

Loudoun County Onsite Sewage System Maintenance
2019 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. 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 (AOSS) (12 VAC 5-613-10 et seq.).

The number of known AOSS in the county continues to increase (Table I). AOSS pretreat effluent to a higher level than in a conventional septic tank or have dispersal that differs from a conventional system with trenches. This dispersal is typically a low pressure or drip system. Currently, approximately 13.6% of known existing onsite systems in Loudoun County are alternative systems.

Owners of alternative onsite systems are reminded by postcard in early April of the requirement to have their system annually inspected of each year. Overdue reminder letters are sent in mid-July followed by notices of violation in mid-August to owners whose systems remain in violation for the lack of 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 promptly issued a notice of violation. Owners are issued a notice of violation and placed on emergency pump and haul until corrections are made. Owners are responsible to ensure that corrections are made to their systems.

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 2019, 30% 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 1.9% (37) of the alternative systems inspected in 2019 reported failure as defined by sewage on the ground or sewage backing up into the house plumbing at the time of inspection (Table II).

2009-2019 Findings

The number of alternative systems in the LCHD database continued to increase with 34% of new systems being alternative. Although a few existing systems continue to be identified, most of the 2019 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%
2019	2010	81	4.2%

Table II: Number of conventional systems identified in Loudoun County

2013	13644
2014	14839
2015	13051
2016	12914
2017	12889
2018	12755
2019	12791

Table III: Results of 2019 Onsite System Maintenance (As of Dec 31, 2019)

Total known conventional systems	12791
Total known alternative systems (AOSS)	2010
Total known alternative discharging systems (<1000 GPD residential)	26
Number of existing large AOSS >1000 GPD (included in categories above)	19
Total permitted pump and haul (temporary and permanent)	106
Total alternative systems required to be inspected (55 systems installed after inspection season cutoff, 54 inspections deferred to following year mostly due to vacancy or recent property transfer)	1901(94.6%)
Total alternative systems (required to be inspected) with operator site visits	1896 (99.7%)
Properties receiving at least 1 ticket	25 (1.3%)
Total tickets issued for non-inspection	72
Total valid tickets	57
Total tickets rescinded *	15
Total tickets for not completing repairs	15
Total deficient alternative systems	554 (30%)

Number of deficient alternative systems repaired by year end	531 (96%)
Total alternative systems reported with sewage on ground (SOG)	37 (1.9%)
Total alternative systems with sewage on ground not repaired by year end	0
Total alternative system reports where a septic or trash tank pump out was required	55 (2.9%)
Total minor repairs requiring permits (alt. & conv.)	128 (.8%)
Total system replacement repairs of all systems (alt. & conv.)	63 (.043%)
Verification inspections of alternative system reports	174 (9.2%)
Number of conventional systems installed in 2019	143
Number of alternative systems installed in 2019	73

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

Table IV: 2019 Pump out results

Total alternative systems pumped out	398 (21.3%)
Pump outs reported for all systems including P&H	3106
Number of conventional systems > 5 years old reported as being pumped in last 5 years	8540 (67 %)
Number of conventional systems (>5 years since installation) with no record of pump-out in last five years	3643 (28%)
Number of conventional systems pumped out	1753

In calendar year 2019, the 37 alternative systems reported as failing (SOG) malfunctioned due to a variety of factors. Most of these failures were easily repaired and none resulted in absorption area replacement.

Table V: Number of major alternative system components in Loudoun

Pretreatment

Aerobic treatment units	1003 (53%)
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Peat media filters	526 (28%)
Textile and bio filters	125 (7%)
Sand filters	33 (2%)
None or other	214 (11%)

Dispersal

Conventional trenches	995
Low pressure	466
Drip	435
Mound	56
Spray	5

* Alternative systems may have multiple components

Disinfection (includes alternative discharging systems)

Chlorine	42
UV	16

Verification visits are made to verify the accuracy of operator submitted reports. These visits are done on randomly selected systems within a month of the operator site visit. Eight percent of operator reports were found to have at least one variation from conditions found at the time of the verification visit.

Table VI: 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
2019	174	9.2%	14	8.0%

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

2010	30
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2011	124
2012	1411
2013	2089
2014	2618
2015	3254
2016	3924
2017	3240
2018	3267
2019	3106

Table VIII: 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
2019	1753

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 each year are found to have a deficiency that needs to be corrected. Most of these deficiencies would 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 and the environment.

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 general quality of operator reports with 8% of reports being at variance to conditions reported by operators.

This year 554 (30%) of systems reported as deficient. Deficiency corrections lagged due to owner procrastination, very busy installers and unusually wet early season weather. Still 96% 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 67% having been pumped out within the last 5 years. Conventional septic pump outs are enforced through one annual post card. The pump-out program is still being conducted as educational although regulatory tools exist to issue civil penalties. Additional enforcement could increase the percentage compliance but would require increased staff and is not recommended at this time.

Conventional systems are only inspected sporadically as real estate transactions occur, or problems arise. It is recommended that inspections of conventional systems be implemented on a 5 year schedule. Authority for such a program exists in § 15.2-2157 of the Code of Virginia. This would require additional staff assigned to the program.

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.