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Performance of Alternative Wastewater Systems in Minnesota

North American Wetland Engineering (NAWE) conducted research regarding the 2005 compliance of 74 alternative wastewater systems in Minnesota, designed by 8 engineering firms and released its findings in April 2006. NAWE has conducted the same review of compliance data for 2006 for these same systems and has updated their findings. See table below:

Performance of Wastewater Treatment Facilities in Minnesota during 2005 and 2006

System Type	2005 Number of Systems	2006 Number of Systems	2005 Percentage of Facilities in Significant Compliance ^{1, 2}	2006 Percentage of Facilities in Significant Compliance ^{1, 2}
Small NPDES point-source facilities	not applicable	not applicable	90%	Not available at this time
Alternative (privately owned)	64	67	95%	94%
Alternative (publicly owned)	10	11	70%	73%

1. For a NPDES point-source wastewater facility, "significant compliance" is defined by the Minnesota Pollution Control Agency as not exceeding effluent pollutant limits more than twice in a 6-month period. 2006 data was not yet available from the MPCA
2. For an alternative wastewater treatment facility, "significant compliance" was defined by NAWE as not exceeding effluent pollutant limits more than twice in a 12-month period. This is a more stringent criteria than that used by the MPCA.

Alternative systems continue to perform very well in the private sector. The average 2005 state-wide compliance rate for small National Pollutant Discharge Elimination System (NPDES) systems that discharge to surface water is 90%. At 94%, the compliance rate for privately-owned alternative wastewater systems is higher than the compliance rate for small, NPDES-permitted facilities. Publicly owned alternative treatment systems surveyed, on the other hand, continue to have a compliance rate in the low 70's percentile.

There are considerably more privately-owned alternative wastewater systems than publicly-owned systems in Minnesota. The six-fold difference in the number of private alternative wastewater versus public alternative wastewater systems in this survey is fairly representative of market conditions in Minnesota.

If compliance was an inherent problem with alternative wastewater systems, compliance rates should be about the same between public and private systems. The lower compliance rates of publicly-owned systems seem to be an indication that these systems do not receive the same level of operation and maintenance as private systems (Wallace *et al.*, 2006).

Compliance data was obtained from Discharge and Monitoring Reports (DMRs) and County permit reports. DMR and County reports are required by permit and track system performance, as reported by the system operator. NAWE collected data from the 2005 monitoring reports for 74 systems in Minnesota through NAWE and EcoCheck (a decentralized wastewater operations company). One year later, we reviewed the compliance of these same 74 systems plus 4 additional systems that had been operating a full year in 2006. The combined dataset included projects designed by several engineering companies and operated by multiple wastewater operators. We examined the compliance status of systems in both the private and public sector, and compared these results against the state-wide average compliance for small treatment facilities.

The full dataset is available from NAWE upon request.

Wallace S.D., Nivala J.A., Brandt R.C. (2006) Unsewered Communities: Are alternative treatment technologies the solution? Onsite Water Treatment (November/December), 36-41.