The Water for People Arizona Committee would like to thank the following 2016 - 5TH Annual Run for World Water Sponsors:

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recently heard a presentation from a speaker named Paul Tsika titled “Going the Distance”. I trust that this will help you in your work and personal life relationships.

As we think about going the distance, the word Perseverance comes to mind. There must be a sense of perseverance in your heart to accomplish anything of significance. Perseverance is a steadfast adherence to a course of action, belief or purpose. Walter Elliott said, Perseverance is not a long race, it is many short races one after another”.

To accomplish anything in your life you must start, and then persevere until you accomplish your desired goal. You must persevere in spite of your circumstances, not because of your circumstances.

It has been said that:

- the adventure of life is to learn
- the purpose of life is to grow
- the nature of life is to change
- the challenge of life is to overcome
- the essence of life is to care
- the opportunity of life is to serve
- the secret of life is to dream
- the spice of life is new friends
- the beauty of life is to give
- but the glory of life is to persevere

Happiness is a great word. In our culture many people are seeking happiness. The word happiness comes from a Greek word “happenstance” where we get our word circumstance.

Mr. Sika said that most people believe: “If their happenings happen to happen the way they want them to happen, then they can be happy; but if their happenings don’t happen to happen the way they want them to happen; then they are unhappy”. Most people are looking for all of their circumstances in life to be just right in order for them to be happy. But the fact is, that real peace and real joy and a real sense of destiny come from having a purpose or a dream and being a significant difference maker in your life and with those in your life.

Why is it that so many people that have so much seemed to be miserable? We all read about famous people that have enormous wealth and possessions, and yet they are unhappy people. Could it be that it’s because they have the “having, doing, and being” mixed up? These people spend their life trying to 1) have enough resources and things, 2) so they can do what they want to do, 3) so then they can be happy.

Unfortunately, most people get stuck on item #1, that is, they never have enough. We’ve all heard people that say, “When I get the car paid off, I will make a change”. Then when I get the car paid off, they say, “After I get the kids educated”. Then they will pursue their dream. Then one day they reached the end of their life and realize that they never did what they dreamed of doing.

A wise person said that we should invert this list. Instead of having, doing, and being, be who you are. Know yourself and know your purpose. By doing this you will realize what is truly important in life. We are defined by who we are, and should not be defined by what we have.

So Be, Do, and then you will Have.

Step #1: Stop making “Having” be the main thing in your life.
Step #2: Stop measuring your success by your bank account and your possessions.
Step #3: Get your priorities in order and follow your heart, guided by your values. Be who you are and focus on the things that are important to you.

Serving does not follow success, success follows serving. If you serve enough others, you will be successful. The more people you serve and add value to, the more success you will have in life. This will ensure that you will be known by WHO YOU ARE and not what you have. And, what you have will be results of WHO YOU ARE.

You must persevere to be successful. So persevere in spite of circumstances and in spite of others who may criticize you. Sometimes to be successful you must go against the general trends and norms of the organization. This will require you to become visible, rather than remain invisible. We all know that it is much safer to be invisible and go along with the crowd, than it is to become visible and stand up for your values.

Some words that are synonymous with invisible are:

- average
- mediocre
- normal
- complacent
- safe
- predictable

If you like these kinds of words associated with you then you will likely remain invisible all of your life. It is hard to fulfill the dreams of your life and remain invisible.
Some words that are synonymous with being visible and a person who lives on purpose, are:

- radical
- dangerous
- unpredictable
- risk taker
- abnormal

You can expect to be questioned and criticized when you change your life from living as an invisible person to living on purpose and being visible. Remember that people will criticize you for stepping out of the crowd and trying to accomplish great things. A dreamer’s failures will make more impact in this world than a non-dreamer’s successes.

To avoid criticism in your life, say nothing, do nothing, and be nothing. It is recommended that you do the following regarding criticism:

- if it’s untrue—disregard it
- if it’s unkind—refuse it
- if it’s true—learn from it
- if it’s true—grow from it

Whatever you believe in will be tested. Remember that this world is not a resting place, it is a testing place. When you become visible and step out, your dream and your purpose will be tested by others. Do not let others define your limits.

So we must be willing to pay the price others will not, to achieve your goals and dreams and start in the road to “SUCCESS and FUN” make the decision to become VISIBLE. I hope to hear from you, contact me at phendricks@cox.net if I can be of assistance to you.
Three Drinking Water Projects Addressing Arsenic

Between April and May, WIFA issued three loans totaling $711,931 to three small private water companies. All three projects are addressing arsenic as well as other system improvements.

- **Lake Verde Water Company**, a drinking water system in Camp Verde serving 68 households, obtained WIFA financing in the amount of $150,000. The loan will be used for critical infrastructure improvements, including installation of a centralized arsenic treatment system and a 30,000 gallon storage tank. After evaluating the Company’s financial situation and its ability to afford the loan, WIFA’s Board of Directors approved $100,000 in forgivable principal. This forgivable principal will allow the Company to make these vital infrastructure improvements for one-third the cost and lessen the economic impact to the residents of Lake Verde.

- **Truxton Canyon Water Company, Inc.**, a privately-owned water company just north of Kingman, serves approximately 950 residential and six commercial customers. Their WIFA loan of $350,950 will be used for critical infrastructure improvements including the installation of a centralized arsenic treatment system and a structure to house the treatment facility.

- **Tierra Buena Water Company, Inc.**, which serves 120 customers in an unincorporated community in Maricopa County, will use their $210,981 WIFA loan to rehabilitate a well to reduce arsenic levels below the standard. In addition to the well rehabilitation, the Company will install a metered interconnect with a neighboring water utility.

Drinking Water Project for the Town of Payson

WIFA issued an $11 million loan in March to the Town of Payson to augment water supplies and reduce reliance on groundwater pumping by bringing in a much-needed renewable surface water supply from the C.C. Cragin Reservoir. This multi-phase regional project, benefitting about 30,000 residents, is designed to ensure a source of high quality water for Payson and its neighboring communities. This is the fourth loan for the massive project, bringing the total borrowed from WIFA to $36.4 million with $6 million in forgivable principal. This latest loan will be used to finalize remaining design components, construct the lower section of the Raw Water Penstock Pipeline, purchase property from the U.S. Forest Service for the water treatment plant, begin construction of the water treatment plant and hydroelectric generator, construct Aquifer Storage and Recovery (ASR) Wells and install SCADA equipment. Payson will finish the remaining construction of this project over the next two years. One more WIFA loan is anticipated next year to complete the project.

For more information, please visit WIFA’s Media Releases webpage at www.azwifa.gov/media-releases.

Below is a summary of the projects that have been completed during the quarter, both loans and technical assistance projects. We hope you will enjoy reading about the successes and results of the funding that WIFA is providing to Arizona’s communities.

**Q1 Summary:**

7 projects completed (2 loans, 5 technical assistance projects)

- **$25,289,603**
  - **$25,181,320** in loans
  - **$108,283** in technical assistance funding
- 5 drinking water projects
  - 5 completed by small/rural communities (less than 10,000)
- 2 clean water (wastewater) projects

**Completed Loans**

- **Douglas, City of**
  - **Population:** 18,207
  - **WWTP Compliance and Facility Improvements**
  - **Loan Amount:** $25,000,000
  - **Project Results:** This loan funded design for the Bay Acres colonia wastewater collection system expansion and upgrade, as well as various improvements to Douglas’s WWTP, including influent sewer, preliminary fine screening, grit removal, disinfection and de-chlorination facilities, and solids management.
Granite Mountain Water Company  
Population: 308  
Well #5 Replacements & Tank #3 Addition  
Loan Amount: $181,320  
Project Results: The Company was struggling to keep up with the demand for water in the summer months and suffered from high nitrate levels. The Company identified an existing private well that met water quality standards. This loan allowed Granite Mountain to purchase the well and connect it to the distribution system. A 50,000 gallon storage tank was also installed to meet existing demand.

Completed Technical Assistance Projects

Mayer Domestic Water Improvement District  
Population: 1,517  
Production Well Aquifer Study, Energy Efficiency Analysis & SCADA Preliminary Design  
TA Amount: $34,816  
Project Results: The District is in a severe water shortage and applied for TA funds to prepare a new production well aquifer study, an energy efficiency analysis and a Supervisory Control and Data Acquisition (SCADA) planning and preliminary design. These projects address the system’s most immediate needs as well as consider long-term solutions, including an evaluation of areas where Mayer DWID could potentially develop a long term, sustainable groundwater supply sufficient to meet water demands of current and committed customers.

Patagonia, Town of  
Population: 913  
Drinking Water Aquifer Delineation  
TA Amount: $8,810  
Project Results: Patagonia’s water supply has been threatened by potential mining projects in its watershed and by ongoing drought conditions, with well levels dropping by nearly 20 feet in the past few years. The aquifer study provides the Town with a basis for making decisions about how best to continue to provide a reliable water supply for its residents.

Ponderosa Utility Corporation  
Population: 1,250  
Water Distribution System Study and Energy Evaluation  
TA Amount: $20,520  
Project Results: Ponderosa Utility Corporation completed an asset management based water distribution study to address undersized and rapidly deteriorating water mains, above grade assets and the energy efficiency of the pumping system. The report developed a prioritized replacement schedule that will address the most pressing needs of the system. Ponderosa Utility now knows where to allocate spending for improvements and upgrades to the system.

Villa Grande Domestic Water Improvement District  
Population: 330  
Nitrate Mitigation  
TA Amount: $15,877  
Project Results: Two of the District’s wells suffer from elevated levels of nitrates. The Nitrate Mitigation Study allowed the District to evaluate the remediation and treatment alternatives to estimate probable costs and make a recommendation on the most feasible solution.

Yuma, City of  
Population: 91,923  
Figueroa Ave Water Pollution Control Facility Feasibility Study  
TA Amount: $28,260  
Project Results: Yuma’s Figueroa wastewater treatment facility may be facing more stringent nutrient standards in the near future. This study provided alternatives for meeting these standards so that the City can plan and budget for needed improvements and/or upgrades. The City will be incorporating these improvements into its upcoming Capital Improvement Program.
DON’T LOSE YOUR VISION

Helen Keller was blind for much of her life. When once asked if losing a person’s eyesight was the worst thing that could happen, her response was profound. She replied “No it was not, what was worse was losing a person’s vision.”

What did she mean? Helen Keller had an amazing life and despite her disability, she overcame the challenges and accomplished far more than many who had their eyesight. She maintained her focus and utilized all of her sensory abilities to their fullest extent. She had “vision.”

Jonathan Swift said “Vision is the art of seeing things invisible.”

I would like to discuss the importance of vision as a key attribute of leadership, talk a bit about employee engagement and finally share some more lessons of leadership-based, real life experiences.

The Importance of Vision

First, here is a story (possibly true) as told by Dennis Waitley. A productivity expert was sent to a construction site in France during the middle ages to interview the workers. He approached the first worker and asked “What are you doing? The laborer snapped back “What are you – blind?” I’m cutting these impossible large stones with primitive tools and putting them together in the way that my boss tells me. I’m sweating in this oppressive heat, it’s back breaking work and it’s boring me to death.”

The expert quickly walked away and with trepidation, approached a second worker to ask the same question. This time the worker responded “Well, I’m shaping these boulders into nice blocks which are assembled according to the architect’s plans. It’s hard work and sometimes gets repetitive, but I earn a decent wage and it supports my family.”

A little more encouraged, the expert then saw a third worker and asked “Well, what are you doing? This time the worker looked up smiling and raised his arms to the sky. “Well can’t you see, I’m building a cathedral?”

Three people were asked the same question, but clearly answered with very different perspectives.

As leaders, I think it starts by maintaining our focus on the end result, or goal. One of the traps is getting mired down or sidetracked with disruptions that just don’t matter in achieving the goal. And, rather than keeping our focus and vision on the goal, we instead allow ourselves to become discouraged by obstacles and challenges that arise each and every day. At my daughter’s graduation ceremony, I heard the commencement speaker talk about obstacles and state that “They are there to defeat you, but only if you let them.” He went on to say that we have it within our power and ability to overcome every obstacle, if we focus on keeping the end goal in mind.

As you know from my past writings, I do enjoy playing golf and I find that there are many parallels between golf, life and leadership. When we talk about vision in golf, one of the secrets to executing a successful shot is to focus on the target. From personal experience, I know that when looking down the fairway, the biggest danger is to start thinking about water, bunkers, trees, or houses lined up on both sides of the fairway. If you start to see those things, your shot is pretty much doomed from the get go.

DON’T LOSE YOUR VISION
In the movie, “Happy Gilmore,” Happy (Adam Sandler) is having trouble making short putts. His coach tells him to “see the ball” and to imagine it going in the hole. In another great film, “The Legend of Bagger Vance,” Bagger (the caddy) tells his player to stay focused on the flag and keep his vision focused down the fairway. If you have ever watched the professional golfer, Jason Day, pay attention to his focus and eyes before he executes every shot. I heard Jack Nicklaus say that he never saw the trees at Oakmont, since he was always focused on the target for each golf shot.

It’s also about learning to let go of the past. The professional golfer, Dustin Johnson, suffered a heartbreaking loss in the 2015 US Open missing a short put on the last hole. He was asked about that shortly after the event and said that he had given it his best shot, but “It’s only golf.” A couple of days later, his father in law, Wayne Gretzky, went out to play a round of golf and didn’t want to bother Dustin so soon after the loss. Dustin joined the group on the 2nd hole and asked why he hadn’t been invited to play. He was already moving on!

So how do we apply these principles to leadership? First, understand that there will be challenges, distractions, interruptions and hindrances that occur every day. If we let them, they can sidetrack us quickly. If it’s not important to your goal, quickly set them aside, delegate these tasks to others and move on. Learn to let go of the past and like Dustin Johnson, move on while keeping focused on the future.

We deal with being constantly connected to the world with non-stop emails, text messages, social media, ever increasing computer power and capability and various mobile devices. Technology is here to stay and I would submit that this sometimes clouds our vision and prevents us from focusing on the bigger picture.

Sometimes, simpler is better as shown in this photo. See things for the way that you want them to be, not the way that they are.

Thinking more about the above story about the three middle age workers, if one of our employees were asked the question “What are you doing” while he/she was fixing a main break, sewer line, etc., how would they answer? Would they say that they are doing a nasty unpleasant job?

In our industry, no matter what job we have, we are all aligned with the same goal of protecting and preserving the environment, making clean and safe water and, as I had shared in a previous column, very much “Guardians of the World’s Water.” Would an employee instead answer the question by saying “I’m providing clean and safe water to ensure the health and wellbeing of my community” or something similar? As leaders and organizations, what is our vision and are we openly sharing it with our teams?

Employee Engagement

I’d now like to talk a bit about employee engagement and its importance to leaders and organizations. What actually is employee engagement?

In a few words, it means how much do we feel connected, part of and aligned with the direction of an organization. It’s not about having happy employees. Rather, it is the emotional commitment that an employee has to an organization and its goals. They aren’t working for a paycheck, or to be promoted, but rather to advance the goals of their teams and organizations. Organizations and companies are now routinely sending out surveys to measure how engaged their employees are with the business. Employee engagement now runs around 32 percent, which means that almost 70 percent of employees are disengaged from their organizations.

According to a recent Gallup survey, this lack of engagement is estimated to cost the US economy around $500 billion each year.

Organizations are focused on improving employee engagement and at times are making significant investments to drive and improve their engagement results. As leaders, there are some simple ways that we can have a big impact on morale and productivity.

And, none of these have any cost to an organization and are things we can do every day. Here are five things as shared by Gordon Tredgold, founder of the Leadership Principles:

- Keep your goals in front of you.
- Write down reminders.
- Use a pen and paper.
- Wake up each morning and think about your daily goals.
- Break apart and build goals based on daily, weekly, annual and longer range time periods.

continued on page 80
The AZ Water Association’s 89th Annual Conference & Exhibition continued the tradition of being the premier Water event in the state. This year our exhibitor space sold out in record time and attendance exceeded last year with over 1500 attendees. If you missed it, you missed a great time had by all, who came to learn, network, and be energized about their profession.

Our thanks and sincere appreciation goes out to Patty Kenney, Conference Chair, Mike Worlton, Conference Program Chair, and the numerous volunteers who helped make this year’s event such a remarkable success. The willingness of our volunteers to selflessly take responsibility to serve our water community speaks volumes to the dedication we all have to our water profession and Association.

We kicked off the conference this year with a welcome from Glendale Mayor, Jerry Weiss, AZ Water’s Executive Director, David Iwanski, and Board President, Tom Galeziewski. The focus of the Keynote was the Groundwater Management Act. Kathy Ferris gave us firsthand knowledge of the events that led up to the signing of the Groundwater Management Act and Michael Schiffer, a prominent writer and producer, described his journey in documenting this important historical water event. A luncheon audience of over 950 attendees were amazed and captivated by the documentary, which conveyed important historic water facts while telling a realistic story and incorporating lighthearted humor.

Throughout the three-day event attendees were able to choose from over 200 different sessions; something for everyone! The exhibit hall featured 180 manufacturers and vendors showcasing all of the latest in equipment, technology, and services for the water industry. In addition, our future generation of water professionals took the spotlight in the exhibit hall Wednesday evening during the Exhibit Hall Happy Hour with the Student Poster Competition organized by the Young Professionals and the winner announced during the BBQ that evening at the Saddle Ranch Chop House. The Young Professional Fresh Ideas and Future Cities Competitions traditions were continued as well as the second annual Job and Career Fair to introduce new professionals to the water industry.

A Post Conference Survey was sent to all attendees with a link to access the conference proceedings. If you have not already done so, please take a moment to complete this quick survey. Your responses will help us as we plan for next year’s conference.

Attendees were also emailed a link to review and download your professional development hours. If you have forgotten the link, here it is: http://www.azwater.org/?page=2016_Conference.

If you know someone who missed this year, invite them early and often to AZ Water’s 90th Annual Conference and Exhibition, May 3-5, 2017 at the Phoenix Convention Center. If you are interested in serving on the Annual Conference Program Committee please email Gretchen Baumgardner, Program Chair, at Gretchen.baumgardner@mesaaz.gov.
2016 Sponsors

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- Fuquay, Inc.
- Gate 5 Energy Partners
- Hach Company
- Jensen Precast
- SIEMENS
AZ WATER AWARDS

PROJECT AND INDIVIDUAL AWARDS

**Water System Project of the Year**
Dynamic Flor Set Point Program
Presented to EPCOR Water

**Wastewater Treatment Project of the Year**
Butler Water Reclamation Facility LEAPMBR Facility Upgrades
Presented to City of Peoria and J.R. Filanc Construction

**Kachina Award for Outstanding Service**
Paul Hendricks, Congratulations!

**Environmental Stewardship Award**
Bob Hollander, Congratulations!

**Engineer of the Year**
Fredrick Tack, Congratulations!

**Young Professional of the Year**
Gretchen Baumgardner, Congratulations!

**Construction Professional of the Year**
Larry Ayres, Congratulations!

**Technology Professional of the Year**
Phil Glass, Congratulations!
City of Peoria

**Electri cans of the Year**
Mark Kendall, Congratulations!
Liberty Utilities

**Laboratory Analyst of the Year**
Ivo Hrabovsky, Congratulations!
City of Scottsdale

**Operations Supervisor of the Year - Small System**
Tim Williams, Congratulations!
EPCOR Water

**Operations Supervisor of the Year - Large System**
James Taylor, Congratulations!
GHD

AZ WATER AWARDS

OPERATIONS & PLANT AWARDS

**Kachina Award for Outstanding Service**
Paul Hendricks, Congratulations!

**Environmental Stewardship Award**
Bob Hollander, Congratulations!

**Engineer of the Year**
Fredrick Tack, Congratulations!

**Young Professional of the Year**
Gretchen Baumgardner, Congratulations!

**Construction Professional of the Year**
Larry Ayres, Congratulations!

**Technology Professional of the Year**
Phil Glass, Congratulations!
City of Peoria

**Electrician of the Year**
Mark Kendall, Congratulations!
Liberty Utilities

**Laboratory Analyst of the Year**
Ivo Hrabovsky, Congratulations!
City of Scottsdale

**Operations Supervisor of the Year - Small System**
Tim Williams, Congratulations!
EPCOR Water

**Operations Supervisor of the Year - Large System**
James Taylor, Congratulations!
GHD
Operator of the Year - Small System
Jacob Rogers, Congratulations!
EPCOR Water

Operator of the Year - Large System
Ronald Musselman,
Congratulations!
City of Peoria,
Butler Water Reclamation Facility

Wastewater Collection System of the Year
City of Glendale

Plant of the Year - Small System
Bella Vista Water Company
EPCOR Water

Plant of the Year - Large System
Butler Water Reclamation Facility
City of Peoria

Meter Mania Competition
Individual Winner -
Karen Moore, EPCOR Water

Gimmicks and Gadgets
City of Yuma
Desert Dunes WRF Clamshell

Safety Awards

2016 Select Society of Sanitary Sludge Shovelers

Brandy Kelso (far left) assists the 2016 inductees: (L-R) Dave Rager - AWWA National Representative, Jenny Hartfelder - WEF National Representative, Eileen O’Neill - WEF Executive Director, Mike Ambroziak - Board Member, Mark Martinez - Past Board Member, and Bob Hollander - Vice President.
AWWA George Warren Fuller Award
Patty Kennedy, Congratulations!

George Warren Fuller Awards are presented annually by the American Water Works Association to the sections’ respective selected members for their distinguished service to the water supply field in commemoration of the sound engineering skill ... the brilliant diplomatic talent ... and the constructive leadership which characterized the life of George Warren Fuller.

AWWA Kenneth J. Miller Award
Jenny Lopez, Congratulations!

A person who has provided exemplary service to Water For People through project facilitation, fund raising, education and/or raising the awareness of Water for People and its work. AZ Water has been recognizing its most committed volunteers with the Kenneth J. Miller Founders’ Award since 2002.

AWWA Silver Drop and Life Member Award Recipients

Edward Blunden

AWWA Treasurer, Dave Rager receives Kachina from the AZ Water Association.

AWWA Life Members
Michael L. Kleminski
Michael A. Stanley
Frank J. Tantone
Unknown Recipient

Not in Attendance

WEF Arthur Sydney Bedell
Don Manthe, Congratulations!

Arthur Sydney Bedell Award is presented annually by the Water Environment Federation (WEF) to the sections’ respective selected member to acknowledge extraordinary personal service to a WEF Member Association.

WEF Life Members
Jeffrey Cowee
Fred Kriess
Gary Munn

WEF Vice President, Jenny Hartfelder addresses the conference audience.

Preconference Reception
AZ Water 2016 Scholarships Congratulations!

AZ Water awarded $10,500 in scholarships for the 2016 Scholarship Program to undergraduate and graduate students at Arizona colleges and universities pursuing studies related to water, wastewater, or environmental resources.

The AZ Water annual scholarship judging takes into consideration the experience and interest of the students as well as their academic status (graduate, undergraduate, etc.) and students were judged against their peers. This year’s Recipients are:

<table>
<thead>
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<th>Name</th>
<th>Program</th>
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<td>Heather Standl</td>
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<td>Warren Kadoya</td>
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<td>University of Arizona</td>
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<td>Marisol Luna Aguero</td>
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<td>Annika Andersen</td>
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<tr>
<td>Aaron Witt</td>
<td>BSE</td>
<td>Arizona State University</td>
<td>$ 250.00</td>
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2016 AZ WATER SCHOLARSHIP GOLF TOURNAMENT SPONSORS

Thank you on behalf of the AZ Water Association membership and the students that will benefit from your generous support.

Each year the AZ Water Association hosts the Scholarship Golf Tournament during annual conference week. The funds raised this year will be the primary source for the 2017 scholarship awards. Special thanks to Robin Bain, Dave Iwanski, and Mike Ambroziak for planning this year’s tournament.

$1000 HOLE SPONSORS

- American Flow Control
- Archer Western Construction
- Clear Creek Associates
- Goble Sampson
- HD Supply
- EPCOR
- Fry’s (plus water & energy bars)

$535 FOURSOME SPONSORS

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- APS
- Carollo
- CDM Smith
- CH2M Hill Construction Product Marketing (2x)
- Dibble Corp
- Entellus
- HDR, Inc.
- Kiewit (2x)
- McWane Ductile National Meter and Automation, Inc.
- PCL Construction Project Engineering Consultants
- Rust Automation and Controls
- Stantec
- Star Pipe Products
- Sunbelt Holdings
- VinyTech Pipe
- Westlands Resources

RAFFLE PRIZE AND CASH DONORS

- Brown & Caldwell (coffee mugs)
- Construction Product Marketing
- Coldwater Springs Golf Club
- David and Sherri Iwanski
- Engelman Berger Law Firm
- Policy Development Group
- Stantec
- UNCOMMON, U.S.A.

The AZ Water Association would also like to thank the Pendegrast Elementary School District for their art work near Hole #4. They were one of our video award winners at the Arizona Town Hall last November.
### Exhibitors

<table>
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<td><strong>Goble Sampson:</strong></td>
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<td>97-101, 116-120</td>
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The Young Professionals Committee would like to say

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Student Poster Contest

The Young Professionals Committee Congratulates The 2016 Conference Student Poster Contest Winners!

1st place – Akash Sadaria
2nd place – Chi H. Nyugen
3rd place – Erin Driver

Students presented their research in the form of a poster at the Annual AZ Water Conference and were judged by a special judging panel in attendance at The Manufacturer’s Social.

If you have questions about this contest or are interested in participating, please contact Nashita Naureen (NNaureen@Carollo.com) or Clayton Freed (Clayton.Freed@phoenix.gov)
Fresh Ideas Contest

The Young Professionals Committee Congratulates This Year’s Fresh Ideas Winner!

Anjali Mulchandani

Anjali’s presentation at this year’s AZ Water Annual Conference titled, “Recovery opportunities for metals and energy from sewage sludges”, won her the 2016 Fresh Ideas contest!

As this year’s winner she will attend the 2016 AWWA Annual Conference & Exposition (ACE) in Chicago and represent Arizona in the national Fresh Ideas Contest.

The Fresh Ideas Contest will return to Arizona in 2017!

One lucky Young Professional will receive a FREE trip to the 2017 AWWA Annual Conference & Exposition, ACE.

To participate, simply submit an abstract for the 2017 AZ Water Annual Conference and Indicate your Interest on the submittal form.

Young Professionals are characterized as having 10 or fewer years of experience.

If you have questions about this contest, please contact Nashita at Nnaureen@Carollo.com
ON AND OFF
THE ALTERNATE CYCLING PROCESS CAN BE A COST-EFFECTIVE WAY TO REACH NUTRIENT REMOVAL GOALS

One of the current concerns in the field of wastewater treatment is how to meet new effluent nitrogen limits in a cost-effective manner. The application of oxic and anoxic cycles in a wastewater treatment bioreactor is one effective way.

An on/off strategy applied to aeration makes it possible to maintain nitrification and denitrification in a single aeration reactor. Reducing the time of oxygenation to include anoxic periods, and the possible need to increase solids to provide a longer retention time for autotrophic bacteria, lead to high oxygen-transfer rates in the reactor.

Using high-purity oxygen (HPO) enables an oxygen transfer rate increase of up to five times greater than the air-based systems’ maximum. And using mechanical oxygen injection avoids the reduction of the alpha factor when higher solids concentrations must be maintained in the process, thus maintaining the highest efficiency. With HPO, the biological process becomes a compact and powerful solution for high-strength industrial wastewater treatment.

This strategy of operating with alternating cycles (AC) was tested at a full-scale industrial facility. The AC process has been optimized to obtain the required effluent limits at minimal operation costs.

An online sensor for NH₄-N and NO₃-N has been installed at the full-scale facility to monitor performance. Model-based simulation tools were used to design the required cyclic pattern and evaluate an automatic control loop that has also been applied in the real facility and successfully validated.

Truck-cleaning facility description
The full-scale water resource recovery facility (WRRF), which treats wastewater resulting from truck cleaning, consists of a membrane bioreactor (MBR) aerated with HPO. Oxygenation is carried out using a mechanically agitated contacting system called the In-Situ Oxygenation (i-SO™ aerator) developed by Praxair, Inc. (Danbury, Conn.). The plant treats 50 to 100 m³/d of flow intermittently in a 500-m³ volume reactor. Tubular ceramic membranes with 300 kD of membrane pore size are used for solids separation (see Figure 1). An equalization tank stores the effluent and feeds the MBR for about 10 hours on working days. Considering both the heterogeneous origins of the wastewater and the discontinuous feeding pattern, the biological model has a highly variable inflow.

![Figure 1. The biological reactor with the mechanical HPO injection aeration tank (left), equalization tank (center) and the membrane system (right).](image)

The wastewater characteristics depend on the number of trucks to be cleaned and the goods they transport. The facility will use an oxic/anoxic cycling strategy at intervals of 160 minutes on, 45 minutes off. Only the NH₄-N content of the effluent was tracked.

A remote monitoring tool, AqScan, recorded and displayed all the online measurements generated by the multiple probes (measuring dissolved oxygen [DO], pH, redox, NH₄-N, NO₃-N, temperature, and flow) and actuators. In addition, AqScan automatically estimates the oxygen uptake rate (OUR), oxygen transfer coefficient (Kₐ), and oxygen transfer efficiency.

A mathematical biological model-based simulator was developed using the WEST® modeling platform. The biological model is a modified ASM1 model extended to include inorganic particulate compounds and temperature variation prediction, which is crucial for industrial compact treatment solutions. The model would help aid design enhancements to the existing basic DO control scheme to incorporate other process variables such as NH₄-N and NO₃-N concentrations and the inflow rate.

Promising results
Figure 2 shows the influent characteristics and the reactor’s mixed liquor total and volatile suspended solids measured during the study. The results suggested reducing mixed liquor total suspended solids in the bioreactor to around 6000 mg/L.

The first 2 months were dedicated to trial runs at the plant to observe the immediate response of the process to a variation in critical process parameters. By the third month, the automatic control strategy designed was applied and was maintained until the end.
The effect of the cyclic operating strategy was clear. Online OUR estimations indicated that OUR is maintained at 120–140 g/m²•d throughout both the oxic and anoxic phases. The oxygen demand in the anoxic phase is ostensibly met by denitrification of nitrates.

Figure 3 shows the system’s response during the study period.

The table summarizes the different operational strategies applied to the full-scale plant.

The HPO-MBR process was retrofitted for nitrogen removal using the oxic/anoxic cycles in the same compact reactor, providing more efficient nitrogen removal and energy savings.

The final strategy (validated at the full-scale plant) is as follows:
1. If the inflow rate is higher than 0: 120 minutes anoxic, 60 minutes oxic
2. If the inflow rate is 0 (no feeding): 60 minutes anoxic, 90 minutes oxic
3. If the inflow rate changes from 0 to another value: Switch directly to anoxic operation
4. If the inflow rate changes from a value to 0: Switch directly to oxic operation

This study demonstrated that the AC process requires only minimal, if any, additional capital or infrastructural upgrades, making it a cost-effective solution to reach nutrient removal goals. The development of robust, calibrated biological process model and the development of control strategies for optimizing the AC process will enable more robust and cost-effective implementation of the treatment process at this facility.

<table>
<thead>
<tr>
<th>Period</th>
<th>Days</th>
<th>Goal</th>
<th>Oxic/anoxic cycle (min)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0–15</td>
<td>Reduce NH₄-N</td>
<td>120/60</td>
<td>Goal reached, but NO₃-N increased</td>
</tr>
<tr>
<td>2</td>
<td>15–35</td>
<td>Reduce NH₄-N and NO₃-N</td>
<td>90/60</td>
<td>Both NH₄-N and NO₃-N removed efficiently</td>
</tr>
<tr>
<td>3</td>
<td>35–60</td>
<td>Trials</td>
<td>Variable</td>
<td>Different observations prior to control strategy application</td>
</tr>
<tr>
<td>4</td>
<td>60–70</td>
<td>Reduce oxic periods</td>
<td>60/60 Increase DO level</td>
<td>No clear conclusions due to inflow variability. To be analyzed in pilot plant.</td>
</tr>
<tr>
<td>5</td>
<td>70–125</td>
<td>Improve efficiency, apply first automatic control loop</td>
<td>Feeding</td>
<td>Good performance in terms of effluent quality and oxygen consumption</td>
</tr>
<tr>
<td>6</td>
<td>125–150</td>
<td>Improve NH₄-N oxidation</td>
<td>Increase oxic cycles for no feeding periods</td>
<td>No improvement in NH₄-N</td>
</tr>
</tbody>
</table>

Mónica de Gracia is a process engineer at the Hernani, Spain, office of Praxair Inc. (Danbury, Conn.). Randall Marx is a development specialist and Rafael García is a global market development manager at the Burr Ridge, Ill., office of Praxair.
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☐ public owned municipal or special district, water, wastewater treatment system or plant processing < 1mgd
☐ administration and/or enforcement of government environment programs
☐ administration of public health programs
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☐ private or investor owned facility
☐ private industrial systems
☐ consultant
☐ contractor
☐ manufacturer (equipment or representative)
☐ distributor (equipment or representative)
OTHER ENTITIES
☐ educational institutions (all components)
☐ research laboratory
☐ other ________________________________

FIELD SERVED
☐ water supply only
☐ wastewater only
☐ both industries
☐ other ______________________________

ENVIRONMENTAL FOCUS
☐ wastewater
☐ water
☐ process water
☐ ground water
☐ solid waste
☐ storm water
☐ pollution prevention
☐ residual/biosolids management
☐ coastal, river, lake ecology/surface water
☐ toxic & hazardous materials
☐ public education / information
☐ instrumentation/automation controls
☐ other ______________________________

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☐ MANAGEMENT: division head, section head, manager, chief engineer, comptroller, etc.
☐ ENGINEERING/NON MANAGERIAL: civil engineer, mechanical engineer, environmental engineer, planning manager, field engineer, system designer
☐ SCIENTIFIC/NON MANAGERIAL: chemist, biologist, biophysicist, researcher, analyst, etc.
☐ PURCHASING: purchasing agent, procurement specialist, buyer
☐ OPERATIONS: foremen, operator, maintenance, crewman, service representative, etc.
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☐ STUDENT
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____Lab Practices
____Luncheon Programs - Phoenix
____Luncheon Program - Tucson
____Research
____Safety
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OUTREACH
____Tap Into Quality
____Utility Council
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SPECIALTIES
____Biosolids & Residuals
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& Sustainability
____Pretreatment
____Security/AZWARN
____Wastewater Collections
____Wastewater Treatment
____Water Distribution
____Water Resources
____Water Reuse
____Water Treatment

☐ I am interested in serving on the committee(s) indicated above.
☐ I would like to know more information about the committee(s) indicated above.
☐ I am looking for suggestions for a committee on which to serve. My skills are: ____________________________________________
______________________________________________________________________________

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leadership

continued from page 61

Show Your Enthusiasm
Have a passion and show enthusiasm for our work, goals and objectives and it will spread throughout your entire team. It is very much the yeast and essence of any successful organization and leadership. Show it both in words and actions. But, make it genuine as nothing can kill engagement more than it being fake or phony as employees will sense that quickly. At Severn Trent, one of our core value statements speaks much to passion by saying “We are fired up with enthusiasm for what we do.”

Smile More
There is no question that happy people are more productive. Focus on your smile and you will notice that people will smile back. It also reduces stress and just makes everyone feel better about things. I have to work especially hard on this based on a tendency to have somewhat of a natural frown.

Listen More
Listening to people shows respect and makes them feel that you truly care. We should spend 80% of time listening and only 20% talking. You show respect and trust and will no doubt learn something in the process of becoming a better listener.

Share More
Communicate, communicate, communicate, by sharing goals and your vision. The more you communicate, the more involved (and engaged) your teams will be. Share progress being made, employees like to hear about accomplishments and, what’s in it for them. It’s a powerful motivator.

Praise More
 We don’t do this enough. Focus on paying attention and praising, even though it may seem to be the smallest and most insignificant thing. Too often, praise only takes place for bigger things. What gets praised gets repeated and is a key to drive continuous improvement. It can truly make a big difference in a person’s day.

More Lessons of Leadership
Some of the lessons that I continue to learn are related to something that I had shared previously about what it takes to be a successful leader. That is the difference between leading a team and pushing them, which was the “old school” form of management/leadership. I have seen a number of situations where when the “going gets tough” so to speak, leaders revert into a very autocratic style and think that they must push teams relentlessly to deal with whatever challenge comes up. While I certainly understand the need for urgency and action (and as a friend of mine reminded me “sometimes people do need to be pushed”), I also believe that you can lead your people to victory, or push them into defeat. The worst thing that a leader can do is to start barking orders and try to run roughshod over people during times of crisis or when dealing with an emergency. Understand the challenges at hand and work with your team to get their support and to buy in on overcoming the challenge.

My daughter, Megan, recently graduated with a degree in occupational physical therapy. She wrote a slogan that was adopted by her class and became sort of a mission statement. Her words were “Keep Calm and COTA1 on.” It was similar to the message that the British adopted, “Keep Calm and Carry on,” in World War II when they were under attack. I would submit that as leaders, we need to work on maintaining a sense of composure no matter how difficult the challenge may be. Our behavior and how we conduct ourselves is critical to success. If we appear anxious or nervous, that will be passed on to our teams who then become equally stressed. That never leads to anything positive and is a sure prescription for failure. And, excess anxiety or stress can result in someone being hurt or injured.

Take care, have a great day and stay safe. Please feel free to contact me at fred.kriess@stservices.com if you have any lessons of leadership that you can share.

1COTA refers to “Certified Occupational Therapy Assistant”

PIPELINE ANSWERS
See questions on pages 36-37

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WATER TREATMENT GRADES 3 & 4

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