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

September 29, 2010

Approved Minutes

Present: Russ Chateauneuf, Susan Licardi, George Loomis, Tim Stasiunas and Dennis Vinhateiro

Absent: Ken Anderson, Dave Burnham, Noel Berg, Joe Frisella and Brian Moore

Others Present: Dennis Hallahan and Michael Schreiber of Infiltrator Systems and Deb Knauss (DEM)

Call to Order: 8:40 AM

Materials Distributed:

- Draft Agenda for this meeting
- Draft Minutes of 7/22/10 meeting
- GeoMat 3900 Summary
- SeptiTech's supplemental submission
- Graphics comparing the Advantx AX low-profile RSV mounting with traditional installation (through riser)
- Emails between Deb Knauss & Jason Churchill of OSI regarding above topic
- Letter to Deb Knauss from Chris Machnik (Infiltrator) RE: Quick4 Equalizer 24 Low Profile Chamber
- Page 10 of Infiltrators's RI Guidance – Quick4 Equalizer 24 as PSND dome

Minutes of July 22, 2010

Page 1 beneath "Other Issues", in the text beneath the numbered list, next to last sentence edit as indicated: "…upgrade will not be required."

Page 2, Beneath "SeptiTech" edit the last sentence in the second paragraph: "…~~has~~ he asked if we could consider…"

Page 2, Beneath "SeptiTech", in the tenth paragraph, the reference to a 100-gallon tank, should be to a 1,000-gallon tank: "…this is 10 – 15 gallons of water in a 1000-gallon tank."

Page 2, Beneath "SeptiTech", in paragraph eleven, replace the last sentence with the following: "SeptiTech discharges the entire volume above surge capacity. The AX's off-cycles are shortened until the volume above surge capacity is discharged, so it takes longer to discharge this volume, which is a preferable condition."

Page 3, Edit the last sentence in the second paragraph: "…the capacity of the receiving leachfield to handle hydraulic flow."

Page 3, paragraph 11, edit the second sentence: "…most states' ~~approval proves is~~ approvals are dependent on NSF certification and that is why SeptiTech has scaled up…".

Page 4, at the line beginning "At Tab 3 on Page 46", the missing text should be: "This treatment train looks different than the one provided at Tab 7 on Page 2. Which is correct?"

Page 4, at the line beginning "At Tab 4, for pump discharge" Add: "All discharges in RI will be pumped, so delete the part of the statement "for pumped discharge".

Page 4, at the line beginning "Next page", clarify by adding to the parties required to provide their own hose, inspectors and service providers.

In the section "**NEOWTP Proposal for Development of Guidelines for Pressurized Drainfields**", in the third paragraph, modify the ending of the sentence beginning "Tasks include develop draft guidelines…", as follows "…and comments ~~also from~~ incorporating these as necessary."

Modify the second sentence of the following paragraph: "Upon completion of the review process and implementation, the guidance will become ~~URI's~~ TRC property and when comments are made, they will be integrated ~~integrate them~~ as necessary."

Edit, the following two sentences as indicated: "Eventually, ~~a~~ the TRC will vote to move the guidance to DEM as a guidance document. The proposal sets a one-year goal for completion…"

On page 5, in the last paragraph before "C**onsistency of Advanced Treatment System Performance & Loading**", edit the first sentence: "…. Brian said that he had ~~seem~~ seen".

On Page 6, in the last paragraph, before "Next Meeting", edit the second sentence: "The ~~as~~ approval…"

Motion: Dennis made a motion to accept the minutes with the necessary edits.
Second: Tim seconded the motion.
Discussion: There was no discussion.
Vote: All present who were present at the July 22nd meeting (Susan, George, Tim and Dennis) voted to approve the minutes with the corrections and edits listed above.

Infiltrator Quick4 Equalizer 24 Low Profile Chamber

Deb received a letter from Chris Machnik of Infiltrator, dated September 14, 2010, requesting approval of Infiltrator's Infiltrator Quick4 Equalizer 24 Low Profile Chamber as an equivalent option for the PSND dome. George received a call from Dennis Hallahan regarding their interest in this use for the chamber.

There are two ways of configuring the discharge pipe within the chamber: zip-tied to the top, or placed on the infiltrative surface (native soil, or ASTM C-33 sand); the orifices are oriented upward in both cases.

The group agreed that spreader/support pipe should be used if the distribution pipe is not top-mounted to keep it off the soil surface.

It was observed, that because these chambers are slightly wider than the pipe material currently being used as the dome in PSNDs, that the new 2.5' spacing may be a tough installation, particularly if DEM inspectors want to see the whole bottom of the PSND. Discussion of how to deal with this included:
The inspectors are looking for similar soil in each of the trenches and to verify that the elevation matches the approved plan. The inspection ports allow assessment of the soil and trench elevation, so it seems that an inspection could be performed even if all of the trenches were constructed and covered.

George encouraged DEM to develop a policy on this to avoid bed construction (as the default resolution allowing inspection of the entire bed of a PSND) and loss of the native soil between the trenches. He stated that the Demo projects' PSNDs were constructed one trench at a time.

Another issue to consider is: what do the various designers require of this on their own inspections?

A PSND installed with this chamber may *have to be* completed one trench at a time and some inspection procedure for this method of construction devised.

Would we require designer to specify a particular product as the PSND dome? Russ responded that As-built plans or certification by designer could be accepted, if he or she shows up for witnessing construction and finds that Infiltrator chambers are being installed as the PSND dome.

Tim noted that we encourage communication between designer and installer, this kind of material-substitution issue could be considered by them, if the installer wants to recommend a different approved dome material than that which is specified on the plan.

At about 10:10, Dennis Hallahan and Michael Schreiber of Infiltrator Systems arrived. They reported that the Quick4 Equalizer 24 LP (for ease of reporting and reading, to be referred to as chamber or LP) is approved in 6 states and some Canadian Provinces and that the whole Quick4 line is now available in a Low Profile version.

Constructability issue with minimum 2.5' on-center spacing: The 16-inch width fits easily into an 18-inch trench-usually using an 18-inch bucket to excavate the trenches. Generally an 18-inch bucket would be used to excavate for installation of the 12-inch half-pipe. Dennis H. reported that in MA these are installed edge-to-edge, are structurally sound and withstand the installation process.

Dennis agrees that most installers are constructing leachfields one trench at a time; this is being encouraged. He also reported that any soil can be used as back-fill and that a 1990 Georgia state law allowed red clay the 50% reduction assigned to other soils. He was amazed, but these chambers work even with red clay back fill.

Dennis H. was asked about the spray-pattern with the hanging-pipe option. He explained that the contour of the inner structure has drip-lips that prevent effluent from cascading down the sides and that the pipe does not sit directly against the top; it is not a flat surface (he had these chambers with him so the group could see these features). The pressure out of the orifice produces a spray pattern. He offered that if there is a strong opinion about either Method A (hanging) or Method B (pipe on the ground) Infiltrator will not object. He also explained that Method B installations

have a "T"-fastener (a tent-stake-type spike with a cradle on top into which the pipe clips) at every other joint, to prevent it from moving.

It was explained to Dennis H., that in RI the spreader bar is used for two purposes: 1) to keep the PIP pipe from wiggling into the ground and 2) to keep the 5th down-facing orifice out of the soil. It was suggested that a 1-foot length of pipe be inserted it at the widest part of the chamber at each of the two ends to fulfill this function.

Tim asked if these chambers are generally used with septic tank effluent or pre-treated effluent. Dennis H. stated that about 85% of the business is for STE.

Tim asked about risk of freezing if the pipe is hung from the top of the chamber. Dennis H. reported that in Alberta, Canada, they place the chambers on the ground surface and cover them with 1-foot of wood chips; there have been no problems with freezing and they have 14-feet of frost there. They do need for the delivery pipe to drain back to the pump chamber, to ensure no water will be left in the line, and subject to freezing. Also, in CT and PA, Infiltrator often installs in mounds.

George Loomis stated that he can see an advantage of support pipe, as is used in PSNDs in RI and asked about the cradle. Would they be provided with the chambers? Yes, they would be.

George was concerned that there are no bellies in pipes and that to save money, an installer might use less cradles. Dennis H. suggested that the spacing could be specified.

Inspection port construction: the center port is cored with a 4-inch hole saw, pipe is inserted and secured with drywall screw.

Since the maximum trench/line length for PSNDs is 50-feet, it was asked if the chambers can be cut to accommodate this length. It is not advised that the chambers be cut. It is preferred that at the end of the 50-foot perforated distribution line, the installer swing up through a clean out/inspection port to terminate the line.

George asked that Infiltrator show the support/spreader bars on their typicals and include typicals with a cleanout.

Discussion regarding substitution of this LP chamber for another material specified in a design plan: Dennis H. suggested that a designer could include a note on the plan allowing substitution.

Russ asked if the group was prepared to take a vote on making a recommendation to DEM for adoption of Quick4 Equalizer 24 Low Profile chamber as an approved equivalent material for the PSND dome. The approval for this would allow arc installation and 3 configuration options: 1) high (hanging) pipe (referred to by Infiltrator as Method A), 2) low pipe (Infiltrator Method B) with spreader/support pipe or 3) low pipe (Method B) with cradle. DEM will notify the design community that the dome in a PSND may be ½-pipe or this specific Infiltrator LP chamber, and allow the installer to choose the dome material when the designer does not specify. Also, include that to achieve odd lengths, sweep up through the inspection port to terminate the distribution line, rather than cutting the chambers. Include in the provisions for use of this chamber as a PSND dome, that regardless of the elevation of the distribution pipe the infiltrative surface is the bottom of the chamber. Include a note that if the chambers have to be overlapped, cut off the end of the interior unit.

Motion: George Loomis made a motion to approve the Infiltrator Quick4 Equalizer 24 Low Profile chamber as an equivalent material for the dome feature in a PSND, with the provisions cited immediately above.
Second: Dennis Vinhateiro seconded the motion.
Discussion: There was no discussion.
Vote: Unanimous support of the motion.

<u>Septic Tank Openings</u>
It had been observed that the openings on Ashaway Cement Products' septic tanks do not meet the OWTS Rules' minimum inside diameter dimension of twenty-inches. Since the Rules require that septic tank manholes are constructed to finished grade, and that their covers be either mechanically fastened, or weigh a minimum of fifty-nine pounds and fit tightly onto the riser, there is concern that a concrete cover of proper dimension on the tank, will be heavy, unwieldy to remove for service and therefore may encourage installers to remove it. Russ asked if anyone could comment on this.

Tim offered that if the riser is covered at-grade, as required by Rule, that it does not matter if the cover remains on the tank. There were some descriptions of riser installation materials and methods options available. Because of the suitable options available to provide easy access from the surface and still maintain security, there was general support for the statement that it is not necessary that the cover on the septic tank remain in place.

AdvanTex AX Low Profile RSV Mounting
A few months ago, DEM was contacted by an AX distributer about wanting to use an alternative configuration: the AX pod is installed adjacent to the septic tank with the return line from the pod to the septic tank entering through the side of the tank, rather than through the riser. DEM requested that this request either come from OSI, or with a statement of approval from OSI. Deb received email from Jason Churchill of OSI approving of this configuration. Although the return line enters the septic tank at a lower elevation, this alternative does not change the function of the RSV or the liquid depth in the tank; this is depicted in the graphics Deb prepared comparing the traditional configuration to this alternative.

Because of the difficulty of properly compacting the soil in the limited space between the pod and the tank, there was concern that if the soil settles with time, this would reorient the RSV, change its elevation, and make its removal for servicing difficult. Some options discussed for supporting the return line were to install a PVC pipe beneath it, or to secure it with a clamp or strap on the interior of the riser.

Ultimately, it was decided that it is more appropriate for OSI to decide on a solution, rather than for DEM to prescribe a solution that may not satisfy their engineers.

It was also decided that the designer should specify on the design plan, how the pod is to be oriented relative to the septic tank, and clearly depict the entry point of the return line and its support feature(s), as OSI determines most appropriate.

GeoMat 3900
Dave Potts decided that he did not want to offer training on the GeoMat 1200 independently, but preferred to wait until an approval is issued for the 3900 and perform training on both at the same event. Deb distributed a summary of the 3900 and explained how Dave specified its use in the design guidance he submitted to DEM, as a factor or 3.25 (the factor by which the 3900 is wider than the 1200) of the specifications for the 1200, or rounding down, as necessary to simply the math. The on-center spacing between the mats is specified in the guidance as 30-inches for the 1200 and 8’1” for the 3900, which is a factor of 3.25 greater than the 30-inch spacing specified for the 1200.

Dave prefers that the 3900 be dosed with one pipe, but would not object to two pipes. There was discussion of these two options and the 0.25-gallon/orifice/dose maximum in the SFGD.

Tim asked if this may be used on contour and with grade change across the field. Russ responded that each mat would have to be level and meet the minimum invert perimeter for five-feet, and then maintain a 3:1 slope beyond the five-feet to original grade.

Russ asked if there was enough discussion to approve the GeoMat 3900 with equivalent loading/sf as the 1200 and maximum of 0.25 gallon/orifice/dose?

Motion: Dennis Vinhateiro made a motion to approve GeoMat 3900 with the provisions cited immediately above.
Second: Tim Stasiunas seconded the motion.
Discussion: There was no discussion.
Vote: Unanimous support of the motion.

Next Meeting
The next meeting was scheduled for October 28th 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 12:25 PM.