

**ARIZONA WATER BANKING AUTHORITY**

Wednesday, September 20, 2000

No.	NAME (Please print)	Phone No.
1	Ed Allison	775-747-9656
2	Dorothy Timmon - Palmer	775-855-5210
3	JEFF AXMAN	775-882-0202
4	Jim Davanport GRC-Nevada	702-486-2689
5	Sony Weatherford SNWA-NEVADA	415-357-1940
6	Mary Reece - BOR	602-216-3884
7	Sheryl Sweeney - Ryley Carbock	602-440-4824
8	Ray Brothman	702-258-3176
9	Dale Ensminger	702-293-8659
10	JIM DOWD MILES	520-829-3647
11	Wendy Wonderly - Navigant	602-258-0234
12	Chuck Cullom	"
13	Harry Kuzynian	213 217 6082
14	Rich Siegel	602 236 2277
15	Barbara Goldberg	602 257 5283
16	Mark Myers	520-742-0916
17	Kathy Jacobs	520-770-3800
18	Deanna Ikuya	602-417-2442
19	Greg Bushner	480-517-9850
20	Paul Nelson	602-216-3878
21	Sharon B. Meddal	520-326-4789
22	Tom McLean	480-966-8188
23	Karen Wolmeyer	602-351-8000
24	Russ Crocker	on file

No.	NAME (Please Print)	Phone No.
25	JAY MOYES	602 604 2106
26	Bob Miller	602 248 8482
27	Esmeralda V. Anika	623 932-1909
28	Kathi Knox House Research	602 542 5480
29	Kathryn Sorenson	480 644 2947
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		

**Arizona Water Banking Authority**  
500 North Third Street, Phoenix, Arizona 85004  
Telephone 602-417-2418  
Fax 602-417-2401  
Web Page: [www.awba.state.az.us](http://www.awba.state.az.us)

**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 September 20, 2000 at 10:00 a.m. at the Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004, third floor conference room. The meeting is open to the general public. A copy of the agenda for the meeting is posted below.

Dated this 19<sup>th</sup> day of September, 2000

**FINAL AGENDA**

**Arizona Water Banking Authority Commission Meeting**

- I. Welcome/Opening Remarks
- II. Approval of Minutes of June 21 and June 28 Meetings
- III. Water Banking Staff Activities
  - Deliveries
- IV. Discussion of Westside Facilities and Approval to Negotiate Contracts
- V. Status Report on Progress of Interstate Storage Agreement Between Arizona Water Banking Authority and Southern Nevada Water Authority
- VI. 2001 Annual Plan of Operation
  - Partner meetings
  - Public meetings
- VII. Call to the Public

**Future Meeting Date:**  
**Wednesday, December 20, 2000**

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Nan Flores at (602) 417-2418. Requests should be made as early as possible to allow time to arrange the accommodation.

**ARIZONA WATER BANKING AUTHORITY  
Draft Minutes**

**June 21, 2000  
Arizona Department of Water Resources**



**AUTHORITY MEMBERS**  
Rita P. Pearson, Chairman  
Tom Griffin, Vice-Chairman  
Bill Chase, Secretary  
George Renner  
Richard S. Walden

**EX OFFICIO MEMBERS**  
Representative Gail Griffin  
Senator Ken Bennett

**Welcome/Opening Remarks**

All members of the Authority were present except Sen. Ken Bennett and Rep. Gail Griffin.

**Approval of Minutes of March 14 and May 3 Meetings**

The Authority approved the minutes from the March 14 and May 3, 2000 meetings.

**Water Banking Staff Activities**

Tim Henley, manager of the AWBA, reviewed the current deliveries. Actual deliveries for April and May were slightly greater than the planned deliveries for those months. Mr. Henley also informed the Authority that on-target deliveries should continue, however, loss of storage at two facilities could impact planned deliveries. It is anticipated that there will be no storage in 2000 at the Agua Fria Recharge facility due to on-going problems with land acquisition. Recharge at the Pima Mine Road Recharge (PMR) facility terminated in March and the full-scale permit has not yet been issued. No further recharge can be done at PMR until the full-scale permit is issued.

There was some discussion regarding the PMR permit and it was decided to reserve the issue for a later meeting when it could be listed as an agenda item and ADWR staff could be present to discuss the status.

Mr. Henley used the discussion regarding recharge facilities as an opportunity to present the idea of recharge in the western part of the state. He stated that use in this area could make up the lost opportunities at PMR and the Agua Fria. He explained that legal counsel had some concerns regarding procurement requirements for utilization of facilities operated by private entities, but that they were in the process of resolving those issues. The Authority instructed Mr. Henley to initiate negotiations with recharge facilities in the western part of the state.

Mr. Henley briefly discussed the AWBA newsletter and the AWBA web page. The web page continues to be in transition as it is moved to ADWR's server. Mr. Henley estimated approximately 2 months for completion of the transition.

Mr. Henley discussed the possible impacts of the CAWCD's policy for non-Indian agriculture water to be in effect 2004-2030. He stated that one of the biggest issues is how to handle the groundwater savings facilities (GSF). Historically, farmers had to fully use their CAP pool water prior to being eligible as GSFs and the new policy could allocate more water to the agricultural entities. He does not think that there will be a huge impact to the AWBA and that requisite additional cuts to the aquifer could be viewed as mandatory extinguishment of credits. The AWBA could consider that as water stored to achieve water management objectives.

The final topic Mr. Henley discussed was price sharing at the GSFs. Historically, a major portion of the plan of operations has been recharge at GSFs. Due to the flexibility the users have with regard to the AWBA's water, actual use has always been less than planned use.

A potential way to eliminate this would be to consider a policy that provided decreased water costs to the GSF operator but required that the agreements be take-or-pay on an annual basis. Further evaluation and discussion would be necessary to determine the effectiveness of this policy. If approved, it could be incorporated into the 2001 Plan of Operations.

### **1999 Annual Report**

Mr. Henley presented the report with emphasis on the tables. He noted that table 1 showed a carryover of approximately \$7 million for 1999 and that table 4 showed cumulative long-term storage credits in excess of 726,000 acre-feet. This report also includes the first 10-year plan, which was developed with the goal of eliminating monetary carryover as quickly as possible.

There were no comments on the report as presented and the Authority approved the Annual Report as submitted with any minor changes.

### **FY 2001 Operating Budget**

Mr. Henley provided an overview of the fiscal year 2001 Authority budget. Chairman Rita Pearson Maguire noted that the agenda item for the budget had not been properly noticed to be adopted, therefore, a special meeting would be scheduled for June 28, 2000 for approval and adoption of the budget. There were no public comments on the budget as presented.

### **Recovery Activities**

Mr. Henley reported that the Recovery Subcommittee met on May 17, 2000. As a result of that meeting, a core group of individuals were identified as being willing and able to assist in development of recovery concepts. The core group met on June 6, 2000 and members were tasked with completing an examination of their own infrastructure. The group will then reconvene and discuss each entity's ability to facilitate recovery.

Mr. Henley stated that development of exchange agreements to allow the river communities to recover water during shortage declarations would occur simultaneously with recovery activities.

Charles Cahoy, legal counsel for ADWR, is currently working on development of these agreements. Ms. Pearson Maguire questioned whether meetings needed to be established to focus on and discuss this issue. Mr. Henley stated that he thought such meetings would need to be scheduled in the next couple of months.

### **Interstate Storage and Release Agreements**

Mr. Henley reviewed CAWCD's proposed policy for participation in interstate banking. George Renner provided some information regarding the thought of the CAWCD board in drafting this policy. He also stated that he anticipated the policy being adopted at the June 22, 2000 CAWCD board meeting.

Mr. Henley discussed the chart he had included in the packets. He stated that he had provided this chart to illustrate to the Authority the opportunity for interstate banking within a normal year.

He also stated that one of the effects of using existing capacity for storage could be a longer term carryover of AWBA money.

Michael Pearce, Chief Counsel for ADWR, discussed the preliminary drafts of the Storage and Interstate Release Agreement and the Agreement for the Development of ICUA. He stated that they are still outlines of concepts that will be fleshed out in the future and that they are only two of probably three agreements that will be necessary to allow interstate banking to occur. It was his perception that the AWBA is at a crossroads with these agreements and that staff should be given the authority to move into negotiations with Nevada.



**ARIZONA WATER BANKING AUTHORITY  
Draft Minutes**

**June 28, 2000  
Arizona Department of Water Resources**



**AUTHORITY MEMBERS**  
Rita P. Pearson, Chairman  
Tom Griffin, Vice-Chairman  
Bill Chase, Secretary  
George Renner  
Richard S. Walden

**EX OFFICIO MEMBERS**  
Representative Gail Griffin  
Senator Ken Bennett

*This was a special meeting called to obtain a Commission vote on the approval of the Fiscal year 2001 operating budget and obtain authorization for AWBA staff to proceed with negotiations with Southern Nevada Water Authority (SNWA) and the Colorado River Commission of Nevada.*

Members present were Rita Pearson Maguire and Bill Chase. Present via teleconference were Tom Griffin, George Renner and Richard Walden.

### **FY 2001 Operating Budget**

The Authority approved the FY 2001 Operating budget.

### **Initiation of Interstate Negotiations**

Mr. Renner commented that it was time to take the next step in the negotiation process and asked if there was a planned method to keep the Authority members updated as the negotiations proceed. Ms. Maguire stated that at the June 2<sup>nd</sup> meeting a subcommittee was established and all members of the Authority volunteered to participate. She viewed the subcommittee meetings as the means of keeping Authority members and the public informed as all meetings would be publicly noticed and open for public attendance.

Mr. Chase wanted to reiterate that both of the agreements that were distributed at the last Authority meeting are still in draft form and that the Authority is not being asked to approve these agreements at this time. Ms. Maguire concurred that the statement was correct and added that substantial portions of the agreements remain to be drafted.

Mr. Renner moved to authorize AWBA staff to begin negotiations. The motion was adopted.

Jim Davenport, Senior Deputy Attorney General for the Colorado River Commission of Nevada, expressed their gratitude that the Authority authorized initiation of negotiations.

### **Pima Mine Road Recharge Project**

Ms. Maguire stated that this agenda item was included due to the questions asked by the Authority members at the June 21<sup>st</sup> AWBA meeting. To provide information regarding the project, she requested that ADWR staff prepare a status report of the permit application for the Pima Mine Road Recharge (PMR) project. ADWR and CAWCD staff met prior to this meeting to resolve outstanding issues regarding the PMR application.

Greg Wallace, Assistant Director and Chief Hydrologist at ADWR briefed the AWBA members on the site and the history of the application. He stated that the status meeting had resolved the outstanding issues. In general, there were four areas that ADWR and CAWCD needed to resolve: monitoring to protect other parties from unreasonable harm; monitoring in the northeast corner of the site; clarification of some application components (would be done in the form of more detailed narrative descriptions); and setting of alert levels.

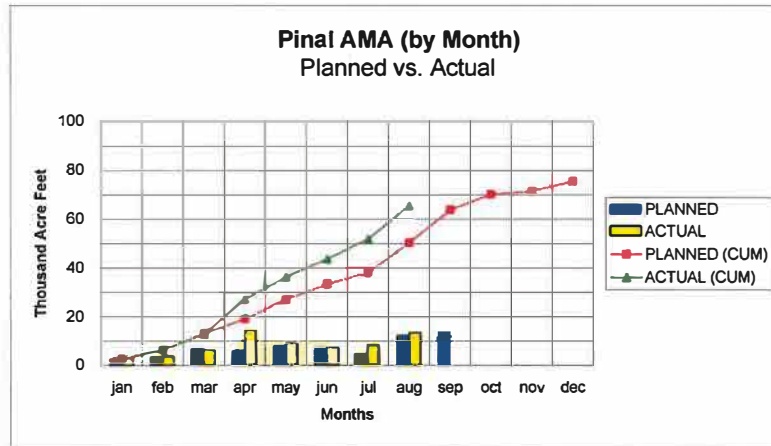
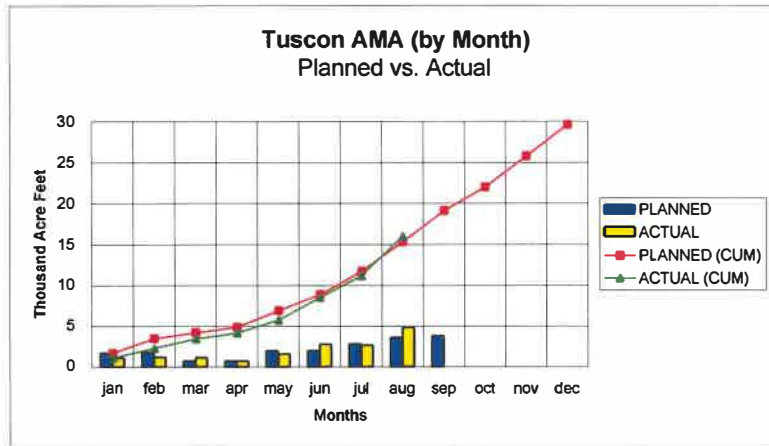
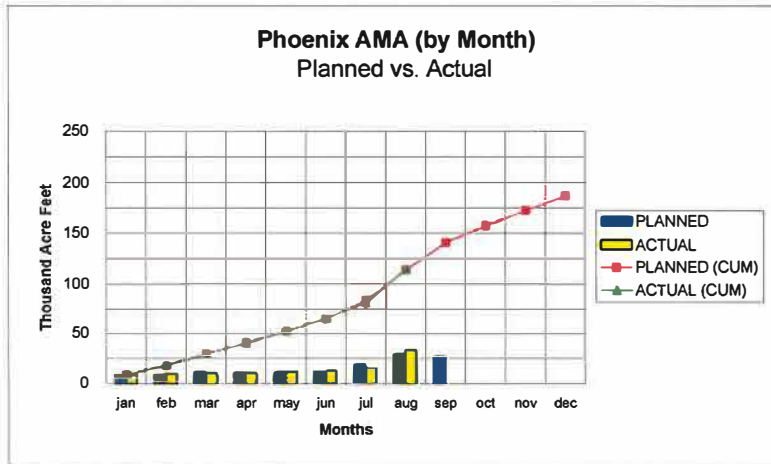
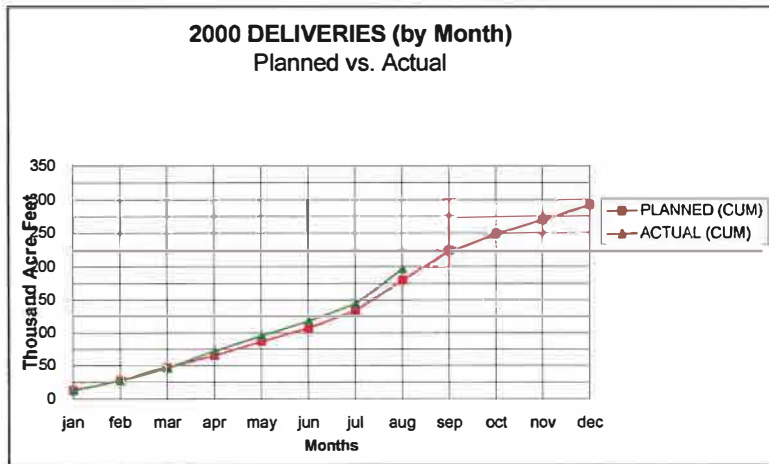
At the status meeting, it was agreed that CAWCD would submit their response to ADWR's incomplete and incorrect letter in draft form within 10 days. ADWR would review the submittal and respond to CAWCD within 10 days. A final response to the incomplete and incorrect letter would then be submitted. Once the application is determined to be complete and correct by ADWR, the public notice process begins.

Barbara Goldberg, a representative of Tucson Water Company, stated that they are very pleased to see the permit process moving forward.

**Call to the Public**

With no other questions or comments from the public, the meeting was adjourned at 10:20 a.m.

## 2000 Plan of Operation





Actual deliveries updated  
Plan of Operation

15-Sep-00  
15-Dec-99

	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
<b>Phoenix AMA</b>													
GRUSP	6,553	6,617	6,623	4,846	7,216	7,716	8,698	10,537					58,806
	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	4,600	4,600	6,600	75,200
AGUA FRIA	0	0	0	0	0	0	0	0					0
	0	0	0	0	0	0	2,500	2,500	2,500	2,500	2,500	2,500	15,000
CHCID	83	136	0	0	99	94	10	109					531
	50	100	50	100	100	126	100	100	100	191	100	0	1,117
NMIDD	2,098	2,941	2,182	4,054	3,000	3,012	3,925	15,701					36,913
	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
QCID	0	0	0	0	0	0	467	5,436					5,903
	0	0	0	0	0	0	3,946	7,270	3,720	1,600	1,050	2,460	20,046
MWD	0	0	0	0	0	0	0	0					0
	0	0	0	0	0	0	0	1,633	2,353	2,353	0	0	6,339
TID	0	0	0	0	0	0	0	0					0
	0	0	0	0	0	0	0	0	0	0	2,000	1,000	3,000
SRP	0	0	2,120	2,120	2,120	2,120	2,120	2,120					12,720
	0	0	2,120	2,120	2,120	2,120	2,120	2,120	2,120	0	0	0	14,840
VIDLER MBT	0	0	0	0	0	0	0	0					0
	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	8,734	9,694	10,925	11,020	12,435	12,942	15,220	33,903	0	0	0	0	114,873
Total to date	8,734	18,428	29,353	40,373	52,808	65,750	80,970	114,873					114,873
Projected total to date	8,650	17,350	29,320	40,640	52,460	64,806	83,772	113,695	140,688	155,432	168,182	182,742	182,742
<b>Pinal AMA</b>													
CAIDD	0	0	0	0	0	0	0	4,266					4,266
	0	0	0	0	0	0	0	1,451	8,506	4,184	482	377	15,000
MSIDD	530	320	0	6,940	0	0	3,260	514					11,564
	530	0	320	0	320	2,000	4,620	3,260	1,370	110	110	1,580	14,220
HIDD	2,300	3,500	6,361	7,396	9,092	7,249	4,976	8,672					49,546
	2,300	3,500	6,500	6,000	7,500	4,500	0	7,600	3,500	2,000	800	2,000	46,200
Subtotal	2,830	3,820	6,361	14,336	9,092	7,249	8,236	13,452	0	0	0	0	65,376
Total to date	2,830	6,650	13,011	27,347	36,439	43,688	51,924	65,376					65,376
Projected total to date	2,830	6,330	13,150	19,150	26,970	33,470	38,090	50,401	63,777	70,071	71,463	75,420	75,420
<b>Tucson AMA</b>													
Avra Valley	0	0	0	0	0	0	0	0					0
	200	200	200	200	200	200	0	0	200	200	200	200	2,000
CAVSARP	492	0	749	713	1,589	1,524	1,418	440					6,925
	500	500	500	500	500	500	500	500	500	500	500	500	6,000
Pima Mine	630	1,178	402	0	0	0	0	0					2,210
	1,000	1,100	0	0	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	12,500
Lower Santa Cruz	0	0	0	0	0	1,248	1,251	2,821					5,320
	0	0	0	0	0	0	1,000	1,800	1,800	900	1,800	1,800	9,100
Kai/Avra	0	0	0	0	0	0	0	0					0
	0	0	0	0	0	0	0	0	0	0	0	0	0
Kai/Red Rock	0	0	0	0	0	0	0	1,576					1,576
	0	0	0	0	0	250	250	0	0	0	0	0	500
Subtotal	1,122	1,178	1,151	713	1,589	2,772	2,669	4,837	0	0	0	0	14,455
Total to date	1,122	2,300	3,451	4,164	5,753	8,525	11,194	16,031					14,455
Projected total to date	1,700	3,500	4,200	4,900	6,900	9,150	12,200	15,800	19,600	22,500	26,300	30,100	30,100
<b>TOTAL</b>													
	12,686	14,692	18,437	26,069	23,116	22,963	26,125	52,192					196,280
Total to date	12,686	27,378	45,815	71,884	95,000	117,963	144,088	196,280					14,455
Projected total to date	13,180	27,180	46,670	64,690	86,330	107,426	134,062	179,896	224,065	248,003	265,945	288,262	288,262



**ARIZONA DEPARTMENT OF WATER RESOURCES**

**UNDERGROUND STORAGE FACILITY PERMIT**

**CONSTRUCTED**

PERMIT NO. 71-571498

STATE OF ARIZONA )ss.

COUNTY OF MARICOPA )

This is to certify that I have determined that Application No. 71-571498 meets the requirements of Arizona Revised Statutes Title 45, Chapter 3.1, Article 2, for a Constructed Underground Storage Facility Permit. The Director hereby grants authority to the Arizona Public Service to operate a Constructed Underground Storage Facility, subject to the following limitations and conditions:

**Permit Limitations**

Permittee:

Arizona Public Service  
P.O. Box 53999  
Phoenix, Arizona 85072-3999

Basin: Ranegras Plain Basin

Location of Facility: W½ of Sec. 8, and E½ of Sec. 7, T6N, R15W, GSRB&M

Maximum Storage at Facility: 10,000 acre-feet for the duration of the permit

Source Water to be Stored: Central Arizona Project

Permit Expiration Date: Two years after recharge commences, but no later than June 30, 2002.

### Permit Conditions

1. The facility shall be constructed and operated pursuant to the operational plan as specified in the, Hydrologic Report and Permit Application for Pilot Underground Water Storage Facility and Water Storage dated October 6, 1998, including **Errata 1 (November 30, 1998), Errata 2 (December 24, 1998), and Errata 3 (January 13, 1999)** (hereinafter referred to as "hydrologic report") which is incorporated in and made a part of this permit.
2. The permittee shall provide all monitoring data in the form of quarterly and/or annual reports as required below once recharge operation commences:
  - a. The permittee shall provide all monitoring data for the project in the form of **quarterly** reports which shall be submitted to the Arizona Department of Water Resources (ADWR) within forty-five (45) days of the completed quarterly reporting period. **The permittee shall send three (3) copies of all quarterly data reports to the Groundwater Management Support Section, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004.**
  - b. Pursuant to A.R.S. § 45-875.01 the permittee shall submit an **annual** data report to the ADWR no later than March 31 following the end of each completed annual reporting period. The first reporting period shall be from the issuance date of this permit through December 31, 1999. Subsequent reporting periods shall be January 1 through December 31. The fourth quarter data report may be combined with the annual data report. **The permittee shall send three (3) copies of all annual data reports to the Records Management Unit, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004.**

The annual reports shall include a descriptive summary and analysis of the facility utilizing a narrative description, hydrographs, tables and maps. A description of the operation of the facility, total volume of water stored at the facility, and any potential adverse impacts to surrounding land or water users shall be provided.

3. The **quarterly** and **annual** reports shall include all monitoring data pursuant to this permit and as described in the permittee's hydrologic report. The permittee shall provide a written explanation for any deviation from these monitoring requirements. The reports shall include a minimum of, but are not limited to, the following:

a. Water Level(s):

The report shall contain the water level data gathered and reported in accordance with **Tables 1 and 2**. The water level data shall be presented using tables and/or hydrographs and shall indicate at a minimum, but not limited to, the following: well identification, ADWR well registration number, cadastral location, measurement date, measuring point description, height of measuring point above (or below) land surface, pumping status of nearby wells, and the water level measurement in 1) feet above mean sea level and 2) feet below land surface.

b. Water Quantity:

The report shall contain the water quantity data for the recharge facility: basin identifier, month, monthly summaries for the daily volume of water discharged to the recharge basin in acre-feet, and daily wetted area of each recharge basin in acres. The information shall be compiled daily and aggregated for the month.

c. Infiltration Rates:

i. The permittee shall submit the infiltration rate in feet per day for each of the basins listed in **Table 3** and the method used to calculate the infiltration rate.

ii. The infiltration data shall be presented using tables and shall indicate at a minimum, but not limited to, recharge basin identifier, the method used, time interval of the wet/dry cycle, the volume discharged in acre-feet, duration of recharge, the maximum wetted area, and the infiltration rate in feet per day.

d. Water Quality (Groundwater):

The permittee shall report groundwater quality gathered in accordance with **Tables 6 and 7**.

e. Water Quality (Source Water):

The permittee shall provide source water quality data for the CAP source water as gathered, measured, and reported by the Central Arizona Project at the Havasu and Little Harquahala Pumping Plants. In the event that source water quality data from CAWCD monitoring becomes unavailable to the permittee, data shall be collected by the permittee according to **Tables 6 and 7**.

f. Alert Level Exceedance(s):

- i. The permittee shall summarize any water level exceedance in accordance with permit condition **5a**.
- ii. The permittee shall summarize the exceedance of any and all flow meter accuracy requirements and/or failures according to permit condition **5b**.
- iii. The permittee shall summarize the exceedance of any Aquifer Water Quality Standard or any Aquifer Water Quality Alert Level in accordance with permit condition **5 c and 5d**.

4. Monitoring Provisions:

- a. Monitoring for water level, water quantity, and water quality shall be performed in accordance with **Tables 1,2,4,5,6 and 7**.
- b. The permittee shall measure static water levels within an accuracy of one-tenth (0.1) of a foot for the wells listed in **Tables 1 and 2**.
  - i. Before the facility begins to operate, initial static water levels shall be measured and recorded a minimum of 72 hours after the pump has been turned off.
  - ii. Subsequent water level measurements shall be taken a minimum of 24 hours after the pump has been turned off. If the pump has not had 24 hours to recover due to demands, the maximum recovery time shall be used and noted on the data form. During the initial course of this program, an accurate assessment of the amount of recovery for a given length of recovery time shall be determined. The permittee shall note on the data log if nearby wells are being pumped at the time of water level measurement.

- c. The water quality monitor well listed in **Table 5** shall be sampled in accordance with standard ADEQ QA/QC sampling protocols and shall be equipped with a dedicated pump.
- d. Evaporation at the site shall be estimated on an annual basis using the methods of Cooley (1970) utilizing the maximum evaporation curve.

5. Alert Levels and Contingencies:

- a. The water level in the monitor wells listed in **Table 1** shall not rise within twenty (20) feet of the land surface and the water level in the piezometers listed in **Table 2** shall not rise within twenty (20) feet of land surface. If the water level in the monitor wells listed in **Table 1** rises within twenty (20) feet below land surface or twenty (20) feet below land surface for the piezometers listed in **Table 2**, ADWR shall be notified within 48 hours of the exceedance and the following actions shall be implemented:
  - i. A report shall be submitted including at a minimum, but not limited to, the detail of the exceedance as to the amount, date, duration, an explanation of the method(s) used to correct the exceedance, and a determination of any adverse impacts to the facility, land owners and/or water users.
  - ii. Project inflow shall be reduced and daily monitoring shall be implemented or continued in order to determine if water levels stabilize.
  - iii. If water levels remain above 20 feet below land surface in the monitor wells and 20 feet below land surface for the piezometers after two weeks, recharge activities shall be stopped until water levels drop below the respective action levels.
- b. The monitoring equipment listed in **Table 4** shall continue to function and accurately quantify flow and water level conditions pursuant to A.R.S. § 45-872.01.

If the measuring devices listed in **Tables 1, 2, and 4** fail to perform their designated function (A.A.C. R12-15-905 and 906) for more than 72 hours ADWR shall be notified in writing within seven (7) calendar days. The permittee shall report at a minimum, but not limited to, the monitoring point, type of measuring device, date of the malfunction, amount of time the device failed to properly operate, and an explanation of the method(s) used to correct the failure. When the device is a flowmeter, an estimate of the amount of flow and an explanation of the method(s) used to calculate the estimated amount of flow shall be reported.



PERMIT 71-571498

- c. The source water at the facility shall meet the Numeric Aquifer Water Quality Standards (NAWQS) of the State of Arizona, established in A.A.C. R18-11-406, except for turbidity and bacteria.

Water quality reports documenting any exceedance shall be submitted both to the ADWR and the ADEQ within five (5) days upon receipt of those reports by the permittee. For CAP source water sampling, an alert level shall be set at the NAWQS MCLs for metals, VOCs, herbicides and pesticides. If a constituent is detected above the alert level, a confirmatory sample shall be obtained within 30 days of receipt of the laboratory results. If results are confirmed, the ADWR and ADEQ shall be notified immediately upon receipt of confirmatory results for mutual consideration of possible contingency actions including: 1) additional confirmatory sampling, 2) analysis to determine the probable source of contaminant, and 3) reduction or curtailment of recharge water until the constituent of concern drops below the alert level. The report shall include at a minimum, but not limited to, the sampling point identification, the constituent, level of the constituent(s), date of the exceedance, and results as reported by the laboratory.

- d. Groundwatersampled at the monitor well listed in **Table 5** shall meet the NAWQS of the State of Arizona, established in A.A.C. R18-11-406 for those constituents listed in **Tables 6 and 7**.
  - i. If a chemical constituent exceeds the NAWQS and a second sample confirms the exceedance, the permittee shall analyze water quality and water level data and a report shall be prepared to assess the potential for unreasonable harm to nearby groundwater users. The report shall assess the following: 1) the probable cause of the NAWQS exceedance, 2) the potential for unreasonable harm to nearby water users resulting from the exceedance, and 3) additional contingency actions for approval by the ADWR and ADEQ, if it is determined that operation of the facility resulted in the exceedance. The report shall also include at a minimum, but not limited to, the sampling point identification, the constituent, level of the constituent(s), date of the exceedance, and results as reported by the laboratory.
  - ii. If the NAWQS are not met, then upon direction by ADWR and ADEQ, installation of additional monitor wells down gradient of the point of detection may be required.

6. Operational Provisions:

- a. The pressure transducers listed in **Tables 1 and 2** shall be calibrated quarterly using a steel tape, electrical sounder, or any other ADWR approved method.
- b. Groundwater shall be sampled according to the schedule listed in **Tables 6 and 7** at the well listed in **Table 5**.

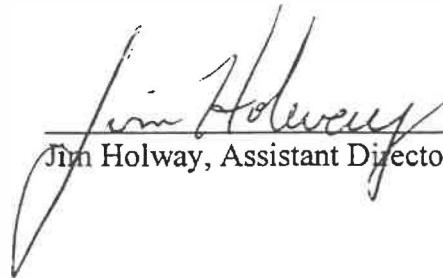
7. General Provisions:

- a. Water entering the facility shall be measured in a manner consistent with the requirements and specifications for water measuring devices adopted pursuant to A.R.S. § 45-872.01.
  - b. In accordance with A.R.S. § 45-814.01(G), the Director may modify the conditions of this permit, depending upon the type of water stored at the facility and upon other circumstances.
  - c. The facility shall continue to meet the requirements of A.R.S. § 45-811.01 during operation of the facility.
  - d. No waters other than those waters specified under the permit limitations are authorized for recharge at this facility.
  - e. The issuance of this permit does not waive compliance with any federal, state, county or local government statutes, rules or permits.
  - f. Any changes in the design, operation, and/or monitoring of the facility shall be submitted to the ADWR for approval prior to implementation.
  - g. The facility shall be operated only in conjunction with the applicable Water Storage Permit(s) subject to the conditions set forth within those permit(s).
8. If the permittee changes its Arizona statutory agent during the term of this permit, the permittee shall notify ADWR of the name and address of the new agent within 30 days of the change.

PERMIT 71-571498

9. The permittee shall notify ADWR in writing fourteen days prior to the commencement of recharge operations.
10. This permit shall be effective upon completion of the administrative appeal process.

*Witness my hand and seal of office this 6th day of  
July, 1999*

  
\_\_\_\_\_  
Jim Holway, Assistant Director



**ARIZONA DEPARTMENT OF WATER RESOURCES**  
**UNDERGROUND STORAGE FACILITY PERMIT**  
**CONSTRUCTED**

PERMIT NO. 71-571309

STATE OF ARIZONA )ss.  
 )  
COUNTY OF MARICOPA )

This is to certify that I have determined that Application No. 71- 571309 meets the requirements of Arizona Revised Statutes Title 45, Chapter 3.1, Article 2, for a Constructed Underground Storage Facility Permit. The Director hereby grants authority to the McMullen Valley Water Conservation and Drainage District to operate a constructed underground storage facility, subject to the following limitations and conditions:

**Permit Limitations**

Permittee: McMullen Valley Water Conservation and Drainage District  
P.O. Box 70  
Salome, AZ 85348

PERMIT 71-571309

Basin: Ranegras Plain

Location of Facility: W½ of Sec. 29, T4N, R14W, GSRB&M

Maximum Storage at Facility: 10,000 acre-feet for the duration of the permit

Source Water to be Stored: Central Arizona Project

Duration of Permit: Two years after recharge commences, but no later than January 1, 2005

**Permit Conditions**

1. The facility shall be constructed and operated as specified in the following documents, (hereinafter referred to as "hydrologic report"), which are incorporated in and made a part of this permit:
  - a. Hvdrologic Report for McMullen Vallev Water Conservation and Drainage District; Vicksburg Farms Underground Storage Facility Permit Application Addendum Converting to Small Scale Feasibility Test, dated August 1999.
  - b. McMullen Valley Water Conservation and Drainage District; Vicksburg Farms Water Storage and Recoverv Project; Application for Storage Facility Permit, Response to First ADWR Comment Letter, dated March 1999.
  - c. Hvdrologic Report for the McMullen Vallev Water Conservation and Drainage District Vicksburg Farms Storage Facility Permit, dated November 1998.
2. The permittee shall provide all monitoring data in the form of quarterly and annual reports as required below:
  - a. The permittee shall provide all monitoring data for the project in the form of **quarterly** reports which shall be submitted to the Arizona Department of Water Resources (ADWR) within forty-five (45) days of the completed quarterly reporting period. **The permittee shall send two (2) copies of all quarterly data reports to the Groundwater Management Support Section, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004.**
  - b. Pursuant to A.R.S. § 45-875.01 the permittee shall submit an **annual** data report to the ADWR no later than March 31 following the end of each completed annual reporting period. The first reporting period shall be from the issuance date of this permit through

December 31, 2000. Subsequent reporting periods shall be January 1 through December 31. The fourth quarter data report may be combined with the annual data report. **The permittee shall send two (2) copies of all annual data reports to the Records Management Unit, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004.**

The **annual** reports shall include a descriptive summary and analysis of the facility utilizing a narrative description, hydrographs, tables and maps. A description of the operation of the facility, total volume of water stored at the facility since the project inception, and any adverse impacts to surrounding land or other water users shall be provided.

3. The **quarterly** and **annual** reports shall include all monitoring data pursuant to this permit and as described in the permittee's hydrologic report. Any changes in the monitoring of the facility shall be submitted to ADWR for approval prior to implementation. The reports shall include a minimum of, but not limited to, the following:

- a. **Water Level(s):**

The report shall contain the water level data gathered and reported in accordance with **Tables 1 and 2**. The water level data shall be presented using tables and/or hydrographs and shall indicate at a minimum, but not limited to, the following: unique well identification, ADWR well registration number, cadastral location, measurement date, measuring point description, height of measuring point above (or below) land surface, pumping status of nearby wells during water level measurements, and the water level measurement in 1) feet above mean sea level and 2) feet below land surface.

- b. **Water Quantity:**

The report shall contain all water quantity data for the recharge facility in accordance with **Tables 2 and 3**. The water quantity data shall include, at a minimum, but not limited to, the daily volume of water recharged and pumped at each recharge well listed in **Table 2**, measured at the recharge and discharge flow meters listed in **Table 3**. The data shall be presented in monthly summaries indicating the well identification, ADWR well registration number, the month, daily volume of water both recharged and pumped from the recharge well in gallons, and the total monthly recharge and pumped volumes in acre-feet. If both recharge and pumping occur in the same well within a 24-hour period, the time intervals of the recharge and pumping events shall also be reported.



c. Injection Rates:

- i. The permittee shall collect injection rates at the beginning of each quarter for each of the recharge wells listed in **Table 2**.
- ii. The injection data shall be presented using tables and shall indicate at a minimum, but not limited to, the recharge well identifier, time interval and dates of the injection period, volume discharged in acre-feet, injection rate in gallons per minute, and all calculations used in the determination of the injection rate.

d. Water Quality (Groundwater):

The permittee shall report groundwater quality data gathered in accordance with **Tables 4, 5, and 6**.

e. Water Quality (Source Water):

- i. The permittee shall report source water quality data gathered in accordance with **Tables 5 and 6**.
- ii. The permittee shall report quarterly source water quality data for the CAP source water measured at a routine monitoring point along the conveyance between the CAP canal and Well #36.

g. Alert Level Exceedance(s):

- i. The permittee shall summarize any water level exceedance in accordance with permit conditions **4.a.** and **4.b.**
- ii. The permittee shall summarize the exceedance of any and all flow meter accuracy requirements and/or failures according to permit condition **4.c.**
- iii. The permittee shall summarize the exceedance of any Aquifer Water Quality Standard or any Aquifer Water Quality Alert Level in accordance with permit conditions **4.d.** and **4.e.**

4. Alert Levels and Contingencies:

- a. For the monitor wells listed in **Table 1**, the water level shall not rise within twenty (20) feet of the land surface. If the water level in a monitor well listed in **Table 1**

rises to within twenty (20) feet below land surface, ADWR shall be notified within 48 hours of the exceedance and the following actions shall be implemented:

- i. A report shall be submitted including at a minimum, but not limited to, the details of the exceedance as to the amount, date, duration, an explanation of the method(s) used to correct the exceedance, and a determination of any unreasonable harm to the land owners or other water users caused by the water level exceedance.
  - ii. Project inflow shall be reduced and daily monitoring shall continue in order to determine if water levels stabilize.
  - iii. If water levels remain above the action criteria after two weeks, recharge rates shall be stopped until water levels drop to 20 feet below land surface.
- b. Water levels in the recharge wells listed in **Table 2** shall not rise within ten (10) feet of the land surface. If the water level rises to within this alert level in a recharge well, ADWR will be notified within 48 hours of the exceedance and the following actions shall be implemented:
- i. The project inflow shall be diverted to the unaffected well and monitoring shall continue in order to determine if water level stabilizes.
  - ii. If water levels remain above the action criteria after two weeks, recharge rates shall be stopped until water levels drop below water level alert levels.
- c. The monitoring equipment listed in **Table 3** shall continue to function and accurately quantify flow and water level conditions pursuant to A.R.S. § 45-872.01.
- If the measuring devices listed in **Table 3** fail to perform their designated function (A.A.C. R12-15-905 and 906) for more than 72 hours ADWR shall be notified in writing within seven (7) calendar days. The permittee shall report at a minimum, but not limited to, the monitoring point, type of measuring device, date of the malfunction, amount of time the device failed to properly operate, and an explanation of the method(s) used to correct the failure. When the device is a flowmeter, an estimate of the amount of flow and an explanation of the method(s) used to calculate the estimated amount of flow shall be reported.
- d. The source water at the facility shall meet the aquifer water quality standards of the State of Arizona, established in A.A.C. R18-11-405 and 406 except for turbidity and bacteria.

Water quality reports documenting any exceedance shall be submitted both to the ADWR and the ADEQ within five (5) days upon receipt of those reports by the permittee. For CAP source water sampling, an alert level shall be set at the Numeric Aquifer Water Quality Standard (NAWQS) MCLs for metals, VOCs, herbicides and pesticides. If a constituent is detected above the alert level, a confirmatory sample shall be obtained within 30 days of receipt of the laboratory results. If results are confirmed, the ADWR and ADEQ shall be notified immediately upon receipt of confirmatory results for mutual consideration of possible contingency actions including: 1) additional confirmatory sampling, 2) analysis to determine the probable source of contaminant, and 3) reduction or curtailment of recharge water until the constituent of concern drops below the alert level. The report shall include at a minimum, but not limited to, the sampling point identification, the constituent, concentration of the constituent(s), date of the exceedance, and results as reported by the laboratory.

- e. Groundwater sampled at the monitor wells listed in **Table 4** shall meet the NAWQS of the State of Arizona, established in A.A.C. R18-11-406 for those constituents listed in **Tables 5 and 6**.
  - i. The water quality monitoring wells listed in **Table 4** shall be sampled prior to recharge for the constituents listed in **Tables 5 and 6**. If any constituent exceeds the NAWQ standard, three additional monthly samples shall be collected. Alert levels will be set for such constituents based upon a mean plus two standard deviations of the ambient data.
  - ii. If a chemical constituent exceeds the alert level and a second sample confirms the exceedance, the permittee shall analyze water quality and water level data and a report shall be prepared to assess the potential for unreasonable harm to nearby groundwater users. The report shall assess the following: 1) the probable cause of the alert level exceedance, 2) the potential for unreasonable harm to nearby water users resulting from the exceedance, and 3) additional contingency actions for approval by the ADWR and ADEQ, if it is determined that operation of the facility resulted in the exceedance. The report shall also include at a minimum, but not limited to, the sampling point identification, the constituent, concentration of the constituent(s), date of the exceedance, and results as reported by the laboratory.
  - iii. If the NAWQS are not met, then upon direction by ADWR and ADEQ, installation of additional monitor wells down gradient of the point of detection may be required.

5. Monitoring Provisions:

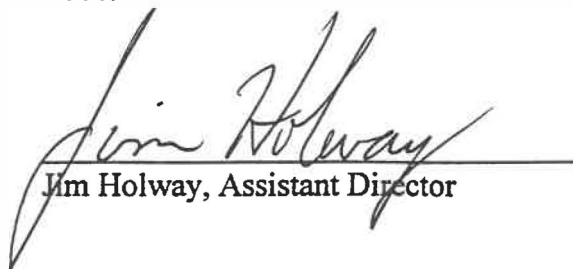
- a. Monitoring for water level, water quantity, and water quality shall be performed in accordance with **Tables 1, 2, 3, 4, 5, and 6**.
- b. The permittee shall measure, at a minimum, static water levels measured to within an accuracy of one-tenth (0.1) of a foot for the wells listed in **Table 1**.
  - i. Initial static water levels shall be measured and recorded a minimum of 72 hours after the pump has been turned off.
  - ii. Subsequent water level measurements shall be taken a minimum of 24 hours after the pump has been turned off. If the pump has not had 24 hours to recover due to demands, the maximum recovery time shall be used and noted on the data form. During the initial course of this program, a relatively accurate assessment of the amount of recovery for a given length of recovery time shall be determined. The permittee shall note on the data log if nearby wells or the recharge well are being pumped at the time of water level measurement.
  - iii. Surveyed wellhead elevations for the monitor wells listed in **Table 1** shall be submitted prior to the commencement of recharge.
- c. The pressure transducers listed in **Table 3** shall be calibrated quarterly using a steel tape, electrical sounder, or any other ADWR approved method.
- d. The water quality monitor wells listed in **Table 4** shall be sampled for water quality in accordance with standard ADEQ QA/QC sampling protocols.
- e. The water quality of the source water shall be sampled **quarterly** from a routine monitoring point along the conveyance between the CAP canal and Well #36.

6. General Provisions:

- a. Water entering the facility shall be measured in a manner consistent with the requirements and specifications for water measuring devices adopted pursuant to A.R.S. § 45-872.01.
- b. In accordance with A.R.S. § 45-814.01(G), the Director may modify the conditions of this permit, depending upon the type of water stored at the facility and upon other circumstances.

- c. The facility shall continue to meet the requirements of A.R.S. § 45-811.01 during operation of the facility.
  - d. No waters other than those waters specified under the permit limitations are authorized for recharge at this facility.
  - e. The issuance of this permit does not waive compliance with any federal, state, county or local government statutes, rules or permits.
  - f. Any changes in the design, operation, and/or monitoring of the facility shall be submitted to the ADWR for approval prior to implementation.
  - g. The facility shall be operated only in conjunction with the applicable Water Storage Permit(s) subject to the conditions set forth within those permit(s).
  - h. The Director may terminate this permit if permittee does not substantially complete construction of the facility within five years after the effective date of the permit. The Director may, for good cause shown, justify an extension beyond the five-year period.
7. If the permittee changes its Arizona statutory agent during the term of this permit, the permittee shall notify ADWR of the name and address of the new agent within 30 days of the change.
8. The permittee shall contact ADWR thirty days prior to the commencement of recharge to arrange a pre-recharge inspection of the site.
9. This permit shall be effective upon completion of the administrative appeal process.

*Witness my hand and seal of office this 7<sup>th</sup> day of April, 2000.*

  
Jim Holway, Assistant Director

3. Mr. Henley and Ms. Brothers discussed administrative timelines and dates by which communication between the parties would most beneficially assist Arizona in its annual water recharge and recovery planning. Nevada committed to complying with whatever schedule best assists Arizona in this regard. Nevada suggested the ability to make mid-year adjustments in planning decisions in order that recharge be enhanced when surprise water availability exists.



**ARIZONA 2000 LEGISLATIVE SERVICE**  
**Second Regular Session of the Forty-Fourth Legislature**

Copr. © West Group 2000. All rights reserved.

Additions are indicated by <<+ Text +>>; deletions by  
<<- Text ->>. Changes in tables are made but not highlighted.

CHAPTER 129  
S.B. 1254

WATERS--IRRIGATION NON-EXPANSION AREAS--GROUNDWATER WITHDRAWAL; LIMITATIONS

AN ACT AMENDING TITLE 45, CHAPTER 2, ARTICLE 3, ARIZONA REVISED STATUTES, BY  
ADDING SECTION 45-440; RELATING TO IRRIGATION NON-EXPANSION AREAS.

Be it enacted by the Legislature of the State of Arizona:

Section 1. Title 45, chapter 2, article 3, Arizona Revised Statutes, is amended by adding section 45-440, to read:

<< AZ ST § 45-440 >>

§ 45-440. Subsequent irrigation non-expansion area; limitation on use of groundwater

<<+A. Except as provided in subsection B of this section, in a subsequent irrigation non-expansion area from which groundwater may be withdrawn and transported to an initial active management area pursuant to article 8.1 of this chapter, a person or entity may withdraw more than one hundred acre-feet of groundwater per year for commercial or industrial purposes other than irrigation or residential use only if the groundwater is withdrawn as follows:+>>

<<+1. From land that is eligible to be irrigated pursuant to section 45-437, subsection B.+>>

<<+2. From a depth to one thousand feet at the site or sites of the proposed withdrawals.+>>

<<+3. At a rate that when added to the existing rate of withdrawals in the area does not cause the groundwater table at the site or sites of the withdrawals to decline more than ten feet per year.+>>

<<+4. In an amount per acre of land from which withdrawals are made that does not exceed:+>>

<<+(a) Six acre-feet in any year.+>>

<<+(b) Thirty acre-feet for any period of ten consecutive years computed in continuing progressive series beginning in the year that withdrawals begin.+>>

<<+B. In a subsequent irrigation non-expansion area from which groundwater may be withdrawn and transported to an initial active management area pursuant to article 8.1 of this chapter, an electrical generating facility for which an application for a certificate of environmental compatibility was filed with the corporation commission pursuant to title 40, chapter 2, article 6.2 before January 1, 2000 may withdraw groundwater for electrical generation and related uses in an amount not to exceed sixty-two thousand five hundred acre-feet per ten year period as determined using a ten year rolling average beginning on the date the facility first begins withdrawing groundwater.+>>

<<+C. This section shall not be construed to affect the rights of:+>>

< < +1. A political subdivision to transport groundwater withdrawn from an irrigation non-expansion area to an initial active management area pursuant to section 45-554. + > >

< < +2. Any person to store or recover water pursuant to chapter 3.1 of this title. + > >

Approved by the Governor, April 4, 2000.

Filed in the Office of the Secretary of State, April 4, 2000.

AZ LEGIS 129 (2000)

END OF DOCUMENT

**ARIZONA WATER BANKING AUTHORITY  
ANNUAL PLAN OF OPERATION**

**2001**



**1996**

Rita Pearson Maguire, Chairman

December 2000

## 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. Changes in the AWBA's enabling legislation in 1999 authorized the AWBA to participate in other water banking activities, however, no new water banking activities are included in this annual Plan of Operation.

The AWBA is required by statute to approve an annual Plan of Operation (Plan) by January 1 of each year. Prior to approval of the final Plan, the AWBA is required to solicit public comment by presenting it to the groundwater users advisory councils for the Phoenix, Pinal and Tucson active management areas (AMA) and to the county board of supervisors for counties outside of the AMAs if water storage is proposed there within the current plan. Presentation of the Plan must be made at publicly noticed open meetings at which members of the public are permitted to provide comment.

The Plan 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, if acceptable, 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. If the adjustments do not impact the overall annual delivery projections contained in the Plan, they 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.

## 2000 PLAN OF OPERATION

In 2000, the AWBA's fourth full year of operation, the AWBA recharged approximately 319,000 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).

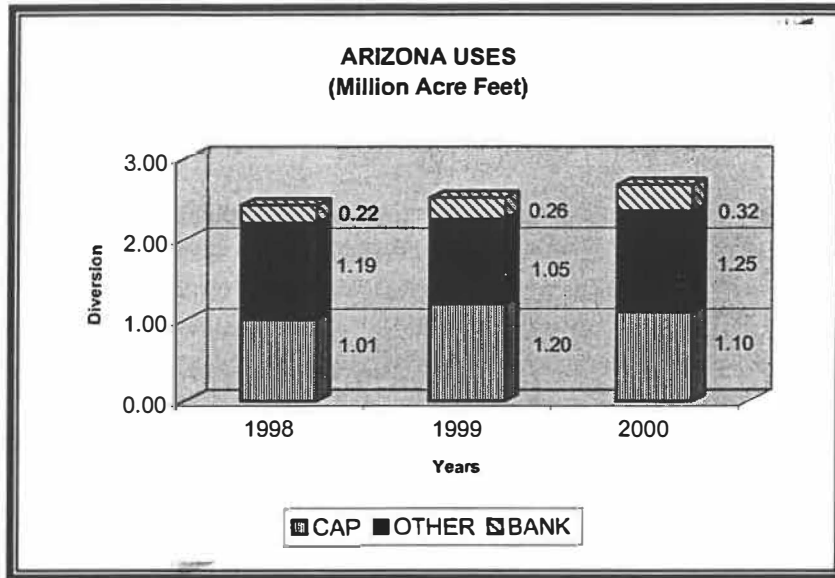


Figure 1

Because the Secretary of the Interior declared that the Colorado River was in surplus in 2000, increased use by Arizona did not impact the other Lower Basin states' uses. Total use of Colorado River water in the Lower Basin is estimated to be approximately 8.3 million acre feet in 2000 (see Figure 2).

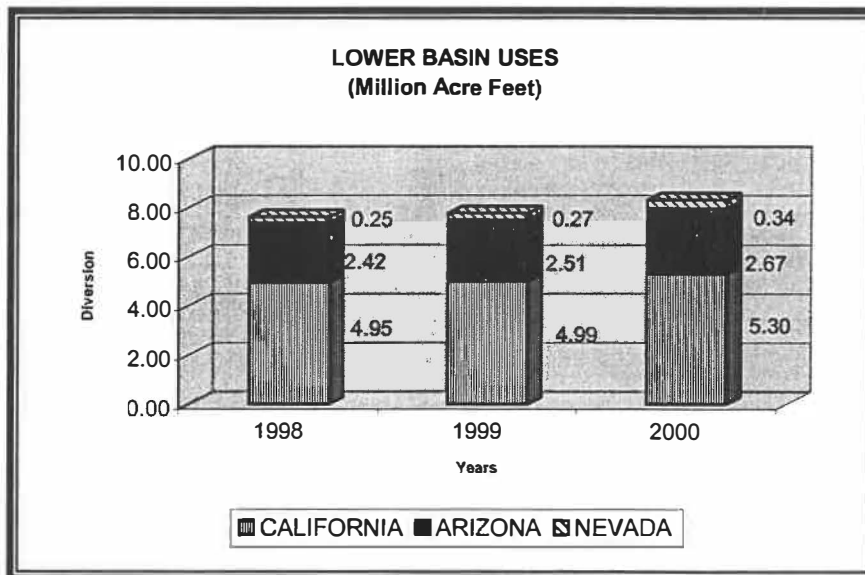


Figure 2

The AWBA recharged water at underground storage facilities (USF) and groundwater savings facilities (GSF) in 2000. Table 1 lists the AWBA's recharge partners for 2000, the amount of water that can be stored under each AWBA water storage permit, and the amount estimated to be recharged by the AWBA at each facility in 2000. Final figures generally become available in the middle of the following year following review of the annual reports filed with the Arizona Department of Water Resources. The amount of water stored is always greater than the amount of long-term storage credits earned by the AWBA because credits are computed by subtracting approximately 3-5% for losses and 5% for a "cut to the aquifer" from the total annual deliveries.

Table 1

AMA	Facility	Type	Permit Capacity	Amount Recharged
Phoenix	GRUSP	USF	200,000 AF	94,806 AF
	Chandler Hts Citrus ID	GSF	3,000 AF	922 AF
	Queen Creek ID	GSF	28,000 AF	14,733 AF
	New Magma IDD	GSF	54,000 AF	54,000 AF
	Tonopah ID	GSF	15,000 AF	1,000 AF
	SRP	GSF	200,000 AF	14,840 AF
	Maricopa Water District	GSF	18,000 AF	1,000 AF
Pinal	MSIDD	GSF	120,000 AF	26,000 AF
	CAIDD	GSF	110,000 AF	17,815 AF
	Hohokam ID	GSF	55,000 AF	55,000 AF
Tucson	Avra Valley (CAP)	USF	11,000 AF	2,000 AF
	Lower Santa Cruz	USF	30,000 AF	15,820 AF
	Pima Mine Road (CAP)	USF	30,000 AF <sup>1</sup>	6,510 AF
	CAVSARP (Tucson)	USF	15,000 AF	12,045 AF
	Kai Farms (Red Rock)	GSF	11,200 AF	2,476 AF
<b>Total</b>			<b>900,200 AF</b>	<b>318,967 AF</b>

<sup>1</sup> The Pima Mine Road pilot permit maximums were reached in March 2000. Recharge was reinitiated under the full-scale permit in September 2000. The permit capacity listed in the full-scale permit amount.

The 2000 Plan scheduled approximately 288,000 acre feet of water to be recharged around the state. The amount of water recharged amounted to approximately 319,000 acre feet. Figure 3 shows the acre foot break down between GSFs and USFs for 2000 and a comparison between 2000 and previous years.

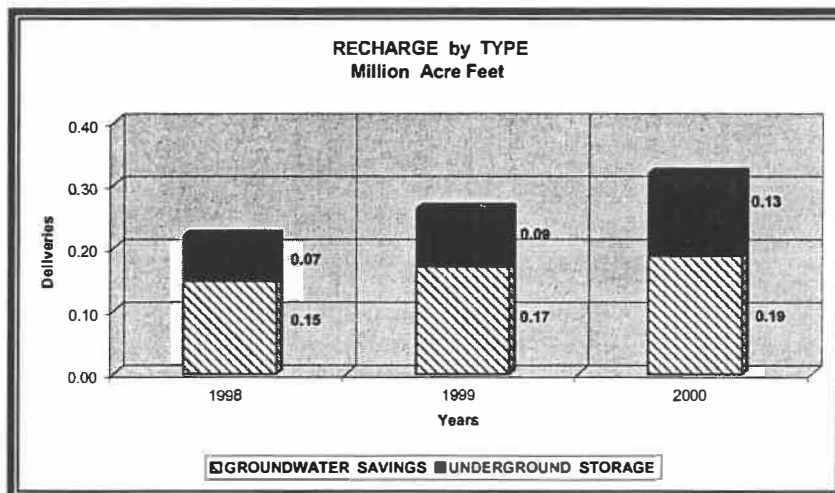


Figure 3

## 2001 PLAN OF OPERATION

When developing the 2001 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 2001, the Secretary of the Interior has declared (a determination has not yet been made, one is anticipated by December, 2000. This paragraph will be expanded once a determination has been made.).

Based on projected uses, Arizona's use of Colorado River water in 2001 will be approximately 2.76 million acre feet (see Figure 4), which will be slightly greater than Arizona's 2000 use. The overall Lower Basin use is projected to be approximately 8.16 million acre feet (see Figure 5) which is also slightly greater than the Lower Basin uses in 2000.

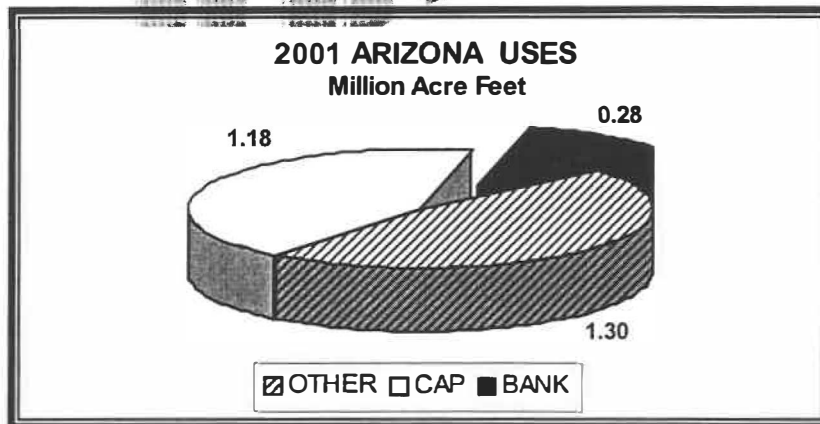


Figure 4

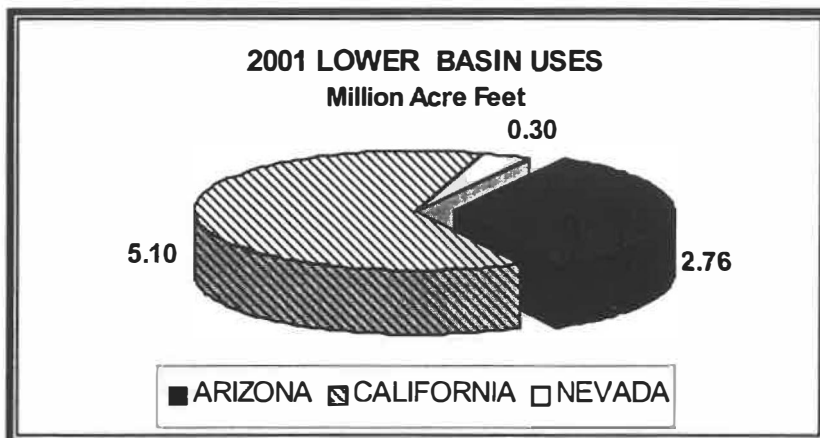


Figure 5

The CAP 2001 Operating Plan accommodates the delivery of approximately 1.49 million acre feet of water. CAP's plan delivers approximately 1.18 million acre feet to its subcontractors, which leaves approximately 310,000 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 2001, however, monthly capacity may be limiting due to a planned outage of the CAP in November and December 2001.

The funding available to the AWBA from its three sources (county *ad valorem* property tax revenues, groundwater pumping fees, and general funds) to pay for the delivery of water in 2001 will be approximately \$40 million including the carryover from previous years. Given the costs associated with the delivery of water and the continued policy of GSF operators paying \$21 of the water delivery costs to their facilities, the \$40 million is adequate to fund the Plan and is not a limiting factor in 2001. For more information about the cost of the Plan, please refer to the pricing section.

To assist in developing the 2001 Plan, each facility operator submitted an annual delivery schedule to the CAP. (The 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 1.49 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 the availability of substantial permitted recharge capacity but also that not all of the existing capacity is available to the AWBA. Some of the GSF availability was limited by delivery cost. Operational constraints or previous commitments to other partners limited the availability of both the GSFs and the USFs to the AWBA. For example, two partners that previously participated with the AWBA are not included in this Plan. The Central Avra Valley Storage and Recovery Project will be fully utilized by Tucson Water for their own annual recharge and recovery purposes. Maricopa Water District also anticipates that their GSF capacity will be fully utilized by other recharge partners. Figure 6 shows the break down between GSF and USF water storage for the 2001 Plan.

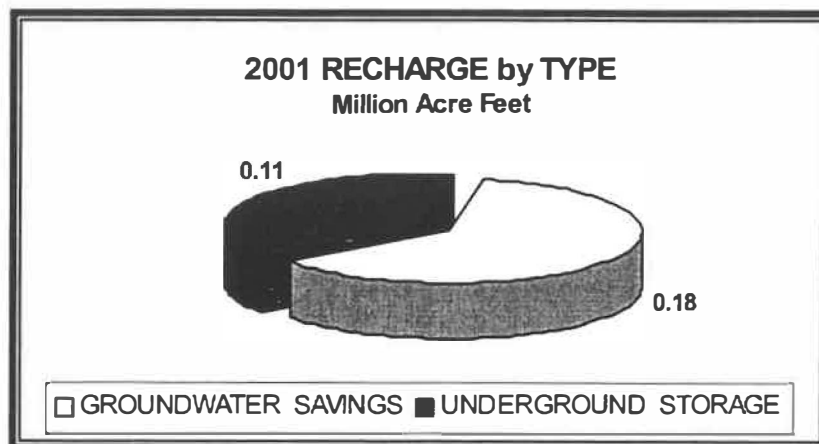


Figure 6



Based on its adopted Plan, the AWBA anticipates recharging approximately 284,000 acre feet of Colorado River water in 2001. The Plan was developed utilizing permitted facilities located in Maricopa, Pinal, and Pima 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 it can be modified in the future to include additional facilities.

The Central Arizona Water Conservation District (CAWCD) has established criteria for eligibility for a particular pool and established a pricing strategy for those pools. Under the criteria, the AWBA qualifies for the third pool. The price for the third pool is the "energy rate 2" plus approximately five dollars to cover other costs as set by current policy. Interstate storage would be accomplished within the fifth pool. The price for interstate banking will be established according to statute.

Table 2 shows the AWBA's 2001 delivery schedule. Line One of this table provides estimates of the 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 the CAP makes its priority deliveries and its deliveries to New Waddell Dam. The AWBA's capacity is determined by subtracting customer deliveries from the available capacity. Although the CAP is capable of delivering approximately 180,00 acre feet per month, the available capacity does not always total that because of unique situations. These can include 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 and outages. During the fall and winter months, the capacity available to the AWBA is constrained because the CAP is making deliveries to Lake Pleasant.

Lines Three through Twenty-one represent the AWBA's 2001 Plan of Operation. This section identifies the AWBA's partners for 2001 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 2001. 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-two lists the total amount of AWBA storage scheduled for the year 2001.

Line Twenty-three lists the CAP capacity remaining after the AWBA's deliveries are scheduled. The CAP has shown in the past that there is some operational flexibility to help meet deliveries in any given month. The AWBA staff will work closely with the CAP staff and our partners in an attempt to meet all scheduled deliveries.

**Table 2**  
**ARIZONA WATER BANKING AUTHORITY**  
**Water Delivery Schedule**  
**Calendar Year 2001**  
**(ACRE-FEET)**

2000  
Deliveries  
(AF)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total			
1	Estimated CAP Deliveries + Losses : (M&I, Indian, Ag Pools 1, 2 & 3, Incentive Recharge)	45,000	75,000	104,000	142,000	156,000	167,000	166,000	144,000	73,000	57,000	20,000	31,000	1,180,000			
2	Available Excess CAP Capacity for AWBA :	16,000	17,000	17,000	35,000	28,000	27,000	30,000	46,000	44,000	27,000	10,000	15,000	312,000			
	AWBA -- Recharge Sites :	Permitted Capacity (AF)	Requested Capacity (AF)														
	LA PAZ COUNTY :																
3	USF VIDLER WATER / MBT	10,000													?		
	PHOENIX A M A :																
4	USF GRUSP	200,000	64,354	6,600	6,600	6,600	4,954	6,600	6,600	6,600	6,600	6,600	0	0	64,354	94,806	
5	AGUA FRIA	100,000	14,733	0	0	0	0	0	0	2,900	2,900	2,900	2,933	3,100	14,733	0	
6	GSF CHCID	3,000	1,028	78	136	0	100	100	126	100	100	100	191	0	1,028	922	
7	MWD	0	18,000	0	0	0	0	0	0	0	0	0	0	0	0	1,000	
8	NEW MAGMA	54,000	42,539	2,098	2,941	0	2,500	3,000	3,500	3,700	9,700	9,600	3,500	0	2,000	42,539	54,000
9	QUEEN CREEK	28,000	19,996	0	0	0	1,000	0	0	3,946	7,270	3,720	1,600	0	2,460	19,996	14,733
10	RWCD	100,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	SRP	200,000	14,840	0	0	2,120	2,120	2,120	2,120	2,120	2,120	2,120	0	0	0	14,840	14,840
12	TONOPAHO	15,000	3,000	0	0	0	0	0	0	0	0	0	2,000	1,000	3,000	1,000	1,000
	PINAL A M A :																
13	GSF CAIDD	110,000	16,760	0	0	0	5,000	0	0	0	0	7,655	3,765	0	340	16,760	17,815
14	HOHOKAM	55,000	54,500	2,000	2,800	6,400	7,500	9,000	7,200	5,000	7,600	3,500	2,000	0	1,500	54,500	55,000
15	MSIDD	120,000	21,100	530	320	0	7,000	320	2,000	4,620	3,260	1,370	110	0	1,580	21,110	26,000
	TUCSON A M A :																
16	USF Avra Valley	11,000	6,000	600	600	600	600	600	600	600	600	600	0	0	6,000	2,000	2,000
17	CAVSARP	15,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,045
18	Pima Mine Road	30,000	10,325	1,032	1,032	1,032	1,032	1,032	1,032	1,032	1,032	1,037	0	0	10,325	6,510	6,510
19	Lower Santa Cruz	30,000	12,053	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,208	0	0	12,053	15,820	15,820
20	GSF Kai Avra	11,000	?													?	?
21	Kai Red Rock	11,000	3,000	0	0	0	0	0	0	1,000	1,000	1,000	0	0	3,000	2,476	2,476
22	TOTAL (USF + GSF):		284,238	14,140	15,634	17,957	33,011	23,977	24,383	29,923	43,387	41,402	23,511	4,933	11,980	284,238	318,967
23	Remaining CAP Capacity :			1,860	1,366	(957)	1,989	4,023	2,617	77	2,613	2,598	3,489	5,067	3,020	27,762	

No recovery is anticipated in 2001. (Add additional discussion on activities of the Recovery Subcommittee)

## **NEW PARTNERS**

In 2001, the Annual Plan of Operation anticipates recharging water at several new facilities. Some facilities have existing agreements and deliveries have been scheduled while others are still negotiating agreements. If agreements can be negotiated, it is anticipated that the existing Plan could accommodate certain facilities without amendment.

### *Agua Fria Recharge Project*

CAWCD is developing the Agua Fria Recharge Project as a Maricopa County State Demonstration Project. It will be the first recharge project in Arizona to incorporate a combination of streambed recharge and infiltration basins in a single underground storage facility. The Agua Fria Recharge Project is located in the Agua Fria River channel within the Salt River Valley groundwater basin of the Phoenix AMA. Land acquisition remains the final issue to be resolved before the Agua Fria may be constructed.

The Agua Fria Recharge Project is expected to be available to the AWBA for recharge in August 2001.

### *Bouse Recharge Facility*

Arizona Public Service (APS) has obtained a permit for this facility and has had discussions with AWBA staff regarding recharge in the year 2001. No agreement has been negotiated.

### *Vicksburg Farms Facility*

The McMullen Valley Water Conservation and Drainage District has received a pilot project permit for 10,000 acre feet of storage over a 2 year period. No agreement has been negotiated, however there have been discussions with AWBA staff regarding water storage at this facility in the year 2001.

## **INTERSTATE WATER BANKING**

To be completed

## **PRICING**

For 2001, CAWCD policy established a water delivery rate of \$45 per acre foot comprised of the following components: energy rate 2; ten percent of fixed operation and maintenance costs of the CAP system; and compensation for lost revenues.

The AWBA's policy of recovering \$21 from its groundwater savings facility partners will continue for 2001. 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**

<b>2001 Water Rates</b>	
CAP's delivery rate to AWBA	\$45 per acre foot
Groundwater Savings Facility operator portion of delivery rate	\$23 per acre foot <sup>1</sup>
Underground Storage Facility rate paid by AWBA	
GRUSP (SRP)	\$14.63 per acre foot
Avra Valley (CAP)	\$21.30 per acre foot
Pima Mine Road (CAP)	\$8.90 per acre foot
Lower Santa Cruz (CAP/Pima County)	\$13.10 per acre foot
Agua Fria Recharge Project	\$1.90 per acre foot

<sup>1</sup> 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 \$24/af.

The estimated total cost of the AWBA's 2001 Plan of Operation is approximately \$10.5 million which includes the USF use fees and the CAP delivery rate minus cost recovery from the GSF operator by the CAWCD.

## 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 2001 Plan.

**Table 4**

<b>2001 PLAN OF OPERATION</b>				
	<b>FUNDING<sup>1</sup></b>		<b>CREDITS<sup>2</sup></b>	
	<b>AVAILABLE</b>	<b>EXPENDED</b>	<b>AMOUNT</b>	<b>LOCATION</b>
Withdrawal Fee				
Phoenix AMA	\$10,045,000	\$0	0	Phoenix AMA
Tucson AMA	\$2,665,000	\$0	0	Tucson AMA
Pinal AMA	\$2,000,000	\$1,948,000	73,000	Pinal AMA
Four Cent Tax				
Maricopa County	\$18,295,899	\$5,858,000	130,000 AF	Phoenix AMA
Pima County	\$5,293,551	\$351,000	6,000 AF	Tucson AMA
Pinal County	\$269,979	\$269,000	10,000 AF	Pinal AMA
Other				
General Fund	\$2,000,000	\$2,000,000	36,000 AF	
		\$624,200	14,000 AF	Phoenix AMA
		\$1,375,800	22,000 AF	Tucson AMA
		\$0	0 AF	Pinal AMA
		\$0	0 AF	La Paz County
California	(not applicable)			
Nevada	(not applicable)			
<b>TOTAL</b>	<b>\$40,570,429</b>	<b>\$10,426,000</b>	<b>255,000 AF</b>	

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

<sup>2</sup> Estimate based on 89.78% of the deliveries (1998 actual Plan of Operation loss calculation)

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**

<b>CUMULATIVE TOTALS</b>			
<b>1997-2000</b>			
	<b>EXPENDED</b>	<b>AMOUNT</b>	<b>CREDITS<sup>1</sup></b>
			<b>LOCATION</b>
Withdrawal Fee			
Phoenix AMA	\$0	0	Phoenix AMA
Tucson AMA	\$0	0	Tucson AMA
Pinal AMA	\$2,000,000	78,000	Pinal AMA
Four Cent Tax			
Maricopa County	\$19,112,101	488,273 AF	Phoenix AMA
Pima County	\$2,660,449	44,248 AF	Tucson AMA
Pinal County	\$1,104,021	51,657 AF	Pinal AMA
Other			
General Fund	\$8,695,000	337,518 AF	
	\$2,500,022	76,009 AF	Phoenix AMA
	\$4,652,468	237,509 AF	Pinal AMA
	\$1,542,510	24,000	Tucson AMA
California			
Nevada			
<b>TOTAL</b>	<b>\$33,571,571</b>	<b>999,696 AF</b>	

<sup>1</sup> Actual credits used for 1997, 1998 and 1999; credits estimated for 2000

## **PUBLIC REVIEW AND COMMENT**

The AWBA staff held public meetings in conjunction with the Groundwater User Advisory Councils (GUAC) for the Phoenix, Tucson and Pinal Active Management Areas (AMA) as required by the AWBA's enabling legislation.

**DRAFT**

○  
○ Pinnacle West Capital  
○ Corporation  
○ Bouse Recharge Project

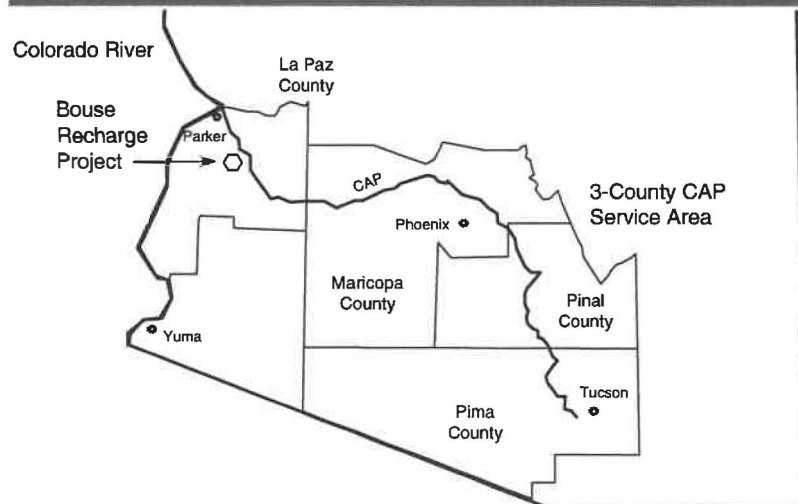
Presented to the  
**Arizona Water Banking  
Authority**  
September 20, 2000

9/20/00

Pinnacle West Capital Corporation

1

○  
○  
○ Project and CAP Locations



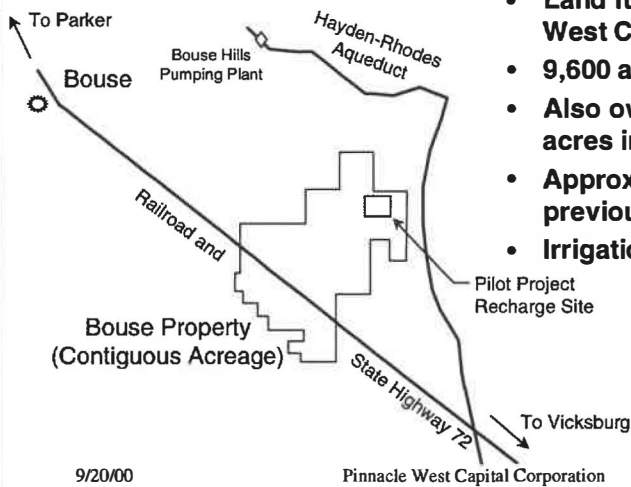
9/20/00

Pinnacle West Capital Corporation

2



## Property Background



- Land fully owned by Pinnacle West Capital Corporation
- 9,600 acres contiguous
- Also owns another 2,850 acres in La Paz County
- Approximately 3,600 acres previously irrigated
- Irrigation ceased in 1987

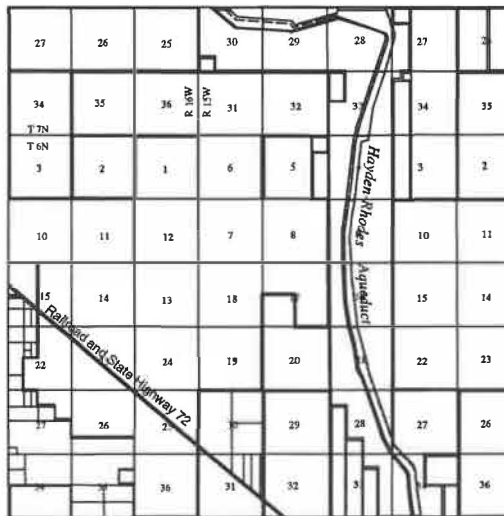
9/20/00

Pinnacle West Capital Corporation

3

## Ownership Map

- PW Lands
- BLM Lands
- State Lands
- Private Lands
- CAP Right-of-Way



9/20/00

4




## Project Overview

- **Water source - CAP**
- **Method - Infiltration basins**
- **Recovery - Existing wells**
- **Recovery to Hayden-Rhodes Aqueduct**

9/20/00

Pinnacle West Capital Corporation

5



## Pilot Project Objectives

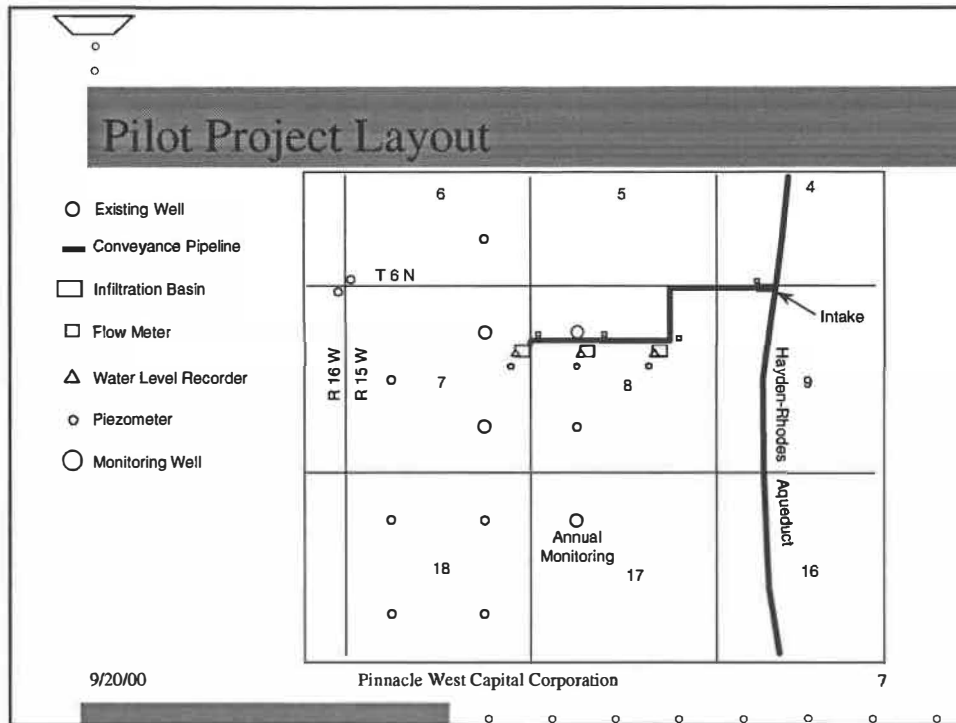
- **Determine hydrologic feasibility of recharge**
  - Determine infiltration rate
    - Test indicates 2 feet per day
  - Determine extent of impermeable zones
- **Recharge water for AWBA**
- **Recharge up to 10,000 acre-feet**
- **Operate at least 6 months**

9/20/00

Pinnacle West Capital Corporation

6






- 
- Full Scale Project Overview**
- **Expanded version of pilot project**
  - **Infiltration basins**
    - Size to be determined
  - **Expected recharge capacity**
    - 30,000 to 70,000 acre-feet per year
  - **Expected storage capacity**
    - 300,000 to 600,000 acre-feet
- 9/20/00 Pinnacle West Capital Corporation 8



## Why Recharge at Bouse?

- **Recharge**
  - Offers CAP operational flexibility
  - Lower CAP pumping requirement
  - Year-round operation
  - Does not compete with recharge in AMAs



## Why Recharge at Bouse? (con't.)

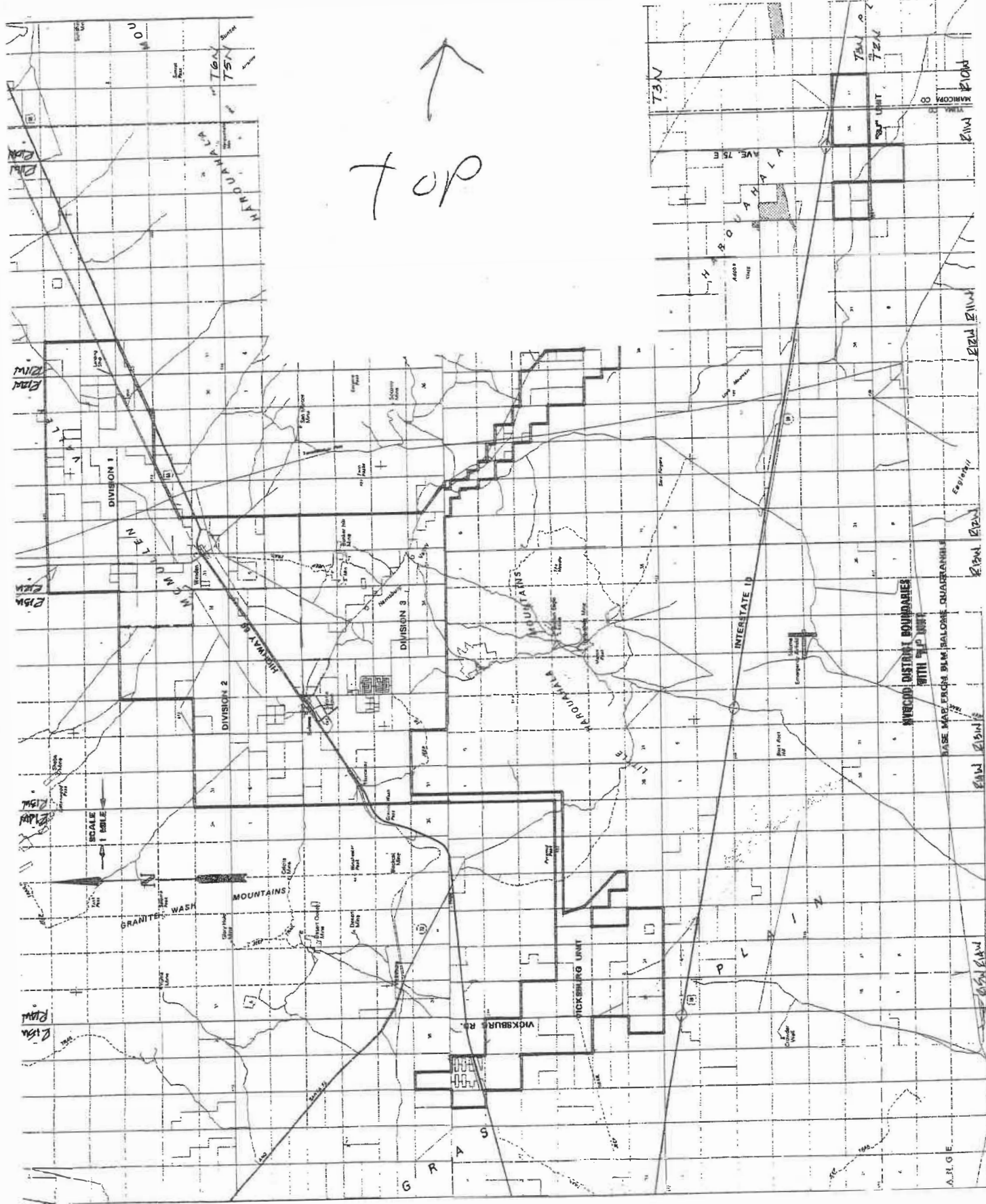
- **Storage**
  - Groundwater quality similar to CAP
  - Safe storage
    - Pinnacle West controls recharge area
    - Transportation of groundwater prohibited
- **Recovery**
  - Recovery area close to Hayden-Rhodes Aqueduct
  - Wells in place
  - Simplified recovery agreements



## Project Timeline

- **Pilot project USF permit issued**
  - *August 10, 1999*
- **Currently finishing pilot project design & permitting**
- **Begin pilot project operation**
  - *January 2001*
- **Full scale permitting, design, and construction**
  - *Early 2001*
- **Begin full-scale project operation**
  - *Mid 2001*

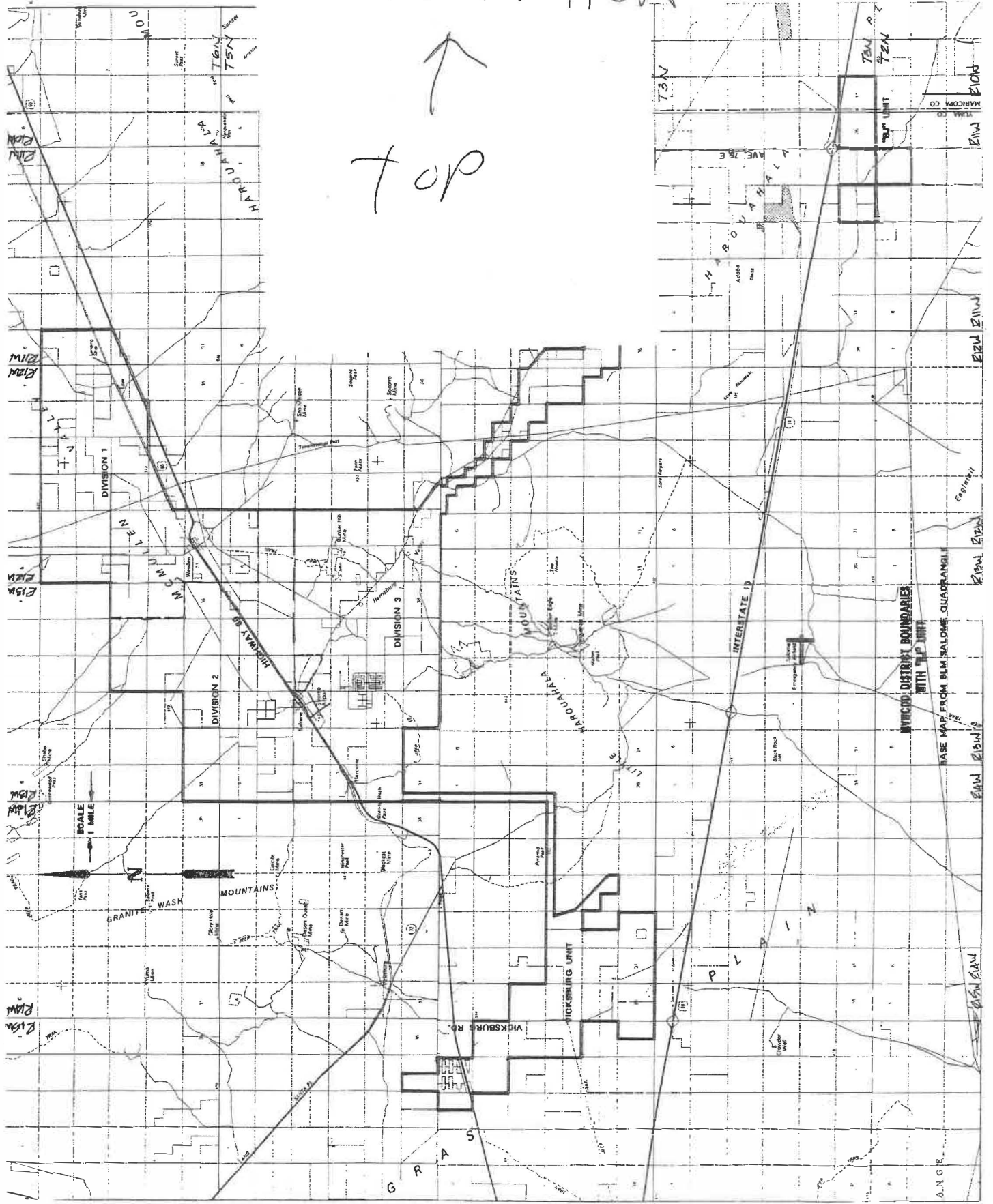
TOP ↑



A.H.G.E.

McMullen

↑  
TOP



○  
○  
○ Pinnacle West Capital  
○ Corporation  
○ Bouse Recharge Project

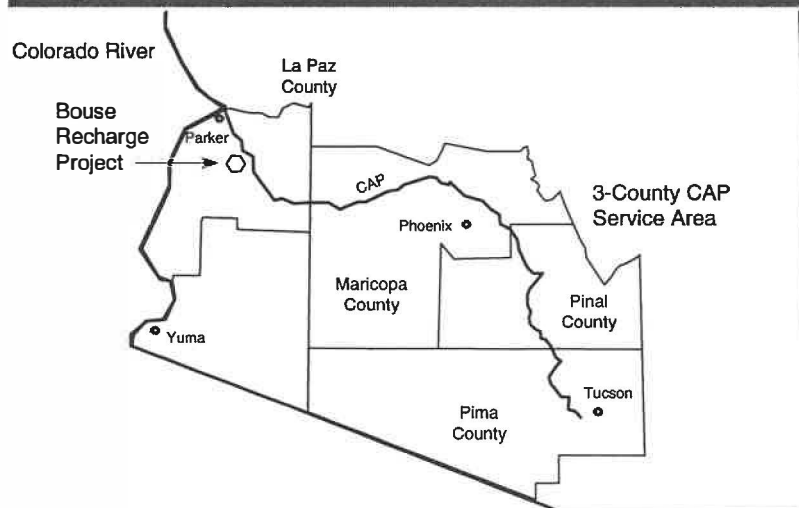
Presented to the  
**Arizona Water Banking  
Authority**  
September 20, 2000

9/20/00

Pinnacle West Capital Corporation

1

○  
○  
○ Project and CAP Locations



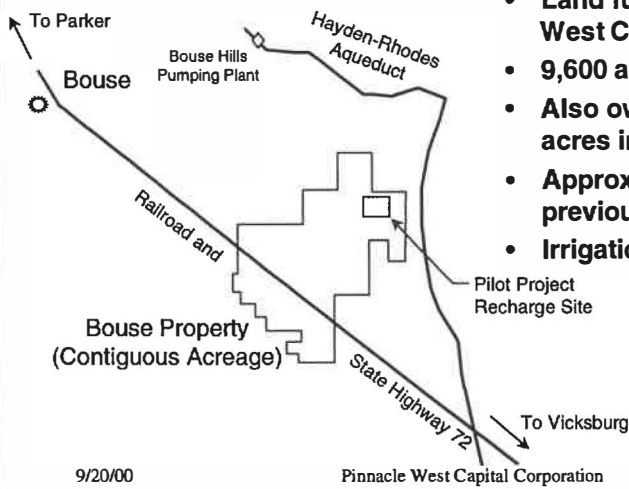
9/20/00

Pinnacle West Capital Corporation

2



## Property Background



- Land fully owned by Pinnacle West Capital Corporation
- 9,600 acres contiguous
- Also owns another 2,850 acres in La Paz County
- Approximately 3,600 acres previously irrigated
- Irrigation ceased in 1987

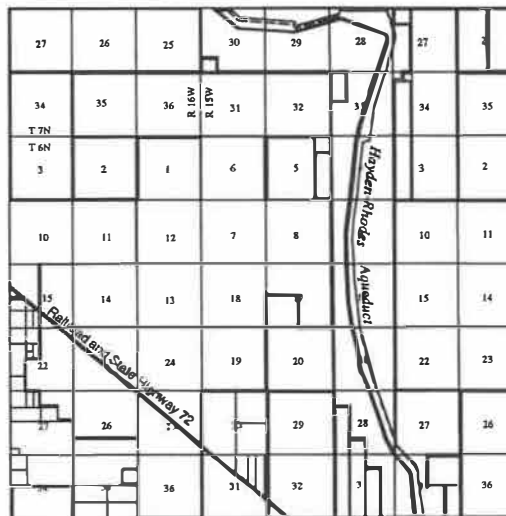
9/20/00

Pinnacle West Capital Corporation

3

## Ownership Map

- PW Lands
- BLM Lands
- State Lands
- Private Lands
- CAP Right-of-Way



9/20/00

4




## Project Overview

- **Water source - CAP**
- **Method - Infiltration basins**
- **Recovery - Existing wells**
- **Recovery to Hayden-Rhodes Aqueduct**

9/20/00

Pinnacle West Capital Corporation

5



## Pilot Project Objectives

- **Determine hydrologic feasibility of recharge**
  - Determine infiltration rate
    - Test indicates 2 feet per day
  - Determine extent of impermeable zones
- **Recharge water for AWBA**
- **Recharge up to 10,000 acre-feet**
- **Operate at least 6 months**

9/20/00

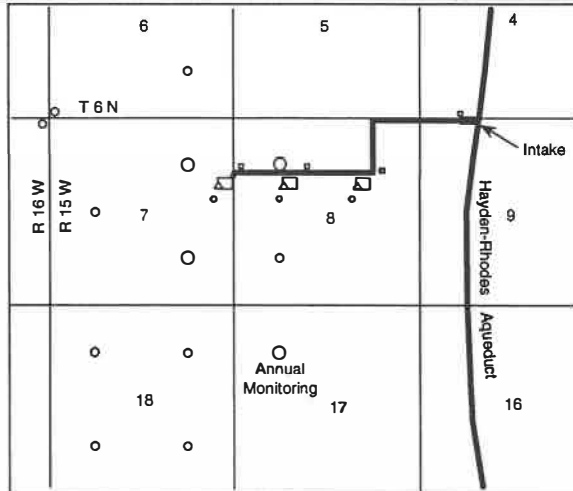
Pinnacle West Capital Corporation

6



## Pilot Project Layout

- Existing Well
- Conveyance Pipeline
- Infiltration Basin
- Flow Meter
- △ Water Level Recorder
- Piezometer
- Monitoring Well



9/20/00

Pinnacle West Capital Corporation

7

## Full Scale Project Overview

- **Expanded version of pilot project**
- **Infiltration basins**
  - Size to be determined
- **Expected recharge capacity**
  - 30,000 to 70,000 acre-feet per year
- **Expected storage capacity**
  - 300,000 to 600,000 acre-feet

9/20/00

Pinnacle West Capital Corporation

8



## Why Recharge at Bouse?

- **Recharge**
  - Offers CAP operational flexibility
  - Lower CAP pumping requirement
  - Year-round operation
  - Does not compete with recharge in AMAs

9/20/00

Pinnacle West Capital Corporation

9



## Why Recharge at Bouse? (con't.)

- **Storage**
  - Groundwater quality similar to CAP
  - Safe storage
    - Pinnacle West controls recharge area
    - Transportation of groundwater prohibited
- **Recovery**
  - Recovery area close to Hayden-Rhodes Aqueduct
  - Wells in place
  - Simplified recovery agreements

9/20/00

Pinnacle West Capital Corporation

10

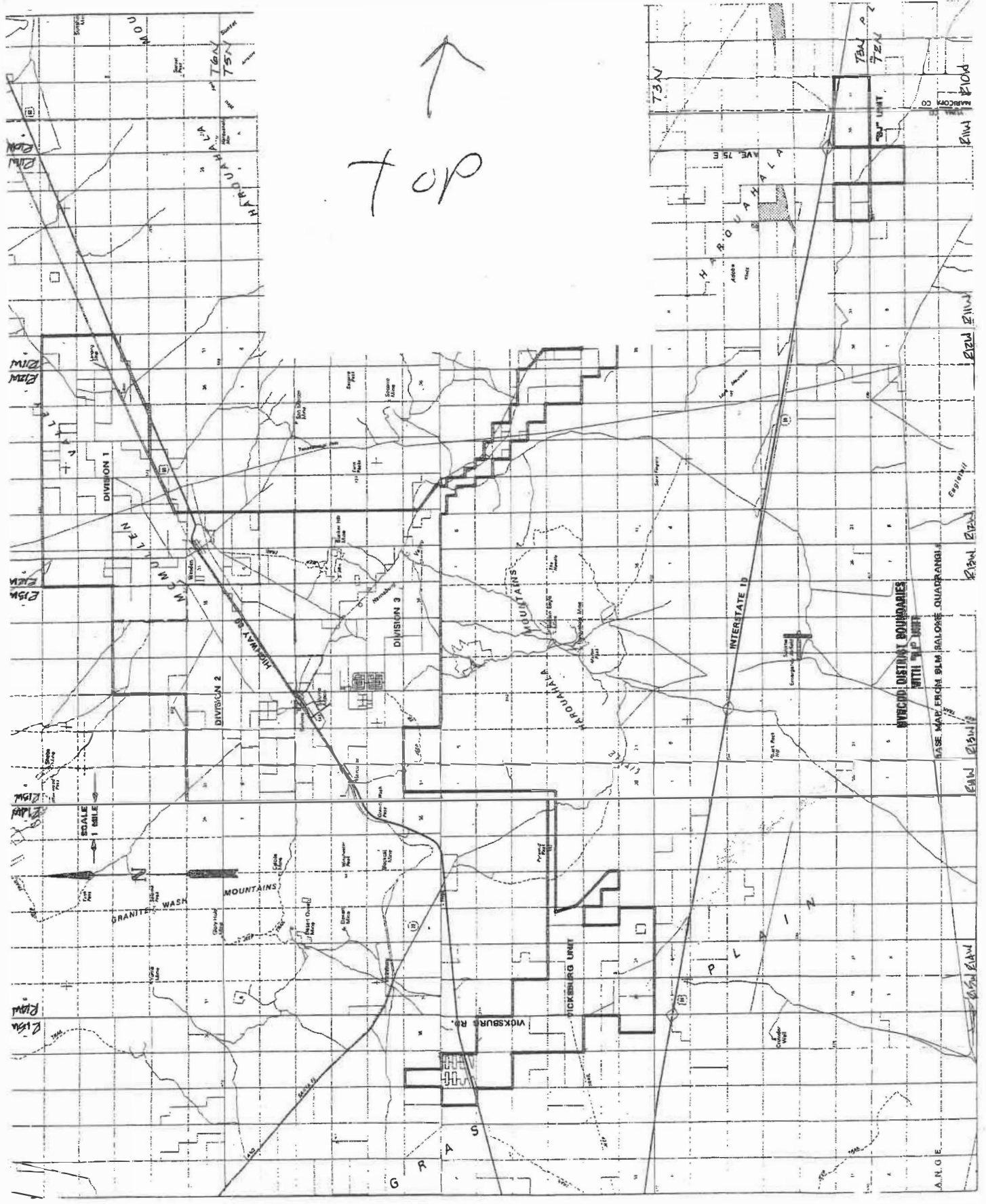




## Project Timeline

- **Pilot project USF permit issued**
  - *August 10, 1999*
- **Currently finishing pilot project design & permitting**
- **Begin pilot project operation**
  - *January 2001*
- **Full scale permitting, design, and construction**
  - *Early 2001*
- **Begin full-scale project operation**
  - *Mid 2001*

↑  
TOP





# Tucson Water's Potable Water Sources

