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WATER SECTOR SECURITY

Water Education Programs at North Carolina State Parks

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Message from the Chair

Making the Shift from ‘Security’ to ‘Risk Management’

John W. McLaughlin, P.E.

My first chair’s article, appearing in the Winter 2012 issue of NC Currents was focused on change. This was my effort to prepare you, the heart and soul of this association, for the necessary changes to come. Little did I know that there was one more significant change to come—one I certainly didn’t see coming. Shortly after our successful 2011 annual conference in Concord, my previous employer decided to close our Charlotte office, and I (and several others) became unemployed. I jokingly told members of your state board of trustees that I may have been the first unemployed chair of the association, a dubious honor if ever there was one.

I am highlighting this unfortunate event in my career for a couple of reasons. First, to let everyone know that I landed safely with GHD in its Charlotte office. Second, and perhaps most important, is to thank the dozens of you out there who either had incredibly kind words to say about me, had faith in my quest for new employment, and/or went above and beyond in helping me search for new employment. I hope to be even half the person many of you said I am.

Many of you know me as “the security guy,” and while that is only part of what my career is all about, I do believe that with this issue of NC Currents focused on security, it is important to highlight some key points.

First, North Carolina has been—and remains—a national leader when it comes to utility security. When I say security, I mean all aspects of security, including risk assessment and management, physical and operational security, and emergency preparedness and response in an All Hazards framework. All Hazards means just what it says—being prepared regardless of the hazard and understanding that it isn’t just a terrorist threat you need to think about. It is the risk you face from all sorts of intentional acts, from natural disasters, interdependencies, and many other threats. It also means understanding that as a utility, the event’s effect can be more important than its cause.

One of the main reasons North Carolina is a leader is that we have experienced and learned from a long list of disasters over the past 25 years, including hurricanes Hugo, Fran, and Floyd, as well as multiple other smaller events, tornados, ice storms, extreme drought, flooding, and so on. The utility industry professionals in this state suffered through some very rough times but have learned some extremely valuable lessons in response to their local disasters.

Through these experiences, North Carolina has developed some strong individual
leaders in utility security. At the risk of leaving someone out, I will mention a few of them, but I know there are many others: Mike Richardson, Ron Elks, Jay VanHoose, Jack Moyer, Patti Lamb, Bob Griffin, John Huber, Steve Porter, Karen Brashear, Ted Cope, and Mike Orbon are just a few of these professionals, and the list goes on. These leaders and many others from North Carolina have spoken nationally, shared valuable lessons learned, participated in the creation and development of many of the tools being used today, and generally understood the concept of All Hazards long before 9/11.

I worry that people get too focused on only small areas of the risk they face. Because of that concern, this year I intend to realign a few committees to change the current focus from “security,” which to many means physical security measures or intentional acts, to the more holistic approach that really fits under the title “risk management.”

After all, utilities face risks from all quarters. There are the risks from intentional acts, both internal and external, risks associated with lack of business continuity planning, cyber risks, and risks from natural disasters of all kinds, including tornadoes, hurricanes, floods, earthquakes, ice storms, and so on. In addition, utilities face risks from the effects of infectious disease outbreaks, financial risks, and risks associated with the lack of good asset management programs or succession planning among others too numerous to list.

Without looking at security from a risk-management perspective and fully understanding the level of risk faced in each area, there can be no true security, and the clock could be ticking. I am sure that you will find valuable information to address some of these mentioned risks through the planning tools discussed in this issue.

Finally, I would like to provide a quick update on a couple of the changes noted in my winter article. Each of the five councils has met in a workshop fashion and been given some key focus areas for them and the committees they represent. The e-Learning Task Force is underway and expected to move swiftly to assess where the association needs to be positioned for the future. Look for updates on these initiatives in the coming months.
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Securing Our Future
Lindsay Roberts, Executive Director

When the Communication Committee issued the call for articles for this edition on water sector security, the phrase that struck me is this: “... Our daily work routine will develop the culture shift necessary to achieve security of our ... resources and inspire consumer confidence in our abilities.”

As your educational resource, NC AWWA-WEA shares a pivotal role in gathering the most relevant and effective information about threats facing you daily, and the resources, tools, and experiences you find to be of highest value in addressing them. It is our responsibility as your association, to deliver that information to you as the fulfillment of our mission—which is truly our contract with you when you join us as members.

It seems timely, then, that we should emphasize in this issue of NC Currents, how we are going about doing that very thing: Developing the culture shift necessary to achieve security of our mission and our resources and to inspire your confidence in our ability to deliver tools you need to do your job.

In this day and age, as Internet technology brings a vast ocean of knowledge to our doorstep, every professional association has had to ask itself a hard question: If everyone can access just about everything for free on the web, what is our role in meeting our profession’s needs?

At NC AWWA-WEA, we have addressed that question first with a sharpened mission and vision statement. After surveying you, our members, the SONAR Task Force (which is the strategic planning group established to ensure that the association focuses on Sustainable, Outstanding, Nimble, Anticipatory, and Responsive service delivery) recommended new mission and vision statements, which the board has approved:

**Our mission**
*the purpose of what we do:*
“NC Safewater: The leading educational resource for safe water in North Carolina.”

**Our vision**
*what we strive to achieve:*
“NC Safewater is dedicated to providing water education, training, and leadership to protect public health and the environment.”

To begin this shift in culture, the Seminars and Workshops Committee has revised the process for selecting seminar topics. In 2012, there will be fewer seminars, but each of the 10–12 topics will meet the new criteria for topics, which must be current, state-of-the-art, cutting edge, and of core value to you. This is the second step in responding to the question of relevance. We will focus intently on ensuring that instead of you having to sort through thousands of bits of information on the web, we will provide access to information that your peers have already identified as being of value to you.

Just as there are specific vulnerabilities to the water sector—such as eroding infrastructure, insufficient funds to maintain and manage it, man-made threats, and natural disasters that you, as water professionals must address—there are specific vulnerabilities to non-profit organizations that exist to benefit specific professions and the public at large. We are acutely aware of our need to shift the association’s culture in order to serve you, just as you are aware of the need to shift the water sector’s culture to deliver water and wastewater services and protect the public you serve. Therefore, it is not enough for us to focus on our mission and vision or to make the essential changes to the training portfolio that we develop and deliver to you. We must, as a corporate entity in our own right, and therefore vulnerable as all are today, give appropriate attention to security.

It’s impossible to turn on the news or open a newspaper without encountering reports on failed companies—bankruptcies or layoffs—resulting from bad decision-making. Many of those failures have come about because the organization’s culture didn’t shift swiftly enough to allow it to...
increase the overlap between commitment and duties, and the company failed.

This is not the story we want for NC AWWA-WEA. The Board of Trustees, volunteer leaders, and your staff are fully committed to doing what it takes to build a boat that floats on the tide: delivering sustainable and outstanding programs, nimble and anticipatory responses to changing needs and members expectations, and, above all, responsiveness.

To do this, there must be communication. We must know what is happening in the industry, what your needs are, and what resources are available. Data gathering is essential, as is the depth of understanding that data correctly, and the courage to make difficult choices about how best to use resources.

For 91 years, NC AWWA-WEA has been loosely structured as a relatively flat organization: volunteer committees with little oversight pursued work plans, and whatever minimal reporting was required flowed directly to the board, where the trustees largely saw their obligation as ensuring that funding was available for those programs. When staff entered the picture, a little more than a decade ago, staff’s role was administrative only.

Today, with 56 committees and more than 200 active volunteers pursuing diverse activities, the lack of communication has become a threat to the association, with increasing overlap between committee spheres, and increasing competition for limited resources. Also, the Internal Revenue Service and Congress have taken sharply increased notice of non-profit organizational operations, and there are many new legal and financial implications for these activities. Volunteer and staff member roles are changing to meet the new requirements and demands. More communication and more collaboration are key to the thriving and dynamic organization of the future.

To address this, the board is implementing a new council structure within the organization, which is intended to provide better communication and coordination among the 56 committees. Five councils have been formed, and every committee will be in one of the following councils:

- Awards Council: Responsible for coordinating all the association’s recognition activities, including more than 100 awards given through award committees at the annual conference.
- Annual Conferences Council: Responsible for coordinating all the conference-related activities for the spring and annual conferences, including programs, local arrangements, exhibit activities, operations challenge, and pipe tapping.
- Internal Affairs Council: Responsible for coordinating all the sponsorship, endowment, bylaws, archives, and history and SONAR’s strategic planning activities for the association.
- External Affairs Council: Responsible for coordinating all the activities that reach beyond the fulfillment of educational activities, including membership recruitment and retention; communications, relations with our national associations, Water For People, public education, and Young Professionals.
- Technical and Education Council: Responsible for the coordination of all the many mission-critical activities related to our training, workshops, schools, and seminars. This council is the largest of all and will be the most complex of the five.

This new initiative is not just “moving the furniture” of the association. It is moving us to a whole new building—it’s a core structural change. This new organizational structure is intended to allow the association to better use its resources to meet the more competitive environment in which we operate as an association, and you operate as water sector professionals.

As you know yourselves, working in the demanding environment that you do, making fundamental change is neither simple, nor pain-free, and it stretches your very skin to the bursting point. There will be pain as well as pleasure as we shed the old skin that has served us well, and we will be vulnerable as we grow into our new skin. The board and your staff are totally committed to doing whatever it takes to ensure that our organization maintains its role as the leader in professional education in the North Carolina water sector. But your on-going support and commitment are fundamental to our success. Be there for us so we can be there for you. ☛
# Seminars Report

By Lisa Joyce, NC AWWA-WEA

As the 2012 training year gets underway, the Seminars and Workshops Committee would like to thank everyone that attended, volunteered, or coordinated our 2011 seminars and training opportunities. This year, the number of available seminars has been condensed to approximately 10, in order to focus on current industry hot topics, best practices, and regulatory updates. We will continue to offer seminars throughout the state and are planning a great schedule of seminars for 2012.

For information on upcoming seminars and training opportunities, be sure to check our training catalog and www.ncsafewater.org regularly.

## Training Report

<table>
<thead>
<tr>
<th>DATE</th>
<th>EVENT</th>
<th>LOCATION</th>
<th># ATTENDED</th>
<th>COMMITTEE</th>
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<tbody>
<tr>
<td>January 26 – 27</td>
<td>AWWA Customer Service Representative Training, Course 3</td>
<td>Carrboro, NC</td>
<td>8</td>
<td>Seminars &amp; Workshops</td>
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<tr>
<td>February 23-24</td>
<td>AWWA Customer Service Representative Training, Course 1</td>
<td>Durham, NC</td>
<td>14</td>
<td>Seminars &amp; Workshops</td>
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<tr>
<td>March 6</td>
<td>NC AWWA-WEA Seminar: Water Reuse – Drivers &amp; Impediments</td>
<td>Elon, NC</td>
<td>88</td>
<td>Water Reuse and Seminars &amp; Workshops</td>
</tr>
<tr>
<td>March 12-16</td>
<td>Eastern Collection &amp; Distribution School</td>
<td>Raleigh, NC</td>
<td>482</td>
<td>Collection &amp; Distribution Schools</td>
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<tr>
<td>March 21</td>
<td>NC AWWA-WEA Seminar: Legislative &amp; Regulatory Topics Relating to Water/Wastewater – What’s on the Horizon</td>
<td>Raleigh, NC</td>
<td>9</td>
<td>Government Affairs and Seminars &amp; Workshops</td>
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<tr>
<td>March 22-23</td>
<td>AWWA Customer Service Representative Training, Course 2</td>
<td>Durham, NC</td>
<td>2</td>
<td>Seminars &amp; Workshops</td>
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<tr>
<td>March 29-30</td>
<td>AWWA Customer Service Representative Training, Course 2</td>
<td>Welcome, NC</td>
<td>0</td>
<td>Seminars &amp; Workshops</td>
</tr>
</tbody>
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Summary of the NC AWWA-WEA Board of Trustees Meeting
The most current meeting minutes are available on the Board of Trustees page of www.ncsafewater.org

Sept. 15, 2011
Concord Embassy Suites, Concord
Chaired by John Kiviniemi

The following actions were taken during this meeting:
1. The board approved proceeding with initial development of e-Learning modules and creating a task force to oversee the process. John McLaughlin will be the board liaison to the task force.
2. The board approved obtaining cyber insurance and established a Website Privacy Policy.
3. The board approved a volunteer group to proceed with planning a social event for the upcoming WEF 2012 Residuals Specialty Conference if the event remains revenue-neutral to the association and with the proviso that any golf tournament was to be administered by WEF.
4. The board approved a Social Events at National Specialty Conferences Policy to guide future volunteers in planning and supporting sporting and/or social events in conjunction with national specialty conferences.
5. The board approved the Signatory Authority Policy to establish a more restrictive signatory policy limiting signatories to the executive director, chair, chair elect, treasurer and secretary for the protection of the association when entering into contracts.
6. The board approved a Policy for Reduced/Waived Fees for Students at Conferences and Seminars Policy.
7. The board approved an amendment to the Anti-Trust Policy provided by legal counsel.
8. The board approved an amendment to the Endowment Named Funds Policy to help ensure consistency and offer full-disclosure to future donors.
9. The board approved an addendum to the IWI Agreement that clarifies the approval of any requests for free registrations to the conference.
10. The board ratified eVotes for the Raftelis Financial Consultants Scholarship Named Fund, the appointment of Leon Holt to the WWBOEE, and authorization for a new copier lease with Xerox.
11. The board approved sunsetting the Spring Conference after 2013 in its current format, and the Seminars and Workshops Committee will be tasked with providing quality seminars in both the Eastern and Western sections of the state.

Nov. 13, 2011
Concord Embassy Suites, Concord
Chaired by John Kiviniemi

The following actions were taken during this meeting:
1. The board approved the proposed budget for fiscal year 2012.
2. The board thanked Jackie Jarrell for work as chair of the SONAR Task
Summary of the NC AWWA-WEA Board of Trustees Meeting

Force and their efforts to rebrand with a simpler message of “NC Safewater” and redefine our mission and vision statements to better align with the association’s core niche:

- **Mission (what we strive to achieve):** “NC Safewater: The leading educational resource for safe water in North Carolina.”
- **Vision (the purpose of what we do):** “NC Safewater is dedicated to providing water education, training, and leadership to protect public health and the environment.”

3. The board ratified eVotes for the GHD Scholarship, Crowdier Scholarship, revised mission and vision statements, and Executive Committee authorization for a separate NCSU student chapter bank account.

4. The board approved the Sponsorship Package for 2012.

5. The board approved a three-year contract for exposition services with Hollins Exposition Services.

Nov. 17, 2011
Concord Embassy Suites, Concord
Chaired by John McLaughlin

The following actions were taken during this meeting:

1. Visiting Water Environment Federation representative Sandra Ralston and AWWA President Jerry Stephens thanked the association for the wonderful hospitality they received at the annual conference and praised us for our efforts for advancing the water profession in the state.

2. New Chair John McLaughlin outlined his priorities for the upcoming year, including:
   - continuing with the SONAR task Force;
   - committee workshops for the five councils;
   - membership survey and data gathering;
   - progressing with the e-Learning initiative;
   - continuation and full implementation of initiatives that began last year; and
   - tap on the shoulder—find opportunities for new people to get involved.

3. The board approved a motion to move the Finance Committee chair from the past-chair to the treasurer.

4. The board approved the Conflict of Interest Policy and signed it.

5. The board approved the Banking Resolution to establish signatories for 2011–12.

6. The board approved a motion to rename the Chair’s Outstanding Service Award to the Kasey Monroe Outstanding Service Award.
NC AWWA-WEA Committee Chairs

At the time of publication not all chair positions had been finalized. Names and contact information not available below are available at www.ncsafewater.org and will be printed in future issues of NC Currents.

### Annual Conferences Council

<table>
<thead>
<tr>
<th>COUNCIL CHAIR: Joanie Helvey (919) 212-5923</th>
<th>BOARD LIAISON: Mike Osborne (704) 841-2588</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMITTEE</td>
<td>CHAIR/CONTACT #</td>
</tr>
<tr>
<td>Exhibits</td>
<td>Jim Anderson (704) 323-7031</td>
</tr>
<tr>
<td>Local Arrangements</td>
<td>Adrienne Coombe (919) 233-5261</td>
</tr>
<tr>
<td>Program</td>
<td>Larry Mitchell (919) 834-6235</td>
</tr>
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### Awards Council

<table>
<thead>
<tr>
<th>COUNCIL CHAIR &amp; BOARD LIAISON: Jackie Jarrell (704) 336-4460</th>
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<td>COMMITTEE</td>
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<td>Bedell Award</td>
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<td>Burkell/Courman Award (Safety)</td>
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<td>Ebert Award (Fd Ed &amp; Ex)</td>
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<td>Fuller Award</td>
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<td>Hatfield Award</td>
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<td>Kenneth J. Miller WFP Award (WFP)</td>
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<td>Lab Analyst Award</td>
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<td>Piatti/Mafitt Award (Membership)</td>
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<td>Safe Drinking Water Act Excellence Award</td>
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<td>Hatfield Award</td>
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<td>Safe Drinking Water Act Excellence Award</td>
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### Internal Affairs Council

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<thead>
<tr>
<th>COUNCIL CHAIR &amp; BOARD LIAISON: John McLaughlin (704) 996-6895</th>
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<tbody>
<tr>
<td>COMMITTEE</td>
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<tr>
<td>Archives and History</td>
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<td>Constitution and Bylaws</td>
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<td>SONAR</td>
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### External Affairs Council

<table>
<thead>
<tr>
<th>COUNCIL CHAIR: Tyler Highfill</th>
<th>BOARD LIAISONS: Leslie Jones (704) 373-7131</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMITTEE</td>
<td>CHAIR/CONTACT #</td>
</tr>
<tr>
<td>Communication</td>
<td>Tom Bach (704) 786-1783</td>
</tr>
<tr>
<td>Membership Services</td>
<td>Laurin Kennedy (704) 342-4546</td>
</tr>
<tr>
<td>Outreach</td>
<td>Chris Windley (919) 233-8001</td>
</tr>
<tr>
<td>Public Education</td>
<td>George Simon, Jr. (704) 552-3886</td>
</tr>
<tr>
<td>Water For People</td>
<td>Ilke McAliley (704) 338-6794</td>
</tr>
<tr>
<td>Young Professionals</td>
<td>Melinda King (336) 412-6314</td>
</tr>
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### Technical Coordinating Council

<table>
<thead>
<tr>
<th>COUNCIL CHAIR: Jonathan Lapsley (704) 342-4546</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOARD LIAISONS: Andy Brogden (919) 250-2737</td>
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<tr>
<td>John McLaughlin (704) 996-6895</td>
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### Seminars Committees

<table>
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<th>COMMITTEE</th>
<th>CHAIR/CONTACT #</th>
</tr>
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<tbody>
<tr>
<td>Automation (P.J.)</td>
<td>Don Dickinson (919) 633-0147</td>
</tr>
<tr>
<td>Disaster Preparedness (P.J.)</td>
<td>Mike Orbon (919) 716-0088</td>
</tr>
<tr>
<td>Finance and Management (B.T.)</td>
<td>Elaine Vastis (704) 373-1199</td>
</tr>
<tr>
<td>Government Affairs (I.M.)</td>
<td>Jennifer Bell (918) 875-4311</td>
</tr>
<tr>
<td>Industrial (P.J.)</td>
<td>Howard Kimbrell (919) 280-4350</td>
</tr>
<tr>
<td>IW Confluence Conference (B.T.)</td>
<td>Chad Ham (910) 223-4702</td>
</tr>
<tr>
<td>Safety (P.J.)</td>
<td>Dennis Pamelli (919) 218-3000</td>
</tr>
<tr>
<td>Seminars and Workshops (M.W.)</td>
<td>Betsy Drake (919) 481-5093</td>
</tr>
<tr>
<td>Small Systems</td>
<td>Jim Adams (828) 296-4580</td>
</tr>
<tr>
<td>Sustainability (P.J.)</td>
<td>Randy Foulke (919) 461-1466</td>
</tr>
<tr>
<td>Water Resources (P.J.)</td>
<td>Adam Sharpe (919) 875-4311</td>
</tr>
<tr>
<td>Water Reuse (B.T.)</td>
<td>Patricia Drummer (919) 833-7152</td>
</tr>
<tr>
<td>WW Collection and Water Distribution (B.T.)</td>
<td>Bart Helper</td>
</tr>
</tbody>
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### School Committees

<table>
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<tr>
<th>COMMITTEE</th>
<th>CHAIR/CONTACT #</th>
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<tbody>
<tr>
<td>Collection/Distribution Schools (A.B.)</td>
<td>Gen Brown (704) 336-2585</td>
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<tr>
<td>Plant Operation and Maintenance (M.W.)</td>
<td>Bob Fritts (704) 363-8241</td>
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<tr>
<td>Professional Wastewater Operators (T.H.)</td>
<td>T.J. Lynch (919) 662-5700</td>
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<tr>
<td>Wastewater Lab Analyst (T.H.)</td>
<td>Glenn McGirt (336) 222-5133</td>
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<tr>
<td>Water Board of Education and Examiners (B.T.)</td>
<td>Thurman Green (919) 537-4224</td>
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<td>WW Board of Education and Examiners (B.T.)</td>
<td>Ken Vogt (910) 352-6586</td>
</tr>
<tr>
<td>WW Treatment Operators Schools (T.H.)</td>
<td>John Dodson (704) 560-4384</td>
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Davie County, NC
Town of Cooleemee Water Treatment Plant

Client Profile
Upgrade of 101 year old water treatment plant that included painting piping and walls of pipe gallery.

Problems
This was a worst-case scenario coatings project due to the environmental and substrate conditions specifically due to:
- Deterioration of infrastructure due to high humidity causing significant corrosion
- Active leaks and wet pipes during surface preparation and coating application

Solution
Pressure washed to remove rust, surface contaminants, and loose paint using 5,000 PSI and a calcium bicarbonate (baking soda) injection.

Primed using a product designed for use on damp steel surfaces that are marginally prepared. The primer has very high edge retention capabilities which will prevent common premature coating failures on bolt heads, threads, flanges and 90 degree angles.

Top coat using 2 coats of high-gloss moisture cured urethane.

Results
A good looking, well bonded, fully cured, high-build system that not only extends the life of the asset under highly corrosive conditions, the newly coated facility has improved employee morale and pride of ownership!

Testimonial from Client
“This project is a true success story resulting from diligent surface preparation, superior workmanship, and the use of the newest coatings technology on the market. The staff and I couldn’t be more pleased with the outcome!”

Partners
Manufacturer: SW, Contractor: CMT, Engineer: Grey Engineering, Consultant: Lee Spencer, Facility Owner: Davie County

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The following reports are based on information that was current as of January 25. For more up-to-date information, refer to each committee’s web page on www.ncsafe-water.org or contact the committee chair directly. Contact information for all committee chairs is available on page 16 of this magazine, or on each individual committee’s page of www.ncsafe-water.org. If you are interested in joining a committee, refer to the volunteer form at www.ncsafe-water.org or contact the committee’s chair.

**Committee Reports**

**Annual Conference Program Committee**
**Chair: Larry Mitchell**
The AC Program Committee has not met for this year. The only action has been to publish a call for papers in *NC Currents*.

**Communication Committee**
**Chair: Tom Bach**
Goals for 2012 include: meeting all established deadlines for content submission and review for *NC Currents*, holding two face-to-face and four teleconference meetings, recruiting new members for future growth and assigning roles to these members, enhancements to www.ncsafe-water.org through the suggestions of the Electronic Communication Subcommittee, and keeping other committees informed of Communication Committee activities through established liaisons. Tom Bach will serve as chair and Lori Brogden will serve as vice-chair. Adrienne Coombes, Sonya Hyatt, and Jonathan Ham joined the committee. New Editorial Subcommittee was established with Vicki Westbrook, Sherri Moore, and Sonya Hyatt as members. Jonathan Ham and John Gibson will make up the Electronic Communication Sub-committee. At a Jan. 9 teleconference, the spring issue of *NC Currents* was discussed; Member Portraits, Plant Spotlight, and NC Environmental Resource features were finalized, and four additional articles were solicited. The first face-to-face meeting will take place Feb. 7 in Raleigh.

**Membership Committee**
**Chair: Laurin Kennedy**
The committee’s plans from 2012 include working with NC AWWA-WEA staff to update membership trends presentations using database queries, completing the Recruitment and Retention Plan, developing a new-member welcome packet and new marketing graphics in order to create brand recognition.

**Outreach Committee**
**Chair: Dave Heiser**
The committee’s goals include working with NCRCAP to identify projects, helping low-income communities obtain funding for water/wastewater system improvements by producing Preliminary Engineering Reports for the communities, helping NCRCAP fund some smaller projects as the need arises, helping with educational programs for the communities in need of new facilities and educating NC AWWA-WEA membership of this committee’s goals and achievements.

**Public Education Committee (PEC)**
**Chair: George Simon**
Since the last PEC meeting, NC AWWA-WEA has met three times with NCRWA and NCWOA and plans for a joint public-education campaign are moving forward. The campaign will include a joint website and public service announcements. A draft application to host the Stockholm Junior Water Prize Competition is being prepared and should be presented at the March NC AWWA-WEA board meeting. Bob Pearson has volunteered to lead the application process and chair the Local Arrangements Committee should NC be selected to host. A task force has identified new methods to further the reach of the Carol Bond and other NC Safewater Endowment funds, including contacting college financial aid departments.

**Water For People Committee**
**Chair: Ilke McAliley**
Fundraising events for 2011 raised $16,442, and a check has been sent to National WFP. The Climb For Water team raised more than $12,000, and those funds will soon be sent to National WFP. The committee has gained 11 new members, bringing the total to 66, and many members are very active.

**Young Professionals Committee**
**Chair: Melinda King**
The YP Committee is deeply committed to making young professionals a large population in the organization, involving YP’s from college on up and providing interaction through connection with other committees to help networking throughout the organization. The YP Committee would like to become the liaison between the Education and Membership Retention Committee and universities, helping to promote the organization and the YP Committee and serving as a stepping stone into the organization. Through new, innovative, lower cost/free, and fun volunteer opportunities, we want to help build student involvement in the organization. The committee will be kicking off the spring Senior Design Project...
class at NCSU. One team from the class will be selected at the end of the semester to present their project at WEFTEC.

Seminars and Workshops Committee
Chair: Betsy Drake
Wrapping up the 2011 seminars, the September Automation and Safety seminars, and the Western Regional Training Day were well received, but survey results and attendee comments indicated disappointment in the low attendance at the Western Regional Training Day. Erika Bailey may fill the position of committee vice-chair. If she is unavailable, new committee member Kelley Wilber is interested. Plans for five seminars in 2012 are underway with the possible addition of five others. Since the December Piping and Construction seminars always have good numbers, the plan is to continue those in December 2012 with a location to be determined.

Finance and Management Committee
Chair: Elaine Vastis
The response to the August 2011 Effective Utility Management seminar was positive. A webinar has been proposed for 2012.

Industrial Committee
Chair: Howard Kimbrell
A kick-off meeting is scheduled for Feb. 2, at which time a work plan and goal will be developed and sent to the Board of Trustees as soon as possible. Three new members have been added, and the committee looks forward to adding more as this important committee is rebuilt.

Sustainability Committee
Chair: Randy Foulke
An informal meeting was held in November with some members of the Seminars and Workshops Committee to organize the Sustainability seminar being held in February. Activities in the last quarter include the final preparation of the Sustainability Survey in coordination with NC AWWA-WEA staff. Plans are being made to prepare information publicizing the survey to members and motivating them to complete the survey.

Committee Reports

WW Collections and Water Distribution Systems Committee
Chair: Bart Hepler
The Collection and Distribution Systems Committee is planning the three Advanced Collection and Distribution seminar programs for 2012. A number of current topics are being identified. The committee is consistently seeking input for seminar topics, meeting presentations, and operation and maintenance issues to address.

Furthermore, the Collection and Distribution Systems Committee administers the Golden Manhole Award and the new Collection System of the Year Award. Nominations are always needed. Please contact 2012 chair, Bart Hepler, with suggestions and questions. At its January meeting, the committee continued developing the Distribution System of the Year Award, which will be presented to the board for formal adoption later this year. Award informa-
tion will be posted on the association’s website. Also stop by the committee table during the next major association event. The committee also recognized outgoing chair, Christine Nesbit, for her leadership and presented her with a small gift.

Water Reuse

Chair: Patricia Drummey

Plans are underway for the March 6 Water Reuse Seminar in Elon. Status of NC DENR DWQ Reuse Rule Revisions/Reuse Legislation; the 15A NCAC 2U rules for reclaimed water went into effect in June 2011 and replaced the 2T rules. A complete summary can be found in the 2011 Water Reuse Committee Annual Report. The committee will continue to work with DWQ to gain a better understanding of interpretations and implementations.

Wastewater Laboratory Analyst Committee

Chair: Glenn McGirt

There has been no LABNET meetings since the last report. The Lab Tech Day Organizational Committee met and began developing the 2012 agenda. Lab Tech Day is an all-day seminar sponsored jointly by NCWOA and NC AWWA-WEA. The first meeting was a subject/speaker brainstorm session. Both the water and wastewater agendas must be set by Feb. 3, when the seminar announcement goes to press. Both sections came up with a blend of municipal, regulatory, and vendor speakers that should be interesting and informative.

Plant Operations and Maintenance Committee

Chair: Bob Fritts

Statistics from previous maintenance technologist schools have been reviewed. ABC is pushing to have Class IV developed by the end of 2012. Class IV cannot be started at the 2012 school in Raleigh. It is estimated to start in Raleigh in 2013. ABC may begin re-evaluating Class I, II, and III due to ANSI/ISO certification and may ask for the committee’s input. Enough content has been gathered to cover the Operations and Maintenance track at the Spring Conference. Lead instructors and PowerPoint presentations from last year’s conference will be used. There will likely be a conference call before the spring event to finalize plans.
Chair: John Dodson
The committee depends on volunteers to plan and deliver schools every year. The committee organizes and runs two five-day schools (one in Raleigh and one in Morganton) for biological wastewater treatment plant operators Grades I–IV, and one four-day school for physical/chemical wastewater treatment plant operators Grades I and II. This year, the committee is again responsible for the Advanced Topics Seminar, which is returning to its original format.

It takes many committee members and other volunteers to accomplish this work. I appreciate the efforts of these volunteers and thank their employers for allowing them to take time away from work to help develop and sustain our mission. I believe there may be other NC AWWA-WEA members who would like to be involved in this committee. New members need to be recruited to help plan, deliver, and moderate the schools that we conduct. There is a special need for those who can share their talent as instructors. Participation in the committee’s work is an excellent way to network across the industry and the communities involved. Participation is also a way for Association members to “give back” to the wastewater community.

One area in which the committee particularly needs your help is to find speakers for the Innovative Ideas portion of the Advanced Topics seminar. This is the best-received segment of this seminar, but it is the hardest one to find speakers for. This segment features operators speaking to other operators about creative things that they have done at their plant. Of particular interest are small ideas that save time, money, make the plant work better, or just make their lives easier. Other operators can really relate to these and use the knowledge gained at their own plants. If you know of someone who has done something that you feel would be of interest to other operators, please forward this information to Joe Hughes at (704) 799-4445 or jhughespe@aol.com.
Barry Gullet: Embracing the Challenge

Barry Gullet enjoys a challenge. From March 2010, when he became interim director of Charlotte-Mecklenburg Utility Department (CMUD) for the City of Charlotte, to June 2010 when his appointment was confirmed, Gullet managed a sweeping and complex customer service improvement project to address a series of customer concerns. “We largely resolved any issues, with our biggest critics becoming our allies,” says Gullet.

During this same 12-week period, he prepared and earned support for a budget and rate increase proposal during some of the most difficult economic times Charlotte and Mecklenburg County have ever faced. Declining water use and drought only exacerbated an extended CMUD hiring freeze that left numerous vacant positions and a backlog of work.

“The economic downturn on the heels of a drought left us in a pretty bad way in terms of budget and revenue,” says Gullet. “Getting a handle on that and working through it with city council was pretty challenging.”

Yet two years later, CMUD now has more working staff. Thanks to a change in approach to staffing levels, including eliminating some vacant positions and reworking the budget to fill remaining positions, the work backlog is improved.

“We’ve had great support from city council,” explains Gullet. “We showed how we’d been doing a lot with very little, remained good stewards of the money we had, and yet many system and service needs were still unmet.”

After many years of rapid growth, CMUD was transitioning into a much slower-growing utility. Ramping down from large numbers of capital projects and a once-growing customer base required time. “During that change process, we really had to work hard to get rates aligned with expenditures,” Gullet says, adding that, although there is still work to be done, the utility is in far better shape than it was just a few years ago.

He emphasizes the importance of the solid foundation laid by his predecessors. “The people who started building our system in the early 1900s made some very good decisions about how to plan and organize our water and sewer utility, where to put facilities, how to size them, and how much land to acquire around them,” says Gullet.

Since it was established in 1972, CMUD has received stalwart support from the community, including customers, rate payers, and elected officials. Gullet points out that he has had the pleasure of working with many excellent people who were not only leaders in Charlotte but leaders in the industry.

When he joined the utility in 1978, the young engineer hardly realized how new CMUD really was. Starting in the engineering division as a project engineer, he worked with field staff on some of CMUD’s first rehabilitation projects. After becoming deputy director in 1992, he filled in as interim water treatment superintendent, earning his operator’s certificate in the process. “I’ve been very fortunate to have opportunities come my way,” says Gullet. “One of the things I’ve always enjoyed was doing projects other people didn’t want to do, or that were brand new to us.”

As deputy director, he also had the opportunity to fill in as acting wastewater superintendent for three years. In fact, by the time he became director, Gullet had worked in almost every area of operations except customer service. “Fortunately I had helpful, experienced staff to bring me up to speed,” he recalls.

“Being director was a career goal I had for a long time,” he adds. “Working with a great staff and organization was the biggest reason I really wanted the job.”

Gullet also spent six years on the Board of Trustees of the AWWA-WEA, chairing the state association in 2007. In November 2011, he returned to the board as WEF delegate elect.

Gullet participated in AWWA and WEF’s QualServe program to lead a QualServe team of senior utility managers to conduct peer reviews of several large water and sewer facilities. Currently, he is chair and a founding member of the Catawba-Wateree Water Management Group, a non-profit corporation composed of 18 water utilities plus Duke Energy.

Gullet has earned many awards for his service to the industry, including membership in the 5S Society, the North Carolina AWWA-WEA Outstanding Service Award, and both the Fuller and the Bedell awards, the industry’s most prestigious tributes. Despite a busy professional life, he still finds time to devote to the Boy Scouts as troop committee member and merit badge counsellor. His other passion involves riding and repairing his bicycles. After all, what’s a hobby without a challenge?
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Melinda King:
Bringing Young Professionals Into the Fold

How fitting that Melinda King should chair the NC-AWWA’s Young Professionals Committee (YPC). A mapping and records design engineer with the City of Greensboro Water Resources’ Utility, King has a bright future in the water and wastewater industry. And she’s encouraging the next generation to do the same.

The committee has helped launch student chapters at two universities while working to create opportunities for students and young professionals to interact. At the same time, the group has been educating other association members about the value and unique contributions of both young professionals and students.

“Having that interaction from the time I was in school would have been really great,” says King, who joined the NC-AWWA-WEA three years into her career. When she attended NC State, there was no student chapter there at the time.

King graduated from high school knowing that she wanted to be a civil engineer like her father. But it was only in graduate school that she was able to narrow down her area of concentration. That turned out to be water, stormwater, and sewer utility design.

After graduation, she worked for three years with a consulting firm before joining the City of Greensboro. “This position gives me a better work-life balance than being on the consulting side of the industry,” says King, who now has two kids who are five and two years old.

Her department, which is responsible for mapping the water and wastewater infrastructure, recently launched the development of an InfoWorks Sewer Model and InfoWater Water Model in conjunction with a Geographic Information System (GIS) database to collect and update information. The water and sewer models will also enable Water Resources to conduct sophisticated computer modeling, replacing a system of spreadsheets formerly used to estimate the impact of increased input and flow. “Now we’re able to anticipate impacts downstream,” says King. “It allows us to get a holistic view of the system with the addition of new flows and industries.”

King and her team also deal with developers who want information on water and sewer capacity. Thanks to the models and the GIS, Water Resources can now give developers and planners a more realistic answer to what is going on in the system. “We use water and sewer modeling to make sure we can handle increased capacity and help them determine what size of lines they would need to install,” she explains, adding that modeling is also useful for identifying current issues within the system, where upgrades might be necessary. The team is now starting to use the modeling on a daily basis.

Her department is also involved in organizing public meetings related to Water Resources projects. For instance, because the city is currently installing a new sewer line, the department is contacting affected property owners to answer their questions and address their concerns.

“I really enjoy working with the public, talking to people, giving presentations, or trying to figure out an answer for someone,” says King, adding that she also enjoys working with city council to help determine how the city will grow. At the same time, she is very comfortable meeting with the media. Recently, it was with great pleasure that she talked to reporters about the completion of the replacement water supply dam, a project that was launched five or six months after she started with Greensboro.

“I also enjoy giving presentations at conferences,” adds King, noting that, increasingly, she is seeing students attend these events.

Seeing her Young Professionals work bear fruit is very fulfilling. Although she will soon be aging out of the young professional side of the association, she still wants to stay involved with YPC for a few more years.

As for her work with the city, she hopes to be able to move up in the organization as time goes on. But for now, with her children still young, she is looking forward to several more years in her current position, working with a group of people she looks forward to seeing every day.

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Recently, when the City of Lexington had a problem with grease floating on their aeration tanks, Water Resources Superintendent Roger Spach paid a visit to the Town of Cary. As it turns out, Cary had a similar problem and was trying to address it with a piece of equipment that Lexington’s wastewater treatment plant (WWTP) was also thinking of purchasing. “If it didn’t work for them, then it won’t work for us,” says Spach, pleased to have learned from the other town’s experience.

Sharing information has always been important to Spach, who has more than 41 years of experience doing just that. “One of the things I like about this particular field is that everyone talks to everyone else,” he explains.

Spach started his working life as a middle school teacher but quickly discovered he had pursued the wrong career. Fortunately, he also had a B.Sc. in chemistry. Looking for laboratory work, he accepted a position at a WWTP. After four and a half years at the City of Winston-Salem’s industrial pre-treatment and plant operations programs, he joined the City of Lexington in 1976. While at Winston-Salem, he became certified as an operator in both water and wastewater. “You understand the business better by going through the certification program,” he says.

In 1988, after spending 12 years in pre-treatment, Spach was appointed to his current position as superintendent of the city’s water and wastewater treatment plants. Today, he oversees a 6.5 million-gallon per day biological nutrient removal plant, as well as two spray irrigation permits and a compost facility. “We avoided a lot of problems with the compost facility by talking to others who had done the same thing,” says Spach.

On the water side, he is responsible for two conventional plants located on the same site but with different types of operations. One was built in 1922, while the other came on line in 1970. Managing the plants involves an ongoing process of phasing out old equipment and implementing improvements. This year, a new round or regulations, coming into effect in 2013, prompted plant scale testing. “The industry is always changing,” says Spach. “There’s never a dull moment.”

Challenges include not only regulatory concerns but also physical operations issues, such as making the plants more efficient. For instance, the wastewater treatment plant, which was once the city’s largest water consumer, now uses 20,000 gallons less thanks to a belt press. “People in this industry are pretty creative,” says Spach. “They come up with ideas to make things work. You just have to connect with the right person. When

“One of the things I like about this particular field is that everyone talks to everyone else,”
you’ve been around as long as I have, you have a pretty good idea of who has what across the state. I’m generous with information about what we’re doing and they do the same.”

Spach also belongs to the Yadkin-Pee Dee River Basin Committee, and he says that emails are going around constantly among members. The 29 cities and business on the committee do plenty of networking between meetings.

Another way Spach has extended his passion for sharing is through the regional and annual wastewater schools where he has been teaching since the early ’70s. “I’m delivering information, but I’m also listening to students and other instructors talking,” says Spach. “I dare say I’ve learned more from trying to teach than the students have learned from me.”

Last year, the NC AWWA-WEA awarded Spach and Steve Drew of the City of Greensboro the Don Francisco NC Educator of the Year Award. The honor is particularly meaningful because Francisco was the first person Spach met when he attended the Grade III Certification School in Chapel Hill in 1973. Since the early ’80s, the two have also worked together on the Schools Committee to organize the advanced wastewater seminars and the two biological schools.

In his “spare time,” Spach runs a 60-acre hobby farm with his brother and 93-year-old mother. Along with a self-pick strawberry field, he also grows pumpkins. Every year, he tries to see how big a squash he can grow, much to the delight of his grandchildren, who love to join him in the pumpkin patch!

“I dare say I’ve learned more from trying to teach than the students have learned from me.”
NC State
Fledgling Chapter Forges
Strong Industry Connections

 Barely 12 months after the launch of the NC AWWA-WEA student chapter at North Carolina State University (NCSU), meetings average 40 students. Members are involved in bringing in speakers, organizing field trips, attending conferences, and a myriad other activities connecting them to the world of water and wastewater outside the university. “For a brand new student chapter, that level of attendance is really huge,” says Chapter President Leigh-Ann Dudley, a master of science student in her final semester of environmental engineering at NCSU.

She first heard about the possibility of starting a student chapter during an interest meeting held with members of the Young Professionals Committee, the Past Chair John Kiviniemi, and the chair of NC AWWA-WEA’s Young Professionals Committee, Melinda King. “Once they talked about all the benefits of having a student chapter, I was very interested in getting involved,” Dudley says.

What attracted students most were the networking opportunities: for professionals to visit the university to speak about their work, and for students to attend committee meetings, events, and seminars at the state level. “The enthusiasm of the young professionals and students was instrumental in getting things started,” recalls Dr. Detlef Knappe, faculty advisor to both Dudley and the student chapter. “The young professionals provided the spark, but at the same time, there was great interest from students. It was developing from both ends.”

Before long, there were 94 students on the listserv. The student chapter includes a mix of graduate students, both masters and doctoral, as well as undergraduates, from freshmen to seniors. This gives members the opportunity to connect with students at other points in their academic careers. “You may not have classes with them, but you get to meet people a little ahead or behind you who are interested in the same things you are,” Dudley says.

Student interests include everything from water resources engineering, water and wastewater treatment, to water reuse, conservation, and watershed management and planning. “Our students also have a wide variety of career paths in which they are interested,” said Dudley, “including consulting, industry, utilities, and academia.”

That diversity of interests is reflected in the guest speakers who present on a monthly basis to the chapter members. “They are typically professionals speaking on one of any number of environmental issues,” notes Knappe. “It is a wonderful opportunity for students to learn about what it’s like to be a consultant or work at a utility as an environmental engineer.” In addition to professionals designing water and wastewater treatment plants, guests have included professionals involved in industrial wastewater treatment, decentralized wastewater treatment, and water reuse.

Other networking opportunities include attending local and national conferences. The NCSU chapter sent 19 students to the 2011 NC AWWA-WEA Annual Conference, including nine students who competed in the Student Poster Competition. “They were really excited to go and show their research,” says Dudley. The chapter also has students volunteering and attending the upcoming WEF Residuals and Biosolids Conference, as well as attending the Water Resources Research Institute Annual

These three students and a young professional helped clean up the chapter’s adopted stream.
Conference in Raleigh. Nine students also attended the NC AWWA-WEA Water Reuse Committee meeting last October.

For a modest fee of $30 a year, students can obtain AWWA or WEF national and state membership. NC AWWA-WEA also waived student registration fees to the annual state conference, encouraging high student attendance.

And now the NCSU student chapter has set its sights on the Water Environment Federation (WEF) national conference. “Chapter members met with instructors of the university’s Capstone Design Course and helped them see the value of NCSU participation in the WEF national student design competition,” says Knappe. As a result, the WEFTEC design competition has now been integrated into the senior design curriculum for the first time.

This spring NCSU will be holding its first-ever intra-university design competition. Five groups are preparing presentations for the end of the semester when the winner will be selected to attend WEFTEC in October. “The students are very excited about the networking opportunities available at the conference,” says Dudley.

Other projects have seen students become involved at the local and com-
munity level. Field trips organized by the chapter provide students with the opportunity to visit local water and wastewater treatment plants as well as the local landfill. The student chapter also participates in the adopt-a-stream program, performing regular stream cleanups on a section of Walnut Creek in Raleigh. At the same time, the students help out with local schools and community events, such as the NC AWWA-WEA third annual Model Water Tower Competition held for elementary and middle school students and the Walnut Creek Wetland Center Festival in Motion.

They also continue to interact with members of the Young Professionals Committee, both formally and through informal social events. “Casual networking opportunities can be more comfortable for students,” notes Dudley.

All in all, it has been a full and exciting year for members of the NCSU student chapter. In a short time, the group has come a long way toward fulfilling the mission: “The NC State Student Chapter is designed to provide knowledge and information to NC State Students in order to improve the quality and supply of water in North Carolina, North America, and beyond, by advancing public health, safety, and welfare, and uniting the efforts of the full spectrum of the water community.”

But Dudley still sees lots of work to be done. One of the chapter’s main goals involves increasing memberships from other university departments. “All of our members currently come from the civil, construction, and environmental engineering department,” she says. “We would like to involve students from other engineering disciplines in the organization.”

Nonetheless, the young professionals are impressed with how the chapter has progressed. “They have made huge strides in getting things moving,” says King. “It is a great opportunity for students, but also for consultants and employers to identify the up-and-comers. I really view the students and the young professionals as the future that will move the industry forward.” If the first successful year of the student chapter is any indication, that future looks bright indeed.
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**WATER CERTIFICATION QUESTIONS**

1. The primary reason for the use of a dry barrel fire barrel is to:
   a) allow easy maintenance of the hydrant
   b) keep the barrel from rusting
   c) minimize water hammer
   d) keep the hydrant from freezing

2. Which type of valve will prevent the collapse of a pipe?
   a) pressure-relief valve
   b) needle valve
   c) pinch valve
   d) air-and-vacuum-relief valve

3. At which time of day is the age of water stored in a distribution system the highest?
   a) Early morning
   b) Late morning
   c) Early afternoon
   d) Late evening

4. Which one is NOT an advantage of steel pipe?
   a) relatively light weight
   b) competitive price, particularly in diameters
   c) the need to carefully consider external loads in the installation design
   d) relative ease of transporting and installing

5. If a pump discharges 10,350 gallons in three hours and 45 minutes, how many gpm is the pump discharging?
   a) 43 gpm
   b) 44 gpm
   c) 45 gpm
   d) 46 gpm

6. The component of a centrifugal pump sometimes installed on the end of the suction pipe for holding the priming is the:
   a) casing
   b) foot valve
   c) impeller
   d) lantern ring

7. What is the cross sectional area of a pipe that is 10 inches in diameter?
   a) .24 square feet
   b) .54 square feet
   c) .65 square feet
   d) .79 square feet

8. Where water is available at a reasonable cost and soil drains relatively freely, water settling cannot be used to compact the backfill.
   a) True
   b) False

**Answers:**

**WASTEWATER CERTIFICATION QUESTIONS**

1. A _______ is used for metering chemicals, because of the accuracy of its positive displacement stroke.
   a) rotary pump
   b) plunger pump
   c) gear pump
   d) centrifugal pump

2. Impregnating activated carbon with a caustic material can expedite removal of acidic materials, such as _______ from the air stream.
   a) hydrogen sulfide
   b) carbon tetrachloride
   c) potassium chloride
   d) methyl carbonate

3. Activated carbon is made from such materials as _______.
   a) sodium chloride
   b) chromium dioxide
   c) coconut shells
   d) calcium carbonate

4. Air stripping is commonly used to evaporate and remove _______ organics from a _______ phase.
   a) insoluble/solid
   b) soluble/solid
   c) volatile/liquid
   d) gaseous/gas

5. Which two forms of metal wastes need special treatment prior to hydroxide floc formation and precipitation?
   a) cyanide and hexavalent chromium
   b) cyanates and trivalent chromium
   c) copper and zinc
   d) nickel and lead

6. The velocity in a closed pipe can be determined by using a:
   a) Palmer-Bowlus
   b) Parshall
   c) weir
   d) venturi

**Answers:**
1. a. (IWT, Sec. 8.5.10, page 342), 2. a. (IWT, Sec. 10.040, page 491), 3. c. (IWT, Sec. 10.12, page 495), 4. c. (IWT, Sec. 10.02, page 490), 5. a. (IWT, Sec. 11.26, page 532), 6. d. (IWT, Sec. 6.13, page 218)
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When installed both the shell and the hasp swivel freely and individually. To operate the hydrant simply remove the padlock, lift off the outer shell, and open the hydrant using any box end* hydrant wrench.

The op nut extension and the outer shell are powder painted red for exceptional durability. Assembled K2 lock measures 3” in diameter overall and 6-1/4” high to the top of the hasp.

The K2 is designed to accept a wide variety of padlocks with shackle diameters up to and including 5/16” diameter. Keyed-alike breakaway to standard to high security locks are available from Pollardwater.com.

Breakaway locks have shackles that can be shattered with a hydrant wrench if keys are not on hand. You pick the lock style that makes sense for your fire district and surrounding districts.
The City of Dunn, located in Harnett County, is a bustling community situated at the intersection of Highway 421 and Interstate 95. Less than an hour from both Raleigh and Fayetteville, the City’s Black River Wastewater Treatment Plant provides sanitary sewer service for a city of just under 10,000 in population.

The Black River Wastewater Treatment Facility was originally designed in 1970 with an average daily design flow of 2.275 MGD and a peak design flow of 4.55 MGD. In 1986, the facility was re-permitted to 3.0 MGD without any additional construction or plant pumping modifications. The capacity increase was based on the facility’s exceptional BOD5 and TSR removal efficiencies achieved at the 3.0 MGD flow rates. In 1995 the plant was expanded to the current capacity of 3.75 MGD with a corresponding average daily peak flow capacity of 7.50 MGD.

The treatment plant includes an influent pump station, screening, grit removal, Parshall flume, two aeration basins, three final clarifiers, and liquid chlorination and dechlorination. A 7.5 MGD effluent pumping station conveys treated wastewater through approximately three miles of 20-inch forcemain before discharging into the Cape Fear River. The entire treatment system is monitored through a newly implemented VT SCADA system.

Two years ago the plant switched from gas chlorine disinfection to a liquid sodium hypochlorite/sodium bisulfite system. Because of emergency response protocol with chlorine gas and sulfur dioxide (both in one-ton cylinders), employees were limited on response to leaks. Plant personnel converted the process through an in-house project to alleviate the dangers associated with the ton gas cylinders. This project also alleviated effluent pH problems and the need for soda ash addition.

The other critical issue the plant has dealt with over the years is problems stemming from excessive infiltration and inflow (I/I). The problems originated throughout the sewer collection system and greatly affected pumping stations. But they were most critically felt at the wastewater treatment plant. Because of the excessive extraneous flow, at times, the staff would have difficulty operating the plant during rainfall events, and, periodically, the daily permitted discharge capacity of the plant was exceeded during extensive wet weather events.

In 2008 the City, with the assistance of Davis-Martin-Powell and Associates of High Point began the process of planning, designing, and constructing significant improvements as part of a system-wide project that included multiple pump station upgrades, gravity sewer rehab, and improvements to the hydraulics at the head of the wastewater treatment plant to address the I/I problems. A Clean Water Management Trust Fund, two Rural Center matching grants, and a Clean Water State Revolving Fund were secured to assist with funding, and construction began in spring 2010.

To address the I/I at the treatment plant, the city upgraded the influent pump station (Gorman Rupp (2) T-10, (2) T-12), replaced the grit (Eutek Headcell) and screening equipment (Westech), installed a new Parshall flume, and installed flow equalization facilities, including a new 3.0 MGD pre-stressed concrete tank (Crom). The wastewater treatment plant’s aging DAF sludge handling system was also replaced with a new rotary drum thickener (Parkson) to more adequately process solids through the plant. New sludge blowers (Aerzen) and digester aeration (EDI) was also installed.
The wastewater improvements were completed during the spring of 2011, and since the completion of the improvements, the staff has noticed a significant difference in the plant hydraulics through the pre-treatment facilities. In addition, the overall wastewater system has improved and the staff has noticed a tremendous reduction in the amount of extraneous flow within the system, including the collection and pumping facilities.

The wastewater treatment plant is operated and maintained by a staff of nine, which includes lab and administrative personnel. The City encourages and reimburses staff to remain current with the latest trends and techniques through continuing education courses and wastewater development programs, including operator certification, land application certification, and lab certification. Monthly safety training is a requirement of each employee.

To encourage a life balance, the City provides each employee the opportunity for flex scheduling to meet family obligations and school activities involving employees’ children. This dedication to the plant employees is reflected by the fact that employees feel that their co-workers are their second family, and many stop by on their days off just to visit.

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BUSINESS CONTINUITY PLANNING
The Water Research Foundation offers new tools to help utilities survive an emergency.

Jack Moyer, National Water Security and Preparedness Technology director, URS Corp., Morrisville

Many water and wastewater utilities have prepared Emergency Response Plans (ERP) to address the initial response to emergencies in their systems. These ERPs basically address “stopping the bleeding” in an emergency. However, in recent years, recognition has grown that business continuity plans (BCP) are also needed to ensure the continued survival of the organization, or “keeping the heart pumping.”

A set of new business continuity guidance materials is available from the Water Research Foundation. These products were developed in collaboration with the U.S. Environmental Protection Agency and the American Water Works Association. They include a guidance document and template that will enable all water and wastewater utilities, large and small, to develop their own BCP.

This Water Research Foundation project was conducted under contract to URS Corp., with Gradient Planning, Shadden Consulting, and Plan to Continue as subconsultant team members. Jack Moyer of URS and Kate Novick of Gradient Planning served as the principle investigator and co-principle investigator, respectively. Several North Carolina utilities participated in the project, providing insight and comments. Those included Durham, OWASA, Greensboro, Greenville Utilities Commission, Cape Fear Public Utilities Commission, Davidson Water, and Charlotte Mecklenburg Utilities.

A REVIEW OF PROJECT TOOLS
The tools developed for the foundation project include a detailed guidance document to facilitate development of a BCP, a BCP template in Microsoft Word® as a starting point, and a series of online training modules to provide additional support in working through each step of the development process. These materials will be posted to the foundation web page for this project in early 2012 and are available free of charge. Although the specific web address has not yet been assigned, it will be accessible through the foundation website at www.waterrf.org.

KEY STEPS IN PREPARING A BCP
While some water and wastewater utilities may already have some (or many) elements of a BCP in place, others may be starting from scratch. For all water and wastewater utilities, there are key elements of a BCP to help the utility reduce disruptions to their operations and overall mission. The tools developed for the foundation project are based on these key elements:

- Get started and organized. As with any planning project, the first step is establishing a support structure for the plan. Key components of this step include:
  - Define and communicate the business case to demonstrate that it is well worth the investment.
  - Secure strong management commitment.

- Assign a BCP “champion.”
- Designate and empower a BCP coordinator and BCP committee.
- Secure staff engagement and buy-in.
- Define the utility’s mission.

Identify mission-essential functions. Perhaps the most critical step in the development of a BCP is identifying the mission-essential functions (MEF) in the utility. MEF are functions or activities that are essential to fulfilling the utility’s mission. Once the prospective utility MEF have been identified, the BCP Committee should confirm that they are actually mission-essential and then prioritize them.

The resulting MEF prioritization list is often an immensely valuable tool in prioritizing the response to and recovery from an incident.

Address critical resources. The next critical step in BCP development is to
identify resources that are critical to the continuation of the MEF. Then, the utility needs to address how these critical resources can be best managed to minimize potential interruptions in the availability of those resources.

Identify and protect vital records and data. Vital records and data, such as system maps and customer records, are such critical resources to an organization that their protection is recommended as a specific step in the BCP development process. A utility must ensure the protection of vital records and data including but not limited to: maps and facility/infrastructure drawings, customer and vendor information, legal documents, and employee information.

Designate alternate facilities. For MEF that are vulnerable because of their location, provisions should be made for alternate facilities. Alternate arrangements may include relocation to other facilities owned by the utility, other facilities owned by the parent municipality or other parent organization, advance arrangements for privately owned facilities, or just-in-time arrangements for privately owned facilities.

Establish succession plans. It is crucial to plan for the full, and possibly temporary, replacement of personnel serving in critical positions in the organization if they become unavailable. Their unavailability may be coincidental or may be related to an incident. Succession plans should be prepared for replacement personnel three levels deep for all singular mission-critical positions, such as top leadership, operations managers, critical technicians, etc.

Provide delegations of authority. It is also crucial to plan for delegating special authorities that may be needed to maintain business continuity in the response to an incident. These decisions made ahead of time will help facilitate disaster recovery and business continuity.

Delegations of authority generally involve limits of purchasing and contracting, hiring, external reporting and communications, and authority to accept mutual aid and are based on the crisis situation.

Develop or enhance crisis communications. All utilities should have a communications plan, prepared in advance, to effectively communicate during an emergency, which will minimize losses and downtime during the crisis. Internal communications tools include up-to-date staff contact information, call trees, or special inbound or outbound telephone or IT notification systems to keep employees apprised of critical information. External communications include policies and procedures and pre-scripted messages to successfully transmit critical and risk-related information to consumers/citizens during a crisis.

The water and wastewater sector now has free tools to help you develop a BCP to minimize disruptions and losses during a major emergency at your utility. It is time to dust off your old plans or begin anew. Proactive planning makes all the difference, not only to your utility’s consumer confidence, but also to its future viability and strength. The time to plan is now, before the next major emergency.

JACK MOYER is the national water security and preparedness technology director for URS. He joined URS in 2005, upon his retirement from the City of Raleigh, where he served as assistant public utilities director. He holds a B.S. and Masters of Public Administration from Penn State. He is the immediate past chairperson of the AWWA Emergency Preparedness and Security Committee.

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Before 9/11, there was limited reporting of threats or incidents of vandalism involving water systems, and in most instances, they were handled as criminal activity at a local level. In the aftermath of 9/11, Congress passed the Public Health Security and Bioterrorism Act of 2002, which required drinking water utilities to conduct vulnerability assessments. The vulnerability assessment provision included a requirement to assess the likelihood of malevolent acts from adversaries. For many utilities, this threat determination was challenging, since there was no national threat profile for the sector.

Since that time, there have been efforts to compile data on security threats and incidents in the water sector (e.g. Actual and Threatened Security Events at Water Utilities research project conducted by O’Brien and Gere, for AwwaRF in 2003), and organizations, such as the WaterISAC and State Fusion Centers were established to assist information sharing. According to the National Infrastructure Advisory Council, information sharing is perhaps the most important factor in the protection and resilience of critical infrastructure. Information on threats to infrastructure and their likely impact underlies nearly every security decision made by owners and operators, including which assets to protect, how to make operations more resilient, how to plan for potential disasters, when to ramp up to higher levels of security, and how to respond in the immediate aftermath of a disaster. (National Infrastructure Advisory Council, 2012).

The WaterISAC was established by the water sector to facilitate information sharing among water and wastewater utilities and to maintain awareness regarding potential risks, including contamination, terrorism, and cyber threats. Their analysts track security incidents and provide a clearing house for government and private information to help water sector members identify risks.

State and major urban area fusion centers serve as focal points for the receipt, analysis, gathering, and sharing of threat-related information between the federal government and state, local, tribal, territorial (SLTT) and private sector partners. Beyond serving as a focal point for information sharing, fusion centers add significant value to their customers by providing a regional context to help enhance the national threat picture. Fusion centers provide the federal government with critical state and local information and subject matter expertise that it did not receive in the past—enabling the effective communication of locally generated threat-related information to the federal government. Integrating and connecting these state and local resources creates a national capacity to gather, process, analyze, and share information in support of efforts to protect the country.

Sector leaders, the WaterISAC, and federal partners encourage utilities to report incidents and suspicious activities to aid in compiling threat data. Today, with the WaterISAC and fusion centers in place, the availability of threat analysis exists, but can only be effective if utilities report threats and incidents. It is critical that utilities that experience events report all of them to local police, to fusion centers, and to the WaterISAC. Reporting incidents to each agency allows for investigation at the local level and analysis at the state and federal level to “connect the dots” and identify similarities in incidents across the sector. It is also incumbent upon state and federal partners to expedite the sharing of actionable information.

It is our responsibility as utility owner operators to report events and provide information to assist in development of a secure, resilient infrastructure. Working with our utility partners and other agencies sharing information and integrating resources is a significant effort toward protecting our infrastructure and our communities.

REFERENCE

PATRICIA LAMB is preparedness manager for the City of Charlotte, Charlotte-Mecklenburg Utility Department.
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**ALPHA DIRECTORY**

- American Marsh
- Bay Products
- Belco Manufacturing
- BJM Pumps
- Böerger
- CDG
- Custom Controls
- Dakota Pump
- Danfoss
- Dresser Roots
- Duperon Corporation
- ECC, Incorporated
- Fairbanks Morse Pump
- Fairfield Service Co
- Flottweg
- Fournier
- Gator Prime
- General Rubber
- Hayward Gordon
- Henry Pratt Company
- Hydro-Dyne Engineers
- Hydro Gate
- Hydromatic
- Lakeside Equipment
- Landia
- Legacy Environmental
- Lord and Company
- Mission Communication
- Monoflo
- Mueller Company
- NRP
- OBL America
- Oda-Killa by SunCoast
- RDP Technologies
- S&N Airoflo
- SunCoast
- Thermal Process
- Thern
- Ultraflote Technology
- WesTech Engineering

**SCADA / CONTROLS / VFD**

- Mission Communications
- Wireless Telemetry and SCADA Systems
- Lord and Company
- Complete SCADA Integration
- Danfoss
- VFDs and Soft Starters
- Custom Controls
- Custom Control Panels
- Suncoast
- Custom Control Panels
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  - gregg@clearwaterinc.net
- Mike Knight
  - mike@clearwaterinc.net
These days all utilities are facing jeopardy and virtually all of that jeopardy is tied to their assets. For this reason, the practice of good asset management coupled with strategic utility security measures can provide substantial protections and savings.

Not enough utilities understand the similarities and common benefits of both asset management and security. In order for each of these to work together to promote success, the focus should reside on risk or vulnerability assessment and management relative to a utility’s assets, especially the critical assets.

In the Environmental Protection Agency’s (EPA) April 2008 Asset Management: A Best Practices Guide, even the basic terminology is common to both processes. Such terms as “critical asset,” “risk,” “consequence,” “failure modes” are used multiple times. If you were to explore any of the current utility security or risk assessment methodologies for security, you would see these same terms used in the same way to describe the fundamental steps.

Clearly, some common ground exists between utility security and asset management. And it’s important to understand that these concepts are more alike than different when it comes to safeguarding a utility’s assets. With this understanding, instead of pursuing these initiatives separately, it is more economical to examine and explore both simultaneously.

For the purpose of this article, the terms “security” and “risk/vulnerability assessment” are used interchangeably. Achieving security begins with a thorough risk/vulnerability assessment and ends with implementation of the recommendations from that assessment.

**FUNDAMENTALS OF ASSET MANAGEMENT AND SECURITY**

Asset management is loosely defined as the process of minimizing the life-cycle cost of a utility’s assets, while being mindful of maintaining service levels. Security, in the new era of “all hazards” can be loosely defined as managing the risk your assets face with respect to various threats with the consideration of life-cycle costs and service levels. Some would consider security a subset of asset management, but there are fundamental components of each process that are common and make the consideration of one process worth considering the other, particularly during the early stages of development of either process.

At a beginning point, each process requires some discussion and the determination of what is important to the utility, what is the utility’s mission or, stated another way, "what level of service is desired?" In both security and asset management, this priority drives the fundamental decisions about which assets are critical and is a key to determining future resource allocation.

**ELEMENTS COMMON TO BOTH**

Understanding Your Assets. Security and asset management both require an understanding of your assets. By understanding, we mean characterization of a utility’s assets. Within the Risk Analysis and Management for Critical Asset Protection (RAMCAP®) Standard for Risk and Resilience Management of Water and Wastewater Systems (ANSI/ASME-ITI/AWWA J100-10), there are two basic phases. An initial screening can decide whether each major facility owned by the utility should be included in the assessment. Some facilities may make much less contribution to its principal mission.

Based on industry acceptance, the RAMCAP standard is the most current and comprehensive risk assessment methodology, which incorporates risk and resilience, all hazards, and likelihood or probability of threat.

Prioritization and Determining Critical Assets. Perhaps the best summary of the reasons and process for determining critical assets comes from the above-
The Town of Holly Springs, NC selected Kruger’s Hydrotech Discfilters to upgrade their Water Reclamation Facility based on proven experience, superior quality and the operator friendly design.

The system has proven itself since being commissioned. Chief Operator Randal Martinez says: “The Kruger filters are my favorite piece of equipment. They help us meet our effluent TSS and Phosphorus limits. The best part is the amount of time we save. This is some of the best technology for labor savings, time savings, and cost savings.”

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Determining Failure Modes. With critical assets identified in both processes, the next and most essential steps are determining what could cause the failure of that critical asset, how might it occur, and what are the consequences (cost) of such a failure to the system. This step is often immediately followed by seeking to understand the most cost-effective means to either prevent failure or mitigate the consequences of failure.

Again, the aforementioned EPA guide talks about this part of the analysis in almost identical terms and steps, as those required of the RAMCAP vulnerability assessment standard noted above.

This includes addressing such concepts as:
- how an asset could fail,
- the likelihood or probability of failure,
- the systems in place now to help prevent or mitigate the failure, and
- determining the main consequences or cost of the failure.

Probably the biggest difference between asset management and security in the failure-mode analysis is that asset management focuses on failure that’s due to condition or useful life factors, while security looks at threats, such as intentional acts, natural disasters, proximity hazards, and interdependencies. It should be obvious that even life-cycle or condition failure is a threat and not a far leap to see it as part of a RAMCAP-based risk/vulnerability assessment process in the future.

Prevention, Mitigation, Response, or Rehabilitation/Replacement. Different terms are used in both asset management and security to describe the means of reducing the level of risk from asset failure (and therefore the cost of failure), but the basic ideas are the same. In both cases, prevention is a key component, but only with the background of understanding where to focus the prevention and what employed means will achieve the most cost-effective prevention.

One aspect that is different between security and asset management is the use of consequence mitigation. In the security world, there may be some events that impact an asset, where mitigating the consequences (dealing with the effects of a threat, after it has occurred) is a more cost-effective option. This probably does not have a significant parallel concept within asset management, unless you consider allowing an asset to fail and then using replacement as an option for a much less critical asset.

CONCLUSION

There are many other details and specifics to each process that could be defined, but they fall outside the scope of this article. While asset management and security are different, there are more commonalties than differences. This comparison should lead most utilities to consider asset management and security assessment processes when beginning an asset evaluation and, if one or the other assessment has been undertaken recently, to strongly consider initiating the other process. Any utility that solely relies on a singular process stands closer to the brink of jeopardy, and that’s not a game worth playing.

REFERENCES


JOHN W. MCLAUGHLIN, PE. Is a senior principal in GHD’s Charlotte office and also chair of the NC AWWA-WEA.
The Permanent Solution for Water Storage

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Cyber security plays an important role in our everyday life. From ordering flowers for a loved one online to paying your bills effortlessly without mailing checks, we depend on our vendors to maintain cyber security and to protect us from fraud and theft. Naturally, we understand the importance of vendors, banks, and retailers protecting their cyber systems, but do we really consider the necessity of protecting our municipal data? What about the role we play in keeping our municipal system secure?

Over the past several months, the City of Raleigh has participated with the Center for Infrastructure Assurance and Security (CIAS) of the University of Texas at San Antonio, Wake County Emergency Management, the Department of Homeland Security, and various utility, state, law enforcement, and financial entities in conducting a tabletop exercise to better understand and decipher how we depend on each other and the technologies at our disposal. When asked to represent our division at the first tabletop, I was not sure what to expect or what I could contribute. Sure, I had an understanding of our SCADA system and the importance it plays in plant operation—but cyber security?

As the day progressed, it became apparent that our goal was to increase our awareness of cyber security threats. We discussed real life examples to illustrate the extent of some attacks that are used to gain access to a system. When the scenarios began, it became evident that some events considered minor or insignificant could mushroom into a serious threat. During the cyber security exercises, we discovered some simple ways to enhance our security and why the measures were necessary. One simple method to increase cyber security is to frequently change your passwords.

Some of us questioned when the City of Raleigh IT Department mandated that we were to change our passwords regularly—and make each password different from the previous password. Really? How were we supposed to remember these passwords from one time to the next? Besides, we didn’t have anything that an attacker would want on our computers. Perhaps not, but by gaining access to our computers, an attacker could tunnel from our computers into the city’s system. Once access to the City’s system has been gained, then multiple sensitive accounts and data could become vulnerable to attackers, which could harm City employees and customers.
Another simple cyber safeguard is to ensure employees log off their computers when the computer is not in use and to turn off the computer every day before leaving. We no longer complain about complying with these security safeguards.

In an effort to maintain our awareness of possible security threats, the City initiated a Cyber Security Team (CST). This team, comprised of representatives from several City departments, meets to discuss awareness and training programs, vulnerability and threat reporting, case studies, and education programs.

Though newly formed, this team has been instrumental in addressing our city’s departmental cyber security needs, concerns, and difficulties.

One of the cyber security vulnerabilities identified by CST was SCADA. Although SCADA does not maintain personal information or financial information, we soon realized that cyber threats were not always based on financial gain. In fact, financial loss could be a motive for a SCADA attack. Most treatment plants, especially those that are not manned 24/7, rely on SCADA to keep equipment operational and to notify operators when things are not working properly. What could be the result if the system was compromised and no one was there to catch it? What would be the loss in public confidence if this were to happen to one of our treatment plants in North Carolina? How long would it take to recover from an incident financially and environmentally? Also, how long would it take to regain the public’s confidence?

One common cyber security question is “has this happened?” The common response is “not yet.” Unfortunately, at times we wait for something bad to happen before preparing or even considering the potential consequences. We at the City of Raleigh do not want to be unprepared and possibly become a negative example for the rest of our profession. We believe we have too much to lose, and it is our hope that everyone in our profession feels the same way.

Our cyber security industry has several publications that assist with understanding and addressing cyber security. A few cyber security publications are Roadmap to Secure Control Systems in the Water Sector (a publication sponsored by the AWWA and the Department of Homeland Security) and AWWA Publication J100-10, Risk Analysis and Management for Critical Asset Protection Risk and Resilience Management of Water and Wastewater Systems (this is a joint publication between AWWA and ASME-ITI).

As we stand to benefit from technological advancements, it is important to remain cognizant of the potential threats that surround us—not only personally, but professionally. Cyber security is not only important to IT departments or industries, it is also critical to the job we do everyday.

John Gibson is the facility manager for the City of Raleigh’s Smith Creek Wastewater Treatment Plant. He has been in the water and wastewater industry for more than 37 years.
At the annual conference, the Endowment Committee introduced the “All Member Fundraising Campaign for 2012.” We are encouraging all of our members to donate to the NC Safe Water Endowment Program this year. All of the members who donate any amount by Sept. 30 will be designated as a founding donor. Making a donation is easy. Just go to www.ncsafewater.org/resources_/for-everyone/nc_safewater_fund and download the pledge and donor form and the donor program form. The donor program form describes the various named funds and what types of grants and scholarships they will each support. Select the named fund to which you want to donate, complete the pledge and donor form, attach your check, and mail your donation to the address listed on the donor form.

Upon receipt of your donation, you will receive a letter acknowledging and thanking you for your donation. All donations are 100 percent tax-deductable. The letter will also be proof of your donation.

We are excited that many of our members have already responded and made a pledge and/or donation. In the Nov. 9, 2011 status report for the NC Safe Water Endowment Program, we noted that more than $241,000 had been pledged to the program. From Nov. 9 through Jan. 22, donors pledged/donated $67,991. The sources of this total amount are listed below:

1. Eleven individual donors giving between $25 and $1,000 each $2,975
2. Donations collected at the annual conference 5-S Breakfast $3,590
3. Donations received by 5-S inductees for 2011 $1,743
4. Auction held as part of Chair’s Endowment Reception $4,683
5. Donation/pledge by Hazen and Sawyer, PC $5,000
6. Donation/pledge by Frank and Susan Stephenson for Named Fund $25,000
7. Donation/pledge by Lars and Lynn Balck for Named Fund $25,000

TOTAL $67,991

As of Jan. 22, we had received pledges totaling more than $309,000 for the NC Safe Water Endowment Program. At its meeting on Jan. 24, the Endowment Committee set a goal of increasing the assets of the endowment program to $500,000 in 2012. In order to achieve this goal, we need all of our members to donate to the endowment during 2012. If each of our members donated 15 cents per day (about $55 for the year) we would easily achieve this goal.

We are very pleased to recognize the corporate and individual donors who have contributed to the NC Safe Water Endowment Program as of Jan. 22. The corporate donors who have donated or pledged more than $5,000 are listed below in one of four levels of giving.

**Swift Streams Corporate Donors ($5,000 To $9,999)**
- Hazen and Sawyer, P.C.
- HDR Engineering

**Roaring Rivers Corporate Donors ($10,000 To $14,999)**
- Highfill Infrastructure Engineering, P.C.
- Great Lakes ($15,000 To $24,999)
  - No corporate donors at this level at this time

**Mighty Oceans Corporate Donors ($25,000 And Greater)**
- Crowder Construction Company
- GHD Consulting, Inc.
- Raftelis Financial Consultants
- Rivers and Associates, Inc.
- George and Eva Raftelis Foundation

We also thank and recognize the following corporate and individual donors:

**Corporate Donors**
- Black and Veatch
- CMU (In honor of Doug Bean)
We encourage all of our members to become a founding donor by making your donation by Sept. 30. Your gift will keep on giving by helping future water professionals obtain the education they need to work in the water industry and by giving environmental educators the necessary resources to teach students about water and the importance of having a safe, dependable water supply.
The third annual NC AWWA-WEA Model Water Tower Competition, coordinated by the Public Education Committee, took place December 3. What had previously been a competition of fewer than 10 teams became a face-off among more than 20 teams. Each team was made up of one to four students in fourth and fifth grades and in middle school. Students from across the state descended on the Neuse River Wastewater Treatment Plant in Raleigh to see who had designed and constructed the best water tower. The towers’ themes varied, from the popular internet game Angry Birds to North Carolina State University basketball to the solar system. While the towers’ aesthetics varied greatly, each team had one goal—a cash prize.

Each tower was judged based on four categories: structural efficiency, cost efficiency, hydraulic efficiency, and design ingenuity. Our team of more than 25 volunteers from Hazen and Sawyer, the City of Raleigh, and North Carolina State University served as the judges for each of the categories. The success of this year’s competition was largely due to the volunteers. The success of the competition was also due to our sponsors. The Crom Corporation, Hazen and Sawyer, and the City of Raleigh generously sponsored the competition. The Crom Corporation and Hazen and Sawyer each contributed $500. These funds were used as awards for the top three teams and to purchase the additional supplies. The City of Raleigh provided the venue and volunteers that were vital to producing the event. The Public Education Committee is grateful to this year’s volunteers and sponsors.

As for the submissions, three towers rose above the rest. The third-place tower was a lighthouse-themed structure constructed by Team H2O (Logan McCallum and David Meyers). Second place was awarded to the Dragon Tower by Abby Welch. And first-place honors were granted to The Bishop Brothers (Jefferson and Alexander) and their realistic tower complete with guy wires, the NC AWWA-WEA logo, and an American flag that was raised when the tank was filled.

The competition was covered by News 14 Carolina. View the clip at http://triangle.news14.com/content/top_stories/650602/statewide-competition-challenges-students-to-build-water-towers. We will also post competition photos on www.ncsafeater.org.

We hope that next year’s competition will be even larger, with separate divisions for elementary school students and middle school students. It is our goal that the competition will continue to grow and promote the water and wastewater industry to the next generation of engineers.

The fourth annual Model Water Tower Competition will be held in late 2012. If you would like to receive more information about the competition, please contact event organizer Maggie Hennessy at (919) 863-9259 or mhennessy@hazenandsawyer.com or Public Education Committee Chair George Simon at (704) 552-3886 or george.simon@mwhglobal.com.
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NC AWWA-WEA members work every day to protect the public health and environment. The association’s awards program is designed to recognize individuals and organizations that go above and beyond expectations. In the 2012 issues of NC Currents, we will highlight award winners from 2011.

With over 3,000 members across North Carolina, it is difficult for awards committees to know about the great work of every individual and organization. NC AWWA-WEA’s awards committees depend on members to step forward and nominate co-workers that deserve recognition. If you are aware of someone who fits the criteria of one or more association awards please visit the awards page of www.ncsafewater.org to download the 2012 Award Nomination Packet and learn how to submit a nomination. The packet includes award applications, deadlines, and submission information. Please be aware that all award application deadlines fall on or before Aug. 1, 2012.

George W. Burke Safety Award
The Burke Award honors George W. Burke, Jr. for his years of service, both to the water pollution control field and to the Water Environment Federation. The safety program and safety record of municipal and industrial wastewater facilities are the primary criteria for this award. Applications are due April 6.

Roanoke Rapids Sanitary District
This award was given for well-maintained facilities, an accident-free year, and for receiving high points for the number of written programs implemented.

George Warren Fuller Award
The George Warren Fuller Award is presented annually to a member of the American Water Works Association (AWWA) for distinguished service to the water supply field, in the commemoration of sound engineering skill, brilliant diplomatic talent, and the constructive leadership, which characterized the life of George Warren Fuller.

Steve Shoaf
It is Steve’s unselfish dedication to the water profession and public health and his focus on operator training that make him a standout recipient for the Fuller award. This NC native demonstrated his leadership skills early in life in student government, elected as governor at Boy’s State, a statewide function for student council representatives. After graduating from UNC-Chapel Hill, Steve’s desire to serve others led him to 2.5 life-changing years in the Peace Corps in Cameroon. Upon his return to North Carolina, Steve went back to his alma mater and earned a Master’s Degree in Public Health. Active in NC AWWA-WEA for more than 20 years, Steve is known as the “go-to guy” who is always willing to help out however he is needed. His roles have included eight years of service on the Board of Trustees, including Board chair in 2008-09 and
leadership positions in numerous committees and task forces. He is a recipient of the Outstanding Service Award and the Arthur Sidney Bedell Award for extraordinary personal service. He is a member of the Select Society of Sanitary Sludge Shovelers (5S) and is a winner of the George C. Franklin Memorial Award from the NC League of Municipalities.

Golden Manhole Award
The Golden Manhole Society is a method of recognizing those individuals who are significant contributors to the advancement of the systems design, education, training, certification, construction, operations, maintenance, and management of water distribution systems or wastewater collection systems. This award provides permanent recognition of efforts that promote professionalism and pride among those involved in collection and distribution systems activities.

Outstanding Industrial Wastewater Operator of the Year Award – Pretreatment
Two awards shall be presented: one to a Direct Discharge or Non-Discharge Facility (NPDES or Non-Discharge Permitted facility) and one to the operator of an Indirect Discharge Facility (pretreatment). The purpose of these awards is to recognize any Industrial Wastewater Treatment Plant Operator in North Carolina who has exhibited outstanding efforts, knowledge and innovation in the successful operation of an industrial wastewater treatment facility; or who has contributed his or her time and efforts toward the training, education, and professionalism of wastewater treatment plant operators; or who has devised, discovered, or invented devices or techniques that enhance the science of plant operations.

James Jones, Coviden

Raymond E. “Red” Ebert Award
The Raymond “Red” Ebert Award was established in 1988. It is presented annually to a member who has made significant contributions to the practice of operating a water distribution or wastewater collection system.

William “Sonny” Grubb
Sonny started as a maintenance mechanic, grew in the job, and became a licensed electrician. He is now the general maintenance superintendent overseeing all pumps, SCADA, vehicles, generators, control valves, and electrical systems. Sonny and his staff maintain approximately 45 SCADA sites, over 30 control valves, 23 pump stations, and 27 tanks in the distribution system.

Sonny and his staff have installed two 2,000 KW generators (4,000amp service) at the Davidson Water Inc. Treatment Plant with all work performed in-house. He and staff have also installed generators at seven pump stations in the distribution system and Davidson Water Operations Center; he also maintains six portable generators, which have saved Davidson Water hundreds of thousands of dollars in electrical cost through peak shaving.

Sonny is the gold standard for building relationships with the public served by Davidson Water Inc. as well as the neighbors adjoining the utilities property. He sets an example for quality workmanship and is a deserving winner of the Red Ebert Award.

Safewater Maintenance Technologist of the Year Excellence Award
The Safewater Maintenance Technician of the Year Award recognizes hard working maintenance professionals involved in the day-to-day maintenance and upkeep of North Carolina’s water and wastewater plant assets and includes mechanics, electricians, automation technicians, instrumentation and control technicians, facilities maintenance staff, preventative maintenance staff, and maintenance helpers.

John Hodge
John has shown true dedication in his work ethic in the field of maintenance. In his career he has explored all aspects of maintenance, whether it is hands-on or in supervision. John has designed and installed all types of water and wastewater equipment in his tenure in maintenance. He takes great pride in a job well-done. He is highly respected by his staff, co-workers, and supervisors for his knowledge, skill, experience, and overall abilities.

He is very active in NC AWWA-WEA and works hard on the Plant O&M Committee and the maintenance technologist’s curriculum.

He is currently employed with the City of High Point as the wastewater plants manager.

Walter J. Courmon Safety Award
The Courmon Award honors Walter J. Courmon for his service to NC AWWA-WEA and the City of Greensboro where he served as the safety specialist. Municipal and industrial water treatment facilities that exhibit commitment with excellent updated safety programs and well-maintained plants are considered for this award. Applications are due April 6.

Water and Sewer Authority of Cabarrus County, Mt. Pleasant WTP
This award was given for an accident-free year, well-maintained facilities, and for receiving high points for the number of written programs implemented.
Wastewater Laboratory Analyst Excellence Award

The Wastewater Laboratory Analyst Excellence Award recognizes an individual for outstanding performance, professionalism, and contributions to the water quality analysis profession.

Glenn McGirt

Glenn has contributed to the wastewater field in many ways throughout his career, holding positions as chemist, wastewater plant superintendent, and now laboratory supervisor for the City of Burlington. Glenn has also been involved in many volunteer activities that promote and enhance the wastewater profession, including service as chair of the LABNET Committee since 2006, member of NC AWWA-WEA Wastewater Laboratory Certification Board since 2004, and instructor of laboratory classes for Grade II, III, and IV Wastewater Operators Schools for at least 10 years. Glenn holds a Grade IV Wastewater Operators Certification as well as a Grade IV Wastewater Laboratory Analyst Certification. He has shared his knowledge with many wastewater professionals in North Carolina and is the epitome of what this award is all about.

Water Distribution Operator of the Year Award

The Water Distribution Operator of the Year Award is given to an individual who has contributed much to the successful operation and maintenance of a water distribution system. Douglas Mangold has shown a lifetime commitment to training and safety. He has saved time and funds by implementing planned routes for meter reading that avoid traffic delays and installed radio read meters. He always keeps public safety and the best interests of the community in mind.

Michelle Massey

Michelle received this award because she has “top-notch character and personality.” She is outgoing but respectful of all co-workers and customers. Michelle came to the City of Asheville approximately 10 years ago as a laborer.

She has learned how to use the backhoe, become a field crew leader, and now is the supervisor over the Water Maintenance Hydrant crew. She is an innovator in safety awareness and practice for the Water Maintenance Division. Other training Michelle has taken includes the DOT, Safety, and American Red Cross CPR and First Aid train-the-trainer courses to allow in-house flagger, pipe saw safety, CPR, and First Aid departmental training.

Michelle attended 30 hours of OSHA courses this year and came back determined to make a difference in the safety standard for water maintenance workers, helping to implement a safe attitude environment, making all supervisors safety officers.

Michelle helps set the standard for community relations, serving on a team to create a communications model to notify customers of water outages, road closures, maintenance procedures, and other water-related inconveniences.

She wants to ensure employees have the safest place possible to work while distributing the best product possible to City of Asheville customers.

WWTP Operations and Maintenance Excellence Award

The Wastewater Treatment Plant Operations and Maintenance Excellence Awards are given in recognition of the operations and plant personnel of an eastern, central, and western region wastewater treatment plant (WWTP) who have served their respective communities with a high degree of professionalism and diligence in operations and maintenance. Applications are accepted on a continuous basis and held for consideration for one year.

Eastern Region:
Kinston Regional WRF

In August 2006, the Kinston Regional WRF came on line to replace both the former Peachtree WWTP that was flooded during Hurricane Floyd in 1999 and the former Northside WWTP. The two previous plants had a combined flow of 11.25 MGD. The new Kinston WRF was constructed on the site of the Northside plant, and the flow was expanded to 11.85 MGD to meet the regional flow expectations of the Towns of Cover City and Dover in Craven County.


Kinston Regional Water Reclamation Facility operations and environmental compliance staffs work closely together, as a team, to help this regional wastewater treatment facility meet all effluent permit limits, including zero BOD and zero TSS. Each member is highly trained and dedicated to the protection of the environment.

Central Region:
High Point East Side WWTP

This facility has demonstrated a consistent high level of professionalism and dedication to their customers. Congratulations to the ORC, Randy Smith, and the rest of the outstanding staff.

The staff’s efforts are highlighted by their innovative O&M practices, which include in-house modifications to the fermentation process and VFA delivery system that resulted in total nitrogen removal to levels well below 3.0 mg/L; innovative flow equalization of the centrate utilizing existing tankage, which resulted in a 56 percent reduction in Alum use; and modifications to the UV dosing controls resulting in amazing lamp life. Several of the lamps are still in service after 14,000 hours.

The staff does a great job with process control, and the equipment maintenance is excellent. The staff exemplifies the spirit of the Professional Wastewater Operators Committee in their approach to education.
participation, environmentalism, and public service.

Western Region:
City of Hendersonville WWTP
The City of Hendersonville WWTP came on line in 2002, replacing the old treatment system of trickling filters and an oxidation ditch. This facility uses an activated sludge process to achieve outstanding level of treatment. The facility consists of two aeration basins, each holding 2.4 mg and two 90-ft. diameter clarifiers. Effluent sand filters reduce the amount of solids in the treated effluent, while disinfection is achieved by the use of ultraviolet (UV) light. This facility currently has a flow of 2.0 MGD and is permitted for 4.8 MGD. The plant can be expanded to treat up to 12 MGD as growth continues around Hendersonville.

Sludge is either recycled to the aeration basins or is removed from the treatment process and is pumped into two thickeners, where the wasted sludge is allowed to settle. Once the sludge has settled in the thickeners, it is processed through one of two automated belt presses, where the material is further dewatered to approximately 18 percent solids and is stored for transporting and disposal off site.

The staffs work closely together to help this wastewater treatment facility meet all effluent permit limits, including BOD, TSS, and ammonia. The discharge into Mud Creek averages a BOD and TSS concentration below 5 ppm, and an ammonia concentration below 1 ppm. Congratulations to the City of Hendersonville WWTP.

Disaster Preparedness
The Disaster Preparedness Awards are presented to utilities in acknowledgment of outstanding achievement in advancing disaster preparedness initiatives, thereby strengthening our preparedness and increasing our resolve to prepare for, respond to, recover from, and mitigate the effects of natural disasters, man-made disasters, and acts of aggression against our locality, county, state, and nation. There were no recipients in 2011.

Wastewater Collections Operator of the Year
The Outstanding Wastewater Collection System Operator of the Year Award is given to an individual who has contributed significantly to the successful operation and maintenance of sewage collection systems. There was no recipient in 2011.

Kasey Monroe Outstanding Service Award
Each year the out-going chair of the Board of Trustees has the opportunity to give special recognition to an individual they believe has demonstrated outstanding service. In 2011, out-going chair, John Kiviniemi, presented two honors. The first honor was to rename the Outstanding Service Award after longtime active member Kasey Monroe in recognition for her work with the association. The second was giving the new Kasey Monroe Outstanding Service Award to Les Hall.

Les Hall
Les is a past chair of the association and gave the past year of his retirement to tireless efforts on behalf of the profession, taking on the role as chair of the NC Safewater Endowment Committee. He provided outstanding leadership of that group, coordinating growth of the fund through donations and pledges, ensuring a strong sustainable future for our profession by offering scholarships.

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SPECIAL RESOLUTION OF THE BOARD OF TRUSTEES
establishing the Kasey Monroe Outstanding Service Award

WHEREAS,
Kasey Monroe has served as chair of the North Carolina Section American Water Works Association and Water Environment Association (NC AWWA-WEA) from 1996–1997, as WEF director from 1999–2002, as member of the WEF Executive Committee 2000–2001; as AWWA director from 2006–2009, as chair of the Conference Coordinating Council, as a member of the SONAR Task Force, as a member of the Exhibits Committee, and as a member of the Endowment Task Force; and

WHEREAS,
Kasey Monroe has also served the water and wastewater profession through service with the American Water Works Association as AWWA director and as chair of the Manufacturers’ Advisory Council; and as secretary/treasurer 1997–2008 and as treasurer 2008–present for the North Carolina Waterworks Operators Association; and as associate member liaison for the North Carolina Rural Water Association Board of Directors; and

WHEREAS,
Kasey Monroe’s outstanding contributions have been recognized with numerous awards—she is a member of the 5S Society, a winner of the Arthur Sidney Bedell Award, the Raymond E. Ebert Award, and the George Warren Fuller Award, and she is also a recipient of the NC AWWA-WEA Chair’s Outstanding Service Award; and

WHEREAS,
Kasey has set the high water mark for volunteer contributions to NC AWWA-WEA;

NOW THEREFORE, BE IT RESOLVED
That the Board of Trustees of the North Carolina Section of American Water Works Association and the North Carolina Water Environment Association, hereby establish that henceforward, the NC AWWA-WEA Chair’s Outstanding Service Award shall bear Kasey Monroe’s name in recognition of her outstanding contributions to NC AWWA-WEA and to the water and wastewater profession.

BE IT FURTHER RESOLVED
That this resolution be recorded in the minutes of the meeting of the Board of Trustees, and a copy be conveyed to Kasey Monroe by the secretary.
At the 2011 Annual Conference in Concord, the NC AWWA-WEA presented its first North Carolina Collection System of the Year Awards. The mission of the awards is to identify and recognize sewer collection systems that protect public health and the environment through proactive management, operations, and maintenance practices that go beyond what is required of the NC DENR collection system permit.

Applications were received from the following collection systems:
- Cape Fear Public Utility Authority (CFPUA)
- City of Concord
- City of High Point
- Orange County Water and Sewer Authority (OWASA)
- Union County Public Works

The applications were highly competitive, and all applicants demonstrated that they are proactive in the operation and maintenance of their collection systems.

The large-system category winner was the City of Concord, and the medium-system category winner was OWASA.

“This award was gratifying because it recognized the measurable results of our coworkers’ ongoing work and the city’s investment to protect its environment,” said Concord City Manager W. Brian Hiatt. “It was particularly special for Concord to be selected as the first recipient in the large-system category.”

“It was a great honor for OWASA to receive this award, said Thurman Green, OWASA water distribution and collection system manager. “OWASA is concerned about its infrastructure. We spend a lot of money and time developing our capital improvement program to make sure that we have a tight collection system. Receiving this award shows that hard work will pay off.”

The association recognizes up to four North Carolina wastewater collection systems annually, based on collection system size. There are approximately 370 permitted collection systems in North Carolina distributed by collection system size (miles of collection system) as follows:
- **large-sized collection systems** — 14 systems (greater than 500 miles);
- **medium-sized collection systems** — 15 systems (250 miles to 500 miles);
- **small-sized collection systems** — 73 systems (100 miles to 250 miles);
- **micro-sized collection systems** — over 300 systems (100 miles of collection system or less).

The Wastewater Collection and Water Distribution Systems Committee initiated development of the award in 2009. The committee looked at similar awards presented by member associations in Georgia and California when creating the judgment criteria for the North Carolina award. The association adopted the award in 2010 and prepared for the inaugural award at the 2011 Annual Conference.

To judge all applicants fairly, a simple questionnaire was developed that required applicants to provide data regarding system size and performance. Applicant rankings are based on data supplied by each applicant according to the four general categories and 25 specific types of data. The following is a general description of the four categories and the types of data that are supplied by each applicant.

**Wastewater collection system data:** Number of miles of pipe in collection system, number of pump stations, number and types of SSOs last year, amount of rainfall, and so on.

**Wastewater collection system management activities:** Listing of FOG efforts, flow monitoring, capacity certification programs, and CIP designation for system reinvestments.

**Annual wastewater collection system operations and maintenance activities:** Miles of sewer cleaned and televisied, root removal, smoke testing, number of cave-ins and point repairs, number of manholes inspected

**Annual Wastewater Collection System Rehabilitation & Replacement Activities**
Miles of sewer rehabilitated and replaced; number of manholes rehabilitated and replace; rehabilitation & replacement expenditures

Under this ranking system, all applicants by system size are ranked against each other with the lowest score being the winner. A perfect score (highest ranking in all 25 of the above sub-categories) would equal 25 if a system had the #1 ranking on all 25 items of data submitted.

If necessary, applicants are contacted by a committee member to clarify any ambiguous responses and ensure that all applicants made similar assumptions when filling out the questionnaires. The applicants were then ranked against each other, and the committee made a final determination of the winner in each category.

The deadline for applications for the 2012 North Carolina Collection System of the Year Award is in August. The application form can be downloaded from the NC AWWA-WEA website at www.ncsafewater.org. The Wastewater Collection and Water Distribution Systems Committee plans to prepare and request adoption of a similar Water Distribution System of the Year Award beginning in 2013.

The committee supports, educates, and represents the membership of the North Carolina WEA, and the North Carolina Section of the AWWA, regarding issues concerning the operation, maintenance, planning, and management of wastewater collection and water distribution systems.
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Water For People (WFP), an international non-governmental organization based in Denver, is the charity of choice of the America Water Works Association (AWWA). Their vision is to create a world where no one suffers or dies from a water- or sanitation-related disease. WFP currently work in 11 countries and has been working in Bolivia since 1997. World Water Corps® (WWC), a WFP program established in 2007, allows volunteers from North America to assist in short-term assignments in developing countries.

Bolivia, a land-locked country in South America, is one of the poorest and least developed countries. The majority of their citizens live on less than $2 a day. The country has three distinct regions, including the high Altiplano, the lush valleys, and the tropical lowlands.

In 2007, WFP requested that the North Carolina (NC) WFP Committee get involved in an advocacy and capacity building study. Two teams from NC WFP visited Bolivia in 2008 and 2009, giving workshops, observing and interviewing the municipalities and communities, and making recommendations to WFP-Bolivia staff on how to improve the social marketing. This process entailed how to develop and implement communication tools among the three important players: communities, municipalities, and local non-governmental organizations. As a result, WFP-Bolivia implemented many recommendations that helped the group improve its coverage of the areas and made the projects more sustainable in the field.

In 2011, WFP-Bolivia staff requested assistance from the NC Water For People committee concerning “exit criteria” from a region, Cuchumuela, where WFP-Bolivia is working and nearing 100 per cent coverage for drinking water. WFP-Bolivia would like to development guidance on when to exit a community and deem the region self-sufficient and sustainable for drinking water and/or sanitation. This is the ultimate goal and accomplishment for WFP.

In response to this request, four engineers from the NC WFP Committee volunteered to travel to Bolivia to assist with this special assignment. The team included: Patricia Drummey Stiegel, P.E., principal engineer with Hazen and Sawyer, P.C.; Jackie Jarrell, P.E., wastewater treatment superintendent with Charlotte Mecklenburg Utilities; Michael Parker, P.E., associate with Hazen and Sawyer, P.C.; and Lisa Edwards, P.E., regional engineer with the North Carolina Public Water Supply Section. The assignment was from Aug. 31 to Sept. 11, 2011.

After traveling for two days (and never leaving the time zone), the team arrived in Cochabamba, where the WFP-Bolivia headquarters is located. The WFP-Bolivia office is made up of eight full-time professionals, each with a different expertise. Currently, their office is working in six mu-
municipalities, in accordance with the 2007–11 Water For People country strategy for Bolivia. This is a decrease in the number of municipalities so that they can pursue a more sustainable regional approach.

After completing training at the WFP-Bolivia office in Cochabamba, the NC team headed out to the town of Punata, which would be our base for the next several days. This was a Saturday, and as luck would have it, WFP was hosting a marathon with local municipalities to bring awareness to basic sanitation. Our very own Tricia Drummey paid the 10 Bolivianos (just over one dollar) to enter the 17-km race. She represented us well by coming in fourth for females and even won a trophy.

The next few days were spent in the field collecting data from the 14 communities located in the region of Cuchumuela, as well as meeting leaders and citizens in the area. Cuchumuela is a small, rural municipality with around 3,000 people. The project goal was to deliver a technical report on exit criteria that defines when WFP-Bolivia should leave a sustainable region. By demonstrating sustainability, WFP-Bolivia can exit a particular region and apply resources in other regions that are in need of water and sanitation development. A second component was to provide mapping data for 14 communities slated to be visited by the team over the next few days. The mapping exercise provided the team with an in-the-field “boots-on-the-ground” observation of water and sanitation resources available to the citizens. The process consisted of visiting all water points in the 14 communities, as well as public institutions (medical clinics and schools). Additionally, a predetermined, representative number of households were visited to glean data and observations for the project as per WFP-Denver mapping protocol. Questionnaires were completed on handheld Droid cellphones that were also used to collect GPS coordinate data and photographs. Data was transmitted via cell technology to the Water For People dashboard. This is a huge improvement over the original method of lugging around mountains of paper and trying to manipulate questionnaires in the field. The results of this mapping exercise and the countless other surveys performed by staff and volunteers can be seen in map form online at the Water For People FLOW (Field Level Operations Watch) website www.waterforpeople.org. The WFP-NC team will provide a summary report to WFP-Denver and WFP-Bolivia providing input on the exit criteria standards used to determine sustainability and specifically to assess sustainability of the Cuchumuela region.

As noted, the Cuchumuela region is rural with low populations and high elevations. Residents suffer in the dry season, which lasts two to three months. Much of the rural population (especially the younger people) is migrating towards the larger towns and cities for employment opportunities.
This amazing region is reaching 100 percent coverage for water. Water systems in the region were typically gravity-fed or pumped protected spring systems or rain catchment. Highlights from a technical report will be submitted as a future article, but overall impressions indicate that this remarkable region is approaching 100 percent coverage for drinking water. Our preliminary field data revealed about 88 percent coverage for water and 51 percent for sanitation for the 14 community area.

This area is successful for many reasons. Notably, the WFP-Bolivia staff is hard-working, devoted, and knowledgeable. NC WFP committee members from the 2008–2009 visits reported on the communication and outreach components of water and sanitation development, including special positions in the municipalities called DMSB (McAliley et al., NC Currents, Winter 2009, pp.72-75). During this visit, the NC-WFP team confirmed that the DMSB positions are critical for sustainability. Other observations from this work trip include excellent community involvement (all members of the community serve on the water committee), excellent hygiene practices (especially for school children while at school), and the collection of water tariffs for the maintenance and operation of the water system.

The team had a great experience, and everyone stayed healthy. The relationship between WFP-Bolivia and WFP-NC has been strong since the beginning and provides professional growth for both entities. Although the work area revealed great successes for WFP, there is much work to be done in Bolivia. The NC-WFP Committee looks forward to a continued partnership with WFP-Bolivia and remains committed to supporting Water For People. Everyone is invited to join this active NC AWWA committee to help meet our mission of ensuring that people’s basic, long-term water and sanitation needs are met with dignity. For more information about joining this or other committees, consult the NC AWWA-WEA website at www.ncsafewater.org.

Lisa Edwards, P.E., is the regional engineer for the Public Water Supply Section in the Winston-Salem office. She is an active member of the North Carolina section of AWWA and currently serves as the vice-chair for the Water For People committee. In addition to this work trip, she has traveled to Malawi, Africa, with the World Water Corps four times since 2007.
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Most of our water education programs are going to get you wet,” laughs Sean Higgins, interpretation and education program manager for North Carolina State Parks. “These are things you can’t do in the classroom.” At the 39 North Carolina state parks, students of all ages have the chance to get up close and personal with creatures, such as water bugs, mussels, and sea turtles while learning about flow rates, pH, water quality, and much, much more.

The education programs reach about a quarter million people per year. Half are school-age students. Regardless of whether they are aimed at students, teachers, or the general public, all sessions are free of cost. Programs are taught by park rangers, who have all completed a 200-hour, three-year program to become N.C. Certified Environmental Educators.

Falling under the heading of Environmental Education Learning Experiences (EELEs), the educational programs are correlated to the North Carolina Standard Course of Study. Each program includes pre-visit, on-site and post-visit student activities.

“We also work with teachers to help them incorporate the park resources into their lesson plans,” says Higgins. The state parks train about 1,000 adult educators—teachers and other environmental education professionals—per year in full-day workshops. At an EELE workshop, educators meet park staff, become acquainted with the activities their students will be doing, and practice techniques for teaching children outdoors. They can also earn credits toward the state’s environmental education certification and/or contact hours for continuing education credit.

Each state park has different programs, most of which focus on the unique resources within the specific park. That resource could be brook trout living in freshwater wetlands in the middle of the alpine forest 6,684 feet above sea level. Or it could be nesting loggerhead sea turtles on the semi-tropical coast ringed by palmetto trees. Or the focus could be the water in a river, a lake, or a reservoir. Thanks to the state’s abundance of natural wealth, the range of resources, and therefore activities, is very broad.

“With students, our main goal is to get them off the bus and engaged with the natural setting as quickly as we can,” says Higgins. “Often we’re that first step in getting people to fall in love with the outdoors.”

He adds that when students come for a field trip to Eno River State Park, for instance, they are told to bring an extra pair of old shoes for wading in the water. “By far the single most popular thing we do in our EELE is let the kids explore the river for what we call water quality indicators,” says Keith Nealson, superintendent at Eno River.

Rangers bring students into the river to engage in netting for macro-invertebrates or water bugs. The EELE addresses how some of the creatures are moderately tolerant, intolerant, or highly tolerant to pollution and why it is important to see a wide variety of them. Students also have the chance to perform measurements related to water flow and pH while discussing the effects of sedimentation on the river and watershed. “Having that concrete ability to measure water flow going down the river is a great lesson,” says Nealson, noting that the activity helps participants recognize that water conservation is not something that only needs to be done during droughts.

“The water molecules they’re splashing in may very well be in their drinking water in a couple of days,” says Higgins. “It really helps them make the connection.”

To prepare students for getting the most out of their experience, the program also includes materials for pre-visit activi-
ties. “If the teachers don’t feel comfortable delivering that, they can ask us to come to their school,” says Nealson, pointing out that this is all part of the outreach offered by the state park system. Eno River State Park also runs many workshops for educators, in partnership with the North Carolina Environmental Education Association.

Encompassing river preservation, riverine habitat, and water quality, the programs at Eno River are designed for middle-school-aged students. But the park runs the water bug program for students from preschool to high school, modifying the content accordingly.

Once a month, every park ranger also delivers one educational program to the general public, but these are not always water-related. “Because we do so many water programs with the EELE, we don’t do as many water programs outside the EELE,” explains Nealson. “However, we are willing to do programs on request.”

At Lake Waccamaw State Park, Ranger Amy Bernhardt sometimes receives those requests as well, particularly calls from classes studying different aspects of the water environment. “We like to cater to whatever they’re learning,” she says.

On the other hand, Lake Waccamaw also offers some unique experiences found nowhere else in the state, or even the world. This is just one of nearly 500,000 Carolina bays that occur throughout the coastal plain. Most Carolina bays are acidic, with a pH level of between four and five. What makes the lake unique are the limestone outcrops that neutralize the acidity, allowing all kinds of species to live in the water. These include 54 species of game and non-game fish, 15 different mussels and clams, and 11 species of snails. Among these creatures, six are endemic species found only in Lake Waccamaw. “That’s where the basis of most of our water programs comes from,” Bernhardt says.

Once again, although the EELE’s were developed for grades six to eight, the park has adapted different programs to address audiences from preschool to the nearby community college. One of the most popular programs is called Mussel Lake. The rangers take the students out with square meter plots to do a mussel count and identification activity. Students learn about the buffering effects of limestone and about mussel life history, including how they clean the water and reproduce. Sometimes masks and snorkels are handed out for students to have a closer look.

Bernhardt points out that, although they live in the area, many of the children may never have been to the lake before. The rangers incorporate a discussion on water quality to demonstrate the importance of “doing the right thing” to keep the creatures safe.

When it can, the park takes advantage of funding opportunities. In February, thanks to a grant from the North Carolina Coastal Land
Trust, the area’s eighth grade students participated in a field trip to explore “the waters of Waccamaw.” During the teaching hour, the students had the opportunity to learn about water-quality parameters, including using equipment to test for temperature, pH, dissolved oxygen, conductivity, and dissolved solids.

“The main point is the hands-on learning,” says Bernhardt. “We really try to get them involved, get them active, and get them out there.”

Lake Waccamaw State Park also offers a wide variety of canoe programs, including water safety orientations and trips out to the limestone bluffs. While out on the lake, students test for turbidity and conduct depth readings. “We get to incorporate the educational and recreational together,” says Bernhardt.

Higgins points out that people tend to learn best when they’re enjoying the experience. Bernhardt could not agree more. “We’ve found water beetles, fish, frogs, turtles, and snails in the lake,” she says, referring to a Little Critters program Lake Waccamaw runs for the younger set. “To watch their eyes light up when they pull all these creatures out of the water is really special.”

As she speaks, there’s excitement in her voice. It hints at a crucial element that makes the state parks educational program so successful: the passion of its educators. Just like the incredible natural opportunities the parks offer, its people are a rich and powerful resource that should not be overlooked.
For several years now, Dr. Gregory Characklis and his graduate students have been working directly with utilities from North Carolina’s Research Triangle area to help municipalities deal with issues related to water supply. “We spend time looking at water supply from both an engineering as well as an economic perspective,” says the researcher and associate professor at the University of North Carolina (UNC) Chapel Hill. A former National Academy of Engineering fellow, Characklis spent two years as director of resource development and management at Azurix Corporation—assessing the technical and financial merits of water supply development projects—before joining UNC.

Addressing the issue of water supply has become more and more difficult because of increasing expenses and the states’ growing concerns with the environmental impact of developing new water supplies. “So many communities are looking for ways to deal with increasing demands in a more efficient manner,” says Characklis. Through their research, Characklis and his team—three to five different graduate students at any one time—have found several ways to accomplish this.

“One is to make the existing water you use go a lot further,” says Characklis. “Another is to try to acquire water from existing sources during those times when you need it. Presuming you have a number of communities in close proximity, there is a reasonable chance that one of them may have additional, currently unused, or underutilized supply that they can use to help out their neighbors.”

The treated water must be moved through some form of pipeline or conveyance system. Thus, in building cooperative agreements, utilities need to know not only how often they will be treating and transferring water and in what quantities, but also how big their treatment plant and pipes will need to be. “All these things require some understanding of the system and the ability to model them,” says Characklis.

That is where he and his graduate students come in. They work with the utilities to help them meet their goal of maintaining a reliable supply for less money.

Challenges include carefully considering how far the water is being transferred. Inter-basin transfers can cause challenges, as transferred water might not be discharged to the same watershed once it is used, requiring an Interbasin Transfer certificate from the state. “The balance is to try to come up with cooperative agreements among utilities in the same region that allow them to meet their water demands in the most cost-effective manner possible,” says Characklis, “and that also includes attention to the environmental and regulatory impacts.”

Of course, there is an educational component to the project. The students use computer modeling to experiment with different choices for the municipalities to consider. “Our Ph.D. and masters students usually have a strong grounding in science and mathematics that they use to develop knowledge and skills in water resource modeling,” says Characklis. He adds that they need to be comfortable with math and computer programming. It also helps if they have some background in economics.

Characklis teaches a couple of graduate courses that bring these concepts together. “Of course, a lot of the teaching also happens through close work and supervision of the students’ research,” he says. During these times, Characklis stresses certain principles, including the importance of maintaining a high level of reliability while minimizing costs.

The ultimate goal is to develop regional and cooperative plans to better manage water supply risks during a drought, as concerns over these crisis periods often dominate supply planning. To this end, the research team has worked closely with water resource managers in Chapel Hill, Durham, and the Town of Cary, and is now expanding this relationship to include the City of Raleigh.

The managers are an excellent source of information on many facets of water supply planning, including stream flow levels, reservoir storage and water demand, as well as how each factor varies over time and according to the season. Other information collected by the research team includes the effectiveness of conservation practices.

“From my point of view, Greg represents an ideal blend of academic expertise with a real on-the-ground understanding of how water utilities work and how decisions are made.”
Click Here
to return to Table of Contents

Your royal court (Board of Trustees) requests your presence at the 92nd Annual Conference to be held November 11-14, 2012 in Raleigh - the capital city. Founded in 1792, Raleigh bears the name of Sir Walter Raleigh who attempted to establish the first English colony on the shores of the new world in the 1580's. Now a bustling city of over 400,000 people, Raleigh will surely provide you with fun and excitement during your visit. A short stroll away from the Raleigh Convention Center you will find outstanding restaurants, pubs, and an amphitheater with ongoing events. Plan to be a part of the merriment and allow the local town folk (Local Arrangements Committee) to provide you with a memorable experience.

- Knights (certified operators & professional engineers) will find ample sessions to fulfill their continuing education requirements. Contact Larry Mitchell at (919) 854-6235 for more information on presenting during the technical program. Abstracts are due April 2, 2012.
- The town square (exhibit hall) will be bustling with activity, so come in from the countryside and visit with old and new friends.
- Prepare to witness and participate in lively games and entertainment including the clay shoot, golf tournament, pipe tapping contest and operations challenge.
- Tours of local castles (water/wastewater facilities) are being organized by the local town folk.
- Don't be shy, add your name to the list of sponsors and be recognized for your contribution throughout the conference. Specific sponsorship needs include equipment for the Operations Challenge. Contact Greg Morgan, Union County Public Works, at (704) 289-3288 for more information on Operations Challenge needs.

The local town folk are working diligently to organize these events and more for your enjoyment. Don't wait for the town crier to shout again. Visit www.ncsafewater.org to read updates as they become available.

ClearWater, Inc.

After 33 years of service to North Carolina in the Water Industry, Jim Hicks of ClearWater, Inc, retired on March 5th, 2012.

We all wish him the best on his retirement!

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programs, the capacity of infrastructure, and treatment plants and interconnections between utilities.

“We can assist clients in exploring new approaches to meeting their reliability and cost objectives,” says Characklis. “We also get to know more and more about the regulatory context as we spend more time with the utilities.”

As a result of the team’s ongoing work, there has been a buildup of expertise on risk-based strategies for drought management in the region. “We have adopted that approach at the Orange Water and Sewer Authority [OWASA],” says Planning Director Ed Holland. “Pretty soon we’ll begin conversations with neighboring utilities about “drought insurance” agreements. I expect some of the terms of those discussions will be based on Greg’s previous risk analyses.”

Vicki Westbrook, the assistant director of water management at the City of Durham, points out that none of the utilities would have had the staff to conduct this research. “It is also a lot easier to have academics do it because it is easier for them to work across all the jurisdictions,” she says. “It is wonderful to have that level of knowledge and understanding of our systems.”

At the Town of Cary, Water Resources Manager Leila Goodwin notes that the long-term nature of the research project has allowed the municipality to work with a succession of three graduate students under Characklis’ supervision. She says the work completed by Greg and his students is forming the basis of discussions with OWASA about the potential for crafting a conditional guaranteed agreement—something none of the municipalities has ever undertaken.

“Several of the graduate students have gone on to work for local consultants who are now working on water supply issues for all of the partners,” Goodwin says. “It has truly built a knowledge base of water professionals in the research triangle area.”

Holland notes that, while working with Characklis, the graduate students often had to describe, explain, and justify their position to people in the utility world. This experience undoubtedly continues to be very useful as they move into their new positions. “From my point of view,” says Holland, “Greg represents an ideal blend of academic expertise with a real on-the-ground understanding of how water utilities work and how decisions are made.” By nurturing those abilities in his students, Characklis has ensured that this expertise will only continue to grow.

“We can assist clients in exploring new approaches to meeting their reliability and cost objectives”
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Howard Kimbrell was honored with a special award acknowledging his extensive participation and commitment to serving as chair of the WEF Membership Committee from 2008 through 2011. The award was presented by WEF President Matt Bond and Bart Jones, Committee Leadership Council chair, during the Committee Chairs’ Appreciation and Recognition Luncheon Oct. 19 at the 84th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC).

Howard’s term as chair will end this year, but he still plans to be actively involved in WEF and will continue to volunteer his time and remain committed to the organization and clean water. “It has been an honor to have the opportunity to serve on this committee and among national leaders in the industry,” Howard said. “This experience has taught me that clean water is one of the most important legacies that we can leave our children and grandchildren.”

Howard is business development manager for Highfill Infrastructure Engineering, P.C.

Steve Drew is Named City of Greensboro Director of Water Resources

Interim City Manager Denise Turner Roth announced Dec. 29 that Steve Drew has been named director of water resources. Drew, who previously was the operations division manager within water resources, assumed the director’s role on Jan. 16.

“Steve has been an integral member of our water resources department for more than three decades and has proven his ability to be a leader for not only the department, but also the city,” said Roth. “He and his leadership team are responsible for one of Greensboro’s most precious resources, and I am confident that our water and sewer infrastructure will continue to be maintained and enhanced under Steve’s direction.”

Since joining the City in 1979, Drew has served as a plant mechanic and electronics technician, plant superintendent of maintenance and operations, and water supply division manager. As operations division manager, Drew provided leadership to all compliance, operational, maintenance, and repair activities for more than 160 full-time employees tasked with the distribution of potable drinking water, metering services, and the collection of sanitary sewer pumping stations. He also prepared the $14 million capital and operating budget for the operations division.

Drew holds a bachelor’s degree from the University of North Carolina at Greensboro in public administration and is a certified water treatment operator and water/wastewater maintenance technologist. He is also a life member of the SS society and is on the Board of Trustees for the North Carolina American Water Works Association and the North Carolina Water Environment Association (NC AWWA-WEA).

Ron Elks Retires From Greenville Utilities Commission

Ron Elks, GUC’s general manager since 2005, announced his intent to retire after nearly 32 years of service. The official announcement was made at the Oct. 20 Greenville Utilities Board meeting. An effective retirement date has not been finalized.

“As a Board member, and particularly as board chair, Ron’s decision is accepted with mixed feelings,” said GUC Board Chair Freeman Paylor. “We know that he will enjoy a much-deserved retirement, but Ron’s leadership and dedication will be greatly missed. His strategic focus has helped make GUC what it is today—an organization recognized for excellence not only locally, but regionally and nationally. In large part because of Ron Elks’ vision and customer-first philosophy, GUC is well-positioned for the future. We anticipate a smooth transition as succession
plans move forward over the next several months.”

As general manager, Elks has been responsible for the operation of Greenville’s municipally owned electric, water, sanitary sewer, and natural gas systems serving nearly 148,000 customer connections. He has been employed at GUC since 1980 and has served in various capacities. After a nationwide search, he was selected general manager in 2004.

“My career with Greenville Utilities has been an enriching journey, and this decision was made after much reflection,” said Elks. “I am looking forward to turning the page and beginning the next chapter of my life, confident in the knowledge that GUC is in great hands with an exceptional staff and an exemplary Board of Commissioners.

“Greenville Utilities is truly a special place with special people,” said Elks. “It has been an honor to continue the legacy of our former general managers, including Charles Horne and Malcolm Green. Like those who came before me, I’ve always felt fortunate to be a part of this extraordinary organization. We have great customers, strong leaders on our Board and staff, and dedicated employees. I have enjoyed the opportunity to work with professionals who make a difference in peoples’ lives every single day.”

In 2001, Elks was the recipient of the George Warren Fuller Award, which is awarded for distinguished service in the drinking water profession. He previously served on the national Water Environment Federation Board and was a past chair for the NC AWWA-WEA and PENC and currently serves as chair of the NC AWWA-WEA State Board of Trustees.

The second alternate commissioner for NCEMPA.

He and his wife, Wanda, have two adult children and a new grandson.

**Brent Reuss Becomes Grandfather**

Brennan Michael Reuss was born Nov. 3 around 2 a.m. He was 8 lbs., 2 oz. The family is doing well, and Grandpa and Grandma are enjoying watching how quickly he grows and changes.

**GHD Announcement – John McLaughlin Hired**

John W. McLaughlin, P.E., has recently joined GHD’s Charlotte office as a senior principal. McLaughlin has more than 32 years of experience with utility planning, management, design, and construction, including the last 27 years in North Carolina. McLaughlin is also experienced in utility security/risk assessment and management. John has been active with the NC AWWA-WEA and PENC.

**Dewberry Welcomes Expertise of Marco Menendez, PE**

Dewberry has named Marco Menendez, P.E., as the Carolinas’ regional water/wastewater market leader in the Raleigh office. In this new role, he will focus on developing business strategy, maintaining existing client relationships, developing new clients and business, and leading projects for public-sector utility clients.

Menendez has more than 17 years of experience with municipal water and wastewater clients and projects. He received his master’s degree in environmental engineering from the University of Florida and his bachelor’s degree in civil engineering from West Virginia University. He is a member of the Water Environment Federation, the NC AWWA, and the NC WEA. “I am very pleased to be working with a company with a clear vision to grow the water/wastewater practice,” said Menendez. “I look forward to being part of this growth in the Carolinas.”

---

**3rd Annual NC Water For People - 5k Fun Run**

Saturday, May 12, 2012 – Charlotte, NC

**Times**

Registration: 7:30am

Start Time: 8:30am

**Registration Fees**

Before March 31 = $20

March 31 - May 11 = $25

Race Day = $30

**Registration & More Information**

http://ncwfp.tap.waterforpeople.org/5k

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Correction Notice

Tyrone Battle Photo
Our apologies to Mr. Tyrone Battle. On page 59 of the Winter 2011/12 issue, the wrong photo appeared with Mr. Battle’s author biography. The photo was of Dr. Alan Freitag, whose image also appeared correctly on page 49, along with the photos of his co-authors. The photo at left is Mr. Battle’s author photo.

Kemp Correction
On page D60 of the Winter 2011/12 Buyers Guide, the contact email for Kemp Inc. is listed incorrectly. The correct email address should be colin@kempinc.com. NC AWWA-WEA apologizes for this error and any inconvenience that it may cause.

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**11th Annual Spring Conference**
**April 15-17, 2012**

**Wilmington Convention Center**
Wilmington, NC

Onsite registration opens at 7:00am on Monday & Tuesday.

At the conclusion of the Spring Conference, most presentations from the technical sessions will be available at www.ncsafewater.org.

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The active participation of our members is the key to our success. Each member can make a contribution by sharing a small amount of time to help with the Association’s work. Please look over the list of committees and choose a few that are of interest to you. To join a committee complete the Volunteer Form (available at www.ncsafewater.org), contact the NC AWWA-WEA office or contact a committee’s chair directly.

**Board Committees**
- Archives & History
- Government Affairs

**External Affairs Committees**
- Communication
- Membership Services
- Outreach

**Public Education**
- Water For People
- Young Professionals

**Seminars Committees**
- Seminars & Workshops
- Automation
- Disaster Preparedness

**Finance & Management**
- Industrial
- Residuals Mgmt/GW
- Safety

**Small Systems**
- Sustainability
- Col & Dist Systems

**Sustainability**
- Water Resources
- Water Reuse

**Schools Committees**
- Col & Dist Schools
- Plant O&M
- Prof WW Operators
- WW Lab Analyst
- WW Operators Schools

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**Volunteer With**

- NC AWWA-WEA
The following schedule is current as of February 20, 2012. For updates or more information please contact the organization listed with each event. If no organization is listed it is an NC AWWA-WEA event, and details may be obtained by calling the NC AWWA-WEA office at (919) 784-9030 or visiting www.ncsafeater.org.

### April

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<thead>
<tr>
<th>Date</th>
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<tr>
<td>12</td>
<td>PWOC Western Region Meeting</td>
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<tr>
<td>12-13</td>
<td>AWWA Customer Service Representative Training, Course 3 Durham, NC</td>
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<tr>
<td>15-17</td>
<td>11th Spring Conference Wilmington, NC</td>
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<tr>
<td>22-27</td>
<td>NCPC Pretreatment Certification School Clemmins, NC NC Pretreatment Consortium</td>
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<tr>
<td>26</td>
<td>NCWOA Seminar: Small Systems Sanford, NC NCWOA (252) 764-2094</td>
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<tr>
<td>30-</td>
<td>Eastern Biological Wastewater Operators School Raleigh, NC</td>
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### May

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<tr>
<td>1-4</td>
<td>Physical/Chemical Wastewater Operators School Raleigh, NC</td>
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<td>2</td>
<td>Wastewater Laboratory Analyst Certification Exam Graham, NC</td>
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<tr>
<td>3-4</td>
<td>AWWA Customer Service Representative Training, Course 3 Welcome, NC</td>
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<tr>
<td>6-12</td>
<td>National Drinking Water Week</td>
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<tr>
<td>8</td>
<td>Lab Tech Day Raleigh, NC NCWOA (252) 764-2094</td>
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### June

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<td>7</td>
<td>It’s Good to Be Green: Project Funding and Sustainability in a Down Economy Raleigh, NC</td>
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<td>14</td>
<td>WPCSOCC Certification Exam (Application Deadline: May 15, 2012) Keansville, Morganton, Raleigh, Salisbury, and Williamston WPCSOCC (919) 733-0026</td>
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<tr>
<td>10-14</td>
<td>AWWA ACE Annual Conference Dallas, TX AWWA (800) 926-7337</td>
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<tr>
<td>21</td>
<td>NCWOA Seminar: Remote LTD 2012 New Bern, NC NCWOA (252) 764-2094</td>
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<tr>
<td>21</td>
<td>PWOC Central Region Meeting</td>
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### July

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<tr>
<td>12</td>
<td>PWOC Western Region Meeting</td>
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<tr>
<td>12</td>
<td>Board of Trustees Meeting Winston-Salem, NC</td>
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<tr>
<td>16-20</td>
<td>Western Biological Wastewater Operators School Morganton, NC</td>
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<tr>
<td>16-19</td>
<td>Western Maintenance Technologist School &amp; Exam – Classes I, II, &amp; III Morganton, NC</td>
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<tr>
<td>24</td>
<td>NC AWWA-WEA Seminar: Drinking Water Rules &amp; Regulations Raleigh, NC</td>
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### August

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<tr>
<td>6-10</td>
<td>Western Collection &amp; Distribution School Morganton, NC</td>
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<tr>
<td>9</td>
<td>PWOC Eastern Region Meeting</td>
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<td>14</td>
<td>NCWOA Seminar: Small Systems Wilson, NC NCWOA (252) 764-2094</td>
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<td>15</td>
<td>NC AWWA-WEA Seminar: Automation Seminar Fayetteville, NC</td>
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<td>21</td>
<td>NCWOA Seminar Concord, NC NCWOA (252) 764-2094</td>
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<td>30</td>
<td>NCWTFOCB Certification Exam Kinston, Morganton, and Raleigh NCWTFOCB (919) 733-0379</td>
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**Schedule of Events**

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<tr>
<th>September</th>
<th>October</th>
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<th>December</th>
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<tr>
<td>NC AWWA-WEA Seminar: Collection &amp; Distribution</td>
<td>7-9 2012 NCPC Annual Conference</td>
<td>8 WPCSOCC Certification Exam</td>
<td>4 NC AWWA-WEA Seminar: Construction</td>
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<tr>
<td>11 NC AWWA-WEA Seminar: Advanced Topics in Wastewater</td>
<td>11 PWOC Western Region Meeting</td>
<td>Kinston, Morganton, and Raleigh</td>
<td>NC AWWA-WEA Seminar: Pipe</td>
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<tr>
<td>Lexington, NC</td>
<td>15-19 Coastal Collection &amp; Distribution School</td>
<td>NCWTFOCB Certification Exam</td>
<td>Huntersville, NC</td>
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<tr>
<td>(Application Deadline: Aug 14, 2012)</td>
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NC Currents Future Themes & Submission Deadlines

NC Currents is the official publication of the NC AWWA-WEA. Members, individuals and committees are encouraged to submit content for the magazine. If you would like to submit an article to be considered for publication in NC Currents please complete the Submission Form & Publication Agreement (available at www.ncsafewater.org) and email both the completed form and your article to Nicole Banks at nbanks@ncsafewater.org. Articles must be received by 5:00pm EST on the listed submission deadline.

The editors of NC Currents welcome the submission of all articles related to the water and wastewater industry. Themes serve as general guidance for each issue, but articles are not limited to an issues specific theme. Submission of an article does not guarantee publication. The editorial committee will review and select all articles, and authors will be notified of the status of their submission.

**SUMMER 2012**

**Theme: The Water and Wastewater Industry Goes “Green”** (Submission Deadline April 10, 2012)

As concern for climate change grows in the scientific world and in the political world, and more emphasis is being placed on moving away from fossil fuels, we find many public utilities looking for ways that they can reduce their carbon footprint, as well as save on energy cost. Methods being pursued range from installing solar panels at water and wastewater plants, retrofitting water supply dams with turbine generators and looking at ways to make pumps and motors more energy efficient. This issue will feature articles describing what North Carolina Utilities are doing to move toward greener technologies, processes and operating approaches.

**FALL 2012**

**Theme: Aging Infrastructure** (Submission Deadline July 10, 2012)

As budgets are tightened and funding is reduced in both public and private sectors due to the recent downturn in the economy, our future approach to managing and replacing aging infrastructure is challenged to find more cost effective and innovative ways to replace and sometimes prolong our existing infrastructure. This particular issue will feature and explore assessment methodologies, innovations in infrastructure and facility rehabilitation/replacement, and cost effective ways to improve the life of our infrastructure. Specifically, we, as water and wastewater professionals, need to concentrate on developing good/sound strategic and capital improvement planning, investigating existing conditions and the overall repair/replacement status of our aging infrastructure, comparing our proposed infrastructure action plans and/or remedy approaches to ones in neighboring municipalities; and thereby, determine the best possible plan and/or approach, technologies, and management tools that will resolve our aging infrastructure dilemma within a prescribed timeframe and established budget.

**WINTER 2012/13**

**Theme: Source Water: The Good, The Bad & The Ugly** (Submission Deadline October 2, 2012)

As professionals in the water and wastewater industry we all know source water issues will continue to be a challenge as our state continues to grow in population. It has been our responsibility to aggressively develop and implement local and regional source water protection plans. It is necessary to design and implement watershed protection programs for large and small systems throughout NC. The Communications Committee views this as an important issue as water becomes harder to find. We are requesting articles on the many interesting topics relating to source water. These articles can discuss the regulatory issues, source water protection, The Safe Drinking Water Act (SDWA), water rate increase in local government, hydro-fracking, microconstituents such as steroids and endocrine disruptors, droughts, wellhead protection, watershed planning and reservoir development, to name a few.

**SPRING 2013**

**Theme: Prosperity – Past, Present & Future** (Submission Deadline Early January 2013)

**SUMMER 2013**

**Theme: Outreach/Water For People** (Submission Deadline Early April 2013)

*Descriptions for these themes will be posted at www.ncsafewater.org once they are available.*

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