In a previous issue I commented on the American Recovery and Reinvestment Act (ARRA) and its objective to create jobs and furthermore provide funding opportunities for infrastructure improvements. VRWA’s team is busy assisting a number of systems with all details associated with this process. With the infusion of just under three times the annual appropriation for water/wastewater infrastructure funding, there is a lot to get done. VRWA is fortunate enough to be gaining positions to assist during this particularly busy time. The focus of these positions is to assist rural development eligible communities with all details associated with ARRA funding opportunities. These positions have been implemented for rural water affiliates across the country and are the result of funding allocated by USDA Rural Development and sourced from ARRA. The National Rural Water Association worked closely with National Rural Development officials to develop these programs. The support these technicians will provide will be of significant benefit to public water and wastewater.

VRWA Gains Additional Circuit Rider Positions
by Shaun Fielder, Executive Director

For years water and wastewater operators have been required to do more with less, which allowed operators strong in common sense to thrive in their fields. I have seen many innovative ideas and even a few patent worthy inventions in my travels around New England facilities. To set the record straight I am not talking about duct tape and bailing twine fixes. I see well thought out and designed solutions to everyday problems. Below are several cases of operators solving large problems, saving money and making life at their second homes (treatment plants) a little easier.

- The crew at the West Rutland WWTF installed a very simple and very effective sludge storage tank decant pump on a winch system. This design is extremely effective and even self draining for cold weather use.

- Due to residual polymer issues in his lagoons, Jefferson Tolman from the Barton WWTF (with the help of a local diver) designed and installed an adjustable depth effluent line from his final lagoon.

- Cabot WWTF operator James Brimblecombe, designed and installed a sludge thickening tank, saving about 50% in sludge handling and disposal costs.

- Forward thinking crews from Hinesburg and Swanton solved lagoon sludge removal issues by building sludge removal dredge systems.

- Operators in St. Johnsbury solved collection system odor and corrosion problems by using agricultural calcium nitrate injection to prevent the formation of hydrogen sulfide.

- I don’t know who thought of it (maybe Tim Grover?), but using an Uninterrupted Power Supply (commonly used for computer systems) to power a chemical feed pump during a power failure, is a lot better than an automatic transfer switch / generator for a small facility. Just remember to place the UPS outside of highly corrosive chemical rooms.

- Stub Parker from the Danville WWTF, solved his power failure concerns by installing automatic valves on his effluent line. When utility power fails, these valves immediately close, stopping his effluent discharge. The facility does not need a generator.

- Operator Rich MacKay of Jeffersonville has a challenge of keeping as many lagoon surface aerators running as he can. He made his job (See “Yankee Ingenuity” 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.

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Letters

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VRWA
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Essex Junction, VT 05452

July 9, 2009

Dear Sirs and Madams,

The Wallingford Fire District #1 would like to thank Mr. Aaron Perez for his assistance in locating some of our water utilities here in town. Various sections of our water distribution system are very old, and we are faced with the added dilemma of not having adequate records or maps of certain areas in the system.

Recently, our local electric utility company informed us that they will be doing an upgrade throughout the village. This will require the relocation of over 60 utility poles, lines, and related anchoring systems. Many of the proposed pole relocations are in close proximity to existing water service lines and mains. We have found that Aaron’s expertise and accuracy with his equipment has been a tremendous aid that has helped the Fire District avoid unnecessary interruption of water service to our customers, and has prevented any increase in operational costs due to unforeseen and unexpected damage to our utilities.

Once again, thank you from the Prudential Committee, the water operators, and customers of the Wallingford Fire District #1.

Sincerely, The Wallingford Fire District #1

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News Leaks, Fall 2009
Welcome Dmitri Hudak

We welcomed a new member to our team on July 20th. Dmitri Hudak previously held the position of Water/Wastewater Foreman with the Town of Richford, and he joins us as an ARRA Circuit Rider. Prior to working in Richford, Dmitri held the Facilities Engineer position for the Ed Weed Fish Hatchery in Grand Isle (2004 to 2007) and was Laboratory Coordinator for the University of Vermont College of Engineering (2002 to 2004). He is a 2001 graduate of the Colorado School of Mines and has a Bachelor of Science in Engineering. Dmitri holds a State of Vermont Class 4B Public Water Operator Certification and State of Vermont Grade 2D Wastewater Treatment Facility Operator Certification. Dmitri and his family reside in Berkshire.

Economic Stimulus money coming soon to a town near you!

The VT Drinking Water State Revolving Loan Fund Program (DWSRF) and VRWA Water System Specialist, Ian Schrauf, have been hard at work making sure Vermont’s share of the American Recovery and Reinvestment Act (stimulus) money received by the DWSRF is going to get spent. As of July 1 the majority of the funds available (about $17 million worth) have gone out to bid and by the time you read this will be under construction. This has been a monumental task and we would like to commend all involved for their hard work including: the State of VT Water Supply, Engineering and Finance Sections of the DEC as well as dedicated Water System Personnel.

This money should help to assure that Public Drinking Water in Vermont continues to be some of the best and at the same time help to stimulate Vermont’s economy.
What are the options for purchasing land?

Controlling development within your SPA is guaranteed with ownership. Landowners may be willing to sell their property within the SPA to the water system owner. Also, the power of eminent domain allows municipalities to “condemn” property, where necessary to protect a public use. Full compensation is required. In many cases, the costs of land at fair market value may leave acquisition as a last resort. However, a land swap, donation, or bargain sale may be feasible. Federal income tax deductions are available for donations and bargain sales to municipalities and charitable organizations with 501(c)(3) tax exempt status. If a municipality owns property not needed for its purposes, it might negotiate a swap with a landowner within the SPA. Land swaps need no funding appropriation so long as both parcels are equally assessed.

What about deed restrictions?

By restricting deeds within a SPA, a landowner may continue compatible uses while a community acquires long term security in water supply protection. Less-than-fee interests in property, such as conservation restrictions, easements, and development rights, can permanently limit property to its current use or prohibit specific types of future development. These interests can be purchased or donated by a landowner. Although the interests are acquired, the landowner retains title to, and use of, the property subject to the restriction on the deed. These voluntary arrangements do not grant public access to the property unless specifically enabled. The costs of purchased development rights or conservation restrictions varies with landowners, development pressure, and property characteristics. Federal income tax deductions are available for the appraised value of any donated rights to municipalities or charitable organizations with 501(c)(3) tax exempt status. In Vermont, donations of less-than-fee interests in land to a municipality also reduces the landowner’s local property tax assessment (10 VSA Section 6306(b)).

What are the options for agreements prior to purchase?

When SPA property is currently in compatible use but future ownership is questionable, agreements with SPA landowners, such as a “right of first refusal” or an “option to purchase,” may be desirable. If undesirable development becomes inevitable, purchase of the property or easements may be necessary. These agreements can hold the acquisition option open for a limited time. A right of first refusal is a contract between a landowner and an interested party that allows the interested party to meet a prospective buyer’s existing offer within a stated period of time (usually 30 days). The decision to exercise that right often depends on the prospective buyer’s stated development plans. An option to purchase is a contract between a landowner and an interested party that enables the party to purchase the property for a specific price during a stated period of time. The option gives an interested party additional time to work out financing.

Is there funding for helping me purchase land or easements within my Source Protection Area?

Yes, there is a special loan application for acquiring land for municipal source water protection (Revolving Loan Funds 24 V.S.A. Chapter 120) available from the Water Supply Division. This application requires information including:

- A draft of the purchase agreement
- Estimated closing date for purchase & easement acquisition
- One appraisal of the property value
- A determination from the town of the fair market value used for local property tax determinations
- A detailed map of the hydrologically delineated source protection area for the source, including land ownership and parcel location
- A copy of the Source Protection Plan that includes management provisions applicable to the land to be purchased or the conservation easement

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New Solutions to Old Problems
By Aaron Perez, VRWA Circuit Rider

The Town of Cavendish has had problems with high iron and manganese levels in their water system for many years. Although the town water department tried using chemicals for sequestering the iron and manganese as well as regularly flushing their hydrants, complaints of fixture discoloring, ruined laundry and unpleasant odors were frequently reported.

In 2006 the town selectboard decided to take a new approach to the problem. The town was given state approval to try a treatment method that had not previously been used in the state before. An Infilco, Ferazur® and Mangazur® biological iron and manganese removal system was installed by Degremont Technologies.

Here is a brief description provided by Degremont Technologies as to how the system works:

During the process, bacteria attach to Degremont Technologies’ Biolite® “S” filter media – designed specifically for biological removal of metals. Biolite media acts as a support for bacteria, enables high-rate filtration, and does not require periodic replacements or regeneration.

Degremont technologies’ Ferazur® / Mangazur® process controls the environmental conditions within the filter, ensuring the development of an efficient biofilm.

The selected microorganisms oxidize iron and manganese into extremely dense particulates, enabling three to five times the Arsenic removal achieved through biocatalytic oxidation and absorption with the iron oxides that are continuously produced in the filter.

While providing consistent treated water quality, Ferazur®/Mangazur® systems also provide operational flexibility, and backwashes can be performed with raw or treated water.

The optimal pH and ORP (oxidation-reduction potential) are required for the correct operation of the biological process. This is achieved through the controlled injection of process air (depending on the raw water pH), which increases the ORP.

For some applications, a pH adjustment is necessary to obtain the proper operating conditions, requiring the injections of an alkaline reagent.

According to Justin Barbour, Cavendish’s water operator, since the system went on line in late June the iron levels on average have dropped significantly. The manganese has dropped a little and is expected to continue dropping during the next several months. Some of the difficulties that have been encountered during the start up process are increased chemical cost associated with adding caustic soda to raise the pH level. Also, because of the large amount of air injected during the filtration process, their have been some customer complaints of milky looking water when it first comes out of the tap. “Overall the system is fairly easy to run and the customers seem to be pleased with the results,” said Justin Barbour. It can be difficult to be the first to try a new technology, so I give a lot of credit to Cavendish for the hard work and innovation that the operator and the town administration have undertaken.
How To Determine If You Have A Water Leak
The best method for determining whether or not a leak exists is to take an actual water meter reading. This method checks the entire internal plumbing system for water leaks. Take a water meter reading just before going to bed, or when no one will use any water for several hours. Take another meter reading in the morning before any water is used, or after a few hours of non-usage. In theory, the two readings should be the same. If they are not, and you cannot account for use by a humidifier, ice cube maker, toilet flush, or water softener, you have a leak and further investigation is recommended.

Leak Sources
From our experience, ninety percent of the leaks in residential plumbing systems are found at the toilet tank. Malfunctioning water softeners and humidifiers run a distant second and third. We encourage you to check for a leak.

Toilets leak at the bottom of the tank around the flapper plug or at the top of the tank at the overflow tube. To test the flapper plug, carefully remove the lid from the toilet tank and mark the water level in each toilet tank with a pencil. Shut off the water supply to the toilet. If the water level remains on your mark for 10 minutes, then the flapper plug isn’t leaking. If the water level drops below the mark, then the flapper plug is leaking and should be repaired or replaced.

The water level in the toilet tank should be at least one inch below the top of the overflow tube. If the water level in the toilet tank is at the top of the overflow tube, that is where a leak may be occurring, and the float which controls the water level in the tank should be adjusted so that the water level in the tank is at least one inch below the top of the tube.

Toilet tank leaks typically result from worn parts or from misalignment of some part of the flushing mechanism. Most repairs can be done by an experienced “do it yourselfer.” If you are not sure you can handle the job, call a plumber. It’s important to stop the leak.

Possible Toilet Leak Sources
1. The flapper valve and valve seat (A) have deteriorated or corroded.
2. The flushing arm and lift chain (B) are not working properly.
3. The water level in the tank is too high and spills into the overflow tube (C).
4. The float rod, ballcock and / or float ball (D) are corroded.

Water leaks are costly. A “typical” toilet leak at today’s rates can add three hundred dollars ($300) to a single water bill. Our information is provided as a courtesy with hopes of action on your part, which may minimize an unnecessary waste of water and expense to you.
“Eric and Dmitri will be out in the field in force… providing the resources, advice, and guidance to implement and move forward on given projects.”

Prior to working in Richford, Dmitri held the Facilities Engineer position for the Ed Weed Fish Hatchery in Grand Isle and previous was Laboratory Coordinator for the University of Vermont College of Engineering. He is a 2001 graduate of the Colorado School of Mines and has a Bachelor of Science in Engineering. Dmitri holds a State of Vermont Class 4B Public Water Operator Certification and State of Vermont Grade 2D Wastewater Treatment Facility Operator Certification.

If your public water or wastewater system needs any additional assistance on project funding opportunities, please contact us. Of particular note, Eric and Dmitri will be out in the field in force to assist the rural development eligible communities with the process. Just as is our focus, they will be providing the resources, advice, and guidance to implement and move forward on given projects. Congrats to Eric on his new assignment with VRWA and again welcome aboard to Dmitri.

[also see “Economic Stimulus” article in the News On Tap section on page 3]
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