

**Improving Water Quality by Developing, Implementing and  
Field Testing Innovative Methods  
FY 03 CWA 319(h)  
TSSWCB Agreement No. 03-10**

Quarter no. 15 From 4/01/07 Through 6/30/07

## **I. Abstract**

The demonstration by Envirolink at the Sherywn Wood dairy near Stephenville and has been completed. Data analysis and writing of the final report is now underway and will be completed during the next quarter. The demonstration by Natural Biotechnology has been officially cancelled. The final demonstration will be conducted by Ozona Environmental, LLC and was slated to be conducted at the ComTex Dairy near Comanche. On June 20<sup>th</sup>, the dairy's owner informed us that the dairy would be sold and closed down. As a result, the demonstration by Ozona Environmental will be move to the Wild West Dairy. A QAPP amendment has been sent to EPA for the inclusion of the demonstration of turfgrass grown on Geotube<sup>®</sup> residual material. This will be a 90 day demonstration that evaluates the impacts of growing turfgrass on soil amended Geotube<sup>®</sup> residual material.

## **II. Overall Progress and Results by Task**

### **TASK 1: Demonstration and Evaluation of New Technologies**

*Subtask 1.1: Identification of potential technology providers. TCE, TWRI, TFB, dairy industry representatives, EPA Region 6, TSSWCB, TCEQ, TDA, BRA, NRCS, and TAES will identify and select promising technologies represented by willing technology providers. (month 1 thru 3)*

The following actions have been completed during this reporting period:

- a. Year one projects have been completed. Fact sheets and reports have been completed are currently posted on the TWRI website for everyone to access at:  
<http://twri.tamu.edu/project-info/NewTechnologies/>
- b. Year two technologies have been initiated:
  - 1) "Demonstrate and Evaluate the Use of Technologies to Reduce Animal Waste Pollution" proposed by EnviroLink (Greeley, KS) has been implemented at the Sherwyn Wood Dairy. Sampling for this demonstration concluded in June.
- c. Year three technologies have been selected:
  - 1) Natural Biotechnology has backed out of their agreement to demonstrate their technology during year 3 of the project. A letter has been sent out to the advisory committee to seek input on how to proceed from here.
  - 2) The final demonstration chose will be conducted by Ozona Environmental LLC. Their demonstration will use a proprietary bacterial enhancement to treat the lagoons.

d. Supplemental Demonstration:

As a result in rising sample analysis costs and the lack of submitted proposals, the project workplan was amended to allow for the demonstration of planting turfgrass on soils supplemented with residual material from a Geotube<sup>®</sup>. This demonstration will be conducted in a laboratory setting at Texas A&M and will cost less than the demonstration of a sixth technology. This demonstration will evaluate the changes in physical and chemical changes between soil and soil with added Geotube<sup>®</sup> residual material, evaluate turfgrass responses when grown on soil and soil with added Geotube<sup>®</sup> material, and evaluate leaching losses of nutrients and dissolved organic carbon under the varying scenarios. Sampling funds not used for this demonstration will be used to cover the increased sampling costs for the remaining technology demonstrations.

**100% Complete**

*Subtask 1.2: Identification of dairy cooperators in the North Bosque watershed area that use a flush system and lagoons to remove, store, treat, and land-apply effluent (manure and process-generated wastewater). TCE, TSSWCB and TFB will identify dairy operations willing to participate in these demonstrations. (month 1 thru 3)*

The following actions have been completed during this reporting period:

- a. The year one technologies were implemented at the following dairies:
  - 1) “Ecoloclean” – OSVE Dairy (proprietor – Mr. Bert Velson), Bosque Watershed.
  - 2) “Geotube” – Triple X Dairy (proprietor – Mr. Wayne Moermen), Leon Watershed.
- b. The year two technologies have chosen the following dairies to apply their technology:
  - 1) “EnviroLink” - Sherwyn Wood Dairy (proprietor – Sherwyn Wood) Bosque watershed.
- c. Year three technology has chosen the following dairies to apply their technology:
  - 1) “Ozona Environmental” – Wild West Dairies (proprietor – Geoff Vandeniuewgiessen) Bosque River watershed.

**100% Complete**

*Subtask 1.3: On-site installation and start-up of the six pilot-scale technologies to be demonstrated. Technology providers will carry out the task of equipment transport, on-site installation, set-up, and start-up. With permission from the cooperating dairy owner/operator, the technology provider will prepare the site to install and operate the system for demonstration. (First installation by August 2003, last installation 6 months before the end of the 3-year project)*

The following actions have been completed during this reporting period:

- a. Ozona Environmental, LLC was scheduled to conduct their demonstration at the ComTex dairy near Comanche, but the dairy was sold and closed. As a result, the demonstration will now be conducted at the Wild West Dairy where Natural

Biotechnology was slated to conduct their demonstration. Ozona Environmental has set up an initial site visit early in July to collect some background samples.

**85% Complete**

*Subtask 1.4: QAPP preparation and field data collection and analysis. TCE will prepare the DQO and QAPP (August 2003 to August 2004)*

- a. A QAPP revision is currently underway to incorporate the demonstration of turfgrass grown on residual material from Geotubes<sup>®</sup>. EPA is currently reviewing the QAPP.

**100% Complete**

*TCE will collect samples from raw and treated effluent and resulting sludge. One of the evaluation tasks will be to analyze the sludge or by-product remaining after raw material treatment for P stability (August 2003 to May 2007)*

The following actions have been completed during this reporting period:

- a. Sampling for the EnviroLink technology has been completed. Work is on going to analyze data and draft the final report for the demonstration.
- b. Sampling for Ozona Environmental, LLC will begin after background samples can be collected and the technology can be implemented.
- c. The turfgrass demonstration will also involve sampling of the Geotube<sup>®</sup> material and leachate that is collected from the small plots after 45 and 90 days of growth. This will be conducted at the TCE Soil, Water and Forages Testing Laboratory at Texas A&M University. Sampling has been put on hold until the QAPP is approved.

**65% Complete**

*Subtask 1.5: Develop reports and outreach education materials. TCE in cooperation with TWRI will produce educational brochures and publications on effectiveness of this innovative technology. Quarterly and final reports will be prepared and submitted in a timely manner.*

The following actions have been completed during this reporting period:

- a. TWRI submitted the year 4, quarter 3 report to TSSWCB on July 12, 2007.

**78% Complete**

**III. Related Issues/Current Problems and Favorable or Unusual Developments**

- a. The demonstration of Natural Biotechnology's has completely backed out of the project. As a result, we are left with four viable technology demonstrations.

- b. ComTex Dairy near Comanche was sold and closed down. As a result, the demonstration by Ozona Environmental will be relocated to Wild West Dairy near Stephenville. Background sampling conducted at ComTex dairy will have to be repeated at Wild West Dairy.
- c. We were informed by the lab at TIAER that sample analysis prices will go up another 5% after September 1<sup>st</sup>. Sample prices have more than doubled since the start of the project.

#### **IV. Projected Work for Next Quarter**

The following will be accomplished during the coming quarter:

- a. Background sampling will be conducted at Wild West Dairy and the implementation of Ozona Environmental's technology will follow there after.
- b. Work will continue on analyzing the final data sets from the EnviroLink demonstration. The final report for this project will also be drafted.
- c. The turfgrass demonstration has been initiated; however, samples will not be analyzed until the QAPP has been approved.