

ARIZONA WATER BANKING AUTHORITY
AMENDED ANNUAL PLAN OF OPERATION

1999



Rita P. Pearson, Chairman

Modified April 1999

INTRODUCTION

The Arizona Water Banking Authority (AWBA) was created to store Arizona's unused Colorado River water entitlement in western, central and southern Arizona to develop long-term storage credits to: (1) firm existing water supplies for municipal and industrial users during Colorado River shortages or Central Arizona Project (CAP) service interruptions; (2) help meet the water management objectives of the Arizona Groundwater Code; and (3) assist in the settlement of American Indian water rights claims.

The AWBA is required by statute to approve an annual Plan of Operation by January 1 of each year. The Plan of Operation is intended to govern the operations of the AWBA over the course of the entire calendar year. During the course of the year, changing circumstances may present limitations or provide new opportunities not contemplated in the adopted Plan, which could affect the overall delivery projections. In such circumstances, the AWBA may choose to modify its adopted Plan. If such modifications are required, the proposed modifications will be discussed and approved at a public meeting of the AWBA.

The AWBA recognizes that day-to-day adjustments in the normal operations of the CAP or the individual storage facilities caused by maintenance and fluctuations in the weather may affect the actual monthly deliveries made on behalf of the AWBA. However, if the adjustments do not impact the overall annual delivery projections contained in the Plan, those adjustments will not be deemed modifications to the Plan and will be addressed by staff and reported to the AWBA members on an as-needed basis.

1998 PLAN OF OPERATION

In 1998, the AWBA's second full year of operation, the AWBA recharged approximately 220,000 acre feet of Colorado River water, bringing Arizona's total use of Colorado River water close to its normal year entitlement of 2.8 million acre feet (See Figure 1).

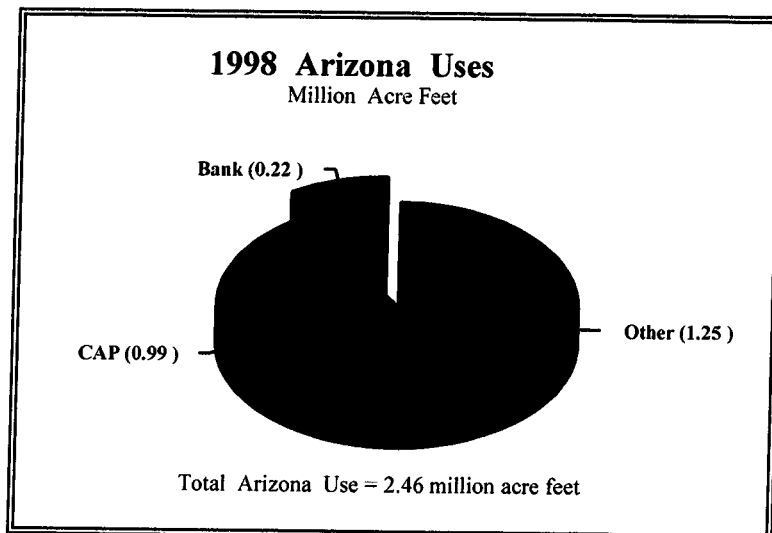


Figure 1

Because the Secretary of the Interior declared that the Colorado River was in surplus in 1998, the increased use by Arizona did not impact the other Lower Basin states' uses. Total estimated use of Colorado River water in the Lower Basin will exceed 7.68 million acre feet in 1998 (see Figure 2).

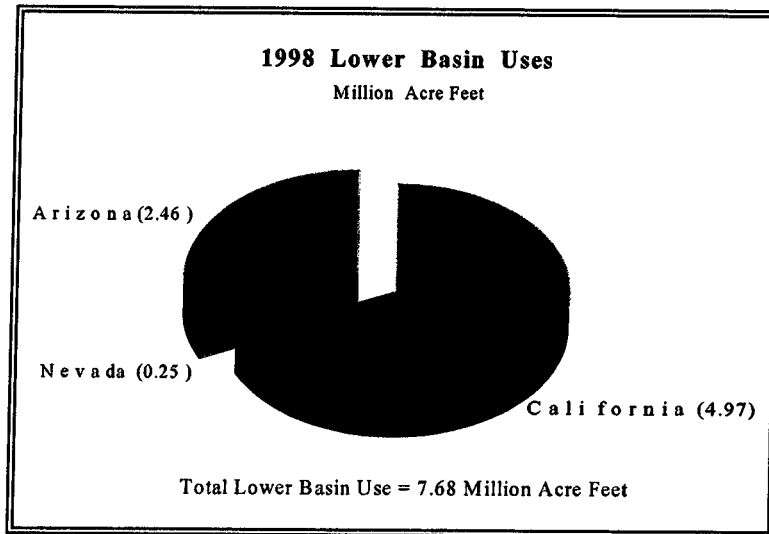


Figure 2

The AWBA recharged water at underground storage facilities (USF) and groundwater savings facilities (GSF) in 1998. Table 1 lists the AWBA's recharge partners for 1998, the amount of water that can be stored under each AWBA water storage permit, and the amount actually recharged by the AWBA at each facility in 1998 based on December 1998 estimates.

Table 1

AMA	Facility	Type	Permit Capacity	Amount Recharged
Phoenix	GRUSP (SRP)	USF	200,000 af	62,000 af
	Queen Creek ID	GSF	28,000 af	13,000 af
	New Magma IDD	GSF	54,000 af	38,000 af
	MWD	GSF	18,000 af	20,000 af
Pinal	MSIDD	GSF	120,000 af	30,000 af
	CAIDD	GSF	110,000 af	5,000 af
	Hohokam ID	GSF	55,000 af	36,000 af
Tucson	Avra Valley (CAP)	USF	11,000 af ¹	3,000 af
	Pima Mine Road (CAP)	USF	10,000 af	3,000 af
	CAVSARP (Tucson)	USF	10,000 af	5,000 af
Total			613,000 af	215,000 af

¹ The Avra Valley Recharge Project's permitted capacity for the pilot project phase was 8,000 acre feet per year. Effective March 1998, the permit was expanded to a full-scale permit for 11,000 acre feet per year.

Though the 1998 Plan of Operation scheduled approximately 350,000 acre feet of water to be recharged around the state, the amount of water recharged in Arizona was lower in 1998 than expected. The reduced water recharge rate was due primarily to weather conditions. Arizona experienced extremely high rainfall associated with the “El Niño” weather pattern in 1998, which cut back dramatically on the quantity of AWBA water needed by irrigation districts. Most of the AWBA recharge activity involves groundwater savings facilities (farms that are part of irrigation districts), but in 1998 the additional rainfall resulted in decreased or discontinued “in lieu” water orders at these groundwater savings facilities. Figure 3 shows the acre-foot break down between GSFs and USFs for 1998.

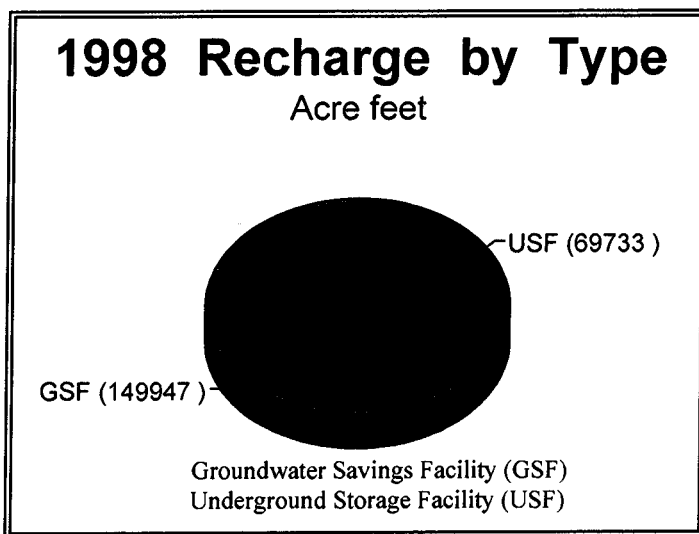


Figure 3

1999 PLAN OF OPERATION

When developing the 1999 Plan, the AWBA evaluated four critical factors: (1) the amount of unused water available to the AWBA for delivery, (2) the CAP capacity available to the AWBA for the delivery of unused water, (3) the funds available and the costs required to deliver the unused water, and (4) the capacity available for use by the AWBA at the various recharge facilities.

For water year 1999, the Secretary of the Interior has declared that the Colorado River is in a surplus condition. A surplus declaration means that surplus water would be available to the AWBA as a source of unused water. Therefore, water availability will not be a limiting factor for the AWBA in 1999.

The CAP's 1999 operating plan accommodates the delivery of approximately 1.5 million acre feet of water. CAP's plan delivers approximately 1 million acre feet to its subcontractors, which leaves approximately 500,000 acre feet of capacity available for the AWBA. Based on this available capacity, the CAP's operations will not be a limiting factor for the AWBA in 1999.

The funding available to the AWBA from its three funding sources (county *ad valorem* property tax revenues, groundwater pumping fees, and general funds) to pay for the delivery of water in 1999 will be approximately \$20 million including the carryover from the previous years. Given the costs associated with the delivery of water and the fact that the GSF operators continue to pay \$21 of that cost when the water is delivered to their facilities, the \$20 million is adequate to fund the AWBA Plan and is not a limiting factor in 1999. For more information about the cost of the plan, please refer to the pricing section, *infra*.

To assist in developing the 1999 Plan, each facility operator submitted an annual delivery schedule to CAP. (CAP schedules the AWBA's deliveries for those USFs it will be operating.) The CAP staff utilized these schedules to compile an annual schedule for the CAP, including municipal and industrial (M&I) water, water for Indian tribes, incentive recharge water, agricultural pool water, and AWBA water. As discussed previously, this integrated schedule was developed to conform to a 1.5 million acre foot delivery year. Concurrently, the AWBA staff met with the facility operators to discuss their delivery schedules and confirm their continued interest in participating with the AWBA. These discussions confirmed that the availability of substantial permitted recharge capacity but also that limited capacity is available to the AWBA. Some of the GSF availability was limited by delivery cost, and other facilities were limited by operational issues. Operational constraints or previous commitments to other partners limited the availability of USFs to the AWBA.

Based on its adopted Plan, the AWBA anticipates recharging approximately 300,000 acre feet of Colorado River water in 1999. The Plan was developed utilizing facilities that have already been permitted or are anticipated to be permitted in 1999 and are located in Maricopa, Pinal, Pima and LaPaz Counties. The Plan attempts to optimize, on a monthly basis, the delivery of Colorado River water to meet the AWBA's objectives. The Plan is flexible, and if additional recharge capacity can

be identified and funding remains available, the Plan can be modified in the future to include additional facilities.

Based on projected uses, Arizona's use of Colorado River water in 1999 will be 2.60 million acre feet (see Figure 3), which will be similar to Arizona's 1998 use. The overall Lower Basin use is projected to continue at approximately 7.9 million acre feet.

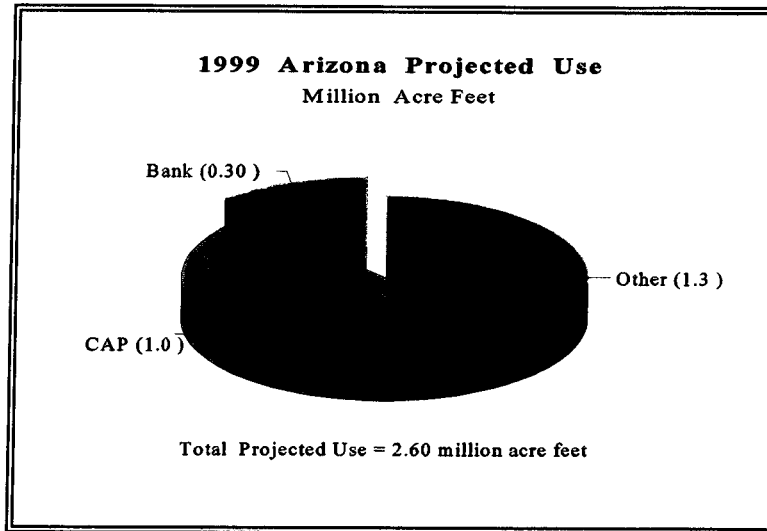


Figure 4

Table 2 shows the AWBA's 1999 delivery schedule. Line One of this table provides estimates of CAP's monthly deliveries to its M&I, agricultural, incentive recharge, and Indian customers. These deliveries have a scheduling priority over the AWBA's deliveries. These estimates do not include deliveries to New Waddell Dam.

Line Two shows the capacity available to the AWBA after CAP makes its priority deliveries and its deliveries to New Waddell Dam. The CAP is capable of delivering approximately 180,000 acre feet of water each month. The AWBA's capacity is determined by subtracting customer deliveries from the available capacity. The available capacity does not always total 180,000 acre feet/month because of unique situations such as the filling of Lake Pleasant in the winter months, deliveries to the western portion of the aqueduct, New Waddell Dam releases to the aqueduct in the summer months and scheduled maintenance. During the fall and winter months, the capacity available to AWBA is constrained because the CAP is making deliveries to Lake Pleasant.

Lines Three through Nineteen represent the AWBA's 1999 Plan of Operation. This section identifies the AWBA's partners for 1999 and the amount of water scheduled to be recharged. The second column in this section identifies the AWBA's water storage permit capacities for each facility and the amount of that capacity that is available to the AWBA in 1999. The capacity available does not always equal the storage permit capacity because the storage facility operators may have agreements with other storage partners.

Line Twenty lists the CAP capacity remaining after the AWBA's deliveries are scheduled. The amount in parentheses in the month of July represents an over-commitment of capacity in those months. CAP has shown in the past that there is some operational flexibility to help meet deliveries in those months. The AWBA staff will work closely with the CAP staff and our partners in an attempt to meet the scheduled deliveries during that month.

In 1999, GSFs continue to comprise a significant portion of the AWBA's water deliveries. Figure 5 shows the break down between GSF and USF water storage for 1999.

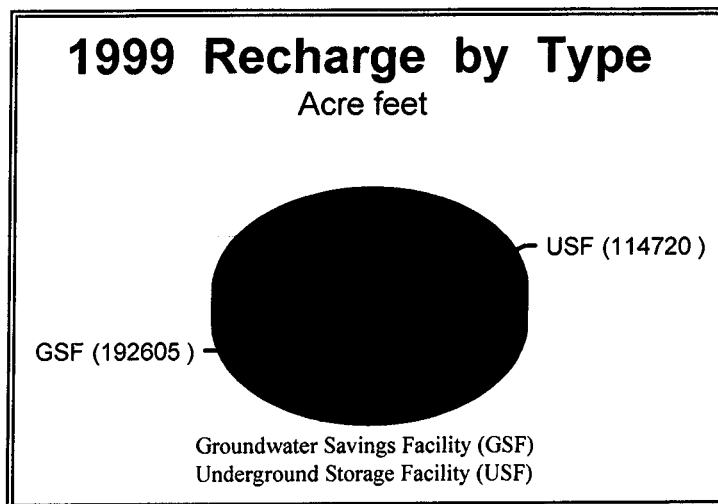


Figure 5

ARIZONA WATER BANKING AUTHORITY
MODIFIED Table 2
Water Delivery Schedule
Calendar Year 1999
(ACRE-FEET)

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Estimated Total CAP Deliveries + Losses : (M&I, Indian, Ag Pools 1 & 2, Incentive Recharge)	35,000	35,000	78,000	108,000	108,000	144,000	175,000	137,000	65,000	45,000	30,000	28,000	988,000
Available Excess CAP Capacity for AWBA :	45,000	45,000	89,000	56,000	57,000	43,000	20,000	56,000	45,000	31,000	25,000	25,000	537,000
A W B A - Recharge Sites :													
LAPAZ :													
USF	410	410	410	410	410	410	410	410	410	410	410	410	4,920
PHOENIX AMA:													
USF	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	90,000
GRUSP	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
GSF	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
SRP	0	0	0	0	1,500	10,000	15,000	10,000	10,000	10,000	5,000	5,000	66,500
MWD	0	588	1,765	2,941	2,941	2,941	2,941	2,941	1,765	1,765	0	0	20,588
NEW MAGMA	2,000	2,000	3,200	2,500	3,000	3,500	3,700	9,700	9,600	3,500	2,500	2,000	47,200
QUEEN CREEK	0	0	0	0	0	0	3,946	7,270	3,720	1,600	1,050	2,460	20,046
TONOPAH ID	0	0	0	0	0	0	0	0	0	0	2,000	1,000	3,000
PINAL AMA :													
GSF	0	0	0	0	0	0	0	4,325	3,428	3,080	2,233	1,934	15,000
HOHOKAM	0	0	4,581	6,000	7,500	4,800	0	6,600	2,800	1,500	100	1,200	35,081
MSIDD	730	2,600	8,530	5,300	7,800	9,770	5,100	1,140	3,430	520	1,040	2,730	48,690
TUCSON AMA													
USF	0	0	0	750	750	750	750	750	750	400	750	750	6,400
CAVSARP	600	600	600	600	600	600	700	700	700	600	600	600	7,500
PIMA MINE RD	1,200	1,200	500	0	0	0	0	0	0	0	0	500	3,400
LOWER SANTA CRUZ	0	0	0	0	0	0	0	0	0	0	500	2,000	2,500
KAI FARMS													3,000
TOTAL (USF + GSF) :	12,440	15,898	28,086	27,001	32,001	40,271	40,047	51,336	44,103	30,875	23,683	28,084	373,325
Remaining CAP Capacity :	32,560	29,102	60,914	28,999	24,999	2,729	(20,047)	4,664	897	125	1,317	(3,084)	163,675

The values in Table 2 reflect the delivery amounts at the CAP turnout and do not account for losses incurred between the turnout and the actual point of use. Those losses must be calculated and deducted from the deliveries to determine the actual credits earned by the AWBA.

No recovery is anticipated in 1999. The AWBA intends to develop recovery concepts during 1999 to ensure that the benefit of the credits developed will be realized by the area in which the funds are collected.

NEW PARTNERS

In 1999, the Annual Operating Plan anticipates recharging water at several new USFs. For the first time, the Plan includes recharging water at a privately owned USF located outside of any AMA. The AWBA staff has held in-depth meetings with these prospective recharge partners over the past year. The prospective recharge partners have also made detailed presentations before the Authority at its public meetings, where Authority members and members of the public had the opportunity to ask questions of the project representatives and to review materials, maps, and financial information.

In addition to the new partner specifically included in the Plan, the AWBA may have several other new partners in 1999, mostly in western Maricopa and LaPaz Counties. These new partners include the McMullen Valley Water Conservation and Drainage District, Arizona Public Service, and West Maricopa Combine. In addition, the AWBA may store up to 3,000 acre feet of water at Kai Farms/Avra (a groundwater savings facility) in the Tucson AMA. The AWBA staff will continue to meet with these partners and discuss the potential for inclusion in the 1999 Annual Plan with anyone interested in becoming an AWBA partner.

The AWBA staff has prepared an issue paper summarizing some of the implications of recharging water outside the AMA and ways that any potential problems can be addressed. This paper was distributed and discussed at the AWBA's November and December 1998 meetings.

The Secretary of the Interior has not yet promulgated rules governing the interstate banking of Colorado River water. Until the Secretary promulgates such rules and the Director of the Department of Water Resources deems them acceptable, no interstate banking can be included in the Plan of Operations. If those actions occur and the AWBA determines that interstate banking is appropriate during 1999, the AWBA could amend its Plan of Operation after providing adequate public notice.

PRICING

For 1999, the CAWCD Board adopted a rate for the delivery of the AWBA's water of the pumping energy plus a \$5 contribution to the fixed operation and maintenance cost of the CAP system for a total cost of \$43 per acre foot. The AWBA's policy of recovering \$21 from its in-lieu partners will continue for 1999.

Table 3 reflects the water delivery rate the CAP will charge the AWBA, the rate the GSF operators will pay for use of the AWBA's water, and the various rates the AWBA will be charged to utilize the different USFs.

Table 3

1999 Water Rates	
CAP's delivery rate to AWBA	\$43 per acre foot
Groundwater Savings Facility operator portion of delivery	\$21 per acre foot ¹
Underground Storage Facility rate paid by AWBA	
GRUSP (SRP)	\$14 per acre foot
Avra Valley (CAP)	\$15 per acre foot (estimate)
Pima Mine Road (CAP)	\$10 per acre foot (estimate)
Central Avra Valley (Tucson Water)	\$14 per acre foot (estimate) ²
Lower Santa Cruz (CAP/Pima County)	\$20 per acre foot (estimate)
Vidler Water Co.	\$ 0 for Pilot Phase

¹ This rate is paid directly to CAP by the GSF operators and is not available as revenue to the AWBA. The AWBA's rate for delivery of in lieu water is thus reduced to \$22/af.

² In 1998, the rate was actually less than \$14. Because of favorable energy costs, it was closer to \$12.

The CAWCD has established a subcommittee to review the existing delivery rate for the AWBA's water. Two members of the AWBA sit on this subcommittee. The subcommittee continues to analyze long-term delivery rates of the AWBA's water for inclusion in the CAWCD's future pricing decisions.

The estimated total cost of the AWBA's 1999 Plan of Operation is \$10,800,000, which includes the USF use fees and the CAP delivery rate minus cost recovery from the GSF operator by the CAP.

ACCOUNTING

The AWBA's enabling legislation required the development of an accounting system that allows the tracking of all long-term storage credits accrued by the AWBA and the funding sources from which they were developed. The Arizona Department of Water Resources has established accounts that track both credits and funds.

Table 4 provides estimates of the funds available including funds carried over from previous years, the funds to be expended, and the credits that will accrue to those accounts based on the 1999 Plan.

MODIFIED Table 4

1999 Plan of Operation					
	Available ¹	Funding Expended	Amount	Credits ²	Location
<u>Withdrawal Fee</u>					
Phoenix AMA	\$5,200,000	\$1,772,000	46,000		Phoenix AMA
Tucson AMA	\$1,400,000				
Pinal AMA	\$1,900,000	\$1,870,000	77,000		Pinal AMA
<u>Four Cent Tax</u>					
Maricopa County	\$7,700,000	\$5,386,000	140,000		Phoenix AMA
Pima County	\$1,900,000	\$1,300,000	21,000		Tucson AMA
Pinal County	\$230,000	\$230,000	9,000		Pinal AMA
<u>Other</u>					
General Fund	\$1,800,000	\$1,785,000	44,000		
		<i>Phoenix AMA</i>	<i>37,000</i>		<i>Phoenix AMA</i>
		<i>Tucson AMA</i>			
		<i>Pinal AMA</i>	<i>3,000</i>		<i>Pinal AMA</i>
		<i>LaPaz Cnty</i>	<i>6,000</i>		<i>LaPaz Cnty</i>
Total	\$20,130,000	\$12,343,000	337,000		

¹ Does not include groundwater savings facility partners' payment. The AWBA's partners make payments directly to the CAWCD.

² Estimate based on annual deliveries (annual delivery - 5% losses - 5% cut to the aquifer).

Table 5 provides an estimate of the funds expended and the credits that will accrue to various accounts based on the AWBA's recharge activities since its inception.

Table 5

Cumulative Totals (1997-1998)			
	Funds Expended	Amount	Credits¹ Location
<u>Withdrawal Fee</u>			
Phoenix AMA	\$0	0	
Tucson AMA	\$0	0	
Pinal AMA	\$280,000	13,000	Pinal AMA
<u>Four Cent Tax</u>			
Maricopa County	\$7,700,000	231,000	Phoenix AMA
Pima County	\$720,000	13,000	Tucson AMA
Pinal County	\$370,000	2,000	Pinal AMA
<u>Other</u>			
General Fund	\$4,190,000	212,000	
<i>Phoenix AMA</i>	<i>\$990,000</i>	<i>34,000</i>	<i>Phoenix AMA</i>
<i>Tucson AMA</i>	<i>\$0</i>	<i>0</i>	
<i>Pinal AMA</i>	<i>\$3,200,000</i>	<i>178,000</i>	<i>Pinal AMA</i>
Total	\$13,260,000	489,000	

¹ Estimate based on annual deliveries (annual delivery - 5% losses - 5% cut to the aquifer).

PUBLIC REVIEW AND COMMENT

The AWBA staff held a public meeting in conjunction with the Groundwater User Advisory Councils (GUACs) for the Phoenix, Tucson, and Pinal AMAs and the LaPaz County Board of Supervisors as required by the AWBA's enabling legislation. In general, the GUACs and the County were supportive of the AWBA's efforts to date. Some of the specific concerns expressed by these entities appear below.

At the Phoenix GUAC meeting, several comments and suggestions were made. First, the monies collected within the county should be spent within the county. Second, there is some general concern about recovery in times of water shortage. Recovering well water and putting it back in the canal may not economically viable. It was suggested that rather than the CAP undertaking recovery, the recovery should be undertaken by CAP subcontractors with their own wells. Third, the AWBA was advised to use caution when developing facilities outside the AMAs because storing water outside of the AMA does not contribute to meeting the safe yield goals for AMAs as set forth in the Groundwater Management Act. Finally, the AWBA should increase its emphasis on the development of underground storage facilities in the Phoenix AMA.

The Tucson GUAC had several concerns, mostly pertaining to the inclusion of Kai Farms/Avra in the draft Plan of Operation. The Tucson GUAC is concerned about the details of any financial commitment to Kai Farms/Avra and requested more information before it endorses the AWBA's decision to recharge water at that site. The GUAC would like to see the AWBA commit to storing water at other projects in the Tucson AMA to encourage more recharge in the AMA. The GUAC suggested that the AWBA should consider developing a new pricing policy for water storage at groundwater savings facilities. The GUAC members also requested to see the draft Annual Plan of Operation much earlier in the AWBA's drafting process to give the GUAC members more time to confer on specific issues that may arise in the draft.

The Pinal GUAC inquired about the availability of general funds to earn credits in Pinal County.

At the AWBA's presentation before the LaPaz County Board of Supervisors, a member of the public asked the Authority to support a "point of delivery" pricing structure as opposed to the current "postage stamp" delivery rate.