



Arizona Department of Water Resources
GROUNDWATER USERS ADVISORY COUNCIL
Tucson Active Management Area

JOHN MAWHINNEY
Chair

DAN M. OFFRET
Vice-Chair

VAL LITTLE

DEE O'NEILL

Minutes
December 7, 2009

Members Present: John Mawhinney, Chair
Dan M. Offret, Vice-Chair
Val Little

Staff Present: Jeff Tannler
Mary Bauer
Christina Bickelmann
John Bodenchuk
Laura Grignano
Nicholas Kilb
Linda Stitzer

AWBA Staff: Kim Mitchell
Virginia O'Connell

Others Present: Mitch Basefsky, CAP
Michael Block, Metro Water District
Kathy Chavez, Pima County
David Crockett, Flowing Wells Irrigation Dist.
Anthony Cuaron, Town of Marana
Susanne Eden, UA WRRC
Nancy Freeman, Groundwater Awareness League
Tim Henley, Consultant
Dee Korich, Tucson Water
Joanna Nadeau, UA WRRC
Priscilla Robinson, Former GUAC Member
Philip Saletta, Town of Oro Valley Water Utility
Ken Seasholes, CAP
Deborah Tosline, Bureau of Reclamation

1. Call to Order

Chair John Mawhinney called the meeting to order at 9:05 a.m. Introductions were made.

2. **Approval of Minutes**

Dan M. Offret made a motion to approve the minutes of September 15, 2009. Val Little seconded the motion. The minutes were unanimously approved.

3. **Tucson Area Water Quality Overview**

John Calkins, Manager of the Arizona Department of Environmental Quality (ADEQ) Safe Drinking Water Section, was invited to give an overview of Pima County's Public Water Systems (PWS). This program is in place to help ensure safe and reliable drinking water. ADEQ drinking water standards mirror those of the Safe Drinking Water Act.

There are three types of PWS:

- 1) Community Water System – a system that has 15 or more connections, or 25 or more residents, year round. An example of this would be a permanent sub-division.
- 2) Non-Transient, Non-Community Water System – a system that has 15 or more connections, serving residents at least six months out of the year. An example of this would be a school.
- 3) Transient, Non-Community Water System – a system that has 15 or more connections, but does not serve 15 or more connections that are used by the same persons for more than six months per year; or the system serves an average of at least 25 persons per day for at least 60 days out of a year but does not serve the same 25 persons for more than 6 months per year. An example of this would be the Arizona Department of Transportation's rest areas.

The Community Water Systems perform the most rigorous water quality monitoring under state and federal regulations, testing for over 90 regulated contaminants. The Non-Transient, Non-Community Water Systems perform the identical testing as Community Water Systems, minus radionuclides and fluoride standards. The Transient, Non-Community Water Systems must monitor and meet bacteria, nitrate and nitrite standards.

Inspections are made on PWS by ADEQ or a delegated county. Surface water systems are inspected every other year and groundwater systems once every three years.

Statewide there are approximately 1,600 regulated PWS; the numbers fluctuate due to systems going on and off line. Pima County has about 235 systems, equating to 150 Community Water Systems, 35 Non Transient, Non-Community Systems; and 50 Transient Non-Community Systems.

PWS in Arizona serve a combined population of approximately 6 million people. This high number is due to some populations being counted twice, because at times they are served by more than one system. In addition, transient population is counted. Pima County serves roughly 1 million of this figure.

The regulated contaminants that may be of concern in Pima County are Total Coliform Bacteria, Arsenic, Nitrate, Fluoride, Lead and Copper. Since the standard on arsenic went from 50 ppb to 10 ppb, there are approximately 35%, or 330 PWS that had not met the arsenic standard. As a result, there are more systems in place treating specifically for this contaminant.

Emerging contaminants of concerns are pharmaceuticals and personal care products. EPA recently posted a pre-publication copy of its Contaminant Candidate List (CCL 3). The CCL 3 is a list of contaminants that are currently not subject to any proposed regulations but that are known or anticipated to occur in PWS and may require regulation under Safe Drinking Water Act standards. The final list consists of 104 chemicals or chemical groups and 12 microbiological contaminants.

The contaminant perchlorate was on a previous CCL list, but EPA hasn't made a determination to date; they are currently reexamining it. If perchlorate does become a standard, the surface water systems in the Southwest could be impacted.

EPA plans to make regulatory determinations for at least five of the contaminants on the CCL 3 list by 2013. For more information on the how this process works, visit the website at www.epa.gov/safewater/ccl/ccl3.html

4. Draft 2010 Annual AZ Water Banking Authority (AWBA) Plan of Operation

Kim Mitchell and Virginia O'Connell were invited to present the AWBA's 2010 Annual Plan of Operation. Each year, one of the statutory roles of the GUAC is to make a recommendation to the AWBA on its Plan of Operation.

Ms. Mitchell started with an overview of the 2009 activity. In 2009 the water orders that came into CAP were approximately 234,000 AF over the available supply, leaving virtually no water for the AWBA. CAP realized it needed to develop a strategy on how to distribute excess water. They came up with a temporary procedure with the idea of becoming more involved in the stakeholder participation in 2010 and beyond. This resulted in two pools being created for 2009 participation, one for recovery and one for Indian firming, along with a procedure created on how the remaining balance would be distributed.

Approximately 25,000 AF in interstate water was stored in 2009. Nevada had recently approached the AWBA about storing 40,000 AF of its unused allocation. Storage capacity has been identified and the water will be stored under the interstate agreement between Arizona and Nevada. By the end of 2009 the AWBA would have stored an estimated 173,000 AF, bringing the total cumulative stored to 3.6 MAF.

Ms. Mitchell briefly updated the group on the "Access to Excess" process that's been ongoing. At the end of 2008 and the first half of 2009, CAWCD conducted several workshops to study how excess CAP is going to be distributed. The idea behind the workshops was to identify areas of agreement on how the water should be allocated. The consensus that emerged was a multiple pool approach, where different areas of uses were recognized. A policy was adopted in June, 2009 that identifies four pools beyond the agricultural settlement pool, which is not subject to "Access to Excess" provisions. 1) 175,000 AF will be shared by the AWBA, the CAGRDR Replenishment Reserve and the Federal Government, 2) 35,000 AF for CAGRDR Annual Replenishment, 3) 95,000 AF for Municipal, and 4) 95,000 AF for Industrial. The AWBA is moving forward with proposed legislation to allow it to participate in the pools CAWCD creates.

Ms. Mitchell discussed the Draft 2010 Annual AWBA Plan of Operation. In the Phoenix AMA the AWBA is expected to store 46,345 AF at the Tonopah Desert Underground Savings Facility (USF) and 7,055 at the Queen Creek Groundwater Savings Facility (GSF). There is no planned interstate storage going into 2010 due to lack of water availability.

Storage in the Pinal AMA will take place at its three irrigation/drainage districts: Central Arizona (CAIDD), Hohokam, and Maricopa Stanfield (MSIDD). The total 34,200 AF will be shared evenly, based upon funding availability.

In the Tucson AMA 2,500 AF will be stored at the Avra Valley facility; 17,500 AF at the Santa Cruz facility; 5,000 AF at the Central Avra Valley Storage and Recovery Project, and 36,000 AF at the

Southern Avra Valley Storage and Recovery Project; all are USFs. The AWBA is working on a new partnership with Cortaro-Marana Irrigation District; 4,000 AF has been identified to store at its facility.

Total recharge in 2010 amounts to 152,600 AF. There is an additional 1,000 AF of direct delivery identified for the Southside Replenishment Bank. This is a requirement under the Southern Arizona Water Rights Settlement Act. The minimum annual storage amount is 1,000 AF. In years when more water is available, the AWBA will try to deliver more than the minimum.

Virginia O'Connell reviewed the costs associated with the plan. The CAWCD delivery rate to the AWBA for storage is \$133 AF. This is \$51 more than last year. The interstate rate is \$231 AF, down \$2 from last year. The GSF operator cost share for the Tucson AMA is \$15 AF; the Phoenix and Pinal AMAs' cost is \$33 AF, up \$1 from last year. The Tucson AMA cost is lower as there has been little GSF participation in the region, putting its M&I firming goal behind. In addition, its groundwater pumping rates are much lower than the other two AMAs.

If there were any interstate banking planned the cost would be \$26 AF, the same as last year. All the USF rates paid by the AWBA remain the same as last year, ranging from \$8 to \$26 AF. The rate for the Southside Replenishment Bank is \$118 AF, the same as the Federal rate for Indian deliveries.

The funds anticipated to be available for the plan amount to \$165,200,000. The funding is generated through withdrawal fees collected from all three AMAs and from the four cent ad valorem tax, which is money held by CAP to offset the AWBA storage costs. According to the interstate banking agreement with Nevada it is required to pay \$23 million per year for a 10-year period. Payments started in 2009. Pursuant to a letter agreement for flexibility and operations, the AWBA would call on this money if need be. The total expenditures for the 2010 Plan of Operation is approximately \$20,410,000, leaving 141,170 in credits. The full draft plan is posted on the web at: <http://www.azwaterbank.gov/awba> Comments on the plan are due by Friday, December 11, 2009.

5. Presentation of Tucson AMA Water Resources Assessment

Jeff Tannler, Area Director, and Laura Grignano, Industrial Planner, for the Tucson AMA presented an overview of the draft Water Resources Assessment for the Tucson AMA. Mr. Tannler began by stating that over the last year the assessment team has put a great deal of work into the project. The document is over 100 pages, is being completed, and should be posted to the web in the coming weeks.

The purpose of the Tucson AMA assessment is to compile and study historical water demand and supply from 1985-2006 for all sectors, along with projecting future demand and supply from 2007-2025. Three demand scenarios were developed, along with alternative scenarios.

Using the three scenarios, overdraft was calculated for 2025 to determine whether the Tucson AMA will likely reach safe-yield. The assessment will lay the groundwork for the 4th Management Plan (4MP), and it is hoped ADWR will be able to continually update the data for future planning projections.

Many components go into building a water budget, making it very complex. The water budget template includes the three major water using sectors: agriculture, municipal and industrial, along with Indian agriculture and municipal uses. Also included is recharge, both natural and artificial.

Laura Grignano reviewed the historical water use. The historical data used in the water budget was primarily compiled from data submitted to ADWR in the Annual Water Withdrawal and Use Reports.

Every effort was made during the compilation process to stay consistent between AMAs from year to year. The results contain yearly water use data from 1985 through 2006.

Municipal demand has increased steadily over time as population in the Tucson AMA has increased. Between 1985 and 2006, there was a large shift in supply from predominately groundwater to a combination of CAP and groundwater. There was also a modest increase in effluent use.

The industrial demand and supply has fluctuated through time. Demand was primarily driven by metal mining, which reached historical highs in the 1990's. The supply to meet the industrial demand has historically been groundwater. A small amount of surface water and effluent have also been used.

Historical non-Indian agriculture demand has fluctuated significantly over the years depending on factors such as crop prices and weather. There have been no significant trends found that indicate that agriculture demand is declining. The demand is met primarily with groundwater with modest use of direct CAP water over time, as well as CAP used in-lieu of groundwater in association with Groundwater Savings Facilities (GSFs). Earlier on effluent was used on farms in Avra Valley but is not currently being used.

Over time, Indian water demand has shown a steady increase, with a shift from groundwater to predominately direct CAP use.

There has been a significant amount of water stored at GSFs and USFs since 1995. In 1995, approximately 12,000 AF was stored, compared to 182,000 AF stored in 2006. It is important to note that although there is a great deal of water in storage, most of it is going to be recovered at some point. However, there is a portion of stored water that remains in ground and offsets overdraft. This is often called "cuts to the aquifer."

Jeff Tannler talked about how overdraft is calculated in the water budget. The "cut to the aquifer" ties into the various components that are counted as inputs to the aquifer or withdrawals from the aquifer. A number of budget elements are included - some count toward overdraft, such as groundwater pumping, while some such as incidental recharge serve to offset overdraft. The pluses and minuses are summed to determine if the AMA is in overdraft or in surplus.

Overdraft in 1985 was approximately 105,000 AF; in 1995 it was roughly 175,000 AF. By 2006 it came back down to about 101,000 AF, primarily because of the use of CAP and effluent. It was noted that in 1995 the Assured Water Supply Rules included a provision for groundwater allowance for designated providers and Certificates of Assured Water Supply. Groundwater pumped pursuant to this allowance is considered consistent with the Tucson AMA management goal of safe-yield. Therefore, (legally) overdraft is closer to 73,000 AF.

The water use projection methodology for the three scenarios was discussed next. The municipal sector demands were based on population projections from Pima Association of Governments, Central Arizona Association of Governments, or Designations of Assured Water Supply (DAWS), combined with use rates based on GPCD or DAWS applications.

A combination of trend line and regression analysis was used for industrial and agriculture projections, along with best judgments from AMA staff and sector specific professionals. Average historic and current use held constant was also figured into the equation.

Use by individual providers and all the resources available were looked at closely, in addition to consulting many sector professionals. The assessment document will contain more detailed information on projection methodology and assumptions in an appendix.

Using the three scenarios, projected municipal demand is expected to increase but at different rates based on a combination of differing population and demand. In all three scenarios use of CAP water is maximized. Scenarios two and three show a higher municipal demand; it is assumed this higher demand would be met by groundwater. All effluent available was assumed to be used or stored. Another scenario could be developed based on more use of effluent in the near term, but it is likely it will be stored for future use.

Laura Grignano reviewed projected industrial demand and supply. Between 1985 and 2006 the metal mining industry has fluctuated. Projected industrial demand is also expected to be primarily driven by mining use. The three scenarios developed were based on varying assumptions of future mining production rates and associated water use.

In all three scenarios, projected industrial supplies rely predominately on groundwater. The biggest change in future industrial supplies is the increase of in-lieu CAP water. Through the Southern Arizona Water Rights Settlement Act, ASARCO can now use up to 10,000 AF of CAP water in-lieu of groundwater for its operations. All but the first scenario maximize this new supply. A small increase in effluent use is also assumed in all three scenarios.

Jeff Tannler reported that non-Indian agriculture fluctuated between 1984 and 2006. The fluctuation is due to crop pricing, which affects how much is irrigated. It is projected there will be a decreasing trend at different rates in scenarios one and two, with a slight increase in scenario three. The drop in water use in scenarios two and three assumes different rates of urbanization, which takes more land out of production. The slight increase in scenario three takes into consideration double cropping and less land being fallowed.

For projected non-Indian agriculture supplies, CAP water use was generally kept the same for all three scenarios. The higher demands in scenarios two and three are met mainly with groundwater. CAP water use is maxed out in all three scenarios.

Projected Indian agriculture demand varies between the three scenarios based on different assumptions about the amount of land that will be brought into production. In all three scenarios, Indian agriculture demands are met completely with CAP water.

Laura Grignano reviewed the total demand for all sectors. Agricultural water use was the dominant sector in 1985 but by 2006 municipal water use became the dominant user. Total water use in the Tucson AMA in 2006 was approximately 341,000 AF.

Projection scenarios still show the municipal sector will dominate total use; however, the scenarios show a wide range in potential total use ranging from approximately 382,000 to 525, 000 AF.

The supply used to meet the total demands in 1985 was mostly groundwater in the Tucson AMA, but by 2006 much of the demand was met with renewable supplies such as CAP water. Projections show a continued use of renewable supplies, especially CAP. There will also be a slight increase in effluent and in-lieu water.

Jeff Tannler recapped the historical and projected water demand and supply. For all three base projection scenarios used in the assessment, the results show safe-yield not being met.

In addition to the three main scenarios, the assessment team took a look at climate change. Several climate change models exist for the southwestern U.S., but at this time are not localized enough to be useful for the purpose of this assessment. In turn it is unclear on how climate change will affect precipitation.

Scenarios were developed on what the implications would be if there were a period of severe drought resulting in shortages on the Colorado River. The Colorado River Management Section of ADWR generated a number of modeling sequences to simulate a range of different shortage amounts. Water Management selected a representative sequence to use as the shortage scenario for the assessment. Based on the preliminary data, it indicates there would be cutbacks in CAP but not to the level affecting municipal and industrial allocations. It would mainly affect excess CAP, which could have implications on the AWBA storage and possibly CAGRDR replenishment. With less water stored there is also a decrease in the “cut to the aquifer”, affecting overdraft.

In the future a scenario could be done based on using more effluent in the short term rather than storing it for future use. Also, a safe-yield scenario could be done. It would basically start at safe-yield and work backwards.

The next steps are to complete the internal review of the Tucson assessment and post it on the website. Throughout the last year and a half, all five AMA assessments have been worked on concurrently for consistency. During the process it was decided to finalize the Tucson AMA assessment first then go back to complete the other four AMAs. Once they are completed, work can begin on development of the Fourth Management Plan.

6. Area Director Report

Jeff Tannler reported that a letter went out to those providers enrolled in the Modified Non-Per-Capita Conservation Program reminding them that their program should be in place by January 2010 and the Conservation Efforts Report will be due in March 2011.

Several weeks ago the Governor’s office asked all state agencies to submit a contingency budget reduction plan of 15%. For ADWR this would equate to roughly \$2.7 million dollars in cuts. A copy of the contingency plan can be found on ADWR’s website. There have been internal discussions on how ADWR might deal with such reductions. The final outcome is yet to be heard. Specific questions on the budget should be directed to ADWR’s legislative liaison, Fred Breedlove.

Jeff Tannler asked Laura Grignano to give an update on the proposed solar power facilities. ADWR is keeping track of the proposed solar projects in the state. The Bureau of Land Management is currently reviewing approximately 33 rights-of-way applications for solar projects and the State Land Department has approximately 20 pending applications. Many inquiries have been made for projects on private lands as well.

The proposed projects are primarily in the western part of the state. These large scale solar projects use a lot of water, so there has been some cause for concern especially where there are limited water supplies. ADWR would be involved in the permitting process if the proposed projects fall within an AMA.

Since most of the proposed plants are outside of an AMA, the applicant would be subject to Federal Environmental Impact Statements. The Arizona Corporation Commission (ACC) would also become involved if the plant proposes to use 100 megawatts or more. Also a Certificate of Environmental Compatibility (CEC) application would need to be filed with the Arizona Power Plant and Transmission Line-Siting Committee. Ultimately, the CEC application must be approved by the ACC. To date the ACC has approved two large power plants and a third is in the final approval process. To learn more about how water is used in solar technologies and to get more in-depth information on ADWR's requirements, there is a solar link on ADWR's website.

7. Public Comment

Nancy Freeman has organized a meeting next week with southern Arizona legislators to discuss water issues. Jeff Tannler and John Mawhinney have been invited.

Mr. Mawhinney reported that the AWBA is looking at ways to acquire new sources of water. A meeting of the IPAG has been scheduled for December 14 to discuss this issue and possibly come up with recommendations for the AWBA. Other potential items to be discussed are the Assessment, the CAWCD recovery process, and reviewing available storage capacity for the 40,000 AF Nevada is making available for storage in the Tucson AMA.

8. Date and Agenda for Next Meeting

The next meeting was tentatively set for Monday, February 8, 2010 at 9:00 a.m. The discussion and election of GUAC officers, along with replacements for the two membership vacancies should be part of the next agenda.

9. Adjournment

The meeting was adjourned at 11:50 a.m.