

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

The meeting was held at the South Kingstown Town Hall, Council Chambers
180 High Street, North Kingstown, RI

July 13, 2011

Draft Minutes

Present: Ken Anderson, Noel Berg, Susan Licardi, George Loomis, Brian Moore, Tim Stasiunas and Dennis Vinhateiro

Absent: Dave Burnham, Russ Chateaufneuf

Others Present: Beth Myre (Atlantic States Rural Water Association), Matt Gamache and Deb Knauss (DEM)

Call to Order: 8:50 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 6/15/11 meeting
- Summary of Norweco's Application for Class 2 technology for Singulair Green 960-500 and Singulair Green TNT-500 equivalency with currently approved Singulair technologies
- Letter from Deb to Jason Churchill (of OSI) dated June 10, 2011 regarding new technology application required for AX20-RT (RIDEM considers the orientation of the components a significant deviation from the AX20 Filter and does not consider them equivalent).
- Email from Deb to Jason Churchill dated 6/6/11
- OSI drawing of AX20-RT Mode 1A (single lateral/two nozzle distribution network)
- OSI drawing of AX20RT Mode 3A (6 lateral/multi orifice distribution network)

Review of Draft Minutes of June 15, 2011

Motion: Ken made a motion to approve the minutes as submitted.

Second: Dennis seconded the motion.

Discussion: There was no discussion.

Vote: All in favor who were in attendance at the meeting June 15th voted in favor of the motion.

RIDEM Updates

TRC Vacancy

Deb reported that the notice of a TRC vacancy was posted to the OWTS listserv Monday and that she had already received a few responses.

Deb emailed the Listserv posting to Dennis for the gentleman to whom he had referred at the last meeting as a suitable candidate, in case he is not subscribed and included the link to the section of the website at which one may subscribe. Dennis forwarded the information and attempted subscription himself but had a problem with the system. Deb stated that she would try to subscribe Dennis.

Bio-Microbics Service Provider Certification Training

Deb asked Tim about attendance at the Bio-Microbics service provider certification training that was scheduled for June 29th, since he had registered himself and others from his company. He reported that it was presented by Allison Blodig of Bio-Microbics and was attended by about a dozen people seeking service provider certification in RI. There was a test at the end of the training and the final element of the program will be attending three site visits for hands-on training. The certification will not be issued until each applicant who passed the test has attended three service visits in the field. These will be scheduled in the future.

O&M Frequency for Seasonally Used Systems Issue

Jason Churchill and Mary Clark of OSI and Bob Johnson of Atlantic Solutions, distributor for OSI entered during this discussion at about 9:10.

Brian Moore reported that he has been contacted by owners of seasonally-used AX systems seeking relief from the two service visits required each year. He stated that the TRC had agreed that two visits each year are required; in the case of seasonally used systems, one service visit should be at start-up and the other at shutdown. Brian stated the approximate number of AX systems installed in RI and with consideration of the requirement for two visits per year, proposed for

consideration the likelihood that there are not enough authorized service providers to actually perform this number of service visits each year. Bob Johnson and others provided the names of entities and individuals that are authorized by OSI to service AX systems and how many crews are working for each of the authorized entities. There was discussion about the unlikelihood of this group being able to properly provide the required service for the number of systems currently installed in RI. There was also discussion about reports that some of the service crews do not have dissolved oxygen meters and how this is discrepant with past reports that DO is assessed at each service visit. (There was more substantive discussion of this issue later in the meeting; this additional discussion is summarized in the section of the minutes during which the discussion occurred.)

GeoMat: Reduced Spacing of 39-inch Width Specified by Designers in Repair Applications

Brian has received three repair applications specifying mat spacing less than the spacing approved by DEM for GeoMat 3900 (the 39-inch width) that is specified in the design and installation manual as 8.125-feet on center and 4.875-foot edge-to-edge. Brian reported that he received a letter from GeoMatrix (the vendor of GeoMat) stating that they support this spacing and that it is used in CT, but that he wanted TRC opinion of this mat spacing. Deb asked with how many pipes the 39-inch wide mat is being dosed in CT. It was thought to be one (RI specifies two lines on the GeoMat 3900).

George considered that the GeoMat fields will be time dosed at a maximum of 1/4 –gallon per orifice per dose and compared the hydrodynamics with a bottomless sand filter. Based on this comparison, even with the proposed non-standard spacing (less than that specified in the DEM-approved design manual) GeoMat will do a better job of moisture management than a BSF and pose no greater risk of breakout and surfacing. Where there is room on a site, the spacing approved in the manual should be used, but on a repair site where space is limited, and there is no other option, this reduced spacing could be allowed, since delivering treated effluent into natural soil will provide better treatment than final dispersal by a BSF.

Brian asked the group to consider under what conditions DEM should allow a sub/or non-standard design of an OWTS (for example the reduced spacing of the GeoMat 3900) rather than a code compliant alternative, such as a BSF. He recalled how when the BSF was first available, people were grateful to get one approved and have a system installed, and how people are now trying to avoid them. The treatment advantages of PSNDs over BSFs, discussed by the TRC recently, apply to this sort of assessment and GeoMat is designed using the same parameters set forth for PSNDs, so this relates to that discussion. It was suggested that maybe a minimum spacing of 1-foot be proposed, but it was agreed that this should be a site-specific issue and that whatever DEM considered to be protective would be appropriate. The footprint of PSNDs and therefore GeoMat is greater than a BSF so the effluent is delivered to a larger area and as long as O&M is performed, a shallow PSND-type field in native soil is better than a BSF from a moisture management and treatment perspective.

In support of the use of PSNDs and GeoMat, rather than BSFs, George added that there have been problems in the last few years with availability of good quality pea stone. He recalled how the early BSF failures were directly attributable to dirty pea stone and how PSNDs don't freeze even in the coldest parts of our winters. Another factor making BSFs less appealing is the increasing cost of sand, which has increased by 30% since last year. Sand is currently priced at \$38 per ton; it was available for \$15 per ton when we first started used BSFs.

Orengo Systems, Inc's AX20-RT Request for Equivalency

May 18th Mary Clark of OSI and Bob Johnson, of Atlantic Solutions (a distributor for OSI) made a presentation on the AX20-RT for DEM staff at DEM's office; a few members of the TRC were able to attend. This presentation was scheduled following the cancellation of the TRC meeting that was scheduled for the same day. Following this presentation, Deb sent a letter to Jason explaining that DEM considers the orientation of the components in the AX20-RT to be significantly different than the AX20 filter and that if OSI wishes to pursue approval of the AX20-RT in RI, they would have to submit a new technology application for Class Two approval, or apply for an experimental technology approval, if they wish to pursue approval in RI and do not meet the criteria for Class Two approval. Since receiving this letter, Jason contacted Deb to request an opportunity to address the TRC as he had originally hoped to do, since only four members including Russ were present at the May 18th presentation. Therefore, Jason is joined today by Mary and Bob, to make a presentation supporting OSI's request for equivalency of the AX20 RT and AX Max with the AX20 and AX100 Filters, to the TRC in the format of an official TRC meeting, as he had initially requested.

Jason explained that the AX20-RT is a new configuration of the AdvanTex system and that it is the same core technology. The AX Max is the commercial-scale treatment system and can be provided in different sizes as a function of design flow; it is preceded by a primary treatment tank. He explained that they are seeking an approval in RI for proportional increases in size, so that they do not have to submit a new technology application every time they introduce another size in the AX (RT and Max) series.

Four-to-one is the typical recirculation ratio in these new systems (water in the system is passed over the treatment media four times before it is discharged). In Mode 1, which is used for TSS and BOD reduction, the water is recirculated to the treatment tank; in Mode 3, which is used for denitrification, water in the system is recirculated back to the septic compartment (for anoxic treatment). There is also a partial Mode 3 configuration in which ½ the water is

delivered to the media and ½ to the recirculation tank. (However, other than this statement in my notes and my note “Partial Mode 3” on the AX20-RT Mode 3B drawing, I have no detail recorded regarding applicability of Partial Mode 3 and I found nothing on the OSI website regarding this.)

The RT and currently approved AX20 Filter have the same amount of textile filter media. The RT It has no recirculating splitter valve (RSV). The textile filter media is hanging over the treatment tank, and the tank is configured so that the water flows through the treatment media into the correct portion of the treatment tank below in the proper ratio (60% to the recirculation side and 40% to the discharge side), so there is no need for a RSV. The advantages of the RT were explained to be the shallow installation, the single tank package (versus a tank and media pod for the AX 20 & 100 filter), the AX20-RT fits in the back of a pickup truck. The recirculation pump has been moved from the inlet-side of the treatment tank, to the outlet end to simplify servicing the system.

The AX20-RT will treat four bedrooms, with a 1000-gallon septic tank preceding it. AX25-RT will treat five bedrooms; it has 25% more textile media. For six bedroom homes, Bob stated that they will probably continue to use the AX20 because the RT is not intended for all sites, just as an alternative. A single AX Max unit is equivalent to one AX 100 unit.

Part of the new design for the RT is a modification of the distribution system over the filter media; the AX20 and AX100, currently have orifices with orifice shields. OSI developed a new distribution system to replace the nozzles and orifice shields, using two spinning spray nozzles that spray the water over the media in a rectangular pattern. This applies water to more of the media than the orifices with shields.

The RT’s mean effluent TN concentration in MD is better than the AX20, and they are not certain why, but it is not distribution to the media, because these RT installations do not have the new spin nozzles.

George asked how important the recirculation ratio is to obtaining the treatment reported from MD. In response, it was reported that all these MD systems were set at four-to-one and Bob Johnson thinks that all are still at this factory setting, except for the Suchter’s system, which was adjusted because the home is occupied by five-people (the data sheet provided states at the top of the page, that the 12 MD installations on the sheet are AX20-RTs, which have been explained to be appropriate for 4 bedroom homes, and the AX25-RT for 5 bedrooms).

Issue of RT Equivalent to AX: NSF reviewed the information OSI provided, explaining the two systems use the same amount and type of treatment media, same storage volumes and loading rates and without additional testing NSF issued a statement accepting the AX20-RT as equivalent to the AX20 Filter and possibly also for the AX25-RT (it was not stated with certainty that the AX25-RT received the NSF equivalency).

In MD, the Chesapeake Bay Restoration Fund Best Available Technology (BAT) Verification Program requires that the first 12 installations for each system installed be sampled quarterly over the course of one year. Five AX20-RT installations have completed this process of required quarterly sampling. Statistics (average, mean, 75th percentile and number of samples) for these data and the observations reported for the seven additional systems for which all the sampling is not yet complete and were provided in paper copy to the TRC. These are summarized in the table below:

Statistic	BOD5 mg/L	TSS mg/L	TURB NTU	TKN mg/L	NH3 mg/L	NOX mg/L	TN mg/L	DO mg/L	pH	TEMP °C	Alk mg/L
Average	4.6	2.8	1.8	2.4	0.7	12.3	14.6	7.5	7.2	12.8	145
Median	4.0	2.0	1.6	2.4	0.5	11.7	14.2	7.3	7.1	14.0	141
75 th percentile	5.6	4.0	2.7	2.9	0.5	15.1	17.3	9.0	7.5	16.0	171
# samples	30	22	31	31	27	31	31	31	30	29	28

OSI is seeking flexibility to scale up their treatment system models, with all the elements remaining proportional and using the same recirculation ratios.

Someone asked if they have influent data; the response was that a representative influent sample cannot be obtained because blended effluent is discharged by the septic tank. MD allows the assumption of 60 mg/l TN in influent; based on this assumption, they report 68% removal by the RT.

George asked for the PA AX20 data to be provided.

Tim asked if any adjustment can be made to the RT for 4-bedroom homes to get 50% daily storage capacity; this would be an additional 30 or 35-gallons, and without the splitter valve, there should be room for a little bit of adjustment. Bob stated that they should be able to adjust the storage volume and that there are 10, 30 and 50-minute per gallon pump packages available for the RT.

George asked when they would propose to offer training on the RT if they get an approval. Bob replied that training would be offered in 30 to 60-days, stating that he assumed that this would be required as it is with other technologies. George reported that he is often asked when training will be offered for service providers and he has mentioned this to Mary, Bob and Terry Bounds. He stated that many people are interested in performing O&M on the AX in RI and have passed the NEOWTC's Inspection 200 class, but they cannot market themselves to service these systems until they are trained by the vendor. George stated that OSI has good O&M training material and that they provided this material for the Consortium of Institutes for Decentralized Wastewater Treatment training program, but what is needed is active implementation. Mary stated that they will get to work on this right away and asked if the issue is scheduling on-going events, or will one event satisfy the need for service provider training.

There was discussion about the ongoing need to accommodate professionals' desire to obtain technology-specific O&M (as-well-as design and installation) credentials. It was suggested that perhaps the technology certifications need to be more specific, specifying a certain number of sessions, accommodating each of the professional disciplines (designer, installer, service provider) each year. Alternatively, it was suggested that there could be a requirement that the number of trained/vendor-authorized service providers could be a function of the number of systems installed.

Brian Moore asked who the vendor authorized AX service providers are. Bob Johnson stated that they are Kevin Hoyt (on Block Island), Bob Frost (who recently purchased Septic Snooper), Effluent Technologies (part of Atlantic Solutions), Rick Pezza/Green Wastewater Solutions, and Tim Stasiunas, adding that these are companies, with employees doing the system service work. Dennis asked, if these people have the support of their companies, what support would individuals have. There was discussion of how to manage service provider practices, to ensure that required work is being done and performed correctly. George responded to both issues explaining the RIWIS (RI Wastewater Information System) system is used by many of the municipalities with wastewater management programs (RIWIS is a web-accessed database, maintained by CarmodyTM, available for use by service providers). This system makes recording and reporting activities easy for service providers. Municipalities with wastewater management programs have specific requirements for service providers and have the ability revoke their authorization to perform the work as-well: it is not exclusively the responsibility of the distributor who administers training to mind the practices and performance of service providers.

Tim noted that the TRC has been dealing for a while with the issue of complaints from system owners that there are not enough service provider options.

Susan reported that North Kingstown is beginning to issue NOV's to IA system owners who do not have service contracts.

George added that we have not even begun to discuss the issue of large systems, service provider attention to the performance requirements of these systems and required performance and service reporting to DEM. He suggested that if there were more service providers available to service RI's AE systems, that greater attention could be paid to ensuring the compliance of the large systems, because the service providers would not be as over-committed as they are now.

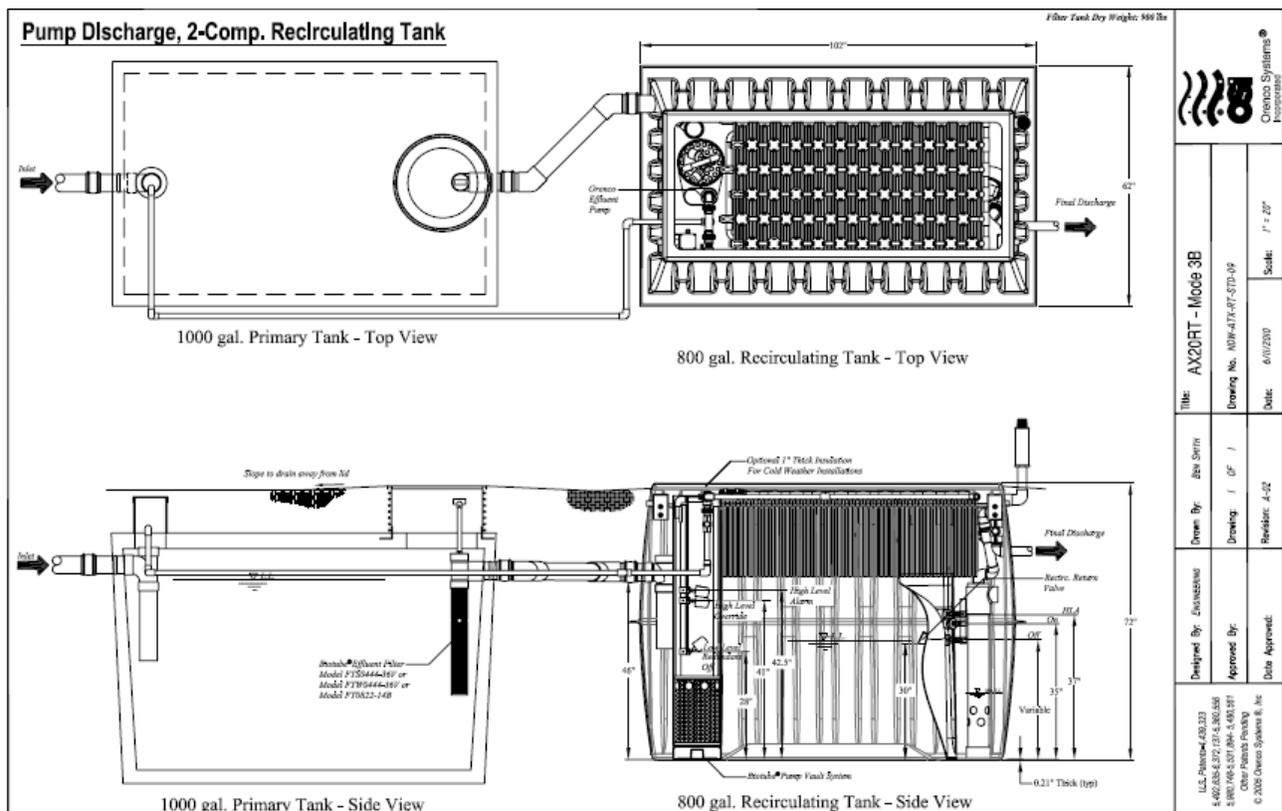
Noel noted that the RT's median and mean are tighter (indicating better performance) than the AX and that he would like to see more RT data, supporting Russ's position (as articulated in Deb's letter to OSI, declining their request for RT equivalency, and requiring a new technology application with two years of data or an experimental application). He wanted to know if there was any difference between gravity and pump discharge in the performance data for the AX20-RT. Jason responded that with the pump runtimes, it is possible to get a good estimate of the forward flow; gravity systems require the estimate to be based on an assumed 50 gallons per day per person. Noel stated that because gravity systems' forward flow is not actually known, but estimated on the basis of assumed water use that he would really like to see a comparison of performance data for gravity and pump discharge. The PA AX20 data is all pump systems. The MD AX20 data provided is for both gravity and pump discharge, with the gravity systems' data highlighted in yellow.

Motion: Noel made a motion to support the letter DEM sent to OSI.

Second: Ken seconded the motion.

Discussion: George said that at the May 18th presentation at DEM that he got the sense that the RT was still under development and that OSI had not yet decided the final orientation of components in this system. A TRC determination of whether the RT is an equivalent, one-to-one comparison with the AX20 cannot be made by the TRC until they know exactly what the system will look like and have the opportunity to consider data for this specific configuration. Ken asked what RT configuration is in the ground for the data provided. It was stated that the pump is on the inlet side in these systems but that it has been moved to the outlet side for easier O&M.

The MD data is for the Mode 3B configuration in the material Deb provided the TRC for today's meeting (see image on following page).



Note:

In Favor: Noel, Dennis, Susan and Ken voted in favor of Noel’s motion to support DEM’s letter to OSI requiring a new technology application with a minimum of two years data for the RT configuration that will be use in RI, or for an experimental application.

Opposed: No one voted in opposition to the motion.

Abstained: Tim and George

Motion Carries. The TRC, with a membership of 9, defines a quorum as a simple majority of five members. Therefore, with four of the six voting members in attendance at this meeting, the motion carries with four affirmative votes supporting the letter DEM sent to OSI and two abstentions.

(From ground rules in a memo dated 10/1/96: Quorum = simple majority of 5 members.)

Norweco Singular Green 960-500 and Singulair Green TNT-500 equivalency with currently approved Singulair technologies

Deb distributed the summary material she had prepared. It was asked what, if anything is adjusted in the unit to accommodate 500 gpd and 600 gpd design flows, since the summary sheet Deb prepared states that these units treat 500 or 600 gpd and includes a comment stating: *“It is not clear to me what is changed to accommodate the 600 gpd design flow, since the dimensions for the system rated for 600 gpd are identical to the 500. 7/1/11 Knauss emailed Don Bach seeking clarification.”* If any modification is made, how would it be distinguished in a design (permit application), so that the reviewer would know that the system is correctly set/adjusted or otherwise configures for the design flow for which the system is being specified? Deb had not received a reply from Don with this answer and she agreed to seek this information from him.

The table in Deb’s summary comparing the dimensions of the concrete Singulair tank and the Green systems’ plastic tank is small and too difficult to read. It was requested that Deb seek a better-formatted (larger and easier to read) table of dimensional comparisons. Deb was also asked to seek verification that the dimensions of the Green tank are compared with the dimensions of the concrete tank that is currently in use.

Many questions were posed to which Deb did not have answer and it was requested that although this Norweco request is for equivalency with an approved technology, that she seek a submission that follows the format of a new technology application incorporating system details, concrete and plastic comparison (in a large enough format as to be readable) and design, installation and O&M guidance making certain to articulate to Norweco that since the tank is plastic, that we need to see anti-buoyancy provisions in the design and installation manuals.

Deb was asked why Norweco is submitting this request and not Sigmund Environmental Services, Inc. (SESI), who is distributing Norweco’s Singulair for TSS and BOD reduction and SESI’s denitrification variant (recirculating from the third compartment to the inlet pipe or first compartment rather than from an external pump chamber as does the

Norweco denite technology. Deb did not know the answer to this, but stated that Siegmund Environmental had contacted her about how to seek approval of the Green system, shortly after she had received the request package from Norweco. There was concern that the request did not come from the local distributor who did not know that a request had been submitted by Norweco. Therefore, Deb was asked to find out if Norweco still has a relationship with SESI and will continue to provide them with Singulair equipment.

Motion: Susan made a motion to request additional information from Norweco following the format of the technology application, and including a clear table comparing the dimensions of the concrete Singulair tank currently in use with the dimensions of the plastic Green Singulair tanks for which approval is sought, design, installation and O&M guidance including anti buoyancy provisions in design and installation guidance and clear description of operational specifications for both proposed uses (TSS & BOD reduction and nitrogen reduction) including aeration settings.

Second: Dennis seconded the motion.

Discussion: There was no discussion.

Vote: All present vote in favor of the motion.

Technology Program Status Report

The balance of the technology program update is as follows (as of the start of this meeting).

There are currently:

10 expired certifications;

5 Expired certifications for which renewal has been applied;

1 draft certification being reviewed by the applicant (PercRite). Deb will email them to be certain they did not miss her email.

1 manual under development (ARC Chamber) – Edits received from applicant by Deb via email 6/30/2011

1 application under review with supplemental material forthcoming from applicant (Fusion)

1 application that needs to be reviewed by TRC (Norweco Green 960-500 & Green TNT): on today's draft agenda

Next Meeting

With no suitable date in August, the group decided that a Doodle poll should be sent to them seeking to schedule the next meeting sometime in September.

Adjournment

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

The meeting adjourned at 12:10 PM.