

Suffolk County Department of Health Services (SCDHS)
Innovative/Alternative On-Site Sewage Disposal Systems (OSDS) Study

SUMMARY

Suffolk County has begun a formal evaluation of innovative/alternative onsite sewage disposal systems capable of denitrification, ranging from individual home systems to small plants capable of servicing up to 100 dwelling units (30,000 gallons per day). The study is being performed by a consultant, Holzmacher, McLendon, & Murrell, P.C. (H2M), using \$100,000 in Suffolk County Capital funds (CP 8237, Comprehensive Water Resources Management Plan, or “Comp Plan”). The study commenced in November, 2009 and is expected to be completed by December, 2011.

The initial literature review has been completed, and relevant regulations and programs in other jurisdictions (New Jersey, Rhode Island, Massachusetts and Washington) have been identified. Based on these reviews, a total of thirteen manufacturers of individual home systems, and eight manufacturers of small community (<30,000 gpd) systems, have been selected for further evaluation. The six most promising systems (three in each category) will be studied further. Ultimately, the study will evaluate each system, including construction standards, sampling results, and operation and maintenance requirements. A cost-benefit analysis will be prepared, and a local pilot study will be conducted.

Updates of the study will be posted periodically on the SCDHS website. Also, near the completion of the study, findings will be presented to interested stakeholders by convening a meeting of interested parties (e.g., Comp Plan Steering Committee, Peconic Estuary Program Management Committee, local governments, etc.).

Results of the study will be used in various programs that protect groundwater, drinking water and surface waters, while supporting smart growth initiatives. The SCDHS “small flows” denitrification system study complements a number of larger sewerage studies being conducted by the Suffolk County Department of Public Works (SCDPW). The Comp Plan recommends that an integrated, County-wide sewer needs study be commenced in 2012, after the completion of the individual SCDHS and SCDPW evaluations.

Background

- Over the past many years, the Department has reviewed various sewage technologies for use on individual properties and for small community (<30,000 gpd) systems. Historically, most of these systems have not demonstrated the ability to consistently meet nitrogen removal standards required by State Pollution Discharge Elimination System permits (SPDES; 10 mg/l effluent discharge for groundwater and drinking water protection). As such, they have not been permitted for use in Suffolk County.
- Various states (including NJ, RI, & MA) have adopted regulations requiring the use of advanced sewage treatment technologies for nitrogen control. However, after initial exploratory efforts (including discussions with representatives from NJ and a field trip to RI), SCDHS was unable to determine that subject systems were capable of consistently meeting discharge standards of 10 mg/l. Moreover, documentation on cost-effectiveness of systems as a means for nitrogen removal was not readily available.
- As part of Capital Program 8237, under funding resolution 1148-2007, the Department appropriated \$100,000 to conduct a study of individual and small community technologies that were available for use and to perform a scientific evaluation of their performance, along with a cost-benefit analysis.

Study Tasks and Status

The study tasks (for individual homes, and small community systems) are as follows:

- 1) Literature Search
 - National Standards (NSF or Ten States)
 - State and County Standards (75A, Sanitary Code)
 - Other States Standards, Regulations, and Codes
 - Literature search for technologies
 - Define major types of processes
 - Give overall number of each type and effectiveness
 - Should this technology be further evaluated
 - Provide database of printouts or links of each manufacturer’s literature
 - 2) Process Evaluations
 - Select approximately 10 of the most promising technologies
 - Provide overview of each manufacturer
 - Provide effluent data from each
 - Briefly analyze cost and other factor (size, electric)
 - Provide short list of 3 manufacturers for further review and sampling
 - 3) In-Depth Process Evaluation
 - Site inspection and sample
 - Review of performance data
 - Review of process kinetics
 - Review of mechanical plans and material of construction
 - Review of site requirements
 - Review of life cycle
 - Maintenance requirements
 - Capital, installation and maintenance costs
 - Interviews with end users
 - Rank Technologies (1-3)
 - 4) Cost to Benefit
 - Obtain quotes for installations and maintenance costs
 - Estimate costs of regulatory agencies oversight
 - Estimate impact of each system on aesthetics, odors, safety
 - Estimate projected Health Department yield if this system is utilized
 - Estimate environmental benefits of using system
 - Estimate cost of using conventional system
 - Estimate impacts of conventional system on aesthetics, odors, safety
 - Estimate environmental benefit of using conventional system
 - Compare system to conventional system
 - 5) Pilot Assessment
 - Review effectiveness of programs in other areas
 - Review “Cost to Benefit” analysis
 - Determine feasibility of conducting a local pilot study
 - Provide findings of local pilot study
- In December 2010, H2M selected 13 manufacturers of individual home systems and 8 manufacturers of small community (<30,000 gpd) systems for further evaluation. Letters requesting detailed information and performance data were sent to the manufacturers and a deadline for responses was established at January 31, 2011.
 - H2M shall complete this phase of the evaluation process by early spring 2011 and select the 3 system in each category for in-depth evaluation. Sampling of the selected systems should commence shortly thereafter.