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WEF HIGHLIGHTS

November 2003
Vol. 40 No. 9

News for Members of the Water Environment Federation

Asset Management Benefits Small Towns, Too

John Fortin

Asset management programs can help utilities maximize the life of all facility assets, but implementing an effective program can be challenging. So, to help small communities adopt such programs, the New England Water Environment Association's (NEWEA's) Asset Management Committee and Small Community Outreach Committee co-sponsored a full-day workshop on the subject last spring and have planned more for December and January (see box, p. 7).

What Is Asset Management?

Asset management is a "formal, integrated body of business practices," said **John Fortin**, chair of NEWEA's Asset Management Committee and asset management program manager at Massachusetts Water Resources Authority (MWRA). An asset management program should be part of an organization's business plan and have a manager, budget, scope, schedule, and implementation team, he said. It also should touch all business units and applicable processes, he noted, and involve a combination of tools and techniques that manage assets cost-effectively throughout their lifecycle (design, construction, operation, maintenance, and renewal).

The key elements of an asset management program include condition monitoring, maintenance programs, asset replacement methodologies, computerized maintenance management, training, and performance metrics, Fortin said. The supporting components include financial analysis, leadership, research, and communication, he added. No "silver bullet" model or program exists, he said; each community is different, and program implementation is a 3- to 5-year effort, so plan accordingly. The committee is developing an information kit to help NEWEA members implement such

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Participants of the Asset Management Workshop included Norton True, NEWEA President; John Fortin, NEWEA Asset Management Committee Chairman; Maureen Driscoll, Senior Analyst, National Resources and Environment Team, U.S. General Accounting Office (GAO); Ramona Burton, Analyst, GAO; and Sean Stang-Osborne, NEWEA Small Communities Outreach Committee Chairman.

Elizabeth Welsh stands amid her research project in Wild Rice Lake.

Minnesota Student Puts Prize Project to Community Use

When many kids are watching television or chatting on the Internet, **Elizabeth Welsh** is up to her knees in weeds.

Welsh, a junior at Proctor High School (Proctor, Minn.), is a state finalist in the 2003 Stockholm Junior Water Prize contest. Her study of how to use barley straw to inhibit green algae growth turned out to be very useful to a resident of Wild Rice Lake (Duluth, Minn.), who was looking for a solution for his pond weed problem.

"I saw in the Duluth paper that a homeowner on Wild Rice Lake was looking for help and solutions to a huge increase in weeds in this lake over the last couple years," Welsh said. The Minnesota Pollution Control Agency (MPCA) and the Department of Natural Resources (DNR) were not sure why this was happening, she said, and the article mentioned that MPCA and DNR lacked the staffing to investigate fully. So Welch stepped up to bat.

"I called **Jesse Anderson**, pollution control specialist from the MPCA and he connected me with the homeowner, **Dan Jezierski**," she said. "Mr. Jezierski was very excited to let me use the water along his lot to do my study. I called the DNR and they said it was okay."

This field work is a bit different from what Welsh is used to. Her three prior studies on the subject were done in buckets in her basement. This study would require a little more advanced equipment.

"To make this leap," she said, "professional guidance was necessary." Getting her driver's license also helped.

Help came from many areas. For example, **Steve McComas**, a limnologist at Blue Water Science (Minneapolis/St. Paul, Minn.), shared advice on methodology and shared research information. Dr. **Rich Axler**, a limnologist at the Natural Resource Institute at University of Minnesota (Duluth; UMD), helped adapt the project for field study. **Phil Monson**, a stream ecologist at the Cloquet

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Upcoming WEF EVENTS

For more information, call 800-666-0206 (from the U.S. and Canada) or 703-684-2452 (elsewhere in the world), fax 703-684-2492, or e-mail confinfo@ wef.org. For instant information via Fax-on-Demand (FOD), call 800-444-2933 or 703-684-2401 and reference the FOD number listed below. To receive a list of all documents by fax, enter 1100.

CONFERENCES

Dec. 2–5, 2003
POLLUTEC 2003:
International Exhibition of Environment Equipment, Technologies, and Services
Paris, France
888-522-5001

Dec. 11–12, 2003
Third IWHA Conference
International Water History Association
Cairo, Egypt
+47-55-589315

COURSES

Dec. 2–3, 2003
Phase I Site Assessment and the Transaction Screen Process
ASTM International
Baltimore, Md.
610-832-9500

Dec. 3–5, 2003
Reverse Osmosis Water Treatment Hands-On
David H. Paul Inc.
Farmington, N.M.
877-711-4347

Dec. 8–11, 2003
Quality Assurance of Environment Measurements
Professional Analytical and Consulting Services
Orlando, Fla.
724-457-6576

Dec. 15–16, 2003
Environmental Laws Compliance
Professional Analytical and Consulting Services
Orlando, Fla.
724-457-6576

Commercial Partners and the Public Interest

On a plaque in the Water Environment Federation (Alexandria, Va.) lobby are the names of several dozen companies that helped fund the building's construction. Every time I see this plaque I am reminded that companies like these support the Federation not simply to improve their balance sheets but to demonstrate their commitment to clean, safe water.

From the EXECUTIVE DIRECTOR

Company involvement is obvious at events like WEFTEC.03 in Los Angeles. These exhibitors, advertisers, and sponsors not only financially benefit WEF but also provide a 200,000-ft² temporary classroom in which WEFTEC attendees can learn more about emerging technologies and processes to manage water better, safer, and more economically. Fully half the people who attend WEFTEC list the exhibit hall as the main attraction and just about everyone spends some time there visiting and learning.

Less obvious is the support that these companies provide throughout the year. They encourage their employees and executives to participate in WEF committees, workshops, and specialty conferences, as well as serve as officers and members of WEF's Board of Trustees and House of Delegates. They support Member Association programs. They sponsor CMOM workshops, Operations Challenge competitions, student programs, the Stockholm Junior Water Prize, WEFTeach, and many other popular, successful activities. They spend millions of dollars annually on water and wastewater research to develop new equipment and processes for public agencies all over the world. By such acts of citizenship, these companies have become essential players in the water community. They are much more than vendors; they are partners.

Nearly 16,000 water and wastewater treatment professionals — including trade delegations from all over the world — attended WEFTEC.03 to learn from and do business with these partners. Even WEF's competitors were there, trying to identify what makes WEFTEC so special. The secret is not in the numbers or the management or the methods, but in the way WEF looks at the world of water, its institutions, and the people we serve. Our commitment to the public interest and our willingness to recognize that wastewater issues must be considered in the context of the entire watershed and water cycle, and that the solutions to many of our environmental and public health issues lay in the hands of both public and private institutions, are what make WEF and WEFTEC unique.

Commercial companies and the economics of water are an important part of this larger context for both public utilities and the publics they serve. Economics is a significant driver of not only the commerce of water but the science of water as well. To this end, commercial companies and public utilities share a common public interest and that public interest manifests itself in the strong partnership between the Water Environment Federation and its commercial partners. It is a relationship we welcome, embrace and want to develop even further… in the public interest.

Bill Bertera
WEF's Executive Director

SJWP *continued from page 1*

Forestry Center (Coquet, Minn.), helped supply equipment and laboratory algal cultures. Dr. **Andrew Klemer**, a UMD limnologist, and **Randy Hedin**, a UMD biologist, offered a place for Welsh to perform chlorophyll a analysis and assisted with the field containers and troubleshooting.

With professional guidance and equipment, Welsh was on her way to see if barley straw worked as well in the field as in her home experiment. So far, the project is going well, she said, adding that she hopes she can determine what is causing the weed problem.

"I was able to set up my project in July, she said. "I have been running it for 5 weeks. I now have my driver's license and can drive to the lake every Wednesday after school and then take my water samples to the University of Minnesota (Duluth) to do chlorophyll analysis every Thursday after school."

WEF HIGHLIGHTS

Share Your News with WEF!

Do you have water quality-related news? Contact *WEF Highlights* editor **Staci-Jill Sands** at ssands@wef.org or at (703) 684-2400, ext. 7480.

WEF HIGHLIGHTS
News for Members of the Water Environment Federation

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Water Environment Federation

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Daigger Inducted into National Academy of Engineering

On Oct. 12, **Glen T. Daigger** was inducted into the National Academy of Engineering (NAE; Washington, D.C.). Election to the NAE is one of the highest professional distinctions among engineers, according to **Randy Atkins**, senior media relations officer for the organization. Current NAE members elect to include those who have distinguished themselves in business and academic management, in technical positions, as university faculty, and as leaders in government and private engineering organizations.

NAE, a private, independent, nonprofit institution, advises the federal government and conducts independent studies to examine important topics in engineering and technology.

Daigger, a member of the Water Environment Federation (WEF) since 1973, currently serves as chair of both the Technical Practice Committee and the Research Symposium for the WEFTEC Program Committee. He also has been chair of the Water Environment Research Board of Editorial Review and an active participant in several Water Environment Research Foundation projects.

Glen T. Daigger

"Election to the National Academy of Engineering is a great honor," Daigger said. "Achieving it is not so much a reflection of what I have accomplished to this point in my professional career, but a reflection of the outstanding collaboration with so many highly skilled and dedicated colleagues. It is collaboration with these folks, and the things we have jointly accomplished, that is being recognized with this honor.

"Many of those professional relationships have been formed and nurtured through WEF-sponsored activities," he added. "So, my involvement with WEF has been an important element to my professional career and success and to the honor of being elected to the National Academy. Thanks to all who have been so instrumental in the wonderful career that I continue to have."

Congratulations, Glen!

Water Environment Federation

Disinfection Data Wanted

If you manage or supervise the disinfection process at your utility, please take a moment to participate in a Water Environment Federation survey. The survey is intended to determine current disinfection trends at wastewater treatment facilities and can be accessed via WEF's Web site, www.wef.org, under the heading "Request for Disinfection Process Information."

For information or to receive a hard copy of the survey, contact **Stacy Passaro** at 703-684-2400 or spassaro@wef.org. Survey results will be available to utility personnel on request and a summary will be published in a future issue of *Operations Forum.*

Member Spotlight on... Don Francisco

Don Francisco is a well-respected lecturer in Environmental Biology at the University of North Carolina, Chapel Hill, with more than 30 years experience educating water environment professionals. He received a B.A. degree in Biology, an M.A. degree in Aquatic Biology from North Texas State University, and a Ph.D. in Aquatic Biology-Microbiology from the University of North Carolina, Chapel Hill.

He is a recipient of the Arthur Sidney Bedell Award, and is currently Chair of the Students and Young Professionals Committee. He has served as chairman on numerous other committees and task forces, as well as two terms on the WEF Executive Committee. He was awarded WEF Honorary member status in 2002.

When did you become a WEF member?
1966

Why did you become a member of WEF?
My advisor explained that a professional should belong to a professional association. In addition, most of the applied water quality literature was published in the *Journal of the Water Pollution Control Federation.*

How did you get involved in the water quality field?
I got a job in an actinomycete laboratory during my freshman year in college. These were of interest because they are responsible for tastes and odors in drinking water. After taking an applied limnology course, I was convinced that I wanted applied water quality research to be my life's work. It seemed that the only opportunity for this was as a university faculty member. Fortunately, my experience as an undergraduate teaching assistant had also convinced me that teaching is an equally challenging and rewarding endeavor.

Why are you still in the water quality field?
I have been constantly challenged in both research and teaching. Also, the problems of the past and present are not solved. Those of the future are quite daunting.

How has WEF affected your professional career?
In many ways, WEF has shaped my career. As a new faculty member, I drew a short straw and had to organize the North Carolina Annual School for Wastewater Treatment Plant Operators. This was a joint offering with North Carolina Water Environment Association. Through this, I met and worked with municipal, industrial, and state water quality professionals from all over North Carolina. This has led to

WEF Member Profile
Don Francisco

numerous rewarding relationships, research problems, teaching opportunities, etc. Because of this, I have been able to emphasize the "service" part of a faculty member's job description.

I am honored to be one of only two university faculty members to lead NC AWWA-WEA during its 80 plus-year history. In addition, I have been on the WEF Board and Executive Committee, led task forces, and committees. I am just finishing a very rewarding term as chairman of the WEF Student and Young Professionals Committee. WEF has been very good for me.

What was one of your most challenging water quality issues and why?
The most challenging water quality issue for me has been ensuring the acceptability of a local reservoir as a drinking water source for potentially 1 million people. The reservoir is highly impacted by wastewater discharges as well as exploding urban development. It is now over 20 years since the dam was closed, and we know very little more about the causes and potential solutions for obnoxious eutrophication than we did in the beginning. This has happened because the public, through political representatives, did not support research programs to define the mechanisms responsible for algal growth as well as reasonable means control. About 12 years ago, very stringent phosphorus effluent limits were placed on all dischargers. Subsequent monitoring has not shown that this has significantly decreased algal growth.

I believe that water quality professionals primarily serve future generations of humans and aquatic organisms. Water utilities, regulators, and politicians must be continuously reminded that the daily job pressure comes from those who are current voters and taxpayers, but the real challenge is the provision of services, i.e. enhanced water quality, to future generations. They must understand how the water resources they seek to protect function as ecological entities. Too often, solutions are pulled from the shelf and have no real benefit except that they are expedient.

What project are you most proud of and why?
I helped Professor **James C. Lamb III** develop a biological phosphorus removal flow sheet that is in use by several utilities. It is not protected by patents! However, my proudest achievement is the part I have played in the education of many undergraduate and graduate students who have left my department and become great successes in this profession.

What changes over the years do you feel have had the most effect on the field?
Obviously, the passage of PL 92-500 [the Clean Water Act] had the biggest effect on the field. At first, this was very exciting because many universities, as well as manufacturers, were conducting research to determine the most appropriate ways to meet the requirements of the Act. Eventually, most of the research moved abroad as the government eliminated funding. Finally, foreign firms acquired many of the U.S. firms that had been industry leaders. This has changed the nature of the field in the United States.

Where do you see the future of the industry heading?
The industry is going to have to become less concerned about the cost of treatment options and more concerned about protecting water quality for future generations. The population of the United States is expected to increase by another 100 million by 2050. The wastewater and runoff caused by this increase in population will be a huge challenge for our streams and lakes.

What role do you see WEF having in the future of the industry?
I think that WEF must add a new role in addition to representing the industry and the water quality profession. It should become the "Sierra Club" of the water environment. We must be viewed by the public, as well as politicians, as representing good water quality for all. We must be educators of the public, advocates for legislation that enhances water quality, and prodders of those who do not adequately enforce laws and regulations. I think we can do this while still representing those whom we represent today.

What advice do you have for up and coming water quality professionals?
Do not get into this field because there is money and job security. Get into this field because you are passionate about enhancing water quality for future generations. Then get involved in your MA as well as WEF. Learn from others and join them to effect a bright future.

WEF Wants You!

Do you know a WEF member who is an "unsung hero" and whose efforts have made a difference in the field? Please send your nomination and three reasons you think the member should be profiled to **Staci-Jill Sands** at ssands@wef.org.

Service to our country has been a hallmark of U.S. history. From the first wobbling steps in the quest for independence to the footprints in the desert sands of the Middle East, men and women from all walks of life have heeded the call to service throughout the years and put their lives on the line in pursuit of freedom and liberty.

Honoring

WEF Salutes John Hart

Name: John F. Hart

Civilian job: Chief Operator, oversight of 17,000-m^3/d (4.5-mgd) City of Saco (Maine) Wastewater Treatment Plant, including 28 pumping stations and solids dewatering.

Branch of service: Department of Homeland Security, U.S. Coast Guard (USCG).

Rank and MOS (Military Occupational Specialty): E-7, Chief Petty Officer, Marine Science Technician Chief (MSTC) Enlisted Reserve Coordinator under the Captain of the Port – Portland, Maine. I work in the Port Operations Department, dealing with ports and waterways safety and security issues, pollution investigations, shore-side facility inspections, and public education though the Sea Partners Program. Other duties include freight and tank vessel inspections and marine casualty investigations.

What's your unit? USCG Marine Safety Office (Portland, Maine).

Why are you in the Guard/Reserves? I joined the USCG Reserve program back in 1981 with the primary desire to do something useful for the United States and local communities. My secondary desires were to obtain a part-time job that had benefits and to have fun. In my 22 plus years in the CG Reserves, I have enjoyed every part of my job, as it has allowed me to grow in an organization that has many challenges.

When were you called up? I was ordered to report to duty on March 31 and released from active duty on Aug. 1.

Where is your duty location? Portland, Maine

What are the day-to-day duties of your military job? My day to day duties reflect what my intended mission is. The term and CG motto, "Semper Paratus" means "Always Ready." Sometimes we must remain flexible to perform a variety of duties and jobs, whether it is public education, emergency or pollution response, security patrols, vulnerability assessments, or law enforcement.

How did you feel when you were activated? The USCG and more specifically, our unit, had prepared us for being called to Active Duty for some time. When the call came, it was awakening, but then again expected. What was unknown was where we would be sent off to. Fortunately for the 14 members of our unit, we all were able to support the local command due to the heightened state of awareness.

What was your civilian employer's reaction? My supervisor, fellow staff, the human resources director, and the city manager were more than supportive.

How has your activation affected your family? Unlike the mobilized members that were relocated around the United States and overseas, I was very fortunate to be able to commute as I would normally do at my civilian job.

Any experiences you would like to share while you have been activated? *[Editor's note: The following is an excerpt from a Letter of Commendation presented to Hart on June 27, 2003 from Mark P. O'Malley, Commander, U.S. Coast Guard Commanding Officer, Marine Safety Office Portland, Maine]:*

> "I note with pride and am pleased to commend you for your performance of duty in the Port Operations Department at Coast Guard Marine Safety Office (MSO) Portland from March 2003 to July 2003. You significantly contributed to unit success through your demonstrated superior performance, teamwork and high motivation under both Operation ENDURING FREEDOM and Operation LIBERTY SHIELD.
>
> "During this period, you directly participated in tiered port harbor/security homeland security patrols under Maritime Security (MARSEC) Level II, while ensuring continued quality service in all other mission areas. You focused substantial energy toward insuring security oversight of maritime critical infrastructure in and around Portland Harbor while leading active, reserve and auxiliary members of Team Coast Guard.
>
> "Utilizing exceptional environmental knowledge to insure responsible parties were held accountable, you oversaw successful responses to several small spills including the 400-gallon M/V WEO diesel spill. You willingly sought additional challenges being instrumental in the safe transit of a barge carrying a decommissioned nuclear reactor from Maine Yankee Nuclear Power Plant and taking the lead representing the unit at several high profile events involving Cumberland County Maine's Emergency Management Agency. Additionally, your significant contributions as the acting Command Enlisted Advisor and ongoing active participation in the Portland Area Chief's Mess enhanced the overall worklife balance for all assigned members.
>
> "You are hereby authorized to wear the Commandant's Letter of Commendation Ribbon Bar (gold star in lieu of a second). The Operational Distinguishing Device is authorized.

WEF Salutes David Van Cleave

Name: David Van Cleave

Civilian job: Superintendent of the Rapid City (S.D.) Water Reclamation Division. I am responsible for the administration of the city's water reclamation facilities and operations.

Branch of Service: South Dakota Army National Guard

Rank and MOS: I am an E-8 Engineer First Sergeant, the senior enlisted person in a Multi-Role Bridge Company. Our job is to provide combat bridging and transportation assets to maneuver elements.

Why are you in the Guard/Reserves? When I first joined the National Guard almost 20 years ago, it was primarily for college benefits and camaraderie with friends. As time progressed, a sense of commitment to my state, nation, and fellow soldiers became the overriding factor for staying in.

When were you called up? Jan. 24

Where is your duty location? Ba'Quabah, Iraq

What are the day-to-day duties of your military job? I am the First Sergeant of the 200th Engineer Company, the first National Guard Multi- Role Bridge Company in the United States. As such, I am responsible for the day to day needs of the soldiers' "beans and bullets," and help the commander carry out the daily business and security of the unit.

How did you feel when you were activated? Our activation happened rather quickly, as we were only given 3 days from the time of notification until the time when we had to report. Although there were feelings of uncertainty and confusion as to what the future might hold, there wasn't a lot of time to dwell on it; we just rolled up our sleeves and went to work.

What was your civilian employer's reaction? The City of Rapid City was and continues to be quite supportive, especially considering that we were right in the middle of a $24 million expansion project.

How has your activation affected your family? Like all families of servicemen and women over seas, it has been a trying experience. Due to the length of time that I have been in the service, my family has been as prepared as they could be for this. I am quite proud of the way that my wife and four children have handled the separation. We are handling things better than we would have expected. We are very busy with four children in school and activities. We have so many people willing to help. The people at the plant call several times each week just to check up on us. They have helped my wife maintain the vehicles (check the oil and get them ready for winter). They have been a big help. It has been a challenge and we miss each other terribly, but we are surviving.

Any experiences you would like to share while you have been activated? Once we completed our main bridging mission here in Iraq, I found myself in the rather unique position of volunteering for a team to assess the water and wastewater facilities in the Diyala Province. The opportunity that I had during this operation really opened my eyes about the quality of our municipal water and wastewater facilities back home. It gave me a sense of satisfaction that I could use some of my civilian skills to assist in the rebuilding efforts taking place here in Iraq. It also afforded me the chance to take a lot of pictures, which will come in handy for presentations back home as a member of SDWEA!

Soldiers Turn Water on in Nasiriyah

Spc. **Julie M. Nicolov**
April 28, 2003

TALLIL AIR BASE, Iraq (Army News Service, April 28, 2003) — Villagers around An Nasiriyah, Iraq, will have access to fresh drinking water this week due to the efforts of military and local engineers.

"What we're here to accomplish is to get water, which had been running prior to the war, back into the communities," said Lt. Col. **Jeff Bryant**, team commander, 486th Civil Affairs Battalion.

The water was interrupted when the electric company suffered extensive damage during the war in southern Iraq.

Without electricity, the two water stations that provide service to approximately 3500 people in and around the city could not pump water. Those living in the area have been without running water for going on 2 months, according to Bryant.

During that time, trucks delivered water regularly, and coalition forces donated

Veterans

As we remember those who have valiantly and selflessly dedicated their time in defense of our nation this Veterans Day, let us also reflect on those currently serving, both at home and abroad. Those citizens in uniform represent a broad stroke of America's landscape — they are our neighbors, friends, and co-workers, and we salute them for their contributions and bravery.

WEF Salutes Jim Johnson

Name: James Ray Johnson

Civilian job: Utilities Superintendent, Fremont Water Pollution Control Center (Fremont Ohio)

Branch of service: U.S. Naval Reserve

Rank and MOS: Captain (select), Medical Service Corps, Environmental Health Officer (an Environmental Health Officer is a an allied health professional responsible for many items, including water and wastewater sanitation, food service sanitation, habitability, and insect and rodents control).

What's your unit? Naval Reserve Fleet Hospital Great Lakes (Great Lakes, Ill.)

Why are you Guard/Reserves? This was a lifetime goal, to serve my country, to work in my area of expertise and make a difference. I enjoy my work with water and wastewater. The sailors I work with are exceptionally talented individuals. It is refreshing to work with like-minded individuals.

When were you called up? I was recalled as an Environmental Health Officer during Desert Shield/Storm, and I reported to Naval Hospital Cherry Point, Cherry Point Marine Corps Air Station, N.C. I have completed many missions since then, including Combined Arms Exercise (CAX) at Twenty Nine Palms, Calif., in 1999 and 2000, Cobra Gold MEDCAP (Medical Civilian Action Program) in Thailand in 2002, and Fleet Hospital Operations Training Course in 2003.

Where is your duty location? I am currently assigned as the Officer in Charge of Fleet Hospital Great Lakes Det 4 (Detroit, Mich). Det 4 consists of doctors, nurses, and hospital corps personnel, and we provide medical assistance for the other co-located Reserve Units.

What are the day-to-day duties of your military job? Ice and water supply inspection, food service inspection, habitability inspections, heat index determination (wet bulb/dry bulb), insect and rodent control inspections, appropriate paperwork (reports, communications, etc.).

How did you feel when you were activated? I was anxious, a bit concerned about my family and my civilian job while I was away (who will take care of the problems, who will fix things, etc.). Once on active duty, the anxiety is still there, but you have new set of worries to worry about, plus you are working with your new set of friends who were also recalled. I felt then and still do today that being recalled is like using your insurance. You pay annual premiums and when a situation arises, your insurance takes over. The Reservists are being paid monthly drill pay to be ready for the eventual recall.

What was your civilian employer's reaction? My employer has been extremely supportive and helpful. My family was taken care of, my health insurance was continued, and my family did not have financial worries. The City has been and continues to be exceptionally supportive. Whenever I have been called for duty, I present the administration with my orders and have never been hassled.

How has your family been affected by your military service? My daughter, 3 years old when I was recalled, would not let me out of her sight when I was released from active duty. My son, 5 years old when I was recalled, was fond of wearing his camouflage trousers and shirt. My wife gained a great deal of independence while I was deployed. She did it all — meals, transport the children from activity to activity, work her own job, handle situations at home, etc. I think we grew stronger together as a family as a consequence of being mobilized.

drinking water to area hospitals. The local electric company needs extensive repairs and it may take 2 or more months to fix, said Lt. Col. **Patrick Reily**, commander, Facility Engineers, Detachment C. Until then, coalition forces donated a mobile generator to run the pumps.

"The biggest obstacle we have is getting generators to the site and getting them wired to the pumps," Reily said.

However, the engineers expect the water to be flowing soon.

"We believe we can have it up and running in 2 days," Reily said last week. Locals will be able to draw water for approximately 4 hours a day, according to the engineers.

"There's only enough fuel to run the pumps that feed all the areas in Iraq for about 4 hours a day," Reily said. "So they don't run out of fuel, they will continually provide partial service."

The water service is expected to be back to normal after the electric company is repaired.

Editor's note: Article reprinted with permission of United States Central Command. Spc. Julie M. Nicolov is a member of the 22nd Military Public Affairs Detachment (MPAD)

U.S. Army Corp of Engineers construct a headwall in Iraq in an effort to rebuild wartime infrastructure devastation.

What Happens to Water During War?

Editor's note: As the conflict in the Middle East continues, war is taking its toll on the environment. When the life-sustaining waters of the world are combined with the life-threatening aspects of conflict, the damage done by such events will continue long after the last shot is fired.

The 2003 International Year of Freshwater Web site of the United Nations Educational, Scientific and Cultural Organization (UNESCO) examined this history of water and its relation to wars in the following article, "Water Resources During Armed Conflicts," an enlightening look at the role water has played throughout various battles in history. This article is reprinted with permission of UNESCO.

As we see the toll taken on the civilian population by the war in Iraq, taking stock of tools protecting water resources and facilities during wartime appears more urgent than ever.

Water: A Military Weapon and Target During Armed Conflicts

Because it is indispensable to life, water is often at stake during armed conflicts.

Since ancient times, the destruction of water resources and facilities have been used as weapons against the enemy. History is full of such examples from all over the world, showing a great variety of ways and means to use water in military conflicts. To quote but few of them:

- In 596 B.C., Nebuchadnezzar breached the aqueduct that supplied the city of Tyre in order to end a long siege.
- In 1503, Leonardo da Vinci and Machiavelli planned to divert the Arno River away from Pisa during a conflict between Pisa and Florence.
- In 1938, Chiang Kai-shek ordered the destruction of flood-control dikes on a section of the Yellow River in order to flood areas threatened by the Japanese army. The flood did destroy part of the invading army, but also between 10,000 and 1 million Chinese people.
- During World War II (1940–1945), hydroelectric dams were routinely bombed as strategic targets.
- During the Vietnam War (1960s), many dikes were destroyed or damaged by systematic bombing. North Vietnam claimed a death toll of 2 to 3 million inhabitants due to the drowning or starvation that resulted from these attacks.
- In 1999 in Kosovo, water supplies and wells were contaminated by Serbs. The same year, a bomb blast destroyed the main pipeline in Lusaka, Zambia, cutting off water to the city and its 3 million inhabitants.

The end of the 20th century has shown increasing threats to water resources and facilities, especially in Africa, the Balkans, and the Middle East. The vulnerability of water delivery systems in times of armed conflicts is increasing with modern water facilities' systems, interconnected with electricity systems, that are often primary targets in wartime. Civilian populations are the first to suffer from the disruption of water supply — and in some cases thirst has proved to be more deadly than guns. The nature of conflicts has also changed, with more and more intra- rather than interstate conflicts, and the rise of terrorism. How does international law answer to the need to protect both water resources and the civilian population during such conflicts?

The Protection of Water During Armed Conflicts: Legal Tools

International humanitarian law is applied during armed conflict: It is intended to protect people who are not or are no longer taking part in the hostilities, and to restrict the methods and means of warfare. It is based on various texts, including the Geneva Convention (signed in 1949) designed to safeguard civilians, and the Hague Convention (signed in 1907), which establishes the rights and obligations of belligerents in the conduct of military operations and limits the means of harming the enemy. But, whereas law in time of peace includes several rules related to water, international humanitarian law doesn't include any legal regime about water. Still, the Hague Convention stipulates two prohibitions that are indirectly related to the protection of water resources:

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WEF Announces Recent Life Member Awardees

The following individuals have recently become life members of the Water Environment Federation. WEF thanks them for the invaluable experience and mentorship they have contributed to the Federation and congratulates them for their outstanding contributions to the water and wastewater fields.

John Beebe
Member since 1965

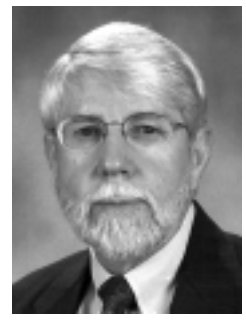
Edwin Braatelin, Jr.
Member since 1962

John J. Cochrane
Member since 1965

Gary Dodson
Member since 1964

Larry Erickson
Member since 1965

Henry Gibson
Member since 1963



C.P. Leslie Grady, Jr.
Member since 1966

James Grube, II
Member since 1966

Joseph Harrington
Member since 1958

Emil Herkert
Member since 1968

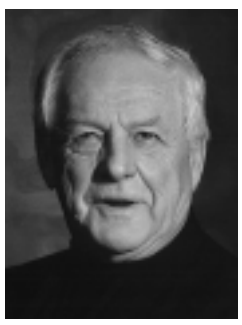
Paul Krasnoff
Member since 1967

Joseph Miller
Member since 1968

Paul Moritz
Member since 1968

William Mull
Member since 1962

Herbert Preul
Member since 1967

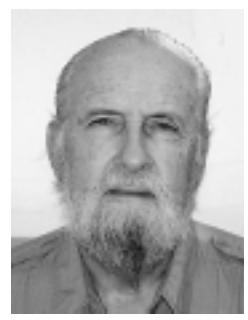


Willard Sexauer
Member since 1968

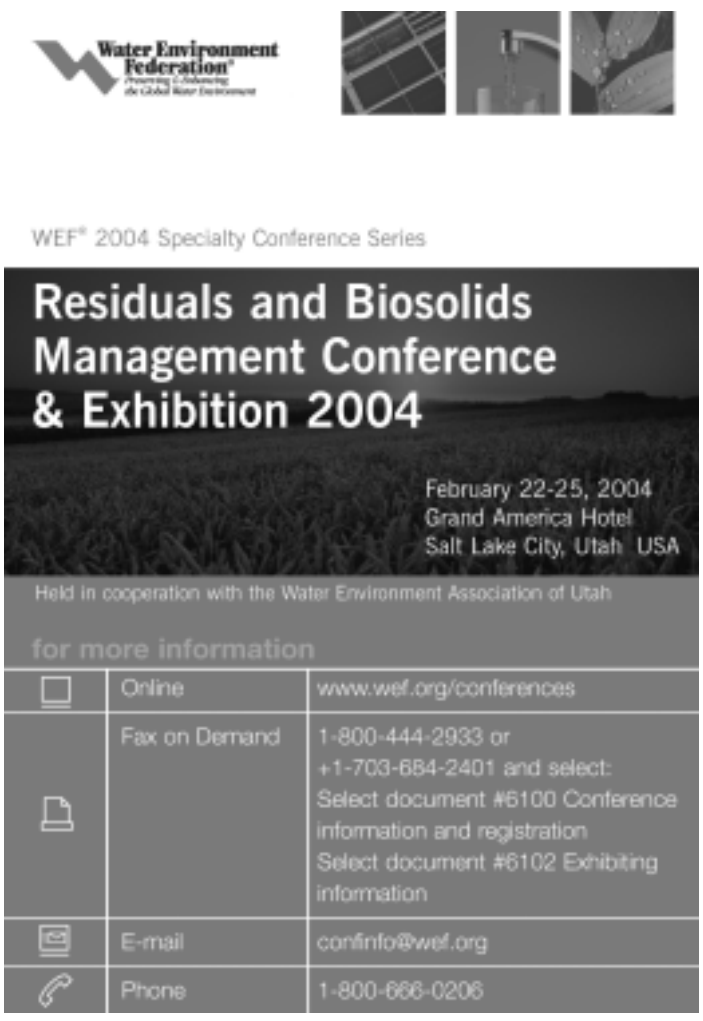
E. Landon Niedringhaus
Member since 1968

Larry Robinson
Member since 1960

J. Dwight Thompson
Member since 1964



Brannon Wilder
Member since 1968



The Corporate Faces of WEF: Inboden Environmental Services Inc.

Inboden Environmental Services Inc. (IES; Mt. Jackson, Va.), a WEF member since 2000, provides comprehensive services for many environmental concerns. From testing and treatment of wastewater and potable water to custom-designed nutrient management planning, IES has provided progressive, customer-oriented environmental solutions over the past decade.

To promote compliance with ever-changing environmental regulations, IES provides a key link between regulators and the public. Services include operations and maintenance management (O&M) of water and waste treatment facilities. IES operates and maintains more than 100 water and waste treatment units, ranging from single residential alternative treatment units to complex industrial facilities. As a Class A contractor, IES can install water and wastewater utilities and septic systems.

IES helps interpret various environmental regulations and advises clients on Virginia Pollutant Discharge Elimination System (VPDES) and Virginia Pollution Abatement (VPA) issues, including permit renewal, monitoring, and compliance testing. The company also operates an onsite laboratory for wastewater analysis under protocol of the U.S. Environmental Protection Agency that consistently passes annual inspections by the Virginia Department of Environmental Quality (DEQ). The company's drinking water laboratory is also fully accredited to test for total fecal coliform and *Escherichia coli* for public and private supplies.

With a combined experience of 50 years in the water laboratory testing field, the highly trained personnel at IES continue to meet the environmental needs of Virginia's Shenandoah Valley.

For information on Inboden Environmental Services Inc., access the company's Web site at www.4ies.com, call 540-477-3300 or 800-648-1010, or send mail to 5790 Main St., Mt. Jackson, VA 22842. WEF recognizes the efforts of Inboden Environmental Services and the rest of its corporate members and thanks you for your continued support of WEF's efforts to preserve and enhance the global water environment.

Share Your News with WEF!

Do you have water quality-related news? Contact *WEF Highlights* editor **Staci-Jill Sands** at ssands@wef.org or at 703-684-2400, ext. 7480.

Asset Management

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programs, he noted.

Why Manage Assets in Small Communities?

In future, asset management programs could be a prerequisite for borrowing from the state revolving fund (SRF) to ensure that the new infrastructure will be protected throughout its lifecycle, according to **Thomas Berry**, natural resources coordinator and staff member for U.S. Sen. **Jim Jeffords** (I–Vt.).

Getting Started

Even with few staff, insufficient computer resources, and few perceived assets, small communities can create effective asset management programs, according to **John Jackman**, director at the Somersworth (N.H.) Department of Public Works. He discussed how to begin, the use of technology (AutoCAD, ARC View GIS, and Cartegraph), the approval and budgeting process, training requirements, and the importance and benefits of working with other departments, such as planning, engineering, police, and fire.

Training is essential, Jackman said, noting that not only must staff learn new software and maintenance programs, but managers also must learn the program needs and benefits and explain their importance to senior staff and city council members. A town's asset management efforts also require a "champion," he said, and in Somersworth, this person is the town engineer — the "hungriest person for knowledge."

Asset Management Tools

Utilities use various information management tools for asset management, according to **Sean Myers**, project engineer in the Manchester, N.H. office of CDM (Cambridge, Mass.). These tools include

- databases for storing and sorting asset information,
- geographic information systems (GISs) for mapping infrastructure assets (which also can be color-coded to prioritize work, denote age, or otherwise categorized), and
- computerized maintenance management systems (CMMSs) for tracking maintenance costs (labor and materials).

He discussed the similarities, differences, and interrelationships of these tools and noted that before choosing such tools a utility should identify its needs and consider "how the information will be updated."

Asset management programs rely heavily on information technology, Myers said. Before a utility embarks on an asset management program, he said, staff should think, plan, and then implement the appropriate technology. He suggested the following plan "to get started":

- establish an asset register (asset hierarchy and database structure, such as a list of assets and attributes),
- identify existing data sets (such as paper and electronic maps, tie cards, and as-builts),
- fill in data gaps,
- compile the asset register (load asset information into the database),
- implement software (such as Microsoft Access, GIS, or CMMS) to manipulate the data, and
- determine how to collect, manage, and update the information.

Also, before buying a CMMS, Myers said utilities should answer the following questions:

- How will the CMMS fit into my organization's structure?
- Will I have change the way I do business?
- What CMMS functions do I need?
  - Customer calls
  - Service requests
  - Work order generation
  - Reports (labor spent, materials used, etc.)
- How will the CMMS work with my asset register?
  - Will I use it to store asset characteristics?
- How will the CMMS integrate with the GIS?
  - Does the vendor's GIS component do what I want?
  - Will my GIS database integrate well?

Multiple Uses

A collaborative stormwater planning effort among the assessor and planning departments and Department of Public Works led to the wholesale adoption of GIS and global positioning system (GPS) technology and Governmental Accounting Standards Board Statement 34 (GASB 34) tools in Billerica, Mass., according to **John Livsey**, the town's engineer, and **Jay Sheehan**, project manager in the Cheshire, Conn. office of Woodard & Curran (Dedham, Mass.). To date, they noted, the community has used these tools to create an accurate database for its asset management program, implement a pavement management program, begin GASB 34 planning, and create zoning and tax maps for town hall.

The tools have helped reduce strain on town forces, they said. For example, town staff now spend less time generating "abutters lists" for paving notices or collecting data on fire hydrant inspections.

Better Operations

Implementing an asset management program to meet GASB 34 requirements helped the Water Department of the Village of Waterbury, Vt., improve operations and maintenance, according to **Thomas Nesbitt**, vice president in the Montpelier, Vt. office of Dufresne-Henry (Westford, Mass). GASB 34 requires states and local governments to account for the real value of everything from city hall to water and wastewater infrastructure, he noted, so now town officials understand that their water system is worth $10 million and that compliance with GASB 34 ensures the best bond rating and competitive financial interest rates. Also, he said, while creating its water system inventory, evaluating assets, determining estimated useful life and salvage values, and depreciation methods, the village identified pipes and other equipment in need of repair and replacement, which ultimately helped improve plant capacity.

To learn more about GASB 34 requirements, he suggested that workshop attendees access the following Web sites:

- www.state.vt.us/sao/pages/gasb34towns.html
- www.rutgers.edu/Accounting/raw/gasb
- www.window.state.tx.us/comptrol/san.gasb/gasb34_intro.html

Future Asset Management Workshops in New England

Dec. 4–5	Best Practices in Asset Management Chelmsford, Mass.
Dec. 2–3	Best Practices in Asset Management New Jersey
Jan. 26–28	NEWEA Annual Conference Boston, Mass.

(3 sessions: Asset Replacement Methodologies, Asset Management Tools, and Asset Management Case Studies: Practices and Payback)

For more information, contact the New England Interstate Water Pollution Control Commission (NEIWPCC) at 978-323-7929 or the New England Water Environment Association (NEWEA) at 781-939-0908.

Better Planning, Maintenance

The asset management approach has helped the Village of Essex Junction, Vt., make better plans, prioritize work, track and evaluate maintenance activities, and provide current, accurate asset information to engineers, regulators, and developers, according to **James Jutras**, the village's director of public works and wastewater treatment. Asset management also has improved maintenance, replacement planning, and regulatory and financial audit compliance, as well as reduced asset failures and related insurance claims, he said.

For example, instead of cleaning all catch basins annually, Jutras said, the village now inspects them for excessive silt buildup and only cleans those that need it. Essex Junction now spends 90% less on catch basin cleaning and can use those resources for other critical needs, he said.

Water and War

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- It is forbidden "to employ poison or poisoned weapons" (article 23 (a)).
- It is forbidden "to destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war."

The adoption in 1977 of two additional protocols that included statements more directly related to water expressed significant innovation — at that time, people had witnessed the tremendous environmental destructiveness in Vietnam, as a result of the United States' use of chemicals and defoliants.

- Protocol I (art. 54) prohibits, "whatever the motive," the attacking, destroying, removing of "objects indispensable to the survival" of civilian population, such as "drinking water installations and supplies and irrigation works."
- Protocol I (art. 56) prohibits attacks against "works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations."

To What Extent Can These Tools Be Applied?

Many obstacles prevent the application of these laws:

- Water is not expressly mentioned in any of the laws. It is considered part of environmental issues, thus given a very vague status in terms of protection.
- The 1977 Protocols were not ratified by all states. Protocol I was ratified by 159 states, but unanimity was not reached, and politically strong countries, such as USA, were opposed to its ratification.
- New forms of conflicts — terrorism and internal conflicts — do not come under the scope of the international humanitarian law.
- There is no effective international authority to apply these laws.

The establishment of a permanent International Criminal Court (ICC) offers hope. The Court came into existence in July 2002, to adjudicate war crimes, crimes against humanity, and serious violations of international humanitarian law. But this body doesn't have the support of the USA, which may greatly weaken its effectiveness.

In November 2002, access to water was declared a human right with the adoption of the General Comment on the right to water, adopted by the Convenant on Economic and Cultural Rights (CESCR). The 145 countries that have ratified the International CESCR will now be compelled to progressively ensure that everyone has access to safe and secure drinking water, equitably without discrimination — and in time of peace. Let's hope that this can have an effect on meeting the basic needs of people in time of warfare.

U.S. Army Corp of Engineers attempt to clean an oil spill in an Iraqi Field.

WERF Hosts Security Symposium

More than 60 utility officials, security experts, researchers, representatives from non profit organizations, and federal and local government officials gathered in Washington, D.C., on Aug. 7-8 to discuss the security needs of the wastewater community.

The symposium was organized as part of a WERF research project, "Experiences and Research Gaps to Secure Wastewater Infrastructure and Protect Public Health." Funded by a cooperative grant from U.S. EPA, it is the first of seven planned security-related WERF projects.

"We achieved our key goal at the summit, which was to provide WERF and EPA with a well-focused research agenda to enhance security for wastewater infrastructure, operations and management, and associated public health issues," said WERF project manager Dr. **Roy Ramani**, the lead staff member organizing the symposium.

The specific objectives of the meeting were two-fold: the first was to develop a prioritized research agenda to fill gaps in the wastewater community's knowledge of how to improve wastewater system security and protect public health; the second was to develop project profiles of top-priority research projects, to use in future funding deliberations.

At the symposium, experts presented information about the latest wastewater security techniques and practices. Participants talked about the state of knowledge of wastewater security and concerns about "weaponizing sewers," representatives of federal agencies discussed their agencies' security plans, and international participants from Israel and the United Kingdom discussed wastewater security experiences in those countries. The symposium marked the first time these various groups gathered together to discuss wastewater security needs.

The participants then worked in groups to identify research needs, establish priorities for those needs, and develop a strategic approach to quickly address the highest-priority needs and "critical path" vulnerabilities. They identified and completed profiles of 32 potential projects. The projects ranged from "Needs to Prepare Best Practices and Design Standards for Wastewater Collection Systems" to "Development of Improved Risk Assessment Methodologies" to "Establishing Intelligent Monitoring and Control Networks."

Dr. **Homer Emery**, senior environmental scientist of the San Antonio Water System, is the project subcommittee chair for this research project. "The end results of the deliberations were right on target," he said.

U.S. EPA, in discussions with other stakeholders, will review these 32 projects and use them to fine-tune their recently developed national wastewater security action plan. The project profiles will also help WERF, U.S. EPA, the Department of Homeland Security, the Department of Defense, the Department of Energy, the American Water Works Association Research Foundation (Denver, Colo.), and other funding agencies to i) select projects for immediate funding; ii) identify and pursue joint funding opportunities with other organizations; and iii) develop RFPs for fundable research projects.

To learn more about WERF's wastewater security related projects, go to: http://www.werf.org/Collection/security.cfm

What Are You Thankful For?

We asked a few WEF committee chairs to reflect on what water-related issues they were most thankful for this Thanksgiving, and here's what they had to say:

"I am thankful for continued progress in the reduction in nutrient (nitrogen and phosphate) discharges to the many sensitive waterways in the nation, such as Chesapeake Bay, Long Island Sound, the Great Lakes, and numerous other estuaries, lakes, and reservoirs."— **Glen Daigger**, *Technical Practices Committee Chair*

"I am thankful for the support of the volunteers that comprise the WEF committees. This year alone, I received assistance from dozens of volunteers on WEF committees on issues that affect our industry.

"The day after Labor Day, other volunteers and I, supported by WEF staff, met with EPA in an effort to avoid duplicate training requirements. Most of the volunteers traveled on Labor Day to attend the meeting. This is not unusual or special, it is a normal committee meeting function. In many cases, volunteers pay their own travel expenses. Almost all WEF volunteers work a 50-hour work week and then do the business of the Water Environment Federation. Most volunteers perform their tasks quietly, experiencing a form of satisfaction that only those who protect our environment can understand.

"So many of our activities are based on volunteers — Operations Challenge alone takes hundreds of volunteers. From the Disinfection Committee to the Collections Systems Committee, with dozens of other work groups in between, it is the volunteerism spirit of America that is still alive and well in the wastewater industry. WEF is the glue that keeps us together.

"For the spirit of those who volunteer to protect our environment, I am very thankful."— **Doug Prentiss**, *Safety Committee Chair*

Proverbs to Ponder…

This is the International Year of Fresh Water, and as 2003 comes to a close and we in the United States celebrate Thanksgiving, the following water proverbs from around the world should serve as reminders that clean water is an essential part of life.

Cameroon: "Water always finds a way out."
Denmark: "All water flows into the ocean or into the purse of the rich."
India: "A coconut shell full of water is a sea to an ant."
Ireland: "You never miss the water until the well has run dry."
Saudi Arabia: "Any water in the desert will do."
Togo: "Dirty water cannot be washed."
Uganda: "Water that has been begged for does not quench the thirst."
Zulu: "The horse that arrives early gets good drinking water."

Editor's Note: These proverbs were originally posted on the 2003 International Year of Fresh Water Web site, www.wateryear2003.org.

Biosolids Research Summit News List

WERF is beginning a new list service to provide regular updates about progress on the outcome of the Biosolids Research Summit. Participants in the July summit identified 31 high-priority research projects needed to answer questions about biosolids land-application. The list service will include the latest news and information on report availability, funding, projects, and more.

To subscribe to this list service, send a message to join-biosolidsresearch@listserv.werf.org, containing the word "subscribe" in the body of message. To unsubscribe to this list service, send a message containing the word "unsubscribe" in the body of the message to join-biosolidsresearch@listserv.werf.org.

WEF/ABC Collection Systems Operator's Guide to Preparing for the Certification Examination

Formerly called the WEF/ABC Certification Study Guide for Collection Systems Personnel, this new version contains the ABC Need-To-Know matrix, suggested study topics and samples questions for all four certification levels for each of the seven different Need-To-Know criteria: Operate Equipment; Monitor, Evaluate, Adjust Collection Systems; Maintain and Restore Collection Systems; Maintain Lift Stations; Maintain Equipment; Perform Administrative Duties; Perform Safety Procedures.

Includes:
- 240 exam questions
- 100-question practice exam
- Explanation for all correct answers
- Measurements in both metric and English units
- ABC's education and experience requirements
- Advice on taking multiple choice exams
- Reference Formula and Conversion Factor sheet including commonly used formulas, conversion facts and abbreviations

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