Vermont Rural Water Association....Supporting Water and Wastewater Systems since 1982

What is a Confined Space?

by Paula Jackson

If you are employed in the water and wastewater industry, chances are you have run into confined space entry. Entering permit-required confined spaces requires training for the entrant, attendant and supervisor.

If your work place contains permit spaces, your employer should post signs reading, "Danger: permit-required confined space, do not enter," at the permit space.

If you are entering permit-required confined spaces, your employer should have a written confined space entry program in accordance with OSHA 29CFR 1910.146, Permit-Required Confined Spaces. The written confined space entry program should outline entry procedures and the necessary safety equipment required to protect employees from harm.

What defines a Non-Permit Confined Space?

This is a confined space that does not contain atmospheric hazards, nor have the potential to contain any hazard capable of causing death or serious physical harm. OSHA (Occupational Safety and Health Administration) defines a confined space as:

- 1. Space large enough and so configured that an employee can bodily enter and perform assigned work.
- 2. Has limited or restricted means for entry and exit (examples would be tanks, vessels and vaults).
- 3. Is not designed for continuous employee occupancy.

What defines a Permit-Required Confined Space?

1. Contains or has the potential to contain a hazardous atmosphere (exam-

ples are water storage tanks containing chlorine, and sewer manholes).

- 2. Contains a material that has potential for engulfing an entrant.
- 3. Has an internal configuration such that an entrant could be trapped or asphyxiated. The floors may be sloped downward and taper to a small cross section
- 4. Contains any other recognized serious safety or health hazard.

Some confined spaces may "appear" safe, leading some employees to think, "I just need to be in there for a minute." That minute could change your and your loved ones' lives forever in a very devastating way.

If you have questions on confined space entry, please contact Vermont Rural Water Association, Vermont Occupational Safety and Health Administration (VOSHA), or see the Occupational Safety and Health Administration's website at www.osha.gov.



An example of streambed erosion.

Unstable Streams and Impacts on Drinking Water Supplies

by Mike Kline, Vermont River Management Program

What happens if the treatment requirements for your surface water supply have been relatively low for the past 30 years and then an intense summer storm comes along to produce the "flood-of-record" in the streams that fills your reservoir? While the boil water notices required for the first two weeks after the flood were not a surprise, it has now been three years and there are still frequent algal blooms, higher turbidity and elevated coliform counts.

If this sounds remotely familiar or you have noticed that tributary streams are staying turbid much longer after storm and runoff events, then unstable streams in the watershed may be a significant source protection issue for your community.

Erosion is a common problem and some water suppliers in Vermont have invested in watershed protection schemes that try to address bank erosion in the streams flowing to their intakes. The effectiveness of these and other bank armoring and flood remediation works has been shown to be short-lived. It has led the Vermont Agency of Natural Resources (ANR) to take another look at the way they assess and manage unstable streams.

The ANR River Management Program has developed a state-of-the-

Continued on page 4.

Who We Are

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.

Board of Directors

Richard Desautels, Colchester FD#2 Ed Savage, Town of West Rutland Gilles Blais, International Water Company

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News Leaks is the official publication of VRWA. It is published quarterly for distribution to operators, owners, managers and board members of water and wastewater systems in Vermont, as well as to association members, water and wastewater service providers, regulators, and other friends. Opinions expressed in the newsletter do not necessarily reflect the views and policies of VRWA.

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This letter is written to thank VRWA for sending down Erik Peterson to help myself and Grandview Acres Water System, Inc.

In November of 2006, I passed my test for water operator and became an operator-intraining. Little did I know what I would face in the next few months. Our system had total coliform positive counts for the first time in 32 years. Erik came down from VRWA and became my knight in shining armor. Not only did he help me with reviewing the water system setup, but also with flushing out the system. Shock chlorination ended up being needed, and Erik was there with his helpful knowledge and support. During the second shock chlorination, I was able to call Erik and relieve my anxiety. I can not begin to express my gratitude.

VRWA is fortunate to have Erik Peterson as one of their workers. He is knowledgeable, pleasant, and a joy to work with. Thank you to VRWA.

Jo Ann Adams, Operator, Grandview Acres Water System

I am writing to thank the Vermont Rural Water Association for Elizabeth Walker's help with the "Surf Your Library" summer reading program at the Joslin Memorial Library in Waitsfield, VT. This year the theme was "Water," so I immediately thought of Elizabeth to co-present at the June 27th program on "Dowsing," along with another valley water legend, Lenord Robinson. Elizabeth was most gracious to accept this opportunity to share her knowledge with the children, which I am most grateful for.

Elizabeth did a superb job of clearly articulating where water comes from and sharing her experience with locating water utilities. The children felt encouraged to ask questions and offer comments throughout her presentation, which she aptly addressed to the varying age group including half a dozen adults in attendance. I still smile thinking about one little boy's eyes that lit up as Elizabeth began to open the cases to demonstrate the use of the specialized water-finding equipment!

This program was a huge success enjoyed by all. Thank you very much for Elizabeth's time and expertise.

Cyndee Button, Children's Librarian, Joslin Memorial Library, Waitsfield



VRWA Staff

Front row: Elizabeth Walker, Liz Royer, Shaun Fielder. Back row: Kevin McGraw, Brent Desranleau, Wayne Graham, Erik Peterson, Paula Jackson.

Sign up for our Annual Conference! See page 6.

News on Tap

Drinking Water SRF Loan Information

by Elizabeth Walker

The Vermont Drinking Water State Revolving Fund (DWSRF) low interest loan program is accepting applications for projects for the FY 2006. Systems should apply now to be placed on the 2006 project priority list for funding during the period of October 1, 2006-September 30, 2007.

The deadline to submit your priority list application is end of business Friday, April 7, 2006. It is that time of year when consideration for water system projects and the costs should be addressed. Even if you are unsure about the status or scope of a project, you have nothing to lose by signing up for the priority list. Requests for assistance or questions should be directed to the contacts listed below.

This year's DWSRF Intended Use Plan (IUP) public meeting will be held at 1:00 pm on Thursday, June 22, 2006 at the Pavilion Auditorium in Montpelier. This is your opportunity to have input on how the DWSRF program funds are used, how the loan program is administered, and to make comments on the priority list. Copies of the draft IUP will be available prior to the meeting.

Contact Information

Applications for the DWSRF FY 2006 priority list can be found online at http://www.vermontdrinkingwater.org/ capacity.htm or contact Bryan Redmond, DWSRF Program Specialist, at 802-241-3408, or Elizabeth Walker, Water Systems Specialist, at 800-556-3792 ext. 321.

Wastewater Program Expands!

VRWA has secured funding for a fulltime wastewater technician, up from the half-time position we've had in recent years. Our new Wastewater Specialist, Wayne Graham, joined us in January and will be assisting wastewater systems

directly in the field and expanding our related training.

Wayne was most recently Operations Manager of the St. Johnsbury wastewater



Wayne Graham

treatment plant for Earth Tech. During his tenure, his plant was honored by VOSHA for its commitment to safety and awarded "Star" status under VOSHA's Green Mountain Voluntary Protection Program. St. Johnsbury was the first facility to receive this, VOSHA's highest level of recognition for excellence in safety.

Wayne can be reached at 802-660-4988 x319 and at wgraham@vtruralwater.org.

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Mike Sullivan resigned from the Board in December. His tremendous efforts on our behalf during the past year were greatly appreciated and he will be missed. The end of the year brought with it a few staff changes as well, including the departure of long-time trainer John Lukin. John is now an independent training consultant.

Wastewater Specialist Vinnie Melendez has also moved on and will no longer be working in Vermont. Vinnie had been splitting his time between Vermont and New Hampshire, but will now work in New Hampshire alone. Vinnie built our wastewater training program from the ground up. His expertise and friendly nature will be missed.

Lynda Laine, our Water Systems Specialist in Massachusetts, has accepted a new position with the Massachusetts DEP. Her unfailing navigation of state agencies and changing regulations was a great help to everyone. We wish her all the best in her new position.

Drinking Water Week Draws Near

Vermont Drinking Water Week (DWW) will be celebrated from May 7-13, 2006. This year's theme is "Who's Behind The Faucet." The Water Fair will be held May 12 on the State House lawn.

We will feature performances by the National Theatre for Children, lawn games, educational displays, a water tasting contest, and more.

The DWW Committee is busy working on the details for the 2006 activities. If you are interested in being on the planning committee, sponsoring the events, or want to arrange a performance by the National Theatre for Children, please contact Elizabeth Walker at 800-556-3792 x321. We encourage you to offer system tours and presentations at schools to help the kids learn about water conservation and source protection.



News Leaks, Spring 2006

art watershed assessment program using the science of fluvial geomorphology (the study of river formation and evolution) to understand erosion in streams. The first few years of data collection in watersheds throughout Vermont has brought about a new stream management model based on the knowledge that much of the accelerated erosion and flood damage we are experiencing today is the result of over 100 years of channel, floodplain, and watershed manipulation.

All factors being equal, a stable stream over time will maintain its dimensions, meander pattern, and profile (or slope) to transport the water and sediment produced in its watershed. This will occur without aggrading (building up) or degrading (eroding down). A change in hydrology as a result of watershed changes causes sediment load, or a channel shape that significantly changes the energy or energy requirements of the stream. This can set in motion a series of channel adjustments (erosion) that scientists have termed channel evolution.

Geomorphically unstable streams result in increased flood erosion hazards, the loss of sediment and nutrient retention in the landscape, and the degradation of aquatic habitat. The River Management Program has begun to address these resource concerns by working with many different partner agencies and organizations to complete stream geomorphic assessments at the watershed scale.

These assessments and the stream corridor protection and restoration programs created to address unstable streams may provide an important benefit to water suppliers concerned with high turbidity of the biological production associated with nutrient loading. For more information about the Vermont ANR River Management Program, visit www.anr.state.vt.us/dec/waterq/rivers.htm.

> Sign up for our **Annual Conference!** See page 6.

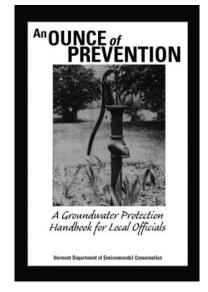
An Ounce **Prevention**

by Kevin McGraw

"An ounce of prevention is worth a pound of cure." Everyone has heard this famous proverb, and it is perfectly appropriate in describing the benefits of pollution prevention.

In February, the Vermont Department Environmental Conservation (VTDEC) will publish a revision to the groundwater protection handbook called "An Ounce of Prevention."

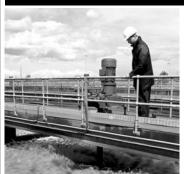
The handbook is aimed at local officials, but it is also an excellent guidance document for anyone responsible for protecting groundwater, surface water, or drinking water. The document outlines why groundwater protection is so important, describes the requirements for source water protection in the State of Vermont, and provides many examples of protection techniques. There is also an



extensive "Resources" section that will help water systems understand and solve their particular source protection problems.

All water systems should have a copy of this invaluable handbook. Copies are available free of charge from the VTDEC Water Supply Division at 802-241-3400 and from VRWA at 802-660-4988.

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SYSTEM SPOTLIGHT

Town of West Rutland

by Erik Peterson

In 1999, the Town of West Rutland acquired what had previously been West Rutland Fire District #1. Newer and more stringent regulations and the maintenance of a leaking, 102-year-old water system had begun to overwhelm the fire district's Prudential Committee.

Ed Gilman, the system's water commissioner and one of two part-time operators, said that upon joining the water department in 1998, "All I did for two

years was fix leaks." After one year of leak repair, water production was lessened by 10 million gallons. The system also managed a \$1,600 savings in hypochlorite as well as a \$5,700 savings in electrical costs related to well pumping.

The aging system's failing condition was further revealed when an ISO fire flow study in 1999 revealed that nearly 50% of the system's fire hydrants were incapable of providing the required fire protection. More work was needed.

So, in April of 2004 the

Town of West Rutland planned the ceremonial groundbreaking for a massive project to upgrade the town's water system. West Rutland's select board, Town Manager Tom Yennerell, and Otter Creek Engineering designed and planned the project. They bonded \$3.8 million with voter approval for a project that would become the largest pipe laying endeavor in New England that year.

Then the bids rolled in. With sudden increases in the cost of steel and the resulting effect on ductile iron prices, as well as unanticipated stormwater run-off costs, the lowest bid was \$1 million greater than the town had anticipated.

In hopes of securing additional fund-

ing, Otter Creek's Mark Youngstrom petitioned Senator Jim Jeffords for assistance. After a few months, Senator Jeffords managed to acquire the funding. Markowski Excavating's bid was met and work began.

Included in the scope of the water improvement project was the construction of a new water storage tank, the rebuilding of a booster pump station, the replacement of five miles of pipe, instal-



Ed Gilman in front of the new water storage tank.

lation of 31 new hydrants, replacement of one of the town's two wells, new well house controls, plumbing, installation of a 60 kW generator, and the replacement of all the town's water meters with newer radio-read models.

As with any project of this magnitude, hurdles continued to present themselves at each turn. In attempting to find a location for the planned 260,000 gallon storage tank, the town needed a piece of land at approximately the same elevation as their other water reservoir. A homeowner was willing to sell a piece of property in a suitable location for the reservoir, but only with the proviso that the tank be all but invisible.

Otter Creek was able to engineer the placement of a wire spun pre-stressed Natgun tank that would be entirely buried. However, state construction standards for below-grade tanks are limited to much smaller tanks. In order to appease the state's concerns about protecting such a large below-grade tank from intrusion, engineers included the installation of two 10 mil plastic covers.

As with so many water systems in

Vermont, West Rutland has a handful of customers whose homes lie just beyond the ability of the system's hydraulics to provide adequate and safe water pressures.

An existing in-ground booster station served 22 upstream customers; however, safety issues inherent in the existing confined space prompted plans for a new above-ground booster station. The older booster station was upgraded to include two 180 gpm pumps that would add redundancy. Similarly, four 150 gallon pressure tanks were replaced with a single

200 gallon pressure tank.

Beyond the physical upgrades to the system, Ed Gilman and the town revisited the water system's bylaws. With the installation of 730 new radio-read meters, the older ordinances required some fine tuning. One newly instituted ordinance now requires that, "If the water service line is greater than 200 feet in length, the water meter shall be located in a meter pit at the curb stop to account for water leakage." Less than a week following the installation of one meter pit, Ed and his assistant operator Dave Zawistowski initiated a test run of the radio-read meters. One reading in particular seemed terribly suspicious.

News Leaks, Spring 2006 Continued on page 7.

Legislative Update

by Sarah MacMillan

Water-related bills that have been introduced into our federal and state legislatures are listed below. For a complete listing, visit www.vtruralwater.org.

Federal Bills

S.2161 Small System Safe Drinking Water Act of 2005

Status in House: none

Status in Senate: In committee (Environment

and Public Works)

Main Sponsor in House: none

Main Sponsor in Senate: James Inhofe Description: Amends the Safe Drinking Water Act to prevent the enforcement of certain national primary drinking water regulations unless sufficient funding is available or variance technology has been identified.

S.1400 Water Infrastructure Financing Act

Status in House: none

Status in Senate: Placed on calendar

Main Sponsor in House: none

Main Sponsor in Senate: Lincoln Chafee Description: A bill to amend the Federal Water Pollution Control Act and the Safe Drinking Water Act to improve water and wastewater infrastructure in the United

H.R.2864 Water Resources Development Act of 2005

Status in House: Passed

Status in Senate: Placed on calendar Main Sponsor in House: Don Young Description: Provides for the conservation and development of water and related resources, including money earmarked for emergency streambank protection and aquatic ecosystem restoration projects in Vermont.

Vermont Bills

S.244 Allowing Pollution Abatement Monies to Protect Public Health

Status in House: none

Status in Senate: in Natural Resources &

Energy Committee
Main Sponsor: Ann Cummings
Description: Proposes to allow pollution
abatement awards to protect the public health from wastewater systems that fail to meet required isolation distances from drinking water supplies.

S.204 Offset Projects in Stormwater-Impaired Waters

Status in House: none

Status in Frouse. Hone
Status in Senate: in Agriculture Committee
Main Sponsor: Sara Kittell
Description: Proposes to limit the conversion of agricultural soils for use as an offset project in stormwater-impaired waters to the exténsion of existing vegetated buffer zones.

Vermont Rural Water Association

Annual Conference & Trade Show

May 18, 2006, Lake Morey Resort, Fairlee, Vermont

Location

Lake Morey Resort, Fairlee. Directions: From I-91, take Exit 15. The resort entrance road is just west of the exit.

Sessions

An early-bird session will begin at 7:30am. Other sessions will take place during the morning and after lunch. Topics will include:

- Saving money with energy efficiency
- Trench safety
- Regulatory updates & loan information
- Outdoor drilling demonstration
- Wastewater troubleshooting

All sessions will award training contact hours. Earn up to 3 TCH.

Trade Show

More than 50 industry vendors will display their products and answer questions from 8am-3pm. Keep an eye out for door prizes!

Golf Tournament

Our Fifth Ever Golf Tournament will be held on Wednesday, May 17, the day before the main conference. Come early and join the fun! The tournament begins at 12:30pm.

Lodging

The resort's overnight package includes your room and dinner on May 17, a full breakfast in the dining room on May 18, and use of all resort facilities. Rates are \$145/night (\$210 for double occupancy), plus 9% Vermont rooms & meals tax and an 18% service charge. Reservations should be made directly with Lake Morey Resort by April 17; call 800-423-1211 and mention Vermont Rural Water.

Luncheon & Awards

Our annual awards luncheon is the perfect chance to talk shop with your peers.

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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City/State/Zip

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Email

Rates for One Attendee & Lunch Registration Rates before May 1, 2006

\$40 Member

\$50 Non-Member

\$60 all registrants after May 1

and at the door

Golf Tournament (May 17 at 12:30pm)

\$45 if overnight resort guest

\$65 for day attendees

Total Enclosed

Make checks payable to VRWA. Questions? Call 800-556-3792.

Mail this form with your payment to: Vermont Rural Water Association 187 St. Paul Street

Burlington, VT 05401-4689

Cancellation policy: A full refund will be issued if cancellation is made by May 1, 2006.

News Leaks, Spring 2006

Visit our new website at www.vtruralwater.org for the latest training schedule & more...

Continued from page 5.

When the two operators inspected a new meter pit serving one of the town's Select Board members, they found a one-inch meter had registered 1.8 million gallons of water consumption in two weeks. With assistance from VRWA, the leak which had failed to surface was quickly located. The updated bylaws quickly proved not only their appropriateness, but also saved the town enough money to pay for the meter and pit.

With the new water meters and the rate increases, the town anticipated the shock many customers might experience when the first set of bills rolled in.

In response, Ed Gilman recruited local help to assist with public education. Matt Symrski, a Boy Scout earning his Eagle badge, led a community water conservation project. Matt disseminated pamphlets and calculators to system users as well as coloring books to grades

K-5. He also initiated a poster contest for older students.

Following the completion of this project, Ed Gilman was recognized as GMWEA's Water System Operator of the Year. And while the honor was well deserved, the completion of the project was accomplished by the teamwork and cooperation of all involved.

Considering the enormity of the task, one of most amazing aspects of the project was the gung-ho attitude exhibited by all parties. Carl Crawford of Otter Creek remarked that until then, he had never seen contractor, town, and engineers work so closely and amicably to complete a job.

Despite an additional cost overrun of \$130,000, the average water rate is still expected to remain 15 dollars a year less than planned. It was truly a remarkable project.

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