Vermont Wastewater Facilities Doing Their Part

Shaun Fielder, Executive Director

In our last issue of News Leaks, an article by Dave Braun described the process of identifying illicit discharges for a select set of facilities in northern Vermont with the assistance of our own Wayne Graham (VRWA). The efforts all parties took on this project highlight the positive steps wastewater facilities continue to take to be sure their collections systems and facilities are functioning properly. This ensures permit discharge standards are met and therefore the environment protected.

The direct discharge facilities role on environmental protection is of course critical. Focusing on the Lake Champlain Basin, data from VT DEC Clean and Clear indicates phosphorus loading attributed from direct discharge facilities has been reduced significantly over the past 20 years. This has been the result of operational efforts of all wastewater personnel and capital investments totaling $39 million at 30 facilities across the state.

As the graphic to the right illustrates, wastewater phosphorus loading is well below the total maximum daily load (TMDL) allocation limit.

As noted on VT DEC Clean and Clear Website,

“Vermont’s long-term program to reduce wastewater discharges of phosphorus to Lake Champlain represents a major success story. As a result of these investments, phosphorus loading to Lake Champlain from Vermont treatment plants has declined by 83% since 1991. During the 1970s, wastewater discharges made up nearly half of the total phosphorus load to Lake Champlain. Recent river monitoring data indicate that wastewater discharges are now less than 10% of the total load to the lake.”

Take note of that last sentence; given direct discharges account for less than 10% of total load to the lake. This statistic emphasizes any future capital investments to improve lake quality should be prioritized to address the other 90% of loading. In simple terms, our state will get a much better bang for the buck by focusing efforts on reducing non-point source pollution contributors.

(Continued on page 7)
Since 1982, Vermont Rural Water Association has supported water and wastewater systems across the state. We provide many services, including training, source water protection planning, and onsite assistance.

Dear Shaun,

I am writing to express our appreciation for all of the assistance provided to us by Wayne Graham of your staff during the Marshfield WWTF lagoon sludge cleanout. As you know, these lagoon drawdown and cleanout projects are difficult, dirty, and never go exactly as planned. Wayne’s knowledge and assistance were very helpful in accomplishing the tasks.

Specifically, there were parts of three days during which Wayne provided assistance to us. During the lagoon drawdown it was necessary to plug one of the telescoping valves as the level of the lagoon in service was anticipated to rise above the TV maximum height and no shut off valve was provided. Wayne helped come up with a plan using an inflatable plug turned down to fit the bore of the slip pipe, and assisted in its installation. About mid-way through the pumping of the sludge Wayne came for a day when we were short-handed and took part as a member of the three-man team in the lagoon vacuuming out the sludge. We gave him the crappy pair of waders and he took a shot of sludge or two to the face, but never complained. And on the final day of sludge removal, when we were racing against darkness, liner problems, and impending rain, Wayne hurried back from a job in Chester to again go down into the sludge and help us get the last bit out by headlights at 8PM. It is always a pleasure to work with Wayne. Thanks!

Sincerely,

James Brimblecombe, Chief Operator

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Conference Registration
We are looking forward to our annual conference on May 4th and 5th at the Lake Morey Resort in Fairlee. Please find the registration form included in this issue and additional information on our website. We hope you are able to join us for this industry-leading event. We have a great golf tournament scheduled, an excellent set of trainings lined up, and our industry partners have already reserved a significant amount of our available booth space. This year, we are also pleased to announce that Rusty DeWees—the Logger—will be providing the entertainment during the luncheon on the 5th. We hope to see you all there. **VRWA members should watch for Director Ballot and Announcement of Annual Business Meeting to come via mail directly to you.**

Rural Water Rally 2011
It was another busy visit to Capitol Hill this year. VRWA Directors Ed Savage, Dick Desautels, Rod Lamothe, and Harry Hinrichsen (as well as former Director Gilles Blais) met with legislative contacts in Congress is debating the continuing resolution to ensure a budget for the period of March 5, 2010 and beyond. To get into some Capitol Hill detail, the proposed continuing resolution does not specifically detail how or if EPA at the national level will continue to support technical assistance, training and source protection planning that is offered through VRWA and all other affiliates across the country. This issue is unresolved now and we are hopeful that the value and return on investment of these program services will be recognized to prevent a lag in service as we experienced in 2007.

2011 Drinking Water Week
Vermont Drinking Water Week (DWW) is May 1 - May 7, 2011. This year’s theme is "Water, the Drop of Life." Join us for the drinking water fair May 6th at the Vermont Institute of Natural Science in Quechee Gorge.

What Can You Do For Drinking Water Week?
- Offer a tour of your facilities to your town or school
- Promote Drinking Water Week activities to your local school
- Volunteer to help at the Water Fair on Friday May 6, 2011 at VINS
- Sponsor the event!

Please visit us online for more information: [http://vtruralwater.org/industry/DrinkingWaterWeek/index.php](http://vtruralwater.org/industry/DrinkingWaterWeek/index.php)

Left to right: Rob Johnson (CEO – NRWA), Shaun Fielder, Dick Desautels, Ed Savage, Harry Hinrichsen, Rod Lamothe, and Joe Liles (President NRWA).
Stormwater runoff consists of excess rainwater and snowmelt flowing over the surface of the land. Soil and vegetation slow the flow, filter out sediments, and break down or trap pollutants in the root zone. Urban and suburban areas which are covered with impervious materials like asphalt and concrete prevent runoff from soaking into the ground. Buildings, roads, sidewalks, parking areas, and other heavily trafficked surfaces increase the volume and speed of stormwater runoff since no water can soak in and the hard surfaces present little resistance to flow.

Stormwater runoff becomes a transportation system for pollutants directly into our drinking water sources. Stormwater can contain and transport drinking water contaminants such as zinc, nitrates, chloride, hydrocarbons, and enteroviruses among others. The pollutants originate from vehicles dripping fluids onto roads and parking lots, landscaping and gardening, construction of roads and buildings, and pet and wildlife waste. These contaminants can reach surface drinking water sources, such as reservoirs and streams, and may infiltrate into the groundwater and pollute a drinking water aquifer.

There are three primary concerns associated with uncontrolled runoff: (1) increased peak discharge and velocity during storm events resulting in flooding and erosion; (2) localized reduction in groundwater recharge; and (3) pollutant mobilization and transport. The increased runoff rate and volume caused by impervious cover contribute to erosion (especially in areas without vegetative cover), increased flooding in low lying areas, and sedimentation in surface water bodies. The excess sediment transported by streams can increase turbidity, provide a transport medium for pathogenic bacteria and viruses, and decrease reservoir capacity. Sediment can also smother aquatic species, leading to habitat loss and decreased biodiversity.

In an effort to protect surface waters from the effects of runoff, the use of infiltration practices is being increasingly encouraged. Infiltration offers many benefits, however, under some conditions, these practices may introduce certain pollutants to ground water. Underground drinking water sources can be protected from contamination by raising awareness of areas with sensitive ground waters and exercising care in deciding where to locate infiltration practices. Factors to consider in this decision include the nature of the soils, the type of aquifer, the depth to the water table, presence or absence of confining layers, and land use.

Over 1200 communities in the United States have created stormwater utilities. Act 109 (Vermont Legislature, Spring of 2002) gave Vermont municipalities the authority to create stormwater utilities. The City of South Burlington was the first municipality in Vermont to actively pursue this option and create their own utility. The utility was established in 2005 to help mitigate the increasingly complex issues associated with stormwater management, including failing...
septic systems in older developments and phosphorus runoff polluting Lake Champlain, the primary source of drinking water for the Burlington area.

Seventeen of Vermont’s surface waters are listed as “impaired” primarily due to urban stormwater runoff. These waters fail to meet the Vermont Water Quality Standards based primarily on biological monitoring data. These impaired waters are listed on the State of Vermont’s 2008 List of Waters, Part A, prepared pursuant to Section 303(d) of the federal Clean Water Act. Once a water is listed as impaired, it is scheduled for the development of a Total Maximum Daily Load (TMDL). A TMDL is an EPA approved document that attempts to limit and allocate discharge loads among the various dischargers to impaired waters in order to assure attainment with water quality standards.

These seventeen stormwater impaired waters currently identified by the state of Vermont include twelve with “urban” watersheds and five with “mountain” watersheds (often associated with existing ski areas). The urban waters include: Allen Brook in Williston; Bartlett, Centennial and Potash Brooks in South Burlington; Englesby Brook in Burlington; Indian Brook in Essex/Essex Junction; Moon Brook in Rutland/Mendon; Morehouse Brook in Winoski; Munroe Brook in Shelburne; Stevens and Rugg Brooks in St Albans; and Sunderland Brook in Colchester/Essex. The mountain waters (with ski area development) include: North Branch of the Deerfield River in Dover; Roaring Brook and East Branch of Roaring Brook in Killington; and Rice and Clay Brooks in Warren.

We are currently looking for case studies of drinking water source contamination due to the absence or failure of stormwater best management practices (BMPs). If you know of a good example in Vermont, please contact Vermont Rural Water.

Contact VRWA Source Protection Specialist Liz Royer at 802-660-4988 ext. 336 or lroyer@vtruralwater.org
Water loss through distribution system leakage is a common occurrence in water systems across the United States with the aging infrastructure problem at hand. With the economy the way it is, now is the time to tighten up on energy efficiency in your water system. A good place to start is by conducting an audit of your water system to determine how much water loss you have through leakage in distribution piping. If you have wells and have a 29% loss of water, the electricity alone to pump the lost water into the ground will be significant. AWWA standards say that 10% leakage is normal in water systems. What is the percentage of unaccounted for water in your system? 20-30%? By first identifying and then fixing the causes of the unaccounted for water, water systems can lower electricity bills and other operating costs, lower the risk of backflow into the system and contamination hazards, reduce wear on equipment and set a good example for water conservation for consumers.

What is a water audit? A water audit is like balancing a checkbook, you measure the amount of water produced by your master meter and subtract a total of customer meter readings to reveal you’re unaccounted for water. You must also take into account unmetered water such as firefighting, water main flushing, leaks that have been repaired, unmetered service connections such as town offices, schools etc. Meter inaccuracy is another aspect of the water audit that must be addressed for a more accurate audit. Here are the steps of the water audit:

- Collect source meter readings for a one year period.
- Collect and add up customer meter readings for the year.
- Test master and customer meter accuracy.
- Calculate the volume and cost of unaccounted for water.
- Analyze the data and develop a leak detection plan.

For more information on water audits and leak detection, contact Paula Jackson, 802-660-4988 ext. 332 or pjackson@vtruralwater.org
Representatives from Vermont Rural Water, the manufacturer, the town operator, and the town’s engineering firm met to discuss the problem. At that meeting Christina Legge, a project engineer for Dufresne Group, found a related article on the internet about a water district in Kansas. Ah ha! According to this article, the district noted that in new construction of some large buildings, it has been a problem to reach the proper chlorine disinfection levels. It was found that the new copper piping was dissipating the chlorine and it was necessary to flush the line until a protective coating built up on the inside of the line.

Through subsequent research, Cristina advised that the protective coating on the inside of the pipe will build up as long as the velocity remains below 4ft/s. The flow through the copper pipe at this velocity would be 5.5 gpm. This would be the maximum flow for the protective coating to build up. After a week of flushing the line to the analyzer, the chlorine residual readings are rising. It is expected to take at least another week until the pipe has achieved a full protective coating and the readings from the analyzer correctly correspond to the actual free chlorine residual in the main.

Sometimes in our industry, the answer to puzzling questions can not be found in experiences we may have already faced. But a good team approach with collective knowledge and tools like the internet can open up the country and even the world to collective problem solving and produce great results. As water operators, you are not alone!

* On January 24, 2011 EPA Region 1 withdrew its previous approval of the Vermont portion of the Lake Champlain Phosphorus TMDL. Furthermore the EPA will be responsible for developing a new TMDL for Lake Champlain. Related to this issue, the EPA is reviewing the Long Island Sound TMDL and there will be impacts to those direct discharges on the Connecticut River Watershed as well. VRWA is providing updates via email and on our website.

For more info visit these links:

DEC Clean and Clear
www.anr.state.vt.us/cleanandclear/index.htm

DEC Water Quality
www.anr.state.vt.us/dec/waterq/wqdhome.htm

"Is Copper Eating Your Chlorine?" continued from cover

There is much to be debated on this issue moving forward. VRWA will do our best to keep you all informed. Please visit our website for regular news updates and consider joining our email distribution list for regular announcements, including updates on this issue. For now, a tip of our hat to all of you working day in and day out to insure your wastewater facility is operating properly. An 83% reduction in loading over 20 years clearly shows the value of your efforts.

Special thanks for our newest members:

- Mountain School at Winhall
- Mountain Green Condominium
- Forcier Consulting Engineers
- Engineering Ventures
- Richard Perez, PACP/MACP Master Trainer
Vermont Rural Water Association
Annual Conference & Trade Show

May 4-5, 2011
Lake Morey Resort, Fairlee, Vermont

Who Should Attend
Operators, managers, directors and other representatives of water and wastewater systems, as well as regulators and industry vendors.

Location
Lake Morey Resort, Fairlee, Vermont. Fairlee is near the Vermont–New Hampshire border about 20 miles north of White River Junction. Directions: From I-91, take Exit 15. The resort entrance road is just west of the exit.

Golf Tournament
Our Tenth Annual Golf Tournament will be held on Wednesday, May 4. Come join VRWA team members, directors and others from the industry for an exciting round. The tournament begins at 12:30pm.

Luncheon & Annual Meeting
Our luncheon this year will include entertainment from The Logger - Rusty DeWees! The Annual Business Meeting will be conducted at the close of the trade show.

Sessions
Early-bird sessions will begin at 8:00am on Thursday, May 5. Other sessions will take place throughout the day beginning at 9:30am. Topics tentatively scheduled to include:

- Energy Efficiency
- Regulatory Roundtable
- GPS
- Rates and Budgets
- Field and Bench Testing
- Storage Tank Construction

Training contact hours for water and wastewater operators will be awarded. Earn up to 3.5 TCH.

Trade Show
More than 50 industry vendors anticipated to display their products and answer questions from 8am-3pm on May 5. Keep an eye out for door prizes. In addition, VRWA will be offering a special prize drawing and tee-shirt giveaways.

Lodging
The resort’s overnight package includes your hotel room and dinner on May 4, a full breakfast in the dining room on May 5, and use of all resort facilities. Rates are $162/night ($234/night for double occupancy), plus 9% Vermont rooms & meals tax and a 19% service charge. Reservations should be made directly with Lake Morey Resort by April 4; call 800-423-1211 and mention Vermont Rural Water.

For More Information
Call us at 800-556-3792 or visit our website for updates: www.vtruralwater.org

Register today!
Mail this form, call 800-556-3792, or visit www.vtruralwater.org

Registration Form
Duplicate this form for multiple registrations.

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Questions? Call us at 800-556-3792 or 802-660-4988, extension 305.

Cancellation policy: A full refund will be issued if cancellation is made by April 15, 2011.

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Check amount________________________  By whom _______________________________

Registration rates for One Attendee & Lunch for May 5
Rates on or before April 15, 2011
_____ $55 Member
_____ $65 Non-Member
Rates after April 15, 2011 or at the door
_____ $70 Member
_____ $75 Non-Member

Golf Tournament (5/4 at 12:30pm)
_____ $50 if overnight resort guest
_____ $70 for day attendees

Dinner (5/4 at 6:30pm, separate charge for those not staying at the resort only)
_____ $40

_____ Total Enclosed

Make checks payable to VRWA.
Mail this form with your payment to: VRWA, 20 Susie Wilson Road, Suite B Essex Jct., VT 05452-2827
REGISTRATION MATERIALS ENCLOSED
May 4-5, 2011, Lake Morey Resort, Fairlee, Vermont

Vermont Rural Water Association
Annual Conference &
Trade Show

Visit www.vtruralwater.org for more information on our Annual Conference or our programs.

Don’t miss a special appearance by Rusty DeWees at our annual luncheon!