

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

**The meeting was held at the South Kingstown Town Hall**

**August 22, 2008**

**Draft**

*Present:* Ken Anderson, Noel Berg, Russ Chateaufneuf, Joe Frisella, Susan Licardi, George Loomis, Tim Stasiunas, Dennis Vinhateiro

*Absent:* Dave Burnham

Others present: Deb Knauss (DEM); Dave Lentz and Carl Thompson of Infiltrator Systems, Inc.

Call to Order: 8:50 AM

Materials Distributed for Discussion:

- Draft Agenda for this meeting
- Draft minutes of 6/6/08 meeting
- Additional Training Requirements / Proficiency Demonstration for CI-I Design of A/E

**Minutes of June 6, 2008**

**Motion:** Ken made a motion to accept the minutes as presented.

**Second:** Susan seconded the motion

**Discussion:** There was no discussion.

**Vote:** All who were present at the meeting, voted to accept the motion.

**Infiltrator's Aquaworx Remediator Application**

Group Discussion Prior to Arrival of Infiltrator Representatives:

**Bacterial sock**

Does the estimated O&M cost include replacement of the bacterial sock?

Information on system use and performance is based on annual replacement of the bacterial sock; any other replacement interval would represent a modification. We should not suggest that the frequency of replacement is changed.

**Use in Critical Resource Areas:**

If approved, and installed in critical resource areas near salt ponds, where cesspools have been replaced with a State-permitted system in the early 70's for example, would this system eliminate the opportunity to get denite system installed at these homes?

Leachfield failure triggers the denite requirement, so if a repair permit application were submitted with the vendor's site eligibility assessment, indicating a failed leachfield, a denite system would be required. (The approval issued for White Knight required that a Repair Application be submitted when specifying its use in an existing system, regardless of the condition of the subject system and that the application be accompanied by the site assessment report prepared by the White Knight installer). **The use of a denite system would disqualify the system for use of the Remediator, as we do not envision installing the Remediator in a septic tank preceding an advanced treatment system.** DEM needs to pay close attention to these applications to assess whether the leachfield is in failure[DJK1].

It was asked if by policy DEM could establish a setback from the salt ponds within which such renovation technologies may not be used, for example within 500 feet, or South of Route 1. Alternatively, could their use be prohibited in the salt pond and Narrow River critical resource areas?

**Semantics relating to "Repair" and Appropriate Application Types for Use of Remediator (et al?)**

Issues of semantics regarding the term "repair": "repair" now includes replacement of the entire system. If no "failure" is identified and nothing is being replaced, it may be more appropriate to submit an **Alteration Application** in these cases.

If an **Alteration Application** were required for use of the Remediator with an existing system that is not in failure, a soil evaluation would be required and setbacks, separation distance and seasonal high groundwater table elevation would be considered and if the requirements of the Rules are not satisfied, an upgrade would be required.

It was asked how use of this and similar products is any different than use of an enzyme preparation to “amend” system function, such that use of these products requires a permit from DEM while enzyme amendment does not. Russ stated that leachfield failure is the trigger for a repair application.

Discussion of the **criteria for identifying failure** resulted in an acknowledgement that item (4) under “Failed OWTS” in the definitions of the Rules needs to be edited to direct that the top of the inlet or outlet pipe for a septic tank, distribution box or pump tank is submerged (rather than submersion of the “inverts”).

**Permanent Use of the System:** A failed leachfield is either receiving too much effluent, receiving solids or FOG or being mistreated. Joe suggested that where, solids, FOG or homeowner misuse is the cause, a remediation technology could ideally be used only as long as necessary to relieve the problem and with homeowner modification of habits, the system could be restored to and maintain proper function. Russ offered that if the renovation device is required permanently, that it could be that there is a problem with the system which warrants replacement with a system that can function under the existing conditions. *NOTE: Dave Lentz reported that the manufacture’s recommendation is for continued use.*

### **Infiltrator Systems, Inc. - Aquaworx Remediator Presentation: Dave Lentz and Carl Thompson**

**Brand Name, Manufacture and Distribution:** “Aquaworx” is a brand, trademarked only to Infiltrator, under which control panels are also being marketed. In an effort to explain the product development/name and ownership confusion concerning this and leachfield renovation products of similar design, it was explained that Jerry Fife and Dan Wickham both hold the patent. White Knight has the right to manufacture through Wickham, who is associated with Sludgehammer. Infiltrator has the right to manufacture through Fife. Aquaworx wants to function as manufacturer with the product being distributed by vendors of Infiltrator products (in RI, this would most likely be Pipe Pro and Viking, which distribute Infiltrator chambers); the unit may not be purchased directly from Infiltrator. Sale of the product is authorized only to individuals who are certified by Aquaworx, having passed a test with a grade of 80% correct or better. The test is designed to ensure that installers are well educated in performing eligibility assessment of candidate systems.

**Microbial Inoculum:** White Knight and Sludgehammer use IOS500, Remediator uses another blend (Pirana blend). Dave explained that the source of this inoculum is a big commercial source of microbial product and the quality control, assuring that the proper organisms are provided in the proper representation or blend (relative to each other).

**Eligibility of Candidate Systems:** Since June 2007, about 400 of the units have been installed and are working; finding the right systems into which to install the unit is important: an undersized system or a system that has been in use less than two years is not a candidate. A system that has been in use less than two years and is in failure is suggestive of a condition other than a leachfield with over-developed biomat. Also of concern is the elevation of the watertable to the bottom of the leachfield; conditions could have changed since the installation of the system causing a higher watertable elevation to be interfering with proper function of the system. This is evaluated by probing the area outside of the boundary of the leachfield.

**Costs of product and O&M service** would be established by the individual certified Remediator installers and O&M providers, although O&M cost can be estimated to be around \$250 - \$300 annually.

### **Performance and Use Recommendation**

Dave Lentz agreed that while Remediator provides a **TSS/BOD reduction benefit, this is not the ultimate objective** and as a reduction to 30:30 for NSF standard 40 cannot be expected (although their testing suggest that 60:60 can be expected), **they are not making such a treatment efficiency claim.**

Dave Lentz stated that their recommendation is for the **Remediator to remain in place to ensure continued proper function of the system**, rather than being removed when proper leachfield function is restored.

In response to a question regarding **use in grease tanks**, Dave Lentz provided that there is interest in this application at a fish fry facility in Arkansas.

### **Air Pump Specifications and System Installation Considerations**

Air pump is a **40-watt** pump – low pressure or high-pressure option based on the back-pressure of air through the diffuser plate in the unit. **There is no control panel: the pump is on or off;** a switch is all that is required. **A larger pump, the “P80” accommodates commercial uses**, which is an 80-watt pump. This pump is used with the same unit except that the air diffuser plate has a configuration of holes designed to accommodate the higher flow. When a commercial or large flow use is under consideration, the installer calls Infiltrator for direction.

Maximum distance of pump to tank has not been evaluated, but if a very long run had to be accommodated, it was suggested that it would be more advisable to run the power out to the tank, rather than run the airline out. There is no prescribed slope for installation of airline to deal with condensate.

#### **Installation Issues: Location in Tank; Pumping**

Installation is completed in about a half-day (2 – 4 hours by and experienced crew).

In newer tanks with inlet and outlet openings and in two-compartment tanks, the **preferred location for installation is at the outlet end.**

**Pumping at installation** is recommended if there is more than 6 inches of scum and more than 3 inches of sludge. The cusped plastic wrapped around the bottom exterior of the unit covers the six 1.4-inch diameter holes near the bottom of the unit, preventing sludge intrusion.

During the first 48-hours, a fairly foul odor can be expected in the area of the tank and perhaps from the vent pipe.

#### **O&M**

If the location of the unit in the tank interferes with **maintenance-related pumping**, there is a quick-connect at the 90-degree bend facilitating easy removal. Use of the **Remediator will decrease the rate of sludge** accumulation and will either reduce or eliminate the presence of scum, but **pumping is still required although at a lesser frequency.**

During O&M visits, removal of the unit would be necessitated if the bubble pattern does not look right.

One to three weeks after installation installer returns to check system, then again at six months and then at twelve months, the microbial sock is replaced. If during an inspection, ponding is observed, the installer is trained to contact the regulatory authority and investigate system use upgradient of the tank. There is usually an observable change in the system in two weeks, but this is influenced by thickness of biomat and water use.

11:00 Dave Lentz concluded the presentation.

#### **Conventional Leachfield with A-E in Critical Resource Areas**

Russ distributed a policy paper setting forth the conditions under which a conventional leachfield may be used in a critical resource area with nitrogen removal systems.

George stated if we are requiring nitrogen removal technology, the ideal leachfield is a PSND. But this often will not fit because of the setbacks and the five-foot spacing. If PSNDs provide better treatment than the other options, we should be using them and we should be considering **modification of the design guidance (where experience has indicated we can)** in an effort to facilitate more frequent use of these, for example **reduce the inter line spacing from the currently required 5 feet to two-feet between lines (3-foot center-center).** George reported that these fields all have a 2-foot strip of green grass separated by a strip of dry grass during the dry periods of the summer. Since there is no nitrogen removal provided by a BSF, we need to try to accommodate more prevalent use of PSNDs. Also although the lysimeters used in RI did not allow entry of fecals through the matrix, Jim Converse did work in Wisconsin that reported fecal reductions in the 1-foot to 1.5-foot depth beneath PSNDs. Additionally we know that up to 100% residual phosphorous is removed with use of PSNDs.

In the critical resource areas we are requiring 3-feet to seasonal high water table, and with consideration of Mark Stolt's work George is conflicted about suggesting a reduction in the required separation to the watertable, but not the trench distance issue.

It was asked if we might be able to consider **increasing the loading rate for PSNDs.** George agreed that in sandy soils that could be done, but that in silty tighter soils it cannot be done.

Also of concern in these areas near the coast, is the issue of greater **watertable fluctuation** than we have in the past expected. **Mark Stolt and Charlie Morgan's recent work documents that 80 percent of the time the water table in within 18 inches of the ground surface;** this is generally during the cold months, when the biologically mediated processes that produce morphological features are not occurring or are not occurring long enough to produce visible result.

There was brief discussion of the merit of the soil evaluation method versus the old direct measurement method. George suggested that the old method with new twists (like the "gizmo" Mark and Charlie developed for recording the maximum elevation of the watertable since the last observation, or continuous read data loggers) need to be developed to take this new science into account. The data loggers are about \$100 and the data chip allows downloading the data to a pc for convenient and efficient management.

Russ asked George if he wanted to make a recommendation regarding reducing the trench spacing for PSNDs.

**Motion:** George made a motion to issue a policy on the previously specified trench spacing for PSNDs.

**Second:** Joe seconded the motion.

**Discussion:** Tim expressed concern for failure; he has a 7 or 9-year-old PSND that regularly has 1 – 2-inches of water in the bottom of the trenches. It is 5 or 6 trenches of 40 or 50 feet, so it is a large field. George asked if it makes more sense, alternatively, for repairs. Russ stated that the issue is consideration of proper loading rate. Tim expressed a desire for more data before a decision is made on this issue. Russ suggested that future discussion resume with consideration of calculations of expected impact of reduced spacing and likelihood of excessive loading

**Motion Withdrawn:** George withdrew the motion.

This issue will be placed on the agenda for the next meeting.

**CI-I Design Authority for A-E Systems – Criteria for Eligibility**

Russ distributed the eligibility guidelines that DEM provided to the Senate committee and reported that he will update the group at the next meeting.

Tim asked if the policy that was distributed regarding leachfield options in critical resource areas is current and in use. Russ stated that it is, until further notice.

**Motion:** Ken made a motion to adjourn.

**Second:** Tim seconded the motion.

**Vote:** All present voted in favor of adjournment.

The meeting adjourned at 11:40 AM.

The **next meeting** is scheduled for October 1, 2008.

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[DJK1]

This trigger for denite (failed leachfield) essentially disqualifies use of these bugs and bubbles renovation systems in Narrow river and Salt Pond Critical Resource Areas unless the “failure” is of any component other than the field or unless it is installed as an elective precaution.