

Las Vegas Eyes AZ Water, Regulations

Proclaiming that “we don’t just want Arizona’s water, we want its ideas (on water management) as well,” Nevada state senator Mark James convened an April 20 legislative hearing on use, allocation and management of water. The legislative committee, consisting of three senators and three assemblymen, heard testimony from the U.S. Bureau of Reclamation (BuRec), Nevada Department of Conservation and Natural Resources, the Colorado River Commission, the Las Vegas Valley Water District (LVVWD) and others. The committee is statutorily charged with developing legislative proposals for changing Nevada water law.

A number of speakers discussed plans and options for Nevada to slake its thirst that have Arizona repercussions. Bob Johnson, Assistant Regional Director of BuRec, discussed draft regulations for managing the Lower Colorado River basin. A key

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Misting systems are being marketed as “water conserving.” Jen TeBockhorst of the Water Center measures actual usage. See Vapors, page 3. (Photo: J. Gelt, WRRC)

Voters Stun “Experts,” OK Water Bonds

Tucson voters confounded political experts in a May 17 bond election by approving \$115 million of water bonds by a 54 to 45 percent margin. The bonds will be used primarily to replace leaky galvanized mains, extend water lines into the urban fringe, and expand the treated effluent delivery system.

As the election neared, the conventional wisdom was that the water bonds would be defeated soundly, in large part because voters viewed the election as a referendum on Central Arizona Project water. Delivery of CAP water in late 1992 and 1993 to roughly half of Tucson Water’s service area caused corrosion of old water mains and triggered thousands of customer complaints of brown water, leaky plumbing and taste and odor problems. The City Council eventually returned most customers to groundwater pending completion of a study of options.

The water bonds were opposed by three opposition groups, as Citizens for Water Quality, Citizens for Clean Water, and the CAP Alternatives Committee distributed flyers and newsletters, posted signs and held press conferences, all urging a “no” vote. A pre-election poll indicated only 39 percent of likely voters supported the water bonds.

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provision would allow water with a history of use that is "conserved" to be marketed on an interstate basis. The definition of conservation would include letting farm land lie fallow. Permanent transfers of entitlement would not be allowed, but water could be transferred for up to 50 years.

"We don't just want Arizona's water, we want its ideas as well."

The 50-year limit figure, depicted as a trial balloon, was labelled "wholly unacceptable" by Janet Rogers, Chair of Nevada's Colorado River Commission. Ms. Rogers described the Commission's search for 180,000 to 250,000 acre-feet (a-f) of permanent entitlement. The Commission's interest in water transfers from Upper Basin states has waned. The Commission was very interested in purchasing the Cibola Irrigation District in La Paz County, but was put off by the asking price of \$4,120 per a-f. The Cibola's 14,700 a-f of Colorado River water would represent only a small fraction of what Nevada wants, but it was characterized as a good opportunity to challenge the "law of the river."

The Commission has turned its attention to northern Mexico, where it is offering to enhance water supplies in exchange for taking some of Mexico's Colorado River allotment out of Lake Mead. Desalinization of Pacific Ocean water for Tijuana initially was considered, but costs appear prohibitive. Treating wastewater from the New River for use in Mexicali is another option. Currently, the heavily polluted New River flows north across the border and discharges into the Salton Sea. Helping to conserve agricultural water in northern Mexico, including lining irrigation canals, is the latest option. Feasibility analysis on these options is slated to begin soon.

The LVVWD's interest in a massive importation of rural Nevada groundwater apparently has waned, but it has not dropped its applications. Virgin River water remains a top prospect. The need to wheel Virgin River water through Lake Mead on the Colorado River, not possible under the current "law of the river," remains a major stumbling block.

In addition to hearing about supply options, the Committee heard testimony on the need for state-wide water planning and conservation. Testimony also was heard on the need for area of origin protection, with reference made to Arizona's transfers legislation. Other areas where Arizona water law and regulation is being examined include the possible formation of groundwater replenishment districts in the Las Vegas and Reno areas, and the assured water supply concept for new development.

*Voters Approve Bonds, continued from page 1*

Council members cautiously interpreted the surprising turn of events as a possible vote of confidence in government or evidence that problems with CAP water had been overblown by the media. Others put a different spin on the outcome, hypothesizing that voter backlash against Tucson Water's more strident critics provided the winning margin.

The *AWR* polled a small sample of voters at three polling places to determine why respondents voted the way they did on the water bond issue. Respondents were atypical in that they have lived in Tucson an average of 28 years, are overwhelmingly home owners and vote in nearly all bond elections.

One surprising finding was that voters who had CAP water delivered to their homes last year were at least as likely to support the water bonds as those who had remained on groundwater, even though over two-thirds of the respondents from CAP households reported the water had caused serious problems. Of those who have not had CAP water delivered to their homes, half said they expected problems if and when it was delivered.

Respondents were asked about who they trust as reliable sources of information on water issues. TV, newspapers and radio rated the highest, just above "fairly *unreliable*," with only one respondent characterizing the media as a "highly reliable" source of information. Tucson Water staff trailed the media in reliability followed by Tucson's Mayor and Council, whom 60 percent of the respondents labelled as "fairly unreliable" or "highly unreliable" on water issues. Respondents were hardest on county supervisors, rated as "fairly" or "highly" unreliable by 90 percent.

How respondents felt about Tucson Water staff and county supervisors had little effect on their vote on the water bonds. Voters' perceptions of mayor and council appeared to be more important, with those not trusting the mayor and council on water issues being significantly more likely to vote no.

Statistics are illuminating, but rarely tell the whole story. The following statements — "Tucson Water has been screwing up since before CAP," "there's been mismanagement," "I don't trust those in charge," "money has been squandered," "the mayor and council don't know squat," and "I can't stand politics locally," — all were voiced by respondents who voted *in favor* of the water bonds.

The water bond issue apparently passed because most voters recognized the need to replace deteriorating mains and make other system improvements. The exit poll results suggest that, while the beleaguered water utility may have secured some breathing room, Tucsonans remain less than satisfied with both CAP water and their elected officials. This view was expressed by MaryBeth Carlile, Executive Director of the Southern Arizona Water Resources Association, who cautioned, "They better be careful how they spend it. Voters said they would give them one more chance."





Water Vapors

This issue demonstrates that the AWR is not content merely to report on what's happening, but also digs in to uncover news. In the tradition of investigative journalism, we conducted an exit poll during the recent Tucson bond election to interpret the voting results (see story, p. 1); we also product tested a device a la *Consumers Report* to determine the validity of its marketing claims (see below).

Misting Systems Exposed!

What is water conservation? One popular if useless definition is "the wise use of water." This suggests that conservation is the avoidance of stupid uses of water, or avoiding water waste. But one person's water waste is another's golf course or decorative fountain. Or outdoor misting system.

Are misting systems water wasters to be discouraged, or the greatest improvement in patio living since tiki torches? When misting systems first began appearing around Mexican restaurants and ice cream parlors in the Tucson area, some members of the water community were concerned. Warehouse stores and home improvement centers began advertising do-it-yourself backyard versions and the concern turned to alarm. Efforts were made to discourage and discredit them. Perhaps dangerous bacteria were breeding in the plastic tubes, to be sprayed into the air and inhaled by unsuspecting sunbathers and barbecuers! To date, no public health "smoking gun" has been found, and misting system sales continue apace.

Most water resource professionals today eschew the term "water conservation" and speak instead of water use efficiency. Efficiency means accomplishing something using less water than before, or accomplishing something new using modest amounts of water. Misting systems therefore are not inherently evil simply because they

represent a new use of water. They are, after all, little more than low-cost outdoor swamp coolers. If misting systems can significantly cool a patio or other outdoor living area using modest amounts of water, then they constitute an efficient use of water. But can they?

We decided to find out. Using the Water Center's state-of-the-art Water Efficiency Test Patio (photo, p. 1), we obtained a pre-assembled system whose box trumpeted both its Arizona heritage (made in Phoenix) and its new water-conserving teflon nozzles. Rated at a frugal 0.4 gallons per hour per nozzle, the 7-nozzle system purportedly can cool a modest-sized patio using only 2.8 gallons per hour, which seems pretty efficient.

We suspended the misting system inside a covered trash can and ran it for a few hours. The collected water then was measured, revealing an actual water usage of 7.4 gallons per hour. This is 2.65 times the claimed rate!

To add insult to injury, the system wasn't very effective at cooling, either. The literature claims "cools surrounding temperatures 20 degrees or more," depending on temperature and humidity. However, the *maximum* temperature drop we observed was only 7°F, and humidity was raised considerably.

It's possible that we got a defective system, although that doesn't seem likely. (Calls to the manufacturer were not returned.) It's also possible that systems from other manufacturers are more water efficient, although most



Temperatures barely fell, and it wasn't a dry heat. (Photo: J. Gelt, WRRC)

don't even claim to have a water conserving design. Until we get a grant to do extensive water misting research in our Test Patio, we won't know for sure. In the meantime, *caveat emptor* appears to be sound advice.

Rebuttals from misting systems enthusiasts are welcome. Also, let us know about any other devices that claim water conserving features which you have found to be particularly good or bad. Send us a sample if you want (no in-tank toilet devices, please).

Next month on the weird science frontier — can you really dry clean your car?



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News Briefs

Do You Know the Way to Santa Cruz?

State offices are beating a path to Nogales and Santa Cruz County. The Arizona Department of Water Resources will place a staff of three in the newly created Santa Cruz Active Management Area (see story, p. 12). The Arizona Department of Environmental Quality also is considering establishing an office in Nogales to facilitate a number of projects along the border, including water quality testing with the U.S. Geological Survey and a study of cancer clusters.

Adjudication Judge Faces Discipline

The complex Gila River Adjudication hit another snag when Presiding Judge Stanley Goodfarb was suspended. The effect of Goodfarb's suspension on the adjudication, underway in some form for nearly two decades, is uncertain.

In April the Commission on Judicial Conduct recommended that Goodfarb be suspended for three months without pay for using racial slurs and profanity during a 1989 trial unrelated to the adjudication. The Arizona Supreme Court has received the commission's recommendation and is deliberating on how to discipline Goodfarb.

Goodfarb continued work on the adjudication during the spring, conducting further hearings on the surface-groundwater issue, including a review of groundwater use along the San Pedro River. Recently, however, the Arizona Supreme Court issued an order citing an article of the state Constitution that says a "judge is disqualified from acting as a judge, without loss of salary," while a recommendation of suspension is pending.

As a result many cases pending

before Goodfarb in Maricopa County Superior Court now are on hold or have been reassigned. The Supreme Court, however, is allowing Goodfarb to continue his involvement with the Gila River adjudication until it decides appropriate discipline.

Parties to the adjudication await the Supreme Court's decision and speculate as to whether an interim judge will be appointed or the adjudication placed on hold if the Court suspends Goodfarb. Others wonder if the incident will affect Goodfarb's decision to seek re-election this fall.

Local Environmental Firm Merges

Geraghty & Miller, an environmental consulting firm with an office in Phoenix, has merged with the Dutch environmental engineering firm of Heide-mij Holding N.V. Geraghty & Miller will operate under its current name as a wholly owned subsidiary of Heide-mij. Geraghty & Miller specializes in developing, managing and protecting groundwater resources and groundwater contamination remediation.

Stream Adjudications Interns Named

Two law students and a political science doctoral student have been awarded internships to work with Special Master John Thorson of the Arizona General Stream Adjudications. Two of the students have been chosen for the Sol D. Resnick internship program, which is cosponsored by the Special Master and the Water Resources Research Center at the University of Arizona. This internship offers a unique opportunity for a student to work with the Special Master on the Arizona Stream adjudications now underway in the Gila River and Little Colorado River basins.

Suzanne L. Baron, who completed her second year of law school this year at the University of Arizona, was chosen for the summer Resnick Internship. Ms. Baron currently holds a

clerkship with Judge Lawrence Fleishman, Pima County Superior Judge and a research assistantship through the College of Law. She has a background in hazardous waste remediation.

Lee Holtry, who completed his second year of legal studies at Arizona State University, was chosen for the fall term of Sol Resnick Internship. Mr. Holtry currently works for the firm of Franklin and Mendoza and has worked for the Arizona Department of Water Resources.

A third student has been selected to work with the Special Master with funding provided through a Ford Foundation grant. Andrea Gerlak, a Ph.D. candidate in political science at the University of Arizona will facilitate communication between judges and special masters in western states involved in western stream adjudications by collecting materials and establish a document collection on general stream adjudications. Ms. Gerlak is a graduate research assistant in the Department of Political Science and is an adjunct faculty member at Pima Community College.

Tucson Awards Contract for CAP Use Study

The City of Tucson has awarded a major contract to a consulting team headed by Dames & Moore to solicit public input, examine options and build support for a CAP water use program. The study, expected to last nearly a year, will address issues raised when Tucson began directly treating and delivering Central Arizona Project to some customers in November 1992. Ensuing problems included corrosion of old galvanized mains and widespread customer complaints of brown water and damaged plumbing fixtures.

The team assembled by Dames & Moore emphasizes public involvement and consensus building, and includes Martha Rozelle of Dames & Moore's Phoenix office as project manager, Linda Micale of Tucson as project coordinator, and Kathleen Ferris, former director of ADWR, as public policy task leader.

San Pedro, Virgin Rivers Rank as Most Troubled

Two Arizona rivers recently received dubious distinctions from American Rivers, a national environmental group. The Virgin River made American Rivers' list of the nation's ten most endangered rivers for the second year in a row. The group also noted Arizona's San Pedro River as one of the country's 20 "threatened" U.S. rivers.

Competing water demands threaten the Virgin River which flows through Arizona, Utah and Nevada. One of the more aggressive competitors, Clark County, Nevada is seeking Virgin River water to help slacken the thirst of the growing Las Vegas area (see story, p. 1).

American Rivers declared the San Pedro River, which flows north from Mexico before joining the Gila River near Winkelman, to be threatened from groundwater pumping occurring along its course. Sierra Vista, other nearby towns, Fort Huachuca, farms and ranches all pump groundwater from the aquifer under and around the San Pedro. There is concern that excessive pumping eventually may drain the flow of the river. The San Pedro riparian area provides habitat for 400 species of birds, 84 mammals and 41 reptiles or amphibians.

Marana Diving into Water Business

Marana has decided to become the primary water provider within its town limits and is accepting the City of Tucson's offer to turn over water service in the incorporated limits of other jurisdictions. In a letter from Town Mayor Ora Harn to Tucson Mayor George Miller, Marana requests that Tucson "cease attempting to provide water utility service to new developments" within Marana and begin negotiating an intergovernmental agreement on water service.

The rapidly growing town, which recently annexed large areas on the northwest side of Tucson, sees control

of water as critical to controlling development. Marana got into the water business by purchasing tiny Honea Water Company and renaming it Marana Municipal Water. The town is considering a number of options besides negotiating an intergovernmental agreement with Tucson, including purchase of part of the Cortero-Marana irrigation district and contracting with the Metropolitan Domestic Water Improvement District for service.

USGS Assesses Central Arizona Water Quality

The U.S. Geological Survey has begun an extensive assessment of water quality in the Central Arizona Basins (CAB) as part of the long-term National Water Quality Assessment program (NAWQA). The Arizona study was launched at a May 3 meeting in Tempe of the Liaison Committee for the CAB-NAWQA program. Some 40 people attended, including representatives of all major water interests, agencies and university water-related departments.

NAWQA's goal is to assess national water quality on a consistent basis, establish benchmark conditions for later comparison, and determine special regional conditions. Existing data generally will be used, although USGS will do its own sampling and biological monitoring using consistent methods throughout the nation to facilitate comparison.

Sixty study areas throughout the U.S. eventually will be included. Scheduling is on a ten-year rotating basis, with twenty areas under intensive study, twenty in a report writing phase and twenty in a less intensive monitoring phase at any one time. The project started nationally in 1991. Arizona is in the second group, with intensive study slated to begin in 1994.

The boundaries of the Arizona study include much of the Gila Drainage upstream of Gillespie Dam. Major water quality issues tentatively identified include the effects of effluent-dominated streams on surface and groundwater quality; effects of artificial

recharge of treated effluent and CAP water on groundwater quality; and the effects of contaminated water on riparian areas and associated wildlife.

The Liaison Committee will advise USGS throughout the process. Comments and suggestions are invited. For more information, contact Gail Cordy, CAB NAWQA Chief, USGS, 375 S. Euclid Avenue, Tucson AZ 85719.

UA Hydrology Dept. Hosts El Dia del Agua

The Department of Hydrology and Water Resources hosted the 4th Annual El Dia del Agua on April 13 to highlight student research in the department. Keynote speaker Robert Glennon, UA College of Law, opened the proceedings with a talk on the relationship between surface and groundwater under Arizona law. Glennon spoke on the current status of groundwater in the Gila River and Little Colorado River adjudications now underway in Arizona.

The focus of this year's event was the student thesis workshop being conducted by Dr. L.G. Wilson. Workshop participants conduct a water resource assessment of an area in work that leads to development of a thesis. This year's workshop is studying the Lower Cienega Creek basin in southeastern Arizona. Students involved in the workshop presented information on the water chemistry, geology, surface and groundwater hydrology and institutional considerations. Student presentations also were made on modeling stream flows, assessing watershed responses to rainfall, and a micrometeorologic investigation.

Dr. M. Gordon Wolman was the guest lecturer for this year's 13th Kiesel Memorial Lecture, held in conjunction with El Dia del Agua. Wolman, a professor in the department of Geography and Environmental Engineering at Johns Hopkins University, spoke on the general decline in the quality of the nation's water supply, particularly in bottom sediments and other constituents, and the need for improved information for policy makers.

ADWR to Recommend Reallocation of Scarce CAP M&I Water

The Arizona Department of Water Resources (ADWR), at the request of the Bureau of Reclamation (BuRec) and the Central Arizona Water Conservation District (CAWCD), is processing applications and developing criteria for reallocating municipal and industrial CAP water. ADWR mailed some 200 notices in mid-April to those with CAP contracts, those who had expressed interest in receiving an allocation and anyone else ADWR thought might be interested.

An April 29 application deadline triggered numerous complaints, leading ADWR to announce that applications would be accepted after the deadline. To date, 60 have responded, with 11 declining additional CAP water. Of the 49 submitting applications, 30 do not currently have a CAP contract. Ten applications were received after the April 29 deadline. ADWR is recording application dates and may give priority to those who responded by the official deadline.

The 49 applicants have requested a total of 317,122 a-f of additional water, not including a request from SRP for an unspecified amount (see Table). Requests average 6,472 a-f, but range from 30 a-f requested by Tonto Hills Water to 48,584 a-f requested by Phoenix. Other large requests include: Gila River Indians (44,828 a-f); Scottsdale (40,000 a-f); and Goodyear (33,741 a-f). Tempe and Tucson are the only major cities within the CAWCD not requesting additional water. Tempe lies within the Salt River Project; Tucson is rumored to be reconsidering its decision.

How much water there is to reallocate is unclear because the Department of Interior has yet to decide how much will be used to satisfy Indian claims. Initial CAP water allocations totalling some 640,000 a-f were made in 1982, with applicants having until March 1993 to sign contracts. When some declined, 80,312 a-f were freed up for reallocation. Of this, 14,365 a-f went to the San Carlos Apache settlement, and the Secretary of Interior has retained the option of using some or all of the remaining 65,647 a-f for Indian water rights settlements. BuRec has estimated that 15,000 to 60,000 a-f will be available for non-Indian applicants.

Applicants must pay \$35-\$40 per a-f in up-front money, which will go to CAWCD to be used to pay for capital costs if the applicant does in fact get the water requested; otherwise, the money will be refunded. The up-front funding requirement was intended to discourage applicants from requesting more than they actually need or want. The large disparity between available water and total requests raises the issue of where providers who get less than they requested will turn to make up the balance.

Two principal criteria ADWR will use to reallocate CAP water are official state population projections for municipal planning areas and water company service areas, and over-draft in the area. The latter criterion is an attempt to assure that safe yield can be met. Financial capability to put the water to use also will be considered.

ADWR hopes to submit its reallocation recommendations by the end of this year to the Department of Interior, which will make the final allocations.

CAP REALLOCATION APPLICATIONS			
Applicant	Amt (a-f)	Use	AMA
Water Companies & Co-ops			
AVRA Water Coop	1,284	Municipal	Tucson
Canada Hills Water Co	3,191	Municipal	Tucson
Cave Creek Water Co	2,000	Municipal	Phoenix
Chaparral City	5,000	Municipal	Phoenix
Comm Water of Green Valley	3,413	Municipal	Tucson
Cottonwood Water Works	1,000	Municipal	Outside
Del Lago Water Co	1,933	Municipal	Tucson
H2O Water Co	337	Municipal	Phoenix
Litchfield Park Service Co	9,090	Municipal	Phoenix
Rancho Vistoso Water	5,500	Municipal	Tucson
Shamrock Water Co	4,650	Municipal	Prescott
Tonto Hills Water Co	30	Municipal	Phoenix
United Utilities, Inc.	1,000	Municipal	Outside
Valley Utilities Water Co	250	Municipal	Phoenix
Subtotal, 14 Applications	38,678		
Cities, Towns & Water Districts			
Buckeye	434	Municipal	Phoenix
Carefree	1,000	Municipal	Phoenix
Chandler	10,000	Municipal	Phoenix
El Mirage	520	Municipal	Phoenix
Glendale	5,000	Municipal	Phoenix
Globe	6,000	Municipal	Outside
Goodyear	33,741	Municipal	Phoenix
Marana	12,063	Municipal	Tucson
Mesa	15,000	Municipal	Phoenix
Metro Dom Water Imprv Dist	8,700	Municipal	Tucson
Oro Valley Improvement Dist	450	Municipal	Tucson
Peoria	10,000	Municipal	Phoenix
Phoenix	48,584	Municipal	Phoenix
Prescott Valley	5,000	Municipal	Prescott
Scottsdale	40,000	Municipal	Phoenix
Superior	1,500	Municipal	Phoenix
Surprise	5,000	Municipal	Phoenix
Subtotal, 17 Applications	202,992		
Developers & Miscellaneous			
DBA Box Canyon Farms	150	Agric	Pinal
Del Webb Corp-Lakeview	10,000	Municipal	Phoenix
Gila River Indian Community	44,828	Indian	-
Interchange Water Co.	2,800	Municipal	Tucson
Kaibab National Forest	2,000	Lakes	Outside
Mogollon Conservation Assoc	9,500	Municipal	Outside
Picacho School Dist. #33	35	School	Pinal
Pima County	1,000	Municipal	Tucson
Salt River Project	?	?	Phoenix
The Park Co	1,200	Municipal	Tucson
Villa Grande Home Owners	44	Urban Irr	Pinal
Subtotal, 11 Applications	71,557		
Industrial			
Augusta Ranch	400	Golf	Phoenix
DBA Dirt & Rock Co	60	Mining	Pinal
Eagletail Mountain Ranch	1,000	Golf	Outside
Johnson International Inc	800	Golf	Phoenix
Sonoran Land Group	475	Golf	Phoenix
Tucson Estates Inc.	500	Golf	Tucson
Viewpoint RV & Golf Resort	660	Golf	Phoenix
Subtotal, 7 Applications	3,895		
TOTAL, 49 APPLICATIONS	317,122		



Legislation & Law

The Second Regular Session of the 41st Arizona Legislature adjourned on April 17, 1994, having passed several pieces of legislation that addressed a variety of water issues. Selected bills are summarized below.

HB 2590 — Central Arizona Project; Arizona Water Protection Fund

The Governor's CAP Advisory Committee's final report of September 1993 included 22 specific recommendations regarding financing the Project, water marketing, Indian water rights settlements, and environmental issues. HB 2590 includes six provisions that address some of these recommendations:

1) A 15-member Arizona Water Protection Fund Commission is established to issue grants of money to public and private entities that engage in water management activities to protect Arizona's rivers and streams and associated riparian habitats. Revenues are provided by general fund appropriations of \$4 million in FY 95 and \$6 million in FY 96 and a fee on sales or leases of CAP water to entities not paying a CAP ad valorem tax or an alternative, in lieu tax (i.e., out-of-state purchasers of CAP water).

2) An Office of the Indian Water Rights Settlement Facilitator is established to expedite the settlement of Indian water rights claims in Arizona, thereby identifying the amount of CAP water committed to achieving these settlements.

3) The Assured Water Supply statute is modified to encourage earlier use of CAP water supplies by moving forward the statutory date when cities and towns subcontracting for CAP water no longer are automatically deemed to have an assured water supply from 2001 to 1998.

4) Bonding authority for the CAWCD is expanded to assure an adequate fund base for repayment of construction costs of the CAP.

5) CAWCD's authority to levy a four-cent ad valorem tax for recharge of water is continued through 2000 and extended to Pinal County. Revenues can be used for CAP repayment obligations instead of being limited to building demonstration recharge projects.

6) Costs associated with certain aspects of CAP subcontracts are defined as taxes when applied to private water companies, allowing them to bypass the Arizona Corporation Commission's rate hearing process and pass the costs through to their customers.

SB 1078 — County Water Authority (Mohave County)

This legislation establishes the Mohave County Water Authority for the purpose of acquiring allocations of Colorado River water for its members and making it available to municipal, industrial and agricultural water users in the county. Initially, the Colorado River water to be allocated by this Authority will be obtained through the transfer of an 18,500 a-f allocation held by the City of Kingman.

HB 2547 — Streamlining of Recharge Regulations

The various forms of recharge projects are consolidated into a comprehensive underground water storage and replenishment program to ease administration, establish a unified accounting system for the water stored and recovered, and make recharge more "user friendly" to applicants. Recharge project permitting is organized into three primary sections: 1) permits for storage facilities; 2) permits for water storage; and 3) permits for recovery wells. These provisions maintain most basic recharge policies existing prior to passage of this legislation. Major policy changes include:

- *Recharge through non-constructed or instream projects.* The original definition of an underground storage and recovery project as "a facility designed and constructed to store water underground and recover that water pursuant to a permit" is expanded to accommodate storage of water in projects where no physical facilities are constructed.

- *Use of state demonstration recharge project credits.* State demonstration recharge projects managed by the CAWCD initially were a means of recharging CAP water for the benefit of the Phoenix and Tucson AMAs. Now the right to recover water from the state demonstration projects may be exercised by municipal and industrial water users and groundwater replenishment districts.

- *Marketability of Credits.* Previously, only credits for the recovery of water stored through an indirect storage project could be sold or transferred. This legislation allows all credits including those from direct storage projects to be marketable to the extent the water would have been if it had not been stored.

HB 2237 — Small Water Rights

HB 2237 reduces the administrative and regulatory requirements established in the Arizona Groundwater Management Code for small water rights holders. Within AMAs, this legislation defines small rights to be all municipal water providers who supply less than 250 acre-feet per year and those irrigation grandfathered rights 10 acres or less in size and not part of a larger farming operation.

The new definition of small water rights covers 47 of the 109 municipal providers in the AMAs, but they account for only about one percent of total municipal provider water usage. Similarly, over half of the irrigation grandfathered rights will be classified as small; in aggregate, they pump about one percent of total irrigation grandfathered groundwater use.

Small municipal water providers no longer must comply with the gallons-per-capita-day requirements set forth in the management plans for each AMA, but they still must meet other reporting requirements and conservation requirements established for individual users and small providers. Irrigation water users who qualify as "small" no longer will be required to file annual reports or comply with water duty limitations.

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Publications

Instream Flow Rights: A Strategy to Protect Arizona's Streams

Lois Kulakowski and Barbara Tellman. This revised edition of a 1990 Water Resources Research Center Issue Paper discusses instream flow rights and their relationship to other water rights. Brief explanations of the process of obtaining an instream flow permit and the process for protesting applications also are presented. Examples of instream flow applications include Ramsey Canyon, Oak Creek Canyon, Peeples Canyon, Cienega Creek and Aravaipa Creek.

Single copies are available free from the Water Resources Research Center, University of Arizona, 350 N. Campbell, Tucson, AZ 85721; Phone: 602-792-9591; Fax: 602-792-8518.

Fountains — Water Wasters or Works of Art?

Joe Gelt. Volume 7, Number 3 of *Arroyo*, a quarterly publication of the Water Resources Research Center. This edition discusses the aesthetic, cultural, historical and water resource issues surrounding decorative water fountains in the arid Southwest. The discussion suggests that a too strict application of a water conservation ethic may cause critics to overlook the merits of water fountains in the Southwest.

Individual copies — also subscriptions of *Arroyo* — are available without charge from the Water Resources Research Center, University of Arizona, 350 N. Campbell Avenue, Tucson, AZ 85721; Phone: 602-792-9591; Fax: 602-792-8518.

The following three U.S. Geological Survey (USGS) publications are available for inspection at USGS offices in Tucson, Tempe, Yuma and Flagstaff and may be purchased from USGS, Books and Open-File Reports Section, Western Branch of Distribution, P.O. Box 25425, Federal Center, Denver, CO 80225.

Flood Frequency and Magnitudes Estimated for the Southwestern U.S.

B.E. Thomas, H.W. Hjalmarson and S.D. Waltemeyer. Methods for estimating the magnitude and frequency of floods in the southwestern United States are presented in this USGS report. In addition to methods for estimating magnitude and frequency of floods, relations of floods are tabulated for more than 1,300 streams with gauging stations in the Southwest. Report No. 93-419; microfiche \$4; paper copy \$33.

Geohydrology and Water Chemistry of Abandoned Uranium Mines Investigated

S.A. Longworth. This reports describes the hydrology of uranium mines and the chemistry of the shallow groundwater near the Monument Valley and Cameron areas on the Navajo Indian Reservation. Radiological hazards and reclamation of the mining areas also are described. Report No. 93-4226; microfiche \$4; paper copy \$7.25.

93-4226; microfiche \$4; paper copy \$7.25.

Controlled Burning of Chaparral to Increase Water Yield Studied

Stanley Baldys, II and H.W. Hjalmarson. This report investigates the effects of controlled burning of chaparral on streamflow and sediment characteristics in the upper reaches of the Sycamore Creek basin in central Arizona. The study was carried out by the USGS in cooperation with the Salt River Project and U.S. Forest Service. Report No. 93-4102; microfiche \$4.75; paper copy \$8.

The following two International Transboundary Resources Center publications are available from the University of New Mexico, School of Law — CIRT, 1117 Stanford NE, Albuquerque, NM 87131-1430; Phone: 505-277-4820; Fax: 505-277-4165.

Emerging Boundary Environmental Challenges and Institutional Issues: Mexico and the United States

Alberto Szekely. The purpose of this publication is to examine current and emerging transboundary resource and environmental issues and to analyze what type of institutions are needed to deal with them. Issues examined include water, flora and fauna, the atmosphere and environmental cooperation.

Innovation and Reform in Transboundary Resource Management

Stephen P. Mumme. This paper examines the potential for administrative and functional reform of the International Boundary and Water Commission, United States and Mexico. With demographic, political and attitudinal changes occurring along the border, this report asserts that the Commission must respond to possibilities for additional development, including sanitation and water quality, instream flow, and creative approaches to project financing.

Arizona Water Resource is financed in part by sponsoring agencies, including:

**Arizona Department of Environmental Quality
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Tucson Water
USGS Water Resources Division
Water Utilities Association of Arizona**

Their contributions help make continued publication of this newsletter possible.



Transitions

Commissioner **Narendra Gunaji** of the U.S. International Boundary and Water Commission is retiring as of May 31. Gunaji has held the post since being appointed by **President Reagan** in 1987. The IBWC and its Mexican counterpart, the Comisión Internacional de Límites y Aguas (CILA) are responsible for water and environmental issues along the border.

President Clinton reportedly is considering a small number of candidates to replace Gunaji as Commissioner, including two Texans and **John Bernal**, public works director for the Pima County Department of Transportation and Flood Control.

The IBWC has come under increased public scrutiny recently, as debate preceding the North American Free Trade Agreement highlighted environmental issues along the border. The IBWC has been criticized for being slow to deal with sewage flows across the border, insufficient capacity at the binational sewage plant near Nogales and for being overly secretive. A creature of the Department of State, the IBWC negotiates treaties and accords with Mexico and is not subject to the Freedom of Information Act.

Alan Forrest has been named District Engineer of the Metropolitan Domestic Water Improvement District (MDWID) on Tucson's northwest side. He replaces **Mark Stratton**, who was promoted to Manager of MDWID. Forrest had served with Tucson Water for nine years, most recently as Chief Planning Engineer.

Suzanne Ticknor has been named manager of the Central Arizona Water Conservation District's new Groundwater Replenishment District. The Replenishment District will operate as a totally independent and financially autonomous department within the Central Arizona Water Conservation District. Ticknor is an attorney who comes to her new position from CAWCD's legal staff.

ADEQ Reorganizes Water Quality Division in Bid to Increase Efficiency

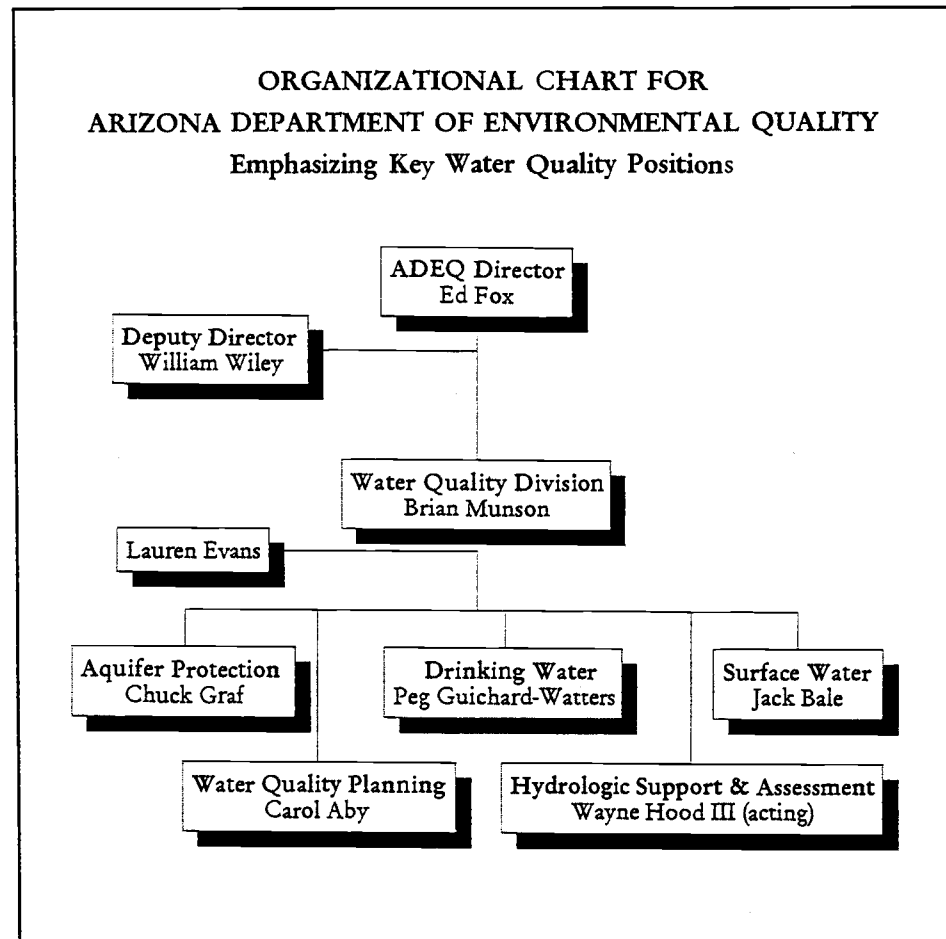
The Arizona Department of Environmental Quality (ADEQ) has responded to permitting and enforcement backlogs and criticism of its performance in some areas with another reorganization. The latest changes, concentrated in the Water Quality Division, are intended to reduce inefficiencies and turn ADEQ into a one-stop information and permitting center.

The realignment produced five water quality divisions reporting to director **Brian Munson**: aquifer protection, drinking water, surface water, water quality planning and hydrologic support and assessment. (Division directors are shown in the organizational chart below.) With the realignment, responsibilities are expected to be more clearly defined.

The state's Auditor General noted in a February 1994 audit that ADEQ was struggling to meet its mission because of inefficiencies, staff shortages and high turnover. The report also noted that many of ADEQ's problems had developed over years and attempts were underway to deal with them. The realignment addresses inefficiencies, but does not create any new positions. A high percentage of ADEQ positions are vacant or frozen.

Staff shortages are blamed in part on inadequate state funding. These shortages and inexperience due to turnover have caused ADEQ to fail to meet some regulatory mandates, created backlogs in permitting, and delayed enforcement action against polluters. For example, four inspectors are responsible for some 4,000 underground storage tanks.

The reorganization also consolidated customer service functions. No more significant organizational changes are expected for at least two years.





Announcements

WESTCAS to Meet in San Diego

The Western Coalition of Arid States will meet July 20-22 in San Diego to discuss "Water Resource Development — the New Frontier." Sessions will include: innovative ideas for resource development; water conservation communications for young people; desalination as a means of increasing resources; and how the Endangered Species Act affects water managers. Register by contacting Larry Libeu at Eastern Municipal Water District, P.O. Box 8300, San Jacinto, CA 92581-8300 or by calling 909-925-7676, ext. 202. The registration fee is \$80 for members and \$120 for non-members if paid by July 7; after that date the fees are \$120 and \$160, respectively. An additional \$10 administrative late charge will be charged at the door for those not pre-registered. Hotel reservation can be made by calling 619-424-4000 before June 20.

ADWR Seeks Agricultural Water Resources Planner

The Arizona Department of Water Resources is seeking applicants for the lead agricultural planner in the planning and special studies section of the Phoenix Active Management Area office. Activities of the office include developing regulatory programs for water conservation, implementing and enforcing Arizona's Ground Water Management Act, and providing conservation assistance.

Applicants must have four years of water resources management experience involving data analysis/evaluation, problem identification/resolution, and recommendation of courses of action. Graduate course work can be substituted for up to two years of experience. The ideal candidate will have a masters degree in agriculture, natural or environmental resources, public policy or planning and some work experience with agriculture and public policy. For more information, contact Jim Holway, Phoenix Active Management Area, at 602-542-1512.

Oklahoma State University Seeks Aquatic Toxicologist

Oklahoma State University, Zoology Department, Water Quality Research Lab is seeking applicants for a postdoctoral position in aquatic ecotoxicology. Applicants with research experience in aquatic ecotoxicology, aquatic ecology, ecological risk assessment, and/or aquatic chemistry will be considered preferentially. Some "hands-on" experience with acute

and partial-chronic toxicity test procedures with fathead minnows, daphnids, Microtox[®] and/or other organisms also is expected, as well as experience with chromatographic and atomic absorption analyses of trace contaminants.

This two year temporary non-tenure position has a tentative start date of August 1, 1994; however applications will be accepted until the position is filled. Please submit curriculum vitae, copies of recent publications and/or a summary of research interests and three letters of recommendation to Dr. S.L. Burks, Oklahoma State University, Zoology Department, Water Quality Research Lab, LSW 427, Stillwater, OK 74078-0459.

University of Nebraska Seeks Geologist/Hydrogeologist


The University of Nebraska-Lincoln is seeking applicants for a 12-month, tenure-leading faculty position at the Assistant Professor level in the Conservation and Survey Division. This position requires a Ph.D. in Geology, Hydrogeology, or a closely related field. Primary responsibilities include developing and conducting applied and basic research on the geology and hydrogeology of glacial and associated deposits in Nebraska. Experience in groundwater studies and aquifer characterization involving continental glacial deposits is also strongly desired. Special consideration will be given to applicants with expertise in collection and analysis of subsurface data.

Interested candidates should submit application materials by July 31, 1994. (Position will remain opened until filled.) For more information contact Professor James B. Swinehart, Geologist/Hydrogeologist Search Committee, Conservation and Survey Division, University of Nebraska-Lincoln, 113 Nebraska Hall, Lincoln, NE 68588-0517; Telephone: 402-472-7529; Fax: 402-472-2410.


Assistance Offered to Native American Owned Utilities

The Native American Management and Technical Assistance Training Program is designed to help decision makers of Native American public water systems develop skills and knowledge needed for providing safe drinking water, wastewater treatment, and solid waste management. Along with addressing general management and administrative issues, the workshop also will work with managers and technical staffs to develop functional documents such as ordinances, budgets or rate structures. Assistance also is available to encourage groups of tribes to share their resources to improve utility management and costs.

Services are available to tribal councils, boards of directors, utility managers and operators of Native American public water systems, wastewater treatment systems and solid waste facilities. For more information please contact Fred Egger at 916-447-2854.



Calendar of Events



RECURRING



Arizona Hydrological Society. 2nd Tuesday of the month. Meetings held at WRRC, 350 N. Campbell Ave., Tucson. Contact: Laurie Wirt 602-670-6231.

Arizona Water Resources Advisory Board. July 8, 10:00 a.m., ADWR, BO44, 15 South 15th Ave., Phoenix. Contact: Beverly Beddow 602-542-1553.

Casa Del Agua. Hourly tours, Sundays noon to 4:00 p.m., 4366 North Stanley, Tucson. Contact: 602-791-4331.

Central Arizona Water Conservation District. 1st Thursday of the month, 12:30 p.m. CAP Board Room, 23636 N. 7th St., Phoenix. Contact: 602-870-2333.

City of Tucson Citizens Water Advisory Committee. 1st Tuesday of the month, 7:00 a.m. 310 W. Alameda, Tucson. Contact: Karen Alff 602-791-2666.

Phoenix AMA, GUAC. July 6, 9:30 a.m. ADWR, Phoenix AMA Conference Room, 15 S. 15th Ave., Phoenix. Contact: Mark Frank 602-542-1512.

Pima Association of Governments / Water Quality Subcommittee. June meeting cancelled. July 21, 9:30 a.m. meeting scheduled. Contact: Gail Kushner 602-792-1093.

Pima County Flood Control District. July 20, 7:30-9:30 a.m. meeting. Contact: Carla Danforth 602-740-6350.

Pinal AMA, GUAC. June 21, 5:30 p.m. Pinal AMA Office, 1000 E. Racine, Conference Room, Casa Grande. Contact: Dennis Kimberlin 602-836-4857.

Prescott AMA, GUAC. June 20, 10:00 a.m. Prescott City Council Chambers, 2200 Hillsdale, Suite A, Prescott. Contact: Phil Foster 602-778-7202.

Tucson AMA, GUAC. June 24. ADWR Director Rita Pearson will discuss Colorado River Issues. Tucson AMA offices, 400 West Congress, Suite 518, Tucson. Contact: Linda Stitzer 602-628-6758.

Verde Watershed Association. July 12, 9:00 p.m. in Prescott. For more information contact Tom Bonomo, VWA Newsletter Editor, c/o Verde R.D., P.O. Box 670, Camp Verde. 602-567-4121.

Yavapai County Flood Control District. 1st Monday of the month in Prescott; 4th Monday of the month in Camp Verde. Contact: YCFCD, 255 East Gurley, Prescott, 86301.

UPCOMING



June 29, Lake Havasu City, Holiday Inn, Golden Gate Room, 245 London Bridge Road. June 30, Bullhead City, Mohave Community College. **Informational Meetings on Colorado River Regulations.** The purpose of the meetings is not to debate the merits of these regulations, but to respond to questions about their purpose and objections in order to formulate public comments. Contact Dale Ensminger 702-293-8659 or Robert Walsh 702-293-8420.

July 17-22, **Second International Symposium on Artificial Recharge of Ground Water.** Orlando, Florida. Contact Ivan Johnson, SISAR Organizing Committee, 7474 Upham Ct., Arvada, CO 80003; 303-425-5610.

July 18-23, **Advanced Integrated Wastewater Pond Systems Workshop.** Designed for undergraduate instructors in civil and environmental engineering. No fee. Contact Dr. Albertson, Room 203 Weber Building, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523; 303-491-5753.

August 2-5, **The Universities Council on Water Resources Annual Conference.** Big Sky, Montana. Conference theme is "Environmental Restoration." Contact Larry W. Mays, Department of Civil Engineering, Arizona State University, Tempe, AZ 85287; 602-965-3589.

Sept. 11-15, **11th Annual National Conference of The Association of State Dam Safety Officials (ASDSO).** Boston, MA. Issues and topics include dam rehabilitation, hydraulics, stability, environmental considerations and more. Contact Association of State Dam Safety Officials, 450 Old East Vine, 2nd Floor, Lexington, KY 40507; 606-257-5146.

Sept. 22-23, **Water Quality in the Sustainable West.** Utah National Park Service Water Quality Task Force. Contact Jack Wilbur, 801-538-7098.

Sept. 26-28, **7th Annual Rocky Mountain Groundwater Conference.** Contact Dr. Paul Seaber, Desert Research Institute, P.O. Box 19040, Las Vegas, NV 89132-0040; 702-895-0487.

Nov. 6-10, **American Water Resources Association Conference.** Chicago, Illinois. Featuring a National Symposium on Water Quality. Contact AWWRA, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814-2192; 301-493-8600.

Dec. 7-8, **Riparian Management: Diverse Values — Seeking Common Ground.** Contact Terry Tindall, University of Idaho, Boise ID, (208) 736-3600.

*Legislative review, continued from page 7***SB 1380 — Creation of the Santa Cruz County AMA**

SB 1380 creates a new active management area comprised roughly of the portion of the Santa Cruz Sub-basin of the Tucson AMA located within Santa Cruz County. The new AMA will be managed independently from the Tucson AMA with its own management staff and goals — principally, protection of riparian areas along the Santa Cruz River sustained by effluent flows from Mexico. Like the Prescott AMA (and in contrast to the balance of the Tucson AMA), the Santa Cruz AMA currently is in hydrologic balance. Due to the unique conditions in the Santa Cruz AMA, the legislation contains several special water management provisions, including:

- 1) A management goal to “maintain a safe-yield condition and to prevent local water tables from experiencing long-term declines.”
- 2) Regulation under the Groundwater Management Code of all “water withdrawn from wells” except stored water. This includes groundwater, surface water, and subflow water withdrawn from wells. In other AMAs only groundwater is directly regulated.
- 3) The ADWR director is empowered to cooperate with governmental entities in Mexico for planning and exchange of hydrological information.

This legislation also amends the state’s surface water code to provide that a surface water right is not abandoned due to non-use when the lack of use occurs due to a conservation requirement established in the Groundwater Management Code or the transfer of a right for irrigation use to a right for municipal use.

HB 2192 — Flood Warning Systems

As part of legislation providing state assistance to pay for repair of damages from the floods of 1993, ADWR is authorized to work with federal, state and local governmental agencies to establish a statewide flood warning system. A total of \$300,000 is appropriated to provide grants on a cost sharing basis to local entities for the planning, design, installation, operation and maintenance of a system of rain gages, stream gages and related communication equipment to provide timely and accurate information during flood events. This appropriation initiates a plan to install 308 units over ten years as part of the comprehensive statewide system.

SB 1559 — Groundwater Transportation

The Groundwater Transportation Act of 1991 established conditions under which groundwater may be transferred from designated groundwater basins, including the McMullen Valley. The Act prompted a lawsuit by Martori’s Phoenix Agro-Invest, a major McMullen Valley landowner. The suit, which alleged that the Act was unconstitutional because it constituted special legislation, was postponed by stipulation of the parties pending a legislative solution. SB 1559 provides that legislative solution by allowing a person who purchased land in McMullen Valley prior to January 1, 1988 to sell their land to a city, town, private water company or groundwater replenishment district in the Phoenix AMA for transportation of the groundwater to that AMA.

This legislative summary was prepared with assistance from Steve Olson, Arizona Department of Water Resources. Any errors are those of the Water Center. For copies of enacted bills, call the Arizona Secretary of State, 602-542-4285.

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