

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

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

June 28, 2012

Approved Minutes

Present: Ken Anderson, Noel Berg, Russ Chateaufneuf, Susan Licardi, George Loomis, Tim Stasiunas and Dennis Vinhateiro
Absent: David Dow, Nikki Schultz

Others Present: Whitney Frost, Septic Preservation RI, Inc., Brian Moore and Deb Knauss (DEM)

Call to Order: 8:50 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 5/22/12 meeting
- Summary of Norweco, Inc. application for Singulair TNT and Singulair Green TNT
- Maryland letter of Approval issued to Norweco, Inc. for Singulair Green Bio-Kinetic model for grant eligibility under the May Restoration Fund
- MADEP Remedial Use approval, issued to Norweco, Inc., revised to include Singulair Green TNT, acknowledging that TNT models are designed to reduce total nitrogen in the wastewater with aeration timed to operate 60 min on and 60 min off

Review of Draft Minutes of May 22, 2012

On Page 4, (eighth paragraph from the top, beginning “Noel suggested that...” edit the second sentence: “*This met mixed review: what if a vendor walks away before all ~~there~~ three are installed...*”

On Page 4, (ninth paragraph from the top, beginning “Russ asked if anyone had any questions...” edit as follows: “*To remediate this issue, URI researchers amended the influent waste strength, & a nutrient pump can be was used to feed ammonium on a timed basis into the test system influent to increase the total nitrogen from 40 mg/L to about 65 mg/L for a the research project.*”

On Page 5, edit the first paragraph: “*About 7.5 mg/L alkalinity is required to convert 1 mg/L ~~ammonia~~ ammonium to nitrogen gas nitrate and ~~F~~ostering nitrification is the hardest step of the ~~denitrification~~ nitrogen removal process; denitrification is easily accomplished with low enough oxygen status.*”

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

Second: Susan seconded the motion.

Discussion: There was no discussion.

Vote: All who were in attendance at the meeting May 22nd voted in favor of the motion; Ken abstained because he was not present at the meeting.

Norweco, Inc. Technology Application for Singulair 960 TNT and Singulair Green 960 TNT for Nitrogen Removal

The application was initially submitted in April seeking a Class One approval. But the material Don Bach (Norweco, Inc.) distributed at the last TRC meeting (5/22) was revised to seek approval for Class Two. Deb sent him a letter dated May 3rd, explaining the application’s deficiencies and also the potential for the proposed OWTS Rules revision to accommodate submission of a NSF/ANSI Standard 245 Report with a preponderance of the effluent TN concentrations less than 19 mg/L to fulfill the data and approvals requirements for Class Two. If the Rules become effective with this provision, it would alleviate the issue of the data and approvals deficiencies specified in the May 3rd letter, provided the Standard 245 data meet the criterion of a preponderance of the effluent TN concentrations less than 19 mg/L (the Standard 245 requirement is for 50% N-removal, but not 19 mg/L).

Russ explained that although the Rules were filed, that they do not become effective until 20 days after the filing date (which will be July 9), during which time an appeal may be filed by a qualified party.

Deb summarized the material in Norweco’s May 22nd submission and this summary was distributed at the start of the meeting today. She also distributed two approval letters that were not included in the May 22nd submission:

- 1) The Maryland Approval letter issued to Norweco, Inc. for Singulair Green Bio-Kinetic model grant eligibility under the Bay Restoration Fund and
- 2) The Massachusetts DEP Remedial Use approval, issued to Norweco, Inc., revised to include Singulair Green TNT and acknowledging that TNT models are designed to reduce total nitrogen in the wastewater with aeration timed to operate 60 min on and 60 min off.

Deb explained that the application summary primarily focuses on elements of the approval letters that were provided in the application received May 22nd. The application summary includes a table identifying approving entity, date of approval and whether the approvals cite nitrogen removal, since a state may approve a nitrogen removal technology but have no regulatory requirement for nitrogen and we are interested in seeing evidence of technologies being approved for the use sought in RI. Entities (listed in the first column) whose approvals cite nitrogen are bolded.

Deb noted that there are discrepancies in the specification of model numbers within and between the two applications Norweco submitted:

- In the application submitted in April, the technologies identified for which approval was being sought were: Singulair Model 960* TNT (concrete) and Singulair Green (plastic) Model 960*-TNT.
- In the supplemental application submitted 5/22/12, the models are specified as: Singulair Green TNT-500, Singulair TNT-500, Singulair TNT-750, Singulair TNT-1000, Singulair TNT-1250, Singulair TNT-1500 (from page 1 of application form).

*Note that “960” is not included in the model number on page 1 of the 5/22/12 application form, but it is used on the title page. And “960” is used in the NSF letter of functional equivalence and the NSF Standard 40 list, but not the NSF Standard 245 list. However, Deb stated that she made no effort to seek the significance of “960”. However, as she was packing for the meeting Wednesday afternoon, she was asked about a permit application that was submitted to DEM specifying Singulair Green “960”, which is inconsistent with the model number specified in the RIDEM certification for TSS and BOD reduction. The staff person reviewing the plan proposed to return it because the model was incorrect, but Deb explained that there are inconsistencies within the technology application material. She will request clarification from Don Bach of the significance of the “960” and whether it may be disregarded.

There was discussion about service contracts: the term for which they are issued and whether the cost is incorporated into the purchase price of the system. Deb explained that she had asked Sharon Steiner (NSF) if the requirement that the cost of the initial two-year service contract be included in the purchase price of Standard 40 technologies, also applies to Standard 245 certified technologies. Sharon stated that it does, and that NSF was in the process of adding Standard 245 to the policy language. The question that remains relates to “off-label” use of a product, such as allowing the Singulair Green tank to be used in the Siegmund Environmental Services, Inc’s (SESI) (recirculating) nitrogen removal system. Norweco Inc’s Singulair Green is certified to Standard 40 and their Singulair Green TNT is certified to Standard 245, but the SESI recirculating Nitrogen removal variant of the Singulair doesn’t have NSF certification, so does the requirement that that the cost of the initial two-year service contract be included in the purchase price of the system, still apply to Green if used in SESI’s Nitrogen removal system?

The group agreed that in RI the practice should be consistent and that all systems’ vendors should be required to include the cost of the initial two-year service contract in the cost of the system.

There was discussion of the data from Maryland and the issue of data from an NSF Standard 245 report fulfilling the data requirement of a Class Two nitrogen removal application. The pending Rule allowing NSF 245 certification to fulfill data and approvals element of a Class Two nitrogen removal application shouldn’t be a gateway to use in RI for technologies with insufficient data. Deb stated that the Maryland approval letter states that the data Maryland considered, were analyzed to obtain 75th percentile of effluent TN concentration and the percent reduction. For grant eligibility, this must be a TN percent reduction of at least 50-percent or an effluent concentration of 20 mg/L or less with an influent concentration greater than 40 mg/L. This kind of statement of a performance standard might be preferable to “preponderance of the data reporting treated effluent total nitrogen concentrations of 19 mg/L or less”. It was suggested that the standard could be revised in the future to include “meeting 50% reduction of influent total nitrogen”.

Russ stated that Singulair Green is limited to 600 gpd and spoke a bit about there being interest in using the system in parallel to treat design flows exceeding 600 gpd. Deb explained that she had asked Don Bach about this on the phone in the past, and that this issue is one of the line items in the guidance material that she developed to assist vendors with development of design, installation and O&M manuals, but that specifications for Singulair Green in parallel were not included in any material submitted by Norweco, Inc.

There was discussion regarding the difficulty of splitting flow to more than one treatment unit because a 50-percent split of solids can’t be achieved. But it was suggested that installation of a grinder pump preceding the units might resolve this issue. Someone asked about whether the concrete Singulair may be used in parallel. The RIDEM approval includes a design flow limit of 1500 gpd. This limit was included because the application did not include documentation of use at larger flows. However, would Norweco, Inc. authorize use of two 1500’s to treat 3,000 gpd? Don Bach, should be asked if Norweco, Inc. will allow this use, and also to talk to the distributors about what they want for use in RI.

There was discussion about the issue of having two Singulair nitrogen removal certifications, if Norweco’s application for TNT is approved. Last September Hollister (SESI) stated that they would withdraw theirs if Norweco, Inc. obtains a nitrogen removal approval for the Singulair TNTs. Tim asked how this would actually be accomplished. Russ explained

that they may tell us, in writing, that they are no longer going to market the SESI nitrogen removal configuration and this information can be included in the AE Technology list posted to the website, as was done with the RX phase out. Someone asked if it is possible to re-configure the SESI recirculating nitrogen removal Singulair systems to the 60-minute on/60-minute off aeration cycle. It was requested that we have answers to these questions before an approval be considered.

There was concern that the TNT may not treat to the 19 mg/L TN treatment performance required of the SESI Nitrogen removal Singulair since the two sets of data we reviewed are only the NSF report's, based on lower influent TN-concentrations than residential waste streams and the Maryland data which do not demonstrate that greater than 50% of the systems are achieving 19 mg/L, but greater than 50% for the other months.

Russ explained that we will require more vigorous testing of systems that are approved under this new Rule until we are satisfied that the systems are working as required. He also reported that DEM had looked at data in some of the NSF 245 reports. The influent concentrations were not consistently as low as we had thought and the results of the series of stress tests were good.

We summarized issues with the Singulair technologies:

- 1) **Confusion with the various Singulair models, concrete and Green and how they may be used.** SESI holds the only RI nitrogen removal approval for Singulair and this approval allows use of the Green tank in the SESI recirculating configuration. Norweco, Inc. holds the approval for TSS & BOD reduction and this approval allows use of both the concrete and plastic (Green) systems. Green, in both cases (Norweco, Inc's TSS & BOD approval, and SESI's Nitrogen removal approval) has a maximum treatment capacity of 600 GPD, but the model number includes "500". In some places, the technology is listed as treating 500 gpd and also 600 gpd, which is confusing because although there is only one plastic tank size, this *suggests* that there are two different tank sizes (one that accommodates up to 500 gpd and another accommodating up to 600 gpd).
- 2) **Confusion includes model identification, specifically use of "960"** and whether "960" which seems to be used loosely by Norweco, Inc., NSF and the states in which Singulair is approved, is significant, or may be disregarded.
- 3) **Singulair tanks in parallel to treat design flows exceeding the capacity for which the individual tank is rated.** DEM has been asked about this. Deb had asked Don about this during a phone conversation during prior consideration of Norweco's application for Singulair Green and she included the question on the list of items in the design, installation and O&M manual development guidance that she developed to assist vendors in their development of these guidance materials. No information regarding use of the tanks in parallel was provided. She stated that to keep work moving, she no longer reiterates questions to which no answer is received. However, since the question is being raised, a clear "no", or "yes", with clearly stated design details, will be sought of Norweco, Inc. regarding use of all Singulair tanks under both of the RI certifications.
- 4) **a) If a nitrogen removal approval is issued to Norweco, Inc. for the TNTs, it is agreed that there should be only one Singulair nitrogen removal approval.** At the TRC meeting in September 2011 attended by both Don Bach and Hollister Siegmund, Hollister agreed that SESI would withdraw their Nitrogen removal approval if Norweco, Inc. is issued a nitrogen removal approval for the TNTs. So, it is expected that SESI will withdraw their nitrogen removal Singulair approval if one is issued to Norweco, Inc. for the TNTs. Deb will speak with Norweco about their commitment to facilitating this transition if Norweco receives the nitrogen removal approval for the TNTs.
- 5) Is it possible to re-configure the SESI recirculating nitrogen removal Singulair systems to the 60-minute on/60-minute off aeration cycle?
- 6) **Initial two-year O&M agreement, with the cost included in the purchase price of the system.** We understand that NSF Program Policy 21 requires the initial two-year O&M contract to be included in the purchase price of NSF Standard 40 systems. Deb contacted Sharon Steiner at NSF and asked about applicability of this policy to systems certified to Standard 245. Sharon explained that Program Policy 21 does apply to Standard 245 certified systems and that NSF was in the process of making this revision to the policy language.

We have received information that Singulair treatment systems are being sold with a two-year contract, with only the first year included in the price of the unit. What is Norweco, Inc's position on this? DEM would like consistency: all systems sold with the cost of a two-year service contract included.

- 7) Training service providers: Both Singulair certifications require the vendor to train service providers, but distributors may perform this training. What is each entity (vendor and distributors) providing in terms of training: designers, installers and service providers?

- 8) In the summary Deb produced, the table on page 5 shows that there are inconsistencies in the information provided by Norweco, Inc. in April and in May of this year. Find out why the information regarding cost of service and electricity changed.

Russ asked if the group feels that the information provided demonstrates that this technology meets the RI regulatory standard.

George would like to look through the NSF Standard 245 report once more before making a decision about this.

There was agreement that it was disturbing that the Maryland data didn't show better nitrogen removal with higher influent concentrations. These data don't present a preponderance of treated effluent concentrations less than 19 mg/L, nor do they demonstrate 50-percent TN removal: the Maryland data show an average percent TN removal for January 2009 as 44-percent, ranging from 2-percent to 82-percent.

Russ reported that he had heard that FAST is the only nitrogen removal system with a Massachusetts General Use approval and that an issue with obtaining this approval is that 90-percent of the systems are required to meet the MA standard of 19 mg/L and that individual system averages must also meet this treatment standard. So it may be that nitrogen removal systems are having a tough time consistently meeting the MA treatment standard.

Russ recalled that there is a NEIWPC meeting in July and wondered if the FAST system data that Massachusetts has may help us develop a monitoring protocol for systems approved under the proposed nitrogen removal application options, by allowing us to consider the number of systems and the treatment consistency that is reported. Deb said that she would try to get the data from MADEP before the July NEIWPC meeting.

Proposed Regulatory Changes to Address Concerns of South County Towns

Russ reported that the Rules had been filed with the Secretary of State's Office and would become effective July 9th unless an appeal is filed by a qualified party.

He explained that there were some changes made to the proposed rules after the hearing. Projects in the critical resource areas involving up to 600-square feet of interior living space, including increasing the footprint (with no encroachment on the existing OWTS) will not require nitrogen reducing technology. This (600 square foot) provision will expire November 1, 2014, at which time, addition of a level or portion of a level, footprint increase, or substantial improvement within the 100-year flood zone will require upgrade to nitrogen removal technology (in the critical resource areas). The three-year term of this provision allows for three construction seasons. However, it is hoped that by the end of this three-year term, there will have been development of legislation or Rules that will replace most of the building renovation triggers (in current Rules) with point of sale. It is expected that this would be controversial because it is tied to real estate transfer, but it would be more effective at removing cesspools than the current requirements.

DEM had received fairly strong objection from Orenco Systems, Inc. (OSI) to the proposed Rule regarding allowing Standard 245 certification in place of the current data (and approvals) requirement for a Class Two nitrogen removal technology application. OSI claimed that these systems will provide less effective treatment than the currently approved nitrogen removal systems because the influent waste strength used to evaluate their treatment ability is too low. They suggested postponing the Rule's implementation.

Russ spoke twice with an OSI representative and explained that there would be increased testing required of systems approved under the proposed Rule (relative to the three systems that are currently required to be tested under Class Two approvals). OSI appealed to DEM's director, but Russ explained the issue to her and she decided to support the Rule in question and file the Rules with its inclusion.

We need to decide what constitutes adequate performance monitoring of these systems. George stated that it isn't fair to apply more rigorous testing requirements to only the technologies that are approved on the basis of a Standard 245 certification. He thinks that if we look at all the systems' performance, that we will see a big variation in their treatment performance.

It would be interesting and useful to do a survey of all the alternative treatment systems installed in RI and see how they are treating in light of our understanding that not all of them are receiving required O&M. All service providers should be aware of and implement field measures that indicate whether conditions exist that would allow proper treatment to occur. If the proper conditions were not indicated, necessary adjustments would be made and the system could be evaluated again, allowing some time for the adjustment to affect the system's function. We could look at flow and loading and do some trend analysis. We would find that even among well-maintained systems, there would be a range of treatment performance: in the Barnstable study, it is thought that low water use resulted in some of the higher concentrations of analytes in the systems' treated effluent.

Russ explained that the proposed Rule involving NSF Standard 245 was DEM's idea in response to the request from communities and interest from the legislature, that something be done to provide expedited approval of nitrogen removal technologies because of complaints that our process was too burdensome to applicants and review times too long.

At the next meeting, DEM will propose something specific regarding how many systems need to be tested: ten or twenty systems, some percent, all of them or some other option.

Nitrex Update

Russ reported that letters were sent to all holders of approved permits specifying Nitrex, explaining that start-up conditions have resulted in temporary prohibition of the use of Nitrex with PSNDs and BSFs. The letters advised permit holders to contact DEM if they wanted to begin construction soon. A couple of meetings with these permit holders have been scheduled.

Large AE System Compliance Update

Brian asked about the applicability of entering into closed session to discuss issues relating to technology and company performance that could potentially result in litigation. Russ preferred to have discussions in open session if possible. There was some discussion regarding applicability of executive session for this purpose; it was thought that this applies specifically to discussion of personnel performance. Also, individuals who are expected to be the subject of executive session discussion are required to be notified that discussion of their performance is proposed to be conducted in executive session, and that they may request the discussion be held in open session. Therefore, even if the executive session provision applies to this type of discussion, the requirements of the Open meetings Act have not been fulfilled for executive session discussion today.

Russ said that he prefers that discussion be held in open session, but that the DEM legal office would be consulted regarding this question.

OWTS staff have been reviewing the large system performance data that have been submitted to DEM, permit and certification conditions. A spreadsheet has been developed to facilitate accounting for vendor and system compliance. Brian explained that the spreadsheet is five sheets wide and read some of the column titles: O&M contract (yes/no); sampling performed (yes/no); parameters sampled (list them); were these the correct parameters (yes/no); did performance meet standard (yes/no); DEM notified of cancellation or non-renew (yes/no).

Brian explained that the majority of systems are not in compliance, required sampling was generally not performed, and when it was, that the systems generally didn't meet the performance requirements. He said that DEM staff is still working on filling in all the cells for all the systems. When this is accomplished, the spreadsheet will be sent to the applicable vendors and they will be asked to provide the missing information. The permit-specific row will be sent to the permit holder.

There are 26 large systems of one of the technologies and a lot of work and time are required to account for all of the 26 systems' requirements.

Russ explained that the permit often states when the sample must be taken and that the sample must be representative of the permitted discharge. For example, a school's performance being monitored during the summer months when the school is not in session is not representative of the permitted discharge. If the sampling is not performed as required, it is a violation of the permit.

AE Technology Program Update

Deb reported that Bio-Microbics had submitted the first set of data for the three residences in RI, as required by their certification for nitrogen removal and that it looked good. These data are being submitted to fulfill renewal requirements that have been delaying the renewal of the FAST Class Two nitrogen removal certification. The first of the requirements delaying renewal that was accomplished was providing a list of at least two service providers. This was fulfilled by completion of the service provider certification program and submission of the list of certified service providers to DEM.

The next technology application to be reviewed is Presby's Advanced Enviro-Septic, which Deb explained based on information on the application form, is not their nitrogen removal technology. Norweco, Inc's Singulair TNT and Presby's Advanced Enviro-septic applications are the only two technology applications requiring attention.

Adjournment and Next Meeting

The next meeting was scheduled for August 24th, pending availability of a meeting venue and the meeting adjourned.