

**INNOVATIVE/ALTERNATIVE SEWAGE DISPOSAL TECHNOLOGIES
TECHNICAL REVIEW COMMITTEE (TRC)**

September 14, 2005 Meeting Minutes

Approved

Attendees:

TRC Members

Present: Ken Anderson, Noel Berg, Russ Chateauf, Joe Frisella, George Loomis, Tim Stasiunas, and Dennis Vinhateiro

Absent: Dave Burnham, Sue Licardi

Others present: Sam Carter of Orenco Systems, Inc., Bob Johnson of Atlantic Solutions, Brian Moore and Deb Knauss RIDEM

Russ called the meeting to order about 8:15.

Materials distributed:

- Minutes of 8/26/05
- Material from Bio-Microbics
 - Cover correspondence from Allison Blodig dated August 16, 2005 responding to the TRC's request for additional information and selected material accompanied by this cover
 - Approvals from other states
 - Treatment train for FAST systems over 1500 gpd
 - Bio-Microbics marketing brochure and CD
- Additional data submitted by Orenco Systems, Inc. (OSI) in support of the de-nite application for the AX
- Technology review summary of the OSI application for approval of the AX for de-nite
- ADS pipe – description, specifications and background information

Minutes:

The following errors and omissions were identified in the draft minutes of 8/26/05.

- Under "Attendees\Other" Bob Johnson's affiliation is with Atlantic Solutions.
- Page 2 paragraph 2, clarification was requested regarding whether the FAST data with which Steve Corr of MA took issue, was for commercial or residential systems.
- At item 9 (page 2) edit "TRC expressed concern that setting the tank before the unit" to read: ..setting a *primary* tank before the FAST unit..."
- There was some discussion of the tank specifications for the FAST system, specifically the diameter of the openings. It was clarified that the opening on tanks without a cast in place riser is a taper opening to 24 inches; on tanks with a cast in place riser, the opening is a full 24 inches.
- Regarding correspondence item 7 (paragraph 6, page 2 regarding) it was noted that O & M practice needs to be specified as a requirement by the TRC; system inspection must incorporate use of a sludge judge to determine the thickness of the layers of material in the tank, and these observations must be recorded on the inspection form, as information on the rate of accumulation is valuable to the Wastewater Management Districts.
- It was asked whether MA requires testing on the FAST system's remote communication system.

Motion: A motion was made by Joe to accept the minutes with the indicated corrections.

Second: Dennis seconded the motion.

Vote: All members present (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateauf, Dennis Vinhateiro and Ken Anderson) voted to accept the minutes with corrections.

Biomicrobics

Class I for TSS and BOD reduction and Class II for nitrogen reduction

It was determined at the last meeting that the request for Category I for use with a BSF could not be considered due to the design flow limit of 900 gpd on approved use of the BSF being below the design flow of 1,500 for which the classification was being sought.

The Class I approval is warranted in cases where the technology is has been demonstrated by at least five years of data to perform to the claim made by the vendor and there are no concerns with the technology. Vendors of technologies to which a Class I certification is given are no longer required to come before the TRC or to apply for renewal of the certification.

With consideration of this and acknowledgement that maintenance is critical to the nitrogen reduction performance of this passive system (even minor interference with the recirculation of wastewater, will impair the system's de-nite function resulting in only BOD

and TSS reduction), **it was offered that the approval could be broken into two distinct certifications**, Class I BOD and TSS for all design flows and Class II for nitrogen reduction for design flows up to 900 gpd.

O & M on the entire treatment train

Tim reported that he had spoken with Justin Jobin who has not been contacted by Jim Dunlap regarding providing service on the distribution component or on the whole treatment train. This is contrary to a statement made by Jim at the last meeting.

Russ stated that the homeowner should be offered the opportunity to obtain an O & M contract on the whole treatment train. A suggestion was made to require in our certification that the vendor offer the service through one entity; the homeowner could elect to contract with more than one entity if so desired. The certification should also specify that all components are covered by an O & M contract. It was also suggested that a form be developed, on which the service provider(s) and credentials be provided.

Tim inquired as to whether DEM would require both O & M contracts (FAST or other unit and distribution device) before issuing the conformance of the system. If a decision is made that all components have an O & M contract, then DEM would indeed require the submission of both contracts before issuing the Certificate of Conformance.

Motion: A motion was made by Tim that any certification for any I & A system require that the vendor offer O & M services on the entire treatment train. **it was offered that the approval could be broken into two distinct certifications**, Class I BOD and TSS for all design flows and Class II for nitrogen reduction for design flows up to 900 gpd.

Second: George seconded the motion.

Discussion: Joe expressed concern that it is not certain that the homeowner will get coverage for each component. It was reiterated that DEM would require that a contract be provided for each I/A component in the treatment train before the Certificate of Conformance is issued. It was recommended that the form on which the O & M service providers are indicated require that each component be listed with the name of the service provider and a phone number for each. Tim reminded the group that often the end user obtaining the contracts is not the homeowner.

Vote: All present in favor (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

George requested that Steve Corr of MA be contacted regarding which data submitted by FAST were the source of his concern.

Separate Class I and Class II certifications

Motion: Tim made a motion to split the approval for Bio-Microbics FAST system under consideration to **issue a Class I approval for BOD and TSS and to re-issue the Class II approval for nitrogen reduction**.

Second: The motion was seconded by Dennis.

Discussion: The reason for the splitting of the approval under consideration is that the nitrogen reduction data are not compelling.

Vote: All present in favor (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

Recognition of nitrogen reduction for design flows exceeding 900 gpd

Russ noted that it seems that all these designs would be proprietary as none of the details are specified: the pump, recirc ratios, flow rate. As the proposal for systems over 900 gpd was not sufficiently defined, approval of the system for design flows over 900 gpd could not be considered.

Additionally it was noted that there were no data to support the approval of nitrogen reduction for systems over 900 gpd. In order for this request to be considered a protocol must be articulated, for example bimonthly monitoring with sampling conducted by a 3rd party. The MA approval stipulated that the systems must be configured for sampling of influent, it was questioned whether the systems in MA are recirculating the wastewater.

Motion: A motion was made by Tim to not approve the nitrogen reduction application for FAST systems to be used for design flows over 900 gpd.

Second: The motion was seconded by Dennis.

Vote: All present voted in favor (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

Renewal of the Class II Approval for nitrogen reduction and issue of seasonal use

Additional **data** on seasonal use must be submitted; the data submitted are not compelling support of the claim that the system is a practical application for nitrogen reduction when used seasonally. The data show that some systems work, while others do not, though DEM does not regulate seasonal use and only recognizes seasonal use in consideration of permit applications when the use is regulated by the town as at Roy and Mary Carpenter's beaches campsites.

There was discussion of the issue of **nitrogen loading** from year round uses versus systems which are used only a few months during the year. It was posited that the total nitrogen load from a seasonal use, though the system may never have the time to begin treating effluent as effectively as it would under constant use, N is so much less that it would be under year round use. As an estimate, if we consider that the seasonally used system (three months) is contributing 25% of the nitrogen load it would be if it were used all year, and then if that wastewater is treated to 25% reduction of nitrogen, the system will be contributing 1/12 to 1/18 of the typical nitrogen load of a system used all year. However the counter point is that the season during which the nitrogen is being contributed may be an issue of greater importance than the concept of annual nitrogen loading. While this was acknowledged as an important consideration, groundwater travel time should also be considered. It was asked if there are data available suggesting that seasonal use is causing an environmental problem. Ken noted that the data are not impressive and are inconsistent with the reporting requirement in the certification.

There was discussion of the RI **requirement of nitrogen reduction to 19 mg/L and what this really means**. Russ explained that in the absence of a protocol such as those used by treatment plants that we must consider the 19 mg/L as an average. George noted that even the MA seasonal use data averages to below or close to 19 mg/L. Tim suggested earlier start-up. It was suggested that we request of the vendor their specific requirements for O & M of seasonally used systems, to include start up and shut down procedures and scheduling. It was also requested that we request start-up data.

Motion: Ken made a motion to require that the O & M manual be amended to include specific requirements for seasonally used systems.

Second: Joe seconded the motion.

Discussion: The O & M manual must address protection from freezing and preservation of the biological component. It should also address circumstances when the system can be turned off. Rather than specifying exactly what we want it was decided to leave it up to the vendor to provide the necessary information.

Vote: All present voted in favor of the motion (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

OSI, Advantex AX

Whether the **data** submitted support the claim of the system's ability to reduce the concentration of TN in the effluent, was discussed. Since we must consider the averages of data reported, the data do generally meet the den-nite requirement. George had additional data for the RI systems; except for the system in New Shoreham all were producing TN concentrations less than 19 mg/L.

There was some discussion regarding **turning off systems during the winter or leaving them running** as OSI reportedly recommends for their Advantex systems in the event that there are leaking fixtures in the home. It was noted that for systems at homes on wells, there would be no water flowing to the home. Sam explained that the Vericomm system in use with every installation, allows the system to remain on; the system will continue to cycle if it is not used. If it is not used for 48 hours, the system will decrease the cycling if the system is not used for 75 hours, the cycling will be decreased further. It is recommended however, that the system be turned off if it is not going to be used for longer than one month.

There were two systems that froze last winter. One had a valve that cracked, the other system received water from somewhere; a plumber repaired the situation. It is best to turn off the water to the home and to keep the home heated.

The data from the **systems on Block Island** were discussed. Sam had been to the island retrofitting some of the systems with a second air vent, placed after the pod and before the recirc to the primary tank; in mid October these systems will be sampled again. Six installations have been retrofitted with the additional vent. In reply to Joe's question as to why fans were not considered, Sam stated that they had considered the installation of a fan and are working with a smaller fan to verify if the performance problems are related to ventilation. There was some discussion of isolating Block Island from the approval under consideration, until the situation of poor performance has been resolved. However it was deemed to be impractical to do so, that the application would be considered for statewide use.

The **LaPine septic tank effluent data** were discussed: the value used was arrived at by averaging the results obtained by sampling the septic tank effluent of three single family homes in the area of the installations for which they were reported as septic tank effluent.

There was some discussion of **strict adherence to the 19 mg/L TN concentration in the treated effluent and 50% reduction** of the concentration of TN.

- It was suggested that we should be flexible on this requirement to at least meet 50% reduction.
- Counter point: with an assumed septic tank effluent TN concentration of 60 – 65 mg/L, even ATUs which are not intended to reduce the concentration of TN, could be considered nitrogen reducing systems.
- If we do adhere strictly to 50% and 19 mg/L, the TN concentration in septic tank effluent would have to be no higher than 38 mg/L which is lower than the TN concentration typical of residential wastewater.

- It was commented that in past technology reviews, the TRC has not been flexible on the 19 mg/L requirement and that this is not a requirement on which the TRC should be flexible.
- How should the TRC consider cases where the system is removing 75% of the TN but the remaining TN in the treated wastewater is greater than 19 mg/L?
- An important related issue worthy of consideration is nitrogen loading
- It was agreed that there is a need for the TRC to schedule some work sessions to further consider these issues. *Issues and observations:*
 - A position paper should be developed
 - Contact other states regarding their nitrogen reduction requirements
 - What data are provided by manufacturers/vendors and how are these data evaluated?
 - How often are the systems meeting the requirements and when they are not, how is that dealt with?
 - It is important not to penalize onsite treatment technologies that can make a difference by setting the bar too high; onsite should be held to requirements equal to centralized treatment systems.
 - In some cases it has been observed that as little as 0.5 mg/L N can cause eutrophication
 - At a recent meeting addressing the Salt Ponds it was reported that based on estimated nitrogen loading to Green Hill Pond, that 80% of the nitrogen has to be removed from current values to restore the pond.
 - Scott Nixon's work with excavations filled with wood chips to intercept nitrogen is showing some encouraging results. Eventually there will have to be environmental controls beyond onsite wastewater treatment solutions.

Motion: Tim made a motion to approve the AX for a Class II certification with a design flow limit of 900 gpd and testing required on three systems twice a year for two years.

Second: Joe seconded the motion.

Discussion: Could the Certification be suspended to restrict the installation of additional systems on BI since they are consistently not achieving the goal? It was stated that the AX and RX systems on BI are older systems; therefore it is not clear that BI is a problem location, the issue may be related to the systems themselves, which makes prohibiting their use on the Island and uncomfortable option. There is some level of comfort with the issue, since OSI has been working hard to trouble shoot the problem and to attempt to resolve it by retrofitting some of the systems with the second vent in an effort to determine if the problem is being caused by inadequate ventilation. Could the TRC require more intense monitoring of the systems on BI?

Amended Motion: Ken amended the motion to require testing on BI consistent to that required statewide (3 representative systems used year round two times a year for two years).

Second: Dennis and Noel seconded the motion.

Discussion:

- URI could work with the vendor and DEM to identify suitable systems.
- Issue of evaluating TN removal efficiency, not able to collect Influent data.
- Joe wanted to know if submission of as-builts for designs incorporating RXs would be permitted. (This will be discussed at the next meeting).
- Sam asked if limiting the design flow to 900 gpd is typical. Russ replied that it is and is the approval which was sought by OSI. Additionally, the bulk of the data submitted is reporting measured performance at single family homes up to 900 gpd.

Vote: All present voted in favor of the motion (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

Issues for next meeting:

- Large systems
- ADS pipe
 - Use of ADS pipe would require spreader pipes every four feet or it will wiggle into the soil.
 - Inspection ports should be required every twenty feet and at the distal end and that the ports be wrapped with filter fabric.
 - One member reported that it is stronger than PVC
 - It was requested that before a decision is made regarding use of ADS pipe that the material be shown to be equivalent to PVC.

Motion: Joe made a motion to adjourn.

Second: The motion was seconded by Ken.

Vote: All present voted in favor of the motion (Noel Berg, George Loomis, Joe Frisella, Tim Stasiunas, Russ Chateaufneuf, Dennis Vinhateiro and Ken Anderson).

The meeting adjourned at 12:30.

Next Meeting

Next meeting was scheduled for October 21, 2005 from **8:15** to **Noon** at the Warwick Sewer Authority.