Testing the Effluent:
Some Systems Pass, Some Don't, and Some Won't Say

State Oversight of Alternative Sewage Treatment Systems is Minimal

A Special Report of the Council on Environmental Quality **March 2014**

Summary

Most alternative treatment systems (ATS) – the type of sewage system that treats waste from large developments or institutions prior to discharging the treated waste underground – failed to submit some or all of their required monitoring reports to the Department of Energy and Environmental Protection (DEEP) in 2011 and 2012 (the period of this review). Of those facilities that submitted reports, only one in seven met their permitted limits for six key pollutants all of the time. Several systems operated without discharge permits because they had not yet demonstrated an ability to meet the requirements reliably.

DEEP issued no Notices of Violation (NOVs) to operators of ATS facilities in 2011 or 2012, despite many facilities' failures to submit reports or meet permit limits. The consequence for reporting full compliance, reporting noncompliance or failing to report is the same in all instances.

The Council on Environmental Quality recommends the following improvements:

1. There should be significant consequences for failing to report: automatic financial penalties, a shortening of the permit period from the current ten years, higher permit renewal fees, or all three.
2. Monitoring reports of each ATS should be published by DEEP.
3. DEEP should deploy resources sufficient for evaluating, approving and monitoring ATS facilities.

Alternative treatment systems (ATS) have the potential to alter a community's pattern of land development for good or ill by allowing dense development where there is neither a traditional sewer system nor sufficient soils for conventional septic systems. They can be installed to replace conventional septic systems that have chronic problems, and they hold promise for coastal communities where rising sea level will render older septic systems ineffective. However, for that promise to be realized and for the public to have sufficient confidence to embrace these technological solutions, the state's oversight of ATS must be thorough and enforcement must be meaningful. Currently, oversight and enforcement are minimal, apparently because of a lack of either staff or an alternative oversight system that would reduce the need for staff.

The Council reviewed the reports for 2011 and 2012 from all 41 ATS that had operating permits. (Another 17 had no operating permit and did not report.)

A Visual Summary of ATS Compliance in 2011 and 2012

Chart 1: Compliance with Reporting Requirements, 2011 - 2012 (41 Permitted Facilities)

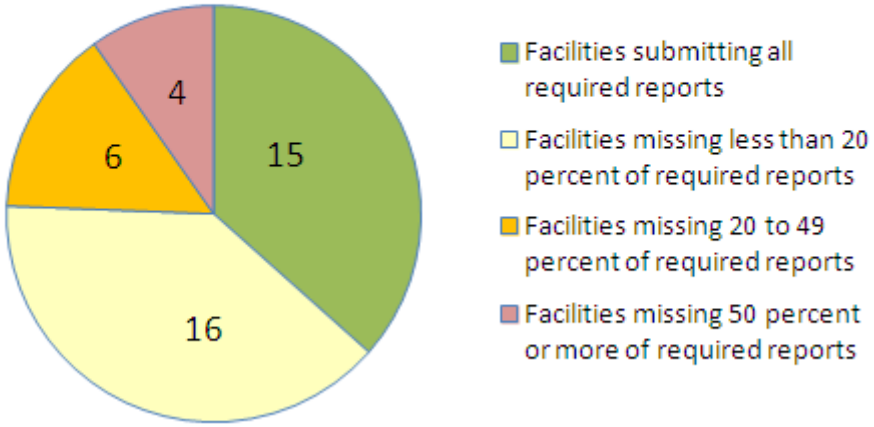

Chart 1 shows that 15 of the 41 permitted ATS facilities submitted all of their required monthly and/or quarterly reports during 2011 and 2012.

Chart 2: Average Number of Effluent Violations Reported by ATS Facilities, 2011 - 2012 (41 Permitted ATS Facilities)

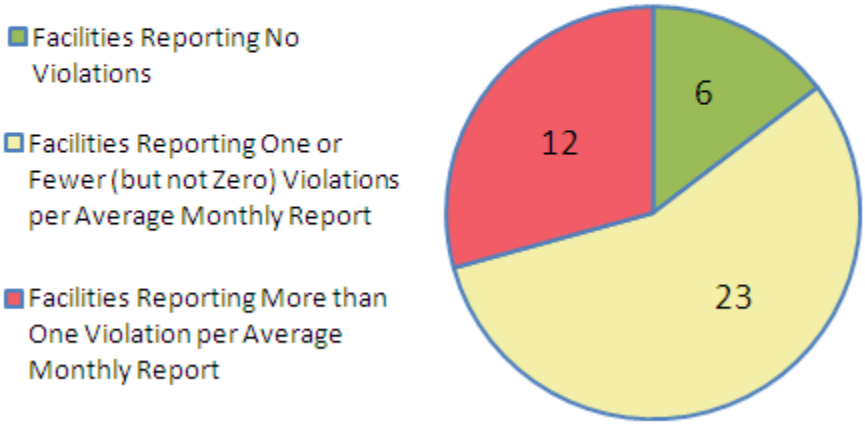

Chart 2 shows that six of the 41 permitted ATS facilities reported no violations of their permit limits for six key pollutants during 2011 and 2012. These violations are measured at the point where the treated effluent leaves the treatment system but before it enters the leaching field, where further renovation of the wastewater is expected.

Chart 3: Compliance With Permit Limits at Monitoring Wells, 2011 - 2012 (Five ATS Facilities Selected for Review)

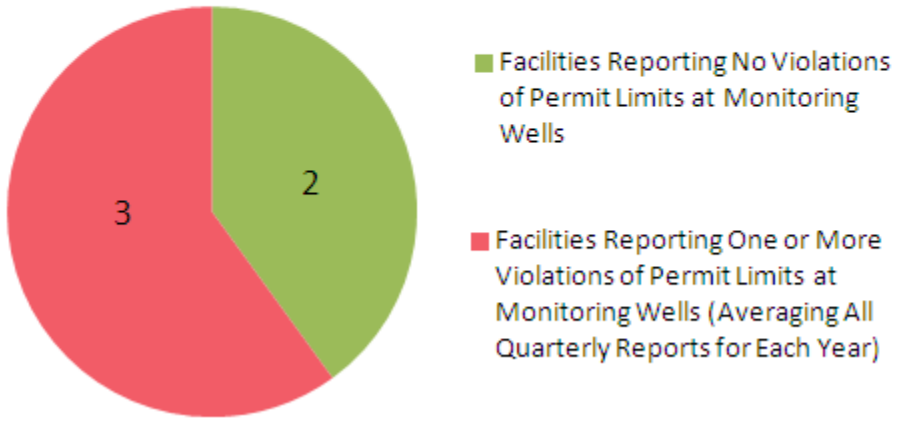

Chart 3 shows that tests conducted and reported by five ATS facilities at their monitoring wells – located at points where the effluent had been through the leaching fields – revealed several violations of the relevant pollution limits. For this chart, a violation was counted only when the yearly average of a facility's quarterly monitoring reports for a pollutant showed a violation of the relevant standard; a violation on a single quarterly report was not counted (unless the level was so high it caused the yearly average to violate the standard). The Council selected these five facilities for review of monitoring well data because they were among the facilities that had the greatest number of effluent limit violations illustrated in Chart 2.

Chart 4: Permitted and Unpermitted ATS Facilities

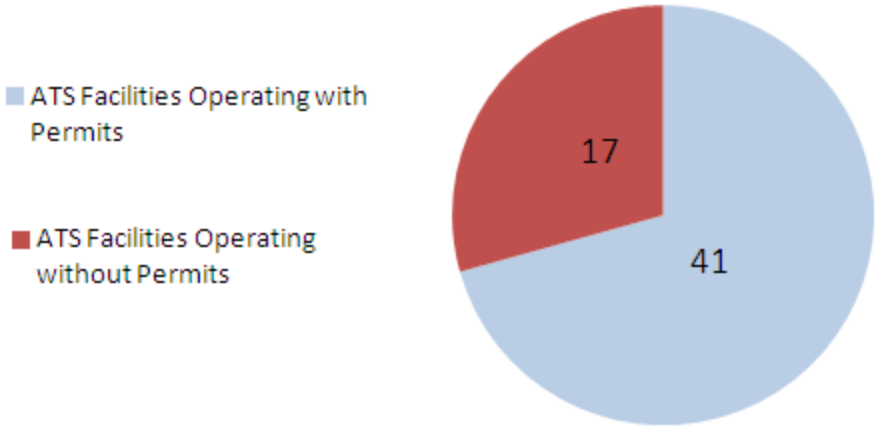

Chart 4 shows the number (17) of ATS facilities operating in Connecticut without permits.

Four of the 41 permitted ATS facilities had perfect scores in 2011 and 2012: they submitted all required monthly and quarterly reports and reported no violations.

Regulation, Oversight and Enforcement of ATS Facilities

The operator of each ATS must obtain a permit from DEEP. The typical permit is valid for ten years. The operator must conduct regular tests of the effluent as it leaves the treatment system and submit the results monthly (in most cases) to DEEP. (Overall results of these tests are illustrated in Chart 2, above). The effluent then enters a leaching field which reduces pollutants further. Each operator tests and reports quarterly the water quality in several monitoring wells on the periphery of the leaching field; a summary of those test results for five selected facilities (expected to show above-average pollution levels) are illustrated in Chart 3.

No Notices of Violation (NOVs) were issued to any ATS during 2011 and 2012 for violating permit limits.

As illustrated in Chart 1, most facilities failed to submit one or more required reports in 2011 through 2012. Failure to report did not result in any Notices of Violation (NOV) from DEEP. DEEP staff told Council staff that a facility in arrears on reporting is expected to demonstrate its ability to comply before it applies for a permit renewal. The typical period between renewals is ten years.

Review by the Council

The Council reviewed the files for all 41 permitted ATS facilities for the years 2011 and 2012. Council staff interviewed DEEP staff about details of the program, including reasons that ATS facilities may operate without permits.

For effluent violations, six pollutants were examined:

- total nitrogen
- total Kjeldahl nitrogen
- biological oxygen demand
- total suspended solids
- fecal coliform
- total phosphorous

For violations of pollution limits in monitoring wells, four pollutants were examined:

- total nitrogen
- total Kjeldahl nitrogen
- fecal coliform
- total phosphorous

Data from each facility were averaged for each year to minimize the effect of aberrant monitoring results. If, for example, a facility showed a violation in a monitoring well for one quarter, but the average level of that pollutant in that well did not violate the standard over the entire year, it was not counted and is not depicted as a violation in Chart 3.

The Unpermitted

At the time of the Council's review of the ATS files (late 2013), there were 58 ATS facilities operating in Connecticut. Seventeen were operating without permits and were not required to submit reports. DEEP staff explained that an ATS cannot obtain a final permit until the system can demonstrate proper functioning. The Council assumes that a number of the unpermitted facilities would have shown violations of effluent limits if they had been required to report. When an ATS fails to function properly, it is not shut down because most of these systems serve large developments or institutions such as schools and hospitals. Some were installed to replace older septic systems that were known to have been causing problems.

Previous CEQ Review of State Regulation of Alternative Treatment Systems

The Council performed a similar review of ATS and their regulation in 2007. One of the important recommendations at that time was to increase ATS permit fees substantially and to use the fee revenue to increase DEEP's capability to review and regulate these facilities. State fiscal problems and new budgeting procedures intervened, with the result that DEEP no longer captures the revenue from environmental permit fees. Permit revenue now goes into the General Fund, and expenses are paid from the General Fund and from federal funds. With or without dedicated fee revenue, taxpayers would be subsidizing the regulation of ATS facilities, as the revenue from ATS permit applications ($4,975 each) and annual fees ($1,110 each) would not cover the expenses of the 2.5 staff persons who administer the ATS program (in addition to their other duties).

Recommendations

1. **Discourage scofflaws.** The General Assembly should amend the water pollution control statutes (CGS Section 22a-430) to create consequences for operators of ATS facilities who fail to submit required monitoring reports. Specifically, failure to submit a required monitoring report in a timely manner should result in an automatic penalty, a shorter life for the permit (perhaps five years instead of ten), higher permit renewal fees, or all three.

2. **Keep the public informed.** DEEP should publish performance data for all ATS facilities, showing the results of all monitoring data.

3. **Restrict ATS operation without permits.** Facilities with deficient or underperforming ATS should be required to post a bond that would be surrendered if the system is not performing as designed by a specified date.

4. **Read the reports**. DEEP should allocate sufficient staff and resources to ensure reliable oversight of ATS facilities.

About the Council on Environmental Quality

The duties of the Council on Environmental Quality (CEQ) are described in Sections 22a-11 through 22a-13 of the Connecticut General Statutes.

The Council is a nine-member board that works independently of the Department of Energy and Environmental Protection (except for administrative functions). The Chairman and four other members are appointed by the Governor, two members by the President Pro Tempore of the Senate and two by the Speaker of the House. The Council's primary responsibilities include:

1. Submittal to the Governor of an annual report on the status of Connecticut's environment, including progress toward goals of the statewide environmental plan, with recommendations for remedying deficiencies of state programs.

2. Review of state agencies' construction projects.

3. Investigation of citizens' complaints and allegations of violations of environmental laws.

In addition, under the Connecticut Environmental Policy Act (CEPA) and its attendant regulations, the Council on Environmental Quality reviews Environmental Impact Evaluations that state agencies develop for major projects. The Council publishes the *Environmental Monitor*, the official publication for scoping notices and environmental impact evaluations for state projects under CEPA. The *Environmental Monitor* also is the official publication for notice of intent by state agencies to sell or transfer state lands.

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