NORTH CAROLINA DEPARTMENT
OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

EXPERIMENTAL WASTEWATER SYSTEM APPROVAL

EXPERIMENTAL WASTEWATER SYSTEM NO.: EWWS-98-1

ISSUED TO: Dr. Mike Hoover, Department of Soil Science, North Carolina State University, Box 7619, Raleigh, NC 27695-7619

FOR: Evaluation of the Orenco Systems, Inc. Pressure Dosed Sand Filter Package and Modified LPP Drainfield at NCSU Lake Wheeler Road Field Laboratory

DATE: May 26, 1998

In accordance with 15A NCAC 18A.1969, an application by Dr. Mike Hooaver, North Carolina State University for approval of an experimental system monitoring and research program for the evaluation of the Orenco Systems, Inc. (OSI) Pressure Dosed Sand Filter Package and modified LPP Drainfield, with design modifications prepared by Bill Hedspeth, P.E., has been found to warrant approval. The following shall be met for the system(s) installed in accordance with this experimental system protocol.

I. Facility Served and System Description

A. Facility Served: Auditorium/classroom for maximum of 75 people per day

B. System: Septic Tank with Pump Vault (1340 gallon Stay Right Tank, with outlet compartment to contain OSI 12-inch x 54-inch pump vault with integral effluent filter), 3-stage high head effluent/well pump, internal junction box, 1-1/4-inch supply line, pressure-dosed intermittent sand filter (360 square feet) with interior 15-inch pump vault, 3-stage high head effluent/well pump, internal junction box, 1-1/4-inch supply line, hydro-slitter, 5 modified LPP drainlines (375 linear feet, total) including 12-inch wide trenches, 10-inches deep, with 1-1/4 inch perforated pressure laterals and half-sections of 12-inch PVC or smooth-interior wall corrugated PE pipe.

C. Design Flow: 375 gallons per day

D. Additional systems may be added to this experimental system protocol, once plans and specifications have been reviewed and approved by the On-Site Wastewater Section.

II. Permitting and Installation:

A. The local health department may issue an Improvement Permit, Authorization to Construct, and an Experimental System Operation Permit (ESOP) for an experimental system installed in accordance with this approval and the applicable provisions of .1969 (4)(c).

B. At this time, specific approval only applies to the proposed NCSU Lake Wheeler Road Field Laboratory in Wake County. Specific permit conditions shall include:

1. NCSU shall install the alternate approved backup system if performance standards are not met, which shall be:

   a. System shall operate properly in accordance with manufacturer's specifications,

   b. System shall not malfunction and be found to be non-repairable, or

   c. The approved testing program is prematurely terminated.

2. NCSU shall agree to contract with a certified operator or to have an operator on staff who has responsibility to operate the system for as long as it is to remain in service.

3. NCSU shall retain the designated repair area as approved by Wake County Health Department for a non-experimental system in an undisturbed state.

C. The installation shall be under the direct field supervision of the research organization (e.g.: NC State University). The installation shall include the system as described above, and shall also be in accordance with all manufacturer's requirements including the attached plans and specifications.

D. Prior to the system being brought into operation, the installation shall be certified by a registered Professional Engineer and the manufacturer to have been properly installed, approved by the health department, and an ESOP issued.

E. All other applicable requirements of Rule .1969 shall be met.

III. Operation, maintenance, and monitoring:

Monitoring shall be carried out in accordance with the approved research protocol over at least a two year period of study. This shall include:

•monitoring of elapsed run time and pump impulse counter readings and water meter readings of water use by facility and sand filter-to-drainfield delivery.
•evaluating function of pumps and control system
•measuring ponding level in drainfield and sand filter (initially only 2 of 5 drainlines shall be placed in use)
•routine monitoring of pump flow rates, and pressures in pump discharge lines and at distal ends of pressure distribution networks in sand filter and drainfield.
•routine measurements of infiltration rates in active drainline trenches.

Interim/summary reports are to be provided semi-annually upon completion of research and evaluation at each test site. Written reports are to be provided to the Wake County Health Department and Division of Environmental Health annually and a final report shall be provided summarizing the results of this research and making recommendations on the future use of the proposed system, with particular attention to its experimental aspects.

Approved by:_____ Date: 5/26/98

Steven Berkowitz
On-Site Wastewater Services