

# Waterline



Summer 2008 • A Publication of the Water Supply Division of the Vermont Department of Environmental Conservation

## Proposed Water Conservation Pilot Project at the Windy Hill Acres MHP

Contributed by Ashley Lucht, *Capacity Development Specialist*

The Water Supply Division (WSD) has teamed up with the Environmental Assistance Office and the Vermont State Housing Authority to address water quantity issues experienced at the Windy Hill Acres Mobile Home Park (MHP). In recent years, the Windy Hill Acres MHP has experienced episodes of water shortages requiring water be hauled in, costing the park money and requiring them to be on a *Boil Water Notice*. This situation has also resulted in the Park being required by the WSD to develop a water conservation plan and pursue additional sources of water. Water systems in the same situation as Windy Hill Acres MHP have traditionally chosen to seek out additional sources of water without looking to become more water efficient. If a pilot project is approved under the 2008 Intended Use Plan for the Drinking Water State Revolving Fund, Windy Hill Acres MHP may become so water efficient as to avoid new source development.

The Park utilizes one permanent full-time bedrock well with another emergency well not directly connected to the system and available for use when absolutely necessary. When the Park uses the emergency well, the users are required to boil their water. Exploring additional sources of water is expensive and time consuming. There is evidence that the existing source of water has the ability to meet the demands of the users; however, there may be circumstances attributing to the excessive use of water. These circumstances may be outdated and leaking fixtures (faucets, showerheads and toilets), distribution piping leaks throughout the park, a leaking storage tank, declining well yield, an inaccurate source meter, and malfunctioning storage tank switches. The pilot project proposes a two-year project to

address possible excessive water use by replacing outdated and inefficient fixtures with new WaterSense labeled fixtures. The project will replace the existing source meter with a new one to guarantee accuracy of water use. Additionally, if leaks through the distribution system are discovered they will be repaired immediately.

WaterSense, a partnership program sponsored by the U.S. Environmental Protection Agency, makes it



easy for Americans to save water and protect the environment. Many products are available that don't require a change in lifestyle. WaterSense labeled fixtures

are available for showerheads, bathroom faucets and toilets. These fixtures are guaranteed to use at least 20% less water than baseline products *without sacrificing performance*.

During the first year of the project, we intend to: 1) replace the existing source meter to ensure accurate measurements; 2) address any leaking pipes and the tank to avoid inaccurate measurements; 3) collect water, fuel oil, propane, kerosene and electricity usage, where appropriate, to establish a baseline of use; and 4) have a series of park-wide educational meetings about water and energy use.

The second year of the project would include: 1) park-wide replacement of all showerheads, faucets and toilets with WaterSense labeled fixtures; 2) hire a plumber to install the fixtures to ensure proper installation; 3) continue to collect water, fuel oil,

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# 2008 Legislative Happenings

## Federal Exemption Option Available for Consecutive Systems Serving less than 500 Persons

Contributed by Jean Nicolai,  
Operations and Compliance Section Chief

Legislation introduced in early 2008 encompassed the recommendations from the Consecutive System Workgroup meetings held last summer with representatives from a cross section of municipalities, public water systems, consulting engineers and consecutive systems.

In May of 2008, Governor Douglas signed Act No. 156, *An Act Relating to Public Water Systems* (H.806), which authorizes consecutive water systems serving less than 500 persons to qualify for an exemption from Federal and State Drinking Water

Regulations. The final law passed reflects the Workgroup's recommendations. The original bill as introduced was modified to: clarify selling and references the Municipal and County Government disconnection provisions; include a population cut-off of less than 500 persons to address concerns expressed by EPA and legislators for exempting larger populations served; and amend 30 V.S.A to exempt from Public Service Board (PSB) jurisdiction those consecutive systems which meet the exemption criteria in the law. To read the law go to: <http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/acts/ACT156.HTM>.

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## WATTS TO DROPS

	Frequency of Use (per person)	Daily Water Use without Water Conservation Device (gal/person)*	Daily Water Use with Water Saving Device (gal/person)*	Daily Water Savings with Water Saving Devices (gal/person)*
<b>Low-flush Toilet (1.6 gpf)</b>	5.1 flush/day	20.4	8.16	12.24
<b>Low-volume Showerhead (2.5 gpm)</b>	5.3 minutes/day	15.9	13.3	2.6
<b>Low-volume Faucet (1.5 gpm)</b>	4 minutes/day	12.0	6.0	6.0
<b>Front-loading Washing Machine (27 gpl)</b>	.37 loads/day	18.9	10.0	8.9
<b>Water-efficient Dishwasher (7.0 gpl)</b>	.1 loads/day	1.1	.07	.04
<b>TOTAL</b>		<b>68.3</b>	<b>38.16</b>	<b>30.14</b>

\*Assumes conventional toilets at 4 gpf, showerheads at 3 gpm, faucets at 3 gpm, washing machine at 51 gpl, and dishwasher at 11 gpl  
Source: Estimated water and energy savings from various water-saving fixtures. (Data Source: Adapted from Vickers, A. 2001. Handbook of Water Use and Conservation. WaterPlow Press, Amherst, MA.)

\*\*Figures are for hot water from electric sources



## A Note from the Editors, Ashley Lucht and Eric Law

In reading about the global water crisis recently where hundreds of millions of people lack access to potable drinking water, the new editors of *Waterline* were reminded how much Americans take for granted their drinking water supplies. The same is true with water system professionals whose skill sets are arguably in the highest demand in the developing world and after natural catastrophes like hurricane Katrina and most recently in the Mississippi River floodplains.

Our readership does extremely important work but because affordable access to potable water has become expected, we

have routinely not celebrated our profession as we should. This is why *Waterline* and its editor over the last three years, Ryan McCall, deserve recognition for celebrating, informing, and writing about public drinking water supplies in the State of Vermont. Ryan has since moved and settled into his new role as the Winooski Basin Planner with the Water Quality Division, just in time for the arrival of his second beautiful baby girl. We wish Ryan all the best.

As with any change of editors, there will be some minor style modifications and new angles, but *Waterline* will continue to be the Water Supply Division's news

outlet, updating Vermont water professionals on what's new and relevant. Available in print and on the web at [www.vermontdrinkingwater.org](http://www.vermontdrinkingwater.org), the newsletter will continue to be a quarterly newsletter with a tribute to the past (notice the faucet and water drop from newsletters of the early 90s) and an emphasis on the future (our newsletters are now printed on 100% post-consumer waste rather than the industry average of 30%).

Included in this addition of *Waterline* is an article on one of three new bills from the 2007-2008 Vermont Legislative Session which have already been signed into law. Act 156, *An Act Relating to Public Water Systems (H.806)*, enables consecutive water systems serving less than 500 persons to qualify for an exemption from Federal and State Drinking Water Regulations. This act has the rare distinction of authorizing less regulation, not more, without diminishing public health protection.

The other two bills signed into law, Act 133, *An Act Relating to the Addition of New Types of Disinfectants to Public Water Systems (S.368)*, and Act 199, *An Act Relating to a Groundwater Withdrawal Permit Program (S.304)*, will be covered in depth in our next newsletter due in Fall 2008. In the meantime, please visit [www.leg.state.vt.us/database/database2.cfm](http://www.leg.state.vt.us/database/database2.cfm) for more information on Act 133

Annual Water Savings (gal/person)*	Estimated Energy Savings of kilowatt-hours (per person)**	Approximate Annual Energy Cost Savings (\$0.13 per kwh/person)	Approximate Annual Energy Cost Savings for a Family of Four
4453	0	\$0.00	\$0.00
949	123	\$15.99	\$63.96
2190	125	\$16.25	\$65.00
3249	316	\$41.08	\$164.32
146	36	\$4.68	\$18.72
<b>10987</b>	<b>600</b>	<b>\$78.00</b>	<b>\$312.00</b>

gpf=gallons per flush • gpl=gallons per load • gpm=gallons per minute

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## Legislative Happenings (continued from page 2)

Approximately 70 regulated consecutive systems may qualify for the exemption. The law provides an opportunity for consecutive water systems to reduce operating costs related to operating a public water system without diminishing health protection. It encourages partnerships that establish respective responsibilities of wholesale and consecutive water systems to provide safe drinking water from source to tap and in return reduces regulatory oversight. The exemption would decrease costs and time incurred for: 1) redundant water quality testing already conducted by the wholesaler (would be included in the wholesaler's sampling plans) for lead and copper, coliform bacteria, disinfection by-products, and chlorine residual monitoring; 2) developing sampling plans, operations and maintenance manuals; 3) maintaining the services of a certified operator; 4) permit to operate fees; 5) monthly reporting requirements; and 5) issuing public notice and annual consumer confidence reports.

The exemption does not occur automatically under the new law and is contingent upon a partnership between the wholesale and consecutive public water systems. If you need assistance with establishing a partnership, please reference the Facilitation and Mediation article on page 11.

For consecutive systems to qualify the following criteria must be met:

- ⇒ The consecutive system meets the four federal exemption criteria;
  - (1) Consists only of distribution and storage facilities and does not have any collection and treatment facilities;
  - (2) Obtains all of its water from, but is not owned or operated by, a regulated public water system;
  - (3) Does not engage in the sale of water to any person. For purposes of this law and subdivision 203(3) of Title 30, a "sale" of water does not occur when:
    - (A) the rate charged to the consumer by the receiving water system is the same as the rate charged by the public water system for supplying water to the receiving water system; and

(B) the receiving water system follows the uniform water and sewer disconnect requirements of chapter 129 of Title 24, except that section 5147 of Title 24 shall not apply and appeals shall be governed by the Vermont rules of civil procedure; and

(4) Is not a carrier which conveys passengers in interstate commerce.

- ⇒ The consecutive system serves less than 500 persons.
- ⇒ The wholesale water system certifies to the Agency of Natural Resources (Water Supply Division) that:

(1) The receiving public water system (consecutive system) is responsible for the repair and maintenance of their own water system unless otherwise agreed to by the wholesale system; and

(2) The public water system supplying water (wholesale system) to the receiving water system is responsible for:

- (A) including the receiving public water system in its water quality sampling plans;
- (B) providing consumer confidence reports to the receiving system's users; and
- (C) issuing public notice to the receiving system's users if a violation of a drinking water contaminant standard exists or if the Secretary determines that a condition exists that may present a risk to public health.

After receiving verification from the consecutive system that they meet the above criteria and certification from the wholesale water system, the Water Supply Division (WSD) notifies the consecutive and wholesale water system of the consecutive system's exempt status and registers the exempt system in the WSD computer database.

The wholesale and consecutive systems may decide to outline their respective operational requirements in a written agreement. The contents of the agreement would be solely within the discretion of the water systems and the WSD would neither review nor approve the agreement. Absorbing existing consecutive systems is voluntary on the part of the whole-

(continued on next page)



## Legislative Happenings (continued from previous page)

sale system. The law includes a provision for the wholesale water system to notify the Agency of Natural Resources if they choose to withdraw from their obligations and thereby result in the consecutive system losing their exempt status.

We encourage wholesale and consecutive systems to consider taking advantage of the consecutive system exemption and will assist in any way we can to make it happen. The exemption application will be on our website and mailed to all eligible systems in the near future. The WSD greatly appreciates and would like to thank all of you who provided input and shared your experience, knowledge and suggestions in creating this opportunity for wholesale and consecutive public water systems. Please contact us at 1-800-823-6500 for assistance or if you have questions. 💧

## Pilot Project (continued from page 1)

propane, kerosene and electricity usage, where appropriate, to measure the level of success (or failure); 4) continue the park-wide educational meetings, request feedback on performance, etc.; and 5) close the loop—recycle the discarded fixtures.

At the conclusion of the proposed project, we hope to show that through the use of water saving devices, the need for expensive new source exploration can be eliminated. Additionally, we hope to show that by installing WaterSense labeled fixtures, homeowners will see a reduction in the costs to heat water. If other WaterSense approved fixtures are available when the second year of the project approaches, then those fixtures will also be part of the project.

For more information about this pilot project please contact Ashley Lucht at 1-802-241-3424 or [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us). 💧

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## Drinking Water State Revolving Loan Fund (DWSRF) FAQ's

Contributed by Ian Schrauf, Vermont Rural Water Association (VRWA)

### DWSRF – What is it?

The 1996 Safe Drinking Water Act (SDWA) amendments authorized low interest loans using federal and state funds administered by the State for water system improvements. These loans are available to most public water systems (PWS) for planning, final design and construction to repair or improve public water systems to comply with state and federal standards and protect public health.

### Low interest loans – How do I get one?

The first step is to apply to get on the priority list. Priority list applications are available on the Water Supply Division's (WSD) Website to download. Once you have downloaded the form there is some basic information about your water system that needs to be filled out such as: water system name, responsible party, and your WSID number. Below the basic information is a checklist with points associated with each, check all the boxes that apply to your system deficiencies. These points will be used to rank your system's need against all other priority List applicants to see who needs the limited amount of available

money most. You will also need a project scope and an estimate of how much money you might need to complete your project. priority list applications are typically due to the WSD in early April, the list is finalized in May, a public hearing is held in June and the money becomes available in early October.

### Does everyone who applies for the Priority List get money?

No, there are typically more projects than money available. The projects with the most need, or points, are funded first. This does not mean there isn't a chance for projects originally in the non-fundable range to be funded later in the fiscal year; as projects are completed or bypassed because they are not ready, the next project on the list is funded.

### Wow this seems like a long timeline – can I do anything to move the process along?

Absolutely! If you are a municipality or private non-profit community system serving less than 10,000 people you can apply for a planning loan. Planning loan money is available to hire an engineer to assist you with project feasibility and design.

### Planning Loan Steps:

- Send out Request for Proposals (RFP) or if the project is a small one sometimes a Request for

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## VTWARN—What’s the Buzz?

Contributed by Heather C. Young, *Water System Security Coordinator and VTWARN Steering Committee Member*

### What is VTWARN?



VTWARN (Vermont Water/Wastewater Agency Response Network) allows Vermont water and wastewater systems to receive rapid mutual aid and assistance from other Vermont systems to restore services damaged by natural or man-made incidents. Utilities sign the VTWARN mutual aid and assistance agreement, which then allows them to share resources with any other system that has also signed the VTWARN agreement—in other words, utilities helping utilities!

Water system operators have been hearing much about VTWARN lately, and with good reason! VTWARN presentations were given at both the Green Mountain Water Environment Association Spring Meeting and Vermont Rural Water Association Annual Conference. The presentations explained the fundamentals and benefits of VTWARN. Currently, ten water systems are VTWARN members, and more are soon to sign up.

VTWARN has been recognized by both state and



Champlain Water District  
Colchester FD #1  
Grand Isle FD #4  
Shelburne Water Department  
St. Albans Water Department  
Stowe Water Department  
South Burlington City Water System  
Tri-Town Water District  
Vergennes Panton Water District  
Village of Jericho

regional organizations for their commitment to this effort. This spring, VTWARN Steering Committee members received special recognition at the Governor’s Awards for Environmental Excellence & Pollution Prevention. On April

22<sup>nd</sup>, VTWARN along with the other New England State WARNs were presented with an EPA Environmental Merit Award in Boston.

For more information, check out the [Water Supply Division website](#) or call Heather Young at 1-802-241-3717 or email: [heather.young@state.vt.us](mailto:heather.young@state.vt.us). 💧

## Water and Energy Efficiency Initiatives are Fundable Through the DWSRF

Contributed by Eric J. Law, *DWSRF Project Development Specialist*

The Water Supply Division shares the view of the U.S. Environmental Protection Agency that water utilities can’t afford to be water and energy inefficient. This is especially true considering rising energy and regulation costs. In an effort to put money where our mouth is, the Vermont Drinking Water State Revolving Loan Fund has made it clear that one of its new goals is to promote and fund water and energy efficiency.

Eligible activities have not been specifically defined but they will probably be grouped under one of the following three categories: 1) user rate planning

(e.g., installation of source and service connection meters to establish an ascending block rate structure); 2) water efficiency technologies and practices (e.g., preparation of water audits, leak detection programs and water conservation action plans); and 3) energy efficient technologies (e.g., lighting upgrades and variable frequency drives for motors). The most ambitious project might be alternative energy options like wind and solar power to run a pump station.

Although it is unlikely for a water system to qualify for a construction loan based solely on water and energy efficiency upgrades, water systems are *always* eligible for planning loans. For water systems securing construction funding based on other public health criteria, water and energy efficient scope items can be incorporated as supplemental items to an already eligible project. Please contact Eric Law at 1-800-241-4656 or [eric.law@state.vt.us](mailto:eric.law@state.vt.us) with any questions you have about funding eligibility. 💧



## DWSRF (continued from page 5)

Engineering Agreements (RFA) is enough. Don't worry; help is available to develop the RFP and the RFA.

- The RFP asks for how the work will be completed and how much it might cost. You will also receive some general information about the engineering firm, like references, to help you make your decision.
- The RFA is an engineering agreement and are more pared down than the full proposal, with just the basic references and price information. This is suitable if you either know the engineer or your project is small and well defined.
- Choose an engineering firm—once the bids are in, you can compare them and make your choice. This decision should not be based only on price but also communication skills, experience, and references.
- Planning Loan Application – The application is available to download from the WSD website. WSD or VRWA is available to help complete this application.
- Get your governing body's approval - Your governing board needs to sign the planning loan form.
- Mail forms - Mail the planning loan application and the draft engineering agreement (that is the unsigned bid from the engineer) to the WSD.
- Project Timeline – Complete the Project Timeline form. Again, WSD or VRWA is available to help. This form allows the WSD and you to track your project, makes sure things go smoothly and allows you and the WSD to see possible bottlenecks or unreasonable expectations.
- Capacity Evaluation - Work with the WSD or VRWA to complete a Capacity Evaluation. This is a survey that allows the WSD and you to evaluate your ability to manage the technical, managerial and financial aspects of your water system.
- Sign engineering agreement and loan papers - When the WSD approves your engineering agreement and loan application, you can sign the agreement and the engineer will start planning your project!

## I have my plan done—now what?

### ☛ You are *not* initially in the fundable range of the Priority List

- Pay for the project from cash reserves (sometimes you can get paid from the DWSRF retroactively but this is not the preferred method).
- Look for other funding sources (USDA, other grants, private loans).
- Wait until you are in the fundable range if not reacting to a compliance deadline— this could happen this year or you may have to wait for another year. You NEED to apply each year for the new list.

### ☛ You are in the fundable range of the Priority List! It is now time to enter the Construction Loan Phase of your project.

#### • Construction Loan steps are:

- Complete and submit a DWSRF Project Timeline.
- Schedule an authorization vote – this is a warned town meeting where your municipality's voters have a chance to discuss the project and vote to give you the authority to borrow the money for the loan; also referred to as a bond vote. If your project is over \$75,000 you will need a formal bond vote and a paper ballot. If your project is under \$75,000, a vote from the meeting floor will suffice.
- Construction Loan Application – fill out and have your board sign a construction loan application. This is available on the WSD website.
- Submit a copy of the town meeting posting, the article, and minutes or the recorded vote certified by the meeting clerk to the WSD.
- Environmental Review – once the preliminary design is complete for your project it is possible to start the environmental review of your project. Usually your engineer and VRWA will work on this portion. The purpose of this review is to make sure that the project is not harming valuable environmental, archeological or historic resources and you comply with all necessary permits.
- Final Plans and Specification Internal Review – your engineer will submit to you their final design and specification for your review. This is the time to submit your last round of edits and make sure every-

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# TRAINING & EVENTS CALENDAR

AUGUST							SEPTEMBER						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<b>4</b>	<b>5</b>	<b>6</b> • Pumps and Pumping Stations (VRWA)-Ludlow	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b> • Chemical Feed Pumps (VRWA)-New Haven/Aldison County Health & Hospice	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b> • Bennington Battle Day State Offices Closed	<b>16</b>	<b>17</b>
<b>18</b> • Navigating VOSHA/OSHA for Water and Wastewater (VRWA)-Newport/North Country Union High School and Randolph/VTC • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks	<b>19</b>	<b>20</b> • Chlorine Chemistry and Disinfection (VRWA)-Lyndon/Charles Center	<b>21</b> • International Contamination (WSD/VRWA)-Montpelier/Central Vermont Memorial Civic Center	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b> • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks	<b>26</b>	<b>27</b> • O&M Manual Training (VRWA)-Brattleboro	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>
<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>
<b>1</b> Labor Day - State Offices Closed	<b>2</b> • Water Audits and Leak Detection (VRWA)-Essex	<b>3</b>	<b>4</b> • ICS/NIMS Training (VRWA)-Pittsford/State Police Training Facility	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b> • General Safety for Water Operators (VRWA)-Springfield/Howard Dean • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks	<b>9</b>	<b>10</b>	<b>11</b> • Trench and Excavation Safety (VRWA)-Lyndon/Charles Center	<b>12</b>	<b>13</b>	<b>14</b> • NEWWA Annual Conference-Sheraton Hotel/Burlington
<b>15</b> • NEWWA Annual Conference-Sheraton Hotel/Burlington • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks	<b>16</b> • NEWWA Annual Conference-Sheraton Hotel/Burlington • TNC Recertification Training (VRWA)-Waterbury	<b>17</b> • NEWWA Annual Conference-Sheraton Hotel/Burlington	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b> • UV Systems and Disinfection (Clearwater Filtration)-Waterbury/St. Andrew's Church • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks	<b>23</b>	<b>24</b> • Science on the Green-State Office Complex Waterbury	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>

		<b>OCTOBER</b>						
	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>	
<b>29</b> • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks								
<b>30</b> • Science on the Green- Pritsford National Fish Hatchery								
<b>Monday</b>								
<b>6</b> • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks								
<b>13</b> • Columbus Day - State Offices may be closed (floating holiday)								
<b>20</b> • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks								
<b>27</b> • Class 3 & 4 Certification Class (VRWA)-VTC - 9 weeks								
<b>Monday</b>								
<b>3</b>								
<b>10</b>								
<b>17</b>								
<b>24</b>								
<b>31</b> • Advanced Water Treatment review cont. (VRWA)-Lyndon/Charles Center								
<b>1</b>								
<b>8</b>								
<b>15</b>								
<b>22</b> • Class 2 Certification Math review cont. (VRWA)-Lyndon/Charles Center								
<b>29</b> • Class 2 Certification Math review cont. (VRWA)-Lyndon/Charles Center								
<b>30</b> • Class 2 Certification Math review cont. (VRWA)-Lyndon/Charles Center								
<b>31</b> • Advanced Water Treatment review cont. (VRWA)-Lyndon/Charles Center								

		<b>NOVEMBER</b>						
	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>	
<b>3</b>								
<b>10</b>								
<b>17</b>								
<b>24</b>								
<b>31</b> • Advanced Water Treatment review cont. (VRWA)-Lyndon/Charles Center								
<b>1</b>								
<b>8</b>								
<b>15</b>								
<b>22</b> • Water System Hydraulics (VRWA)-St. Johnsbury/UVM Extension								
<b>29</b> • Thanksgiving Day - State Offices Closed								
<b>30</b>								
<b>1</b>								
<b>8</b>								
<b>15</b>								
<b>22</b> • Water System Hydraulics (VRWA)-St. Johnsbury/UVM Extension								
<b>29</b> • Thanksgiving Day - State Offices Closed								
<b>30</b>								
<b>1</b>								
<b>8</b>								
<b>15</b>								
<b>22</b> • Water System Hydraulics (VRWA)-St. Johnsbury/UVM Extension								
<b>29</b> • Thanksgiving Day - State Offices Closed								
<b>30</b>								

All trainings are offered by Vermont Rural Water Association unless otherwise noted. Please visit Trainer's website for cost, time and sign up information.  
 NEWWA - New England Water Works Association [www.newwa.org](http://www.newwa.org) • VRWA - Vermont Rural Water Association [www.vruralwater.org](http://www.vruralwater.org) • GWWEA - Green Mountain Water Environment Association [www.gmwea.org](http://www.gmwea.org) • WSD - Vermont Water Supply Division [www.vermontdrinkingwater.org](http://www.vermontdrinkingwater.org)  
 For Operator Certification: Matt Guerino, WSD 802-241-3415 or 800-823-6500 [matt.guerino@state.vt.us](mailto:matt.guerino@state.vt.us) • For Capacity Development: Ashley Lucht, WSD 800-241-3424 or 800-823-6500 [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us) • For Operator Training: Phil Aebo, VRWA 800-556-3792 x337 [pacebo@vtruralwater.org](mailto:pacebo@vtruralwater.org)



## Announcing the Debut of a Useful Asset Management Tool CUPSS – Checkup Program for Small Systems

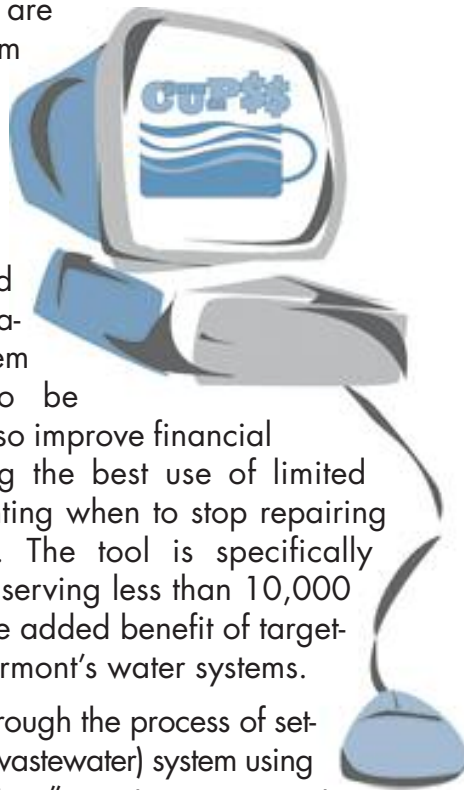
Contributed by Ashley Lucht, *Capacity Development Specialist*

The EPA has developed a user-friendly asset management tool that is now available for download or CD. The Checkup Program for Small Systems, or CUPSS, goal is to create an easy, succinct, comprehensive tool that is adaptable to each water systems' unique situation.

The goals of CUPSS are to help a water system better communicate between staff and decision makers by creating concise and easy-to-use reports on the system's status and to create a central location for all water system asset information to be stored. CUPSS can also improve financial management, making the best use of limited resources by highlighting when to stop repairing and start replacing. The tool is specifically designed for systems serving less than 10,000 customers so it has the added benefit of targeting the majority of Vermont's water systems.

The tool guides you through the process of setting up your water (or wastewater) system using the "Five Core Questions" asset management framework, which asks utilities:

- **What is the current state of my assets?**
- **What service level do my customers require?**
- **Which assets are critical to sustained performance?**
- **What are my best capital improvement and O&M strategies?**
- **What is my best long-term funding strategy?**



The CUPSS tool has unique features making it very easy to use and navigate.

- **Asset development from well to tap**
- **Visual graphs of asset priorities**
- **Multiple utility management (water and wastewater)**
- **Works off of your own computer**

Check out CUPSS to see firsthand the program features and you too will realize the benefits of this asset management tool. The program is available to download at <http://www.epa.gov/cupss/>. There will be more announcements to come including training sessions on how to prepare for CUPSS and how to implement CUPSS. For more information about CUPSS please contact Ashley Lucht at 1-802-241-3424 or [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us). ♪

## Security Spotlight: Water Sector ICS/NIMS in Vermont

Contributed by Heather Young, *Water System Security Coordinator*

There will be a U.S. EPA-sponsored Water Sector Incident Command System (ICS)-100 and National Incident Management System (NIMS)-700 training and certification courses for water and wastewater operators in **Pittsford, VT** on **Thursday, September 4<sup>th</sup>, 2008**. The one-day course will help water and wastewater utilities to better understand ICS, integrate with other responders within an expanding ICS structure, and implement NIMS concepts and principles that will help utilities provide mutual aid assistance to one another.

Water operators will receive 5 TCHs and 2 FEMA-approved certificates upon completion of the course and successful passing of the IS-100 and IS-700 exams. For more information and registration, please visit the following website: [www.horsleywitten.com/ICStraining/](http://www.horsleywitten.com/ICStraining/). You may also contact Heather Young at 1-802-241-3717 or [heather.young@state.vt.us](mailto:heather.young@state.vt.us). ♪



## DWSRF (continued from page 7)

thing necessary is included.

- Final Plans and Specifications State Review – the WSD will review your plans and make sure they meet all the requirements of state and federal law; the WSD will also review your Project Cost Summary so there is less of a chance for cost overruns during construction.
- Permit to Construct – once the plans and specifications are approved this is the final form needed before construction begins. Your engineer usually fills this out and you in turn sign and mail it to the WSD.
- For municipalities with projects over \$100,000, complete and submit the Vermont Municipal Bond Bank (VMBB) Application. This application is obtained by contacting VMBB directly.
- Advertise for bids – you will need to obtain bids from contractors to complete your project. All construction bids must be approved by the Construction Section of the Facilities Engineering Division. Once bids are in you can decide who to hire based on their merits and price.
- Start building!
- Complete the project – once the job is done and the dust settles you will need to review the loan agreement conditions as well as conditions in the Capacity Evaluation and complete any recommen-

dations. You will also need to submit to the WSD construction close-out documentation such as as-built drawings, engineer’s certification that everything was built to plan, updated O&M manual, etc. (loan forgiveness is conditioned on project closeout).

### **I paid my contractors—how and when do I get paid?**

The planning and construction loan agreement packets have a reimbursement request form. You will be tasked with paying the contractors out of your water system’s funds each month. At the end of the month, a reimbursement request form can be submitted along with paid invoices. You will usually receive payment within 30 days.

### **Additional Resources**

- Ian Schrauf - Onsite DWSRF assistance  
[ischrauf@vtruralwater.org](mailto:ischrauf@vtruralwater.org) or 1-800-556-3792, ext. 321
- Eric Law, VT Water Supply Division, DWSRF Project Development Specialist [eric.law@state.vt.us](mailto:eric.law@state.vt.us) or 1-802-241-4656
- Bryan Redmond, VT Water Supply Division, DWSRF Program Specialist [bryan.redmond@state.vt.us](mailto:bryan.redmond@state.vt.us) or 1-802-241-3408
- Ashley Lucht, VT Water Supply Division, Capacity Development Specialist [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us) or 1-802-241-3424
- Water Supply Division DWSRF Website  
<http://www.vermontdrinkingwater.org/capacity.htm>

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## Note from the Editors (continued from page 3)

which requires additional consultation between state agencies and public notice for public water systems adding a new type of disinfectant and Act 199 which declares groundwater to be a public trust resource and creates a new groundwater withdrawal program (effective in 2010).

As can be evidenced in the thirteen pages to follow, the vital work we do as water professionals can be seen in a broader and ever changing context. 💧





# THE GROUNDWATER RULE - Part 1

Contributed by Rodney Pingree,  
*Water Resources Section Chief*

## Introduction

(Part 2 of this article will appear in the next WaterLine publication)

The U.S. Environmental Protection Agency (EPA) recently passed a new regulation called the Groundwater Rule which affects all public systems using groundwater. The following is a very brief summary of this rule. The complete rule can be found at:

<http://www.epa.gov/safewater/disinfection/gwr/index.html>

This rule goes into effect on December 1, 2009 for all public water systems using groundwater sources (Community; Transient and Non-Transient, Non-Community; and consecutive systems to groundwater wholesalers). This rule is intended to increase protection from pathogenic viruses and bacteria for the water system users. As with all new rules, there are several activities the water systems must do.

## Before December 1, 2009:

These are the actions that water systems must take before December 1, 2009 when the rule becomes effective.

- To be ready for the 24 hour time limit on taking raw source water coliform samples when a distribution sample is found positive, sample taps need to be installed if they are not already in place (see Sampling Taps below).
- Send sampling location sketch to the Water Supply Division (WSD).
- Determine if you have 4-log viral

inactivation for existing disinfection capabilities for each groundwater source used by the system.

- Send the 4-log viral inactivation worksheet back to the WSD.
- Be ready to perform the additional compliance monitoring (see below).

## Sampling Taps

The Groundwater Rule will require that a SOURCE WATER sample (taken prior to treatment and storage) be taken within 24 hours from each groundwater source when a triggering event occurs.

The triggering event is a positive fecal or total coliform detect. When a source water sample is required, it must be taken from a sample tap located prior to any water treatment, as close to the water source(s) as practically reasonable. A source water sample can be taken from the following:

- A sample tap just inside the foundation of the treatment building or pressure tank room and before any treatment equipment connected to the water line,
- A sample line that ends with a sampling tap connected to the source inlet line that feeds a water storage reservoir in order to get a raw water sample before any treatment is added in the reservoir, or
- The first tap in the closest building to the water supply source if no treatment is used or storage tank is present before that point, and there is no closer place a sampling tap could be installed that would not be exposed to freezing conditions.

If there is not already a sample tap in a location that meets the above criteria, please install a

sampling tap(s), and indicate on the sketch (described next) where it is located.

Please review the water system piping and determine where the sampling location will be for each groundwater source connected to the water system. The water system will be asked to provide a sketch which includes the groundwater sources, the general layout of the water lines, location of where any treatment is added (including any UV unit location), and any water storage and/or pressure tanks in relationship to each of the identified sample tap locations.

If the water system has more than one groundwater source and can't get a source water sample from each source, then please explain why the sample location that is being proposed will be representative of the sources that are being combined for that sample tap. Generally, sources that are located in the same aquifer and are manifolded together prior to a central treatment site or the entry point to the distribution system, may be approved to be combined and represented by a single sample tap.

## 4-Log Virus Inactivation

Every groundwater water system using disinfection must determine that the disinfection process they are using meets a minimum 4-log virus inactivation requirement. A 4-log inactivation means that 99.99% of the viruses and bacteria present are made non-infectious.

Treating the water going to the users with 4-log inactivation treatment will meet the Groundwater Rule requirements for correcting a

(continued on page 15)



## Drinking Water Fair 2008

Contributed by Coleman (Coley) Baker,  
*Environmental Analyst*

Montpelier - **Water Makes Vermont Grow** was the theme for Vermont Drinking Water Week 2008. The Drinking Water Fair was the week's culminating event for over 275 fourth, fifth and sixth graders representing more than a dozen Vermont schools held on Friday, May 9, in Montpelier.

There was "water, water everywhere" as children, their teachers, parents and on-lookers crisscrossed the tulip-fringed Statehouse green under blue skies. Every child was encouraged to participate in well planned activities and exhibits focusing on drinking water. Words of the day included algae, aquifer, bedrock, contamination, desalination, dowsing, groundwater, potable, surface water, toxins, treatment, and watershed. Children filtered, sponged and pumped water. They hunted waterborne bacteria through a microscope and squinted in the sun to see the top of a towering well drilling rig parked conspicuously on State Street. At more reflective moments of the day, students brainstormed ideas how they could personally conserve and protect water.

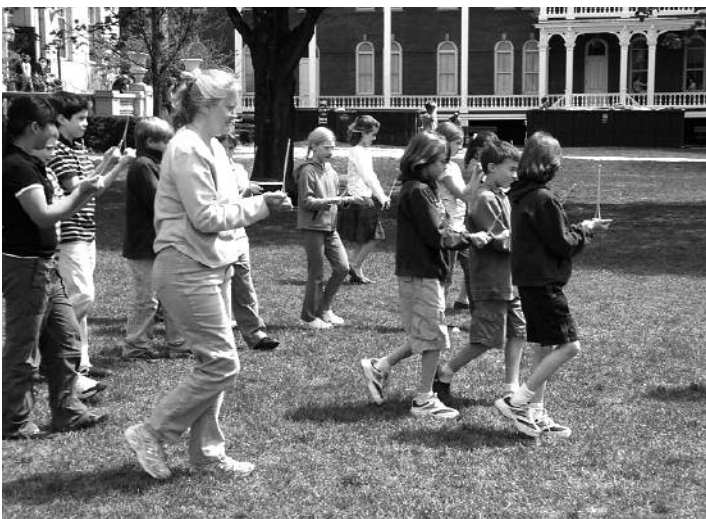
Many of the students present had submitted posters and photos depicting this year's theme. They saw Governor Douglas read the proclamation declaring the week as Vermont Drinking Water Week and award certificates and savings bonds to the poster and photo contest winners. Each child was cheered



on by a contingency from their school as proud parents and teachers looked on. Every youngster took home a new water bottle, a lanyard made from a soft drink bottle, a dowsing rod and other goodies in a reusable canvas bag.

Vermont Drinking Water Week and the associated Drinking Water Fair has been hosted for nearly twenty years by a diverse collaborative of Vermont water systems, laboratories, non-profits, public and private agencies, engineers, well drillers, law firms, local, state and federal government entities and individuals. Many of these entities provide both funds and staff time in order to communicate the importance of water to Vermont youngsters. In June, volunteers will meet again to consider new themes and sketch plans for next year's fair. It takes many to protect, produce and deliver Vermont's drinking water. This year the young Vermont fairgoers left with a better understanding of how precious it is and how to take care of it. Fair planners hope that Vermont teachers and home school educators will again encourage their students to ponder next year's theme and create a poster or snap a photo illustrating their Vermont Drinking Water viewpoints.

And of course perennial Elliot Morse was at the fair smiling and supplying all comers with bags of popcorn flavored by pure Vermont maple syrup. Remember, to produce a gallon of maple syrup it takes 40 gallons of sap – most of it is water. 💧



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## Coliform Sampling: Protection Against Bacteriological Pathogens

Contributed by Matthew Guerino,  
TCR Coordinator and Certification Officer

The Total Coliform Rule (TCR) was published by the U.S. Environmental Protection Agency in June 1989. The TCR became effective on December 21, 1990, which set both limits and health objectives for total coliform levels in drinking water. The TCR established a maximum contaminant level (MCL) based on the presence or absence of total coliform, made modifications to sampling requirements (fecal coliform or *E. Coli*), and required a bacteriological sampling plan. The total coliform rule applies to all public water systems meeting the minimum population requirements set forth by the Water Supply Rule and is considered to be a distribution monitoring event.

There are three types of sampling identified within the TCR: routine, repeat and 'temporary' routine samples (increased routine samples). The homogeneous sample names are given below.

**Routine Samples** – Monitoring period samples are considered to be routine samples. These samples are taken monthly for community systems and quarterly for non-community systems. The frequency of sampling is determined by the type of population present at the water system and the type of source. If your system continuously disinfects, you must make sure that the chlorine residual is marked on the chain-of-custody (field report) when reporting to the lab. The VT WSD will begin to issue violations to all groundwater systems that do not identify chlorine residual on the final report. Please verify that the lab is reporting chlorine residual on the final report sent to the WSD. Monitoring schedules can be found on the Water Supply Division (WSD) website ([www.vermontdrinkingwater.org](http://www.vermontdrinkingwater.org)) and are updated on a quarterly basis.

**Repeat Samples** – Increased monitoring is required when a routine sample result is positive for Total Coliform and/or *E. Coli*. Repeat samples are used to confirm the extent and severity of contamination at the water system. Water systems taking one sample per monitoring period are required to take *four repeat*

*samples*, while systems taking more than one routine sample are required to take *three repeat samples*. The initial positive sample site must be sampled again, along with one sample between one and five taps upstream (toward the source), between one and five taps downstream (away from the source), and somewhere farther out in distribution away from the initial positive (if a fourth sample is required).

**Temporary Routine Samples** – Also called increased routine samples, these five temporary routine samples are taken the month after the initial positive result. Five temporary routine samples are required and should be labeled routine when sending the samples to the Lab. The samples are used to help confirm the water system is not continuing to have bacteriological problems. The samples can be taken all on the same day for water systems that have a groundwater source, but must be taken throughout the month for systems that have a surface water source or a Ground Water Under the Direct Influence of Surface Water source). Please note that if the initial *routine sample* is taken at the end of the month the five *temporary routine samples* may need to be taken in the same month as the *repeat samples*. For example, if the initial routine sample is taken May 30<sup>th</sup>, the system may not be aware that repeat samples need to be taken 2-3 days later (in early June). Because the 5 temporary routine samples need to be taken the month after the routine sample was positive (which was May 30<sup>th</sup>), the 5 temporary routines would need to be taken in June. These samples have also been called follow-up samples and check samples; however *routine samples* are how they should be identified when reporting to the lab and WSD.

The purpose of bacteriological sampling is to identify whether or not pathogenic organisms can enter the water supply. Please remember that the Water System, *not* the laboratory, is responsible for reporting samples to the WSD. Coliforms are an 'indicator' bacteria which helps water systems become aware of the possibility of pathogenic contamination at the water system. EPA has chosen coliform sampling because it can be detected quickly using reasonably priced laboratory methods. Water systems can interpret the presence of Coliform bacteria in a public water supply as an early warning that part or

(continued on next page)

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## Coliform (continued from previous page)

all of the water system has been compromised. The water system operator should then inspect the system for deficiencies creating pathways for bacteria to enter the water system.

Total coliform compliance samples are to be monitored within distribution and samples must be taken from approved sample sites. EPA has found that the implementation of the TCR has resulted in the decrease of illness stemming from bacteriological organisms.

For more information on the TCR Rule, please contact Matthew Guerino at 1-802-241-3415 or [matthew.guerino@state.vt.us](mailto:matthew.guerino@state.vt.us). 💧

## Core Curriculum Concept

Contributed by Matthew Guerino, *TCR Coordinator and Certification Officer* Vermont Rural Water Association along with the Water Supply Division have been working hard to create a core curriculum program. The Core Curriculum Concept identifies four areas of knowledge that all operators will need—Rules and Regulations, Operations, Capacity, and Safety/Security. The Core Curriculum Concept will ask for more credit hours than required from the Water Supply Rule and as a result establish a higher standard for operator education.

This is a voluntary program and when all requirements have been met the operator would receive an Advanced Certification. All operators completing the program will have in-depth knowledge of regulations, be highly proficient in operations, have a strong understanding of water system technical, managerial and financial issues, and have working knowledge of safety/security requirements.

All courses pre-approved by the WSD will be included as part of the program. Information will follow in the next few months on credit hours, additional requirements, and how the program will be managed. Contact Matthew Guerino at 1-802-241-3415 or [matthew.guerino@state.vt.us](mailto:matthew.guerino@state.vt.us) if you are interested in standing apart and receiving advanced certification.

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## Groundwater Rule (continued from page 12)

positive fecal coliform detect deficiency in a source water sample.

The WSD will send a worksheet to the water systems to fill out in order to help them calculate this. Information needed will include range of water temperature, water pH, the minimum disinfectant concentration entering the system, and the total amount of time the disinfectant is in contact with the water before the first user (taking into consideration velocity of the water, volume of water in a flow through storage tank, tank inlet/outlet configuration, and pipe volumes) under peak, maximum flow operating conditions.

End of Part 1 - The next WaterLine installment will continue with the Groundwater Rule requirements that water systems will need to deal with after December 1, 2009. For more information on the Groundwater Rule, please contact Rodney Pingree at 1-802-241-3418 or [rodney.pingree@state.vt.us](mailto:rodney.pingree@state.vt.us). 💧

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## WSD Announces a Facilitation/Mediation Contract

Contributed by Ashley Lucht, *Capacity Development Specialist*

The Water Supply Division is seeking public water system operators, owners, and governing boards who may need facilitation or mediation assistance. Are you in the midst of negotiating user fee rates, consolidation, and water allocations with another town? Do you need to develop an interlocal agreement or operation and maintenance schedule? Resolving any matter related to providing drinking water to the public is eligible under the WSD's new facilitation and mediation contract. Unbiased contractor services are provided using Drinking Water State Revolving Loan Fund monies with the intent of developing equitable agreements between willing parties. If you are interested in this service or are aware of a situation that would benefit from this service, please contact Ashley Lucht at [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us) or 1-802-241-3424. 💧



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[www.vermontdrinkingwater.org](http://www.vermontdrinkingwater.org)**

If you have any comments or suggestions about this newsletter, please contact the editors:  
Ashley Lucht 802-241-3424 [ashley.lucht@state.vt.us](mailto:ashley.lucht@state.vt.us)  
or Eric Law 802-241-4656 [eric.law@state.vt.us](mailto:eric.law@state.vt.us).



Honorable Jim Douglas, Governor  
George Crombie, ANR Secretary      Laura Pelosi, Commissioner

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