



JULY 2012 NEWSLETTER

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GOVERNMENT GOINGS-ON

The Water Resources Development Commission has only a few more months to achieve their goal of delineating the water future of Arizona for each county through 2110.

Most of the WRDC sub-committees wrapped up their work many months ago. Their reports can be viewed at: <http://infoshare.azwater.gov/docushare/dsweb/View/Collection-123>. One of the biggest was the report of the Water Supply and Demand group, which was largely based on the Arizona Water Atlas and work from ADWR and USGS. Depending on which population growth scenario you select, various sub basins in the 15 counties could be in serious trouble well before 2060. Identified solutions could cost \$1.8 billion outside the Active Management Areas, and \$1.3 billion inside the AMAs. That's a lot of money for Arizona.

The Legislative Recommendations Subcommittee is still meeting, and has come up with the idea of Regional Water Augmentation Authorities to build needed infrastructure and acquire and move water to meet expected demand. Never mind the basic hydrologic question of where this water is going to come from. They plan to use the Water Supply Development Fund (which already exists) to fund these regional water augmentation authorities. But they can't think of a good way to get money into the Water Supply Development Fund (don't look to the Legislature which hasn't funded it in years). Currently the group is talking about a tax on bottled water. But is this a realistic way to pay for water resources in a growth-oriented state like Arizona?

Texas' most recent Statewide Water Plan calls for \$53 billion in new infrastructure to develop (and move) water resources to meet that rapidly-growing state's needs. Texas is facing a severe drought that is crippling state agriculture and worrying several municipal providers dependent on surface water. Industries that rely on substantial water supplies could pick up and leave the state, killing employment. Yet the best idea that Texas can come up with to fund water supply needs is a tax on bottled water. A bottled water tax will cough up \$53 billion? Really?

Western states are going to have to develop more than a vague awareness that continued growth and economic prosperity depend on water supplies of good quality. And water doesn't come cheap, not any more. Leaders have to come up with solid ideas, sometimes politically unpalatable, to fund hydrologic studies and water resources infrastructure over the next several decades. Failure to look ahead and provide the fiscal resources needed to secure the water resources will eventually drive us smack into a brick wall. Let us hope that the WRDC can come up with a better idea than a tax on bottled water to do what will be necessary.

[Alan Dulaney](#)

City of Peoria

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2012 AHS WATER SYMPOSIUM: CONFLUENCES – 25 YEARS BRINGING WATER, PEOPLE, AND IDEAS TOGETHER

The Symposium Planning committee is working hard. We held our last planning meeting at Boulder's on Broadway in Tempe on June 27. Where were you?

Symposium Chair, Ted Lehman, has a goal to get every AHS member involved in this year's symposium in some capacity – organize a field trip, teach a workshop, moderate a session, give a talk, exhibit your firm, sponsor a student or teacher, or just show up and see what your colleagues have been up to recently!

We have four excellent workshops planned on Tuesday, a great plenary program lined up Wed. & Thurs. mornings, and a series of great field trips to choose from on Friday. We've gone to great lengths to make this year's event information packed and affordable. Full early registration is only \$255. Workshops for symposium attendees are only \$35 each. Check them out on our

website (<http://www.azhydrosoc.org/2012symposium.html>) and get yourself registered!

This month we'd like to highlight the following needs:

Call for Abstracts Deadline Extended! – We need your talks! The deadline for abstracts has been extended until **July 15**. To fill out the remainder of the program we need YOU! Your talks and participation make the Symposium. Not interested in a talk, consider giving a poster. Posters will be displayed in the main ballroom for excellent exposure. Abstracts can be sent to Program Committee Chair, Summer Waters, at SWaters@cals.arizona.edu. If you have questions, shoot her an email or give her a call at 602-827-8200 ext. 349 or contact Ted Lehman at ted@jefuller.com or 480-222-5709.

Silent Auction/Raffle Items – We need your donations! We're looking for items to include in our silent auction/raffles during the Symposium. So far we have a number of interesting items from irrigation controllers, to fossils, to historic maps and signed books. If you have some items you'd like to donate, please contact Vicki Mills, at vmills@asu.edu or Ted Lehman, at ted@jefuller.com or 480-222-5709. Donations go to the AHS Foundation and as such qualify as charitable tax deductions. All proceeds from the raffles/auctions will go to the AHS Foundation. We have a great bundle of goodies so far, but we need more! Give generously!

Sponsors & Exhibitors - Sponsorship fundraising has been very successful so far, but we need additional support. To date we've reached about 50% of our goal. Please help us get the remaining half! Thanks so far to:

- **Platinum Level Sponsor** - Freeport McMoRan Copper & Gold
- **Gold Level Sponsor** - Montgomery & Associates
- Awards lunch sponsor Central Arizona Project
- Break Sponsors - Atwell , Zonge International
- Premium Exhibitors - Golder Associates, US Bureau of Reclamation
- Exhibitors - Aquatic Informatics, Bill Johnson Equipment Company, , Groundwater Environmental Services, Hydrogeophysics, Intermountain Environmental, TAM International, & the UA Water Sustainability Program.

Please join these groups in support and participation in this year's Symposium. More information on sponsorship benefits & options are available on our website at <http://azhydrosoc.org/2012Symposium/sponsors.html>. Or give our Fundraising Chair & Society President, Mike Hulst, a call at 602-248-7702 ext, 318, or drop him an email at mhulst@eecphx.com. Thank you!

Student Registration Sponsors – This year we have started a new program to provide Symposium registration scholarships to students. The idea is to bring in more student participation to the Symposium, and make it easier for deserving students to attend. Student sponsorship donations are to the AHS Foundation and qualify as tax deductible charitable donations. The CAP has awarded AHS a \$400 grant for the program and our goal is to match or exceed their generous grant. David Sampson is heading up the student recruitment and review of applications for these registration scholarships.

Teacher's Workshop Sponsors – This year we are also looking for sponsors to support the Teacher's Workshop. Since 2003, Arizona Project WET has conducted teacher professional development workshops at the AHS Symposia. Funding has grown tight, so this year AHS Foundation is soliciting pledges of financial support for Project WET at this year's Symposium. We are looking for a minimum of \$1500 to make this year's Teacher's Workshop a reality. To encourage your support, Mogollon Environmental Services will fund a drawing for donors with a grand prize of a \$150 gift certificate to the restaurant of the winner's choice, and two second place prizes consisting of hand-thrown coffee mugs, because it is not a pledge drive without

coffee mugs. So e-mail your pledge today to Jeff Trembly: jeff@mogollonenv.com and get eligible for these prizes!

The next planning meeting will again be at Boulder's 5 pm but the date is yet to be determined. Email or call Mr. Lehman if you'd like to participate. Ted can be reached at ted@jefuller.com or 480-222-5709.

We're looking forward to your participation.

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PHOENIX CHAPTER NEWS

Phoenix Chapter July Dinner Meeting

The next Phoenix chapter dinner meeting will be held **on Tuesday, July 10, 2012**, at Nello's in Tempe (northeast corner of Southern Avenue & McClintock Drive, just north of the Superstition Freeway). Please join us for a beverage, to share business cards, and talk water!

Location: [Nello's](#)
1806 E. Southern Avenue
Tempe, AZ 85282

Event: **Aspects of the Water-Energy Nexus: The Impacts of Renewable Energy On Water Use in Arizona**

Ardeth Barnhart, Program Director for Renewable Energy, Institute of the Environment, University of Arizona

Chapter Board Meeting: 4:30 PM – 5:30 PM

Happy Hour & Dinner: 5:30 PM – 7:00 PM

Program: 7:00 PM – 8:00 PM

Cost: \$15 member, \$20 non-member, \$5 student

RSVP with Kirk Creswick at kreswick@eecphx.com or 602-248-7702.

Hope to see you there!

Ardeth Barnhart, Program Director for Renewable Energy in UA's Institute of the Environment, will give a presentation at the July Phoenix Chapter meeting on Aspects of the Water-Energy Nexus: The Impacts of Renewable Energy On Water Use in Arizona.

Ardeth Barnhart directs the UA Renewable Energy Network (UA-REN), an initiative to connect the public, industry, and government to the UA's research and education in renewable energy. The goal is to support the expanded regional, national, and global use of abundant, clean, and economical solar-based renewable energy. Her work includes the development of a UA renewable energy policy program focusing on economic and policy development for innovation.



She specializes in the design and implementation of strategies for the adoption of renewable energy, both in Arizona and nationally, through increased support for trans-disciplinary research and analysis of renewable energy systems that integrate and synchronize, from their initial stages, policy design and technology development. Her research also focuses on the effects of renewable energy on the environment using an interdisciplinary approach to test the feasibility of providing solar power as a sustainable energy source for water desalination and electricity generation with an initial pilot project on the Navajo Nation.

Prior to her appointment at the Institute of the Environment in 2010, Ardeth was the co-director of the Arizona Research Institute for Solar Energy (AzRISE) at the UA. While there, she advised on the strategic direction of the institute and evaluated solar energy programs worldwide, with an emphasis on the economics of these programs and the underlying public policy decisions that impact their growth, sustainability, and interaction with technology development.

Before joining the UA she provided strategic advising on renewable energy and policy development for the business and government sectors, and organizations involved in renewable energy and information systems in developing countries. Prior to earning her master's degree, she spent 10 years in the technology development, innovation and information systems sector introducing new technologies for commercial use.

Future Event Calendar (see also calendar on www.azhydrosoc.org)

Ø **July 26, 2012:** Wine tasting fundraiser at Terrior Wine Pub for the Herman Bouwer Intern Scholarship. **Please note that we are still taking additional sponsors for this event – contact [Keith Ross](#) if you or your company may be interested.**

Ø **August and September 2012:** Our summer hiatus!

Ø **September 18-21, 2012:** The annual AHS Water Symposium hosted by the Phoenix Chapter at the Desert Willow Conference Center, 4340 East Cotton Center Boulevard Phoenix, AZ 85040.

Ø **October and beyond** – maybe you or a colleague? Please contact [Tom Walker](#), Phoenix Chapter Vice President, if you would like to give us a presentation or if you know anyone else who could use an audience.

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SECOND ANNUAL AHS WINE TASTING FUNDRAISER!

2nd Annual AHS Wine Tasting Fundraiser

for

The Herman Bouwer Scholarship/Internship Program

When: July 26, 2012 (Thursday) from 6:30 pm to 8:30 pm

Where: Terrior Wine Pub, 7001 N. Scottsdale Rd #157, Scottsdale, AZ



What: Come enjoy five different and excellent wines and appetizers.

We will be raffling off swag from the sponsors. To enter the raffle bring nonperishable food and receive one ticket per item. If you would prefer tickets can be purchased for \$1 per ticket.

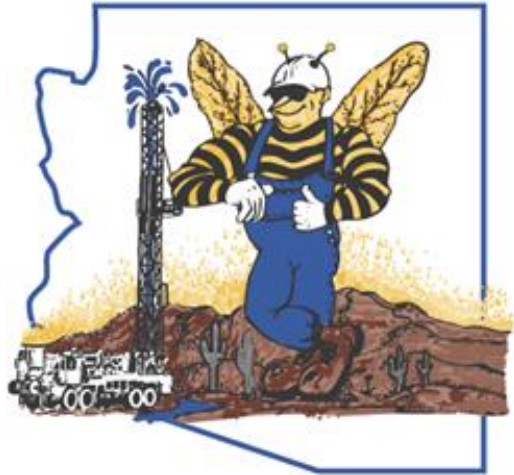
Cost: \$30 per person donation (additional donations are welcomed)

RSVP to Kirk Creswick: kcreswick@eecphx.com

We would like to thank the Event Sponsors:



Terroir Wine Pub



ARIZONA BEEMAN DRILLING



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TUCSON CHAPTER NEWS

The next meeting of the Tucson Chapter will be held on July 10 at the offices of Errol Montgomery & Associates, 1550 E. Prince Road.

A social half hour will begin at 6:00 PM, followed by the regular meeting at 6:30 PM.

Dr. Jennifer McIntosh

Associate Professor

University of Arizona

Department of Hydrology and Water Resources

Potential impacts of shale gas production and hydraulic fracturing on shallow aquifers

Hydraulic fracturing and horizontal drilling have greatly improved our ability to extract natural

gas from tight reservoirs, such as black shales, yet major questions remain about the potential environmental impacts of shale gas production on drinking water resources. This talk will provide an overview of hydrogeologic issues related to hydraulic fracturing and shale gas production, focusing on recent studies of surface water and groundwater contamination in Wyoming and Pennsylvania, and discuss recommendations for future monitoring efforts.

AHS 2013 WATER SYMPOSIUM JULY PLANNING MEETING

July meeting announcement for the Tucson 2013 AHS Symposium Planning Committee

The Tucson Chapter of the Arizona Hydrological Society (AHS) will be hosting the annual AHS symposium in Tucson in the fall of 2013 and we need your input in planning!

When: Wednesday, July 25th at **6:00 p.m.**

Where: Offices of Montgomery & Associates

1550 E. Prince Road

(520) 881-4912

Benefits: Volunteering to serve on the symposium planning committee allows you to get to know others in the Tucson hydrology community in a creative atmosphere. Revenue generated by the AHS annual symposia is the primary source for funding AHS activities, including our intern and scholarship programs. This revenue also provides the means to reach out to our membership through monthly meetings and educational workshops.

All AHS members are welcome to join us for food, drink, and fun!

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FLAGSTAFF CHAPTER NEWS

The next Flagstaff Chapter meeting will be **Wednesday, July 18, 2012, from 6 -8 PM**, at the Peabody Energy offices, 3001 W. Shamrell Drive (near the Flagstaff airport), to focus on the possibility of teaming with AIPG for the 2014 Annual Symposium. For additional information please contact [Mike Tomlinson](#).

GRAND CANYON RIVER TRIP WRAP-UP



"It was the trip of a lifetime." So were the sentiments echoed by all participants on the AHS Colorado River Trip, held June 10-16. Starting at Lees Ferry and concluding at Pierce Ferry, the Geology-themed trip was guided by Wayne Ranney, author of "Carving Grand Canyon". As we descended through geologic time, Wayne provided in-depth information on depositional environments of each of the rock units represented in the Grand Canyon and evolution of the Colorado River. Wayne's narration of geology was supplemented by fascinating information regarding natural history, and some of the famous characters who dwelled in the canyon by the Canyoners boatmen and helpers (swampers!). All participants became fast friends as we were continually doused by 47-degree water, which felt incredibly refreshing given 105-degree temperatures. AHS representatives provided an overview of Arizona water issues, which for the Canadian participants, was almost unbelievable. Sleeping under the stars, we became familiar again with the constellations and plenty of red ant encounters! There were tons of laughs and a lifetime of memories created.



For photos and description of interesting geologic features, please see the excellent photo summary of our trip prepared by Wayne on his blog, <http://earthly-musings.blogspot.com/>. We are also hoping to have an AHS photo gallery posted to the web site in the near future.



All were sad to see the trip end....many of us could have just kept on floating down the most wonderful and enigmatic of all rivers.

Dana Downs-Heimes
CH2M Hill

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HYDRO-NEWS

ARIZONA GEOLOGICAL SOCIETY MEETINGS

Geology of the Van Dyke Copper Deposit, Miami, Arizona

Tim Marsh, President
Bell Copper Corporation

Sheraton Tucson Hotel & Suites
Catalina Ballroom
5151 East Grant Road, Tucson

(The hotel is on Rosemont north of Grant, just north of the International House of Pancakes. Enter at the northwest corner of the hotel and follow the signs.)

Lecture at 8:00 PM
Tuesday, July 3, 2012

Special Meal Deal for Students! Dinner is *FREE* for students who make a reservation online at the website below. Please bring a student ID with you.

SCHEDULE: CASH BAR @ 6:00 PM, DINNER @ 7.00 PM, TALK @ 8:00 PM. WITH RESERVATION: MEMBER = \$24.00, GUEST = \$27.00. If you do not have a reservation, an extra \$3.00 will be charged. Also, without reservations you may not get dinner. To make dinner reservations please call the AGS answering machine at (520) 663-5295 or reserve online at <http://www.arizonageologicalsoc.org/meeting-information/dinner-reservations> by 5:00 P.M. on the Friday before the meeting. Leave name, number of attendees, and whether a vegetarian or low-salt meal is required. This number can also be used for field-trip reservations and leaving messages for Society officers. Please cancel your reservation via the answering machine if you find that you will be unable to attend.

A reminder of AGS policy: You will be invoiced for the cost of the dinner if you make reservations for the dinner meetings and do not show up. Dinner reservations must be cancelled by phone or email by the Friday prior to the dinner meeting. If you are unable to attend because of illness or a true emergency, we will consider waiving the dinner cost on a case-by-case basis. We will continue to try to accommodate walk-ins whenever possible.

Note: Dr. Marsh is going to bring some hand specimens, so people might want to bring their hand lens.

Abstract

Beneath the streets of downtown Miami, Arizona is a historical inferred copper resource of 157 million tons grading 0.44% copper at a 0.15% cutoff as estimated in 1976 by Occidental Minerals Company. As this estimate is historical in nature, it does not comply with NI43-101 standards, and it should not be relied upon. The deposit was originally discovered by Cleve Van Dyke, founder of the town of Miami, in 1916 when he drilled a 1900-foot churn drill hole on a ridgetop at the north edge of town, cutting copper oxides beginning at 1200 feet. A second churn drill hole 2000 feet deep located almost 1 mile to the east demonstrated that he was on to something big. Van Dyke's mine produced 12 million pounds of copper from 5% copper ore between 1929 and 1945. A modern effort by Occidental Minerals Company to develop the resource between 1966 and 1984 came to an end just when a favorable federal court decision ruled that Occidental had the right to extract ore from beneath the town, but copper prices had fallen too low to finance further work. Kocide Chemical Company in 1989 operated an in-situ mining operation on the site, producing 4 million pounds of cement copper for use as a fungicide in the Casa Grande cotton fields. Bell Copper began negotiations with the heirs of Cleve Van Dyke in March of 2010 and has signed a purchase agreement for the deposit scheduled to close this month.

Dr. Marsh can be reached at tim.marsh@cox.net

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FINAL VERSION OF THE ADWR STATEWIDE HYDROLOGIC MONITORING REPORT AND SUPPLEMENTAL SUB-BASIN WATER LEVEL CHANGE MAP BOOK ARE NOW AVAILABLE

The final versions of ADWR's new - [Statewide Hydrologic Monitoring Report](#) – and [Supplemental Sub-basin Water Level Change Map Book](#) are now available to download. The report provides data and analysis of Arizona's groundwater conditions over the last two decades. The period analyzed includes a time of significant variability in groundwater use trends, both inside and outside Arizona's Active Management Areas (AMAs), and covers the first 20 years of Central Arizona Project (CAP) water deliveries for direct use and recharge in central Arizona. The last 20 years also includes an extended drought period that has affected groundwater and surface water resources throughout the state.

The report provides insight into the effectiveness of major water management strategies and programs, and also into the impacts of extended groundwater overdraft. The analysis presented also attempts, where possible, to identify the effects of drought on local groundwater conditions. The report appendix contains information on ADWR's hydrologic data collection program and a discussion of current and future directions in ADWR's data collection activities.

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WRRC ANNUAL CONFERENCE - MARCH 5, 2013 - SAVE THE DATE

SAVE THE DATE – TUESDAY, MARCH 5, 2013

University of Arizona, College of Agriculture and Life Sciences

Water Resources Research Center 2013 Annual Conference: Groundwater Security

The University of Arizona, Student Union Memorial Center, Tucson, AZ

Groundwater has been called the ultimate water supply, come drought or disaster. But how secure is our groundwater? What are the threats to our groundwater security? What are the options for securing a safe and sufficient groundwater supply now and in the future? The WRRC's 2013 Annual Conference will explore these issues with experts, practitioners and policy makers on March 5, 2013.

Please mark your calendar and share this information with others.
We look forward to seeing you in March.

Contact Susanna Eden at seden@cals.arizona.edu if you have any questions or suggestions regarding the conference theme.

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PHOENIX BALSZ ELEMENTARY SCHOOL DISTRICT SKIPS SUPERFUND PIPELINE

Official: School safety trumps money

by *Emily Gersema* - Jun. 13, 2012
The Republic | azcentral.com

An east Phoenix school district has rejected a company's proposal to run a pipeline through a school campus that would carry treated water from a Superfund site.

At the recommendation of the Balsz Elementary School District superintendent, the district's governing board voted 5-0 at its Tuesday meeting to reject the pipeline proposed by Freescale Semiconductor.

Freescale had offered to pay \$20,000 a year in rent to the school district for the pipeline.

Freescale is a spinoff company of Motorola that had inherited the contaminated Superfund site at 52nd Street and McDowell Road in 2002, more than two decades after the plant had a major chemical leak.

The EPA in the late 1980s classified the location as a Superfund site, requiring long-term monitoring, testing and cleanup efforts by Motorola, and now, Freescale.

"The health and safety of our community is of the utmost importance," Superintendent Jeffrey Smith said before the vote.

The company had wanted to run the line from its water-treatment plant at the Superfund site near 50th Street, west onto Culver Street, across 48th Street, and then past Brunson-Lee Elementary School at 1350 N. 48th St. From there, the water would discharge into the Old Crosscut Canal.

Read more: <http://www.azcentral.com/arizonarepublic/local/articles/2012/06/13/20120613phoenix-balsz-district-skips-superfund-pipeline.html#ixzz1zIABRnpQ>

See previous related article:

Phoenix district mulls Superfund pipeline

Board to vote on running treated wastewater under Phoenix school

Read more: <http://www.azcentral.com/community/phoenix/articles/2012/06/08/20120608phoenix-district-superfund-pipeline.html#ixzz1zIC0zEWc>

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ARIZONA FIRE DAMAGE BRINGS FORESTS CLOSER TO COLLAPSE

by **Shaun McKinnon** - Jun. 16, 2012 11:05 PM
The Republic | azcentral.com



On a dry day in May 2002, Arizona Gov. Jane Dee Hull boarded a Blackhawk helicopter in Show Low with her forest and wildfire advisers and Wally Covington, director of the Ecological Restoration Institute at Northern Arizona University.

As the chopper flew over the White Mountains, along the Mogollon Rim and on toward Flagstaff, Covington plotted out, with the help of a map and the Blackhawk's window, five tracts of forest, each about 500,000 acres, mostly ponderosa pines in the higher elevations and piñon pines and juniper trees farther down the slopes.

The first tract was near Show Low and Heber, spreading out onto the nearby White Mountain Apache Indian Reservation. Another was farther east toward Springerville, Greer and Alpine. A third stretched from Payson toward Winslow, a fourth surrounded Prescott, and one more climbed the Rim from Sedona to Flagstaff.

That's where fires will burn in the next 20 or 30 years, Covington told Hull -- big fires like Arizona has never seen. The forests were overgrown, the trees so close together that flames would race up the slopes, over the Rim and into the mountains for thousands of acres until the fuel ran out. The forests needed thinning, Covington argued. Hull, who owned a second home in the White Mountains, agreed and pledged help.

Barely a month later, on June 18, 2002, an out-of-work firefighter lit flames that within hours exploded into the Rodeo Fire and, inside of a week, merged with another to become the Rodeo-Chediski Fire. It raged across 468,638 acres around Show Low and Heber and deep into the Apache reservation, the largest fire on record at the time and almost precisely where Covington had predicted that a fire would erupt.

Nine years after that, the Wallow Fire scorched a record 538,049 acres around Springerville, Greer and Alpine, again within the boundaries Covington had identified from the chopper.

Read more: <http://www.azcentral.com/news/articles/2012/06/18/20120618arizona-fire-damage-forests.html#ixzz1zlp4hdF>

ALMOST 1,000 AFFECTED BY NO-WATER RULE IN PINE, STRAWBERRY

by **Cassandra Strande** - Jun. 20, 2012
The Arizona Republic-12 News Breaking News Team

Officials asked nearly 1,000 residents in 16 subdivisions in Pine and Strawberry to not use water for any purposes, including drinking, until further notice.

Robert Kuta, regional vice president of the Pine-Strawberry Water Improvement District, said a water-quality notice was issued because the system was strained by hot [weather](#), demand, an unspecified mechanical issue and water levels in supply wells.

While residents might have water it might not be [safe](#) for drinking, Kuta said, adding that they can pick up drinking water at the district office in Pine.

Read more: <http://www.azcentral.com/news/articles/2012/06/20/20120620arizona-water-use-restriction-pine-strawberry-abrk.html#ixzz1zIDiDvcW>

WATER SERVICE RESTORED FOR PINE RESIDENTS

by **Ed Tribble** - Jun. 22, 2012 10:09 PM
12 News | azcentral.com

Emily Winebrenner had potato salad on the menu for her lunch on Wednesday.

But in order to boil the potatoes on her stove, the Pine resident had to make a last-minute change.

Normally, she cooks with water from her kitchen faucet.

She had to use bottled water instead.

"You don't realize how many times a day you use water and to be without it, it's kind of inconvenient," she said as she watched the water begin to boil.

Winebrenner lives in one of about 1,000 homes in Pine whose residents were advised to avoid drinking water out of their taps beginning Wednesday.

On Friday, they were given the go-ahead to use tap water again after two new booster pumps were installed by the Pine-Strawberry Water Improvement District and tests of water samples showed the water was [safe](#) for consumption.

Although service was back to normal Friday afternoon, Bradley Cole, a manager at the water district, asked Pine residents to conserve water by eliminating all non-essential uses. He said reserve supplies were returning to normal levels.

Read more: <http://www.azcentral.com/news/articles/2012/06/22/20120622pine-strawberry-area-awaits-water-test-results-abrk.html#ixzz1zIFEHnUe>

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ARIZONA FORESTS' FUTURE HINGES ON DELICATE BALANCE

by **Shaun McKinnon** - Jun. 23, 2012
The Republic | azcentral.com

FLAGSTAFF - Inside a stainless-steel freezer at Northern Arizona University's research greenhouse, clear plastic bags bulge with ponderosa-pine seeds, each bag marked with the location where students and workers collect the pinecones each autumn.

The freezer holds enough seeds to grow as many as 1million trees. On a recent June afternoon, 5,600 pine seedlings waited for shipment to a site in the White Mountains burned last year in the Wallow Fire. The greenhouse has also sent seedlings across town to the site of the 2010 Schultz Fire and has shipped tens of thousands to areas blackened by the 2002 Rodeo-Chediski Fire.

It was after that fire that the university began growing the pine seedlings, initially as part of a "Trees for the Rim," a replanting project started by the non-profit Arizona Community Tree Council. In the years since, the greenhouse has grown seedlings for similar projects as far away as Mount Lemmon outside Tucson, all in an effort to restore forests devastated by wildfire.

"The ponderosa pine is an amazing plant when you look at where it grows," said Phil Patterson, production manager at the greenhouse complex. The tree flourishes on steep slopes, survives drought and cold and can regenerate after a fire.

"They're tough," he said, "but they're not bulletproof."

A severe fire will kill a stand of mature ponderosas, and a hungry elk herd can digest a patch of seedlings in an afternoon.

Read more: <http://www.azcentral.com/news/articles/2012/06/23/20120623arizona-forest-future-balance.html#ixzz1zINyggjr>

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ARIZONA MUNICIPALITIES AVOID PAYING WATER FEE

7 did not make annual state water payment

by *Edward Gately* - Jun. 25, 2012
The Republic | [azcentral.com](http://www.azcentral.com)

Seven Arizona municipalities have avoided paying the Arizona Department of Water Resources a fee required by law, but state officials say they can't do anything to collect the [money](#) even though every other city and town has made the payment.

Fountain Hills is the latest municipality to fend off payment of the annual state-mandated fee, which for the town amounts to \$28,017. The money was due in January.

"Let them send us to collections," Town Councilman Tait Elkie said.

Fountain Hills is among seven Arizona municipalities that haven't paid the fee, said Michelle Moreno, the state agency's public-information officer. The others are Apache Junction (\$44,650), Bisbee (\$6,945), Miami (\$2,288), Sierra Vista (\$54,676), South [Tucson](#) (\$7,041) and Winkelman (\$439).

"Out of 90 municipalities, 83 did pay," she said. "It was due January 16. The department was not given any authority to take any action against municipalities that did not pay, so there's nothing the department could do. We're not going to go after them."

Read more: <http://www.azcentral.com/news/articles/2012/06/22/20120622phoenix-area-municipalities-avoid-paying-water-fee.html#ixzz1zIVhErMj>

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SATURN'S MOON TITAN COULD HARBOR A SUBSURFACE OCEAN

by *Alicia Chang* - Jun. 29, 2012 08:21 PM
Associated Press

LOS ANGELES - Scientists reported recently on the strongest sign yet that Saturn's giant moon may have a salty ocean beneath its chilly surface.

If confirmed, it would catapult Titan into an elite class of solar-system moons harboring water, an essential ingredient for life.

Titan boasts methane-filled seas at the poles and a possible lake near the equator. And it's long been speculated that Titan contains a hidden liquid layer, based on mathematical modeling and electric field measurements made by the Huygens spacecraft that landed on the surface in 2005.

The latest evidence, reported Thursday, is still indirect, but outside scientists said it's probably the best that can be obtained short of sending a spacecraft to drill into the surface -- a costly endeavor that won't happen anytime soon.

The research looks convincing, said Gabriel Tobie of France's University of Nantes.

Read more: <http://www.azcentral.com/arizonarepublic/news/articles/2012/06/29/20120629saturns-moon-titan-could-harbor-subsurface-ocean.html#ixzz1zIWW0qN7>

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EXXON CEO DOWNPLAYS CLIMATE, ENERGY FEARS

Tillerson says risks of fuel production are exaggerated

by **Jonathan Fahey** - Jun. 29, 2012 07:37 PM
Associated Press

NEW YORK - ExxonMobil CEO Rex Tillerson says fears about climate change, drilling, and energy dependence are overblown.

In a speech Wednesday, Tillerson acknowledged that burning of fossil fuels is warming the planet but said society will be able to adapt. The risks of oil and gas drilling are well understood and can be mitigated, he said. And dependence on other nations for oil is not a concern as long as access to supply is certain, he said.

Tillerson, speaking to the Council on Foreign Relations, blamed a public that is "illiterate" in science and math, a "lazy" press, and advocacy groups that "manufacture fear" for energy misconceptions.

He highlighted that huge discoveries of oil and gas in North America have reversed a 20-year decline in U.S. oil production in recent years. He also trumpeted the global oil industry's ability to deliver fuels during a two-year period of dramatic uncertainty in the Middle East, the world's most important oil- and gas-producing region.

"No one, anywhere, anyplace in the world has not been able to get crude oil to fuel their economies," he said.

In his speech and during a question-and-answer session after, he addressed three major energy issues: climate change, oil- and gas-drilling pollution, and energy dependence.

Tillerson, in a break with predecessor Lee Raymond, has acknowledged that global temperatures are rising.

Read more: <http://www.azcentral.com/arizonarepublic/news/articles/2012/06/29/20120629exxon-ceo-downplays-climate-energy-fears.html#ixzz1zIX9DM7L>

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WATERBLOGGED BY SHAUN MCKINNON, ARIZONA REPUBLIC

For associated links and other timely water and environmental blogs on Shaun McKinnon's Arizona Republic site – **Waterblogged** visit <http://www.azcentral.com/members/Blog/ShawnMcKinnon>.

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The AHS Newsletter is edited by [Christie O'Day](#), AHS Executive Director. THANK YOU TO OUR MEMBERS FOR SENDING ME INTERESTING CONTENT FOR THE MONTHLY NEWSLETTER!