

Approved Minutes of the Technical Advisory Committee Meeting  
June 18, 2013

**Attendees:** Roger Thompson                      Ken White  
Peter Boemig                                      Craig Heindel  
Chris Russo                                        Terry Shearer  
Justin Willis                                        Spencer Harris  
Gunner McCain                                  Scott Stewart  
Steve Revell                                        John Beauchamp  
Mark Bannon                                       Mary Clark  
Ernie Christianson                              Claude Chevalier  
Anne Whiteley

**Scheduled meetings:**

July 16, 2013            1-4 PM            Winooski Con. Rm., National Life – Montpelier

**Agenda:**

Accepted

**Minutes:**

The minutes from the May 21, 2013 meeting were accepted as drafted.

**Innovative/Alternative Systems:**

Mary said that a subcommittee of she, Gunner, and Craig met to discuss the Jet System and the Anua Puraflo system on a stone bed. The Jet system seems compliant with the Wastewater System and Potable Water Supply Rules (Rules) and a draft approval has been prepared and circulated for comments. The Anua system places an advanced treatment system, with an open bottom container on a bed of stone. The effluent is discharged into the stone and seeps into the ground. The proposal is based on one module for each bedroom. This system does not incorporate pressure distribution that is required for filtrate disposal systems (§1-916 of the Rules).

Justin, Spencer, and Mary are a subcommittee looking at aerobic systems that include submerged media. These are the Delta ECOPOD, Jet Platinum, and Blue Water Atu. The reviews include looking at the tank volume and structure. There is good information supporting the treatment effectiveness and tank structure for the Jet system. More information is needed for the other systems. Mark said that any approval for these, or other systems, should include clear guidance about applications where the wastewater is of high strength. Jessanne suggested some changes to the organization of the permit format to better inform the users of advanced treatment systems.

Steve asked if the minimum septic tank sizes apply to advanced treatment systems. Roger noted that Spencer has asked about this and emergency storage requirements in the past. The Rules now include the emergency storage requirements in the Guidelines Section of the Rules which allows for situation specific decisions on the amount of emergency storage required. Spencer said he had discussed the issue with Mary and is OK with smaller tanks if this is reviewed and approved as part of an Innovative/Alternative System approval.

Issues related to operation and maintenance of systems was discussed. Justin said there are a lot of anecdotal comments about maintenance not being done which was echoed by several others. Steve noted that the cost of operation, with some systems using \$30 or more of electricity per month. Other systems, such as the Advantex use \$8-\$10 per month, and some do not use electricity at all. Justin said that the state approval process should include more information about the operating costs so that landowners would know up front what to expect.

There was also discussion about field testing of already installed systems in Vermont prior to renewing a product approval. Peter wondered if a small amount of testing would provide useful information for designers, regulators, and homeowners. Mark expressed concerns about asking for too much information because of the testing costs. Mary said that many states just accept an NSF 40 (National Sanitation Foundation) approval. A few, such as Rhode Island, do a comprehensive review with testing of the effluent quality at the state level. Massachusetts requires quarterly testing of each installed system. Vermont relies on the NSF 40 approval and testing conducted in other states and generally requires testing of installed systems only when the effluent is observed to be cloudy or odorous.

Steve asked if an Alternative/Innovative system service provider is required to send the results of their maintenance inspections to the designer of the system. Mary said that the Department is moving towards allowing any service provider to do the routine periodic maintenance inspections which would need to be submitted at least to the product manufacturer and the state. This is different than the initial installation inspection that must be done by a Class 1 or a Class B designer who is approved by the manufacturer. Under the current permitting system some systems require more than one inspection, one for the routine maintenance of the I/A system and one for a performance based design. Mary is looking into making this just one inspection that covers all of the issues. Gunner said that he inspects all of the installation except for the contents of the I/A system itself, which is inspected by a specialist trained on that system. Peter said that the manufacturer should certify the I/A system information to the designer who includes it in the submission to the state.

There was discussion of whether a designer should be responsible for determining that a particular I/A system is appropriate for a particular site. For example, some systems would be better for seasonal use because they reach full treatment capacity soon after the start of the seasonal use, while others benefit from continuous operation.

Chris said that she is trying to make writing the permits for I/A systems easier for the staff. Steve said that title attorneys should be educated about reviewing I/A permits and ensuring that the required annual inspections are being done as well as making sure the purchaser knows what their obligations will be in the future.

### **Compliance Update:**

Chris said that she is looking for a better system to track I/A approvals and the associated compliance tasks. She is looking for some out of the box software as there is little in-house technical support available. Chris is meeting with Chris Thompson, Director of Drinking Water and Groundwater Protection Division, and Ernie about cleaning up the Regional Office tracking system so that all information will be entered consistently in each of the five regional offices.

Chris said that Anne had offered comments related to I/A approvals. Anne believes that a permit approval can require a manufacturer to ensure that local vendors submit any required inspection information to the state.

### **Water Supply Rules:**

Ernie asked for comment on a couple of sections including how to interpret the probability of contamination as part of a decision to require or not require well grouting. The TAC recommends deleting this approach and using the one in the current rules where grouting is based on the type of well (private or public) and any additional requirement for grouting is based on wells that cannot meet isolation distances or that are installed in areas known to be contaminated. Mark asked if the Department is leaning towards requiring that all wells be grouted. Ernie said he is reviewing this with some well drillers. Claude said that many wells are being inspected with camera systems and there is no evidence that there is leakage down the outside of the well casing into the well.

Claude said that grouting the full length of the casing can be expensive. Some method where the grouting is done just at the bottom of the casing might be appropriate. Steve said the decision to grout is very case specific. It is very important to grout in only a small number of cases.

The TAC also recommended keeping the existing well yield approach that allows for well driller estimates for wells required to supply 5 GPM or less with pump tests required for higher yields.

### **Presby Presentation:**

Dave Presby and his staff gave a presentation about his Simple Septic, Enviro-Septic, and Advanced Enviro-Septic products. Each of these starts with a large corrugated plastic pipe that is wrapped in various materials. Simple Septic is wrapped with a single layer of material and is offered as an alternative to other single layer systems sold by other companies. Mr. Presby noted that this product still includes skimming tabs and cooling

fins which are important in retaining floating and sinking material within the system for further treatment. Mr. Presby compared his system to the SB-2 system that he noted has only 2 holes in the bottom of the pipe and is wrapped with nylon fabric that does not grow bacteria. Mr. Presby said this system worked well for field drainage. Mr. Presby also commented about GeoFlo products noting that their pipe does not have skimming tabs and depends on internal pipe connections that can leak.

Mr. Presby reported that his products have been tested at the Massachusetts test center with BOD levels of less than 12 mg/l and TSS levels of less than 5 mg/l.

Mr. Presby said that he would like Vermont approval for use of the Simple Septic product in order to give people a choice. He thinks that the Advanced Enviro-Septic product lasts forever while the Simple Septic has a more limited life span but will perform better than the comparable GeoFlo product. The Simple Septic is less expensive to purchase than his Enviro-Septic product or the GeoFlo product.

Spencer asked for the differences between the three Presby products. Mr. Presby responded that the difference is in the wrapping material and the amount of surface area available for growth of bacteria. The Simple Septic provides 12 sqft of area per lineal foot of pipe with 25 sqft per foot of Enviro-Septic and 40 sqft of area per foot of the Advanced Enviro-Septic pipe. The use of the Bio-Accelerator Fabric in the bottom of the pipe is the difference between Enviro-Septic and Advanced Enviro-Septic pipe. The fabric promotes the quick development of the treatment bio-mat improving the performance of the system.

Mr. Presby also said that the sand around the system is periodically filled with liquid which then drains out. This cycling fills the void space in the sand which forces gases into the pipe that are vented to the atmosphere. When the sand drains it draws oxygen into the system which promotes good treatment.

Justin asked about the life time of the systems. Mr. Presby said he first got experience using the GeoFlo system before developing his own. He said that much of his knowledge has come from digging up failed systems and that he believes the key to success is keeping particles from getting to the natural soil surface. If you do that, the systems have a very long life.

Spencer asked about what products are currently available in Vermont because some installers are saying that only the Advanced Enviro-Septic is available. Mr. Presby said that both the Enviro-Septic and Advanced Enviro-Septic are approved and available in Vermont. He said if anyone is having problems getting the standard Enviro-Septic pipe he would deal with it.

Mr. Presby said that there has been a great deal of testing of his systems and that the test results are very consistent from one test to another. Craig asked if all of the testing was done with 6" of sand around the pipe. Mr. Presby said that testing had been done with various amounts of sand but that all of the systems used at least 6" of sand. He also noted

that because of the careful specification of sand approved for use with his pipe, which prohibits the fine material allowed in some sand filter applications, his sand does not block up.

Mark asked if the system design is based on progressive failure, with portion of the pipe used first followed by overflow into the next section of pipe. Mr. Presby said that he does not think his system works by progressive failure as all portions of the system continue to discharge effluent even after the first sections overflow into the following ones. He said that his systems are all over designed and if designed in accord with his design manual the system would never reach a state of failure. The first sections reach a steady state with the surges flowing to the sections further along in the system. During lower flow periods the first sections continue to handle all of the flow. He said that he often finds that 20 year old systems are only using 3 of the 5 sections of pipe that were installed. Mark asked why he specified so many sections of pipe and Mr. Presby replied that this protects against large short-term overloads.

Mr. Presby also discussed multi-level systems where two or more layers of pipe are installed on top of each other but separated by sand. These systems are approved in some states and work because the effluent is clean by the time it reaches the naturally occurring soil. The naturally occurring soil layer can absorb a large amount of effluent if it is clean.

Steve asked about serial distribution versus a distribution box. Mr. Presby said he prefers serial distribution as distribution boxes can move out of level over time and might send all of the effluent to the lowermost pipe and overload the toe of the system. Steve also asked about the requirement that one of the vent pipes on the leachfield must be at least 10' higher than the other. Steve said that he does not see vent pipes that are 10' or 12' above ground as people find them objectionable. Mr. Presby said that the venting is important but can be accomplished with remote venting. He suggested a pipe up the side of building or one located outside of the lawn space which could be disguised in some fashion.

Steve asked about the maximum length of a section of pipe. Mr. Presby said that his system needs to cycle in order to reach its maximum effectiveness. Too short does not give dry periods, too long does not fill the pipe enough. 30' to 100' seems to be a workable range. Mr. Presby also said that he prefers seepage beds instead of trenches because they give better hydraulic performance.

Justin said that he understands carbon filters on the vent pipes used to control odors are not encouraged. Mr. Presby said that he considers air flow through the system to be very important and that anything, such as a carbon filter that slows air flow is not a good idea. Mr. Presby said that if the air flow can be maintained the leachfield will be in an aerobic state and odors will be low.

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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