Aqua-Aerobic Systems’ expertise and years of experience in Biological Processes and Filtration Systems allows us to provide you with the most advanced treatment technologies at the lowest lifecycle cost. Aqua’s technologies meet or exceed the most stringent effluent requirements and are designed to accommodate changing effluent demands. **Reuse quality effluent** is among one of those demands and can be achieved with the following Aqua wastewater treatment technologies:

:: **AquaExcel® BATCH REACTOR**
  - Offers advanced nutrient removal in a single unit process prior to tertiary filtration or microfiltration.

:: **Aqua-Aerobic® MBR MEMBRANE BIOREACTOR**
  - Provides enhanced biological nutrient removal via time-managed sequential aeration in a compact footprint.
  - Direct filtration of MLSS with PURON™ submerged membranes achieves solids removal to submicron levels.

:: **AquaDisk®/AquaDiamond® CLOTH MEDIA FILTERS**
  - Aqua’s cloth media filters, featuring OptiFiber® cloth media, are ideal for reuse/recycle applications and offer added benefits of low backwash rates, less operator attention and maintenance, and a small footprint.

With disinfection, Aqua-Aerobic Systems’ technologies are specifically designed to achieve Arizona’s Class A+ Reclaimed Water requirements.

**FOR MORE INFORMATION CONTACT:**

IES Southwest
The Reuse Specialist

41355 N. Desert Winds Dr. | Cave Creek, AZ 85331
Phone 480.488.3009 | Fax 480.488.2525
Email john@iessouthwest.com | Web www.iessouthwest.com

John Spielman | Ryan Spielman
America’s Tank Maintenance Company!

Utility Service is the premier provider of professional water tank services:
- Maintains thousands of potable water tanks under full service asset management programs
- Delivers true sustainable solutions and peace of mind
- Provides site management services for antennas on existing and new tanks

A water quality management tool...
- Minimize organics
- Stabilize disinfectant residuals
- Eliminate thermal water stratification
- Maximize filter media efficiency

Call your local Utility Service Representative today…

Mike Bartkus
602.315.1154
mbartkus@utilityservice.com
Phoenix, AZ
utilityservice.com
AZ WATER

AZ WATER 2011

KACHINA NEWS

ARTICLE AND ADVERTISEMENT DEADLINES

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>DEADLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WINTER</td>
<td>December 10</td>
</tr>
<tr>
<td>SPRING</td>
<td>March 10</td>
</tr>
<tr>
<td>SUMMER</td>
<td>June 10</td>
</tr>
<tr>
<td>FALL</td>
<td>September 10</td>
</tr>
</tbody>
</table>

ACCEPTABLE FORMATS INCLUDE:

- High-resolution PDF files with fonts embedded, Adobe Illustrator 9.0 .eps files, .tif files, .jpg files, or Microsoft Word files. Include any high-resolution (300-dpi) photos or artwork used as Microsoft files separately as either .tif or .jpg.
- Mail or e-mail all articles or advertisements to:

AZ WATER ASSOCIATION
1042 Willow Creek Road
A101-510
Prescott, AZ 86301
musegroup@aol.com
www.azwater.org

Publication of any article/comment herein does not constitute an endorsement by the AZ Water Association or staff.

(c) 2011 by the AZ Water Association

advertisers ~ fall 2011

Aqua Aerobics System IFC, OBC
Aqualitec Corp. 16
ASA Analytics 45
Black & Veatch 51
Brown and Caldwell 17
Carbon Activated Corp. 12
Carollo Engineers 8
CDM 3
CH2M HILL 31
Coombs/Hopkins 51
Dibble Engineering 51
DKY 33
ECC 51
EMA 51
FANN Environmental 19
Fluid Technology 28
Gannett Fleming 17
GHD 30
Golder & Associates 43
Greeley & Hansen 4
HD Supply 9
HDR 5
Hennesy Mechanical Sales 51
IDEXX 33
IES Southwest Inc. IFC
Kennedy/Jenks Consultants 51
KUV Consultants, LLC 6
Layne Water 33
Legend Technical Services 39
M. E. Simpson Company IBC
Malcolm Pirnie/Arcadis 39
McCarthy 43
MISCO 3, 6, 20, 45, 51
Montgomery & Associates 35
Natgun 17
Pureflow Filtration 27
Separation Process Inc. 52
Severn Trent Services 39
Stanley Consultants 52
Statewide Disinfection Services 52
Technical Content Resource Group 52
Trojan Technologies 15
USA Bluebook 5
Utility Service Company 1
Weston Solutions 52
Wilson Engineers 52
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Register Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>Inn Suites Tucson City Center, Tucson, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 37</td>
</tr>
<tr>
<td>11</td>
<td>Phoenix Technical Luncheon Program</td>
<td>SRP Pera Club, Tempe, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 34</td>
</tr>
<tr>
<td>15-19</td>
<td>WEFTEC 2011 84th Annual Water Environment Federation Technical Exhibition and Conference</td>
<td>Los Angeles Convention Center, Los Angeles, CA</td>
<td>Register online at <a href="http://www.weftec.org">www.weftec.org</a> Flyer on page 34</td>
</tr>
<tr>
<td>19</td>
<td>Collection Systems Workshop</td>
<td>Northern Gila County Sanitary District, 2200 W. Dollbaby Ranch Road, Payson, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 37</td>
</tr>
<tr>
<td>28</td>
<td>AZ Water Committee Chair Leadership Meeting</td>
<td>Historic Carnegie Center, 1101 W. Washington St., Phoenix, AZ</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>Inn Suites Tucson City Center, Tucson, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 37</td>
</tr>
<tr>
<td>6</td>
<td>Water For People 7th Annual Hike-A-Thon</td>
<td>Phoenix South Mountain Park, Holbert Trail and Judyth Tunell Trail</td>
<td>Flyers on pages 46-47</td>
</tr>
<tr>
<td>8</td>
<td>Phoenix Technical Luncheon Program Safety Shouldn’t Hurt</td>
<td>SRP Pera Club, Tempe, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 34</td>
</tr>
<tr>
<td>9-10</td>
<td>AZ Water Pretreatment Committee Presents: The Pretreatment Training Workshop</td>
<td>GateWay Community College, Phoenix, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 34</td>
</tr>
<tr>
<td>14-17</td>
<td>AWWA Water Quality Technology Conference &amp; Exposition</td>
<td>Phoenix Convention Center, Phoenix, AZ</td>
<td>Register online at <a href="http://www.awwa.org">www.awwa.org</a> Flyers on pages 10-11</td>
</tr>
<tr>
<td>18</td>
<td>AZ Water Board of Directors Meeting</td>
<td>Greeley and Hansen, 2800 N. 44th Street, Ste. 650, Phoenix, AZ</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Southern Arizona Technical Luncheon Program</td>
<td>Tucson City Center, Tucson, AZ</td>
<td>Register online at <a href="http://www.azwater.org">www.azwater.org</a> Flyer on page 37</td>
</tr>
<tr>
<td>6</td>
<td>AZ Water Board of Director’s Budget Meeting</td>
<td>Greeley and Hansen, 2800 N. 44th Street, Ste. 650, Phoenix, AZ</td>
<td></td>
</tr>
</tbody>
</table>
YOU CAN ALWAYS TELL WHETHER YOU HAVE A DEDICATED GROUP THAT GELS AS A TEAM, OR A COLLECTION OF INDIVIDUALS THAT DO NOT SEE EYE-TO-EYE ON DIRECTION AND GOALS. I am very pleased to report that Your AZ Water Board of Directors and staff are energized and have a demonstrated vision of our association’s future. You may ask, “Are you just making this up, or do you have PROOF?” We do have proof and that was completely demonstrated at the Annual Board Retreat that was held on August 12, 2011 in Sedona, Arizona.

We began the retreat at a casual setting through dining with each other and with many of our significant others. We were able to converse with those we have just met and were able to share sordid stories with those that we know, maybe too well. After dinner was a social “hour” back at the hotel that went late into the evening.

Morning started early and our Leadership Committee Chair, Jim Pembroke, started us off with a review of the history of our organization. Truly a fascinating story of our organization continually evolving and changing to meet the current and future needs of our members. It was also very interesting to see the baby pictures of our leaders when they were just getting started in our organization. Many ask, “How do I get on the Board of AZ Water?” In seeing the photos of some of our previous presidents, treasurers and committee leaders, the answers are clear...get involved, do not look back, and try not to get a picture taken of you when you are in your thirties. Now of course the history review did have us looking back, however, it served to position us for the future and to focus our vision of who we will be in the future.

Who would have known that back in 1925 when we were formed, we were known as the Arizona Public Health Association and the Arizona Sewage & Water Works Association. In 1962 we changed our name to the Arizona Water & Pollution Control Association. We seemed to like having an ampersand in our name until 2009 when we were reborn as the AZ Water Association, Professionals Dedicated to Arizona’s Water. Over the years many topics were presented, discussed and vetted. However, there was always a common theme on how vital water is to our state and how vital we are in producing and protecting our water.

So let’s journey to the future and recall our vision: “The AZ Water Association is the recognized advocate for enhancing Arizona’s water and environmental resources.” We are the advocate, supporter, backer, promoter, believer, activist, campaigner, and sponsor of Arizona’s water. All very personal and active responsibilities we all have as members of today’s AZ Water. As we chart a path in the future, let’s recall our mission: “Provide value to our membership and the public through education, training, and public awareness regarding the enhancement of Arizona’s water and environmental resources.”

The AZ Water Association strives to differentiate ourselves with a focused brand that truly represents who we are. Too many brands are words that have limited substance and eventually become hollow. When asked at the retreat to recite our branding statements, I must admit that I did not know the words, but I could recite the feelings. At the core of our organization we provide education, training, networking opportunities, and leadership programs to help water professionals advance their careers and build trust, inside and outside the industry (Career Advancement for Water Professionals). We naturally help our industry recruit talent sufficient to meet the water needs of our state (Enhancing the Human Resources Available to the Industry). We are dedicated with passion in supporting our industry in ensuring that Arizona’s water resources are consistently safe (High Quality Water and Public Health). We help our industry professionals to ensure that people have highly reliable water resources by having a long-term view that emphasis’s sound resource and infrastructure planning (Future Water Certainty for Arizona Water Consumers). We are the primary advocates for protecting and enhancing Arizona’s natural environment to ensure that there is enough water for the environment (Environmental Leadership). We are advocates for appropriate and continued investment in water resources, watersheds, water quality and water infrastructure by providing resources and training designed to help water and wastewater utilities constantly increase their efficiency (Increasing the Financial Resources continued on next page
Dedicated to Water and the Environment). And we encourage networking and collaboration with related organizations, stakeholders, and in our communities to effectively communicate important water issues to the public (Collaboration and Public Outreach).

So how do I get involved? We are all unsurprisingly INVOLVED in everything we do every day. However, we can and should do more. AZ Water has many committees of like minded professionals that are committed to the future of our state’s water. I would recommend that we all take a path to the committee that resonates with our desires and follow our vision, embrace our mission and live our brand. In the words of Jim Pembroke, “The path you take is well-travelled, there is no prescribed method or approach, don’t be afraid to change, think beyond the status quo, don’t abandon what you do well, stay focused on your vision and stay committed to yourself, others, and the organization.” This is great advice; let’s challenge ourselves to try it…everyday.

DELIVERY

HDR was lead design firm for 13-miles of pipeline delivering 48 mgd of raw water to new Santan Vista WTP.

HDR was lead design firm for 13-miles of pipeline delivering 48 mgd of raw water to new Santan Vista WTP.
director report

LET’S START WITH SOME RECENT, NOTABLE AWWA BOARD ACTIVITIES THAT YOU SHOULD BE AWARE OF:

“Think Water, Think AWWA” -- (and AZ Water)
AWWA launched a new image campaign at ACE11 with a series of ads depicting AWWA members at work across the country. The “Think Water, Think AWWA” campaign positions the Association as the go-to source for water industry professionals and reaffirms the value of AWWA membership. As a section of AWWA, AZ Water should also benefit from this campaign.

The campaign will express AWWA (and AZ Water) as the indispensable thought leaders for the water community and resources for information, education, and networking. With high-quality photos of real AWWA members at work, the campaign invokes a sense of pride in the Association and the important work of our members.

Dues and Life Member Changes
The Board of Directors met at Ace11 and approved changes that will affect many AWWA members. Bylaw revisions to implement these changes were approved at a special board meeting on Sept. 7, 2011.

Dues Increases:
The Board of Directors approved the first dues increase since 2009 for several types of memberships. The dues increases will minimize lost revenue and allow AWWA to continue to bring its members the benefits and services they value in fulfilling their missions.

The dues increases will become effective January 1, 2012. For most individual members, dues will increase by $5. Student members will see no increase. For utilities, dues increases will range from $0 for the smallest utilities to $526 for the largest. For service providers, dues increases will range from $0 for the smallest service providers to $622 for the largest.

Life Members:
As the water workforce ages, the percentage of Life Members in AWWA is increasing. After extensive study and evaluation, it was determined that the current model, which waives dues for everyone with 30 years membership, is simply not sustainable.

The Board of Directors took steps to modify the Life Member membership category. Currently, a member who has attained 30 years of cumulative membership becomes a Life Member. He or she is entitled to all the benefits of membership and is not required to pay dues. Under the revised requirements, future Life Members must achieve a cumulative 30 years of membership and also be a minimum of 65 years old. In addition, Life Members will pay dues of $85 per year. Life Members, under the new criteria will continue to receive AWWA and Section recognition. The Life Member Award is one that is important to the AWWA community and the members who have achieved this important distinction. AWWA’s Life Members are long-term contributors to AWWA’s success. Their intellectual contributions, over many decades, have strengthened the entire water community and made safe water a reality for hundreds of millions of people worldwide. Life Members who are retired can be reclassified as Retired Members and instead pay as little as $32 in dues. Retired members receiving the Journal will pay $44 in dues.

Making these adjustments will help AWWA remain strong and healthy, building on the legacy of today’s Life Members.

continued on page 32
AWWA Fall Webcast Line-up

Watch live webcasts and interact with leading industry speakers.

Each webcast is available on-demand to work around your busy schedule.

Dan Smith
Special Technologies for Pipeline Installation and Maintenance (W1110)
September 14, 2011

A Drought Is Coming: Plan for It Now! (W1112)
September 21, 2011

Michael Grandy
Effective Implementation of Water Budget Rates (W1113)
October 5, 2011

Pipeline Condition Assessment Techniques that Save Money (W1120)
October 12, 2011

How Energy Management Can Pay for Itself (W1122)
October 26, 2011

Biofiltration: A Low-Cost Solution to High-Quality Water (W1115)
November 2, 2011

Water Loss Management (W1111)
November 9, 2011

Sunil Kommineni
Advances in MF/UF Membranes: Ceramic and Nano-Fiber (W1116)
November 16, 2011

Sponsored by Koch Membrane Systems
TARGA® II HF...The Next Generation Hollow Fiber Product (WSUP1100)
September 13, 2011

Sponsored by Bentley Systems, Inc.
WaterGEMS’ Criticality–A Software Tool for Renewal Planning and Risk Assessment (WSUP1101)
October 25, 2011

Learn more about group bundle packages and register at www.awwa.org/webcastfall
WE ALL ARE WORKING FOR THE SAME PURPOSE – THE BENEFIT OF THE WATER (WATER/WASTEWATER) CUSTOMER, BUT WE APPROACH IT FROM DIFFERENT DIRECTIONS. The service providers (public and private water industry) have priorities of public health, reliable delivery infrastructure, and assuring future water supplies.

The government regulators have split this differently. One area of government has a health and water quality function. These are at the County, State and Federal levels for all or parts of Arizona. One area of government has a supply and water resources function. This is the state agency for Arizona. One area of government has a rate setting and consumer protection function. For municipal utilities and districts this is a locally elected body. For private utilities this is a state wide elected body.

We are all working to protect the interests of the water customer. Conflict can arise because we are given different priorities in the rules required by our jobs. We are all trying to balance public health, water to our homes and businesses, and assured water supply for our future against the cost of water service.

We have seen in the past that new rules to protect public health can have a huge cost impact – the Arsenic Rule is an example. For the most part, this rule was brought into the rate structure and the costs passed on to the customers.

Costs for replacing infrastructure and for assuring adequate water supplies into the future do not present as clear and immediate needs to be implemented. Rehabilitating or replacing essential infrastructure is an example. The utility operators are aware of the risk that is faced if this infrastructure fails. The cost to the community if it has significant areas without water for an extended period is large. Loss of business, loss of perceived home and property value, and increased threats to human health are real issues. Our society has become so accustomed to reliable water we have a difficult time understanding what happens when no water comes out of the tap or our toilets will not flush.

The cost control functions of government would like to see costs deferred especially in this economy. The risk is that failure of a water delivery system with an extended water outage can delay or prevent the return of a better economy.

An even tougher question is the implementation of a renewable water supply. By definition this is a benefit. The question is can it be delayed to postpone a rate increase? It probably can, but is it right to delay this? My personal experience is that investment now has less long term impact on the rates than a delayed investment.

An example would be the conversion of water supply from ground water to surface water. Twenty years of experience in Arizona has shown me that water infrastructure costs escalate faster than the general cost of living. Delaying projects has resulted in higher rate increases. Delay in the case of conversion from ground water to surface water also results in further depletion of the groundwater aquifer. This is especially true where the groundwater aquifer has experienced hundreds of feet of decline already. Continuing to mine the groundwater at this rate is unacceptable. Even after the implementation of the surface water supply the groundwater levels may continue to decline due to agricultural pumping.

On the question of delaying a project to postpone a rate increase that implements a renewable water resource, as a customer my answer is this: I will pay now rather than risk running out of water. It is a good investment for me. Water makes Arizona a great place to live. A reliable renewable source of water will protect the value of my home. It will allow me to continue to live the way I want to live. It is a small price to pay to retain the value of my home and make it livable.

In Arizona, water and wastewater are tied together. While this has been a discussion of water issues, the concepts of investment in the value of water resources applies every bit as much to wastewater which is an integral part of Arizona’s water resources.

We as an industry need to communicate about these issues with our customers. We need to listen to them and make sure we appreciate their values. We need to communicate our values to them. We cannot be successful unless our customers are successful. They will not be successful if we fail.
With nearly 1 million products – from pipe and rebar to wire and tools – HD Supply delivers the products and services you need to get the job done from start to finish. Our businesses are here to serve you as strong local partners who understand your needs, backed by the resources, supplier relationships and expertise that come from being one of the largest wholesale distributors in North America, built from our 80 years of experience in the industry.

With 29 locations in Arizona, including 15 in Phoenix, call us today or visit hdsupply.com!
# AGENDA

## The Pretreatment Training Workshop

**Wednesday November 09, 2011 – 8:00 a.m. to 5:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Opening Session</td>
<td>John Watson</td>
</tr>
<tr>
<td></td>
<td>• Welcoming Remarks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Overview of Agenda</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Workshop Objectives</td>
<td></td>
</tr>
<tr>
<td>8:10 am</td>
<td>Module 1</td>
<td>Moses A. Olade</td>
</tr>
<tr>
<td></td>
<td>• Overview of the National Pretreatment Program</td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>Module 2</td>
<td>Marla Miller</td>
</tr>
<tr>
<td></td>
<td>• Pretreatment Program Regulations; Legal Authority</td>
<td></td>
</tr>
<tr>
<td>9:50 am</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:20 am</td>
<td>Module 3</td>
<td>Mike Golden</td>
</tr>
<tr>
<td></td>
<td>• Industrial User Identification and Classification</td>
<td></td>
</tr>
<tr>
<td>11:10 am</td>
<td>Module 4</td>
<td>Kris Erickson</td>
</tr>
<tr>
<td></td>
<td>• Industrial User Permitting</td>
<td></td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>1:00 pm</td>
<td>Module 5 Presentation / Discussion</td>
<td>Patti Trahern</td>
</tr>
<tr>
<td></td>
<td>• Prohibitions and Categorical Standards</td>
<td></td>
</tr>
<tr>
<td>1:50 pm</td>
<td>Module 6 Presentation / Discussion</td>
<td>Patti Trahern</td>
</tr>
<tr>
<td></td>
<td>• Local Limits</td>
<td></td>
</tr>
<tr>
<td>2:40 pm</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>3:10 pm</td>
<td>Module 7 Presentation / Discussion</td>
<td>Kris Erickson</td>
</tr>
<tr>
<td></td>
<td>• Inspections and POTW Monitoring</td>
<td></td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Module 8 Presentation / Discussion</td>
<td>John Watson</td>
</tr>
<tr>
<td></td>
<td>• Reporting Requirements</td>
<td></td>
</tr>
<tr>
<td>4:50 pm</td>
<td>Closing Remarks &amp; Adjourn</td>
<td>John Watson</td>
</tr>
</tbody>
</table>

**Thursday November 10, 2011 – 8:00 a.m. to 5:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Opening Session</td>
<td>Mike Golden</td>
</tr>
<tr>
<td></td>
<td>• Welcoming Remarks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Overview of Agenda</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Workshop Objectives</td>
<td></td>
</tr>
<tr>
<td>8:10 am</td>
<td>Module 9</td>
<td>John Watson</td>
</tr>
<tr>
<td></td>
<td>• Data Management and Compliance Evaluation</td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>Module 10</td>
<td>Mike Golden</td>
</tr>
<tr>
<td></td>
<td>• Civil Enforcement</td>
<td></td>
</tr>
<tr>
<td>9:50 am</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:20 am</td>
<td>Module 11</td>
<td>TBD, EPA CID Special Agent</td>
</tr>
<tr>
<td></td>
<td>• Criminal Enforcement</td>
<td></td>
</tr>
<tr>
<td>11:10 am</td>
<td>Module 12</td>
<td>Mike Golden</td>
</tr>
<tr>
<td></td>
<td>• Resources and Funding</td>
<td></td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Module 13</td>
<td>John Watson</td>
</tr>
<tr>
<td></td>
<td>• Pollution Prevention</td>
<td></td>
</tr>
<tr>
<td>2:20 pm</td>
<td>Module 14</td>
<td>Moses A. Olade</td>
</tr>
<tr>
<td></td>
<td>• Regulatory Update for Treatment Coordinators</td>
<td></td>
</tr>
<tr>
<td>3:10 pm</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>3:40 pm</td>
<td>Module 15</td>
<td>Eunice Martinez</td>
</tr>
<tr>
<td></td>
<td>• Resources Available at Western States Project</td>
<td></td>
</tr>
<tr>
<td>4:30 pm</td>
<td>Closing Remarks &amp; Adjourn</td>
<td>Mike Golden</td>
</tr>
</tbody>
</table>
Pretreatment Training Workshop

Wednesday, November 9, 2011  8:00 am – 5:00 pm
Thursday, November 10, 2011  8:00 am – 5:00 pm
Registration and Continental Breakfast Begins at 7:00 Each Day

REGISTRATION
Cost: $45 for Two Days
Register Online at [www.azwater.org](http://www.azwater.org) or mail, e-mail, or fax to:

Gustavo Lopez, Greeley and Hansen
2800 N. 44th Street, Phoenix, AZ  85008
[glopez@greeley-hansen.com](mailto:glopez@greeley-hansen.com)
Phone: 602.275.5595  Fax: 602.267.1178

LOCATION
Gateway Community College
108 North 40th Street, Phoenix, AZ  85034
Phone: 602.286.8000

**TOPICS**
- Overview of the National Pretreatment Program
- Pretreatment Program Regulations: Legal Authority
- Industrial User Identification and Classification
- Industrial User Permitting
- Prohibitions and Categorical Standards
- Local Limits
- Inspections and POTW Monitoring
- Reporting Requirements
- Data Management and Compliance Evaluation
- Civil Enforcement
- Criminal Enforcement
- Resources and Funding
- Pollution Prevention
- Regulatory Update for Treatment Coordinators
- Resources Available at Western States Project

**SPEAKERS**
- Kris Erickson, City of Phoenix
- Mike Golden, City of Tempe
- TBD, EPA CID Special Agent
- Eunice Martinez, Western States Project Rep
- Marla Miller, ARCADIS
- Moses A. Olade, ADEQ
- Patti Traherm, Independent Consultant
- John Watson, City of Phoenix (retired)

**ACCOMMODATIONS** (Within Walking Distance)
Hilton Garden Inn Phoenix Airport North
3838 E. Van Buren Street, Phoenix, AZ  85008
Phone: 602.306.2323
Special Group Rates Available Online

Continental Breakfast and Luncheon Included
PDHs will be Provided for this Workshop
Directions and Additional Information Provided on AZ Water Website
COCONUT SHELL & COAL BASE ACTIVATED CARBON

From
CARBON ACTIVATED CORP.

World’s Finest Quality – Ready to Ship NOW!

- We specialize in Drinking Water and Kidney Dialysis
- All our Carbon is Re-screened & De-dusted in our facility before shipping
- We deliver our High Quality Activated Carbon to any point in the United States
- One of the largest inventories in the US
- Variety of grades
- Complete Technical Support
- Competitive Pricing & Custom Packaging
- Drinking Water Purification
- Air Purification
- Industrial & Environmental Applications
- Precious Metal Recovery
- Silver Impregnation

A leading Activated Carbon & Related Services company supplying high-quality Activated Carbon and filter media certified for NSF-61 and meets AWWA standards; specialized in municipal potable water and wastewater treatment plants, odor control, etc.; also provide liquid and vapor filter systems and installations, performance-guarantees and superior lead-time; we have advanced material handling equipment for change-outs and onsite laboratory testing and quality control.

Corporate Office
250 E. Manville Street
Compton, CA 90220
Tel: (310) 885-4555
Fax: (310) 885-4558
Email: info@ActivatedCarbon.com
Website: www.ActivatedCarbon.com

New York Branch
3774 Hoover Road
Baldspell, NY 14219
Tel: (716) 677-6661
Fax: (716) 677-6663
Email: CarbonActivated@earthlink.net
GENERAL INSTRUCTIONS

Individuals interested in presenting at AZ Water’s 85th Annual Conference & Exhibition must submit the following four documents by November 18, 2011:

1) Complete the Abstract Submittal Form
2) Provide a one page abstract describing the subject matter in sufficient detail to allow evaluation of the proposed topic.
3) Provide a short paragraph description of the session presentation not to exceed 125 words. This summary will be included in the conference marketing brochure.
4) Provide a short biography of the presenter, not to exceed 60 words. This summary will be read by the moderator before the presentation.

Generally, presentations will be limited to 25-30 minutes including time for questions, however, longer presentations will be considered.

SUGGESTED TOPICS

WATER
• Treatment Processes
• Water Quality
• Distribution Systems
• Water Conservation & Auditing
• Source Protection
• Source Decision Approach
• Consumer Confidence
• Groundwater
• Operations
• Water Resources Planning

WASTEWATER
• Pretreatment
• Treatment Processes
• Biosolids Management
• Bio-energy
• Collection Systems
• Storm Water
• Odor Control
• Receiving Water Quality
• Operations
• CMOM

WATER REUSE/RECHARGE
• Advanced Treatment
• End Users
• Regulators
• Public Acceptance
• Benefits and Challenges
• Dual Plumbing
• Distribution Systems
• TDS Issues and Brine Treatment

JOINT
• Utility Management
• Facility Operations
• Construction Projects
• Regulatory Issues
• International Topics
• Research Topics
• Instrumentation and Control
• Security/Vulnerability
• Watershed Management
• Public Information
• Alternative Delivery/Design Build
• Green/Sustainability Issues
• Young Professionals
• Water for People
• Public/Private Partnership

SELECTION CRITERIA

Abstracts will be reviewed and judged on the basis of the following criteria:

— Describes the paper in a clear and concise manner.
— Significance of the work to a broad audience.
— Originality of the work, including new concepts, innovations, or data.

ABSTRACT SUBMITTAL FORM (Fill out Form or Create Word Document)

TITLE OF PAPER:

List Main Topic and Sub-topic (closest to suggested topics listed above)

If your presentation is for a Committee Large Block, List Committee

Corresponding Author (all correspondence will be with this author)

Name: ____________________________________________________________ Title: ________________________________
Employer: ______________________________________________________
Address: _______________________________________________________
City, State, Zip: __________________________ E-mail Address (required): ______________________________
Phone: __________________________ Fax: __________________________

Check here if interested in receiving more information about the Young Professionals “Fresh Ideas” contest for accepted papers

SUBMIT THE FOUR DOCUMENTS TO:

OPTION 1: EMAIL TO: Jacksonla@bv.com
Subject: AZ Water 2012 Submittal

OPTION 2: BY USING AZ WATER WEBSITE
2012 Annual Conference http://www.azwater.org

OPTION 3: MAIL HARDCOPY TO:
Attention to: Lisa Jackson, P.E.
Black & Veatch Corp.
3133 E. Camelback Rd., #210
Phoenix, AZ 85016
Phone: 602-381-4431
Gray Water Reuse

Regardless of whether gray water is used by homeowner to water a garden, or collected for treatment at a wastewater treatment plant where it is reclaimed and then used in a purple pipe system, the gray water is put to beneficial use. The good news is that both approaches are environmentally friendly and sustainable. At issue is whether small, non-integrated methods of making use of gray water are preferable to large, centralized methods of making use of gray water for a given community. The key is to understand that there are many alternative methods to make sustainable use of wastewater, that under different circumstances they are equally valid, and that one size simply does not fit all in a state as geographically, legally, politically, economically, and socially diverse as Arizona.

Mesa operates three wastewater treatment plants and is a partner in the regional 91st Avenue Wastewater Treatment Plant in Phoenix. Mesa’s sewer collection system includes 1,700 miles of pipe, 29,000 manholes, 31 diversion structures, 17 lift stations, and 19 odor control stations that support an average of 34 MGD of flow each year. We built this infrastructure so that we as a community, through modern sewage and wastewater treatment, could both protect the environment and create future water supplies in a collective and centralized manner. Mesa, like other Valley communities, has made great progress over the last decade in reclaiming its wastewater to make beneficial use of it in various ways, including through recharge and direct deliveries.

But the heart of the issue for Mesa is our valuable relationship with the Gila River Indian Community. The Gila River Indian Community is an agricultural community that had very significant claims to the Gila River, including its tributaries the Salt and Verde Rivers. These claims were disputed for decades, and since the Gila, Salt, and Verde Rivers drain most of the state, these claims were a major threat to the cities, farms, ranches, small towns, and mines that had come over the years to also depend upon these waters. After many years of painstaking work, the interested parties finally came up with a settlement, the historic Arizona Water Settlement of 2004. The City of Mesa gave a significant amount of water towards that settlement, in fact the largest contribution of any city in Arizona.

The water that Mesa contributed towards that settlement is reclaimed water. Specifically, Mesa must eventually deliver 29,400 AF/yr of reclaimed water to the Gila River Indian Community. In exchange, Mesa will receive 23,430 AF/yr of Central Arizona Project water. The difference, just less than 6,000 AF/yr, is Mesa’s water contribution towards the settlement. The Gila River Indian Community prefers to receive reclaimed water because it is delivered free of cost to them. If the Community were to take direct delivery of their CAP water, instead of exchanging it with Mesa’s reclaimed water, it would cost them around $50/AF. Also, for every 1 AF of CAP water they give up, the Community receives 1.2 AF of reclaimed water back. Mesa, on the other hand, prefers to deliver reclaimed water to the Community and accept CAP water in exchange, because CAP water can be treated and used in our potable system, thus turning a non-potable supply into a potable supply via exchange. The exchange provides a benefit to both communities, and helped develop a statewide water rights settlement.

Also consider that Mesa, along with Phoenix, Glendale, Scottsdale, and Tempe, which are all joint owners of the 91st Avenue Wastewater Treatment Plant, delivers reclaimed water from the plant to the Palo Verde Nuclear Power Plant for use in its cooling towers, providing not only a beneficial use of the reclaimed water, but also an important link in the water-energy nexus in this State.

We believe that Mesa residents receive a higher and more beneficial use of gray water through a centralized reclamation system through which it can be exchanged with the Gila River Indian Community to make a potable supply and to further a statewide water rights settlement. We believe this is a higher and better use than dumping it onto individual outdoor landscaping. In our case, it is a collective solution that is preferred to the individual solution. Reclaimed water is a hugely important and sustainable piece of Mesa’s overall water resources portfolio. In addition, as we endure future shortages on the Salt/Verde or Colorado River systems due to drought or climate change, the availability of reclaimed water will increase in importance.

In the long term, are we better off finding individual solutions to sustainability and conservation problems or are we better off finding collective solutions? In the case of gray water, there are pros and cons to each approach, and it should be left for each community to explore and to decide.
DISINFECTION AND REUSE

Disinfect effluent to stringent permit levels, without using chemicals. Meet the TrojanUVFit™ – our closed-vessel wastewater UV solution for high-level disinfection and reuse. This compact, energy-efficient reactor is available in multiple configurations and treats a wide range of flow rates. And don’t worry about those chlorine-resistant microorganisms anymore; TrojanUVFit™ lethally inactivates them along with bacteria and viruses.

Wastewater reuse, compact design and validated performance. That’s UV innovation. That’s TrojanUVFit™.

See the light at trojanuv.com/fit.
MANKIND HAS STRIVED THROUGH THE AGES TO FIND WAYS TO CLEAN SEWERS; WAYS THAT WERE EFFECTIVE, ALL WITHOUT ANY MORE EFFORT THAN ABSOLUTELY NECESSARY. Even with the earliest of drains (sewers), the people of Mohenjo-Daro (3500 BCE, in the Indus River Valley - in what is now modern day Pakistan) had the fore thought to know that their drains would require routine maintenance … so they provided access points to physically get into the drains with tools and they provided “stilling wells” along the route (at the access points – also known as the first “manholes”) of the gravity drains to settle out grit; thus, making it easier to clean debris/solids from the drains.

As time went along, new methods of cleaning sewers came along, especially for the newer smaller diameter “separate sanitary sewers” that came into use starting in England in the 1840s. The use of these types of systems started in the United States shortly after the Civil War had ended, and expansion of the nation’s cities helped bring on their need to be sewered. One of the methods involved the use of a ball – of an outside diameter slightly smaller than the inside diameter of the sewer pipe being cleaned. The Parisians fine tuned this process; which they used to clean the siphon barrel (pipe) crossings of rivers, etc. in their system. Their balls were made of solid wood. They were quite heavy to handle when dry, let alone when wet.

In the United States, balls were often used in the early days to clean small diameter sewer mains and were often referred to as “pills”. The early ones were hollow and made of wood; later, other materials were used.

I’ve included in this Report an article from 26 July 1917 edition of the Engineering News Record. It contains a story about the use of hollow balls, made of two layers of no. 24 gauge zinc metal. The unique approach with Owensboro, Kentucky’s use of the “balls” was that they not only used them to clean in-service sewer pipes but, they also used them to inspect the sewers after their installation – to ascertain whether or not the involved run of new sewer main was acceptable into their system. It was this latter use, that when implemented, demonstrated that it was also a good way to clean sewers.

Without further adieu, here’s the referenced article from the 26 July 1917 edition of the Engineering News Record, entitled “Zinc Balls Clean Sewers”.
We explored every type of tank construction. In the end, we discovered a NATGUN wire-wound prestressed concrete tank costs a lot less to own because the lifecycle analysis showed virtually zero maintenance. We looked at three other concrete manufacturers, but NATGUN won hands down. Their sales and engineering staff were extremely knowledgeable and very easy to work with.

Jay Howe
Utilities Director
City of Safford
Safford, Arizona

Want to see Jay’s NATGUN tank? Just log onto www.natgun.com/jay or call us at: 1-800-826-8306
INTRODUCTION

In 2002, the U.S. Federal Highway Administration (FHWA) released a study on the direct costs associated with metallic corrosion from infrastructure and transportation to production and manufacturing in a comprehensive cross section of the U.S. industry sector. Initiated by NACE International—The Corrosion Society and mandated by the U.S. Congress, the study determined cost estimates and identified national strategies to minimize the impact of corrosion.

Results of the study showed that the total annual estimated direct cost of corrosion in the U.S. was an overwhelming $276 Billion. It revealed that although corrosion management has improved over the past several decades, the U.S. must find more and better ways to encourage, support, and implement corrosion control practices.

Note that of the 26 economic sectors analyzed, the water/wastewater industry was the highest with a $36 billion annual cost. Keep in mind that the study was conducted in 2002. I wonder how much more that cost is today.

Two of the reasons that the water/wastewater industry is the highest cost are lack of awareness and understanding of corrosion within the industry and the lack of corrosion control.

The water that is provided to our homes comes from various sources, rain and snow melt that feeds the streams and rivers and underground wells are the primary sources. The water usually requires some method of storage such as dams, lakes and underground and above ground reservoirs. Depending on the quality of water from the source, the water may require treatment to have it suitable for human consumption. Because our very life depends on the availability of good clean potable water and proper waste disposal, the vast majority of the population depends on this industry to maintain a healthy life.

To access, transfer, treat, store and distribute this water requires a vast array of specialized and expensive equipment and infrastructure. Because a very large percentage of this infrastructure is made of metal, it is likely that it will be subject to corrosion. Depending on where these metallic components reside in the process stream, the corrosion may be virtually nil or very aggressive.

Unlike the oil and gas industries that have government mandated corrosion control to minimize the risk of a failure, the water industry has no such requirements. The water industry has the option of doing nothing but react to the corrosion issues (leaks and failures). In the vast majority of cases there is motivation in the water/wastewater industry to provide uninterrupted service and preserve their assets. Additionally, a leak in a water line or wastewater line can result in contamination of the water supply and possibly compromise public safety. As water becomes a more precious and expensive resource, it is a proven fact that the application of proper corrosion control methods will save money in the long run.

TYPES OF CORROSION

- Atmospheric - Rust that you see on metallic structures that are exposed to the atmosphere.

- Bacteriolytic - “Electrolysis” is an electro-chemical process in which current is passed between two electrodes through an ionized solution (electrolyte) to deposit positive ions (anions) on the negative electrode (cathode) and negative ions (cations) on the positive electrode (anode). Basically, if you connect two different types of metal together and immerse them in an electrolyte (water or soil) there will be a current flow generated. The metal that is the most reactive (anodic) will be consumed while the less reactive metal (cathodic) will be preserved. This is the basis of a cathodic protection (CP) system.

- Bacterial corrosion - Microbiological corrosion can be a common problem as these microorganisms thrive in the incoming wastewater environment. Many of these bacteria can actually metabolize (corrode) iron at a very high rate.

All of the above corrosion issues can be reduced or eliminated by a combination of corrosion control strategies.

CONTROL OF CORROSION

Atmospheric - The primary task is to create a barrier that will prevent the atmospheric moisture from coming in contact with the metal. This is usually accomplished with...
painting, coating or plating. For steel structures the new field applied 100% solids epoxy coatings are very durable. For new construction FBE (fusion bonded epoxy) has a great track record for being tough, durable, and long lasting for both atmospheric as well as underground or immersion service. It is the coating of choice for new pipelines and valves. In marine environments anodized aluminum structures have proven very durable. Hot dipped galvanizing is usually very durable with some exceptions, high salt content atmosphere or the presence of H2S will significantly reduce the service life.

Electrolysis - The vast majority of underground and immersion corrosion is from “Electrolysis”. The natural process of electrolysis can be very destructive. However, CP utilizes this same process to prevent corrosion. CP is, very simply, the use of direct current electricity from an anode to oppose the discharge of corrosion current from anodic areas that would be present naturally on the structure. When properly applied, all portions of the protected structure collect current from the surrounding electrolyte and the entire exposed surface becomes a single cathodic area, hence the name “cathodic protection”.

The simplest CP system would include multiple (galvanic) zinc, aluminum or magnesium anodes connected to the structure. Because the actual cathodic protection current is created through the galvanic action of the dissimilar metal connection between the steel structure and the anode material, the total current is limited by the relative low voltage differential. To provide CP systems that can generate higher power (current) requires the use of CP power supplies. The CP rectifier provides a controllable higher driving voltage between the structure and the anode, therefore, allowing greater current flow which results in a higher degree of CP. Known as Impressed Current Cathodic Protection (ICCP) systems, they are the type of systems that are typically used on large structures such as clarifiers and other large buried or immersed structures that have a relative large area of exposed metal. The ICCP systems require an AC power source and specialize anodes.

Chemical attack - Is usually a simple problem to identify and solve. Identify the offending chemical and remove all materials that are affected by exposure. Problem: The carbon steel (Painted) door on the chloride storage building had severe corrosion in very few years. Solution: Fiberglass door with Delrin, you can feel reasonably confident that at least the corrosion problem is solved. However, the non metallic material must meet the requirements structurally, and survive in the environment it is to be installed in.

EMPLOY INDIVIDUALS THAT ARE TRAINED IN CORROSION CONTROL

Having a dedicated individual assigned to corrosion control is rare. In 38 years as a corrosion consultant it has been my observation that too many companies don’t even have a corrosion control program in place. In many of the companies that do have a person assigned to corrosion control, it is usually NOT his primary job. It is a job that was given to him because he is the “new guy” and no one else wants the job. It’s likely that they don’t want the job because they are uncomfortable in being responsible for something they don’t understand. If you cannot have a competent corrosion control person on staff, don’t let the responsibility of keeping up with corrosion problems fall through the cracks.

Keep on top of ongoing corrosion. Be aware of corrosion trends. When you see evidence of corrosion, ask yourself; how long has this structure/device been in service? At the current corrosion rate, how long will it continue to be serviceable? Is the corrosion rate unacceptable? What can be done to eliminate or reduce the corrosion rate. How about those buried pipelines? Does any one know if they are coated, or cathodically protected? Even though there may be a cathodic protection system in place, it does not mean that it is providing the proper level of protection.

Utilities are struggling to maintain their infrastructure. A lot of this struggle is self imposed in that the owners and engineers have failed to recognize the root cause of some of their corrosion control issues.

TAKE ADVANTAGE OF THE LATEST TECHNOLOGIES AND PROFESSIONAL ASSISTANCE

Certainly in a new project the designer would want to use the latest available technology. This attitude should also be maintained during a repair. Every repair or upgrade should be evaluated by a corrosion professional. Corrosion control is part art, part science, and a lot of individual experience. Considering the vast array of coating materials, types of metals, and corrosion control systems required to produce a system that will go the distance, it is best to get the best people available in the industry to put together a total, well engineered system that will be representative of the latest state of the art. Keep in mind that less expensive does not always mean less costly.
High Efficiency Turbo Blower with Air Bearing
Clean, Compact, Energy-Saving & More...

APG-Neuros introduces efficient and affordable advanced technology blowers, blower packages, and complete aeration systems for municipal and industrial applications.

The NX series are on a different level: As of August 2010, APG-Neuros is confirmed as the market leader in the High Speed Turbo Blower category in North America, with over 300 units installed, and over 150 on order. The oldest unit is reaching four years, with over 30,000 hours of continuous operation, in an outdoor installation at a Waste Water Treatment Facility.

Compared to old technology, the NX series can save over 30% in operating costs, saving time and money. Our competitive advantage is superior quality, efficiency, performance, and UL, CSA, and CE certifications.

APG-Neuros produces their NX Series Blowers in the USA. A second production facility is scheduled to be completed by the end of May, in Québec, Canada. This facility will also serve as the head office, focusing our engineering and sales functions, and senior management.

Contact your local representative:
Kate Flanagan, Dave Redman, Dennis Ernie
1820 W. Drake Drive #105
Tempe, AZ 85283
Tel: 480 940-6923
Fax: 480 940-6935

Proudly made in the USA

Production Facility
APG-Neuros Inc.
160 Banker Road
Plattsburgh, NY, 12901, USA
Tel: 518-324-4150
Fax: 518-324-415
A project specification is the foundation by which your project is created and built. A specification is a contract obligation between the Owner and everyone else associated with the project. The specification or its sections cannot be changed unless its authorized in writing by the author of the specification or their authorized representative. Contained within the project specification are many individual specification sections that your project is built upon.

For purposes of this article I would like to focus on coating specifications. The municipal wastewater treatment plants, water treatment plants, lift stations, water tanks or similar projects can be subjected to some of the most severe environmental conditions imaginable. Unfortunately, many of these projects are inadequately protected due to failing coating systems. Why?

You can cite the long list of reasons concerning coating failures. In most cases the coating failures boil down to human error when they fail the project. This article is not going to elaborate on all coating failures or even the two most talked about, i.e. surface preparation or coating application. What I want to concentrate on are coating specifications and the avoidable problems associated with them.

1) Use of master / guide specifications
2) Writing the coating specification
3) Review of the coating specification

USE OF MASTER AND/OR GUIDE SPECIFICATIONS

The use of a master guide specification repeatedly can lead to conflicts. The reason for this statement is that specific contents within the specifications can become outdated in a short amount of time. The coatings industry is continually evolving due to new and better technology, standards / test methods changing and tighter EPA regulations. Through firsthand experience I have found many of the coating systems were not accurately specified in the original specification and were never changed to reflect a current and accurate coating system. The same can be said about standards and test methods.

Specifications are such important documents to a project that the specification can make or break a project. You cannot simply cut and paste one specification for another. In my opinion the specification should always be custom built to meet or exceed the client’s expectations and the requirements for a particular project.

WRITING THE COATING SPECIFICATION

Who is writing the specifications? Is it an engineer, an architect, a coating manufacturer representative? Often times, the level of knowledge for writing the specification requires not just one but many parties to the project to make a specification project specific not a “one size fits all” specification. Many of the professionals that are writing the coating specifications reluctantly admit that they have limited coating or coating system technical knowledge or any real world field experience. Many coatings specifications require the coating manufacturer and coating applicator to provide references and a resume of prior projects of similar size and scope before they are even considered a viable bidder. Are the specification writers held to the same standard?

How can this be remedied? First, remember the coating specification is a legal document. The specification can only be changed by the author or an authorized representative for the author. The person responsible for the coating specification is required to perform due diligence to make sure the contents are accurate. This will take time, patience, and research. There are so many questions that should be asked and considered when writing a specification. Making a sound, reliable and accurate specification requires the writer to seek assistance in all areas where the experience from another source can provide the needed information. One person or group will not have all the answers even though they would like you to believe they do, writing such an important document requires the combined knowledge of several experienced people.

A specification should be strong, concise and direct so everyone involved in the project understands what is expected. A specification that is vague and ambivalent will certainly lead to conflicts and a needless waste of time and therefore, delay any resolution that would get a project moving forward.

The use of standards prepared by SSPC, NACE, ASTM, ISO, ICRI and ANSI is good specification writing practice. These standards, guides and test methods are always being reviewed and change to reflect the direction of the coatings industry.

In keeping up with Federal, State and Local EPA regulations, coating manufacturers develop new technology which in many cases can change the application and performance of the older products. Newer technology products can be more complex, so equipment, experience, training, and skill, is something that should be considered in writing a specification. The coating manufacturer catalogs that you may have should be checked and updated often. Current information can be obtained from the manufacturers’ websites, local coatings representatives, or independent coatings consultants.

REVIEW OF THE COATING SPECIFICATION

Once you feel you have the “perfect specification” for the project at hand, have it reviewed by an industry professional as mentioned above. Certainly another review will take place by the coating application companies when they obtain the coating specification to make their bid. I have experienced on numerous occasions that the failure to completely read and fully comprehend the coating specification requirements has created disruptions and lost time and money on a project. This is not the specification writer’s fault, if a good, sound specification was prepared for the project. My suggestion is that the specification requires that the coating application bid be submitted along with an affidavit stating that the submitting contractor has fully read and understands the coating specification and will adhere to it.

Also remember that your coating specification will be reviewed many times over once the project has begun. The fact is that we cannot think of everything, so when Murphy’s Law and the real world collide they tend to slap us upside the head once the project starts. Be flexible and look at all avenues to improve the situation.

It is important to remember that a specification, while extremely crucial to the project, it is just the foundation. However, without a solid foundation and enforcement of the specification through an independent coatings inspector, a project can and in many cases will suffer eventually.

You may contact Eric at eric@rficonsultants.net.
THE PIPELINE
Operator Certification Challenge
SEE ANSWERS ON PAGE 52

WATER TREATMENT GRADES 1 & 2
1. Which of the following disinfectants of drinking water has residuals that last longest in distribution systems?
   A. Chlorine Dioxide
   B. Chlorine
   C. Ozone
   D. Chloramines

2. How much will it cost monthly to add 15 mg/L of Powdered Activated Carbon (PAC) to 48 Million Gallons per Day (MGD) if the cost of the PAC is $0.65 per pound? (Assume 30 days per month.)
   A. $40,000
   B. $68,000
   C. $96,000
   D. $117,000

3. What was the dosage in mg/L as chlorine of 12.5% sodium hypochlorite (NaOCl) solution weighing 10.25 pounds per gallon if the usage is 35 gallons and the water production is 2.5 million gallons per day?
   A. 1.02 Mg/L
   B. 1.25 Mg/L
   C. 2.15 Mg/L
   D. 5.04 Mg/L

4. What level of Water Treatment certification is required to operate a water treatment plant on evening or midnight shift if the plant produces 30 MGD and serves 100,000 customers?
   A. Grade 1
   B. Grade 2
   C. Grade 3
   D. Grade 4

5. What is the name of the chemical compound with the formula Fe2(SO4)3?
   A. Aluminum Sulfate
   B. Ferric Sulfate
   C. Ferrous Sulfonate
   D. Fluoride Sulfide

WATER TREATMENT GRADES 3 AND 4
1. What impact on a drinking water’s pH does the addition of 20 mg/L aluminum sulfate usually have?
   A. Lowers the pH
   B. No significant impact on pH
   C. Raises the pH

2. What is the MCL in mg/L for Fluoride in drinking water?
   A. 1.0 mg/L
   B. 2.0 mg/L
   C. 3.0 mg/L
   D. 4.0 mg/L

3. How many Gallons of water are in a full reservoir that is 45 feet in diameter and is 25 feet deep?
   A. 39,740 Gal
   B. 180,000 Gal
   C. 300,000 Gal
   D. 834,000 Gal

4. What is the water pressure in pounds per square inch (psi) on the bottom of the reservoir in question 3?
   A. 10.8 psi
   B. 25.0 psi
   C. 45.0 psi
   D. 57.75 psi

5. Which of the following organisms are indicator organisms normally tested for in drinking water?
   A. Coliforms
   B. Heterotrophic bacteria
   C. Viruses
   D. Giardia

WATER DISTRIBUTION GRADES 3 & 4
1. What is the action level for Lead in the Lead and Copper Rule?
   A. 0.015 mg/L
   B. 0.020 mg/L
   C. 0.15 mg/L
   D. 0.30 mg/L

2. While flushing a main in a distribution system, what would be the flow in Gallons Per Minute (GPM) from a fire hydrant opening of 2.5 inches with a velocity of 20 feet per second?
   A. 200 GPM
   B. 305 GPM
   C. 783 GPM
   D. 1,000 GPM

3. How much Sodium Hypochlorite must be added daily to a distribution system that produces 18 Million Gallons to disinfect it with 1.6 mg/L free chlorine? Presume the Sodium Hypochlorite contains 1.0 pound of active chlorine per gallon.
   A. 100 Gal
   B. 240 Gal
   C. 500 Gal
   D. 908 Gal
4. Which of the following is a treatment technique to remove excessive iron from well water?
   A. Filtration through greensand
   B. Aeration in reservoirs
   C. Reverse Osmosis
   D. Disinfection with chloramines

5. In what application is a nutating disk meter usually used?
   A. Well production
   B. Reservoir elevation
   C. High service pumps
   D. Residential services

WASTEWATER COLLECTION GRADES 1 & 2

1. What does infiltration mean?
   A. Operators from neighboring utilities utilizing your system.
   B. Pipes with joints that have been illegally tapped by customers.
   C. Sewers buried near creeks, leaking into the creeks.
   D. Water flowing into sewers through cracks and holes.

2. Most wastewater collection systems follow the ‘lay of the land’ to minimize pumping costs.
   A. True
   B. False

3. If an apple floats through a manhole at 13:09:15 and then through a manhole 500 feet away at 13:17:30, what is the average velocity in feet per second (fps)?
   A. 1.01 fps
   B. 2.45 fps
   C. 5.15 fps
   D. 8.05 fps

4. Proper traffic control is irrelevant to wastewater collections operators.
   A. True
   B. False

5. What is the flow in Gallons Per Minute (GPM) through a full 18-inch wastewater force main if the velocity is 3.45 feet per second?
   A. 325 GPM
   B. 655 GPM
   C. 1315 GPM
   D. 2735 GPM

WASTEWATER COLLECTION GRADES 3 & 4

1. How much wastewater can be held in a manhole 500 feet away at 13:17:30, what is the average velocity in feet per second (fps)?
   A. 1.01 fps
   B. 2.45 fps
   C. 5.15 fps
   D. 8.05 fps

2. Which of the following may be used to identify high inflow and infiltration?
   A. Flow monitoring
   B. Manhole inspections
   C. Smoke testing
   D. Closed circuit television inspections of sewer lines.

3. Modern telemetry may reduce the need for daily visits to lift stations.
   A. True
   B. False

4. Why do pumps used in wastewater lift stations have larger clearances between pump volutes and impellers?
   A. To ease draining of the pump during freezing weather.
   B. To produce a higher discharge head.
   C. To pump more water during high storm water runoffs.
   D. To reduce erosion by solid particles such as grit and sand.

5. When using an ohmmeter to test the resistance of a fuse, a short circuit indicates a bad fuse.
   A. True
   B. False

WASTEWATER TREATMENT GRADES 1 & 2

1. Normally, velocities in a grit channel are less than 1 foot per second.
   A. True
   B. False

2. What is the capacity of a circular basin in gallons that is 125 feet in diameter, and holds 15 feet of wastewater?
   A. 183,984 Gal
   B. 228,400 Gal
   C. 362,400 Gal
   D. 1,376,000 Gal

3. What is the organic loading in pounds per day (ppd) to a trickling filter in a wastewater treatment plant treating 26 MGD and the primary effluent contains 200 mg/L BOD?
   A. 12,000 ppd
   B. 26,200 ppd
   C. 43,370 ppd
   D. 58,525 ppd

4. What is the hydraulic surface loading in gallons per day per square foot (gpdpsf) of a sedimentation basin that is treating 8.34 MGD of wastewater that measures 90 feet long, 36 feet wide, and 16 feet deep?
   A. 1.00 gpdpsf
   B. 2.75 gpdpsf
   C. 3.88 gpdpsf
   D. 8.34 gpdpsf

5. If a wastewater treatment facility supplies 4,000 pounds of air to an aeration basin, 21% of which is oxygen, how many mg/L of oxygen would that be if the influent flow is 14.3 MGD?
   A. 3.0 mg/L
   B. 5.0 mg/L
   C. 7.0 mg/L
   D. 9.0 mg/L

WASTEWATER TREATMENT GRADES 3 & 4

1. The activated sludge process is an anaerobic, biological wastewater treatment process.
   A. True
   B. False

2. If a wastewater treatment facility has influent suspended solids of 185 mg/L and effluent suspended solids of 30 mg/L, what is the removal efficiency?
   A. 30 %
   B. 50 %
   C. 84 %
   D. 155 %

3. The best way to start up an anaerobic digester is to:
   A. Dilute the sludge added to the digester with water.
   B. Add acid to the digester.
   C. Add about 20% anaerobic sludge from another digester.
   D. Allow the digester to stagnate without stirring it up.

4. What is the organic loading in pounds per day (ppd) to a wastewater treatment plant with an influent of 34 MGD containing 275 mg/L BOD?
   A. 9,350 ppd
   B. 34,000 ppd
   C. 65,000 ppd
   D. 78,000 ppd

5. What is the detention time in a basin measuring 48 feet in diameter and an average of 18 feet deep with a flow of 1.25 MGD through it?
   A. 2.00 hours
   B. 4.68 hours
   C. 6.82 hours
   D. 8.34 hours

BY TED BAILEY
BAILEYTB@ATT.NET
Traditional wastewater pipeline inspections involve cleaning of the pipelines, and then use of a CCTV truck and cameras to inspect. The data captured is dependent on the operator controlling the camera remotely, and a conventional CCTV camera does not have capabilities to precisely measure pipe geometry or dimensions, nor can it accurately quantify defects.

Advancements in robotic inspection technologies have made it possible to inspect pipelines with a variety of sensors that will provide much more useful information, and quantification, than CCTV cameras alone. These multi-sensor robots are collecting all sensor information simultaneously, preventing the need to perform multiple inspections with different technologies. The power of these robots also allow inspections to be completed without cleaning the pipelines first, allowing one to properly characterize the system, and then act on the findings.

With highly advanced and specialized robots capturing complete and precise data, and advanced inspection management software to view and organize the data, multi-sensor robots and their resulting data are a more complete and cost effective solution for the inspection, prioritization, and maintenance management of any collection system.

The Responder Robot is a highly advanced multi-sensor robot which simultaneously takes sonar, 3D laser, and H2S gas readings, along with digital CCTV, and a separate fish-eye camera. The 750 pound robot can complete inspections of up to 8,000 linear feet from a single entry point, and can be fully submerged. The results of the Responder inspections, using the GIS-based ICOM3 Multi-Sensor Viewer software, provides a complete synchronized view of the inspection results, and simplifies the review of the inspection findings. These results include the CCTV video; sediment levels in the pipeline; any ovality, corrosion, or deflection issues; H2S gas levels; and lining defects.

**SONAR**

Sonar is a valuable tool as it allows one to essentially ‘see’ under water, alleviating the need to remove a pipe from service to dewater so that a visual inspection can be completed. The sonar data is monitored by the Operators controlling the robot in ‘real-time’ to ensure maximum quality of the results, and to help with platform maneuvers in the event of a significant amount of debris. Sonar data is logged in a digital format to enable extraction of any relevant information, such as sediment depth, pipe shape, etc. Based on results of sonar inspections with the Responder Robot, the data collected will be sufficiently dense to produce accurate sediment/debris volumes.

Sonar has several benefits:

- Determining where pipes need to be cleaned, and what quantity of debris will be removed by contractors so that cleaning bid specifications can be more accurate;
- Determining the effectiveness of cleaning methods by City or contract crews;
- Obtain a baseline condition for pipes, and monitor heavy discharge sources;
- Quantify the nature and size of any large obstructions in the pipe;
- Use the results, along with laser data, to evaluate any changes in ovality or deflection in the pipe.

The city of Palo Alto, California, is one case where inspection via sonar technology prior to cleaning saved the City $330,000. Palo Alto staff had visually inspected manholes for debris depths and specified a cleaning project based on those estimates. Using this method, the city determined it needed to clean 9,875 lf of 48- to 72-in. diameter sewer pipe. A number of contractors submitted proposals; the lowest bid received was about $955,000.

Before proceeding, Palo Alto retained RedZone to verify sediment location and quantification using its Responder system equipped with sonar. The results showed that of
the original 9,875 lf of original scope, only 5,573 lf needed cleaning. The scope of work was reduced by 43 percent (4,302 lf), and the project was put back out to bid.

3D LASER AND H2S GAS

3D LADAR (Laser Detection and Ranging) scanning provides an accurate profile of the pipeline’s interior above the fluid level. The resulting data is a series of precise measurements of the interior of a pipeline, which is then used to determine corrosion, ovality, and deflection issues.

RedZone utilizes both 3D and 2D LADAR scanning equipment capable of directly measuring distances to objects and surfaces inside pipelines. Both are Class 1 (eye safe) for operator safety. Measurements are accomplished using “time-of-flight” which measures the range of each point individually and, unlike triangulation based alternatives, does not suffer from accuracy loss as pipe diameter increases.

Measurements obtained with the 3D laser are compared against as-built interior dimensions to determine loss of pipe wall, or corrosion. H2S gas is a precursor to corrosion in pipelines, and the H2S gas meter on Responder will measure the H2S gas levels, which can be correlated to any observed corrosion.

The laser data is used to create a 3D model of the pipe showing areas of corrosion, along with any changes in ovality or deflection of the pipe. The laser is also able to pick up bubbles or defects in pipe lining that are not easily visible with a CCTV camera alone. RedZone has done many inspections of lining where the Responder robot was able to determine the location and size of lining defects that were not visible with the CCTV camera alone.

The 3D Ladar data can also be used to complete Bend Radius Reports. These are reports that utilize 3D Ladar to assess rehabilitation geometry and lining options. A Bend Radius Report is used by clients to make decisions on best rehabilitation methods (e.g., slip lining vs. CIPP), and also to design the replacement pipe itself including lining size, bend angles, segment lengths, and the necessary annular grouted volume. The 3D Ladar can also be used to prepare alignment reports to determine precisely where the pipe is located underground, which is critical for close proximity construction planning.

360 CAMERA TECHNOLOGY

In additional advancement with robotic inspection technology is the use of fish eye cameras. These digital cameras take a series of 180 degree ‘fish eye’ images of the inside of the pipeline. The results, once processed, give the user control and zooming capabilities via a computer mouse anywhere inside the pipe. This prevents errors or omissions by CCTV operators as the fish eye camera is collecting images of all the pipe, all the time, allowing the viewer to pan-tilt-zoom to areas of concern anytime after the original inspection.

CONCLUSION

The use of multi-sensor technology, combined with a powerful GIS-based inspection software system to view and analyze inspection results, provides substantially more information than CCTV alone. The data can be used to first assess the condition of the pipelines, and the same data can be later used to design rehabilitation solutions.

Sonar and 3D Ladar data provides valuable insight into the corrosion, debris, ovality changes, and deflection issues inside pipelines, which can be monitored over time. The information can also be used in maintenance efforts to increase the remaining useful life, or to design rehabilitation methods when necessary.

Multi-Sensor robots provide collection system personnel a powerful tool in the management of their wastewater assets, helping ensure public safety, maximizing level of service, and meeting regulatory requirements.
CALL FOR AWARD NOMINATIONS...

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 Liaison, 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!!
Town of Buckeye, AZ
3,000 GPM Arsenic Removal System

ARSENIC • IRON • MANGANESE • FLUORIDE
RADIIUM • URANIUM • PERCHLORATE
REMOVAL SYSTEMS

- Skid Mounted Systems
- Flow Ranges from 50 to 20,000 GPM
- Automated Controls
- Minimal Maintenance Requirements
- Design Build Systems
- Backwash Reclaim Systems
- Chemical Pretreatment Systems
- Pilot Studies

Local representative: REACO Associates LLC
Chuck@ReacoAssociates.com
(262) 573-0389
E-mail: pureflow@pfdiv.com
Website: www.pfdiv.com
We are your Roots Distributor and Repair Center

Rely on us to replace, repair, install, re-locate and serve all your water and wastewater air needs.

fluid technology

Please contact:
Josh Stockwell • Fluid Technology
1315 Nelson St., #H • Lakewood, CO 80215
602-252-1726 • Email: josh@fluid-technology.com

www.fluid-technology.com
I recently heard a presentation from a speaker named Paul Tsika about Goals. It has been said that “Goals are Dreams with Deadlines”. Have you ever procrastinated? Let me see, I think the answer is YES for all of us. I was going to write this installment of Success and Fun sooner, but I put it off until the last week it was due. I rationalized that I could do it “when I got to it”, “when I had a better topic to share”, “when I had some extra time” and on and on it goes. One thing’s for sure, we’ll never have enough time. We have the same time each day. The question is, will we use it to move toward achieving our Dreams or just live another “Day Dreaming”?

My hope is that this issue of Success and Fun will help each one of us break through the procrastination syndrome. I believe that each of us can do this if we want to change the way we think and act in our daily lives.

Goals have great value to keep us on track. Each day is a new opportunity to redirect ourselves to move toward Dreams. The past is the past; so do not focus on the things you did not accomplish. Focus on your dreams and set deadlines for each Dream that is important to you. “Success is the Progressive Accomplish of a Worthwhile Goal”. Setting goals is vital to success. Charles Garfield said, “A mission starts with a specific goal accompanied by a strong desire”.

Goals have been the starting point for every major accomplishment of mankind. First you start with a Dream. Then the Dream becomes a Goal. The Goals eventually become an Achievement. Napoleon Hill said, “What the mind of man can conceive, and believe, it can achieve”. Living without goals is like going on a trip without a destination. If you do not know where you are going, you will likely go nowhere. But is does not have to be that way.

A clearly defined set of Goals will make the difference in your life and provide a roadmap for accomplishing great achievements in your life. Goal setting is the most important thing you can do toward reaching your Dreams. There are six benefits of Goal setting:

1. Motivation - Goals are the starting blocks of motivation. They give us a reason to get off the sofa and get going.
2. Independence - Goals help us take charge of our own lives, We choose the path to accomplish our Dreams.
3. Direction - Goals give us our destination. We are more likely to get somewhere if we know where we are going.
5. Enjoyment - Goals give us meaning. Goals are the antidote to the most dreaded of all sources of disease Americans have, “Boredom”.
6. Fulfillment - Goals will help you reach your potential. Each step in reaching a goal will help you gain confidence and grow in you understand and skills that enable you to achieve your Dreams.

So choose a goal for which you are willing to exchange a piece of your life. I know there are obstacles along the way. Obstacles are merely those frightful things that you see when you take your eyes of your goals.

- Don’t Wish
  - Most people want to be happy, rich, and famous. A wish is a vague dream that we want to happen to us. A Goal is a clear picture that becomes an achievement because we make it happen due to hard work, self discipline, and a good use of our time.
- Write Down Your Goals
  - Write down your goals as specific as possible
  - Make the list complete
  - Take quality time to document your goals
  - Write them with deadlines
  - This is the first phase of commitment to your goals and dreams
  - Consider the steps needed to accomplish these goals
  - Consider the obstacles to overcome
  - Who’s help do you need
  - What do you need to learn
  - What are the benefits and rewards of reaching your goals
- Categorize and Balance Your Goals
  - Life needs to be lived with balance
  - We need keep perspectives
  - Faith, Family, Work/Business, Social areas of life need balance
  - Be focused on the major and important goals in life
- Review and Revise Your Goals Regularly
  - Find a mentor or coach that can help you keep on track

Goals give us:

- Direction
- Purpose
- Add Meaning to our Lives
- Challenge us
- Make Life more Interesting
- Make Life more Rewarding
- Make Life Better

Virtually nothing can stop a person with a positive attitude and clear goals in sight. So how much time do you have? The answer: THE REST OF YOUR LIFE! The choice is, what will you do with it?

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.
The Layne Water Technologies Group Announces the Opening of Its Phoenix Center of Excellence

Perhaps best known as the driller of the successful Plan B rescue in the San Jose mine in Chile, Layne Christensen’s Water Technologies Group announces the opening of its Center of Excellence Water Treatment Facility in Phoenix, AZ.

With a 130-year commitment to the water industry, Layne’s investment in the Phoenix Facility adds 40 highly-skilled positions to the Valley of the Sun. Recognizing the growing population and the unique water chemistry challenges of the desert southwest, the facility is strategically positioned to provide sustainable and economical water treatment solutions for both industrial and municipal applications.

The 60,000 square foot facility is the national headquarters for the Water Technologies Group, staffed with designers, engineers, chemists, PLC programmers, water treatment specialists and service technicians. This location is capable of arsenic media regeneration, deionization (DI) regeneration, membrane cleaning, equipment fabrication and pilot testing.

The Center holds NSF61 certification for the regeneration of its proprietary LayneRT arsenic removal media, and has its first large-scale regeneration scheduled for September. In addition to LayneRT regeneration the DI regeneration capacity is the largest in Arizona and will serve the company’s DI exchange tank program.

While the facility serves specific regional needs, it also serves clients nationwide through a network of over fifty offices from coast to coast delivering comprehensive services for water supply, treatment and transmission.

Peter Olszewski Joins GHD Inc. in Phoenix

Peter Olszewski, a Professional Engineer licensed in Arizona, Colorado, Montana, Washington and Utah, has joined GHD Inc.’s Phoenix office as a Senior Project Manager specializing in water and wastewater system planning and design.

Peter has more than 25 years of technical, management and leadership experience encompassing project development and project management. He has specific experience in planning, design and construction of water distribution facilities; planning, design, and construction of wastewater collection, treatment, and reclaimed water systems; studies; public involvement, and permitting. His experience includes conceptual design through commissioning of multi-disciplinary projects with construction values from up to $60 million.

Peter has managed projects for the cities of Phoenix, Glendale, Paradise Valley, Scottsdale, Surprise, and Chandler; the Pima County Regional Wastewater Reclamation Department, and the Southern Nevada Water Authority. He is based in GHD’s office at 7600 N. 16th Street, Phoenix AZ 85020.

GHD is one of the world’s leading engineering, architecture and environmental consulting companies. Its Phoenix office was established in 2009 with the acquisition of CSA Engineering and Arizona Engineering Company.

Groundbreaking Ceremony for USDA Funded Water Treatment System for Dateland, Arizona

On Monday, September 19th, 2011, USDA Rural Development and Dateland Public Service Company, Inc. hosted a groundbreaking ceremony to mark the start the recent grand funding by USDA Rural Development of a $2.4 million potable water treatment system.

Dateland qualified for grant funding for its water system as a small, rural community with fewer than 10,000 residents with median income lower than the average median income in Arizona that could not qualify for a commercial loan to complete the project. PACE, a specialized engineering company, provided the selection of inland-desalination alternatives, engineering design, environmental permitting, and grant funding application services to improve and expand their existing groundwater Reverse Osmosis (RO) treatment system.

The groundwater in the Dateland basin contains several trace contaminants including arsenic and fluoride, has irrigation inhibitors boron, chloride, and sodium, and overall contains high levels of TDS. The contaminants must be removed to comply with primary and secondary drinking water standards.

PACE investigated several process modifications and alternatives to deliver a cost effective, flexible and fundable project using an advanced RO process. The upgrade and expansion allows reuse of existing infrastructure, but with significantly higher permeate recovery than the existing RO system, to produce more “wet” water from the existing supply, reducing waste and improving efficiency. The design provided achieves more wet water with an advanced pretreatment system with particulates, iron, and hardness removal to benefit water recovery, prolong membrane life, and reduce boron which is harmful to irrigated plants. In addition to the mechanical process work, PACE provided design of a PV solar system to power the plant, which will be constructed as part of the second phase of the project.
CALL FOR 2012 AZ WATER ASSOCIATION BOARD MEMBER NOMINATIONS

The Nomination 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).

CH2M HILL is your community’s partner for clean water solutions. We are providing a comprehensive package of water, wastewater, water resources, and utility management services to our Arizona clients. We continue our dedication and assistance in achieving a sustainable yet cost-effective water supply today and in the future.

ch2mhill.com/water
AWWA director report

continued from page 6

Please feel free to contact AWWA or me if you have any questions or need more detail regarding these changes.

Other news from AWWA:

— Water Quality Technology Conference and Exposition: AWWA 2011 WQTC will take place in Phoenix on November 13-17, 2011. As AWWA’s second largest conference, WQTC attracts approximately 1,300 water quality professionals of all types each year. WQTC attendees represent a diverse population of the water industry. Previous attendees include water quality specialists, water utility managers, scientists, engineers, academics, and manufacturers. Multiple networking events will be available, to bring attendees together to discuss issues and solutions relating to water quality.

— Communities of Interest: AWWA is exploring the use of Communities of Interest (COIs) to provide members and interested outside parties a platform for information exchange and other interaction opportunities. Targeting specific industry segments, COIs will integrate a wide range of stakeholders into active communities that provide a fast, easy, and robust interface to address community members professionals interests. COIs will focus on disseminating technical information and promoting collaboration, thereby creating a sense of shared purpose and direction.

— Fluoride and Osteosarcoma: The International Association for Dental Research (IADR) has released a new study that found no link between fluoride and osteosarcoma, a rare form of cancerous bone tumors. In 2006, the National Research Council (NRC) concluded that this study would be the definitive study about this connection. This study adds to the body of evidence that water fluoridation is a safe public health strategy for utilities, and may result in some activity from anti-fluoride activists. The root causes of osteosarcoma remain unknown, and research is ongoing. However, this research represents the authoritative voice on the absent connection between fluoride and osteosarcoma.

IADR’s press release for this study can be found at: http://www.ladr.org/files/public/JDRNewsReleaseOsteosarcoma.pdf.


More information on USEPA’s fluoride activities can be found at: http://water.epa.gov/drink/contaminants/basicinformation/fluoride.cfm.

— Pharmaceuticals in Drinking Water: The Government Accountability Office (GAO) has released a new report on the presence of pharmaceuticals in drinking water supplies. GAO has concluded that there is limited data on the health effects of low-dose, long-term exposure to pharmaceuticals, and the office recommended that the USEPA better coordinate with other government agencies to collect more occurrence and health data. USEPA agreed with this recommendation. Pharmaceuticals are currently considered an emerging contaminant, and to-date EPA has not set drinking water standards for any pharmaceuticals under the Safe Drinking Water Act. As detection methods have improved, trace amounts of pharmaceuticals have been found in both source water and treated drinking water. However, the report notes that the pharmaceuticals are mostly detected in the parts per trillion range. Thus far, research has not demonstrated that exposure to such small amounts of pharmaceuticals have any adverse effects on human health.


T R I V I A  Q U E S T I O N S

(From the Office of the AZ Water Association Historian)

A. Origin of West Point?
B. History of the “weed whacker”?
C. Date of Mount St. Helens recent eruption?
D. Date the first commercially available computer became available?
E. How many months had the Tacoma Narrows Bridge been in service when it collapsed in 1940?

See answers on page 50
Trusted and accepted

Easy, rapid, accurate water testing from IDEXX Water Microbiology

- Water microbiology tests for E. coli, coliforms, enterococci, Cryptosporidium, Giardia and Pseudomonas aeruginosa
- Colilert®-18 meets all EPA requirements for the measurement of fecal coliforms in wastewater
- Dedicated customer and technical service, and sales and regulatory support

Helping to protect water quality for over 2 billion people worldwide.

Plain, adorned or concealed
the beauty of a DYK tank is in the structure

Whether your DYK prestressed concrete tank is above ground, architecturally treated or fully buried, you’ll know you have:

- Efficient design
- Minimal maintenance
- Best return on investment

For more information, please call your IDEXX representative at 1-800-321-0207 or visit idexx.com/water.

© 2010 IDEXX Laboratories, Inc. All rights reserved. • 9693-00
Colilert is a trademark or registered trademark of IDEXX Laboratories, Inc. or its affiliates in the United States and/or other countries.
The IDEXX Privacy Policy is available at idexx.com.

For an invitation or to schedule a tour, contact Lisa Culbert at LCulbert@LayneWater.com

3804 E. Watkins Street • Phoenix, AZ 85034 • 877-358-8813 • www.LayneWater.com
AZ Water Association’s Monthly Luncheon Events

**Tuesday, September 13, 2011**

Topic:  
What effects will the massive forest fires have on water quality?

Presented By:  
Mark Hubble, Salt River Project

Register By:  
September 9, 2011

Sponsored By: Brown and Caldwell and Layne Christensen

**Tuesday, October 11, 2011**

Topic:  
Energy Optimization

Presented By:  
Lee Ferrell, Schneider Electric

Register By:  
October 7, 2011

**Tuesday, November 8, 2011**

Topic:  
Safety Shouldn’t Hurt

Presented By:  
Mark Norton, Central Arizona Project

Register By:  
November 4, 2011

Sponsored By:  

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@brwncald.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.
Is your data working for you?

Our Environmental Data Management solutions ensure data integrity and minimize risk.

Quality assurance:
Ensuring the integrity of your data is critical. Our specialists verify your data, reviewing it for accuracy, representativeness, and usability. When necessary, we work with labs and field teams to implement corrective actions.

Database development:
M&A constructs industry-standard relational databases that are tailored to your project. If the formats and sources of your data vary, we standardize them to create a single, functional data set that you can trust.

Analysis and reporting:
Access your data any time via a powerful interface that lets you generate tables, graphs, and maps with a few clicks... or let us develop a simple, web-based dashboard to suit your unique data access and reporting needs.

520.881.4912
www.elmontgomery.com

MONTGOMERY & ASSOCIATES
Water Resource Consultants

The M&A Toolbox
- Hydrologic Modeling
- Decision Support Systems
- Environmental Data Management
- Satellite Imagery Analysis
- Expert Testimony
- HydroGeoMetrics
August 2011

MONTHLY Technical Luncheon Door Prize Sponsorship

It’s time to reserve your spot for the **Monthly Technical Luncheon Door Prize Sponsorship**. Sponsoring companies will be recognized each month at our AZ Water Technical Luncheon events in Phoenix and Tucson by providing a door prize and a nominal contribution to support our program.

This season’s meetings will be held September 2011 through April 2012. See [AZWater.org](http://AZWater.org) for the upcoming events and topics. Don’t miss your chance!

The cost of sponsorship is only $100, which includes the following:

- A payment contribution of $50, **and**
- One $50 door prize or gift certificate/card to be raffled during the event.

We encourage all of our sponsors to attend the luncheon that you select to sponsor so that you can assist us in drawing the winning raffle ticket and giving away your prize to the WINNER!

For more information about our Door Prize Sponsorship Program, please contact our coordinator:

**Lisa Culbert**
Layne Christensen  
Water Technologies Division  
3804 E. Watkins Street, Phoenix, AZ 85034  
lculbert@laynewater.com or 602.345.8559

Please indicate which location you would like to sponsor and send checks payable to “AZ Water” and your gift certificate/card to Lisa Culbert. You can select either location to participate in, or both! Luncheons are held at the following locations:

**Phoenix**  
SRP PERA Club  
One East Continental Drive  
Tempe, AZ 85281

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

**Thank you for supporting the AZ Water Association**
AZ Water Association Presents:
The Southern Arizona Technical Luncheon Program Events

Thursday, Sept 1, 2011
Topic: ROMP Update
Presented By: Jackson Jenkins, Director, Pima County RWRD
Register By: Monday, August 29, 2011
Door Prize Sponsor: Stantec

Thursday, October 6, 2011
Presented By: Pranam Joshi, NCS Engineers
Register By: Monday, October 3, 2011

Thursday, Nov 3, 2011
Topic: Safety Shouldn’t Hurt
Presented By: Mark Norton, Central Arizona Project
Register By: Monday, Oct 31, 2011

Thursday, Dec 1, 2011
Topic: Water for People in Honduras
Presented By: Mark Taylor, Westland Resources
Register By: Monday, Nov 28, 2011

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

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.
Visit the AZ Water Association website (www.azwater.org) for upcoming workshops.

LEGEND TECHNICAL SERVICES of Arizona, Inc. is a full-service environmental laboratory, that is providing assistance to water and wastewater operators in obtaining training and professional development hours (PDHs) through free workshops held throughout Arizona and in outreach areas as well as in the Phoenix and Tucson metropolitan regions.

ENVIRONMENTAL WORKSHOP TRAININGS
6-PDHs FREE OF CHARGE CONTINENTAL BREAKFAST DOOR PRIZE

Thursday, November 10th, 2011 from 8:45am - 3:50pm
Chandler Downtown Library, 2nd floor, at 22 S. Delaware St., Chandler, AZ 85224
Thank You City of Chandler!

8:45 – 9:00 Welcome Presentation - Robert Vertefeuille, Director of Operations, Legend Technical Services
9:00 – 9:50 Operator Certification - Bill Reed and Noah Adams, ADEQ
10:00-10:50 Public Notice –Suzanne Price, ADEQ
11:00-11:50 DBP-Transitioning from Stage 1 to Stage 2 - Donna Calderon, ADEQ
11:50-1:00 LUNCH
1:00-2:00 Emerging Pathogens - Robert Vertefeuille, Director of Operations, Legend Technical Services
2:00-2:50 Chain of Custody Importance / Safety & Sampling Tips, Dianne Frydrych, Legend Technical Services
3:00-3:50 Interpretation of Lab Reports - Lisa Parrish, Client Services Manager, Legend Technical Services

Wednesday, January 25, 2012 from 8:45am - 3:50pm
The Peoria Room, 2nd Floor – Public Safety Admin Building
8351 W Cinnabar Avenue, Peoria, AZ (Behind City Hall)
Thank You City of Peoria!

8:45 – 9:00 Welcome Presentation - Robert Vertefeuille, Director of Operations, Legend Technical Services
9:00 – 9:50 Operator Certification - Bill Reed and Noah Adams, ADEQ
10:00-10:50 Drinking Water Record Keeping Requirements & Organizing Your Data for the Upcoming 2011 Consumer Confidence Report - Donna Calderon, ADEQ
11:00-11:50 DBP-Transitioning from Stage 1 to Stage 2 - Donna Calderon, ADEQ
11:50-1:00 LUNCH
1:00-2:00 Impact of the Wallow Fire on Water - Paul Westerhoff, Ph.D., PE
2:00-2:50 Emerging Pathogens - Robert Vertefeuille, Director of Operations, Legend Technical Services
3:00-3:50 Wastewater Treatment in the Past & for the Future, Roger Carr, Utility Treatment Supervisor and Robert Garcia, Utility Treatment Supervisor - City of Peoria

Space is limited. RSVP to Dianne Frydrych, Legend Technical Services, (602) 324-6121 or dfrydrych@legend-group.com.

LEGEND would like to thank ADEQ for their dedication and sharing their knowledge with us!
Leading the Way in Arizona.

Severn Trent Services provides the finest in municipal wastewater and water management. A public-private partnership with us can provide the expertise gained through more than 30 years of experience operating, maintaining, servicing and managing utilities. Our dedication to innovation, efficiency and quality creates the perfect combination. Currently, over 400 communities nationwide rely on Severn Trent for the provision of their water and wastewater management. That's why a number of Arizona communities have successfully partnered with Severn Trent. To learn how the management of your facilities can benefit from a public-private partnership with Severn Trent, contact us today.

Ed Schwab
Client Relations
719 475-2258
eschwab@stes.com

Fred Kriess, Jr.
Senior Area Manager
623 572-9550
fkriess@stes.com
www.severntrentservices.com

Proud to Serve Arizona since 1983

LAB RESULTS IN 7 DAYS!

WITH FINAL REPORT AND EDD!

YOU ASK. LEGEND DELIVERS.

- 7-10 DAY Standard TAT
- 24/7 Free Online Data Access
- Open 365 Days A Year

Environmental Laboratory Services since 1959.

(602)-234-6100 – (520) 327-1234
Locations in Phoenix and Tucson

*7-10 day standard TAT time on most in-network analyses.
On June 25 2011, the hottest golf tournament in Arizona returned to the prestigious Troon North Golf Club in Scottsdale. This time, the Monument course provided 92 golfers with an exciting new challenge.

The Carollo team of Dave Sobeck, Lisa Synders, Robin Bain and John Saunders won the tournament with a score of 60. CAP’s foursome of Phill Cook, Gary Ijams, Tom Mccann and Brian Henning put together a fantastic round of 61 to take the 2nd place. The decision for the 3rd place team was very hard. Three teams were tied with a score of 62. The team from Sundt comprising of Thomas Maher, Jim Foster, Shawn Wemer and Ted Black took the 3rd place in a scorecard playoff.

The longest drive contest was won by Jessica Dresang (Malcolm Pirnie/ ARCADIS) and Dave Sobeck (Carollo). The closest to the pin contest winners were Brandon Cook (Splinter Creative), Norm LeBlanc (Splinter Creative) and Dave Petty (City of Scottsdale)

Dixon Golf, a valley based 100 % recycled golf ball manufacturing company, again supported the tournament by organizing the Par-3 challenge. The challenge was a huge success, with many golfers completing the challenge and winning a dozen golf balls.

Though there were many winners at the golf tournament, the real winner was Water For People and the people it helps in its program countries. We would like to thanks all our sponsors, golfers and door prize donors for making this possible! We hope that your support will continue to grow in years to come.

The adjoining page shows a few pictures from this memorable event. All the pictures from the golf tournament can be viewed and downloaded for free from http://picasaweb.google.com/AZWaterForPeople/15thAnnual AZWaterWaterForPeopleGolfTournament.

The AZ Water | Water For People committee would like give a special thanks to our volunteers who worked tirelessly before, during and after the tournament. Thank you!

Jared Carr  
Dave Christiana  
Sally Ceccarrelli-Wolf  
Anh Quach

Bhaskar Kolluri  
Brent Pennington  
Celeste Holm

Levi Dillon  
Heather Southworth  
Laura McCasland

For more info about the committee and our events visit our committee page at http://azwater.org/Committees/ WaterForPeople/pages/Default.aspx, or contact Venkat Radhakrishnan (Chair) – Venkat.radhakrishnan@arcadis-us.com or Brent Pennington (Vice-Chair) – brentdpennington@gmail.com.
15th Annual Water For People Golf Tournament Highlights
Another year and another adventure riding to ACE to support Water For People. This year’s event was lacking the usual group from the western part of the United States and I ended up as the only rider west of the Continental Divide. This allowed for a faster than normal trip across the south and I met my goal of getting to the Atlanta Airport to pick up Erin Wright from the Water For People staff for her first adventure on a motorcycle. It had been years since she had been on the back of a bike and after picking her up (and her 80lbs of luggage), we proceeded through afternoon rush hour traffic in Atlanta and headed north to meet up with eight other Water Buffalos in Chattanooga. Before we got there though, a torrential afternoon thunder storm hit just six miles from the hotel.

The next morning, we all headed to the infamous Tail of the Dragon at Deals Gap. This is a motorcyclist dream where you get to ride 318 curves in just 11 miles. We did this same route when ACE was in Atlanta but from the other direction. My novice rider was really enjoying herself and commented quite often how it was the experience of a lifetime. The rest of the day was trying to make up for lost time by riding the highway in to Virginia.

Saturday, our goal was to meet up with the other Water Buffalos in Harpers Ferry but the Blue Ridge Parkway was beckoning us to ride. A relatively slow 45 mph through the gentler curves and the peace and solitude of the parkway was a welcome respite from riding the interstates since leaving Tucson. After lunch at a quaint resort on the Parkway, it was again time to pick up the pace and so heading back to the interstate we did. However, Mother Nature had second thoughts of us having an enjoyable ride and before we could find a spot to be able to park all of our bikes, we were quite drenched.

That evening we all met in Harpers Ferry for dinner and the induction of the new Water Buffalos. Since our Grand Pooh-Bah (Harold Thomas) couldn’t be on the ride, we made a video of him to do the ceremony. I also had a pleasant surprise in that my brother rode down from New York to ride into Washington, D.C. with us the next day.

Our local host, Tom Kelly from Virginia laid out a nice 60 mile route for our group of 27 bikes to ride in to the Nation’s Capital. Fortunately, traffic on a Sunday morning was light and the group was able to stay together pretty well. We then proceeded to the AWWA Board of Directors meeting to be welcomed to ACE. Do in large part of the generosity of the sections in supporting our efforts (including the wonderful support AZ Water Association has provided for me to ride with the group), it was important to acknowledge the sections.

This year, with the support of all of our sponsors, we were able to raise over $40,000 for Water For People. Since we started this event back at San Antonio, we have raised over $350,000 and I would personally like to thank the numerous sponsors who have supported us on this worthwhile adventure. I would especially like to thank the Board of Directors of AZ Water Association for their generosity in their support of my involvement with Ride with Purpose and the Water Buffalos.

With ACE ’11 over with, we are now setting our sites on next year’s ACE to be held in Dallas, Texas. A friendly competition was made to next year’s incoming President, Charlie Anderson, that the Water Buffalos could raise more money for Water For People than the Texas Section could. We will have our work cut out for us as we all know that Texan’s don’t like to lose. But whatever the result, Water For People is the big winner.

If anyone is interested in participating in next year’s ride to Dallas, please contact me at mstratton@metrowater.com or go to the Ride with Purpose website at www.ridewithpurpose.com for more information.
Learn at your own pace. All you need is an internet connection.

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.

Choose from a number of fundamental and accelerated courses, ranging from 1 to 7 hours worth of content and recommended educational credit.

http://training.wef.org
In the beautiful sonoran desert just west of Phoenix, a thriving and vibrant Del Webb development has emerged. Named one of the best communities in the nation by Where to Retire magazine, Festival Ranch, with breathtaking views of the White Tank Mountains, is located about 25 miles west of downtown Phoenix just off of the Sun Valley Parkway.

From recreation centers to pools, clubs and classes, a championship golf course, and the unprecedented ASU Lifelong Learning Academy, this “oasis in the desert” offers everything under the sun. The Copper Canyon Golf Club is one of the Valley’s most scenic courses. The Indigo Grille is a popular spot for dining, holding events or sharing a glass of wine on the patio while gazing upon the White Tanks.

Rated as one of the fastest growing and safest communities in Arizona, the Festival Ranch community boasts of many recreational advantages. Residents can walk, bike, or hike around the neighborhood’s scenic foothills or the many luscious green park areas located on site. Kids enjoy pedestrian walking paths, a nearby community recreation campus, and a new district elementary school.

What makes this desert paradise possible is a small “out of the way” water reclamation facility (WRF) located about two miles west, nestled between lush cottonwoods and palo verde trees which line Wagner Wash on one side and the creosote bushes and saguaro cactus that dot the ruggedly beautiful sonoran landscape on the other.

The Festival Ranch WRF supplies A+ quality reuse water to the Festival Ranch community. This water is used to maintain and replenish the community’s many recreational lake areas along with the manicured and landscaped 18 hole golf course. Scott McCall, who oversees landscaping for Troon Golf at Festival Ranch states that without the water reclamation facility and the dedicated professionals who oversee operations at the plant, the lakes, parks, golf course along with everything else at Festival Ranch would soon become a distant memory, overtaken by desert cactus, coyotes, and creosote bushes.

The Festival Ranch WRF was conceived as part of the overall Del Webb development plan for Festival Ranch in 2003. Designed by Wilson & Company, an award winning Phoenix engineering firm, and constructed by Hunter Contracting Company in Chandler, AZ via Pulte Homes, the facility went on-line in 2006 with a design capacity of 1.0 MGD. Future expansion criteria allow for an ultimate phased expansion to 3.0 MGD. Although the rate of growth has slowed in recent years, steady home sales in the Festival Ranch community assure continued operation and eventual expansion of the Festival Ranch WRF.

Reclamation facility personnel take great pride of ownership in both the operation and upkeep of the facility. Of special note, since plant start-up in 2006, there have been no lost time accidents by the facility contract operator, Severn Trent Environmental Services. The facility has consistently received “Awards of Merit” by the AZ Water Association for outstanding safety. Annual Arizona Department of Health Services (AZHDS) and Arizona Department of Environmental Quality (ADEQ) inspections reflect outstanding operational records. For instance the annual AZHDS Operations and Maintenance inspection conducted on June 16, 2011 found no discrepancies. On June 21, 2011 an inspection was conducted by the ADEQ Biosolids Division and again, no discrepancies were noted.

The facility is a Sequence Batch Reactor design and both an Aquifer Protection Permit (APP) and an Arizona Pollutant Discharge Elimination System (AZPDES) permit give the facility effluent discharge flexibility between the Festival Ranch community and Wagner Wash which is situated on the east-southeast side of the plant near the facility perimeter.

When the facility discharges into the wash, the desert springs to life. Blue egrets and road runners share the water and during these times, the wash teems with birds, lizards, and many other assorted desert creatures. Rattles have been spotted near waters edge and coyotes share the cool water with open range cattle and an occasional, albeit rare, mule deer sneaking down from the White Tanks for a cool drink.

Cattle have been known to meander onto facility property with facility personnel using gentle persuasion to coax the large bovines back through the main gate and into open range country. Occasionally a scorpion is spotted scampering beneath a piece of equipment and recently one of the arthropods greeted operator Jesse Black at the door of the administrative building as he arrived at work.

Speaking for personnel at the Festival Ranch WRF, Plant Manager Mark Haines says that this is perhaps the most unique job in the world. Working in what is arguably the most inhospitable desert climate on the planet, operators work day in and day out with the satisfaction that reuse water is responsible for a thriving community oasis barely two miles distant. Plant operators also see the desert teeming with life in Wagner Wash and take great pride in the fact that in a small way, they are also responsible for this second desert oasis.

For Haines, this is a “one in a million job” and one for which he can truly say that job satisfaction comes naturally, in many shapes and sizes.
Think water. Think AWWA.

When it comes to water, no one has you covered like the American Water Works Association. From treatment to distribution to regulations to training, we’re the water community’s go-to source for information, education, and involvement. When you think water, think AWWA.

American Water Works Association
The Authoritative Resource on Safe Water*

ASA Analytics Welcomes Misco Tempe our New Arizona Representative

We Have the Analyzer for your application.

- ChemScan® online analyzers for the detection of nutrients, organics and halogens in water and wastewater
- AppliTek analyzers for VFA, alkalinity, rapid BOD, toxicity and parameters that require digestion and/or titration
- Cogent Environmental online analyzers for continuous monitoring of heavy metals

Contact Katie Flanagan, Dave Redman or Dennis Emrie to discuss your application or existing system.

Misco Tempe
1820 W. Drake Drive, Suite 105
Tempe, AZ 85283
480-940-5923
480-940-5935 FAX
The 2011 Hike-a-Thon will return to Phoenix South Mountain Park by popular demand. This event is one of Arizona’s top fundraising events for Water For People, a non-profit international humanitarian organization dedicated to enhancing water and sanitation resources in developing countries. All sponsors will be recognized on the official hike-a-thon t-shirts, trail maps, onsite signage, and the Kachina news.

SPONSORSHIP LEVELS

- **Gold Sponsor** ............................................................... $600**
- **Silver Sponsor** .............................................................. $400
- **Bronze Sponsor** ............................................................. $200
- **Additional Donation to Water For People** ........................ $__________
- **TOTAL AMOUNT ENCLOSED** ..................................... $__________

** Gold Sponsorship includes a FREE full team registration. Please submit a registration form with your sponsorship payment.

SPONSOR INFORMATION

Sponsor: ___________________________  Contact Name: ___________________________
Email: ___________________________  Phone Number: ___________________________

PAYMENT

- Postmark registration and payment BEFORE October 27, 2011 to guarantee recognition on event t-shirt and other materials.
- Make checks payable to AZ Water Association.

Please direct registrations, payments, and sponsorship questions to:

Anh Quach
Carollo Engineers
4600 East Washington Street, Suite 500
Phoenix, AZ 85034
aquach@carollo.com
602-474-4155

The Arizona Section of Water For People is Affiliated With AZ Water Association, a Non-Profit Professional Organization
The Hike-a-Thon will return by popular demand. This hike includes the Holbert Trail and the Judith Tunell Trail, which is accessible and stroller-friendly.

**Check-In Between 7am and 9am — Official Event Ends at Noon**

### REGISTRATION FEE

<table>
<thead>
<tr>
<th>T-Shirt Quantities</th>
<th>S</th>
<th>M</th>
<th>L</th>
<th>XL</th>
<th>XXL</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$25</td>
</tr>
<tr>
<td>Half Team (Up to 4 People)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$80</td>
</tr>
<tr>
<td>Full Team (Up to 8 People)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$128</td>
</tr>
<tr>
<td>Late Fee for Registration After October 27, 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$20</td>
</tr>
<tr>
<td>Additional Donation to Water For People</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>Total Amount Enclosed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$</td>
</tr>
</tbody>
</table>

### CONTACT INFORMATION

(Designate team captain to receive a registration confirmation and additional information.)

Name: ___________________________________________ Email: _______________________________________

Team Name: _____________________________________________________________________________________

### OPTIONAL TEAM CHALLENGE!

Over a billion people in the world today have inadequate potable water supplies readily available in their communities. Many of them must walk for miles in order to retrieve water, only to then haul it in containers uphill back to their communities for drinking, cooking, and washing.

To raise awareness to this worldwide epidemic, your team can participate in the Team Water Haul Challenge.

**How:**

1. Bring your own gallon-sized plastic jugs filled with water.
2. Use your team’s strength and ingenuity to get as many gallons of water to the summit as possible.
3. At the top, the judges will keep track of how many gallons each team carries.
4. Leave your gallons at the top (we’ll empty and recycle them). OR maximize your giving! Haul up sealed, store-bought water bottle and we will donate them to a local charity.

**Prizes:** Two winning teams (most gallons total and most gallons per team member) will receive an award and recognition in the AZ Water Association’s Kachina News!

Do you plan to participate? No additional cost! ☐ Check box

### PAYMENT

Postmark registration and payment BEFORE October 27, 2011 for lowest price! Make checks payable to AZ Water Association.

Please mail registration form and payment to:

Anh Quach, Carollo Engineers
4600 East Washington Street, Suite 500
Phoenix, AZ 85034

For more information, please visit our website (www.azwater.org) or contact Anh Quach (aquach@carollo.com).
Saturday, August 27, 2011 at the Omni Tucson National was a beautiful day for the eighth annual Water For People Southern Arizona Golf Classic. Many thanks to our participants, sponsors, and volunteers for making the event a success. Nearly 100 golfers participated in the tournament, which netted over $30,000 for Water For People.

As 884 million people lack access to safe drinking water, 2.6 billion lack adequate sanitation facilities, and nearly 6,000 people die daily from water-related illnesses, sustainable solutions are necessary to stem the global water crisis. Each year, Water For People helps hundreds of thousands of beneficiaries following and tracking its projects to verify that successes continue at 3, 6, and 10 years. our support helps make it all possible!

Pictured clockwise from top left: (1) volunteers regroup after a busy registration (2) 3rd Place Team of David Modeer, George Maseeh, Jeff Biggs and Mayor Robert Walkup (3) 2nd Place Team of John, Chris Hill, Jon Reilly and Frank Tantone (4) golfers line up for the shot gun start. Unfortunately, we missed a group shot of our 1st place team (Tommy Obermaier, Ernie Duarte, Fred Gray and Mike Hayes)

Tournament photos can be found at http://picasaweb.google.com/azwaterforpeople

Save the date for the next year's tournament, Saturday, August 25, 2012

For more information about the committee and our events, please visit our page at:
http://azwater.org/Committees/WaterForPeople/pages/Default.aspx
Southern Arizona Golf Classic 2011

GOLD SPONSORS

COPPER SPONSORS

SILVER SPONSORS

PLATINUM SPONSORS

GOLF SHIRT SPONSOR

BIFF X BAKER
FENCE COMPANY, INC.

Southern Arizona Golf Classic 2011

GOLD SPONSORS

SILVER SPONSORS

PLATINUM SPONSORS

GOLF SHIRT SPONSOR

BIFF X BAKER
FENCE COMPANY, INC.

Southern Arizona Golf Classic 2011

GOLD SPONSORS

COPPER SPONSORS

SILVER SPONSORS

PLATINUM SPONSORS

GOLF SHIRT SPONSOR

BIFF X BAKER
FENCE COMPANY, INC.

Southern Arizona Golf Classic 2011

GOLD SPONSORS

COPPER SPONSORS

SILVER SPONSORS

PLATINUM SPONSORS
TRIVIA ANSWERS

(from the Arizona Historian on page 32)

A. George Washington in 1777 (early in the Revolutionary War) considered West Point, a plateau on the west bank of the Hudson River, to be the most important strategic position in America. Continental soldiers then created a series of forts, batteries, etc. there – which together became Fortress West Point. It is the oldest continuously occupied military post in America. President Thomas Jefferson signed legislation in 1802 making West Point the US Military Academy.

B. The “weed whacker” was invented by George Ballas, Sr. of Houston, Texas. He got the idea while sitting at a car wash. He wondered whether the idea of spinning bristles (similar to those cleaning his car) could be applied to trimming grass/weeds. The Weed Eater company was then founded in 1971.

C. 18 May 1980. The eruption took 1300+ feet off the top of the volcano’s top. The incident cost the lives of 57 people and leveled 230 square miles of forest.

D. UNIVAC, the first commercially successful computer, was first publically introduced on 14 Jun 1951. The computer was 14.5 feet long, 7.5 feet wide and 8 feet high. The initial suggested retail purchase price was $600,000. UNIVAC; the acronym stood for “universal automatic computer”.

E. Four months. Washington’s Tacoma Narrows (Suspension) Bridge collapsed on 7 Nov 1940. It had become known as “Galloping Gertie” during its short life, due to the vertical ripple the bridge structure took on during a wind. It collapsed on 7 Nov 1940 while experiencing 42 mph winds. The only victim of the collapse was one dog.
M.E. Simpson Co., Inc.

“Water and Wastewater Operations and Maintenance Service Solutions”

For over 30 years our goal has been dedicated to developing and providing programs and services designed to maximize peak performance for our clients’ water distribution and wastewater collection systems. We provide our clients the highest quality Technical and Professional Services, with highly skilled and trained professionals using state-of-the-art technologies. With this as our mission, we provide our services to our clients knowing that the public has the implicit faith that "the water is always safe to drink".

The Goal is Crystal Clear

Industry Leaders Specializing in

- Water Loss Control Services
  - Water Audits
  - Large Meter, Evaluation, Testing and Repair
  - Leak Surveys/Leak Pinpointing

- Asset Management Services
  - Valve Assessment Programs
  - Fire Hydrant Assessment/Maintenance Programs
  - Fire Hydrant Flow/Water main Capacity Testing Programs

- Wastewater Services
  - Sewer Flow Monitoring
  - Manhole Inspection & Inventory
  - Smoke Testing

- Water Quality Services
  - Unidirectional Flushing Programs
  - Cross Connection Control Survey & Inventory
  - Backflow Management, Testing & Maintenance

salesinfo@mesimpson.com  
www.mesimpson.com

Phone: (800) 255-1521  
Fax: (888) 531-2444

Valparaiso, IN • Phoenix, AZ • San Francisco, CA • Dyer, IN • Indianapolis, IN • Waukegan, IL • Savage, MN • Baltimore, MD • Gwinnett County, GA • Baltimore, MD • Chicago, IL
Retrofit Traveling Bridge Sand Filters with *Aquadiamond*® Cloth Media Filters
for 2-3 times the flow capacity with an equivalent footprint.

*Aquadiamond*® Cloth Media Filters have much to offer in the way of design and performance compared to sand media filters.

- Utilize OptiFiber® pile cloth filtration media instead of sand media.
- Lower operation and maintenance costs.
- Higher solids loading per square foot of media.
- Reduced backwash water volume.
- Reuse quality effluent.
- Retrofit into existing concrete traveling bridge filters with minimum civil work, or install in new plants.

Visit [www.aqua-aerobic.com/library-filtration.asp](http://www.aqua-aerobic.com/library-filtration.asp) to view additional photos and to read *Aquadiamond*® Cloth Media Filter *Success Stories*.

Call 800.940.5808 for a quote, or visit [www.aqua-aerobic.com/aquadiamond.asp](http://www.aqua-aerobic.com/aquadiamond.asp) to submit a FREE online Design Request Form.