

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

**October 18, 2006 Meeting Minutes**

**Approved**

**Attendees:**

TRC members present: Ken Anderson, Noel Berg, Dave Burnham, Russ Chateauf, Susan Licardi, George Loomis, Tim Stasiunas,

TRC members absent: Joe Frisella and Dennis Vinheiro

Others present: Diane Johnson, Charlestown Onsite Wastewater Specialist, Gus Walker, Jim Cairns and Peter Ogle all of Charlestown Wastewater Management Commission, Pio Lombardo of Lombardo Associates, Inc. (I/A Technology Applicant) and Deb Knauss RIDEM

Meeting came to order about 8:40 AM

**Materials distributed:**

- Draft Agenda for today's meeting
- Draft Minutes of 7/27/06
- Notes on material submitted by Lombardo Associates, Inc. for Nitrex
- Deficiency letter dated 9/28/06 to Paul Beaugard regarding application for SeptiTech
- Notes on poly tanks

**Minutes**

Page 4, beneath "CICEET", paragraph 2, sentence 1, change filed to field

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

**Second:** Susan seconded the motion.

**Vote:** All present who were present at the July 27, 2006 meeting voted in favor (Russ Chateauf, Noel Berg, Susan Licardi, George Loomis and Tim Stasiunas)

**Nitrex Application for Nitrogen Removal, Lombardo Associates, Inc. (LAI)**

TRC comments on **format of material**

- No application cover sheet and therefore no signature committing LAI to the application
- No clear statement of category of approval sought or of treatment claim
- Fragmented submission (two bound sets of material) is unacceptable

Pio's Reply:

- Original application was submitted two and one-half years ago, the two recently submitted compilations are intended to accompany that application.

**Pio summarized the material he recently submitted:** He emphasized that all the data submitted are for Nitrex, not Nitrex Plus.

**Flush of BOD at start-up**

Recently LAI has implemented hydraulic controls (used at the system in Mashpee, MA), whereby a certain volume of water is used to wash the filter media. The effluent is recycled to the nitrifying unit to wash out BOD, which is of concern due to the elution of BOD off the wood filter media and potential for interfering with proper function of the dispersal mechanism.

The Mashpee system is composed of "cells". The system design flow is 6,000 gpd, however it is currently operating at less than 2,000 gpd, therefore two-thirds of the cells have been shut down. BOD has been reported to be below 30 ppm.

There has been no drainfield clogging with the Nitrex filter. One of the units in Charlestown, RI discharges to a BSF.

There was some discussion of washing the filter media, to elute the BOD, prior to distribution of the Nitrex units. Pio spoke of a plan to eventually operate a facility for this purpose in Cape Cod.

Pio reported scheduled start-up for spring of 2007, in Malibu, CA, of a 16,000 gpd restaurant, based on measured actual flows; Nitrex will be preceded by an Advantex. The filter media will be washed on-site before being put into operation. They do not know how long it will take to elute the BOD, but are expecting the process to be complete in 30 days.

There are no Nitrex units paired with Advantex serving residential uses.

Pio reported that the **Nitrex Filter Technology is patented**; the patent is held by University of Waterloo, LAI is a licensed agent of the corporation by which the US rights are owned.

**The filter media is a wood-based material, the composition of which is proprietary.**

He stated that a three-month start-up period is generally expected with advanced technologies, but that the only effluent constituent of concern with Nitrex at start-up, is BOD and not TN because the Nitrex unit will meet its nitrogen removal objective as soon as it is put into operation.

This was questioned, since the ability of the Nitrex filter to remove TN is dependent on the nitrifying efficiency of the unit preceding it in the treatment train, and as Pio stated, a three-month start-up can be anticipated.

He emphasized that LAI warrants performance. He stated that large systems receive monthly O & M and testing, but that residential units do not receive such frequent servicing and testing.

### **O & M**

Pio was asked who performs O & M on the other components in the treatment train, specifically the proprietary nitrifier and the final dispersal mechanism. He replied that this fragmentation is a fundamental flaw but that the LAI business model is to provide single-source O & M for the whole system. The method currently used is to subcontract Waterloo and SeptiTech as maintenance providers for the nitrifying components.

### **Design Issues**

During construction, LAI procures the nitrifying system. On small systems, LAI does everything. They would provide engineering details for local engineers, but would not let just anyone purchase a Nitrex filter because LAI is warranting performance.

Following explanation of the RI installer and designer licensing program Pio expressed willingness to offer training to designers and installers so that Nitrex would be able to be designed by properly licensed designers.

**Sizing**, Pio stated that the table on page 5 was just standard design and LAI would be refining them to precise size specifications for each design application submission. He also stated that the size of the Nitrex unit used is a function of the nitrifier by which it is preceded, which is determined by site-specific conditions: use what fits.

There were questions concerning the location of the **climate break** in RI. Pio stated that they are still refining this.

### **Data**

Pio urged the group to focus on the data reported for installations in the US, rather than Canada. The Canadian data was provided only for reference and he did not have knowledge of the engineering controls.

### **Media**

Media – specifications for the media were requested.

Russ explained to Pio that although there is evidence that the Nitrex filter is a good product, and though the Draft DE approval is encouraging, there are still many concerns and unanswered questions.

The **proprietary media** issue is going to require considerable attention. Pio stated that the patent is a “process” patent and that it is the **use of wood**, that is patented. **DJK question: if it is only the use of wood that is patented, it seems like too broad-reaching. I think that it has got to be more specific and more clearly defined – so, if someone had sought a process patent to use sand for the process of treating septic effluent.**

The DE draft approval cites TN-effluent of 3 mg/l, but it seems that LAI is requesting 4 mg/l in RI and approval for sanitary waste, all uses and no design flow restriction. Desired use, design flows and treatment claim need to be clearly stated. Pio stated that he would like approval for unlimited design flows.

### **Warranty**

George noted that the first line of the warranty limits the warranty to the original purchaser. Pio expressed that the intent is that the warrantee goes with the property; the statement may be in place to ensure that LAI approves the transfer.

### **System Cost**

Tim noted that an individual unit for a three-bedroom, delivered is reported to be \$4,000. Is this just the unit, not including design cost and since tankage increases with design flow, LAI should consider providing a cost range. Typical range for a new system is \$18,000 and 24,000, not including a Nitrex filter.

Pio replied that a two-year O & M agreement is being provided and that even if the Nitrex filter was to be used with a nitrifying option that would yield a cost approaching \$30,000, that it is still less expensive than sewerage on the Cape, where it was estimated that cost per property would be \$60,000. He also stated that LAI had been concentrating on cluster systems.

Pio and the observers from Charlestown depart at about 11:20.

### **Discussion of the Nitrex submissions**

- Ask LAI to expand on the warranty options
- LAI needs to document approvals for the uses he is seeking approval in RI  
Russ noted that the Delaware draft approval looks like it satisfies our regs, but the MA piloting approval is like our experimental approval

### **Discussion regarding completeness of applications in general**

- Duration of testing: if not of the required term, return to applicant, if data are good with notation that data look promising but duration reported does not meet requirement
- Claim must be clearly stated and supported

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

**Second:** Noel seconded the motion.

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

The meeting adjourned at 12:05 PM.

### **Next Meeting**

Next meeting was scheduled for November 16 or 17, 2006 pending availability of the Council Chambers, at **8:30** at the South Kingstown Town Hall at 180 High Street in Wakefield.