A Streamlined Approach to Project Execution

**INTRODUCTION**

Most major process controls projects require long time frames and large budgets. What if you have neither? When faced with a critical controls upgrade — and very little time or money, City of Dayton Division of Water Supply and Treatment (WS&T) turned to the skills and ingenuity of its own staff and also to its longstanding relationship with instrumentation and controls engineers at Tetra Tech, Inc. Together WS&T and Tetra Tech conceived a collaborative means for project execution, which has been dubbed ‘Accelerated Collaboration.’ This collaboration takes advantage of the individual strengths of both WS&T and Tetra Tech to design and execute a project on an accelerated schedule and at significant cost savings over conventional methods. This method was first used in rehabilitating/upgrading the basin control system at Ottawa Water Treatment Plant. Accelerated Collaboration proved so successful that it has become the preferred method for all of WS&T’s controls projects.

The initial collaboration was born of necessity. Ottawa Water Treatment Plant is a conventional lime softening plant utilizing four rectangular treatment basins. Primary and secondary sludge pumps remove the precipitant solids from the basins. The basin control system is designed to provide safe, coordinated operation of the sludge pumps, basin rakes, and flocculators. However, over the years, numerous modifications and seemingly minor component failures left the system vulnerable to catastrophic failure. In November 2011, that catastrophe occurred. An inadvertently closed valve led to a cascade of problems: the sludge pump failed, sludge built up in the basin, and the basin rake was severely damaged.

The City recognized the critical need to thoroughly rehab the basin control system, and to do so as quickly as practical under painfully tight budgetary constraints. The City did not have the staff to complete the work as an in-house project, and time and budget constraints did not permit a traditional Design-Bid or Design-Build approach. Instead, the City turned to Tetra Tech, Inc., who for many years has provided SCADA, instrumentation and control engineering services to WS&T.
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It is an honor and privilege to be your Chair of the Ohio Section. We had a very successful Annual AWWA conference in Toledo in September and it was truly a “GEM” of a conference in celebration of the 75th anniversary of the Ohio Section. My hats off to and many thanks to the LAC Chair Andrea Kroma, all the City of Toledo volunteers, MAC and Technical Program Committees, and Professional Services for all the hard work and countless hours put into this conference making it a success!

We have accomplished much over the past year, but there is always more to be done, and we need to be continuously looking to our future. What can the Ohio Section do to better serve our members and attract new members?

The Association has something to offer for everyone in the water industry from the water distribution tapper all the way up to the director of utilities, to the design engineer and sales representatives. We as a Section need to focus on the development of the next generation of water professionals. To accomplish this I would like for us to focus on Mentoring and Membership over the next year. With the aging membership (myself included) we hold the brain trust of the Association and are in the best position to help mentor the next generation of water professionals. Like a farmer planting seeds, nurturing his crops and weeding the furrows, we need to strive to develop the future water professionals. How can we do this? Get more and new people involved. Let’s go out and sell the benefits that we have experienced from being a member!

Our Section has a Young Professionals committee for our members under the age of 35. This age group is a minority and only accounts for 5% of our total membership. We have a great YP chair Sierra McCreary who is young and energetic, but she cannot do it all alone. YP needs our help as mentors and building our membership! I challenge each one of you, including myself, to search out just one person and get them to join AWWA and get involved. If you are utility member, I challenge you to go out and get a younger co-worker to attend some meetings and get involved. If each one of us can do this, it will be a huge success!

Listening to our members about trying to do more with less the Ohio Section has planned a Joint Conference with OWEA and is called the “One Water” conference in Columbus and is scheduled for the last week of August 2014. For all those with duel licensing, water and wastewater contact hours will be available in just one week. This all new to us and the Section will be working closely in unison with our wastewater brothers and sisters to make this joint meeting a success.

Another important goal of the Ohio Section this year will be looking at the Strategic Plan of the Section. The Association in Denver has issued a new AWWA Strategic Plan, so we will be reviewing this new plan for alignment to our current plan.

With the successful launch of our new website by Dan Barr and Shawn Wagner, I would also like to continue our push toward use of electronic media and getting more email announcements out about what is going on in our water industry and within the Ohio Section. This can include the latest updates on legislative activities, water quality challenges such as algal toxins and committee updates.

In closing, the AWWA glass is always full of fresh safe drinking water and is never half empty. I would like to propose a toast to Mentoring and Membership, planning a successful “One Water” Conference and to a glass always more than half full and a great year ahead! I look forward to working with all of our members and the great volunteers that make up the best Section in our Association!

Kurt Smith, Ohio Section Chair
Cliff Shrive Elected Director

Cliff Shrive was elected Director at the business luncheon on September 19th. Approaching 25-years in the Water Community, Cliff has worked on both sides of the fence. And more than one type of fence. After spending several years as a Research Assistant at the USEPA, he joined the Greater Cincinnati Water Works to perform applied research projects across the various treatment processes and chemical feed systems on the Ohio River WTP. This included the start-up and optimization of the largest granular activated carbon treatment systems in a water plant, and the associated reactivation units.

After nine years in the public sector, Cliff made the leap into the consulting world. His current tasks still include interacting within the Water Community, but now it is the “Big W” which includes wastewater and Stormwater along with drinking water. As a Senior Principal and Practice Leader of the Water Group, he works for many entities across Ohio, which gives a better sense of what is happening across multiple layers of government from the small utility to the large multi-divisional Water and Sewer Districts. To round off his daily activities he also oversees the general operations of the 80-person Cincinnati Office of Stantec Consulting.

A long-time active volunteer for AWWA, Cliff has participated on several AWWA Committees; both at the Association Level and for the Ohio Section. He is a past Chair of the AWWA Membership Committee and received the Ambassador Award and multiple Diamond Pin Awards for his long-standing recruitment efforts over the years.

Cliff shares his time with his wife Andrea, and two young children Milo and Cora. Always looking for volunteer opportunities, he takes part in their local Career Day presentations, hoping to capture the Water Operators and Engineers of our future. It’s never too early to plant that seed about Water. Or should that be drop…

Dan Barr Elected Vice Chair

Dan Barr was elected Vice Chair at the business meeting on September 19th. Dan Barr has been employed by Burgess and Niple, Inc., for the last 18 years in the firm’s Columbus office. He currently serves as a project manager, lead water distribution planner and modeler, and the utility specifications coordinator. He has completed projects across Ohio including Wellston, Jackson County, Elyria, Orrville, Hamilton, Columbus, Cincinnati, Westerville, Mt. Gilead, Burton, Catawba, Cambridge, Bucyrus, Marysville, Delaware County, Covington, Painesville, Indian Hills, Huber Heights, Erie County, Delaware, Heath, Upper Arlington, Oberlin, Pickerington, St. Clairsville, New London, Avon Lake, and many others.

Dan grew up in Westerville, Ohio. In 1995, Dan earned a Bachelor of Science in Civil Engineering from Case Western Reserve University in Cleveland, Ohio. He earned his Professional Engineer’s license in Ohio in 2000.

Dan has been involved with the Ohio Section AWWA since 2005. He is currently serving the last year of his term as an At-large Trustee on the Governing Board and has served on the Distribution Committee in the roles of vice-chair, chair, and past chair over the last eight years. He is also a member of the AWWA committees of Fire Protection, Distribution O&M, Air Valves, and Water Main Rehabilitation.

Dan has published four newsletter articles and presented at many AWWA, RCAP, Rural Water, and OWEA events throughout Ohio including all four districts.

Dan has been married to Amy for eighteen years and together they have four children, two African pygmy goats, one old barn cat, and hundreds of Purple Martins. The children are Kira, age 14, Erin, age 13, Corey, age 11, and Shannon, age 8. Outside of AWWA and Burgess and Niple, Dan keeps busy with watching his kids play softball and lacrosse, Scouting, church activities, and working on the house and two acres of yard in Delaware County.
Leslie Ostrozny Elected Southwest Trustee

Leslie Ostrozny was elected Southwest Trustee at the business luncheon. Leslie has 16 years of experience in the water and wastewater industry. She joined Greater Cincinnati Water Works in 2012 as a Senior Engineer working in the Engineering Construction/Inspection group, which manages the construction and inspection of the annual $31 million dollar capital replacement program.

Leslie graduated with a Bachelor of Science degree in Civil Engineering from the University of Cincinnati in 1997. She started her career in the water industry as a co-op at the U.S. EPA working in drinking water research. Following graduation she worked at the consulting firm Arcadis, where she designed many water and sewer projects. She started working for public water utilities in 2004, joining Montgomery County Environmental Services in the water capital improvement area.

Leslie has served in a variety of AWWA positions since becoming a member in 2001. She began as the Young Professionals Chair from 2002-2004. She served as a Southwest District officer from 2004 to 2009. She has also been a member of many different committees including Membership Committee, Water for People, and Local Arrangements.

Leslie was married to Jim Moening in July on a beach in Curacao. They spent their honeymoon scuba diving and snorkeling in Bonaire and Curacao. She enjoys traveling, scuba diving, running, home improvements, and volunteering for Girls on the Run.

Jason Adkins Elected At-Large Trustee

Jason Adkins was elected At-Large Trustee at the business luncheon. Jason Adkins has sixteen years of experience in the water industry. Jason began his public service career with the City of Mason Public Works Department in 1992. A few years later, he transferred to the Public Utilities Department serving in the water distribution/waste water collection division. In 2000, he began his career with the Village of Indian Hill as Distribution Foreman. In February 2010, Jason was promoted to Public Works/Water Works Superintendent with the Village of Indian Hill. He holds State of Ohio Class III Water and Class I Waste Water Collection licenses. He has also attended LEAD training and is certified by the Ohio Department of Commerce as a Backflow Tester. Jason has been a member of AWWA since 2000. He spent five years serving as a Southwest District officer and continues to assist with the annual Southwest District Expo.

Jason and his wife, Cindy, have been married for 20 years. They have four children whose ages range from four to seventeen. In their spare time they enjoy camping, attending sporting events, and relaxing at home.
Together, WS&T and Tetra Tech devised a project plan to leverage the knowledge, skill and availability of personnel from both organizations and to work in concert to deliver a system that met the schedule of the City.

Tetra Tech provided the engineering and WS&T provided the labor for the redesigned basin control system, which includes VFDs (Variable Frequency Drives) for each of the sludge pumps and flocculators, individual local control boxes and a redesigned central control panel/operator touchscreen, redundant pressure transmitters and pressure switches for each of the pumps, and a variety of additional safety devices, such as pulley motion switches for the rake drives.

Tetra Tech also provided PLC programming and developed new graphic displays and operator interfaces for the system-wide SCADA system. Documentation has been a collaborative effort; rough As-Built drawings were produced by WS&T, then reviewed and finalized by Tetra Tech.

The project was divided into two phases. Phase I addressed the immediate need to provide safe, automatic operation of the sludge pumps. Phase I was completed – from pre-design through commissioning - within five months. Phase II provides additional monitoring and control of the basin rake drives and flocculators. As with Phase I, the Phase II project schedule has matched the City’s needs. Unlike the urgency of Phase I, Phase II implementation requires coordination with other basin maintenance projects, as each basin is taken out of service in sequence for flocculator bearing replacement.

Neither the rapid implementation of Phase I nor the extended, highly constrained schedule of Phase II would have been possible with either of the traditional project execution models. However, WS&T and Tetra Tech’s new Accelerated Collaboration approach, which involved treatment plant staff at all stages from pre-design through construction, has resulted in a well-defined project with clear goals and seamless integration into plant operations.

TRADITIONAL PROJECT EXECUTION

Traditionally, capital improvement projects have been handled in two ways – using either the Design-Bid or the Design-Build model.

THE DESIGN-BID PROCESS

Design-Bid is the most common and proceeds in the following manner, as illustrated in Figure 1.

The Owner recognizes a need, such as a major facility upgrade or an expansion based on increasing service demand. The Owner writes a Request for Proposals (RFP), describing the technical aspects of the project to the best of his or her ability. This step often requires considerable research of current technology. Writing the details of the scope is the most stress-inducing aspect of the RFP process for the Owner, since it is the technical expertise of a consultant that the Owner is seeking in the first place.

The Owner then selects a consultant from among the proposals received. Consultant selection is based on such criteria as: consultant’s apparent understanding of the problem, experience in...
the specific technical area, and cost. Since cost tends to have a weighted priority in bid evaluation, it is especially critical that the RFP scope conveys sufficient and accurate technical information so that realistic cost proposals are received. After the Design Services contract is negotiated, the selected consultant begins the project investigation and design. The Consultant will seek input from the Owner’s management staff. Input from the Owner’s operations and maintenance staff may be minimal, however, due to schedule demands and difficulty in arranging the necessary interviews within the time allotted for this phase of the project.

The Construction Bidding Phase comes next, and usually consumes several weeks filled with site visits, responding to bidder questions, and issuing addenda; followed by bid review and contract award. Construction can then finally start, and becomes a give-and-take process primarily between the Contractor and the Consultant – issuing and responding to requests for clarification of specifications, tracking work and material quantities, and other aspects of project management. The Contractor will create rough as-built documents as the work progresses, and the Consultant will turn these into final drawings to be turned over to the Owner.

Upon construction completion, the project is turned over to the Owner as a finished product. This will likely be the first opportunity for the Owner’s operations and maintenance staff to become familiar with the new facilities.

THE DESIGN-BUILD PROCESS

The second model, Design-Build, shown in Figure 2, was an attempt to streamline the process, reducing the amount of time between need recognition and completed installation.

In Design–Build, the process begins much the same as in Design–Bid. However, in writing the RFP, the Owner typically must put much greater effort into thoroughly describing the problem and the desired outcome. This is because the entity to be hired will be both the designer and the contractor, and there will be no subsequent opportunity for the Owner to formally describe the project – as would be the case when releasing the construction project for bid in the Design–Bid model. The first area of time savings realized in the Design–Build model is this elimination of the construction phase bidding, and it can be significant – up to several weeks. The Consultant either directly provides the construction labor, equipment and materials, or subcontracts with a contractor (and perhaps more than one contractor).

The Construction Phase, in the Design-Build model, tends also to be streamlined, since the same contractual entity is responsible for both the creation of the design and its concrete realization. Thus the specification clarification and as-built processes are internal concerns. A subtle shift occurs, however, in the Owner – Consultant relationship. The Consultant, now a part of the Design-Build entity, will have less of an interest in viewing change order situations from the Owner’s viewpoint, and more of a financial stake in the construction aspect of the project, where the majority of project costs lie.

Just as in Design-Bid, the project completion date will likely be the first time that the Owner’s staff is introduced to the new equipment they will be expected to operate and maintain.
DRAWBACKS TO TRADITIONAL PROCESSES

Design-Bid and Design-Build are time proven and often ideal for specific projects. However, they do have inherent disadvantages. Design-Bid, from the Owner's perspective, is a slow process. From the time when a need is clearly recognized to the point when it is resolved with a completed construction project, two years or more – sometimes much more – can be consumed. If the need is based on failing equipment or a similarly dire circumstance, this length of time can be a test of the ability, not to mention the creativity and the morale, of plant staff. Design-Build shortens this period of time, but there can still be a considerable delay while the RFP is developed and the Design-Build consultant is hired.

A second inherent weakness is the difficulty in providing for timely communications between designer, installer, and owner staff. The tendency in both models is for the Owner to turn the project over to the Consultant and then have limited or infrequent involvement in the project development and installation.

A NEW MODEL: ACCELERATED COLLABORATION

The project team has developed a new model that addresses these issues. This model, illustrated in Figure 3, is specifically intended for projects that address immediate needs and require a deep level of buy-in by the Owner's operations and maintenance staff. This method has been informally termed ‘Accelerated Collaboration.’

In Accelerated Collaboration, the Owner makes use of existing relationships. Utilities often have long-term continuing contracts with service providers in various areas of expertise, such as SCADA technical support. Less specific as-needed engineering design and/or construction management services can also be acquired in a competitive manner, and often these can be set up as multi-year contracts. In this way, the Owner can establish a working partnership with subject matter experts who will have the ability to develop a professional familiarity with the Owner's facilities, staff, and mission.

When a need is identified that can be addressed by a consultant working under an As-Needed Services contract, the process of scoping and developing the project can begin immediately. Collaboration is a key ingredient from the start. The Owner's operations and maintenance staff are a part of the project team from the project inception.

Project definition and planning is the project's first collaborative phase. The Owner and Consultant together define the process and create a project scope, clearly describing process problems and desired outcomes. Together they create a written project plan reflecting the Owner's operating knowledge and the Consultant's technical expertise. The Owner is relieved of the stress of having to create an RFP that attempts to exhaustively describe something for an as-yet unknown engineer to design.

Once the project scope is in place, the Consultant takes the lead in design, with input at various stages from the Owner's staff. As in the Design-Build model, there will be the opportunity to begin construction while the design is proceeding. However, because our model is intended for projects not requiring specialized construction skills, construction and installation is performed
by the Owner's staff, assisted by the Consultant as necessary. In this way, a continuous, collaborative feedback loop exists between the design team and the construction team. Together, Owner and Consultant create the as-built and O&M documentation.

There is no project turn-over point in Accelerated Collaboration. The project is always under the Owner's immediate control, and the maintenance and operations staff are already thoroughly familiar with the new equipment they've helped design and install, even before the first switch is thrown. Meanwhile, the Consultant continues to be available for technical assistance, operational evaluation and adjustments.

LESSONS FROM ACCELERATED COLLABORATION

The Ottawa Water Treatment Plant contact basin controls project provided an important test case for this new means of project execution. Through both its successes and its mistakes, the team learned valuable lessons that can be applied to all collaborative projects.

TAKE TIME TO UNDERSTAND THE PROCESS

Despite the urgent schedule, the project began with a thorough examination of the contact basin and sludge pumping process. The team reviewed original design documents, studied the existing process, and met with treatment plant and WS&St staff to explore the following questions:

• How does the process work?
• How should it be controlled?
• Are there opportunities to improve it?
• What changes are foreseen in the future?

This exercise led not just to a detailed road map for the design and programming tasks, but also to insights about process enhancements and improved coordination between operators at the water treatment plant and at the adjacent Lime Reclamation Facility, which receives the lime sludge. As Ottawa Water Treatment Plant Supervisor James Blevins noted, “A lot of the planning was not so much making it work like it does right now. It was making it work, making it reliable, and giving us room to do future things that would improve all of the processes, not just the single one that we’re working on.”

THE PROJECT TEAM IS KEY

Project Team selection is a key component of the pre-design process in Accelerated Collaboration. Without the right personnel having the right skill set, a collaborative project will be stopped dead in its tracks.

Did the WS&St and Tetra Tech team have the people and the skills that the project needed? The answer was yes, and the electricians were the key. For the Contact Basin project, the work traditionally done by an electrical contractor would fall to the WS&St electricians. Were they up to the task? James Blevins did not hesitate: “At Ottawa Treatment we try to tap into and take advantage of the various experience and talent of the employees that we have.

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My two electricians, in particular, are outstanding, both in construction and electronics, and they work well together.” Blevins added, “It’s a cost savings, when you can get this type of production from your own employees, versus having to hire a contractor.”

MAKE THE COMMITMENT

Before beginning the project, it was important for everyone involved to understand the amount of work involved, and for all stakeholders to make the necessary commitment, in terms of both time and attention.

James Blevins acknowledges, “It was a definite increase in workload. It’s a big project, but since we own the project, we are the contractor. We own the schedule, and we can adjust as necessary to accommodate other areas of the system. All of these things are simplified because we’re not trying to make those adjustments based on a contractor’s schedule – the schedule is our own. That’s very helpful.”

The electricians bore the brunt of the increased stress. But, says Construction Electrician Mark Hartke, “It’s a good kind of stress. The thing about any job is the ability to work with others. The other people make the job fun.”

STRETCH YOUR COMFORT ZONE

Given the quality of personnel at both WS&T and Tetra Tech, it was easy to assemble a skilled, committed team. Now they needed to learn to work together in a whole new way.

“Most electricians like to have a print handed to them, and, ‘this is where the wire goes, these are the connections you need to make,’” observes Blevins. “It was a little bit of a challenge to coax their ideas out of them, and get them involved in actually designing. Once we got past that hesitation, then the ideas really started to flow, and we started the back and forth. Some things that they didn’t like, some they did like – we hashed it out before we ever actually began the installation.”
Hartke enjoyed “getting other ideas and bouncing off information off the other people. That’s really cool because you don’t have that in the trade. You know, the boss tells you to put this conduit in, and it goes from here to there – and that’s it. But this is a whole different way of accomplishing the same task. You feel more part of it.”

Hartke’s and the other electricians’ input had a significant impact on the design. “Our design was adding control only” said Corey Lamb, Tetra Tech engineer, “but those guys (the electricians), thinking ahead, thought ‘it’s a mess, all of it, all the power and existing control wiring, so let’s just replace all of it.’ They did the whole conduit and power design themselves, which made it go well because that was theirs.”

COMMUNICATION

When the project began, WS&T management and Tetra Tech set up a few ground rules for Accelerated Collaboration: Everyone knows what’s going on. Everyone knows why it’s going on. And everyone knows their role in the project.

These rules only work when there is frequent, open communication among the team. Tetra Tech held a series of design reviews for both Phase I and Phase II that involved not just WS&T management, but also operations and maintenance staff. Once construction began, everyone participated in weekly conference calls. In between the conference calls, when questions or concerns arose, electricians and operators were encouraged to talk to management or call a Tetra Tech engineer.

This communication benefited Tetra Tech as much as WS&T. Corey Lamb notes “It was very helpful to have them so involved, because they were our eyes. They could tell us what we have, what we needed.” Sang Nguyen, Tetra Tech Senior Engineer agrees. “It’s all about relationships. The more we build with the trades, the better the success is going to be.”

Hartke relished “the ability to communicate openly and to offer suggestions and to actually have somebody hear me and listen. It’s a new, positive way of doing things, because you’re not spending massive amounts of money and putting something in that is not what the customer wants.”
Blevins believes this leads to a better understanding of the system, “because of the collaboration - because we were able to have input at all phases. We won’t end up with a lot of questions or misconceptions at the end of the project. You know the old saying of, ‘Well, it looked good on paper.’

We’re avoiding that, because we’re seeing the paper, we’re seeing it installed, we’re seeing it go into operation, and we’re partners all the way through.”

The Bottom Line

It is difficult to make a generalized prediction of the relative cost of Accelerated Collaboration over either of the tradition project delivery methods. For the Contact Basin Controls project, the City estimates a savings of $300,000, or almost 60%. Most of the construction has been done during normal working hours, with overtime accounting for less than 20%. In addition, material costs have been spread over an extended period, under the existing O&M budget. CIP funding was not needed for this project.

Even more important, Accelerated Collaboration allowed the City the flexibility to execute the project to suit its schedule. The critical pump improvements in Phase I were operational within five months, significantly faster than possible under either Design-Bid or Design-Build. The Phase I automation has already paid for itself. Since its installation in April 2012, pump automation has prevented at least three rake failures, saving the City over $160,000 in repair costs.

Where Accelerated Collaboration led to rapid implementation of Phase I, it has also accommodated a slower, less predictable construction schedule for Phase II, which must be closely coordinated with other basin maintenance work. This could not have been possible under traditional project delivery methods without incurring large cost overruns.

In Conclusion

Granted, there are many times when the full force of a traditional project delivery method is the best fit for a project – when the required depth and breadth of expertise and equipment, and sheer number of boots on the ground, is beyond normal resources. However, when the elements for a successful Accelerated Collaboration are readily available, no other method will produce results that are as aptly suited to your facility.

What, in the end, is it all about? “Relationships”, says Sang Nguyen. “What we get away from in this process is that natural adversarial relationship between the folks that build it and the folks that conceived it. It takes an element of trust… but it also allows (the Owner) to participate in the process.”

This collegial sense of shared commitment is not always easy to achieve in our cost-driven world, which emphasizes lowest bid in both service and construction contract awards. But it can develop organically when consultants are hired based on qualifications and in the context of as-needed service contracts.

At the City, Accelerated Collaboration was so successful in the Basin Control Project that plant personnel enthusiastically embraced it for a new project – control console upgrades for the plant’s 16 rapid sand filters. This was in stark contrast to the wariness they felt when first introduced to the new approach. Effectively, the Basin Control Project has become the model for all controls-related projects at the City’s treatment plants. Plant electricians continue to develop their skills, and the City is providing training to add to their level of knowledge, such as in PLC programming and other SCADA-related topics.

Accelerated Collaboration is indeed about relationships – utility employees working with each other and with other industry professionals in projects outside their normal routine. In the process, they lose the sense of being just employees. They become a team, with enhanced understanding of the facilities they operate and maintain, and satisfaction in knowing they have a recognized role in making it better. The consulting engineers benefit greatly as well, increasing their on-site understanding of project challenges, and being able to work out design ideas synergistically with the team.
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<td><a href="mailto:swjacob@cityofelyria.org">swjacob@cityofelyria.org</a></td>
</tr>
<tr>
<td>MAC Representative</td>
<td>Ken Rogozinski</td>
<td>Basirus, Inc.</td>
<td>440-871-8394</td>
<td><a href="mailto:krogazinski@basirusinc.com">krogazinski@basirusinc.com</a></td>
</tr>
</tbody>
</table>

**Northwest District**

<table>
<thead>
<tr>
<th>District Chair</th>
<th>Todd Warwick</th>
<th>City of Dublin</th>
<th>614-410-4665</th>
<th><a href="mailto:tgarwick@dublin.oh.us">tgarwick@dublin.oh.us</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Vice Chair</td>
<td>John Lee II</td>
<td>City of Newark</td>
<td>740-349-6765</td>
<td><a href="mailto:JLee@newarkohio.net">JLee@newarkohio.net</a></td>
</tr>
<tr>
<td>2nd Vice Chair</td>
<td>Jeff Kaufman</td>
<td>Columbus Dept of Public Utilities</td>
<td>614-645-7691</td>
<td><a href="mailto:JSKaufmann@Columbus.gov">JSKaufmann@Columbus.gov</a></td>
</tr>
<tr>
<td>Past Chair</td>
<td>Richard Kroeger</td>
<td>OEPA - NWDDAGW</td>
<td>419-373-4101</td>
<td><a href="mailto:Richard.Kroeger@epa.state.oh.us">Richard.Kroeger@epa.state.oh.us</a></td>
</tr>
<tr>
<td>Secretary/Treasurer</td>
<td>Nancy Downs</td>
<td>City of Oregon</td>
<td>419-698-7119</td>
<td></td>
</tr>
<tr>
<td>Asst. Secretary/Treasurer</td>
<td>Russell Boes</td>
<td>Findlay Water Plant</td>
<td>419-424-7193</td>
<td><a href="mailto:rbboes@findlayohio.com">rbboes@findlayohio.com</a></td>
</tr>
<tr>
<td>MAC Representative</td>
<td>Scott Young</td>
<td>Hach Company</td>
<td>614-301-2796</td>
<td><a href="mailto:syoung@hach.com">syoung@hach.com</a></td>
</tr>
</tbody>
</table>

**Southeast District**

<table>
<thead>
<tr>
<th>District Chair</th>
<th>Andrew Frechling</th>
<th>American Structurepoint, Inc.</th>
<th>614-901-2235</th>
<th><a href="mailto:AFrechling@structurepoint.com">AFrechling@structurepoint.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Vice Chair</td>
<td>Brian Macy</td>
<td>Cincinnati Interim Water Dept</td>
<td>614-625-4163</td>
<td><a href="mailto:brianmacy.pe@gmail.com">brianmacy.pe@gmail.com</a></td>
</tr>
<tr>
<td>Past Chair</td>
<td>Beverly Engram</td>
<td>Metropolitan Sewer District of Cincinnati</td>
<td>513-597-7005</td>
<td><a href="mailto:Beverly.engram@cincinnati-oh.gov">Beverly.engram@cincinnati-oh.gov</a></td>
</tr>
<tr>
<td>Secretary/Treasurer</td>
<td>Scott Stevens</td>
<td>Ferguson Waterworks</td>
<td>513-312-0376</td>
<td><a href="mailto:scott.a.stevens@fci.com">scott.a.stevens@fci.com</a></td>
</tr>
<tr>
<td>MAC Representative</td>
<td>Chad Killen</td>
<td>Ferguson Waterworks</td>
<td>513-942-2523</td>
<td><a href="mailto:Chad.Killen@fergason.com">Chad.Killen@fergason.com</a></td>
</tr>
</tbody>
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**Southwest District**

<table>
<thead>
<tr>
<th>District Chair</th>
<th>Jay Ponder</th>
<th>Neptune Meter Co.</th>
<th>513-348-9488</th>
<th><a href="mailto:jgitsbyp@aol.com">jgitsbyp@aol.com</a></th>
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<tbody>
<tr>
<td>1st Vice Chair</td>
<td>Hazen and Sawyer</td>
<td>Metropolitan Sewer District of Cincinnati</td>
<td>513-469-2759</td>
<td><a href="mailto:njasoal@hazensawyer.com">njasoal@hazensawyer.com</a></td>
</tr>
<tr>
<td>2nd Vice Chair</td>
<td>Michele Diak</td>
<td>Montgomery County Environmental Services</td>
<td>937-781-2625</td>
<td><a href="mailto:DiakN@mcohio.org">DiakN@mcohio.org</a></td>
</tr>
<tr>
<td>Past Chair</td>
<td>Beverly Engram</td>
<td>Metropolitan Sewer District of Cincinnati</td>
<td>513-597-7005</td>
<td><a href="mailto:Beverly.engram@cincinnati-oh.gov">Beverly.engram@cincinnati-oh.gov</a></td>
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## Water Treatment Operations One-year Program

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
<th>Approved Contact Hrs</th>
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<td>Water/Wastewater Math and Chemistry*</td>
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<td>32</td>
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<td>Permits and Administration</td>
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<td>Water Treatment I</td>
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<td>64</td>
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<tr>
<td>Pumps, Maintenance and Safety</td>
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<td>Water Analysis</td>
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<tr>
<td>Water Distribution Systems</td>
<td>4</td>
<td>64</td>
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<tr>
<td>Water Certification Exam Prep*</td>
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<td>32</td>
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<tr>
<td>Technical Elective</td>
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</table>

**TOTAL:** 27

*Practiced final examinations may be required at Stark State College or another testing facility

* Eight-week traditional in-class courses

## Wastewater Treatment Operations One-year Program

<table>
<thead>
<tr>
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<td>Wastewater Treatment I</td>
<td>4</td>
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<td>Pumps, Maintenance and Safety</td>
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<tr>
<td>Wastewater Treatment Industrial</td>
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<th>Second Semester</th>
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<td>Wastewater Treatment II</td>
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<tr>
<td>Wastewater Analysis</td>
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<tr>
<td>Wastewater Collection Systems</td>
<td>4</td>
<td>64</td>
</tr>
<tr>
<td>Wastewater Certification Exam Prep*</td>
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</table>

**TOTAL:** 27

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Jerry W. Berg
Steven G. Buchberger
Joseph M. Capan
C. Alan Carter
Tony L. Deluke
David W. Dennis
Nicholas R. Dugan
Roderick J. Dunn
W. Peter Freeman
Robert W. Frutchey
Daniel P. Haehn
Stuart M. Hooper
Craig W. Juday

Patricia T. Klonicki
Stephen E. Koch
Ronald L. Lambert
Richard Lieberman
Karen M. Lisowski
James Michael Malick
Michael D. McNinch
Kristen M. Miller
Joseph A. Morley
R. Russell Neff
Mark A. Raffenberg
Melinda L. Raimann
George Brenton Reed

Mark J. Rininger
Jeffrey L. Roberts
James K. Schaffer
Harry L. Shaposka
Scott Sheppard
Timothy L. Stallard
Samuel M. Stowe
Lester Swetel
James G. Uber
Ronald D. Zabel
David L. Zemancik

20 Year Organization Awards

Celina Water Plant
Village of Adena BPA
Village of Gambier
Village of Paulding
West Liberty Water Department

Silver Water Drop Awards
(30 years of membership)

Marvin C. Gnagy, Jr.
Randy Gilbert
Daniel E. Moss

Donis L. Alpeter
Curtis L. Truss, Jr.
Everett S. Kirk III

Life Member Awards
(30 years of membership)

Stephen F. Davis

Gold Water Drop Awardees
(50 years of membership)

George Libertin
Tatlock Award Recipients
(Past district chairs)

Northwest - Richard Kroeger
Northeast - Sandy Vosar
Southwest - Beverly Engram
Southeast - Andrew Fruehling

Treasurer’s Citation

RaShawn Truss

RaShawn Truss was presented the Treasurer’s citation by Treasurer Robert Gardner and Past Treasurer Stephen Heimlich in recognition of his continuous support with above and beyond assistance in implementing the initiatives, realizing the goals, and executing the organizational duties of the Office of Section Treasurer.
Water... Our most precious gem!
**Fuller Award**

**Brian Bisson**

Brian Bisson received the Ohio Section AWWAs highest award for his distinguished service in the water supply field in commemoration of sound engineering skill, brilliant diplomatic talent, and constructive leadership of men and women in the association.

Brian is a professional engineer, registered in the states of Ohio and Pennsylvania. He holds both a Bachelor of Science and a Masters in Civil Engineering from Maine University. Brian held the title of Chief Engineer and has mentored numerous young engineers whose careers have advanced admirably as a result of his tutelage. One such engineering graduate stated that he was hired by our recipient straight out of college, reporting to him for the first 10 years of his career, and since their paths have parted he has attempted to model his engineering and management decisions after those of our Brian.

Brian’s membership and service to AWWA has paralleled his professional career, starting in his home state and continuing with the Ohio Section. He is a past Ohio Section Chair and Ohio Association Director. He has served on numerous committees at both the Section and Association level.

Brian serves on the Ohio Water/Wastewater Agency Response Network, better known as OH WARN, as the NE District Coordinator. His passion to serve others may best have been demonstrated through his commitment to Water for People as he served on the Ohio Section committee for several years. Brian spearheaded fundraisers that helped make the Ohio Section one of the top WFP contributing sections in the Association. One such fundraiser involved coordinating a fishing event at an angler’s paradise lake in northeast Ohio - Evans Lake - that had gone from a public lake to private, giving the avid fisherman in the area another opportunity to snag one of the big Crappies or wide mouth bass for which the lake was famous. The event sold out and Brian was the talk of the town for pulling this event off with such success. For all of his hard work, Brian received the coveted Water for People Kenneth J. Miller Founder’s Award.

---

**Richard F. Melick Award**

**Bill Simon**

Bill Simon was awarded the Richard F. Melick Award for distinguishing himself by giving unselfishly to the water profession training and technical education through AWWA and the Operator Training Committee of Ohio.

Bill grew up in Northeast Ohio and is a familiar face at AWWA Conferences and OTCO Workshops. Bill has filled many roles over his 22+ years in the Water Profession working as a laborer in water distribution, water operator, and currently a water supervisor. Bill always speaks to people in a positive view and always responds to the question of how he is doing as “I am living the dream.”

Bill has always held a deep regard for operator education, for both himself and others. Bill has encouraged his employees and other system’s employees to get operator training and OEPA certifications. He has often provided books and study materials to anyone who asked, and was always available for extra lessons or tutoring. Bill is currently an OTCO instructor for the Water Distribution Course for the past 12 + years and has helped co-teach the basic Water Course. Bill often holds OTCO review classes on his own time to help students. Bill has several flaws though: he is an obnoxious Pittsburgh Steelers fan, and teaches his students to use .785 instead of 3.14.

Bill has provided outstanding service to the water industry, particularly in the area of training and technical education, and his invaluable contributions through the Operator Training Committee of Ohio, Inc.
Operator Meritorious Service Award (Treatment)

Joe Flahiff

Joe Flahiff was honored with the Operator Meritorious Service Award for distinguishing himself by regular compliance with public health standards, exemplary plant maintenance, and development of new ideas, training, and outstanding achievement above and beyond his normal operating responsibilities.

Joe began working for the water industry nearly 32 years ago as a night operator at a small Northwest Ohio municipality and has steadily progressed serving now as a Class IV Production Manager. His passion for learning and sharing gained knowledge, always making time to talk one-on-one has been echoed by many of those who have had the privilege of working with him. Joe has served as a district Chair, Ohio Section Trustee at Large, currently serves as an OTCO instructor, and has presented at Ohio AWWA and OTCO workshops. A former mayor acknowledged that it was his priority to get Joe from union to management because he recognized such leadership potential and he had to take measures to avoid getting single handedly beat up by the analyzer during negotiations again!

Joe has recently overseen completion of a multi-million dollar upgrade to a treatment plant along Lake Erie, a project that though he inherited, he infused innovation, expertise and leadership. He was instrumental in winning the “Battle of Bunker Hill” whereby he managed the painting of the system’s first and primary storage facility while ensuring adequate hydraulics within a complex network.

When not helping his guys at two in the morning with a SCADA issue, offering love and wisdom to his two college-age kids or learning the ropes of operating within his new world of an investor owned utility, Joe can be found floating around his farm pond in beautiful Ashtabula County or harvesting fresh vegetables out of his garden.

Operator Meritorious Service Award (Distribution)

Tom Parsons

Tom Parsons was honored with the Water Distribution Operator Meritorious Service Award for continued compliance with all public health standards in the water distribution system, consistent and outstanding contribution to distribution maintenance thereby prolonging the useful life of equipment, and special efforts in training of distribution personnel.

Over 28 years ago while on active duty in the US Air Force within the civil engineering utilities department, Tom established a foundation of knowledge in water and wastewater operations. Four years of active military service was followed by 16 years of continued service in the Ohio Air National Guard. In 1989, Tom began civilian service to the water and wastewater industries, and has earned Class III licenses in both water and wastewater. Tom has assisted many over the years in their preparation for taking OEPA certification exams.

Tom has been involved with AWWA for many years, having served on both the Tapping Committee and the Public Outreach Committee. Involvement within the Southwest District included work as an assistant instructor at the Spring/Fall Study Sessions in the area of Water Distribution test preparation. At the State level, Tom has volunteered as an Judge at the annual Ohio Academy of Science State Science Fair, and the annual Tapping Contest.

In 2007, Tom accepted a promotion to a newly created position within the municipality, assuming responsibility for the day-to-day functions of the sewer collection, storm water collection and water distribution systems maintenance. Preventive maintenance projects were implemented, such as annual leak detection, annual valve exercising, and excess water usage monitoring which have saved the system significant water loss and reactive repair costs.

Tom’s service isn’t just defined by work-related involvement. There are stories of rescuing kittens found injured on the road, stopping by to alert a homeowner that his house was on fire, or just lending a helping hand to those encountered who were in need.
John Sadzewicz Award

Brian Bisson

Brian Bisson was awarded the John Sadzewicz Award of Excellence for his outstanding contributions to improving public health practices, encouraging the use of proven new technologies, promoting sound operational practices in meeting regulatory requirements, and encouraging safe, potable drinking water for the citizens of Ohio.

Brian graduated from the University of Maine and has established his roots in Ohio for over 20 years. Brian has spent many years planning, designing and constructing water pipelines, booster pump stations and water treatment plants, and has also been involved in the inspection and upkeep of dams and water storage tanks. The Water Management Association presented Brian with the R Livingston Ireland Award for dam management. Brian is a registered professional engineer in Ohio and a few other states and was referred to by a former colleague as “Wicked Good” and by co-workers as “B-squared.”

Brian fancies himself as a rather good tennis player – having played in high school and college. He once had a hole-in-one playing golf – at least that’s what we have been told. And although our recipient often teases his spouse that he has no heart – having had open-heart surgery at the age of four- he is known to have fallen head over heels in love with her at first glance.

Brian has been very involved with AWWA over the years – having served in various capacities on numerous committees. Brian is a founding member of the Technology Committee, originator of the Distribution Committee – and, has served as Chair of the NE District and Ohio Section, and as Ohio AWWAs Association Director.

John Lechner Award of Excellence

Jay Cemenaro

Jay Cemenaro was awarded the John Lechner Award of Excellence that recognizes a section Manufacturers/Associates Council member who has demonstrated exemplary service to the drinking water community and promotes Ohio AWWAs mission and goals.

Jay supports AWWAs efforts and participates in lending a hand when one is needed, and has demonstrated in a very short time his dedication to MACs efforts.

Jay was willing to come forward and accept the calling to participate in a very needed role with very little questions asked. He has gone so far as reading the MAC bylaws and adhering to them verbatim.

Jay is notorious for canvassing discount or second hand stores in search of that item which cannot be passed up regardless of whether or not he needs it, can use it, knows how to operate it, but gets a great deal in purchasing it. Jay is an extensive world traveler who is outgoing and always willing to lend a hand when needed. He comes to the Ohio Section by way of Pennsylvania where he resides with his wife Kylie, and has roots in Georgia where he graduated from Georgia Tech with a degree in Mechanical Engineering. Jay is a Sales Engineer with American Ductile Iron Pipe Company and is an avid sportsman, golfer, kayaker, skier and mountain biker.
Chair’s Award

Dan Barr and Shawn Wagner

Chair Lorrie Brown recognized At Large Trustee Dan Barr and SE District Trustee Shawn Wagner for their outstanding dedication and hard work in the development of the Ohio Section AWWA new website. These two members have been working at great lengths to bring together a project that will be utilized by all members and will continue to evolve and change with all of our input. Often times both of these individuals will be working and completing parts of the project on weekends and evenings so that the membership can enjoy and utilize the product.

Kenneth J Miller Award

Timothy McLelland

Timothy McLelland was awarded the Kenneth J. Miller Founders’ Award that was established in 2001 by the Board of Directors of Water For People to honor outstanding volunteer service to this international humanitarian effort. Water For People was conceived in response to the water, sanitation and health needs of millions of families living in the developing world.

Tim is a tireless advocate for source water protection, and spent several years in the Environmental industry cleaning up ground water before coming to the public sector. When he educates his community on their local water supply, he easily includes the water challenges faced by developing countries. He leaves his audience understanding the value of their local water system and the value of Water For People. In large part due to his work, his organization won the national exemplary wellhead protection award.

Tim is a member of AWWA and the National Ground Water Association. Tim has been one of the driving forces dedicated to the success of the Butler County Waterfest which is an annual event in southwest Ohio dedicated to educating regional school children about our water resources. Tim loves to talk. He has that true “gift of gab” and can easily strike up a conversation with anyone. Some have even said he should be a salesman.

Tim has been responsible for ensuring the start, growth and success of a 5K race which is not only a fund-raising event for Water for People, but also an educational opportunity for the community in Southwest Ohio. Tim is a champion for people in developing countries who lack access to safe drinking water, adequate sanitation and hygiene education.

Larry Valentine Membership Award

Sierra McCreary

Sierra McCreary was awarded the Larry Valentine Membership Recruitment Award for recruiting 10 new member this past year - 9 Young Professionals and 1 Individual membership. This is the second year in a row for Sierra to receive the award. Sierra moved to Ohio about 4 years ago from Pennsylvania. She is very active in the YP group of AWWA and currently works as an engineer for Black and Veatch.
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2013 Tapping Contest

The Ohio Section Conference brought men's and women's tapping teams from Cincinnati, Columbus, Lima, and Toledo. The winners of each contest won the opportunity to represent the Ohio Section in Boston at ACE in June of 2014.

The First Place Men’s Tapping Team was the City of Lima Team with a winning time of 1 minute, 28 seconds. Members are Cranker - Timothy Stidham, Feed - Ed Scarberrry, Copper- Andy Reaman and Coach -Larry Huber.

The Women’s Tapping Contest Champion was the City of Cincinnati with a time of 2 minutes, 36 seconds. Team members are Cranker - Zebra Primus, Feed - Lela Mustafa, Copper - Vanessa Pleasant and Coach - Lorraine Jordan.
2013 Top Ops Competition

Teams from the Northeast and Northwest Districts competed in the competition. The winner, who will represent the Ohio Section in Boston at ACE in June of 2014, is the Northeast District. Team consists of Alexandra Griffin, Kimberly Smith, and Brenda Duncan. Congratulations!!
2013 Meter Madness

Meter Madness took center stage this year at the Ohio Section AWWA Conference and when the dust settled, we had a new Champion. Paul Tucker of Lima Water has represented our section for the past two years but this year Doug Hardyman of Middletown Water edged out Paul by on 2.02 seconds. Doug had a time of 46.78 seconds for putting his meter together while Paul's best was 48.82. Coming in third and fourth were Sam Bodine of Lima Water and Matt Bollinger of Columbus Utilities.

Doug Hardyman will be our representative and the 2014 A.C.E Conference in Boston this coming June. Paul Tucker of Lima Water will be the alternate.

We encourage anyone interested in competing in the Ohio Section AWWA District Contest the will take place at the Southern Ohio Utility EXPO in April at Wilmington (SE and SW Districts) and at the Northern OH Water & Waste EXPO in April at Wooster (NE & NW Districts). The winner of each district competition will win the right to compete at next year’s Conference in Columbus, OH. These competitions are open to all MEN and WOMEN. If interested send in application form and contact Mike Gradoville at mgradoville@aymcdonald.com to request a practice meter.
2013 Best-of-the-Best Water Taste Test

Congratulations to the City of Hamilton, this year’s winner of the Ohio Section Water Taste Test. Hamilton had most recently been designated AWWA’s Top Five People’s Choice Taste Test during ACE (Denver) after securing the Ohio Section title. This recent win makes it three times for the City of Hamilton, along with a few awards from the Berkeley Springs International Water Tasting Competition. For more information about the City of Hamilton please see the article from the Journal News:


Participation has held steady over the past couple years, with thirteen municipalities participating in the 2013 Taste Test during the Section Conference in Toledo:

BARBERTON
MIDDLETOWN
COLUMBUS
ORRVILLE*
DAYTON

OXFORD
FAIRBORN
PAINESVILLE*
HAMILTON
TOLEDO

LAKE COUNTY EAST
WYOMING
LAKE COUNTY WEST

* first-time participant

The competition took place during the afternoon of September 18, as part of the Conference Exhibits. The winner was announced that afternoon, and recognized again during the Annual Business Lunch.

The water samples were tasted by judges Jeff Nash, visiting AWWA Vice President; Larry Valentine, past Section Director; and Gina Hayes, of the Ohio EPA. Cliff Shrive, chair of the Public Affairs Committee was the coordinator for the Taste Test and assisted the judges.

By securing the title of “2013 Best-of-the-Best” for the Ohio Section, the City of Hamilton will have the opportunity to represent the Ohio Section during the ACE Water Taste Test in Boston, Massachusetts this summer in June.

The Public Affairs Committee encourages this past year’s utilities to participate again in Columbus, during the 2014 One Water Conference. We’d also like to see the other utilities which participated previously come back, plus have at least five new participants. We just might have over twenty next year!!

Congratulations to the City of Hamilton, and good luck in Boston this summer!
2013 Best Paper/Presentation Awards

BEST PRESENTATION AT THE
ANNUAL CONFERENCE
2012 Annual Conference
Title: Hydrofracking Basics: Fact vs. Fiction
Author: Dr. Jeffrey C. Dick, Youngstown State University.
Dr. Dick is a Professor of Geology and Chair of the Department of Geological and Environmental Sciences and Director of the Natural Gas and Water Resources Institute at Youngstown State University. He received his Ph.D. degree in Applied Geology from Kent State University in 1992. Dr. Dick is an expert on eastern Ohio hydrogeology and Appalachian Region oil and gas exploration and production. His knowledge and understanding of water supply and contamination issues is based on more than 20 years of research and investigations. Dr. Dick’s oil and gas industry experience includes five years as a Gulf of Mexico petroleum geologist with Chevron USA and ten years as Director of Locust Energy Inc., an Ohio-based oil and gas investment company.

BEST PRESENTATION

Safe Drinking Water Act Conference, November 2012
Title: Greater Cincinnati Water Works UV Facility Construction
Authors: Ramesh Kashinkunti, Jim Springer, Maureen Richard of GCWW. Ramesh has over 28 years of experience in water and wastewater process engineering, regulations, and management, and is the process engineering manager for the Cincinnati UV project. He is a registered professional engineer in Ohio and has a Class IV water operator license. He has advanced degrees in Civil, Environmental, and Business Administration. Maureen has served as the Construction Project Manager for the Greater Cincinnati Water Works’ UV Disinfection Facility project since September 2010. She has

over 18 years of experience in the field of civil engineering design and construction for municipal planning, design and construction projects. Jim Springer is a registered professional engineer in Ohio and holds a Class III water supply operator’s license. He works with the treatment process at the Greater Cincinnati Water Works and is responsible for treatment chemical procurement.

BEST PAPER

Spring 2013 Newsletter
Title: City of Alliance Solving Taste and Odor Problem
Author: Terry Keep of Trojan UV, Said Abou Abdallah of ARCADIS & Dr. Dean Reynolds, Superintendent of the City of Alliance. Mr. Abou Abdallah has received his BSCE from the University of Akron. Said is a professional engineer in Ohio and an Associate Vice President at ARCADIS. He has been involved in all aspects of public utility engineering on complex water and wastewater projects including, project management, water resource planning and engineering for many Ohio communities. His experience also encompasses managing major infrastructure projects, development of sewer and water master plans and stormwater management. Terry has a Bachelor of Science degree in Environmental Biology from the University of Western Ontario and has been with Trojan for the past 6 years where he was in Municipal Drinking Water Business Development for 2 years and for the last 4 years as a Sales Manager for the Environmental Contaminant Treatment group (ECT). This group’s focus is the treatment of drinking water for microorganisms, PPCPs and chemical contaminants using UV and UV-oxidation. Dr. Dean Reynolds is the Superintendent of Alliance Department of Water Treatment in Ohio and holds a Certified Water Supply Class III Operator license. He was
formerly the Director of Water Production for Marshalltown Water Works in Marshalltown, Iowa and also holds an Iowa Certified Water Treatment Plant Grade IV Operator, as well as a Professor for the University of Minnesota, Department of Plant Pathology in St. Paul, Minnesota.

BEST PRESENTATION BENEFITTING SMALL SYSTEMS

OTCO Procrastinator’s Workshop, December 2012
Title: Preventative Maintenance  
Author: Tim Ballard, Circle B Services. Tim Ballard is owner of Circle B Services New Lebanon Ohio. Tim has over 35 years of maintenance and operations of water and wastewater facilities. Tim stresses in his training programs that regardless the size of your system a comprehensive maintenance program is possible by all operators.

BEST PRESENTATION BY AN OPERATOR
OTCO Water Workshop, March 2013
Title: Changes to the Lead & Copper Rule 
Authors: Maggie Rodgers, Cleveland Water. Maggie serves as the Water Quality Manager for Cleveland Water, a position that she has held for the past 14 years. She has worked for Cleveland Water for 19 years, previously holding positions in the Engineering and Risk Management groups. She has a BS in Fluid and Thermal Sciences Engineering from Case Western Reserve University. She is also a member of the AWWA Technical Advisory Workgroup for the Lead and Copper Rule.

BEST PRESENTATION AT A DISTRICT MEETING

Southwest District OAWWA Meeting
Title: Apparent Water Loss & Right Meter Sizing 
Author: Kim Swinford of the Ohio Rural Water Association. Kim Swinford is an Account Manager in the Central Region for Badger Meter, Inc. (BMI). Badger Meter has employed Kim since November 1, 2010. Kim Swinford has 15 years of experience working within the water industry on both potable and wastewater projects. Experience includes project engineering, project management and sales management. Currently Kim is responsible for both direct sales and distributor sales within 4 states. Kim has had many successful years of sales and project management for manufacturer’s representatives and distributors within the water market.

Student Paper Competition

The Ohio Section YPs continued to be very active at the State Conference in Toledo. For the thirteenth year, we have sponsored a Student Paper Competition, for which we received nine submissions from the University of Cincinnati, The Ohio State University, and the University of Toledo. This year three top winners were chosen based on abstracts submitted, were invited to present their papers at the conference, and were given $300, $200, and $100 awards, respectively. Six students competed in our Student Poster Competition that awarded $100 to the top winner.

continued on page 40
FIRST PLACE -
MR. VIKRAM KAPOOR

“Engineering Bacterial Efflux Pumps for Solar-Powered Bioremediation of Surface Waters.” Vikram was our Fresh Ideas Winner. Fresh Ideas is a program that the Association Young Professionals Committee and the Association MAC Committee started. Each section selects a student paper winner to send to the ACE to compete in a student paper poster. To help fund the student’s travel, the YP Committee will donate $700 to the Fresh Ideas Winner. An additional $100 was raised as part of the fundraiser held at the YP exhibit booth. Mr. Vikram Kapoor is a research and teaching assistant at the University of Cincinnati, Department of Environmental Engineering. He is currently studying for his Ph.D. in Environmental Engineering and has earned his B.S. in biotechnology from India. Mr. Kapoor's research interests include water quality, bioremediation, microbial source tracking and environmental biotechnology.

SECOND PLACE -
MR. CHANGSEOK HAN

“Visible light-activated Ag-modified, monodisperse TiO2 particles for water treatment.” Mr. Changseok Han is a Ph.D. student in the Environmental Engineering and Science program at the University of Cincinnati. He has a B.S. degree in Civil and Environmental Engineering and an M.S. degree in Environmental Engineering from the Yeungnam University in South Korea. His research interests are in the fields of water treatment using advanced oxidation processes and nanotechnologies based on environmental chemistry and catalysis. In addition, he is interested in development of water monitoring sensors based on nanotechnology. Currently he is developing controllable size monodisperse nanomaterials. He is the author or co-author of six peer-reviewed journal articles in journals including Chemical Communications, Applied Catalysis B: Environmental and Journal of Materials Chemistry.

THIRD PLACE -
MR. ZONGSU WEI

“Mapping of a Novel Ultrasonic Horn for Scaled-up Advanced Oxidation Process Using Physical and Chemical Probes.” Mr. Zongsu Wei is a graduate research associate at The Ohio State University, Department of Civil, Environmental, and Geodetic Engineering. He is currently a Ph.D. candidate in Environmental Engineering and has earned his B.S. in Environmental Engineering from the University of Science and Technology Beijing, China, and M.S. in Civil Engineering from the University of Toledo, OH. Mr. Wei’s research is focused on developing an in-situ technology for remediation of contaminated sediment using ultrasound and device design for the scaled-up application of ultrasound to clean-up processes.

POSTER COMPETITION WINNER:

Ms. Sunitha Asapu: “Novel Copper-Charged Anti-microbial Reverse Osmosis Membranes”. Ms. Sunitha Asapu is a research and teaching assistant at the University of Toledo, Department of Chemical and Environmental Engineering. She is currently studying for her Ph.D. and has earned her B.S. from India and M.S. in Chemical Engineering from Lamar University. Ms. Asapu’s research is emphasized on developing new membranes and modifying the industrial membranes to prevent biofouling to improve the performance of membranes for desalination by making the membranes surfaces antimicrobial. She hopes to work as a process engineer or an R&D specialist in industries related to membrane separations or the water treatment industry upon completion of her Ph.D.

Thank you to Gina Hayes from the Ohio EPA for organizing the competition this year, and to our judges for both the student poster and paper competitions. Congratulations to all of our winners!
Governing Board Candidates Sought

- DO YOU WANT TO EXPAND YOUR VOLUNTEER EFFORTS WITHIN THE OHIO SECTION?
- DO YOU LIKE TO TAKE ON NEW CHALLENGES?
- ARE YOU INTERESTED IN GROWING YOUR INDUSTRY NETWORK?
- DO YOU HAVE NEW IDEAS TO GROW MEMBERSHIP?
- DO YOU HAVE NEW IDEAS TO EXPAND SERVICES?

If you answered yes to any of these questions, you might be interested in serving on the Ohio Section Governing Board. The Nomination Committee is seeking qualified candidates for consideration for the 2014-2015 board including: Vice Chair, Northwest District Trustee, and At-Large Trustee. These positions will be elected during the Annual Conference Business Luncheon in Columbus at the One Water conference in August 2014.

All Governing Board members help to guide our organization by participation in board meetings; acting as liaisons or members of Section committees; and participation in policy, program and budget development and implementation. The successful candidates can expect to undertake interesting projects, develop new skills, and build friendships with water industry professionals from across the state of Ohio and beyond.

With the exception of the Vice Chair, all positions are for a three year term and open to active members of the Ohio Section. The Vice Chair position is a one year term with automatic succession to the Chair position and then to the Past Chair position. Applicants for Vice Chair must have served at least three years on the Governing Board.

The Northwest Trustee position must be filled by a candidate from the Northwest district. See the website at http://www.oawwa.org/index.php/districts for boundaries of each district to help identify which district you are part of.

Because the work of the Governing Board does take time, the individual selected by the nomination committee must have full support of his/her employer. In addition to the time requirement, we also ask the employer to be prepared to absorb a significant portion of travel and lodging expenses related to Governing Board business.

Interested parties may submit a letter of consideration to him at: Burgess & Niple, Inc, 5085 Reed Road, Columbus, Ohio 43220 or via e-mail at dan.barr@burgessniple.com.

For further information, please contact Dan Barr, Nomination Committee Chair, at 614-633-5029.
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Cincinnati Builds Water Supply Redundancy Into A Vital On-Line Reservoir

Authors:
Jason Fleming, P.E., GCWW Principal Engineer
Leslie Ostrozny, P.E., GCWW Senior Engineer
Paul Tomes, P.E., RA Consultants LLC Chief Engineer

PROJECT BACKGROUND

The Greater Cincinnati Water Works (GCWW) Eden Park Reservoir (EPR) is located just east of downtown Cincinnati in the hilltop community of Mt. Adams. The reservoir has been serving the Cincinnati community since the 1860’s when it was constructed as a 100 million gallon two-compartment, open-basin, finished water storage facility. In the 1960’s the reservoir changed in appearance, but not in function, when it was rebuilt as an enclosed, two-compartment reinforced concrete structure with a capacity of 80 million gallons (MG). The modern reservoir is fed by a combination 46-inch/48-inch cast iron water main that connects to a 60-inch transmission main in Riverside Drive (formerly Eastern Avenue) via a 60-inch spur crossing Columbia Parkway, a main thoroughfare into downtown Cincinnati. The EPR serves GCWW’s Central Service gradient, which include downtown Cincinnati.

In 2000 GCWW entered into a contract with the Boone-Florence Water Commission (BFWC) of Northern Kentucky for the purposes of providing up to 30 million gallons a day (MGD) of wholesale treated water to Boone County and the City of Florence. GCWW determined that the supply of water to BFWC would originate from the Richard Miller Water Treatment Plant (RMTP) and utilize the Central Service pressure gradient. Because the Eden Park Reservoir serves as on-line finished water storage for the Central Service gradient, it was an ideal facility to be a primary source of supply to the BFWC.

With the execution of the BFWC Water Service Contract, GCWW put in place several capital improvement projects that would ensure their ability to meet the full terms of the BFWC agreement. The capital improvement projects centered on rehabilitation and replacement along two transmission feeds to the Central Service district from the Main Pumping Station, and provisions for a redundant supply connection to EPR. The two Central Service transmission mains leave the Main Pumping Station and head west along Eastern Ave and Riverside Drive. Portions of a 1907, 60-inch cast iron water main were deemed to be serviceable and in good structural condition and underwent cleaning and cement mortar relining. Other portions of the 60-inch main that were aligned in Columbia Parkway and through a highly touted urban redevelopment area were replaced with new 60-inch pre-stressed concrete cylinder pipe (PCCP) along Riverside Drive between Bains Place and Eggleston Avenue. This 60-inch main provides water supply to EPR through the downstream 46-inch/48-inch connector. A second 54-inch transmission main parallels the 60-inch water main from the Main Pumping Station, but provides no redundant feed to the EPR. Connection to this 54-inch transmission main would provide the redundancy that GCWW sought. How to physically traverse the 1800 feet between the 54-inch transmission main and the reservoir set the need for an alignment study.
THE STUDY

As alluded to previously, GCWW’s water service contract with the BFWC is an important wholesale water arrangement upon which GCWW places their normal high standards of reliability. The existing combination feed to the Eden Park Reservoir is problematic; in certain locations a failure on this line could require days, if not weeks, to restore the failed main to service. A portion of this feed is an unlined 46-inch cast iron pipe put into service in the late 1800s. A failure on this portion of the feed would require special fittings be manufactured to execute a repair, resulting in long delays. A second feed would provide redundancy and allow GCWW an opportunity in the future to address weaknesses in the existing pipe.

RA Consultants, LLC (RA) was recruited by GCWW to study potential alignments for a second 48-inch water main feed to the reservoir. The report requested by GCWW was expected to identify a preferred alignment and offer an Opinion of Probable Construction Cost.

Four (4) potential alignment alternatives were chosen by RA and shared with the client. Three of the alternatives originated at connection points in Riverside Drive, and the fourth connected to the north end of the 60-inch water main that crosses Columbia Parkway just northeast of the Martin Drive overpass. Connection to the 60-inch water main was ruled out fairly early in the study since it did not provide full redundancy. All of the remaining alternatives required traversing a known potentially unstable hillside with a new water main; therefore, Terracon, Inc. was engaged to advise RA and GCWW on the geotechnical feasibility of constructing the transmission main in the hillside.
Terracon started with an archive search of existing geotechnical data available in the vicinity of the study area. Their initial report confirmed potential slope stability issues of the hillside between Columbia Parkway and Martin Drive. RA Consultants considered the findings of the Terracon report and recommended that actual geotechnical soil borings be performed to confirm the depth of overburden and distance to rock. It turned out that rock was 30-40 feet below the surface along the preferred water main alignment up the hillside. That was too deep for a pipe in rock embedment application.

At GCWW’s request, RA engaged Terracon for the formulation of a geotechnical solution that would provide a high level of confidence that the proposed feeder main could be installed at normal depth (min. 4 ft. cover) in the overburden soils in the hillside between Columbia Parkway and Martin Drive. Terracon provided a Preliminary Geotechnical Engineering Report summarizing their investigations of the hillside and outlining a drilled pier retaining wall with tieback anchors mid-way up the slope from Columbia Parkway, as a method of safeguarding the water main in the hillside. Once this approach was presented to GCWW, meetings were arranged with the City of Cincinnati Department of Transportation and Engineering (CDOTE) and the City Parks Department to gain their approval. Parks has jurisdiction over the hillside and CDOTE controls the Columbia Parkway commuter corridor. After extension negotiations, CDOTE agreed to allow an open-cut crossing of the Parkway as long as the work was performed over a weekend when no special events occurred in the Downtown district. With the approval of all city departments the engineering design of the new feeder began.

**DESIGN PHASE**

With the alignment chosen and a plan in place to address the hillside instability, GCWW engaged RA Consultants to prepare construction plans and specifications. RA recommended, and GCWW approved, the application of PCCP for the water main material. Hanson Pressure Pipe Division was contacted to collaborate on tie-in details between the new and existing mains. One such connection to the existing 54-inch main in Riverside Drive would occur at a location where the existing pipe was unrestrained. This condition resulted in the need to restrain four (4) joints adjacent to the tie-in point by internal welding of the existing 54-inch pipe joints.

The design of the tie-back pier wall system that would provide stability to the hillside was complicated by a 60-inch storm sewer embedded in rock 40 feet below grade. Determining a precise location of that sewer was critical for the placement of piers that would be drilled into rock adjacent to the sewer. The Metropolitan Sewer District of Greater Cincinnati (MSDGC) provided a detailed survey of the sewer alignment which was integrated into the water main survey to determine the crossing coordinates. Fortunately, the crossing occurred midway up the hillside resulting in an ideal location for the placement of the cross-slope pier wall system that could span the water main and the sewer simultaneously. With pier spacing...
critical for the performance of the wall, a mini-
mum of 3 feet clearance of an adjacent pier to the
storm sewer was selected. The design proceeded
accordingly.

With this information, scheduling of the project
became a high priority matter since connection of
the new feeder main to the existing transmission
system would need to be completed during non-
peak demand season (October through April).
Design was authorized by GCWW on November
23, 2011 with final plans to be completed by June
2012.

RA rendered a complete set of water main con-
struction plans and specifications, including a
pier wall design by Terracon, to GCWW in May
2012. GCWW staff offered a slight revision to the
connection point in Riverside Drive that required
an easement, so bidding was delayed to accommo-
date negotiations. RA’s Right-of-Way acquisition
staff assisted GCWW in the easement acquisition
and the project went to bid in August 2012 with
an estimated construction time frame of 180 days.
A successful low bid was received from Ford De-
velopment Contractors for $2,377,218.

CONSTRUCTION PHASE

A preconstruction conference was held on
October 22, 2012 to initiate the project. The
Contractor announced that a pier wall subcon-
tractor would start in December 2012 to stabilize
the hillside and that the water main construction
would follow shortly thereafter in order to meet
the tie-in deadline of May 1st.

Prior to any construction, GCWW decided to
further investigate the location of the 60” brick
sewer. The pier wall design called for two 40-ft
deep piers to be drilled with 3 feet of clearance
from the existing 40’ deep sewer. GCWW deter-
mined that they could not risk one of those piers
accidentally penetrating the 100 year old brick
sewer. The impact would be catastrophic and
economically devastating. GCWW and the Con-
tractor decided to hire a sewer televising company
to perform pre and post construction video of the
location and condition of the 60-inch brick storm

48-inch PCCP water main in Reservoir Drive

continued on page 50
sewer. Access to the sewer proved challenging. Only two manholes were located in this vicinity with 500 feet separation and a junction chamber midway changing from a 72-inch sewer to the 60-inch sewer. The slope increased dramatically at this junction chamber and the video cameras could not make the turn nor climb the 20% slope. The only option was to send a camera man inside the sewer to video the sewer. GCWW opted to have the camera man remain in the sewer during the last few feet of drilling near the sewer to ensure no penetration into the sewer. With a slight redesign from the Geotechnical firm to increase the distance of the piers from the sewer, the piers were successfully installed without any damage to the 60-inch brick sewer.

The Cincinnati area experienced more than normal wet weather December 2012 through March 2013 slowing progress of the project, but the tie-in deadline was met at the supply end of the project in Riverside Drive. The water main progressed from the Riverside Drive tie-in point to the Eden Park Reservoir connection location by June 2013. However, GCWW’s operations division indicated that since the summer demand season was now underway and if the tie-in at the reservoir experienced complications, a prolonged shut down of the single feed to the reservoir could cause potential water shortages to the Cincinnati downtown area. GCWW could not risk having a prolonged outage during the peak pumping season; therefore, the project was put on hold to complete the final reservoir tie-in after October 1, 2013.

SUMMARY

When the Greater Cincinnati Water Works set out to provide a redundant water supply feed to their Eden Park Reservoir, the 1800 feet separating the reservoir from a transmission main that would be a good connection candidate made the project appear to be a straightforward endeavor. However, overcoming an unstable hillside, crossing a major arterial roadway into the city, and performing the project during the winter, low demand pumping season, were just a few of the challenges that the project faced during the implementation process. The Cincinnati area experienced more than normal wet weather December 2012 through March 2013 slowing progress of the project, but the tie-in deadline was met at the supply end of the project in Riverside Drive. The water main progressed from the Riverside Drive tie-in point to the Eden Park Reservoir connection location by June 2013. However, GCWW’s operations division indicated that since the summer demand season was now underway and if the tie-in at the reservoir experienced complications, a prolonged shut down of the single feed to the reservoir could cause potential water shortages to the Cincinnati downtown area. GCWW could not risk having a prolonged outage during the peak pumping season; therefore, the project was put on hold to complete the final reservoir tie-in after October 1, 2013.

With excellent direction and control of the project by GCWW engineering staff, and the assistance of RA Consultants, the project is very close to ensuring that the utility will be even more capable of fulfilling the contractual requirements to their Northern Kentucky customer, and add value to their entire system.
Call for Papers – Abstract Submission Opens October 1st

Submit Abstracts Online by February 1, 2014 to www.onewaterohio.org

We are excited to develop a technical program for this first-ever joint Ohio WEA/AWWA conference. The water and wastewater industries both face similar challenges with new and current regulatory requirements as well as development of emerging technologies and industry practices. And efficient, cost-effective operation and maintenance of our aging infrastructure is at a premium for our water and wastewater providers.

We are looking to provide our members and conference attendees with a unique opportunity to gain professional development and educational opportunities for both industries at one time. We have selected the technical tracks (listed right) for our concurrent technical program to cover the educational goals of this joint conference.

We are only accepting on-line submissions of abstracts in order to streamline the submission process and gathering of your information. Visit www.onewaterohio.org to submit an abstract. Please remember to provide concise information and submit the required abstract (1-2 pages) and biography information. This information will be used to review and select presentations for the conference technical program.

Presentation time slots will be 30 minutes long. Actual presentations should be 25 minutes in length with 5 minutes allowed for questions.

Once again, we are excited about this unique opportunity and look forward to an excellent technical program.

Technical Program Co-Chairs
Stacia Eckenwiler, City of Columbus, sheckenwiler@columbus.gov
Michael Frommer, URS Corporation, mike.frommer@urs.com

General Information: info@onewaterohio.org

The two premier Ohio water associations are teaming up and working together to hold a joint water professionals conference in 2014.

The joint conference will be held August 26-29, 2014 at the new Hilton Columbus Downtown and Greater Columbus Convention Center, which are connected by a stunning glass skywalk.

Watch for more details at www.onewaterohio.org
Demystifying Telemetry

White Paper - Utilities Instrumentation Service

EXECUTIVE SUMMARY

Most municipalities have a variety of assets operating in their jurisdiction needs to be monitored, maintained and controlled. A SCADA system brings onto one computer station the necessary information and controls to do this efficiently. Part of the SCADA system is the telemetry. There are many telemetry options for a municipality. This paper briefly covers them all then focuses on the most common ones, licensed radio, spread spectrum radio and cell.

The best options will depend on the needs and requirements of the municipality. Cell offers the lowest capital cost option, while licensed radio offers the lowest risk option.

AUDIENCE

This paper was developed to help municipalities choose the best telemetry for their SCADA system.

INTRODUCTION

Man has been using telemetry for thousands of years. In the early days, smoke signals promoted the means for communicating data over long distance. Today, we use telemetry to control the mars Curiosity range rover. Other examples are GPS, cruise missiles, smart power grid, and weather satellites.

The word telemetry is derived from the Greek words, tele = remote and metron = measure. Technology has gone a long way and continues to evolve both technically and economically. Today there are many telemetry options. They are telephone duplex or leased lines, cable, DSL, fiber optics, radio, cell, satellite, and internet.

MUNICIPAL SCADA SYSTEMS

For municipalities, telemetry is part of a SCADA system. A SCADA system consists of:

1. Instrumentation. This measures asset activity and delivers data to a Remote Terminal Unit (RTU);
2. The RTU. Usually provides local automation and delivers the data via telemetry.
3. Telemetry. Wired or wireless to the desktop computer where the Human Machine Interface (HMI) is located.
4. HMI. HMI delivers virtual screens showing municipal assets, reports, alarm management and trending screens.
MUNICIPAL TELEMETRY OPTIONS

Although a municipality can use any form of telemetry, economics typically drive municipalities away from satellite, cable, DSL, fiber optics and telephone lines practical. Satellite is the most expensive form of telemetry, cable & DSL, are often not available in the area and when they are, they tend to be more costly than other options, leased telephone lines are being eliminated by telephone companies, duplex is typically more expensive than other options. Fiber optics, the author’s favorite telemetry, is only cost effective on short distances. This leaves the three most commonly found options: licensed radio, spread spectrum radio and cell. They are used by 80% of the municipal SCADA systems. Radio telemetry has been around since the 1930s and is a proven technology. Cell telemetry’s dropping costs and new technology has given municipalities another cost effective telemetry option.

The article will help the reader determine which of these three would best serve them.

There are six key factors when selecting telemetry:

• Performance requirements
• Asset risk tolerance
• Wireless & internet security tolerance
• Topography of sites
• Communication failure risk
• Capital and operational costs

PERFORMANCE

Control latency, telemetry distance, communication frequency and data throughput are the key performance characteristics.

Control latency. A well-engineered cell or radio telemetry system will deliver latencies of less than 5 seconds.

Telemetry distance. Free space range (or often referred to as line-of-sight) distance of licensed radio is 100 miles for 150MHz radio, 35 miles for 400 MHz radio. For spread spectrum radio it is 15 miles for 900MHz, 6 miles for 2.4GHz, and 2.6 miles for 5.8GHz. Cell depends on cell tower location.

Communication frequency. This is typically decided by the telemetry engineering firm. The best are designs using the report by exception and polling routine. This provides sufficient resolution to deliver desired trending and controls without overloading the telemetry.

Data throughput. 5.8GHz is the best at over 100MB/s. However, this would be like installing a jet engine for OHIO highways, far more speed than necessary. Municipal SCADA systems need less than 2.4Kb/sec thus making all telemetry options acceptable. If video is required, we recommend that this telemetry be separate from the SCADA telemetry.

continued on page 54


ASSET RISK TOLERANCE

A radio telemetry system is 100% owned by the municipality. Antenna maintenance, emergency response time, adjustments are all in the control of the municipal staff. Cell phone telemetry is out of the control of the municipality. Maintenance, emergency response, overloaded towers, or decommissioning of towers is not under the control of the municipality. In sum, cell telemetry is at a higher risk of being down, especially during emergency events.

WIRELESS AND CYBER SECURITY RISK TOLERANCE

If the municipality is using the SCADA telemetry for monitoring only, the risk is limited to information being released to the public. However, if the SCADA system is also controlling the assets, then system must be considered. Radio telemetry does not need or typically use the internet to operate resulting in a more secure telemetry. Cell on the other hand, typically uses the internet and hence is vulnerable.

Today, the federal government offers guidelines for cyber security. The EPA has a 2 page paper entitled "Cyber Security 101 for Water Utilities". It can be found at: http://water.epa.gov/infrastructure/watersecurity/features/upload/epa817k12004.pdf

TOPOGRAPHY OF SITES

Before a site can be certified wireless friendly, a propagation study is required. To perform a propagation study, the longitudinal and latitudinal coordinates are required.

**Licensed Radio.** This frequency is quite forgiving and can often be done using only computer modeling.

**Spread Spectrum.** This frequency is less forgiving and usually requires a site study unless line-of-sight can be guaranteed.

**Cell.** This depends on cell tower location. There is a cell phone app that can be used to measure this called: “Open Signal”.

COMMUNICATION FAILURE RISK

The typical communication failure risks of radio are: man made obstacles, skip interference, antenna system failure, unauthorized risk of the frequency and solar flares. On all cases, when they happen, it requires adjustment of power settings and/or antennae position.

An additional risk for spread spectrum radio is foliage. The higher radio frequencies are at a level that is absorbed by trees in full bloom.

For cell, the communication failures typically occur with tower failure or maintenance, or loaded tower during a public event or emergency.
CAPITAL AND OPERATIONAL COSTS

Radio hardware is far more expensive than cell hardware. A typical radio costs in the order of $1,500 to $2,000, the antennae for licensed radio is about $500 and for spread spectrum, even higher since the tower often needs to clear the trees. In addition, it cost about $700 for a municipal radio license. Cell phone hardware for antennae and cell modem is less than $500. Consequently, payback for radio over cell is about 8 years.

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<th>Capital Cost 10 sites</th>
<th>Capital Cost 25 sites</th>
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**SUMMARY**

There is no one answer for all municipalities. However, as a general conclusion, cell is the lowest capital costs when cell towers are in the region and licensed radio is the lowest risk and most reliable option.
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Water
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Laboratory Compliance Program Update

The Ohio EPA Division of Drinking and Ground Waters (DDAGW) is focusing more attention on evaluating reporting performance for certified drinking water laboratories, including enforcement of the laboratory reporting requirements. Late reporting and inaccuracy of results delays actions taken by both DDAGW and public water systems (PWS). This delay could have detrimental effects on the quality of water and public health.

Ohio Administrative Code rule 3745-89-08 sets reporting requirements for certified drinking water laboratories. These laboratories are required to report results electronically to Ohio EPA as follows:

- Routine microbiological samples must be reported by the tenth day of the month following the month in which a sample is collected;
- Routine chemical samples must be reported by the tenth day of the month following the month in which chemical analyses are completed;
- Total coliform positive samples and all total coliform repeat samples must be reported by the end of the next business day after the result was obtained. Additionally, the PWS should receive notification from the laboratory of the result by the next business day; and
- Chemical results that exceed any maximum contaminant level must be reported by the end of the next business day after the result was obtained. Additionally, the PWS should receive notification from the laboratory of the result by the next business day.

Notices of violation will be issued to certified laboratories that fail to meet appropriate levels of performance (i.e., reporting results accurately and on time to Ohio EPA). DDAGW will require violating laboratories to develop a plan of action to resolve their inadequate performance.

Certified drinking water laboratories that continue to fail to meet an appropriate level of performance could face escalated enforcement actions and may ultimately lose their certification to perform analysis of drinking water samples.

Note: PWSs must ensure they provide their laboratory with complete and accurate information pertaining to the samples they are having analyzed. Laboratories may not accept your samples for analysis if information is incorrect or incomplete.
Understanding Operational Evaluation Levels for Compliance with the Stage 2 D/DBP Rule

Ohio Administrative Code rule 3745-81-24(D) requires all public water systems (PWSs) monitoring for Total trihalomethanes (TTHM) and Haloacetic acids, five (HAA5) under Stage 2 of the Disinfection Byproducts Rule (DBP) to meet the Operational Evaluation Level (OEL).

The OEL is determined at each monitoring location by summing the two previous quarters’ results with twice the current quarters’ result and dividing by four to determine an average. An OEL exceedance occurs when this average exceeds the maximum contaminant level (MCL) for either TTHM (0.080 mg/L) or HAA5 (0.060 mg/L).

The primary objective of an OEL is to serve as an early warning for prevention of the MCL exceedance for DBPs. A PWS exceeding an OEL at one or more locations in the distribution system shall submit a completed report (Ohio EPA Form 5031) to Ohio EPA within 90 days of notification of the exceedance.

Do you have an OEL exceedance?

PWSs are encouraged to calculate their own OELs each quarter. However, the appropriate Ohio EPA district office will send notification of an exceedance if one occurs. This notification will include instructions on what to do next. If the source of the exceedance is known, the PWS may be eligible to complete an OEL Report with a limited scope; this will target the specific reason for the exceedance and address the changes that are necessary to resolve the situation. If a limited scope report is not approved by Ohio EPA, a full OEL Report must be completed within 90 days.

Things to Remember:

• OEL exceedance is an early warning and not a violation;
• Ohio EPA will notify the PWS of an OEL exceedance;
• The OEL report covers treatment, storage and distribution;
• Failure to submit an OEL Report will result in a violation; and
• The goal is to optimize control of DBPs and avoid MCL exceedances.

For guidance in evaluating your system and completing the OEL report form 5031 please visit [www.epa.ohio.gov/ddagw](http://www.epa.ohio.gov/ddagw) or contact Michael Deal, Ohio EPA Central Office, at (614) 644-2752.
Raw Water Sample Tap: Hidden Gems

Different components of the treatment process become important with each new regulation or shift in the drinking water industry. One water system component that has not been relied on much in the past is the raw water sample tap. With the implementation of the Ground Water Rule (GWR), the raw water sample tap has taken on new significance.

Under the Total Coliform Rule (TCR), public water systems (PWSs) are required to monitor their bacterial quality by taking representative routine total coliform samples throughout the distribution system. When any of these routine compliance samples are positive, a system is required to collect a set of four repeat samples in addition to a raw water sample, as required by the GWR. The raw water sample is used to help determine if the bacterial contamination is originating in the raw water source or is an indication of problems in the distribution system. In Ohio, the TCR allows non-community PWSs with a population of less than 1,000 that are not using a disinfecting agent [e.g., bleach (sodium hypochlorite, sodium permanganate, etc.)] to count one of the four repeat samples as their raw water sample. The results of the raw water sample help focus the operator's attention on the source of the bacterial issue. For this reason, the construction of a good raw water sample tap is very important. Below is a list of important construction aspects:

1. The raw water sample tap should be located upstream of all treatment equipment, pressure tanks, pressure switches, pressure gauges and untreated lines to outside spigots;

2. A check-valve should be located just downstream of the raw water sample tap, with the check-valve installed in a horizontal run of pipe;

3. The location of the raw water sample tap should provide sufficient clearance from the floor and walls to allow ease of collection;

4. Any line leading to the raw water sample tap off of the main line should be composed of copper or plastic (i.e., no galvanized pipe should be used), and should be as short as possible;

5. It should be a smooth-nosed sample tap (i.e., no threads inside or outside);

6. It should be a de-burred interior sample tap barrel; and

7. The inside barrel diameter should be 3/8 inch to 1/2 inch.
Below are a few examples of “less than ideal” raw water sample taps:

Some additional considerations for the raw water sample tap include:

1. The sample tap should be properly labeled as “raw water sample tap”;

2. The room where raw water sample tap is located should have adequate lighting;

3. The raw water sample tap should be used frequently to prevent valve maintenance issues (e.g., sticking of valve) when the sample tap is needed; and

4. Raw sample(s) should be collected from the raw water sample tap only after at least one complete well pump cycling period (i.e., approximately 3 – 5 minutes of free-flow).

Below are a few examples of “better” raw water sample taps:
Maintaining Operator Records

Over the past several years, Ohio EPA has been conducting audits of the operations and maintenance records at both water and wastewater facilities. A number of enforcement actions have resulted due to these audits. Ohio EPA would like to remind owners and operators of their responsibilities for maintaining records.

On December 21, 2006, Ohio Administrative Code (OAC) rule 3745-7-09 became effective. This rule includes requirements for owners and operators to maintain operation and maintenance records, and details on the information that should be contained in those records.

The requirements for operation and maintenance records are:

1. The records shall be housed and maintained in such a manner as to be protected from weather damage and guarantee the authenticity and accuracy of the records contained within.

2. The records shall be accessible onsite for twenty-four hour inspection by Ohio EPA or emergency response personnel.

3. At a minimum, the following information shall be recorded in the records:
   a. Identification of the public water system, sewerage system or treatment works;
   b. Date and times of arrival and departure for the operator of record and any other operator required by this chapter;
   c. Specific operation and maintenance activities that affect or have the potential to affect the quality or quantity of sewage or water conveyed, effluent or water produced;
   d. Results of tests performed and samples taken, unless documented on a laboratory sheet; and,
   e. Performance of preventative maintenance and repairs or requests for repair of the equipment that affect or have the potential to affect the quality or quantity of water conveyed to users.

For most small facilities a bound and numbered logbook is the easiest way to ensure authenticity and accuracy. Three ring binders, spiral notebooks and loose sheets of paper (with the exception of bench sheets) do not guarantee authenticity and accuracy. Electronic records can be maintained onsite as long as the authenticity and accuracy of the records can be guaranteed. For example, acceptable electronic records must be password protected; the date, time and individual making entries must be recorded; and once information is recorded it cannot be deleted. Simple Excel spreadsheets and Word files do not guarantee authenticity and accuracy.

Records must be kept onsite at the facility, not in the operator’s onsite office, house or truck.

These records are required to ensure maintenance is being conducted at the facility, any issues with treatment are documented, and minimum staffing requirements are met. These records also protect the operator by documenting that the operator is performing the activities necessary to ensure properly treated drinking water or effluent.

We encourage you to review your records and ensure you are including all of the information required. If you have questions, feel free to contact your District Office representative or the Operations Unit at (614) 644-2752.
New Program Raises the Stakes for Monitoring Violations

The Division of Drinking and Ground Waters (DDAGW) is launching a new program to reduce total coliform and nitrate monitoring violations at public water systems (PWS). Failure to monitor for these acute contaminants creates uncertainty about the quality of water your system delivers to customers.

This new program will provide a deterrent to violations and increase public health protection by making it more expensive for your PWS to fail to sample than it is to sample. It costs an average of $25 for each total coliform sample and $20 for each nitrate sample. Beginning January 1, 2014, PWS who fail to monitor for total coliform or nitrate will receive a penalty of $150 or more for each monitoring violation.

In the past, DDAGW has increased compliance using various educational avenues. A few of our efforts to increase total coliform and nitrate monitoring compliance over the past several years include:

- Mailing monitoring schedules (and making them available on the internet);
- Making personal phone calls;
- Mailing reminder post cards;
- Reminding PWSs at educational conferences; and
- Sending automated reminder phone calls.

Despite the educational efforts listed above, there remains a significant number of PWS that fail to consistently meet their monitoring requirements.

DDAGW will include information about the new financial deterrent in your sampling reminders, as one more step toward increasing compliance and further ensuring that PWS are providing safe drinking water. Your system has an obligation to know and understand your monitoring schedule, in order to complete timely monitoring and reporting. Any questions about the requirements should be directed to your Ohio EPA district office: [http://epa.ohio.gov/Districts.aspx](http://epa.ohio.gov/Districts.aspx).
What’s New in The Drinking Water SRF Program?

The Drinking Water State Revolving Loan Fund operates on program years, which run from July through June. The 2015 Program Year, which covers the period from July 2014 through June 2015, brings some significant changes that you should be aware of.

First, to be eligible for Water Supply Revolving Loan Account (WSRLA) funds in Program Year 2015, all nomination forms must be submitted via email by March 1, 2014. Paper copies and faxes will no longer be accepted.

Second, an Ohio EPA-approved general plan addressing the proposed project must be submitted with the nomination for construction loans for new, replaced, rehabilitated, upgraded or expanded water treatment plants and their components.

The general plan, which must be approved prior to detail design work, must ensure consistency with all Safe Drinking Water Act requirements and address the substance of the proposed project. Applicants are responsible for consistency between approved general plans and detailed design at the time of application and construction in accordance with the approved detailed plans.

Construction must be in accordance with all terms of the WSRLA assistance agreement. Although the approved general plan may not contain all the planning requirements necessary for a WSLRA loan award, applicants must meet the additional requirements.

The general plan must include the following:

**Introduction and Purpose**
Discuss why the project is needed and provide documentation of need. The types of projects eligible for funding through the WSRLA are discussed in Appendix D of the Drinking Water Assistance Fund Draft Management and Intended Use Plan. Types of specific projects ineligible for funding are discussed in Appendix C of the Drinking Water Assistance Fund Draft Management and Intended Use Plan.

**Existing Situation**
- Describe the raw water sources, capacities and water quality data.
- Discuss all existing drinking water problems in the study and/or service area (this includes treatment, distribution and issues associated with the plant).
- Describe the existing service area and current population to be served.
- Provide the existing water demand. Water demands should be broken down into residential, commercial and industrial categories.
- Provide an engineering description of the existing facilities.

**Future Conditions**
- Describe other projects anticipated over the next 20 years.
- Provide the projected, average and peak water demands based on population trends. Water demands should be broken down by residential, commercial and industrial. Projections should be for at least 20 years in five-year increments.
- Describe the projected service area and the projected population to be served.
Alternatives
Describe the project alternatives considered and the rationale for the selected alternative; this description should include the technical, managerial, financial, operational and local decision-making rationale for the selected approach. A regionalization alternative must be part of the analysis. A cost analysis must include any required construction, operation, maintenance and ongoing disposal costs.

Selected Alternative
- Provide an engineering description of the facilities to be constructed, including a basic layout (schematic and site plan), sizing of treatment units and a desired approved capacity of the treatment facilities. The methodology for determining approved capacities for treatment facilities can be found in the Approved Capacity Planning and Design Criteria for Establishing Approved Capacity for: 1) Surface Water And Ground Water Supply Sources, 2) Drinking Water Treatment Plants (WTPs), and 3) Source/WTP Systems (Approved Capacity).
- Provide a description of all existing and proposed raw water sources and their desired approved capacity. The methodology for determining approved capacities for raw water sources can be found in the Approved Capacity document.
- The engineering description must include proposed use of existing facilities (if applicable), treatment and disposal to be installed, including the construction phases (if overall project is to be completed in steps).
- Describe how this project will address current compliance issues, if applicable.
- All proposed facilities must be sized for current needs with a moderate allowance for future growth, generally in the range of 10%.

Preliminary Estimate
Provide a preliminary estimate of the proposed project's cost and the associated impact on local user rates.

Public Participation
Provide information regarding public participation for the project, to date, such as minutes from council meetings, public meetings or newspaper articles.

Environmental Issues
Describe the project area's major resources (e.g., streams, wetlands, woodlots, historic structures, etc.), the likely impacts, if any, of project implementation on these resources, and other agencies that may already have been contacted to help address these resource issues.

Funding
Describe all anticipated sources of funding for the project.

Compliance schedule
For systems presently out of compliance for drinking water requirements, submit a detailed compliance schedule with applicable milestone dates for the significant events that are necessary to attain compliance.

If you have questions, please contact Ohio EPA's Division of Drinking and Ground Waters' loans unit at (614) 644-2752.
City of Akron Hosted Fall Meeting

City of Akron hosted the NE Fall meeting on October 17th at their Water Plant and Rusty Nail Restaurant. Technical sessions were offered in the morning and afternoon along with a water plant tour. Attendees were offered the opportunity of obtaining 6 contact hours. Bill Simon took over as Chair of the District. Thanks to the speakers who provided a very interesting day of discussion.
Village of LaRue Hosted NW Summer Meeting

The Village of LaRue provided a warm welcome for the NW District as they hosted the Summer meeting on July 18. Four speakers provided relevant information for the 82 attendees to obtain contact hours in the morning. NW District Chairman, Richard Kroeger, opened the meeting welcoming everyone in attendance. Allen Comeskey of Ground Water Science presented a talk entitled “Developing a New Wellfield for the Village of LaRue”. This was followed up with a general talk on Generator Maintenance and Rental for Standby Power by Tony Crandall of Buckeye Power Sales. After a short break where the attendees enjoyed refreshments, Robert Shoaf of URS spoke on “Planning, Design, and Construction of a Small Nano-filtration WTP for the Village of LaRue”. The technical sessions were closed with Nick Kiefer from Watson Marlow Pumps Group talking about peristaltic and hose pumps for chemical feed applications.

A picnic style lunch with pulled pork and barbequed chicken sandwiches was provided by Coonies fitting the atmosphere of a warm summer day in the northwest Ohio. After lunch we drew the winning raffle tickets for the Water For People 50/50 raffle, raising $68 for WFP. Richard Kroeger then presented the Village with a plaque of appreciation for hosting the meeting. He was also able to present the Village with a SWAPP Certification for the work done to develop a SWAPP for their new wellfield. A business meeting was held and were graced with the presence of our Governing Board Trustee, Larry Huber and also Curtis Truss from OTCO. Everyone was reminded that the NW District is excited to be the host site for the State Meeting this year and encouraged everyone to attend the meeting in Toledo in September.

Water Superintendent, Mark Heller, and his staff then hosted an excellent tour of his new Nano-filtration plant after the business meeting. Several of the attendees took advantage of this opportunity to stop by the plant to see how the Village is providing excellent quality drinking water for the residents of the Village of LaRue.
Tuesday, April 8th
Roberts Convention Centre
off I-71 at US Hwy 68
Wilmington, OH

Exposition from 8am—3pm
- Free EXPO admission!
- Free Coffee and Popcorn
- Free OPEA Hours
- Exhibitor Educational Tours
- Door Prizes
- Competitions
- Lunch $10

Sign-in & Registration for all begins at 7:30am,
First Come—First Serve due to Enrollment Limitations

Hotel Reservations to be made prior to March 18th, 2014. Call (800) 654-7036.

Contact Lisa Dawn
(Vice Chair, OAWWA - Southwest District)
l.dawn@ci.xenia.oh.us
937.376.7269
Exhibitor Application

Company name (for Program and Booth sign):

Company Web Site Address:

AWWA Organization Member?  □ No  □ Yes (Membership No.)

Interested in becoming one?


Show Contact (for show logistics):

Address: ____________________________________________________________

City: ___________________________ State/Province: ______________________ Zip/Postal Code: __________

Phone: _________________________ Fax: ________________________________

E-mail: ________________________

Booth Location & Display

Number of 8’x10’ booths: __________________ (no peninsula booths will be assigned)

Preferred booth location: 1st Choice ________ 2nd Choice ________ 3rd Choice ________

Companies from whose booths you desire to be separated (company names, not products):

Which is most important to your booth location? (separation and location are not guaranteed)

☐ Booth Separation  ☐ Requested Location  ☐ Corner Booth  ☐ Open Space

Special Requirements:  ☐ Compressed Air  ☐ Water  ☐ Electricity

Other: ____________________________________________________________

List any dangerous items that will be a part of your display (i.e., chemicals, gases, motor vehicles, etc.): __________________________________________________________

Gift Donation

Wish to Donate a Door Prize or Raffle Gift? Please list item(s): __________________________________________________________

Agreement

We hereby agree to

1. Abide by the Exhibitor Contractual Terms & Conditions that are posted at www.awwa.org/conferences/exhibitors.

2. Attach hereto is our check made payable to Southwest-Ohio American Water Works Association for the full cost of the booth fee(s) and lunch reservation(s). Applications must be accompanied by full payment.

3. Full payment due prior to space assignment and No Later Than March 21st, 2014.

Agree for exhibitor

Name (please print) ____________________________________________________________________________

Title ______________________________________________________________________________________

Signature __________________________ Date __________________

Booth Rates and Lunch

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Amount Enclosed: $ __________

☐ Company Check (payable to SW-OhioAWWA)

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Participant(s) Name(s): ____________________________________________

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Dr. Isabel C. Escobar Named Editor-in-chief of IDA Journal of Desalination and Water Reuse

LONDON, UK, July 29, 2013 — Maney Publishing and the International Desalination Association (IDA) are pleased to announce the appointment of Dr. Isabel C. Escobar as the new editor-in-chief of the IDA Journal of Desalination and Water Reuse and will succeed Dr. Jim Birkett, who steps down this year after a long and dedicated service to the journal, according to a press release. She will work alongside Dr. Birkett before assuming full duties from the first issue of 2014, noted the release.

Dr. Escobar is based at the University of Toledo, where she is a professor of Chemical and Environmental Engineering and assistant dean for Research Development and Outreach for the College of Engineering. She holds a Ph.D, M.S. and BSc. in Environmental Engineering from the University of Central Florida.

“IDA is delighted to welcome Dr. Escobar to head up editorial content for the IDA Journal. We are committed to the highest quality content for this flagship publication, and we are confident that her tremendous technical perspective of the industry will enhance the depth and breadth of our offering,” says Patricia A. Burke, IDA secretary general.

Bob McNutt Joins CT Consultants

CT Consultants, Inc. is pleased to announce the addition of Robert L. McNutt, P.E. to its staff. Bob joins CT Consultants as Senior Project Manager in the firm’s Akron office. Bob will be responsible for project management, staff supervision and overall client relationship management.

Bob has over 23 years experience as a professional engineer involved with the design, modeling, analysis, bidding and construction management of a wide variety of projects. His experience includes financial planning, master planning, troubleshooting, and consensus building for utility infrastructure projects. He has developed storm water utilities, prepared funding applications for loans and grants and conducted utility rate studies for effective utility management and operations.

Bob is a registered engineer in Ohio, Illinois and Michigan; as well as a Class 2 Water Distribution Operator in Ohio and a Construction Documents Technologist. He is a member of American Water Works Association (AWWA), Ohio Water Environment Association (OWEA), American Society of Civil Engineers (ASCE) and American Public Works Association (APWA). He secured his civil engineering degree from the University of Akron. His technical presentations and publications are extensive; including training modules, client education seminars and technical conference presentations.

CT Consultants is an Ohio based engineering, architecture, land surveying and construction services firm which has been providing municipal engineering services for more than 90 years. CT currently has over 170 professionals in offices throughout Ohio and Europe.

Joseph Frump Deceased

Joseph Frump started in the water profession in Leesburg, Ohio, in 1962 leaving a job delivering fuel oil to residences and businesses. In 1966, we moved to Hillsboro, Ohio, where he managed the water treatment facility. He left the Hillsboro facility in 1981 to work with Western Water Company based in Morrow, Ohio. After having coronary bypass surgery in 1989, he retired. Joseph was a high school graduate, veteran of WWII, and his education in water treatment was from correspondence and seminar attendance. During the years he was employed by city governments, he was also a volunteer fireman. Rest in peace Joseph.
Jeff Olsen Joins RJN Group

Jeff Olsen joined RJN Group as the Cincinnati Branch Manager. Established in 1975, RJN has earned national recognition as a professional engineering consulting firm and field services provider. RJN is ranked by Engineering News Record as a Top 200 Environmental Firm and a Top 500 Design Firm. Trenchless Technology has also recognized RJN as 12th in their list of Top 50 Trenchless Design Firms.

RJN serves a wide range of clients including municipal, county, sanitary districts, state and federal agencies. Our focus is on addressing client goals, supporting client interests, and delivering economical and sustainable results for the natural and social environments. The outcome of RJN projects is improved integrity, service life, and performance of today’s infrastructure systems.

Ralph Reeb Deceased

Ralph Reeb, of Baltimore passed on August 29. He was a 1985 Capital University Graduate and was a State of Ohio Plumblin Chief, head of the Ohio’s Backflow Program and an instructor for plumbing apprentices. Ralph was a member of the O.A.P.I., the P.H.C.C. and the A.P.H.C. Ralph was an avid outdoorsman who loved being with his friends and family who will be greatly missed.

31st Annual OAWWA Northern Expo

Where: Wayne County Fairgrounds
199 Vanover Street
Wooster Ohio 44691

When: Thursday, April 10th, 2014

Time: Registration begins at 8:30am

For more info: Kevin Givins, Expo Chair
City of Wooster
1123 Old Columbus Road
Wooster, Ohio 44691
Phone# 330-263-5285
Fax # 330-263-5291
kgivins@woosteroh.com

FREE CONTACT HOURS

Check out our website: northernohioexpo.com
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**2014 National Conferences**

- **Feb 25-28**  Savannah, GA - Utility Management
- **Mar 10-14**  Las Vegas, NV - Membrane Technology Conference & Exposition
- **Mar 30 - Apr 2**  Denver CO - Sustainable Water Management
- **Apr 7-9**  Charleston, SC - Financial Management
- **Jun 8-12**  Boston, MASS - Annual Conference and Exposition

**2014 State Water Tests**

- **May 7**  Water I / II / III, Water Distribution I / II
  *Deadline for application February 6*
- **Nov 6**  Water I / II / III, Water Distribution I / II
  *Deadline for application August 8*

**2014 Specialty Conferences**

- **Jul 15**  Water Distribution Workshop
- **Aug 21**  Canton Hall of Fame Drinking Water Workshop
- **Nov 5**  Safe Drinking Water Act Seminar
  *(6 Contact Hours Each)*

**2014 Review Sessions**

- **Northeast District**
  - Apr 26, Oct 25
- **Northwest District**
  - Apr 26, Oct 25
- **Southeast District**
  - April 21, Oct 20
- **Southwest District**
  - April 26, Oct 25

**2014 Joint AWWA - Ohio WEA Conference and Exposition**

*August 26-29, 2013, at the New Hilton Columbus Downtown and Greater Columbus Convention Center*

### District Conferences (Contact Hours TBA)

**Northwest District Meetings**

- **Apr 11**  Northern Expo/ Meter Madness
- **Apr 17**  Village of Paulding
- **Jul 17**  TBD
- **Oct 16**  City of Bryan

**Southwest District Meetings**

- **Apr 3**  Joint SE/SW Expo - Deer Creek
- **Apr 8**  Southern Expo/ Meter Madness
- **Jul 18**  Raymond Memorial
- **Oct 17**  City of Westerville

**Northeast District Meetings**

- **Apr 11**  Northern Expo/ Meter Madness
- **May 1**  TBD
- **Aug 21**  Hall of Fame Canton
- **Oct 2**  City of Avon Lake

**Southeast District Meetings**

- **Apr 3**  Joint SE/SW Expo - Deer Creek
- **Apr 8**  Southern Expo/ Meter Madness
- **Jul 10**  Raymond Memorial
- **Nov 20**  City of Westerville

The Ohio Section Newsletter is the newsletter of the Ohio AWWA, published three times a year. Send comments, news notes, glossy / digital photos, and articles to:

**Larry Valentine, Water Consultant**

717 Shannon Avenue

Cuyahoga Falls, OH 44221

330-328-2137

lvalentine@neo.rr.com

**Deadline for material to be in the 2014 newsletters are:**

- **Spring Issue** - Feb 7 - Target mailing week of Mar 31
- **Summer Issue** - May 2 - Target mailing week of Jun 23
- **Winter Issue** - Oct 3 - Target mailing week of Dec 8

**Disclaimer:** The ideas, opinions, concepts, procedures, etc. expressed in this publication are those of the individual authors and not necessarily those of the Ohio Section AWWA, its officers, general membership, or the editor.