

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

**The meeting was held at the Quonset Development Corporation Annex  
95 Cripe Street, North Kingstown, RI**

**December 14, 2011**

Approved Minutes

*Present:* Jim Boyd, Russ Chateauf, Susan Licardi, George Loomis, Nikki Schultz, Tim Stasiunas and Dennis Vinhateiro

*Absent:* Ken Anderson (CRMC represented by Jim Boyd) Noel Berg

*Others Present:* Brian Moore and Deb Knauss (DEM)

Call to Order: 8:47 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 9/27/11 meeting
- Rules 17.3, 37 and 39
- Matrix of treatment system attributes for consideration of methodology to assign leachfield area reduction
- List of RedVector courses, descriptions and CEUS assigned by RIDEM

Russ welcomed Nikki Schultz to the TRC and introductions were made.

**Review of Draft Minutes of September 27, 2011**

Page 6 beneath "Other/O&M Issues" add the following on the Bio-Microbics FAST operator certification training. Following the training and test, three field service visits had to be scheduled. For Tim, these were three sites that Tim has under service contract. Mike Moreau a service provider with J&R Engineering attended the site visits to document performance and record that the requirement had been satisfied.

Also on Page 6 beneath "Other/O&M Issues", in the last sentence, change "yea" to "year".

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

**Second:** Susan seconded the motion.

**Discussion:** There was no discussion.

**Vote:** All in favor who were in attendance at the meeting September 27<sup>th</sup> voted in favor of the motion.

**Discussion of Rules 17.3, 37 and 39**

Russ explained that the south coast towns' resolutions are seeking to hasten DEM's process of approving technologies and to require DEM to identify less expensive technologies and to solicit applications from the companies that manufacture and sell them. The area affected is challenged as too broad and the cost of nitrogen removal systems is also objected to, however there is no challenge to the effort to address nitrogen loading to the ponds. There has been interest in and concern about the TRC and its role. The resolutions say that the current DEM process is a disincentive to apply for technology approval in RI. DEM has performed an informal survey of other states and found that the cost of nitrogen removal systems in other states is similar to the cost of these systems in RI.

South Kingstown has raised the issue that nitrogen removal upgrades being required of some home improvement projects has had a chilling effect on building and people in that industry are losing work as a result.

Tim stated that in June when the Charlestown wastewater management district's alternative nitrogen management plan was taken to the Town Council he attended to speak in opposition to it. This proposal was claimed to be authorized under the RIDEM OWTS rule on local ordinances (Rule 17.3) which he didn't think this was the purpose for which this Rule was originally intended. Russ stated that in Rule 17.3 DEM is recognizing that in addition to a desire to implement more stringent standards, a municipality may have some other ideas about how to reduce the nitrogen load. One idea was 75% nitrogen reduction standard within 200-feet of the ponds. Another was to incorporate use of Soil Air with URI monitoring the systems, the town ultimately decided not to implement this strategy.

**Leachfield Reduction Issue**

Since the beginning of the AE technology program, leachfield area reduction has been established using a formula developed by Rein Laak, which considers the concentrations of BOD & TSS in the treated effluent. But with the

advances in the technologies now available and their different attributes, some provide more consistent treatment and better protect the leachfield from peak flows and untreated or undertreated effluent. For this reason, it has been suggested that we develop a method of taking into account system attributes and risk management in addition to the performance data for BOD and TSS removal submitted with the technologies' applications.

The various leachfields used in RI manage moisture differently. PSNDs are good at moisture management and also treatment. The grass above them is greener longer than the grass that is not over the PSND trenches. The moisture is taken up by the grass and some of it is moved into the atmosphere through ET during the warmer times of the year.

George suggested a point-based system, for example: 0.5 points for time-dosing, then factor these points into a drainfield reduction method/matrix/module/table.

Less hydraulic demand on a field by time-dosing it will allow the drainfield to work better. Systems that don't manage peak flow shouldn't have the same leachfield reduction as a technology that does.

The group focused on the worksheet Deb developed and considered the treatment system attributes and the divisions within each of these that she organized in descending rank order. George suggested reducing the TSS & BOD categories from the 7 proposed on the draft worksheet, to three and to prioritize the system attributes, placing flow management high on the list. He suggested adding FOG management.

Telemetry is great to have, but it is more critical on large systems. All the treatment systems are required to have visible and audible alarms for hydraulic alarm conditions, so alarms shouldn't have a big reduction benefit. An important issue related to telemetry is, is there a RME that will respond to alarm conditions, or conditions that are outside the treatment parameters for which the technology is approved? Perhaps telemetry could be assigned 2 to 3 percentage points.

It was agreed that time dosing and surge storage capacity should be the first two categories of priorities.

It was suggested that drainfields be ranked with consideration of their treatment potential and capacity for moisture management. For example: PSND, BSF-above-grade, BSF- at-grade, ...down to conventional fields, noting that there is no additional nitrogen removal from a BSF and that an at-grade BSF provides about the same treatment as a conventional field.

It was suggested that since we already have two categories of treatment systems (Category 1 and 2) based on treatment performance and whether they do or do not time-dose treated effluent to a drainfield, we could eliminate all system attributes and we can simply consider whether a treatment system is Category 1 or 2 for assignment of a leachfield area reduction.

The best treatment train for nitrogen removal is SPSF to Nitrex discharging to a PSND. This could be expected to discharge single-digit TN.

Russ asked Brian what is being done with leachfield reduction as a function of design flow, specifically over and under 2,000-gpd. Brian said that for new construction of commercial systems where we can expect high strength waste (restaurants and schools), a full size leachfield is required. For new construction of large systems with residential strength wastewater and subdivisions, the leachfield reduction assigned to the treatment system in the approval certification is allowed, but they have to show on the design plan that they can accommodate a full-size leachfield and meet the setbacks required in the Rules. For these uses in repair scenarios, they are required to get as close to 100% of the required leachfield area as possible.

The issue of reciprocity with other states' technology approvals was discussed. It was suggested that for another state's approval to be honored by RI, that it should have been issued on the basis of a similarly robust review and have the same performance requirements. Brian suggested that it is "comity" that we should implement. Comity would require that the program through which approval was obtained in another jurisdiction is substantially similar to ours, rather than "reciprocity" which would allow approvals obtained elsewhere, to be honored in RI regardless of the requirements of the other jurisdictions approvals. We need to clearly cite the elements that need to be satisfied in other states, in order for those approvals to be accepted here.

It was stated that it is important to understand that although systems show up on the list of approved technologies in ME, it doesn't mean that they are being used there.

Also, MA adopted the RI design parameters for BSFs from our SFGD and there is an individual in MA who is preparing an application for MADEP consideration of PSNDs using at least some of the design parameters in the RI guidance.

### **White Knight failure to restore a commercial leachfield**

A Portsmouth Dunkin' Donuts leachfield failed to respond to White Knight. This occurred although they performed the required site evaluation and this system was deemed to be suitable for use of White Knight. The leachfield is flow diffusers. The system is receiving high milk waste with a low pH. DEM has asked for an analysis of why it didn't work and for a proposal for follow-up.

The issue of applicability of approvals for all uses was raised. If an approval was issued for all uses and the system is demonstrated to be unable to handle certain waste streams, it shouldn't be approved for that use.

### **Nitrex failure**

A Nitrex system which may be the first one installed in RI under the DEM approval (as opposed to under a NEOWTC demonstration project) is producing high BOD concentrations that the PSND cannot handle; the pretreatment system preceding Nitrex is an AdvanTex. Nitrex was required and was approved under a variance application, because the lot is small and there were well setback issues. It was installed in May 2011 and failed within 8-weeks. There was an unpleasant odor and the PSND backed-up (three trenches were full of water) resulting in effluent on the lawn surface. Pio Lombardo (of Lombardo Associates, Inc, vendor of Nitrex) claimed that the failure occurred because the leachfield is undersized. He hired a soil evaluator to perform a modified soil evaluation and subsequently asserted that the field was sized on Category 5 soils but should have been sized on Category 9. The Nitrex has been by-passed and the AX was configured to discharge directly to the PSND, which appears to be accommodating the flow from the system and to not be undersized. The PSND is not in a trafficked area and the seasonal high groundwater table is at 5-feet.

Since Nitrex was required for this home because of the nitrogen issue with the nearby wells, the AX was installed in Mode 1, for nitrification rather than denitrification, so the system is not removing nitrogen in this by-pass configuration.

The home was using only about 60-gpd, which would result in higher concentrations of constituents in the effluent than higher volume water use, but the system should have been able to process this effluent. There was never a warning that it couldn't be used below a minimum actual flow volume. Pio had acknowledged that Nitrex produces high BOD early in each system's use, but that if installed in May there shouldn't be a problem. The BOD out of the Nitrex was reported between 170 and 190 mg/L. The TSS concentrations were higher than they should have been for treated effluent, but they weren't as high as the BOD. We don't have the TN concentrations out of the Nitrex unit. Pio proposed installing an aeration chamber after the Nitrex for one year, monitoring the BOD and leaving the aerator in place until the BOD comes into proper range. Nitrex was tested at Barnstable test center, but was tested there with a conventional leach field not a PSND.

Russ stated that we need to communicate to the Vendor that until a solution is proposed and approved, that DEM will not allow Nitrex to be used with BSFs and PSNDs. We have no information that Nitrex has failed elsewhere, but based on this situation, until there is a successful solution in place to resolve the issue of Nitrex's high BOD concentrations, DEM won't allow use of Nitrex with alternative drainfields.

Russ stated that we don't need a vote, but asked if there were any objections to the action that DEM is proposing to take (restricting use of Nitrex by prohibiting its installation with alternative leachfields). There were no objections.

### **Online CEUs**

Deb explained the sheet that she distributed with the course descriptions and CEUs assigned by DEM. She explained that some of the online offerings submitted to her with a request for review were not assigned CEUs because the content wasn't strong enough in topics applicable to design or site suitability as appropriate.

The group agreed that a maximum of three CEUs obtained from online courses, in a three-year cycle is fair. They also agreed that a quiz had to be a part of the course, that the quiz must be passed and that the content can't be in conflict with RI regulatory requirements. It was specifically cited that a course on constructed wetlands is not appropriate for credit since we don't use them here.

### **AX 20 RT: Maryland monitoring extension issue**

Deb reminded the group of the conditions of Orenco's request for TRC consideration of whether an extension for an additional year of monitoring of the RT systems installed in Maryland would be allowed in support of a Class 2 application for the RT in RI. Maryland requires one year of testing and OSI had proposed to extend this testing for an additional year if RIDEM will consider it in support of a Class 2 application. The issue with this proposal is that the subject systems are not in the configuration for which RT approval will be sought in RI: the recirculation pump is not in the second compartment and they do not have the two spin nozzles for distribution of effluent to the media. When Deb brought this request to the TRC (at the last meeting 9/27/11) she was asked if it is possible to retrofit the MD RTs with the newer configuration. Deb emailed the question to Jason Churchill, but he was out of the office. She didn't receive a reply to the question and didn't attempt to reach him to ask again. But she thought it would be good to attempt to close this issue up and that it would help if she knew if the TRC might accept one year of data for the MD RTs as

originally installed and one year following retrofit (provided retrofit is possible and OSI executes the measure), if two sets of data were indistinguishable.

If a vendor retrofits a design improvement to a group of their installed systems and the data from the retrofit systems is as good as or better than the data collected for the same systems in the originally installed configuration: that would be acceptable. The distinction that is crucial is that it must be the same vendor enhancing their own system and all the data generated by the retrofit are comparable or better, not worse than the original configuration. The concern is a vendor making a claim that their system is similar to another vendor's system, but with some specific modification and requesting approval on the basis of that comparison and change. In this instance the proposed change, although extensive enough to warrant a new application, seems amenable to retrofitting and may be accepted for review with only one year of data on the retrofit. The TRC may wish to reserve the discretion to make a case-by-case call on any future retrofit proposal provided the TRC reviews the proposal beforehand. No retrofits may be made without TRC review and State approval.

#### **Next Meeting**

Deb will send a Doodle poll in pursuit of the next meeting date, targeting the end of January.

#### **Adjournment**

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

The meeting adjourned at 11:55 AM.