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AZ WATER 2012

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DEADLINE

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www.azwater.org

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# CALENDAR OF EVENTS | February - June 2012

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<th>Event</th>
<th>Venue</th>
<th>Details</th>
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<td>2</td>
<td>Water Treatment Seminar</td>
<td>GateWay Community College</td>
<td>See flyer on pages 30-31, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
</tr>
<tr>
<td></td>
<td>Making It Work: Operating to Optimize System Performance</td>
<td>Phoenix, AZ</td>
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<tr>
<td>2</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>El Parador Restaurant</td>
<td>See flyer on page 36, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
</tr>
<tr>
<td></td>
<td>Pima County Wastewater Campus</td>
<td>Tucson, AZ</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>AZ Water – Water Distribution Workshop</td>
<td>Scottsdale, AZ</td>
<td>See flyer on page 21, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
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<tr>
<td>14</td>
<td>Phoenix Technical Luncheon Program</td>
<td>SRP Pera Club</td>
<td>See flyer on page 32, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
</tr>
<tr>
<td></td>
<td>Wastewater Process Optimization, A Non-Traditional Approach</td>
<td>Tempe, AZ</td>
<td></td>
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<tr>
<td>24</td>
<td>Environmental Workshop, sponsored by Legend Technical Services</td>
<td>Marana, AZ</td>
<td>See flyer on page 44</td>
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<tr>
<td>27-Mar. 1</td>
<td>2012 Membrane Technology Conference &amp; Exposition</td>
<td>Renaissance Glendale Hotel</td>
<td>See flyer on page 50, Register at <a href="http://www.awwa.org">www.awwa.org</a></td>
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<td></td>
<td></td>
<td>Glendale, AZ</td>
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## MARCH

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>Inn Suites Tucson City Center</td>
<td>See flyer on page 34, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
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<tr>
<td></td>
<td>Safety Shouldn’t Hurt</td>
<td>Tucson, AZ</td>
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<tr>
<td>7</td>
<td>Environmental Workshop, sponsored by Legend Technical Services</td>
<td>Surprise, AZ</td>
<td>See flyer on page 44</td>
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<tr>
<td>8</td>
<td>AZ Water – Distribution Systems Workshop</td>
<td>Tucson, AZ</td>
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</tr>
<tr>
<td>13</td>
<td>Phoenix Technical Luncheon Program</td>
<td>SRP Pera Club</td>
<td>See flyer on page 32, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
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<tr>
<td></td>
<td>Grease to Energy Study – City of Tempe</td>
<td>Tempe, AZ</td>
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<tr>
<td>17</td>
<td>Water For People 5K Fun Run</td>
<td>Kiwanis Park</td>
<td>See flyer on page 46</td>
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<tr>
<td>26</td>
<td>Deadline to Submit Award Nominations for AZ Water Awards Program</td>
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## APRIL

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>5</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>Inn Suites Tucson City Center</td>
<td>See flyer on page 34, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
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<tr>
<td></td>
<td>Advanced Oxidation Plant at TARP</td>
<td>Tucson, AZ</td>
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<tr>
<td>10</td>
<td>Phoenix Technical Luncheon Program</td>
<td>SRP Pera Club</td>
<td>See flyer on page 32, Register at <a href="http://www.azwater.org">www.azwater.org</a></td>
</tr>
<tr>
<td></td>
<td>Topic To Be Determined</td>
<td>Tempe, AZ</td>
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<tr>
<td>10</td>
<td>Environmental Workshop, sponsored by Legend Technical Services</td>
<td>Cottonwood, AZ</td>
<td>See flyer on page 44</td>
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## MAY

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>1</td>
<td>AZ Water Annual Conference &amp; Scholarship Endowment Golf Tournament</td>
<td>JW Marriott Wildfire Golf Club</td>
<td>Brochure will be mailed in late February.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phoenix, AZ</td>
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</tr>
<tr>
<td>2-4</td>
<td>85th Annual AZ Water Conference &amp; Exhibition</td>
<td>Renaissance Glendale Hotel</td>
<td>Brochure will be mailed in late February.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glendale, AZ</td>
<td>See flyer on page 17</td>
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## JUNE

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>10-14</td>
<td>ACE 2012</td>
<td></td>
<td>For more information go to <a href="http://www.awwa.org">www.awwa.org</a></td>
</tr>
<tr>
<td>23</td>
<td>16th Annual Water For People Golf Tournament</td>
<td>Troon North Golf Club</td>
<td>More information will be available in the spring Kachina News magazine.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scottsdale, AZ</td>
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</tbody>
</table>
THREE DROPS OF WATER WERE SITTING ON A BAR AT AN ESTABLISHMENT OVERLOOKING A MEANDERING CREEK. The first drop, a very distinguished glistening individual, started to talk about how it became attached to the bar. “I came from the heavens, pure and clean and fell on the hat of that distinguished chap over there and when he removed his hat, I eventually dripped near the two of you on this bar.”

The second drop, not as distinguished as the first drop and it also looked a little more worn, commented on how it became attached to the bar. “My history is very similar at the start of my life to the first drop. I fell from the heavens into a pristine waterway where I traveled around avoiding being sucked up by the water predators and had a great life for many months, and then all of a sudden I was moved into this intake. After that, I was shaken by this metal object, floated among chemicals, and then I was squished through a bunch of sand. After the sand, I was run through more metal objects and eventually found myself squirting through that faucet over there into a glass. As the bartender was delivering me to that table over there, I eventually dripped near the two of you on this bar.”

By this time the first drop was noticing that the third drop did not look very well and wondered if that drop was wasted. The third drop immediately took offense to the notion that it was wasted and exclaimed “I am not wastewater!” The third drop then told the other two drops of its adventures.

“I too started off as clean and pristine followed by a journey through the watershed avoiding water predators. I was then moved into an intake, went through a cleaning cycle, and was delivered to a suburban home. I then came out of a faucet and next went down the drain. Now the real expedition began. I went through very dark places and ended up in another cleaning facility where I was not only shaken, but also stirred. I eventually floated along to a meandering river where I spent several days in total relaxation until I got stuck to a water predator and then fell on to that fisherman over there and I eventually dripped near the two of you on this bar.”

The first and second drops looked distraught and concerned of their own future and then all of a sudden as third drop ended its story, a massive sponge collected all three drops and rang them out in a sink and down the drain they went.

The moral of this story is that we all have a history, we all get shaken and stirred many times, water is never wasted and most times we end up in the same drain. We are the water professionals that move and clean water, no matter what the water’s history or the water’s predicament.
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HAPPY NEW YEAR! I HOPE YOUR HOLIDAYS WERE FULLY ENJOYED AND YOU ARE LOOKING FORWARD TO A GREAT 2012.

First, a summary of some recent AWWA/AZ Water activities you might find of interest.

**Regulatory Changes to look for in 2012**

AWWA offered a Webcast in December to give a “heads-up” on some regulatory changes to look for in 2012. Some of you may have joined the Webcast but if you didn’t, the activities highlighted for next year were: 1. Long-term Lead and Copper Rule revisions; 2. Perchlorate Rule; 3. Carcinogenic Volatile Organic Chemical Rule; 4. Third Regulatory Determination.

**AWWA Presidents Challenge**

AWWA challenged all sections to actively pursue additional students to become members at the local and national level. AWWA set a goal for Arizona at eight new members. The AZ Water Leadership and Membership Committees eagerly stepped up to the challenge, led by Jim Pembroke and Troy Hayes. They were helped significantly by the Young Professionals Committee and together they secured sponsorship from current members resulting in over 30 new student members to AWWA and AZ Water. Thanks! Students today are clearly the future of the water industry tomorrow. Welcome to all the new members and we look forward to their participation and positive impact on both AWWA and AZ Water.

**Officer/Director Candidates**

The January AWWA Board meeting will include election of new officers and directors. Three seasoned volunteers are running for AWWA President-elect, including Don Broussard, Southwest Section; Jim Chaffee, Wisconsin Section; and, John Donahue, Illinois Section. Nine Directors have been nominated for four Vice President positions and three nominations are being considered to join the board in the one open Director-at-Large position. Look for the announcement of the successful candidates in the February AWWA Journal or in the next AZ Water Kachina News.

Next, some interesting thoughts regarding bottled water.

The following “Five Myths About Bottled Water” were taken from a book titled “Water Consciousness, How We All Have To Change to Protect Our Most Critical Resource”, edited by Tara Lohan:

<table>
<thead>
<tr>
<th>MYTH</th>
<th>REALITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bottling plants are beneficial for local communities</td>
<td>Groundwater Levels dropped by as much as 40 feet in Mehdiganj, India, home to a Coca-Cola bottling plant.</td>
</tr>
<tr>
<td></td>
<td>In Gandhre, India, Coke has drawn water for its factory operations that could have otherwise served 75,000 villagers a day.</td>
</tr>
<tr>
<td>2. Bottled water tastes better</td>
<td>A November 2007 poll by CBS News in Chicago found that two-thirds of the participants preferred tap to the bottled brand names or couldn’t tell which was which.</td>
</tr>
<tr>
<td>3. Bottled water is inexpensive</td>
<td>Bottled water costs hundreds or thousands of times more than tap water.</td>
</tr>
<tr>
<td>4. Bottled water is cleaner and safer than tap water</td>
<td>The Food and Drug Administration regulates only 30 to 40 percent of bottled water sold across state lines. Plastic bottles can leach chemicals into the water.</td>
</tr>
<tr>
<td></td>
<td>A 1999 survey of more than 1,000 spring and publicly sourced bottled water brands found that some violated state standards on bacterial contamination, and others were found to contain harmful chemicals such as arsenic.</td>
</tr>
<tr>
<td>5. Bottled water doesn’t negatively impact the environment</td>
<td>U.S. plastic bottle production requires more than 17 million barrels of oil, enough to fuel 1,000,000 cars. About 86 percent of the empty plastic water bottles in the United States are not recycled.</td>
</tr>
</tbody>
</table>

Although I have not confirmed the claims stated in this book, I suspect that most of us in the water industry are already aware of the realities and will think they are valid. The book was published in 2008, so some of the statistics have probably changed a little. I just thought you might be interested in sharing these “Myths and Realities” with some of your friends outside the water industry.
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Order online at www.awwa.org. AZ Water also carries an inventory of this publication, call 1-888-559-8844.

AWWA EVENTS FOR ADVANCING YOUR CAREER

No matter what your position is in the water industry, there are opportunities to increase your competency, build your career and pass the education onto colleagues. AWWA has an event to fit your needs, time and interests. In addition to local AWWA section events there are many other programs that offer best practices and national speakers to enhance your learning and networking with other industry professionals.

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Are you using this free service yet? Visit www.awwa.org, log in (if you do not have an AWWA log in, simply create one – for log in assistance contact the AWWA Customer Service Department at 800.926.7337), click on “My Account”, then click on “My Transcript Information”. Benefits of using AWWA’s transcript reporting service include:

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- Certificate Programs – click on Water Treatment Operator, High-Tech Operator, or Water Basics for Decision Makers
- Savings – Click on Organizational Suite or discounts and packages

AWWA Certificate Programs

The Customer Service Certificate Program was developed in response to sections requesting content that can be delivered locally. Every CSR should go through this training. For additional information contact EducationServices@awwa.org.

AWWA Conferences

Our members are our greatest resource. That’s why AWWA offers numerous and varied opportunities for members to meet, learn, and network at the international, national, and section levels. In addition to comprehensive conferences for water professionals, AWWA provides a variety of workshops, symposia, and programs focused on specific aspects of water stewardship.

2012 Conferences

AWWA/WEF Utility Management Conference January 30-February 2, 2012 Miami, FL

AWWA/AMTA Membrane Technology Conference and Exposition February 27-March 2, 2012 Glendale, AZ

Sustainable Water Management Conference March 18-21, 2012 Portland, OR

AWWA Seminars

AWWA Seminars are a great way to get information on important topics in a face-to-face setting. Accounting and finance personnel are welcome!

Financial Management: Cost of Service Rate-Making March 19-21, 2012 Portland, OR

CONSERVATION COMMUNITY NOW ONLINE

AWWA has launched its new online Conservation Community, the first of several communities of interest planned by AWWA and led by Dr. Kenneth Mercer. AWWA members and parties outside the association can use this platform as a robust interface for networking and exchanging ideas. For each topic, specialized Community web pages will be dedicated to resources such as news, research, forums, products, tools, and events.

“AWWA members have been clear in what they want – quick and easy access to AWWA’s wealth of information and an area for them to learn and become professionally active,” said Mercer.

While the AWWA website is the primary interface of the Communities, several new features in the Communities are currently unavailable on the rest of the AWWA site, according to Mercer. “Each community is tailored to highlight the relevant news and activities in a specific topic. So the Conservation Community is where water professionals can gather to share knowledge and find out what the Association has done and is currently doing in the area of water conservation.”

AWWA resources will be foremost in the Communities, but inclusiveness is the intention. AWWA membership will be afforded free access to certain resources, established under existing member benefits, for which nonmembers will have to pay. AWWA councils, divisions, and committees will provide input and guidance, but in a given AWWA Community, participation from all stakeholders will be encouraged, with no particular volunteer entity holding sole authority. Selection of volunteer community leaders to guide and

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WEFTEC WAS A GREAT SUCCESS IN 2011. The WEF leadership is moving our program forward and it is good to see cooperation with AWWA at a National level. The Conference was a very busy time for WEF business and House of Delegates’ meetings. Because AZ Water is hosting a WEFMAX meeting this spring, the conference schedule was almost all WEF business. WEFMAX is an idea exchange meeting attended by the leaders of various Member Associations from the US and Canada. Our proposal was well received and we expect a very good attendance for our event in Sedona.

The House of Delegates’ meetings were on Saturday October 15 and I represented AZ Water as the state delegate. The themes from the meeting were:

- Public health is made better by volunteering.
- Wastewater plants are not waste disposal plants but water recovery plants. They can provide renewable energy.

Jerry Stevens, AWWA President, discussed how we pay for new regulations and maintaining infrastructure. An AWWA study on costs of infrastructure needs in the next 25 years found that one trillion dollars of investment is need. This is $133 per year per person ($400 per household). This is a rate increase of $33 per month just for infrastructure, not counting investment for growth or for new regulations. The longer we delay this investment the less time we will have to make the improvements and the greater the risk of catastrophic failures of the systems that provide us clean and safe water. Most of this infrastructure is buried. The public does not see it or comprehend what major failures will do to public health or our economy. We need to communicate this issue and the other issues our industry is facing. If we don’t do it, who will?

Jeff Eger, WEF Executive Director, pointed out we have a crisis of succession. His question - Have you found someone to take your place? With changes to the retirement systems and compensation packages at utilities this exercise just got harder. Some do not feel Water’s Worth It. Our Association needs to let the community leaders and the public know about clean and safe water. We can no longer just lie low and assume everything will take care of itself.

Water’s Worth It. This is the new WEF’s branding statement on the value of water. They have buttons and by asking around I found one. WEF will be rolling out this campaign in the coming year. AZ Water is behind this program pushing it forward (learn more about this campaign on page 49 in this news magazine).

WEF has a Member Association Leadership Education Program that is starting January 2012. It will have web based training on a quarterly basis. There is no registration cost. If you are on the AZ Water Association Board or want to be on the Board check out the WEF website for more information.

Many of you have seen news on the TV and in the papers about a rate increase proposed in the West Valley. As usual all the discussion centers around the percent increase of the rates, not the actual dollars of the rate increase. This is from my water supplier and I will pay the increase. You know what – Water’s Worth It. It will cost me $20 a month. It is the first increase in five years. The improvements decrease the mining of groundwater in the worst groundwater overdraft area in Arizona. It replaces groundwater with renewable supplies of surface water. The leaders that came out against this change from groundwater to surface water are short sighted. They are interested only in their political careers not the long term wellbeing of their constituents. We can help them to understand why this is an important investment with discussion. Much of the testimony and press was misinformed. Some of it was made up. Our Association and our members need to work harder to have an open dialog with our customers as we make decisions but in the end – Water’s Worth It.
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Whether this is your introduction to wastewater treatment, a refresher course, or an intellectual stimulator, WEF’s Distance Learning training courses cover operation, design, and engineering from top to bottom. More than just a series of online quizzes, these courses offer hours of instructional material needed by wastewater professionals.

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http://training.wef.org
The Water Environment Federation is now accepting applications for the 2012 WEF Fellows’ candidates. The Fellows Program recognizes the professional achievements and impact members have made in the practice areas served by WEF, including — but not limited to — design, education, operations, regulation, research, and utility management and leadership. The deadline to submit applications and nominations is February 1, 2012. For more information go to www.wef.org/weffellowsprogram, or contact Theresa Mixon at tmixon@wef.org.

WEF BOARD APPROVES REVISED POSITION STATEMENT ON BIOSOLIDS RECYCLING AND RESOURCE RECOVERY

WEF Board of Trustees has approved a revised position statement that calls for innovative and beneficial uses of biosolids. The statement expands on WEF’s belief in recognizing wastewater- generated energy as a renewable resource and the vision for resource recovery and will also help build understanding of the potential role of wastewater treatment facilities. It’s exciting to consider where the future could take us in terms of water quality innovation, and I’m proud to be a part of that process.”

WEF FORMS STORMWATER COMMITTEE

At WEFTEC® 2011, the Water Environment Federation Board of Trustees voted to sunset the Stormwater Coordinating Council (SWCC) and form a Stormwater Committee (SWC). The SWC will lead WEF’s efforts to encourage innovative approaches, sound management strategies, policy engagement, and enhanced public outreach for stormwater professionals. “WEF recognizes the importance of stormwater management in the compliment of professionals addressing the challenging water quality issues of this century,” said Mike Beezhold, new SWC chair. The SWC will be co-chaired by Wing Tam with help from Tad Slawecki, past vice chair of the SWCC. To learn more about the committee go to http://www.wef.org/Members/page_committees_/PolicyandPositionStatements.

WEF BOARD APPROVES RENEWABLE ENERGY POSITION STATEMENT

During WEFTEC® 2011, the Water Environment Federation Board of Trustees approved a new position statement, “Renewable Energy Generation From Wastewater.” The statement calls for wastewater-generated energy to be widely recognized as a renewable resource and for a greater drive for innovation in the water sector.

“With the passage of this statement, WEF is encouraging our sector to lead the way in helping communities recover resources from wastewater,” said Jeannette Brown, immediate past president of WEF. The position statement outlines WEF’s belief in recognizing wastewater-generated energy as a renewable resource that can stimulate greater production from water resource recovery activities, create more clean-energy jobs, and help reduce greenhouse gas emissions.

The statement also details WEF’s belief that wastewater facilities have the potential to be energy-neutral or even net-energy producers, but that reaching the goal of energy neutrality relies on achieving a holistic energy management approach, incorporating conservation practices, and generating renewable energy through the management of water resource recovery and its by-products.

“WEF leaders believe that emerging technologies can surely advance the potential for renewable energy from wastewater,” said WEF Executive Director Jeff Eger. “WEF will work with stakeholders and partners who share our vision for resource recovery and will also help build understanding of the potential role of wastewater treatment facilities. It’s exciting to consider where the future could take us in terms of water quality innovation, and I’m proud to be a part of that process.”

HELP SPREAD THE WORD ABOUT WATER’S WORTH IT™

Following the successful pilot launch of WEF’s new messaging campaign — Water’s Worth It™ — at WEFTEC 2011, the Water Environment Federation has been using members’ feedback to develop initial campaign materials and to prepare for the campaign’s official launch on World Water Day in March 2012. Expect to see a new campaign website that will feature resources and materials that you can customize to reach any audience, about any water-related issue, in any location. Read Jeff Eger’s campaign Question & Answer document on page 49 in this news magazine. For more information contact Lori Harrison at lharrison@wef.org.

EDUCATIONAL OPPORTUNITIES IN 2012

The Utility Management Conference™

Jan. 30–Feb. 2

Hyatt Regency Miami (FL)

Attendees will learn about the latest approaches, practices, processes, techniques, case studies, and research on all aspects of utility management. The conference features the Utility Leader Forum, and sessions will relate to the Ten Attributes of Effectively Management Water Sector Utilities and the Five Keys to Management Success.

Sustainable Water Management Conference & Exposition

March 18–21, Marriott Portland (OR)

Waterfront Hotel

The Water Environment Federation is a partner with the American Water Works Association for this conference that focuses on large-scale sustainability issues related to water supply and management topics, such as water conservation; urban planning and design; and sustainable utilities, infrastructure, and communities.

Residuals and Biosolids: Advancing Residuals Management: Technologies and Applications

March 25–28, Raleigh (NC)

Convention Center

This conference will highlight beneficial use options, science, and technologies currently available to leverage biosolids as a valuable resource.

Odors and Air Pollutants

April 15–18, Kentucky International Convention Center (Louisville, KY)

The conference features presentations, interactive discussions, posters, workshops, and exhibits focusing on real-life experience and lessons learned.

Stormwater Symposium

July 18–20

Sheraton Baltimore City Center (MD)

The event will focus on national issues, including the proposed national stormwater rulemaking, regional issues, developing technologies, and management approaches key to growing and evolving the topic of stormwater. More than 200 abstracts have been submitted to be included in the program. “The initial overwhelming interest in the symposium is reflective of the growing need for information and direction in the field of stormwater management,” said Mike Beezhold, Stormwater chair.
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When I think of a wetland I first envision a large Cypress Tree with moss dangling from its branches. Perhaps algae covered water with some bugs dancing about and a mysterious gallery of untold life just below the waters surface. My image is fairly inhospitable to any human presence, but it has a strange allure that a moth must have when encountering a porch light.

Back in reality, I reach over the bow of the airboat to collect my water quality samples and realize some of the samples I have just collected need to have the proper chain of custody seals placed on them. The co-pilot bags, tags and ices down the samples and then climbs onto the jump seat and gives me a thumbs up; a signal that he is prepared for the force of the wind created by the propeller pushing our airboat forward. As we run the boat ashore I am reminded of the struggles Tres Rios has endured to become a reality.

Tres Rios started in 1994 as a proposal for advanced nitrogen removal after rumors surfaced that the Environmental Protection Agency (EPA) could tighten requirements in the National Pollutant Discharge Elimination System (NPDES) permit. The price of conventional treatment methods was costly enough to justify investigation into creative alternatives and thus our humble beginnings. Three sites were chosen to accommodate research: Hayfield Site, Cobble Site and Research Site (I know the last site name is not very original). Each site in its own way moved our world a little closer to a realization we could achieve our water quality goals and much more just by being a little more environmentally friendly.

I was a much younger man, but I remember well being chosen to work on the Tres Rios Constructed Wetlands Project and the relentless work that followed. I also remember how I was surrounded by so many brilliant and charismatic leaders who had no compunction about discussing their forward visions. Engineering needs were taken on by Kathi Barret – Sturdivant, Madeline Goddard, Paul Kinshella and Mike Gritzuk. In the field, Roland Wass managed the daily process; the lead operator was Wes Camfield and that left me as the most qualified person to root around in the mud.

The attributes of Tres Rios quickly expanded beyond just water quality into flood control, environmental education, water reuse, habitat restoration, vector management, effluent conveyance, carbon footprint mitigation and the list goes on. This attracted outside interest like the Bureau of Reclamation, Environmental Protection Agency, Arizona Department of Environmental Quality, and United States Army Corp. of Engineers (USACE) to name just a few. The struggle forward would yield an environmental project second to none; a 450 acre wetland at the confluence of the Salt, Gila, and Agua Fria rivers.

The USACE received approval to use stimulus funding to support The Tres Rios Wetlands Project and site construction started in December 2008. It was difficult at first to imagine a series of vacant farm fields being transformed into an environmental wonder as the first lonely backhoe showed up on the site. Salt River Project had removed or buried their lateral infrastructure months before, now it was Archer Western Contractors (AWC) turn to transform the landscape.
The construction activities spanned approximately 15 months and required close coordination from the USACE, City of Phoenix, AWC and the design/construction engineers, Jacobs Engineering (formerly Damon S. Williams and Associates), and Wass Gerke and Associates. The project was partnered and this close interaction was crucial to achieve the best final product. When over 3 million cubic yards of material is moved around a 450 acre site, there tends to be some lively discussions, but at the end, the completed project worked well.

A key element to the wetlands is plants, but how do you install them in on arid soil? We did not have a permit yet to apply effluent to the newly formed cells and the plants that were needed to obtain the water quality for the permit needed the water to live. This dilemma was known at Tres Rios as the chicken and egg paradox; natural systems develop their vegetation slowly and we needed to accelerate the growth rate. AWC and its subcontractor, Native Resources International, decided to develop the vegetation using a sprinkler system to keep the plants alive. This was quite labor intensive, but solved the poultry paradox.

Wetlands within an arid environment are a little rare; the obvious reason is there is usually not much water in the desert to support them. The 91st Avenue Wastewater Treatment Plant has an average influent flow of about 140 MGD and can supply 50 MGD to the wetlands barring other demands. To fill this order the Unified Pump Station located within the 91st Avenue treatment plant has the ability to deliver up to 220 MGD, and at final build out 440 MGD. Effluent is pumped into a water tower and then gravity feeds almost a mile through two Hobas Pipe force mains to the influent box at Tres Rios.

An Aquifer Protection Permit was acquired in November 2009 and we were ready to put water in our creation. The call was made and the pump station began to ramp up flow and as we stood in the afternoon sun with the look of children in a candy store; it dawned on someone, how long does it take to fill a mile of pipe? After an eternity (OK, maybe an hour and a half) water started bubbling up through the inlet structures referred to as Morning Glories. The crowd cheered and laughed; then the flow stopped, then a few bubbles and flow started again. After a few cycles the flow steadily started and the water sheeted across the dry basin floor like a miniature wave. It created a small dust sheet at the point where it was saturating the soil and I realized I would never witness a beginning of this magnitude again.

As we began to operate we experienced a few set backs including several breaks on the force main pipes feeding the project, but once these problems were remedied we began the task of equipment testing on the site. The NPDES permit for the facility was issued in July 2010 and we began testing the gate positions and flow rates shortly after. With the help of Process Control Technical Support, communication between the project and the computer control system was established during the same time period.

The site was operational and now the process work began. The initial goals were very clear: stabilize the process, develop the ecosystem and create the operational/process procedures. How hard could that be? Looking back on those questions humbles me and brings a smile to my face at the same time. Nature is not quick to share its secrets and will surprise you at every turn.

This article is part one of four articles that will appear this year in the AZ Water Kachina News.
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www.azwater.org
As the Arizona Legislature considers regulating water softeners, the Arizona Water Quality Association has presented an overview on softeners and the softening process. Softeners are a key element of point-of-entry (POE) water processing, providing water treatment at the inlet to an entire building or facility, and are often used in combination with various point-of-use (POU) treatment.

The technology was introduced 100 years ago. It involves a reversible stoichiometric reaction whereby various ions in a solution can be attracted to and absorbed by chemically treated resins and effectively replaced by ions that are less offending. The negatively charged resin seeks to be balanced by a counteracting positive charge, thus it attracts the positively charged ions such as calcium and magnesium. Since it has a greater affinity for divalent calcium and magnesium than it has for monovalent sodium, the calcium and magnesium adhere to the resin while the sodium is released until equilibrium is reached and the available charge sites on the resin are saturated.

Most of Arizona has hard water, defined as a calcium and magnesium level of more than seven grains per gallon (120 mg/l). Some water users have much higher levels than that. Such water presents a number of problems and drives a demand for various water treatment applications.

It is called hard because it is hard to get things clean with it. The hardness minerals interfere with every cleaning process, are damaging to fabrics, and require the greater use of soaps and detergents to overcome this barrier, creating another wastewater discharge concern. They also leave unsightly deposits on cleaned items and other surfaces, requiring an extra effort to remove. In addition, the calcium and magnesium salts are transferred to the surfaces that the water passes over and create a particular problem in all water using appliances.

This scale accumulation can greatly reduce the life of these appliances, especially water heaters. Even before causing failure, the scale results in greater energy usage to overcome. Energy conservation is an important national goal. Studies have shown that soft water can produce energy savings of 22 percent in electric water heaters and 30 percent in gas units. Tank-less heaters are particularly vulnerable to the effects of hard water.

While many products are now making claims of providing the benefits of soft water, the process applies only to those products that reduce calcium carbonate and magnesium to a level of less than one grain per gallon (17.1 mg/l). While whole-house reverse osmosis treatment or distillation can achieve that result, the most common and cost-effective way to do so is through the ion exchange process.

Various no-salt alternatives do not remove calcium and magnesium and, therefore, do not produce soft water. They are best described as scale inhibitors and some do achieve significant scale reduction while others achieve little or no change. Since there are no standards, testing or certification of such products, it is difficult to verify and compare claims. Ion exchange softeners are independently tested and certified to American National Standard Institute standards.

In ion exchange units, the incoming hard water passes through a bed of cation resin saturated in a brine solution. The calcium and magnesium ions are drawn to the resin and exchanged for the sodium or potassium ions in the brine.
Before the brine is exhausted, ending the exchange process, the softener’s resin tank must be regenerated. This is usually an automatic function of the softener based on water usage or a pre-set cycle in the case of time-clock units. Portable exchange softening is also available in which a resin tank is charged at a central processing plant and delivered to the user.

The regeneration sends a strong brine solution through the resin bed to drive the trapped calcium and magnesium to the drain and leave a fresh supply of brine to continue the exchange process. Sodium chloride, a common table salt, or potassium chloride can be used as the regenerate in the brine, some of which is sent to the drain with the calcium and magnesium. Those salts contribute eight to ten percent of the increased salinity going to wastewater treatment plants and the untreated effluent used by many golf courses and other users for irrigation.

While potassium in the softener discharge is beneficial to plant life, it takes at least 25 percent more potassium to achieve a regeneration equivalent to sodium; thereby increasing the total salt discharge. It is also about three times more expensive than sodium; a key factor in a softener user’s buying decision.

As softener manufacturers continue to develop greater efficiencies, the role of the time-clock, with its set regeneration cycle, is coming under more scrutiny. Demand initiated regeneration is much more efficient in terms of salt and water use by maximizing the capacity that can be extracted from a pound of salt and by reducing the frequency of regeneration. Greater salt efficiency can reduce the amount of salt used by 30 percent. Reducing the number of regenerations from once every three days to once every six days can increase efficiency by 50 percent.

Assume a family of four uses an average of 70 gallons of water per person per day with a hardness level of 20 grains per gallon (342 mg/l). They would need to remove about 5,600 grains of hardness each day. An older softener could need to regenerate once every three to five days, using 60 to 70 gallons of water and up to 15 pounds of salt every time.

New technology would regenerate only every five to six days, using 30 to 40 gallons of water and five to seven pounds of salt each time. Over the course of a year, the difference becomes clear. For every older softener that is replaced, up to 4,000 gallons of water and 700 pounds of salt can be saved annually.

The AZ Water Association along with the Arizona Water Quality Association looks forward to working with legislators and others as we all seek to develop policies that maximize our water resources.
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Workshop Information

Scottsdale
February 7, 2012
7380 E. Second St.
Scottsdale, AZ 85251

Tucson
March 8, 2012
600 Camino Rancheria
Sahuarita, AZ 85629
1. **Construction Begins December 2008**

After 15 years of research and development, the project was finally ready to be built.

2. **Surveying**

GPS crews mapped the site for excavation and form work.

3. **Construction Entrance**

Entrance sign for the construction site.

4. **Hobas Pipe Routed Into Site From Unified Pump Station**

Hobas Pipe delivers water to the site from the Pump Station one mile away.

5. **Morning Glories And Influent Structure**

Discharge pipes called Morning Glories are cast into place in the influent junction structure.

6. **Aerial Of Overbank Construction Fall 2009**

Aerial view of Overbank Wetland construction.

7. **Ribbons Cutting Ceremony**

Ribbon cutting ceremony which among other guests included Representative Ed Pastor, Mayor Gordon, Councilmember Mattax and Army Corp. Colonel Magnus.

8. **Unified Pump Station Ready To Discharge Winter 2009**

Unified Pump Station located within 91st Avenue Wastewater Treatment Plant is ready to send flow to Tres Rios.

9. **Aerial Fall 2010**

Aerial view of Tres Rios in Fall of 2010 shows a thriving system delivering a quality effluent to the Overbank and Salt River.
## TIMELINE FOR THE CONSTRUCTION

### 3. Concrete Structures Are Formed And Poured As Soon As Earthwork Allows

Archer Western pouring one of the many spillways throughout the site.

### 4. Aerial Early 2009

Early aerial pictures show construction progress.

### 7. Planting And Watering Of Plants – Summer 2009

While construction activities continued around the site vegetation, development began in Cell FRW1 in the summer of 2009.

### 8. Aerial Fall 2009 Robust Development

Aerial view of site shows robust development of Cell FRW1 vegetation.

### 11. First Discharge To Tres Rios Wetlands – Winter 2009

Discharge from Morning Glory to project.

### 12. Aerial Spring 2010

Aerial view in spring of 2010 of all FRW cells in service and developing vegetation.

### 15. Thriving System

Ground view of fully developed young wetlands system.

### 16. Future Recreational Overlay At Overbank Sight

Future plans that center around the Overbank system include several entry points and recreation opportunities for visitors.
THE PIPELINE
Operator Certification Challenge
SEE ANSWERS ON PAGE 52

WATER TREATMENT GRADES 1 & 2
1. Which of the following disinfectants of drinking water may use Sodium Chlorite as a primary ingredient?
   A. Chlorine Dioxide
   B. Chlorine
   C. Ozone
   D. Chloramines

2. How much chlorine is needed to satisfy a chlorine demand of 0.75 mg/L and maintain a chlorine residual of 0.50 mg/L?
   A. 0.25 mg/L
   B. 1.25 mg/L
   C. 2.75 mg/L
   D. 8.34 mg/L

3. What was the feed rate in pounds per day (ppd) of chlorine if the dosage of chlorine gas is 2.4 mg/L and the water production is 25 million gallons per day?
   A. 100 ppd
   B. 125 ppd
   C. 250 ppd
   D. 500 ppd

4. How many gallons are contained in a basin that measures 175 feet long, 38 feet wide, and has an average depth of 16 feet?
   A. 796,000 Gal
   B. 322,000 Gal
   C. 106,400 Gal
   D. 71,680 Gal

5. Which chemical may be used for fluoridation of drinking water?
   A. Hydrofluorosilicic Acid
   B. Sodium Fluoride
   C. Sodium Silicofluoride
   D. Any of the above

WATER TREATMENT GRADES 3 AND 4
1. Which of the following analysis measures the capacity of a water to absorb or buffer acids?
   A. Alkalinity
   B. pH
   C. Hardness
   D. Calcium Hardness

2. How much will it cost monthly to add 45 mg/L of Ferric Chloride to 12.8 Million Gallons per Day (MGD) if the cost of the Ferric Chloride is $0.25 per pound? (Assume 30 days per month.)
   A. $12,800
   B. $25,800
   C. $36,000
   D. $45,000

3. What is the required respiratory protection for working in a room with a leak and the concentration of Chlorine gas in the air is 10 ppm?
   A. A half-mask respirator with a particulate filter providing 99% removal.
   B. A full face respirator with an acid/ organic cartridge.
   C. A full face self-contained breathing apparatus.
   D. Any of the above.

4. What is the backwash rate in Million Gallons per Day (MGD) in a filter measuring 35 feet by 22 feet if the backwash flow through the filter is 18 gallons per minute per square foot?
   A. 10.9 MGD
   B. 15.2 MGD
   C. 18.0 MGD
   D. 20.0 MGD

5. What is the feed rate in milliliters per minute (mL/min) of 48% Aluminum Sulfate weighing 11 pounds per gallon when dosing at 35.0 mg/L to a flow of 4.3 Million Gallons per Day (MGD)?
   A. 260 mL/min
   B. 350 mL/min
   C. 430 mL/min
   D. 625 mL/min

WATER DISTRIBUTION GRADES 1 & 2
1. Which is the most common type of residential service meter?
   A. Venturi meter
   B. Mag meter
   C. Turbine meter
   D. Nutating Disc meter

2. At what depth of a trench is shoring required?
   A. 2.0 Feet
   B. 3.0 Feet
   C. 4.0 Feet
   D. 5.0 Feet

3. How many cubic feet (CF) of water are in a full reservoir that is 36 feet in diameter and is 20 feet deep?
   A. 20,350 CF
   B. 25,920 CF
   C. 83,400 CF
   D. 152,200 CF

4. What is the water pressure in pounds per square inch (psi) at a fire hydrant located near an elevated reservoir filled to a level 200 feet above the hydrant?
   A. 25.8 psi
   B. 65.0 psi
   C. 86.6 psi
   D. 200 psi

5. How many Million Gallons per Day (MGD) are produced by a well supplying 695 Gallons per Minute (GPM) running all day?
   A. 1.0 MGD
   B. 1.55 MGD
   C. 2.34 MGD
   D. 6.95 MGD

WATER DISTRIBUTION GRADES 3 & 4
1. What is the maximum number of positive coliforms allowed per month in a system that samples 45 times per month?
   A. 1
   B. 2
   C. 3
   D. 4

2. How many acre-feet (AF) of water are supplied each year by a well producing 1.25 MGD running all year?
   A. 125 AF
   B. 1,000 AF
   C. 1,400 AF
   D. 1,580 AF

3. How much Chlorine must be added daily to a distribution system that produces 4.8 Million Gallons to disinfect it with 1.75 mg/L free chlorine?
   A. 48 Pounds
   B. 70 Pounds
   C. 100 Pounds
   D. 128 Pounds

4. What is the velocity of water in Feet per Second (FPS) through a 16-inch water main if the water flow is 1880 GPM?
   A. 2.0 FPS
   B. 3.0 FPS
   C. 4.0 FPS
   D. 5.2 FPS
5. Which is the best type of backflow prevention device?
A. Air Gap
B. Check Valve
C. Double Check Valve
D. Reduced Pressure Backflow Prevention Device

WASTEWATER COLLECTION GRADES 1 & 2
1. Collection system operators need to be familiar with the elements of a wastewater collection system design that have an influence on the ______ of the constructed system.
A. Actual designed facility
B. Cost
C. Operation and maintenance
D. Total outflow capacity

2. The purpose of pipeline lamping is to determine whether or not a section of pipe is straight and free from blockage.
A. True
B. False

3. If an orange float throughs a manhole at 14:09:15 and then through a manhole 600 feet away at 14:17:45, what is the average velocity in feet per second (fps)?
A. 1.2 fps
B. 2.4 fps
C. 5.0 fps
D. 8.5 fps

4. Hydraulic cleaning of wastewater collection pipes consist of cleaning with:
A. Devices that scrape the pipes.
B. Surcharging manholes to clean pipes.
C. Using surface inflows to clean pipes.
D. Water under pressure that produces high water velocities.

5. While installing 300 feet of a 24-inch sewer line, a 36-inch trench is dug an average of 10 feet deep. How many cubic yards (CY) of earth are removed?
A. 100 CY
B. 333 CY
C. 1,000 CY
D. 3,000 CY

WASTEWATER COLLECTION GRADES 3 & 4
1. A limitation that may prevent usage of bar racks in lift stations is the fact that screenings from the bar racks cause:
A. Entrained Air
B. Odors
C. Pipes to plug
D. Pump damage

2. A lift station pump lowers the wet well level 15 feet in 5.0 minutes. If the wet well is 5 feet in diameter, what was the pumping rate in Gallons Per Minute (GPM)?
A. 30 GPM
B. 100 GPM
C. 440 GPM
D. 535 GPM

3. A major stumbling block for most rehabilitation programs is to secure the funding to actually accomplish rehabilitation.
A. True
B. False

4. Flexible shafting is used in lift stations where the pump and driver are:
A. Coupled with belts.
B. Difficult to keep properly aligned.
C. Located relatively far apart.
D. Required to be coupled with universal joints.

5. What is the average slope of a sewer line 400 feet long with an upstream invert of 1522.00 and a downstream invert of 1518.00?
A. 0.5 %
B. 1.0 %
C. 1.5 %
D. 2.0 %

WASTEWATER TREATMENT GRADES 1 & 2
1. The solids removed in a properly operated grit channel include:
A. Floating material
B. Sand and egg shells
C. Dissolved organic matter
D. All the above.

2. What is the capacity of a rectangular basin in gallons that is 175 feet long, 85 feet wide, and holds 15 feet of wastewater?
A. 183,984 gal
B. 223,125 gal
C. 1,362,400 gal
D. 1,669,000 gal

3. What is the organic loading in pounds per day (ppd) to a wastewater treatment plant treating 2.2 MGD and the wastewater contains 310 mg/L BOD?
A. 5,688 ppd
B. 6,200 ppd
C. 43,370 ppd
D. 58,525 ppd

4. What is the detention time in hours of a sedimentation basin that is treating 4.3 MGD of wastewater when the basin measures 80 feet long, 32 feet wide, and 15 feet deep?

5. If a wastewater treatment facility treats 22 MGD of wastewater with an average BOD of 275 mg/L. What is the removal efficiency of the effluent contains an average of 17.5 mg/L?
A. 17.5 %
B. 50.0 %
C. 74.0 %
D. 93.6 %

WASTEWATER TREATMENT GRADES 3 & 4
1. In an anaerobic digester, it is best to keep the dissolved oxygen above 2.0 mg/L.
A. True
B. False

2. What is the organic loading in pounds per day (ppd) to an activated sludge process treating 33.5 MGD with the inlet BOD of 185 mg/L?
A. 51,700 ppd
B. 68,000 ppd
C. 83,400 ppd
D. 96,155 ppd

3. What is the Mean Cell Residence Time in an aeration basin with an influent of 6 MGD, a waste sludge flow of 0.08 MGD, a basin volume of 1.5 MG, a mixed liquor of 1,500 mg/L, and a waste sludge suspended solids of 4,800 mg/L?
A. 3.0 Days
B. 4.9 Days
C. 6.8 Days
D. 8.5 Days

4. What is the surface loading in pounds per day per square foot (ppdpsf) to a basin measuring 100 feet in diameter, 22 feet deep, and with an influent of 34 MGD containing 275 mg/L BOD?
A. 2.750 ppdpsf
B. 8.340 ppdpsf
C. 9.934 ppdpsf
D. 275.0 ppdpsf

5. What is the BOD in mg/L in a 300 mL BOD bottle with a sample of 5.00 mL, a starting DO of 8.0 mg/L and a final DO of 2.5 mg/L?
A. 80 mg/L
B. 200 mg/L
C. 330 mg/L
D. 834 mg/L

BY TED BAILEY
BAILEYTB@ATT.NET
Performing Free WWTP Energy Audits

By: Chuck GRAF, Arizona Department of Environmental Quality

The U.S. Environmental Protection Agency (EPA), Region 9, in San Francisco, has partnered with the San Diego State and San Francisco State University Industrial Assessment Centers (IAC) to annually provide a limited number of FREE energy audits to water- and wastewater treatment facilities. Sponsored by the Department of Energy’s Industrial Technologies Program, the university-based IACs provide eligible small- and medium-sized facilities with no-cost energy assessments. Additionally, the IACs serve as a training ground for the next-generation of energy savvy engineers.

Audits are highly recommended by the Region 9 Sustainable Water Infrastructure program, which provides technical support and financial resources to increase water and energy efficiency in water, wastewater, and stormwater infrastructure.

The IAC audits are detailed process audits, similar to American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Level 2 energy audits/assessments. Detailed process audits require an in-depth conversation between the facility and the auditors; they often involve equipment field tests, inventorying equipment energy performance data, creating energy profiles for equipment and systems, discussing potential operation and maintenance changes, and evaluating potential energy efficiency and renewable energy projects. Detailed process audits provide comprehensive information on the pay-back periods associated with the recommended measures.

Assessing a facility’s energy use is a crucial step in improving efficiency, reducing emissions, and minimizing operating costs. For example, an energy assessment conducted at a Hawaiian WWTP identified energy conservation opportunities that would annually reduce power consumption by 4,560,100 kWh and save $887,000.

The eligibility requirement to receive an IAC assessment is minimal: the facility’s annual energy costs must exceed $100,000. The assessment is free of charge, but, in Arizona, the WWTP would need to cover travel costs from San Diego. In Arizona, IAC audits have been scheduled at the Yuma and Mesa WWTPs. EPA is taking requests on a continuous basis.

If you are interested in receiving an energy assessment or have further questions please contact Charlotte Ely at ely.charlotte@epa.gov, or by phone 415-972-3731. To receive an assessment she will require the following information:

- Facility name and address
- Facility Key Contact Name, Title, email and phone
- Facility design and actual flow
- Annual energy use and cost
- Date of last energy assessment
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Member: AWWA, NRWA, SSPC, NACE, Various State Water Associations & Municipal Leagues
A Young Professionals Committee has remained committed to providing support and outreach opportunities to all Young Professionals across our Arizona’s water community. Despite another challenging year of economic times, the YP Committee has been busily working in cooperation with SRP to create an updated version of our original educational CD-ROM into DVD format. The DVD will be used as a public service announcement to be aired on each City’s public access channel in addition to being available on TIQ’s website. We are hopeful this project will be available for use in other drinking water arenas as well. With SRP providing in-kind services to the committee, TIQ has been able to save nearly $9,000 in production costs.

The end-product will be a 20-minute DVD, broken into individual segments, which include aerial footage of Arizona’s beautiful watersheds, reservoirs, and both CAP and SRP canals, combined with TIQ’s content discussing recharge, safe yield, water treatment, water distribution, sampling, and tap water quality.

TIQ has also continued outreach at various educator’s events including Valley Forward’s Earthfest Educator’s Night at the Phoenix Zoo this past October, as well as The Boys and Girl Scouts of America’s Green Planet and Scout-o-Rama events in April.

The TIQ Board would like to thank our participants for their continued efforts and dedication to our public outreach subcommittee of AZ Water! Without you TIQ would not be possible.

**TIQ’s participants:**
Avondale – Esmie Avila, Barbara Chappell, Maria Hinojos
Central Arizona Project – Crystal Thompson
Chandler – James Brandt, Anuap Jain
Gilbert – Dipi Shah
Glendale – Barbara Castle, James Williams
Mesa – Kim Caggiano (Vice Chair)
Peoria – Cynthia Garcia
Phoenix – David Cerull (TIQ Secretary)
Salt River Project – Gregg Elliott
Scottsdale – Susan Butler, Annie DeChance
Tempe – Amanda Nelson, Christina Hoppes (Chair)
AZ Water – Jeanne Jensen, Ray Pulver

**DISTRIBUTION COMMITTEE**

**AZ Water Distribution Committee**

Would Like to Thank our 2011 Speakers and Sponsors for Assisting us in Providing over 700 PDH’s to Arizona Operators.

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**RESEARCH COMMITTEE**

The Research Committee is a dedicated team committed to the vision of enhancing and promoting the education and research for Arizona’s water community. The team consists of individuals ranging from operators, engineers, professors and consultants. Our mission is to provide a platform of collaboration to meet current and future research needs of Arizona’s water community.

The committee meets once every other month at the offices of Carollo Engineers located at 44th Street and Washington. Currently, the committee is focused on supporting the AZ Water Annual Conference held every May and holding its first seminar in October 2012. The seminar will consist of local professionals presenting their research as it relates to Arizona’s water future.

Please refer to the Research Committee web page at www.azwater.org for scheduled activities and events. You may also contact the committee through the site if you have any questions. We look forward to hearing from you!

**THE YOUNG PROFESSIONALS COMMITTEE 2011 RE-CAP!**

Young Professionals have had a busy year in 2011. From student outreach at universities and volunteering as judges for state competitions, to technical lunch seminars and social networking events, the Young Professionals Committee strives to provide a lineup of events that benefited all water professionals. Despite another challenging year of economic times, the YP Committee has remained committed to providing support and outreach opportunities to all Young Professionals across our industry. Without the continued support of AZ Water members, the successes of the YP Committee would not be possible. Thank you AZ Water members!
FORD IRONMAN SUPPORTS WATER FOR PEOPLE IN ARIZONA!

FORD IRONMAN is one of the most recognized endurance events in the world. The Ironman in Arizona was held in Tempe on November 20, 2011 and consisted of a 2.4 mile swim, a 112-mile bike ride, and a 26.2 mile run all in succession. Water For People - Arizona Committee, as the outreach organization within AZ Water, volunteered for the Ironman in the Bike Special Needs, Bike Aid Station #2, Lifeguards – Marina and Run Aid Station No. 4. To recognize Water for People volunteers’ effort, Ford Ironman foundation will make a donation to Water For People in the first quarter of 2012. The event was a fun way to help those amazing athletes, who were filled of positive energy, get inspired for their incredible effort, and get a donation back to Water For People organization! Photo shows Water For People volunteers on green vests in Bike Special Needs station.

American Water Works Association | News (continued from page 8)

maintain each COI is being made with the aim of reflecting the full range of industry activity from practice to policy to research, local to international, and within and outside of the AWWA membership and volunteer structure.

AWWA has been a source of intellectual and technical information for more than 125 years. This valuable content will now be organized by topic area in an easy and efficient interface to support collaboration, professional and technical development, and community.

“This program has been developed primarily as a benefit for AWWA members, but the Communities also further AWWA’s mission of uniting the water community to protect public health and to provide safe and sufficient water for all,” Mercer said. “The success of the project will require motivated and proactive volunteers and community leaders, and opportunities to participate and lead are available.”

AWWA will be developing more communities around specific topics as the project moves forward. The next in line to be developed and offered will be a Communities site dedicated to Customer Service. For more information go to http://apps.awwa.org/ebusmain/Community/Conservation.aspx.

Leveraging New Design Tools

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Water Treatment Committee Seminar Series
Making it Work:
Operating to Optimize System Performance

Thursday, February 2, 2012

AGENDA

8:30 a.m. - 8:55 a.m. REGISTRATION 
8:55 a.m. - 9:00 a.m. Welcome: Chairman, AZ Water Association - Water Treatment Committee
Herb Durbin, Jacobs 
9:00 a.m. - 9:30 a.m. Implementation of the Stage 2 DBP Rule
Donna Calderon & Korissa Entringer, MCESD 
9:30 a.m. - 10:00 a.m. Airing out your THMs!
Alan Martindale, City of Mesa 
10:00 a.m. - 10:30 a.m. Water System Optimization and Reservoir Management
Chris Kincaid, City of Chandler 
10:30 a.m. - 10:45 a.m. MORNING BREAK 
10:45 a.m. - 11:15 a.m. Peoria Paradox: Improve Water Quality and Save Money!
Ray Schultz & Cynthia Garcia, City of Peoria 
11:15 a.m. - 11:45 a.m. Water System Optimization
Shuang Huang & Dawn Slauter, City of Glendale 
11:45 a.m. - 12:15 p.m. LUNCH BREAK 
12:15 p.m. - 12:45 p.m. Shiftwork and Our Love/Hate Relationship with It (Group Discussion)
Victoria Sharp, City of Chandler 
12:45 p.m. - 1:15 p.m. In-Reservoir TTHM Surface Aeration:
A year of results, experience and lessons learned
Jeanne Jensen & Steve Acquafredda, Jacobs 
1:15 p.m. - 1:45 p.m. Field Method Compliance Testing
Steve Baker, ADHS 
1:45 p.m. - 2:00 p.m. AFTERNOON BREAK 
2:00 p.m. - 2:30 p.m. Instrumentation & Control for WTP Optimization
Julie Inman, Black & Veatch 
2:30 p.m. - 3:00 p.m. Likely Future Regulatory Implications in AZ - Chromium VI and Carcinogenic VOCs
Chad Seidel, Jacobs 
3:00 p.m Wrap Up and Prize Drawings
Water Treatment Committee Seminar Series
Making it Work:
Operating to Optimize System Performance

Thursday, February 2, 2012
GateWay Community College
Center for Health Careers Education Auditorium
Room CH1106
108 N. 40th Street, Phoenix, AZ 85034

REGISTRATION FORM
Note: use this form or register on-line at www.azwater.org

Attendee Name: ___________________________________________________________
Organization:______________________________________________________________
Address: __________________________________________________________________
Phone: ________________ Fax: _____________ E-mail: __________________________

Registration Fee:
☐ AZ Water Member: $70
☐ Non-Member: $95

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AZ Water Association’s Monthly Luncheon Events

Tuesday, January 10, 2012
Topic: Water for People in Uganda
Presented By: David Christiana, Arizona Department of Water Resources
Register By: Friday, January 6, 2012
Sponsored By: Montgomery and Associates

Tuesday, February 14, 2012
Topic: Wastewater Process Optimization: A Non-Traditional Approach
Presented By: Lance Mason, Brown and Caldwell
Register By: Friday, February 10, 2012
Sponsored By: ERM

Tuesday, March 13, 2012
Topic: Grease to Energy Study - City of Tempe
Presented By: David McNeil, City of Tempe and Ryan Riggs, HDR
Register By: Friday, March 9, 2012
Sponsored By: Carollo and CH2M Hill

Time: 11:30 am starts registration | Noon - Lunch
Location: SRP Pera Club | 1 East Continental Drive | Tempe, AZ 85281
Cost: $20/person for members | $25/person for non-members
Contact: Theresa Muller | TMuller@brwncauld.com | 602.567.3865

PDH Certificates are available for attendance at these meetings.

For More Information Please Register Online at the AZ Water Website under “Featured Events”
http://www.azwater.org

Due to space limitations, reservations are required. No-shows will be billed.
ACROSS
1   Locale for Tristate (State) (6)
3   Lenth x Width or pi x r² (4)
6   Disinfection By-products (3)
9   This and calcium make up hardness (9)
10  Inert, dense solids or a type of filter (4)
14  By-products of aerobic respiration are CO₂ and this (5)
15  Locale of AZ Water Annual Conference (8)
16  An old world alcoholic drink...or a Lake in NV (4)
18  43,560 square feet (4)
20  Respiration is a process by which organisms obtain this (6)
21  The “m” in MBR (8)
23  Plants produce oxygen through this process with a little help from the sun (14)
24  Galvanizing is plating a metal with this metal (4)

DOWN
2   The “d” in CD or a type of filter (4)
4   Oxidized iron (4)
5   This type of growth is found in a trickling filter (8)
7   1 gallon of water is 8.34 of these (5)
8   Another name for hydrochloric acid (8)
10  This can be scale forming in anaerobic digesters (8)
11  Iron symbol (2)
12  Mass per unit of volume (7)
13  Ammonia and chlorine form these (11)
16  No Clue (4)
17  A discharge permit that protects aquifer (3)
19  Anaerobic digester gas produced by methanogens (7)
22  Another name for sodium hypochlorite (6)

SEE ANSWERS ON PAGE 43

CH2M HILL has the people, knowledge, experience, and resources to help our Arizona clients meet their water goals and objectives in a sustainable manner that considers all aspects of the water cycle. We are a dedicated community partner in providing comprehensive yet cost-effective water, wastewater, water resources, and utility management services. For more information, please contact one of our local offices:

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Tel: +480.966.8188

Tucson
5151 E. Broadway Blvd. Suite 500
Tucson, AZ 85711
Tel: +520.514.9835

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AZ Water Association Presents:
The Southern Arizona Technical Luncheon Program Events

Thursday, January 5, 2012
Topic: How to Buy a Recharge Project on Credits instead of Cash & What the CARFAX Revealed
Presented By: Mike Block
District Hydrologist
Metropolitan Water
Register By: Monday, January 2, 2012
Door Prize Sponsor: HDR

Thursday, February 2, 2012
Location Change
Topic: Pima County Water Campus
Presented By: Ron Williams
CH2M Hill
Register By: Monday, January 30, 2012
Door Prize Sponsor: CH2M Hill

Thursday, March 1, 2012
Topic: Safety Shouldn’t Hurt
Presented By: Mark Norton
Manager Safety & Health
Central Arizona Project
Register By: Monday, February 27, 2012
Door Prize Sponsor

Thursday, April 5, 2012
Topic: Advanced Oxidation Plant at TARP
Presented By: Jeff Biggs, Tucson Water
George Maseeh,
Pimel/Aracis
Register By: Monday, April 2, 2012
Door Prize Sponsor

Time: 11:45 am – Registration
Noon – Lunch
Cost: $15/person for members
$20/person for non-members

Contact: Saqib Karori
skarori@westlandresources.com
(520) 206-9585

Location: Inn Suites Tucson City Center
475 N. Granada
Tucson, AZ 85701

FEB: El Parador
2744 E. Broadway
Tucson, AZ 85716

PDH Certificates are available for attendance at these meetings.

For More Information contact our Luncheon Co-Chairs:
Lisa Culbert, lculbert@laynewater.com, (602) 345-8559
Laura Macklin, laura.macklin@tucsonaz.gov, (520) 837-2447
Please Register Online at the AZ WATER Website under “Upcoming Events”
http://www.azwater.org

Due to space limitations reservations are required. No-shows will be billed.
A. What is the lowest feature on the surface of the Earth?

B. What is the source of the following description of a volcano erupting?

“A cloud was ascending, the appearance of which I cannot give you a more exact description of than by likening it to that of a great pine tree, for it shot up to a great height in the form of a very tall trunk, which spread itself out at the top into sort of branches. It appeared sometimes bright and sometimes dark and spotted, according as it was either more or less impregnated with earth and cinders.”

C. Reason why a map book is often referred to as an “Atlas”?

D. What are the roots of today’s Miss America pageant?

E. Year that the paintings in the Sistine Chapel in Rome were opened to the public for viewing?

See answers on page 45
GUSTAVO LOPEZ JOINS WILSON ENGINEERS

Wilson Engineers is pleased to announce that Gustavo Lopez, PE has recently joined the Firm as a Senior Project Manager. Mr. Lopez is a civil/sanitary engineer specializing in modeling of wastewater collection and water distribution systems, in addition to the design and construction administration of collection and pumping systems. Mr. Lopez has significant project experience with wastewater treatment process and facility design, and enhances Wilson Engineers’ capabilities in Wastewater Engineering.

Mr. Lopez has experience including the 91st Avenue Wastewater Treatment Plant (WWTP) 25-Year Facility Master Plan, which incorporates facility upgrades and expansion planning. He also has experience with process upgrades at the Kyrene Wastewater Reclamation Plant, including nitrogen removal, scum removal, hydrogen sulfide control, and coarse screen building classification. Mr. Lopez also has significant experience in different aspects related to the Sub-Regional Operating Group (SROG).

Mr. Lopez will be an integral part of Wilson Engineers’ commitment to our clients and their complete water and wastewater needs. Mr. Lopez may be reached at Wilson’s Phoenix, AZ office at 480-893-8860.

MCCARTHY SOUTHWEST’S WATER SERVICES TEAM HIRES NEW DIRECTOR OF BUSINESS DEVELOPMENT, PROMOTES TWO TO VICE PRESIDENT OF OPERATIONS

McCarthy Southwest, a division of McCarthy Building Companies Inc. (www.mccarthy.com), recently hired a new director of business development and promoted two directors to vice president of operations within the Water Services team.

Prior to this position, Bowman gained 13 years of experience in environmental and water resource issues at both the program and project levels in positions with American Water, Earth Tech, Tetra Tech and the Arizona Department of Environmental Quality. Most recently, he served as principal and president of a consulting firm, Liquid Earth, advising clients on acquisitions of water utility companies in the Southwest. His combination of experience from the regulator, engineer, owner/operator, and contractor point-of-views and his technical and business development experience will prove valuable to McCarthy’s clients.

McCarthy’s Water Services team also recently promoted Steve Gotschall and Shawn Ingram to the role of vice president of operations. Both previously served as project directors. As vice president of operations, each is responsible for ensuring his projects are delivered in a true collaborative environment that leads to the projects being on time, under budget, and with a high level of quality and safety focus both during the preconstruction and construction phases of the project.

Serves as the customer advocate and representative for McCarthy’s estimating, scheduling, accounting, safety, quality control and contract departments into the projects, as well as ensuring the proper resources are deployed to all water/wastewater treatment plant projects while providing oversight on all of the operational aspects of the largest and most complex projects in Arizona, California, Colorado, Nevada, New Mexico and Texas.

SEVERN TRENT ENVIRONMENTAL SERVICES IS LOOKING FOR A PROJECT MANAGER FOR ITS CHANDLER, ARIZONA FACILITY.

The Project Manager is responsible for administering and overseeing all aspects of the management, operation, and maintenance activities of the facility operating under one contract. Responsibilities also include supervision of staff, development of monthly reports to clients and governmental agencies and interaction with city staff.

Minimum Education and/or Experience: Bachelor’s degree in applied science or engineering and seven years of experience in the operation of water or wastewater treatment facility.

Certifications/Licenses/Registrations: Valid Arizona Driver’s License, Grade 4 Wastewater Certificate issued by ADEQ.

Contact Helen Martinez-Mitcham at hmartinez-mitcham@stes.com.
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IN THE LATE 1800’S, TUCSON CONTINUED TO GROW IN POPULATION UNTIL, WITH OVER 7500 PEOPLE, IT WAS RECOGNIZED IN 1900 TO BE THE LARGEST CITY IN THE ARIZONA TERRITORY. Civilization was descending upon the Old Pueblo … people were moving into town, building new two story homes, water was being delivered to the homes, and indoor plumbing was being installed. More sewage was being created; but, where was it going? The existing privately owned and operated outhouses and cesspits were overburdened. Odors and illnesses were prevalent. Something had to be done, and soon!

The advent and implementation of water delivery systems in towns/cities (throughout the United States) often preceded and, in most instances, caused the need for the sewering of those same communities. Delivering water to area homes and businesses made the creation of larger quantities of liquid wastes much easier – the volumes of which could no longer be effectively (and, safely) disposed of by the then existing privies or cesspits serving the involved buildings. Soon, the ground surrounding the privies became saturated with waste material. Cesspits could no longer accommodate the tributary sewage. Something different had to change. The solution for Tucson was no different from what had been done elsewhere … install sewers to effectively convey the sewage away from the homes, businesses, and people. And, send it out-of-town to points of discharge into either area watercourses or to sewage farms.

Tucson entered the decision process to implement a system of gravity sewers, to collect the sewage and convey it out of town. However, before we continue with Tucson’s story there is some historical background information that merits discussion. More specifically:

After the Civil War, many communities (especially, ones easterly of the Mississippi River) experience rapid growth – as the troops came home and started families. With the growth came the building of more homes – on smaller lots; still with a privy in one corner of the back yard and often times, a water well in the other corner. Water delivery systems came into being – often the water was delivered to the homes’ kitchens, where lots of liquid waste was produced. That waste was piped out to the outhouse; however, privy vaults were never intended to handle a lot of liquid waste. As the houses got bigger and the lots smaller, often times the privies got closer to the water sources. Cross contamination resulted; people got sick – 1000’s died. Towns realized that they had to sewer their communities and get the sewage out-of-town!

Two approaches to “sewering” were then available. 1) Towns could implement “combined sewer systems” (for sanitary sewage and storm water) as had been done for many years in many of the country’s eastern sea board cities. However, creating such larger diameter systems was quite costly, more time consuming and disruptive to install. Or, 2) Towns could implement a new idea for sewer system – called “separate sanitary sewers”; a concept first developed in England in the 1840’s. Such systems were comprised of smaller diameter gravity mains; therefore, less costly, less time consuming to install and less disruptive to construct. The first “system” of these separate sanitary sewers, in the United States, was installed in the 1880’s in Memphis, TN … under the guidance of Col. George Waring, Jr. The “separate” concept proved to be quite successful in Memphis; from there the idea spread – with each community making its own decision (“combined” vs “separate”) based on its topographical, physical, climatological and fiscal circumstances. Note: Inland US cities with rolling terrain oftentimes had the ability to handle their storm water via surface runoff; thus, facilitating the use of separate sanitary sewer systems. Eastern sea board cities often did not.

After much consternation, Tucson made the decision to design and operate its sewer system as a “separate sanitary sewer”. In the late 1890’s, the firm of Waring, Chapman and Farquhar of New York City was retained to develop the construction documents needed for the...
installation of their first sewer mains (under what is now bureaucratically labeled as “Plan No. G-1). (Note: The “Waring” in the title of the design firm is the same George Waring, Jr. involved with the sewering in the 1880’s of Memphis, TN – as described above.) The plans were finalized and approved in Sept 1900. The pipe material of choice was glazed clay – with cement mortar joints. The project resulted in close to 30 linear miles of gravity sewer main being installed in the streets and alleys of the area now generally known as the “downtown” district. The sanitary sewage was collected and conveyed out of the downtown area and delivered to a “sewage farm” near the base of “A” Mountain (aka Sentinel Peak). The majority of the pipe installed in 1900 is still an integral part of the present day regional sewage collection and conveyance system serving the greater Tucson region – now under the administration of the Pima County Regional Wastewater Reclamation Department.

These images serve to illustrate the types of installation methods utilized, and the conditions endured, during the installation of gravity sanitary sewers, etc.; not only in Tucson, but in other areas of the Arizona Territory in its formative years.

Steam Powered Bucket Trencher. Circa 1910

Backfilling of Utility Pipe Trench Machine Powered by an Early Fossil Fueled (Hit n Miss) Engine. Circa 1905
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Success | and Fun

I recently heard a presentation from a speaker named Paul Tsika about “Cautions in the Life of a Leader”. I would like to share some of his thoughts with you.

In today’s culture we have seen the downfall of many leaders from all walks of life. My desire is that this topic will help others in their role as leaders and future leaders. It has been said that “Methods are Many, Principles are Few, Methods May Change, but Principles Never Do”. As you read this, I hope that each of you bring this saying into context for your life and position in your organization.

AZ Water has a rich foundation of great leadership and it is true that our “Methods are Many, Principles are Few, Methods May Change, but Principles Never Do”. This is still very true for our organization today. The leaders have not changed our principles on which AZ Water was built. The great heritages we have are advanced by the older leaders while the younger leaders learn from them and now apply the values and principles that made this country and our association great.

There are five cautions to consider in the life of every leader:

1. **After A Great Victory Or Accomplishment:**
   a. The greatest successes in life are often followed by a failure because we sometimes let our guard down.
   b. Your strengths not your weakness can become your undoing. You can become overconfident and lack preparation to meet the new challenges you face.
   c. These are the times when you need to be most diligent and draw upon your faith and your team members. In all things, pride goes before a fall.

2. **When You Think You Can Do It Alone:**
   a. It has been said that “You do not get out of a problem as quickly and easily as you got into it.”
   b. Sometimes we think we are the reason for the victory or accomplishment.
   c. We all need mentors to help us stay focused and humble in our ability to achieve and realize that no one is the sole reason for our successes. We all need to be mentored and we all need a mentor.
   d. We are our own worst counselor. “He who counsels himself counsels with a fool!”
      i. Mentors are:
         1. A gift.
         2. Someone that is close to you and will “Unlock your Greatness”.
         4. Enjoy imparting wisdom and perspective.
         5. Coach to correct future behavior verses grade or criticize past actions.
      ii. Don’t take a mentor for granted as they have paid the price for the experiences they are sharing with you. Spend time with them, because they will not always be available.
      iii. Act upon the mentor’s advice. To gain the benefit of the mentor you must apply their counsel to your future actions.

3. **When You Are Very Tired And Out Of Personal Energy:**
   a. When we are out of energy we allow vain imagination to create worry in our lives.
      i. Get a good night’s rest and a good meal before you address the challenge that worries you most.
      ii. Seek your center of faith and personal means of restoration before you act on your emotion.

4. **When You Are Waiting For An Answer Or Waiting For Something To Happen:**
   a. It can take longer than you want. This can lead to a lack of faith in you and your team.
   b. When you plant a seed you will get a crop if you have planted and cared for the crop, you will get a harvest. In other words, “You reap what you sow”. That is, if you do the work.
   c. Live in faith and not in fear.
   d. Work while you wait.
   e. Manage your time and priorities to work on important items that will lead to the accomplishment of what you are working for rather than urgent items that are not primary to your objectives.
   f. Make a priority list of the things you want to do and stick to the priority items before you work on items of a lesser priority.

5. **When You Are Brave Enough To Change:**
   a. When you get to the point where you think you do not need to change or improve you are nearing the end of your effectiveness as a leader.
   b. It takes courage to change.
   c. Others will accuse and criticize your desire to change and improve.
   d. Keep doubt private and make faith public.
      i. An army of sheep led by a lion always defeats an army of lions led by a sheep.
   e. An undecided heart will search for an escape and will undermine your success. Most people fail due to an undecided heart.
   f. Be decisive in your leadership decisions and lifestyle choices.
   g. Successful leaders improve through change until they retire.
      i. We improve through the books we read and the associations we choose.

Most failures are due to our own choices and lifestyle. Choose wisely and choose to be successful.

My hope is that this issue of Success and Fun will help each one of us change the way we think and act in our daily lives. I am honored to share my perspective on “SUCCESS and FUN”. I hope to hear from you, contact me at phendricks@cox.net if I can be of assistance to you.

Winter 2012 | AZ Water Association 41
Don’t Forget! It is that time again to identify fellow Arizona water/wastewater professionals and worthy projects for recognition at the 2012 AZ Water Association Annual Conference & Exhibition. Nominations due by March 26, 2012!

Award criteria, nomination forms, and points of contact for the AZ Water Awards Program can now be found ONLY online at www.azwater.org under the “Awards” committee page. Electronic applications will be accepted on the website starting January 1, 2012.

Questions can be directed to the Awards Program Committee Chair, Darlene Helm at (602) 534-9138 or the Board Liason, Teresa Smith-DeHesus at (602) 381-4226.

2012 AWARDS INCLUDE:

AZ Water Awards
» ENVIRONMENTAL STEWARDSHIP
» KACHINA AWARD FOR OUTSTANDING SERVICE
» NATHAN BURBANK ENVIRONMENTAL EDUCATOR
» QUENTIN MEES RESEARCH AWARD
» SELECT SOCIETY OF SANITARY SLUDGE SHOVELER
» GIMMICKS & GADGETS
» OPERATOR OF THE YEAR (LARGE AND SMALL SYSTEMS)
» PLANT OF THE YEAR (LARGE AND SMALL SYSTEMS)
» OPERATIONS SUPERVISOR OF THE YEAR (LARGE AND SMALL SYSTEMS)
» ELECTRICIAN OF THE YEAR
» MAINTENANCE MECHANIC OF THE YEAR
» INSTRUMENTATION TECHNICIAN OF THE YEAR
» WATER REUSE PROJECT OF THE YEAR
» WATER PROJECT OF THE YEAR
» WASTEWATER PROJECT OF THE YEAR
» ENGINEER OF THE YEAR
» YOUNG PROFESSIONAL OF THE YEAR
» LABORATORY EXCELLENCE AWARD
» SAFETY AWARDS
» SCHOLARSHIP AWARD

AWWA Awards
» WARREN G. FULLER AWARD

WEF Awards
» ARTHUR SYDNEY BEDELL AWARD
» GEORGE W. BURKE, JR. AWARD
» WILLIAM D. HATFIELD AWARD
» LABORATORY ANALYST EXCELLENCE AWARD

Don’t Miss the March 26, 2012 Deadline!!
CALL FOR 2012 AZ WATER ASSOCIATION BOARD MEMBER NOMINATIONS

TheNomination Committee is accepting qualified and willing members to fill the positions of Vice President, Secretary, Treasurer, and one Director within the leadership of the AZ Water Association for 2012. Nominees will be listed in the spring 2012 newsletter and voted on during the Annual Business meeting on May 3, 2012 at the AZ Water’s 85th Annual Conference & Exhibition in Glendale, Arizona.

Submittals should include nominee contact information and an explanation why this person should be considered for a leadership position within AZ Water. Please submit your nomination in writing by March 1, 2012 to the chair of the Nomination Committee:

Mark Stratton
Metro Water District
P.O. Box 36870
Tucson, AZ 85740-8670
Phone: 520-575-8100
Email: mstratton@metrowater.com

Director Duties

Directors are expected to attend all AZ Water Board Meetings (six per year) and other meetings as designated by the President. All director positions oversee assigned AZ Water committees. Directors must be members in good standing of the WEF, AWWA, and AZ Water. Terms are for one year, with an understanding that a three-year commitment is involved. Each year’s term is subject to re-election. If you have the energy, drive, and commitment to serve the AZ Water, please consider placing your name or the name of a colleague in nomination for a Board seat.

Vice President Duties

The Vice President serves within the structure of the Arizona Member Association of the WEF, Arizona Section of the AWWA, and the AZ Water. This position oversees the activities of various committees during June 2012 - June 2013. The Vice President shall assist the President and President Elect and shall be the presiding officer of the Association in the absence of both the President and President Elect.

The Vice President will have served as a Director, Secretary, or Treasurer of the AZ Water for at least one year and will have been a member of the AZ Water for at least one year and a member of both the AWWA and WEF as of the date of the elections.

The term for the Vice President is one year (2012-2013). This person must be willing to commit to move through the officer chairs and serve as President Elect, President, and first Past President (three additional years).

AZ WATER ASSOCIATION 2011-2012 BOARD MEMBERS

L-R: Frank Tantone, Jason Vernon, John Warner, Patty Kennedy, Chuck Graf, Brandy Kelso, Tom Galezewski, Kevin Conway, Michelle De Haan, John Bannen, Mark Martinez, Dan Lueder, Chris Hill, Jacqueline Shaw, Paul Kinshella

Crossword | Answers

SEE QUESTIONS ON PAGE 33

Water & Wastewater Planning, Design, Operations & Maintenance, Civil Engineering

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ENVIRONMENTAL WORKSHOPS - TRAINING AND FREE PDHs

Legend Technical Services of Arizona, Inc. (LEGEND), a full-service environmental laboratory, provides assistance to water and wastewater operators and for the environmental community in obtaining training and professional development hours (PDHs) through free workshops held throughout Arizona and in the outreach areas as well as in the Phoenix & Tucson metropolitan regions. Visit the AZ Water Association website (www.azwater.org) for upcoming Workshops.

Light Continental Breakfast provided and a Door Prize

Friday, February 24th, 2012
Marana Municipal Complex in the Conference Center
11555 W. Civic Center Dr., Marana, AZ  85653
2 PDHs  9:15 AM – 12:00 NOON

Sampling, Monitoring, Chain of Custody & Safety
Presented by Dianne Frydrych, Sales & Marketing Manager

Hands-On Sampling Techniques
Presented by: Brian Merritt, LEGEND - Tucson Lab Manager & Jen Hernandez, Lab Tech II

Wednesday, March 7th, 2012
City of Surprise Public Safety Building Auditorium
14250 W. Statler Plaza, Surprise, AZ  85374
2 PDHs  9:15 AM – 12:00 NOON

Emerging Waterborne Pathogens
Presented by: Robert Vertefeuille, LEGEND Director of Operations

Containers, Bottles, Preservatives and Hold Times
Presented by: Lisa Parrish, LEGEND Client Services Manager

Tuesday, April 10th, 2012
Cottonwood Recreation Center
150 S. 6th St., Cottonwood, AZ
2 PDHs  9:15 AM – 12:00 PM

Wastewater Field Tests and E. coli in Wastewater by SM 9223B (Quanti-tray)
Presented by: Debbie Breitkreutz-Wastewater Superintendent City of Cottonwood and Robert Verfeleuille, LEGEND Director of Operations

Containers, Bottles, Preservatives and Hold Times
Presented by: Lisa Parrish, LEGEND Client Services Manager

Class sizes will be limited. Please register by contacting Dianne Frydrych, Sales and Marketing Manager: (602) 324-6121 or dfrydrych@legend-group.com.
A. The Dead Sea. Its water surface and shore are more than 1300 feet below sea level. The Dead Sea is often referred to as a hypersaline lake ... its water is nine times more salty than the ocean.

B. An actual eye witness account of the eruption of Mt. Vesuvius on 24 August 79 AD. Amazingly, only 5% of the City's population perished during this three-day event that resulted in the burying of the City of Pompeii. The City was not again (begun to be) uncovered until 1590 when area farmers discovered the ancient City's remains under their farm fields.

C. When French geographer Gerhard Mercator published a book of maps in the 16th century, its cover featured an image of Atlas, from Greek Mythology, holding the earth on his back. Thereafter, similar books were referred to as an “Atlas”.

D. In order to attract more tourists to its area, Atlantic City, New Jersey held (in Sept 1921) a contest for the “Most Beautiful Bathing Girl in America”. Margaret Gorman (16 years of age, from Washington, DC) won the inaugural event. The title of the winner was soon shortened to “Miss America” and, the contest continues yet today.

E. 1512. Michelangelo first began painting the ceiling of the Sistine Chapel in 1508.
RUNNING FOR WORLD WATER
5K Fun Run, 1K Walk and Kid’s Lollipop Run

Proceeds to Benefit Water For People

Save the Date!!
SATURDAY, MARCH 17, 2012
5K Starts at 8:00 AM
Kiwanis Park
6111 S. All American Way
Tempe, AZ

Run, Walk or Roll Through the Beautiful Kiwanis Park at This Family and Pet Friendly Event!

For More Information or Volunteer Opportunities Please Contact:

Jenny Zapana at (602) 828-2328, jzapana@greeley-hansen.com
Laura McCasland at (480) 312-8717, lmccasland@scottsdaleaz.gov

Proceeds to Benefit Water For People
Thank You to the Sponsors and Participants of the 7th Annual Water For People Hike-a-Thon!

With your help, we donated thousands of dollars to Water For People and hundreds of gallons of water to UMOM New Day Center!

Water Haul Challenge Winners (2.5 miles & 1,000 feet up South Mountain’s Holbert Trail)

Most Gallons/Person – Team Snoopy (6.8 gal/person)

Most Gallons Total – Team Gannett Fleming (43 gallons)

www.waterforpeople.org
WHAT’S IT WORTH TO YOU

The Water Environment Federation is committed to spreading the word about the value and importance of water. Visit www.WatersWorthIt.org to learn more and to tell WEF what water’s worth to you.
What is WATER’S WORTH IT and what is the purpose?
WATER’S WORTH IT is a new messaging campaign from the Water Environment Federation (WEF) that will raise awareness about the value and importance of water, water-related issues, and the work that water professionals do every day to provide these vital services.

By using various keywords to define what the “it” means, we can better illustrate the connection between water and our actions, attitudes, and the things we most value. For example, “My Effort. WATER’S WORTH IT” evokes a personal responsibility while “Your Effort” serves as a call to action and “Our Effort” represents a shared commitment to sustainable water management.

The WATER’S WORTH IT tagline can be used on its own, in support of an existing program or brand, or coupled with a simple keyword and artwork to alter the impact and reach. The versatility of the campaign means that materials can be customized to reach any audience, in any location, about any issue.

Why did WEF create this campaign?
The Board of Trustees and staff, with input from almost every member, have been working throughout the year to revise WEF’s strategic plan. Through that process public awareness was identified as an integral part of fulfilling our mission and staying true to our role as a leading technical and educational water quality organization.

As WEF continues to take the lead in addressing emerging water issues, we must also work to transform the public’s understanding and support of the value of water, which is absolutely essential to the current and future success of WEF, our members, and the entire profession. It is our hope that WATER’S WORTH IT will help us do that.

How is WATER’S WORTH IT different from other awareness campaigns?
The movement towards sustainability and “green” efforts over the last few years has resulted in a slew of public outreach/educational campaigns and calls to action on a range of very important issues. We were challenged with coming up with a campaign that stood out and provided focus for our efforts. We believe we have achieved that with WATER’S WORTH IT.

The campaign is built around a direct approach that we feel will resonate well with any number of audiences. All of the messaging, visuals, and materials tie into very basic ideas about how water is inextricably tied to our quality of life and the importance of water stewardship. You need water and water needs you. It’s that simple.

What are the current and future plans for the campaign?
We’re beginning here at WEFTEC with a pilot launch of the campaign’s core focus areas and soliciting feedback and input. We have placed examples of the messaging and visuals throughout the convention center and are encouraging everyone to stop by the E-Services stations [located in the South and West Lobbies and Kentia Hall] or online at www.wef.org to learn more and take a brief survey ahead of the planned official launch on World Water Day in March 2012.

In addition to the signage, we’re using other ways to get the concept and look out in front of attendees such as presentations at key meetings and events, advertisements in the conference program and WEFTEC Daily, and a range of promotional items, including a special line of t-shirts that are available in the conference bookstore.

Future plans include the launch of a campaign Web site, development of a full suite of materials, and identifying methods for packaging and distributing the materials to WEF Member Associations, utilities, and other interested parties.

Why did you pilot launch the campaign at WEFTEC?
As the world’s largest annual water quality event, WEFTEC is expected to host more than 17,000 water and wastewater professionals from around the world over the next few days. These are the individuals we hope will get the most use out of the campaign so it made perfect sense to do the pilot launch here in order to build excitement and engage them in the development process.

We’re very excited about the potential of this campaign and will look to the survey responses to help guide us in providing the messaging and materials our members need to engage, educate, and call their communities to action.

What’s Water Worth to You? WEF Wants to Know.
AWWA and AMTA have teamed together to host the largest conference & exposition focused solely on membrane technologies. If you work with membranes of any type, this event is the best use of your limited time and budget.

Plan to attend these special sessions:

SESSION T-3A: Conventional Process Challenges
(Using New Technology and Techniques to Overcome Challenges)

SESSION T-1D: Research Forum
(Cutting Edge Ideas for Enhancing Membrane Treatment)

SESSION W-2B: New Process Concepts
(Exploring Desalination Treatment)

SESSION TH-2D: MBR for Perchlorate and Anaerobic Treatment

Technical schedule is available online at www.awwa.org/amta/Membrane2012.

www.awwa.org/amta/Membrane2012 | 800.926.7337
PI P EL I N E   A N S W E R S

SEE QUESTIONS ON PAGE 22

WATER TREATMENT GRADES 1 & 2
WATER TREATMENT GRADES 3 & 4
WATER DISTRIBUTION GRADES 1 & 2
WATER DISTRIBUTION GRADES 3 & 4

WASTEWATER COLLECTION GRADES 1 & 2
WASTEWATER COLLECTION GRADES 3 & 4
WASTEWATER TREATMENT GRADES 1 & 2
WASTEWATER TREATMENT GRADES 3 & 4
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