

Approved Minutes of the Technical Advisory Committee Meeting  
July 17, 2012

**Attendees:** Roger Thompson Ernest Christianson  
Steve Revell Mary Clark  
David Swift Anne Whiteley  
Cindy Parks Jeffrey Williams  
Gail Center Rodney Pingree  
Mark Bannon Craig Heindel  
Scott Stewart Peter Boemig  
John Beauchamp

**Scheduled meetings:**

August 21, 2012	1-4 PM	Liquor Control Conference Room-Montpelier
September 25, 2012	1-4 PM	Liquor Control Conference Room-Montpelier
October 23, 2012	1-4 PM	Liquor Control Conference Room-Montpelier

**Agenda:**

The agenda was amended to discuss the issues related to controlling overflowing drinking water wells.

**Minutes:**

The draft minutes of the June 19, 2012 meeting were reviewed and accepted.

**Update on UIC Rule Revisions:**

Cindy discussed the proposed conditional exemptions, working from draft #5, dated June 15, 2012.

The Department of Environmental Conservation (DEC) is considering the use of conditional exemptions because the DEC has very limited resources to regulate underground injection wells. Creating conditional exemptions for the low risk activities, of which there are many, will allow the DEC to focus on the small number of injection wells that should be carefully reviewed prior to permitting and carefully monitored to ensure compliance with their permits.

It is important to note that the proposed exemptions are conditional. While the proposal would eliminate the need to apply for and obtain a permit for some discharges, the discharges would still be subject to the UIC Rules requirements. At a minimum, the proposal would limit the discharge to a conditionally exempt injection well to only

specific types of wastewater. For instance rain gardens would only receive rainwater and snow melt-water from roofs and driveways.

Steve asked where the DEC is in the process of updating the UIC Rules. Cindy said that the proposed conditional exemptions have only been reviewed in-house and now with the TAC. Anne said that the DEC started with the conditional exemption portion of the rules because they can be difficult to write and they may be controversial if it appears that the DEC is allowing too many exemptions. One issue the DEC is dealing with is the exceptionally broad definition of injection well, which can include almost any hole in the ground that receives any kind of waste. This is also broadly defined to include any kind of substance, solid, liquid, or gaseous. One example is that rainwater falling on the face of a gravel pit is considered to be process waste and therefore waste if it enters an injection well. The Federal statute under which Vermont receives its delegated authority has a limitation that in order to be considered to be an injection well the hole must be deeper than it is wide. This limitation is not included in the Vermont Rules. In addition, all class V wells, which are the only class occurring in Vermont, are exempt under the Federal statute except for those that receive waste from automotive repair shops and drywells serving 20 or more people. In Vermont, all injection wells are subject to the UIC Rules, though injection wells that are otherwise approved by the Secretary of the Agency of Natural Resources (ANR) are exempt from the requirement to obtain a permit under the UIC Rules.

Roger asked if the exemption for wells already permitted by ANR will be retained and Anne said that it would be except for wastewater systems regulated under the Wastewater System and Potable Water Supply Rules that receive process wastewater and/or incompatible wastewater. Anne said that she is working with Ernie and the Regional Office staff on a definition for incompatible wastewater. Craig asked if as part of the UIC Rule update the jurisdiction would be limited to that in the Federal Statute. Anne said that when adopted in Vermont the statute was written broadly to capture everything and that she did not think it would be revised to match the Federal limits. Gail asked about the disposal of wastewater from water treatment systems and Ernie said there would be an exemption, at least for residential and other small systems.

**The TAC then proceeded to review the exemptions proposed in draft #5.**

1. Open Loop Geothermal Wells:

Craig opened the discussion by noting that Jim Ashley, at the previous TAC meeting, had said that an exemption based on 20,000 GPD would greatly limit the number of exempt geothermal systems. Jeff said that the answer depends on whether the GPD limit is maximum day, yearly average, or some other calculation. Cindy said that she recently reviewed a report from the Champlain College system and there is at least a 5-fold variation between high and low flow days. She said that the system is relatively new and they are still learning how to operate the system efficiently and that they expect the variation in flow rates to decrease somewhat. Cindy suggested the geothermal system be rated by the heating capacity of the system, which is rated in tons or BTUs of capacity,

rather than by the daily flow. Jeff said that 10-15 tons of capacity would serve most large residences or small commercial operations. Steve noted that some of his projects of modest size required up to 20 tons of capacity. Mark asked if there are specific concerns with larger systems. Jeff said that the main concern for larger systems is the impact on an aquifer if the water is withdrawn from one well and discharged to another well or other discharge point. Ernie asked about the regulations on withdrawals and Scott and Rodney replied that there is a requirement to file a notice for withdrawals of 20,000 GPD or more with a permitting requirement starting at 56,700 GPD. Cindy said that some people are starting to look into the question of whether there are situations where the temperature change between the withdrawn and the recharged water is large enough to cause a significant change in the water quality. An increase in temperature can draw some ions into solution. Rodney questioned the use of the term “potable” in (1)(D) because that is a defined term in the Wastewater System and Potable Water Supply Rules.

#### Direct Exchange and Closed Loop Geothermal Systems:

Direct exchange and closed loop wells are not regulated as injection wells because they do not discharge any water. The wells have sealed piping placed into the well and then are fully grouted in place. Jeff said the main issues are related to corrosion and electrolysis. Direct exchange wells circulate a refrigerant through piping grouted into the well. The refrigerant presents a low risk because in a leak situation, where the pressure is low, the refrigerant vaporizes rather than mixing with the groundwater. Closed loop systems use a mixture of water and food grade glycol that circulates into the well and an above ground heat exchanger. Mark asked who regulates these well and was told that there is no permitting requirement for these types of well though there is a limited amount of very general language in the well driller’s rules. Craig said that a national well driller’s organization has some requirements for installers of geothermal systems and suggested that TAC make a recommendation on if and how to regulate these systems.

#### 2. Rain Gardens and Other Stormwater Bioretention Wells:

Cindy reported that the EPA advocates not regulating these systems. Some definition of what these consist of is needed to ensure the proposed exemption only includes low risk systems.

#### 3,4,5. Stormwater Discharge Wells:

The three were discussed as a group. Incidental contamination needs to be defined. Each should indicate that they only receive stormwater. The Agency needs to draft a list of isolation distances for the table mentioned in (4)(D) which can then be reviewed by the TAC. #5 might be easier to understand if a date is specified rather than stating “not new.” There were concerns about the requirement in (4)(C)(i) that all drinking water sources within ½ mile be identified. This should be resolved when the isolation distances are selected with the maximum distance in the table used instead of ½ mile. It needs to be determined if drainage swales and catch-basins are categorized as UICs.

6. Swimming Pools:

Cindy said that the 30,000 gallon limit was selected as a good break between private and public pools. She noted that there is some concern that public pools might have a lot of sunscreen type contamination, and that with public hot tub use there might be a lot of thermophilic bacteria. Steve suggested that all of these pools and hot tubs include pumps and recirculation filters that would likely control the accumulation of sunscreen and similar products. The TAC recommends removing the 30,000 gallon limit. Mark asked if there should be a time period to allow for the dissipation of chlorine. Cindy said that chlorine is quickly consumed in the soil and therefore is not a threat to the watertable.

7,8,9,10. Parking Garages:

A distinction between parking lots and parking garages is needed. Also the jurisdiction between the Stormwater and UIC Programs with respect to parking garages should be clarified.

Language is needed to limit the discharge to precipitation and snowmelt water. As with 3,4, and 5 a table of isolation distances should be prepared and reviewed by the TAC which will likely eliminate the need to locate all drinking water wells within ½ mile. Consideration should be given to when the use of sediment traps and oil/water separators should be required for #7. Design guidelines for #7 and #9 need to be developed.

11,12. Foundation, Curtain, Roof Drains and Sump Pumps:

The language should limit the discharge to only precipitation or groundwater. Incidental needs to be defined. Roger said that people often want a floor drain in the utility room. A suggestion was made to combine items 11 and 12.

13. Sand and Gravel Pits:

Rodney said that the 200' isolation distance in (13)(C) should be measured from the closest edge of the drainage area that will discharge to the well. The TAC recommended an exemption from the isolation distance for onsite fueling stations that are covered and that have spill containment berms.

14. Rock and Mineral Processing:

This section is still being developed by the Agency. Rodney raised a point that the term "potable water" might not be the best choice because it is a defined term in the Wastewater System and Potable Water Supply Rules which might confuse people.

15. Floor Drains from Animal Facilities:

Scott recommended dropping the note requiring the bagging and disposal of animal excrement thinking that this document is about the injection well not the disposal of animal waste. Roger mentioned that this section is somewhat similar to the section in the

Wastewater System and Potable Water Supply Rules dealing with composting toilets that included limitation on the methods of disposal for the material removed from the toilet.

16. Wastewater from Water Treatment Systems:

Rodney asked why radon was on the list when radon is treated with methods that do not result in a discharge into an injection well. Anne said that this was just a statement of the existing statutory language. Rodney also asked why radium and uranium, two metals that do end up in the wastewater are not listed. Anne said this was also a function of the statutory language. The TAC recommends adding radium and uranium the list of exemptions. Anne asked if there are other contaminants that should be added: and nitrate and copper were mentioned. Also mentioned was reject water from reverse osmosis systems.

17. Process Water from Systems Regulated by ANR

This exemption is intended to cover groundwater cleanup systems operated under the supervision of the Sites Management Section. Groundwater is removed, treated, and then returned to the ground. TAC asked that the definition of “potable water” be revised as noted in #14 above.

18. Temporary Injections for Well Maintenance:

The TAC asked that this section be rewritten to clarify what materials can be injected and the time frame and methods of injection.

19. Discharges from Overflowing Wells:

The TAC agreed with this section.

20. Construction Dewatering Wells:

The TAC had some concerns about this exemption. Craig said that there can be some significant contamination present on a few sites. One suggestion was to limit the exemption to those situations where the groundwater has at the most some “incidental” contamination. This would require a definition and might result in every site requiring water chemistry testing in order determine compliance with the exemption. Rodney suggested that there should be some basic isolation distances between the injection well site and points of concern. Ernie suggested that a setback to property lines might be one and Mark asked if roads are also a point of concern. The technical requirements of discharging to the same aquifer from which the groundwater was withdrawn should be considered. Mudpits need to be addressed.

21. Boiler Blowdown Water:

Blowdown is the water used to periodically flush the waterjacket that transfers the heat from the firebox to the circulation system. It is unclear how many systems this exemption would cover as most residential and small commercial systems do not routinely flush their boilers. The exemption as written is acceptable.

The remaining sections of the draft document are still under development and will be discussed by the TAC when the Agency completes its work.

**Next Meeting Dates:**

It was decided that the next meeting dates would be:

- August 21, 2012
- September 25, 2012
- October 23, 2012

Roger will determine meeting locations and notify the Committee Members.

**Control of Overflowing Wells:**

Scott asked the Committee for feedback on the question of overflowing drilled wells. The issue has been around for a long time but has returned with a project in Proctor where as part of a municipal water system upgrade several houses along one road are being disconnected from the municipal system. Replacement wells are being drilled and one well has an overflow of about 75 GPM. Scott said that the Agency position at the moment is if the well has an overflow of 10 GPM or less it should just be closed in but that with larger overflows the Agency would discuss the situation with the well driller and decide how to proceed.

Closing in a well can create problems. If the well is not cased into bedrock the pressure created when the well is closed in may cause an upflow on the outside of the casing. This can also occur with the well terminates in bedrock if the bedrock is fractured or the drive shoe is not properly seated. In rare cases, the pressure in a bedrock well can be enough to push the well casing back towards the ground surface until the groundwater can flow up the outside of the casing. Jeff discussed this from a well driller's perspective and said that there are technical approaches that allow all wells to be closed in. If a problem is anticipated, about \$1,500 of extra work can ensure the well can be closed in. If the well is drilled without this extra work, the repair will often cost 2 or 3 times more. The difficulty is knowing when to anticipate a problem. The Committee discussed the concept of a de minimis flow, maybe 10 GPM, where there would not be a significant impact on other users of the aquifer. Craig asked if there should be a state fund, similar to that for leaking underground gas tanks, that could help out with the unexpected cost of closing in wells. Anne was skeptical that such a fund would be created by the legislature.

Craig asked if the Water Supply Section might manage the issue, or possibly the Vermont Well Driller's Association might want to work on the issue with training and a map of areas at high risk for overflowing wells.

Items prioritized for discussion with high, low, and medium ranking

1. Soil identification vs. perc test **medium**
2. Curtain drain with presumption of effectiveness **high**
3. Revisions to desktop hydro chart **medium**
4. Minimum amount of sand under a mound **high**
5. Water Supply Rule update **high**
6. Seasonal High Water Table determination for performance based systems **high**
7. Wastewater Strength

### **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

Overshadowing of Isolation Distance Issues –

Anne Whiteley, Ernie Christianson, Roger Thompson, John Beauchamp, Gail Center, Chris Thompson

UIC Rules and Geothermal Wells -

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

SHWT Monitoring –

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

UIC Rules and Disposal of Wastewater from Water Treatment Systems –

John Beauchamp, Gary Adams, Roger Thompson, Ernie Christianson,

Gail Center, Cindy Parks

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