

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

The meeting was held at the South Kingstown Town Hall

June 10, 2009

Draft

Present: Noel Berg, Dave Burnham, Joe Frisella, George Loomis, Susan Licardi, and Dennis Vinhateiro

Absent: Ken Anderson, Russ Chateauneuf and Tim Stasiunas

Others Present: Deb Knauss (DEM)

Call to Order: 8:50 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 4/30/09 meeting
- E-mail from Nicholas Noble of Orenco Systems, Inc. concerning conventional leachfields
- Geoflow remaining issues, including loading rates
- Application Summary for Geomatrix System LLC, GeoMat Application

Minutes of April 30, 2009

Necessary edit noted below:

On page 4 in the paragraph that begins: "PSNDs have a one-foot groundwater table separation benefit..." In the third sentence, change "Holden and Stolt" to "The New England Onsite Wastewater Training Center".

Motion: Dave made a motion to accept the minutes with the noted correction.

Second: Joe seconded the motion.

Discussion: There was no discussion.

Vote: All who were present at the April 30th meeting voted in favor of the motion.

Updates:

Deb distributed to the group an e-mail from Nicholas Noble of Orenco Systems, Inc. (OSI), in which he expresses OSI's support for a RI requirement that all advanced treatment systems be followed by a pressurized leachfield, to provide the best possible treatment for the site. Deb informed the group that the issue is still under consideration at DEM.

Deb also reported that DEM is under a no-spending directive, and will be in a better position to assess availability of funds for the NEOWTC proposal to develop a comprehensive pressurized leachfield guidance after the new budget is approved.

George noted that in the past, the TRC was concerned about the risk of homeowners turning off power to the system to save the energy cost, thus dispersing untreated effluent to a leachfield of reduced area. To address this concern, his recollection is that all advanced treatment systems were required to have a discharge pump and that both the discharge pump and the system be wired on the same circuit. Therefore, if the power was turned off, the effluent would not be pumped to the leachfield and the system would back-up. The policy of allowing conventional leachfields with advanced treatment systems defeated this measure of ensuring that system owners maintained electrical service to their systems, therefore ensuring that untreated effluent would not be discharged.

Motion: Dave made a motion that the TRC recommend that DEM require all advanced treatment systems be designed to prevent the discharge of untreated effluent.

Second: Susan seconded the motion.

Discussion: There was some discussion of the issue of DEM's departure from the requirement as collectively recalled, that all advanced treatment systems must have a discharge pump and that this pump must be on the same circuit as the air-supply. George recalled questioning designers who had system designs under review of the South Kingstown Conservation Commission that specified advanced treatment systems with no discharge pump, and having them provide the DEM-approval of the design. Joe asked if it would be an acceptable alternative to pressure dose a distribution box as this would allow quantifying forward flow, which would allow verification that a system is operating within its permitted design flow. There was discussion about the effluent quality discharged by advanced treatment systems not facilitating development of biomat as septic tank effluent will. Lacking biomat, a conventional

leachfield will discharge the pre-treated effluent to the head of a leachfield which is installed deeper in the soil profile than the pressurized options (PSND or BSF) and that is why pressurized leachfields are a superior method of dispersing treated effluent. If nitrogen removal is being required, why not require a leachfield that will help achieve maximum nitrogen removal for that system?

It was suggested that dosing to a d-box may be a suitable design in a commercial use situation, where the leachfield has to be installed beneath a parking lot and therefore has to withstand wheel-loads. In this case, pressure dosing lines within flow diffusers may be a suitable alternative.

It was asked if Russ had spoken with Brian Moore about his and the OWTS program staff opinion, of the reduced line spacing for PSNDs and using BSF loading rates, that the TRC voted on at the last meeting. The importance of their practical knowledge and contact with designers was acknowledged and it was requested that Deb be certain that they have an opportunity to review and comment on these issues, whether or not they have reason to expect potential practical or performance problems.

The issue of DEM's concern about consumer cost was acknowledged.

Amended Motion: Dave amended his motion that the TRC request that DEM require all advanced treatment systems be designed to prevent the discharge of untreated effluent and also require a pressurized orifice flow drainfield option for all AE systems in the state, for better dispersal of this treated effluent.

Second: Susan seconded this amended motion.

Discussion: There was no additional discussion.

Vote: All present voted in favor of the motion.

Joe requested that if DEM puts this requirement into effect, that the design community be provided adequate notice, so that they may complete and submit to DEM any gravity-system designs already under development that do not comply.

Geoflow

George prepared a table of RI soil categories, into which he incorporated the loading rates from the table in the Geoflow application that most closely corresponded to the soils within each RI soil category. He explained that there are textural differences between the soils in RI and those in expressed in the table in the Geoflow application; RI structures are weakly expressed, so there are some differences in the way that the soils are described and categorized in the table from the Geoflow application and in RI Rule. He sent this table to four of his colleagues who are members of the Consortium of Institutes for Decentralized Wastewater Treatment (the Consortium), seeking their comments.

There was discussion of O&M frequency for cleaning the drip line. George explained that there is a filter before the field and this filter is cleaned by backflushing. In the field, there are solenoid valves in the distribution network in access boxes, that open and close, changing flow direction and backflushing the field to the headworks. Field flushing can be performed manually, by turning valves, or it can be automated, which is preferable.

Discussion of backflushing the system included Delaware's requirement of a 2 feet/second flush velocity. It was noted that this would require a bigger pump and therefore greater expense. Flush velocity was discussed: Below from spreadsheet at: http://www.geoflow.com/wastewater/w_pdfs/Design_Spreadsheet.xls

Note: A few States or Counties require additional flow for flushing. Please check your local regulations.

Flush velocity in this spreadsheet below* is for PC dripline only. Classic dripline usually requires less flow to flush than PC. *Geoflow website has a spreadsheet available for download at url above: (Please refer to Geoflow's spreadsheet called "Design Flow and Flush Curves" at www.geoflow.com or call 800-828-3388.)

From the above referenced spreadsheet: Geoflow recommends 0.5 feet per second with WASTEFLOW dripline, noting: **"A few States or Counties require additional flow for flushing. Please check your local regulations."**

George noted that drip line fields are used in colder parts of the country; the lines are installed more deeply into the soil than in warmer climates.

Joe asked if it would be a good solution for small lots; George did not think that it would be particularly advantageous for this application.

There was discussion regarding how to address the maximum FOG concentration allowable for effluent to be dispersed using Geoflow. George suggested that we include this in the list of questions he sends to his colleagues in the Consortium.

Cost was discussed using the estimates provided in the application which state the following:

Estimated Cost Range	Activity/Materials
\$1,300 – \$1,500	“Geoflow components” from page 13 in the application
\$4,500 – \$6,500	Total drip system cost with pump(s), control panel, required PVC and fittings, insulation materials and installation of field
\$2,000 – \$3,000	Average design cost for single-family home (covers all design requirements, site visits and as built plans) – pricing will vary depending on project and site specifics as well as individual engineer’s costs
\$7,800 – \$11,000	Estimated Total Cost of the dripline system (costs for advanced treatment system design, installation and purchase not included)

Joe asked if there would be a reduced separation to groundwater table, as there is a one-foot reduction in this separation distance for the PSND. It was thought by the group that Geoflow should qualify for the same reduction of separation distance to groundwater if BOD/TSS concentrations are below 30/30 mg/L.

The question of maximum grade was considered; it was thought that if pressure compensating emitters are required on all installations, that it may be appropriate to not limit grade. George noted that he is aware that drip is used in North Carolina and in Tennessee on very steep slopes. This is a good question to include for review by George’s Consortium colleagues.

Deb will prepare the outstanding issues and questions regarding TRC consideration of the Geoflow application, as a list of questions and direct it to George, who will in-turn distribute it to his colleagues in the Consortium that are experienced with drip dispersal. She will also request of Geoflow, an equipment list specifying the responsible party and Geoflow’s recommendation for flush velocity for treated effluent.

GeoMatrix Systems “GeoMat”

Deb distributed her summary of the GeoMat application. There was some question as to whether the application is for the introduction of air to the mat leaching system; although this is not mentioned in the application, the images of an installation that Deb provided the group via e-mail that she had found on the GeoMatrix System’ website, seemed to include an air pump. Clarification of this will be sought of the applicant.

It seems that installation would require use of a light machine.

- Guidance in the application specifies that a distal head pressure increase or decrease of more than 10% requires the proper associated action, yet there is no design guidance specifying the optimal distal head pressure range or absolute setting. *Seek clarification.*
- Orifice diameter and spacing are not specified. *Seek clarification.*
- It was requested that Deb *ask for a sample of the material.*
- There was considerable discussion of the mat widths and speculation about the intended use for each. It was suggested that the 78-inch width may be two 39-inch width sections butted against each other. *Seek clarification.*
- Image number 5 of the installation pictures in the application appears to be an envelope, into which the pipe is inserted. Is this the case? *Seek clarification.*
- The group thought it would be helpful to have Dave attend the next meeting and they requested that he be asked to bring a sample of the material with him.

Next Meeting

The next meeting was scheduled for July 1, 2009 at 8:30 in the SKTH Council Chambers.

The meeting adjourned at 11:55 PM.