

Loudoun County Onsite Sewage System Maintenance
2018 Annual Report

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Background and Summary

In Loudoun County Virginia, two primary local ordinances govern the onsite treatment and dispersal of sewage. The Loudoun County Board of Supervisors enacted Chapter 1067 of the Codified Ordinance in November of 2008, establishing a local program for the operation and maintenance of alternative onsite sewage systems; it was substantially amended on April 7, 2013. Loudoun County Ordinance Chapter 1066, which established county requirements for onsite sewage disposal systems, was re-enacted in its entirety in 1994 and most recently underwent major revision in January 2017. The Loudoun County Health Department (LCHD) also administers the Virginia Department of Health (VDH) Sewage Handling and Disposal Regulations (12 VAC 5-610-10 et seq.). Alternative Discharging Sewage Treatment Regulations for Individual Single Family Dwellings (12VAC5-640-5 et seq.) and Regulations for Alternative Onsite Sewage Systems (12 VAC 5-613-10 et seq.).

The number of known alternative onsite sewage systems in the county continues to increase (Table I). Alternative systems have pretreatment or dispersal that differs from a conventional system of a septic tank and trenches. In 2018, 25% of installed new and replacement on-site systems were alternative systems (52 new alternative and 158 new conventional systems were installed). Currently, approximately 13% of known existing onsite systems in Loudoun County are alternative systems.

Owners of alternative onsite systems are reminded by postcard of the need to have their system annually inspected in early April of each year. Overdue reminder letters are sent in mid-July followed by notices of violation in mid-August to owners whose system remain in violation for the inspection requirement of Chapter 1067. If a report has not been received, ticketing occurs at least 30 days after receipt of the notices of violation. Repeat tickets can be issued as often as every 10 days but are typically issued every 14 days. Owners may also be ticketed for not completing system repairs; these tickets are typically

preceded by a notification letter two weeks after the report, a reminder letter six weeks after the report, and a notice of violation 10 weeks after the report. The notice of violation must be received at least 30 days prior to initiation of ticketing. Systems with sewage on the ground that are not immediately corrected by the operator are quickly visited. Owners are issued a notice of violation and placed on emergency pump and haul until corrections are made.

Notwithstanding the considerable efforts to ensure their proper operation, LCHD continues to see the importance of maintaining vigilance about how these systems are operating. For example, in 2018 approximately 22% of inspected systems were experiencing deficiencies although many of these did not meet the definition of failure. Most of these deficiencies could be readily addressed (e.g., tank pump-out, insecure lids, malfunctioning alarm/panel, infiltration/inflow, air filter cleaning or replacement, etc.) but if not addressed could eventually lead to ground water contamination, safety issues or system failure. Also, approximately 2.0% (37) of the alternative systems inspected in 2018 reported failure as defined by sewage on the ground or sewage backing up into the house plumbing at the time of inspection (Table II). The majority of the systems reported as failing, as in previous years, were drip dispersal (9 of 413 drip systems, 2.2%), which failed at almost double the average of other alternative systems.

2009-2018 Findings

The number of alternative systems in the LCHD database continued to increase. Although a few existing systems continue to be identified, most of the 2017 increase results from new systems.

Table I: Number of alternative systems identified in Loudoun County

Year	Number	Annual Increase	Annual Increase %
2009	1096	-----	-----
2010	1221	125	11.4%
2011	1297	76	6.2%
2012	1436	139	10.7%
2013	1506	70	4.9%

2014	1558	52	3.4%
2015	1670	112	7.2%
2016	1723	52	3.1%
2017	1798	75	4.4%
2018	1929	131	7.3%

Table II: Results of 2018 Onsite System Maintenance (As of Dec 31, 2018)

Total known conventional systems	12755
Total known alternative systems	1929
Total known alternative discharging systems (<1000 GPD residential)	26
Number of existing large AOSS >1000 GPD (included in categories above)	16
Total permitted pump and haul (temporary and permanent)	148
Total alternative systems required to be inspected (21 systems installed after inspection season cutoff, 10 inspections deferred to following year, 15 removed from database)	1837(95%)
Total alternative systems (required to be inspected) with operator site visits	1805 (98%)
Properties receiving at least 1 ticket	26 (1.4%)
Total tickets issued for non-inspection	75
Total valid tickets	49
Total tickets rescinded *	26
Total tickets for not completing repairs	8
Total deficient alternative systems	542 (30%)
Number of deficient alternative systems repaired by year end	502 (93%)
Total alternative systems with sewage on ground (SOG)	31 (1.6%)
Total systems with sewage on ground not repaired by year end	3
Total alternative system reports where a tank pump out was required	122 (6.3%)

Total minor repairs requiring permits (alt. & conv.)	229 (1.6%)
Total system replacement repairs of all systems (alt. & conv.)	40 (.027%)
Verification inspections of alternative system reports	151 (8.4%)
Number of conventional systems installed in 2018	158
Number of alternative systems installed in 2018	52

*Ticket are typically rescinded due to late operator report submissions.

Table III: 2018 Pump out results

Total alternative systems pumped out	479 (26.5%)
Pump outs reported for all systems including P&H	3460
Number of conventional systems > 5 years old reported as being pumped in last 5 years	9908 (78 %)
Number of conventional systems (>5 years since installation) with no record of pump-out in last five years	2847 (22%)
Number of conventional systems pumped out	1683

In calendar year 2018, the 31 alternative systems reported as failing (SOG) malfunctioned due to a variety of factors (see Table III). Most of these failures were easily repaired and none resulted in absorption area replacement.

Table IV: Number of major alternative system components in Loudoun

Pretreatment

Aerobic treatment units	932
Peat media filters	535
Textile and bio filters	109
Sand filters	35

Dispersal

Conventional trenches	1196
Low pressure	412
Drip	316
Mound	56

Spray	5
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* Alternative systems may have multiple components

Disinfection (includes alternative discharging systems)

Chlorine	64
UV	13
Ozone	1

Table V: Verification Visits

Year	Number of visits	Visits % of total inspections	# of systems with deficiencies not reported by operator	% visits with HD reports not matching operator report
2018	151	8.4%	11	7.3%

Table VI: Total tank pump-outs reported by year (includes pump and haul systems)

2010	30
2011	124
2012	1411
2013	2089
2014	2618
2015	3254
2016	3924
2017	3240
2018	3267

Table VII: Conventional systems > 5 years old, tank pump-outs reported by year

2010	15
2011	94
2012	648

2013	1123
2014	1571
2015	2004
2016	2621
2017	1867
2018	1683

Some tanks may have been pumped more than once in last 5 years

Summary

Onsite sewage treatment systems serve roughly one third of Loudoun’s residents. These widely dispersed systems present a regulatory and maintenance challenge. Typically 22 to 35% of the systems are found to have a deficiency that needs to be corrected. Most of these deficiencies would likely remain uncorrected without close regulatory oversight. It has become obvious that alternative onsite sewage treatment systems require enhanced maintenance that would remain incomplete without regulatory oversight. Not maintaining regulatory oversight would lead to rapid degradation of the onsite infrastructure in Loudoun with resulting threats to public health.

The onsite maintenance program is successful in ensuring that alternative onsite systems are visited annually and deficiencies are corrected. Verification of operator reports by health department staff has demonstrated the quality of operator reports with only 7.3% of reports being at variance to conditions reported by operators.

This year had 30% of systems reported as deficient. This is in spite of the total number of systems almost doubling in the last 9 years. Deficiency corrections lagged due to owner procrastination and unusually wet weather. Still 93% of deficient systems were corrected by year end.

Conventional system tanks are continuing to be pumped to meet the 5 year required pump-out schedule with 78% having been pumped out within the last 5 years. Considering that this is enforced through one annual post card the 78% number is a testament to the citizens of Loudoun’s desire to maintain their onsite

systems. Conventional systems are only inspected sporadically as real estate transactions occur, or problems arise. The program could be improved by required inspection of conventional systems on a 5 year schedule. This would likely require additional staff assigned to the program in order to implement.

Thanks

The program is highly dependent upon Loudoun's quality onsite system operators. The assistance of the county attorney's office is critical to enforcement success. The tremendous functionality of the tracking software, Online RME, saves staff time and reduces errors. Our dedicated and experienced Health Department Staff is crucial to success. Thanks are also due to Loudoun County citizens who see the importance of maintaining their onsite sewage treatment systems.