

ecoletter

SPRING 2009 ISSUE

Another Spring

*How will this water change
before it gets to the Bay?*

CHESAPEAKE



*A Publication of the
Water and Waste Operators Association of
Maryland, Delaware and the District of Columbia, and the
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PRESIDENT'S MESSAGE



WWOA President

—Duane McCoy

All WWOA members express our deepest sympathy over the passing of our President Lewis Schmidt. As President Elect I will be completing Lewis's term as President of WWOA. In being your President I will have an open door policy for all members to express concerns on any issue that you may have and I will try to address your inquiry in a timely manner either personally or through your sectional trustee or director. I will also stress to board members the need to be accountable to the members. Having an experienced and talented board I know this will not be a problem and I look forward a smooth transition in my new role.

My message and slogan for this year is water and wastewater professional skills are a terrible thing to waste. With President Obama focusing on infrastructure not only will we have ample opportunity to display our skills but also using our talents will be very important to improving our water and wastewater systems. The WWOA continues to extend our hand to all municipalities in the four sections in helping water, wastewater professionals maintain certification and skill levels that will keep them up to date with advances in our industry. My strategic plan and goal is to have the greatest number of certified operators and the highest level certified operators the region has ever seen who will be able to take on the task of all the plant upgrades. In doing this our members have to do the hardware before we can do the software. This will not be easy. So I'm challenging all WWOA members to make the extra effort and do their part in the work to make the Chesapeake Bay restoration a worldwide success story.

One way our organization shows commitment to the success of our members is through the Short Course and the scholarships we offer for continuing education and college courses in the water and wastewater field. This year will mark the 60th year of the Short Course.

I will be visiting each regional section to see what strategic plan, goals and concerns they have and do my best to support their efforts. I will close in saying much remains to be done and the work will not be without failures but remember we will dust ourselves off after each failure for failure is a merely a measurement of experience necessary for success.



CWEA President

—Aaron Nelson

These are some dynamic times we are dealing with and with these times, as I am sure you have noticed, there is a significant movement to find ways to improve human interaction with the environment. This is evident when considering common and often overused references to "Sustainability" or "Reducing our carbon footprint." While these are extremely general statements, I have found that their premise has led me, and most of the people I know in this industry, to begin re-evaluating just about every facet of doing business down to our daily routines and personal habits. The overall goal of this exercise, of course, is finding ways to minimize the impact on the environment, and in many cases we are also uncovering efficient and cost-effective ways to do our traditional activities. In most cases this results in better service to our customers, clients, or as is the case for the CWEA and WWOA, improved service for our general membership.

That segues nicely into my message for this edition of the *Ecoletter*.

I have some refreshing news to report to our membership that relates to the *Ecoletter* publication. As some may recall, the CWEA, WWOA and CSAWWA investigated the idea of combining our quarterly publications (*Ecoletter* and *Chesapeake*) approximately one year ago. Unfortunately at that time, the logistics of that effort were somewhat overwhelming and as such, the talks were dismissed. Since that time, all three organizations re-evaluated that idea, and confirmed that there appears to be numerous advantages to the combined publication producing a net positive effect of "Reducing our carbon footprint." I would prefer to rephrase it as "Providing better service to our environment." In addition, the other benefit to this effort is providing better service to our membership by centralizing the information of two publications (which most of us get anyway) into one comprehensive publication encompassing "Water" as the main topic.

On April 1, 2009, representatives from each organ-
Continued on page 33

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CALENDAR OF EVENTS Spring/Summer

May 31 – June 5, 2009
Short Course, Washington College

June 16, 2009
CWEA Biosolids and Residuals Committee presents "Building a Sustainable Biosolids Program"

September 1–4, 2009
CWEA/WWOA Joint Conference
Clarion Fontainebleau, Ocean City, MD

www.wwoa-cwea.org

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CHANGE OF ADDRESS

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EDITOR'S CORNER

The idea of introducing non-native, Asian oysters into the Bay took a big hit in late March when after eight years of supporting the idea, the Virginia Seafood Council reversed course and stated their opposition. While the introduction of these oysters can still be considered, this erosion of support signaled state and federal authorities that the time is not right for Asian oysters. Continuing research with native oysters has shown some hope, but results have basically stabilized current populations and any serious restoration of this important Bay filtering capacity can not be claimed.

* * * *

Hats off to Delaware Tech. In a show of interstate cooperation that can make a positive difference, they have begun offering scholarships to Maryland operators for their courses. These scholarships will be limited to small system operators on the eastern shore. For further information contact Carol Wright-Woodruff at 302 855-5901 or email at mwright1@dtcc.edu.

* * * *

With the exception of far western Maryland, the area served by our organizations is coal mining free. Thankfully there is no major stream burying, mountain top removal operations in the Bay watershed however there are still serious coal mining activities. We have some good news and bad news to report. First the bad news. On March 11th, 4,000 gallons of coal ash waste spilled from the Luke, Maryland paper mill power plant into the Potomac River. This concentrated, toxic stew contains several nasty compounds including Mercury. The good news took place way up in Cambria County, Pennsylvania near the headwaters of the Western Branch of the Susquehanna River. Removal of waste coal at a closed mine reduced the pounds of acid flowing into the river each day from 3,584 to 2,708. Over a ton of day of acid is still not good, but at least progress was made.

* * * *

The new administration decided the Chesapeake Bay Program needed some extra help. Charles Fox, previously Assistant Administrator for water at EPA and Sec-

retary of Maryland Department of Natural Resources, was appointed Special Advisor for the Chesapeake Bay and Anacostia River. There is no question the Bay could use all the help it can get, but specifically calling out one of the Bay's smaller rivers for extra help sends an interesting message. Is the Anacostia that bad? Or does it have something to do with that river flowing through our nation's capital?

* * * *

Last year a group of Pennsylvania municipalities sued the Department of Environmental Protection (DEP) saying it's plan to reduce nutrients flowing into the Chesapeake Bay would cost over \$ 1 billion in WWTP upgrades and was illegal. In April a State court refused to grant DEP's request to dismiss the lawsuit saying more study was needed to determine if DEP was acting within its authority in mandating the upgrades. It was no mystery that the municipalities filed the lawsuit when little or no money was to be provided by the State, which meant the local customers would be saddled with the bill for the upgrades. It will also not be a mystery when, as we get closer to the Bay-wide TMDL deadline, more and more lawsuits are filed akin to the lengthy death sentence appeals process.

* * * *

Essentially echoing what the Bay Program said in its annual assessment (reported elsewhere in this issue), The Chesapeake Bay Foundation gave The Bay a score of 28 in its 2008 report. They called it a D grade. Talk about grading on the curve. The score is the same as last year and a measly one point higher than 1998. As their recent lawsuit and a comment calling the condition of The Bay a national disgrace showed, CBF is getting mighty frustrated with lack of progress. The new federal administration is promising help and many people will be watching to see if that help materializes and starts to make a positive difference.

* * * *

Endocrine disrupters in the Chesapeake Bay watershed received national attention with the Earth Day
Continued on page 10

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Stimulus Money

—By Floyd B. Johnson, Ecoletter Co-Editor

In March, The Maryland Department of Environment announced plans for spending \$119.2 million dollars from the American Recovery and Reinvestment Act (ARRA) on water related projects in the state. Of that amount, \$26.4 million will go to water projects and \$92.8 million for water pollution projects. The proposed projects balanced the need to spread the funding through out the state, with projects being ready to proceed that would maximize environmental and health benefits. The funding will be in the form of grants or low interest loans and subject to EPA and Federal approval.

Of the \$26.4 Million proposed for water projects: Baltimore will receive a \$ 6M loan for the Montebello WTP, and a \$2.6M grant to retro-fit low flow toilets and fixtures, Rockville will receive a \$1.3M grant for energy conservation, MES will receive a \$ 6M grant for water supply and treatment in Somerset County, Hagerstown will receive a \$3.3M loan for the West End reservoir,

and Salisbury will receive a \$3M combination loan/grant for an elevated tank.

Funding for the following large water pollution projects is proposed:

- Construction of Cumberland WWTP ENR upgrade—\$6M grant
- Upgrade of Patapsco WWTP—\$12M (Split between a grant and a loan)
- Willow Lane WWPS and sewer upgrade (La Plata)—\$6M loan
- Rising Sun WWTP upgrade and expansion—\$1M loan
- Ballenger Creek—McKinney WWTP ENR—\$6M loan
- Thurmont WWTP high flow management—\$6M loan
- Galena WWTP upgrade—\$1.4M loan
- Vienna WWTP energy efficiency SCADA system—\$1.6M grant
- WSSC sewer lining—\$6M (\$4M grant + \$2M loan)
- Centerville sewer upgrade—\$2M loan
- Navy water reuse in St. Mary's County—\$2.6M loan
- Methane power co-generation at Marlay-Taylor WWTP—\$ 3.4M grant
- Solar panels and wind turbine for Talbot County Biosolids facility—\$2.7M grant
- Emergency funding for Savage River dam repairs—\$ 6M grant

This is not the complete list of projects, just the major ones. The funding for the Savage River dam, as part of the water pollution projects, is a curious addition for it would seem to be a water project. What is not in debate is the need for repairs to this 60-year-old dam. One of the four release gates is stuck in the closed position and all four release gates need to be replaced.

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The Barometer's Reading Low

—By Floyd B. Johnson, Ecoletter Co-Editor

Not mincing any words or trying to sugarcoat things like they were accused of doing in the past, the Chesapeake Bay Program released their 2008 assessment on the Bay. The report was anything but a pleasant read and one that could drive you to a stiff drink. But don't drink the Bay's waters, for they only met 38% of the health goals set for it and showed no improvement from the previous year.

Three components make up the 38% score. Water quality, judged at a mere 21% of the goal established was in the cellar, with Habitats (45%) and Fish and Shellfish (48%) bringing up the average. One particular lowlight was only 16% of the Bay's open waters met dissolved oxygen standards during the summer of 2008. That will choke the life out of just about everything. Another dim reading was 14% of tidal waters met water clarity criteria. On the fisheries side, adult blue crabs dropped over 15% to 120 million and the story with oysters remains bleak. A century ago, oysters could filter the entire Bay's water in a week. It now takes the oysters a year.

The number one indicator for Bay water quality is flow. When the flow goes up, so do the pollution inputs. Likewise when flow decreases so does pollution runoff. In 2008 total flow to the Bay was 37.5 Billion gallons per day (BGD). This was 3.5 BGD less than 2007 and 10 BGD less than average. Despite the reduced flow, the phosphorus load stayed the same and the sediment load increased from 2.6 to 3.3 million tons. This very troubling inversion of the usual relationship was attributed to urban/suburban runoff, which represents the only area of the watershed where pollution continues to increase. The blame for this situation is more and more people living in the watershed and more and more development of undeveloped land. One bit of good news is the current economic downturn has slowed development. Of course most folks don't think the downturn is good news.

Looking at restoration goals the picture is better. The score there was 61% of the goals have been reached. It's pretty bad when a D- grade is considered not bad. When I want to school they held you back with that kind of grade. Two areas of the restoration effort are touted as success stories. Goals for stream side buffers and land preservation have been met several years ahead of schedule. The states of Maryland, Pennsylvania and Virginia have pro-

tected 20% of their lands from development. So let's see, 80% of the land is or can be developed. Large amounts of impervious surfaces in these developed areas are creating flooding and erosion problems that we might be stuck with for a long, long time.

I give the Bay Program credit for producing an informative and detailed report. After reading it though, I have the feeling I've seen much of it before. With little exception the news is dreadful and it's hard to believe much will really change in the foreseeable future. As I said at the start, The Bay Program got criticized for not telling the whole story. However to continue to repeat the bad news year after year could drive the public into accepting a second or third or fourth rate Bay. I hope I'm wrong on this. The real difficult mission for the Bay Program is to keep the public informed while not making them discouraged to the point of giving up. How many more billions of dollars and decades will it take to bring the Bay back to its former glory? More importantly, can the willpower to strive to meet goals and deadlines be maintained in the face of such stark reality?



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In Memory of Lewis Schmidt

—By Floyd B. Johnson, Ecoletter Co-Editor

On March 1st, WWOA President Lewis Schmidt passed away at age 61. The WWOA not only lost a president but a lifetime member. This was Lewis's second term as president, having previously served in 2004–2005.

Mr. Schmidt served for many years in the Howard County Bureau of Utilities and it was through his work there that he became involved in the WWOA. After taking on leadership roles in the Central Section, he took the next step and served in the main body organization. In many of Lewis's President's messages here in the *Ecoletter* he asked members to get involved and make a contribution in the WWOA. His own contribution included serving as president after he retired from his job at Howard County. He clearly walked the talk. When he became president last year he was already ill with the cancer that took his life. If that isn't a wonderful example of service to an organization, then nothing is.

There was much more to Lewis than what we knew of him through the WWOA. He was a Navy veteran and avid sportsman. He was an active official in baseball, basketball and football and coached

his kid's sports teams. Somehow he found time to also be a volunteer fireman. It's clear giving of himself to worthwhile causes was an important part of who Lewis was.

Lewis left behind Eileen, his wife, son Lewis, daughters Amanda and Jessica, and grandchildren, Zackery, Marijane and Zoey.

In Lewis's last president's message he said, "It is up to us to better the world we live in." He certainly lived up to those words. As a WWOA member I give Lewis Schmidt a great big Thank You. My hope is that his life will inspire others to give of themselves and make a contribution for in the end you only get out of something what you put into it.

There is no higher religion than human service. To work for the common good is the greatest creed.

—Albert Schweitzer



Editor's Corner

Continued from page 5

Eve broadcast of Frontline's "Poisoned Waters." As if nutrients, toxics, bacteria and sediment weren't enough, and those other sources of poison were presented in the show, we increasingly have a host of pharmaceuticals and personal care products playing havoc with the water. Back at our 2003 annual conference, Dr. Wolman of Johns Hopkins University pointed out that the residue of civilization ends up in the water. Here in the 21st century, that residue is perverse, diverse and accumulating. If you missed the two-hour program, it gave a good summary of what ails the Bay and helped tackle perhaps the

biggest problem with improving things—people don't seem to really care.

* * * *

The State of West Virginia has decided to take a new role in helping the Bay. They recently established (with matching funding from the Bay Program) the first ever Division of Forestry, Chesapeake Bay Watershed Forester. Herb Peddicord, a State forester will apply his expertise with trees to expand stream buffers with the agricultural community and local governments in West Virginia. One of our co-editors had good personal experience with Mr. Peddicord in the process of having a forest management plan completed on his West Virginia land several years ago. We wish him well in his new position.

* * * *



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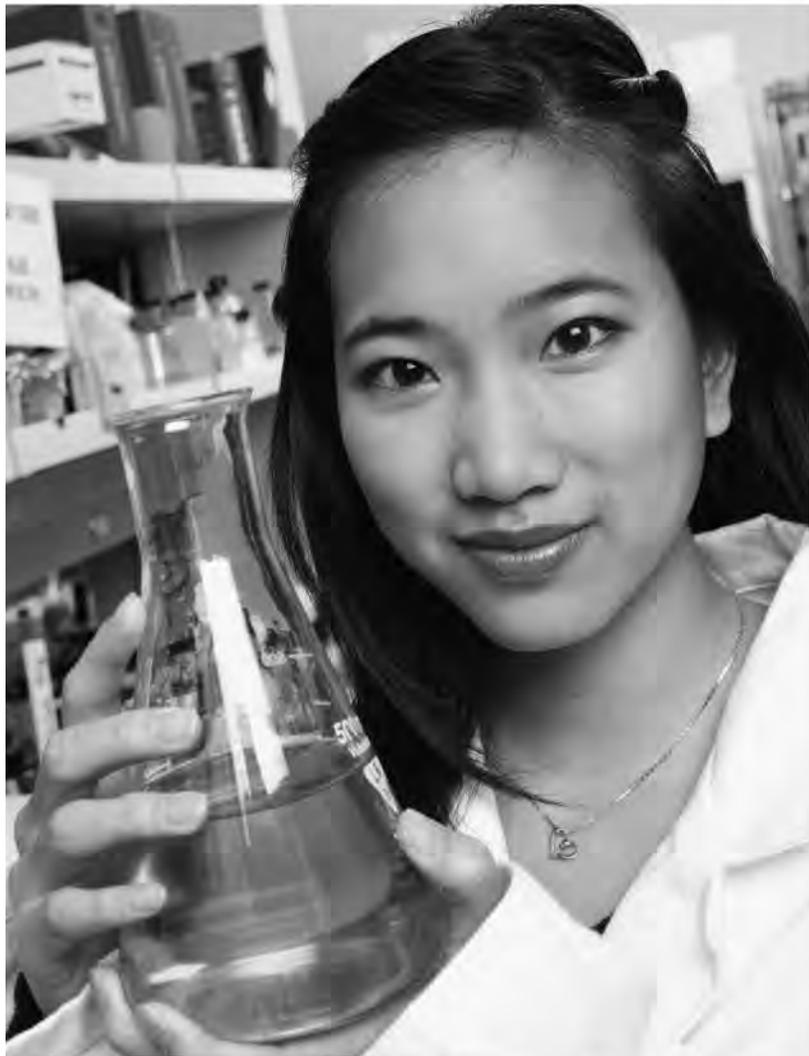
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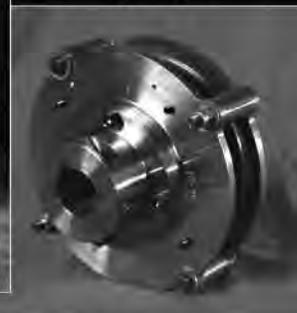
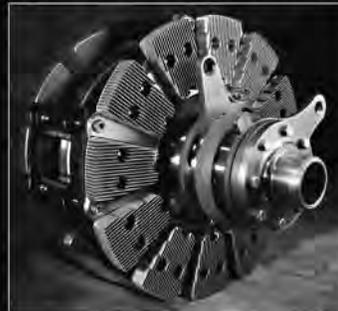
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2009 Annual Water and Wastewater Industry Student Career Fair

—By Brian Gresehover & Janine Yieh

This year's Water and Wastewater Industry Student Career Fair was hosted by the City of Baltimore and was held at the Montebello Maintenance Facility, part of the Montebello Finished Water Treatment Plant Com-



A student signs in for the Career Fair.

plex in Baltimore City. The Career Fair was one of the largest and most successful to date, hosting over 50 students from local universities who enjoyed the opportunity to participate in 20-minute interviews with a selection of 16 different employers that included consultants, public utilities, and government agencies.

Tours of the Montebello Plant 1 Finished Water Treatment Plant, guided by Water Systems Supervisor Anthony Anderson, were provided for both young professionals and students who attended the Fair. Students and young professionals on the tour received a firsthand view of Baltimore City's treatment processes from initial disinfection and coagulation through sedimentation and sand filtration. As Mr. Anderson told the story of the water being processed, the results were seen in the turbidity readings along the way as they dropped from an incoming raw water reading of over 2 NTU to an efflu-



Employers interviewing students during the afternoon interview session.

ent water reading under 0.30 NTU. Both morning and afternoon tours also had the privilege of witnessing a live filter backwash cycle.

The Career Fair wrapped up with an address from the Head of the City of Baltimore Department of Public Works Bureau of Water and Wastewater, Ms. Kishia



Anthony Anderson, Water Systems Supervisor, leads the tour of the Montebello Plant 1 Finished water Treatment Plant.



AWWA President Elect for the 2009 year. For more information on the Young Professionals Committee, contact Kelly Spivey at 410-316-2340 or kspivey@jmt.com.

The Annual Water and Wastewater Industry Student Career Fair is jointly sponsored by the Chesapeake Section of the American Water Works Association (CSAWWA) and the Chesapeake Water Environment Association (CWEA). For more information contact Brian Gresehover at (410) 235-3450, bgresehover@wrallp.cpm, or Janine Yieh at (410) 527-2440, jyieh@eaest.com.

Tour attendees viewing a filter backwash cycle.

Powell, P.E., followed by a technical presentation on the Fullerton Treatment Plant Pilot Study given by Mr. Elik Livay of Gannett Fleming and organized by the Young Professionals Committee.

Following the Career Fair, a reception and happy hour at Ryan's Daughter in north Baltimore was hosted by the Young Professionals Committee. The happy hour was well attended by students and young professionals, and provided ample networking opportunities including the chance to speak with Mr. Joe Mantua,



Students networking with Young Professionals during the Happy Hour hosted by the Young Professionals Committee at Ryan's Daughter.



Kelly Spivey, the Young Professionals Committee Chair, waits to greet Young Professionals in the lobby.



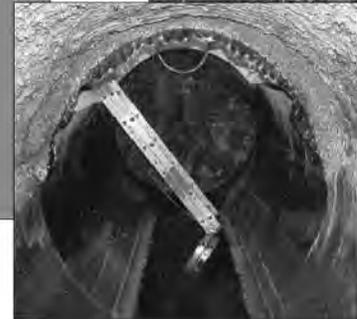
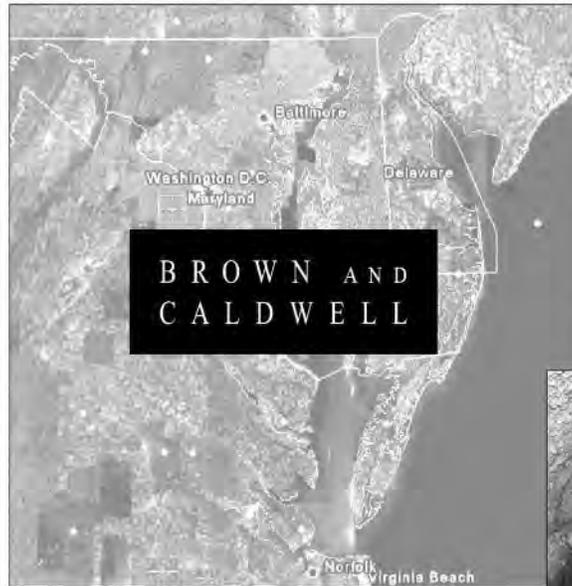
Young Professional members at the Happy Hour.

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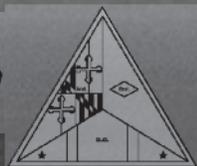
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The Chesapeake Water Environment Association and the Water & Waste Operators Association will hold the joint Annual Conference and Exhibition at the Clarion Fontainebleau in Ocean City, Maryland from September 1 to 4, 2009. The Conference Committee is currently planning the Conference program and schedule, as well as negotiating blocks of hotel rooms, at conference rates, with several hotels. Please check back on the web site (www.wwoa-cwea.org) frequently for Conference updates regarding hotel accommodations, program, registration, golf, and sponsorship opportunities.

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Thinking Differently

—By Bill Bertera, WEF Executive Director

No one is any longer talking about whether we have a recession or even when it is going to end. We have one and no one knows when it is going to end. That means that we are in for a prolonged period of turmoil and uncertainty and that is always unsettling. Getting through hard times requires a different mind set than skating along when the sailing is easy. Although water and wastewater constitute essential services that no one can do without, we are not and will not be immune from the vagaries of the marketplace.

It is often said that everything is about politics, and it may be, but everything is also about economics. The downturn in the economy with its implications for consumption and tax and fee generation reverberate directly on the utility community. Even when utility revenues remain strong, they are not politically separate from the politics of weakening municipal budgets and so get caught up in the maelstrom.

There are things we in the water and sanitation association community can do to ease the pressure on our members, but it requires thinking differently about the sometimes unthinkable. A market which has historically tolerated duplication, inefficiencies and even mindless competition among multiple overlapping associations is about, one suspects, to become considerably less forgiving. We need to think differently.

A place to begin thinking differently in the water sector is to examine the growing number of membership choices offered to a marketplace that is not growing and which does not have limitless resources. In short, there are too many associations ministering to and depending upon the same membership bases and corporate support to be perpetually sustainable. In good times, specialization is a luxury the market can and does support, even if unenthusiastically, but in difficult times, it causes members and supporters to make choices among associations competing for their scarce resources.

In good times, multiple and duplicative memberships may be rationalized or even justified by a myriad

of non-financial considerations, but in hard times, those soft arguments hit the hard reality of dollars and cents economics. It is true for individual members, utilities, governments, exhibitors, advertisers, sponsors and the list goes on. In truth, in the water community, there have been rumblings for years at the plethora of associations serving the same membership base, the inefficiencies of duplicative meetings and publications and the mixed public policy messages of organizations representing the same interests.

Naturally, each of us hopes that our association will be the one that our members choose to stick with as they, by necessity, limit their memberships and support. And those associations that have paid attention to their mission, their management and their marketplace will be the ones that will most likely survive. But good management and service alone does not guaranty endurance. Look at the auto industry. Lots of fine and even extraordinary models and even companies have gone by the wayside over the years simply because there were too many choices for the market to sustain. We are there now in the water community.

In the last six months, at least three new national water related associations have been founded here in the United States. Each of them has identified a market for their existence, but in each instance that market is not a new or bigger pie but a piece of an existing pie. Water and wastewater and all the technologies and interests in between continue to insist upon unique and separate identities to tell the same stories (with variations on a theme). . . and the result is more associations, unclear and conflicting messages, inefficiencies and public policies that encourage under funded infrastructures.

It is time for the water association community to come together in the interests of our members, the utilities and corporations we serve, and the publics our members serve. If we do not, those publics, members and markets are going to decide for us and their choices may or may not be reasoned. Things could get ugly.

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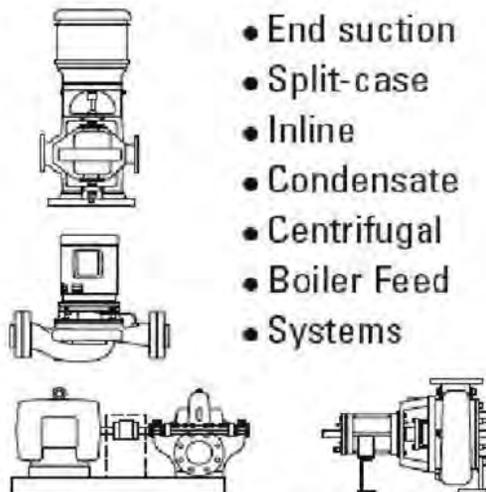
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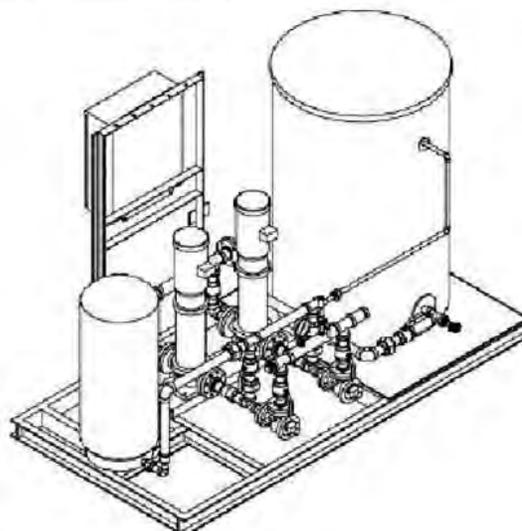
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Methanol Feeding and Metering

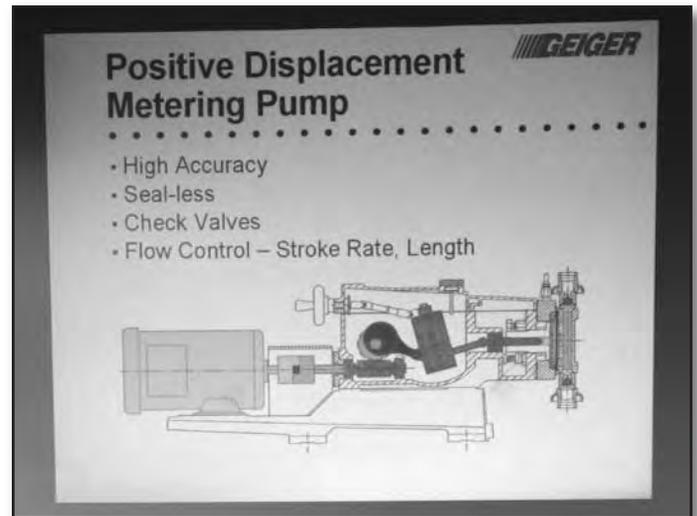
—By Chip Wood, PE, Ecoletter Staff

INTRODUCTION

On February 5, 2009, the CWEA Operations and Maintenance Committee presented a seminar on Methanol Feeding and Metering. The seminar took place at the Blue Plains WWTP and was attended by about 25 persons about half of which were vendor personnel and the other half operators and consultants. At least five vendors presented, including three on feeding and two on metering. A luncheon consisting of ham and turkey sandwiches, salad, soft drinks with cookies and brownies was served during the sessions. After the technical sessions were completed, there was a brief tour of a portion of the methanol facilities at the Blue Plains plant.

Because of a multitudinous variety of pumps and meters available only a minimal sampling of these items can be discussed here. Any one who is designing or purchasing methanol related equipment is advised to consult those who specialize in that technology. Certain styles of equipment that would be excellent from an operational point of view may not be suitable because the equipment is not compatible with a plant's maintenance capabilities. Be careful of designing for current regulations on discharge permit limits for nitrogen and then later finding your methanol equipment is not suited to new regulations.

Methanol, in the context of WWTP process schemes, is purchased and fed as a liquid to provide a food source, i.e., carbon, for the biological process that employs denitrifying bacteria to convert liquid nitrate-nitrogen to gaseous nitrogen. With a chemical formula of CH_3OH , methanol is the simplest alcohol. It is light in weight, volatile, colorless, flammable, and highly toxic. Often the formula is abbreviated as MeOH. Methanol is considered as a petro-chemical because it is made from natural gas. Production of methanol is increasing because methanol is widely used to make synthetic textiles, recyclable plastics,



Positive Displacement Metering Pump—Schematic

household paints and adhesives, and foam cushions and pillows. With increasing demand for methanol from a variety of industries, the price of methanol tends to increase from year to year.

METHANOL FEEDING

Types of pumps to be considered for pumping of methanol include: diaphragm, piston, peristaltic, gear, centrifugal, and progressive cavity. Gear pumps are positive displacement pumps that are frequently used for metering and transferring both thin and viscous fluids at differential pressures higher than are typically achievable with centrifugal pumps. Gear pumps are a viable alternative to diaphragm pumps because they do not produce a pulsating flow. For applications with a flow meter, gear pumps do not require a pulsation dampener as a diaphragm pump does.

Connecting the pump and the electric motor that drives the pump can be done in three different ways. Long-coupled pumps come from the factory mounted on a base plate and include a flexible coupling that connects the shaft of the motor to the shaft of the pump. Close-coupled pumps are connected to the motor using

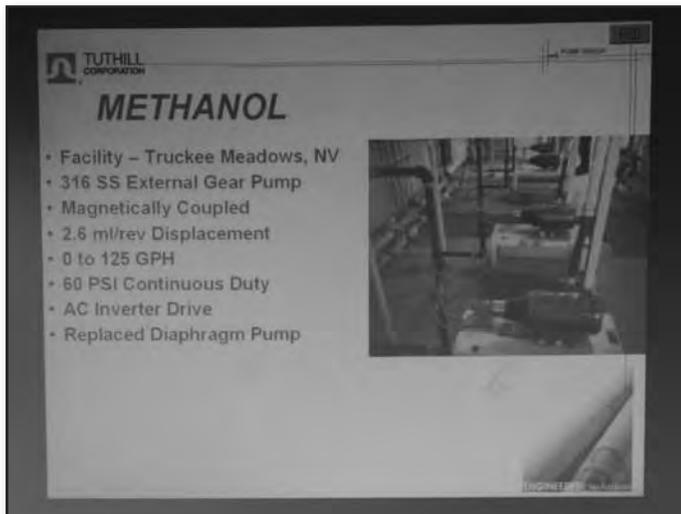
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Methanol

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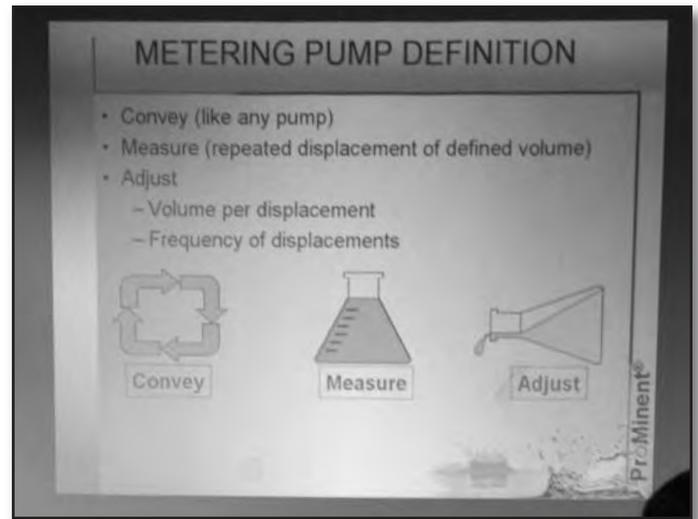
Positive Displacement Rotary Gear Pump



Sample Specification—Methanol Pump and Motor

an adapter housing that makes for a perfect alignment between the pump and the motor. Magnetic drive pumps employ magnetic attraction to couple the pump shaft to the motor shaft. By so doing, the need for a seal at the pump shaft is eliminated, thus a common point for fluid leaks is eliminated. Avoiding leaks is important when pumping hazardous fluids, such as methanol.

Pumping accessories include pulsation dampeners and back pressure valves. A reciprocating pump action, such as occurs with a diaphragm pump, causes the fluid being pumped to regularly cycle with an abrupt start and stop action which tends to induce vibrations that stress the piping and other components carrying



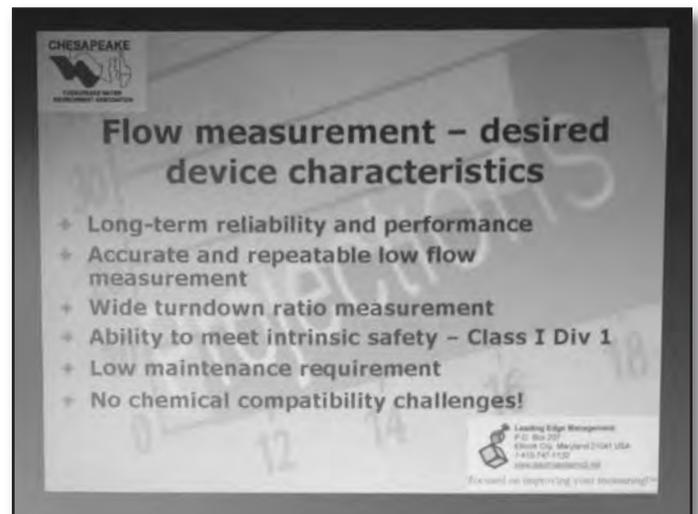
Metering Pump Definition –Schematic

the fluid. A pulsation dampener contains a bubble of compressed air which dampens out the pulsation effect.

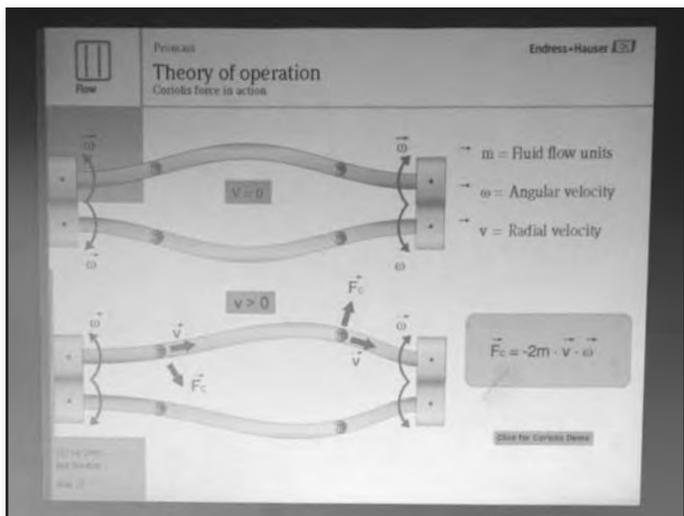
A back pressure valve provides back pressure on the pump discharge to reduce surging and to prevent siphoning action when suction pressure exceeds discharge pressure

Feeding situations for methanol include:

- A. Delivering methanol at a constant flow rate over a range of differential pressures
- B. Delivering a metered varying flow of methanol in a set proportion to a process variable, e.g., nitrate, for the purpose of controlling the process variable
- C. Delivering a given volume of methanol irrespective of flow rate, e.g., for batch process



Flow Measurement—Desired Device Characteristics



Coriolis Flow Metering—Schematic

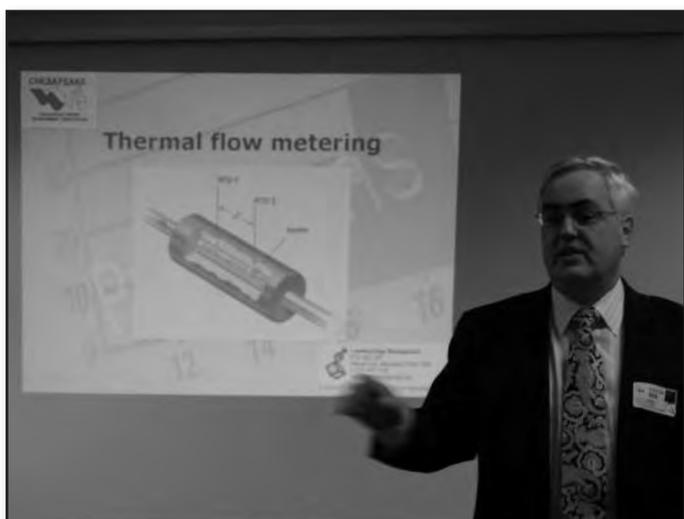


Methane Storage Tanks—Blue Plains WWTTP

METHANOL METERING

Metering or dosing refers to the delivery of an accurately measured amount of liquid.

Metering Pumps: A metering pump is a controlled volume pump that usually employs a reciprocating action to accurately displace a predetermined volume of liquid in a specified time period and is driven by power from an outside source applied to the pump mechanism. It includes a mechanism for varying the effective plunger, piston, or diaphragm displacement. It also may include a mechanism for varying the frequency of displacements. Pumps with the dual capability can



Alfred Faire Explains Thermal Flow Metering

vary the pumped flow rate by varying the stroke length of the piston and by varying the speed at which the piston travels.

Metering pumps can provide a certain degree of flow rate measurement, however when more accuracy is

desired, a separate flow meter must be installed. If the metering pump produces a pulsating type flow, this will degrade the accuracy of a flow meter unless a pulse dampener is also installed.

Desired flow meter characteristics include:

- A. Long term reliability and performance
- B. Accurate low flow measurement
- C. Wide turndown ratio for maximum flow ranges
- D. Ability to meet intrinsic safety, e.g., Class 1, Division 1
- E. Low maintenance requirement
- F. Ease of calibration
- G. No chemical compatibility challenges

Types of meters to be considered include: gear meters, turbine meters, magnetic meters, Coriolis meters, and thermal meters. Magnetic meters are usually not recommended for methanol because methanol is not conductive. Both Coriolis and thermal meters were discussed in the seminar.

Coriolis metering employs a motor to vibrate a straight tube that carries the methanol. When the tube is vibrated at a resonant frequency, the Coriolis Effect comes into play and imparts a rotational force to the downstream fluid that is out of phase with the upstream fluid. The methanol mass flow rate is proportional to the phase difference between upstream end of the tube and the downstream end. The meter also measures fluid temperature and density. The density value is used to calculate volumetric flow rate in gallons-per-hour.

Continued on page 26

Methanol

Continued from page 25

Advantages include no moving parts in contact with the fluid and flow is straight thru the meter.

Thermal metering employs two Resistance Temperature Detectors (RTDs) in a tube to measure flow rate. The upstream RTD measures the methanol fluid temperature. The downstream RTD measures the temperature of a constant low-power heater which is cooled by the flowing



Methane Receiving Station—Blue Plains WWTP



Methane Pumping Room—Blue Plains WWTP

methanol. The temperature differential between the heated and unheated RTDs provides the primary flow signal. At higher flow rates, the cooling effect on the downstream RTD is greater, so the temperature differential decreases. This differential signal is a logarithmic function of the mass flow rate. Advantages include non-contact measurement, straight flow-thru design, no moving parts, and minimal pressure drop. Wide range capability goes from 1 gallon-per-year to 20 gpm. The manufacturer claims meter is virtually maintenance free.

Grasses, Marshes, Rivers and Such

—By Floyd B. Johnson, Ecoletter Co-editor

Underwater grasses increased 18% in the Bay during 2008. Sounds good—well not so fast. Perhaps a better way to put it is not bad. Given other facts in the matter, good is too strong a word. Hopeful sign might be a phrase to describe it to the faithful, still the facts are nowhere near deserving of the trumpets loud blare to the masses.

Aerial surveys last year showed 76,861 acres of grasses, 11,943 more than in 2007 and the 4th highest total since 1984. Promising? Something to get excited about? Hardly. Treading water, or rather, treading underwater is a better description. The 2008 figure is only 42% of the modest 185,000 acres restoration goal, given that an estimated 400,000 acres once carpeted Bay water bottoms. Consider also that nearly one-third of the grasses in the Bay were wiped out in 2003 from high flows and tenuous continues to be an apt description of the hold of



Choptank River

grasses in the Bay. Even in last year's improvement, over 60% of the grasses in the mouth of the Choptank were lost.

Nevertheless, and notwithstanding the above, an optimist will point out that the 6,517 acres of grasses in the upper Potomac reaches exceeds restoration goals by 41%—thank you Blue Plains and Piscataway WWTPs. Also 60% of the grass beds are considered high density, which are better at pollution removal and dissolved oxygen production, and can better cope with high flows. The 60% reading is the highest since 1984.

The National Estuarine Research Reserve System has 27 protected areas in the United States. Three of those areas are in the Maryland portion of the Chesapeake Bay and one of the three hosted an Earth Day event to proclaim marsh restoration.



Jug Bay

The Patuxent River's Jug Bay, just south of Upper Marlboro, saw

its wild rice marshes decimated in the 1990's when overgrazing by Canada Geese eliminated 275 of 325 total acres. These geese should really be called Maryland Canadian Geese, never leave the area and are non-migratory. The wild rice can stand grazing in the fall in a mature state, but year round eating by lazy birds never allows the rice to grow. The solution was to greatly reduce the local resident geese population through managed hunts and enlist volunteers to plant wild rice in the denuded areas around Jug Bay. Thanks to the hunters and volunteers, the wild rice acres have rebounded to almost 200 acres.

Monie Bay, near the Wicomico River mouth on the eastern shore, and Otter Point Creek, near Edgewood are the other two reserves in Maryland. Monie Bay is an

example of a salt marsh, Otter Point Creek is a freshwater marsh and Jug Bay is a tidal riverine system. The purpose of the Maryland Reserve System is to manage areas as natu-



Monie Bay

ral field laboratories and to develop and implement a program of research, monitoring, education and volun-



Otter Point Creek

teer activities.

Mattawoman Creek, along the border of Charles and Prince Georges Counties received a most unwanted designation recently. It was named the fourth most endangered river in the country by American Rivers. Known for a thriving large-mouth bass fishery and for having relatively clean water

that supports a variety of aquatic species, the Mattawoman is under a significant threat from a proposed large high-speed roadway called the Charles County Connector (not to be confused with the Inter County Connector between Montgomery and Prince Georges Counties). The highway, and the development sure to follow would bring a proliferation of hard, impervious surfaces across the soft watershed. Keep



Mattawoman Creek

an eye on whether the highway gains approval and what will be the future plans.

American Rivers has a history of finding endangerment in our area—Mattawoman Creek became the 8th river in the Chesapeake watershed to acquire the miserable recognition. The following rivers have made their top ten endangered list:

James—1989 for proposed hydro projects
—1990 for a proposed dam

Susquehanna—1991 for proposed hydro projects
—2005 for WWTP pollution and dam construction

Anacostia—1993 for sewage pollution, development and dumping
—1994 for urban runoff

Potomac—1997 for agricultural runoff and development

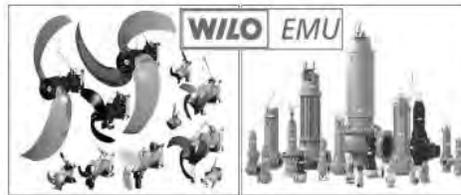
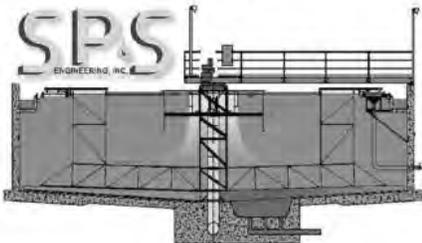
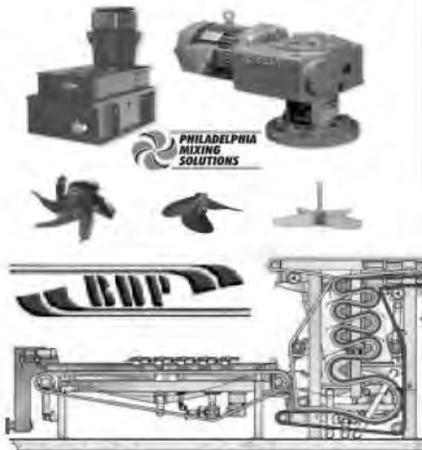
Pocomoke—1998 for toxic waste and poultry farms

Mattaponi—2003 for proposed hydro project

Shenandoah—2006 for runaway development



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Managing in Time of Crisis

—By Bill Bertera, WEF Executive Director

The recession that took so long to be recognized as a recession is now universally acknowledged. The country and the whole of the world are caught up in it and there is no avoiding its consequences. For those of us in the association world, the outlook is not encouraging. We are often at the end of the service chain and for hard pressed companies, utilities, governments and individuals, we often constitute discretionary spending. . . spending that can be interrupted for a time until things get better.

Of course, that may or may not be the case. The best associations provide training, education and other services that are even more important in difficult times because they help our members' weather rough roads, and when the recovery comes, as it will, the skills we sharpen will be more important still. But for now, we in the association world need to hone our services to the most essential, trim our expenses, improve our management and service while anticipating decreased revenues as we do so.

The dilemma is classic. Everything is connected. Crisis in the financial markets affects the availability of credit, credit restrictions effect investment and lending, companies cut back production and lay off workers in response to decreasing demand from consumers, and tax revenues from all sectors decrease because income and sales are down in the private sector economy. Even services like water and sanitation are not immune from global economic dislocations and neither are the associations that serve them.

This recession is not going to be like anything most of us have ever lived through. It will be longer, more severe and pervasive than anything since the 1930s and we need to understand and accept that. Hunkering down and waiting for it to pass us by will not work. Business as usual will not work because the usual isn't any more. Everything has changed and it is unlikely that what we once thought "normal" will ever be again. We need to start thinking very differently about everything including the traditional linkages between members and their associations.

The Water Environment Association is looking ahead. Although we began our fiscal year with a record breaking WEFTEC in Chicago, have enviable cash flows and exten-

sive financial reserves, we do not expect that this recession will pass us by either. We are trimming expenses in anticipation of revenue decreases; honing our services and doing all those things that well run organizations do in times of trial. But that is not enough.

The WEF Board of Trustees has adopted a set of financial and management guidelines we will use in managing WEF in the coming years. The guidelines set a very high standard on service, provide for continued investment in programs and services that address our core mission and the needs of our members. They also dictate solid fiscal management regardless of other considerations. An organization that is not running in the "black" cannot have the resources to pay attention to its business nor can it fulfill its mission.

An important and critical underlying assumption to the guidelines is the understanding that what happens to our members also happens to WEF. The health of the community reflects itself in our membership numbers, attendance at conferences, exhibit and advertising sales and so on. The same is most certainly true for state and regional associations, but perhaps not in just the same way. Travel restrictions may work to the advantage of local organizations while overall spending cuts by companies and utilities curtail membership, exhibit and sponsorship fees.

Each of our organizations needs to take a close look at what we do, who we do it for and how we do it. Managing associations in time of crisis is always a dicey thing, but not undoable. We just have to be smarter, work more closely together, be willing to do things differently. . . and to take reasonable risks.



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2009 WWOA AWARDS: CALL FOR NOMINATIONS

Nominations are now being accepted for the following WWOA awards:

DISTINGUISHED SERVICE IN WATER DISTRIBUTION:

Worked “above and beyond” to ensure safe delivery of drinking water to the public through a distribution network and demonstrated technical excellence and problem-solving creativeness.

DISTINGUISHED SERVICE IN WATER TREATMENT:

Demonstrated technical excellence, administrative, or managerial merit, or exemplary work ethic and dedicated approach to the administration, operation and/or maintenance of a water treatment facility.

DISTINGUISHED SERVICE IN WASTEWATER COLLECTION SYSTEMS:

Demonstrated exemplary performance, initiative, technical excellence, and problem-solving creativeness in the operation and/or maintenance of conveyance systems and appurtenances that deliver sanitary sewage to wastewater treatment facilities.

W. McLEAN BINGLEY AWARD FOR WASTEWATER TREATMENT:

Impacted, significantly, the administration, operation, and/or maintenance of a wastewater treatment facility and displayed exemplary commitment to the fundamental principles governing the treatment of wastewater and protection of the water environment.

DISTINGUISHED SERVICE IN SOLID WASTE MANAGEMENT (RECYCLING):

Worked to encourage an effective reuse, recovery, and safe disposal program in the area of solid waste management, or made a significant contribution to the administration, operation and/or maintenance of a solid waste recycling/reuse facility. Utilizing waste reduction or recycling

systems; demonstrated continued commitment to a program, which discourages the gratuitous disposal of reusable materials.

DISTINGUISHED SERVICE IN RESIDUALS MANAGEMENT:

Contributed significantly to the administration, operation and/or maintenance of a sludge management system, including (but not limited to) incineration, composting or sludge disposal operations.

DISTINGUISHED SERVICE IN LABORATORIES:

Contributed significantly to the administration or operation of a water, wastewater, or solids handling laboratory, or demonstrated technical excellence and problem-solving creativeness worthy of peer recognition.

DISTINGUISHED SERVICE IN INDUSTRIAL WASTE MANAGEMENT:

Impacted, significantly, the administration, operation and/or maintenance of an industrial wastewater facility AND displayed a commitment to the principles governing the treatment of wastes.

STANLEY KAPPE TRAINING AWARD:

Contributed immeasurable time, energies and resources, above and beyond their normal job duties, to provide educational and vocational training to environmental systems professionals.

WWOA AWARD FOR OUTSTANDING PERSONAL SERVICE TO THE ASSOCIATION:

Contributed extraordinary personal service of a continuous nature to the Association, which enhanced the management, principles, operation, or professional and community standings of the Association.

WWOA LIFE MEMBERSHIP AWARD:

This individual has been able to provide continuous membership of 25 years or more to the Water and Waste Operators

Association. Documentation of this membership could include past membership cards, membership verification through membership Chairperson or canceled checks to the Association.

WWOA EMPLOYER RECOGNITION AWARD: This award is a small token of appreciation from WWOA for your employer. It is provided should you have been fortunate enough to be able to provide services to WWOA on one of the numerous committees or as a board member.

See website form nomination form which must be sent with supporting documentation (or provide the requested information in an email message) to:

Danny Coats, WWOA Awards Chair
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Washington, DC 20032
Email: dcoats@dcwasa.com
Voice: 202-787-4046
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Public Infrastructure Investment Makes Sense

—By Bill Bertera, WEF Executive Director

Infrastructure investment is back in the national news. Usually when this happens it is the result of some dramatic infrastructure failure like a bridge collapse, but this time it is a bit different. The global economy is under stress and economists and politicians alike are looking for quick fixes. They are looking for precedents and finding them in the policies of Franklyn Roosevelt, Dwight Eisenhower and Richard Nixon. . . they are eyeing investments in public infrastructure. Experts might also look to the Japanese experience in the twenty years since their economy experienced a dramatic meltdown for some answers. The power of infrastructure investment in reviving failing economies is impressive.

Even the presidential candidates are beginning to talk about it. The reasons are simple. . . public spending on public infrastructure works. It works because state and local governments will spend everything they get and spend it quickly. They already have significant inventories of public works projects (including water and sanitation initiatives) awaiting funding. . . which makes it puzzling why infrastructure investment is not receiving more immediate attention at the federal level.

The answers are as simple as they are disturbing. Except for the highly visible highway and airport infrastructures (and even they are in trouble), most infrastructure is not politically “cool.” It is expensive, it takes a long time to complete (often longer than the terms of office of those who need to vote the funds) and importantly, it is frequently seen to come at the expense of critical social services for the people most in need in our society.

And there is one other problem. . . federal infrastructure investment at the local level involves income redistribution. . . taking money from those who have invested in their infrastructure at some sacrifice and making them pay for communities that could not or chose other priorities. These are all deal killers except in the most abundant of times, but that does not make infrastructure a bad public policy decision for America.

Ten years ago abundance seemed imminent and there was a raging national discussion about how to spend what was anticipated to be a huge national

budget surplus. . . and all sorts of infrastructure projects were on the table. . . including water and sanitation elements. The surplus never materialized and neither did the infrastructure investment. But the need remains in almost every area of public infrastructure investment.

What did materialize in the water and sanitation field was the funding gap. . . the literal billions of dollars between what was being spent and what would be needed over the next twenty years just to stay even as aging infrastructure and population growth took its toll.

Despite very aggressive investment initiatives in hundreds of communities in water and sanitation infrastructure, the national gap, estimated by the EPA to be in the \$478 billion range, remained. This, despite annual local government investments in water infrastructure in the \$30 billion range in recent years. The gap remains and is growing and private investment capital is not filling the void.

A recent study by the United States Conference of mayors suggests that the return on investment for every dollar spent on water infrastructure is \$2.62 in that year and for every job added in water and sanitation, 3.68 jobs are created in the national economy to support that job. We also know that federal funds put into the hands of state and local officials actually get spent. . . and usually quickly. And there are some preliminary indications in Congress that there is a need to at least pretend to be taking the situation seriously.

Congress does this by drafting and proposing legislation. But drafting and proposing are a far reach from actually enacting and there seems little political will to do that now in an election year with a recession looming. That does not stop legislators from talking about it however, and letting us think that something will happen.

The case for infrastructure investment in general is well known and documented. Those who own homes know how it works. Eventually everything wears out, but it wears out more slowly if it is taken care of along the way. Doing so not only prolongs the life of the asset but allows us to extract as much value from it as possible while giving us time to save for the day when maintenance gives way to necessary replacement. Why is it that we understand that with respect to our homes, but

not our ports, rivers, parks and water and sanitation infrastructures to name but a few examples?

The answers are uncomplimentary to Americans as a people and reflect a short sightedness and absence of what political scientists used to refer to as "public regardingness". . . the willingness to give up personal and immediate satisfactions for a longer term public good that benefits the whole of society rather than just us. The analogy of a rising tide raising all boats is apt here.

Our deficiencies in just about every area of public infrastructure investment have been documented by the American Society of Engineers in its annual infrastructure investment report card. In the United States, federal investment in infrastructure is less than 3% of GNP. In the 1950s, that share was in the 10% range. It has been going down ever since. By some estimates, the funding gap for all public infrastructure is in the area of \$1.6 trillion over five years, and water and sanitation are a big piece of the gap nationally.

The argument is often made that water and sanitation infrastructure are and should be local responsibili-

ties and they are. But it is also clear that if local governments were able to meet all their needs, there would not be a national funding gap. The private sector would have us believe that all that is necessary is to enable the wholesale privatization of public infrastructure and the gap would go away. The experiences of Europe, South America and Asia suggest otherwise.

Local public infrastructure is a matter of national interest and priority. . . or at least it should be. Our economy, our competitiveness and even our security as a country depend upon the strength of our infrastructure and what it lends to every aspect of what we call our quality of life. The sum total of our national experience is the sum of our parts. . . the states and local governments where everyone lives, where all tax dollars are generated and most spending occurs, should be a national priority.

In this context, all infrastructure is important for economic development, security and quality of life. But water and sanitation infrastructure are critical for life itself. . . that should count for something.

CWEA President Message

Continued from page 3

ization (CWEA, WWOA, and CSAWWA) met to discuss the possibility of producing a combined Tri-Association Publication. The meeting agenda was simple and to the point. Determine if this was a good idea, and if so, establish a fair and equitable way to manage the effort. The meeting was constructive and the outcome was positive. The group concluded that it was in the best interest of our membership(s) to combine the publications, and most importantly, we unanimously agreed upon a management structure for the publication. Each organization will appoint an editor and co editor (editorial staff with a total of six people), and from that group they would appoint one Chief Editor. The appointed Chief Editor would serve in that position for a limited term (tentatively selected as two years), and at the end of that term the editorial staff would reconvene and have the option to appoint a new Chief Editor or stay the course with the existing appointee for another term. This editorial group, once appointed by the respective boards, will work on the details of publication layout,

naming, and associated logistics. At this time, many of the details have been purposely left untouched, with the idea of having the selected editorial staff resolve them as a group. We hope to appoint these individuals in early 2010, have them work through the publication details in 2010, and distribute the first issue of that publication in the first quarter of 2011.

CWEA and WWOA are dedicated to providing you with technical and scientific information related to the water environment, and *Ecoletter* is one of the most effective ways to do that. We also feel that combining our efforts with that of CSAWWA results in something that minimizes our impact on the environment and also provides, for lack of a better term, a one-stop-shop for people in the water and wastewater industry. For that reason, if you have any comments or suggestions on this topic, please feel free to contact me.

Sincerely,

Aaron K. Nelson, PE
anelson@brwncald.com
President CWEA



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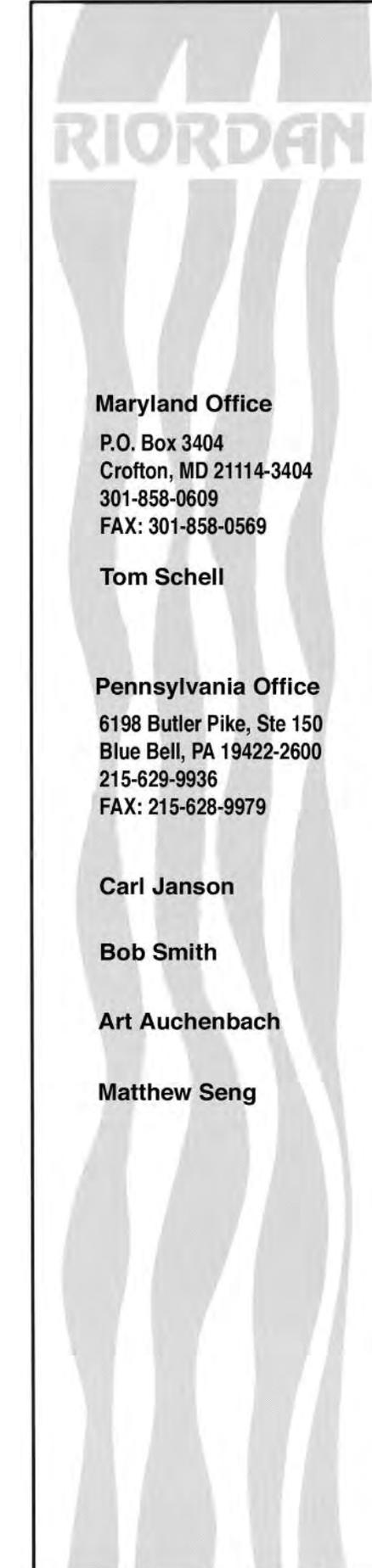
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