

Draft Monitoring Plan for Innovative Alternative Onsite Septic Systems Being Used for Achieving Requirement of the Total Daily Maximum Load Limitations.

Background

Innovative Alternative (I/A) septic system are a possible option for watersheds where the nitrogen removal requirements from the wastewater component approximates 50%. To date, however wastewater managers have not proposed I/A systems as a TMDL compliance strategy and there is no commonly accepted monitoring strategy. The following is a draft monitoring strategy for monitoring frequency and duration in watersheds where I/A technologies are applied to meet TMDLs.

Note: *Barnstable County Department of Health and Environment (BCDHE) is presently in discussions with EPA Region 1 staff to develop a statistical tool for determining the sampling frequency for I/A systems based on the large dataset already collected under the BCDHE I/A Tracking program. This proposed monitoring plan serves as an interim recommendation.*

Monitoring of Service Contracts and Maintenance Requirements.

Since the performance of systems and the assurance that the I/A systems are being properly operated is an essential part of an overall program, the first element of a monitoring program involves the oversight of Maintenance Contracts and Inspections. It is recommended that all I/A systems serving as part of a TMDL compliance strategy be monitored continuously for service contracts and inspection schedules. The BCDHE Tracking Program or equivalent should be used to *continuously* monitor this aspect.

Discharge Monitoring

I/A systems in Barnstable County are subject to various monitoring requirements depending on the requirements of a board of health. Requirements range from no discharge monitoring to two year's duration of monitoring on a quarterly basis, to monitoring for an indefinite period.

The following are recommendations for monitoring.

1. All systems installed in watersheds using I/A system for TMDL compliance should have an inspection/monitoring port that will provide a clean unbiased sample. This monitoring port should be approved with the plan submitted under the Disposal Works Permit.
2. Each system installed in watershed using I/A systems for I/A compliance should be sampled monthly. ***Note: Efforts to determine a sampling plan that has statistical validity may determine the number of systems that have to be sampled, the frequency and response reactions is presently being considered.***
3. For seasonal homes, monthly samples should be taken during all months of operation and pre-season start-up procedures should be implemented in seasonal home.
4. For commercial properties, the requirements shall be the same with the exception that 25 mg/L Total Nitrogen should be used as an upper limit for performance.

5. Monitoring for Biochemical Oxygen Demand (BOD_{5-day}) and Total Suspended Solids should only be required where the system design includes a reduction in soil absorption system size. Turbidity samples should be taken at all other systems. If turbidity exceeds _____ ntu, follow-up BOD and TSS samples should be taken to verify proper system operation.

Recommended sampling entity

It is recommended that staff from the Barnstable County Department of Health and Environment (BCDHE) conduct all monitoring that is part of TMDL compliance. Since BCDHE tracks all service contracts, the monitoring data collected will be immediately transmitted to the operator of record. This will save on costs for monitoring since the information base at BCDHE will enable the efficient scheduling of sample regardless of the operator.

Financial Impact

Including the requirements for service contracts that include regular inspection and maintenance, the following is an estimated annual cost for I/A system monitoring. The estimate does *not* assume any economy of scale and assumes that monitoring would be completed by a third party (not the operator of the system). It is likely that systems in a watershed will be geographically close and this would offer savings on the labor and mileage, particularly if many can be sampled on the same day.

Service Contract Estimate	\$400.00
Tracking Fee as part of Management District	\$50.00
Total Nitrogen sampling at effluent	\$720.00
Labor involved in sampling collection	\$720.00
Travel (mileage) @ \$.55/mile	\$330.00
Total	\$2,220.00
Monthly	\$185.00