Advisory Opinion

From the
Technical Review Committee
For the
New England Interstate Regulatory Cooperation Project

Product/Technology Name:
Ecoflo® ST-650

Applicants Name & Address:
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NEI Category:
3 – Advanced Wastewater Treatment

Date of Opinion:
February 15, 2000

Project Background:
The New England Interstate Water Pollution Control Commission (NEIWPCC) in cooperation with the New England Governors Conference (NEGC), EPA Center for Environmental Industry and Technology (CEIT), EPA's National Small Flows Clearinghouse (NSFC), and the New England state environmental/health agencies responsible for the administration of on-site wastewater treatment systems are undertaking a project for the regional voluntary evaluation of innovative/alternative on-site wastewater products/technologies. The goal of the project is to facilitate the technical evaluation of innovative/alternative (I/A) on-site wastewater products/ technologies on a regional basis. This effort should help expedite the acceptance of innovative/alternative on-site wastewater treatment products/technologies. The work is carried out by a Technical Review Committee (the Committee) which conducts independent evaluations of product/technology performance. The Committee, made up of New England state regulators and advisors, assesses each product/technology on its merits, backed by quality data, and renders an Advisory Opinion. The benefit of the Committee is to assist regulators in carrying out their responsibilities for evaluating these technologies in a more efficient manner.

The Committee has defined three categories of On-site I/A technologies:

1. **Material Replacement**
2. **System Modification**
3. **Advanced Wastewater Treatment**

Applicant's Description of Product/Technology:

Ecoflo® ST-650 is a peat-based biofiltration system manufactured by Premier Tech Ltd. This system is used to treat wastewater from the septic tank of a single-family home, small communities, or low-flow commercial applications. One Ecoflo® ST-650 system can treat the wastewater of a house with up to four bedrooms. A second system would be required for a five or six-bedroom home.

The Ecoflo® ST-650 system consists of a fiberglass shell containing a peat-based filter that has been specially treated to overcome problems that commonly occur with peat filter systems; e.g., color-leaching and internal clogging. The fiberglass shell has the approximate dimensions of 13 feet by 7 feet, and a depth of 4.5 feet.

The Ecoflo® ST-650 system is installed above or in-ground on a crushed stone bed. Wastewater from the septic tank is sent to the distribution system of the unit by gravity flow or a pumping station. The distribution system ensures even distribution over the filter surface. After percolating through the filter, wastewater exits the bottom of the shell and infiltrates the soil or can be collected in an optional fiberglass bottom to then be disposed of using other discharge methods (drip irrigation, shallow buried trenches, etc.).

The Ecoflo® ST-650 system uses a high filtering medium that retains its purifying capacities over time. Given the high porosity levels and the characteristics of peat, far less space is required to perform an even higher treatment of the effluent than conventional systems. Furthermore the Ecoflo® ST-650 is a permanent solution. Only the peat-based filter must be replaced using a typical septic tank pump truck. All this requires is removing the lid on the fiberglass shell and pumping out the filter bed and then replacing it with a new one, thus eliminating all need for excavation.

The Ecoflo® ST-650 system was designed in order to be able to sample effluent coming out of the peat filter, therefore an effluent collector is incorporated in the unit. This enables sampling of the Ecoflo at any time. Premier Tech conducts a yearly sampling campaign by selecting and sampling sites at random and then produces a compendium report of these results. This assures all parties that the systems are performing to the extent that the system was developed.

Technology Claim(s):

The above-mentioned applicant submitted the following Claims of product performance with the formal submittal. The applicant was seeking the Committee's validation of these claims as part of the product/technology's consideration for regional evaluation in the Advisory Opinion:

Claim 1: *The Ecoflo® ST-650 system is capable of treating wastewater produced by a house with four bedrooms or less.*

Claim 2: *The Ecoflo® ST-650 system produces an effluent with average concentrations of less than 10 mg/l for BOD_5, less than 10 mg/l for TSS, and less than 25,000 CFU/100 ml for Fecal Coliforms.*

Claim 3: *The Ecoflo® ST-650 system produces an effluent with concentrations of less than 15 mg/l for BOD_5, less than 15 mg/l for TSS, and less than 50,000 CFU/100 ml for Fecal Coliforms at least 80% of the time.*

General Observations/Concerns:
After thoroughly evaluating all of the available information, the Technical Review Committee has identified the following concerns that may affect the approval of said technology in a state:

1. *Maintenance is essential to the long-term performance of the system.*
2. *Replacement peat must meet current manufacturer's specifications.*
3. *Used peat must be properly disposed of.*

Recommendations:
Based on the Technical Review Committee's evaluation, the Committee recommends the following items to improve or insure system performance:

1. *The peat must be replaced every eight years per manufacture's specifications.*
2. *The product should be installed, operated, and maintained in accordance with manufacturer's directions by properly trained personnel familiar with the technology.*
3. *A contract for long-term maintenance should be required for the life of the unit.*
4. *A septic tank effluent filter should be used in any system that utilizes a septic tank.*

State Regulations:
A positive Advisory Opinion shall in no way be considered a substitute for compliance with individual state regulations. Every state's regulations are designed to reflect the concerns of that state. Information generated in this opinion is intended to alleviate the investigative work required by an individual state for the consideration of said technology for approval as an alternative/innovative technology. Before state approval of the technology, the technology must comply with all pertinent state regulations. The Technical Review Committee also recommends that each state have a control for insuring that the above-listed concerns are met, addressed, or closely monitored and tracked.

Technical Review Committee's Response to Claims:
The Technical Review Committee's opinion is based on the Committee's evaluation of available information on the product/technology and relates to the specific products, materials, and specifications stated in the Technology Claim(s) of performance.

X The Committee agrees that the product/technology meets the above-stated performance claims. The Committee reached this decision via a unanimous vote.

The applicant should request a determination from the committee for any modifications to the product/technology. The product/technology is also evaluated for the quality of the data, wastewater science, and the technology's apparent merit as an innovative/alternative on-site wastewater treatment technology.

The NEIWPCC Technical Review Committee has endorsed this Advisory Opinion for the ***Ecoflo*** ® ***ST-650 System*** herewith on this 15th day of February 2000.