

N.C. Wastewater Discharge Elimination Program

2005 Annual Report to the North Carolina General Assembly

November 2005

North Carolina Department of Environment and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Program Description

The North Carolina Wastewater Discharge Elimination (WaDE) Program is located in the On-site Wastewater Section of DENR's Division of Environmental Health. The WaDE Program was established pursuant to S.L. 1996-18es2, Section 27.26, to identify and eliminate discharges from straight pipes and failing septic systems to land surfaces and streams. Funds appropriated by the N.C. General Assembly support a two-member team to address the straight pipe and failing septic system issues in North Carolina. Additional financial support has been secured through grants from the N.C. Clean Water Management Trust Fund (CWMTF) and the U.S. Environmental Protection Agency (EPA) 319 Non-point Source Program. Strong collaboration with local and federal agencies as well as the public, the media and environmental groups is the hallmark of the WaDE program and the key to its successes thus far.

Program Goals

Based in Asheville, the program serves 26 western North Carolina counties. The primary goals of the WaDE Program are to survey watersheds, identify failing septic systems in these watersheds and act as a conduit for funding to aid property owners and local health departments repair these failing septic systems.

The WaDE Program prioritizes survey efforts by targeting watersheds either currently or proposed to be used as a public water supply source. Collaborative efforts with the Division of Water Quality and the Public Water Supply Section of the Division of Environmental Health further aid in prioritizing survey work in watersheds with impaired water quality. WaDE's surveyors work along streams used as public water supplies and for recreational purposes, which are important to the economic vitality of the region (see Figure 1).

Information about failing systems identified by WaDE in its survey work is forwarded to the local health department in the county where the survey is occurring. These local health departments take this information and use it to issue permits to the property owners to repair their failing septic system. The program also identifies, and at times channels, sources of financial assistance for low-income homeowners in need of septic system repairs. This financial assistance is usually in the form of grants and deferred loans, which are distributed through regional councils of government or non-profit housing rehabilitation agencies. The WaDE Program also provides public health and environmental education to homeowners and other stakeholders at the community, county, regional, state and federal levels related to on-site wastewater issues.

Program Accomplishments (1997-2004)

During the first four years of the program, the WaDE team directed a survey project in Buncombe County and assisted in four other independent county surveys in Alleghany/Ashe Health District, Jackson County, Madison County and Avery/Mitchell/Yancey Health District. These projects were funded by the CWMTF, N.C. Department of Commerce's Division of Community Assistance (DCA), Appalachian Regional Commission and N.C. Rural Communities Assistance Project (RCAP). The WaDE Program's 1998 independent survey of the Ivy Watershed in Buncombe County received a small amount of funding from RCAP.

In 2001, the WaDE team proposed a new model for achieving the goals of the program, and this model was approved and funded in 2002 for three years by the CWMTF (\$1.2 million over three

years) and the EPA 319 Non-point Source Program (\$500,000 over three years). This funding enabled the WaDE Program to add seven full-time and two temporary surveyors to the original two-person staff. This expansion allowed the WaDE Program to operate independent of local health departments as a surveying unit. In addition, WaDE surveyors assist homeowners who self-report problems with their on-site wastewater systems, giving homeowners substantial time to resolve the problem. In this capacity as DENR employees, the WaDE surveyors provide amnesty considerations to homeowners who cooperate with the field surveys, as these homeowners are considered to be self-reporting.

Since January 2002, using CWMTF and EPA grant funds, survey projects have been conducted in approximately 17 areas across western North Carolina. During this time, approximately 10,188 homes have been visited as a result of WaDE Program efforts, identifying about 1,216 violations in these survey areas. The rates of identifying failing septic systems and repairing these failing systems have increased. Currently, nearly 40 percent of all violations identified since 2002 have been corrected with many repair permits having been issued and awaiting system installation. Table 1 contains the WaDE Program statistics for January 2002 through September 2005.

Table 1. January 2002 – September 2005

Results	
Total Homes Visited	10,188
Completed Surveys	6,407
Violations	1,216*
Violations Corrected	
Repairs Completed	468*

*These totals include data from the referral program.

Of the 468 repairs completed, 140 of them received financial assistance via the WaDE Program. To date, WaDE and CWMTF grants provided financial assistance to 48 of these households totaling \$105,467 and averaging a cost of \$2,197 per repair. The remaining 92 of the 140 households received financial assistance through three separate projects funded by CWMTF and the Division of Community Assistance - Community Development Block Grant, totaling \$245,240 and averaging a cost of \$2,665 per repair. These repairs are significant. At the minimum rate of 240 gallons of wastewater per household per day, this represents over 112,000 gallons of untreated wastewater removed from the streams daily (41 million gallons per year).

The WaDE Program continues to provide financial assistance for septic system repairs in 19 survey areas in western North Carolina. Financial assistance is being provided through collaboration with CWMTF, DCA, U.S. Department of Agriculture's Rural Development Program and regional councils of government that have experience with similar housing rehabilitation programs. In addition, the WaDE Program works to annually identify changing sources of financial assistance for septic repairs in all North Carolina counties.

The WaDE Program also provides public education on related public health concerns and environmental issues. This information has been offered to the public through public service announcements, public community meetings in survey areas, door-to-door visits by trained WaDE

surveyors, teachers' guides and videos for school children, outreach to the N.C. Real Estate Commission on property disclosure requirements, slide shows and talks geared toward local, state, and national audiences.

2004-2005 Program Highlights

Survey Work

For the reporting period October 2004 through September 2005, the WaDE Program has actively surveyed in nine western North Carolina counties. Survey and referral program efforts are shown in Tables 2 and 3.

Survey projects resulted in almost 4,000 homes visited. Homeowner surveys were completed on 1,446 of these homes, revealing approximately 283 violations (20 percent violation rate) for failing systems or straight pipes. Repairs have been successfully completed on 53 (19 percent) of these failing systems and straight-pipes. The addition of a contract part-time environmental health specialist who issues septic system repair permits sped up the pace of repairs during the last half of the reporting period.

Table 2. Twelve-Month WaDE Survey Statistics

<i>Results</i>	
Total Homes Visited by WaDE	3,893
Homeowner Surveys Completed	1,446
Violations Identified	283
<i>Violations Corrected</i>	
Repairs Completed	53

Through its surveys, the WaDE Program works to distribute CWMTF money through a referral program in which residents are referred to the health department or self-report problematic systems. After 75 percent of the identified violations in any WaDE-surveyed watershed are repaired, the Program uses CWMTF funding to assist property owners in other parts of the county with financing septic system repairs. The referral program also provides financial initiatives to local health departments to issue repair permits. Participation in this program over the past year is shown in Table 3.

Table 3. Twelve-Month WaDE Referral Program Statistics *next page*

Homeowners Participating in WaDE Referral Program	262
Repairs Completed	111

Grant Extensions

During the past 12 months, requests to extend the CWMTF and EPA grants mentioned above were accepted and are now scheduled to expire on June 30, 2006. Numerous changes have been

implemented to enhance the collection, handling and dissemination of survey data as well as the management of system repairs and the associated permit fee reimbursements forwarded to participating county health departments. The WaDE Program's managers have been collaborating with licensed environmental health specialists to assist with projects in other counties on a part-time basis. This development has increased the rate of corrections to problem septic systems in the participating counties.

Database Improvements

One of the most important elements of the WaDE Program is its electronic database, which includes a Geographic Information System (GIS) component and contains the survey and repair data collected during project activities. During the past year, an upgrade for the on-line electronic database has been pursued, including a transition to the IBEAM technical architecture. This development is in the planning stage, with a complete integration to IBEAM anticipated in early 2006. This transition will greatly enhance the capabilities, security and reliability of the WaDE database.

The GIS component houses geographic data such as elevation and slope information that is gathered at the beginning of a survey project. It is then used to identify the extent of watersheds to be surveyed. This information is mapped and given to local health departments and other DENR agencies like the Division of Water Quality and DEH Public Water Supply Section to help select appropriate areas for septic system survey projects. When problematic or failing septic systems are identified during a survey, the information is GIS-mapped and given to the health department. Visually displaying the locations of homes with failing septic systems and straight-pipes allows for repair options to be better analyzed and the most cost-effective approach to be determined. An example of a GIS map compiled at the conclusion of a survey project can be seen in Figure 3.

Future Goals and Needs

The WaDE Program is performing well within its mandate and scope; however, considering future improvements and addressing challenges would enable this program to reach its full potential in assisting residents of the state.

- *Database improvements.* To meet the data quality requirements established by the N.C. Geodetic Survey, the program plans to expand the GIS component by purchasing Global Positioning System units for the collection of geographic coordinate data. This technology will greatly improve the program's mapping capabilities and make septic system survey data available to other state and local agencies while meeting the NCGS standards.
- *Continued funding.* The WaDE Program has applied to the CWMTF for another three-year grant to begin as the current grant period comes to an end. The Program has planned an expansion into counties not previously supported in the first grant cycle – Ashe, Alleghany, Jackson, Madison, Avery, Yancey and Mitchell counties. The WaDE Program, through its current grant with CWMTF, has been allocated \$400,000 of CWMTF's annual allocation of funds for the 2005 fiscal year; however, these funds are not guaranteed to continue in the future.
- *Statewide expansion.* A large number of systems in need of repair or replacement are identified during each door-to-door survey. Many of these systems belong to people with

limited financial resources who are unable to pay for system repairs. Sources of financial assistance are critical for the repair of these systems.

About 1.75 million residences (half of the residences) in North Carolina rely on on-site wastewater disposal systems. The WaDE Program routinely documents violation rates of 15 percent to 30 percent from its door-to-door surveys. Using an even more conservative failure rate of 10 percent, it is expected that approximately 175,000 failing septic systems in North Carolina would be identified. Last year, local health departments issued approximately 7,700 septic repair permits – only 4 percent of the estimated total of malfunctioning systems in North Carolina. The local health departments do not have the staff to actively survey areas in their counties and act mainly upon complaints about the problem septic system from neighbors. The vast majority of septic systems in need of repair across the state are still in use but remain unidentified.

Making WaDE a statewide program for identifying failing systems and providing and distributing grants and low-interest loans to eligible homeowners in need of septic repair would enable the removal of up to 42 million gallons per day of partially treated wastewater from North Carolina's streams and rivers. This would provide safer and healthier wastewater treatment options for many residents beyond the timeframe of the current funding. Any proposal should involve an evaluation of whether expansion should occur partly or completely at the local health department level. The expanded program could work with local governments, regional councils of governments and local housing rehabilitation agencies to identify potential sources of financial assistance.

- *Access to financial resource information.* Essential to the statewide mechanism for providing residents with failing septic system with financial loans and grants for repairs is a way to connect all local agencies to the WaDE Program as a source of grants and loans. A statewide toll free phone number to the WaDE Program along with an on-line application could link all homeowners and county environmental health specialists, who have repair sites needing financial assistance, to a regular funding source.