

ATTACHMENT 1
(January 5, 2009)

Date of Meeting: December 16, 2009

BOARD OF SUPERVISORS
PUBLIC SAFETY COMMITTEE AND HUMAN SERVICES COMMITTEE

#4

INFORMATION ITEM

SUBJECT: Administration of Chapter 1067 of the Codified Ordinances of Loudoun County – Sewage Disposal Systems

ELECTION DISTRICT: Countywide

STAFF CONTACT: Jerry Franklin, Environmental Health Supervisor
Loudoun County Health Department

BACKGROUND:

At their November 3, 2008 Business Meeting, the Board of Supervisors adopted Chapter 1067 of the Codified Ordinances of Loudoun County (Chapter 1067). Chapter 1067 limits the use of non-conventional onsite sewage disposal systems, requires inspections of non-conventional onsite sewage disposal systems permitted prior to November 3, 2008, and requires an inspection and a maintenance agreement for non-conventional onsite sewage disposal systems permitted after November 3, 2008.

This item provides the Committee with an update on the administration of Chapter 1067.

ISSUES:

Inspection Compliance – Chapter 1067 requires that owners of non-conventional onsite sewage disposal systems permitted prior to November 3, 2008 have their system inspected by July 2 of each calendar year. Inspections are performed by private inspectors hired by system owners. Inspectors file inspection results with the Loudoun County Health Department via an online reporting system. In May 2009, the Loudoun County Health Department notified 1175 owners of non-conventional onsite sewage disposal systems that an inspection of their system was required.

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In August 2009, a second letter was sent to owners who either did not have their system inspected or the inspection results had not been reported. In October 2009, 214 Notices of Violation were sent to owners who still either did not have their system inspected or the inspection results had not been reported. A summary of this information is included as Attachment 1. The Health Department is continuing its enforcement efforts under Loudoun County Chapter 1067 in the cases where inspections have yet to be completed or filed.

Inspection Results – The Loudoun County Health Department reviewed inspection results from private inspectors and grouped the results into four categories as determined by information provided by the private inspectors.

Category I: The non-conventional onsite sewage disposal system is not failing and is functioning as designed.

Category II: The non-conventional onsite sewage disposal system is not failing; however the system is in need of minor modification.

Category III: The non-conventional onsite sewage disposal system is not failing; however the system is not functioning as designed.

Category IV: The non-conventional onsite sewage disposal system is failing.

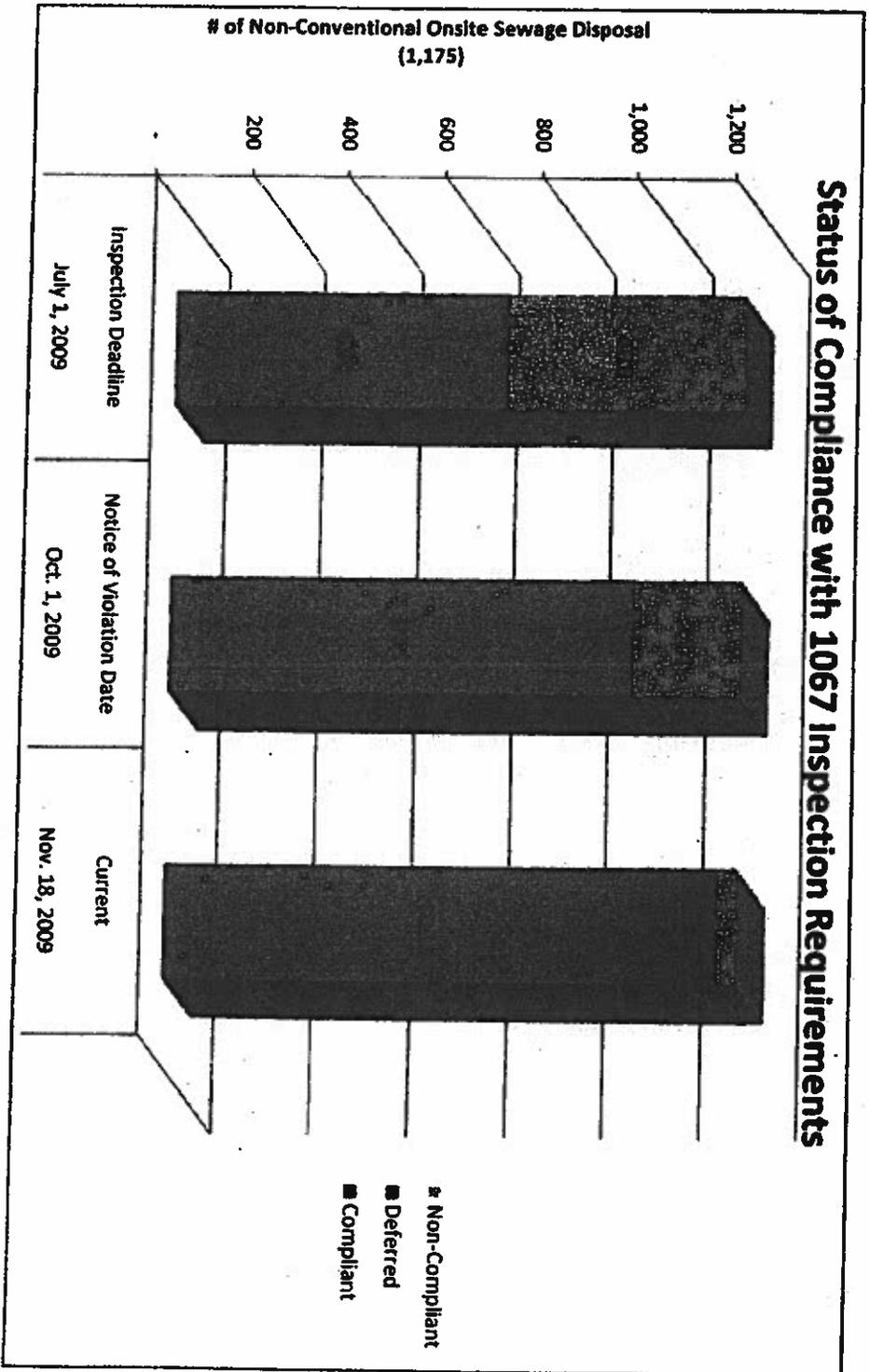
Other than Category IV, which is defined in 12VAC5-610-350 of the Commonwealth of Virginia State Board of Health Sewage Handling and Disposal Regulations, the specific categories are locally defined and are not meant to infer a likelihood that an individual system may fail. A detailed description of each category including definitions, examples and actions required under Chapter 1067 are included as Attachment 2.

A summary of inspection results is included as Attachment 3.

ATTACHMENTS:

- 1) Compliance with Chapter 1067 Inspection Requirements Chart
- 2) Description of Categories of Inspection Results
- 3) Summary of Chapter 1067 Inspection Results
- 4) Inspection Results Pie Chart

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Non-Compliant: A 1067 inspection has NOT been completed for the system.

- Deferred:** The 2009 1067 inspection has been deferred until 2010 due to one of the following reasons:
- a. The system has not been issued an operator's permit yet and is not being used.
 - b. The system was just recently installed (since January of 2009) and an operations permit issued.
 - c. There was a change in ownership or foreclosure since inspection was required.
 - d. Data error preventing proper notice to home owner (eg. incorrect address, misclassified, or not in system)
- Compliant:** A 1067 inspection has been completed for the system.

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Categories of Inspection Results

Category I: Not Failing, Functioning as Designed

Definition: System is in satisfactory working condition and appears to meet all treatment standards, as determined by information provided by private inspector. Sewage is not backing up into the structure or fixtures, effluent is not present on the ground surface, and system is not known to be polluting groundwater.

Examples: Pretreatment unit(s) functioning within design parameters, effluent is not surfacing or backing up into structure or fixtures, pumps are performing near design pumping rate and volume, system components are in good repair, filters are clean, the dispersal distribution components appear to be functioning properly, tank(s) do not need pumping, and no leaks detected or observed.

Action required: System is to be routinely inspected in the next annual cycle.

Category II: Not Failing, in Need of Minor Modification

Definition: System is in satisfactory working condition and appears to meet all treatment standards. Sewage is not backing up into the structure or fixtures, effluent is not present on the ground surface, and system is not known to be polluting groundwater.

Component(s) or aspect(s) of system are showing signs of fatigue or need of corrective action, as determined by information provided by private inspector.

Examples: Filter needs cleaning, lid cracked or screws missing but is not in a dangerous state, media needs raking or rinsing, negligible (less than 1 gallon per hour) infiltration/inflow present after heavy rain, or vegetation needs replacement or clearing.

Action required: Inspector notes needs on report and informs homeowner. Homeowner is responsible to see that system condition is repaired or monitored.

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Category III: Not Failing, Not Functioning as Designed

Definition: Sewage is not backing up into the structure or fixtures, effluent is not present on the ground surface, and system is not known to be polluting groundwater.

System is not treating and/or dispersing effluent as designed or is otherwise not operating as designed, as determined by information provided by private inspector.

Examples: Wastewater effluent parameters are not within design, permit, or regulatory standards, tanks or risers show evidence of infiltration or exfiltration in excess of 1 gallon per hour, the dispersal distribution system appears unbalanced, lids are in dangerous condition, pumps are pumping substantially below or in excess of design, controls or alarms are not working as designed, ponding on top of media is occurring, aeration is not sufficient, disinfection is ineffective, tank or aerobic treatment unit in need of pumping, water usage exceeds system design, required testing has not been performed, illegal modifications have been made, or leaking fixtures exist.

Action required: Inspector notes deficiencies on report and informs the homeowner. The homeowner is responsible for having corrections made. If corrections are not noted in the online data system within 30 days, the homeowner will be contacted by the Health Department and a correction plan will be required. If the correction plan timelines are not adhered to, a Notice of Violation may be sent. This may be followed up with civil penalties and other enforcement actions as necessary. Any repairs requiring a permit will require an application to be submitted to the Loudoun County Health Department.

Category IV: Failing

Definition: A failing system is defined under 12VAC5-610-350 of the Commonwealth of Virginia State Board of Health Sewage Handling and Disposal Regulations. This includes sewage backing up into the structure or fixtures, effluent present on the ground surface, or the system is known to be polluting groundwater, as determined by information provided by private inspector.

Examples: Surfacing wastewater in or from the dispersal area, sewage entering subsurface drains, overflowing tanks, or wastewater backing into house.

Action required: Inspector informs owner of inspection results. Homeowner is responsible to see that corrections are made. Health Department contacts the owner to arrange an onsite inspection. If warranted, corrective action is decided upon. A schedule of correction is determined. Loudoun County notices of violation and civil penalties may be used as enforcement tools if necessary. Any repairs requiring a permit will require an application to be submitted to the Loudoun County Health Department. The Owner is responsible for actions required to keep sewage off the ground surface. Any additional issues identified in the inspection report exist should be addressed concurrently.

Analysis of the 1067 Inspection Reports for the 25 Category 4 Systems

A failing system is defined under 12VAC5-610-350 of the Commonwealth of Virginia State Board of Health Sewage Handling and Disposal Regulations. This includes sewage backing up into the structure or fixtures, effluent present on the ground surface, or the system known to be polluting groundwater, as determined by information provided by private inspector. Each reported failure was verified by a Loudoun County Health Department staff member. Of the 25 failures, 24 were reported by private inspectors to have had sewage or partially treated sewage on the ground. The remaining system had no power to any part of the system, which included an Aerobic Treatment Unit and Pump Tank.

24 Failed Distribution Systems (as described by private inspectors)

- 1 consisted of a standard trench preceded by a Puraflo peat filter. The inspector reported no problems with the Puraflo unit.
- 3 consisted of Aquarobic Mounds preceded by Aquarobic Sequential Batch Reactors (SBR). The inspectors reported no problems with any of the SBR's.
- 10 consisted of drip distribution systems. 2 were preceded by only a septic tank. 8 were preceded by an Aerobic Treatment Unit (ATU). 8 of the 10 drip systems were damaged. 1 septic system was plugged with septage backed up into the riser. 6 of the 8 ATU's did not have the proper consistency of activated sludge in the ATU. The aerator/blower was not functioning properly on 4 of the 8 ATU's .
- 10 consisted of Low Pressure Distribution Systems (LPD) preceded by a pump tank preceded by a septic tank. 1 system was being pumped directly into Goose Creek. 6 systems were not balanced between trenches. 3 systems were balanced but had surfacing of effluent.

1 Failed System (as described by private inspector)

- One LPD system with an ATU was reported as not operating at all. It did not have any power to the system.

Analysis of the 1067 Inspection Reports for the 225 Category 3 Systems

Category 3 systems are defined as those not functioning as designed and meet the County's requirement for repair or replacement. County Code 1067 requires the owner to obtain an inspection and to repair or replace such system, as necessary, to correct any deficiencies identified in the inspection report in compliance with this section and the applicable regulations of the Virginia Department of Health. The deficiency could be with treatment, transmission or distribution or some combination of the three. These deficiencies were reported by private inspectors and were not independently verified by a Loudoun County Health Department staff member.

Distribution System Deficiencies (65)

- 33 had Low Pressure Distribution (LPD) systems reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Unbalanced lines.
 - An abused drainfield.
 - Uneven distribution between trenches.
- 15 had Drip Distribution Systems reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Evidence of damage to the system.
 - Dosing above that which was designed for the system.
 - Nonfunctioning zone.
 - Spongy spot after a 2+ inch rainfall.
- 14 had Mounds reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Improper vegetation.
 - Missing required trees.
- 3 had gravel or gravelless drainfields reported to have uneven distribution between trenches reported.

Transmission Deficiencies (124)

- 124 had a Pump Tank and pump reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Infiltration or inflow from surface or ground water.
 - Alarms were not functioning as designed.
 - Pumps were not pumping at the proper rate or amount.
 - Tanks require cleanout.

Treatment Deficiencies (141)

- 101 had a Septic Tank reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Not structurally sound.
 - Require pumping as soon as possible.
 - Infiltration and Inflow (I&I) of surface or groundwater.
 - Lid and hatch deficiencies.
- 15 had Media Filters (typically peat) reported to be not functioning as designed with the following deficiencies noted by the inspectors:
 - Not performing as designed.
 - Ponding on the media.
 - Media was not in good condition.
- 25 had an Aerobic Treatment Unit (ATU) reported to be not functioning as designed with the following deficiencies noted by the inspectors:

- The activated sludge was outside the proper operating range.
- Abnormal color.
- Abnormal odor.
- Malfunctioning aerator.

Analysis of the 1067 Inspection Reports for the 304 Category 2 Systems

These systems are typically categorized by comments volunteered by the inspector, rather than by the inspector's answer to a specific question. In many cases the comment addresses normal operational work that was accomplished during the inspection or that needs to be done before the next inspection. These issues were reported by private inspectors and were not independently verified by a Loudoun County Health Department staff member. The following are typical examples of the comments, with the first three representing a majority of the systems:

- Filters (screen, air or spin) need to be cleaned.
- Tank needs pumping (in the future before a year goes by).
- Pump tank and/or septic tank lid starting to crack and replacement recommended.
- Although secure in general, various system components and tank lids were missing screws, fasteners, and bolts.
- Drainfield needs mowing.
- Dirt recommended to be installed over D-box in drainfield.
- Component does not appear to be working as designed, but in professional opinion of the inspector the condition is acceptable.
- Access to (a part of the system) was not available, (typically a tank, a LPD riser, valve box, etc. some inspectors will not dig up the system).
- Unable to open pump tank lid but alarm was able to be tested from inside.

1067 Inspection Results
As of November 18, 2009

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