

**ANNUAL REPORT OF THE  
TECHNICAL ADVISORY COMMITTEE**  
Established by Act 133 of the 2001 Adjourned Session

REGARDING OVERSIGHT AND IMPLEMENTATION OF THE  
**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY  
RULES**

**February 13, 2013**

Members of the Act 133 Technical Advisory Committee:

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**John Beauchamp**, Water Treatment Design Specialist  
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## Annual Report of the Technical Advisory Committee

### **Purpose:**

The Technical Advisory Committee was created by Act 133 of the 2001 Adjourned Session of the Legislature and incorporated into the Vermont Statutes as Chapter 64, Section 1978(e)(2) which appears as:

*The secretary shall seek advice from a technical advisory committee in carrying out the mandate of this subdivision. The governor shall appoint the members of the committee and ensure that there is at least one representative of the following entities on the committee: professional engineers, site technicians, well drillers, hydrogeologists, town officials with jurisdiction over potable water supplies and wastewater systems, water quality specialists, technical staff of the agency of natural resources, and technical staff of the department of health. Administrative support for the advisory committee shall be provided by the secretary of the agency of natural resources.*

Section 1978(e)(3) required the preparation and submission to the legislature of an annual report in several specific categories related to the adoption and revision of rules, approval of innovative alternative systems, and a summary of permits issued and denied during the year. The requirement to submit an annual report was eliminated by legislative action during the 2012 session, however the Technical Advisory Committee decided that a summary of their work should still be prepared. This report is a summary of the work by the Technical Advisory Committee and the recommendations made by the Committee during 2012.

### **Technical Advisory Committee Members:**

Governor Shumlin appointed those listed below to the Technical Advisory Committee during 2012, most of whom are replacements for previous members. The full list of Technical Advisory Committee Members, and their contact information, is attached as Appendix A.

John Beauchamp – Water Treatment Specialist

Mark Bannon – Professional Engineer

Peter Boemig – Professional Engineer

Mary Clark – ANR Technical Staff

Cynthia Parks – ANR Technical Staff

Scott Stewart – ANR Technical Staff

Anne Whiteley – ANR Legal Staff

William Zabiloski – ANR Technical Staff

### **Executive Committee and Subcommittees:**

The TAC has an Executive Committee with three members and four alternates that are available to answer questions or provide testimony to the Agency or the Legislature. There were also 7 Subcommittees during 2012. A few of the Subcommittees were consolidated at the last meeting of 2012. The list of Subcommittees and members is included in Appendix A.

### **Meetings:**

Twelve meetings were held by the TAC in 2012, on January 10, February 14, March 20, April 17, May 22, June 19, July 17, August 21, September 25, October 23, November 20, and December 11.

The meetings were held at the Department of Liquor Control Conference Room in Montpelier. Meeting attendance ranged from 9 members to 18 members with an average attendance of 15 members.

The full minutes of each meeting are available on-line at [www.anr.state.vt.us/dec/ww/EngServ.htm#tech](http://www.anr.state.vt.us/dec/ww/EngServ.htm#tech) under the heading “Technical Advisory Committee.”

### **Activities of the Technical Advisory Committee:**

1. **Report to Legislature:** The TAC submitted the annual report of its work during 2011 to the Legislature on January 15, 2012. This is the last report that is required to be prepared for the Legislature.
2. **Underground Injection (UIC) Rules:** Issues related to the regulation of injection wells were discussed at the February, April, June, July, August, September, October, November, and December meetings. The Agency has been working on updating the Vermont Rules that are used to implement this Federally delegated program for several years with the work starting and stopping as other Agency priorities developed. During this year the updating of the UIC Rules has been pursued with more diligence and it appears that the process to request legislative approval through the LCAR (Legislative Committee on Administrative Rules) will begin in the spring of 2013.

The TAC has particularly focused on dealing with discharges that are perceived as low risk to the environment with a view to supporting the creation of a class of exemptions from the UIC Rules. The Federal program includes exemptions, without conditions, for all Class V wells except for those used for the discharge from automotive service areas and cesspools serving 20 or more people while under the current Vermont Rules no exemptions are allowed. The TAC supports the creation of conditional exemptions for these low risk wells because the existing UIC permitting process requires an application, fee, and a public notice process that is expensive and time consuming; and then the permit must be renewed every five years. There are thousands of injection wells that are subject to the UIC Rules which are routinely installed without obtaining a permit that potentially have clouded property titles in the absence of the permit.

The TAC reviewed draft language prepared by the Agency creating a range of exemptions all of which contain some conditions. At a minimum, the exemptions will include a condition that only the specified wastewater may be discharged to the injection well. For example, “rain gardens” which are used to retain and infiltrate rainfall and snow melt are injection wells subject to the UIC Rules and might qualify for a conditional exemption provided only uncontaminated rainfall and snowmelt are discharged to the injection well.

Other possible conditional exemptions include those for open loop geothermal wells, stormwater wells not subject to the other Agency rules regulating stormwater, residential floor drains, foundation drains, discharges from water treatment systems of a limited size, construction dewatering wells, and some types of boiler blowdown water. Each of these was discussed and recommendations made for appropriate conditions to ensure that the activity would be of low risk.

3. **Overflowing Wells:** Overflowing wells have been a periodic topic at TAC meetings but became of more interest this year and were discussed at the July, August, September, and December meetings. This interest was related to the ongoing work of updating the Water Supply Rules and became more focused when an ongoing project to replace a municipal water source with a large number of individual drilled wells resulted in at least three wells with overflow rates of up to 100 gallons per minute. Overflowing wells raise at least three questions. The first is whether or not they unreasonably deplete the aquifer. The second is what methods of disposing of the overflow are acceptable. The third is whether there are practical techniques for closing in the wells so that they do not overflow.

When the TAC reviewed the first issue, their conclusion was that the answer is somewhat case specific as it depends on the nature of the aquifer and the demands on the aquifer. The majority of the TAC supported a 10 gallon per minute cutoff with a presumption that flows at or less than 10 gallons per minute would have a low risk of unreasonable depletion of the aquifer. One point of discussion was that the recent application of the public trust doctrine to groundwater in Vermont might be part of the final decision.

Overflowing wells usually dispose of the excess water with over-the-surface flow to a nearby stream or lake, or possibly a private pond, or by infiltration into the ground. Wells with small and/or seasonal flows are not generally problems. High flow wells may create soil erosion or flow onto neighboring property creating adverse effects. Discharges to streams are subject to the Direct Discharge Permit Program, though exemptions are typically granted to allow the discharge to occur. The one TAC recommendation was to add a conditional exemption to the UIC Rules to allow for subsurface disposal.

When the third issue was discussed the TAC sought input from Licensed Well Drillers and learned that there are technical approaches that allow for any well to be closed in. There was discussion about whether the initial construction techniques should include measures that would make closing in an overflowing easier. The cost of closing in a particular well depends on the initial drilling technique. Various modifications to the initial construction techniques can be made, some at relatively low cost, that makes closing in most overflowing wells easier. However, the lower cost modifications may not be sufficient to deal with extreme geologic conditions. Alternatively, wells drilled with standard techniques that overflow with high pressures can still be closed in. The cost of reworking of the well construction needed to ensure that the high pressures will not result in upflow of water outside of the casing or in actual lifting of the casing itself, is significantly more expensive than taking protective measures at the outset. The difficulty is in deciding if there should be precautions taken on all wells in order to reduce the cost for the relatively few wells that naturally overflow. The TAC recommended that the Agency explore this topic with Licensed Well Drillers to better determine the cost benefit ratios for the two approaches.

At the December meeting it was announced that the Groundwater and Drinking Water Protection Division was going to recommend that all overflowing wells be closed in. TAC members asked if this recommendation was final and made with full access to the costs and problems associated with such a decision. The recommendation will be further reviewed at several levels prior to a final determination of whether or not it will become part of the Water Supply Rules.

4. **Well Isolation Distances:** The TAC spent time working on draft revisions to the Water Supply Rules with particular attention given to the various isolation distances between water sources and wastewater disposal systems. The existing rules contain provisions that allow for a reduction in isolation distances based on a hydrogeologic evaluation of site specific conditions. The group wondered if there are a range of situations where the reduction might be approved without the expense of a full blown hydrogeological analysis. The topic was assigned to a subcommittee that met several times and developed a draft guidance document. The TAC believes that it will complete the draft guidance early in 2013 and recommend implementation by the Agency.

5. **Overshadowing Issues:** A bill, H.469, related to the impact of water supply and wastewater system isolation zones that extend onto neighboring properties was reviewed. The bill as drafted would have allowed the neighboring property owner to ask the Agency to review any project with isolation zones extending onto their property to see if a less intrusive design is possible. The bill did not provide any guidance on how to balance the impact between the developer and the neighbor or provide actual authority to require a change in the design. The bill also stated that the existence of isolation zones created an encumbrance on the overshadowed property. H.469 was not supported by the TAC and did not pass the Legislature. The TAC did recommend changing the existing statute (10 V.S.A. §1973) to incorporate language developed by the Agency with TAC input in 2011 that reduced the burden of providing notification to those neighbors affected by the overshadowing. The change was made by the Legislature in 2012.
  
6. **Radionuclides in Drinking Water:** The TAC was very concerned about the impact of radionuclides in drinking water during 2012. The first concern was the effects on those drinking contaminated water. A second was the installation of water treatment systems including the existing permitting/exemption process and the proper disposal of any filter backwash from these systems. A third concern was potential effects on those who install and service water treatment systems when the water contains radionuclides.

Dr. William Irwin, Chief of the Radiologic and Toxicological Science Program for the Environmental Health Division at the Vermont Department of Health, gave an extensive presentation to the TAC at the March meeting. Dr. Irwin has studied the risk associated with radionuclides and has concluded that the human health risks of drinking water with radionuclides above Vermont standards far exceed the human health risk associated with operating and maintaining treatment systems or the disposal of the treatment backwash into a soil based disposal system. Systems which are not maintained or operated correctly could pose an exposure risk to providers or household occupants. Dr. Irwin's analysis was for uranium and radium, the two most commonly analyzed naturally occurring radionuclides for which EPA has set health-based standards, that are found in a subset of Vermont drinking water wells.

The TAC recommended that the Agency take two actions that would make the installation of water treatment systems for radionuclides much easier and therefore more likely to occur. The TAC recommended that the existing exemptions in 10 V.S.A., Section 1974(4) be expanded to include uranium and radium. The change would eliminate the need for the expense and time of obtaining a Wastewater System and Potable Water Supply Permit before installing a treatment system. The TAC also recommended the addition of a conditional exemption to the UIC Rules that would allow for the installation of a small subsurface system to dispose of the filter backwash. The TAC reasoned that any contaminants in the groundwater will be returned to the soil whether or not the water is treated so that allowing for the disposal created little if any additional risk while creating clear and significant health benefits by not drinking contaminated water.

7. **Innovative/Alternative Systems:** The Agency had several requests for approvals and renewals during 2012 and asked the TAC to comment on each including the Enviro-Septic, EcoFlo Biofilter, Geoflow, and High Strength Fast systems. The details of these discussions are included in the monthly minutes that are posted at: [www.anr.state.vt.us/dec/ww/EngServ.htm#tech](http://www.anr.state.vt.us/dec/ww/EngServ.htm#tech) The TAC remains supportive of approving any new systems that satisfy the performance requirements.
8. **Water Treatment Systems:** The TAC also recommended that 10 V.S.A., Section 1974(4) be expanded by adding fluoride, nitrate/nitrite, and copper to the list of treatment systems that are exempt from the requirement to obtain a Wastewater System and Potable Water Supply Permit. The TAC also supports inclusion of these contaminants in a conditional exemption from the UIC Rules as part of making the installation and use of water treatment system easier for residential systems. These changes would eliminate a current requirement to obtain a Wastewater System and Potable Water Supply Permit saving time and money for the water system owner. The TAC supported adding a conditional exemption to the UIC Rules that would allow a small subsurface system to be installed for the disposal of filter backwash.
9. **High Strength Wastewater:** The TAC appointed a subcommittee that met several times to discuss the nature and impact of high strength wastewater. At first the subcommittee looked at developing specific numbers for BOD, TSS, and many other potential constituents that make up high strength wastewater at different establishments. As the discussion progressed it was decided that there is such a site specific variation in types and strengths of wastewater that creating numerical standards and testing methods would not be practical. The subcommittee did create an informational document that will be useful for designers and reviewers by identifying situations where high strength or unusual wastewaters might be discharged along with some possible design solutions. The document needs only a few updates and will be published early in 2013. The subcommittee's recommendations were discussed at the December meeting with some members supporting changes to the Wastewater System and Potable Water Supply Rules that would add special design factors for some establishments. The Agency agreed to review the information and consider whether changes should be made to the Rules and/or if informational appendixes should be added.
10. **Groundwater Monitoring Subcommittee:** This subcommittee met several times during the year to review how measurements of the seasonal high water table are made, how the results are interpreted, and what changes might be possible. A key topic was the use of the highest reading in a particular monitoring well when doing the calculation to determine if there will be at least 6" of unsaturated, naturally occurring soil at all times. The question is whether there is an alternative analysis to using the single highest reading that can be used that would still ensure compliance with the Wastewater System and Potable Water Supply Rules (Rules). After much discussion the subcommittee did not agree on an alternative analysis. A second key topic was how to make a decision about a site with several monitor wells when most wells demonstrated compliance with the Rules

but one or more wells were not in compliance. The subcommittee did reach agreement on how to decide whether a site was in compliance or not. A guidance document will be created that can be used by designers and review staff to ensure a consistent interpretation and application of the Rules.

## APPENDIX A

### Technical Advisory Committee Members as of December 1, 2012

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### **Executive Committee**

Steve Revell, Ernest Christianson, Roger Thompson

Alternates – Chris Thompson, Spencer Harris, Claude Chevalier, Craig Heindel

### **Subcommittees:**

#### **Hydrogeology**

Craig Heindel, Bill Zabiloski, Mark Bannon, Scott Stewart, Steve Revell, Mary Clark, Roger Thompson, Peter Boemig, Ernie Christianson, Spencer Harris

**UIC Rules**

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Scott Stewart, Rodney Pingree, Kim Greenwood, Cindy Parks ,John Beauchamp, Gail Center

**Wastewater Strength**

Mary Clark, Cindy Parks, Peter Boemig, Bill Zabiloski, Roger Thompson, John Akielaszek,

**Bottomless Sand Filters**

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

**Seasonal High Water Table Monitoring**

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

## Appendix B

### Performance Standards for Regional Office Permits

#### Performance Standards for Permits Issued During 2007-2012

	# of Permits Issued	# of Permits Meeting PEP Standards	% of Permits Meeting PEP Standards	Average DEC Days	Average Total Days	# of Permits That Exceeded Standards
2007	3746	3691	98.5%	16.8	48.2	55
2008	3435	3418	99.5%	12.3	62.1	17
2009	2691	2672	99.3%	11.8	41.6	19
2010	2621	2600	99.2%	11.9	35.2	21
2011	2289	2279	99.6%	13.2	29.8	10
2012	2472	2444	98.9%	12.7	29.6	28

Note: The performance standard for DEC days is 30 days for one-lot subdivisions and projects with a design flow of 500 GPD or less. The performance standard for other projects is 45 days.