ALBEMARLE REGION, NORTH CAROLINA

PROBLEM

Rivers and streams of the Albemarle Region of North Carolina are nutrient-sensitive and require nutrient input controls such as upgrades for wastewater treatment plants and septic systems. Both strategies are being pursued by state and local officials. Much of the area is unsuitable for conventional gravity-flow individual systems due to low-permeability clay soils and high water tables. In past decades, these limitations prompted the extensive use of sand-lined trench leaching systems in the region. A 1991 study found that 30% of those systems were malfunctioning and posing risks to groundwater and surface water quality.

SOLUTION

Local governments authorized a regional management entity to inventory and monitor individual wastewater systems, improve system management, and develop site-specific design criteria for new and replacement systems incorporating advanced treatment technologies.

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OVERVIEW

Individual wastewater system malfunctions, water quality risks, and the explosive growth experienced in the Albemarle Region prompted 11 North Carolina counties to form the Albemarle Septic Management Entity (ASME) in 1993. ASME has instituted a management program that consists of:

- **Routine inspections**
- **Use of advanced treatment system designs for difficult site conditions**
- **Maintenance contract requirements and reminders**
- **Operating permit requirements for advanced units**
- **Alternating drainfields and reserve areas**

MAINTENANCE AND INSPECTION AGREEMENTS

ASME oversees individual and clustered systems in an 11-county area. ASME requires owners of all advanced and innovative systems to enter into inspection and maintenance agreements with the program. In addition, ASME requires that all repaired or replaced systems be included in the system management service area.

ASME works with low-income system owners to identify grant and low-interest loan funding to address repairs and replacements for problem systems using a combination of Community Development Block Grants, the North Carolina Clean Water Trust, and other sources.

ASME inspects systems in its jurisdiction at least annually. The system owner must complete all repair and maintenance activities. If an owner fails to make repairs, ASME is authorized to make the needed repairs and bill the owner and, if needed, place a lien on the property until payment is secured.

OPERATING PERMITS FOR ADVANCED SYSTEMS

ASME allows the use of advanced pressure-dosed systems, which incorporate fixed aerobic film and/or suspended growth pretreatment followed by soil absorption. Advanced systems require an operating permit. The local health department issues operating permits in accordance with state and local rules.

FUNDING SOURCES

The annual budget for the ASME wastewater program is $290,000. The program is sustained through its $300 per home permit fees, annual $50 system inspection fees, and county funds.

RESULTS

Local officials note that the management entity has prevented system malfunctions through more rigorous design, inspection, and operation/maintenance requirements. In the early 1990s, estimates of system malfunctions ranged as high as 30%. During 2007–2008, the program inspected 2,153 of the 4,240 systems under its management purview, and fewer than five of the newly installed systems were found to be malfunctioning.

New system installations and increasing the number of properly functioning systems through inspections will help to reduce nutrient pollution in the Albemarle watershed.

References and Resources

Hollowell, R. 2001. The Public Management Entity Program: Albemarle Regional Health Service. 2001 National Onsite Wastewater Recyclers Association Meeting, Preconference Workshop; Virginia Beach, VA.

Hughes J., and Simonson, A. 2005. Government Financing for Onsite Wastewater Treatment Facilities in North Carolina. **www.sog.unc.edu/pubs/electronicversions/pg/pgfal05/article4.pdf**.