specifically:

- A.R.S. §45-576(H) requires the Department to promulgate rules for calculating water demand for certificates or designations of assured water supply if the applicant reuses water from clothes washers or bathroom tubs, showers, or sinks;
- A.R.S. §45-576(H) also requires the Department to adopt rules establishing criteria for applicants for certificates or designations of assured water supply in the Santa Cruz AMA to demonstrate that groundwater use is consistent with the AMA's management goals; and
- Laws 2007, Ch. 240, §10(B), requires rules that establish criteria for granting exemptions from the adequate water supply requirements in A.R.S. §45-108.03, as well as to demonstrate a physically available groundwater supply outside of AMAs.

According to the Department, it has not promulgated these rules because of moratoriums on state-agency rulemaking that increases regulatory burden, which have been in effect since January 2009.^{35,36} According to department counsel, the Department has sought exemptions to the moratorium to adopt rules when there was stakeholder interest in doing so. For example, because of stakeholder interest, the Department sought an exemption to the rulemaking moratorium to revise rules related to how developers and water providers demonstrate consistency with the Pinal AMA's management goal. The Department began the rulemaking process for this revision in September 2018.

5. The extent to which the Department 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 has provided opportunities for input from the public before adopting rules by publishing notices of proposed rulemaking in the Arizona Administrative Register. Specifically, prior to revising its rules in 2017, the Department advertised the names of department staff who could be contacted about the proposed rulemaking and a meeting where the public could provide input. However, the Department did not receive any public input. These rule changes included provisions to allow the Department to reduce an inspection fee and reduce the amount of time allowed for processing eight applications by 30 days each. The Department also undertakes a public review process when promulgating the AMA management plans (see Finding 1, footnote 12, on page 7) and holds public meetings for its work on the Governor's water-planning initiative (see Introduction, page 4, for more information).

Additionally, auditors assessed the Department's compliance with various provisions of the State's open meeting law for its June, July, and August 2018 Groundwater Users Advisory Council (GUAC) meetings and

³⁵ Executive Order 2018-02, "Internal Review of Administrative Rules; Moratorium to Promote Job Creation and Customer-Service-Oriented Agencies" continued restrictions on rulemaking through December 31, 2018.

³⁶ Auditors' review of the Arizona Administrative Register indicates that the Department was engaging in rulemaking activity for these statutory provisions, such as opening dockets and holding public comment meetings. However, these activities ceased when the moratorium began.

found it to be in compliance with these provisions.^{37,38} For example, as required by open meeting law, the Department posted notices and agendas on its website at least 24 hours in advance and provided recordings of meetings within 3 business days following the meetings.

Further, the Department collects and maintains information on its website—such as registries of groundwater and surface water rights, groundwater measurements from wells across the State, hydrology reports, notices of intent for well projects, and applications for certificates of assured and adequate water supply—to educate and inform the public.

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

The Department generally investigates and resolves complaints within its jurisdiction in a timely manner. If a complaint does not fall within the Department's jurisdiction, staff work to identify the applicable party and direct the complainants to it, as appropriate. Auditors reviewed the 32 complaints the Department received from January 1, 2017 to June 30, 2018, and confirmed that, as of March 2018, the Department had established a process for opening, tracking, investigating, and resolving complaints. As of October 2018, the Department revised its written policies and procedures to reflect the new process, which standardize compliance and enforcement procedures for all divisions and direct staff to inform and consult with the Department's compliance coordinator and legal division, as applicable.

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.

The Department employs attorneys who advise department staff, represent the Department in connection with legal matters before other state agencies and departments, and represent the State in litigation concerning the Department's duties. The Department is exempt from a statutory directive for the Attorney General to serve as an agency's legal advisor per A.R.S. §41-191.09(E)(1). Criminal violations of water laws may be prosecuted by local law enforcement agencies, the county attorney, or the Attorney General.

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

The Department reported that it worked with stakeholders to develop proposals for statutory changes in 2018 to address deficiencies in its statutes. These proposals included:

- Revising Title 45, Ch. 2, Art. 9, to continue AMA management periods past 2025. A.R.S. §45-568 sets the expiration of the fifth management period in 2025. The Department sought legislation in the 2018 session that would establish a sixth management period through 2035 to help the AMAs achieve or maintain their management goals through conservation measures. The legislation did not become law.
- Requiring the reporting of groundwater withdrawals from all nonexempt wells outside of AMAs and INAs. According to the Department, this would improve its ability to identify imbalances between groundwater supply and demand and remedy any detected imbalances. The proposal was not included in any bills in the 2018 session.
- Allowing the Department's director to consider projected rates of groundwater withdrawal rather than current rates when designating a new INA per A.R.S. §45-432. According to the Department, considering

³⁷ As required by statute, each AMA has a GUAC. Each is composed of five governor-appointed members to represent the users of groundwater in the AMA and advise and make recommendations to the department director regarding AMA management plans and groundwater management programs. Each GUAC meets at a location within the AMA. For example, the Santa Cruz AMA GUAC meets in Nogales about twice a year, and the Pinal AMA GUAC meets in Casa Grande about three times each year. Department management staff facilitate the meetings.

³⁸ The department director also convenes meetings of the Colorado River Advisory Council (CRAC). Auditors did not assess this body for compliance with the State's open meeting law because it is not an advisory committee as defined by A.R.S. §38-431(1), i.e., the CRAC was not established by a motion and order of a public body, and its members are not appointed.

projected rates would help project and prevent groundwater supply issues in subsequent INAs. The proposal was not included in any bills in the 2018 session.

- Revising Title 48, Ch. 22, to require the Central Arizona Water Conservation District (District) to obtain the Department director's approval to negotiate or enter into interstate agreements with other entities for using, storing, or conserving Colorado River water. The Department's proposal to require this approval was not included in any bills in the 2018 session. A similar provision was included in legislation in 2018 that would require the Department and the District to notify each other if either were considering such an agreement, but the bill did not become law.

9. The extent to which changes are necessary in the laws of the Department to adequately comply with the factors listed in this sunset law.

Auditors did not identify any needed changes to the Department's statutes.

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

Terminating the Department would affect the public health, safety, and welfare if its responsibilities were not transferred to another entity. The Code's legislative intent was to protect and stabilize "the general economy and welfare of this state and its citizens" and to provide a framework for the comprehensive management and regulation of the use of groundwater. The Department accomplishes this mandate by developing conservation requirements for industrial, municipal, and agricultural water users within AMAs to help achieve the AMAs' management goals and establishing new AMAs and INAs when appropriate. In addition, the Department manages surface water and groundwater rights held by Arizona citizens, agencies, tribes, and businesses and represents the State's water-related economic interests in Colorado River, interstate, and international water issues. The Department also has a public health and safety role in ensuring the safety of dams and inspecting nonpumping wells to ensure they are capped to help prevent accidents. Finally, the Department's assured and adequate water supply program for land development is a consumer protection measure that protects the welfare of Arizona property buyers by helping to ensure that sufficient water supplies are available to the land they purchase.

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

The audit found that the level of regulation the Department exercises appears appropriate and is generally similar to the level of regulation in other states auditors reviewed for various regulatory functions. Specifically, auditors selected the six other Colorado River Basin states—California, Colorado, Nevada, New Mexico, Utah, and Wyoming—and reviewed their regulation of water resources. Auditors found that these states' regulation is similar to Arizona's requirements for the following regulatory functions:

- **Water rights**—Arizona and all six states reviewed have water laws based on the prior appropriation rights, which is the legal doctrine that those who put water to beneficial use first have the right to continue using that quantity of water. However, California has some water laws that fall under riparian rights, or the allocation of water among those who possess land along its flow.
- **Groundwater regulation**—Similar to Arizona, all six states regulate groundwater through registration or permitting of groundwater rights, and five of the reviewed states have a program for assured or adequate water supplies for new development. In addition, five of six states regulate groundwater only in designated regions. Outside of those regions, there are no restrictions on the amount of groundwater that may be pumped.
- **Dam safety**—Arizona and all six states reviewed have dam safety programs.
- **Surface water permitting**—Arizona and all six states reviewed issue permits or certificates for surface water rights.

12. The extent to which the Department has used private contractors in the performance of its duties as compared to other states and how more effective use of private contractors could be accomplished.

The Department uses private contractors to help fulfill its responsibilities. In fiscal years 2016 and 2017, the Department contracted for legal services; flood warning and well-monitoring equipment; and information technologies such as computer equipment, software, and satellite images. The Department also contracted for research and evaluation services, such as geological and hydrogeological investigations, aquifer characteristics, and evaluation of groundwater models. Auditors compared the use of contractors for these goods and services to the contracts of five western states that are part of the Colorado River Basin—California, Colorado, New Mexico, Nevada, and Utah. Auditors found that the Department generally uses contractors to the same extent as the five other states.

Auditors did not identify any additional areas where the Department should consider using private contractors.



SUMMARY OF RECOMMENDATIONS

Auditor General makes 5 recommendations to the Department

The Department should:

1. Comply with its statutory requirements to develop and promulgate the remaining management plans for the five AMAs (see Finding 1, pages 7 through 9, for more information).
2. Complete a staffing analysis to determine the appropriate level of AMA staffing needed to complete the AMA management plans, including whether cross-training could help address staffing needs, and assign staff resources accordingly (see Finding 1, pages 7 through 9, for more information).
3. Develop and implement written policies and procedures to routinely follow up on and collect outstanding post-project reports from well owners and well drillers (see Sunset Factor 2, pages 19 through 20, for more information).
4. Develop and implement written policies and procedures to follow up with nonreporting groundwater right holders in INAs, including requesting them to voluntarily report nonusage (see Sunset Factor 2, page 20, for more information).
5. Complete and issue the report on municipal providers' water conservation programs every 3 years, as required by A.R.S. §45-563.01 (see Sunset Factor 2, page 20, for more information).



Objectives, scope, and methodology

The Office of the Auditor General conducted this performance audit and sunset review of the Department pursuant to a September 14, 2016, resolution of the Joint Legislative Audit Committee. The audit was conducted as part of the sunset review process prescribed in Arizona Revised Statutes (A.R.S.) §41-2951 et seq. The audit addresses the Department's development and adoption of active management area (AMA) management plans and responsibilities for and participation in managing Colorado River water supplies. It also includes responses to the statutory sunset factors, which includes a review of various department processes for its permitting, certification, and licensing regulatory responsibilities; and for collecting information through annual reports and groundwater monitoring.

Auditors used various methods to study the issues in this performance audit and sunset review. These methods included reviewing department statutes, rules, and policies and procedures; interviewing department staff; and reviewing information from the Department's website, including data, application forms, and public notices. Auditors also used the following specific methods to meet the audit objectives:

- To obtain information for the Department's AMA management plan development process, auditors reviewed statutory requirements, published management plans, Joint Legislative Budget Committee appropriations reports, and department reports on AMA staffing levels between 1988 and 2018.
- To determine whether the Department issued certificates of assured water supply to qualified applicants in a timely manner, auditors reviewed a random sample of 5 of the 43 applications for certificates the Department issued in calendar years 2016 and 2017. Auditors also reviewed a random sample of 5 of the 99 applications for an exemption to the certificate requirement issued in the same time frame.³⁹ Auditors also reviewed the Department's licensing time frame reports to determine how many assured water supply applications are pending in the Pinal AMA.
- To determine whether the Department issued recharge permits to qualified applicants in a timely manner, auditors reviewed a random sample of four underground storage facility (USF) and two groundwater savings facility (GSF) permit applications the Department issued. Auditors drew this sample from 11 USF permit applications approved and 4 GSF permits renewed in calendar years 2016 and 2017. Auditors randomly selected applications with different parameters to include 1 of 3 GSF applications from the Phoenix AMA, 1 of 1 GSF application for the Tucson AMA, 2 of 8 USF applications from the Phoenix AMA, 1 of 2 USF applications from the Tucson AMA, and 1 of 1 USF application from the Pinal AMA. Auditors also reviewed 5 of the 28 approved water storage permit applications in calendar years 2016 and 2017. Auditors randomly selected 3 of 19 water storage permit applications from the Phoenix AMA, 1 of 3 water storage permits from the Pinal AMA, and 1 of 6 water storage applications from the Tucson AMA. In addition, auditors randomly selected 1 of 2 denied permits for review. Finally, auditors observed department staff on an inspection of a permitted USF.
- To determine whether the Department processes notices of intent to drill or abandon a well and well-construction requests for variance for qualified applicants in a timely manner, auditors reviewed a random sample of 20 of the 6,615 applications for notices of intent to drill and abandon a well the Department

³⁹ These exemptions were sought by purchasers of land that was already covered by a certificate. These applicants also met requirements in statute and rule prior to the Department granting the exemption. This application type does not have a time frame set in rule, but auditors determined that the applications were generally processed in fewer than 7 days, the threshold for requiring a time frame in A.R.S. §41-1073.

processed in calendar years 2016 and 2017.⁴⁰ Auditors also reviewed a random sample of 5 of the 972 well-construction variance requests the Department processed in calendar years 2016 and 2017. Further, to determine whether the Department processes and issues drilling cards to qualified applicants in a timely manner, auditors reviewed a random sample of 10 of the 535 well-driller license applications and renewals the Department received in calendar years 2016 and 2017.⁴¹

- To determine whether the Department selects and visits index wells in compliance with requirements and in alignment with available criteria, auditors reviewed index wells the Department visited in 2016 and 2017. Auditors also reviewed the Department's procedures for its well-monitoring process and index well selection and compared them with U.S. Geological Survey practices and other state practices. Finally, auditors observed department staff on a visit to measure groundwater levels at two index wells.
- To determine if the Department collected required annual reports from groundwater users within the AMAs and irrigation nonexpansion areas, auditors reviewed data of all annual reports filed during calendar years 2016, 2017, and 2018, as of December 2018.
- To obtain information for the Other Pertinent Information section of the report, auditors reviewed documents from the U.S. Geological Survey, U.S. Bureau of Reclamation, and the Central Arizona Water Conservation District. Auditors also reviewed laws, agreements, and court decisions that constitute the Law of the River. Finally, auditors observed public meetings held by the Lower Basin Drought Contingency Plan Steering Committee and reviewed draft drought contingency plan documents for the Colorado River's Lower and Upper Basins.
- To obtain additional information for the Introduction, auditors reviewed department records regarding its responsibilities, such as dam safety and surface water permitting. In addition, auditors compiled and analyzed unaudited information from the Arizona Financial Information System for fiscal years 2016 through 2018, appropriation reports for fiscal years 2016 through 2018, and department-provided financial information.
- To obtain information for the Sunset Factors, auditors reviewed information in the Arizona Administrative Register regarding the Department's proposed rules from calendar years 2006, 2007, 2008, 2009, 2015, 2016, 2017, and 2018. Auditors also assessed the Groundwater Users Advisory Councils' (GUAC) compliance with open meeting law by reviewing recordings from 6 GUAC meetings held from June to August 2018 and attending 3 GUAC meetings held in June and July 2018. Additionally, auditors selected the six other Colorado River Basin States—California, Colorado, Nevada, New Mexico, Utah, and Wyoming—and reviewed their regulation of water resources. Further, auditors reviewed the Department's expenditures on goods and services and compared its use of contracted goods and services to five of these states—California, Colorado, Nevada, New Mexico, and Utah. Finally, to determine if the Department investigates and resolves complaints within its jurisdiction in a timely manner, auditors reviewed the Department's policies and procedures for complaint-handling as well as the 32 complaints the Department received from January 1, 2017 to June 30, 2018.
- Auditors' work on internal controls included reviewing the Department's policies and procedures for ensuring compliance with department statutes and rules, and, where applicable, testing its compliance with these policies and procedures. Auditors reported their conclusions on these internal controls in Finding 1 and the Sunset Factors. In addition, auditors assessed the reliability of the Department's database information for performing audit work. Specifically, auditors interviewed department staff, reviewed database controls, and compared information in the database against hard copy well files. Through this work, auditors determined that the Department's database was sufficiently reliable for audit purposes.

⁴⁰ The Department's database does not distinguish between intent to drill and intent to abandon applications. Therefore, auditors used a stop/go approach to make sure both types of notices were reviewed.

⁴¹ Auditors pulled the sample by randomly selecting a hard-copy file from the Department's file room, and then systematically selecting every 25th file thereafter until a total sample of 10 items were selected for review.

Auditors conducted this performance audit and sunset review in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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

AGENCY RESPONSE



DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES

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January 22, 2019

Ms. Lindsey Perry, Auditor General
Office of the Auditor General
2910 North 44th Street, Suite 410
Phoenix, AZ 85018

Dear Ms. Perry:

The Arizona Department of Water Resources (ADWR) appreciates this opportunity to respond to the report of the Auditor General, *A Performance Audit and Sunset Review of the Arizona Department of Water Resources*. As discussed in the enclosed response, ADWR will implement the recommendations contained in the report

We appreciate the professional and collaborative approach of the Office of the Auditor General during the audit process.

Sincerely,

Thomas Buschatzke
Director

Enclosure: ADWR Recommendation Response

Finding 1: Department behind schedule in adopting AMA management plans, thus delaying its assessment of progress toward achieving AMA goals and modification of plans' conservation requirements

Recommendation 1: The Department should comply with its statutory requirements to develop and promulgate the remaining management plans for the five AMAs.

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

Response explanation: Completion of the management plans is underway.

Recommendation 2: The Department should complete a staffing analysis to determine the appropriate level of AMA staffing needed to complete the AMA management plans, including whether cross-training could help address staffing needs, and assign staff resources accordingly.

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

Response explanation: ADWR is creating 2.0 FTE positions within the AMA group to perform work on the management plans full-time. These positions will be dedicated to completing the 4th management plans in a timely manner and promulgating the 5th management plans. As a first step, these positions will conduct the recommended staffing analysis. The Director will regularly provide direct oversight to emphasize the importance of completing the management plans. ADWR anticipates that significant stakeholder input will be needed in creation of the 5th management plans.

Sunset Factor 2: The extent to which the Department has met its statutory objective and purpose and the efficiency with which it has operated.

Recommendation 3: The Department should develop and implement written policies and procedures to routinely follow up on and collect outstanding post-project reports from well owners and well drillers.

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

Response explanation: Preparations to implement written policies and procedures to routinely follow up on and collect outstanding post-project reports from well owners and well drillers are underway and will be completed in early 2019.

Recommendation 4: The Department should develop and implement written policies and procedures to follow up with nonreporting groundwater right holders in INAs, including requesting them to voluntarily report nonusage.

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

Response explanation: The Department will develop and implement written policies and procedures to follow up with nonreporting groundwater right holders in INAs, including requesting that they voluntarily report nonusage.

Recommendation 5: The Department should complete and issue the report on municipal providers' water conservation programs every 3 years, as required by A.R.S. §45-563.01.

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

Response explanation: ADWR anticipates completing the report by the end of February 2019 and issuing the report every 3 years hereafter, as required by statute.

