

The
ALTERNATIVE/EXPERIMENTAL WASTEWATER TREATMENT TECHNOLOGIES
TECHNICAL REVIEW COMMITTEE (TRC)

The meeting was held at
95 Cripe Street, North Kingstown, RI

October 25, 2012

Approved Minutes

Present: Ken Anderson, Noel Berg, Russ Chateaufeuf, David Dow, George Loomis, Nikki Schultz, Tim Stasiunas and Dennis Vinhateiro

Absent: Susan Licardi

Others Present: Bob Frost (Sterling Environmental, Inc.), Brian Moore and Deb Knauss (DEM)

Call to Order: 8:55 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 8/24/12 meeting
- Summary of Presby Environmental, Inc. (PEI) application for Advanced Enviro-Septic Treatment System (AES) for TSS & BOD removal, with a table of AES design parameters compared to RIDEM OWTS Rules' setbacks, separation distances, etc.
- Eljen leachfield design to compare leachfield area footprint with AES
- Email communication between Deb Knauss & Dennis Fogg of PEI.
- Email communication between Deb Knauss and Dana Hill (MADEP) regarding the MA minimum field size of 400 sf and the MADEP Enviro-Septic approval's prohibition of multi-level systems
- FAST performance data for September 2012 and table of calculated TN for May & September data

Review of Draft Minutes of August 24, 2012

- Page 2, in the paragraph that begins: "Proper **venting** is critical...." The RI building code allows a minimum roof vent diameter of 2-inches.
- Page 3, in the paragraph that begins "George stated that in RI **effluent screens** are required.", edit with following correction: "Dennis stated that it will, if the only problem was suffocation ~~sue~~ due to..."

Motion: George made a motion to approve the minutes with the corrections noted.

Second: Dennis seconded the motion.

Discussion: There was no discussion.

Vote: All present were in attendance at the meeting August 24th and voted in favor of the motion.

Conceptual Issue of a Technology Vendor Denying a Request for Training on the Basis of Conflict of Interest

Russ introduced for TRC discussion, the following scenario that was brought to DEM's attention: an A/E technology distributor and O&M business owner, requests vendor training on an alternative leachfield component for himself and a partner with an installer and Class I design license, offering to pay for the training. The request was denied on the recommendation of legal counsel on the basis of a conflict of interest. Russ explained that DEM did not interfere, because this was viewed as a business decision having minimal impact on the public.

Bob Frost of Sterling Environmental Technologies, LLC, asked if he may speak; he was given the floor and he acknowledged that he is the individual who requested training and was denied. He explained that he is on the Wastewater Management Commission (WMC) in Charlestown and that he is a White Knight dealer (White Knight is a leachfield renovation technology approved by RIDEM). He sought an advisory opinion (AO) of the RI Ethics Commission because he wanted to avoid a conflict of interest in his activities with the WMC. The Ethics Commission issued an AO stating that he may not participate in WMC discussion and vote on the wastewater management ordinance which includes White Knight as a system option. Mr. Frost thinks that the vendor in question may be aware that an Ethics Commission AO was sought and issued and therefore he assumes a conflict of interest exists and will not speak with Mr. Frost. Because of this refusal of contact, Mr. Frost has not been able to explain the details and has no idea exactly what the vendor may believe regarding a conflict of interest.

There were no comments and there was no additional discussion.

RIDEM N-removal standard of a minimum 50% N removal and 19 mg/l

Russ explained that he and DEM staff looked at Maryland's Onsite Disposal System (OSDS) Nitrogen-Reducing Septic Upgrade Program and discovered that the Maryland Department of the Environment (MDE) had revised their nitrogen removal standard, increasing the assumed influent TN concentration from 40 mg/L to 60 mg/L, with the required TN

removal remaining at 50%. Jay Prager, Environmental Program Manager in the Wastewater Permits Program informed Deb that that influent sampling was found to be unreliable, but it did reveal that influent TN concentrations were higher than the assumed 40 mg/L. In response to this observation, MDE more carefully reviewed exiting reports. Among the literature reviewed was a 2009 Water and Environment Foundation (WERF) report and a 2010 study from Wakulla County, FL. Based on MDE staff observations and the reports reviewed, it was determined that 60 mg/L is a more accurate estimate of influent TN, and the standard was revised to assume influent TN of 60 mg/L.

Russ explained that the current RI minimum N-removal standard of 19 mg/L and 50 % removal is based on assumed influent TN concentration of 38 mg/L, which was based on MA standard from the early 1990s. It is acknowledged that since then the prevalence of water saving fixtures used in homes has resulted in a reduction of water use, and more concentrated effluent. Therefore the assumed influent concentration of 38 mg/L may need to be reconsidered in RI, as it was in Maryland. Russ emphasized he is not proposing reducing the standard to facilitate poorly performing technologies' ability to meet it, but continuing to require a removal of 50% TN, and revising the assumed influent concentration to a higher concentration, possibly 60 mg/L, to more accurately reflect current water use and the resulting more concentrated waste strength.

Someone asked how many N-removal systems are installed in MA. Russ stated that when RI meets with MADEP and George Heufelder in a couple of weeks, they might be able to get this information. [After the meeting, Russ learned that there are about 3,000 of these systems installed in MA, with about half of them installed on Cape Cod.]

We need to think about loading to the ecosystem and the waterbody. If a system has low carriage water, and high TN concentrations, calculating pounds of nitrogen contributed by the system might reveal that it is not contributing as much nitrogen as a neighboring system with higher water use (which may have been achieved by running a faucet to "beat the system") and therefore lower TN concentrations.

Brian stated that he has mentioned in the past, issuing operating permits.

There was some discussion of the quality of the costal salt ponds and George stated that from the perspective of a fisherman, the water quality in Little Narragansett Bay has declined this year. Since we can expect in-fill development in this watershed, additional decline in water quality may also be expected.

There was discussion about how advances in nitrogen removal technology might develop in response to increased performance standards, the same way that auto manufacturers responded to EPA emission standards. George asked rhetorically, how well installed systems are thought to be performing. He stated that at one time, the demonstration projects that were receiving good oversight and maintenance were performing well. Reports of treatment systems not receiving required maintenance are common and if we performed a field audit of systems' performance, it may be sobering. There was agreement that systems are probably not working to the performance standard.

It was also stated that the technology applications we have reviewed have not limited use of the systems to homes that are occupied year-round. But if a system installed at a seasonally occupied home is performing poorly, it has been stated by the vendor that the poor performance is caused by the system's seasonal-use. Systems need regular maintenance and in some cases, system settings need to be adjusted to optimize performance based on the type of use a system is receiving. It is not clear that this is being done.

There was some discussion about the issue of seasonal use, but Russ reminded the group that it is not practical to issue permits with a seasonal use component. He explained that although DEM included seasonal use in the holding tank policy, it is a much smaller universe of systems to which the holding tank policy applies. He reported that people have requested seasonal permits, claiming that they will have less impact than homes that are occupied year-round, but there is no way of limiting a home's use to seasonal and enforcing this limitation.

George stated that when an installer, designer, and service provider act in good faith with regard to their actions on a system, yet the system doesn't work properly and they are not able to find a solution, it is the responsibility of the manufacturer to find a solution. It is not clear that manufacturers are providing this kind of support to service providers.

There was discussion of the contribution homeowners make to this service deficit, by not responding to letters informing them of the need to renew service contracts, or new homeowners being unaware of the requirement, although these contracts are filed in the land evidence records. Russ reported that when DEM has been notified of cancelled and non-renewed contracts, we have sent letters reminding homeowners of their responsibility to maintain service contract coverage of their systems, but we have not received the requested copy of a contract in all cases.

Norweco, Inc. Technology Application for Singulair TNT and Singulair Green TNT for Nitrogen Removal

Russ reminded the group that at the last meeting (August 24, 2012), the TRC had voted to recommend approval of Norweco Singlair TNT for N-removal under the new nitrogen removal provisions in the 7/9/12 OWTS Rules. The provision applying to this application is allowing NSF standard 245 certification to fulfill the data and approvals elements of a Class Two application. He explained that because this type of application provides less performance data than the traditional Class Two application, none of which is from systems that are actually in use, DEM is working on developing additional monitoring requirements. However, since it was suggested at the last meeting that legal review of this might be warranted, the proposal had been discussed with DEM legal counsel, but no follow-up has yet been provided. He also explained that Norweco, Inc. had contacted DEM to ask if they could withdraw their application, and he believed that this was because they may be concerned about the additional testing requirements. Russ told them they could withdraw their application, but asked them to wait until they have a chance to review the draft certification, which would include the monitoring requirements. Norweco, Inc. is waiting to review the monitoring requirements before a decision is made to withdraw the application.

Discussion of elements that should be considered for inclusion included composite sampling, both seasonal and year-round occupied homes should be monitored, with some minimum number of each required. Russ stated that we need to consider what to do if all the installations proposed are for seasonally occupied homes. He added that if a designer doesn't specify occupancy as seasonal or year-round, it will be assumed that the home will be seasonally occupied. He added that seasonal homes would probably be required to be sampled two times per year and homes that are occupied year-round, four times each year. He said maybe by the next meeting there will be a decision on the issue of withdrawal by Siegmund Environmental Services, Inc. of their N-removal approval for Singlair (recirculation mechanism, rather than 60-minute on and 60-minute off aeration), although at the TRC meeting August 24, 2012, it became clear that this may not actually happen even if Norweco, Inc. goes forward with the Singlair TNT.

Presby Environemntal, Inc. (PEI) Application for Advanced Enviro-Septic (AES) for TSS & BOD Reduction

Russ explained that PEI is applying as a tertiary (passive) treatment system, but the meaning of "tertiary" was not clear in the application. Deb and Dennis Fogg exchanged a few emails yesterday and he explained that the Canadian BNQ defines tertiary (advanced secondary) treatment as: 15 mg/L BOD₅ and 15 mg/L TSS.

Someone asked where the effluent measured (beneath how many inches of sand)? The Bureau de Normalisation du Québec (BNQ) Class II performance standard is 30 mg/L for each BOD and TSS beneath a 12-inch depth of sand. The BNQ Class III performance standard is 15 mg/L for each TSS and BOD beneath a 24-inch depth of sand.

Russ stated that we need to compartmentalize this product as either a **drainfield or a treatment technology**. Deb explained that in MA it is classified as "in-ground treatment". George stated that he thinks of it as a drainfield and David agreed. Treatment systems are thought about as allowing capture of the effluent so that something can be done with it elsewhere. After (beneath) AES, is the soil ecosystem, there is no "other place" to send the effluent; this is a characteristic of a leachfield.

There was discussion of PEI's preference that **effluent screens** not be used with AES because they restrict airflow when they are clogged, at the last TRC meeting they stated that use of effluent screens would not void the warranty. Everyone supported maintaining the RIDEM requirement for use of effluent filters. It was suggested that we could specify that effluent filters must allow air to pass even if the filter is clogged, or ask PEI to specify filters that would allow passage of air if clogged. However, Dennis responded to one of Deb's emails stating that PEI doesn't recommend effluent filter manufacturers or models, they only specify that air must flow under any conditions. The certification could specify effluent filter that passes air even when the filter is clogged.

Brian suggested that we need to be aware that when a designer specifies a specific type of **effluent filter**, the one installed may not be the one specified, but some other model that happened to be in the truck.

There was discussion of the requirement for **venting**. Brian explained that in NH, venting is required under certain conditions. Since PEI is a NH company, venting is common in the state where they install a lot of product. He also stated that we can expect homeowners to remove the vents if they find their appearance unappealing or if they interfere with use of the yard. It was suggested that the certification could specify installation with manufacturer's required venting.

There was discussion regarding the use of **serial distribution**, versus the use of a **distribution box**, which was preferred by the group. It was noted that the BNQ testing was performed on systems using distribution boxes. AES is similar to Eljen, which uses a d-box and the same kind of sand.

AES sizing was discussed. Russ explained that AES sized according to the NH manual included in the application, results in about 1/4 of area of a RI conventional leachfield. This raised concern about **phosphorus removal**: with a smaller footprint, available phosphorus adsorption sites in the soil will be exhausted faster than in a larger field. It was recalled that MA has a minimum size of 400 square-feet for their fields. Deb had exchanged some emails with Dana Hill of MADEP about this. Although he didn't recall how 400 square-feet was decided on, he told her that it applies to PEI's ES, as well as their competitors, GEO-flow (another pipe leaching product, not the dripline) and Eljen. George reminded the

group that **AES is socially dosed and is receiving straight septic tank effluent**. In RI BSFs and PSNDs occupy a small foot print, but they receive time-dosed advanced treated effluent. AES is conceptually very similar to Eljen which also has filter fabric component to its design. **AES should be used with the same loading rate: base the sizing on equivalency with Eljen.**

Trench leachfield as an alternative to the bed specified in the NH manual in the application was discussed. Deb explained that in Dennis's email he explained that "trench systems are not the preferred configuration/layout because the overall impact to the site will be a much larger footprint with no added benefit to the environment or end user. However, the design manual allows the use of multiple beds and can be as narrow as 2 rows wide. With an 18-inch row spacing and 6-inches of System Sand around the entire perimeter of the bed would result in a "trench" width of 3.5- feet, but have 2 rows of AES. There might be several of these 2 row beds in use to accommodate the required amount of pipe for the daily flow. Trenches using this configuration would also be allowed to slope in the same way as a wider bed." Russ suggested spacing AES pipes at 36-inches rather than 18-inches on center. While the application doesn't state a maximum design flow for which approval is sought, Dennis Fogg replied to Deb's question in a an email explaining that AES is generally used for residential applications up to 1,500 gpd and that ES has been used for systems to over 10,000 gpd, but that this is a small percentage of total sales.

George said that we should maintain out 10-foot leachfield perimeter.

Maximum line length for AES is 100-feet.

Repair use OK, yes, as Eljen is accommodating reduced spacing for repairs if necessary.

Russ asked if there is any recommendation on AES.

Noel suggested that DEM draft an approval certification for TRC review, the certification should be written as a leachfield approval certification, rather than for a tertiary treatment system.

Russ asked if there were any opinions on the issue of considering AES for a Class Two certification versus Class One, with the difference being that if a Class Two certification is issued, it will have to be renewed five years after it is issued. It was requested that Deb draft a Class Two leachfield certification with the same sizing as Eljen as a working document and email it to the TRC.

Nitrex Start-up Issue Update

Russ explained that Pio has developed an additional proposal for dealing with the high BOD associated with Nitrex start up that involves seeding the system with raw sewage prior to construction of the home. DEM will continue to work with Lombardo Associates and some of the permit holders on selection of means by which to resolve this issue.

Large System Compliance Issue

Brian reported that staff in the permitting program continue to review compliance with the terms of permits issued for large AX100 systems. Most of the AX100 systems are commercial but there are some serving residential uses. On March 16th, DEM sent a letter to Orenco Systems, Inc. (OSI) seeking the reporting required by permit that they have on file for these systems. However, only some of this material was provided to DEM by OSI. Following this effort, DEM sent letters to the owners of these 28 systems seeking copies of their service contracts and the required performance monitoring and this reporting is beginning to come in.

Brian reported that even for systems that have current service contracts, some of the performance monitoring has not been performed. The vendor has claimed they have no control over the activities of the service providers. The permit holder (system owner) believes they have honored their responsibility by maintaining a service contract and are surprised to learn that the services for which they paid have not been performed. There was some discussion about whether it is wise to entertain applications for additional technologies from manufacturers/vendors that admit they have no ability to facilitate their service providers' ability to fulfill the responsibilities of the service contracts they hold. There was support for not entertaining additional applications from these manufacturers, but no vote was taken to articulate a recommendation to DEM.

Brian reported that DEM sent a letter to Bio-Microbics about not offering service contracts to cover the alternative leachfields that follow FAST systems. Both of the certifications issued to Bio-Microbics for FAST (TSS & BOD and also N-removal) require that a minimum two-year service contract must be offered and that it must include as an option, service to all the IA components of the treatment train in addition to the FAST system.

George recalled that at the last meeting Russ said something about Clean Water Act, Section 319 funds (319 funds) possibly being approved for wastewater reporting activities and asked if there has been any action on this possible authorization. Russ said that guidance has not yet been issued and he had no additional information on this potential use of "319 funds".

AE Technology Program Update

Deb reported that Bio-Microbics submitted the September data for the three residential systems that they are monitoring in support of their Class Two nitrogen removal renewal and that these data meet the standard, as did the May data. She distributed a copy of the analytical reports and a spreadsheet calculating TN, on which the September and the May TN calculated concentrations are reported.

Deb and Russ met with DEM legal to explain proposed monitoring requirements for nitrogen removal systems that are approved under the new less intensive application provisions of the July 9, 2012 OWTS Rules [37.4.2(B)(i) & (ii)]. There has been no follow-up from legal following this meeting.

None of the edits DEM requested of Clarus in their Fusion manual were actually made in the revised version. Work will have to resume on facilitating completion of these revisions.

Orengo System, Inc.'s (OSI) application for their AXRT series for N-removal under the July 9, 2012 Rules needs to be summarized by Deb and reviewed by the TRC. It was suggested that a letter be sent by the TRC to OSI articulating their disappointment in OSI's lack of fulfillment of certification and permit obligations in RI and that they are reluctant to consider approving additional products when noncompliance conditions exist as they currently do and the company explains that they are not able to facilitate the accountability of the service providers that they have authorized to service their systems.

Adjournment and Next Meeting

All business concluded, no other issues were introduced and Russ declared the meeting adjourned.

The next meeting was scheduled for November 30th, pending availability of a meeting venue and the meeting adjourned.