I would like to start by thanking the Board of Directors for all of their efforts over the years. Certainly a big “Thank You” to John Adie for his efforts over the last 7 years culminating with an exciting year as President. As an Association, and under his leadership, NHWPCA has continued to be a resource for our membership and his efforts have been instrumental in moving the ball forward.

It was a privilege to be asked to serve as an At-Large Board member several years ago. It is now an honor to stand in front of the true unsung heroes of public health and protectors of NH’s most precious resource, our pristine waters. As many of you may already know, there have been numerous economic studies completed over the last several years. All of these studies result in the same conclusion, NH’s economy is driven by clean water. This is what our membership does day in and day out 24-7-365.

I want to thank Fred McNeil from Manchester, Sean Greig from Newmarket and Ray Vermette from Dover for reaching out to me six years ago to volunteer for the At-Large position. They talked about the importance of volunteering and participating in leading the Association. I appreciate their persistence and they were absolutely right. It has been a lot of work, but more importantly, it is very satisfying working with a great team of volunteers that all have the same goal of making our Association a leader in New England. I also want to thank Nancy Lesieur and Linda Gaudette for their outstanding service over the last several years. While their knowledge, insight, and most importantly organizational skills, will be missed, I am confident that Noelle Osborne and Elizabeth Harrington can keep us all on track.

For over forty-seven years the NHWPCA has been a volunteer organization which was originally organized in 1967 by Hampton’s own Chief Operator Leveritt McGrath. Interestingly enough, Leveritt kicked this Association off by inviting several of the other NH operators to a clambake on Hampton Beach right across the street from our Winter Meeting. Leveritt’s real goal was to energize a small group of operators into an organization that was dedicated to the advancement of the wastewater operator profession.

Looking back at the history, the early meetings were much like our current meetings and consisted of tours of new facilities that were being built all over the State of NH. The informal meetings served as forums where operators could share experiences and discuss common problems along with the creative solutions that the early operators were using to make these new facilities process wastewater and protect our environment. Networking was just as important then as it is today. Forty-seven years later some things just don’t seem to change.

Our Constitution is clear and I think it is important to look back at our roots. It specifically states that the NHWPCA goals are:

- The acquisition and dissemination of knowledge concerning the nature, collection, treatment, and disposal of water carried wastes and the design and operation of systems
- The promotion of good public relations and sound legislation relating to wastewater control systems

(Continued on page 1)
Editor’s Words

You readers may not know this, so I’m going to tell you that this Trade Fair edition of The Collector is the most difficult, stressful, miserable, pain in the behind edition that we publish! To add to this year’s craziness, we’re dealing with all the snow/blizzard s*$! while trying to get this edition done. I’m assuming that we’ll all be experiencing some semblance of spring weather by the time you read this, or at least be well into mud season. I may not be sure about the weather, but I can state for a fact that I certainly feel proud of the final result of this newsletter. This edition has words from past, present and future Association Presidents – wow! There’s a lot of interesting articles and tidbits of information in here. And check out all the sponsors and ads. Yes, really check them out because they support this publication! In this day and age, I do love my Facebook and my texting and my email, but I equally love being the editor of The Collector and want to thank my committee and all the other contributors who make this possible.

We’re on the web! Find us at www.nhwpca.org

We’re on the web! Find us at www.nhwpca.org

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Upcoming Events

March 25, 2015 NHWPCA Legislative Breakfast.
March 27, 2015 NHWPCA & MeWEA Ski Day at Sunday River.
April 9, 2015 NHWPCA Trade Fair.
April 18, 2015 Discover Wild NH Day, Concord, NH.
June 26, 2015 NHWPCA Summer Meeting at Ellocoya State Park.
Aug. 6, 2015 NHWPCA Annual Golf Tournament.

Special Thanks to this Issue’s Contributors

Peter Goodwin, Ben Bovarnick, Shiva Polefka, Arpita Bhattacharyya, Kevin MacLean, Stephanie Rochefort, Fred McNeill, Wes Ripple, Gene Weeks and Charlie Tyler.

NEWSLETTER COMMITTEE

Stephanie Rochefort, Todd Gianotti, Mary Jane Meier, Steve Clifton, Gene Weeks, Kurt Robichaud, Ben Mosher & April Hyde. We welcome additional members. We are looking for meaningful articles for the Wastewater Operator in a timely fashion. Send submission articles for THE COLLECTOR to Stephanie Rochefort via email at srochefort@somersworth.com.

Editor - Stephanie Rochefort - Layout & Design - Todd Gianotti

“THE COLLECTOR” is the Official Newsletter of the NHWPCA

For more information about the NHWPCA visit our website at www.nhwpca.org
• The advancement of the status of personnel engaged in the control of water pollution
• The improvement of wastewater collection and treatment, and thereby the quality of NH’s water resources.

These four goals remain as critical tenets of our organization and I think we should all reflect on the foresight our Associations leaders had. I will continue to focus on the key issues that John and our Past Presidents have focused on.

Going forward I hope to lead the Board forward with the following focal points that are in alignment with our Constitution:

Government Affairs:
• NH Legislative Breakfast legislative advocacy
• Water Week Washington DC Congressional Breakfast
• SB60 Commission Recommendations
• NHWWA/NHPWA/ACEC/ASCE/ collaboration
  Permitting Assistance Committee:
• With the leadership of Rick Cantu of Manchester, the permit Committee remains a critical resource to our membership. The committee is currently developing a resource page for our website to provide information for all permit holders

Membership:
• With a membership hovering around 300, I believe we have the opportunity to connect with more operators, engineers and equipment providers. The will also allow us to continue our success through Committee involvement and participation. I will work with the immediate Past Presidents to reach out to potential membership and look to recruit and grow our organization.

With our aging workforce and facilities relying on new technology, I hope to energize the Board of Directors to create a Young Professional Committee to work towards operator recruitment, fundraising, public relations and awareness and hopefully a social media component.

Thank you again to John for a great year and I look forward to moving the Association forward in a positive direction with the support of the Board and most importantly all of you, the true unsung heroes of making NH successful.

(Continued from page front cover)

• GAC – Shelagh Connolly
• Activities Committee – Mike Theriault
• Communications Committee – Geri Ciardelli
• Education Committee – Mary Jane Meier
• Newsletter Committee – Stephanie Rochefort
• Ops Challenge Committee – Tim Vandal
• Membership Committee – Dave Lovely
• Scholarship Committee – Mike Carle
• Safety Committee – Rick Cantu
• Permit Committee – Rick Cantu
This article was published by the Center for American Progress (online)

**Rising Waters, Rising Threat**

How Climate Change Endangers America’s Neglected Wastewater Infrastructure

By Ben Bovarnick, Shiva Polefka, and Arpita Bhattacharyya | October 31, 2

SOURCE: AP/Tony Dejak A sewer overflows as city pipes cannot hold the water brought by severe weather in Cleveland, Ohio.

The second anniversary of Superstorm Sandy recalls the tragic loss of 117 lives across eight states, evoking images of flooded streets, power outages, and stranded communities. The storm also caused significant damage away from news cameras—underground and offshore—to wastewater infrastructure. Sandy’s powerful rainfall and record-setting storm surge overwhelmed wastewater systems throughout coastal New York and New Jersey, resulting in the overflow of almost 11 billion gallons of raw sewage into the stricken region’s streets, rivers, and coastal waters. This was enough untreated effluent to fill the Empire State Building 14 times.

Unfortunately, wastewater overflow is not unique to superstorms or to the East Coast. As climate change strains aging sewer systems around the country through increasingly severe weather and sea-level rise, the resilience of wastewater infrastructure is becoming a critical public and environmental health issue for communities and municipal and state governments.

The United States has an expansive but aging wastewater system that was built to meet the needs of a much smaller population. The United States had 14,780 wastewater treatment facilities and 19,739 wastewater pipe systems as of 2008. The American Society of Civil Engineers, or ASCE, found that many of the nation’s pipes were installed shortly after World War II and are reaching the end of their originally intended lifetimes; some sewers are more than 100 years old. Aging wastewater infrastructure has immediate, dangerous consequences. The ASCE estimates that aging pipes and inadequate capacity lead to the discharge of 900 billion gallons of untreated sewage and wastewater into U.S. waterways each year, enough to cover New York City under a layer 127 feet deep.

According to a *New York Times* report, municipal sewer systems are the nation’s biggest violators of the U.S. Clean Water Act, and more than one-third of them have violated pollution laws at least once since 2006.

This worn-out, faulty infrastructure requires new investments in order to protect public health and the environment. As climate change poses increasingly severe and costly hazards to these systems, states and municipalities should ensure that any...
investment in new sewer infrastructure incorporates climate risk. Federal, state, and local governments can achieve this through several innovative strategies.

This report recommends taking the following steps to keep American waters clean and protect public health from disruptions and overflows in wastewater treatment systems:

- Integrate climate risk into all new wastewater infrastructure
- Finance resilience improvements through state infrastructure banks
- Prioritize resilience in state revolving-fund investments, accounting for regional differences in climate change vulnerability
- Invest in green infrastructure and the protection and restoration of wetlands and coastal ecosystems to protect and supplement wastewater treatment systems

Modern wastewater infrastructure is a vital part of everyone’s daily lives, protecting Americans from waterborne diseases and preserving the nation’s waterways as ecological, recreational, and commercial assets. But Americans’ preference to keep their minds out of the gutters, sewer mains, and treatment plants that comprise this system makes it easy for political leaders to neglect this infrastructure—at least until catastrophes such as Superstorm Sandy necessitate unpleasant spills and costly cleanups. As climate change exacerbates the most extreme weather and speeds sea-level rise, deficiencies in wastewater infrastructure will get harder to ignore—and increasingly costly to clean up after failures. To protect public health, the environment, and the economic gains provided by good water quality, local, state, and federal officials must act quickly to repair and upgrade the nation’s rapidly aging wastewater infrastructure. This action must accommodate both contemporary and future levels of service demand and withstand the worsening effects of climate change.

Ben Bovarnick is a Special Assistant with the Energy Policy team at the Center for American Progress. Shiva Polefka is a Policy Analyst for the Center’s Ocean Policy program. Arpita Bhattacharyya was previously a Policy Analyst for the Energy Policy team at the Center.

NHDES Environmental Fact Sheet WD-WEB-23 2013

Climate Change in New Hampshire: Is Your Wastewater Treatment Facility Climate Ready?

What is climate change? Climate change, also known as global warming, describes the changes in average weather that have been observed across the globe over the past several decades. These weather changes are due to a buildup of carbon dioxide (also known as CO2) in the atmosphere. CO2 in the atmosphere normally acts as a “blanket” that retains heat from the Sun and protects us from the cold of space. The extra CO2, however, is causing this blanket to grow thicker and trap additional heat. This causes warming in Earth’s air and oceans, resulting in rising sea levels and changes in the pattern and distribution of precipitation, as well as the intensity and frequency of extreme storms.

How do I know climate change is happening in NH? Because of changes in Earth’s average air and ocean temperature, the very character of New Hampshire has been changing over the past several decades. On average, from the 1970s to today, the state has experienced more precipitation each year, with more rain and less snow. More of this precipitation has fallen in extreme events. The average temperatures have also risen. The most pronounced change has occurred in winter, with fewer days with snow on the ground and with spring coming earlier.

New Hampshire has also experienced some very unusual and extreme weather over the past ten years. From 2003 through 2012, the State had 15 Presidentially-declared storm-related disasters, including: 1 hurricane, 1 tropical storm, 11 severe storms and 2 winter storms. In contrast are the 50 years prior, from 1953 through 2002, during which New Hampshire experienced only 14 Presidentially-declared storm-related disasters.

Why should wastewater treatment facilities (WWTFs) be concerned about climate change? Recovery from these extreme storm events costs N.H. communities and the State a lot of money and this can affect the State’s overall economy. Following these extreme storm events, people may be without electricity for a number of days, other than the critical elements connected to generator power. Critical questions to consider include:

1. What critical elements at your WWTF will be without power during this time?
2. How long can your WWTF operate on generator power during high flow conditions and maintain adequate treatment to protect public health and the environment?

(Continued on back cover)
SAFETY CORNER

Lessons That Can Be Learned From a NEAR MISS

Submitted by Kevin MacLean – Hanover Water Reclamation Facility

“Good intentions lead to a near miss event”… and hopefully a lesson learned.

An operator wanting to do something extra beyond the daily grind decided to apply boiled linseed oil to all the wooden shop tool handles to help preserve them. When the task was complete, the operator dutifully cleaned up, hung the tools to dry and went home for the day as the rest of us did.

So the first operator to arrive at the plant the next day was caught a bit off guard when stepping out of his vehicle and noticing an odd smell in the general area. Don’t say it! Yes this is a wastewater plant and it has odd odors from time to time … this was different, but also kind of familiar. Upon entering the building, a thick haze was evident and the odd smell far stronger. Initially, the operator thought it was electrical in nature and those exposed to it know the smell of overly hot motors, burning rubber and melted plastic. Checking the MCC areas, nothing appeared out of the norm. This led him to the “shop area” and it was quickly obvious that the “oily rag” disposal container had been smoldering for some time – enough to fill the entire building with haze and stench.

Given the condition of the container and not wanting to escalate the smolder to a full on burn or tip the can over, he brought a dolly to the can and proceeded to carefully lift it on to the dolly – but not before getting a face full of unpleasantness. Luckily, no open flame or flash was added to the mix. The can was moved outside and extinguished with the only damage being to the unlucky can and its neighbor, a speedy dry container.

Upon review several items became quite clear:

- Linseed oil is not compatible with oxidizers, carbon, acids or alkalis.
- We lucked out that it wasn’t near a prime fuel source had things progressed.
- Follow instructions for all safety equipment.
- Clean house every once in a while to remove dated substances.
- Follow HAZCOM labeling requirements.

We will never know just what combinations of ingredients were in that can, but we think it was a chlorine compound or a degreaser residue. Needless to say, it was not what any of us expected to walk into that morning. The container of linseed oil had only generic labeling and we think was left over from the days of the original plant from the 60s (no MSDS).

Oh, “tool handle guy”, who also was the last guy to show up that day, was spoken to and given a current MSDS for boiled linseed oil to review. Not to mention being the brunt of many “insightful comments” from fellow staff for quite some time.

I have often said, “If you don’t make mistakes, you’re not trying hard enough”. Boy did my words ring in my ears.

Be safe everyone!

To help get the word out about your NEAR MISS and keep others safe, please send your NEAR MISS stories to Patty Passariello (passariello@wseinc.com or 978-532-1900). All reports are confidential.
I’m pretty fond of the SVI test. And not just because it involves a timer with plenty of time to run back and forth to my coffee cup that is safely NOT kept in the lab. OK, I do cheat a little bit on days when it’s very cold and move the coffee cup into the part of the lab where I’m not doing any work so it’s closer to run to. And obviously I don’t actually RUN because that wouldn’t be safe. Honestly, if I was making a list of things I’m fond of, coffee would be close to the top of the list, but the SVI test would definitely be on the list.

One of the first things I did before sitting down to write these thoughts (that was not coffee-related) was to look up the acronym “SVI”. Yes, I knew that it stood for Sludge Volume Index, but maybe there were other interesting things that it stood for. One of my favorite internet sites is acronymfinder.com. Sure enough, Sludge Volume Index was number two on their list for SVI. Number one was Seattle Vocational Institute. Interestingly enough, the number one thing that Seattle is known for is coffee.

Tracking SVI is an extremely useful process control tool. The SVI result comes from a mathematical equation and is defined as the volume in ml occupied by 1 g of activated sludge after settling for 30 minutes. This test is credited as being first introduced in 1934 by F.W. Mohlman. There have been several tweaks to the test method over the years, and I’m betting that most plants have a favorite version, but there really isn’t any right or wrong.

I think that what we do here is pretty typical. We use a settlometer, like is pictured above. The settlometer holds two liters, but is marked with graduations up to 1000. A grab sample from the effluent end of our aeration tank is collected each morning. In order to calculate SVI, we need to know the TSS (total suspended solids) of the mixed liquor, so a sample is quickly filtered. We even have enough sample for pH and any other process tests that we may want to run.

For my SVI calculation, I really only need a settlometer reading at 30 minutes, but I take readings every five minutes. After recording my thirty minute reading, I’ll set my timer for an additional thirty minutes and record any additional settling that has occurred. By the time I’ve had mixed liquor in the settlometer for an hour, I can also pull my mixed liquor TSS filter paper out of the oven so that I have everything I need to calculate SVI:

$$\text{SVI} \text{ (mL/g)} = \frac{30-\text{minute settleability test result (mL/L)} \times 1,000 \text{(mg/g)}}{\text{TSS of MLSS (mg/L)}}$$

The typical guidance for interpreting SVI results tell us that a range of 100-200 is perfect. An SVI below 80 is not good and is usually thought to be indicative of older sludge. This sludge that settles too fast leaves solids behind. You may get lucky and meet your BOD permit limit, but don’t place bets on meeting TSS. On the other end, an SVI above 250 is also not good.
Blurbs, Blurbs & More Blurbs

Voting Results

Your association recently voted on a name change and on how we will conduct future voting. Nope, we’re not going to announce the results here. BUT, the votes are in and have been tallied. Come to the Trade Fair on April 9th for the BIG announcement.

NEWEA Operator Exchange Program

NEWEA, along with their six State Associations, annually sponsors an Operator Exchange Program. This program is funded by NEWEA and the hosting State Associations and takes place in the fall. Operators travel to other New England states for two to three days with all expenses paid to visit WWTPs, attend association meetings and network with their fellow operators. Over the last two years our NH operators have traveled to CT and VT. This year we are exchanging with Massachusetts. This is a fun filled and educational program that exposes operators to their sister facilities throughout New England. In addition, it further exposes operators to NEWEA and all the professional opportunities it has to offer. If you are interested in the Operator Exchange Program please contact our NEWEA State Director Fred McNeill at FMcNeill@ManchesterNH.gov.

A Big Thank You

Two long time and key NHWPCA contributors retired from their positions at the end of 2014. Linda Gaudette served as NHWPCA’s Administrator for almost a decade. Linda’s strong organizational skills, timely deliverables and warm smile were critical in the successful operation and growth of the Association. Also retiring was Nancy Lesieur, a recognized NH wastewater leader who has spent her career at the Nashua and Franklin WWTPs. Nancy served as Treasurer for the past five years managing a wide array of finances for the Association. A big professional and personal thank you to both of these wonderful women. Also, a big and warm welcome to Elizabeth Harrington our new Administrator and Noelle Osborne our new Treasurer, who hails from the Nashua WWTP.

New Hampshire’s Newest Wastewater Operators

Hats Off and Congratulations to the following NH Wastewater Operators for passing the December 2014 exams!

- Grade 1 – Dave Brown, Dennis Edgecomb, Stephen Hammond, William Lowney, Jr., Rene Ouimette, Lee Tasker, Sr., Tim VanLoon and Andrew Welch
- Grade 2 – Cody Boisvert, Chris Connacher, William GIlpatrick, Jay Harrington, Jeffrey O’Neil and Sean Trimble
- Grade 4 – Aaron Bernier, John Demers and Timothy Quinn

Waving the NHWPCA Flag at Green Eggs Breakfast

Our President Peter Goodwin and legislative affairs committee members Shelagh Connelly and Fred McNeill recently attended the 8th Annual Conservation Policy Breakfast a.k.a. the Green Eggs and New Ham-shire Breakfast in Concord. This breakfast is a premiere event for the state’s environmental community to present legislative priorities. Considering this breakfast was rescheduled due to a snow storm, and we had yet another snow storm the day of the breakfast, there were still over 150 attendees. The recurring theme of the breakfast was the direct link between NH’s economy and our clean environment, especially clean water. The President of the State Senate and the Commissioner of NHDES were among the several breakfast speakers. NHWPCA was partnered with several leading law firms, conservation groups and other non-profit organizations in sponsoring this breakfast. All attendees considered the breakfast a success and recommend that we continue to support this worthwhile environmental policy breakfast to wave the NHWPCA flag.
We’ll handle the rest from here.

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In 2013, the Town of Middlebury, Vermont began facing mounting sewer and drainage issues, leading to costly and inconvenient overflows. In response, the Town of Middlebury requested the expertise of Utility Service Group (USG), which specializes in water utility services in every phase of the water cycle. USG, the exclusive provider of Ice Pigging in North America, proposed this groundbreaking technology to the Town of Middlebury, and the results were nothing short of phenomenal.

To learn more about the results and savings that USG’s Ice Pigging technology delivered to Middlebury - and can also deliver to your water utility - contact us today!

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50th Anniversary Announcement

By: Kevin MacLean – First Director, NHWPCA

Town of Hanover, Water Reclamation Facility - Superintendent

Valued members of the NHWPCA – welcome into 2015!

I would like to thank the membership for its ongoing support and dedication in protecting our surface waters, communities and customers with all your varied efforts.

Even though we are just getting our feet wet with 2015, I would like to bring a few things to your attention.

First – have you made any plans for 2017 yet?

No, I haven’t completely lost it…I mention this because your association turns 50 that year! I also bring it up as I will be holding the title of NHWPCA President that very same year and yes, I knew that when I accepted my first appointment on the board long ago – so maybe I’m closer to losing it than I thought.

That being said, we all know it takes a lot of time and effort to get things accomplished in organizations, public or private and we are no different. We need to start planning ASAP to have a celebration worthy of our fine association. We will be looking for volunteers to assist with bringing this together and making it a success. There is already discussion of a “sub-committee” to be formed to target this endeavor – so please consider volunteering!

Some venues have been put on the table; Canon Mt., Mount Washington – the granite one, the Mount Washington Resort and Gunstock Resort as early options.

Please, if you have any thoughts on activities, locations, merchandise etc, that would be a good fit to make this an event to remember – contact any of the NHWPCA Board of Directors or committee members to share your thoughts.

Last but not least, if you are reading this, you are probably a member and THANK YOU!

New Hampshire has roughly 600 licensed wastewater operators and our association has roughly only 300 members! We need to do better than that. Talk to your colleagues and if they are not members, encourage them to become one. If you are the manager of a facility, consider expanding the coverage for membership at your shop.

We all share something worthy of appreciation and gratitude as NHWPCA members and licensed operators – and we know it won’t necessarily come from folks outside of our small circle! Inquire, offer opinions, get involved and join! It is YOUR association.
(Boston) – Donald Pottle, Professor at the University of Massachusetts - Lowell is being honored with a Lifetime Achievement Award by EPA. Mr. Pottle has done an outstanding job over the years both facilitating and performing hands on training for thousands of wastewater treatment plant operators throughout New England.

The EPA Regional Wastewater Awards Program recognizes personnel in the wastewater field who have provided invaluable public service managing and operating wastewater treatment facilities throughout New England. The New Hampshire Department of Environmental Services was instrumental in Mr. Pottle’s nomination. Mr. Pottle was one of the first individuals to ever pass the Massachusetts Wastewater Treatment Plant exam over 40 years ago and has not looked back since. He continues to provide training to operators throughout New England and his dedication and commitment to the wastewater field is an inspiration to all.

“The professionals operating these wastewater treatment plants, as well as the municipalities and the state environmental agencies that support and train them, are essential to keeping our environment healthy by protecting water quality. I am proud to acknowledge Mr. Pottle’s outstanding contributions to help protect public health and water quality for so many years and to give him the credit he deserves,” said Curt Spalding, regional administrator of EPA’s New England Office.

EPA’s New England office formally acknowledged Mr. Pottle for his outstanding work during the annual New England Water Environment Association Conference at the Boston Copley Marriott Hotel on January 28th.

For more information: http://www.epa.gov/ne/topics/water/wwater.html and http://www.epa.gov/owm/mtb/intnet.htm

Hanover, New Hampshire Water Reclamation Facility

was selected as a 2015 Regional EPA Industrial Pretreatment Program Award recipient.

The Pretreatment Program staff, led by Mark Roper, Industrial Pretreatment Coordinator is being recognized by EPA’s New England Office for exceptional work in inspecting, permitting and sampling its industrial users that discharge industrial waste into the Town’s collection system. Even though the Town is not required to develop an approved Industrial Pretreatment Program, Mr. Roper has implemented an exceptional program that meets most federal standards.

David Michelsen of Exeter

received the 2014 Award of Merit from New England Water Works Associations.

“This award recognizes David’s long-time, outstanding service to the association as well as his extraordinary commitment and contributions to providing safe, high-quality drinking water supplies and protecting public health,” said Raymond J. Raposa, NEWWA executive director. Michelsen is a licensed professional engineer in Massachusetts and New Hampshire and is currently district engineer for the South Essex Sewerage District in Salem, Massachusetts.
New Hampshire Active at NEWEA Annual Conference

By Fred McNeill, PE

New Hampshire was well represented, well recognize and well prepared for NEWEA’s 2015 Annual Conference (a.k.a. Juno Blizzard) in Boston. Several NHWPCA members presented papers, moderated sessions and were recognized for their contributions to our industry. In addition, many hearty Granite Staters rode out the Juno Blizzard in downtown Boston that was blanketed with over two feet of snow during the conference prompting the closure of all downtown traffic. It was surreal walking through the deserted streets of downtown Boston in the aftermath of Juno.

During the NEWEA awards luncheon at the conclusion of the conference several New Hampshire water professionals were honored for their significant contributions in protecting our waterways including:

- Rick Cantu (Manchester WWTP) – EPA Region 1 Plant Operator Excellence Award
- Ray Gordon (NHDES) – EPA Region 1 Wastewater Trainer Excellence Award
- Mario Leclerc (Seabrook WWTP) – Quarter Century Operator’s Club
- Ken Noyes (WRBP WWTP) – Operator of the Year
- Ed Rushbrook (Process Analysts) – Clair N. Sawyer Award
- Harry Stewart (Retired, NHDES) – Alfred E. Peloquin Award

Four New Hampshire WWTPs were also honored for their achievements at NEWEA’s annual conference.

- Dover WWTP – NEWEA Asset Management Award
- Hampton WWTP – EPA Region 1 O&M Excellence Award
- Penacook WWTP – EPA Region 1 O&M Excellence Award
- Winnipesaukee River Basin WWTP – WEF George W. Burke, Jr. Award

Lastly, several NHWPCA members presented papers or moderated sessions during the conference including:

- John Adie (Nashua) – Presenter
- Paula Anania (Portsmouth) – Presenter
- Mike Baker (Portsmouth) – Presenter
- Fred McNeill (Manchester) – Presenter
- Andy Morrill (Wright-Piece) – Presenter
- Jared O’Donnell (CDM Smith) – Presenter
- Amy Prouty (Nashua) – Presenter
- Sharon Rivard (NHDES) - Presenter
- Jeanne Walker (Nashua) – Presenter
- Jim Drake (CDM Smith) – Moderator/Presenter
- Ray Vermette (Dover) – Moderator/Presenter
- Geraldine Ciardelli (Nashua) – Moderator
- Shelagh Connelly (RMI) – Moderator
- John Jackman (HTA) – Moderator
- Laurie Perkins (Wright-Pierce) – Moderator
- Ed Rushbrook (Process Analysts) – Moderator
- Tim Vadney (Wright-Pierce) – Moderator
In October 2014, NHDES hosted a 2 day Advanced Activated Sludge Process Control & Optimization class at the Pease International Tradeport. The class was instructed by Eric Wahlberg, President and primary instructor for WasteWater Technology Trainers, Fountain Valley, CA. Eric is well known in the wastewater field as an engineer, researcher and expert in process control, sludge quality and clarifier operations and has received numerous WEF awards. I wanted to share just a few of the comments I received from some of the 38 operators in attendance: “Eric’s class was one of the best wastewater training events I’ve attended. Eric’s passion, expertise, and ability to blend the operational and engineering worlds make this a practicable class with real and immediate applications”; “…a fantastic class. Eric has a good way of showing how the operators are professionals and that the information they are learning is what they would need to know to get to the next level”; “I thought the class was superb – in a perfect world I would like to send all my staff.” Operators from each New England state attended with more than half coming from New Hampshire.

It was definitely advanced subject matter; a mix of math, engineering, statistical analysis and sound process control applications brought down to an operator’s level. The topics were varied, ranging from primary and secondary clarifier operation, the conversion of BOD to biomass, measuring biomass separation and sludge quality characteristics using his modified settleometer, nutrient removal, energy optimization and a heavy emphasis on process control using Solids Retention Time (SRT).

A few of the take-aways that I came away with were:

1) The population of nitrifiers in your mixed liquor is determined by the average influent NH₃ load and is independent of the MLSS concentration (assuming an adequate SRT). In other words, you cannot increase the amount of nitrifying bacteria simply by increasing the MLSS concentration as we have been led to believe for years.

2) Sludge quality, defined as how well sludge flocculates, settles and compacts using the modified settleometer, is a function of the rate at which bugs grow and not of the actual MLSS concentration itself. The concentration or mass of bugs is dependent upon the BOD load and will fluctuate based on this load. SRT controls the rate of bug growth. The selection of an SRT should be based on producing the best sludge quality possible and not on keeping a particular MLSS concentration within a narrowly defined range. It is OK to allow the MLSS to fluctuate within a range of 1000 to approximately 3500 mg/l at a fixed SRT. If your plant is so designed, you can vary the number of aeration basins in service to keep the MLSS within this range, increase the number of basins to lower the MLSS and take some basins off line to increase the MLSS.

3) Bug growth is actually higher at colder temperatures. This is because during the summer, BOD is removed more rapidly earlier in the tank and thus available to fewer bugs, resulting in less growth. During colder temperatures, BOD is not removed as fast and becomes available to more bugs, resulting in more growth.

4) State point analysis is a useful tool to optimize secondary clarifier operation. By entering influent flow, RAS flow, MLSS concentration, SVI and clarifier surface area into an Excel spreadsheet, you can determine graphically the appropriate RAS rate, predict the RAS TSS concentration, understand why secondary clarifier blanket rises and fall and prevent clarifier failure. Eric’s spreadsheet was provided to each attendee.

I am writing this review because we would like to have Eric come back and repeat this class in the future. It is expensive, and we rely on sponsorship money to keep registration fees reasonable. But beyond that, we need operators looking to expand their knowledge and be willing to devote 2 days away from the plant. With permit limits for TN as low as 3 mg/l and TP down to 0.1 mg/l becoming the norm rather than the exception, this class takes activated sludge training to the higher levels required to optimize your plant and give you the knowhow to meet these limits.

And we are extremely grateful to our sponsors for making this class possible; Underwood Engineers, Utility Partners, David F. Sullivan & Associates, NHWPCA and NHDES.
Dealing with Pump Clogs

By Gene Weeks

We all have to deal with pump clogs more than we want to, but do you have a particular pump or pump station that is just driving you crazy and threatening to over run your maintenance budget? What can you do to at least help this problem situation? First go to the NHWPCA.org website and click on “resources”. Here you’ll find lots of great information and a link to Maine’s association that has information and resources on pump clogs. Start using this information with your customers to educate them on the problem. If you can cut down even a little on the amount of rags or wipes being flushed, it will help.

No matter what you do, you will not eliminate pump clogs. The best you can hope for is to minimize them. Then, you’ll need to have the right equipment and maintenance procedures to minimize the time spent when you do have to pull a pump.

If you track maintenance dollars by pump station or by piece of equipment, you may find that you have a pump or pump station where the maintenance dollars are high enough to justify an upgrade or at least an improvement. What are some of the equipment options out there that could help? Before buying anything, review your maintenance procedures. When was the last time the force main was cleaned or even the valves were checked. Anything past the pumps that reduces the flow will cause more clogs. A partially plugged force main or even a partially plugged check valve will cause problems. You need good flow through the pumps, preferably at least 3 ft/sec, to carry the rags through the pump. The lower the flow, the more clogs.

As an example, the City of Portland, Maine has spent millions on screens to remove the rags before they get to the pumps. Obviously this is expensive, but I bet it works. You could use a “Monster” in a similar way and that would work too, if you keep up with the maintenance.

What else can be done that will help while not costing quite as much? What type of pumps do you have in the problem pump station? Many pump manufacturers are recommending recessed impeller pumps for clogging issues. For some years many towns and engineers have gone away from recessed impeller pumps because of the emphasis on saving energy. Recessed Impeller Pumps are less efficient, in some cases much less efficient, so they use more electricity. However if they are properly sized to get a good flow through the pump they will solve a lot of clogging problems. This can become a financial issue. How much would recessed impeller pumps cost along with any control panel changes? How much more would they cost to run? How much savings would result from say 80% less trouble calls? Put these figures together and see if you get an acceptable return on investment.

Some pump manufacturers make chopper pumps or cutter pumps. These will help in some situations and will be more efficient than recessed impeller pumps. If you run the same financial numbers on the chopper or cutter pumps, I do not suggest using the 80% less trouble calls number. Check with your engineer and pump supplier to find out how chopper or cutter pumps would work in your situation. When you run the numbers, don’t forget to include maintenance on the cutting or chopping pump parts.

When your crew goes out on a trouble call for a potential pump clog, do they first reverse the pump rotation before they pull the pump? (This only works on three phase motors.) Reversing the pump rotation for 30 seconds or so and then returning to the correct rotation can unplug or partially unplug a pump, and it takes a lot less time and energy than pulling the pump. Now some control panel manufacturers are offering controls that will reverse the pump automatically. When the amperage draw on a pump reaches a preset limit, this indicates a possible clog. The controls will automatically reverse the pump for a preset time (usually around 30 seconds). Then the controls will return the pump to the proper rotation and hopefully it will properly pump down the liquid level. If the pump controls are on your SCADA system, you can get a notification whenever this reverse rotation occurs.

How about mixing your wet well? If you keep the rags and the grease mixed in the wet well then you avoid the piles of rags that the pumps cannot handle. Let the pumps pump only the rags that came in recently, and you will have less clogs. Yes, some mixers also have clogging issues. However, some manufacturers are offering mixing equipment with no moving parts in the wet well and no clogging issues.

There are a number of ways to cut down on pump clogs. Do you have that problem pump station that really needs a new approach? If so, work with your engineer to decide what approach would give the best results and the best return on your investment.
3. How will you continue to operate your WWTF and collection system if critical infrastructure (e.g. pump stations, outfalls, process equipment and tankage, pipes, and buildings) is flooded?

What can WWTFs do about climate change? WWTFs and communities can integrate climate change into asset management, effective utility management, capacity building, security and emergency preparedness. There are six basic elements of becoming Climate Ready:


2. Adaptation Strategies – evaluate your system and find your weak points. Develop plans to strengthen your weaknesses. Adaptation is an iterative process, be flexible.

3. Mitigation Strategies – reduce your energy consumption to reduce your carbon footprint and your contribution to climate change. Start with conservation and energy efficiency, and then add alternative green power generation. Mitigation can save money while you are also positively impacting climate change!

4. Federal and State Policies and Programs – be aware of regulations and policies that must be met and maintained as the climate changes. Communicate regularly with regulators relative to issues or concerns relative to climate change impacts at your WWTF or collection system. Ask for assistance.

5. Community Interest and Support – educate your community and your users. Develop an outreach strategy with tools appropriate to the audience. You need your community’s support.

6. Partnerships Outside of the Utility – critical to the long-term success of your Climate Readiness. Forge partnerships with key stakeholders such as: watershed and environmental organizations, land use planners, regional planning commissions, other utilities and water associations.

For additional information on Climate Ready Water Utilities, refer to [http://water.epa.gov/infrastructure/watersecurity/climate/index.cfm](http://water.epa.gov/infrastructure/watersecurity/climate/index.cfm) and for adaptation strategies go to: [http://water.epa.gov/infrastructure/watersecurity/climate/upload/epa817k13001.pdf](http://water.epa.gov/infrastructure/watersecurity/climate/upload/epa817k13001.pdf)

You may also contact Sharon Rivard, P.E. NHDES WWEB at (603) 271-2508 or sharon.rivard@des.nh.gov with questions regarding climate change adaptation for WWTFs.