

ARIZONA WATER BANKING AUTHORITY
Wednesday, March 21, 2012

	Name (Please print)	Affiliation	Phone No.
1	Sandra Kede	City of Goodyear	623 882 7509
2	Beth Miller	Scottsdale	
3	Robin Stinnett	Avondale	623-333-4449
4	Bob Sejkora	AZ State Parks	602.542.7157
5	Dee Furst	CAP	623-869-2807
6	Doug Kupel	City of Phoenix	602-495-5853
7	MELISSA PARKHAM	CBUS	602-393-1700
8	Michael Blocke	Metro Water	520-575-8100
9	John Eukminger	SNWA	702-875-7080
10	Nicole Kobas	AWBA	
11	Deanna Ikya	ADWR	
12	Guadalupe Silvan	City of Phoenix	602-256-4262
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ARIZONA WATER BANKING AUTHORITY
Wednesday, March 21, 2012

	Name (Please print)	Affiliation	Phone No.
1	Fred Breedlove	Spine Sanders	602 528 4098
2	V.C. DANOS	AMWUA	602 248 8482
3	Aldon Smith	CMID/HAK	520-682-3233
4	Tom McCann	CAP	623-869-2343
5	Dennis Rule	CAP	623-869-2667
6	Juliet McKenna	M&A	520 881 4912
7	Brins Hendon	CAP	623-869-2567
8	Chuck Cull	CAP	623-869-2665
9	Dee Korie	Tucson Water	520- 881 ⁸³⁷ -0238
10	MARK HOLMES	MESA	480-644-2752
11	John Bodenchuk	Reclamation	
12	David Johnson	ADWR	602-771-8427
13	John Ferris	AMWUA	602-615-4255
14	Jeff Ehlers	SRP	602 236-5504
15	PAUL Drake	CAP/OSDD/Non	602-568-3899
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Arizona Water Banking Authority
3550 N. Central Avenue, Phoenix, Arizona 85012
Telephone 602-771-8487
Fax 602-771-8686
Web Page: www.azwaterbank.gov

PLEASE POST

NOTICE OF PUBLIC MEETING

Pursuant to A.R.S. § 38-431.02, notice is hereby given that there will be a meeting of the Arizona Water Banking Authority Commission on March 21, 2012 at 10:00 a.m. at the Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012, Upper/Middle Verde conference room on the 2nd floor. The meeting is open to the general public. A copy of the agenda for the meeting is posted below.

Dated this 20th day of March, 2012

FINAL AGENDA

Arizona Water Banking Authority Commission Meeting

Members of the commission will attend either in person or by teleconference.

- I. Welcome/Opening Remarks
- II. Approval of Minutes
 - December 7, 2011
- III. Water Banking Staff Activities
 - Deliveries
 - GSF Water Storage Agreements
 - Webpage update
 - On-going Indian settlement discussions

- IV. Discussion of Possible Storage of Nevada's Unused Apportionment in Arizona in 2012
- V. Distribution of AWBA Long-term Storage Credits during Shortages
 - Discussion of Briefing Papers
 - Capping the distribution of AWBA LTS credits for M&I firming during shortages
 - Reducing the amount of AWBA LTS credits distributed for M&I firming during shortages to extend credits for future years
 - Other potential briefing papers
 - Next Steps
- VI. Components to be included in AZ Department of Water Resources Cost of Services to the AWBA
 - Discussion of components
 - Potential approval to request inclusion of components in the Cost of Services
- VII. Call to the Public

Future Meeting Dates:

Wednesday, June 20, 2012

Wednesday, September 19, 2012

Wednesday, December 19, 2012

All visitors must use the south elevators; please stop at the 2nd floor to sign-in and receive a visitor's badge. Badges are to be displayed at all times. Visitors are also required to sign out and return their badges. Thank you for your assistance.

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Moreno at 602-771-8530 or 602-771-8501 (TDD). Requests should be made as early as possible to allow time to arrange the accommodation.

ARIZONA WATER BANKING AUTHORITY
Draft Minutes

December 7, 2011
Arizona Department of Water Resources



AUTHORITY MEMBERS
Sandra Fabritz-Whitney, Chairman
Maureen R. George, Vice-Chairman
Lisa A. Atkins, Secretary
Marshall P. Brown
John Mawhinney

EX OFFICIO MEMBERS
Senator Steve Pierce
Representative Andy Tobin

Welcome/Opening Remarks

Chairman Sandra Fabritz-Whitney welcomed the attendees. All members of the Authority were present except for Maureen George and *ex-officio* members, Senator Steve Pierce and Representative Andy Tobin.

Approval of Minutes

The Authority approved the minutes of the October 4, 2011 AWBA meeting.

Water Banking Staff Activities

Virginia O'Connell reviewed the AWBA's deliveries through November based on the Amended Plan of Operation. She noted that there are only about 14,000 acre-feet (AF) of deliveries remaining for the year. Total deliveries for 2011 are anticipated to be about 137,000 AF. This includes 1,000 AF of direct deliveries to the Southside Replenishment Bank.

Ms. O'Connell informed Commission members that the vacant Technical Administrator position had been posted to the AZ State Jobs website on November 18.

Ken Slowinski provided an update on the status of Indian settlement discussions. He informed the Authority that there were currently four tribes that are actively participating in negotiations. Representatives for the Navajo Nation and Hopi Tribe have met frequently the past few months to try to reach a settlement agreement so that legislation could be introduced by Senator Kyl early next year. The Navajo/Hopi settlement is now only for the Little Colorado River and does not include settlement of claims to the Lower Colorado River. Part of the current settlement includes an allocation of non-Indian agricultural (NIA) water to Window Rock that would have an AWBA firming obligation. This settlement does not increase the AWBA firming obligations. The negotiations with the Yavapai Apache Nation (YAN) and the Hualapai Tribe are still in the initial stages. The AWBA would likely have a small AWBA firming obligation associated with settlement of the YAN as prescribed under the Arizona Water Settlements Act (AWSA). A firming volume associated with the Hualapai Tribe is unknown at this time.

Mr. Slowinski noted that the AWBA has the obligation to firm 3,750 AF of NIA water for the White Mountain Apache Tribe (WMAT). ADWR staff is currently completing the work necessary to meet the requirements associated with the Adjudication Court and Indian settlements. It is anticipated that the WMAT enforceability date will be sometime in 2014. Mr. Slowinski informed the Authority that ADWR has also had meetings with the Havasupai Tribe and the Sif Oidak, but they are not currently in negotiations. John Mawhinney questioned whether there would be additional firming required for any of these settlements. Mr. Slowinski replied that there was not and that all of these Indian firming obligations were under the AWSA.

Groundwater Savings Facility Agreements

Ms. O'Connell reminded the Authority that there are two versions of the water storage agreements based on ownership of the wells within the irrigation districts. One version is for districts in which the rightholders own the wells and the other for districts in which the district owns the wells. She noted that although the districts generally supported the draft agreements that had been approved by the Authority in October, comments were received from some of the facility operators. Staff met with the GSF operators to discuss their concerns, specifically sections 8.5 and 11.4 of the agreement.

As a result of the discussions, changes were made to the language for clarification purposes. Under section 8.5, the language previously stated that if the AWBA lost credits because the facility operator violated the GSF permit, the facility operator had 90 days to fulfill the AWBA's request of either reimbursing the AWBA's costs or facilitating the transfer of credits to the AWBA for an amount equal to the amount of credits lost. A concern was that 90 days may not be sufficient time to acquire credits for repayment. The revision states that the AWBA will provide written notice to the facility operator requesting either payment or the transfer of credits. If the bank requests payment, then the operator would have 60 days to make the payment. If the Bank requests credits, then the operator has 60 days to respond how the transfer is going to be accomplished. The operator would have one year to transfer the credits.

Ms. O'Connell also reviewed section 11.4 of the agreement in which rightholders own the wells. She noted that the word procure was changed to facilitate due to concerns that procure might mean buy. Mr. Mawhinney asked if CAWCD had the authority to compel facility operators to act. Ms. O'Connell replied that CAWCD would have access to install their own well; however, they cannot force a facility operator to allow them to use the facility operator's wells.

Ms. O'Connell noted that because some of the irrigation district's board of directors may not be meeting before the 2012 deliveries are scheduled to be delivered, there may be some need to temporarily extend the existing agreements until the new agreements can be executed. Chairman Fabritz-Whitney asked which agreements would need extension by letter agreement. Ms. O'Connell replied that the Hohokam and Maricopa-Stanfield Irrigation and Drainage Districts are scheduled to take deliveries in January. Lisa Atkins made a motion to approve both agreements and any necessary extension agreements. The motion carried.

Discussion and Approval of 2012 Annual Plan of Operation

Ms. O'Connell reviewed the draft 2012 Annual Plan of Operation (Plan). She noted that water availability was a limiting factor and may be a future trend. Consequently, the AWBA will store 119,000 AF of water under the 2012 Plan. To date, the AWBA has stored approximately 3.9 MAF at a cost of \$287 million; 3.3 MAF for intrastate storage and 594,000 AF for interstate storage. A total of 3,000 AF has also been delivered to the Southside Replenishment Bank.

In her review of the 2011 Plan, Ms. O'Connell noted that Arizona will use its full apportionment of 2.8 MAF. The Lower Basin is projected to use 7.37 MAF. California and Nevada also created Intentionally Created Surplus in 2011. She also discussed the amendment to the 2011 Plan that re-directed water to the Pinal AMA and added an

additional cost-share rate for the Pinal AMA GSFs.

Ms. O'Connell focused her review of the 2012 Plan on Table 2, the water delivery schedule. She noted that estimates under the preliminary Plan indicated there would be an estimated 155,000 AF of water available from the AWBA/CAGRDR replenishment reserve pool, which is also shared by the federal government for Indian firming purposes. However, that volume was ultimately reduced because of increased CAP water orders placed by higher priority users. The decrease in water availability was reflected in the Phoenix AMA. Evenso, deliveries to the Phoenix AMA are still more than the amounts scheduled for the Pinal and Tucson AMAs. Another change from the preliminary Plan is that storage at the New Magma and Queen Creek Irrigation District GSFs increased because additional storage capacity became available, while deliveries to the Tonopah Desert Recharge Project decreased. Storage at GSFs is more cost effective than storage at USFs. There are no interstate deliveries planned for 2012. Table 4 shows the water delivery and water storage facility rates. Except for the annual 3 percent increase in facility rates for the Clearwater facility; these are not changed from the 2011 Plan. Ms. O'Connell also reviewed Table 5 which is the table that identifies how the 2012 Plan will be funded and Tables 6 and 7 that show the total number of long-term storage credits accrued through 2011 and the percentage of goals that will be achieved through 2012.

Ms. O'Connell reviewed the public meeting requirement associated with the 2012 Plan. She stated that, in general, the GUAC's and the public supported the 2012 Plan. She noted that Tucson Water had submitted a letter recommending that in the future, the AWBA store at those facilities that have existing recovery capability. The letter was provided as an attachment to the Plan. Ms. Atkins made a motion to adopt the 2012 Plan as submitted with minor or technical changes. The motion carried.

Discussion and Approval of CY 2012 Water Delivery Budget

Mr. Henley stated that the water delivery budget is associated with the approved 2012 Plan. The costs for the 2012 Plan are described in Table 5 of the Plan and also in the handouts provided. The total costs for the 2012 Plan is just over \$15 million; however, only \$3.1 million of that was being paid from withdrawal fees available in the AZ Water Banking fund. The remaining costs are offset by CAWCD utilizing the 4-cent tax monies held by CAWCD. Mr. Henley noted that the AWBA would be approving expenditure of \$3.1 million in withdrawal fees for the 2012 Plan. Ms. Atkins made a motion to adopt the AWBA water delivery budget for CY 2012. The motion carried.

Update on Distribution of AWBA Long-term Storage Credits during Shortages

Mr. Henley discussed the draft concepts for a potential IGA among CAWCD, ADWR and AWBA. He focused his discussion on each entity's responsibilities individually. The following are the AWBA policies and statutes that have been under consideration:

- (1) *Water conservation savings when distributing AWBA credits.* Mr. Henley noted that if conservation is included as part of the strategy for distributing AWBA credits, it would make the credits last longer. There may also be other basin state implications. Mr. Mawhinney had questions on how conservation would coincide with the water providers' drought plans. He pointed out that it might be difficult to cut everyone the same amount and that this consideration may need to be based on specific water use portfolios.

- (2) *Limiting amount of credits up to 20% of the shortage amount.* Mr. Henley stated that this would apply only to non-Indian CAP water users. He noted that there is always uncertainty when working with models because they are just a snap shot in time. If the model is run right now, the results are more favorable due to the current reservoir levels and other factors. However, there are also times when the model shows a shift in the opposite direction. Mr. Mawhinney inquired if the river cities would be included in this limitation. Mr. Henley stated that they were not included because their other supply options are very limited. He reminded Authority members that all early model runs included the assumption that the AWBA would only meet 20% of the shortage demand. This was done because under the Assured Water Supply rules, a designated provider could pump groundwater in excess of their groundwater allowance once the shortage is greater than 20% of the supply.
- (3) *Will credits be distributed for the purpose of accruing long-term storage credits?* Mr. Henley noted that this concept is listed under AWBA policies but could also be an ADWR policy. He noted that CAWCD cannot be responsible for enforcing this provision. Ms. Atkins stated that she wanted confirmation that this would be a stakeholder process. AWBA staff responded that they would be seeking input from the public. Mr. Mawhinney stated that underground storage is for the future because the water cannot be used right now. It was his opinion that we should not be storing for the future when we are in shortage. Chairman Fabritz-Whitney noted that there may be some water management issues associated with storage, particularly as identified by the City of Scottsdale.
- (4) *Distribution of credits within the AMA or county that is being benefitted.* Mr. Mawhinney pointed out that the benefit does not necessarily mean it needs to be "within" the AMA.
- (5) *Four cent tax credits vs. withdrawal fee credits.* Mr. Henley noted that there are basically three groups of credits: general fund, withdrawal fee and the 4-cent tax. Withdrawal fee credits may be used to meet the water management objectives of the AMAs, which include firming for Indian settlements and CAP M&I subcontractors. A question for consideration is whether all 4-cent tax credits should be used before withdrawal fee credits are used for M&I firming?

Mr. Henley reviewed the following CAP policies, rules and statutes that have been under consideration:

- (1) *CAP meets subcontractor's full orders*
- (2) *Delivery of recovered credits as Project Water.* A question is if the recovered water is considered non-Project water, what are the implications, with respect to the Secretary of the Interior? There could be implications such as, wheeling, cost, etc. Mr. Henley noted that staffs from CAWCD and Reclamation have been discussing this issue.
- (3) *Creation of a credit recovery schedule*
- (4) *Recovery agreements CAP must have*
- (5) *Managing shortage and distribution of supplies*

Finally, Mr. Henley reviewed the following ADWR policies, rules and statutes that have been under consideration:

- (1) *Development of credit transfer form and fees*

- (2) Recovery for M&I firming*
- (3) Use of AWBA long-term storage credits*
- (4) Annual recovery reports*
- (5) Long-term storage accounting*

Chairman Fabritz-Whitney questioned how the Project water question relates to the concept of stored water retaining its characteristics upon recovery? John Bodenchuck spoke for the Bureau of Reclamation stating that the Bureau is working with CAP staff on defining Project versus non-Project water. He noted that Reclamation would need to develop a rule to move water and power that did not come from either Lake Havasu or Lake Pleasant. Cliff Neal noted that CAP cannot have the AWBA dictate how CAP should operate the canal. He stated that they are struggling with how they can meet their obligations while still being flexible.

Mr. Mawhinney stated that this process involves three entities trying to look out for their interests so that they can meet their obligations in the best manner possible. He stated that he realized that CAP must meet contractual obligations and that the AWBA has to look at where the need is and be flexible enough to meet the needs of the water users. Mr. Mawhinney stated that he thinks policies need to be case specific or the customers are poorly served; he did not agree with applying straight percentages and believes the AWBA should be as flexible as possible.

Chairman Fabritz-Whitney asked whose role it was to determine how many credits would be distributed: the AWBA's or CAP's. Ms. O'Connell stated that the AWBA is responsible for tracking and distributing its credits. The AWBA needs to be able to insure that its credits will be available where they are needed to meet all of the firming obligations, not just M&I firming. Chairman Fabritz-Whitney directed staff to develop draft policies associated with the AWBA concepts discussed and to present those draft policies to the Commission members before making them available for discussion at public meetings.

Mr. Henley briefly reviewed the Fact Sheet for the AWBA Planning Scenario and the general model assumptions used. The Planning Scenario identifies the number of shortages for each firming obligation at different shortage levels, the firming and shortage volumes, and the volume of credits that will be remaining after the firming period. The probability of shortage before 2022 is very low (6%) and will likely only affect Indian water uses. However, this is based on the 60th percentile if another percentile was selected the year and probability could change. Under maximum firming conditions (total firming of over 4.4 MAF), there is a 15.4% chance that the first M&I shortage will occur in 2035. While the planning scenario shows that the AWBA will have credits remaining for most firming obligations, there are not enough credits remaining to firm M&I shortages in Pima County after 2057 (about 177 KAF to 409 KAF). By year 2091, there is also a deficit of approximately 128 KAF of credits needed for meeting the Indian firming obligations under maximum firming conditions.

Chairman Fabritz-Whitney noted that she would prefer that AWBA staff move forward with developing policies now, even if the shortage is out 10 years, because if conditions change, the probability of shortage could shift back.

Call to the Public

Val Danos asked if there was some additional verbiage that could be added to the Fact Sheet regarding the model assumptions. Mr. Henley replied that additional information could be added and that it would be posted to the AWBA web page.

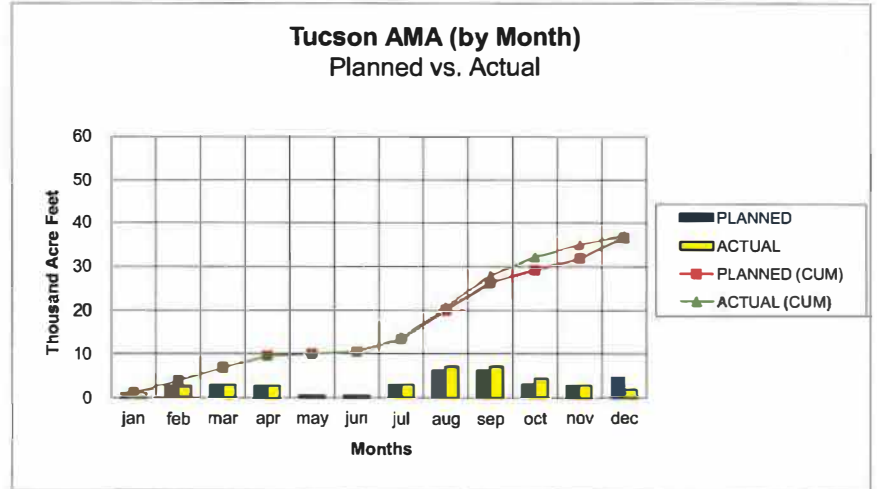
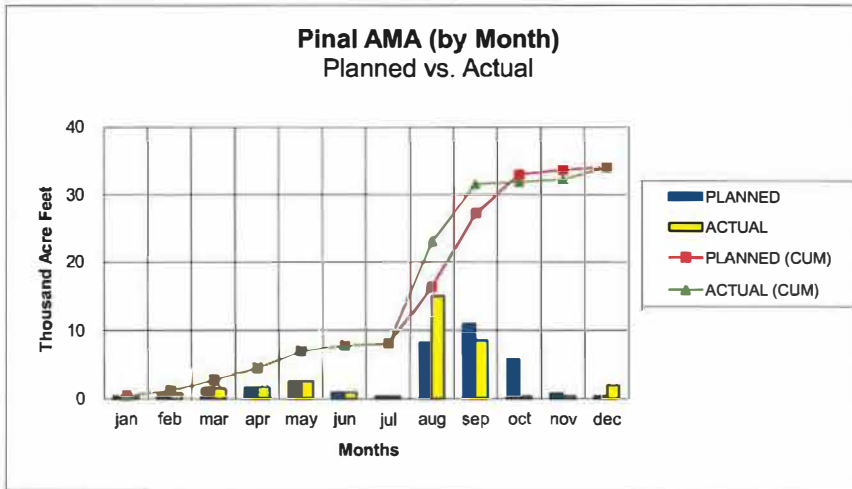
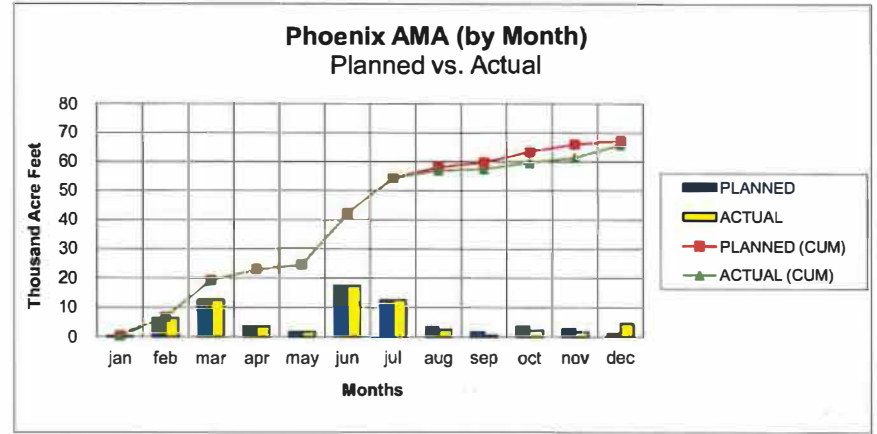
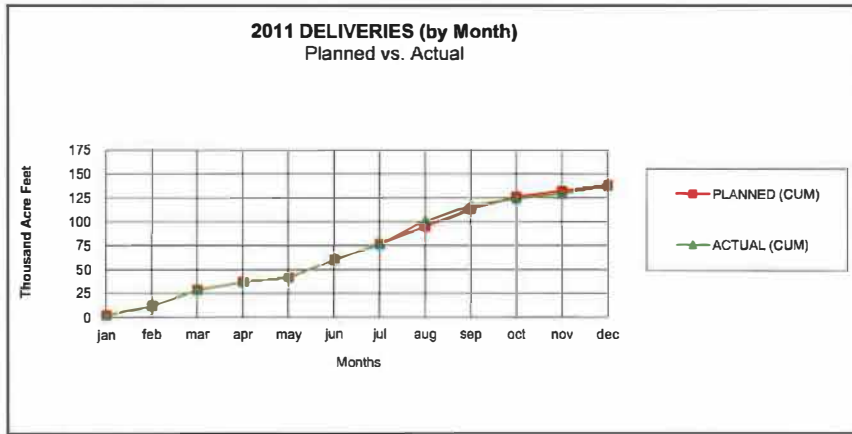
Mr. Bodenchuck noted that he appreciated that the Indian firming obligation is noted as being separate from M&I firming. Reclamation believes that the two are separate and would like documentation to show that.

There was no additional public comment.

The meeting adjourned at 11:40 a.m.

2011 Amended Plan of Operation

INTRASTATE



Actual deliveries updated <i>Amended Plan of Operation</i>	13-Feb-12 <i>25-Aug-11</i>	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
Phoenix AMA														
TONOPAH DESERT	171	6,262	12,622	3,753	1,706	14,354	12,465	2,497	0	0	0	0	0	53,830
	<i>171</i>	<i>6,262</i>	<i>12,622</i>	<i>3,753</i>	<i>1,706</i>	<i>14,354</i>	<i>12,465</i>	<i>3,617</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>54,950</i>
NMIDD	0	0	0	0	0	0	0	0	0	0	1,047	1,579	0	2,626
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,000</i>	<i>2,500</i>	<i>1,500</i>	<i>0</i>	<i>5,000</i>
QCID	0	0	0	0	0	2,945	0	0	527	2,249	640	390	0	6,751
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>2,945</i>	<i>0</i>	<i>0</i>	<i>683</i>	<i>1,142</i>	<i>1,143</i>	<i>1,142</i>	<i>0</i>	<i>7,055</i>
SUPERSTITION MTNS	0	0	0	0	0	0	0	0	0	0	0	2,444	0	2,444
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Subtotal	171	6,262	12,622	3,753	1,706	17,299	12,465	2,497	527	2,249	1,687	4,413	0	65,651
Total to date	171	6,433	19,055	22,808	24,514	41,813	54,278	56,775	57,302	59,551	61,238	65,651	0	65,651
<i>Projected total to date</i>	<i>171</i>	<i>6,433</i>	<i>19,055</i>	<i>22,808</i>	<i>24,514</i>	<i>38,868</i>	<i>51,333</i>	<i>54,950</i>	<i>55,950</i>	<i>58,450</i>	<i>59,950</i>	<i>59,950</i>	<i>0</i>	<i>67,005</i>
Pinal AMA														
CAIDD	0	0	0	0	0	0	0	14,713	6,520	310	67	0	0	21,610
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>7,500</i>	<i>10,000</i>	<i>5,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>22,500</i>
MSIDD	380	720	1,550	1,650	1,450	930	310	310	200	0	0	0	0	7,500
	<i>380</i>	<i>720</i>	<i>1,550</i>	<i>1,650</i>	<i>1,450</i>	<i>930</i>	<i>318</i>	<i>200</i>	<i>200</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>102</i>	<i>7,500</i>
HIDD	0	0	0	0	0	0	0	0	1,751	0	300	1,891	0	3,942
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>500</i>	<i>750</i>	<i>750</i>	<i>750</i>	<i>250</i>	<i>0</i>	<i>3,000</i>
Southside Bank	0	0	0	0	1,000	0	0	0	0	0	0	0	0	1,000
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,000</i>
Subtotal	380	720	1,550	1,650	2,450	930	310	15,023	8,471	310	367	1,891	0	34,052
Total to date	380	1,100	2,650	4,300	6,750	7,680	7,990	23,013	31,484	31,794	32,161	34,052	0	34,052
<i>Projected total to date</i>	<i>380</i>	<i>1,100</i>	<i>2,650</i>	<i>4,300</i>	<i>6,750</i>	<i>7,680</i>	<i>7,998</i>	<i>16,198</i>	<i>27,148</i>	<i>32,898</i>	<i>33,648</i>	<i>34,000</i>	<i>0</i>	<i>34,000</i>
Tucson AMA														
AVRA VALLEY	0	0	0	0	0	0	0	268	0	397	321	586	0	1,572
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>236</i>	<i>0</i>	<i>700</i>	<i>700</i>	<i>0</i>	<i>1,636</i>
CAVSARP	0	0	0	0	0	0	0	0	0	0	0	500	0	500
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
SAVSARP	0	0	0	0	0	0	3,000	4,000	6,687	3,805	2,605	826	0	20,923
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>3,000</i>	<i>4,000</i>	<i>5,000</i>	<i>3,000</i>	<i>2,000</i>	<i>4,000</i>	<i>0</i>	<i>21,000</i>
LOWER SANTA CRUZ	1,146	2,526	2,893	2,811	0	0	0	2,116	309	0	0	0	0	11,801
	<i>1,146</i>	<i>2,526</i>	<i>2,893</i>	<i>2,811</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>2,000</i>	<i>425</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>11,801</i>
CMID	0	0	0	0	0	0	0	841	159	0	0	0	0	1,000
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>500</i>	<i>500</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,000</i>
KAI FARMS - Red Rock	0	0	0	0	500	500	0	0	0	77	0	0	0	1,077
	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>500</i>	<i>500</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,000</i>
Subtotal	1,146	2,526	2,893	2,811	500	500	3,000	7,225	7,155	4,279	2,926	1,912	0	36,873
Total to date	1,146	3,672	6,565	9,376	9,876	10,376	13,376	20,601	27,756	32,035	34,961	36,873	0	36,873
<i>Projected total to date</i>	<i>1,146</i>	<i>3,672</i>	<i>6,565</i>	<i>9,376</i>	<i>9,876</i>	<i>10,376</i>	<i>13,376</i>	<i>19,876</i>	<i>26,037</i>	<i>29,037</i>	<i>31,737</i>	<i>36,437</i>	<i>0</i>	<i>36,437</i>
TOTAL														
TOTAL	1,697	9,508	17,065	8,214	4,656	18,729	15,775	24,745	16,153	6,838	4,980	8,216	0	136,576
Total to date	1,697	11,205	28,270	36,484	41,140	59,869	75,644	100,389	116,542	123,380	128,360	136,576	0	136,576
<i>Projected total to date</i>	<i>1,697</i>	<i>11,205</i>	<i>28,270</i>	<i>36,484</i>	<i>41,140</i>	<i>56,924</i>	<i>72,707</i>	<i>91,024</i>	<i>109,135</i>	<i>120,385</i>	<i>125,335</i>	<i>130,387</i>	<i>0</i>	<i>137,442</i>

Arizona Water Banking Authority

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March 8, 2012

AUTHORITY MEMBERS
Sandra Fabritz-Whitney, Chairman
Maureen R. George, Vice-Chairman
Lisa A. Atkins, Secretary
Marshall P. Brown
John Mawhinney

Mr. Paul Matuska
Bureau of Reclamation
Lower Colorado River Regional Office
P.O. Box 61470
Boulder City, Nevada 89006

EX OFFICIO MEMBERS
Honorable Steve Pierce
Honorable Andy Tobin

**RE: Confirmation of Reduction in AWBA Supplies for Calendar Year 2011 as part of the CAP
Inadvertent Overrun and Payback Plan**

Dear Mr. Matuska:

In Calendar Year 2009, Central Arizona Project (CAP) deliveries caused an inadvertent overrun of 11,659 acre-feet. This overrun was attributed to end-of-year water that was delivered to the Arizona Water Banking Authority (AWBA) from Arizona's unused Colorado River apportionment and/or CAP customer turn-back water. The AWBA stored this water at recharge facilities within the CAP service area.

To meet the requirements of the Inadvertent Overrun and Payback Policy (IOPP), CAP submitted a 2011 Payback Plan outlining the extraordinary conservation measure that would be employed to pay back the 2009 overrun. CAP's Payback Plan included foregoing delivery of 11,659 acre-feet of Colorado River Water for underground storage. Since the AWBA was the recipient of the inadvertent overrun in 2009, CAP planned to reduce the AWBA's scheduled deliveries by this amount in 2011.

The CAP Board of Directors had adopted a five-year policy for the distribution of excess CAP water beginning in 2010. This policy established a pool of 175,000 acre-feet to be shared between the AWBA, the Central Arizona Groundwater Replenishment District (CAGR) for replenishment reserve purposes, and the Bureau of Reclamation for Indian firming. In 2011, the CAGR and the Bureau of Reclamation ordered 10,900 acre-feet and 15,000 acre-feet, respectively, leaving a remaining balance of 149,100 acre-feet for the AWBA. CAP further limited the water available to the AWBA by 11,659 acre-feet in order to fulfill its requirements under the 2011 Payback Plan. This left 137,441 acre-feet available for AWBA uses.

The AWBA had planned to store its full share of 149,100 acre-feet of pool water in 2011 because it had sufficient storage capacity and funding available. Because of the reduction to its water supplies, the AWBA subsequently decreased the amount of water it had planned to store at the Tonopah Desert Recharge Project (TDRP) by 11,659 acre-feet (71,609 acre-feet to 59,950 acre-feet). This reduction is identified in Table 2 of the AWBA's 2011 Plan of Operation (Plan), which was adopted on December 8, 2010. The reduction in water deliveries also resulted in a decrease in the cost of the 2011 Plan by \$1.69 million, which is the amount it would have cost to store 11,659 acre-feet. The 2011 Plan is enclosed.

In August of 2011, the AWBA amended its 2011 Plan by redistributing some of its deliveries to groundwater savings facilities (irrigation districts) to assist in preventing crop failure. While this amendment changed the amount of water planned for storage at TDRP, it did not change the total amount of water available to the AWBA under the 2011 Plan. If available, the AWBA could have stored the additional 11,659 acre-feet at TDRP.

It is important to note that the AWBA's monthly delivery schedule is based on best estimates. It is typical that actual monthly deliveries differ from what was planned due to changes in a farmer's irrigation needs or because of unscheduled maintenance at underground storage facilities. The AWBA's final deliveries for Calendar Year 2011 totaled 135,576 acre-feet, which is 13,524 acre-feet less than was available at the beginning of the year (see enclosed AWBA 2011 Delivery Table). Included in the 13,524 acre-feet is the 11,659 acre-feet that the AWBA was not able to schedule plus 1,865 acre-feet attributed to minor monthly operational changes.

Feel free to contact me at (602) 771-8491 if you have any questions.

Sincerely,



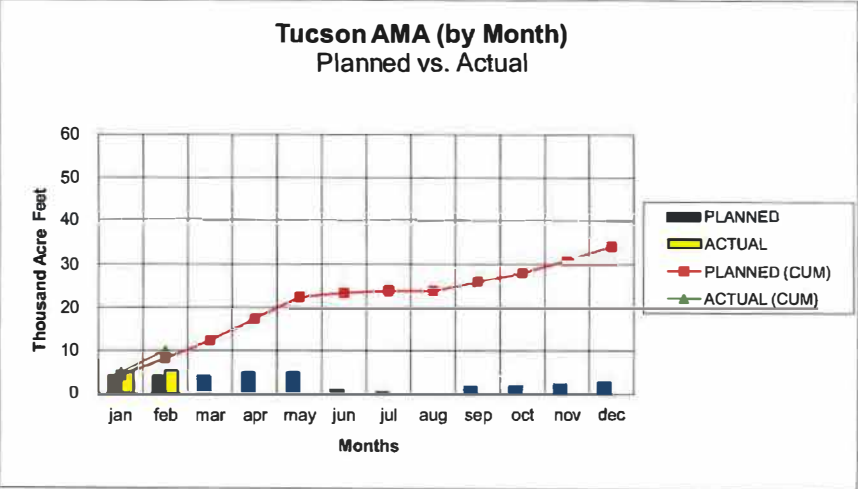
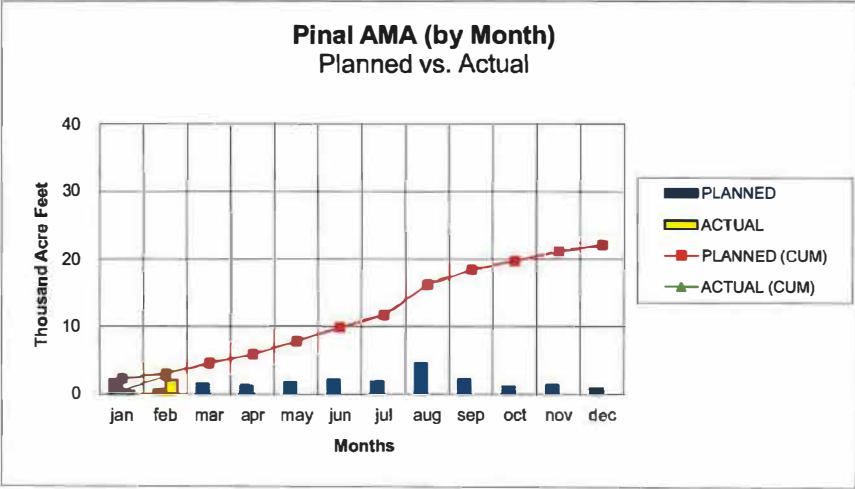
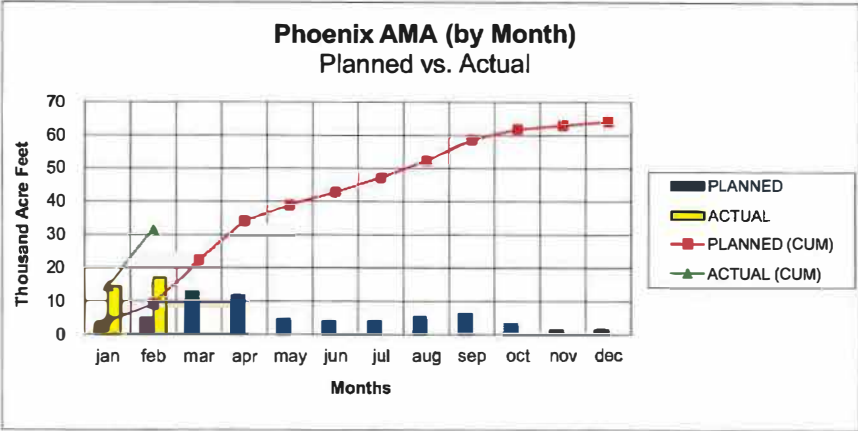
Virginia O'Connell, Manager
Arizona Water Banking Authority

Enclosures

cc: Brian Henning, CAP
Perri Benemelis, ADWR

2012 Plan of Operation

INTRASTATE



Actual deliveries updated <i>Plan of Operation</i>	16-Mar-12 7-Dec-11	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
Phoenix AMA														
TONOPAH DESERT	13,414	16,005	0	0	0	0	0	0	0	0	0	0	0	29,419
	4,000	4,000	8,000	7,000	412	0	0	0	0	0	0	0	0	23,412
NMIDD	1,013	0	0	0	0	0	0	0	0	0	0	0	0	1,013
	0	0	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	2,000	0	0	30,000
QCID	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	175	1,343	2,285	1,142	1,143	1,142	1,142	7,230
SUPERSTITION MTNS	0	1,000	0	0	0	0	0	0	0	0	0	0	0	1,000
	0	1,000	1,000	1,000	350	0	0	0	0	0	0	0	0	3,350
Subtotal	14,427	17,005	0	0	0	0	0	0	0	0	0	0	0	31,432
Total to date	14,427	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432	31,432
<i>Projected total to date</i>	4,000	9,000	22,000	34,000	38,762	42,762	46,762	50,762	54,762	56,762	56,762	56,762	56,762	63,992
Pinal AMA														
CAIDD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	500	1,500	1,500	4,170	1,000	0	0	0	0	8,670
MSIDD	510	1,020	0	0	0	0	0	0	0	0	0	0	0	1,530
	508	636	1,589	1,335	1,335	636	318	318	571	500	670	254	0	8,670
HIDD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	734	0	0	0	0	0	0	0	734	734	734	734	734	3,670
Southside Bank	0	1,000	0	0	0	0	0	0	0	0	0	0	0	1,000
	1,000	0	0	0	0	0	0	0	0	0	0	0	0	1,000
Subtotal	510	2,020	0	0	0	0	0	0	0	0	0	0	0	2,530
Total to date	510	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530
<i>Projected total to date</i>	2,242	2,878	4,467	5,802	7,637	9,773	11,591	16,079	18,384	19,618	21,022	22,010	22,010	22,010
Tucson AMA														
AVRA VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	260	670	670	670	1,600
CAVSARP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAVSARP	2,000	2,000	0	0	0	0	0	0	0	0	0	0	0	4,000
	2,000	2,000	2,000	2,000	2,000	0	0	0	0	1,000	2,000	2,000	2,000	15,000
LOWER SANTA CRUZ	2,731	3,194	0	0	0	0	0	0	0	0	0	0	0	5,925
	2,000	2,000	2,000	2,000	2,000	0	0	0	2,000	1,000	0	700	0	13,700
CMID	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	500	500	500	500	0	0	0	0	0	0	2,000
BKW FARMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	100	100	0	0	0	0	0	0	0	0	0	200
KAI FARMS - Red Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	500	500	500	500	0	0	0	0	0	0	1,500
Subtotal	4,731	5,194	0	0	0	0	0	0	0	0	0	0	0	9,925
Total to date	4,731	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925	9,925
<i>Projected total to date</i>	4,000	4,000	4,100	5,100	5,000	1,000	500	0	2,000	2,260	2,670	3,370	3,370	34,000
<hr/>														
TOTAL	19,668	24,219	0	0	0	0	0	0	0	0	0	0	0	43,887
Total to date	19,668	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887	43,887
<i>Projected total to date</i>	10,242	15,878	30,567	44,902	51,399	53,535	58,853	66,841	75,146	78,640	80,454	82,142	82,142	120,002

Information Brief

Meeting Date: March 21, 2012

Subject: Capping the Distribution of AWBA Long-term Storage Credits for M&I Firming during Shortages

Issue: Should the AWBA limit its credit distribution for M&I firming during times of a Secretarial declared shortage of Colorado River Water or a Central Arizona Project disruption to a maximum of 20% of the total M&I subcontract entitlement?

Description: The AWBA is required to distribute long-term storage credits accrued with four-cent tax monies to CAWCD to the extent necessary to meet the demands of the M&I subcontractors and it may distribute long-term storage credits accrued with the withdrawal fees under the same circumstances. The statute does not define what "to the extent necessary" means so it is up to the AWBA to define that term.

Background: When the AWBA was first established in 1996 there was a question about how many credits would be needed for future M&I subcontract firming. Modeling of that era showed there was the potential for many shortage occurrences with several being quite severe. The water supply, available storage capacity other than Groundwater Savings Facilities (GSFs) and the cost, recovery capacity and cost, and funding availability were also unknown. Based on the available information, the AWBA made the decision that for planning purposes, determination of the need for M&I firming would be limited to 20% of the M&I subcontract amount in any year. This decision was made primarily on the fact that the Assured Water Supply rules allow a drought exemption for municipal providers. The drought exemption allows a provider to replace up to 80% of a surface water supply with groundwater without impacting the groundwater allowance in a year when no more than 80% of the surface water supply is available. What this means is that a provider can apply for a drought exemption and after approval by ADWR, pump groundwater to meet all but 20% of its lost CAP subcontract water. The AWBA determined, recognizing the unknowns and wanting to limit the State's exposure, that the State should only expend monies to create credits to meet that portion of demand that was limited by the Assured Water Supply Rules. Models were run, based on the 20% assumption and the probability of shortage, the AWBA established a goal of approximately 2.5 million acre-feet of firming for the CAWCD service area. A 20% reduction equals approximately 127,800 AF prior to 2044 and 137,200 AF after 2044 (Hohokam IDD water conversion to M&I priority in 2044). Should the AWBA modify this assumption?

Analysis: Many things have changed since the AWBA made its initial analysis 15 years ago. First, the AWBA has been able to accrue approximately 1.8 million acre-feet of long term storage credits utilizing four-cent tax monies and approximately 750,000 acre-feet of long term storage credits utilizing withdrawal fees. The way the Colorado River is operated has also changed. In 1996, shortages were determined based on a probability analysis. This analysis indicated shortage

could occur early and often and that the volume of annual shortages could become fairly significant especially during periods of prolonged shortages. Today's operation is based on a rule curve. The rule curve has three steps for determining the quantity of the shortage. This analysis allows the volume of shortages to the M&I supply to be more predictable. While the total shortages are still unknown, the impact of a shortage to CAP M&I supplies can be better understood.

The first two steps (400,000 AF and 500,000 AF) rarely if ever create the situation where shortages to the CAP subcontractors M&I supply is greater than 20% of the CAP subcontractors M&I entitlements. That circumstance does occur when the 600,000 AF step (480,000 reduction to AZ) is declared by the Secretary. This situation does not occur prior to 2044 in any year in any trace. After 2043, when full utilization of CAP entitlements is expected, a 480,000 AF reduction to CAP will result in an average reduction to CAP M&I subcontract of approximately 166,000 AF in that year. The 166,000 AF reduction is approximately 29,000 AF greater than the firming amount available with a 20% firming limit. The average probability that a reduction to the CAP supply greater than 20% would occur is approximately 6% in any given year. Increasing the AWBA goal to firm the full CAP M&I subcontract reduction would require the accrual of approximately 126,000 AF of additional long-term storage credits for M&I firming. At the AWBA's current average storage costs, the credits would cost approximately \$16 million.

In addition to requiring additional long-term storage credits, several other issues arise; (1) the AWBA currently is not projected to meet its goal in the Tucson area with the 20% cap, (2) increasing the potential recovery obligation by an additional 29,000 AF in any year could impact the cost and opportunities when developing a recovery plan, (3) even during the largest reduction, CAP subcontractors would still be getting, including AWBA firming, approximately 95% of their CAP M&I subcontract entitlement, (4) most CAP M&I subcontractors have the ability to absorb a 5% reduction when there is only a 6% probability of that occurring, (5) by not increasing the goal, water could become available to firm up to 20% of surface water supply shortages that are not associated with the Central Arizona Project i.e. Salt/Verde system, and (6) having the 20% cap does not preclude the AWBA from creating additional long-term storage credits for M&I firming if water and funding were available.

Observations:

Recognizing these issues and current AWBA obligations to firm Indian settlement water, create 1.25 MAF of long-term storage credits for Nevada, and the need to develop a recovery plan, the staff suggests that the AWBA create a policy establishing a 20% cap on the amount of credits distributed in any year for CAP subcontract firming. This cap would be consistent with the cap already in place for the firming of other surface water supplies. This policy is not a guarantee that 20% of the CAP M&I subcontractors entitlement will be firming. The actual firming is dependent on the amount of long-term storage credits available to the AWBA. The AWBA may want to revisit this policy in the future after shortages have occurred and there is additional information on shortage operations and credit availability.

Information Brief

Meeting Date: March 21, 2012

Subject: Reducing the Amount of AWBA Long-term Storage Credits Distributed for M&I Firming during Shortages to Extend Credits for Future Years

Issue: Should The AWBA reduce the amount of credits it will distribute in any year to extend its long-term storage credits for future years.

Description: The AWBA is required to distribute long-term storage credits accrued with four-percent tax monies to CAWCD to the extent necessary to meet the demands of the M&I subcontractors and it may distribute long-term storage credits accrued with the withdrawal fees under the same circumstances. The statute does not define what "to the extent necessary" means so it is up to the AWBA to define that term.

Background: When the AWBA was first established in 1996 there was a question about how many credits would be needed for future M&I subcontract firming. At that time, the AWBA determined for various reasons, mainly cost and water availability concerns, that it would limit its firming goal for CAP M&I subcontracts to 20% of the CAP M&I subcontract entitlements. Should the AWBA reduce the amount of the long-term storage credits it will distribute for M&I firming during shortages so that more credits are available further into the future?

Analysis: The AWBA's current 20% limit assumption to some extent serves this purpose. Modeling would indicate that there is a 6% probability that the actual reduction to CAP M&I subcontractors could be greater than 20%. By maintaining this assumption the AWBA is preserving long-term storage credits for future years.

The question arises, however, are the long-term storage credits projected to be accumulated by the AWBA for CAP M&I subcontract firming going to be sufficient to firm those subcontracts for the 100-year firming period. Based on the modeling, this is only an issue for Pima County. In order to insure long-term storage credits would be available for the full 100-year period for Pima County the 20% limit could be reduced to a 10% limit. The major impact of reducing the limit on the long-term storage credits the AWBA would make available during shortages is CAP subcontractors would need to find other supplies to meet their needs for the difference between the 10% cap and the 20% cap. Additional groundwater pumping would not be an option because the drought exemption would not be available. It could also leave a significant quantity of long-term storage credits unused in Maricopa and Pinal Counties. That raises a second question, should the AWBA have different caps for the different counties, leaving Maricopa and Pinal Counties at a 20% cap while reducing the cap in Tucson to 10% as an example. This could raise equity issues especially if groundwater is not available to make up the difference.

Another option for extending credits would be to apply additional reductions to the CAP request at the time the request is made to the AWBA. These reductions could be in effect until the 20% cap was reached at which time the 20% cap would come into play. After 2044, under maximum shortages to CAP, the subcontractor would be receiving approximately 76% of its entitlement, adding the 20% firming would increase this to approximately 96% of the subcontract entitlement. Recognizing the subcontractor would need to be planning for a reduction of 4% of their entitlement to cover this situation, the AWBA could reduce the distribution by 4% during other shortages. Applying this example to all three counties would have no benefit to Maricopa and Pinal Counties, but would allow the AWBA to distribute credits to Pima County through the full 100-year period. Various percent reductions could be tested to determine the most appropriate amount. A variation of this option would be to apply different percentages in the different counties.

One of the concerns with the AWBA applying additional reductions over the 20% cap are that the AWBA might be forcing some subcontractors to implement additional conservation measures. The groundwater code already caused CAP M&I subcontractors to reduce use and conserve groundwater. A major reason for these provisions in the Groundwater Code was to ensure that groundwater would be available for the future, including times of shortages. The additional reduction could impact CAP M&I subcontractors differently with a greater impact to those with limited groundwater supplies.

Observations:

Recognizing that the 20% limit assumption already preserves long-term storage credits, there is a minimal benefit to Maricopa and Pinal Counties, that additional reductions could require more use of an M&I subcontractor's renewable supplies when credits are still available, and that the CAP M&I subcontractors have also developed drought management plans that already identify reductions in water use, staff does not feel it is appropriate that the AWBA add an additional reduction over the assumed 20% to the amount of credits it will distribute in any given year for CAP M&I subcontract firming. However, staff does suggest that the AWBA revisit this policy in the future after shortages have occurred and there is additional information on shortage operations and credit availability.

Components to be Included in the ADWR Annual Cost of Services to the AWBA

STAFFING

Water Bank Manager, Water Bank Technical Administrator

Attorney (Half Time)- Provides legal advice to the AWBA on all AWBA statutes, contracts, agreements and policies, including interstate and Indian settlement issues. Also assists in drafting new or amended statutes, contracts, agreements, policies, and provides advice on open Meetings Law issues. At the request of the AWBA Manager, attends various meetings.

Recommendation: Continue to include a half-time attorney. Half-time appears to be sufficient for AWBA needs. ADWR should continue to include a half-time attorney in the Cost of Services.

Accountant (Part-time) – Provides monthly financial reports critical to AWBA operations and interfaces with CAWCD Finance Department on a regular basis.

Recommendation: Continue to include a part-time accountant. The detailed reports provided by the accountant are critical to understanding the monthly aspects of the AWBA operations. ADWR should continue to include a part-time accountant in the Cost of Services.

Consulting Services (Part-time as needed) - The AWBA consultant provides technical and policy analyses related to the AWBA activities. The consultant advises the AWBA Manager on AWBA policies and assists in developing the AWBA Annual Operating Plan and Annual Report. In addition, the consultant attends and makes presentations at AWBA meetings and participates in the negotiation of contracts and agreements, including those related to Indian firming and interstate issues.

Recommendation: Contract with a consultant to provide technical assistance and advice to the AWBA Manager and the AWBA Commission. ADWR should continue to include outside professional services (a consultant) in the Cost of Services to the AWBA.

Employee Related Expenses – Included in the above cost to the AWBA are salaries, various insurances, retirement contributions. In accordance with recent legislation, if any of the above positions are filled with ASRS retirees, ADWR will remit a contribution for that position to ASRS, identified as the Alternate Contribution Rate (ACR). For Fiscal Year 2012-2013 beginning July 1, 2012, the ACR will be 8.64%, and would be included in the Cost of Services.

ADWR Indirect Costs - The costs ADWR charges for overhead such as building expenses, computer system, administrative services and technical assistance.

CAWCD Cost of Services – Identified in the Intergovernmental Agreement as \$21,000. For providing technical services such as fiscal accounting, water scheduling, and report reviews.

OTHER

Travel, Operating Expenses, and Equipment – The Cost of Services should include: 3 in-state trips for the AWBA Manager, Technical Assistant, and attorney for anticipated interstate discussions; adequate operating expenses to meet the needs of AWBA operations including webpage maintenance, mailings, teleconferencing, and other miscellaneous charges. No additional equipment is anticipated at this time.

Summary Sheet

AWBA Planning Scenarios

		AWBA Base	AWBA Base (10%)	AWBA Base (96% CAP)	AWBA Base (-10%)	AWBA Base (no 20%)	Maximum Firming	Maximum (10%)	Maximum (96% CAP)
Firming and Shortage Volume (Acre-Feet)	Total Firming	3,391,607	2,634,072	2,726,693	3,145,147	3,391,607	4,354,265	3,222,989	3,797,592
	Indian Firming	768,213	768,213	768,213	768,213	768,213	1,020,313	1,020,313	1,020,313
	On-River firming	158,796	158,796	158,796	158,796	158,796	213,607	213,607	213,607
	CAP M&I Firming	2,464,598	1,707,063	1,799,684	2,218,138	2,561,171	3,120,345	1,989,069	2,563,672
	Total CAP M&I Shortage	2,561,171	2,561,171	2,561,171	2,561,171	2,561,171	3,397,367	3,397,367	3,397,367
	Difference between M&I Shortage and M&I firming	96,573	854,108	761,487	343,033	0	277,022	1,408,298	833,695
	First M&I Firming	2038	2038	2039	2038	2038	2035	2035	2041
	Probability of M&I Firming	17.2%	17.2%	17.9%	17.2%	17.2%	15.4%	15.4%	19.2%
	First On-River Firming	2038	2038	2038	2038	2038	2037	2037	2037
	Probability of On-River Firming	17.2%	17.2%	17.2%	17.2%	17.2%	16.6%	16.6%	16.6%
	First Year of Indian Firming	2030	2030	2030	2030	2030	2022	2022	2022
	Probability of Indian Firming	11.8%	11.8%	11.8%	11.8%	11.8%	6.2%	6.2%	6.2%
Long Term Storage Credits (Acre-Feet)	Withdrawal Fee Credits Remaining (Maricopa and Pinal County)	124,152	124,152	124,152	124,152	124,152	-127,948	-127,948	-127,948
	First Year of Deficit						2091	2091	2091
	General Fund Credits Remaining	245,034	245,034	245,034	245,034	245,034	190,223	190,223	190,223
	First Year of Deficit								
	Maricopa County Four Cent Tax Credits Remaining	623,427	1,089,129	1,032,189	774,941	564,058	220,300	915,763	562,520
	First Year of Deficit								
	Pinal County Four Cent Tax Credits Remaining	64,740	112,639	106,782	80,324	58,634	23,278	94,808	58,476
	First Year of Deficit								
	Pima County Four Cent Tax and Withdrawal Fee Credits Remaining	-177,432	62,759	33,391	-99,288	-208,053	-385,350	-26,657	-208,846
First Year of Deficit	2057			2060	2056	2060	2094	2063	

Assumptions for Base Case

Assumptions used when developing the Base Case for the AWBA Credit Distribution Supply and Demand Study. The Base Case utilizes Trace 31 (60 percentile) of the Reclamation's Colorado River System Simulation Model.

Firming Assumptions

- CAP shortage distribution (pro rata based on 3/1/211 CAP SUBCONTRACTING STATUS REPORT);
Maricopa County (61.48%), Pinal County (6.32%), Pima County (31.71%), Other (.49%)
- Maximum CAP M&I firming volume limited to 20% of M&I sub-contract amount (through 2043 = 127.8 kaf, after 2043 = 137.2 kaf)
- Credits include projected credits identified AWBA 2010 Annual Report 10 Year-Plan
- Nevada begins recovery in 2019
- On-River and CAP M&I Firming through 2097
- Indian Firming through 2108 (15,000 AF GRIC firming, 3,750 AF WMAT firming, and 4,974 AF other Settlements (Indian firming based on examples in 2007 Firming Agreement)
- Withdrawal Fee Credits in Phoenix AMA and Pinal AMA used for Indian Firming
- General Fund Credits used for On-River Firming
- 4 cent tax Credits used for firming Maricopa and Pinal Counties M&I subcontract supplies
- 4 cent Tax and Withdrawal Fee Credits used for firming Pima County M&I subcontract supplies

Model Assumptions

- Initial Reservoir Elevation set at 2012 Lake Mead elevation
- 103 Traces per Case (Initial trace starts in 1906)
- Modeling Period 2012 through 2108
- CAP/ On-River Shortage Sharing (ADWR Director's Shortage-Sharing Workshop Recommendations)
- ADWR Upper Basin Demand Assumptions (4.8 MAF)
- Ten Tribes Build-up Schedule
- Interim Guidelines Extended beyond 2026
- Yuma Desalting Plant not Operated
- Mexico shares in Shortage (16.7%)

Total Shortage by County

	CAP Subcontracts	Percent
Maricopa	381,568.00	61.48
Pinal	39,245.00	6.32
Pima	196,798.00	31.71
Other	3,067.00	0.49
	<hr/>	
	620,678.00	100.00

Demand Assumptions

Year	Total P4 Mainstem M & I Depletion	Total P4 Mainstem Ag Depletion	Projected CAP P4 Indian Use	Projected CAP P4 M&I Demand	Projected NIA Priority Use	Non-Indian Agriculture Pool Demand	Total P4 Demand
	1000 Acre-feet	1000 Acre-feet	1,000 Acre-feet	1,000 Acre-feet	1,000 Acre-feet	1,000 Acre-feet	1,000 Acre-feet
2011	27.83	42.59	227.64	445.66	97.40	400.00	1,241.11
2012	28.40	42.59	254.35	460.08	98.40	400.00	1,283.82
2013	28.96	42.59	278.84	471.58	99.40	400.00	1,321.37
2014	29.52	42.59	296.58	482.42	100.40	400.00	1,351.51
2015	30.07	42.59	314.33	493.69	103.70	400.00	1,384.37
2016	30.61	42.59	332.07	501.37	109.70	400.00	1,416.34
2017	31.14	42.59	332.99	512.69	115.70	300.00	1,335.11
2018	31.66	42.59	333.90	515.44	121.70	300.00	1,345.30
2019	32.18	42.59	334.82	518.19	127.70	300.00	1,355.48
2020	38.27	42.59	335.74	528.12	161.80	300.00	1,406.52
2021	39.02	42.59	336.66	537.10	167.80	300.00	1,423.17
2022	39.76	42.59	337.57	544.40	173.80	300.00	1,438.13
2023	40.49	42.59	338.49	551.71	179.80	300.00	1,453.08
2024	41.20	42.59	339.41	559.01	185.80	225.00	1,393.01
2025	41.91	42.59	340.33	566.27	215.92	225.00	1,432.01
2026	42.60	42.59	341.24	573.54	246.04	225.00	1,471.02
2027	43.28	42.59	342.16	580.81	276.16	225.00	1,510.00
2028	43.95	42.59	343.08	588.07	306.28	225.00	1,548.97
2029	44.61	42.59	343.08	595.34	331.40	225.00	1,582.02
2030	45.16	42.59	343.08	602.61	360.50	225.00	1,618.93
2031	45.54	42.59	343.08	609.85	361.50	0.00	1,402.56
2032	45.92	42.59	343.08	617.10	362.50	0.00	1,411.18
2033	46.29	42.59	343.08	624.34	363.50	0.00	1,419.80
2034	46.66	42.59	343.08	631.58	364.70	0.00	1,428.61
2035	47.03	42.59	343.08	638.82	364.70	0.00	1,436.22
2036	47.39	42.59	343.08	638.82	364.70	0.00	1,436.58
2037	47.76	42.59	343.08	638.82	364.70	0.00	1,436.94
2038	48.11	42.59	343.08	638.82	364.70	0.00	1,437.30
2039	48.47	42.59	343.08	638.82	364.70	0.00	1,437.66
2040	48.82	42.59	343.08	638.82	364.70	0.00	1,438.01
2041	49.17	42.59	343.08	638.82	364.70	0.00	1,438.36
2042	49.52	42.59	343.08	638.82	364.70	0.00	1,438.71
2043	49.87	42.59	343.08	638.82	364.70	0.00	1,439.06
2044	50.22	42.59	343.08	686.13	317.40	0.00	1,439.41
2045	50.57	42.59	343.08	686.13	317.40	0.00	1,439.76
2046	50.92	42.59	343.08	686.13	317.40	0.00	1,440.11
2047	51.27	42.59	343.08	686.13	317.40	0.00	1,440.46
2048	51.62	42.59	343.08	686.13	317.40	0.00	1,440.81
2049	51.96	42.59	343.08	686.13	317.40	0.00	1,441.15
2050	52.07	42.59	343.08	686.13	317.40	0.00	1,441.25