

Approved Minutes of the Technical Advisory Committee Meeting  
January 13, 2015

**Attendees:** Roger Thompson  
Jeffrey Williams  
John Beauchamp  
Steve Revell  
Ernie Christianson  
Denise Johnson-Terk  
Peter Boemig  
Jessanne Wyman  
Bill Zabiloski  
Ken White  
Gail Center  
Scott Stewart  
Craig Heindel  
Mary Clark  
Mark Bannon  
Chris Russo  
Rodney Pingree  
Kim Greenwood

**Scheduled meetings:**

February 17, 2015	1-4 PM	Catamount Con. Rm., National Life – Montpelier
March 17, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier
April 14, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier

**Agenda:**

The agenda was accepted.

**Minutes:**

The minutes of the December 16, 2014 meeting were accepted as drafted.

**Annual Report:**

Roger said that he was working on the report and hoped to have a draft that could be circulated to the TAC by the end of the week.

**Meeting Dates:**

The next meetings were scheduled for February 17, 2015 in the Catamount Conference Room, and March 17<sup>th</sup> and April 14<sup>th</sup> in the Winooski Conference Room.

**I/A Discussion:**

Mary said that she was working on drafting a pilot approval for the Norweco Hydrokinetic System and also doing research about the Eljen Mantis and AK Industries Hydro-Action Systems.

Mary said that an application had been submitted for approval of the Fuji Clean System. This system was developed and is widely used in Japan. It has been tested and approved under NSF 40 Standards. One question being reviewed is the size of the pretreatment/trash tank which is 277 gallons for a system designed for a daily flow of 500 gallons. This is small compared to other systems. The TAC said that under the I/A approach a small tank should be acceptable if under testing the system functions as required. Peter asked if there is any information about wastewater strength in Japan. Mary did not know but said that the NSF testing uses the same influent for all systems so the test results would be relevant for her review. The system has been approved in Maine. Very few systems have been installed in the United States so a Vermont approval might be a pilot approval to start.

Additional information about the Delta ECOPOD system has been submitted including the requested details about tank construction and capacity.

### **Roadside Wells:**

Ernie raised the issue of roadside wells and particularly the proper isolation distance between wells and roadways. The primary concern is salt contamination leading to replacement of the well with the associated inconvenience and cost issues. Ernie reported that the Vermont AOT reported fewer well problems in recent years, probably related to fewer shallow wells and better locations for more recently constructed wells. The State will pay for a replacement well in most cases when a well is contaminated with salt. Ernie suggested retaining the existing 25 foot isolation distance which led to a question of from where you measure. Just using the center line of the roadway can be an issue because the roadway in some situations can be relocated within a wide right of way. Ernie and Craig suggested the measurement should be from the edge of the right of way however it can take some research to determine the right of way. Jeff said a simple, easy to use, number would be best. Ken said that New Hampshire asks for 75 feet from the edge of the road and if you drill closer to the road it is at your own risk. After some discussion the TAC supported a distance of 25' from the edge of the right of way or from the edge of the traveled surface when there is no defined right of way.

### **Overflowing Wells:**

Ernie said that DEC had decided that all overflowing wells must be regulated and except for an exemption for those wells overflowing at less than 10 gallons per minute the wells must be closed in. Steve asked if this question is open for discussion or if this is a final decision that will be included in the draft rules. Ken said that there is no simple way to grout a well after it has been drilled. Scott asked if the issue might be divided into two situations with the difference being whether after closing in the well the water would or would not flow up the outside of the casing. Scott also suggested that the Rules require closing in the well when practical.

Ken said that he reviewed some of the well drilling records and found that out of about 3,572 wells only 157 (4%) overflowed and only a few of those caused any problems. Jeff

noted that not all overflowing wells are completed into bedrock. There are a few situations where gravel layers are confined by more restrictive soil layers above that result in overflowing wells. Trying to control the overflow by closing in the well could result in problems with flow up the outside of the casing as any grouting process would be grouting against unconsolidated material rather than against bedrock.

Jeff said that a policy that would require all overflowing wells to be controlled would add \$1,000 or \$2,000 to every well. Ken said that this would be the cost just to be prepared to control a well and in situations where overflow occurred addition work might add \$5,000 to \$10,000 to the cost of a particular well. Servicing wells that have been closed in also have extra costs as the materials, such as seals and packers, that are installed to control the well must be removed in order to work on the pump. Ken also noted that Vermont does not require well pump installers to be licensed and that not all pump installers are aware of the proper procedures for installing well pumps in these situations.

Ernie asked, if a well is drilled and high pressures are encountered, how is the flow controlled. Jeff and Ken replied that there are not problems unless you close it in. If you close in the well there can be unintended consequences such as water moving up the outside of the casing or following fractures and causing problems in neighboring wells or basements.

Scott said that the two situations of flow up the outside of the casing and pressure inside the well casing might be treated differently. When there is pressure in the casing it should be controlled if it can be done safely.

Scott asked how much pressure would be too much to control for a well overflowing at less than 10 gallons per minute. Ken said that up to 5 psi is usually not a problem, but 10-20 psi is a lot of pressure to hold in forever, depends on the quality of the bedrock. Jeff said that because of the extremely variable bedrock in Vermont that any combination of pressure and flow can be encountered and that wells close together can still have very different flow and pressure characteristics. Craig asked about the process for measuring pressure and Jeff replied that it is easy if all of the flow is contained in the casing but difficult if some of the flow is up the outside of the casing. Jeff said that he has some wells that have been closed in when overflows would be a problem but the decision is based on the pressure in the well and the cost of the alternatives. Ernie asked about the process for closing in a well with flow up the outside of the casing. Jeff said that this would be done with high density cement grout and might require abandoning the well entirely or drilling a second well to relieve the pressure in the first one.

Peter asked about whether there could be a few small areas designated as likely having high pressures where routine precautions would be applied to all wells. Jeff said that while there are areas that are more likely than others to have high pressures, there are spots all over Vermont where wells can overflow. Mary suggested that the Vermont Geological Survey might help with seeing if there are areas that might be identified as having potential for artesian overflows. Ken suggested adding a page to the well driller's completion report to address overflowing wells. Ken said there is an example in one of

the documents provided for discussion prepared by the Vermont Ground Water Association.

Ernie asked Kim if overflowing wells are a public trust issue. She replied that it might be, although it is unclear what “public trust” means relative to this topic.

**Soil Description Methods:**

Ernie briefly reviewed his proposed language that would allow for soil analysis to be used for sizing of leachfields in addition to the percolation test. Ernie said that the process is based on the USDA Field Book for Describing and Sampling Soil. Ernie said that the first draft required a Licensed Designer to describe the texture and structure and the grade of the structure. The current draft drops the requirement to identify the grade of the structure. This section was sent to the TAC just before the meeting and some members want to spend more time reviewing before commenting on the draft.

Ernie said that Table 9-2 is based on work by Jerry Tyler. The work by Tyler stated that soils with platy structure are unsuitable for soil-based systems however there are soils in Vermont with platy structure that are suitable for soil-based systems.

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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

**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