

## Approved Minutes of the Technical Advisory Committee Meeting

June 28, 2016

**Attendees:** Roger Thompson Bryan Redmond  
Gunner McCain Craig Heindel  
Rodney Pingree Chris Russo  
Mary Clark Perry Thomas  
Ernest Christianson Peter Boemig  
Scott Stewart Darlene Autrey

### Scheduled meetings:

July 19, 2016 1-4 PM, The Annex, Montpelier  
August 16, 2016 1-4 PM, The Annex, Montpelier  
September 30, 2016 2 PM ANR Regional Office, 111 West Street,  
Essex Junction

### Lake Water Systems:

Perry Thomas, of the Lakes and Ponds Section attended the meeting to provide information about various surface water bodies in Vermont. Ernie asked if there is a base line definition of a surface water source. Perry said the federal definition of a lake is a body of water with a surface area of at least 1 hectare, that is at least one meter deep at mean water level, and has at least ¼ acre of open water. Water bodies that have vegetation over the whole surface are considered to be wetlands.

Craig passed along comments from John Beauchamp that John has designed surface water systems provided that the surface water has relatively low turbidity on a year round basis and the intake is at least 20' below the water surface. These systems have not been evaluated for treatment against blue-green algae contamination. John is concerned about systems with shallow intake points as they tend to have higher turbidity and high turbidity can plug filtration systems in just a few days. John uses several physical filtration units that remove increasingly smaller particles, followed by powder activated charcoal, followed by additional physical filtration and an ultraviolet disinfection unit. One filter removes particles down to 0.2 microns. John has about a dozen system installed with an installation cost of \$15,000 to \$20,000 plus about \$1,000 in annual maintenance costs. This is about the same cost of a well drilled into carbonate formations with a treatment system. Rodney asked if, with equal cost, the drilled well should be preferred. Craig said that the drilled wells are often very low yield.

Perry discussed surface water quality and said that turbidity is the single best indicator of surface water quality. The state has a limited data base that could be a starting point. Craig asked about residual effects of green-blue algae after a bloom has dissipated having read that there is evidence that contamination can remain in the water.

Rodney asked if an encroachment permit is needed to place an intake pipe into a lake. Perry said that pipes of 2” or less would not require a permit. Craig asked if a federal permit would ever be needed and Perry responded that only Lake Champlain is subject to direct federal regulation but that the small pipes normally used would be exempt.

Ernie asked about the extent of water quality testing in Vermont. Perry said that many, but not all, lakes are tested. The amount of testing is guided by the level of concern for a particular lake and when a lake shows signs of stress, the amount of testing is increased. Peter asked about the specific contaminants that are tested. This varies from lake to lake. Craig asked about Lake Champlain and Perry said that there are 30 separate zones that are monitored. The zones are chosen primarily on their usefulness in testing for compliance with the Total Maximum Daily Load (TMDL) limits which are set to protect surface water quality.

Peter asked if a site specific sample could be collected and correlated with other lake monitoring data. The data that Perry shared shows a lot of variance so any correlation would be limited. Gunner said that because water quality changes so quickly and extensively it seems hard to plan ahead. Ernie noted that one positive note is that with all of the regulatory changes to reduce contamination water quality should only get better.

Craig said that any subcommittee working on this issue should include someone from Perry’s section. Other thoughts include looking at the monitoring data for public community systems, determining if there is reliable treatment for cyanobacteria from blue-green algae, and adding Ray Solomon to the subcommittee.

Craig suggested that a discussion paper be developed that would explain why a particular level of treatment and oversight would be suitable for a surface water supply or for a drilled well. The paper should state the risks that are known and methods for minimizing the risks along with the associated costs.

The following people were suggested as members of the subcommittee: Gail Center, John Beauchamp, Ray Solomon, Brian Locarno, Peter Boemig, Mark Bannon, and Claude Chevalier.

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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

### **Well Driller's Reporting Form**

Rodney Pingree, Craig Heindel, Claude Chevalier, Peter Boemig, Mary Clark, Ernie Christianson

### **Surface Water Sources**

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson