

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 1, 2010

Approved Minutes

Present: Ken Anderson, Noel Berg, Dave Burnham, Russ Chateaufneuf, Joe Frisella, George Loomis, Brian Moore, Tim Stasiunas and Dennis Vinhateiro

Absent: Susan Licardi

Others Present: Steve Minor, Advanced Drainage Systems, Inc's representative and Deb Knauss (DEM)

Call to Order: 8:50 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 10/28/10 meeting
- Summary of American Manufacturing Company's Perc-Rite drip system application
- Infiltrator Design and Installation Manual (for convenient reference to compare ADS chambers with Infiltrator's)

Minutes of October 28, 2010

Add Ken Anderson to the list of TRC members present.

Page 1, beneath "American Manufacturing Systems, PercRite Drip System Application Summary", in the last sentence of the second paragraph, insert "tank" after "holding".

Page 2, in the third paragraph beneath "American Manufacturing Systems, Inc. PercRite Drip System, Bob Mayer" the filtering capacity of the disk filters and the particle size that can be passed by the emitters was reversed. The disk filter removes 115-micron particulate and emitters can transmit particulates up to 800-microns.

On Page 5, beneath "OSI Low Profile RSV Installation/mounting" Russ requested that the following be added to clarify the issue regarding the inlet sanitary tee. *"The installer of the system was not present, but the designer was and reported the installer stating that in the past he (the installer) that in the past the installer received a lot of call-backs on back-up issues when a sanitary inlet tee was installed; when he does not install one, he does not receive the call-backs from these system owners. Therefore, he no longer installs them. There was discussion among the group at this site visit about the pros and cons of installing sanitary inlet tees, and it was agreed that there is greater merit to using them than to not doing so. If there are problems however, we would consider re-evaluating their use, but Russ has not heard about problems associated with their use until this site visit."* In addition to the previous clarification provided by Russ, the following discussion resulted: Dave has only had a couple of issues with plugged sanitary tees and it usually has something to do with what is going on in the house. George said the only problem he has heard of is related to a straight 90-degree fitting (rather than a sweep). Joe reported that at group homes there is often excessive toilet paper used and suggested that the tank baffle should accommodate the purpose of the tee. George offered to follow up and talk to some installers and also to talk to Darlene, who has participated in the inspection course. He also noted that the Training Center will need the sample parts configured for supporting the low-profile RSV mounting for their courses. Dave reported that when they discuss installation of sanitary inlet tees during the installation course, none of the installers has complained or reported complications due to their use.

Motion: Joe made a motion to accept the minutes with the necessary edits.

Second: George seconded the motion.

Discussion: There was no discussion.

Vote: All present who were present at the October 28th meeting voted to approve the minutes as presented.

Other issues:

- Joe requested via email that a question on White Knight be added to the draft agenda for today's meeting.
- Dave Burnham requested brief discussion of PercRite: will we incorporate into the approval for this drip system (approved at the meeting 10/28/10), all the same elements that we incorporated in the terms of a vote to recommend approval of Geoflow drip system? Russ reported that we will carry all the same elements over to the approval for the PercRite drip system.
- George requested discussion of inspection issues associated with trench-by-trench PSND construction.

Advanced Drainage Systems, Inc. Application Summary Introduction

Although neither of the authority to distribute boxes were checked on the application, Deb noted that the application identifies ADS as the manufacturer of the ARC chambers on page two at Tab 4.

Deb summarized the application summary she prepared calling attention to the table on page one, in which the dimensions of the ADS chambers and the Infiltrator chambers, with which they are compared in the application, are presented in one table.

All the chambers satisfy the RI minimum requirements for approvals, except for the ARC 36 LP for which no documentation of any approvals is claimed or provided. Therefore, if an approval is recommended, it would have to exclude the ARC 36 LP. Steve Minor explained that the ARC 36 LP chamber was developed two weeks ago and that it currently only exists on paper. He accepted that without the necessary approvals and history of successful use, RI would not be able to consider this recently developed and not yet manufactured ARC 36 LP unit for approval.

It was noted that page 9 in the Infiltrator manual, which provides PSND installation guidance, requires editing for consistency with the recently issued approval for use of the Quick4 LP in PSNDs. Additionally on page 5 in the manual, there is a diagram that identifies “gravel” and specifies when this material is to be used, referencing SD 11.05 (the ISDS regulations effective January 2002).

The June 2010 modified approval for general use letter issued for ARC Chambers, signed by Glenn Haas of MADEP, includes biodiffusers. These are not included in the application to RIDEM. Steve Minor explained that ADS bought the name biodiffuser, which had been a product manufactured by PSA, which was purchased by ADS. Biodiffuser is a 6-1/4' length chamber; the ARC chambers are 5' in length, and length is the only distinction between the two chambers. He explained that ADS is not seeking approval of the biodiffuser chambers in RI.

George wanted to make certain that the three design elements regarding the installation of distribution pipe and use of stabilizing PVC pipe, itemized on the first page of Deb's November 22, 2010 letter to Chris Machnik of Infiltrator, are also required of ADS for the ARC 18 (the model that is dimensionally similar to the Infiltrator Quick4 Equalizer 24, which is one of the two Infiltrator chambers authorized by RIDEM for use in a PSND).

Steve Minor explained that there is a mid-chamber option for installing the distribution pipe. Deb asked if it would be objectionable to them if RI prohibited the mid-chamber elevation option for installation of the distribution pipe, and allowed only top of the chamber and bottom of the chamber, with the distribution pipe supported on PVC pipe or mounting clips to keep the orifices off the soil surface. Steve responded that they would not object and that most of the installations incorporate distribution pipe installed either top or bottom of the chamber.

Deb asked Steve about the Double-Wide ARC 36 and 36 HC chambers for which ADS included their version of a RIDEM AE List product summary on the last page of the bound application material; this is the only place in the application material that double-wide chambers are referenced. Steve replied that there is no request being made of RI for approval of double-wide chambers.

Russ asked if there was a recommendation from the TRC to approve this technology. Use of the ARC 18 in PSNDs with the high and low distribution pipe configuration, applying the language in the November 22, 2010 letter to Infiltrator, and the same requirement when installed in fine-textured soils was discussed.

Motion: Dave made a motion to recommend approval of ADS's ARC chambers ARC 18, ARC 24, ARC 36 and ARC 36 HC as a Class 2 leachfield component with the same provisions allowing use of Infiltrator's chambers and to allow use of the ARC 18 chamber in PSNDs with the same language provided in the letter to Infiltrator approving the Quick4 LP for this use.

Second: Dennis seconded the motion.

Discussion: There was no discussion.

Vote: Everyone present voted in favor of the motion.

Installation on contour

The group discussed installation of leachfield technologies on the contour and considered whether we want design and installation specifications for installation on the contour included in manuals when a product's physical attributes accommodate such installation? Russ explained that he had been thinking specifically about avoiding well radii and repairs when this was discussed previously. There are some drawbacks to curving trenches. George stated that if a product accommodates turns, the manuals could instruct designers to follow the contour. In PSND applications, an additional solution to the problems with difficult sites will be valuable. He sees this as the same product, just a design configuration change. Tim stated that if a product can make the directional change it is probably in the design and installation manual. Arcing trenches might eliminate some of the sequential 2, 4 and 6-foot lines that are sometimes designed to avoid well arcs. Russ stated that DEM sometimes gets unusual design configurations that the engineer defends by stating that it meets the Rules. If a leachfield is proposed with curved distribution lines, all of the lines should

curve and the required minimum spacing between distribution lines (trenches) needs to be maintained throughout the field. One-inch pressure pipe is pretty flexible so it could be hung from chambers installed in a curve, but if it ever needed to be replaced, it will be harder to remove than if it is installed in the low-pipe configuration. If an application for an arcing Quick4 was submitted to DEM, it can't be denied since the Rules are silent on the matter. The options to provide guidance for arcing trenches are to address it in the design and installation manuals or in the OWTS Rules, with limits on the angle of the curve. Russ asked if this was acceptable to everyone and if anyone wanted to make a motion addressing this.

Noel suggested that there be some measure in place to ensure that design configuration will not interfere with inspection and maintenance, so that this could be considered in the application plan review process at DEM.

Joe spoke about the value of accommodating elevation contours and avoidance of trees and structures by designing arcing trenches and potential maximum allowable arc. He suggested leaving this determination up to the manufacturer of each product and the designer.

Russ stated that the limit on curvature would have to be specified in each manual. Dave stated that he is OK with the design and installation of arcing trenches when appropriate details for each product are provided in design and installation guidance. He noted that in the ADS chamber application, Tab 18, Annex A, (which is part of the NSF report), includes information on the maximum horizontal rotation, which is specified as a maximum of 10-degrees in either direction. He also suggested that design and installation guidance should include recommendations or requirements for gravity and pressurized uses as well, since as was noted earlier, removal of a top-mounted distribution line for maintenance would be challenging and therefore, the top-mount option might not be the most appropriate orientation for the distribution lines in radial installations.

Motion: Dave Burnham made a motion to recognize through design and installation manuals, radial layout with limits as the manufacturers specify, based on the physical ability of the products, subject to review and approval by RIDEM.

Second: Joe Frisella seconded the motion.

Discussion: Pressure and gravity applications will have to be specified clearly, as-well-as Noel's comments about curved designs not impeding inspection and maintenance. DEM will inform vendors that if they allow radial design and installation, that the conditions and applicable details must be included in the design and installation manual and any applicable guidance in the O&M manual. George noted that at the Training Center they teach folks to place PSNDs on the contour.

Vote: All present voted in support of the motion with inclusion of the provisions discussed.

OWTS Rules Clarification

Tim requested clarification of Rule 17.4.1, specifically, what is considered as "increasing the footprint of the structure" and if the addition of a deck is considered to increase the footprint. From a zoning perspective, yes, but from the perspective of the OWTS program and the intent of the Rule, a deck is not living space and therefore is not an increase in the footprint. Other features for which this clarification was sought were addition of a garage, or a sunroom in a critical resource area. Russ stated that the key for DEM, is "living space". So, with consideration of the OWTS Rules, a sunroom would increase the footprint, but a garage would not. It was requested that a clarification be sent to the building officials and to the planning departments. Joe asked if a heated garage would be considered living space. Others noted that heat could be added to a garage afterward and Russ noted that some seasonal residences in South County are not heated.

PSND Trench-by-trench configuration

George explained that he receives phone calls and that in NEOWTC classes, they field questions about DEM inspection of PSNDs. With the closer spacing now allowed for PSND trenches, the need for a bottom inspection of every trench has become a logistical problem. PSND construction practice is to layout and stake the area and install the manifold first. Then during trench excavation, the spoils of each trench are placed on the area of the adjacent trench. With 5-foot on-center spacing, there was room between the trenches to carefully place the spoils between the trenches, but the 2.5-foot on-center spacing does not allow for this practice. He suggested as a possible solution that DEM inspectors look at one trench, perhaps the first one or use the inspection ports that are placed every 20-feet, to assess conditions within the trenches, or the inspectors could ask for a shovel hole or an auger hole adjacent to the trenches to verify soil conditions. Tim suggested that with construction of PSNDs, if the inspector is authorized to inspect one trench, the installer could have the bottom ready for that inspection. Dave stated that on a bottom inspection of a PSND, the inspector should have an idea if it's going properly, whether the inspection is performed during construction of the first trench or the fifth. The first trench may be preferable for a one-trench inspection protocol, so that if there is a soil issue identified, it will be identified before all the other trenches have been installed. Whatever is decided, it needs to be clarified by DEM for the design and installation community. There is a need for consistency, so that people know what to expect and how to perform PSND installation and schedule inspections, regardless of the inspector assigned to area of the installation.

Brian reported that he is not hearing of any problems with inspection of PSNDs and asked Tim and Dave if they have had any PSNDs with required bottom inspections. Dave stated that he has had a BSF installation with a bottom inspection

required, he also said he had a couple of inspections for a BSF on a Friday, which were waived. He also had a PSND with a bottom inspection required, waited all day and at 3:00 received a call from the designer that the bottom inspection was waived. Designer licensing took the installer out of this notification process; the call from DEM waiving an inspection is made to the designer, not the installer, so if the designer does not answer the phone and a message is left, the information may not be forwarded to the installer until several hours later. It was acknowledged that close coordination between the designer and installer are essential. It was also acknowledged that leaving an excavation open overnight if the scheduled inspection is not performed, is not advisable because of the concern with safety, liability and risk of rain silting-in the bottom.

George asked what specifically, is a cover inspection on a BSF. Brian explained that the system is complete and stone-covered; the inspector will push the stone away from various areas of the distribution system to make an assessment of whether it was properly installed.

Russ stated that DEM does at least one inspection for new building construction (NBC) installations. Brian stated that if a PSND is installed on fill with the native soil stripped, DEM will require a bottom inspection, to ensure that proper fill material is used. He explained that on bad lots, both a bottom and a cover inspection will be required, but that there is no written policy, it is more a general practice. There was discussion about liability: *until* a DEM inspection is performed DEM does not have responsibility to ensure that a system is installed properly. DEM does not have a duty to go to an installation. The interest in DEM's performing inspections is the public interest, to ensure that the right things are happening during installation and this is especially important on critical sites.

Brian explained the logistics of scheduling and performing DEM inspections: With 4 inspectors to cover the state, each has a target to schedule 10 inspections per day. If an inspector arrives at a site and there is nothing going on, it is not practical to return to that site later in the day, because of the direction and distances involved in accommodating all the sites scheduled for that day's inspections. Russ explained that DEM schedules a "day" for an inspection, but not a "time" and that these inspections need to be performed before the contractor leaves the site. Dave stated that if DEM can't set a time, this is a problem for the installer who can't stop at the first trench and wait. This is not practical and that is why installation continues after completing the first trench, if the inspector has not yet arrived.

Tim stated that the installation of PSNDs and BSFs under the New Building Construction application process, benefits from soil evaluation test holes so DEM knows about the soils in the area of the leachfield. Russ suggested that maybe staff could make an unannounced site visit rather than scheduling a bottom or cover inspection. Perhaps at a start of construction site meeting the designer and installer could talk about where the leachfield will go. The DEM inspector could decide then for what part of the installation an inspection should be performed and coordinate with the designer and installer when that will be. Joe stated that he meets with the installer at his office before construction; when construction starts, a representative of Joe's office is there on-site.

Brian reminded the group that the start of construction call to DEM is made by the designer, and this call is made 24-hours before construction begins. Most of the time, it has been observed that construction is not happening when a designer states that it will. Tim stated that scheduled construction timing can be changed by unanticipated emergencies requiring a response, like broken water or sewer lines or rain, and many other things on other jobs that take longer than expected and interfere with starting at the next site, 24-hours after the start construction call was placed to DEM. Although it was agreed that there may be extenuating circumstances on a job that prevent an installer from initiating construction of another system according to plan, in some cases it seems that the designer might make the start construction call to DEM when he or she learns who will be doing the installation, but there is no intention to start the work for a week or two.

The need to perform inspections is understandably an issue associated with the trustworthiness of individual installers; some have a better track record than others; George reported that he hears about installation problems from people. Brian stated that when he receives a complaint about a system design or installation issue, he will ask for information on the specific job so he can consider all the circumstances.

George suggested that on the permit, the part of the system requiring inspection, and the purpose of the inspection, could be indicated, for example, inspection needed at "fill-in the specific component" and cite the concern, for example "soil conditions".

Brian will speak with the OWTS Inspectors about inspections performed on PSNDs with the 2.5-foot on-center trench spacing that are constructed trench-by-trench and the related issues discussed today, as-well-as other issues that may not have been identified today, how they are handling these issues and what recommendations they may have regarding them. Guidance can be developed and put out on the listserv.

White Knight

Joe reported that he was on-site for a DEM inspection of the installation of a White Knight that he had designed. The DEM inspector arrived at the site and said that according to the White Knight documents, Class I designers are the only

designers who should be installing them. Joe said that it was very clear in Bob Silva's letters that he is authorized to install White Knight, but he is not clear about who submits the site evaluation document.

There was some discussion regarding White Knight design and installation authority and Joe explained that Bob Frost has a business arrangement with White Knight as a dealer or distributor (another professional distinction associated with White Knight, in addition to authorized installers and designers). Russ recalled that the original application to DEM sought approval for White Knight to be used with a failed or malfunctioning leachfields and that diagnosis, design, and installation were all expected to be performed by the same person. Russ asked who is performing the design and who is performing the installation of White Knight in RI. Joe replied that he designed the repair incorporating White Knight and that it was installed by someone else. He added that this particular White Knight unit, installed in May 2010 has not restored hydraulic function to the field. He stated that he encouraged his client to get in writing that if the White Knight does not work, that he will get the cost of the unit, installation and labor refunded. Russ replied that since the White Knight did not work, the homeowner should be protected, and asked if there is an issue with that. Joe stated that Bob Silva is aware of this situation and that it seems there will be no problem with a refund being made to this client. He offered to email Russ a pdf of the White Knight warranty that his client has. Tim recalled that the equipment cost would be refunded, but he did not recall that labor would be refunded. Some thought that the homeowner should be reimbursed for the all the costs associated with their White Knight experience. Brian reported that there are about 30 White Knights installed in RI now and this is the first that he has heard about any of them not working.

Russ asked whose responsibility it is to make the call that a system is not responding. Joe thinks that he is responsible because he designed it. He reported that at the installation of the White Knight, the d-box was drained and power washed, but not the field and that Bob Silva was present at the installation. This prompted discussion about the White Knight site evaluation/eligibility-assessment process. Russ asked about how the site evaluation process works if there is no digging involved in this process. George explained that digging is required for proper leachfield draining and that this is usually performed by digging a sump at a corner of the leachfield. The pumper, who is on-site for this process, removes as much liquid as possible from this sump. This physical removal of effluent from the leachfield assists the field in responding to the effects of the microbial inoculant disbursed and aeration provided by the White Knight unit. Tim asked about whether recharging the microbial inoculant early if a system seems to not be responding might be helpful. No one had any knowledge of whether this might be a suitable approach to nudge a resistant system into responding to rejuvenation.

Deb was asked to get a list of authorized professionals, by discipline, from Bob Silva.

The following italicized text, excerpted from the White Knight approval certification was inserted after the meeting, as a reference regarding White Knight design and installation authority:

I. Design Requirements/General

8. *System design shall be in strict conformance with the Department approved System Design and Installation Manual and **shall only be performed by appropriate Department-licensed persons who are authorized in writing by the Vendor to do so.***
9. *System installation shall be in strict conformance with the Department approved System Design and Installation Manual and **shall only be performed by appropriate Department-licensed persons who are authorized in writing by the Vendor to do so.***

II. General Requirements

5. *The Vendor shall hold, or cause to be held, two training seminars for Rhode Island licensed designers before the expiration or renewal of this certification. The Vendor shall notify the Department of the proposed date and time of each training seminar at least one month in advance of the proposed seminar and coordinate any public announcement or solicitations with this office. **A list of Vendor trained and approved distributors, with at least two names shall be submitted by the Vendor to the Department within 6 months of this approval.***

Training

- a) *The Vendor shall hold two **training seminars for Rhode Island Licensed Designers and Installers** who wish to be trained before the expiration of this certification.*

Other

George asked for an update on the Charlestown denitrification system issue. Russ summarized for the group that Charlestown was unreceptive to the denitrification requirement for repairs element of Rule 39: Charlestown was in the middle of their cesspool removal ordinance when this Rule became effective, and the requirement for denitrification systems for repairs in the affected areas imposed an unexpected financial burden on homeowners. So DEM has been working with them, reviewing and commenting on their proposal for alternative measures to reduce the long-term nitrogen load equivalent to the provisions of Rule 39.2.1, as allowed under Rule 39.2.3. Their alternative program is still under development.

Next Meeting

The next meeting was scheduled for January 14th at 8:30 am, pending availability of the QDC Annex.

Adjournment

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

The meeting adjourned at 12:15 PM.