

Approved Minutes of the Technical Advisory Committee Meeting  
December 16, 2014

<b>Attendees:</b>	Roger Thompson	Steve Revell
	Peter Boemig	Justin Willis
	Craig Heindel	Mark Bannon
	Claude Chevalier	Ken White
	Gunner McCain	Mary Clark
	Chris Russo	Scott Stewart
	Darlene Autery	Travis Blodgett
	Ernie Christianson	Kim Greenwood

**Scheduled meetings:**

January 13, 2014      1-4 PM      Winooski Con. Rm., National Life – Montpelier

**Agenda:**

Amended to add Mary's comments on the recently issued RFP for diagrams for the updated Wastewater Rules.

**Minutes:**

The minutes were accepted as drafted.

**Request for Proposal:**

Mary said that a request for proposal had been published asking for proposals to prepare diagrams to be included in the update of the Wastewater System and Potable Water Supply Rules.

**Compliance Update:**

Chris Russo gave an update on her activities related to ensuring compliance with the Wastewater System and Potable Water Supply Rules (Rules) and the permits issued under the Rules. The second annual meeting with service providers was held on December 4, 2014 and Chris distributed copies of the meeting notes. Eight service providers met with representatives from the five regional offices and the central office. The new Regional Office Tracking System was discussed. The programing for this system is taking longer than expected but remains a DEC priority. The service providers asked about electronic submission of inspection reports and this will be included in the system. A temporary Access Data Base is being developed that will be used to track a limited number of permits with multiple compliance dates and conditions because of the delay in full implementation.

Chris said that the information cover sheet which should be included with any inspection report filed with DEC is being used and more of the reports now include the DEC permit number so they can be properly tracked. Chris asked the service providers to submit all of their inspection reports even if the WW Permit number is unknown or the system is believed to be exempt. The Regional Office Staff will attempt to match the reports with the original permits and if a permit number is not found staff will file the Inspection Report in the "Town" folders that are currently setup for their Regional Office. The service providers will be notified whenever a match with a WW Permit number can be made.

Standardized permit language has been identified as a need. Currently permits are not able to be viewed between Regions and are not tracked by category (i.e. brewery, restaurant, or meat processing facility). The new Tracking System will allow staff to view permits from other Regions and will allow sorting by category. Central Office Staff have recently assisted the Springfield Regional Office with permit language for a nonstandard permit. Peer review has resulted in clarification on permit language so that expectations for monitoring, reporting, and sample analysis are more precisely defined and enforceable. Ernie thought that approximately 1% of the permits fall into this category. Chris has discussed the use of standardized reporting forms that could be required by a permit condition and capture the permit required information in a consistent manner. A form has been drafted with the expectations that it would be able to be modified by the Regional Offices to capture unique permit conditions but would require the signature of the responsible party to allow for compliance and enforcement follow-up if required. Anne Whiteley is offering recommendations on Permit and Form language.

DEC also created a Notice to Owners of Innovative and Alternative (IA) Wastewater Treatment Systems document and an Installation Certification of Wastewater and Potable Water Supplies document that service providers are using to educate system owners on the requirements for maintaining and inspecting their systems. These are available at: [www.wastewater.vt.gov](http://www.wastewater.vt.gov)

Chris mentioned that the service providers also discussed the use of biological system additives. TAC members were concerned about the use of system additives and wondered if they were being overused and if the system manufacturers supported such use. Chris said that the additives were being used in very limited circumstances for specific problems.

Some of the proposed changes to the Rules that were discussed included allowance for flexibility in inspection dates which would allow for a group of systems in one geographic location to be done at the same time reducing the cost of providing the inspection service. The service providers also commented on the proposed bottomless sand filter requirements and noted the freezing of the force main where it rises up to the distribution manifold can be a problem. Drain back provisions are important but not always effective. One suggestion was to install heat tape that could be used if a freezing problem occurred. In addition, the service providers recommended breathable filter

fabric material between the sand and the cover material and that bark nuggets be used rather than bark mulch.

The service providers said the meeting was useful and DEC received good feedback that can be used to improve the rules and the Regional Office operations.

### **Innovative/Alternative Systems:**

Mark raised a concern that a condition has been included in individual permits stating that the approval for a specific I/A system would expire on a date not long after the permit was issued. His client was very concerned that his permit might not be valid after the expiration date for the treatment technology. Mark also asked why I/A approvals included an expiration date when the Rules do not specifically state that I/A approvals should have an expiration date. The TAC agrees that when a permit is issued based on a specific treatment system, the treatment system approval should be referenced and a copy of the approval attached to the individual permit. This should be recorded in the town records as part of the permit. These steps increase the chance that the original permittee and any future owners will become aware of the requirements to operate and maintain the treatment system. Ernie said that he would look into the standard format for individual permits and revise the permit condition to reference the specific treatment system but without stating the expiration date of the I/A approval. Gunner suggested adding a statement that expiration of the I/A approval does not affect existing individual permits that have already been issued. Ernie said that the Rules allow for conditions to be included in I/A approvals that ensure compliance with the Rules. Expiration dates ensure that the manufacturers keep up on their reporting requirements and ensure that approvals reflect any changes to the product.

Mary asked for comments related to the Hydro-Action treatment system request that was presented to the TAC at the November meeting. Roger and Gunner said that they did not see any red flags. Mark asked if the system would receive a general use approval. Mary wants to conduct further research on their Maryland approval, and on two state's denials. Mary also said she wanted to look into the tank construction a little more. The company has provided a test that was conducted in 2002, but she wants to confirm third party testing on the current versions. Their literature indicates wall thickness, while an average of 3/8" thick, can be as little as 5/16". This may be acceptable but it is important to ensure that the tanks will be sufficiently strong and durable for Vermont's climate.

Mary also asked about the Eljen Mantis system. The company provided additional information at the previous TAC meeting and is asking for three methods of distribution. Gravity flow and pumping to a distribution box could both be approved for inground systems. Eljen is still asking for gravity flow to mound systems while also offering a pipe-in-pipe form of pressure distribution. The TAC reviewed the information related to the approval of the Presby Enviro-Septic system and the Mantis system and the group believes the distribution methods are not equivalent based on the information submitted to date. The TAC encouraged Mary to request that Eljen provide proof of rapid biomat development that would result in even flow to all of the modules served by the

distribution pipe, which the TAC understands to be the basis of their argument for why the pipe-in-pipe method produces the equivalent of uniform distribution in a short time period (few weeks). The photos provided show a gray biomat only directly under the modules, not elsewhere in the mound sand. Mary will follow up with the Connecticut Department of Health and the Massachusetts test center to see if they have any information about the time needed to achieve even distribution over a full length of the system.

### **Examples for the Simplified Hydro Method 12/10/2014:**

Ernie reviewed this worksheet which provides two alternative ways to evaluate the hydraulic capacity of a site that has two soil layers with different capacities. One approach is to use the full depth of the available soil but assign only the capacity of the most restrictive soil layer. An alternative is to assign different capacities for each soil layer that apply only to the available thickness of that layer. The alternative will result in a higher site capacity and in some cases the increased capacity will be significant. The worksheet analyzed two different sites and the TAC said that only the second example should be included in the Rules. An example of the method for a single layer soil should also be included. Roger asked Craig and Steve if they supported the methods described in the worksheet and both said the science is sound. Mark mentioned that the approach seemed very conservative and asked Craig and Steve if they expected to see groundwater mounding as high as predicted by this method. Craig and Steve said that they would not expect to see a large groundwater mound for small to midsize systems but supported the use of the simplified method for use by those not considered to be qualified hydrogeologists because it is conservative. Mark also mentioned that the Colorado School of Mines has a good website with information about groundwater mounding calculations.

### **Design Examples for High Strength Wastewater Projects:**

Ernie also reviewed a worksheet of examples of methods that might be added to the Rules as a basis for modifying system designs when the wastewater strength is greater than normal domestic strength. One issue is whether normal should be average strength of septic tank effluent, which in one report is considered to be 170 mg/l of BOD, or should it be 400 mg/l which is the upper limit in the existing Rules for moderate strength wastewater. The 400 mg/l limit was first added to the Rules when prescriptive requirements for recirculating sand filters were added and reflects the maximum loading rate for a sand filter, not for a leachfield. The TAC also asked if the increase in the size of a leachfield needed to be directly proportional to the increase in wastewater strength. Craig suggested looking at research about long term acceptance rates, including work by Richard Otis. Steve said that Bob Siegrist, of the Colorado School of Mines, also worked on this issue

### **Design Flows:**

Roger asked Ernie about the status of his evaluation of whether residential design flows should be changed from 70 gal/person/day to 60 gal/person/day. Ernie said that he had reviewed a lot of information and thinks the design flow should be kept at 70 gal/per/day for those systems serving from one to four residential units to ensure that systems serving one or a few units will function if the households use above average amounts of water. Systems serving five or more units are already allowed to use lower design flows because of the averaging effects from combining multiple units. Justin asked about septic tank size and if multiple compartment tanks should be considered. Justin said that his field observations found that some malfunctioning systems could be improved by using larger tanks. The TAC agrees that multiple compartment tanks do seem to perform better and that larger tanks also seem to perform better but that some research is needed to determine if the additional cost is justified.

**Bottomless Sand Filters:**

Ernie used the small amount of remaining time to begin the review of his draft of the section for bottomless sand filters. Mark asked how many sand filters are currently in use in Vermont and how many have failed. Ernie said that there is no record of all of the sand filters because many were installed prior to universal state jurisdiction but that it is likely there are a few hundred systems and not many reports of failures. Mark then asked why it is proposed under the new rules that a replacement area must also be designated. Craig echoed this and said that if the site evaluation is done correctly any problems with the system can be corrected by making repairs to or reconstruction of the sand filter itself. Craig suggested regulating bottomless sand filters as if they are mounds without sand side-slopes. Ernie said that he is concerned that allowing bottomless sand filters for new construction is a pretty big change and that a site that only met the minimum requirements for a primary system would have very little room to fix a malfunctioning system. With a mound system, which does not require a replacement area, there is at least 25' of room on the downslope side where the system could be expanded a little which might cure the problem. Craig suggested allowing systems using filtrate without a replacement area. The TAC recommended allowing systems with septic tank effluent with a maximum loading rate of 1 gal/sqft.

The current Rules only allow bottomless sand filter installations as best fix replacements while the proposed new section would allow for a bottomless sand filter on any complying site.

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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