Approved Minutes of the Technical Advisory Committee Meeting

May 19, 2020

**Participation by videoconference**

**Attendees:** Roger Thompson Cristin Ashmankas Gunner McCain Sheri Young

Ernest Christianson Rich Wilson

Denise Johnson-Terk Craig Heindel

Craig Jewett Eli Erwin

Chris Russo Abe Noe-Hays Conor Laly

**Scheduled meetings:**

None

**Discussion of Proposed Rule Revisions to the 2019 Wastewater System and Potable Water Supply Rules (Rules):**

The question of whether the 3/8” sieve specification allows too much coarse material for mound sand was discussed. The 3/8” specification was adopted as part of the 2007 Rule update. The TAC did not report that any problems had occurred from the use of material that is too coarse. The TAC members who are designers reported that the mounds they design and inspect are being constructed with sand that they find appropriate. The designers noted that they can set the sand specifications, within the limits in the Rules, if they are concerned about too much coarse or too much fine material. The consensus was that a revision is not required as this time

The pressure testing requirements that should be required when a sewer line crosses a water line and the vertical separations cannot be met were discussed. When the separation distance is not met the Rules require a portion of the sewer line be constructed of water main grade material and that it be pressure tested to 150 psi. Several TAC members feel this is excessive and suggested various alternatives. Ernie will propose revised language.

Rich noted that the diagram for bottomless sand filters will be revised. The current version specifies a maximum height of 24” above grade that in turn limits the maximum amount of sand that can be used. A designer should be able to specify additional sand if they wish. The revision will allow the bottomless sand filter to be more than 24” above grade as long as the designer ensures that the structure is properly supported.

**Innovative/Alternative Systems**

Cristin asked for comments on several applications that are under review.

BioGill Tower – designed to handle high strength wastewater. The system has ongoing monitoring and can be adjusted to maintain the specified pH if needed. The company trains the users staff on how to do the routine oversight and maintenance. The TAC suggested that the buyer should be informed of the amount of oversight and maintenance prior to choosing this system and that the initial I/A approval should be as a pilot system because the leachfield size will be case specific based on the designer’s assessment. The company prohibits the use of quaternary ammonia cleaning solutions which may limit the use for restaurant and food preparation operations. The TAC supports approval for pilot use.

BioMicrobics – designed to handle high strength wastewater. This is a fixed film system with a high air flow. The system is designed to bring the wastewater contaminant concentrations down to that of low strength wastewater. Each system is custom designed based on the contaminates for the operation. The TAC suggests the initial approval be for pilot use. The company prohibits the use of quaternary ammonia cleaning solutions which may limit the use for restaurant and food preparation operations. The TAC supports approval for pilot use.

Busse Green Technologies – low strength wastewater. This is a membrane bioreactor system with primary separation in the first chamber followed by biologic treatment in a second chamber. The system has NSF certification to treat to less than 30 mg/l BOD and TSS and therefore meets the definition of filtrate in the Rules. The system does not require a septic tank. The system is in an insulated tank and the temperature must be 45 degrees Fahrenheit or greater. It can be installed inside the building if properly vented per the Vermont Plumbing Rules. The system is approved for water reuse in some jurisdictions but the proposed approval for use in Vermont does not include any reuse of the treated wastewater. The TAC supports approval for pilot use.

GeoMatrix – GeoMat Flat® and GeoMat Edge® systems. These are application systems rather than treatment systems. The applicant proposes the same loading rate approach as is currently approved for other application systems not using crushed stone. These systems do not qualify for a reduction in separation distance to the Seasonal High Water Table (SHWT). These systems are approved by NSF which imposes an initial 2-year service contract. Gunner asked about the storage capacity system. Conventional crushed stone systems have a large amount of pore space that can accept large, short term discharges. The system uses pressure distribution. The soil application rates in the Rule are based on bottom area contact with native soil and the GeoMat Edge has a small footprint compared to the Geo-Mat Flat. The TAC supports approval.

Annua – Puraflo® System. This system is currently approved. The request is to use cocoanut fiber rather than peat fiber as the treatment medium. The TAC supports this request.

Annua – AeroCell® System. This system is similar in operation to the Puraflo® System. The main difference is that the filter medium is a manufactured foam rather than plant fiber. It has NSF approval. The TAC recommends approval.

Rich Earth Institute – Urine Collection System. The proposal is to separate urine from the rest of the toilet flow using plumbing fixtures designed to separate the flow or by separate container collection. The urine will be stored in containers at the site and periodically collected by a licensed wastewater hauler. The urine will be sterilized and then reused for fertilizer as it is high in nitrogen content. There would be no reduction in the wastewater design flow for the site. Legal review is needed to determine if there is any conflict with the existing Rule related to the use of holding tanks. Also to be checked is whether a system with an outside storage tank that is not piped to the building is subject to the Rules and whether the Rules require that the storage tank be piped to the building. Also, to be determined is how to design the onsite holding tanks to ensure they have reasonable storage capacity and are protected against spills. If it is decided that this approach can be used in buildings other than single family residences, any separation process must be based on the use of approved plumbing fixtures and the discharge to the onside holding tanks must be piped.

SeptiTech, Inc – installation to replace a failed system at Vernon Hall. Vernon Hall is an elder care facility. This will be a site-specific design and therefore subject to pilot approval. The designer states that the system can handle the quarternary ammonia cleaning products that will be used. Craig noted that elder care, nursing homes, and similar facilities often have septic tanks that fail to function properly because the medications used by the occupants stop the bacterial action. This question should be explored as part of the approval.

Rich asked if an application for a project using Innovative/Alternative technology could be approved with two choices of system. The Department does not allow a substitution of a technology other than the one named in the permit without issuing a revised permit. This approach would approve two different systems along with specific requirements depending on which one is installed.