

**INNOVATIVE/ALTERNATIVE SEWAGE DISPOSAL TECHNOLOGIES  
TECHNICAL REVIEW COMMITTEE (TRC)**

**October 21, 2005 Meeting Minutes**

**DRAFT**

**Attendees:**

TRC Members

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

Absent: Dave Burnham

Others present: Frank Rice of All-Pro Rooter, a Knight Systems authorized distributor and Deb Knauss RIDEM

Russ called the meeting to order about 8:30

**Materials distributed:**

- Draft Agenda for today's meeting - 10/21/05
- Draft Minutes of 9/14/05
- Material for consideration of White Knight application
  - Correspondence:
    - DEM White Knight review - May 29, 2003
    - Correspondence (July 21, 2003) from Peter O'Rourke of DEM to Douglas Nelson of White Knight
    - Correspondence (July 31, 2003 – response to above) from Douglas Nelson of White Knight to Peter O'Rourke of DEM
  - Approvals from other states: "White Knight Product Approval/Use Authorization Documents"
  - TRC Summary – Review of White Knight Class II System Component Application – for repairs - October 2005

**Minutes:**

The following errors and omissions were identified in the draft minutes of 9/14/05.

- Omission of Dennis's name from all the votes
- Page 2, third paragraph beneath "O & M on the entire treatment train": "...before issuing the conforming the system" should read: "...before issuing the *conformance* of the system".
- Page 2, in the "Discussion" section beneath the above paragraph, the second sentence: "...contract be provided for each component..." should read: "...contract be provided for each *I/A* component..."
- Page 2, second sentence beneath "Recognition of nitrogen reduction for design flows exceeding 900 gpd", delete "Since nothing has been specified for systems over 900 gpd, nothing can be approved" and replace with: "As the proposal for systems over 900 gpd was not sufficiently defined, approval of the system for design flows over 900 gpd could not be considered."
- Page 2, in second paragraph beneath "Renewal of the Class II Approval for nitrogen reduction and issue of seasonal use", in the second sentence, "...under constant use, m...", should read: "...under constant use, *N*..."
- Page 3, at "Discussion" in third paragraph, "...address protection form freezing...", should read: "...address protection *from* freezing..."
- Page 3, in the first paragraph beneath "OSI, Advantex AX", in the last sentence, replace "North Kingstown" with New Shoreham"
- Page 3, first bullet in the last paragraph, "...we should flex...", should read: "...we should be flexible..."
- Page 4, Motion to adjourn, was made by Joe, not by Russ.

**Motion:** A motion was made by Noel to accept the minutes with the noted corrections.

**Second:** The motion was seconded by Ken.

**Vote:** All members present voted in favor of motion (Ken Anderson, Noel Berg, Russ Chateauneuf, Joe Frisella, Susan Licardi, George Loomis, Tim Stasiunas, and Dennis Vinhateiro)

**Biomicrobics**

Russ asked if the Committee would like for the draft certifications to be provided for their review prior to sending them to Bio-Microbics; all were comfortable with DEM sending the draft certifications directly to the vendor.

**OSI, Advantex AX**

A recent application before CRMC, in which the denite requirement for an alteration application was addressed by a denite system to accommodate the flow from the two proposed additional bedrooms, leaving the existing conventional system to accommodate the flow from the existing home, prompted discussion of large single family systems. Most of the denite approvals are limited to 900 gpd, although these systems could be proposed for design flows exceeding 900 gpd, through the variance process. Russ proposed considering modifying this flow limit to 900 gpd *or any single-family home (SFH)*. Large systems would still be defined as greater

than 2000 gpd. Russ stated that the 900 gpd reference represents the limit of Class I design authority, which was intended to cover all single-family homes and some duplexes.

There was some discussion of the impacts of home-based businesses; sewage flows would not represent a significant volume of wastewater, although the additional wastewater would not have the benefit of dilution from showers and other water uses, it would still be residential strength wastewater. Application of the new sewage flow numbers in the proposed draft rules, of 115 gpd per bedroom, an 8 bedroom home would have a design flow of 920 gpd, therefore an upper limit of 1,200 gpd was proposed as an alternative to no limit on SFH design flow. 1,200 gpd would accommodate a 10 bedroom home.

It was recommended that if large SFHs are to be afforded no flow restriction, that there should be reporting requirements for all technologies in this situation. Quarterly monitoring for any system over 6 bedrooms (or 900 gpd) was suggested. This would treat these large SFH systems, equitably relative to the reporting requirements in place for commercial and industrial systems. The expense of monitoring was considered; although it does represent additional expense, it was thought not to be an unreasonable financial factor when a home of such scale is being built. Alternatively, it was offered that SFH systems over 900 – 2,000 gpd have semi-annual monitoring and reporting requirements.

This scenario was considered as an Advantex AX proposal. A 6 bedroom home would be accommodated by 2, AX 20 pods. The technology application requires that designs for systems larger than 6 bedrooms receive OSI review. It was asked what the reporting requirements are for the AX100 for BOD and TSS?

It was suggested that the SFH large flow stipulation being considered be applied consistently to all denite technologies. This prompted consideration of how to ensure exemption of the Advantex RX which has approval for large systems. It was asked if Advantex applied for large system use for the RX; the application should be reviewed to discern why the RX does not have the design flow limit.

It was suggested that vendors could be notified that RI is considering large flows and request that they provide data they may have on these.

Performance data and compliance on large I/A systems is mixed. There was concern about increasing the number of large I/A systems in use given that there are still performance and management issues to resolve. The primary concern is systems in the 10,000 – 20,000 gpd range. Reporting and performance requirements for these systems are not being enforced. George stated that OWT has the expertise to assist and advise DEM on troubleshooting the issue of non-conformance, provided a funding source could be identified.

Measures to ensure that sampling and reporting requirements are satisfied were discussed. One idea offered was an operating permit, which would require annual renewal contingent on satisfactory compliance with all operating requirements. There was discussion regarding where to assign the monitoring and reporting responsibility, to the vendor in the technology approval, or to the system owner as a permit condition.

Since the certifications currently specify that three representative systems be monitored, the language could be modified to require that a *minimum* of three systems be monitored.

There was discussion of exactly what constitutes a violation. The data would have to be considered; the results would have to be indicative of the approved level of treatment of the system. For example, if the average TN of four grab samples is > 19 mg/l, the system is not demonstrated to be meeting the denite treatment level for which the technology is approved. This would necessitate adjustment of the recirculation ratio and re-sampling until the results demonstrate that the system is operating in compliance with the terms of the technology approval.

**Motion:** Tim made a motion to approve the Advantex AX for large flows, with the vendor responsible to supply to the Department, data on three systems each over 2,000 gpd design flow. The sampling must be done quarterly for a two-year period.

**Discussion:** If a system is not meeting the effluent quality for which the technology is approved, the system must be evaluated, adjustments made to its processing of wastewater, and re-sampled until the system is demonstrated to be operating in compliance with the technology approval. The data must be submitted after the results are available for each round of sampling, rather than annually.

The issue of separating the vendor approval from the permit conditions was discussed. Permit conditions should be self-fulfilling: if a system is not in compliance, the O & M service provider makes modifications to correct treatment. It was suggested that we could require that such adjustments be reported to the Department. It was further specified that this monitoring requirement be a condition for all large systems.

**Amended Motion:** Dennis made an amended motion, to approve the Advantex AX for large flows, with the vendor responsible to supply to the Department, data on three systems each over 2,000 gpd. The sampling must be done quarterly for a two-year period. If non-compliance of a system is indicated, additional measures must be taken by the O & M service provider to enhance the systems

treatment of the wastewater. The system must be re-sampled and an explanation of actions taken submitted to the Department. The system must be re-sampled as many times as necessary to satisfy DEM that the system is operating in compliance with the technology approval.

**Discussion:** Tim suggested that the vendor should select the three systems to be monitored, but require that they are each of a different waste strength. The responsibilities of the permit holder were discussed. It was suggested that for all technologies, that systems over 2,000 gpd be monitored. Although the TRC may not make this a retroactive requirement, it should be implemented as approvals are renewed and new approvals are issued. It was suggested that when an approval is renewed, that the TRC could consider reducing the monitoring frequency, as a function of performance over the term of the two-year approval.

**Amended Motion:** Dennis made an amended motion that the **vendor approval for the Advantex AX 100 as a denitrification system** require that three systems over 2,000 gpd, non-residential waste or big residential systems, be sampled quarterly for two years. If non-compliance of a system is indicated, additional measures must be taken to enhance the systems treatment of the wastewater. The system must be re-sampled and an explanation of actions taken submitted to the Department. The system must be re-sampled as many times as necessary to satisfy DEM that the system is operating in compliance with the technology approval. The vendor is required to inform the Department which systems they are going to monitor.

This required monitoring and reporting would be required for a minimum of two years, and could be reduced after two years, with consideration of the performance of the system over the previous two-year interval.

**Second:** Joe seconded the motion

**Vote:** All members present voted in favor of the motion (Ken Anderson, Noel Berg, Russ Chateaufeuf, Joe Frisella, Susan Licardi, George Loomis, Tim Stasiunas, and Dennis Vinhateiro)

**Motion:** Susan made a motion that **when DEM issues a permit for any I/A system over 2,000 gpd with an effluent quality requirement**, that the permit holder be responsible for the system to be sampled quarterly, with results reported to DEM. The results must indicate that the system is operating in compliance with the effluent quality requirement of the technology approval. If the data indicate non-compliance, necessary modifications must be made to the system, and reported to DEM, with the data from the re-sampling. System must be re-sampled until the results indicate that the system is operating in compliance with the terms of the technology approval. This required monitoring and reporting would be required for a minimum of two years, and could be reduced after two years, with consideration of the performance of the system over the previous two-year interval.

**Second:** The motion was seconded by Ken

**Vote:** All members present voted in favor of the motion (Ken Anderson, Noel Berg, Russ Chateaufeuf, Joe Frisella, Susan Licardi, George Loomis, Tim Stasiunas, and Dennis Vinhateiro)

### **Substitution of AX units for RXs**

With consideration of the minor differences in dimensions of the RX and AX units, the absence of the fan with the AX, and that we recognize the AX as equal to the RX, designers of outstanding permits for RXs that are not yet installed may substitute the AX for the RX as follows:

- 1) Reapply through the re-design format showing any changes to the design, **or**
- 2) Substitute the AX unit and report it at the time of submission of the certificate of construction.
- 3) Using a fact sheet with an affidavit format to be signed by both the applicant and the designer and submitted to the Department, thus identifying the substitution prior to installation.

Russ noted that this is how the Department handled the reduction of the leachfield strip requirement from ten feet to 5 feet. The primary issue is that the Department's records are correct.

Joe estimated that a re-design could cost \$1,000 - \$1,500. George noted that the information about the AX substitution must be communicated to the Installer bidding the job, which is specified on the plan as an RX. The Installers must be informed before the bid is submitted. It was suggested that the Designer must petition the Department for substitution of the AX for the RX prior to initiation of the bid process, on a form signed by the applicant and the designer.

DEM will produce a fact sheet informing users that with consideration of the approval of the AX for denitrification, and the minor differences between the two systems, substitution of the AX for the RX will be allowed at the discretion of the applicant and specify the methods by which this may be done, including that the fact sheet signed by both the applicant and the designer must be submitted with the permit to the installer; the fact sheet must be submitted to DEM with the certificate of construction.

The designer will have to submit new pump calculations; the fact sheet should cover this.

### **White Knight**

Frank Rice, of All-Pro Rooter of Putnam Valley, NY, a Knight Systems authorized distributor, summarized his experience with the White Knight and answered questions posed by the committee. Mr. Rice reported that he has installed 71 (mostly in residential systems) White Knight units in NY and that he has observed that the unit quickly reduces the bio-mat and will eventually eliminate it,

restoring the field's ability to transmit wastewater. He also related that the bacteria in the inoculant digest grease. He described the results observed at a restaurant at which the White Knight was installed. The amount of grease observed was reduced and the pumping frequency reduced from every other day to a 12 – 15 week schedule. He explained that the rate at which the system responds, is determined by system-specific variables. He emphasized that the company offers a lifetime warranty, as long as the system is maintained. He also reported that the technology has a 98 percent success rate. Mr. Rice reported that cold temperatures will reduce the efficiency of the inoculum.

Mr. Rice explained the process used to ensure that failure is due to clogging of the leachfield with bio-mat:

- Homeowner interview
- Review system plan when available
- Exploration of the system components, open and pump the septic tank and d-box and sewer jet the field to remove all the material in the system, so the bacteria have easier access to the bio-mat.
- Dig, usually with a shovel, to locate dry soil in the vicinity of the leachfield and then dig laterally toward the field to locate the biomat, and chisel through it with the shovel, if water rushes out (and other system components are intact and properly installed) biomat clogging is indicated.

There is no charge for these investigation activities. About 30% of the systems he evaluates are rejected. Reasons for rejection include an undersized system; some residences are summer homes being used year-round.

The systems on which the White Knight is installed are fitted with cleanouts, through which samples can be drawn. The unit is installed through the same opening through which the tank is pumped. A 40 watt pump is used for a residential unit (4 lbs of BOD per day per unit) and an 80 watt pump for a commercial (6 lbs of BOD per day per unit). The pumps are nearly silent. When asked about the difference one and two compartment tanks may be expected to have on the efficacy of the White Knight, Mr. Rice stated that the unit likely performs better when installed in a one-compartment tank, because there would be better mixing of the material in the tank.

Maintenance performed semi-annually involves verifying that the pump is operating, checking the filter and removing any accumulated material.

Mr. Rice informed the group that Installer Magazine will be running a story in December on a situation in Dutchess County in NY where a sand filter serving 22 buildings was violated. In less than three months the bottom of the sand filter could be seen at the observation port, where previously, the sand filter was so clogged that the bottom was not visible.

#### **Other**

Vendor Notification Protocol – George suggested that there should be protocol for keeping applicants apprised of the status of their applications.

Issues for next meeting:

- ADS pipe
  - Use of ADS pipe would require spreader pipes every four feet or it will wiggle into the soil.
  - Inspection ports should be required every twenty feet and at the distal end and that the ports be wrapped with filter fabric.
  - One member reported that it is stronger than PVC
  - It was requested that before a decision is made regarding use of ADS pipe that the material be shown to be equivalent to PVC.

**Motion:** Joe made a motion to adjourn the meeting.

**Second:** The motion was seconded by Dennis

**Vote:** All members present voted in favor of the motion (Ken Anderson, Noel Berg, Russ Chateaufneuf, Joe Frisella, Susan Licardi, George Loomis, Tim Stasiunas, and Dennis Vinhateiro)

The meeting adjourned at 12:30.

#### **Next Meeting**

Next meeting was scheduled for November 18, 2005 from **8:15** to **Noon** at Joe Frisella's office