What was Happening 50 Years Ago
by Stephanie Rochefort

2017 marks the 50th anniversary of The New Hampshire Water Pollution Control Association but there were other important happenings in the United States and the world fifty years ago that we should remember as we celebrate:

In 1967 the continued presence of American troops increased further and a total of 475,000 were serving in Vietnam and the peace rallies were multiplying as the number of protesters against the war increased. The Boxer Muhammad Ali was stripped of his boxing world championship for refusing to be inducted into the US Army. In the Middle East Israel also went to war with Syria, Egypt and Jordan in the six day war and when it was over Israel controlled and occupied a lot more territory than before the war. Once again in the summer cities throughout America exploded in rioting and looting the worst being in Detroit on July 23rd where 7000 National Guard were bought in to restore law and order on the streets. In England a new type of model became a fashion sensation by the name of Twiggy and mini-skirts continued to get shorter and even more popular with a short lived fashion being paper clothing. Also during this year new Discotheques and singles bars appeared across cities around the world and the Beatles continued to reign supreme with the release of Sgt. Peppers Lonely Heart Club Band album, and this year was also coined the summer of love when young teenagers got friendly, smoked pot and grooved to the music of The Grateful Dead, Jefferson Airplane and The Byrds. The movie industry moved with the times and produced movies that would appeal to this younger audience including The Graduate, Bonnie and Clyde and Cool Hand Luke. TV shows included The Fugitive and The Monkees and color television sets become popular as the price came down and more programs were made in color.

How Much things cost in 1967

- Yearly Inflation Rate USA 2.78%
- Year End Close Dow Jones Industrial Average 905
- Average Cost of new house $14,250.00
- Average Income per year $7,300.00
- Average Monthly Rent $125.00
- Gas per Gallon 33 cents
- Average Cost of a new car $2,750.00
- Movie Ticket $1.25
- Polaroid Camera $50.00
- Parker Pen Set $11.95
- The Federal Minimum Wage is increased to $1.40 an hour
Last month I had the honor of attending my daughter’s EAS (End of Active Service) ceremony at the Parris Island Marine Corps Recruit Depot where she’s been stationed. She had told me that parents usually go to the ceremony and stay to help their child move. Note her use of the word “child”! This young woman left for boot camp only five weeks after her eighteenth birthday. She completed 13 weeks of boot camp and after 10 days at home for boot-leave (9 ½ of which she spent doing laundry and repacking sea bags!) she completed a month of combat training and then six months of one of the Corps’ most competitive schools. Sounds pretty adult to me.

Luckily her new apartment is on the first floor. The barracks that she was moving out of WASN’T and apparently Marines don’t use elevators. We moved stuff and organized stuff and put together a futon for me to sleep on and made several trips to Goodwill and Walmart. I was able to help with such wisdom as the best light-bulbs to buy and which product will really get rid of the smell after the cat peed in her room. (the cat is a whole other story…) She signed lease documents and obtained renter’s insurance. Still sounds pretty adult to me.

On one of the trips to Walmart she said that she had better buy a toilet plunger before she needed one. Holding that purchase in her hand she said “I own a toilet plunger now, guess that makes me an adult”. When twin brother heard the story he said “she has a really weird matrix for what constitutes an adult”. But would you expect any different from the child of a wastewater treatment plant operator?

Stephanie, Somersworth WWTF

Upcoming Events

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<td>June 23, 2017</td>
<td>NHWPCA 50th Anniversary Celebration at the Hampton South Beach Pavilion in Hampton, NH.</td>
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<td>August 3, 2017</td>
<td>NHWPCA Annual Golf Tournament at the Beaver Meadow Golf Course in Concord, NH.</td>
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<td>September 15, 2017</td>
<td>NHWPCA Fall Meeting at the Manchester WWTF in Manchester, NH.</td>
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<td>December 8, 2017</td>
<td>NHWPCA Winter Meeting at the Newmarket WWTF in Newmarket, NH.</td>
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Special Thanks to this Issue’s Contributors

Kevin MacLean, Michael Theriault, Rob Lauricella, Stephanie Rochefort John Adie, Steve Clifton, Bill Dawson and Charlie Tyler.

NEWSLETTER COMMITTEE

Stephanie Rochefort, Todd Gianotti, Mary Jane Meier, Steve Clifton, Gene Weeks, Kurt Robichaud. 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

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The Official Newsletter of the NHWPCA
**Presidents Corner**

**Poaching**

Encarta dictionary definition:

1. Catch game illegally  
   ~ “to catch wild animals or fish illegally on public land or while trespassing on private land”.

POTW definition:

1. Hire experienced operators  
   ~ “to entice and/or lure operators away from current place of employment to your facility”

Face it; we all have had to deal with this at one point or another, either directly or indirectly. Dependent on your place in the POTW hierarchy, and whether you are the poacher or poachee, it may have caused you great heartburn or has been a godsend to acquire the qualified help you so desperately needed. Either way it is sadly a “matter of fact” thing in our business. Rural New England, I feel, exacerbates the problem since there are so few of us.

It doesn’t matter if you are a 0.2 MGD lagoon or a 22 MGD activated sludge advanced treatment system, losing dependable, well trained help SUCKS!

It was recent discussions with various plant personnel that prompted this article. The common thread being that we all want the same thing – quality staff and there just isn’t enough to go around it seems. Now mind you, in the sense that all plants are not created equally and thus they are not staffed equally. This again, is brought to the surface more readily at the smaller communities that have 1 or 2 operators that cover, water, wastewater, collection, distribution and maybe even roadways. The kicker, they are paid pennies on the dollar as compared to more urban locales and yet the dedication and the call to service requirement is the same.

This is just scratching the surface on this blight within our profession and it is not going to get better anytime soon. Retirements loom, qualified employees are scarce, the pay is better some places but not equal and yet the need is the same. There is much afoot on recruitment, training and outreach by many agencies and avenues, high schools, colleges, veterans associations, but truthfully, we are the silent industry except when things go wrong. We do not get paid like other utilities and municipal services and I get it …to a point.

It takes a unique individual to carry out what we do every day and not everyone is cut out for it. I feel the problem is rooted in the general public’s aversion to all things poop and if we get smaller communities to pony up and pay for it, then “they will come”.

More to come? Let me know your thoughts.

Thanks to all of you in “the biz” – you do a great job and your association thanks you!

Respectfully,

Kevin MacLean - NHWPCA President, 2017

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**50th Anniversary Celebration**

**By Michael Theriault, Wright-Pierce**

Come join the NHWPCA in celebrating the 50th Anniversary on Friday June 23, 2017 at the South Beach Pavilion at Hampton Beach State Park. The event will feature a full day of activities including slideshows and entertainment in a social atmosphere for Association members and individuals in the industry.

The celebration will be highlighted by several keynote speakers reminiscing about contributions operators, engineers, regulators and others have made to the Association and the industry in the past 50 years. Speakers will detail how regulations and the need to preserve water quality have changed, and goals and concepts critical for the future of the industry. Speakers may include:

Tom Burack  
Jim Barsanti  
Al Firmin  
Ed Rushbrook  
Frank Underwood

Hotel rooms have been blocked out for the 50th Anniversary event at the Ashworth by the Sea on Hampton Beach. Rooms are available for approximately $260-$280 (plus tax) for king and double queen ocean view rooms. Parking is available for $18 per car, per night. Other amenities at the hotel include a restaurant and bar, and the hotels is centrally located in walking distant to surrounding attractions. For reservations and general information call the front desk of the Ashworth by the Sea at 603-962-6762 and ask for the block of room for the NHWPCA. It is encouraged that reservations be made early.
Bruce Kudrick- 1985

Bruce Kudrick began his career in the wastewater industry in 1973 after graduating from the Southern Maine Vocational Technical Institute in South Portland, M.E. (SMVTI) where he earned his certification. He was working part-time for Ralph Page in the Central Hooksett Water Works and full-time for the Town of Bedford. It was Mr. Page that offered Bruce a full-time position at the Wastewater Department where he was given a three month trial period and if Mr. Page didn’t like him, he’d be gone. Apparently Mr. Page liked Bruce, keeping him on in Hooksett and putting him through school. He began his career as an Operator and when Mr. Page retired in 1980, Bruce earned the title of Superintendent. Bruce’s greatest achievement was developing the first program for land application of sludge in the state. For that effort the Hooksett facility was recognized with an award by the EPA. Over the course of his 43 year career he has seen many upgrades, always working with Engineers and Contractors to ensure those upgrades were Operator friendly. It was an upgrade that put the Hooksett plant in the spotlight on the world stage. During a major snow storm the new treatment media disks overflowed from the basin and migrated into the Merrimack River. Bruce now knows it takes five days for those disks to travel from Hooksett to the ocean with some even making it to England! Bruce was able to weather the resulting storm of publicity and fix the issues that caused the overflow of media. His chief contribution as an Association member was his work on the Education Committee where he was instrumental in getting NH Chronicle to do a week long show about Clean Water as part of the 40th Anniversary celebration for the NHWPCA. He believes it did a lot of good for public outreach and demonstrated the importance of what we do in this industry. His fondest memory was working with Bob Livingston, who at the time was the Association’s secretary, where he learned a lot about wastewater and the Association. Bruce feels the greatest industry challenge is creating an interest in the public that will lead to an influx of qualified, dedicated employees.

Ed Rushbrook - 2008

Ed Rushbrook began his career in structural engineering as a Field Surveyor and was also teaching Civil Engineering at a two year community college. But it was in 1968 while watching Walter Cronkite that he learned about the water quality issues plaguing our nation. His wife and sister both said to him “you’re an Engineer, can’t Engineers do something about this?” That was the question that motivated Ed to leave full-time employment and enter a graduate degree program at the University of Maine in Orono where he earned his master’s degree. He chose wastewater engineering so that he could play a role in solving those water quality issues. He has never regretted that decision. He has fully enjoyed his career in the wastewater field and the feeling that he’s helped improve water quality in New England. Although retired from full-time employment, he still has his own business providing Value Engineering services. During his career he has served this industry in various capacities such as teaching, design review, wastewater facility design and providing startup and operator training at five engineering consulting firms. Ed has developed and presented formal operator training programs for DEP in Massachusetts. He has presented operator training at Franklin Training Center and facilitated many Value Engineering workshops at many wastewater facilities. Currently, Ed has his own business working part-time as a Process Analyst. Ed feels his greatest professional achievement was his 10 years of service to the Hanover, N.H. WWTF where he was presented with a framed aerial photo of the plant. Ed has been awarded both the Clair Sawyer and Al Peloquin awards for his contributions to NEWEA and the wastewater field. Ed’s greatest contribution, as President of the Association in 2008, was bringing his organizational skills and a sense of responsibility to the board. His fondest memory was being coach of the Seacoast Sewer Snakes, NH’s Operations Challenge Team. Ed was there to see the team take first place in Division II of the national competition in New Orleans in 2004. He truly admired and was impressed by his team’s dedication. Ed feels the most challenging issue facing this industry is getting good people into the field in plant operations and making treatment facilities more efficient in the use of energy, chemicals and solids handling.

David Lovely - 2012

David Lovely began his career in the wastewater industry back in 1992 working in Newington for the Total Waste Management oil recycle and transfer facility as a yard foreman. He earned his Grade I wastewater certification in 1996 and launched his municipal wastewater career at the town of Newmarket. Since that time he has worked at the Exeter, Pittsfield, Rochester, Portsmouth and Durham wastewater treatment facilities in New Hampshire. David’s background in this industry has been well rounded by working in the laboratory and in operations as well as in maintenance. His repertoire of work experience includes lagoon and activated sludge processing systems. Over the course of 7 years, he earned his NH Grade 4 certification. During that time, he was a steady attendee at the Franklin Training Center, earning CEUs by the score. While working for the city of Rochester, Dave gained vital experience in management and acted as Supervisor for Maintenance at the WWTF. Dave currently works for the Town of...
Kristin Noel entered the wastewater field in 2005 after graduating with her MS in environmental microbiology from the University of New Hampshire. She applied for a field technician position at the City of Concord’s Hall Street WWTF and has been there ever since. Kristin immediately worked to have the job upgraded to a laboratory / industrial pretreatment position, which was changed the following year. She began taking as many classes as she could about the wastewater industry and earned her Grade IV operator’s certification and Grade II laboratory analyst certificate. Kristin was a graduate of the first year’s class of Wastewater Management Candidate School facilitated by NHDES. She has trained in all aspects of wastewater, working in operations, maintenance and industrial pretreatment. After her first year in the industry she joined the Communications Committee and was approached soon after by Ray Vermette and asked to join the board of directors. Kristin brought a new perspective to the board and continues to work tirelessly toward advancing public outreach and education relative to environmental protection. She believes serving on the board increased her knowledge of the industry and the wonderful people that work in it. Her ability to focus and pour her heart into her work is her trademark. As president her greatest achievements were working with the board to educate students, teachers and legislators about what we do and how important our work is to the future of the environment and raising public awareness. Kristin participated in the Washington, D.C. Fly-in to educate our elected officials about the importance of funding wastewater infrastructure initiatives. Her fondest memories are of participating in the NH Wild Days, organizing the fishing pole raffle and connecting with booth visitors. She also enjoyed going to the State House with the poster contest winners and attending the proclamation signing with the Governor for Clean Water Week. Kristin has only been in the industry for 11 years so there are more wonderful memories to come, through her continuing involvement in the NHWPCA.

The Lighter Side of Wastewater Treatment

Below is a collection of short stories provided by Rob Lauricella. (Utility partners/Claremont WWTF) I know that we ALL have some good stories so please let me hear them! You can call me at 692-2418 or email srochefort@somersworth.com or just talk to me when you see me at the summer meeting – Stephanie 

Different Project:
The bar rack debris falls into a dumpster and this creates a mound in one spot and the guys have to rake it to even it out. One lucky day an operator came across a ten dollar bill in the pile and he set it out in the sun to dry. The next day he stopped by a convenience store to pick up a six pack and handed the ten dollars to the good looking woman behind the counter. She put the ten dollar bill in her mouth while she got change for the six pack. He couldn't say anything and just took the change with a shock that she put it in her mouth! Our Project:

We had a seasoned operator working for us - Ralph. Seasoned in the fact that he was very old with a grey beard and hair, hearing aids, false teeth, and a heavy smoker and cougher. In the spring he was taking a blanket with the sludge judge on the secondary clarifier and he started into a heavy coughing fit and his false teeth shot out into the tank. He asked if there was anything we could do because he just got this new set of teeth. Unfortunately it was during the heavy spring flows and we had to keep the clarifier in operation. Approximately thirty days later one of our piston pumps wasn't sounding right. We released the pressure, drained the pump, and proceeded to take off the pump chamber covers. We were surprised to see the false teeth looking like it was biting on the check ball! They were in pretty good shape and we gave them back to Ralph. Ralph brought them home and soaked them in bleach and they were back in his mouth the next day! We called that 30 day denture detention time!
SAFETY CORNER
“CAN YOU HEAR ME NOW?”
Article by NEWEA Safety Committee (republished by NHWPCA Safety Committee)

Do you regularly raise your voice at work to be heard above the surrounding noise? Have you ever felt that your hearing was “muffled” when leaving a work site or had ringing in your ears after a rock concert? Then you have probably damaged your hearing. Exposure to high noise levels harms your hearing...permanently.

The American College of Occupational and Environmental Medicine lists noise-induced hearing loss as one of the most prevalent occupational injuries and noise as one of the most pervasive occupational hazards. Defined as “unwanted sound”, noise can cause sudden traumatic hearing loss, long-term slow-occurring sensory-neural hearing loss, increased stress levels, and effects on the cardio-vascular and nervous systems. And, these last two effects can occur at levels below that which cause damage to hearing and in situations where the conditions are more or less constant and daily. Excessive noise also disrupts communication and can lead to serious accidents due to the inability to hear warning devices and alarms.

So how much noise is too much? The Occupational Safety & Health Administration (OSHA) regulates noise exposure based on loudness and time of exposure and has published specific limits. If you don’t have access to a copy of the regulation or a sound monitor, you can still protect yourself from the hazards of noise. All you need is a little education, some common sense, and appropriate hearing protection. Use these average sound levels in the table below to judge and limit your noise exposure.

The NHWPCA Safety Committee is pleased to have brought you this article in the absence of any Near Miss incidents on which to report; however, we want to hear about your Near Misses. Please send Near Misses, or requests for other safety topics you want to see, to Patty Chesebrough (chesebroughp@wseinc.com or 617-549-7735). All reports are confidential.

Please be safe everyone!

<table>
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<tr>
<th>Exposure</th>
<th>Decibel Level (dBA)</th>
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<tr>
<td>Quiet room</td>
<td>20-30</td>
</tr>
<tr>
<td>Normal conversation</td>
<td>60-70</td>
</tr>
<tr>
<td>Average office</td>
<td>70-80</td>
</tr>
<tr>
<td>Manual machinery</td>
<td>80-90</td>
</tr>
<tr>
<td><strong>OSHA 8-hour permissible noise exposure limit</strong></td>
<td>90</td>
</tr>
<tr>
<td>Most shop tools; lawn mower; rush-hour traffic</td>
<td>90-100</td>
</tr>
<tr>
<td><strong>OSHA 2-hour permissible noise exposure limit</strong></td>
<td>100</td>
</tr>
<tr>
<td>Chain saw, bull dozer, or jack hammer; rock concert</td>
<td>100-120</td>
</tr>
<tr>
<td><strong>OSHA 15-minute permissible noise exposure limit</strong></td>
<td>115</td>
</tr>
<tr>
<td>Gun shot; jet plane take-off; rocket launch</td>
<td>140+</td>
</tr>
<tr>
<td>Loudest tone possible</td>
<td>194</td>
</tr>
</tbody>
</table>
I spend a lot of time weighing filter papers and measuring liquids. I get really sick of weighing filter papers so I’m not going to write about that today. I will write about measuring liquids. I’ve been measuring liquids long enough here to be a bit of an expert—you think?

The picture above shows liquid at a 30 ml mark. The line is curved. You may have learned that this curved line is called a meniscus but you might not have learned about why the water forms a meniscus instead of a nice straight line that would be easier to measure. When water is placed in a container, there is a chemical attraction between the water and its container. Water tends to adhere to the sides of the container and “climb” the sides. The stronger the attraction, the higher the water will climb. Glass has a stronger adhesive attraction than plastic. This climbing liquid gives a curved and distorted surface called a meniscus.

The water level is measured at the bottom of the meniscus. When measuring liquids, it is important to read the water level at a 90 degree angle to avoid parallax error. Parallax error occurs when the analyst looks at the meniscus incorrectly. Laboratory glassware is designed and calibrated with the intention that the level will be read at this 90 degree angle. That’s why the above picture shows 30 ml of liquid and not a little more—that little bit that climbs up the side is taken into account.

If you have a steady hand you can lift a graduated cylinder up to eye-level in order to read the level correctly. Or you can do what I learned as a “lab lunge”. I have a degree in chemistry and that’s one of the things we learned. There’s lots of different kinds of lunges and the lab lunge is really a reverse lunge. A squat would work, too. “Lab squat” just doesn’t have the alliteration of “lab lunge” so I guess that’s why I learned to use the lunge.

You’ll notice that most graduated cylinders are labeled with the initials TD along with 20 degrees C. TD stands for “To Deliver”. This means that once you measure your 30 ml you can be assured that 30 ml will empty out of the cylinder. You don’t need to shake out any water that may be clinging to the side—that’s accounted for. However, you do need to give it time to properly empty. If you quickly turn the cylinder back right-side-up you’ll find a few ml left in it and you’ll lose precision in your analytical results. You don’t need to hold it upside-down for a long time. Two Mississippis will be plenty!

Measuring at 20 degrees C should not be a problem. I use graduated cylinders to measure samples for BOD and TSS and both of those tests have a first step of warming samples to 20 degrees C.

I use wide-bore graduated pipets in my lab for influent samples. Those DON’T say TD on them. If I’m measuring 20 ml with a 25 ml graduated pipette I will obtain a precise volume if I bring the filled pipet to eye level (no lunges needed) after filling slightly above the top (zero) line. I then drain a bit into a waste beaker until my meniscus is set on the zero line and use that meniscus to drain to the 20 ml line. Easy-peasy. If I do want to measure all 25 ml with the 25 ml graduated pipet I start the same way but since it’s not a TD pipette I need to blow-out the last drop. DO NOT PUT YOUR MOUTH ON THE PIPET THAT IS NOT WHAT I MEANT BY BLOW-OUT!!! To blow-out the last drop simply give the rubber pipet bulb an extra squeeze to make sure that all the liquid is out.
SOPs – Seat Of your Pants or Send Out for Pizza?
By John Adie, Environmentalist IV, NHDES

“A standard operating procedure, or SOP, is a set of step-by-step instructions compiled by an organization to help workers carry out routine operations. SOPs aim to achieve efficiency, quality output and uniformity of performance, while reducing miscommunications and failure to comply with facility regulations.” The above quote comes from Wikipedia, and does a fair job of scratching the surface on the need to know about SOPs. SOPs are free and there are lots of templates that can be found on the internet to be used to develop one. SOPs in the military are also referred to as Standing Operating Procedures. This allows for the SOP to be tailored to a unit level other than an organizational level. Below is a helpful example to follow for the development of your own SOPs.

SOPs are definitely needed in the wastewater field. They are needed in particular for the smooth and timely operations of your facility. Not every facility has SOPs but they should. The culmination of knowledge from operator to operator and being able to see it in a document form is very beneficial to all. The average age of an operator in the State of New Hampshire is over 45 year old, and some facilities are realizing the loss of senior operators. There will be a loss of that operator’s knowledge, if not captured in a SOP. This is a good way to promote best practices for new operators and the facility so that they continue to perform well. SOPs are living documents that publish the DOs and DON’Ts of your facility. They are documents that can be used to train new people, can be used as reference materials, and a way to keep people in the know about who, what and why things happen. With good SOPs you can save time and avoid mistakes, reduce training costs, ensure consistency throughout the work force, empower the employ-
Wastewater facilities constructed several years ago under the Clean Water Act (CWA) traditionally were sized based on a “201” wastewater facility plan. The “201” referred to that section of the CWA for facilities planning. While the EPA grants are a thing of the past, good planning for your WWTF needs usually starts by a review of your historical flow and load data.

And boy, what data you have. Figure 1 presents just one typical data set of the influent flow to a treatment plant on the Route 101 corridor.

**Figure 1 – Small WWTF on the Route 101 Corridor**

While you may not sit idly by and contemplate your belly button and influent flow, engineers must take a serious look at the flow and load to your facility in order to build something that has some years left to it after it is constructed. That is a good question to everyone. What is the design life you want out of your new upgrade? Traditionally it has been a 20 year planning period, but if it takes 5 years to plan, design and construct your facility, you are only left with 15 years if the planning estimates are correct.

How can you make the planning estimates more accurate? It all starts with the historical data from your facility.

Figure 1 tells a very interesting story. First the flow is over a 17 year period. Why? Well it is only because that is what I had for data. Why the high peak flow in 2010? Why is there missing data? This graph shows the minimum daily flow is 0.1 MGD, the maximum daily flow is 0.45 MGD and it looks like the average daily flow is around 0.175 MGD.

How much data is enough? Three years. Now when I say three years, all the engineers will say yes. The minimum review of data should be three years. What is the real answer – Depenze! (a little wastewater humor there).

No, it depends on your particular history. Did anything change over the last several years? New pumping stations added to the flow; a new industry come on-line or did you lose a significant industry; any manhole repairs and I/I improvements? What about the potable water source? What is your NPDES flow and do you want to decrease, maintain or increase the flow used in the NPDES permit for your discharge? Lots of things to think about for sure.

The last three years is the best data set. Keep in mind your history is the one you know the best and is very important – no, it is fundamental to getting the most accurate historical data review.

So on to the tips and tricks for reviewing your historical flow and load data.

First, let’s establish a few criteria:

- **Annual Average Flow** – this is the 24 hour (daily) flow to your facility for one full year. 365 or 366 days a year. This is also what the NPDES permit generally uses to establish your concentration limits AND what you can allocate to your users, as long as you take into account infiltration and inflow.

- **Maximum Month Flow** – This is the highest average daily flow from the average of each month of the year. For example, your DMR average daily flow for each month is listed for one entire year and you pick the highest average daily flow out of the twelve months to find your maximum monthly flow.

- **Maximum Weekly Flow** – This is the highest average daily flow from the average of each week of the year. So out of all 52 weeks in one year, what week had the highest average day flow? Usually it’s a Spring runoff or rainfall event that gives you the highest weekly, daily and hourly flow.

- **Maximum Daily Flow** – This is the highest 24-hour flow out of all 365 days of the year. Yup, it’s a big one. Out of curiosity, are your 24 hour flows midnight to midnight or some other time period of the day? SCADA has added to our need to ask more questions. When do you sample?

- **Peak Hour Flow** – This is the highest one hour average flow rate to your facility out of the 8,760 hours you have in one year. This is usually the place on your DMR where you write in the highest flow each day. Now, I have to tell you that engineers want the one hour average flow and I’m pretty sure you write down the highest spike on your chart. I would be interested in what you are doing.

So, based on the criteria above, we can make sense out of what Figure 1 is showing us by summarizing the annual average, maximum month, maximum week, maximum day and peak hour flow. So one year will look like the figure below. Here we have highlighted the Max Day, Peak hour and max month time periods.
So now on to the Microsoft Excel Tips and Tricks section of this article. How can you easily review your data to find out the five criteria used above? Use a pivot table!

**First**

Take your data set and format it so that there is only one header row describing all your data and make sure the first column on the left has the date.

**Second**

Next insert to the right of column A the following columns – Year, Month, Week, Day. Use the formulas below to put the correct results in each column. For example, to put the day of the week column in, the formula is =TEXT(A4, “ddd”). This looks up the date in cell A4 and then presents it as the day of the week in a three letter format. Add another d in the parenthesis and see what you get! Here is what your spreadsheet should look like

**Final Results**

So this is a quick summary of what you can do with your data. If you want more of this type of information in your newsletter, email me or anyone on the staff to let us know and thanks for reading this.
To The Daily Sun,

As promised in a recent letter, I am addressing how New Hampshire has benefited from EPA actions.

Although it was passed into law before the EPA was proposed, the Clean Water Act of 1965 had a great effect in New Hampshire. When I arrived in New Hampshire in 1969 I was surprised by how compromised the rivers were. A year or so later, the EPA took steps to effect some changes. The Winnipesaukee River Basin Study revealed how much and what kinds of pollutants were being discharged into the river.

Topping the list was sewage, lots of it! There were other problems such as asbestos, leather effluents and battery plants acids and lead. Those items were deposited due to runoff and improper storage of wastes.

The solution to the sewage problem was a cooperative effort; money and technical expertise from the federal level and communities working together to produce a brand new system. The New Hampshire Department of Environmental Services helped map out a collection and delivery system for the sewage. While that was being done, the last component was being constructed in Franklin. They designed a state-of-the-art plant to process the effluents. The plant came on line in the late 1970s and was designed so that it could be expanded and upgraded as needed in the future. It has been on line for about 40 years and is working fine to this day.

For those of you who have never visited it, I can certify that it is one of the best plants in the state. The delivery system is showing signs of deterioration after several decades of service, but remains functional but in need of service.

Many of the other pollutants and contaminants, both water and airborne, came under EPA's scrutiny shortly after it became an agency in 1970. Airborne carbon particulates originating in the coal-fired plants in the Midwest and carried by winds to the east were tracked by the EPA. As a response to that research, the EPA put together emission standards for carbon particulates and acid rain. Those plants affected didn't like it much, but the mess got cleaned up and our air recovered nicely. It took a little longer for our evergreen trees to recover from the acid rain.

Asbestos was target of the EPA as well. Johns Manville, a producer of insulation materials, was cited for manufacturing several products containing dangerous levels of asbestos fibers. Evidence proved that short-fiber asbestos caused a cancer hazard in many of their insulation products. As a result, Johns Manville which had a plant in Tilton, closed its doors and declared bankruptcy. We are still dealing with the mitigation of that problem.

The EPA spearheaded the efforts to make sure our drinking water was safe. Many communities depending on open reservoirs had to shift to wells or develop a process of chlorination that met EPA bacteria protocols. In addition, the water pH had to be adjusted to prevent too much lead being leached from certain piping found in older construction.

New Hampshire had EPA help with mitigation of at least three Superfund sites. Grace Chemical was cited and cleanup effected in both Massachusetts and New Hampshire. Closer to home, the Surrett Battery site in Northfield and the Turchin Salvage site in Tilton were reclaimed with Superfund financing.

I have actually just scratched the surface of how our state has benefited from having the EPA partnering with our Departmental of Environmental Services. I suggest, if you are interested, that you go online and do some research. Contact the University of New Hampshire to get additional information about our environment. Find out how we in New Hampshire are cooperating with other states in the region to clean up our atmosphere. Find out what the (REGGI) is all about. Get to know the EPA in Region 1.

It's not just about regulation, it is about a common-sense approaches to problems.

Bill Dawson
Northfield
1. What color foam and scum is typically the result of old sludge?
   A. White
   B. Dark brown or black
   C. Light brown
   D. Green

2. Which condition may cause biologically-bound phosphorus to be released in the secondary clarifier?
   A. High RAS rate
   B. Low SRT
   C. Low RAS rate
   D. High F/M ratio

3. What may be the most probable cause for slow settling MLSS?
   A. High RAS rate
   B. Filamentous bacterial growth
   C. Balanced F/M ratio
   D. Low sludge blanket

4. What may be the best adjustment to make if pin floc in the clarifier is increasing TSS in the effluent to unacceptable levels?
   A. Increase the SRT
   B. Decrease the F/M ratio
   C. Decrease the SRT
   D. Decrease the WAS rate

5. What may be the most common cause of filamentous bulking in a secondary clarifier?
   A. Aeration D.O. too low
   B. SRT too low
   C. RAS rate too high
   D. Aeration D.O. too high

6. Which condition is typically not the cause of high effluent ammonia?
   A. Low influent alkalinity
   B. High influent ammonia
   C. Low Aeration rate
   D. High Aeration D.O.

7. What may cause CBOD5 in the effluent to be unacceptable high?
   A. Aeration rate too high
   B. SRT too high
   C. F/M ratio too low
   D. Aeration rate too low

8. What may be the cause of septic odors?
   A. Aeration D.O. too high
   B. Low H2S values in the influent
   C. WAS rate too high
   D. Aeration D.O. too low

9. What is the typical adjustment that is necessary when the influent CBOD5 increases?
   A. Decreased WAS rate
   B. Decreased RAS rate
   C. Increased WAS rate
   D. Reduced sludge yield

10. What typically happens to the process SRT when the WAS rate is increased?
    A. SRT decreases
    B. F/M ratio decreases
    C. SRT increases
    D. SRT remains the same
The Scholarship Committee comprised of Mike Carle, Chair (Town of Hampton), Jeremy Bouvier (City of Manchester) and Krista Larsen (CDM Smith) have been working hard the last few years to target our audience for the annual scholarship. Part of this effort involved opening up the scholarship to college students in addition to high school students. The criteria for evaluating the applicants is based on the intended or current course of study at a secondary institution and how closely this relates to our industry, an essay where the student must state career goals, and individual achievements including grade point average and extra-curricular activities. Each applicant must also submit a letter of recommendation.

This year the committee is proud to announce two winners of the annual scholarship. The high school student award goes to Lily Gilbert. Lily is a senior at Pembroke Academy and intends to major in Environmental Science at the University of New Hampshire. Lily’s essay was the item that put her above the rest and led us to select her. Last year Lily took an ecology class as part of the St. Paul’s Advanced Summer Program.

Lily’s essay focused on her experience in this class with water testing and particularly alkalinity testing. Her excitement about water, science and the natural world clearly came through in her essay and the positive remarks in her teacher’s recommendation letter.

Our college award this year goes to Nolan Grieg. Nolan is currently a freshman at Worcester Polytechnic Institute and studying Robotics Engineering. Nolan had the unique experience of working as a summer employee at the Durham Wastewater Treatment Plant. Max Driscoll, Chief Plant Operator, gave Nolan an exceptional recommendation and described Nolan as one of the most capable and interesting individuals he has met. Nolan’s essay described ways that he sees the science of robotics being applied to wastewater treatment. Nolan is also the son of Sean Grieg. Sean is past president of the NHWPCA and is currently serving as NEWEA director. Sean is the Water and Wastewater Superintendent at the Newmarket Wastewater Treatment Facility.

The committee congratulates both Lily and Max!

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**Another Successful Wild NH Day**
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