

Survey of Alternative Onsite Sewage System Issues in Virginia, 2009

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I. Executive Summary

Methodology

In spring 2009 the Division of Onsite Sewage and Water Services in the Office of Environmental Health at the Virginia Department of Health (VDH) contracted with the Center for Survey Research (CSR) at the University of Virginia to design and conduct a survey of Virginia residents regarding proposed emergency regulations for alternative onsite sewage systems.

The survey was conducted by telephone from October 9, 2009 through January 22, 2010. More than half of the interviews were completed by October 28, 2009. CSR interviewers asked to speak with the adult living at the household who knew the most about the onsite sewage system there. Preliminary results based on the first 359 completed interviews were shared VDH prior to the close of the public comment period on the emergency regulations in October 2009.

The sample was designed to represent a wide variety of local conditions and provide generalizable data at the statewide and regional levels. It covered twenty counties, with at least three counties being selected in each of the five VDH planning regions. The sample was based on the statewide Virginia Environmental Information System (VENIS) database with locally maintained lists used where needed. The listings used for the study indicated that twelve percent of all operating systems statewide are alternative systems.

Individual properties were sampled and then matched to telephone numbers in publicly available sources. Unmatched records in counties with low initial telephone match rates were cross-matched against county real property databases for better address information. County assistance was requested in seven counties with low match rates and gratefully accepted by CSR.

There were 671 completed interviews obtained from 1,752 households attempted. Of these 439 interviews were with respondents listed in the sampling lists as having alternative systems and 232 were with those listed as having conventional systems. After accounting for ineligible and unreachable households, the estimated response rate was 51%.

The survey data were weighted back to population numbers on region and sewage system type to

adjust for disproportionate chances of selection in the sampling process.

The survey asked respondents to self-report whether they had a conventional or an alternative onsite sewage system. This information was also available from the lists used to generate the sample. About one-quarter of respondents reported a system type that did not match the data found for their property in the lists used for sampling. Because of the potential for confusion regarding this issue, for this report the sewage system type was defined by the data in the lists used for sampling rather than the self-report from the respondent. This is referred to in the report as “listed conventional,” “listed alternative,” or “listed system type.”

The estimated margin of error for questions answered by all 671 respondents is +/- 4.51% at the 95% level of confidence. Because the sample design included heavily disproportionate sampling by listed system type and region of the state, the margin of error can vary noticeably from one question to the next. Margins of error for questions answered by fewer respondents will be larger.

Key findings

Overall, the 2009 Survey of Alternative Onsite Sewage System Issues provides useful feedback from owners of alternative and conventional onsite sewage systems from around the Commonwealth.

There is fairly strong support for requiring inspections of alternative onsite sewage systems although this support is weaker among those with alternative systems. There is also clear support for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system. But there is strong opposition to requiring that owners of alternative systems have maintenance contracts in place.

Satisfaction and reliability ratings for the current systems were very high, although owners of listed alternative systems were less likely than were owners of listed conventional systems to say they are “very” satisfied or that their systems are “very” reliable. One-fifth of respondents overall reported having problems with their current systems and more than ten percent of respondents overall reported past failures with their current systems. Owners of listed alternative system were more likely to report having had past problems with

their systems but were no more likely to report past failures. (“Failure” was defined as sewage backing up into the house or leaking onto the ground surface.)

The survey indicates that one half to three-quarters of respondents appear to be relatively knowledgeable about, and engaged in, the pumping and inspection responsibilities for their onsite sewage systems. But it also indicates opportunities for improvement by raising those numbers and increasing awareness of the additional complexities of maintaining alternative onsite sewage systems.

Respondents reported two types of maintenance philosophy: making sure routine or preventive maintenance got done *vs.* reacting only when problems occur. An individual’s philosophy is related to both self-reported maintenance behaviors and familiarity with all maintenance activities for onsite sewage systems. Those who say they make sure routine or preventive maintenance gets done are more familiar with pumping, inspecting, media/air blowers and testing of their systems. They are also more likely to have gotten routine maintenance in the last five years. Raising the proportion of owners of onsite systems (currently about 75%) who take on the proactive maintenance philosophy could raise compliance in these other areas.

Interestingly, those who make sure routine maintenance gets done are not any less likely to report having had problems with their current system – twenty percent report having had problems regardless of their maintenance philosophies. There are indications in the data that preventive maintenance is more likely to be effective for owners of listed conventional systems than it is for owners of listed alternative systems, but the relatively small size of the dataset and the large variation in the weighting of the data keep these indications from reaching statistical significance.

However, only ten percent of those who said they make sure routine maintenance gets done said that their current system had ever failed, while eighteen percent reported failure among those who said they reacted only when problems occurred. Failure of the system was defined in this question as sewage backing up into the house or leaking onto the ground surface.

Each of the five regions used for this study projects its own character in the data tables, but some generalizations can be made.

Respondents in the Northern Virginia and Central regions tended to have had less involvement in the design and installation of their systems, tended to be more proactive with system maintenance, tended to report greater awareness of legal obligations for using their systems, tended to be more likely to report having an owner’s manual for their system, tended to be a bit more likely to report having had problems with their current systems in the past, and tended to report somewhat lower satisfaction and reliability ratings for their systems.

Respondents in the Northwest and Southwest regions of the state tended to be less likely to say that their localities required onsite sewage systems to be inspected, somewhat less likely to support a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system, and less likely to say that pumping solids from their system tanks was an important maintenance need.

Some additional key findings of the survey are listed below. They are numbered for easier reference.

- 1 The respondents to the survey tended to be male (70%), white (90%) and aged forty to sixty-four years (70%).
- 2 Most of the systems in the study were about five years old or newer – roughly three-quarters (77%) percent were installed in 2003 or afterward. Eighty-one percent of the listed alternative systems and sixty-five percent of the listed conventional systems in the study were installed in 2003 or afterward. The installation dates reported for the older systems ranged back to 1950 with no individual year accounting for more than three percent of the respondents, and most years accounting for less than one percent.
- 3 Half of the respondents (50%) said they had no involvement in selecting or installing their onsite sewage system. About one-quarter (25%) said they had talked about the system with an engineer, builder or contractor. Roughly one-fifth (20%) said they worked closely with an engineer,

- builder or contractor. A handful (5%) said they had installed their systems themselves.
- 4 About one-fifth to one-quarter of respondents self-reported having an onsite sewage system of a different type compared to the information found in the list used for sampling.
 - 5 Ratings of satisfaction and reliability were very high (exceeding 95%) for both types of systems.
 - 6 Overall, about three-quarters (75%) said they make sure routine or preventive maintenance is done on their systems while one-quarter (25%) said they react only when problems occur.
 - 7 Overall, one-fifth of respondents (20%) said that they have had problems with their current system sometime in the past. Respondents with listed alternative systems were more likely to report that they have had problems than were respondents with listed conventional systems (30% compared to 18%).
 - 8 Respondents with listed alternative systems were more likely than were owners of listed conventional systems to report cleaning filters and adjusting flows as important maintenance needs for their systems. Owners of listed conventional systems were more likely to cite pumping solids from tanks, maintaining adequate vegetation over the drainfield, or adding bacteria or yeast.
 - 9 The most commonly reported problems with sewage systems were alarms (16%) and sewage leaking onto the ground surface (13%). Owners of listed alternative systems were more likely to report problems with sewage backing up into the house, septic or musty odors, and frequent alarms than were owners of listed conventional systems. Conventional system owners were somewhat more likely to report sewage leaking onto the ground surface and water draining too slowly. Almost three quarters (74%) of respondents who claimed to have problems reported issues that were not captured by the survey. These responses and others of this type can be reviewed in Appendix F.
 - 10 Using a definition of sewage system failure as “any time sewage backs up into the house or leaks onto the ground surface,” most respondents (89%) said their current system had never failed. Most failures (53%) were reported to have occurred when the system was six years old or newer, but three-quarters of the systems covered in the survey were six years old or newer.
 - 11 A higher percentage of respondents with listed alternative systems have maintenance contracts in place (39%) than do respondents with listed conventional systems (9%). More than three quarters (77%) said they had had routine maintenance performed on their system in the last five years. Maintenance contracts were most likely to include checking sludge levels and determining the causes of alarms sounding, and least likely to include taking samples to the laboratory.
 - 12 Owners of listed alternative systems were more likely to report recent inspections than were owners of listed conventional systems. Among those who said they were familiar with the process for inspecting their systems and had ever had their systems inspected, 84% of listed alternative systems were inspected in the last year compared to 53% of listed conventional systems.
 - 13 Less than four in ten respondents (39%) said homeowners in their counties or cities were required by law to have their sewage systems inspected, about one-third (35%) said this was not the case, and one-quarter (26%) were not sure.
 - 14 About two-thirds of respondents overall (69%) support required inspections for alternative onsite sewage systems. Among those, support was strongest for making the inspection the responsibility of the seller at the point of sale of the house (90% supported this option) although roughly three-quarters supported other options including inspections at fixed time intervals. It should be noted that support for required inspections for alternative onsite sewage systems was lower among those with such systems than among those with conventional systems (57% compared to 71%).
 - 15 Almost nine in ten respondents (87%) oppose a law requiring owners of alternative systems to have a maintenance contract. There was no significant difference by listed system type in the level of support for or opposition to this requirement.

- 16 Annual maintenance contract costs exceeding \$300 were considered to be expensive by about three-quarters of the respondents paying those costs. Twenty-seven percent of alternative system owners reported paying less than \$300 per year for their maintenance contracts.
- 17 The median charge considered to be reasonable for an inspection visit was \$100.
- 18 About two-thirds of respondents (63%) said they received information about their sewage system when they bought or rented their homes.
- 19 Three-quarters of respondents (74%) support a state law requiring a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system.
- 20 More than two-thirds of respondents (70%) said they are familiar with the pumping of their sewage systems, while less than half (40%) said they are familiar with the process for having their system inspected, and one-quarter (23%) were familiar with field testing or laboratory testing on their system.
- 21 Two-thirds of respondents (67%) said they have their systems pumped for routine maintenance every five years or less. In addition, about one in ten (10%) said their tanks had ever been pumped for a reason other than routine maintenance.
- 22 The most frequently mentioned source of information about sewage systems was sewage professionals and contractors (33% of respondents said they got "a lot" of their information here), with local and state health departments (17%) and friends, family and neighbors (17%) next.
- 23 Overall, about half of respondents (44%) said they have a maintenance manual or owner's book for their sewage system. Respondents with listed alternative systems were more likely to say so than were respondents with listed conventional systems (65% compared to 41%). Overall, about half of those with manuals (53%) said they had consulted them for any reason.

II. Acknowledgements

The 2009 Survey of Alternative Onsite Sewage System Issues was conducted by the Center for Survey Research (CSR) at the University of Virginia. The sponsor of the survey was the Virginia Department of Health (VDH). We are grateful to the many citizens who took the time to talk with our interviewers in order to assist the Virginia Department of Health in the development of regulations for performance, operation, and maintenance of various types of sewage systems.

The Principal Investigator was James Ellis, Director of Research at the CSR. Deborah Rexrode, M.A., Staff Research Analyst, served as the Project Coordinator.

Dwayne Roadcap, VDH Program Manager with the Office of Environmental Health Services, Division of Onsite Sewage and Water Services, collaborated with CSR in the development of the survey, the hosting of the focus groups, and the review and reporting of the results.

As Principal Investigator, Jim Ellis was responsible for the scientific direction of the study, including the study design, the content of the questionnaire, the focus groups to pretest the survey instrument, and the report of results to VDH. Deborah Rexrode assisted in the development of the questionnaire and the coordination of the focus groups.

Robin Bebel, Assistant Director of CSR, assisted with the project in the early stages of design and development. Peter Elliott, Research Intern at CSR, investigated and documented strategies for researching telephone numbers for property addresses without telephone numbers in the source lists. Debby Kermer, Research Analyst at CSR, ably took on the task of managing and refining this “lookup” procedure. Kathy Coker, Project Assistant, assisted in the editing of the open-ended comments, managed the mailing work for the advance letters, helped to edit the report and formatted some of the appendix tables. Clare Terni, Research Assistant, also helped format some of the appendix tables and edit the report.

John Lee Holmes oversaw the operation of the CATI laboratory during the interviewing phase of this study and prepared the methodology appendix to this report. Several CSR telephone interviewers made important contributions to the development of the survey prior to pre-testing – Leonard Arnold, Nancy Botchford, Gare Galbraith, Rahima

Miller and David Warner. Mr. Holmes, along with Yuanda Chen, Programmer, was responsible for integrating changes into the programmed instrument and making suggestions from the pretest to improve the flow of the interview.

James Bowles, Environmental Health Coordinator, assisted with sample design and represented VDH at one of the interviewer training sessions, providing helpful advice for handling the selection procedure in the survey.

We also gratefully acknowledge the effort and assistance we received from many local VDH staff at the counties selected for inclusion in the study. This assistance with researching additional information to help locate telephone numbers for selected properties was done quickly on short notice and was invaluable to the project.

The success of the survey ultimately rested with the 671 respondents who gave their time to answer questions regarding the use and maintenance of their onsite sewage systems.

The Center for Survey Research is responsible for any errors or omissions in this report. Questions may be directed to the Center for Survey Research, P.O. Box 400767, Charlottesville Virginia 22904-4767. CSR also may be reached by telephone at 434-243-5222; by electronic mail at surveys@virginia.edu, or via the World Wide Web at: <http://www.virginia.edu/surveys>.

III. Introduction

This section of the report briefly describes the legislative context for the survey. It then goes on to cover the research questions and the methods used for the survey.

Legislative Context

On July 1, 2009, the Virginia Department of Health began regulating the operation and maintenance of alternative onsite sewage systems. Interim requirements such as requiring owners of newly installed alternative systems to record notices in the land records and for owners to operate their alternative systems according to manufacturer's instructions, took effect on July 1. Emergency regulations for Alternative Onsite Sewage Systems (12VAC5-613-10 et seq.) were promulgated by the Board of Health. They were approved by the Governor in May 2010.

Legislation approved in 2008 (Va. Code § 32.1-163.6) required the Virginia Department of Health (VDH) to accept designs from professional engineers for onsite sewage systems that comply with standard engineering practice, any performance requirements established by the Board, and horizontal setback requirements necessary to protect public health and the environment. The designs had to reflect the degree of skill and care ordinarily exercised by licensed members of the engineering profession.

The designs under Va. Code § 32.1-163.6 do not have to follow the Board's prescriptive regulations for onsite sewage systems (the *Sewage Handling and Disposal Regulations*, 12VAC5-610, *Regulations*). As a result of the legislation, many property owners in Virginia now have opportunities to obtain permits for onsite sewage systems where they had previously been unable to obtain them due to severe site and soil limitations.

Given the significant latitude engineers have been afforded to propose solutions to Virginia's most difficult onsite sewage problems and the complexity of the technical issues (i.e., engineers are not required to follow established regulations), the General Assembly in 2009 directed the Health Department through an enactment clause to adopt emergency regulations to specifically address three issues relative to alternative onsite sewage systems (AOSS): Performance, Horizontal Distances and Operation and Maintenance. The *Emergency Regulations for Alternative Onsite*

Sewage Systems (12VAC5-163-10 et seq., the *Emergency Regulations*) are an interim effort to supplement the *Sewage Handling and Disposal Regulations* (12VAC5-610-20 et seq.) where they are either silent on performance, operation and maintenance, or the proposal is being submitted under Va. Code § 32.1-163.6.

VDH will focus resources on educating designers, contractors, owners, and other stakeholders about the various requirements of the *Emergency Regulations*. VDH will also propose permanent regulations for alternative onsite sewage systems (AOSSs).

To assist with development of the Emergency Regulations and permanent replacement regulations, in spring 2009 the Division of Onsite Sewage and Water Services in the Office of Environmental Health at the Virginia Department of Health contracted with the Center for Survey Research at the University of Virginia to design and conduct a survey of Virginia residents regarding proposed emergency regulations for alternative onsite sewage systems.

The survey project and questionnaire were designed in collaboration with VDH staff. CSR administered the survey by telephone to 671 respondents in selected counties across the state.

Research Questions

The survey was designed to address the following research questions:

- 1 What are the levels of owner awareness of, expectations for, and historical experiences with operation and maintenance issues associated within and between conventional and alternative onsite sewage systems?
- 2 Are owners adequately aware of their onsite sewage system, its operation and its maintenance needs? What is their level of awareness? Are levels of awareness similar or different between conventional and alternative owners?
- 3 What percentage of systems is maintained by a service provider? What is the average cost?
- 4 What percentage of systems experience problems? Is there a difference between conventional and alternative systems? Is there a difference in failures or problems between operator-maintained and homeowner-ignored systems?

- 5 What are owners willing to pay for operation and maintenance?
- 6 What types of problems do conventional and alternative system owners have? Are they similar or different?
- 7 What are the maintenance needs within and between these two groups?
- 8 Do alternative systems fail more frequently than conventional systems?
- 9 What is the average age of sewage systems when a problem first occurs?

In addition to questions addressing these issues, the questionnaire also asked for overall opinions about the onsite system's performance and a series of demographic and contextual questions.

Methodology

In spring 2009 the Division of Onsite Sewage and Water Services in the Office of Environmental Health at the Virginia Department of Health (VDH) contracted with the Center for Survey Research (CSR) at the University of Virginia to design and conduct a survey of Virginia residents regarding proposed emergency regulations for alternative onsite sewage systems.

The survey was conducted by telephone from October 9, 2009 through January 22, 2010. More than half of the interviews were completed by October 28, 2009. CSR interviewers asked to speak with the adult living at the household who knew the most about the onsite sewage system there. Preliminary results based on the first 359 completed interviews were shared with VDH prior to the close of the public comment period on the emergency regulations in October 2009.

The sample was designed to represent a wide variety of local conditions and provide generalizable data at the statewide and regional levels. It covered twenty counties, with at least three counties being selected in each of the five VDH planning regions. The sample was based on the statewide Virginia Environmental Information System (VENIS) database with locally maintained lists used where needed. The listings used for the study indicated that twelve percent of all operating systems statewide are alternative systems.

Individual properties were sampled and then matched to telephone numbers in publicly available sources. Unmatched records in counties

with low initial telephone match rates were cross-matched against county real property databases for better address information. County assistance was requested in seven counties with low match rates and gratefully accepted by CSR.

There were 671 completed interviews obtained from 1,752 households attempted. There were 439 interviews with respondents listed in the sampling lists as having alternative systems and 232 with those listed as having conventional systems. After accounting for ineligible and unreachable households, the estimated response rate was 51%.

The survey data were weighted back to population numbers on region and sewage system type to adjust for disproportionate chances of selection in the sampling process.

The survey asked respondents to self-report whether they had a conventional or an alternative onsite sewage system. This information was also available from the lists used to generate the sample. About one-quarter of respondents reported a system type that did not match the data found for their property in the lists used for sampling. Because of the potential for confusion regarding this issue, for this report the sewage system type was defined by the data in the lists used for sampling rather than the self-report from the respondent. This is referred to in the report as "listed conventional," "listed alternative," or "listed system type."

The estimated margin of error for questions answered by all 671 respondents is +/- 4.51% at the 95% level of confidence.

More detail about the methodology can be found in Appendix E.

IV. Demographic Profile

Upon contacting the targeted household, CSR's interviewers asked to speak to the adult residing in the household who was the most knowledgeable about the sewage system located at the selected address. The data reported in this section are unweighted data.

Roughly three-quarters of the respondents were male (70%). Most of the respondents were aged 50 to 64 years (42.3%) or 40 to 49 years (28.1%). About one-third (36.7%) had some college or less formal education, with about one-third (32.9%) receiving a four-year degree and the remainder receiving a graduate or professional degree. Most of the respondents (89.6%) were white while many fewer were African-American (6.8%), Asian (1.6%) or other (2.1%). More than half (57.5%) reported annual household incomes of \$100,000 or more (more than eighty percent of those in the Northern Virginia region were in this income bracket).

Almost every respondent to the survey (98.6%) was a homeowner as opposed to a renter. Almost all of the properties (97%) were used year-round rather than seasonally. Among the seventeen seasonal properties included in the study, all but one had alternative sewage systems and most were located on lots of less than one acre.

Almost all respondents (97.0%) had only one onsite sewage system. Respondents who reported two onsite systems were asked to do the survey about the system they considered to be their main system.

VENIS and other local lists contained information that was used prior to sampling to identify whether the property had an alternative or conventional system. By this "listed type" measure, about two-thirds (65.4%) of respondents had alternative sewage systems and one-third (34.6%) had conventional systems.

Respondents were also asked on the survey whether they had an alternative or conventional system on site. By this self-reported "system type" measure, a little more than half (52.0%) had an alternative system, most of the rest (41.6%) reported having a conventional system, and a few reported something else (1.7%) or did not know (4.7%).

About one-quarter of the respondents in each "listed type" reported a "system type" that was different from their listed type.

Most of the respondents (72%) had lived in the house for five years or less. Eighty percent of respondents at addresses obtained from lists of alternative systems had lived in the house for five years or less, while sixty percent of those at addresses obtained from lists of conventional systems had done so.

Two-thirds (67.2%) of the houses were reported to be five years old or newer while one-sixth (15.9%) were reported to be twenty years old or older. Houses listed as having alternative systems were newer than were houses listed as having conventional systems.

About one-sixth (15.7%) of the houses were located on less than one acre of land, with the remainder divided equally between lots of one to three acres (42.7%) or lots greater than three acres (41.6%).

Most respondents described the amount of usage of their household sewage system as "light" (47.3%) or "moderate" (45.8%) while the remainder (6.8%) described it as "heavy."

About one-quarter of the respondents (24.5%) live in Loudoun County, with somewhat less than ten percent living in Chesterfield County (9.1%), Henrico County (7.5%), Montgomery County (7.2%) or Fairfax County (6.7%). The percentage of respondents living in the other fifteen localities ranged from one percent (Essex County, 1.0%) to about five percent (Suffolk City, 5.2%).

After grouping the localities by region, about one-third of the respondents (34.3%) come from the Northern Virginia region; about one-sixth each from Southwest Virginia (18.5%), Central Virginia (18.2%) and Northwestern Virginia (17.7%); and the remainder (11.3%) from Eastern Virginia.

Definition of demographics used in subgroup analysis

In this report, the survey responses are compared across the following demographic variables. Important differences are mentioned in the text of the report. Full tables are included in Appendix C.

- Region of the state, using the VDH planning regions (Northwest, Northern Virginia,

Southwest, Central, Eastern)

- Listed type – whether the source list used for sampling indicated that the system was an alternative or conventional system
- Respondent’s self-reported philosophy for maintaining the onsite sewage system (making sure preventive maintenance gets done, reacting only when problems occur)
- Respondent gender (male or female)
- Respondent education (high school or less, some college or two-year degree, four-year degree or some graduate school, graduate degree)
- Size of the lot on which the system operates (less than one acre, one to three acres, and more than three acres)

demographic profile for respondents in homes with conventional systems is not markedly different from that for respondents in homes with alternative systems except that female respondents are more likely to be found in homes with conventional systems. Naturally, homes with alternative systems tend to be somewhat newer and respondents tend to report having lived in homes with alternative systems for a shorter time than in those with conventional systems.

Many of the demographic variables are interrelated with each other, including the region of the state in which the respondent resides. Appendix C contains crosstabulation tables detailing some of these relationships.

The following variables were not considered in the demographic comparisons because there was too little variation in the responses to them and therefore no basis for making comparisons:

- Home ownership (own or rent)
- Type of home (year-round or seasonal)
- Respondent race

Summary

The respondents – who were selected by asking for the adult living in the household who was most knowledgeable about the onsite sewage system there – are mostly white, middle-aged and male with four-year college degrees or graduate degrees. They tend to be reporting about houses that are five years old or newer. They are affluent, with more than half reporting annual household incomes of \$100,000 or more.

This profile does not seem implausible given that the sample was constructed to over-represent homes with alternative onsite sewage systems so that half of the sample is located in the suburban or exurban counties of Northern and Central Virginia (Fairfax, Loudoun, Prince William, Caroline, Chesterfield, Henrico and Prince George counties). Also, much of the rest of the sample comes from west of Interstate 95, where African-Americans tend to make up smaller proportions of the population.

Although most alternative onsite sewage systems have been installed fairly recently, the personal

V. Respondent experience and history with the current onsite sewage system

Installation and characteristics of the onsite sewage system

Respondent involvement in installation

About half of the respondents (49.5%) said they had no involvement in selecting or installing their onsite sewage system. About one-quarter (25.1%) said they had talked about the system with an engineer, builder or contractor. Roughly one-quarter (20.1%) said they worked closely with an engineer, builder or contractor. A handful (5.3%) said they had installed their systems themselves.

Two of the survey's 641 respondents (0.3%) said they did not know where their system was located on their property. The rest said they knew or, in the case of those who said they installed the system themselves, the question was skipped under the assumption that they knew where it was located.

Designer of the system

A plurality of respondents (28.4%) said that their system was designed by the health department, while about one-quarter (23.1%) said it was designed by an engineer, eighteen percent said it was designed by an engineer and an onsite soil evaluator working together, four percent said an onsite soil evaluator designed the system, and twenty-six percent volunteered some other response. Most of those "other" responses cited the builder of the house as the designer of the system, with a few offering other combinations of designers (e.g., the health department and an engineer together) or naming specific vendors of onsite sewage systems.

Owners of conventional systems were more likely to say the health department had designed the system while owners of alternative systems were more likely to cite an engineer as the designer.

Presence of a pump with the system

More than half of respondents (54.2%) said their system has a pump. As one might expect, systems listed as alternative systems were much more likely to have a pump than were systems listed as conventional systems (87.5% to 49.6%) but still,

about half of the systems listed as conventional were described as having pumps.

Source of information about what type of system the respondent has

Builders were most frequently mentioned as the source who told the respondent what type of system they had (30.4%), followed by the respondents themselves (19.2%), contractors (17.9%), the health department (17.7%), and the system designer (4.7%). Other unclassified responses¹ accounted for eleven percent of the mentions, with the system manufacturer, the attorney at the closing of the home sale, the real estate agent, the previous owner of the house, a neighbor, and "no one" accounting for fourteen percent of the mentions. Respondents could name more than one source of this information, so percentages total to more than one hundred percent.

System installation date and length of use

Respondents were asked in what year their onsite system was installed. Most of the systems in the study were about five years old or newer – seventy-seven percent were installed in 2004 or afterward. Eighty-one percent of the listed alternative systems and sixty-five percent of listed conventional systems in the study were installed in 2004 or afterward, although system installation dates reported by respondents ranged back to 1950 for listed alternative systems and 1954 for listed conventional systems.

Fifteen percent of respondents overall said that there were parts of their current system that had been added or updated after the original installation. This was more common for those with listed conventional systems (15.2%) than it was for those with listed alternative systems (10.6%). Nearly two-thirds of these additions or updates had occurred since 2007, but some went back as far as ten to twenty years.

Overall, seventy-two percent of the respondents said they have used their current system for five years or less, with about one-sixth of all respondents (15.5%) saying they had used it for

¹ These included the current provider of maintenance services for the system; the county; the respondent using information contained in the survey itself; and professionals such as engineers and soil evaluators.

one year or less. A very few reported using their systems for as many as thirty to sixty years.

Maintenance of the onsite sewage system

The questionnaire included numerous items addressing maintenance issues in general, as well as maintenance issues specific to the respondent’s onsite sewage system.

Overall maintenance issues

Respondents were asked to identify the important routine maintenance needs for their system from a short list of possible maintenance needs. Respondents could name more than one item, so percentages add to more than one hundred percent. The most frequently mentioned routine maintenance need was pumping solids from tanks (86.1% of respondents said this was an important routine maintenance need for their system) followed by maintaining adequate vegetation over the dispersal area (68.9%), cleaning filters (37.8%), adding bacteria or yeast (35.9%), adjusting flows (25.0%), and other things (14.5%). These other needs included avoiding putting paper, fats or chemicals into the system, caring for the drain field by avoiding driving over it and keeping trees out of it, having a maintenance contract and checking equipment regularly, keeping electricity flowing to the system components, and a host of other observations and advice.

Cleaning filters and adjusting flows were more frequently mentioned as important routine maintenance needs by those with listed alternative systems (59.0% and 35.7%, respectively) than by those with listed conventional systems (34.8% and 23.5%, respectively). Similarly, pumping solids from tanks, maintaining adequate vegetation over the dispersal area and adding bacteria or yeast were mentioned more frequently by those with listed conventional systems. See Table V-1.

Table V-1: Percent rating various maintenance needs as “important” by listed system type

Maintenance need	Alt.	Conv.	Total
Pumping solids from tanks	79.0	87.1	86.1
Cleaning filters	59.0	34.8	37.8
Adjusting flows	35.7	23.5	25.0
Maintaining vegetation	60.6	70.1	68.9
Adding bacteria or yeast	27.7	37.0	35.9
Other	16.3	14.3	14.5

Philosophy for maintaining the system

Respondents were then asked:

Which statement best describes how you maintain your sewage system? Would you say you make sure routine or preventive maintenance is done OR you only react when problems occur?

About three-quarters overall (71.3%) said they make sure preventive maintenance gets done, twenty-four percent said they react only when problems occur and the remaining five percent said they did not know. There were no differences in responses to this item between those with listed alternative systems and those with listed conventional systems.

Maintenance contract

Respondents were asked if they had a maintenance contract on their system and thirteen percent overall said they did. Respondents with listed alternative systems were much more likely to have maintenance contracts (39.2% said they did) compared to those with listed conventional systems (9.4%).

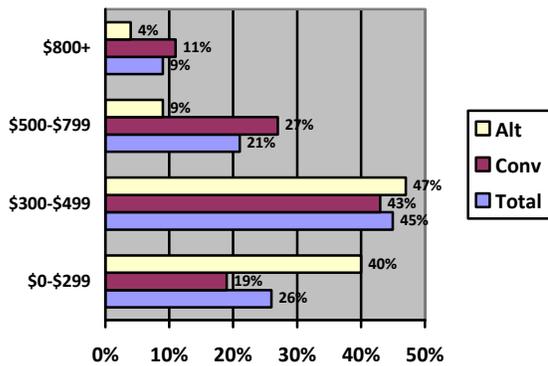
All respondents with maintenance contracts were then asked to identify from a list which services were included in their contracts. Table V-2 shows these results.

Table V-2: Percentage of respondents reporting services being provided in their maintenance contracts by listed system type

Service	Alt.	Conv.	Total
Measuring sludge levels	74.9	83.5	80.4
Determining cause of alarm	77.9	79.4	78.9
Monitoring the system	73.8	60.7	65.4
Annual inspection	72.9	48.4	57.3
Replacing parts that break	68.9	67.1	67.7
Cleaning the filters	63.7	68.9	67.0
Tightening wires that loosen	60.8	52.5	55.5
Verifying pumps are working	48.6	64.8	59.0
Inspection twice a year	34.8	45.3	41.5
Taking samples to the lab	27.6	37.0	33.6

Most respondents reported that their annual maintenance contract costs were less than \$300 (26.5%) or from \$300 to \$499 (44.6%). Respondents with listed conventional systems were more likely to report paying more – nearly four in ten (37.8%) pay \$500 or more annually while only about one in eight (13.3%) of listed alternative system owners pay that much. See Figure V-1.

Figure V-1: Annual maintenance costs by listed system type (for those with maintenance contracts)



Overall, a majority of respondents believed that their maintenance contract was either “somewhat expensive” (27.9%) or “very expensive” (27.6%). Not surprisingly, those paying more were more likely to say the cost was “very expensive,” but any maintenance contract costs exceeding \$300 annually were considered to be expensive by about two-thirds of the respondents paying those costs. See Table V-3.

Table V-3: Opinions about maintenance contract costs

Annual cost	Very expensive	Somewhat expensive	Total “expensive”	N
Under \$300	6.3	12.5	18.8	50
\$300-\$499	28.6	35.7	64.4	74
\$500 or more	40.0	30.0	70.0	25

Maintenance history

The 222 respondents who had been living at their homes for at least five years were asked if any routine maintenance had been performed on their sewage system in the last five years. About three quarters (72.3%) said that it had. Of those, more than half (58.8%) said it had been performed once in the last five years, twenty-one percent said twice, eighteen percent said it had been performed three to six times in the last five years, and the remaining two percent said it had been performed seven or more times. About half of the routine maintenance visits (57.1%) had occurred one year ago or longer and the remainder (42.9%) had occurred within the last year.

Those respondents who said they had not had routine maintenance on their systems in the last five years were asked if routine maintenance had

ever been performed on their systems, and twenty-one percent said that it had.

Pumping

Respondents were asked:

Now we would like to ask some questions about pumping your sewage system. Are you familiar with the pumping of your sewage system?

Overall, about two-thirds (71.4%) were familiar with pumping their sewage systems while the remainder (28.6%) said they were not familiar with this, did not know or declined to answer the question. Thirty respondents (a weighted percentage of 2.6% of the 671 total respondents) who said their system did not require pumping were excluded from these calculations.

Those respondents who said they were familiar with pumping their system were then asked how often the manufacturer or designer of their system recommends the systems be pumped to remove solids. About one-third (34.1%) said every five years, one-quarter (25.4%) said every two to four years, and seven percent said annually. About seventeen percent (16.6%) said they were not aware of any recommendation or they needed to pump the system only as necessary, and less than one percent (0.4%) said they never needed to pump the system or that pumping was not applicable to their system. The remaining seventeen percent gave other recommendations generally ranging from every five to seven years or longer, and a few cited shorter ranges such as every three to five years.

Those who indicated that pumping was applicable to their systems were asked how often they actually have their systems pumped for routine maintenance. About one-third (30.4%) said every one to three years, a similar percentage (36.4%) said every four to five years, almost as many (26.8%) mentioned a longer time frame or said “never,” and six percent (6.3%) did not know. Therefore, two-thirds of respondents (66.8%) said they have their systems pumped for routine maintenance every five years or less. In addition, about one in ten (10.2%) said their tanks had ever been pumped for a reason other than routine maintenance.

Respondents reported the cost of pumping their onsite sewage system tanks. The mean cost was \$213 and the median was \$200. There was no appreciable difference in the means or medians of

the costs reported by respondents with listed alternative systems compared to those with listed conventional systems.

Inspections

Less than half of respondents (41.6%) said they were familiar with the process for inspecting their onsite sewage systems while the remainder (58.4%) said they were not familiar with this, did not know or declined to answer the question.

Those respondents who said they were familiar with inspections of their systems were then asked how often the manufacturer or designer of their system recommends the systems be inspected. The most frequent response was that the respondent did not know or declined to answer the question (41.9%), while nineteen percent said once a year. No other response was mentioned by more than twelve percent of the respondents.

Most respondents (71.4%) said their system had ever been inspected for any reason. Of those, a majority (58.1%) said the inspection had occurred within the past year, twenty-seven percent said it had occurred one to three years ago, and fifteen percent said it had occurred more than three years ago.

The 190 respondents who said they were familiar with inspections of their systems and who did not already have inspections covered in their maintenance contracts were asked what amount they would consider to be a reasonable charge to inspect their onsite sewage systems. Fifty-three respondents (a weighted percent of 7.2%) said they did not know or declined to answer the question. A majority of the respondents who were willing to name a price (58.4%) considered \$100 or less to be a reasonable charge to inspect their onsite sewage system, and \$100 was also the median charge mentioned as being reasonable. The mean response was \$131.50 with no appreciable difference between respondents with listed alternative systems and those with listed conventional systems. Valid responses ranged from \$1 to \$400.

Media or air blower

About one-quarter of respondents (22.4%) said they were familiar with the media or air blower for their onsite sewage systems while the remainder (77.6%) said their systems did not have media or

blowers, they were not familiar with this, did not know or declined to answer the question.

More than half (54.5%) of those familiar with the media or air blower for their onsite sewage systems said they did not know the manufacturer's or designer's recommendation for how often to replace the media or blower, fourteen percent combined to say after a major failure (11.3%) or never (2.9%), and fifteen percent said every ten years (14.7%) or every five years (0.4%). The remaining one-sixth (16.2%) for the most part gave other time estimates ranging from seven to twenty years, with the maximum being fifty years.

Testing

All respondents were asked if they were familiar with field testing or laboratory testing for their onsite sewage systems. Less than one-quarter of respondents (22.7%) said they were, while the remainder (77.3%) said they were not familiar with this, did not know or declined to answer the question.

One-third (33.0%) of those familiar with testing said they had ever had a field test done on their sewage system for any reason – this was less than ten percent (7.1%) of the sample overall.

Seventeen percent of those familiar with testing said they had ever had a laboratory test done on their sewage system for any reason – this was less than five percent (3.5%) of the sample overall.

Replacing the pump

All respondents who said that their system had a pump were asked how often the manufacturer or designer of their system recommends replacing the pump. About two-thirds (68.7%) did not know or declined to answer the question. Very few said every ten years (4.8%) or every five years (1.6%). One-quarter (25.0%) said never, only after it quits working, or gave some other response referencing a longer time frame or stating there was no recommendation.

Owner's manual

Overall, about half of respondents (44.2%) said they have a maintenance manual or owner's book for their sewage system. Respondents with listed alternative systems were more likely to say so than were respondents with listed conventional systems (64.5% compared to 41.4%). About half of those

with manuals (52.7%) said they had consulted them for any reason.

The most commonly cited reason for consulting the manual was because the respondent wanted to know how the system worked (66.5%) followed by wanting to know the system’s maintenance requirements (51.5%), checking the manual because there were problems with the system (29.6%), and some other reason (14.5%). Percentages add to more than one hundred percent because respondents could name more than one reason.

The other reasons for checking the manual that were volunteered by respondents included having problems with alarms or indicator lights, wanting to modify the system, and checking to see what could be put down the drain into the system.

Most respondents who had checked their manual considered the manual to be very helpful (45.0%) or somewhat helpful (47.0%). Only a few considered the manual to be not very helpful (7.4%) or not helpful at all (0.6%).

Problems with the current onsite sewage system

After being asked their opinions on inspections for onsite sewage systems (those items are covered in the following section of this report), respondents were asked:

Now I'd like to ask you about your sewage system. Have you had any problems with your [main] current sewage system at this address in the past?

Overall, almost twenty percent (19.9%) said that they had had problems sometime in the past. Respondents with listed alternative systems were more likely to report that they had had problems than were respondents with listed conventional systems (30.4% compared to 18.4%). Very few respondents overall (0.9%) were currently having problems at the time of the survey call.

Problems with alarms (16.0%) and sewage leaking onto the ground surface (13.8%) were the answers most commonly given by respondents, followed by water draining too slowly (9.6%), sewage backing up into the house (6.4%), septic or musty odors (3.9%) and high operating costs (0.2%). However, three-quarters of the respondents (73.8%) gave responses that could not be easily coded into the categories that were created for this question. Percentages add to more than one

hundred because respondents could give more than one response.

The uncoded answers covered a wide range of problems, often combining two or more of the pre-coded answer categories. These included clogged filters, problems with electrical power due to faulty installation or damage after the system was installed, problems with floats, failures of components (sometimes leading to frequent alarms), repeated failures of components, water leaching into the system or otherwise overcoming the system’s capacity, and so on.

Respondents with listed alternative systems were more likely to mention problems with sewage backing up into the house, septic or musty odors, and frequent alarms than were respondents with listed conventional systems. Those with conventional systems were more somewhat likely to report problems with sewage leaking onto the ground surface and water draining too slowly. See Table V-4.

Table V-4: Percent reporting various types of problems by listed system type

Problem	Alt.	Conv.	Total
Sewage leaking onto surface	9.2	14.8	13.8
Sewage backing up in house	9.2	5.8	6.4
Water draining too slowly	7.8	10.1	9.6
Septic or musty odors	7.0	3.3	3.9
Frequent alarms	21.9	14.7	16.0
High operating costs	1.1	0.0	0.2
Other	75.0	73.6	73.8

Respondents were then asked:

For this survey, the definition of a sewage system FAILURE is ANY time sewage backs up into the house or leaks onto the ground surface. Based on this definition of system failure, how many times has your current sewage system failed since you have lived at this residence?

Most respondents (88.6%) said their system had never failed, while nine percent (9.2%) said it had failed once and the remainder said two times, three times or more than three times.

Most failures (52.5%) were reported to have occurred when the system was six years old or newer, but most of the systems covered in the survey were six years old or newer.

Among listed alternative systems, nearly two-thirds of failures occurred within six years (a weighted percentage of 62.4% based on 27 out of

39 unweighted cases). Among listed conventional systems, just over half of failures occurred within six years (a weighted percentage of 51.2% based on 13 out of 26 unweighted cases).

These percentages as well as other data in the survey related to reports of problems and ratings of satisfaction and reliability indicate that alternative systems may be more likely to fail than are conventional systems, or perhaps more likely to fail sooner. But these data should be used with caution for at least two reasons. First, they are based on small numbers of cases in a dataset with extra variance introduced by survey weights; the comparison reported here does not reach statistical significance. Second, most respondents (72% overall, 85% of listed alternative system owners and 71% of listed conventional system owners) have used their systems for five years or less regardless of the system's age. This may truncate the reporting period overall and may leave unreported failures of older systems of either type that occurred before the respondent started living in the house.

It should be noted here that reports of actual failures overall do not vary significantly by listed system type – ten percent of respondents with listed alternative systems said the system had ever failed, while twelve percent of respondents with listed conventional systems said so. But listed conventional system owners in the survey report longer experience with their systems on average than do listed alternative owners (7.1 years compared to 4.4 years). Therefore, the listed conventional system owners would have more time over which to experience failures. More than one-third of listed conventional systems that failed first failed when they were twenty years old or older compared to nineteen percent of listed alternative systems.

Respondents who said their systems had a pump or who self-reported having an alternative system were also asked how often the alarm has sounded on their systems indicating a possible problem. Overall, about one-quarter of respondents (23.1%) said this had happened once, twenty-two percent (21.7%) said it had happened multiple times, more than half (52.7%) said it had never happened, and a handful (2.6%) said they did not have an alarm.

More than half of those who reported that the alarm had sounded (52.8%) said they experienced no inconvenience as a result of the alarm, about one-third (34.0%) said they experienced some

inconvenience, and the remainder (13.2%) said they experienced a lot of inconvenience.

Satisfaction with and reliability of the current onsite sewage system

Overall, most respondents said they were very satisfied (86.8%) or somewhat satisfied (10.5%) with their onsite sewage systems. Those who were somewhat dissatisfied (1.7%) or very dissatisfied (1.0%) most often cited problems with alarms (39.0%), overall construction and installation costs (16.1%), quality of maintenance providers (12.9%) or the knowledge displayed by them (12.2%), or other uncoded responses (50.7%). The twenty-four uncoded responses cited the time and effort needed to stay on top of complex systems, dissatisfaction with maintenance providers, unhappiness with not being on county sewer and water or other aspects of dealing with the county, and equipment problems.

Respondents were also asked to rate the reliability of their onsite sewage systems. Despite the reports of problems and failures, almost all respondents (93.7%) rated their systems as very reliable, with most of the rest (5.9%) saying they were somewhat reliable, and only a fraction (0.4%) saying they were somewhat unreliable. No one said their system was very unreliable.

Demographic differences

Region

Each region shows its own character in the data tables. However, the suburban and exurban nature of the Northern Virginia and Central regions tends to show through fairly often in similar response patterns, as does the more rural and independent nature of the Northwest and Southwest regions. The Eastern region sometimes looks more like the suburban regions and sometimes more like the rural ones. And each region stands alone on one or two survey questions. For example, respondents in Northern Virginia are more tolerant of higher costs for maintenance contracts and routine inspections; those in Southwest Virginia report almost no problems with their current systems; and those in the Northwest region are more likely to say they react to problems rather than carry out preventive maintenance on their systems. Variations in housing stock, development patterns, geology and local policies towards onsite sewage systems may all contribute to these patterns. It may be helpful to

keep in mind how the onsite sewage systems within each region are distributed across the two listed system types (Table V-5).

Table V-5: Percent listed system type by region

Region	Alternative	Conventional	Total
NW	20.8	79.2	100
NoVa	7.0	93.0	100
SW	4.6	95.4	100
Cent.	18.5	81.5	100
East.	22.4	77.6	100
Total	11.9	88.1	100

It also may be helpful to keep in mind how each listed system type is distributed across regions of the state (Table V-6).

Table V-6: Percent listed system type across regions

Region	Alternative	Conventional	Total
NW	31.3	16.1	17.9
NoVa	26.3	47.4	44.9
SW	4.6	17.6	16.2
Cent.	18.5	9.0	9.7
East.	22.4	10.0	11.3
Total	100	100	100

More than sixty percent of respondents in the Northern Virginia and Central regions (61.8% and 64.5%, respectively) said they had no involvement in selecting or installing their sewage systems, while respondents in the Northwestern, Southwestern and Eastern regions were less likely to say they had no involvement (38.9%, 32.1% and 28.5%, respectively). See Table V-7.

Table V-7: Percent level of involvement in the selection or design of system within region

Region	None	Talked with engr.	Worked closely with engr.	Installed yourself
NW	38.9	28.3	28.7	4.1
NoVa	61.8	20.6	13.0	4.5
SW	32.1	28.8	29.7	9.4
Cent.	64.5	18.4	11.5	5.6
East.	28.5	38.7	28.5	4.2
Total	49.5	25.1	20.1	5.3

Respondents in the Southwest region were much more likely to say that the health department designed their system (65.8%) than were respondents in other regions (37.8% in the Eastern region and less than that in each of the other three regions).

Most systems in the Northern Virginia region (72.6%) were reported to have a pump, while

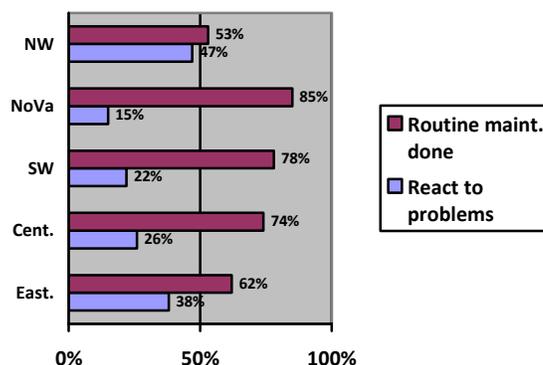
about half of the systems in the Northwestern, Central and Eastern regions had pumps, and less than one-quarter of the systems in the Southwest region had pumps.

More respondents in Northern Virginia (43.8%) and Central Virginia (30.7%) said a builder told them what type of system they had than in the other regions of the state. Respondents in the Eastern region were more likely to say they self-identified their system type (25.3% did so). Respondents in the Northwestern region were fairly evenly split among self-identification (24.3%), builders (23.3%) and contractors (22.1%) as the source that informed them what type of system they had. Respondents in Southwest Virginia tended to mention contractors (30.3%) and a health department employee (27.6%).

Most of the respondents in the Northwest region (77.7%) reported that their systems were six years old or newer, more than in Northern Virginia (68.8%), Southwest Virginia (62.4%), Central Virginia (53.7%) or Eastern Virginia (46.8%).

Respondents in the Northwest region were more likely to say they react only when problems occur with their onsite sewage systems rather than making sure preventive maintenance is done – almost half said they react only when problems occur (46.9%) compared to smaller percentages in the other four regions (ranging from 15.0% to 37.9%). The more recent installation dates found in the Northwestern region may account for some of that difference. See Figure V-2.

Figure V-2: Maintenance philosophy by region



Overall, the weighted survey data estimate that thirteen percent of those with onsite sewage systems have maintenance contracts in place. Northern Virginia had the highest estimated proportion with maintenance contracts (19.1%),

followed by Central Virginia (13.9%). Those in Southwestern Virginia had the lowest percentage with maintenance contracts (2.1%) while those in Northwest (9.5%) and Eastern Virginia (9.1%) fell in between.

Respondents in the Northern Virginia region were most likely to say their system had had routine maintenance of any type performed on them in the last five years (85.8% said so), while those in the Southwest region (31.4%) and Northwest region (55.8%) were least likely to say so.

Respondents in Central Virginia were least familiar with the pumping of their systems (56.0%) while respondents in the other four regions ranged from sixty-eight to seventy-five percent familiar. Those in Northwest Virginia were least likely to say that they have their tanks pumped for routine maintenance every five years or less (42.2%) while seventy-one to eighty-one percent of respondents in other regions said they did.

Respondents in Northern Virginia were most familiar with the process for inspecting their systems (49.2%) while respondents in the other four regions ranged from thirty-four to thirty-nine percent familiar. Those in the Southwest and Northwest regions were least likely to say that they had had their systems inspected (51.8% and 53.9%, respectively) while sixty-nine to eighty-one percent of respondents in other regions said they had.

Familiarity with the media or air blower was highest in the Southwest region (43.8%) while ranging from eleven percent to twenty-seven percent in the other four regions of the state.

Familiarity with testing was relatively low across all five regions, ranging from thirteen to twenty-eight percent.

There were too few cases to characterize responses about manufacturers' recommendations to replace the system pump by region.

Respondents in the Northern Virginia region were more likely to say they had an owner's manual (62.0% said so) compared to those in the other four regions (21.5% to 43.5% said so). Among those saying they had a manual, those in Northern Virginia were more likely to say they had used it (59.6% compared to anywhere from 26.1% to 49.2% among those in the other four regions).

Hardly any respondents in the Southwest region reported having problems with their systems (0.9%) while the percentage reporting past problems with the current system ranged from eighteen percent to twenty-six percent elsewhere.

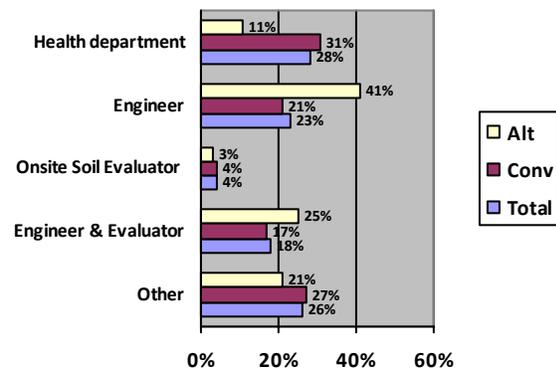
Satisfaction and reliability ratings were uniformly high across all regions of the state.

Listed system type

In addition to the differences noted earlier in this report, responses to other survey questions by those with listed alternative systems and those with listed conventional systems were compared. Overall, respondents with listed alternative systems and listed conventional systems reported similar levels of involvement with selecting or installing their systems – about half had no involvement, close to half either talked with or worked closely with an engineer or other professional, and a handful installed it themselves.

But two-thirds of those with listed alternative systems said that either an engineer (40.5%) or an engineer and onsite soil evaluator working together (25.2%) designed their systems, compared to about one-third of respondents with listed conventional systems (20.6% and 17.2%, respectively). See Figure V-3.

Figure V-3: Designer of the onsite sewage system by listed system type

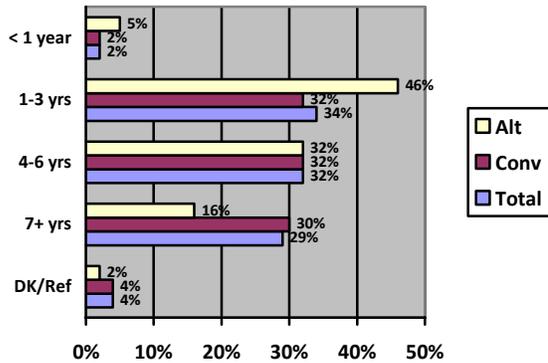


Most listed alternative systems (87.5%) were reported to have a pump, but half of listed conventional systems (49.6%) were reported to have a pump.

Listed alternative systems tended to be a bit newer than listed conventional systems and respondents with listed alternative systems tended to report a shorter time having personally used the system. Half of respondents with listed alternative systems

(51%) reported using their current system for three years or less while one-third of those with listed conventional systems (34%) did so. See Figure V-4.

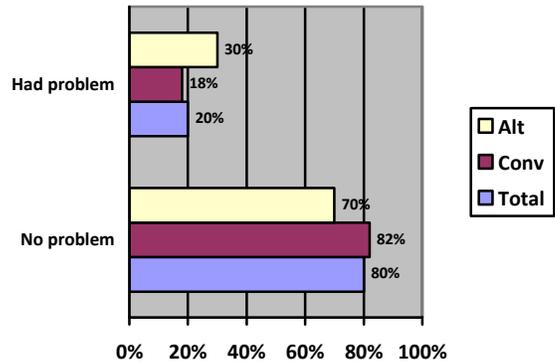
Figure V-4: Reported system age by listed system type



There was no meaningful difference in how respondents with listed alternative systems and those with listed conventional systems described how they maintained their systems. About three-quarters of each group said they made sure routine or preventive maintenance is done and one-quarter of each group said they react only when problems occur.

As noted earlier, respondents with listed alternative systems were more likely to report that they had had problems than were respondents with listed conventional systems (30.4% compared to 18.4%). See Figure V-5. However, the percent reporting past failures of their current systems were not significantly different (10.0% of those with listed alternative systems and 11.2% of those with listed conventional systems reported past failures).

Figure V-5: Percent having past problems with their current system by listed system type



Very few respondents overall (0.9%) were currently having problems at the time of the survey call.

Respondents were asked about their familiarity with several aspects for their systems. Table V-8 summarizes this information by type of listed system (those saying their systems did not require pumping are excluded from that row of the table).

Table V-8: Percent familiar with aspects of onsite sewage systems by listed system type

Are you familiar with...	Alt	Conv	Total
Pumping of your system	67.1	72.0	71.4
Process of inspection	48.4	39.3	40.4
Media/air blower	29.2	20.8	22.4
Field or lab testing	22.4	22.7	22.7
How often to replace pump	28.2	32.1	31.4

As noted earlier in this report, satisfaction and reliability ratings were very high overall. They also very high among both respondents with alternative systems and those with listed conventional systems, but those with alternative systems are slightly less enthusiastic about their systems. See Table V-9 and

Table V-10.

Table V-9: Satisfaction ratings by listed system type

How satisfied are you with your sewage system?	Alt	Conv	Total
Very satisfied	71.9	88.8	86.8
Somewhat satisfied	20.1	9.1	10.5
Somewhat dissatisfied	4.3	1.4	1.7
Very dissatisfied	3.7	0.7	1.0
Total	100	100	100

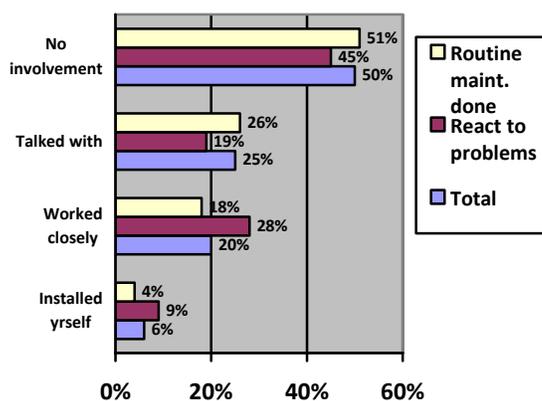
Table V-10: Reliability ratings by listed system type

How reliable is your sewage system?	Alt	Conv	Total
Very satisfied	87.5	94.5	93.7
Somewhat satisfied	11.9	5.1	5.9
Somewhat dissatisfied	0.3	0.4	0.4
Very dissatisfied	0.4	0.0	0.0
Total	100	100	100

Philosophy for maintaining the system

Those who said the best description of their philosophy for maintaining their system is that they only react when problems occur were actually more likely to have worked closely with a professional in selecting or installing their systems, or installed them themselves. Those who had less involvement were more likely to say they make sure routine or preventive maintenance is done. See Figure V-6.

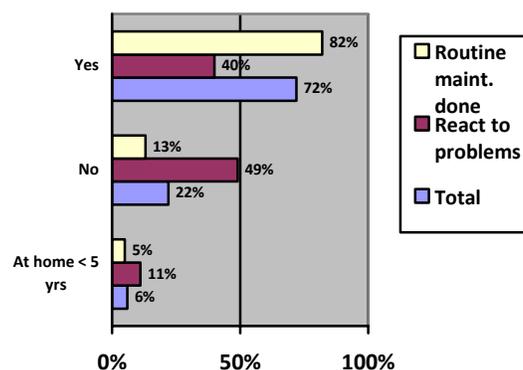
Figure V-6: Level of involvement in the selection or design of system by maintenance philosophy



Those who said they make sure routine or preventive maintenance is done were more likely to have a maintenance contract in place (16.8%) than were those who said they react only when problems occur (3.7%).

Those who said they make sure routine or preventive maintenance is done were also far more likely to report that, in fact, routine maintenance of any type had been performed on their system in the last five years. See Figure V-7.

Figure V-7: Has any type of routine maintenance been performed in the last five years, by maintenance philosophy



In general, those who make sure routine maintenance gets done are more familiar with pumping, inspections, media or air blowers, and testing of the system. They are also more likely to say they have a manual for their system (47.6% to 30.4%) and of those who have manuals, those who make sure routine maintenance gets done are far more likely to say they have consulted the manual (60.5% to 26.5%).

However, those who make sure routine maintenance gets done are not any less likely to report having problems with their current system – twenty percent report having had problems regardless of their maintenance philosophy.

Gender

Women were somewhat more likely to report having no involvement in the selection or design of their system, or talking with an engineer or other professional. Men were more likely to report working closely with an engineer or other professional, or installing the system themselves. See Table V-11.

Table V-11: Level of involvement in the selection or design of system by respondent sex

Sex	None	Talked with engr.	Worked closely with engr.	Installed yourself
Male	47.0	22.5	22.9	7.6
Female	53.7	30.4	15.0	0.9
Total	49.3	25.2	20.2	5.3

Women were somewhat more likely to say they learned what type of system they had from a builder (37.6% of women said so compared to 26.0% of men) while men were more likely to say

they heard this from a contractor (21.9% of men said this compared to 10.7% of women) or they self-identified the system type (24.6% of men said this compared to 9.3% of women).

Women were less likely to say they were familiar with the pumping, inspection, media or air blower, and testing of their systems. See Table V-12.

Table V-12: Percent familiar with aspects of onsite sewage systems by respondent sex

Are you familiar with...	Male	Female	Total
Pumping of your system	71.6	57.2	71.1
Process of inspection	44.0	32.8	40.0
Media/air blower	27.4	13.2	22.6
Field or lab testing	23.6	19.6	22.2
How often to replace pump	34.4	26.2	31.4

No other meaningful differences by gender were observed.

Education

The respondents’ level of formal education is associated with the region of the state in which they live. More than three-quarters of those in Northern Virginia (79.8%) have college or graduate degrees, while about half those in the Central, Southwest and Northwest regions do (57.0%, 55.4% and 48.3%, respectively) and about one-quarter of those in the Eastern region do (26.2%). The regions tend to have their individual character in the data.

After controlling for region of the state, higher levels of education appear to be related to a more proactive maintenance philosophy and a greater likelihood of having maintenance done in the last five years. See Table V-13.

Table V-13: Maintenance philosophy and reports of doing maintenance by education

Formal education	Makes sure of routine maintenance	Did routine maintenance in last 5 years
High school or less	65.0	64.1
Some college, 2-yr degree	67.3	75.6
College graduate	77.8	78.2
Graduate/professional deg.	84.2	91.4

Respondents with high school diplomas or less were more likely to report having last pumped their tanks more than five years ago (16.2% said so compared to no more than 3.4% in other education categories). They were also more likely to report having pumped their tanks for reasons other than routine maintenance – sixteen percent

did so compared to fourteen percent of those with some college, ten percent of college graduates and five percent of those with graduate or professional degrees.

There were no meaningful differences in familiarity with pumping, inspections, media or air blowers, and testing by education level.

Those with higher education were more likely to say they have a manual for their system, but all education levels were about equally likely to say they had consulted their manual among those who had a manual. See Table V-14.

Table V-14: Owner’s manual and consulting the manual by education (percentages)

Formal education	Has owner’s manual	Ever consulted it
High school or less	23.3	49.4
Some college, 2-yr degree	31.5	55.2
College graduate	49.6	51.1
Graduate/professional deg.	57.7	55.4

There were no meaningful differences in reports of problems or system failures by education level. Satisfaction and reliability ratings were uniformly high across all levels of education.

Size of housing lot

The size of the housing lot is related the region in which the respondent lives. Those in the Eastern and Central regions reported smaller lot sizes. As with some of the other relationships between pairs of variables that are described in this report, it is important to keep in mind that a number of the demographic variables are interrelated, so that a relationship between the size of the housing lot and a substantive variable in the questionnaire may owe a lot to a relationship between the size of the housing lot and another demographic variable such as region of the state, or education of the respondent.

Table V-15 shows the data for the size of the housing lot by region of the state.

Table V-15: Size of housing lot by region of the state (percentages)

Region	< 1 acre	1-3 acres	> 3 acres	Total
NW	9.6	26.6	63.8	100
NoVa	12.5	36.1	51.4	100
SW	13.4	54.2	32.5	100
Cent.	17.1	68.5	14.4	100
East.	20.1	46.2	33.7	100
Total	13.4	41.6	45.1	100

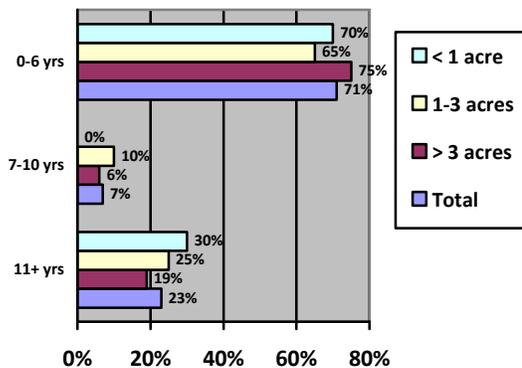
Those with larger properties were more involved in the selection or design of their onsite sewage systems. See Table V-16.

Table V-16: Level of involvement by size of housing lot

Lot size	None	Talked w/engr.	Worked closely w/engr.	Installed yourself
< 1 acre	67.0	19.5	9.4	4.1
1-3 acres	56.6	21.3	18.9	3.2
> 3 acres	38.6	28.4	25.2	7.8

More of the onsite systems located on the largest lots (three or more acres) were six years old or newer (75% were in this age category), compared to systems located on smaller lots (65% of those on lots of one to three acres and 70% of those on lots of less than one acre were six years old or newer). See Figure V-8.

Figure V-8: Reported age of current onsite sewage system by size of housing lot



Respondents on the smallest lots were more likely to say their maintenance philosophy was to make sure that routine or preventive maintenance got done (84.4% said so) compared to respondents on lots of one to three acres (78.8%) or lots of more than three acres (69.2%). Respondents on the largest lots were also the least likely to say routine maintenance had been performed on their systems in the last five years. See Table V-17.

Table V-17: Maintenance philosophy and reports of doing maintenance by size of lot

Lot size	Makes sure of routine maintenance	Did routine maintenance in last 5 years
< 1 acre	84.4	80.5
1-3 acres	78.8	88.5
> 3 acres	69.2	66.9

Respondents on the largest lots were more likely to say they never have their systems pumped for routine maintenance (26.0% said so) compared to those on lots of one to three acres (20.8%) and those on lots of less than one acre (5.4%).

However, those on the largest lots are the most likely to report being familiar with various maintenance functions for their onsite systems. See Table V-18.

Table V-18: Percent familiar with aspects of onsite sewage systems by size of housing lot

Are you familiar with...	< 1 acre	1-3 ac.	< 3 ac.
Pumping of your system	65.1	71.5	75.9
Process of inspection	36.8	34.6	47.8
Media/air blower	18.2	22.1	23.9
Field or lab testing	16.1	20.1	27.0
How often to replace pump	21.6	27.5	37.2

There was no meaningful difference in the percent reporting past problems with their current systems by size of housing lot, although a somewhat greater percentage of respondents on the smallest lots (18.1%) reported a past failure of their current system than did those on medium-sized lots (8.8%) or the largest lots (11.5%).

Satisfaction and reliability ratings were very high across the three categories of housing lot size, although respondents on the smallest lots were slightly more likely to give lower satisfaction ratings. Seven percent of respondents on the smallest lots were dissatisfied with their onsite sewage systems compared to one percent of those on medium-sized lots and three percent of those on the largest lots.

Summary

The results discussed in this section of the report are driven by the interplay of respondent demographics and regional characteristics such as geology, land use policies, age of housing stock and onsite sewage systems prevalent in the region. This interplay should be kept in mind when examining relationships among pairs of variables in the study.

Respondents with listed alternative systems do not differ greatly from those with listed conventional systems in their personal demographics or maintenance philosophy. Listed alternative systems are more likely to be found in newer housing stock on lots of less than one acre compared to conventional systems. Those with

listed alternative systems are more likely to report past *problems* with their current systems, but no more likely to report past *failures* with their current systems. (“Failure” was defined as sewage backing up into the house or leaking onto the ground surface.)

Those with a proactive maintenance philosophy were no less likely to report past *problems* with their current systems than were those with a reactive philosophy, but were less likely to report past *failures* with their current systems. After controlling for region, the education level of the respondent seems to align with a more proactive maintenance philosophy.

Satisfaction and reliability ratings are very high across the board, but onsite sewage systems located on small lots (less than one acre) seem to generate slightly more dissatisfaction. The smaller lots tend to be located in the Central and Eastern regions. It is unclear if regional differences or aspects of the lot size itself drive the marginally higher rates of dissatisfaction.

VI. Knowledge about onsite sewage systems, opinions about potential requirements for inspections and maintenance contracts

Sources of general knowledge about onsite sewage systems

Aside from sources of information about their current onsite sewage systems (which were described in the previous section of this report), respondents were asked about the sources of their knowledge about sewage systems in general. The top source of knowledge was sewage system professionals and contractors, followed by the health department and friends, neighbors and family. Internet sources were also named relatively frequently. Table VI-1 shows these results.

Table VI-1: Amount of knowledge about sewage systems obtained from various sources

Source	A lot	Some	None
Sewage professionals/contractors	32.7	44.4	22.9
County/state health department	17.4	45.1	37.5
Friends, neighbors, family	17.1	44.0	38.9
Internet (web site/blog/email, etc.)	11.5	30.9	57.6
Newspapers, radio, television	1.5	27.0	71.5
Local govt. (excludes health dept.)	3.7	21.3	75.0
Other	7.8	6.3	85.9

Requirements for inspections

Legal obligations for using the system

All respondents were asked if they were aware of any legal obligations for using their sewage systems. Less than one-third (29.3%) responded in the affirmative, about two-thirds (65.8%) said they were not, and a few (4.8%) said they did not know or declined to answer the question.

Knowledge of local requirement for inspection

All respondents were also asked if homeowners in their counties or cities were required by law to have their sewage systems inspected. Less than four in ten (39.3%) said yes, about one-third (34.9%) said no, and one-quarter (25.8%) were not sure.

Support for required inspections for alternative systems

All respondents were then asked if people should be required by law to have their alternative onsite sewage systems inspected. More than half (56.6%) said yes, one-quarter (25.4%) said no, and the remainder (18.0%) did not know. Those who supported inspections for alternative onsite sewage systems were asked to agree or disagree with a series of possible ideas for when inspections might be required. Support was strongest for required inspections being the responsibility of the seller at the point of sale of the house, but roughly three-quarters of respondents also supported inspections at the point of sale as the responsibility of the buyer, at fixed intervals, and after repairing a system that experienced a problem.

Table VI-2: Percent support for various points of required inspections for alternative systems (among those supporting required inspections)

Suggested point of inspection	Yes
Before selling the property (seller's responsibility)	90.4
After repairs are completed following a problem	79.0
At a fixed interval regardless of buying or selling	76.9
Before buying the property (buyer's responsibility)	70.1
Other (volunteered)	31.4

The volunteered responses suggested inspections in response to observations or complaints by neighbors of system malfunction, when bathrooms or bedrooms are added to a home, when a home is refinanced, when changes to drainage or land use patterns are made in the vicinity of the system, and after flooding or other system problems even if no repairs are being undertaken.

The 269 respondents who supported required inspections for alternative onsite sewage systems at a fixed interval regardless of buying or selling were asked what time interval they supported. Most supported intervals of two to four years (34.4%) or five years (33.3%). Others supported intervals of six to ten years (11.6%), once a year (11.9%) or every six months (1.4%). Some (7.4%) volunteered other time intervals keyed to the manufacturer's recommendations or the specific system type, graduated to occur annually for the first several years of use and then less frequently thereafter, or occurring on more or less frequent intervals than the categories presented in the question.

Inspections for new systems

Respondents who supported required inspections for alternative onsite sewage systems were asked how long after their first use did they think the first inspection should be. The plurality (40.4%) said twelve months, fewer said six months (14.7%) or ninety days (13.9%), and about one-fifth (21.5%) volunteered another interval. Some (9.5%) said inspections should not be required, but it is unclear if these respondents were changing their minds about their earlier answers supporting inspections or just disagreeing with the idea of a required inspection tied to the first use of the system.

Most of the volunteered responses suggested intervals ranging from two to five years or immediately after installation or first flush. A few suggested shorter or longer intervals following installation.

Opposition to required maintenance contracts for alternative systems

All respondents were then asked the following question:

Should an owner of an alternative sewage system be required to have a maintenance contract to insure that it is maintained by a licensed operator, or should the owner have the option of getting a licensed operator to work on the system only when it is needed?

If needed in response to questioning or confusion on the part of the respondent, respondents were informed that the Code of Virginia requires that only licensed operators perform operation and maintenance of alternative sewage systems².

Most respondents (79.7%) opposed a requirement for maintenance contracts on alternative systems, some (11.5%) supported it, and a few more (8.8%) did not know or declined to answer the question. Among those expressing a clear opinion, nearly nine in ten (87.4%) opposed a requirement to have a maintenance contract.

Disclosure of information at the home sale

Receipt of information when buying or renting

Two-thirds of the respondents (67%) said they received information about their onsite sewage system when they purchased or rented their home. Those with listed alternative systems were slightly more likely to say they received information than were those with listed conventional systems (70% compared to 63%).

Support for a new state law requiring disclosure at sale of the house

Respondents were asked:

Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system?

Overall, about three-quarters of respondents (72.1%) supported this idea, less than one-quarter (22.9%) opposed it, a few (3.2%) did not know, and a few (1.9%) volunteered that the disclosure law should also apply to conventional systems.

Demographic differences

Region

Local or state health department employees were cited by twenty-eight percent of respondents in the Southwest region as the source of “a lot” of their knowledge about sewage systems. In other regions this percentage ranged from nine to twenty percent. Sewage system professionals and contractors were the most frequently mentioned sources of “a lot” of knowledge in the other four regions of the state. See Appendix C for more detail on this.

Respondents in Northern Virginia were more likely to say they had received information about their onsite sewage system when buying or renting their home (71.5% said so) than were respondents in other regions, where fifty-one to fifty-eight percent said they had.

More respondents in the Central (44.5%) and Northern Virginia (38.0%) regions said they were aware of legal obligations for using their systems

² Va. Code § 54.1-2302

than did respondents in the Southwest (15.0%), Northwest (22.1%) or Eastern (26.5%) regions.

Respondents in Southwest and Northwest Virginia were less likely to say that their localities required inspections of onsite sewage systems – less than half said so (29.7% and 43.6%, respectively) while the percentage of affirmative responses in other regions ranged from fifty-eight to sixty-three percent.

Opposition to a requirement that alternative system owners have a maintenance contract was strong across all regions.

Support for a new state law that would require a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system was strongly supported overall. Support was weakest in the Northwest region at sixty-five percent, while respondents in other regions supported this idea by seventy-two to eighty percent.

Listed system type

More respondents with listed alternative systems (46.2%) said “a lot” of their knowledge about sewage systems comes from sewage professionals and contractors compared to about one-third of those with listed conventional systems (30.9%).

Those with listed alternative systems were also a bit more likely to say they were aware of any legal obligations for using their systems than were those with listed conventional systems (37.5% vs. 29.9%).

Perhaps not surprisingly, support for required inspections of alternative onsite sewage systems was lower among those with listed alternative systems. See Table VI-3.

Table VI-3: Support for required inspections of alternative onsite sewage systems by listed system type

Should people be required by law to have their alternative sewage system inspected?	Alt.	Conv.	Total
Yes	56.7	70.8	69.0
No	43.3	29.2	31.0
Total	100	100	100

Given that about one-quarter of those with listed alternative listed systems said they believed they had conventional systems, one might imagine that opposition to this requirement among owners of

alternative systems may be understated. But the levels of support and opposition among self-reported system types (as opposed to those listed in the sampling sources maintained by state or local health departments) are very similar to the numbers in Table VI-3.

Support for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system is essentially the same among respondents with either system type.

Philosophy for maintaining the system

More respondents with a proactive philosophy for maintaining their systems said “a lot” of their knowledge about sewage systems comes from sewage professionals and contractors (36.4%) or Internet sources (14.4%) than did those with a reactive philosophy (19.5% and 1.7%, respectively).

Those with a proactive philosophy for maintaining their systems were also more likely to say they were aware of any legal obligations for using their systems than were those with a reactive philosophy (35.4% vs. 21.2%), as well as to say that homeowners in their locality are required by law to get their systems inspected (57.0% vs. 41.9%).

Support for required inspections of alternative onsite sewage systems was higher among those with a proactive philosophy for maintaining their systems than it was among those with a reactive philosophy (71.4% vs. 58.4%).

Opposition to required maintenance contracts for owners of alternative onsite sewage systems was uniformly high among respondents with either maintenance philosophy.

Support for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system was slightly higher among those with a reactive philosophy (80.0% vs. 71.6%).

Gender

There were no meaningful differences by gender for the substantive variables covered in this section of the report.

Education

The respondent’s level of formal education is related to the respondent’s age and region. Those relationships should be kept in mind when interpreting relationships between education and substantive variables in the questionnaire.

Respondents with graduate or professional degrees were more likely to say they got “a lot” of their knowledge about sewage systems from contractors or other sewage professionals than were respondents in other educational categories. More than four in ten (43.3%) said so, compared to roughly thirty percent in each of the other three educational categories.

Those with a high school diploma or less were less likely to say they had received information about their sewage system when they purchased or rented their home. About half said they received this information (49.1%) compared to more than sixty percent in each of the other educational categories.

As the level of education increases, self-reported awareness of legal obligations for operating the onsite sewage systems also increases. See Table VI-4.

Table VI-4: Awareness of legal obligations for using the onsite sewage system by education

Are you aware of any legal obligations for using your sewage system?	% Yes
High school or less	19.6
Some college, 2-yr degree	24.2
College graduate	34.0
Graduate/professional deg.	38.2
Total	30.5

A similar pattern holds for self-reported knowledge that the respondent’s county or city requires homeowners to have their onsite sewage systems inspected. See Table VI-5.

Table VI-5: Awareness of local requirement for inspection by education

As far as you know, are homeowners in your county or city required by law to have their sewage systems inspected?	% Yes
High school or less	39.0
Some college, 2-yr degree	52.4
College graduate	54.1
Graduate/professional deg.	63.3
Total	52.7

Support for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system is weakest among those with a high school diploma or less but still lies at two-thirds (65.7%). Support for requiring inspections of alternative onsite sewage systems and opposition to a requirement that owners of alternative onsite sewage systems have a maintenance contract do not vary meaningfully by education level.

Size of housing lot

Respondents with the largest lots (more than three acres) were somewhat more likely to say they got “a lot” of their knowledge about sewage systems from contractors or other sewage professionals and from health department employees than were respondents in other housing lot categories. More than four in ten (41.5%) mentioned contractors or other sewage professionals and one-quarter (24.4%) mentioned health department employees. This compares to one-quarter in each of the other two housing lot categories mentioning contractors or other sewage professionals and less than sixteen percent mentioning health department employees. See Appendix C for more detail on this.

No other meaningful differences were observed for the substantive variables covered in this section of the report.

Summary

There is clear support across the board for required inspections of alternative onsite sewage systems and for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property’s alternative sewage system. But there is strong opposition across the board to requiring that owners of alternative systems have maintenance contracts in place. Not surprisingly, respondents with listed alternative sewage systems were less enthusiastic about requirements to have them inspected, but such possible requirements still garnered majority support (56.7%) among those with listed alternative sewage systems.

The respondent’s education level again impacts several substantive variables regarding knowledge and awareness of sewage system issues.

Regional differences in sources of knowledge about sewage systems, awareness of legal

obligations for their use and of local requirements for inspections, as well as differences in reports of receiving information about the onsite system when buying or renting, all point to the different characters of the regions.

VII. Summary & Conclusions

Overall summary

The clearest findings of the 2009 Survey of Alternative Onsite Sewage System Issues show support for a law requiring inspections for alternative onsite sewage systems (although this support is weaker among those with alternative systems), and strong support for a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system. Just as clearly, Virginians with onsite sewage systems of any type strongly oppose a requirement for those with alternative systems to have a maintenance contract in place.

Satisfaction and reliability ratings for the current systems were very high. Yet thirty percent of those with alternative systems and eighteen percent of those with conventional systems (twenty percent overall after weighting the data) reported having problems at some time in the past with their current systems, and eleven to thirteen percent of respondents with each type of system reported past failures with their current systems. ("Failure" was defined as sewage backing up into the house or leaking onto the ground surface.)

The survey indicates that half to three-quarters of respondents appear to be relatively knowledgeable about, and engaged in, the pumping and inspection responsibilities for their onsite sewage systems. But it also indicates opportunities for improvement by raising those numbers and increasing awareness of the additional complexities of maintaining alternative onsite sewage systems.

The respondent's self-reported maintenance philosophy (making sure routine or preventive maintenance gets done *vs.* reacting only when problems occur) is related to familiarity with all maintenance activities for onsite sewage systems as well as self-reported maintenance behaviors. Those who say they make sure routine or preventive maintenance gets done are more familiar with pumping, inspecting, media/air blowers and testing of their systems. They are also more likely to have gotten routine maintenance in the last five years. Raising the proportion of owners of onsite systems (currently about 75%) who take on the proactive maintenance philosophy could raise compliance in these other areas.

Interestingly, those who make sure routine maintenance gets done are not any less likely to report having had problems with their current system – twenty percent report having had problems regardless of their philosophy.

However, only ten percent of those who said they make sure routine maintenance gets done said that their current system had ever failed, while eighteen percent said so among those who said they reacted only when problems occurred. Failure of the system was defined in this question as sewage backing up into the house or leaking onto the ground surface.

Each of the five regions used for this survey projects its own character in the data tables, but some generalizations can be made.

Respondents in the Northern Virginia and Central regions tended to have less involvement in the design and installation of their systems, tended to be more proactive with system maintenance, tended to report greater awareness of legal obligations for using their systems, tended to be more likely to report having an owner's manual for their system, tended to be a bit more likely to report having had problems with their current systems in the past, and tended to report somewhat lower satisfaction and reliability ratings for their systems.

Respondents in the Northwest and Southwest regions tended to be less likely to say that their localities required onsite sewage systems to be inspected, tended to be somewhat less likely to support a new state law requiring a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system, and tended to be less likely to say that pumping solids for their system tanks was an important maintenance need.

The level of formal education among respondents relates positively to awareness of onsite sewage system issues, a proactive maintenance philosophy and a number of other substantive variables.

Conclusions

Overall, the 2009 Survey of Alternative Onsite Sewage System Issues provides useful feedback from owners of alternative and conventional onsite sewage systems from around the Commonwealth. It captures the variety of experiences from around the state. Readers of this report are urged to review the responses to open-end items as well.

APPENDIX A

FREQUENCIES

Note: Frequencies show weighted Ns and weighted percents. Weighted Ns are rounded from fractional values, therefore frequency tables may include rounding error and may not add precisely to the total N for a variable.

Survey of Alternative Onsite Sewage System Issues

Do you own or rent your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OWN	661	98.5	99.4	99.4
	RENT	4	.6	.6	100.0
	Total	665	99.1	100.0	
Missing	DON'T KNOW/NOT SURE	3	.5		
	REFUSED	0	.0		
	System	2	.4		
	Total	6	.9		
Total		671	100.0		

Are you the adult who is most knowledgeable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES [GO ON]	652	97.1	97.1	97.1
	NO [GO TO R2COME]	19	2.9	2.9	100.0
	Total	671	100.0	100.0	

Survey of Alternative Onsite Sewage System Issues

Can you ask R2 to come to the phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES R1 ASKING R2 TO COME TO PHONE	19	2.9	100.0	100.0
Missing	System	652	97.1		
Total		671	100.0		

If it is possible to reach R2 at another time

		Frequency	Percent
Missing	System	671	100.0

If R2 is the most knowledgeable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES R2 IS THE MOST KNOWLEDGEABLE PROCEED	19	2.9	100.0	100.0
Missing	System	652	97.1		
Total		671	100.0		

If R2 is ready to go

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	R2 READY PROCEED	671	100.0	100.0	100.0

Survey of Alternative Onsite Sewage System Issues

Number of sewage systems on your property

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ONE	644	96.0	96.0	96.0
	TWO	27	4.0	4.0	100.0
	Total	671	100.0	100.0	

We would like to talk about the main system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GO ON	27	4.0	100.0	100.0
Missing	System	644	96.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Your involvement in selecting or installing your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Had no involvement	327	48.7	49.5	49.5
	Talked about the system with an engineer, builder or contractor	166	24.7	25.1	74.6
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	133	19.8	20.1	94.7
	Installed the system yourself	35	5.2	5.3	100.0
	Total	661	98.5	100.0	
Missing	DON'T KNOW/NOT SURE	8	1.3		
	REFUSED	2	.3		
	Total	10	1.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who designed your system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Health department	127	18.9	28.4	28.4
	Engineer	103	15.3	23.1	51.5
	Onsite Soil Evaluator or did the	18	2.7	4.1	55.6
	Engineer and Onsite Soil Evaluator working together	81	12.1	18.2	73.8
	OTHER specify ____	117	17.4	26.2	100.0
	Total	446	66.4	100.0	
Missing	DON'T KNOW/NOT SURE	224	33.3		
	REFUSED	2	.3		
	Total	225	33.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Does your system have a pump

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	344	51.2	54.2	54.2
	NO	290	43.3	45.8	100.0
	Total	634	94.5	100.0	
Missing	DON'T KNOW/NOT SURE	35	5.2		
	REFUSED	2	.3		
	Total	37	5.5		
Total		671	100.0		

Conventional or alternative sewage system (self-report)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CONVENTIONAL SYSTEM	465	69.4	73.3	73.3
	ALTERNATIVE SYSTEM	162	24.1	25.5	98.8
	OTHER specify	8	1.2	1.2	100.0
	Total	635	94.6	100.0	
Missing	DON'T KNOW/NOT SURE	34	5.1		
	REFUSED	2	.3		
	Total	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:CONTRACTOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	521	77.7	82.1	82.1
	SELECTED	114	17.0	17.9	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:BUILDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	442	65.9	69.6	69.6
	SELECTED	193	28.7	30.4	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:SYSTEM DESIGNER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	605	90.2	95.3	95.3
	SELECTED	30	4.5	4.7	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:SYSTEM MANUFACTURER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	629	93.7	99.0	99.0
	SELECTED	6	.9	1.0	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:THE LENDING INSTITUTION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	635	94.6	100.0	100.0
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:ATTORNEY AT CLOSING

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	635	94.6	100.0	100.0
	SELECTED	0	.0	.0	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:REAL ESTATE AGENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	618	92.0	97.3	97.3
	SELECTED	17	2.6	2.7	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:PREVIOUS OWNER OF THE HOUSE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	613	91.4	96.5	96.5
	SELECTED	22	3.3	3.5	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:NEIGHBOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	634	94.6	99.9	99.9
	SELECTED	1	.1	.1	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:HEALTH DEPARTMENT EMPLOYEE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	523	77.9	82.3	82.3
	SELECTED	112	16.7	17.7	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:NO ONE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	592	88.3	93.3	93.3
	SELECTED	43	6.3	6.7	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:SELF IDENTIFIED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	513	76.5	80.8	80.8
	SELECTED	122	18.1	19.2	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:OTHER SPECIFY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	566	84.3	89.1	89.1
	SELECTED	69	10.3	10.9	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Who told you what type of sewage system you have:DONT KNOW/NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	613	91.3	96.5	96.5
	SELECTED	22	3.3	3.5	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have:REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	635	94.6	100.0	100.0
	SELECTED	0	.0	.0	100.0
	Total	635	94.6	100.0	
Missing	System	36	5.4		
Total		671	100.0		

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$infrom^a	613	91.3%	58	8.7%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

\$infrom Frequencies

		Responses		Percent of Cases
		N	Percent	
who told you what system you have ^a	Who told you what type of sewage system you have:CONTRACTOR	114	15.6%	18.6%
	Who told you what type of sewage system you have:BUILDER	193	26.5%	31.5%
	Who told you what type of sewage system you have:SYSTEM DESIGNER	30	4.1%	4.9%
	Who told you what type of sewage system you have:SYSTEM MANUFACTURER	6	.9%	1.0%
	Who told you what type of sewage system you have:ATTORNEY AT CLOSING	0	.0%	.0%
	Who told you what type of sewage system you have:REAL ESTATE AGENT	17	2.4%	2.8%
	Who told you what type of sewage system you have:PREVIOUS OWNER OF THE HOUSE	22	3.0%	3.6%
	Who told you what type of sewage system you have:NEIGHBOR	1	.1%	.1%
	Who told you what type of sewage system you have:HEALTH DEPARTMENT EMPLOYEE	112	15.4%	18.3%

Survey of Alternative Onsite Sewage System Issues

\$infrom Frequencies

		Responses		Percent of Cases
		N	Percent	
who told you what system you have ^a	Who told you what type of sewage system you have:NO ONE	43	5.8%	6.9%
	Who told you what type of sewage system you have:SELF IDENTIFIED	122	16.7%	19.9%
	Who told you what type of sewage system you have:OTHER SPECIFY	69	9.5%	11.3%
Total		729	100.0%	119.0%

a. Dichotomy group tabulated at value 1.

Did you receive information about your sewage system when you purchased or rented your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	409	60.9	62.8	62.8
	NO	242	36.1	37.2	100.0
	Total	651	97.0	100.0	
Missing	DON'T KNOW/NOT SURE	18	2.7		
	REFUSED	2	.3		
	Total	20	3.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

In what year was your sewage system installed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1950	0	.0	.0	.0
	1954	2	.3	.4	.4
	1958	2	.3	.3	.6
	1959	2	.3	.3	1.0
	1960	3	.4	.5	1.4
	1962	4	.5	.6	2.0
	1963	3	.4	.5	2.4
	1964	0	.0	.0	2.4
	1965	2	.3	.3	2.8
	1967	0	.0	.0	2.8
	1968	0	.1	.1	2.9
	1969	3	.4	.4	3.3
	1970	3	.4	.4	3.7
	1971	4	.6	.6	4.3
	1972	0	.0	.0	4.3
	1973	9	1.3	1.3	5.6
	1974	7	1.1	1.1	6.8
	1975	5	.7	.7	7.5
	1976	5	.7	.7	8.2
	1977	0	.0	.0	8.2
	1979	6	.9	1.0	9.2

Survey of Alternative Onsite Sewage System Issues

In what year was your sewage system installed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1980	2	.3	.4	9.5
	1981	2	.3	.4	9.9
	1982	3	.5	.5	10.4
	1983	2	.3	.4	10.7
	1984	0	.0	.0	10.7
	1985	2	.3	.4	11.1
	1986	2	.3	.4	11.4
	1987	6	.9	1.0	12.4
	1988	2	.3	.4	12.8
	1989	3	.4	.4	13.2
	1990	9	1.3	1.4	14.6
	1992	5	.8	.8	15.3
	1993	5	.7	.7	16.1
	1994	16	2.4	2.5	18.6
	1995	8	1.2	1.3	19.9
	1996	14	2.0	2.1	22.0
	1997	1	.1	.1	22.2
	1998	4	.6	.7	22.8
	1999	5	.8	.8	23.7
	2000	5	.7	.8	24.5
	2001	16	2.4	2.5	27.0

Survey of Alternative Onsite Sewage System Issues

In what year was your sewage system installed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2002	18	2.7	2.8	29.8
	2003	20	3.0	3.1	32.9
	2004	87	13.0	13.5	46.4
	2005	105	15.7	16.3	62.7
	2006	126	18.8	19.5	82.3
	2007	70	10.4	10.8	93.1
	2008	31	4.6	4.8	97.9
	2009	14	2.0	2.1	100.0
	Total	644	96.0	100.0	
Missing	DON'T KNOW/NOT SURE	25	3.7		
	REFUSED	2	.3		
	Total	27	4.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

sysagecat

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than one year old	14	2.0	2.0	2.0
	1-3 years	226	33.8	33.8	35.8
	4-6 years	212	31.7	31.7	67.4
	7-10 yrs	45	6.7	6.7	74.1
	11-20 yrs	65	9.7	9.7	83.8
	more than 20 yrs	82	12.2	12.2	96.0
	DK	25	3.7	3.7	99.7
	Ref	2	.3	.3	100.0
	Total	671	100.0	100.0	

Are there parts of your sewage system that were added or updated later

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	98	14.6	14.7	14.7
	NO	570	84.9	85.3	100.0
	Total	668	99.5	100.0	
Missing	DON'T KNOW/NOT SURE	1	.2		
	REFUSED	2	.3		
	Total	3	.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

For how long have you personally used your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FOR LESS THAN A YEAR	26	3.8	3.8	3.8
	1	52	7.8	7.9	11.7
	2	80	12.0	12.1	23.8
	3	128	19.1	19.3	43.2
	4	111	16.6	16.8	59.9
	5	82	12.2	12.3	72.3
	6	17	2.5	2.6	74.8
	7	19	2.8	2.8	77.6
	8	12	1.9	1.9	79.5
	9	13	1.9	1.9	81.4
	10	17	2.6	2.6	84.0
	11	10	1.5	1.5	85.6
	12	1	.1	.1	85.7
	13	13	1.9	1.9	87.6
	14	9	1.4	1.4	89.0
	15	4	.6	.6	89.6
	16	5	.7	.7	90.3
	17	5	.8	.8	91.0
	18	2	.3	.3	91.4
	19	5	.8	.8	92.2

Survey of Alternative Onsite Sewage System Issues

For how long have you personally used your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20	7	1.0	1.0	93.2
	21	3	.5	.5	93.7
	22	6	.9	.9	94.6
	24	2	.3	.3	94.9
	25	2	.3	.4	95.3
	27	3	.4	.4	95.7
	28	2	.3	.3	96.1
	30	2	.3	.3	96.4
	31	0	.0	.0	96.5
	32	0	.0	.0	96.5
	35	6	.8	.8	97.3
	36	2	.3	.3	97.6
	38	2	.3	.3	97.8
	39	2	.3	.3	98.2
	40	2	.3	.3	98.5
	41	0	.0	.0	98.6
	44	0	.0	.0	98.6
	47	3	.5	.5	99.1
	49	3	.4	.4	99.6
	50	0	.0	.0	99.6
	55	2	.3	.3	100.0

Survey of Alternative Onsite Sewage System Issues

For how long have you personally used your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60	0	.0	.0	100.0
	Total	664	99.0	100.0	
Missing	DON'T KNOW/NOT SURE	5	.8		
	REFUSED	2	.3		
	Total	7	1.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

For how many months have you personally used your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FOR LESS THAN A MONTH	3	.5	12.6	12.6
	1	0	.0	1.1	13.6
	2	0	.0	1.1	14.7
	3	0	.0	1.2	15.9
	4	4	.5	14.4	30.3
	5	5	.7	17.9	48.2
	6	8	1.2	31.8	80.0
	7	0	.1	1.5	81.5
	8	0	.0	1.0	82.5
	9	4	.5	14.2	96.7
	10	1	.1	2.0	98.7
	11	0	.0	1.3	100.0
	Total	26	3.8	100.0	
Missing	System	645	96.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Are you aware of any legal obligations for using your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	197	29.3	30.8	30.8
	NO	442	65.8	69.2	100.0
	Total	639	95.2	100.0	
Missing	DON'T KNOW/NOT SURE	30	4.5		
	REFUSED	2	.3		
	Total	32	4.8		
Total		671	100.0		

Do you know where your sewage system is located

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	625	93.2	100.0	100.0
	NO	0	.0	.0	100.0
	Total	626	93.2	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	System	45	6.7		
	Total	45	6.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system:Pumping solids from tanks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IMPORTANT	553	82.4	86.1	86.1
	NOT IMPORTANT	89	13.3	13.9	100.0
	Total	642	95.7	100.0	
Missing	DON'T KNOW/NOT SURE	27	4.1		
	REFUSED	2	.3		
	Total	29	4.3		
Total		671	100.0		

Which of the following are important routine maintenance needs of your sewage system:Cleaning filters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IMPORTANT	204	30.5	37.8	37.8
	NOT IMPORTANT	336	50.1	62.2	100.0
	Total	541	80.6	100.0	
Missing	DON'T KNOW/NOT SURE	129	19.2		
	REFUSED	2	.3		
	Total	130	19.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system: Adjusting flows

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IMPORTANT	133	19.8	25.0	25.0
	NOT IMPORTANT	399	59.5	75.0	100.0
	Total	532	79.3	100.0	
Missing	DON'T KNOW/NOT SURE	137	20.4		
	REFUSED	2	.3		
	Total	139	20.7		
Total		671	100.0		

Which of the following are important routine maintenance needs of your sewage system: Maintaining adequate vegetation over the dispersal area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IMPORTANT	401	59.7	68.9	68.9
	NOT IMPORTANT	181	26.9	31.1	100.0
	Total	581	86.6	100.0	
Missing	DON'T KNOW/NOT SURE	88	13.1		
	REFUSED	2	.3		
	Total	90	13.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system: adding bacteria or yeast

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IMPORTANT	217	32.3	35.9	35.9
	NOT IMPORTANT	387	57.6	64.1	100.0
	Total	603	89.9	100.0	
Missing	DON'T KNOW/NOT SURE	66	9.8		
	REFUSED	2	.3		
	Total	68	10.1		
Total		671	100.0		

Which of the following things are important routine maintenance needs of your sewage system: Anything else

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES SPECIFY	92	13.7	14.5	14.5
	NO	541	80.6	85.5	100.0
	Total	633	94.3	100.0	
Missing	DON'T KNOW/NOT SURE	37	5.5		
	REFUSED	2	.3		
	Total	38	5.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$mainnd^a	625	93.1%	46	6.9%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

Summary Frequencies

		Responses		Percent of Cases
		N	Percent	
Which are important routine maintenance needs of your system^a	Which of the following are important routine maintenance needs of your sewage system: Pumping solids from tanks	553	34.6%	88.5%
	Which of the following are important routine maintenance needs of your sewage system: Cleaning filters	204	12.8%	32.7%
	Which of the following are important routine maintenance needs of your sewage system: Adjusting flows	133	8.3%	21.3%
	Which of the following are important routine maintenance needs of your sewage system: Maintaining adequate vegetation over the dispersal area	401	25.1%	64.2%
	Which of the following are important routine maintenance needs of your sewage system: adding bacteria or yeast	217	13.5%	34.7%
	Which of the following things are important routine maintenance needs of your sewage system: Anything else	92	5.8%	14.7%
	Total		1600	100.0%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

Which statement best describes how you maintain your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	You make sure routine or preventive maintenance is done OR	479	71.3	74.7	74.7
	You only react when problems occur	162	24.1	25.3	100.0
	Total	640	95.4	100.0	
Missing	DON'T KNOW/NOT SURE	29	4.3		
	REFUSED	2	.3		
	Total	31	4.6		
Total		671	100.0		

Do you presently have a maintenance contract with an individual or company to maintain your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	87	12.9	13.0	13.0
	NO	580	86.5	87.0	100.0
	Total	667	99.4	100.0	
Missing	DON'T KNOW/NOT SURE	2	.4		
	REFUSED	2	.3		
	Total	4	.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract:Monitoring the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	30	4.5	34.6	34.6
	SELECTED	57	8.4	65.4	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract:Annual inspection

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	37	5.5	42.7	42.7
	SELECTED	50	7.4	57.3	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract: Inspection twice a year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	51	7.6	58.5	58.5
	SELECTED	36	5.4	41.5	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract: Cleaning the filters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	29	4.3	33.0	33.0
	SELECTED	58	8.7	67.0	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract:Measuring sludge levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	17	2.5	19.6	19.6
	SELECTED	70	10.4	80.4	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract:Verifying pumps are working

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	36	5.3	41.0	41.0
	SELECTED	51	7.6	59.0	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract: Tightening wires that loosen

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	39	5.7	44.5	44.5
	SELECTED	48	7.2	55.5	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract: Determining the cause of alarms or improper function of alarms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	21.1	21.1
	SELECTED	68	10.2	78.9	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract: Replacing parts that break

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	28	4.2	32.3	32.3
	SELECTED	59	8.7	67.7	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract: Taking samples to the laboratory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	57	8.6	66.4	66.4
	SELECTED	29	4.3	33.6	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract: DON'T KNOW/NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	81	12.1	93.9	93.9
	SELECTED	5	.8	6.1	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Which of the following services are provided by your maintenance contract: REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	87	12.9	99.9	99.9
	SELECTED	0	.0	.1	100.0
	Total	87	12.9	100.0	
Missing	System	584	87.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$service^a	82	12.2%	589	87.8%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

\$service Frequencies

		Responses		Percent of Cases
		N	Percent	
Which of services are provided by your maintenance contract^a	Which of the following services are provided by your maintenance contract:Monitoring the system	57	10.8%	69.3%
	Which of the following services are provided by your maintenance contract:Annual inspection	50	9.4%	60.6%
	Which of the following services are provided by your maintenance contract:Inspection twice a year	36	6.8%	43.9%
	Which of the following services are provided by your maintenance contract:Cleaning the filters	58	11.1%	71.0%

Survey of Alternative Onsite Sewage System Issues

Service Frequencies

		Responses		Percent of Cases
		N	Percent	
Which of services are provided by your maintenance contract^a	Which of the following services are provided by your maintenance contract: Measuring sludge levels	70	13.3%	85.1%
	Which of the following services are provided by your maintenance contract: Verifying pumps are working	51	9.7%	62.4%
	Which of the following services are provided by your maintenance contract: Tightening wires that loosen	48	9.2%	58.7%
	Which of the following services are provided by your maintenance contract: Determining the cause of alarms or improper function of alarms	68	13.0%	83.5%
	Which of the following services are provided by your maintenance contract: Replacing parts that break	59	11.2%	71.7%
	Which of the following services are provided by your maintenance contract: Taking samples to the laboratory	29	5.5%	35.6%
	Total		525	100.0%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

How much does your maintenance contract cost per year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	\$0 to \$299	17	2.6	26.5	26.5
	\$300 to \$499	29	4.4	44.6	71.1
	\$500 to \$799	14	2.0	20.5	91.6
	\$800 or more	6	.8	8.4	100.0
	Total	66	9.8	100.0	
Missing	DON'T KNOW/NOT SURE	20	3.1		
	REFUSED	0	.1		
	System	584	87.1		
	Total	605	90.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

In your opinion, is this amount

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very expensive	17	2.6	27.6	27.6
	Somewhat expensive	17	2.6	27.9	55.5
	Somewhat inexpensive	21	3.1	33.3	88.8
	Very inexpensive	7	1.0	11.2	100.0
	Total	62	9.3	100.0	
Missing	DON'T KNOW/NOT SURE	3	.5		
	System	605	90.2		
	Total	609	90.7		
Total		671	100.0		

Has routine maintenance of any type been performed on your sewage system within the last five years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	216	32.2	72.3	72.3
	NO	64	9.5	21.4	93.7
	BEEN HERE LESS THAN FIVE YEARS VOLUNTEERED	19	2.8	6.3	100.0
	Total	299	44.6	100.0	
Missing	System	372	55.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How many times has routine maintenance been performed on your system in the last five years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	127	18.9	58.8	58.8
	2	44	6.6	20.6	79.4
	3	10	1.4	4.4	83.8
	4	11	1.6	4.9	88.7
	5	12	1.8	5.5	94.2
	6	6	.9	2.8	97.0
	7	0	.0	.1	97.1
	8	0	.0	.1	97.1
	9	2	.3	1.1	98.2
	10	1	.2	.5	98.7
	11	2	.3	1.1	99.7
	20	0	.0	.1	99.8
	52	0	.0	.1	99.9
	54	0	.0	.1	100.0
		Total	216	32.2	100.0
Missing	DON'T KNOW/NOT SURE	0	.1		
	System	455	67.8		
	Total	455	67.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How long has it been since you had routine maintenance performed on your unit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WITHIN THE LAST MONTH	18	2.7	8.4	8.4
	WITHIN THE LAST SIX MONTHS	46	6.8	21.2	29.6
	WITHIN THE LAST YEAR	29	4.3	13.3	42.8
	1-2 YEARS	62	9.2	28.6	71.5
	MORE THAN 2 YEARS	62	9.2	28.5	100.0
	Total	216	32.2	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	System	455	67.8		
	Total	455	67.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Has routine maintenance ever been performed on your system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	13	2.0	21.1	21.1
	NO	51	7.5	78.9	100.0
	Total	64	9.5	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	System	607	90.5		
	Total	607	90.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ONCE A YEAR	25	3.8	6.9	6.9
	EVERY 2-4 YEARS	94	14.0	25.4	32.3
	EVERY 5 YEARS	126	18.8	34.1	66.4
	AS NEEDED	23	3.4	6.1	72.6
	NEVER/NOT APPLICABLE	1	.2	.4	72.9
	NO RECOMMENDATION	39	5.8	10.5	83.5
	OTHER	61	9.1	16.5	100.0
	Total	370	55.1	100.0	
Missing	DON'T KNOW/NOT SURE	97	14.5		
	System	204	30.5		
	Total	301	44.9		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

How often do you have your sewage system tank pumped for routine maintenance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EVERY 1-3 YEARS	142	21.2	32.5	32.5
	EVERY 4-5 YEARS	170	25.3	38.9	71.4
	EVERY 6-10 YEARS	25	3.8	5.8	77.2
	MORE THAN 10 YEARS	4	.6	.9	78.0
	NEVER [SKIP TO INSPKNOW]	96	14.3	22.0	100.0
	Total	437	65.1	100.0	
Missing	DON'T KNOW/NOT SURE	30	4.4		
	System	204	30.5		
	Total	234	34.9		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Has your tank ever been pumped for other than routine maintenance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	35	5.2	10.2	10.2
	NO	306	45.6	89.8	100.0
	Total	340	50.7	100.0	
Missing	DON'T KNOW/NOT SURE	1	.1		
	System	330	49.2		
	Total	331	49.3		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How often does the manufacturer or designer of your system recommend that your system be inspected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EVERY 6 MONTHS	6	.9	3.9	3.9
	ONCE A YEAR	50	7.5	32.1	36.0
	EVERY 2-4 YEARS	32	4.8	20.5	56.5
	EVERY 5 YEARS	20	3.0	12.9	69.4
	EVERY 6-10 YEARS	3	.5	2.2	71.6
	AFTER A MAJOR REPAIR	0	.0	.1	71.7
	NEVER	21	3.1	13.2	84.8
	OTHER	24	3.5	15.2	100.0
	Total	156	23.2	100.0	
Missing	DON'T KNOW/NOT SURE	114	16.9		
	REFUSED	2	.3		
	System	400	59.6		
	Total	515	76.8		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

Has your sewage system ever been inspected for any reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	192	28.6	71.4	71.4
	NO	77	11.5	28.6	100.0
	Total	269	40.0	100.0	
Missing	DON'T KNOW/NOT SURE	2	.3		
	System	400	59.6		
	Total	402	60.0		
Total		671	100.0		

How long has it been since your sewage system was inspected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WITHIN THE PAST YEAR	111	16.6	58.1	58.1
	1-3 YEARS AGO	52	7.8	27.2	85.3
	MORE THAN THREE YEARS AGO	28	4.2	14.7	100.0
	Total	192	28.5	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	System	479	71.4		
	Total	479	71.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What would you consider to be a reasonable charge to inspect your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	0	.1	.3	.3
	30	3	.4	1.5	1.7
	35	0	.0	.2	1.9
	40	0	.0	.0	1.9
	50	20	2.9	11.1	13.1
	55	0	.0	.1	13.2
	59	4	.5	2.0	15.2
	60	3	.4	1.6	16.7
	65	0	.0	.1	16.8
	75	24	3.6	13.6	30.3
	80	2	.3	1.3	31.6
	85	3	.5	1.9	33.6
	99	3	.4	1.7	35.2
	100	41	6.1	23.2	58.4
	120	0	.0	.1	58.5
	125	5	.7	2.7	61.2
	140	0	.0	.1	61.3
	150	20	3.0	11.5	72.8
	200	27	4.1	15.4	88.2
	225	6	.8	3.2	91.4
	250	7	1.0	3.9	95.3

Survey of Alternative Onsite Sewage System Issues

What would you consider to be a reasonable charge to inspect your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	300	0	.0	.2	95.5
	350	5	.8	3.1	98.5
	400	2	.4	1.4	99.9
	1000	0	.0	.1	100.0
	Total	177	26.4	100.0	
Missing	DON'T KNOW/NOT SURE	43	6.4		
	REFUSED	6	.8		
	System	445	66.4		
	Total	494	73.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Are you familiar with the media or air blower for your system?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	36	5.4	23.7	23.7
	NO /SYSTEM DOES NOT HAVE THEM	116	17.4	76.3	100.0
	Total	153	22.8	100.0	
Missing	DON'T KNOW OR NOT SURE	9	1.3		
	REFUSED	0	.0		
	System	509	75.9		
	Total	518	77.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EVERY 5 YEARS	0	.0	.8	.8
	EVERY 10 YEARS	5	.8	32.3	33.1
	ONLY AFTER A MAJOR FAILURE	4	.6	24.9	58.0
	NEVER	1	.2	6.4	64.4
	OTHER	6	.9	35.6	100.0
	Total	16	2.5	100.0	
Missing	DON'T KNOW/NOT SURE	20	2.9		
	System	635	94.6		
	Total	655	97.5		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

Are you familiar with field testing or laboratory testing on your sewage systems?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	152	22.7	22.9	22.9
	NO [SKIP TO REPLACE]	511	76.2	77.1	100.0
	Total	663	98.8	100.0	
Missing	DON'T KNOW OR NOT SURE	8	1.1		
	REFUSED	0	.0		
	Total	8	1.2		
Total		671	100.0		

Have you ever had a FIELD test done on your sewage system for any reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	48	7.1	33.0	33.0
	NO	97	14.4	67.0	100.0
	Total	145	21.5	100.0	
Missing	DON'T KNOW/NOT SURE	8	1.1		
	System	519	77.3		
	Total	526	78.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How long has it been since your sewage system was field tested

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WITHIN THE PAST YEAR	18	2.7	40.8	40.8
	1-3 YEARS AGO	14	2.1	31.7	72.5
	MORE THAN THREE YEARS AGO	12	1.8	27.5	100.0
	Total	44	6.5	100.0	
Missing	DON'T KNOW/NOT SURE	2	.4		
	REFUSED	2	.3		
	System	623	92.9		
	Total	627	93.5		
Total	671	100.0			

Have you ever had a LABORATORY test done on your sewage system for any reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	24	3.5	17.2	17.2
	NO	114	16.9	82.8	100.0
	Total	137	20.4	100.0	
Missing	DON'T KNOW/NOT SURE	15	2.2		
	System	519	77.3		
	Total	534	79.6		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

How long has it been since your sewage system was laboratory tested

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WITHIN THE PAST YEAR	11	1.6	50.1	50.1
	1-3 YEARS AGO	8	1.3	39.1	89.3
	MORE THAN THREE YEARS AGO	2	.3	10.7	100.0
	Total	22	3.2	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	REFUSED	2	.3		
	System	647	96.5		
	Total	649	96.8		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

How often does the manufacturer or designer of your system recommend that you replace the pump

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EVERY 5 YEARS	5	.8	5.0	5.0
	EVERY 10 YEARS	16	2.4	15.2	20.2
	ONLY AFTER IT QUILTS WORKING	57	8.4	52.5	72.8
	NEVER	10	1.5	9.3	82.1
	OTHER ____	19	2.9	17.9	100.0
	Total	108	16.1	100.0	
Missing	DON'T KNOW/NOT SURE	236	35.1		
	REFUSED	0	.0		
	System	327	48.8		
	Total	563	83.9		
Total	671	100.0			

Survey of Alternative Onsite Sewage System Issues

Do you have a maintenance manual or owners book for your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	284	42.3	44.2	44.2
	NO	358	53.4	55.8	100.0
	Total	642	95.6	100.0	
Missing	DON'T KNOW/NOT SURE	29	4.3		
	REFUSED	0	.0		
	Total	29	4.4		
Total		671	100.0		

Have you ever consulted the manual for any reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	150	22.3	52.7	52.7
	NO	134	20.0	47.3	100.0
	Total	284	42.3	100.0	
Missing	System	387	57.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Did you consult the manual because: You were having a problem with your system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	105	15.7	70.4	70.4
	SELECTED	44	6.6	29.6	100.0
	Total	150	22.3	100.0	
Missing	System	521	77.7		
Total		671	100.0		

Did you consult the manual because: You wanted to know how your system worked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	50	7.5	33.5	33.5
	SELECTED	99	14.8	66.5	100.0
	Total	150	22.3	100.0	
Missing	System	521	77.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Did you consult the manual because:You wanted to know your system's maintenance requirements

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	73	10.8	48.5	48.5
	SELECTED	77	11.5	51.5	100.0
	Total	150	22.3	100.0	
Missing	System	521	77.7		
Total		671	100.0		

Did you consult the manual because:Some other reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	128	19.1	85.5	85.5
	SELECTED	22	3.2	14.5	100.0
	Total	150	22.3	100.0	
Missing	System	521	77.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Did you consult the manual because: DON'T KNOW/NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	150	22.3	100.0	100.0
Missing	System	521	77.7		
Total		671	100.0		

Did you consult the manual because: REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	150	22.3	100.0	100.0
Missing	System	521	77.7		
Total		671	100.0		

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$whyused^a	150	22.3%	521	77.7%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

\$whyused Frequencies

		Responses		Percent of Cases
		N	Percent	
Reason you consult the manual^a	Did you consult the manual because:You were having a problem with your system	44	18.3%	29.6%
	Did you consult the manual because:You wanted to know how your system worked	99	41.0%	66.5%
	Did you consult the manual because:You wanted to know your system's maintenance requirements	77	31.8%	51.5%
	Did you consult the manual because:Some other reason	22	8.9%	14.5%
Total		242	100.0%	162.1%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

How helpful was the manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very helpful	67	10.0	45.0	45.0
	Somewhat helpful	70	10.4	47.0	92.1
	Not very helpful	11	1.6	7.4	99.4
	Not helpful at all	1	.1	.6	100.0
	Total	149	22.1	100.0	
Missing	DON'T KNOW/NOT SURE	1	.2		
	System	521	77.7		
	Total	522	77.9		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources:Other (specify)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	52	7.8	7.8	7.8
	Some	42	6.2	6.3	14.1
	None	570	84.9	85.9	100.0
	Total	664	98.9	100.0	
Missing	DON'T KNOW	7	1.1		
	REFUSED	0	.0		
	Total	7	1.1		
Total		671	100.0		

How much of your knowledge about sewage systems comes from the following sources:News from newspapers, radio, television

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	10	1.5	1.5	1.5
	Some	181	27.0	27.0	28.5
	None	480	71.5	71.5	100.0
	Total	671	100.0	100.0	
Missing	REFUSED	0	.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources: County Health Department or Virginia Dept. of Health

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	116	17.3	17.4	17.4
	Some	302	44.9	45.1	62.5
	None	251	37.4	37.5	100.0
	Total	669	99.7	100.0	
Missing	DON'T KNOW	2	.3		
	REFUSED	0	.0		
	Total	2	.3		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources:Local government [IF NEEDED: Other than the local health department.]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	25	3.7	3.7	3.7
	Some	143	21.2	21.3	25.0
	None	503	74.9	75.0	100.0
	Total	670	99.9	100.0	
Missing	DON'T KNOW	1	.1		
	REFUSED	0	.0		
	Total	1	.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources:Internet sources such as web sites, emails, blogs, listservs, etc.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	77	11.5	11.5	11.5
	Some	207	30.9	30.9	42.4
	None	386	57.6	57.6	100.0
	Total	671	100.0	100.0	
Missing	DON'T KNOW	0	.0		
	REFUSED	0	.0		
	Total	0	.0		
Total		671	100.0		

How much of your knowledge about sewage systems comes from the following sources:Friends, neighbors or family

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	115	17.1	17.1	17.1
	Some	295	44.0	44.0	61.1
	None	261	38.9	38.9	100.0
	Total	671	100.0	100.0	
Missing	REFUSED	0	.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources:Sewage system professionals and contractors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot	218	32.5	32.7	32.7
	Some	296	44.1	44.4	77.1
	None	152	22.7	22.9	100.0
	Total	666	99.3	100.0	
Missing	DON'T KNOW	5	.7		
	REFUSED	0	.0		
	Total	5	.7		
Total		671	100.0		

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$regmn^a	376	56.1%	295	43.9%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

\$regmn Frequencies

		Responses		Percent of Cases
		N	Percent	
How much of your knowledge about sewage systems come from^a	How much of your knowledge about sewage systems comes from the following sources:News from newspapers, radio, television	10	1.8%	2.7%
	How much of your knowledge about sewage systems comes from the following sources:County Health Department or Virginia Dept. of Health	116	20.7%	30.9%
	How much of your knowledge about sewage systems comes from the following sources:Local government [IF NEEDED: Other than the local health department.]	25	4.5%	6.6%
	How much of your knowledge about sewage systems comes from the following sources:Internet sources such as web sites, emails, blogs, listservs, etc.	77	13.8%	20.5%
	How much of your knowledge about sewage systems comes from the following sources:Friends, neighbors or family	115	20.4%	30.4%

Survey of Alternative Onsite Sewage System Issues

Segment Frequencies

		Responses		Percent of Cases
		N	Percent	
How much of your knowledge about sewage systems	How much of your knowledge about sewage systems comes from the following sources: Sewage system professionals and contractors	218	38.8%	57.9%
Total		561	100.0%	149.1%

a. Dichotomy group tabulated at value 1.

Are homeowners in your county or city required by law to have their sewage systems inspected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	264	39.3	53.0	53.0
	NO	234	34.9	47.0	100.0
	Total	498	74.2	100.0	
Missing	DON'T KNOW/NOT SURE	173	25.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Should people be required by law to have their alternative sewage system inspected?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	380	56.6	69.0	69.0
	NO [SKIP TO WHOINSP]	170	25.4	31.0	100.0
	Total	550	82.0	100.0	
Missing	DONT'S KNOW/NOT SURE [SKIP TO WHOINSP]	120	18.0		
	REFUSED [SKIP TO WHOINSP]	0	.0		
	Total	121	18.0		
Total		671	100.0		

If you agree or disagree people be required by law to have the sewage system inspected:Before selling their property

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, AGREE	336	50.1	90.4	90.4
	NO, DISAGREE	36	5.3	9.6	100.0
	Total	372	55.4	100.0	
Missing	DON'T KNOW/NOT SURE	8	1.2		
	System	291	43.4		
	Total	299	44.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

If you agree or disagree people be required by law to have the sewage system inspected: Before buying property

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, AGREE	260	38.7	70.1	70.1
	NO, DISAGREE	111	16.5	29.9	100.0
	Total	370	55.2	100.0	
Missing	DON'T KNOW/NOT SURE	10	1.5		
	System	291	43.4		
	Total	301	44.8		
Total		671	100.0		

If you agree or disagree people be required by law to have the sewage system inspected: At a fixed interval regardless of buying or selling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, AGREE	282	42.0	76.9	76.9
	NO, DISAGREE	85	12.6	23.1	100.0
	Total	366	54.6	100.0	
Missing	DON'T KNOW/NOT SURE	14	2.0		
	System	291	43.4		
	Total	305	45.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

If you agree or disagree people be required by law to have the sewage system inspected:After repairs are completed following a problem with the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, AGREE	289	43.1	79.0	79.0
	NO, DISAGREE	77	11.4	21.0	100.0
	Total	366	54.5	100.0	
Missing	DON'T KNOW/NOT SURE	14	2.1		
	System	291	43.4		
	Total	305	45.5		
Total		671	100.0		

Is there another circumstance when you believe people should be required by law to have their sewage system inspected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES specify	116	17.3	31.4	31.4
	NO	254	37.9	68.6	100.0
	Total	370	55.2	100.0	
Missing	DON'T KNOW/NOT SURE	10	1.4		
	System	291	43.4		
	Total	301	44.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$^awhenre q	378	56.4%	293	43.6%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

\$whenreq Frequencies

		Responses		Percent of Cases
		N	Percent	
People should be required by law to have their alternative sewage system inspected^a	If you agree or disagree people be required by law to have the sewage system inspected:Before selling their property	336	26.2%	88.9%
	If you agree or disagree people be required by law to have the sewage system inspected:Before buying property	260	20.2%	68.6%
	If you agree or disagree people be required by law to have the sewage system inspected:At a fixed interval regardless of buying or selling	282	22.0%	74.5%
	If you agree or disagree people be required by law to have the sewage system inspected:After repairs are completed following a problem with the system	289	22.5%	76.4%
	Is there another circumstance when you believe people should be required by law to have their sewage system inspected	116	9.1%	30.7%
Total		1283	100.0%	339.1%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

How often do you think people might be required to have their systems inspected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Every six months	4	.6	1.4	1.4
	Once a year	33	4.9	11.9	13.3
	Every 2-4 years	95	14.1	34.4	47.7
	Every 5 years	92	13.7	33.3	80.9
	Every 6-10 years	32	4.8	11.6	92.6
	Or some other interval? (SPECIFY)	21	3.1	7.4	100.0
	Total	275	41.0	100.0	
Missing	DON'T KNOW/NOT SURE	6	.9		
	System	389	58.0		
	Total	396	59.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

For a new sewage system, how long after the first use of the system do you think the first inspection should be

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	90 days	49	7.3	13.9	13.9
	6 months	52	7.7	14.7	28.6
	12 months or	142	21.2	40.4	69.0
	Inspections should not be required	33	5.0	9.5	78.5
	OTHER Specify	76	11.3	21.5	100.0
	Total	352	52.5	100.0	
Missing	DON'T KNOW/NOT SURE	28	4.1		
	System	291	43.4		
	Total	319	47.5		
Total		671	100.0		

Intro on alternative sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GO ON	671	100.0	100.0	100.0

Survey of Alternative Onsite Sewage System Issues

Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	77	11.5	12.6	12.6
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	535	79.7	87.4	100.0
	Total	612	91.2	100.0	
Missing	DON'T KNOW/NOT SURE	56	8.4		
	REFUSED	3	.4		
	Total	59	8.8		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SUPPORT	484	72.1	74.4	74.4
	OPPOSE	154	22.9	23.7	98.1
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS	13	1.9	1.9	100.0
	Total	650	96.8	100.0	
Missing	DON'T KNOW/NOT SURE	19	2.8		
	REFUSED	2	.4		
	Total	21	3.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Have you had any problems with your main sewage system at this address in the past

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	133	19.8	19.9	19.9
	NO	536	79.8	80.1	100.0
	Total	669	99.6	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	REFUSED	2	.3		
	Total	2	.4		
Total		671	100.0		

What type of problems have you had with your sewage system: Sewage leaking onto the ground surface

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	115	17.1	86.2	86.2
	SELECTED	18	2.7	13.8	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system:Sewage backing up into the house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	124	18.5	93.6	93.6
	SELECTED	9	1.3	6.4	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

What type of problems have you had with your sewage system:Water draining too slowly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	120	17.9	90.4	90.4
	SELECTED	13	1.9	9.6	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system:Septic or musty odors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	128	19.0	96.1	96.1
	SELECTED	5	.8	3.9	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

What type of problems have you had with your sewage system:Frequent alarms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	112	16.6	84.0	84.0
	SELECTED	21	3.2	16.0	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system:High operating costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	133	19.8	99.8	99.8
	SELECTED	0	.0	.2	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

What type of problems have you had with your sewage system:SOMETHING ELSE SPECIFY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	35	5.2	26.2	26.2
	SELECTED	98	14.6	73.8	100.0
	Total	133	19.8	100.0	
Missing	System	538	80.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system: DON'T KNOW/NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	133	19.8	100.0	100.0
Missing	System	538	80.2		
Total		671	100.0		

What type of problems have you had with your sewage system: REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	133	19.8	100.0	100.0
Missing	System	538	80.2		
Total		671	100.0		

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$pasttype	133	19.8%	538	80.2%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

\$pasttype Frequencies

		Responses		Percent of Cases
		N	Percent	
What type of problems have you had with your sewage^a system	What type of problems have you had with your sewage system:Sewage leaking onto the ground surface	18	11.1%	13.8%
	What type of problems have you had with your sewage system:Sewage backing up into the house	9	5.2%	6.4%
	What type of problems have you had with your sewage system:Water draining too slowly	13	7.8%	9.6%
	What type of problems have you had with your sewage system:Septic or musty odors	5	3.2%	3.9%
	What type of problems have you had with your sewage system:Frequent alarms	21	12.9%	16.0%
	What type of problems have you had with your sewage system:High operating costs	0	.2%	.2%
	What type of problems have you had with your sewage system:SOMETHING ELSE SPECIFY	98	59.6%	73.8%
Total		164	100.0%	123.8%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

Are you having any problems with your sewage system or drain field now

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	6	.9	.9	.9
	NO	661	98.5	99.1	100.0
	Total	666	99.3	100.0	
Missing	DON'T KNOW/NOT SURE	2	.3		
	REFUSED	2	.3		
	Total	5	.7		
Total		671	100.0		

What type of problems are you having with your sewage system or drain field now:Sewage leaking onto the ground surface

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	5	.8	95.3	95.3
	SELECTED	0	.0	4.7	100.0
	Total	6	.9	100.0	
Missing	System	665	99.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now:Sewage backing up into the house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	6	.9	100.0	100.0
Missing	System	665	99.1		
Total		671	100.0		

What type of problems are you having with your sewage system or drain field now:Water draining too slowly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	5	.8	95.3	95.3
	SELECTED	0	.0	4.7	100.0
	Total	6	.9	100.0	
Missing	System	665	99.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now:Septic or musty Odors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	6	.8	97.7	97.7
	SELECTED	0	.0	2.3	100.0
	Total	6	.9	100.0	
Missing	System	665	99.1		
Total		671	100.0		

What type of problems are you having with your sewage system or drain field now:Frequent alarms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	5	.8	95.3	95.3
	SELECTED	0	.0	4.7	100.0
	Total	6	.9	100.0	
Missing	System	665	99.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now:High operating costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	6	.9	100.0	100.0
Missing	System	665	99.1		
Total		671	100.0		

What type of problems are you having with your sewage system or drain field now:SOMETHING ELSE SPECIFY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	1	.1	9.4	9.4
	SELECTED	5	.8	90.6	100.0
	Total	6	.9	100.0	
Missing	System	665	99.1		
Total		671	100.0		

What type of problems are you having with your sewage system or drain field now:DON'T KNOW/NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	6	.9	100.0	100.0
Missing	System	665	99.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now:REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	6	.9	100.0	100.0
Missing	System	665	99.1		
Total		671	100.0		

Case Summary^b

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
\$probtpe	6	.9%	665	99.1%	671	100.0%

a. Dichotomy group tabulated at value 1.

b. Fractional values were found. They are truncated to integers.

Survey of Alternative Onsite Sewage System Issues

Problem Type Frequencies

		Responses		Percent of Cases
		N	Percent	
What type of problems are you having with your sewage system or drain field^a now	What type of problems are you having with your sewage system or drain field now: Sewage leaking onto the ground surface	0	4.4%	4.7%
	What type of problems are you having with your sewage system or drain field now: Water draining too slowly	0	4.4%	4.7%
	What type of problems are you having with your sewage system or drain field now: Septic or musty Odors	0	2.1%	2.3%
	What type of problems are you having with your sewage system or drain field now: Frequent alarms	0	4.4%	4.7%
	What type of problems are you having with your sewage system or drain field now: SOMETHING ELSE SPECIFY	5	84.6%	90.6%
Total		6	100.0%	107.0%

a. Dichotomy group tabulated at value 1.

Survey of Alternative Onsite Sewage System Issues

How many times has your sewage system failed since you have lived at this residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ONE TIME	61	9.1	9.2	9.2
	TWO TIMES	10	1.5	1.5	10.7
	THREE TIMES	2	.4	.4	11.1
	MORE THAN THREE TIMES	2	.4	.4	11.4
	NEVER	592	88.3	88.6	100.0
	Total	669	99.7	100.0	
Missing	REFUSED	2	.3		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How old was this system when it first failed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN ONE YEAR OLD	21	3.2	29.4	29.4
	1-3 YEARS OLD	9	1.3	12.3	41.6
	4-6 YEARS OLD	8	1.2	10.8	52.5
	6-10 YEARS OLD	3	.5	4.2	56.6
	11-20 YEARS OLD	6	.9	7.9	64.6
	MORE THAN 20 YEARS OLD	26	3.9	35.4	100.0
	Total	73	10.9	100.0	
Missing	DON'T KNOW/NOT SURE	3	.5		
	System	595	88.6		
	Total	598	89.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How often has the alarm on your sewage system sounded indicating a possible problem

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ONE TIME	80	12.0	23.1	23.1
	TWO TIMES	20	3.0	5.8	28.9
	THREE TIMES	14	2.1	4.1	33.1
	MORE THAN THREE TIMES	40	6.0	11.7	44.7
	NEVER SOUNDED	183	27.3	52.7	97.4
	DO NOT HAVE AN ALARM	9	1.3	2.6	100.0
	Total	347	51.8	100.0	
Missing	DON'T KNOW/NOT SURE	6	.9		
	REFUSED	2	.3		
	System	315	47.0		
	Total	324	48.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How much inconvenience have you experienced as a result of the alarms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot of inconvenience	21	3.1	13.2	13.2
	Some inconvenience	53	7.9	34.0	47.2
	No inconvenience	82	12.2	52.8	100.0
	Total	155	23.2	100.0	
Missing	System	516	76.8		
Total		671	100.0		

How satisfied are you with your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very satisfied	578	86.1	86.8	86.8
	Somewhat satisfied	70	10.4	10.5	97.2
	Somewhat dissatisfied	12	1.7	1.7	99.0
	Very dissatisfied	7	1.0	1.0	100.0
	Total	666	99.3	100.0	
Missing	DON'T KNOW/NOT SURE	3	.4		
	REFUSED	2	.3		
	Total	5	.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with:Overall construction and installation costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	15	2.3	83.9	83.9
	SELECTED	3	.4	16.1	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with:Maintenance costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	17	2.5	90.2	90.2
	SELECTED	2	.3	9.8	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with:Frequency of pump outs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	96.4	96.4
	SELECTED	1	.1	3.6	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with:Cost of pump outs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	96.4	96.4
	SELECTED	1	.1	3.6	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with:ALARMS (GOING OFF TOO FREQUENTLY, NOT WORKING, ETC.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	11	1.7	61.0	61.0
	SELECTED	7	1.1	39.0	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with:Reliability of your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	17	2.6	94.2	94.2
	SELECTED	1	.2	5.8	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with: Visual appearance of the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	96.4	96.4
	SELECTED	1	.1	3.6	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with: Control of odors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	98.6	98.6
	SELECTED	0	.0	1.4	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with:Noise levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	97.1	97.1
	SELECTED	1	.1	2.9	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with:Response time for service calls

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.7	98.5	98.5
	SELECTED	0	.0	1.5	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with:Quality of maintenance providers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	16	2.4	87.1	87.1
	SELECTED	2	.4	12.9	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

What are you dissatisfied with:Knowledge displayed by maintenance providers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	16	2.4	87.8	87.8
	SELECTED	2	.3	12.2	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What are you dissatisfied with: Number of maintenance providers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.8	100.0	100.0
Missing	System	653	97.2		
Total		671	100.0		

OTHER (SPECIFY)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	9	1.4	49.3	49.3
	SELECTED	9	1.4	50.7	100.0
	Total	18	2.8	100.0	
Missing	System	653	97.2		
Total		671	100.0		

DON'T KNOW OR NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	18	2.8	100.0	100.0
Missing	System	653	97.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How reliable is your sewage system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very reliable	623	92.8	93.7	93.7
	Somewhat reliable	39	5.8	5.9	99.6
	Somewhat unreliable	2	.4	.4	100.0
	Very unreliable	0	.0	.0	100.0
	Total	665	99.0	100.0	
Missing	DON'T KNOW/NOT SURE	4	.6		
	REFUSED	2	.3		
	Total	6	1.0		
Total		671	100.0		

POWER FAILURES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	98.0	98.0
	SELECTED	0	.0	2.0	100.0
	Total	3	.4	100.0	
Missing	System	668	99.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

FREEZING TEMPERATURES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

HEAVY RAIN OR PERIODS OF WET WEATHER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

LARGE GATHERINGS AT YOUR HOUSE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

DUMMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

DUMMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

DUMMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

DUMMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

DUMMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

OTHER (SPECIFY)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	0	.0	11.6	11.6
	SELECTED	2	.4	88.4	100.0
	Total	3	.4	100.0	
Missing	System	668	99.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

DON'T KNOW OR NOT SURE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	90.3	90.3
	SELECTED	0	.0	9.7	100.0
	Total	3	.4	100.0	
Missing	System	668	99.6		
Total		671	100.0		

REFUSED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT SELECTED	3	.4	100.0	100.0
Missing	System	668	99.6		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How long have you been living in your current residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN 2 YEARS	72	10.7	10.8	10.8
	2-5 YEARS	344	51.3	51.5	62.3
	6-10 YEARS	90	13.4	13.5	75.8
	11-20 YEARS	80	11.9	11.9	87.7
	MORE THAN 20 YEARS	82	12.3	12.3	100.0
	Total	668	99.5	100.0	
Missing	DON'T KNOW/NOT SURE	0	.0		
	REFUSED	1	.1		
	System	2	.4		
	Total	3	.5		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Is the property where you live used year round or seasonally

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YEAR ROUND	663	98.8	99.2	99.2
	SEASONALLY	5	.8	.8	100.0
	Total	668	99.6	100.0	
Missing	REFUSED	0	.0		
	System	2	.4		
	Total	3	.4		
Total		671	100.0		

When was the house built

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1765	2	.3	.3	.3
	1790	2	.3	.3	.7
	1794	0	.0	.0	.7
	1800	3	.5	.5	1.3
	1822	0	.0	.0	1.3
	1890	3	.4	.4	1.7
	1895	3	.5	.5	2.2
	1897	0	.0	.0	2.2
	1900	10	1.4	1.5	3.7
	1902	3	.4	.4	4.1

Survey of Alternative Onsite Sewage System Issues

When was the house built

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1910	0	.0	.0	4.1
	1916	3	.5	.5	4.7
	1920	3	.5	.5	5.2
	1932	2	.3	.3	5.5
	1936	2	.3	.3	5.8
	1937	0	.0	.0	5.8
	1938	1	.1	.1	5.9
	1940	0	.1	.1	6.0
	1944	2	.3	.3	6.2
	1950	4	.6	.6	6.9
	1952	0	.0	.0	6.9
	1954	2	.3	.3	7.2
	1956	2	.3	.3	7.5
	1958	4	.6	.6	8.1
	1959	2	.3	.3	8.4
	1960	7	1.0	1.0	9.4
	1962	4	.6	.6	10.0
	1963	3	.5	.5	10.5
	1964	0	.0	.0	10.5
	1965	7	1.0	1.0	11.5
1966	0	.0	.0	11.6	

Survey of Alternative Onsite Sewage System Issues

When was the house built

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1967	0	.0	.0	11.6
	1968	2	.3	.3	12.0
	1969	3	.4	.4	12.4
	1970	6	.9	.9	13.3
	1971	2	.3	.3	13.5
	1972	2	.3	.4	13.9
	1973	9	1.3	1.4	15.2
	1974	8	1.2	1.2	16.4
	1975	5	.7	.7	17.1
	1976	5	.7	.7	17.8
	1977	0	.0	.0	17.9
	1978	3	.4	.4	18.3
	1979	6	.9	1.0	19.2
	1980	0	.1	.1	19.3
	1981	6	.9	.9	20.2
	1982	3	.5	.5	20.7
	1983	2	.3	.3	21.0
	1984	0	.0	.0	21.0
	1985	2	.3	.3	21.4
	1986	5	.7	.7	22.1
1987	6	.9	1.0	23.0	

Survey of Alternative Onsite Sewage System Issues

When was the house built

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1989	3	.4	.4	23.4
	1990	7	1.0	1.1	24.5
	1991	4	.6	.6	25.1
	1992	6	.8	.9	26.0
	1993	3	.4	.4	26.4
	1994	9	1.4	1.4	27.8
	1995	12	1.8	1.8	29.6
	1996	13	1.9	2.0	31.6
	1997	1	.1	.1	31.7
	1998	8	1.2	1.3	33.0
	1999	7	1.1	1.1	34.1
	2000	8	1.2	1.2	35.3
	2001	10	1.5	1.5	36.8
	2002	21	3.1	3.2	40.0
	2003	18	2.7	2.8	42.8
	2004	64	9.6	9.9	52.6
	2005	101	15.0	15.4	68.0
	2006	124	18.5	19.0	87.1
	2007	52	7.8	8.0	95.0
	2008	29	4.4	4.5	99.5
	2009	3	.5	.5	100.0

Survey of Alternative Onsite Sewage System Issues

When was the house built

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Total	653	97.3	100.0	
Missing	FOR DON'T KNOW	15	2.3		
	FOR REFUSAL	1	.1		
	System	2	.4		
	Total	18	2.7		
Total		671	100.0		

What size lot do you own

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 acre	88	13.0	13.4	13.4
	1 acre to 3 acres	273	40.6	41.6	54.9
	More than 3 acres	295	44.0	45.1	100.0
	Total	655	97.7	100.0	
Missing	DON'T KNOW/NOT SURE	9	1.3		
	REFUSED	4	.6		
	System	2	.4		
	Total	16	2.3		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

How many people live in your household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	30	4.5	4.5	4.5
	2	258	38.4	38.6	43.1
	3	124	18.4	18.5	61.6
	4	140	20.9	21.0	82.6
	5	61	9.1	9.1	91.7
	6	25	3.7	3.7	95.5
	7	8	1.2	1.2	96.7
	8	6	.9	.9	97.6
	10	3	.5	.5	98.1
	12	3	.4	.4	98.5
	98	0	.0	.0	98.5
	99	10	1.5	1.5	100.0
	Total		669	99.6	100.0
Missing	System	2	.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Would you describe the amount of usage of your household sewage system as

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Light	308	45.9	47.0	47.0
	Moderate OR	293	43.6	44.7	91.7
	Heavy	54	8.1	8.3	100.0
	Total	655	97.6	100.0	
Missing	DON'T KNOW/NOT SURE	9	1.4		
	REFUSED	4	.7		
	System	2	.4		
	Total	16	2.4		
Total		671	100.0		

Confirm your gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	432	64.4	64.8	64.8
	FEMALE	234	34.9	35.2	100.0
	Total	666	99.3	100.0	
Missing	DON'T KNOW/Refused	2	.3		
	System	2	.4		
	Total	5	.7		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

In what year were you born

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19	0	.0	.0	.0
	22	2	.3	.4	.4
	24	0	.0	.0	.4
	25	0	.0	.0	.5
	27	3	.4	.5	.9
	28	5	.8	.8	1.8
	29	2	.3	.4	2.1
	30	5	.8	.8	3.0
	31	0	.0	.0	3.0
	32	1	.1	.1	3.1
	33	5	.7	.8	3.9
	34	4	.6	.6	4.5
	35	7	1.0	1.1	5.6
	36	9	1.3	1.4	7.0
	37	1	.1	.1	7.1
	38	4	.6	.6	7.7
	39	8	1.3	1.3	9.0
	40	10	1.6	1.6	10.7
	41	9	1.3	1.4	12.1
	42	12	1.7	1.8	13.9
	43	3	.5	.5	14.4

Survey of Alternative Onsite Sewage System Issues

In what year were you born

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	44	1	.2	.2	14.6
	45	6	.9	.9	15.6
	46	18	2.7	2.8	18.4
	47	9	1.3	1.4	19.8
	48	13	1.9	2.0	21.8
	49	20	3.0	3.1	24.9
	50	12	1.8	1.9	26.8
	51	21	3.1	3.3	30.1
	52	13	2.0	2.1	32.2
	53	34	5.0	5.3	37.5
	54	21	3.1	3.3	40.8
	55	31	4.7	4.9	45.7
	56	30	4.4	4.7	50.4
	57	14	2.1	2.3	52.7
	58	28	4.1	4.3	57.0
	59	16	2.4	2.5	59.5
	60	20	2.9	3.1	62.6
	61	25	3.7	3.9	66.5
	62	19	2.8	2.9	69.4
	63	12	1.9	2.0	71.4
	64	20	3.0	3.2	74.5

Survey of Alternative Onsite Sewage System Issues

In what year were you born

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	65	15	2.3	2.4	77.0
	66	16	2.3	2.5	79.4
	67	15	2.2	2.3	81.7
	68	21	3.1	3.2	85.0
	69	23	3.5	3.7	88.6
	70	20	3.0	3.2	91.8
	71	12	1.8	1.9	93.7
	72	3	.4	.5	94.1
	73	8	1.2	1.3	95.4
	74	7	1.0	1.1	96.5
	75	3	.5	.5	97.0
	76	5	.8	.8	97.8
	77	3	.5	.5	98.3
	78	5	.7	.7	99.1
	79	1	.1	.1	99.2
	80	0	.1	.1	99.2
	81	1	.1	.1	99.3
	82	0	.0	.0	99.4
	83	4	.6	.6	100.0
	85	0	.0	.0	100.0
	Total	635	94.6	100.0	

Survey of Alternative Onsite Sewage System Issues

In what year were you born

		Frequency	Percent	Valid Percent	Cumulative Percent
Missing	REFUSED	34	5.0		
	System	2	.4		
	Total	36	5.4		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What is the highest level of education you have completed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ELEMENTARY SCHOOL OR LESS	0	.0	.0	.0
	MIDDLE SCHOOL	3	.5	.5	.5
	SOME HIGH SCHOOL, DID NOT FINISH	8	1.2	1.2	1.7
	COMPLETED HIGH SCHOOL	111	16.5	16.9	18.6
	SOME COLLEGE, DID NOT FINISH	66	9.9	10.1	28.8
	2-YEAR COLLEGE DEGREE (AA, AS)	40	5.9	6.0	34.8
	TECHNICAL SCHOOL OR TRADE SCHOOL	15	2.2	2.2	37.0
	4-YEAR COLLEGE DEGREE (BA, BS)	211	31.5	32.1	69.2
	SOME GRADUATE WORK	16	2.4	2.5	71.6
	COMPLETED MASTERS OR PROFESSIONAL DEGREE	151	22.6	23.1	94.7
	ADVANCED GRADUATE WORK OR PHD	35	5.2	5.3	100.0
	Total	657	97.9	100.0	
Missing	REFUSED	12	1.7		
	System	2	.4		
	Total	14	2.1		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Do you consider yourself to be of Hispanic origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	12	1.7	1.8	1.8
	NO	651	97.1	98.2	100.0
	Total	663	98.8	100.0	
Missing	REFUSED	6	.8		
	System	2	.4		
	Total	8	1.2		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

What category best describes you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	592	88.2	91.9	91.9
	African American / Black	32	4.7	4.9	96.8
	Asian? [INCLUDING SOUTH ASIAN]	6	.9	.9	97.7
	American Indian? [NATIVE AMERICAN INCLUDES ESKIMO, ALEUT]	11	1.6	1.7	99.4
	Pacific Islander?	0	.0	.1	99.5
	MULTI-RACIAL [RECORD IN THE ORDER GIVEN BY RESPONDENT]	1	.1	.1	99.6
	OTHER [SPECIFY]	0	.0	.0	99.6
	HISPANIC ONLY	2	.3	.4	100.0
	Total	644	96.0	100.0	
Missing	REFUSED / NO ANSWER	24	3.6		
	System	2	.4		
	Total	27	4.0		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

The range that best describes your annual household income from all sources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 10 thousand? [\$0 - \$9,999]	1	.1	.1	.1
	Ten to less than 30 thousand? [\$10,000-\$29,999]	22	3.3	4.6	4.7
	Thirty to less than 50 thousand? [\$30,000-\$49,999]	32	4.7	6.4	11.1
	Fifty to less than 70 thousand? [\$50,000-\$69,999]	63	9.4	12.8	23.9
	Seventy to less than 100 thousand? [\$70,000-\$99,999]	93	13.9	19.0	42.9
	One hundred thousand or more? [\$100,000 or more]	280	41.7	57.1	100.0
	Total	490	73.1	100.0	
Missing	DON'T KNOW/NOT SURE	11	1.7		
	REFUSED	167	24.9		
	System	2	.4		
	Total	181	26.9		
Total		671	100.0		

Survey of Alternative Onsite Sewage System Issues

Thanks again. Goodbye

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GO ON	669	99.6	100.0	100.0
Missing	System	2	.4		
Total		671	100.0		

APPENDIX B

DEMOGRAPHIC CROSSTABULATION TABLES

Note: Crosstabulation tables show unweighted Ns and weighted percents. Unweighted Ns are actual counts of survey cases intended to allow readers to get a sense of the likely precision of weighted percentages, which ultimately rest on those underlying counts. But because the percents are calculated from weighted data, they will not match the percents one might calculate from the unweighted Ns. In some cases the differences will be large. Do not attempt to calculate weighted percents from unweighted Ns..

Survey of Alternative Onsite Sewage System Issues

		Region										Total	
		NW		NoVa		SW		Central		Eastern		uN	w%
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%		
Listed system type (in VENIS or local lists)	Alternative	92	20.7%	107	7.1%	93	4.7%	91	18.4%	56	22.9%	439	12.0%
	Conventional	27	79.3%	123	92.9%	31	95.3%	31	81.6%	20	77.1%	232	88.0%
Total		119	100.0%	230	100.0%	124	100.0%	122	100.0%	76	100.0%	671	100.0%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	77	53.1%	190	85.0%	88	78.4%	93	74.5%	52	62.1%	500	74.7%
	You only react when problems occur	39	46.9%	34	15.0%	28	21.6%	26	25.5%	21	37.9%	148	25.3%
Total		116	100.0%	224	100.0%	116	100.0%	119	100.0%	73	100.0%	648	100.0%
Confirm your gender	MALE	95	75.8%	157	65.4%	88	61.9%	83	69.8%	44	45.6%	467	64.8%
	FEMALE	23	24.2%	71	34.6%	35	38.1%	37	30.2%	32	54.4%	198	35.2%
Total		118	100.0%	228	100.0%	123	100.0%	120	100.0%	76	100.0%	665	100.0%
Respondent education (recoded)	High school or less	28	28.0%	14	7.2%	19	22.1%	24	19.5%	31	40.2%	116	18.3%
	Some college, 2-year degree	29	20.1%	25	11.4%	25	22.4%	28	20.3%	22	33.1%	129	18.1%
	College grad	27	25.1%	94	41.0%	43	35.5%	42	32.9%	14	19.5%	220	34.0%
	Graduate or professional degree	31	23.2%	93	38.8%	35	19.9%	23	24.1%	8	6.7%	190	27.9%
	REF	4	3.6%	3	1.6%	1	.1%	4	3.2%	1	.4%	13	1.7%
Total		119	100.0%	229	100.0%	123	100.0%	121	100.0%	76	100.0%	668	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region										Total	
		NW		NoVa		SW		Central		Eastern			
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
What size lot do you own	Less than 1 acre	18	9.6%	30	12.5%	25	13.4%	12	17.1%	18	20.1%	103	13.4%
	1 acre to 3 acres	33	26.6%	88	36.1%	53	54.2%	73	68.5%	32	46.2%	279	41.6%
	More than 3 acres	64	63.8%	108	51.4%	43	32.5%	35	14.4%	22	33.7%	272	45.1%
Total		115	100.0%	226	100.0%	121	100.0%	120	100.0%	72	100.0%	654	100.0%

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Region	NW	92	30.8%	27	16.1%
	NoVa	107	26.5%	123	47.4%
	SW	93	6.3%	31	17.6%
	Central	91	14.8%	31	9.0%
	Eastern	56	21.6%	20	9.9%
Total		439	100.0%	232	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	331	77.3%	169	74.4%
	You only react when problems occur	95	22.7%	53	25.6%
Total		426	100.0%	222	100.0%
Confirm your gender	MALE	320	73.7%	147	63.6%
	FEMALE	115	26.3%	83	36.4%
Total		435	100.0%	230	100.0%
Respondent education (recoded)	High school or less	78	20.6%	38	18.0%
	Some college, 2-year degree	90	21.4%	39	17.6%
	College grad	138	28.9%	82	34.7%
	Graduate or professional degree	122	26.9%	68	28.0%
	REF	9	2.2%	4	1.7%
Total		437	100.0%	231	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
What size lot do you own	Less than 1 acre	73	17.7%	30	12.8%
	1 acre to 3 acres	182	41.0%	97	41.7%
	More than 3 acres	172	41.3%	100	45.6%
Total		427	100.0%	227	100.0%

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Region	NW	77	12.5%	39	32.7%
	NoVa	190	52.1%	34	27.3%
	SW	88	16.2%	28	13.2%
	Central	93	9.8%	26	9.9%
	Eastern	52	9.4%	21	17.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		500	100.0%	148	100.0%
Listed system type (in VENIS or local lists)	Alternative	331	12.7%	95	11.0%
	Conventional	169	87.3%	53	89.0%
Total		500	100.0%	148	100.0%
Confirm your gender	MALE	354	65.9%	102	64.6%
	FEMALE	141	34.1%	46	35.4%
Total		495	100.0%	148	100.0%
Respondent education (recoded)	High school or less	78	15.8%	33	25.0%
	Some college, 2-year degree	90	17.0%	36	24.4%
	College grad	165	35.4%	46	29.7%
	Graduate or professional degree	156	31.1%	30	17.2%
	REF	8	.7%	3	3.8%
Total		497	100.0%	148	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
What size lot do you own	Less than 1 acre	80	15.3%	19	8.5%
	1 acre to 3 acres	209	42.6%	59	34.7%
	More than 3 acres	199	42.1%	65	56.8%
Total		488	100.0%	143	100.0%

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Region	NW	95	21.0%	23	12.4%
	NoVa	157	45.2%	71	44.1%
	SW	88	15.6%	35	17.7%
	Central	83	10.2%	37	8.1%
	Eastern	44	8.0%	32	17.7%
Total		467	100.0%	198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Listed system type (in VENIS or local lists)	Alternative	320	13.7%	115	9.0%
	Conventional	147	86.3%	83	91.0%
Total		467	100.0%	198	100.0%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	354	75.0%	141	73.9%
	You only react when problems occur	102	25.0%	46	26.1%
Total		456	100.0%	187	100.0%
Respondent education (recoded)	High school or less	79	16.7%	37	21.4%
	Some college, 2-year degree	87	16.3%	42	21.6%
	College grad	158	35.9%	62	30.9%
	Graduate or professional degree	136	29.5%	54	25.1%
	REF	7	1.6%	3	1.1%
Total		467	100.0%	198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
What size lot do you own	Less than 1 acre	76	13.6%	27	13.0%
	1 acre to 3 acres	195	39.4%	83	45.3%
	More than 3 acres	191	47.0%	81	41.7%
Total		462	100.0%	191	100.0%

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Region	NW	28	27.5%	29	19.9%	27	13.2%	31	15.0%	4	37.5%
	NoVa	14	17.5%	25	28.1%	94	53.9%	93	62.2%	3	41.1%
	SW	19	19.7%	25	20.2%	43	17.0%	35	11.6%	1	.5%
	Central	24	10.3%	28	10.9%	42	9.4%	23	8.4%	4	18.2%
	Eastern	31	25.0%	22	20.8%	14	6.5%	8	2.7%	1	2.7%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Listed system type (in VENIS or local lists)	Alternative	78	13.6%	90	14.2%	138	10.2%	122	11.6%	9	15.3%
	Conventional	38	86.4%	39	85.8%	82	89.8%	68	88.4%	4	84.7%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	78	65.0%	90	67.3%	165	77.8%	156	84.2%	8	36.3%
	You only react when problems occur	33	35.0%	36	32.7%	46	22.2%	30	15.8%	3	63.7%
Total		111	100.0%	126	100.0%	211	100.0%	186	100.0%	11	100.0%
Confirm your gender	MALE	79	59.1%	87	58.2%	158	68.2%	136	68.5%	7	73.0%
	FEMALE	37	40.9%	42	41.8%	62	31.8%	54	31.5%	3	27.0%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	10	100.0%
What size lot do you own	Less than 1 acre	18	10.2%	21	15.1%	32	15.2%	32	12.6%		
	1 acre to 3 acres	41	30.6%	60	53.3%	97	38.0%	74	42.8%	7	98.5%
	More than 3 acres	54	59.1%	45	31.6%	91	46.8%	81	44.6%	1	1.5%
Total		113	100.0%	126	100.0%	220	100.0%	187	100.0%	8	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Region	NW	18	13.0%	33	11.6%	64	25.7%
	NoVa	30	42.4%	88	39.2%	108	51.5%
	SW	25	16.6%	53	21.6%	43	12.0%
	Central	12	12.6%	73	16.3%	35	3.2%
	Eastern	18	15.4%	32	11.3%	22	7.6%
Total		103	100.0%	279	100.0%	272	100.0%
Listed system type (in VENIS or local lists)	Alternative	73	15.9%	182	11.8%	172	11.0%
	Conventional	30	84.1%	97	88.2%	100	89.0%
Total		103	100.0%	279	100.0%	272	100.0%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	80	84.4%	209	78.8%	199	69.2%
	You only react when problems occur	19	15.6%	59	21.2%	65	30.8%
Total		99	100.0%	268	100.0%	264	100.0%
Confirm your gender	MALE	76	66.9%	195	62.8%	191	68.6%
	FEMALE	27	33.1%	83	37.2%	81	31.4%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Total		103	100.0%	278	100.0%	272	100.0%
Respondent education (recoded)	High school or less	18	13.6%	41	13.1%	54	23.3%
	Some college, 2-year degree	21	20.3%	60	23.0%	45	12.6%
	College grad	32	39.4%	97	31.7%	91	36.0%
	Graduate or professional degree	32	26.8%	74	29.2%	81	28.1%
	REF			7	3.1%	1	.0%
Total		103	100.0%	279	100.0%	272	100.0%

APPENDIX C

SUBSTANTIVE CROSSTABULATION TABLES

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Number of sewage systems on your property	ONE	116	93.9%	223	96.8%	119	93.7%	121	97.4%	72	98.4%
	TWO	3	6.1%	7	3.2%	5	6.3%	1	2.6%	4	1.6%
Total		119	100.0%	230	100.0%	124	100.0%	122	100.0%	76	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	52	38.9%	152	61.8%	36	32.1%	74	64.5%	22	28.5%
	Talked about the system with an engineer, builder or contractor	29	28.3%	41	20.6%	32	28.8%	26	18.4%	28	38.7%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	31	28.7%	30	13.0%	49	29.7%	18	11.5%	22	28.5%
	Installed the system yourself	6	4.1%	6	4.5%	6	9.4%	2	5.6%	1	4.2%
Total		118	100.0%	229	100.0%	123	100.0%	120	100.0%	73	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Who designed your system	Health department	10	22.2%	12	10.5%	36	65.8%	14	28.7%	12	37.8%
	Engineer	39	27.5%	39	26.1%	30	5.6%	31	42.3%	17	20.5%
	Onsite Soil Evaluator or did the	4	8.9%	3	2.6%	5	4.0%	2	4.7%	1	.6%
	Engineer and Onsite Soil Evaluator working together	17	13.0%	39	24.9%	22	8.8%	15	13.0%	13	23.1%
	OTHER specify ____	18	28.5%	45	35.9%	12	15.7%	10	11.3%	13	18.0%
Total		88	100.0%	138	100.0%	105	100.0%	72	100.0%	56	100.0%
Does your system have a pump	YES	89	42.8%	182	72.6%	77	22.7%	84	46.8%	49	50.6%
	NO	27	57.2%	41	27.4%	44	77.3%	29	53.2%	21	49.4%
Total		116	100.0%	223	100.0%	121	100.0%	113	100.0%	70	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	73	55.0%	167	71.5%	76	58.4%	86	57.7%	39	50.8%
	NO	43	45.0%	60	28.5%	45	41.6%	30	42.3%	35	49.2%
Total		116	100.0%	227	100.0%	121	100.0%	116	100.0%	74	100.0%
Age of current system (calculated) (recoded)	Less than one year old	8	4.7%			8	3.5%	2	.4%	5	6.3%
	1-3 years	53	48.7%	69	26.3%	65	40.8%	71	34.1%	32	42.7%
	4-6 years	39	31.5%	97	43.6%	32	23.5%	26	24.2%	15	11.0%
	7-10 yrs	7	4.4%	21	7.0%	3	3.3%	4	8.8%	7	15.1%
	11-20 yrs	6	7.0%	18	8.9%	8	19.1%	5	11.7%	2	4.9%
	More than 20 yrs	4	3.7%	23	14.1%	7	9.7%	10	20.7%	9	20.0%
Total		117	100.0%	228	100.0%	123	100.0%	118	100.0%	70	100.0%
Are there parts of your sewage system that were added or updated later	YES	13	13.8%	23	9.8%	12	12.7%	14	28.0%	15	27.0%
	NO	106	86.2%	205	90.2%	112	87.3%	104	72.0%	59	73.0%
Total		119	100.0%	228	100.0%	124	100.0%	118	100.0%	74	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were they done	1986			1	.7%						
	1994	1	1.6%								
	1995			1	.7%						
	1998			1	7.7%						
	1999					1	24.2%				
	2000									1	1.6%
	2001									3	18.0%
	2003							1	9.8%	1	14.8%
	2004			1	7.7%					1	14.8%
	2005							2	10.5%	1	14.8%
	2006	1	21.3%	4	16.8%	2	24.6%				
	2007	5	47.5%	3	16.1%	3	48.8%	6	49.6%	1	1.6%
	2008	3	4.9%	5	10.4%	1	.4%	1	9.8%	4	19.6%
2009											
		3	24.6%	7	39.9%	5	2.0%	3	20.3%	1	14.8%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		13	100.0%	23	100.0%	12	100.0%	13	100.0%	13	100.0%
Length of personal use of current system (calculated) (recoded)	Less than one year	8	4.5%	9	4.0%	8	.4%	4	3.2%	9	7.1%
	1-3 years	61	49.0%	80	29.4%	71	48.9%	81	45.5%	32	40.7%
	4-6 years	31	28.7%	96	42.9%	28	22.6%	21	18.8%	15	13.0%
	7-10 yrs	10	10.4%	20	6.8%	7	12.5%	3	5.5%	10	14.4%
	11-20 yrs	4	3.6%	16	10.7%	6	9.4%	4	8.1%	4	12.0%
	More than 20 yrs	4	3.6%	9	6.1%	4	6.3%	6	13.4%	5	8.9%
	DK	1	.2%					2	2.8%	1	3.9%
	Ref							1	2.6%		
Total		119	100.0%	230	100.0%	124	100.0%	122	100.0%	76	100.0%
Are you aware of any legal obligations for using your sewage system	YES	31	22.1%	101	38.0%	38	15.0%	45	44.5%	19	26.5%
	NO	81	77.9%	123	62.0%	79	85.0%	71	55.5%	52	73.5%
Total		112	100.0%	224	100.0%	117	100.0%	116	100.0%	71	100.0%
Do you know where your sewage system is located	YES	111	99.8%	223	100.0%	117	100.0%	117	100.0%	72	100.0%
	NO	1	.2%								
Total		112	100.0%	223	100.0%	117	100.0%	117	100.0%	72	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	77	53.1%	190	85.0%	88	78.4%	93	74.5%	52	62.1%
	You only react when problems occur	39	46.9%	34	15.0%	28	21.6%	26	25.5%	21	37.9%
Total		116	100.0%	224	100.0%	116	100.0%	119	100.0%	73	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage	YES	30	9.5%	60	19.1%	41	2.1%	53	13.9%	22	9.1%
	NO	89	90.5%	170	80.9%	83	97.9%	66	86.1%	52	90.9%
Total		119	100.0%	230	100.0%	124	100.0%	119	100.0%	74	100.0%
How much does your maintenance contract cost per year	\$0 to \$299	11	63.9%	12	14.4%	11	36.7%	19	45.2%	5	45.5%
	\$300 to \$499	11	30.5%	22	46.2%	14	46.7%	23	54.8%	5	45.5%
	\$500 to \$799	1	2.8%	12	28.1%	3	10.0%			1	9.1%
	\$800 or more	1	2.8%	5	11.3%	2	6.7%				
Total		24	100.0%	51	100.0%	30	100.0%	42	100.0%	11	100.0%
In your opinion, is this amount	Very expensive	8	23.5%	13	30.0%	6	21.4%	6	15.8%	3	27.3%
	Somewhat expensive	7	20.6%	19	28.0%	16	57.1%	17	44.7%	1	9.1%
	Somewhat inexpensive	6	53.0%	15	31.0%	5	17.9%	5	13.2%	5	45.5%
	Very inexpensive	1	2.9%	3	11.0%	1	3.6%	10	26.3%	2	18.2%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		22	100.0%	50	100.0%	28	100.0%	38	100.0%	11	100.0%
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	24	55.8%	94	85.8%	14	31.4%	21	76.5%	22	78.0%
	NO	9	44.2%	9	6.5%	15	61.1%	8	13.0%	6	22.0%
	BEEN HERE LESS THAN FIVE YEARS VOLUNTEERED			8	7.7%	1	7.5%	2	10.5%		
Total		33	100.0%	111	100.0%	30	100.0%	31	100.0%	28	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	12	66.7%	45	52.2%	10	75.1%	10	56.1%	15	80.9%
	2	4	5.5%	24	25.5%	1	.4%	4	21.2%	5	16.6%
	3			5	7.0%					1	1.2%
	4			4	5.3%			3	14.3%		
	5	4	22.2%	5	5.5%	1	.4%	2	1.1%		
	6	1	1.4%	1	.2%	1	24.1%	2	7.4%	1	1.2%
	7			1	.2%						
	8			1	.2%						
	9			1	1.7%						
	10	3	4.2%	1	.2%						
	11			1	1.7%						
	20			1	.2%						
	52			1	.2%						
	54			1	.2%						
	Total		24	100.0%	92	100.0%	13	100.0%	21	100.0%	22

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	5	6.9%	9	10.7%			5	9.0%	1	1.2%
	WITHIN THE LAST SIX MONTHS	5	6.9%	32	28.3%	4	1.6%	3	20.6%	5	6.2%
	WITHIN THE LAST YEAR	2	2.8%	16	14.9%	2	24.4%	4	14.8%	4	4.9%
	1-2 YEARS	8	27.8%	24	27.1%	5	25.6%	5	28.0%	7	39.9%
	MORE THAN 2 YEARS	4	55.6%	12	19.0%	3	48.4%	4	27.5%	5	47.8%
Total		24	100.0%	93	100.0%	14	100.0%	21	100.0%	22	100.0%
Has routine maintenance ever been performed on your system	YES			2	24.5%	2	24.7%	4	87.5%	2	8.8%
	NO	9	100.0%	7	75.5%	12	75.3%	4	12.5%	4	91.2%
Total		9	100.0%	9	100.0%	14	100.0%	8	100.0%	6	100.0%
Are you familiar with the pumping of your sewage system?	YES	80	74.4%	165	73.6%	75	73.5%	59	58.4%	50	66.1%
	NO [SKIP TO INSPKNOW]	34	25.6%	50	22.3%	40	26.3%	49	41.0%	20	29.2%
	DON'T KNOW/NOT SURE			9	4.1%	3	.2%	3	.6%	3	4.7%
	REFUSED					1	.1%				
Total		114	100.0%	224	100.0%	119	100.0%	111	100.0%	73	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids	ONCE A YEAR	2	.9%	9	7.7%	1	5.7%	2	1.1%	6	17.4%
	EVERY 2-4 YEARS	14	17.5%	56	36.1%	13	12.4%	10	24.3%	10	7.6%
	EVERY 5 YEARS	16	29.5%	36	29.5%	17	46.2%	19	48.2%	13	35.5%
	AS NEEDED	3	12.5%	6	4.0%	4	.4%	2	7.4%	2	14.3%
	NEVER/NOT APPLICABLE	3	1.4%			4	.4%	3	1.6%		
	NO RECOMMENDATION	11	21.7%	7	6.3%	6	6.1%	3	7.9%	3	21.5%
	OTHER	12	16.6%	17	16.3%	11	28.9%	6	9.5%	5	3.8%
Total		61	100.0%	131	100.0%	56	100.0%	45	100.0%	39	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	19	17.9%	71	40.8%	18	21.9%	13	22.2%	16	25.9%
	EVERY 4-5 YEARS	18	21.4%	46	32.8%	27	47.2%	22	47.3%	16	52.3%
	EVERY 6-10 YEARS	6	9.7%	2	1.1%	4	8.5%	4	10.2%	5	8.4%
	MORE THAN 10 YEARS	1	4.2%	1	.1%						
	NEVER [SKIP TO INSPKNOW]	27	39.9%	30	17.1%	21	17.9%	13	17.8%	7	9.7%
	DON'T KNOW/NOT SURE	9	6.8%	15	8.1%	5	4.5%	7	2.5%	6	3.8%
Total		80	100.0%	165	100.0%	75	100.0%	59	100.0%	50	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	17	41.1%	55	39.9%	15	38.9%	18	41.2%	17	31.7%
	1-3 YEARS AGO	13	47.3%	43	45.1%	11	38.4%	9	50.6%	8	31.1%
	4-5 YEARS AGO	2	1.5%	10	14.9%	2	15.1%	1	8.1%	4	27.4%
	MORE THAN 5 YEARS AGO	1	10.1%	1	.1%	1	7.5%			2	9.8%
Total		33	100.0%	109	100.0%	29	100.0%	28	100.0%	31	100.0%
Has your tank ever been pumped for other than routine maintenance	YES	4	2.4%	13	13.1%	3	.3%	7	19.6%	4	15.1%
	NO	40	97.6%	104	86.9%	46	99.7%	32	80.4%	33	84.9%
Total		44	100.0%	117	100.0%	49	100.0%	39	100.0%	37	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50	1	.9%	1	.2%						
	65	1	11.7%								
	75									1	1.0%
	85	1	.9%					1	9.4%	2	10.7%
	95	1	11.7%								
	100	1	11.7%	4	4.4%	1	.2%			2	10.7%
	110	1	.9%	2	4.1%						
	115							1	9.4%		
	120			1	2.0%						
	125	2	12.6%	2	2.2%	1	.2%			1	9.6%
	130									1	1.0%
	135			1	.2%					1	1.0%
	150	1	.9%	10	12.9%	4	21.9%	2	10.1%	2	10.7%
	160			2	4.1%			1	9.4%		
	165			1	.2%						
	170			1	2.0%						

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	175	3	2.7%	3	2.4%			1	.7%		
	180			2	4.1%						
	190	1	.9%					1	9.4%		
	195			1	2.0%						
	200	2	1.8%	18	25.4%	5	22.1%	4	28.8%	3	11.7%
	210							1	.7%		
	220			1	2.0%					1	1.0%
	225	1	.9%	1	2.0%			1	9.4%		
	230	1	.9%							1	1.0%
	235									1	1.0%
	250	3	13.5%	6	6.6%	6	22.3%	4	11.5%	4	29.9%
	275					1	.2%				
	280			1	2.0%						
	300	3	2.7%	9	12.7%	4	11.3%	2	1.4%	1	1.0%
	325			2	2.2%						
	350			1	2.0%	1	10.8%				

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	375	1	11.7%								
	400	2	12.6%	1	2.0%	1	10.8%				
	450			2	2.2%					1	9.6%
	500	1	.9%								
	600			1	.2%						
	750					1	.2%				
Total		27	100.0%	74	100.0%	25	100.0%	19	100.0%	22	100.0%
Are you familiar with the process of having your sewage system inspected?	YES	44	34.3%	132	47.3%	50	32.8%	45	35.8%	32	37.2%
	NO	72	65.0%	92	48.8%	71	64.1%	74	63.6%	40	57.7%
	DON'T KNOW/NOT SURE	3	.7%	6	3.8%	2	3.1%	3	.6%	4	5.1%
	REFUSED					1	.1%				
Total		119	100.0%	230	100.0%	124	100.0%	122	100.0%	76	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	6	3.9%	3	1.9%	5	.8%	2	1.1%	4	4.4%
	ONCE A YEAR	8	21.1%	25	18.1%	19	12.1%	23	19.8%	13	23.6%
	EVERY 2-4 YEARS	3	9.9%	17	15.5%			3	22.0%	2	2.2%
	EVERY 5 YEARS			5	3.6%	4	19.1%	3	8.5%	3	21.8%
	EVERY 6-10 YEARS					2	9.5%				
	AFTER A MAJOR REPAIR							1	.6%		
	NEVER	2	17.1%	8	6.9%	3	9.7%	1	.6%		
	OTHER	7	4.6%	11	10.3%	3	18.9%			1	1.1%
	DON'T KNOW/NOT SURE	18	43.4%	63	43.8%	14	29.8%	11	40.1%	9	46.9%
REFUSED							1	7.3%			
Total		44	100.0%	132	100.0%	50	100.0%	45	100.0%	32	100.0%
Has your sewage system ever been inspected for any reason	YES	34	53.9%	117	80.3%	37	51.8%	36	81.4%	21	69.4%
	NO	10	46.1%	14	19.7%	13	48.2%	9	18.6%	11	30.6%
Total		44	100.0%	131	100.0%	50	100.0%	45	100.0%	32	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	22	41.9%	96	74.2%	23	6.8%	27	52.1%	16	38.7%
	1-3 YEARS AGO	6	22.2%	14	15.4%	12	92.6%	6	20.8%	3	44.8%
	MORE THAN THREE YEARS AGO	5	35.8%	7	10.5%	2	.6%	3	27.1%	2	16.5%
Total		33	100.0%	117	100.0%	37	100.0%	36	100.0%	21	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Whatould you consider to be a reasonable charge to inspect your sewage system	1	1	.9%	1	.2%						
	30			1	2.4%					1	1.9%
	35	1	.9%								
	40					1	.3%				
	50	2	22.8%	7	5.9%	5	17.3%	3	24.5%		
	55			1	.2%						
	59	1	11.4%								
	60	1	.9%	2	2.6%						
	65							1	.9%		
	75	2	12.3%	7	14.6%	2	16.5%			1	18.1%
	80			1	2.4%						
	85							2	23.6%		
	99									1	18.1%
	100	7	27.2%	16	23.1%	5	49.3%	2	1.8%	1	1.9%
	120			1	.2%						
125			3	5.0%							

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Whatould you consider to be a reasonable charge to inspect your sewage system	140			1	.2%						
	150	2	12.3%	12	13.5%	1	16.3%	1	.9%	1	1.9%
	200	1	11.4%	15	20.7%	1	.3%	2	23.6%	2	3.8%
	225			1	2.4%			2	23.6%		
	250			5	1.1%					2	36.2%
	300			1	.2%			1	.9%		
	350			2	2.6%					1	18.1%
	400			2	2.6%						
Total		18	100.0%	79	100.0%	15	100.0%	14	100.0%	10	100.0%
Are you familiar with the media or air blower for your system?	YES	25	26.9%	35	25.0%	21	43.8%	11	11.0%	4	13.8%
	NO /SYSTEM DOES NOT HAVE THEM	44	73.1%	85	75.0%	27	56.3%	53	89.0%	25	86.2%
Total		69	100.0%	120	100.0%	48	100.0%	64	100.0%	29	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS							1	16.7%		
	EVERY 10 YEARS	1	9.1%	4	43.8%	2	13.3%				
	ONLY AFTER A MAJOR FAILURE	3	27.3%	3	23.7%	1	6.7%	2	33.3%	1	50.0%
	NEVER	3	27.3%			2	13.3%	1	16.7%		
	OTHER	4	36.4%	8	32.5%	10	66.7%	2	33.3%	1	50.0%
Total		11	100.0%	15	100.0%	15	100.0%	6	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much would it cost to have the media or air blower replaced for your system	200	1	25.0%	1	1.9%						
	250	1	25.0%	1	21.3%						
	475			1	1.9%						
	500			2	3.7%					1	100.0%
	539							1	50.0%		
	800			3	25.0%						
	900	1	25.0%	1	1.9%						
	1000	1	25.0%	1	21.3%	1	33.3%				
	1250			1	21.3%						
	2000			1	1.9%			1	50.0%		
	2500					1	33.3%				
	3000					1	33.3%				
	Total		4	100.0%	12	100.0%	3	100.0%	2	100.0%	1

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	22	18.5%	63	27.6%	20	22.2%	17	13.2%	20	18.5%
	NO [SKIP TO REPLACE]	95	78.3%	166	72.3%	100	77.6%	105	86.8%	53	76.8%
	DON'T KNOW OR NOT SURE	2	3.2%	1	.1%	3	.2%			3	4.7%
	REFUSED					1	.1%				
Total		119	100.0%	230	100.0%	124	100.0%	122	100.0%	76	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	6	22.5%	29	31.3%	6	28.7%	10	88.5%	9	39.4%
	NO	14	77.5%	30	68.7%	13	71.3%	6	11.5%	10	60.6%
Total		20	100.0%	59	100.0%	19	100.0%	16	100.0%	19	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	1	5.5%	20	55.9%	3	2.4%	5	87.9%	4	23.0%
	1-3 YEARS AGO	2	11.1%	5	23.4%	2	49.2%	4	12.1%	5	77.0%
	MORE THAN THREE YEARS AGO	3	83.4%	2	20.7%	1	48.4%				
Total		6	100.0%	27	100.0%	6	100.0%	9	100.0%	9	100.0%
Have you ever had a LABORATORY test done on your sewage system for any reason?	YES	4	19.5%	16	19.7%	2	.5%	8	30.8%	1	21.8%
	NO	18	80.5%	38	80.3%	17	99.5%	9	69.2%	17	78.2%
Total		22	100.0%	54	100.0%	19	100.0%	17	100.0%	18	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR	3	93.8%	11	47.5%	1	50.0%	3	42.9%		
	1-3 YEARS AGO	1	6.2%	3	35.5%			4	57.1%	1	100.0%
	MORE THAN THREE YEARS AGO			1	17.0%	1	50.0%				
Total		4	100.0%	15	100.0%	2	100.0%	7	100.0%	1	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS	1	.6%	2	2.2%			2	.9%	1	.9%
	EVERY 10 YEARS	2	8.1%	8	5.7%	4	.9%	1	.5%	1	.9%
	ONLY AFTER IT QUILTS WORKING	14	8.1%	23	17.1%	16	3.7%	13	11.6%	8	35.8%
	NEVER	8	4.6%	4	2.4%	6	1.4%	3	6.9%	2	1.7%
	OTHER _____	5	2.9%	8	6.7%	2	.5%	3	6.9%	6	5.2%
	DON'T KNOW/NOT SURE	59	75.7%	136	65.8%	48	93.4%	62	73.1%	31	55.6%
	REFUSED			1	.1%	1	.2%				
Total		89	100.0%	182	100.0%	77	100.0%	84	100.0%	49	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	65	33.8%	138	62.0%	61	22.7%	77	43.5%	33	21.5%
	NO	52	66.2%	82	38.0%	55	77.3%	40	56.5%	39	78.5%
Total		117	100.0%	220	100.0%	116	100.0%	117	100.0%	72	100.0%
Have you ever consulted the manual for any reason	YES	38	41.6%	77	59.6%	27	49.2%	34	41.6%	13	26.1%
	NO	27	58.4%	61	40.4%	34	50.8%	43	58.4%	20	73.9%
Total		65	100.0%	138	100.0%	61	100.0%	77	100.0%	33	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How helpful was the manual	Very helpful	18	71.2%	25	35.9%	11	92.3%	14	46.3%	6	46.2%
	Somewhat helpful	14	23.7%	42	56.6%	13	6.3%	13	30.5%	6	46.2%
	Not very helpful	2	3.4%	9	7.5%	2	1.0%	3	18.3%	1	7.7%
	Not helpful at all	1	1.7%			1	.5%	4	4.9%		
Total		35	100.0%	76	100.0%	27	100.0%	34	100.0%	13	100.0%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	36	43.6%	129	61.7%	34	29.7%	50	62.8%	27	57.6%
	NO	51	56.4%	53	38.3%	53	70.3%	38	37.2%	25	42.4%
Total		87	100.0%	182	100.0%	87	100.0%	88	100.0%	52	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	46	51.4%	127	71.6%	68	82.9%	64	61.8%	43	72.5%
	NO [SKIP TO WHOINSP]	48	48.6%	65	28.4%	34	17.1%	46	38.2%	21	27.5%
Total		94	100.0%	192	100.0%	102	100.0%	110	100.0%	64	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often do you think people might be required to have their systems inspected	Every six months	2	2.6%	5	2.1%			1	.4%		
	Once a year	4	5.1%	17	13.8%	17	9.3%	11	9.9%	6	13.3%
	Every 2-4 years	12	30.8%	41	43.0%	8	22.8%	14	37.1%	6	13.3%
	Every 5 years	7	24.4%	24	24.8%	16	52.9%	20	39.7%	13	42.9%
	Every 6-10 years	3	19.2%	5	7.9%	2	14.8%	4	12.1%	3	18.2%
	Or some other interval? (SPECIFY)	2	18.0%	9	8.4%	2	.2%	2	.9%	5	12.3%
Total		30	100.0%	101	100.0%	45	100.0%	52	100.0%	33	100.0%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	5	3.4%	19	14.8%	20	24.1%	18	12.5%	5	3.7%
	6 months	10	31.1%	17	13.3%	8	9.7%	4	6.7%	9	19.2%
	12 months or	13	33.1%	48	47.0%	20	37.7%	21	28.9%	13	34.7%
	Inspections should not be required	6	20.3%	7	4.6%	8	9.7%	5	12.1%	5	16.2%
	OTHER Specify	6	12.2%	24	20.4%	10	18.9%	11	39.8%	10	26.2%
Total		40	100.0%	115	100.0%	66	100.0%	59	100.0%	42	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	11	15.4%	36	14.7%	21	7.6%	21	11.9%	10	8.3%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	97	84.6%	174	85.3%	90	92.4%	97	88.1%	61	91.7%
Total		108	100.0%	210	100.0%	111	100.0%	118	100.0%	71	100.0%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	79	64.7%	166	75.8%	83	79.0%	93	71.5%	58	79.8%
	OPPOSE	28	35.3%	54	21.0%	29	21.0%	24	28.3%	14	16.3%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS			6	3.2%	1	.1%	1	.2%	1	3.9%
Total		107	100.0%	226	100.0%	113	100.0%	118	100.0%	73	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	39	22.3%	64	25.1%	18	.9%	30	25.5%	18	17.7%
	NO	80	77.7%	165	74.9%	104	99.1%	92	74.5%	58	82.3%
Total		119	100.0%	229	100.0%	122	100.0%	122	100.0%	76	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Are you having any problems with your sewage system or drain field now	YES	2	.5%	3	1.6%			1	.2%	1	.4%
	NO	117	99.5%	225	98.4%	123	100.0%	121	99.8%	75	99.6%
Total		119	100.0%	228	100.0%	123	100.0%	122	100.0%	76	100.0%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	12	10.8%	17	7.4%	7	3.4%	8	13.8%	10	17.9%
	TWO TIMES	1	2.9%	2	1.5%	1	.1%	2	2.8%	1	.4%
	THREE TIMES			1	.8%			1	.2%		
	MORE THAN THREE TIMES	1	.2%	1	.1%			1	2.6%	1	.4%
	NEVER	105	86.0%	208	90.3%	115	96.6%	110	80.6%	64	81.3%
Total		119	100.0%	229	100.0%	123	100.0%	122	100.0%	76	100.0%
How old was this system when it first failed	LESS THAN ONE YEAR OLD	3	24.2%	9	56.1%	2	2.9%	5	7.1%	1	2.2%
	1-3 YEARS OLD	2	22.6%	3	16.3%	2	2.9%			1	2.2%
	4-6 YEARS OLD	5	27.4%	4	9.9%	2	2.9%			1	2.2%
	6-10 YEARS OLD	1	1.6%	2	8.5%					1	2.2%
	11-20 YEARS OLD	1	1.6%	2	1.4%	2	91.2%	1	18.6%		
	MORE THAN 20 YEARS OLD	2	22.6%	1	7.8%			4	74.3%	8	91.2%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		14	100.0%	21	100.0%	8	100.0%	10	100.0%	12	100.0%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	23	18.6%	51	30.3%	16	3.6%	20	14.2%	12	9.9%
	TWO TIMES	14	7.4%	19	6.9%	5	1.1%	8	3.5%	3	2.5%
	THREE TIMES	3	1.6%	12	5.2%	4	.9%	8	8.8%		
	MORE THAN THREE TIMES	15	14.4%	24	14.5%	7	1.6%	7	8.4%	2	1.6%
	NEVER SOUNDED	36	57.5%	74	41.7%	50	92.4%	45	46.5%	36	85.2%
	DO NOT HAVE AN ALARM	1	.5%	3	1.3%	2	.4%	6	18.6%	1	.8%
Total		92	100.0%	183	100.0%	84	100.0%	94	100.0%	54	100.0%
How satisfied are you with your sewage system	Very satisfied	84	86.7%	183	83.7%	94	95.6%	83	75.3%	66	95.9%
	Somewhat satisfied	24	8.1%	30	13.2%	26	4.3%	31	20.9%	8	3.3%
	Somewhat dissatisfied	4	3.6%	10	2.1%	1	.1%	5	1.0%	1	.4%
	Very dissatisfied	7	1.6%	4	1.0%	1	.1%	2	2.8%	1	.4%
Total		119	100.0%	227	100.0%	122	100.0%	121	100.0%	76	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How reliable is your sewage system	Very reliable	102	93.9%	202	90.7%	113	99.6%	107	92.1%	69	97.9%
	Somewhat reliable	14	5.9%	21	8.4%	7	.4%	15	7.9%	5	2.1%
	Somewhat unreliable			2	.8%						
	Very unreliable	1	.2%			1	.1%				
Total		117	100.0%	225	100.0%	121	100.0%	122	100.0%	74	100.0%

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	24	16.3%	27	8.1%	24	13.3%	24	12.2%	11	8.0%
	2-5 years	70	59.3%	133	58.2%	71	46.0%	70	38.5%	27	31.9%
	6-10 years	14	11.3%	35	14.1%	7	9.4%	10	14.2%	14	19.6%
	More than 10 years	10	13.1%	34	19.6%	20	31.3%	17	35.1%	23	40.6%
Total		118	100.0%	229	100.0%	122	100.0%	121	100.0%	75	100.0%
Do you own or rent your home	OWN	115	99.3%	228	99.2%	120	99.9%	119	99.6%	74	99.2%
	RENT	3	.7%	1	.8%	1	.1%	2	.4%	2	.8%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		118	100.0%	229	100.0%	121	100.0%	121	100.0%	76	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	118	99.8%	226	99.2%	115	99.6%	120	99.8%	70	97.5%
	SEASONALLY	1	.2%	2	.8%	7	.4%	1	.2%	6	2.5%
Total		119	100.0%	228	100.0%	122	100.0%	121	100.0%	76	100.0%
How many months out of the year do you spend in your home	0					1	14.3%				
	1			1	8.1%						
	2								1	16.7%	
	3					1	14.3%		3	50.0%	
	4					3	42.9%		1	16.7%	
	5	1	100.0%			1	14.3%				
	6			1	91.9%			1	100.0%	1	16.7%
	8					1	14.3%				
Total		1	100.0%	2	100.0%	7	100.0%	1	100.0%	6	100.0%
Age of house (calculated, recoded)	2 years or less	31	17.9%	28	9.0%	31	14.1%	37	14.8%	14	17.6%
	3-5 years	55	50.6%	115	50.9%	62	47.0%	47	24.1%	20	20.3%
	6-20 years	18	15.0%	50	21.8%	11	16.2%	17	22.9%	15	21.9%
	More than 20 years	13	16.6%	32	18.4%	17	22.8%	20	38.1%	22	40.1%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		117	100.0%	225	100.0%	121	100.0%	121	100.0%	71	100.0%
What size lot do you own	Less than 1 acre	18	9.6%	30	12.5%	25	13.4%	12	17.1%	18	20.1%
	1 acre to 3 acres	33	26.6%	88	36.1%	53	54.2%	73	68.5%	32	46.2%
	More than 3 acres	64	63.8%	108	51.4%	43	32.5%	35	14.4%	22	33.7%
Total		115	100.0%	226	100.0%	121	100.0%	120	100.0%	72	100.0%
How many people live in your household? (recoded)	1-2	53	41.8%	68	33.7%	64	54.7%	56	57.6%	37	53.0%
	3-4	44	39.7%	108	44.7%	42	26.3%	49	34.3%	35	41.9%
	3.00	19	17.8%	47	19.1%	16	19.0%	15	5.5%	4	5.1%
	98.00			1	.1%						
	99.00	3	.7%	5	2.4%	1	.1%	1	2.6%		
Total		119	100.0%	229	100.0%	123	100.0%	121	100.0%	76	100.0%
Would you describe the amount of usage of your household sewage system as	Light	54	43.3%	102	48.6%	64	48.6%	56	39.2%	35	50.9%
	Moderate OR	54	51.6%	105	43.2%	49	35.8%	57	59.5%	36	40.6%
	Heavy	10	5.1%	17	8.2%	9	15.6%	6	1.2%	3	8.5%
Total		118	100.0%	224	100.0%	122	100.0%	119	100.0%	74	100.0%
Confirm your gender	MALE	95	75.8%	157	65.4%	88	61.9%	83	69.8%	44	45.6%
	FEMALE	23	24.2%	71	34.6%	35	38.1%	37	30.2%	32	54.4%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		118	100.0%	228	100.0%	123	100.0%	120	100.0%	76	100.0%
In what year were you born	19			1	.1%						
	22			1	.8%						
	24									1	.4%
	25									1	.4%
	27									1	3.9%
	28	1	3.2%					1	2.7%		
	29			1	.8%	1	.1%				
	30			1	.1%	1	3.1%	1	2.7%		
	31			1	.1%						
	32	1	.2%	1	.1%			2	.4%		
	33			1	.1%	1	.1%	2	3.0%	1	3.9%
	34	2	3.4%			1	.1%				
	35	2	3.4%							1	3.9%
	36	3	.7%			3	3.2%	1	2.7%	1	3.9%
	37	1	.2%	1	.1%	1	.1%				
	38			1	.1%	4	3.2%			1	.4%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	39					3	6.2%	1	2.7%		
	40	3	.7%	2	1.6%	2	.1%	1	2.7%	2	4.3%
	41	4	3.9%	3	.2%	3	3.2%			2	.8%
	42	2	.5%	2	.9%	3	3.2%	1	2.7%	3	4.7%
	43	2	.5%	1	.8%	2	.1%	1	.2%		
	44			1	.1%	1	.1%	4	.8%	2	.8%
	45	2	.5%	4	1.0%	3	.2%	3	3.2%	1	.4%
	46	2	3.4%	3	2.5%	6	.3%	4	5.9%	2	4.3%
	47	3	3.7%	1	.8%	2	.1%	4	3.4%	1	.4%
	48	2	3.4%	3	1.7%	5	3.3%	1	.2%	1	.4%
	49	2	.5%	7	5.0%	1	.1%	6	8.9%		
	50	4	3.9%	3	1.7%	1	.1%	4	3.4%	2	.8%
	51	3	3.7%	7	4.2%	6	3.3%			5	2.1%
	52	4	1.0%	5	2.6%	3	.2%	6	6.3%	3	1.2%
	53	4	9.8%	8	5.1%	3	3.2%	3	3.2%	2	4.3%
	54	2	.5%	7	3.5%	5	3.3%	5	6.1%	2	4.3%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	55	2	3.4%	9	5.9%	4	6.3%	5	6.1%	2	.8%
	56	4	3.9%	9	5.9%	4	3.2%	4	3.4%	3	4.7%
	57			8	2.8%	3	3.2%	1	.2%	1	3.9%
	58	3	6.6%	10	5.2%	4	3.2%	3	3.2%	1	.4%
	59	2	.5%	12	3.1%	5	3.3%	2	.4%	1	3.9%
	60	2	3.4%	9	3.6%	1	.1%	4	3.4%	3	4.7%
	61	7	7.6%	9	5.1%			1	2.7%	1	.4%
	62	1	.2%	10	4.5%	3	3.2%	4	3.4%	1	.4%
	63	2	.5%	7	1.3%	4	3.2%	1	2.7%	2	4.3%
	64	2	3.4%	15	4.8%	1	.1%			1	3.9%
	65	4	1.0%	8	3.6%	2	3.1%	3	.6%	2	.8%
	66	2	6.3%	5	1.9%			2	.4%	2	4.3%
	67	3	.7%	9	2.9%	2	3.1%	2	3.0%	2	.8%
	68	3	3.7%	9	4.4%			6	1.3%	3	4.7%
	69	3	.7%	7	4.2%	4	9.3%	4	.8%		
	70	5	4.1%	3	1.7%	5	9.3%	4	.8%		

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	71	4	3.9%	3	.2%	2	3.1%	2	.4%	2	4.3%
	72			1	.8%	2	.1%	4	.8%		
	73			3	1.7%			2	.4%	1	3.9%
	74	2	.5%	1	.8%			4	.8%	3	4.7%
	75					3	3.2%				
	76	2	.5%	1	.1%	1	3.1%	3	.6%	2	.8%
	77	2	.5%	1	.8%	1	.1%			1	.4%
	78	1	.2%	1	.8%	3	.2%	1	2.7%	1	.4%
	79	3	.7%								
	80					1	.1%			1	.4%
	81	1	.2%			1	.1%			1	.4%
	82					1	.1%	1	.2%		
	83					2	3.1%			1	.4%
	85	1	.2%								
	Total		110	100.0%	216	100.0%	120	100.0%	114	100.0%	73

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Respondent education (recoded)	High school or less	28	28.0%	14	7.2%	19	22.1%	24	19.5%	31	40.2%
	Some college, 2-year degree	29	20.1%	25	11.4%	25	22.4%	28	20.3%	22	33.1%
	College grad	27	25.1%	94	41.0%	43	35.5%	42	32.9%	14	19.5%
	Graduate or professional degree	31	23.2%	93	38.8%	35	19.9%	23	24.1%	8	6.7%
	REF	4	3.6%	3	1.6%	1	.1%	4	3.2%	1	.4%
Total		119	100.0%	229	100.0%	123	100.0%	121	100.0%	76	100.0%
Do you consider yourself to be of Hispanic origin	YES	1	.2%	7	2.6%			2	.4%	3	4.7%
	NO	114	99.8%	220	97.4%	122	100.0%	118	99.6%	72	95.3%
Total		115	100.0%	227	100.0%	122	100.0%	120	100.0%	75	100.0%
Respondent's race (recoded)	White	103	88.3%	197	88.8%	117	93.6%	92	82.0%	67	86.0%
	Other	7	4.3%	24	7.9%	3	6.2%	27	15.2%	6	9.3%
	REF	9	7.4%	8	3.3%	3	.2%	2	2.8%	3	4.7%
Total		119	100.0%	229	100.0%	123	100.0%	121	100.0%	76	100.0%

Survey of Alternative Onsite Sewage System Issues

		Region									
		NW		NoVa		SW		Central		Eastern	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Respondent's income (recoded)	Less than \$50K	16	8.9%	6	4.2%	19	32.5%	12	14.5%	12	7.6%
	\$50K-\$100K	32	48.1%	24	11.2%	32	45.1%	35	50.3%	27	59.7%
	\$100K or more	40	43.0%	145	84.6%	43	22.4%	45	35.2%	18	32.7%
Total		88	100.0%	175	100.0%	94	100.0%	92	100.0%	57	100.0%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Region																			
	NW				NoVa				SW				Central				Eastern			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%																
Contractor	96	77.9%	20	22.1%	194	87.6%	26	12.4%	95	69.7%	22	30.3%	95	77.5%	20	22.5%	62	87.9%	9	12.1%
Builder	91	76.7%	25	23.3%	128	56.2%	92	43.8%	93	89.0%	24	11.0%	69	69.3%	46	30.7%	61	87.5%	10	12.5%
System designer	103	96.9%	13	3.1%	207	94.9%	13	5.1%	99	95.8%	18	4.2%	104	92.4%	11	7.6%	63	96.3%	8	3.7%
System manufacturer	113	99.3%	3	.7%	220	100.0%			113	96.6%	4	3.4%	112	96.8%	3	3.2%	71	100.0%		
The lending institution	116	100.0%			220	100.0%			117	100.0%			115	100.0%			71	100.0%		
Attorney at closing	116	100.0%			219	99.9%	1	.1%	117	100.0%			115	100.0%			71	100.0%		
Real estate agent	111	95.9%	5	4.1%	210	96.5%	10	3.5%	116	99.9%	1	.1%	108	95.9%	7	4.1%	71	100.0%		
Previous owner of the house	115	99.8%	1	.2%	209	97.8%	11	2.2%	112	90.0%	5	10.0%	112	96.8%	3	3.2%	69	95.1%	2	4.9%
Neighbor	116	100.0%			219	99.9%	1	.1%	117	100.0%			115	100.0%			70	99.5%	1	.5%
Health department employee	102	85.1%	14	14.9%	189	83.7%	31	16.3%	85	72.4%	32	27.6%	102	89.4%	13	10.6%	54	80.3%	17	19.7%
No one	109	86.8%	7	13.2%	213	95.3%	7	4.7%	116	96.7%	1	3.3%	108	90.7%	7	9.3%	64	92.8%	7	7.2%
Self identified	99	75.7%	17	24.3%	189	81.6%	31	18.4%	101	86.2%	16	13.8%	103	84.4%	12	15.6%	59	74.7%	12	25.3%
Other specify	94	91.8%	22	8.2%	182	83.2%	38	16.8%	101	99.1%	16	.9%	103	97.4%	12	2.6%	60	87.0%	11	13.0%
Don't know/not sure	109	95.4%	7	4.6%	214	98.2%	6	1.8%	115	93.4%	2	6.6%	112	96.8%	3	3.2%	69	95.1%	2	4.9%
Refused	116	100.0%			220	100.0%			116	99.9%	1	.1%	115	100.0%			71	100.0%		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	Region																			
	NW		NoVa				SW				Central				Eastern					
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
	uN	w%	uN	w%																
Pumping solids from tanks	78	70.5%	32	29.5%	197	91.9%	25	8.1%	85	79.6%	31	20.4%	89	93.5%	16	6.5%	61	92.4%	9	7.6%
Cleaning filters	49	16.5%	56	83.5%	117	56.1%	76	43.9%	40	19.0%	53	81.0%	60	43.1%	34	56.9%	22	18.9%	40	81.1%
Adjusting flows	27	16.1%	76	83.9%	66	29.4%	117	70.6%	32	27.3%	65	72.7%	26	29.0%	55	71.0%	17	17.4%	43	82.6%
Maintaining adequate vegetation over the dispersal area	64	63.2%	46	36.8%	139	70.4%	62	29.6%	64	68.6%	43	31.4%	67	75.2%	37	24.8%	39	66.9%	23	33.1%
Adding bacteria or yeast	31	37.9%	80	62.1%	58	25.2%	150	74.8%	32	47.2%	76	52.8%	37	61.9%	60	38.1%	21	38.8%	42	61.2%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	16	12.6%	97	87.4%	47	22.2%	175	77.8%	20	7.3%	98	92.7%	14	3.0%	101	97.0%	8	7.3%	64	92.7%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Region																			
	NW		NoVa				SW				Central				Eastern					
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	6	42.9%	24	57.1%	23	36.8%	37	63.2%	10	24.4%	31	75.6%	11	16.9%	42	83.1%	6	27.3%	16	72.7%
Annual inspection	10	52.4%	20	47.6%	27	49.0%	33	51.0%	7	17.1%	34	82.9%	7	10.8%	46	89.2%	5	22.7%	17	77.3%
Inspection twice a year	18	71.5%	12	28.5%	29	49.7%	31	50.3%	27	65.9%	14	34.1%	45	87.7%	8	12.3%	16	72.7%	6	27.3%
Cleaning the filters	7	45.3%	23	54.7%	22	29.2%	38	70.8%	15	36.6%	26	63.4%	20	30.8%	33	69.2%	10	45.5%	12	54.5%
Measuring sludge levels	4	9.5%	26	90.5%	12	18.6%	48	81.4%	11	26.8%	30	73.2%	16	24.6%	37	75.4%	8	36.4%	14	63.6%
Verifying pumps are working	17	69.1%	13	30.9%	20	32.1%	40	67.9%	26	63.4%	15	36.6%	33	50.7%	20	49.3%	11	50.0%	11	50.0%
Tightening wires that loosen	8	47.7%	22	52.3%	23	44.0%	37	56.0%	21	51.2%	20	48.8%	27	41.5%	26	58.5%	10	45.5%	12	54.5%
Determining the cause of alarms or improper function of alarms	3	7.1%	27	92.9%	13	22.5%	47	77.5%	16	39.0%	25	61.0%	16	24.6%	37	75.4%	5	22.7%	17	77.3%
Replacing parts that break	6	14.3%	24	85.7%	19	35.4%	41	64.6%	15	36.6%	26	63.4%	20	30.8%	33	69.2%	8	36.4%	14	63.6%
Taking samples to the laboratory	26	90.5%	4	9.5%	36	59.3%	24	40.7%	33	80.5%	8	19.5%	38	76.9%	15	23.1%	15	68.2%	7	31.8%
Don't know/not sure	29	97.6%	1	2.4%	57	91.8%	3	8.2%	39	95.1%	2	4.9%	52	98.5%	1	1.5%	22	100.0%		
Refused	30	100.0%			60	100.0%			40	97.6%	1	2.4%	53	100.0%			22	100.0%		

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	Region																			
	NW				NoVa				SW				Central				Eastern			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%																
You were having a problem with your system	27	82.3%	11	17.7%	55	70.6%	22	29.4%	21	68.1%	6	31.9%	19	52.4%	15	47.6%	9	69.2%	4	30.8%
You wanted to know how your system worked	19	50.0%	19	50.0%	27	34.2%	50	65.8%	10	4.8%	17	95.2%	14	31.7%	20	68.3%	4	30.8%	9	69.2%
You wanted to know your system's maintenance requirements	24	77.5%	14	22.5%	36	43.7%	41	56.3%	15	36.2%	12	63.8%	22	70.7%	12	29.3%	4	30.8%	9	69.2%
Some other reason	27	62.9%	11	37.1%	64	87.8%	13	12.2%	19	96.1%	8	3.9%	26	90.3%	8	9.7%	10	76.9%	3	23.1%
Don't know/not sure	38	100.0%			77	100.0%			27	100.0%			34	100.0%			13	100.0%		
Refused	38	100.0%			77	100.0%			27	100.0%			34	100.0%			13	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	Region																													
	NW						NoVa						SW						Central				Eastern							
	A lot		Some		None		A lot		Some		None		A lot		Some		None		A lot		Some		None		A lot		Some		None	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
News from newspapers, radio, television	1	.2%	17	28.2%	101	71.5%	4	3.0%	62	31.7%	164	65.3%			25	31.5%	98	68.5%	3	.6%	19	23.3%	100	76.1%	1	.4%	8	3.3%	67	96.3%
County Health Department or Virginia Dept. of Health	15	11.5%	40	33.4%	64	55.1%	34	16.7%	116	46.3%	79	37.0%	24	28.4%	63	54.6%	36	16.9%	9	9.4%	62	57.9%	49	32.7%	15	19.9%	25	34.3%	36	45.7%
Local government [IF NEEDED: Other than the local health department.]	2	.5%	17	12.0%	100	87.6%	8	1.9%	55	24.3%	167	73.8%	6	6.4%	23	22.3%	94	71.3%	6	3.7%	22	24.0%	92	72.4%	5	12.4%	15	20.0%	55	67.6%
Internet sources such as web sites, emails, blogs, listservs, etc.	6	1.4%	48	37.9%	65	60.7%	48	19.0%	87	37.5%	95	43.5%	17	9.9%	28	25.6%	77	64.4%	12	9.7%	31	20.8%	79	69.4%	4	1.6%	16	10.0%	56	88.4%
Friends, neighbors or family	19	17.8%	44	42.4%	56	39.7%	44	18.1%	92	46.8%	94	35.2%	12	18.8%	50	50.9%	61	30.3%	16	15.4%	49	31.8%	57	52.8%	10	11.0%	29	36.0%	37	53.0%
Sewage system professionals and contractors	52	30.7%	40	38.8%	27	30.5%	107	39.5%	92	44.7%	31	15.8%	45	17.4%	52	63.1%	26	19.5%	40	25.8%	47	39.8%	33	34.4%	28	37.0%	25	28.6%	22	34.4%
How much of your knowledge about sewage systems comes from the following sources:Other (specify)	10	10.4%	6	1.4%	103	88.3%	14	6.5%	16	6.6%	197	86.9%	11	9.6%	9	9.5%	102	80.8%	13	7.7%	9	9.4%	99	83.0%	7	6.6%	4	5.3%	64	88.2%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	Region																			
	NW				NoVa				SW				Central				Eastern			
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%																
Before selling their property	41	83.0%	4	17.0%	111	89.0%	13	11.0%	62	95.0%	6	5.0%	58	88.8%	6	11.2%	39	97.2%	4	2.8%
Before buying property	31	78.1%	15	21.9%	80	68.2%	41	31.8%	42	61.9%	26	38.1%	45	66.0%	19	34.0%	38	85.4%	4	14.6%
At a fixed interval regardless of buying or selling	31	48.7%	11	51.3%	104	83.5%	21	16.5%	46	65.2%	20	34.8%	53	87.6%	9	12.4%	35	89.2%	6	10.8%
After repairs are completed following a problem with the system	32	85.4%	12	14.6%	84	74.4%	38	25.6%	47	80.7%	15	19.3%	47	69.3%	14	30.7%	35	96.2%	5	3.8%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	17	29.8%	29	70.2%	37	34.8%	87	65.2%	19	25.2%	45	74.8%	14	23.2%	49	76.8%	14	35.7%	27	64.3%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	Region																			
	NW				NoVa				SW				Central				Eastern			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%																
Sewage leaking onto the ground surface	35	83.8%	4	16.2%	58	87.3%	6	12.7%	16	88.9%	2	11.1%	28	79.4%	2	20.6%	15	93.1%	3	6.9%
Sewage backing up into the house	37	98.0%	2	2.0%	59	93.1%	5	6.9%	17	94.4%	1	5.6%	28	88.9%	2	11.1%	15	93.1%	3	6.9%
Water draining too slowly	37	98.0%	2	2.0%	62	93.9%	2	6.1%	18	100.0%			27	78.6%	3	21.4%	13	69.0%	5	31.0%
Septic or musty odors	35	83.8%	4	16.2%	62	99.5%	2	.5%	17	94.4%	1	5.6%	29	99.2%	1	.8%	17	97.7%	1	2.3%
Frequent alarms	30	90.9%	9	9.1%	48	76.4%	16	23.6%	15	83.3%	3	16.7%	25	96.0%	5	4.0%	17	97.7%	1	2.3%
High operating costs	38	99.0%	1	1.0%	64	100.0%			18	100.0%			30	100.0%			18	100.0%		
Other specify	8	20.2%	31	79.8%	19	29.9%	45	70.1%	6	33.3%	12	66.7%	6	14.3%	24	85.7%	5	31.0%	13	69.0%
Don't know/not sure	39	100.0%			64	100.0%			18	100.0%			30	100.0%			18	100.0%		
Refused	39	100.0%			64	100.0%			18	100.0%			30	100.0%			18	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	Region															
	NW		NoVa				Central				Eastern					
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	1	50.0%	1	50.0%	3	100.0%			1	100.0%			1	100.0%		
Sewage backing up into the house	2	100.0%			3	100.0%			1	100.0%			1	100.0%		
Water draining too slowly	1	50.0%	1	50.0%	3	100.0%			1	100.0%			1	100.0%		
Septic or musty Odors	2	100.0%			3	100.0%					1	100.0%	1	100.0%		
Frequent alarms	1	50.0%	1	50.0%	3	100.0%			1	100.0%			1	100.0%		
High operating costs	2	100.0%			3	100.0%			1	100.0%			1	100.0%		
Other specify	2	100.0%					3	100.0%			1	100.0%			1	100.0%
Don't know/not sure	2	100.0%			3	100.0%			1	100.0%			1	100.0%		
Refused	2	100.0%			3	100.0%			1	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Region																			
	NW				NoVa				SW				Central				Eastern			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%																
Overall construction and installation costs	7	82.6%	4	17.4%	14	100.0%			1	50.0%	1	50.0%	5	26.3%	2	73.7%	2	100.0%		
Maintenance costs	7	82.6%	4	17.4%	11	93.4%	3	6.6%	2	100.0%			6	94.7%	1	5.3%	2	100.0%		
Frequency of pump outs	9	91.3%	2	8.7%	14	100.0%			2	100.0%			6	94.7%	1	5.3%	2	100.0%		
Cost of pump outs	9	91.3%	2	8.7%	14	100.0%			2	100.0%			6	94.7%	1	5.3%	2	100.0%		
Alarms (going off too frequently, not working, etc.)	7	30.4%	4	69.6%	10	68.1%	4	31.9%	2	100.0%			7	100.0%			2	100.0%		
Reliability of your sewage system	9	91.3%	2	8.7%	12	95.6%	2	4.4%	2	100.0%			6	94.7%	1	5.3%	2	100.0%		
Visual appearance of the system	10	95.7%	1	4.3%	12	95.6%	2	4.4%	2	100.0%			7	100.0%			2	100.0%		
Control of odors	11	100.0%			14	100.0%			2	100.0%			5	89.5%	2	10.5%	2	100.0%		
Noise levels	9	91.3%	2	8.7%	14	100.0%			2	100.0%			7	100.0%			2	100.0%		
Response time for service calls	10	95.7%	1	4.3%	14	100.0%			2	100.0%			7	100.0%			2	100.0%		
Quality of maintenance providers	9	91.3%	2	8.7%	14	100.0%			2	100.0%			5	26.3%	2	73.7%	2	100.0%		
Knowledge displayed by maintenance providers	9	91.3%	2	8.7%	14	100.0%			2	100.0%			6	31.5%	1	68.5%	2	100.0%		
Number of maintenance providers	11	100.0%			14	100.0%			2	100.0%			7	100.0%			2	100.0%		
Other specify	5	74.0%	6	26.0%	2	27.4%	12	72.6%	1	50.0%	1	50.0%	3	79.0%	4	21.0%			2	100.0%
Don't know/not sure	11	100.0%			14	100.0%			2	100.0%			7	100.0%			2	100.0%		
Refused	11	100.0%			14	100.0%			2	100.0%			7	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	Region											
	NW				NoVa				SW			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
POWER FAILURES	1	100.0%			2	100.0%					1	100.0%
FREEZING TEMPERATURES	1	100.0%			2	100.0%			1	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	1	100.0%			2	100.0%			1	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	1	100.0%			2	100.0%			1	100.0%		
OTHER (SPECIFY)	1	100.0%					2	100.0%	1	100.0%		
DON'T KNOW OR NOT SURE			1	100.0%	2	100.0%			1	100.0%		
REFUSED	1	100.0%			2	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Number of sewage systems on your property	ONE	428	97.2%	223	95.8%
	TWO	11	2.8%	9	4.2%
Total		439	100.0%	232	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	217	50.9%	119	49.3%
	Talked about the system with an engineer, builder or contractor	101	24.1%	55	25.2%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	109	23.1%	41	19.7%
	Installed the system yourself	8	1.9%	13	5.8%
Total		435	100.0%	228	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Who designed your system	Health department	42	10.9%	42	31.0%
	Engineer	122	40.5%	34	20.6%
	Onsite Soil Evaluator or did the	9	2.5%	6	4.3%
	Engineer and Onsite Soil Evaluator working together	79	25.2%	27	17.2%
	OTHER specify ____	57	20.9%	41	27.0%
Total		309	100.0%	150	100.0%
Does your system have a pump	YES	366	87.5%	115	49.6%
	NO	58	12.5%	104	50.4%
Total		424	100.0%	219	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	300	68.3%	141	62.1%
	NO	130	31.7%	83	37.9%
Total		430	100.0%	224	100.0%
Age of current system (calculated) (recoded)	Less than one year old	20	4.8%	3	1.7%
	1-3 years	220	47.2%	70	33.5%
	4-6 years	133	32.0%	76	33.1%
	7-10 yrs	26	7.2%	16	6.9%
	11-20 yrs	15	3.8%	24	11.0%
	More than 20 yrs	20	5.0%	33	13.8%
Total		434	100.0%	222	100.0%
Are there parts of your sewage system that were added or updated later	YES	41	10.6%	36	15.2%
	NO	391	89.4%	195	84.8%
Total		432	100.0%	231	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
In what year were they done	1986	1	2.6%		
	1994	1	3.5%		
	1995	1	2.6%		
	1998			1	2.5%
	1999			1	3.7%
	2000	1	4.1%		
	2001	2	8.2%	1	3.3%
	2003			2	5.2%
	2004			2	5.8%
	2005	1	1.7%	2	5.2%
	2006	3	5.9%	4	12.8%
	2007	7	19.7%	11	30.0%
	2008	11	34.0%	3	7.7%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
In what year were they done	2009	10	17.6%	9	23.7%
Total		38	100.0%	36	100.0%
Length of personal use of current system (calculated) (recoded)	Less than one year	30	7.5%	8	3.3%
	1-3 years	242	51.5%	83	37.2%
	4-6 years	115	27.2%	76	31.9%
	7-10 yrs	30	8.4%	20	9.2%
	11-20 yrs	10	2.3%	24	10.0%
	More than 20 yrs	10	2.7%	18	7.3%
	DK	2	.5%	2	.8%
	Ref			1	.3%
Total		439	100.0%	232	100.0%
Are you aware of any legal obligations for using your sewage system	YES	163	37.5%	71	29.9%
	NO	256	62.5%	150	70.1%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Total		419	100.0%	221	100.0%
Do you know where your sewage system is located	YES	425	99.7%	215	100.0%
	NO	1	.3%		
Total		426	100.0%	215	100.0%

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	331	77.3%	169	74.4%
	You only react when problems occur	95	22.7%	53	25.6%
Total		426	100.0%	222	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage system	YES	182	39.2%	24	9.4%
	NO	254	60.8%	206	90.6%
Total		436	100.0%	230	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How much does your maintenance contract cost per year	\$0 to \$299	55	39.7%	3	19.1%
	\$300 to \$499	67	47.1%	8	43.1%
	\$500 to \$799	12	9.1%	5	27.0%
	\$800 or more	6	4.2%	2	10.8%
Total		140	100.0%	18	100.0%
In your opinion, is this amount	Very expensive	31	25.9%	5	28.5%
	Somewhat expensive	56	37.1%	4	22.8%
	Somewhat inexpensive	30	26.0%	6	37.3%
	Very inexpensive	15	11.0%	2	11.4%
Total		132	100.0%	17	100.0%
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	91	78.3%	84	71.8%
	NO	27	19.3%	20	21.6%
	BEEN HERE LESS THAN FIVE YEARS VOLUNTEERED	3	2.4%	8	6.6%
Total		121	100.0%	112	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	43	48.1%	49	59.8%
	2	20	23.9%	18	20.2%
	3	2	2.7%	4	4.6%
	4	2	1.8%	5	5.2%
	5	8	8.1%	4	5.3%
	6	4	4.8%	2	2.6%
	7	1	1.1%		
	8	1	1.1%		
	9			1	1.2%
	10	4	5.4%		
	11			1	1.2%
	20	1	1.1%		
	52	1	1.1%		
	54	1	1.1%		
Total		88	100.0%	84	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	13	14.6%	7	7.8%
	WITHIN THE LAST SIX MONTHS	31	34.1%	18	19.9%
	WITHIN THE LAST YEAR	17	19.3%	11	12.7%
	1-2 YEARS	25	27.6%	24	28.7%
	MORE THAN 2 YEARS	4	4.4%	24	30.9%
Total		90	100.0%	84	100.0%
Has routine maintenance ever been performed on your system	YES	5	23.0%	5	20.9%
	NO	21	77.0%	15	79.1%
Total		26	100.0%	20	100.0%
Are you familiar with the pumping of your sewage system?	YES	267	67.1%	162	72.0%
	NO [SKIP TO INSPKNOW]	134	30.2%	59	25.6%
	DON'T KNOW/NOT SURE	12	2.6%	6	2.5%
	REFUSED	1	.1%		
Total		414	100.0%	227	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that yours ystem be pumped to remove solids	ONCE A YEAR	11	6.8%	9	6.9%
	EVERY 2-4 YEARS	69	35.1%	34	24.3%
	EVERY 5 YEARS	56	27.8%	45	34.8%
	AS NEEDED	9	3.1%	8	6.5%
	NEVER/NOT APPLICABLE	10	3.7%		
	NO RECOMMENDATION	17	8.0%	13	10.8%
	OTHER	30	15.5%	21	16.7%
Total		202	100.0%	130	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	86	33.6%	51	30.1%
	EVERY 4-5 YEARS	67	23.4%	62	38.0%
	EVERY 6-10 YEARS	13	5.6%	8	5.4%
	MORE THAN 10 YEARS	1	.4%	1	.8%
	NEVER [SKIP TO INSPKNOW]	67	23.8%	31	20.2%
	DON'T KNOW/NOT SURE	33	13.2%	9	5.5%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Total		267	100.0%	162	100.0%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	84	65.8%	38	36.4%
	1-3 YEARS AGO	37	29.0%	47	44.5%
	4-5 YEARS AGO	3	3.3%	16	15.3%
	MORE THAN 5 YEARS AGO	2	2.0%	3	3.8%
Total		126	100.0%	104	100.0%
Has your tank ever been pumped for other than routine maintenance	YES	17	10.0%	14	10.2%
	NO	147	90.0%	108	89.8%
Total		164	100.0%	122	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50	2	2.8%		
	65			1	1.7%
	75	1	1.8%		
	85	2	3.4%	2	2.3%
	95			1	1.7%
	100	4	4.5%	4	5.4%
	110	1	1.6%	2	2.2%
	115			1	.8%
	120			1	1.1%
	125	3	3.1%	3	4.3%
	130	1	1.8%		
	135	2	3.0%		
	150	9	9.6%	10	12.2%
	160			3	3.0%
	165	1	1.2%		
	170			1	1.1%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	175	6	7.9%	1	1.1%
	180			2	2.2%
	190	1	1.6%	1	.8%
	195			1	1.1%
	200	14	15.7%	18	20.5%
	210	1	.8%		
	220	1	1.8%	1	1.1%
	225	1	1.6%	2	1.9%
	230	2	3.4%		
	235	1	1.8%		
	250	13	12.2%	10	13.4%
	275	1	.3%		
	280			1	1.1%
	300	12	12.7%	7	8.3%
	325	1	1.2%	1	1.1%
	350			2	2.7%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	375			1	1.7%
	400	1	1.6%	3	4.5%
	450	1	1.2%	2	2.5%
	500	1	1.6%		
	600	1	1.2%		
	750	1	.3%		
Total		85	100.0%	82	100.0%
Are you familiar with the process of having your sewage system inspected?	YES	210	48.4%	93	39.3%
	NO	217	48.5%	132	57.7%
	DON'T KNOW/NOT SURE	11	3.0%	7	3.0%
	REFUSED	1	.1%		
Total		439	100.0%	232	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	19	9.7%	1	1.0%
	ONCE A YEAR	73	31.3%	15	16.3%
	EVERY 2-4 YEARS	12	7.1%	13	12.6%
	EVERY 5 YEARS	8	3.3%	7	8.1%
	EVERY 6-10 YEARS	1	.1%	1	1.4%
	AFTER A MAJOR REPAIR	1	.3%		
	NEVER	7	2.7%	7	8.4%
	OTHER	14	8.3%	8	8.8%
	DON'T KNOW/NOT SURE	75	37.2%	40	42.7%
	REFUSED			1	.7%
Total		210	100.0%	93	100.0%
Has your sewage system ever been inspected for any reason	YES	179	84.9%	66	69.1%
	NO	31	15.1%	26	30.9%
Total		210	100.0%	92	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	147	83.9%	37	52.8%
	1-3 YEARS AGO	23	11.1%	18	30.5%
	MORE THAN THREE YEARS AGO	8	5.0%	11	16.7%
Total		178	100.0%	66	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	1	2	3.4%		
	30	1	2.3%	1	1.4%
	35	1	2.0%		
	40	1	.4%		
	50	10	9.8%	7	11.3%
	55	1	1.5%		
	59			1	2.2%
	60	2	3.4%	1	1.4%
	65	1	1.0%		
	75	3	3.8%	9	14.4%
	80			1	1.4%
	85			2	2.1%
	99			1	1.8%
	100	17	25.0%	14	23.0%
	120	1	1.5%		
125	1	1.5%	2	2.8%	

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	140	1	1.5%		
	150	10	15.4%	7	11.2%
	200	10	15.1%	11	15.4%
	225			3	3.5%
	250	5	7.3%	2	3.6%
	300	2	2.4%		
	350	1	1.5%	2	3.2%
	400	1	1.5%	1	1.4%
	Total		71	100.0%	65
Are you familiar with the media or air blower for your system?	YES	87	29.2%	9	20.8%
	NO /SYSTEM DOES NOT HAVE THEM	200	70.8%	34	79.2%
Total		287	100.0%	43	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS	1	1.8%		
	EVERY 10 YEARS	5	10.5%	2	50.0%
	ONLY AFTER A MAJOR FAILURE	9	24.8%	1	25.0%
	NEVER	6	14.2%		
	OTHER	24	48.6%	1	25.0%
Total		45	100.0%	4	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
About how much would it cost to have the media or air blower replaced for your system	200	2	13.8%		
	250	1	7.9%	1	25.0%
	475	1	5.8%		
	500	3	20.8%		
	539	1	3.8%		
	800	2	11.7%	1	25.0%
	900	2	13.8%		
	1000	2	9.5%	1	25.0%
	1250			1	25.0%
	2000	2	9.7%		
	2500	1	1.6%		
	3000	1	1.6%		
	Total		18	100.0%	4

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	89	22.4%	53	22.7%
	NO [SKIP TO REPLACE]	342	75.9%	177	76.2%
	DON'T KNOW OR NOT SURE	7	1.6%	2	1.1%
	REFUSED	1	.1%		
Total		439	100.0%	232	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	44	53.4%	16	30.3%
	NO	39	46.6%	34	69.7%
Total		83	100.0%	50	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	27	60.1%	6	36.0%
	1-3 YEARS AGO	14	33.8%	4	31.1%
	MORE THAN THREE YEARS AGO	2	6.2%	4	32.9%
Total		43	100.0%	14	100.0%
Have you ever had a LABORATORY test done on your sewage system for any reason?	YES	23	24.0%	8	16.2%
	NO	60	76.0%	39	83.8%
Total		83	100.0%	47	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR	15	72.6%	3	45.3%
	1-3 YEARS AGO	6	25.9%	3	42.0%
	MORE THAN THREE YEARS AGO	1	1.4%	1	12.8%
Total		22	100.0%	7	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS	4	1.2%	2	1.6%
	EVERY 10 YEARS	10	2.2%	6	5.4%
	ONLY AFTER IT QUILTS WORKING	54	13.3%	20	17.2%
	NEVER	20	5.5%	3	2.3%
	OTHER ____	17	5.9%	7	5.6%
	DON'T KNOW/NOT SURE	259	71.4%	77	67.9%
	REFUSED	2	.4%		
Total		366	100.0%	115	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	276	64.5%	98	41.4%
	NO	145	35.5%	123	58.6%
Total		421	100.0%	221	100.0%
Have you ever consulted the manual for any reason	YES	136	51.1%	53	53.0%
	NO	140	48.9%	45	47.0%
Total		276	100.0%	98	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How helpful was the manual	Very helpful	51	40.6%	23	45.9%
	Somewhat helpful	62	46.1%	26	47.2%
	Not very helpful	13	9.8%	4	6.9%
	Not helpful at all	6	3.5%		
Total		132	100.0%	53	100.0%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	182	56.6%	94	52.5%
	NO	142	43.4%	78	47.5%
Total		324	100.0%	172	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	213	56.7%	135	70.8%
	NO [SKIP TO WHOINSP]	158	43.3%	56	29.2%
Total		371	100.0%	191	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How often do you think people might be required to have their systems inspected	Every six months	7	5.0%	1	.9%
	Once a year	44	22.6%	11	10.6%
	Every 2-4 years	44	30.2%	37	34.9%
	Every 5 years	47	29.2%	33	33.8%
	Every 6-10 years	5	3.8%	12	12.5%
	Or some other interval? (SPECIFY)	13	9.2%	7	7.2%
Total		160	100.0%	101	100.0%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	51	21.9%	16	13.0%
	6 months	31	18.0%	17	14.3%
	12 months or	63	32.1%	52	41.3%
	Inspections should not be required	20	10.0%	11	9.4%
	OTHER Specify	32	18.0%	29	21.9%
Total		197	100.0%	125	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	73	16.1%	26	12.2%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	333	83.9%	186	87.8%
Total		406	100.0%	212	100.0%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	311	76.3%	168	74.2%
	OPPOSE	96	22.9%	53	23.7%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS	4	.8%	5	2.1%
Total		411	100.0%	226	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	123	30.4%	46	18.4%
	NO	314	69.6%	185	81.6%
Total		437	100.0%	231	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Are you having any problems with your sewage system or drain field now	YES	5	1.5%	2	.8%
	NO	433	98.5%	228	99.2%
Total		438	100.0%	230	100.0%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	32	8.2%	22	9.3%
	TWO TIMES	3	.6%	4	1.7%
	THREE TIMES	1	.2%	1	.4%
	MORE THAN THREE TIMES	3	1.0%	1	.3%
	NEVER	399	90.0%	203	88.4%
Total		438	100.0%	231	100.0%
How old was this system when it first failed	LESS THAN ONE YEAR OLD	12	25.1%	8	29.9%
	1-3 YEARS OLD	5	11.1%	3	12.4%
	4-6 YEARS OLD	10	26.2%	2	8.9%
	6-10 YEARS OLD	3	9.7%	1	3.5%
	11-20 YEARS OLD	4	9.0%	2	7.8%
	MORE THAN 20 YEARS OLD	5	18.9%	10	37.5%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Total		39	100.0%	26	100.0%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	95	25.1%	27	22.6%
	TWO TIMES	44	12.2%	5	4.1%
	THREE TIMES	22	4.9%	5	3.9%
	MORE THAN THREE TIMES	41	11.0%	14	11.8%
	NEVER SOUNDED	182	44.8%	59	54.8%
	DO NOT HAVE AN ALARM	9	2.0%	4	2.7%
Total		393	100.0%	114	100.0%
How satisfied are you with your sewage system	Very satisfied	309	71.9%	201	88.8%
	Somewhat satisfied	95	20.1%	24	9.1%
	Somewhat dissatisfied	18	4.3%	3	1.4%
	Very dissatisfied	13	3.7%	2	.7%
Total		435	100.0%	230	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How reliable is your sewage system	Very reliable	377	87.5%	216	94.5%
	Somewhat reliable	49	11.9%	13	5.1%
	Somewhat unreliable	1	.3%	1	.4%
	Very unreliable	2	.4%		
Total		429	100.0%	230	100.0%

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	89	20.0%	21	9.5%
	2-5 years	254	55.7%	117	50.9%
	6-10 years	48	13.2%	32	13.5%
	More than 10 years	43	11.1%	61	26.0%
Total		434	100.0%	231	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Do you own or rent your home	OWN	427	97.8%	229	99.6%
	RENT	8	2.2%	1	.4%
Total		435	100.0%	230	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	419	96.4%	230	99.6%
	SEASONALLY	16	3.6%	1	.4%
Total		435	100.0%	231	100.0%
How many months out of the year do you spend in your home	0	1	1.9%		
	1	1	7.0%		
	2	1	10.9%		
	3	4	34.7%		
	4	4	16.7%		
	5	2	11.4%		
	6	2	15.5%	1	100.0%
	8	1	1.9%		
Total		16	100.0%	1	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Age of house (calculated, recorded)	2 years or less	117	25.8%	24	11.2%
	3-5 years	201	44.7%	98	44.2%
	6-20 years	64	17.2%	47	20.1%
	More than 20 years	47	12.3%	57	24.5%
Total		429	100.0%	226	100.0%
What size lot do you own	Less than 1 acre	73	17.7%	30	12.8%
	1 acre to 3 acres	182	41.0%	97	41.7%
	More than 3 acres	172	41.3%	100	45.6%
Total		427	100.0%	227	100.0%
How many people live in your household? (recorded)	1-2	178	39.8%	100	43.5%
	3-4	187	43.6%	91	38.9%
	3.00	65	14.8%	36	16.1%
	98.00	1	.2%		
	99.00	6	1.6%	4	1.5%
Total		437	100.0%	231	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Would you describe the amount of usage of your household sewage system as	Light	205	46.1%	106	47.2%
	Moderate OR	199	47.5%	102	44.4%
	Heavy	27	6.5%	18	8.5%
Total		431	100.0%	226	100.0%
Confirm your gender	MALE	320	73.7%	147	63.6%
	FEMALE	115	26.3%	83	36.4%
Total		435	100.0%	230	100.0%
Respondent age (calculated, recoded)	24-39	70	17.0%	21	10.6%
	40-49	114	29.9%	64	29.0%
	50-64	164	37.1%	104	45.9%
	65 or older	66	16.1%	30	14.5%
Total		414	100.0%	219	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Respondent education (recoded)	High school or less	78	20.6%	38	18.0%
	Some college, 2-year degree	90	21.4%	39	17.6%
	College grad	138	28.9%	82	34.7%
	Graduate or professional degree	122	26.9%	68	28.0%
	REF	9	2.2%	4	1.7%
Total		437	100.0%	231	100.0%
Do you consider yourself to be of Hispanic origin	YES	9	2.5%	4	1.7%
	NO	421	97.5%	225	98.3%
Total		430	100.0%	229	100.0%

Survey of Alternative Onsite Sewage System Issues

		Listed system type (in VENIS or local lists)			
		Alternative		Conventional	
		uN	w%	uN	w%
Respondent's race (recoded)	White	371	84.4%	205	89.1%
	Other	49	11.1%	18	7.4%
	REF	17	4.5%	8	3.5%
Total		437	100.0%	231	100.0%
Respondent's income (recoded)	Less than \$50K	49	16.0%	16	10.4%
	\$50K-\$100K	100	30.4%	50	32.0%
	\$100K or more	189	53.6%	102	57.6%
Total		338	100.0%	168	100.0%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Contractor	361	86.3%	58	13.7%	181	81.5%	39	18.5%
Builder	294	72.2%	125	27.8%	148	69.3%	72	30.7%
System designer	365	87.7%	54	12.3%	211	96.3%	9	3.7%
System manufacturer	411	98.4%	8	1.6%	218	99.1%	2	.9%
The lending institution	419	100.0%			220	100.0%		
Attorney at closing	418	99.7%	1	.3%	220	100.0%		
Real estate agent	402	96.0%	17	4.0%	214	97.4%	6	2.6%
Previous owner of the house	404	96.4%	15	3.6%	213	96.5%	7	3.5%
Neighbor	417	99.3%	2	.7%	220	100.0%		
Health department employee	350	84.7%	69	15.3%	182	82.0%	38	18.0%
No one	405	95.6%	14	4.4%	205	93.0%	15	7.0%
Self identified	375	89.6%	44	10.4%	176	79.6%	44	20.4%
Other specify	343	81.3%	76	18.7%	197	90.2%	23	9.8%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Don't know/not sure	406	96.1%	13	3.9%	213	96.5%	7	3.5%
Refused	418	99.9%	1	.1%	220	100.0%		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
	uN	w%	uN	w%	uN	w%	uN	w%
Pumping solids from tanks	313	79.0%	88	21.0%	197	87.1%	25	12.9%
Cleaning filters	217	59.0%	145	41.0%	71	34.8%	114	65.2%
Adjusting flows	124	35.7%	220	64.3%	44	23.5%	136	76.5%
Maintaining adequate vegetation over the dispersal area	230	60.6%	152	39.4%	143	70.1%	59	29.9%
Adding bacteria or yeast	102	27.7%	276	72.3%	77	37.0%	132	63.0%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	73	16.3%	349	83.7%	32	14.3%	186	85.7%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	47	26.2%	135	73.8%	9	39.3%	15	60.7%
Annual inspection	44	27.1%	138	72.9%	12	51.6%	12	48.4%
Inspection twice a year	122	65.2%	60	34.8%	13	54.7%	11	45.3%
Cleaning the filters	67	36.3%	115	63.7%	7	31.1%	17	68.9%
Measuring sludge levels	47	25.1%	135	74.9%	4	16.5%	20	83.5%
Verifying pumps are working	99	51.4%	83	48.6%	8	35.2%	16	64.8%
Tightening wires that loosen	78	39.2%	104	60.8%	11	47.5%	13	52.5%
Determining the cause of alarms or improper function of alarms	48	22.1%	134	77.9%	5	20.6%	19	79.4%
Replacing parts that break	60	31.1%	122	68.9%	8	32.9%	16	67.1%
Taking samples to the laboratory	133	72.4%	49	27.6%	15	63.0%	9	37.0%
Don't know/not sure	177	97.7%	5	2.3%	22	91.8%	2	8.2%
Refused	181	99.8%	1	.2%	24	100.0%		

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
You were having a problem with your system	94	68.8%	42	31.2%	37	70.7%	16	29.3%
You wanted to know how your system worked	57	42.0%	79	58.0%	17	31.7%	36	68.3%
You wanted to know your system's maintenance requirements	76	54.0%	60	46.0%	25	47.4%	28	52.6%
Some other reason	99	73.8%	37	26.2%	47	88.0%	6	12.0%
Don't know/not sure	136	100.0%			53	100.0%		
Refused	136	100.0%			53	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	Listed system type (in VENIS or local lists)											
	Alternative						Conventional					
	A lot		Some		None		A lot		Some		None	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
News from newspapers, radio, television	5	1.2%	64	14.0%	369	84.8%	4	1.5%	67	28.8%	161	69.7%
County Health Department or Virginia Dept. of Health	57	13.5%	199	42.7%	180	43.8%	40	17.9%	107	45.4%	84	36.7%
Local government [IF NEEDED: Other than the local health department.]	19	4.0%	80	18.6%	336	77.3%	8	3.7%	52	21.6%	172	74.7%
Internet sources such as web sites, emails, blogs, listservs, etc.	58	12.2%	139	34.1%	240	53.7%	29	11.4%	71	30.5%	132	58.1%
Friends, neighbors or family	61	15.4%	161	36.2%	216	48.4%	40	17.3%	103	45.1%	89	37.6%
Sewage system professionals and contractors	199	46.2%	152	34.3%	86	19.5%	73	30.9%	104	45.8%	53	23.3%
How much of your knowledge about sewage systems comes from the following sources: Other (specify)	38	8.5%	29	6.6%	368	84.9%	17	7.7%	15	6.2%	197	86.0%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%	uN	w%	uN	w%
Before selling their property	192	90.6%	20	9.4%	119	90.4%	13	9.6%
Before buying property	145	71.8%	65	28.2%	91	69.9%	40	30.1%
At a fixed interval regardless of buying or selling	166	82.8%	39	17.2%	103	76.3%	28	23.7%
After repairs are completed following a problem with the system	143	71.6%	56	28.4%	102	79.8%	28	20.2%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	59	29.8%	147	70.2%	42	31.5%	90	68.5%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	113	90.8%	10	9.2%	39	85.2%	7	14.8%
Sewage backing up into the house	113	90.8%	10	9.2%	43	94.2%	3	5.8%
Water draining too slowly	116	92.2%	7	7.8%	41	89.9%	5	10.1%
Septic or musty odors	115	93.0%	8	7.0%	45	96.7%	1	3.3%
Frequent alarms	96	78.1%	27	21.9%	39	85.3%	7	14.7%
High operating costs	122	98.9%	1	1.1%	46	100.0%		
Other specify	32	25.0%	91	75.0%	12	26.4%	34	73.6%
Don't know/not sure	123	100.0%			46	100.0%		
Refused	123	100.0%			46	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	4	77.2%	1	22.8%	2	100.0%		
Sewage backing up into the house	5	100.0%			2	100.0%		
Water draining too slowly	4	77.2%	1	22.8%	2	100.0%		
Septic or musty Odors	4	88.9%	1	11.1%	2	100.0%		
Frequent alarms	4	77.2%	1	22.8%	2	100.0%		
High operating costs	5	100.0%			2	100.0%		
Other specify	2	45.7%	3	54.3%			2	100.0%
Don't know/not sure	5	100.0%			2	100.0%		
Refused	5	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Overall construction and installation costs	25	80.3%	6	19.7%	4	85.8%	1	14.2%
Maintenance costs	23	71.8%	8	28.2%	5	100.0%		
Frequency of pump outs	28	89.5%	3	10.5%	5	100.0%		
Cost of pump outs	28	89.5%	3	10.5%	5	100.0%		
Alarms (going off too frequently, not working, etc.)	25	78.0%	6	22.0%	3	51.9%	2	48.1%
Reliability of your sewage system	26	83.3%	5	16.7%	5	100.0%		
Visual appearance of the system	28	89.6%	3	10.4%	5	100.0%		
Control of odors	29	95.9%	2	4.1%	5	100.0%		
Noise levels	29	91.6%	2	8.4%	5	100.0%		
Response time for service calls	30	95.8%	1	4.2%	5	100.0%		
Quality of maintenance providers	28	89.5%	3	10.5%	4	85.8%	1	14.2%

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Knowledge displayed by maintenance providers	29	91.6%	2	8.4%	4	85.8%	1	14.2%
Number of maintenance providers	31	100.0%			5	100.0%		
Other specify	8	24.9%	23	75.1%	3	62.3%	2	37.7%
Don't know/not sure	31	100.0%			5	100.0%		
Refused	31	100.0%			5	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	Listed system type (in VENIS or local lists)							
	Alternative				Conventional			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
POWER FAILURES	2	89.6%	1	10.4%	1	100.0%		
FREEZING TEMPERATURES	3	100.0%			1	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	3	100.0%			1	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	3	100.0%			1	100.0%		
OTHER (SPECIFY)	2	61.9%	1	38.1%			1	100.0%
DON'T KNOW OR NOT SURE	2	48.5%	1	51.5%	1	100.0%		
REFUSED	3	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Number of sewage systems on your property	ONE	489	96.8%	141	93.1%
	TWO	11	3.2%	7	6.9%
Total		500	100.0%	148	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	252	51.3%	71	44.5%
	Talked about the system with an engineer, builder or contractor	120	26.4%	32	18.8%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	114	17.9%	33	27.9%
	Installed the system yourself	12	4.4%	8	8.8%
Total		498	100.0%	144	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Who designed your system	Health department	58	28.3%	19	29.8%
	Engineer	115	23.4%	37	19.2%
	Onsite Soil Evaluator or did the	9	3.9%	5	5.1%
	Engineer and Onsite Soil Evaluator working together	87	19.4%	19	17.6%
	OTHER specify ____	72	24.9%	22	28.2%
Total		341	100.0%	102	100.0%
Does your system have a pump	YES	374	56.5%	93	42.5%
	NO	112	43.5%	42	57.5%
Total		486	100.0%	135	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	338	63.8%	91	61.9%
	NO	151	36.2%	52	38.1%
Total		489	100.0%	143	100.0%
Age of current system (calculated) (recoded)	Less than one year old	16	2.7%	7	.8%
	1-3 years	216	33.2%	62	36.6%
	4-6 years	159	32.0%	45	37.0%
	7-10 yrs	34	8.3%	8	3.9%
	11-20 yrs	26	9.6%	11	11.4%
	More than 20 yrs	41	14.1%	11	10.4%
Total		492	100.0%	144	100.0%
Are there parts of your sewage system that were added or updated later	YES	60	14.8%	14	15.1%
	NO	434	85.2%	133	84.9%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		494	100.0%	147	100.0%
In what year were they done	1986	1	.3%		
	1994	1	.4%		
	1995	1	.3%		
	1998	1	3.2%		
	1999	1	4.8%		
	2001	2	.9%	1	12.3%
	2003	1	2.4%	1	12.3%
	2004	2	7.4%		
	2005	3	6.8%		
	2006	6	11.9%	1	14.8%
	2007	14	24.8%	4	45.5%
	2008	10	8.2%	3	14.7%
2009	16	28.7%	2	.5%	
Total		59	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Length of personal use of current system (calculated) (recoded)	Less than one year	29	5.0%	8	.9%
	1-3 years	237	34.9%	75	48.7%
	4-6 years	151	33.0%	37	28.6%
	7-10 yrs	37	9.6%	12	9.2%
	11-20 yrs	22	10.5%	9	3.3%
	More than 20 yrs	22	6.5%	5	7.3%
	DK	2	.4%	2	1.9%
Total		500	100.0%	148	100.0%
Are you aware of any legal obligations for using your sewage system	YES	196	35.4%	32	21.2%
	NO	285	64.6%	107	78.8%
Total		481	100.0%	139	100.0%
Do you know where your sewage system is located	YES	485	99.9%	135	100.0%
	NO	1	.1%		
Total		486	100.0%	135	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	500	100.0%		
	You only react when problems occur			148	100.0%
Total		500	100.0%	148	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage	YES	187	16.8%	15	3.7%
	NO	310	83.2%	132	96.3%
Total		497	100.0%	147	100.0%
How much does your maintenance contract cost per year	\$0 to \$299	51	27.9%	5	9.2%
	\$300 to \$499	67	44.1%	6	49.3%
	\$500 to \$799	16	18.8%	1	41.5%
	\$800 or more	8	9.2%		
Total		142	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In your opinion, is this amount	Very expensive	33	22.2%	3	84.9%
	Somewhat expensive	55	29.8%	4	6.9%
	Somewhat inexpensive	34	36.2%	2	3.4%
	Very inexpensive	14	11.8%	2	4.8%
Total		136	100.0%	11	100.0%
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	144	82.3%	28	40.1%
	NO	23	12.9%	22	48.9%
	BEEEN HERE LESS THAN FIVE YEARS VOLUNTEERED	7	4.8%	3	11.0%
Total		174	100.0%	53	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	71	56.8%	18	63.0%
	2	31	20.1%	7	27.3%
	3	6	5.3%		
	4	6	4.6%	1	7.9%
	5	12	6.6%		
	6	5	3.1%	1	1.1%
	7			1	.7%
	8	1	.1%		
	9	1	1.3%		
	10	4	.6%		
	11	1	1.3%		
	20	1	.1%		
	52	1	.1%		
	54	1	.1%		

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		141	100.0%	28	100.0%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	20	10.0%		
	WITHIN THE LAST SIX MONTHS	46	24.9%	3	2.0%
	WITHIN THE LAST YEAR	18	12.2%	9	21.7%
	1-2 YEARS	36	24.3%	11	42.3%
	MORE THAN 2 YEARS	23	28.6%	5	34.1%
Total		143	100.0%	28	100.0%
Has routine maintenance ever been performed on your system	YES	5	20.1%	5	22.0%
	NO	18	79.9%	17	78.0%
Total		23	100.0%	22	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Are you familiar with the pumping of your sewage system?	YES	339	74.6%	76	58.7%
	NO [SKIP TO INSPKNOW]	130	23.1%	56	37.6%
	DON'T KNOW/NOT SURE	14	2.3%	4	3.7%
	REFUSED	1	.0%		
Total		484	100.0%	136	100.0%
How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids	ONCE A YEAR	19	7.7%	1	4.2%
	EVERY 2-4 YEARS	91	27.9%	10	7.5%
	EVERY 5 YEARS	84	38.6%	13	13.5%
	AS NEEDED	13	4.3%	2	11.9%
	NEVER/NOT APPLICABLE	9	.4%	1	.5%
	NO RECOMMENDATION	19	7.9%	11	28.0%
	OTHER	38	13.3%	12	34.5%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		273	100.0%	50	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	126	37.7%	9	6.9%
	EVERY 4-5 YEARS	108	42.3%	17	16.9%
	EVERY 6-10 YEARS	10	2.1%	9	16.2%
	MORE THAN 10 YEARS	1	1.0%	1	.2%
	NEVER [SKIP TO INSPKNOW]	63	13.4%	31	43.5%
	DON'T KNOW/NOT SURE	31	3.5%	9	16.2%
Total		339	100.0%	76	100.0%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	106	40.9%	14	28.4%
	1-3 YEARS AGO	72	44.6%	9	28.9%
	4-5 YEARS AGO	17	14.5%	2	17.6%
	MORE THAN 5 YEARS AGO			4	25.1%
Total		195	100.0%	29	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Has your tank ever been pumped for other than routine maintenance	YES	24	9.7%	7	17.9%
	NO	218	90.3%	29	82.1%
Total		242	100.0%	36	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50	2	.2%		
	65	1	1.8%		
	75	1	.2%		
	85	3	2.5%	1	1.5%
	95	1	1.8%		
	100	7	4.2%	1	17.4%
	110	2	2.3%	1	1.3%
	115	1	.9%		
	120	1	1.1%		
	125	6	4.7%		
	130	1	.2%		
	135			2	2.5%
	150	15	10.9%	3	16.1%
	160	3	3.2%		

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	165			1	1.0%
	170	1	1.1%		
	175	7	1.8%		
	180	2	2.3%		
	190	2	1.0%		
	195	1	1.1%		
	200	26	18.0%	5	33.4%
	210	1	.1%		
	220	2	1.3%		
	225	3	2.2%		
	230	1	.2%	1	1.3%
	235	1	.2%		
	250	20	13.9%	2	9.8%
	275	1	.0%		

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	280	1	1.1%		
	300	16	8.3%	3	13.0%
	325	2	1.3%		
	350	2	2.8%		
	375	1	1.8%		
	400	3	4.6%	1	1.3%
	450	2	2.6%	1	1.0%
	500	1	.1%		
	600	1	.1%		
	750			1	.3%
	Total		141	100.0%	23

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Are you familiar with the process of having your sewage system inspected?	YES	250	43.9%	43	31.0%
	NO	236	52.9%	101	68.3%
	DON'T KNOW/NOT SURE	13	3.2%	4	.7%
	REFUSED	1	.0%		
Total		500	100.0%	148	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	17	2.7%	2	.6%
	ONCE A YEAR	79	20.7%	9	12.9%
	EVERY 2-4 YEARS	18	11.5%	7	15.6%
	EVERY 5 YEARS	13	8.2%	2	6.0%
	EVERY 6-10 YEARS	2	1.6%		
	AFTER A MAJOR REPAIR			1	.3%
	NEVER	8	4.6%	4	21.0%
	OTHER	19	9.4%	3	7.6%
	DON'T KNOW/NOT SURE	94	41.4%	15	36.1%
Total		250	100.0%	43	100.0%
Has your sewage system ever been inspected for any reason	YES	207	74.7%	30	63.3%
	NO	42	25.3%	13	36.7%
Total		249	100.0%	43	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	160	64.2%	16	22.1%
	1-3 YEARS AGO	31	24.2%	10	45.8%
	MORE THAN THREE YEARS AGO	15	11.6%	4	32.1%
Total		206	100.0%	30	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Whatould you consider to be a reasonable charge to inspect your sewage system	1	2	.3%		
	30	2	1.9%		
	35			1	.8%
	40	1	.0%		
	50	12	11.4%	5	11.5%
	55			1	.6%
	59	1	2.5%		
	60	3	2.0%		
	65	1	.1%		
	75	9	13.4%	3	15.5%
	80			1	6.7%
	85	2	2.5%		
	99	1	2.1%		
	100	27	22.7%	3	17.4%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	120	1	.1%		
	125	2	3.3%	1	.6%
	140	1	.1%		
	150	13	10.2%	3	17.7%
	200	17	15.0%	4	18.7%
	225	3	4.1%		
	250	3	2.4%	4	10.4%
	300	2	.2%		
	350	3	3.9%		
	400	2	1.8%		
Total		108	100.0%	26	100.0%
Are you familiar with the media or air blower for your system?	YES	79	25.4%	14	13.3%
	NO /SYSTEM DOES NOT HAVE THEM	182	74.6%	48	86.7%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		261	100.0%	62	100.0%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS	1	.9%		
	EVERY 10 YEARS	5	33.1%	2	27.4%
	ONLY AFTER A MAJOR FAILURE	9	26.2%	1	15.8%
	NEVER	4	5.0%	2	18.9%
	OTHER	19	34.9%	4	37.9%
Total		38	100.0%	9	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system				
		You make sure routine or preventive maintenance is done OR		You only react when problems occur		
		uN	w%	uN	w%	
About how much would it cost to have the media or air blower replaced for your system	200	1	1.7%	1	29.8%	
	250	1	19.7%	1	29.8%	
	475	1	1.7%			
	500	2	3.5%	1	34.4%	
	539	1	1.1%			
	800	3	23.1%			
	900	2	4.1%			
	1000	2	22.0%			
	1250	1	19.7%			
	2000	2	2.9%			
	2500	1	.5%			
	3000			1	6.0%	
	Total		17	100.0%	4	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	117	25.1%	20	17.1%
	NO [SKIP TO REPLACE]	374	73.4%	127	82.7%
	DON'T KNOW OR NOT SURE	8	1.5%	1	.2%
	REFUSED	1	.0%		
Total		500	100.0%	148	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	55	37.3%	4	14.5%
	NO	54	62.7%	15	85.5%
Total		109	100.0%	19	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	32	44.8%	1	1.4%
	1-3 YEARS AGO	17	34.5%	1	3.3%
	MORE THAN THREE YEARS AGO	4	20.6%	2	95.3%
Total		53	100.0%	4	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Have you ever had a LABORATORY test done on your sewage system for any reason	YES	28	17.3%	2	13.2%
	NO	77	82.7%	18	86.8%
Total		105	100.0%	20	100.0%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR	17	40.7%	1	96.4%
	1-3 YEARS AGO	8	46.3%	1	3.6%
	MORE THAN THREE YEARS AGO	2	12.9%		
Total		27	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS	5	2.0%		
	EVERY 10 YEARS	11	3.6%	4	7.5%
	ONLY AFTER IT QUILTS WORKING	63	19.5%	10	9.9%
	NEVER	18	3.6%	5	1.2%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	OTHER ____	17	6.0%	7	6.3%
	DON'T KNOW/NOT SURE	258	65.3%	67	75.1%
	REFUSED	2	.1%		
Total		374	100.0%	93	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	289	47.6%	72	30.4%
	NO	191	52.4%	68	69.6%
Total		480	100.0%	140	100.0%
Have you ever consulted the manual for any reason	YES	155	60.5%	31	26.5%
	NO	134	39.5%	41	73.5%
Total		289	100.0%	72	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How helpful was the manual	Very helpful	63	45.3%	10	35.6%
	Somewhat helpful	74	48.0%	12	38.3%
	Not very helpful	14	6.3%	3	23.4%
	Not helpful at all	3	.4%	3	2.7%
Total		154	100.0%	28	100.0%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	219	57.0%	46	41.9%
	NO	159	43.0%	57	58.1%
Total		378	100.0%	103	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	277	71.4%	64	58.4%
	NO [SKIP TO WHOINSP]	155	28.6%	52	41.6%
Total		432	100.0%	116	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How often do you think people might be required to have their systems inspected	Every six months	7	.7%	1	4.1%
	Once a year	47	12.1%	7	11.0%
	Every 2-4 years	61	32.0%	17	35.4%
	Every 5 years	66	36.3%	13	24.5%
	Every 6-10 years	14	11.3%	3	15.6%
	Or some other interval? (SPECIFY)	17	7.4%	3	9.4%
Total		212	100.0%	44	100.0%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	59	16.7%	8	7.1%
	6 months	40	14.2%	7	14.8%
	12 months or	87	37.9%	25	46.1%
	Inspections should not be required	25	7.0%	5	17.1%
	OTHER Specify	45	24.2%	15	14.9%
Total		256	100.0%	60	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	79	11.7%	16	13.9%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	385	88.3%	119	86.1%
Total		464	100.0%	135	100.0%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	354	71.6%	109	80.0%
	OPPOSE	119	25.7%	26	19.9%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS	8	2.7%	1	.0%
Total		481	100.0%	136	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	128	20.4%	35	20.2%
	NO	370	79.6%	112	79.8%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Total		498	100.0%	147	100.0%
Are you having any problems with your sewage system or drain field now	YES	6	1.1%	1	.2%
	NO	492	98.9%	146	99.8%
Total		498	100.0%	147	100.0%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	36	7.6%	18	15.6%
	TWO TIMES	5	1.3%	2	2.4%
	THREE TIMES	2	.5%		
	MORE THAN THREE TIMES	3	.5%		
	NEVER	453	90.1%	127	82.0%
Total		499	100.0%	147	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How old was this system when it first failed	LESS THAN ONE YEAR OLD	15	39.1%	5	14.8%
	1-3 YEARS OLD	4	9.2%	4	17.1%
	4-6 YEARS OLD	9	8.6%	3	14.3%
	6-10 YEARS OLD	2	1.2%	2	8.9%
	11-20 YEARS OLD	5	13.0%	1	.2%
	MORE THAN 20 YEARS OLD	9	29.0%	5	44.7%
Total		44	100.0%	20	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	94	25.7%	27	18.7%
	TWO TIMES	37	5.8%	12	7.6%
	THREE TIMES	19	3.7%	6	3.4%
	MORE THAN THREE TIMES	45	12.4%	10	11.9%
	NEVER SOUNDED	184	49.0%	45	58.3%
	DO NOT HAVE AN ALARM	11	3.3%	1	.1%
Total		390	100.0%	101	100.0%
How satisfied are you with your sewage system	Very satisfied	386	87.2%	109	86.9%
	Somewhat satisfied	83	10.3%	33	9.3%
	Somewhat dissatisfied	18	1.5%	3	2.6%
	Very dissatisfied	11	.9%	2	1.2%
Total		498	100.0%	147	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How reliable is your sewage system	Very reliable	447	94.2%	130	92.5%
	Somewhat reliable	43	5.2%	16	7.5%
	Somewhat unreliable	2	.5%		
	Very unreliable	2	.1%		
Total		494	100.0%	146	100.0%

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	78	11.1%	28	11.6%
	2-5 years	282	49.5%	77	55.5%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	6-10 years	60	15.5%	19	9.9%
	More than 10 years	74	23.9%	24	22.9%
Total		494	100.0%	148	100.0%
Do you own or rent your home	OWN	489	99.4%	144	99.4%
	RENT	5	.6%	4	.6%
Total		494	100.0%	148	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	481	99.4%	146	98.5%
	SEASONALLY	14	.6%	2	1.5%
Total		495	100.0%	148	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
How many months out of the year do you spend in your home	0	1	2.1%		
	1	1	7.5%		
	2	1	11.7%		
	3	3	35.0%		
	4	4	17.8%		
	5	2	12.2%		
	6	1	11.7%	2	100.0%
	8	1	2.1%		
Total		14	100.0%	2	100.0%
Age of house (calculated, recoded)	2 years or less	103	12.2%	36	17.1%
	3-5 years	223	43.4%	64	44.2%
	6-20 years	84	21.5%	23	16.4%
	More than 20 years	78	22.9%	22	22.3%
Total		488	100.0%	145	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
What size lot do you own	Less than 1 acre	80	15.3%	19	8.5%
	1 acre to 3 acres	209	42.6%	59	34.7%
	More than 3 acres	199	42.1%	65	56.8%
Total		488	100.0%	143	100.0%
How many people live in your household? (recoded)	1-2	203	42.8%	62	43.5%
	3-4	206	39.9%	65	39.9%
	3.00	79	15.6%	20	16.4%
	98.00	1	.0%		
	99.00	8	1.6%	1	.2%
Total		497	100.0%	148	100.0%
Would you describe the amount of usage of your household sewage system as	Light	238	48.5%	61	41.3%
	Moderate OR	218	42.5%	74	51.1%
	Heavy	35	9.0%	10	7.6%
Total		491	100.0%	145	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Confirm your gender	MALE	354	65.9%	102	64.6%
	FEMALE	141	34.1%	46	35.4%
Total		495	100.0%	148	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In what year were you born	19	1	.0%		
	22	1	.5%		
	24	1	.1%		
	25			1	.2%
	27			1	1.9%
	28			1	1.1%
	29	1	.5%	1	.0%
	30	1	.4%	1	.1%
	31	1	.0%		
	32	3	.1%		
	33	4	1.1%	1	.0%
	34	2	.8%	1	.2%
	35	2	.8%	1	1.9%
	36	5	1.5%	3	1.5%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In what year were you born	37	2	.1%	1	.0%
	38	5	.8%		
	39	4	1.9%		
	40	7	1.6%	3	2.1%
	41	8	1.8%	4	.6%
	42	10	2.5%	1	.2%
	43	4	.2%	2	1.5%
	44	4	.2%	4	.4%
	45	11	1.2%	2	.2%
	46	13	3.3%	3	1.6%
	47	9	1.9%	1	.2%
	48	8	1.1%	3	2.7%
	49	12	3.8%	3	1.7%
	50	11	1.7%	3	2.6%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In what year were you born	51	15	3.8%	5	2.3%
	52	13	1.3%	7	4.8%
	53	15	5.1%	4	6.8%
	54	17	2.3%	4	6.8%
	55	15	5.5%	7	4.0%
	56	19	5.3%	4	3.7%
	57	11	3.1%	1	.1%
	58	18	5.2%	2	.1%
	59	18	2.7%	3	.4%
	60	17	4.2%	2	.2%
	61	14	3.3%	3	4.8%
	62	14	3.4%	5	2.0%
	63	11	.9%	4	5.3%
	64	18	3.9%	1	1.5%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In what year were you born	65	14	2.3%	5	3.3%
	66	8	1.8%	3	4.9%
	67	13	2.6%	5	1.7%
	68	17	2.7%	4	5.5%
	69	13	3.7%	4	1.8%
	70	9	2.2%	8	6.5%
	71	11	1.8%	2	2.4%
	72	6	.6%	1	.0%
	73	4	.6%	1	1.9%
	74	7	.9%	3	1.8%
	75	1	.0%	2	2.2%
	76	5	.9%	4	.5%
	77	2	.6%	3	.4%
	78	5	.6%	2	1.2%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
In what year were you born	79	3	.2%		
	80	2	.1%		
	81	3	.1%		
	82	1	.0%		
	83	1	.1%	2	2.2%
	85	1	.1%		
Total		471	100.0%	142	100.0%
Respondent education (recoded)	High school or less	78	15.8%	33	25.0%
	Some college, 2-year degree	90	17.0%	36	24.4%
	College grad	165	35.4%	46	29.7%
	Graduate or professional degree	156	31.1%	30	17.2%
	REF	8	.7%	3	3.8%
Total		497	100.0%	148	100.0%

Survey of Alternative Onsite Sewage System Issues

		Which statement best describes how you maintain your sewage system			
		You make sure routine or preventive maintenance is done OR		You only react when problems occur	
		uN	w%	uN	w%
Do you consider yourself to be of Hispanic origin	YES	11	1.4%	2	3.3%
	NO	481	98.6%	144	96.7%
Total		492	100.0%	146	100.0%
Respondent's race (recoded)	White	434	90.6%	123	81.7%
	Other	47	7.6%	19	10.0%
	REF	16	1.8%	6	8.4%
Total		497	100.0%	148	100.0%
Respondent's income (recoded)	Less than \$50K	43	11.3%	16	10.0%
	\$50K-\$100K	108	25.8%	36	43.2%
	\$100K or more	228	62.9%	59	46.8%
Total		379	100.0%	111	100.0%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Contractor	401	79.4%	83	20.6%	124	87.6%	13	12.4%
Builder	336	69.5%	148	30.5%	93	73.0%	44	27.0%
System designer	435	96.5%	49	3.5%	124	90.6%	13	9.4%
System manufacturer	475	98.7%	9	1.3%	136	99.8%	1	.2%
The lending institution	484	100.0%			137	100.0%		
Attorney at closing	483	100.0%	1	.0%	137	100.0%		
Real estate agent	469	97.8%	15	2.2%	130	95.0%	7	5.0%
Previous owner of the house	466	97.7%	18	2.3%	134	94.1%	3	5.9%
Neighbor	483	100.0%	1	.0%	136	99.8%	1	.2%
Health department employee	403	82.3%	81	17.7%	113	79.5%	24	20.5%
No one	460	92.5%	24	7.5%	134	99.5%	3	.5%
Self identified	423	81.6%	61	18.4%	113	76.7%	24	23.3%
Other specify	402	86.4%	82	13.6%	121	95.9%	16	4.1%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Don't know/not sure	468	96.7%	16	3.3%	134	95.4%	3	4.6%
Refused	483	100.0%	1	.0%	137	100.0%		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done				You only react when problems occur			
	OR							
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
uN	w%	uN	w%	uN	w%	uN	w%	
Pumping solids from tanks	401	89.8%	69	10.2%	97	73.1%	38	26.9%
Cleaning filters	255	47.3%	167	52.7%	29	11.4%	86	88.6%
Adjusting flows	145	31.0%	253	69.0%	18	4.1%	95	95.9%
Maintaining adequate vegetation over the dispersal area	300	75.4%	142	24.6%	68	54.1%	58	45.9%
Adding bacteria or yeast	150	39.2%	291	60.8%	22	22.7%	107	77.3%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	89	16.9%	388	83.1%	12	5.0%	132	95.0%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	49	33.6%	138	66.4%	6	48.2%	9	51.8%
Annual inspection	52	45.3%	135	54.7%	3	8.3%	12	91.7%
Inspection twice a year	121	56.0%	66	44.0%	11	92.0%	4	8.0%
Cleaning the filters	63	33.9%	124	66.1%	9	18.9%	6	81.1%
Measuring sludge levels	42	19.8%	145	80.2%	8	16.7%	7	83.3%
Verifying pumps are working	93	42.4%	94	57.6%	11	20.8%	4	79.2%
Tightening wires that loosen	76	43.6%	111	56.4%	10	55.7%	5	44.3%
Determining the cause of alarms or improper function of alarms	43	19.1%	144	80.9%	8	47.0%	7	53.0%
Replacing parts that break	59	33.7%	128	66.3%	7	13.3%	8	86.7%
Taking samples to the laboratory	134	67.1%	53	32.9%	11	56.6%	4	43.4%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done				You only react when problems occur			
	OR							
	NOT SELECTED	SELECTED	NOT SELECTED	SELECTED	NOT SELECTED	SELECTED	NOT SELECTED	SELECTED
	uN	w%	uN	w%	uN	w%	uN	w%
Don't know/not sure	181	93.5%	6	6.5%	14	99.1%	1	.9%
Refused	186	99.9%	1	.1%	15	100.0%		

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
You were having a problem with your system	110	72.4%	45	27.6%	20	79.9%	11	20.1%
You wanted to know how your system worked	60	34.6%	95	65.4%	13	19.5%	18	80.5%
You wanted to know your system's maintenance requirements	83	49.6%	72	50.4%	16	39.7%	15	60.3%
Some other reason	120	84.6%	35	15.4%	23	89.3%	8	10.7%
Don't know/not sure	155	100.0%			31	100.0%		
Refused	155	100.0%			31	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	Which statement best describes how you maintain your sewage system											
	You make sure routine or preventive maintenance is done OR						You only react when problems occur					
	A lot		Some		None		A lot		Some		None	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
News from newspapers, radio, television	7	1.6%	102	28.2%	390	70.2%	1	.1%	26	25.3%	121	74.6%
County Health Department or Virginia Dept. of Health	72	17.1%	238	47.2%	186	35.6%	22	19.1%	58	40.1%	68	40.8%
Local government [IF NEEDED: Other than the local health department.]	21	3.3%	99	23.3%	376	73.4%	5	4.2%	27	15.8%	116	80.0%
Internet sources such as web sites, emails, blogs, listservs, etc.	75	14.4%	163	32.6%	260	53.1%	8	1.7%	44	30.6%	96	67.7%
Friends, neighbors or family	76	17.5%	203	43.2%	220	39.4%	21	14.6%	54	46.7%	73	38.7%
Sewage system professionals and contractors	229	36.4%	194	45.6%	74	18.0%	36	19.5%	53	41.7%	58	38.7%
How much of your knowledge about sewage systems comes from the following sources: Other (specify)	44	8.7%	37	7.4%	414	83.9%	8	4.4%	6	3.0%	133	92.5%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done				You only react when problems occur			
	OR							
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%	uN	w%	uN	w%
Before selling their property	245	89.2%	29	10.8%	59	93.2%	4	6.8%
Before buying property	192	69.0%	79	31.0%	40	74.7%	23	25.3%
At a fixed interval regardless of buying or selling	217	75.8%	52	24.2%	46	79.1%	14	20.9%
After repairs are completed following a problem with the system	190	74.8%	71	25.2%	51	95.0%	11	5.0%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	80	31.3%	190	68.7%	20	33.0%	43	67.0%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	115	87.0%	13	13.0%	32	83.6%	3	16.4%
Sewage backing up into the house	118	95.7%	10	4.3%	32	86.7%	3	13.3%
Water draining too slowly	119	91.9%	9	8.1%	32	84.6%	3	15.4%
Septic or musty odors	122	98.6%	6	1.4%	33	88.2%	2	11.8%
Frequent alarms	98	78.8%	30	21.2%	31	98.0%	4	2.0%
High operating costs	127	99.7%	1	.3%	35	100.0%		
Other specify	35	26.3%	93	73.7%	7	27.3%	28	72.7%
Don't know/not sure	128	100.0%			35	100.0%		
Refused	128	100.0%			35	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR You only react when problems occur							
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	5	95.0%	1	5.0%	1	100.0%		
Sewage backing up into the house	6	100.0%			1	100.0%		
Water draining too slowly	5	95.0%	1	5.0%	1	100.0%		
Septic or musty Odors	5	97.6%	1	2.4%	1	100.0%		
Frequent alarms	5	95.0%	1	5.0%	1	100.0%		
High operating costs	6	100.0%			1	100.0%		
Other specify	2	10.0%	4	90.0%			1	100.0%
Don't know/not sure	6	100.0%			1	100.0%		
Refused	6	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Overall construction and installation costs	23	89.4%	6	10.6%	4	71.9%	1	28.1%
Maintenance costs	22	87.1%	7	12.9%	4	95.6%	1	4.4%
Frequency of pump outs	26	94.4%	3	5.6%	5	100.0%		
Cost of pump outs	27	96.6%	2	3.4%	4	95.6%	1	4.4%
Alarms (going off too frequently, not working, etc.)	23	71.4%	6	28.6%	3	37.6%	2	62.4%
Reliability of your sewage system	24	91.0%	5	9.0%	5	100.0%		
Visual appearance of the system	26	94.4%	3	5.6%	5	100.0%		
Control of odors	27	97.8%	2	2.2%	5	100.0%		
Noise levels	28	97.7%	1	2.3%	4	95.6%	1	4.4%
Response time for service calls	28	97.7%	1	2.3%	5	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Which statement best describes how you maintain your sewage system							
	You make sure routine or preventive maintenance is done OR				You only react when problems occur			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Quality of maintenance providers	26	94.4%	3	5.6%	4	71.9%	1	28.1%
Knowledge displayed by maintenance providers	27	95.5%	2	4.5%	4	71.9%	1	28.1%
Number of maintenance providers	29	100.0%			5	100.0%		
Other specify	7	27.9%	22	72.1%	4	94.9%	1	5.1%
Don't know/not sure	29	100.0%			5	100.0%		
Refused	29	100.0%			5	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	Which statement best describes how you maintain your sewage system			
	You make sure routine or preventive maintenance is done OR			
	NOT SELECTED		SELECTED	
	uN	w%	uN	w%
POWER FAILURES	3	98.0%	1	2.0%
FREEZING TEMERATURES	4	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	4	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	4	100.0%		
OTHER (SPECIFY)	2	11.6%	2	88.4%
DON'T KNOW OR NOT SURE	3	90.3%	1	9.7%
REFUSED	4	100.0%		

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Number of sewage systems on your property	ONE	454	94.9%	191	97.9%
	TWO	13	5.1%	7	2.1%
Total		467	100.0%	198	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	233	47.0%	99	53.7%
	Talked about the system with an engineer, builder or contractor	100	22.5%	56	30.4%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	116	22.9%	33	15.0%
	Installed the system yourself	17	7.6%	4	.9%
Total		466	100.0%	192	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Who designed your system	Health department	60	30.1%	23	25.2%
	Engineer	108	22.3%	46	23.4%
	Onsite Soil Evaluator or did the	10	3.8%	5	4.6%
	Engineer and Onsite Soil Evaluator working together	79	16.5%	27	22.4%
	OTHER specify ____	71	27.2%	26	24.4%
Total		328	100.0%	127	100.0%
Does your system have a pump	YES	342	51.6%	134	58.6%
	NO	113	48.4%	49	41.4%
Total		455	100.0%	183	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	316	66.6%	121	55.3%
	NO	138	33.4%	74	44.7%
Total		454	100.0%	195	100.0%
Age of current system (calculated) (recoded)	Less than one year old	16	2.9%	7	.6%
	1-3 years	209	36.9%	80	32.1%
	4-6 years	151	32.5%	54	33.0%
	7-10 yrs	29	6.0%	13	8.9%
	11-20 yrs	23	11.0%	16	8.4%
	More than 20 yrs	30	10.6%	23	17.0%
Total		458	100.0%	193	100.0%
Are there parts of your sewage system that were added or updated later	YES	49	13.2%	28	17.4%
	NO	413	86.8%	168	82.6%
Total		462	100.0%	196	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
In what year were they done	1986	1	.4%		
	1994	1	.5%		
	1995	1	.4%		
	1998	1	4.0%		
	1999			1	8.3%
	2000			1	.8%
	2001	1	.5%	2	8.0%
	2003			2	11.5%
	2004	1	4.0%	1	7.2%
	2005	3	8.4%		
	2006	3	6.7%	4	20.0%
	2007	12	36.6%	6	18.8%
	2008	9	7.2%	5	13.4%
	2009				
		14	31.3%	5	12.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		47	100.0%	27	100.0%
Length of personal use of current system (calculated) (recoded)	Less than one year	23	4.3%	15	3.0%
	1-3 years	236	40.7%	87	36.3%
	4-6 years	136	29.6%	52	34.2%
	7-10 yrs	32	9.3%	18	8.9%
	11-20 yrs	21	10.1%	13	7.5%
	More than 20 yrs	17	6.0%	11	8.1%
	DK	2	.1%	2	2.0%
Total		467	100.0%	198	100.0%
Are you aware of any legal obligations for using your sewage system	YES	166	30.5%	64	30.6%
	NO	285	69.5%	120	69.4%
Total		451	100.0%	184	100.0%
Do you know where your sewage system is located	YES	448	99.9%	187	100.0%
	NO	1	.1%		
Total		449	100.0%	187	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	354	75.0%	141	73.9%
	You only react when problems occur	102	25.0%	46	26.1%
Total		456	100.0%	187	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage	YES	151	12.4%	54	14.1%
	NO	314	87.6%	142	85.9%
Total		465	100.0%	196	100.0%
How much does your maintenance contract cost per year	\$0 to \$299	45	28.0%	12	23.3%
	\$300 to \$499	58	43.8%	17	46.2%
	\$500 to \$799	14	25.9%	3	10.9%
	\$800 or more	6	2.3%	2	19.6%
Total		123	100.0%	34	100.0%
In your opinion, is this amount	Very expensive	29	24.8%	7	32.5%
	Somewhat expensive	47	29.0%	13	26.1%
	Somewhat inexpensive	29	35.5%	7	29.6%
	Very inexpensive	12	10.7%	4	11.7%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		117	100.0%	31	100.0%
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	121	73.3%	54	70.4%
	NO	30	20.2%	17	23.7%
	BEEEN HERE LESS THAN FIVE YEARS VOLUNTEERED	7	6.5%	4	5.9%
Total		158	100.0%	75	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	58	56.1%	34	64.1%
	2	24	20.4%	14	20.9%
	3	4	3.5%	2	6.3%
	4	6	5.8%	1	3.2%
	5	11	6.7%	1	3.2%
	6	5	3.0%	1	2.4%
	7	1	.1%		
	8	1	.1%		
	9	1	1.6%		
	10	4	.7%		
	11	1	1.6%		
	20	1	.1%		
	52	1	.1%		
	54	1	.1%		
Total		119	100.0%	53	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	18	9.8%	2	5.5%
	WITHIN THE LAST SIX MONTHS	40	26.2%	9	11.2%
	WITHIN THE LAST YEAR	16	14.1%	12	11.5%
	1-2 YEARS	31	27.9%	18	30.1%
	MORE THAN 2 YEARS	15	22.0%	13	41.7%
Total		120	100.0%	54	100.0%
Has routine maintenance ever been performed on your system	YES	5	10.4%	5	38.6%
	NO	25	89.6%	11	61.4%
Total		30	100.0%	16	100.0%
Are you familiar with the pumping of your sewage system?	YES	320	78.7%	103	57.4%
	NO [SKIP TO INSPKNOW]	110	18.3%	83	41.0%
	DON'T KNOW/NOT SURE	12	3.0%	6	1.6%
	REFUSED	1	.0%		
Total		443	100.0%	192	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids	ONCE A YEAR	15	5.7%	4	8.3%
	EVERY 2-4 YEARS	71	23.5%	31	31.6%
	EVERY 5 YEARS	81	35.5%	18	29.9%
	AS NEEDED	13	5.4%	4	8.4%
	NEVER/NOT APPLICABLE	7	.3%	2	.3%
	NO RECOMMENDATION	24	10.8%	6	10.3%
	OTHER	43	18.7%	8	11.4%
Total		254	100.0%	73	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	106	30.2%	30	30.8%
	EVERY 4-5 YEARS	94	35.7%	34	39.5%
	EVERY 6-10 YEARS	19	6.7%	2	2.4%
	MORE THAN 10 YEARS	1	1.1%	1	.2%
	NEVER [SKIP TO INSPKNOW]	70	20.6%	25	19.2%
	DON'T KNOW/NOT SURE	30	5.7%	11	7.9%
Total		320	100.0%	103	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	88	39.0%	34	39.9%
	1-3 YEARS AGO	64	43.5%	19	41.1%
	4-5 YEARS AGO	14	13.9%	5	15.4%
	MORE THAN 5 YEARS AGO	4	3.7%	1	3.6%
Total		170	100.0%	59	100.0%
Has your tank ever been pumped for other than routine maintenance	YES	23	9.1%	8	13.1%
	NO	195	90.9%	58	86.9%
Total		218	100.0%	66	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50	2	.3%		
	65	1	2.3%		
	75			1	.5%
	85	3	2.3%	1	2.7%
	95	1	2.3%		
	100	5	5.8%	3	4.3%
	110	3	3.1%		
	115	1	1.1%		
	120			1	3.5%
	125	4	2.6%	2	8.1%
	130	1	.2%		
	135	1	.2%	1	.3%
	150	13	12.3%	5	9.0%
	160	3	4.0%		
	165			1	.3%
	170	1	1.5%		

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	175	6	2.2%	1	.2%
	180	2	2.9%		
	190	2	1.3%		
	195			1	3.5%
	200	22	18.1%	10	25.7%
	210	1	.1%		
	220	2	1.7%		
	225	3	2.7%		
	230	2	.4%		
	235	1	.2%		
	250	17	15.1%	5	9.3%
	275	1	.0%		
	280			1	3.5%
	300	15	7.8%	4	10.9%
	325	1	.1%	1	3.5%
350	1	1.5%	1	5.2%	

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	375	1	2.3%		
	400	2	3.7%	2	5.6%
	450	2	2.0%	1	3.5%
	500	1	.2%		
	600			1	.3%
	750	1	.0%		
Total		122	100.0%	43	100.0%
Are you familiar with the process of having your sewage system inspected?	YES	220	43.9%	78	32.7%
	NO	237	53.4%	111	63.6%
	DON'T KNOW/NOT SURE	9	2.6%	9	3.7%
	REFUSED	1	.0%		
Total		467	100.0%	198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	14	2.8%	6	1.1%
	ONCE A YEAR	71	23.0%	17	8.3%
	EVERY 2-4 YEARS	21	13.3%	4	8.6%
	EVERY 5 YEARS	12	10.3%	3	.7%
	EVERY 6-10 YEARS	2	1.8%		
	AFTER A MAJOR REPAIR	1	.1%		
	NEVER	8	6.3%	6	11.1%
	OTHER	15	8.4%	7	9.9%
	DON'T KNOW/NOT SURE	76	34.0%	35	60.3%
Total		220	100.0%	78	100.0%
Has your sewage system ever been inspected for any reason	YES	179	69.3%	62	75.0%
	NO	40	30.7%	16	25.0%
Total		219	100.0%	78	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	128	50.6%	52	71.9%
	1-3 YEARS AGO	34	31.9%	7	18.5%
	MORE THAN THREE YEARS AGO	16	17.4%	3	9.6%
Total		178	100.0%	62	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	1	2	.4%		
	30	2	2.0%		
	35	1	.2%		
	40	1	.0%		
	50	12	12.3%	5	8.8%
	55	1	.2%		
	59	1	2.8%		
	60	3	2.2%		
	65			1	.3%
	75	10	15.3%	2	9.6%
	80	1	1.8%		
	85	1	1.4%	1	3.6%
	99			1	6.2%
	100	25	21.3%	4	24.1%
	120			1	.4%
125	2	2.0%	1	4.8%	

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Whatould you consider to be a reasonable charge to inspect your sewage system	140	1	.2%		
	150	12	13.6%	4	6.1%
	200	13	12.4%	8	24.3%
	225	3	4.5%		
	250	5	2.9%	2	6.6%
	300	1	.1%	1	.4%
	350	2	2.5%	1	4.8%
	400	2	2.0%		
Total		101	100.0%	32	100.0%
Are you familiar with the media or air blower for your system?	YES	78	30.0%	16	12.6%
	NO /SYSTEM DOES NOT HAVE THEM	160	70.0%	72	87.4%
Total		238	100.0%	88	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS			1	2.1%
	EVERY 10 YEARS	4	27.0%	3	42.5%
	ONLY AFTER A MAJOR FAILURE	7	14.2%	3	43.7%
	NEVER	4	5.1%	1	4.4%
	OTHER	21	53.7%	4	7.2%
Total		36	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
About how much would it cost to have the media or air blower replaced for your system	200	1	2.8%		
	250	2	26.2%		
	475	1	2.1%		
	500	3	7.3%		
	539			1	5.0%
	800	3	27.5%		
	900	1	2.8%	1	7.7%
	1000	2	3.3%	1	87.3%
	1250	1	23.4%		
	2000	2	3.4%		
	2500	1	.6%		
	3000	1	.6%		
	Total		18	100.0%	3

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	94	23.7%	45	19.5%
	NO [SKIP TO REPLACE]	365	75.3%	151	79.2%
	DON'T KNOW OR NOT SURE	7	1.1%	2	1.3%
	REFUSED	1	.0%		
Total		467	100.0%	198	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	40	27.8%	17	38.7%
	NO	48	72.2%	25	61.3%
Total		88	100.0%	42	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	27	49.5%	5	19.0%
	1-3 YEARS AGO	9	19.3%	8	55.2%
	MORE THAN THREE YEARS AGO	3	31.2%	3	25.8%
Total		39	100.0%	16	100.0%
Have you ever had a LABORATORY test done on your sewage system for any reason?	YES	20	11.9%	9	25.5%
	NO	64	88.1%	34	74.5%
Total		84	100.0%	43	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR	15	46.2%	3	54.9%
	1-3 YEARS AGO	4	32.5%	4	44.5%
	MORE THAN THREE YEARS AGO	1	21.3%	1	.5%
Total		20	100.0%	8	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS	3	1.3%	3	2.0%
	EVERY 10 YEARS	10	5.2%	6	4.2%
	ONLY AFTER IT QUILTS WORKING	63	19.2%	11	12.1%
	NEVER	19	3.3%	3	2.1%
	OTHER _____	19	5.7%	5	5.7%
	DON'T KNOW/NOT SURE	226	65.2%	106	73.9%
	REFUSED	2	.1%		
Total		342	100.0%	134	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	271	43.0%	98	45.5%
	NO	181	57.0%	86	54.5%
Total		452	100.0%	184	100.0%
Have you ever consulted the manual for any reason	YES	139	55.6%	48	47.2%
	NO	132	44.4%	50	52.8%
Total		271	100.0%	98	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How helpful was the manual	Very helpful	55	45.0%	17	42.1%
	Somewhat helpful	66	49.9%	22	43.1%
	Not very helpful	12	4.3%	5	14.5%
	Not helpful at all	5	.7%	1	.3%
Total		138	100.0%	45	100.0%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	192	52.5%	80	53.3%
	NO	161	47.5%	58	46.7%
Total		353	100.0%	138	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	241	66.9%	105	74.0%
	NO [SKIP TO WHOINSP]	156	33.1%	54	26.0%
Total		397	100.0%	159	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How often do you think people might be required to have their systems inspected	Every six months	6	.7%	2	2.6%
	Once a year	44	13.7%	10	6.9%
	Every 2-4 years	60	36.0%	21	32.1%
	Every 5 years	50	32.4%	29	35.4%
	Every 6-10 years	8	8.2%	9	18.4%
	Or some other interval? (SPECIFY)	15	9.1%	5	4.5%
Total		183	100.0%	76	100.0%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	43	14.8%	23	12.4%
	6 months	33	12.8%	15	18.1%
	12 months or	86	43.5%	29	35.6%
	Inspections should not be required	18	7.3%	13	13.3%
	OTHER Specify	44	21.5%	16	20.6%
Total		224	100.0%	96	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	68	12.6%	30	12.1%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	364	87.4%	150	87.9%
Total		432	100.0%	180	100.0%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	333	74.0%	144	75.7%
	OPPOSE	107	25.4%	38	19.8%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS	4	.6%	5	4.5%
Total		444	100.0%	187	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	117	19.6%	51	20.7%
	NO	348	80.4%	147	79.3%
Total		465	100.0%	198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Are you having any problems with your sewage system or drain field now	YES	4	.7%	3	1.2%
	NO	461	99.3%	194	98.8%
Total		465	100.0%	197	100.0%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	31	6.1%	23	15.0%
	TWO TIMES	4	.9%	3	2.7%
	THREE TIMES	2	.6%		
	MORE THAN THREE TIMES	3	.5%	1	.1%
	NEVER	425	91.9%	171	82.2%
Total		465	100.0%	198	100.0%
How old was this system when it first failed	LESS THAN ONE YEAR OLD	14	34.4%	6	24.8%
	1-3 YEARS OLD	4	8.1%	4	16.1%
	4-6 YEARS OLD	7	10.1%	5	11.5%
	6-10 YEARS OLD	4	8.8%		
	11-20 YEARS OLD	5	16.1%	1	.5%
	MORE THAN 20 YEARS OLD	6	22.6%	9	47.1%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		40	100.0%	25	100.0%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	94	25.5%	27	17.7%
	TWO TIMES	33	5.9%	16	5.8%
	THREE TIMES	24	6.4%	3	.4%
	MORE THAN THREE TIMES	36	11.2%	18	12.7%
	NEVER SOUNDED	164	48.6%	74	60.5%
	DO NOT HAVE AN ALARM	8	2.4%	5	2.9%
Total		359	100.0%	143	100.0%
How satisfied are you with your sewage system	Very satisfied	354	85.2%	155	91.3%
	Somewhat satisfied	83	11.9%	32	6.1%
	Somewhat dissatisfied	14	1.9%	6	1.4%
	Very dissatisfied	11	.9%	4	1.3%
Total		462	100.0%	197	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How reliable is your sewage system	Very reliable	410	92.9%	179	96.7%
	Somewhat reliable	47	7.0%	13	2.2%
	Somewhat unreliable			2	1.1%
	Very unreliable	2	.1%		
Total		459	100.0%	194	100.0%

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	79	11.4%	30	9.7%
	2-5 years	267	52.7%	103	49.0%
	6-10 years	59	15.1%	21	10.7%
	More than 10 years	61	20.9%	43	30.6%
Total		466	100.0%	197	100.0%
Do you own or rent your home	OWN	458	99.7%	196	98.9%
	RENT	7	.3%	2	1.1%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		465	100.0%	198	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	452	99.0%	195	99.7%
	SEASONALLY	14	1.0%	3	.3%
Total		466	100.0%	198	100.0%
How many months out of the year do you spend in your home	0	1	1.2%		
	1	1	4.5%		
	2	1	7.0%		
	3	2	14.0%	2	54.0%
	4	3	3.7%	1	46.0%
	5	2	7.3%		
	6	3	61.0%		
	8	1	1.2%		
Total		14	100.0%	3	100.0%
Age of house (calculated, recoded)	2 years or less	102	14.0%	38	10.8%
	3-5 years	215	43.8%	84	45.6%
	6-20 years	78	21.2%	33	17.2%
	More than 20 years	66	21.0%	37	26.4%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		461	100.0%	192	100.0%
What size lot do you own	Less than 1 acre	76	13.6%	27	13.0%
	1 acre to 3 acres	195	39.4%	83	45.3%
	More than 3 acres	191	47.0%	81	41.7%
Total		462	100.0%	191	100.0%
How many people live in your household? (recoded)	1-2	188	40.9%	90	47.5%
	3-4	200	43.0%	78	33.4%
	3.00	72	14.8%	29	18.2%
	98.00	1	.0%		
	99.00	6	1.2%	1	1.0%
Total		467	100.0%	198	100.0%
Would you describe the amount of usage of your household sewage system as	Light	221	47.8%	90	45.7%
	Moderate OR	208	43.5%	92	46.9%
	Heavy	31	8.8%	14	7.3%
Total		460	100.0%	196	100.0%
Confirm your gender	MALE	467	100.0%		
	FEMALE			198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Total		467	100.0%	198	100.0%
In what year were you born	19	1	.0%		
	22	1	.6%		
	24	1	.1%		
	25			1	.1%
	27			1	1.3%
	28	2	1.3%		
	29	1	.0%	1	1.0%
	30	1	.0%	2	2.3%
	31			1	.1%
	32	3	.1%	1	.1%
	33	3	.1%	2	2.1%
	34	2	.9%	1	.1%
	35	2	.9%	1	1.3%
	36	5	1.2%	3	1.8%
37	2	.1%	1	.0%	
38	5	.9%	1	.1%	

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
In what year were you born	39	2	.8%	2	2.3%
	40	7	1.2%	3	2.5%
	41	9	1.2%	3	1.7%
	42	9	2.1%	2	1.5%
	43	5	.7%	1	.1%
	44	4	.1%	4	.4%
	45	11	1.3%	2	.2%
	46	12	3.2%	5	2.0%
	47	10	2.1%	1	.1%
	48	8	1.6%	4	2.7%
	49	12	4.0%	4	1.6%
	50	10	2.3%	4	1.1%
	51	16	4.1%	5	1.9%
	52	14	2.4%	7	1.6%
	53	16	6.7%	4	2.7%
	54	17	3.9%	4	2.2%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
In what year were you born	55	17	4.8%	5	5.2%
	56	14	4.3%	10	5.5%
	57	9	2.6%	4	1.7%
	58	14	3.8%	7	5.3%
	59	14	2.9%	8	1.7%
	60	14	2.1%	5	5.0%
	61	13	3.9%	5	3.9%
	62	14	2.7%	5	3.3%
	63	11	1.6%	5	2.6%
	64	13	2.9%	6	3.6%
	65	12	2.4%	7	2.5%
	66	7	2.5%	4	2.5%
	67	11	1.4%	7	4.0%
	68	15	2.4%	6	4.9%
	69	13	3.1%	5	4.7%
	70	11	3.3%	6	2.9%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
In what year were you born	71	9	1.9%	4	1.8%
	72	5	.1%	2	1.1%
	73	3	.8%	3	2.1%
	74	8	1.5%	2	.3%
	75	1	.8%	2	.0%
	76	6	1.1%	3	.3%
	77	4	.8%	1	.0%
	78	5	1.1%	2	.1%
	79	3	.2%		
	80	2	.1%		
	81	3	.2%		
	82	1	.0%	1	.0%
	83	2	.9%	1	.0%
	85	1	.1%		
	Total		446	100.0%	187

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Respondent education (recoded)	High school or less	79	16.7%	37	21.4%
	Some college, 2-year degree	87	16.3%	42	21.6%
	College grad	158	35.9%	62	30.9%
	Graduate or professional degree	136	29.5%	54	25.1%
	REF	7	1.6%	3	1.1%
Total		467	100.0%	198	100.0%
Do you consider yourself to be of Hispanic origin	YES	7	.3%	6	4.4%
	NO	455	99.7%	191	95.6%
Total		462	100.0%	197	100.0%
Respondent's race (recoded)	White	405	89.1%	171	88.3%
	Other	43	5.9%	24	11.4%
	REF	19	5.0%	3	.3%
Total		467	100.0%	198	100.0%

Survey of Alternative Onsite Sewage System Issues

		Confirm your gender			
		MALE		FEMALE	
		uN	w%	uN	w%
Respondent's income (recoded)	Less than \$50K	34	9.3%	31	14.9%
	\$50K-\$100K	103	31.5%	47	32.6%
	\$100K or more	221	59.3%	70	52.6%
Total		358	100.0%	148	100.0%

Who told you what type of sewage system you have?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Contractor	377	78.1%	74	21.9%	161	89.3%	22	10.7%
Builder	322	74.0%	129	26.0%	119	62.4%	64	37.6%
System designer	399	93.1%	52	6.9%	173	99.4%	10	.6%
System manufacturer	443	98.9%	8	1.1%	181	99.2%	2	.8%
The lending institution	451	100.0%			183	100.0%		
Attorney at closing	450	100.0%	1	.0%	183	100.0%		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Real estate agent	434	96.5%	17	3.5%	178	98.6%	5	1.4%
Previous owner of the house	437	97.3%	14	2.7%	175	95.2%	8	4.8%
Neighbor	450	100.0%	1	.0%	182	99.9%	1	.1%
Health department employee	384	84.5%	67	15.5%	144	79.2%	39	20.8%
No one	430	92.7%	21	7.3%	175	94.3%	8	5.7%
Self identified	377	75.4%	74	24.6%	169	90.7%	14	9.3%
Other specify	375	88.0%	76	12.0%	160	90.9%	23	9.1%
Don't know/not sure	439	98.0%	12	2.0%	175	93.6%	8	6.4%
Refused	450	100.0%	1	.0%	183	100.0%		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	Confirm your gender							
	MALE				FEMALE			
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
	uN	w%	uN	w%	uN	w%	uN	w%
Pumping solids from tanks	357	86.5%	83	13.5%	149	85.4%	29	14.6%
Cleaning filters	207	35.5%	188	64.5%	78	41.8%	69	58.2%
Adjusting flows	119	21.7%	265	78.3%	48	31.4%	89	68.6%
Maintaining adequate vegetation over the dispersal area	265	70.6%	148	29.4%	106	65.4%	61	34.6%
Adding bacteria or yeast	125	31.8%	300	68.2%	54	44.6%	104	55.4%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	69	12.7%	383	87.3%	35	17.3%	149	82.7%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	40	36.2%	111	63.8%	15	31.6%	39	68.4%
Annual inspection	41	34.4%	110	65.6%	15	56.5%	39	43.5%
Inspection twice a year	97	57.8%	54	42.2%	37	59.6%	17	40.4%
Cleaning the filters	51	32.1%	100	67.9%	23	34.4%	31	65.6%
Measuring sludge levels	36	23.1%	115	76.9%	15	13.9%	39	86.1%
Verifying pumps are working	79	43.9%	72	56.1%	27	36.1%	27	63.9%
Tightening wires that loosen	62	45.6%	89	54.4%	26	42.6%	28	57.4%
Determining the cause of alarms or improper function of alarms	40	22.5%	111	77.5%	13	19.0%	41	81.0%
Replacing parts that break	47	42.1%	104	57.9%	21	16.3%	33	83.7%
Taking samples to the laboratory	106	65.9%	45	34.1%	41	67.0%	13	33.0%
Don't know/not sure	147	90.6%	4	9.4%	51	99.3%	3	.7%
Refused	150	99.9%	1	.1%	54	100.0%		

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
You were having a problem with your system	97	72.1%	42	27.9%	33	65.4%	15	34.6%
You wanted to know how your system worked	52	31.7%	87	68.3%	21	38.8%	27	61.2%
You wanted to know your system's maintenance requirements	74	49.4%	65	50.6%	27	49.1%	21	50.9%
Some other reason	106	86.4%	33	13.6%	39	87.9%	9	12.1%
Don't know/not sure	139	100.0%			48	100.0%		
Refused	139	100.0%			48	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	Confirm your gender											
	MALE						FEMALE					
	A lot		Some		None		A lot		Some		None	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
News from newspapers, radio, television	3	.6%	92	26.9%	371	72.5%	5	3.0%	37	26.0%	156	71.0%
County Health Department or Virginia Dept. of Health	66	19.1%	211	43.6%	187	37.3%	30	14.5%	91	46.9%	76	38.6%
Local government [IF NEEDED: Other than the local health department.]	20	4.0%	93	21.3%	351	74.7%	6	3.3%	37	20.7%	154	75.9%
Internet sources such as web sites, emails, blogs, listservs, etc.	62	11.1%	156	33.1%	248	55.7%	23	11.4%	53	26.6%	121	61.9%
Friends, neighbors or family	65	18.5%	189	44.7%	212	36.8%	35	14.8%	70	41.6%	93	43.6%
Sewage system professionals and contractors	198	34.0%	180	46.3%	88	19.7%	72	29.9%	73	40.8%	50	29.3%
How much of your knowledge about sewage systems comes from the following sources:Other (specify)	39	9.0%	36	8.0%	386	82.9%	16	5.8%	7	2.4%	174	91.8%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	Confirm your gender							
	MALE				FEMALE			
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%	uN	w%	uN	w%
Before selling their property	215	86.9%	26	13.1%	94	97.1%	7	2.9%
Before buying property	162	68.6%	75	31.4%	73	73.7%	29	26.3%
At a fixed interval regardless of buying or selling	188	76.1%	50	23.9%	79	78.1%	17	21.9%
After repairs are completed following a problem with the system	171	79.1%	59	20.9%	74	80.0%	23	20.0%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	68	29.8%	171	70.2%	33	34.8%	64	65.2%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	107	89.9%	10	10.1%	44	79.8%	7	20.2%
Sewage backing up into the house	109	93.7%	8	6.3%	46	93.4%	5	6.6%
Water draining too slowly	111	94.1%	6	5.9%	45	83.9%	6	16.1%
Septic or musty odors	111	98.5%	6	1.5%	48	91.8%	3	8.2%
Frequent alarms	97	85.4%	20	14.6%	38	81.8%	13	18.2%
High operating costs	116	99.7%	1	.3%	51	100.0%		
Other specify	21	11.3%	96	88.7%	22	51.8%	29	48.2%
Don't know/not sure	117	100.0%			51	100.0%		
Refused	117	100.0%			51	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	3	90.9%	1	9.1%	3	100.0%		
Sewage backing up into the house	4	100.0%			3	100.0%		
Water draining too slowly	3	90.9%	1	9.1%	3	100.0%		
Septic or musty Odors	3	95.6%	1	4.4%	3	100.0%		
Frequent alarms	4	100.0%			2	90.1%	1	9.9%
High operating costs	4	100.0%			3	100.0%		
Other specify	1	9.1%	3	90.9%	1	9.9%	2	90.1%
Don't know/not sure	4	100.0%			3	100.0%		
Refused	4	100.0%			3	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Overall construction and installation costs	18	75.5%	7	24.5%	10	100.0%		
Maintenance costs	18	86.7%	7	13.3%	9	96.7%	1	3.3%
Frequency of pump outs	22	94.5%	3	5.5%	10	100.0%		
Cost of pump outs	22	94.5%	3	5.5%	10	100.0%		
Alarms (going off too frequently, not working, etc.)	22	66.5%	3	33.5%	5	48.9%	5	51.1%
Reliability of your sewage system	22	94.5%	3	5.5%	8	93.5%	2	6.5%
Visual appearance of the system	23	96.1%	2	3.9%	9	96.7%	1	3.3%
Control of odors	23	97.8%	2	2.2%	10	100.0%		
Noise levels	23	95.5%	2	4.5%	10	100.0%		
Response time for service calls	25	100.0%			9	95.6%	1	4.4%
Quality of maintenance providers	22	82.6%	3	17.4%	9	95.6%	1	4.4%

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Knowledge displayed by maintenance providers	23	83.7%	2	16.3%	9	95.6%	1	4.4%
Number of maintenance providers	25	100.0%			10	100.0%		
Other specify	10	56.3%	15	43.7%	1	37.0%	9	63.0%
Don't know/not sure	25	100.0%			10	100.0%		
Refused	25	100.0%			10	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	Confirm your gender							
	MALE				FEMALE			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
POWER FAILURES	1	83.2%	1	16.8%	2	100.0%		
FREEZING TEMERATURES	2	100.0%			2	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	2	100.0%			2	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	2	100.0%			2	100.0%		
OTHER (SPECIFY)	2	100.0%					2	100.0%
DON'T KNOW OR NOT SURE	1	16.8%	1	83.2%	2	100.0%		
REFUSED	2	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Number of sewage systems on your property	ONE	110	94.5%	127	97.0%	214	95.7%	184	96.4%	13	100.0%
	TWO	6	5.5%	2	3.0%	6	4.3%	6	3.6%		
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	37	33.7%	60	42.6%	122	55.4%	105	54.7%	9	72.8%
	Talked about the system with an engineer, builder or contractor	38	32.9%	28	25.2%	44	20.6%	44	26.0%	2	24.4%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	30	22.5%	35	28.0%	44	16.3%	40	19.4%	1	2.7%
	Installed the system yourself	7	10.9%	5	4.3%	9	7.6%				
Total		112	100.0%	128	100.0%	219	100.0%	189	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Who designed your system	Health department	22	52.7%	25	42.4%	23	21.9%	12	13.0%	1	10.6%
	Engineer	28	15.7%	30	19.5%	53	27.6%	41	23.4%	3	51.4%
	Onsite Soil Evaluator or did the	2	6.7%	3	1.0%	8	6.8%	2	1.7%		
	Engineer and Onsite Soil Evaluator working together	16	11.1%	16	8.3%	36	20.2%	37	26.7%	1	21.8%
	OTHER specify ____	12	13.8%	17	28.7%	30	23.6%	38	35.2%	1	16.1%
Total		80	100.0%	91	100.0%	150	100.0%	130	100.0%	6	100.0%
Does your system have a pump	YES	82	44.5%	83	42.2%	162	55.3%	142	65.6%	9	95.8%
	NO	31	55.5%	41	57.8%	52	44.7%	36	34.4%	2	4.2%
Total		113	100.0%	124	100.0%	214	100.0%	178	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	63	49.1%	83	61.8%	151	69.3%	134	65.4%	8	39.2%
	NO	50	50.9%	41	38.2%	64	30.7%	53	34.6%	4	60.8%
Total		113	100.0%	124	100.0%	215	100.0%	187	100.0%	12	100.0%
Age of current system (calculated) (recoded)	Less than one year old	4	.9%	7	6.9%	6	.3%	6	2.2%		
	1-3 years	50	37.1%	55	30.4%	94	33.4%	85	40.8%	6	11.9%
	4-6 years	29	20.2%	35	30.5%	76	37.8%	62	34.3%	4	63.7%
	7-10 yrs	8	10.8%	7	6.2%	13	7.5%	14	4.8%		
	11-20 yrs	10	17.0%	10	13.5%	10	8.2%	8	5.2%	1	23.1%
	More than 20 yrs	11	14.1%	12	12.5%	17	12.8%	12	12.8%	1	1.3%
Total		112	100.0%	126	100.0%	216	100.0%	187	100.0%	12	100.0%
Are there parts of your sewage system that were added or updated later	YES	14	22.1%	17	19.2%	23	10.9%	23	12.4%		
	NO	101	77.9%	111	80.8%	195	89.1%	165	87.6%	11	100.0%
Total		115	100.0%	128	100.0%	218	100.0%	188	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were they done	1986			1	.9%						
	1994			1	1.2%						
	1995					1	.8%				
	1998	1	8.6%								
	1999			1	14.6%						
	2000			1	1.4%						
	2001	1	1.2%	2	14.1%						
	2003	1	11.1%	1	7.4%						
	2004					1	11.9%	1	9.9%		
	2005			1	12.7%	1	.5%	1	7.4%		
	2006	4	43.3%					3	2.0%		
	2007	2	9.6%	3	25.3%	8	51.6%	5	31.5%		
2008	1	11.1%	3	2.3%	6	14.9%	4	10.3%			

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were they done	2009	2	15.1%	2	20.2%	6	20.2%	9	38.9%		
Total		12	100.0%	16	100.0%	23	100.0%	23	100.0%		
Length of personal use of current system (calculated) (recoded)	Less than one year	6	4.1%	10	7.1%	14	4.7%	8	.7%		
	1-3 years	56	39.5%	58	34.6%	102	34.1%	100	48.1%	9	32.7%
	4-6 years	26	20.1%	32	29.1%	69	34.7%	59	35.0%	2	32.9%
	7-10 yrs	9	10.6%	12	12.1%	16	11.1%	13	4.5%		
	11-20 yrs	9	13.2%	9	10.9%	10	8.2%	5	5.8%	1	19.7%
	More than 20 yrs	9	10.1%	6	5.9%	9	7.2%	4	4.9%		
	DK	1	2.4%	2	.3%			1	.9%		
	Ref									1	14.8%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Are you aware of any legal obligations for using your sewage system	YES	28	19.6%	40	24.2%	80	34.0%	80	38.2%	3	7.1%
	NO	81	80.4%	84	75.8%	133	66.0%	101	61.8%	7	92.9%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		109	100.0%	124	100.0%	213	100.0%	181	100.0%	10	100.0%
Do you know where your sewage system is located	YES	105	100.0%	123	100.0%	209	99.9%	188	100.0%	12	100.0%
	NO					1	.1%				
Total		105	100.0%	123	100.0%	210	100.0%	188	100.0%	12	100.0%

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	78	65.0%	90	67.3%	165	77.8%	156	84.2%	8	36.3%
	You only react when problems occur	33	35.0%	36	32.7%	46	22.2%	30	15.8%	3	63.7%
Total		111	100.0%	126	100.0%	211	100.0%	186	100.0%	11	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage	YES	18	3.3%	34	11.9%	82	19.3%	68	12.9%	3	3.2%
	NO	95	96.7%	95	88.1%	138	80.7%	121	87.1%	9	96.8%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		113	100.0%	129	100.0%	220	100.0%	189	100.0%	12	100.0%
How much does your maintenance contract cost per year	\$0 to \$299	4	44.9%	8	14.6%	21	28.8%	23	23.7%	1	100.0%
	\$300 to \$499	6	41.9%	13	76.9%	32	37.0%	24	45.8%		
	\$500 to \$799	1	13.1%	3	6.1%	10	27.2%	3	14.7%		
	\$800 or more			1	2.3%	3	7.0%	4	15.8%		
Total		11	100.0%	25	100.0%	66	100.0%	54	100.0%	1	100.0%
In your opinion, is this amount	Very expensive	1	5.9%	10	47.8%	12	22.7%	13	31.6%		
	Somewhat expensive	5	46.6%	7	11.3%	27	28.8%	21	33.0%		
	Somewhat inexpensive	3	33.7%	6	37.9%	13	38.7%	14	16.9%		
	Very inexpensive	1	13.9%	2	3.1%	10	9.8%	3	18.5%		
Total		10	100.0%	25	100.0%	62	100.0%	51	100.0%		
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	25	57.5%	34	77.8%	61	74.3%	53	78.4%	2	51.4%
	NO	14	39.6%	11	15.3%	17	25.5%	5	7.5%		
	BEEN HERE LESS THAN FIVE YEARS VOLUNTEERED	1	2.9%	2	6.8%	1	.2%	6	14.1%	1	48.6%
Total		40	100.0%	47	100.0%	79	100.0%	64	100.0%	3	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	16	78.3%	19	59.3%	32	61.6%	24	46.1%	1	5.5%
	2	3	1.5%	6	9.0%	14	25.0%	15	33.9%		
	3	2	7.7%	2	11.3%	1	.3%	1	3.7%		
	4			1	4.2%	3	3.3%	3	10.3%		
	5	2	11.3%	4	7.5%	3	3.3%	2	.3%	1	94.5%
	6	2	1.3%	1	8.3%	2	2.4%	1	.4%		
	7					1	.3%				
	8					1	.3%				
	9					1	2.9%				
	10					2	.6%	2	.9%		
	11							1	3.7%		
	20							1	.3%		
	52							1	.3%		
	54				1	.5%					
Total		25	100.0%	34	100.0%	60	100.0%	51	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	4	2.9%	3	6.8%	6	11.3%	6	8.8%	1	5.5%
	WITHIN THE LAST SIX MONTHS	6	20.6%	8	13.7%	21	20.9%	14	27.6%		
	WITHIN THE LAST YEAR	5	13.0%	5	12.8%	9	12.9%	9	14.7%		
	1-2 YEARS	2	9.1%	9	15.1%	17	35.0%	20	37.7%	1	94.5%
	MORE THAN 2 YEARS	8	54.5%	9	51.6%	8	19.9%	3	11.2%		
Total		25	100.0%	34	100.0%	61	100.0%	52	100.0%	2	100.0%
Has routine maintenance ever been performed on your system	YES	4	24.5%	2	3.3%	4	27.9%				
	NO	9	75.5%	9	96.7%	13	72.1%	5	100.0%		
Total		13	100.0%	11	100.0%	17	100.0%	5	100.0%		
Are you familiar with the pumping of your sewage system?	YES	76	70.5%	81	65.9%	142	76.2%	122	72.6%	5	23.0%
	NO [SKIP TO INSPKNOW]	28	26.6%	44	34.0%	64	21.4%	51	23.4%	6	76.6%
	DON'T KNOW/NOT SURE	5	3.0%	1	.1%	5	2.4%	7	4.1%		
	REFUSED									1	.5%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		109	100.0%	126	100.0%	211	100.0%	180	100.0%	12	100.0%
How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids	ONCE A YEAR	4	1.2%	3	5.6%	7	9.3%	5	7.0%		
	EVERY 2-4 YEARS	14	7.5%	19	15.7%	40	42.4%	29	24.8%	1	7.6%
	EVERY 5 YEARS	20	40.5%	19	26.7%	26	26.2%	33	43.0%	2	77.1%
	AS NEEDED	7	20.8%			5	2.4%	5	4.1%		
	NEVER/NOT APPLICABLE	1	.2%	1	.4%	5	.3%	2	.3%	1	10.3%
	NO RECOMMENDATION	8	19.5%	5	15.2%	10	4.5%	7	9.0%		
	OTHER	9	10.3%	14	36.3%	13	14.8%	14	11.8%	1	5.0%
Total		63	100.0%	61	100.0%	106	100.0%	95	100.0%	5	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	20	12.5%	19	26.6%	49	37.6%	48	35.1%	1	65.2%
	EVERY 4-5 YEARS	28	49.0%	25	36.1%	43	30.4%	32	37.7%		
	EVERY 6-10 YEARS	6	11.4%	5	5.4%	6	5.3%	3	1.7%	1	11.9%
	MORE THAN 10 YEARS			1	4.4%	1	.1%				
	NEVER [SKIP TO INSPKNOW]	14	20.7%	18	19.2%	34	20.0%	29	20.8%	1	10.3%
	DON'T KNOW/NOT SURE	8	6.3%	13	8.3%	9	6.6%	10	4.7%	2	12.6%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		76	100.0%	81	100.0%	142	100.0%	122	100.0%	5	100.0%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	21	29.9%	20	44.3%	44	38.9%	36	40.7%	1	15.4%
	1-3 YEARS AGO	14	39.7%	11	32.8%	29	44.5%	29	48.5%	1	84.6%
	4-5 YEARS AGO	2	14.1%	6	22.3%	6	13.2%	5	10.9%		
	MORE THAN 5 YEARS AGO	2	16.2%	1	.6%	2	3.4%				
Total		39	100.0%	38	100.0%	81	100.0%	70	100.0%	2	100.0%
Has your tank ever been pumped for other than routine maintenance	YES	6	15.8%	5	13.7%	13	9.7%	7	5.4%		
	NO	48	84.2%	45	86.3%	85	90.3%	74	94.6%	2	100.0%
Total		54	100.0%	50	100.0%	98	100.0%	81	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50			1	.4%			1	.4%		
	65					1	5.9%				
	75			1	.7%						
	85	1	.7%	2	6.8%			1	2.6%		
	95	1	7.5%								
	100	1	7.5%			2	8.7%	5	4.6%		
	110	1	.6%					2	6.8%		
	115							1	2.6%		
	120			1	4.8%						
	125	1	.1%	1	7.5%	2	8.7%	2	.7%		
	130			1	.7%						
	135			1	.7%	1	.3%				
	150	2	1.2%	4	25.2%	6	8.4%	6	11.1%	1	100.0%
	160			1	4.8%	1	3.8%	1	2.6%		
	165					1	.3%				

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	170							1	3.4%		
	175	3	1.3%	1	4.8%			3	1.1%		
	180			1	4.8%			1	3.4%		
	190			1	3.6%			1	.4%		
	195							1	3.4%		
	200	2	5.0%	5	13.2%	15	42.0%	10	16.8%		
	210					1	.2%				
	220			1	.7%			1	3.4%		
	225			2	5.4%	1	2.9%				
	230	1	.7%					1	.4%		
	235	1	.7%								
	250	4	18.6%	5	8.0%	9	11.8%	4	15.0%		
	275							1	.1%		
	280							1	3.4%		
	300	8	23.3%	4	1.7%	3	.5%	4	10.6%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	325	1	4.8%			1	.3%				
	350	2	12.0%								
	375	1	7.5%								
	400	2	8.1%			1	5.6%	1	3.4%		
	450			1	6.2%			2	3.7%		
	500	1	.6%								
	600					1	.3%				
	750			1	.1%						
Total		33	100.0%	35	100.0%	46	100.0%	51	100.0%	1	100.0%
Are you familiar with the process of having your sewage system inspected?	YES	41	39.9%	46	34.7%	110	43.1%	97	41.3%	7	24.6%
	NO	73	59.6%	76	59.0%	104	52.8%	90	57.3%	5	74.9%
	DON'T KNOW/NOT SURE	2	.5%	7	6.3%	6	4.0%	3	1.4%		
	REFUSED									1	.5%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	4	2.1%	5	7.6%	8	1.1%	3	1.1%		
	ONCE A YEAR	12	18.6%	14	20.5%	37	22.8%	23	12.6%	2	9.2%
	EVERY 2-4 YEARS	1	3.5%	1	5.4%	12	18.1%	11	13.2%		
	EVERY 5 YEARS	3	12.6%	1	4.1%	4	2.7%	7	12.4%		
	EVERY 6-10 YEARS					2	3.5%				
	AFTER A MAJOR REPAIR							1	.2%		
	NEVER	2	7.3%	3	8.9%	6	6.5%	3	8.9%		
	OTHER	4	2.2%	3	14.0%	7	8.9%	8	10.3%		
	DON'T KNOW/NOT SURE	15	53.7%	19	39.4%	34	36.5%	41	41.4%	4	30.6%
	REFUSED									1	60.1%
Total		41	100.0%	46	100.0%	110	100.0%	97	100.0%	7	100.0%
Has your sewage system ever been inspected for any reason	YES	32	69.6%	34	64.5%	93	68.5%	78	78.1%	7	100.0%
	NO	9	30.4%	12	35.5%	16	31.5%	19	21.9%		
Total		41	100.0%	46	100.0%	109	100.0%	97	100.0%	7	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	24	50.3%	27	54.9%	69	69.8%	57	48.2%	6	90.5%
	1-3 YEARS AGO	5	29.9%	6	36.7%	15	14.6%	14	36.9%	1	9.5%
	MORE THAN THREE YEARS AGO	3	19.8%	1	8.4%	9	15.6%	6	14.9%		
Total		32	100.0%	34	100.0%	93	100.0%	77	100.0%	7	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	1	1	.7%	1	.9%						
	30					1	3.8%	1	.6%		
	35	1	1.0%								
	40					1	.1%				
	50	1	12.6%	2	11.5%	6	4.9%	8	17.6%		
	55							1	.4%		
	59	1	12.6%								
	60							3	5.0%		
	65					1	.2%				
	75	2	11.4%			5	17.5%	5	18.7%		
	80							1	4.1%		
	85			1	5.5%			1	3.1%		
	99			1	9.5%						
	100	5	38.5%	8	28.1%	8	18.5%	7	13.9%	2	73.0%
	120					1	.3%				

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	125	1	8.1%	1	7.4%	1	.3%				
	140							1	.4%		
	150	2	9.2%	1	.6%	5	14.4%	8	15.9%	1	27.0%
	200	1	6.1%	1	11.4%	14	31.9%	5	5.5%		
	225			1	5.5%	2	6.7%				
	250			1	9.5%	3	1.0%	3	6.0%		
	300			1	.6%	1	.2%				
	350			1	9.5%			2	4.5%		
	400							2	4.5%		
Total		15	100.0%	20	100.0%	49	100.0%	48	100.0%	3	100.0%
Are you familiar with the media or air blower for your system?	YES	17	33.6%	16	33.2%	30	18.9%	29	20.2%	4	68.5%
	NO /SYSTEM DOES NOT HAVE THEM	38	66.4%	42	66.8%	82	81.1%	68	79.8%	2	31.5%
Total		55	100.0%	58	100.0%	112	100.0%	97	100.0%	6	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS					1	3.0%				
	EVERY 10 YEARS	1	37.3%	2	18.0%	1	52.6%	3	11.7%		
	ONLY AFTER A MAJOR FAILURE	4	49.4%	3	21.4%	3	16.5%				
	NEVER	1	4.4%	1	3.0%	3	10.6%			1	67.3%
	OTHER	2	8.9%	5	57.5%	7	17.3%	10	88.3%	1	32.7%
Total		8	100.0%	11	100.0%	15	100.0%	13	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
About how much would it cost to have the media or air blower replaced for your system	200	1	9.5%							1	100.0%
	250					2	76.7%				
	475			1	7.1%						
	500	1	10.9%			1	6.0%	1	6.0%		
	539					1	4.0%				
	800			1	81.2%			2	12.0%		
	900			1	9.7%	1	6.0%				
	1000	1	79.6%			1	1.7%	1	8.1%		
	1250							1	68.0%		
	2000					1	4.0%	1	6.0%		
	2500			1	2.0%						
	3000					1	1.7%				
	Total		3	100.0%	4	100.0%	8	100.0%	6	100.0%	1

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	17	17.1%	28	28.6%	49	22.7%	45	21.9%	2	16.5%
	NO [SKIP TO REPLACE]	97	82.4%	100	71.1%	168	74.4%	142	78.0%	10	83.0%
	DON'T KNOW OR NOT SURE	2	.5%	1	.3%	3	2.9%	3	.2%		
	REFUSED									1	.5%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	6	7.3%	11	39.5%	21	27.9%	19	40.2%	2	100.0%
	NO	11	92.7%	16	60.5%	24	72.1%	22	59.8%		
Total		17	100.0%	27	100.0%	45	100.0%	41	100.0%	2	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	4	62.0%	3	16.4%	13	63.2%	12	36.8%		
	1-3 YEARS AGO	2	38.0%	4	28.9%	6	36.8%	5	33.8%	1	100.0%
	MORE THAN THREE YEARS AGO			4	54.7%			2	29.4%		
Total		6	100.0%	11	100.0%	19	100.0%	19	100.0%	1	100.0%
Have you ever had a LABORATORY test done on your sewage system for any reason?	YES	1	1.3%	5	18.1%	14	17.9%	9	21.2%	2	100.0%
	NO	16	98.7%	23	81.9%	28	82.1%	31	78.8%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		17	100.0%	28	100.0%	42	100.0%	40	100.0%	2	100.0%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR			3	95.8%	8	20.1%	7	43.3%		
	1-3 YEARS AGO	1	100.0%	2	4.2%	4	79.1%	1	28.4%	1	100.0%
	MORE THAN THREE YEARS AGO					1	.8%	1	28.4%		
Total		1	100.0%	5	100.0%	13	100.0%	9	100.0%	1	100.0%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS	2	4.5%			1	.1%	2	2.3%	1	5.1%
	EVERY 10 YEARS	3	9.2%	1	.3%	5	2.5%	7	7.5%		
	ONLY AFTER IT QUILTS WORKING	18	32.6%	17	23.7%	25	15.9%	14	7.5%		
	NEVER	6	5.6%	4	1.2%	7	.9%	5	4.6%	1	4.5%
	OTHER ____	7	3.5%	4	6.4%	6	4.4%	7	8.1%		
	DON'T KNOW/NOT SURE	46	44.7%	57	68.5%	118	76.3%	106	69.8%	6	89.5%
	REFUSED							1	.2%	1	.9%
Total		82	100.0%	83	100.0%	162	100.0%	142	100.0%	9	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	49	23.3%	63	31.5%	129	49.6%	123	57.7%	7	45.5%
	NO	61	76.7%	57	68.5%	83	50.4%	62	42.3%	5	54.5%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Total		110	100.0%	120	100.0%	212	100.0%	185	100.0%	12	100.0%
Have you ever consulted the manual for any reason	YES	18	49.4%	34	55.2%	68	51.1%	65	55.4%	2	10.3%
	NO	31	50.6%	29	44.8%	61	48.9%	58	44.6%	5	89.7%
Total		49	100.0%	63	100.0%	129	100.0%	123	100.0%	7	100.0%

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How helpful was the manual	Very helpful	11	73.6%	16	33.5%	20	33.7%	25	51.8%		
	Somewhat helpful	4	7.2%	14	64.9%	39	53.6%	31	45.7%		
	Not very helpful	1	18.1%	2	.9%	6	12.3%	6	2.0%	2	100.0%
	Not helpful at all	1	1.0%	1	.7%	2	.5%	2	.6%		
Total		17	100.0%	33	100.0%	67	100.0%	64	100.0%	2	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	38	39.0%	48	52.4%	100	54.1%	84	63.3%	3	10.6%
	NO	48	61.0%	50	47.6%	65	45.9%	52	36.7%	5	89.4%
Total		86	100.0%	98	100.0%	165	100.0%	136	100.0%	8	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	44	62.2%	73	69.4%	112	71.4%	114	71.4%	4	58.5%
	NO [SKIP TO WHOINSP]	48	37.8%	46	30.6%	61	28.6%	51	28.6%	6	41.5%
Total		92	100.0%	119	100.0%	173	100.0%	165	100.0%	10	100.0%
How often do you think people might be required to have their systems inspected	Every six months			1	.2%	2	2.8%	5	1.2%		
	Once a year	6	14.0%	11	15.6%	21	13.6%	16	6.5%	1	26.8%
	Every 2-4 years	5	10.4%	16	31.9%	25	31.2%	34	48.9%	1	2.1%
	Every 5 years	8	44.9%	17	26.3%	29	36.5%	24	30.4%	1	35.6%
	Every 6-10 years	3	16.2%	6	22.0%	4	8.6%	3	5.1%	1	35.6%
	Or some other interval? (SPECIFY)	7	14.6%	1	4.0%	4	7.3%	8	7.9%		
Total		29	100.0%	52	100.0%	85	100.0%	90	100.0%	4	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	9	14.9%	14	21.4%	17	12.0%	26	10.9%		
	6 months	9	22.1%	8	2.3%	20	21.0%	11	14.1%		
	12 months or	13	36.9%	25	44.3%	40	36.0%	34	42.2%	3	73.2%
	Inspections should not be required	3	7.7%	11	16.9%	8	7.1%	9	8.3%		
	OTHER Specify	7	18.3%	11	15.2%	19	23.9%	23	24.6%	1	26.8%
Total		41	100.0%	69	100.0%	104	100.0%	103	100.0%	4	100.0%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	14	9.3%	12	10.8%	41	16.0%	31	11.8%	1	15.2%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	93	90.7%	110	89.2%	163	84.0%	140	88.2%	10	84.8%
Total		107	100.0%	122	100.0%	204	100.0%	171	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	85	65.7%	96	87.7%	155	72.1%	135	74.0%	6	75.4%
	OPPOSE	28	34.3%	27	12.3%	50	25.4%	38	22.1%	5	24.6%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS					4	2.5%	5	3.9%		
Total		113	100.0%	123	100.0%	209	100.0%	178	100.0%	11	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	28	16.3%	28	19.4%	57	19.5%	53	24.2%	2	3.5%
	NO	88	83.7%	101	80.6%	163	80.5%	136	75.8%	10	96.5%
Total		116	100.0%	129	100.0%	220	100.0%	189	100.0%	12	100.0%
Are you having any problems with your sewage system or drain field now	YES			2	2.1%	4	1.3%	1	.1%		
	NO	116	100.0%	127	97.9%	216	98.7%	187	99.9%	12	100.0%
Total		116	100.0%	129	100.0%	220	100.0%	188	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	9	11.0%	15	10.1%	12	8.5%	18	8.7%		
	TWO TIMES	2	3.7%	1	.3%	1	.8%	3	2.0%		
	THREE TIMES					2	1.1%				
	MORE THAN THREE TIMES	1	1.4%	1	.3%	1	.1%	1	.1%		
	NEVER	104	83.8%	112	89.3%	204	89.6%	167	89.1%	12	100.0%
Total		116	100.0%	129	100.0%	220	100.0%	189	100.0%	12	100.0%
How old was this system when it first failed	LESS THAN ONE YEAR OLD	3	24.4%	3	5.5%	5	32.2%	9	48.1%		
	1-3 YEARS OLD			3	20.2%	4	28.7%	1	.3%		
	4-6 YEARS OLD	1	1.4%	2	4.5%	3	17.2%	6	17.8%		
	6-10 YEARS OLD	2	12.9%	1	1.6%			1	1.7%		
	11-20 YEARS OLD	2	25.6%	2	2.5%	1	.9%	1	1.1%		
	MORE THAN 20 YEARS OLD	4	35.8%	6	65.7%	2	21.1%	3	31.0%		
Total		12	100.0%	17	100.0%	15	100.0%	21	100.0%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	18	15.2%	21	24.5%	36	22.7%	45	26.5%	1	2.1%
	TWO TIMES	8	7.3%	9	3.9%	19	7.6%	13	4.4%		
	THREE TIMES	2	.5%	7	6.4%	12	7.8%	6	.9%		
	MORE THAN THREE TIMES	10	15.9%	4	1.3%	21	9.9%	18	17.1%	1	4.4%
	NEVER SOUNDED	42	53.9%	48	59.9%	77	49.6%	66	51.2%	7	93.5%
	DO NOT HAVE AN ALARM	4	7.2%	3	4.0%	6	2.4%				
Total		84	100.0%	92	100.0%	171	100.0%	148	100.0%	9	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How satisfied are you with your sewage system	Very satisfied	88	85.5%	99	89.3%	168	86.4%	146	88.0%	8	78.7%
	Somewhat satisfied	23	12.0%	24	10.0%	37	10.8%	30	7.6%	3	19.6%
	Somewhat dissatisfied	4	2.4%	3	.3%	7	1.5%	6	2.5%	1	1.7%
	Very dissatisfied	1	.0%	2	.4%	6	1.3%	6	1.9%		
Total		116	100.0%	128	100.0%	218	100.0%	188	100.0%	12	100.0%
How reliable is your sewage system	Very reliable	102	92.7%	112	96.1%	197	94.0%	169	94.1%	11	85.1%
	Somewhat reliable	13	7.3%	13	3.9%	18	5.8%	16	4.6%	1	14.9%
	Somewhat unreliable							2	1.3%		
	Very unreliable	1	.0%			1	.1%				
Total		116	100.0%	125	100.0%	216	100.0%	187	100.0%	12	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	15	6.2%	19	5.9%	45	12.9%	29	14.8%	2	4.5%
	2-5 years	55	40.1%	70	50.1%	116	50.3%	121	59.9%	9	75.3%
	6-10 years	14	11.7%	16	15.5%	31	18.3%	19	8.4%		
	More than 10 years	32	42.1%	23	28.6%	28	18.5%	20	17.0%	1	20.1%
Total		116	100.0%	128	100.0%	220	100.0%	189	100.0%	12	100.0%
Do you own or rent your home	OWN	115	99.7%	123	99.1%	219	99.9%	189	98.8%	10	98.8%
	RENT	1	.3%	5	.9%	1	.1%	1	1.2%	1	1.2%
Total		116	100.0%	128	100.0%	220	100.0%	190	100.0%	11	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	113	99.3%	126	99.6%	216	99.7%	183	98.4%	11	100.0%
	SEASONALLY	3	.7%	3	.4%	4	.3%	7	1.6%		
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
How many months out of the year do you spend in your home	0					1	7.5%				
	1							1	6.7%		
	2					1	42.5%				
	3	2	69.7%	1	11.0%	1	42.5%				
	4							4	15.8%		
	5	1	30.3%					1	1.8%		
	6			2	89.0%			1	75.7%		
	8					1	7.5%				
Total		3	100.0%	3	100.0%	4	100.0%	7	100.0%		
Age of house (calculated, recoded)	2 years or less	21	12.5%	30	12.7%	48	12.8%	39	13.9%	3	6.3%
	3-5 years	46	35.4%	52	35.2%	103	46.0%	94	54.0%	4	37.2%
	6-20 years	26	31.1%	23	26.8%	30	15.8%	30	11.6%	2	40.2%
	More than 20 years	20	20.9%	21	25.4%	35	25.4%	26	20.4%	2	16.3%
Total		113	100.0%	126	100.0%	216	100.0%	189	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
What size lot do you own	Less than 1 acre	18	10.2%	21	15.1%	32	15.2%	32	12.6%		
	1 acre to 3 acres	41	30.6%	60	53.3%	97	38.0%	74	42.8%	7	98.5%
	More than 3 acres	54	59.1%	45	31.6%	91	46.8%	81	44.6%	1	1.5%
Total		113	100.0%	126	100.0%	220	100.0%	187	100.0%	8	100.0%
How many people live in your household? (recoded)	1-2	54	46.6%	58	47.9%	77	35.2%	86	49.6%	3	5.0%
	3-4	52	41.2%	56	43.3%	102	44.7%	64	28.7%	4	53.7%
	3.00	10	12.2%	14	8.6%	40	19.1%	37	20.3%		
	98.00							1	.1%		
	99.00			1	.2%	1	1.0%	2	1.3%	6	41.4%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Would you describe the amount of usage of your household sewage system as	Light	53	36.7%	59	53.6%	93	42.3%	103	55.3%	3	37.1%
	Moderate OR	52	49.4%	62	40.7%	107	50.2%	74	37.1%	6	62.9%
	Heavy	9	13.8%	7	5.6%	16	7.6%	13	7.6%		
Total		114	100.0%	128	100.0%	216	100.0%	190	100.0%	9	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Confirm your gender	MALE	79	59.1%	87	58.2%	158	68.2%	136	68.5%	7	73.0%
	FEMALE	37	40.9%	42	41.8%	62	31.8%	54	31.5%	3	27.0%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	10	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	19							1	.1%		
	22			1	1.9%						
	24	1	.3%								
	25	1	.3%								
	27	1	2.5%								
	28							2	2.9%		
	29			1	1.9%	1	.0%				
	30					1	.1%	2	2.8%		
	31							1	.1%		
	32	2	.2%					2	.3%		
	33	2	1.5%	2	2.5%			1	.1%		
	34	1	3.0%	1	.2%			1	.0%		
	35	1	2.5%			2	1.7%				
	36	2	3.0%	1	.2%	2	.8%	3	1.8%		
	37	1	.0%					2	.3%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	38	1	.0%	3	.3%	1	.1%	1	1.9%		
	39			1	.0%	1	1.5%	2	2.8%		
	40	3	4.1%	3	.5%	2	1.1%	2	1.4%		
	41	5	3.6%	2	3.2%	3	.2%	2	.2%		
	42	1	.2%	5	3.2%	4	3.5%	1	.0%		
	43			1	.2%	3	.2%	2	1.3%		
	44	3	.6%	1	.2%	2	.1%	2	.1%		
	45	1	.2%	5	2.1%	3	.1%	4	1.6%		
	46	2	2.0%	1	.0%	5	3.1%	9	4.9%		
	47	3	.6%	1	.2%	2	.1%	5	4.3%		
	48	2	.4%	1	.2%	3	2.6%	6	3.5%		
	49	2	.4%	4	3.5%	3	1.9%	7	6.3%		
	50	5	5.5%	4	.5%	5	2.2%				
	51	4	3.6%	3	.6%	6	4.0%	8	4.2%		
52	3	.7%	6	5.8%	6	.4%	6	2.6%			

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	53	3	2.8%	3	6.0%	7	6.0%	7	5.7%		
	54	2	2.7%	5	2.0%	12	5.9%	2	1.4%		
	55	1	1.4%	6	9.2%	9	4.6%	6	4.8%		
	56	5	6.6%	5	4.7%	6	3.0%	8	5.5%		
	57	2	2.9%	1	2.4%	4	2.2%	6	1.8%		
	58	4	5.3%	5	3.1%	6	4.6%	6	4.2%		
	59	3	2.6%			12	2.9%	7	3.7%		
	60	4	.6%	3	1.8%	10	6.5%	2	1.4%		
	61	3	4.7%	2	2.1%	8	6.1%	5	1.8%		
	62	6	5.5%	2	3.8%	7	1.5%	4	2.3%		
	63	1	.2%	2	2.5%	7	2.9%	6	1.7%		
	64	3	4.9%	2	.4%	10	4.1%	4	2.8%		
	65	3	3.1%	3	2.3%	4	.4%	9	4.6%		
	66	3	3.3%	4	6.4%	1	.1%	3	2.2%		
	67	2	2.1%	5	.9%	6	3.6%	5	1.8%		

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	68	4	2.5%	4	5.1%	6	3.7%	6	1.9%	1	100.0%
	69	3	5.0%	3	.3%	7	4.9%	5	3.6%		
	70	2	.2%	8	9.1%	3	2.8%	4	1.6%		
	71	2	.2%	4	8.4%	2	.2%	5	.6%		
	72	1	.1%	1	.0%	3	.1%	2	1.4%		
	73	3	2.7%			2	2.1%	1	.1%		
	74	2	2.7%	5	.9%	3	1.2%				
	75			1	.0%	2	1.6%				
	76			1	.1%	7	2.2%	1	.1%		
	77	2	.5%			3	1.2%				
	78	2	1.7%	1	.2%	3	.1%	1	1.3%		
	79			2	.4%	1	.1%				
	80			1	.3%	1	.0%				
	81	1	.3%					2	.2%		
	82					2	.1%				

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
In what year were you born	83					3	1.7%				
	85	1	.2%								
Total		115	100.0%	126	100.0%	212	100.0%	179	100.0%	1	100.0%
Respondent education (recoded)	High school or less	116	100.0%								
	Some college, 2-year degree			129	100.0%						
	College grad					220	100.0%				
	Graduate or professional degree							190	100.0%		
	REF									13	100.0%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Do you consider yourself to be of Hispanic origin	YES	2	2.5%	2	.4%	6	2.4%	3	1.5%		
	NO	114	97.5%	127	99.6%	214	97.6%	184	98.5%	7	100.0%
Total		116	100.0%	129	100.0%	220	100.0%	187	100.0%	7	100.0%

Survey of Alternative Onsite Sewage System Issues

		Respondent education (recoded)									
		High school or less		Some college, 2-year degree		College grad		Graduate or professional degree		REF	
		uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Respondent's race (recoded)	White	104	89.7%	112	84.8%	200	91.8%	155	89.0%	5	42.8%
	Other	9	4.9%	16	13.3%	15	5.9%	27	9.0%		
	REF	3	5.3%	1	1.9%	5	2.3%	8	2.0%	8	57.2%
Total		116	100.0%	129	100.0%	220	100.0%	190	100.0%	13	100.0%
Respondent's income (recoded)	Less than \$50K	28	23.5%	25	22.4%	10	8.6%	2	.3%		
	\$50K-\$100K	28	36.8%	46	49.2%	46	27.8%	30	22.1%		
	\$100K or more	27	39.7%	35	28.4%	110	63.6%	119	77.6%		
Total		83	100.0%	106	100.0%	166	100.0%	151	100.0%		

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Contractor	92	85.6%	18	14.4%	102	86.6%	21	13.4%	180	78.1%	30	21.9%	155	80.9%	26	19.1%	10	95.9%	2	4.1%
Builder	93	91.2%	17	8.8%	93	74.9%	30	25.1%	142	66.7%	68	33.3%	108	57.7%	73	42.3%	6	64.9%	6	35.1%
System designer	104	99.0%	6	1.0%	112	96.4%	11	3.6%	188	96.1%	22	3.9%	159	91.0%	22	9.0%	10	95.9%	2	4.1%
System manufacturer	109	99.8%	1	.2%	122	99.9%	1	.1%	206	98.9%	4	1.1%	177	98.0%	4	2.0%	12	100.0%		
The lending institution	110	100.0%			123	100.0%			210	100.0%			181	100.0%			12	100.0%		
Attorney at closing	110	100.0%			122	99.8%	1	.2%	210	100.0%			181	100.0%			12	100.0%		
Real estate agent	108	99.6%	2	.4%	120	99.5%	3	.5%	201	96.1%	9	3.9%	173	95.6%	8	4.4%	12	100.0%		
Previous owner of the house	109	97.3%	1	2.7%	119	96.6%	4	3.4%	200	93.8%	10	6.2%	174	99.2%	7	.8%	12	100.0%		
Neighbor	110	100.0%			122	99.7%	1	.3%	210	100.0%			180	99.9%	1	.1%	12	100.0%		
Health department employee	84	77.0%	26	23.0%	96	72.4%	27	27.6%	183	82.7%	27	17.3%	155	91.8%	26	8.2%	12	100.0%		
No one	98	81.7%	12	18.3%	118	95.5%	5	4.5%	204	96.1%	6	3.9%	176	95.2%	5	4.8%	11	98.7%	1	1.3%
Self identified	89	71.2%	21	28.8%	106	85.9%	17	14.1%	179	78.1%	31	21.9%	164	87.1%	17	12.9%	10	75.6%	2	24.4%
Other specify	92	89.9%	18	10.1%	104	88.3%	19	11.7%	177	91.7%	33	8.3%	152	85.0%	29	15.0%	12	100.0%		
Don't know/not sure	108	97.2%	2	2.8%	120	94.8%	3	5.2%	203	99.3%	7	.7%	174	95.2%	7	4.8%	11	64.2%	1	35.8%
Refused	110	100.0%			123	100.0%			210	100.0%			181	100.0%			11	99.4%	1	.6%

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Pumping solids from tanks	88	85.0%	16	15.0%	104	83.8%	16	16.2%	161	84.3%	46	15.7%	144	89.9%	33	10.1%	10	94.5%	2	5.5%
Cleaning filters	37	17.3%	58	82.7%	54	35.2%	48	64.8%	102	44.2%	79	55.8%	88	44.3%	69	55.7%	5	17.4%	4	82.6%
Adjusting flows	29	29.4%	67	70.6%	28	12.8%	73	87.2%	51	21.2%	113	78.8%	56	34.5%	96	65.5%	4	7.4%	6	92.6%
Maintaining adequate vegetation over the dispersal area	61	59.6%	38	40.4%	75	67.5%	41	32.5%	120	71.4%	72	28.6%	109	73.2%	57	26.8%	7	47.6%	2	52.4%
Adding bacteria or yeast	33	38.1%	66	61.9%	43	45.9%	72	54.1%	51	31.0%	147	69.0%	49	34.4%	117	65.6%	3	40.9%	4	59.1%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	19	14.4%	93	85.6%	17	13.2%	108	86.8%	32	9.4%	180	90.6%	33	20.4%	145	79.6%	3	27.3%	8	72.7%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	5	29.4%	13	70.6%	9	53.9%	25	46.1%	23	30.5%	59	69.5%	17	31.1%	51	68.9%	1	17.3%	2	82.7%
Annual inspection	5	31.3%	13	68.7%	8	53.1%	26	46.9%	18	29.9%	64	70.1%	23	62.0%	45	38.0%	2	58.6%	1	41.4%
Inspection twice a year	14	78.1%	4	21.9%	24	72.0%	10	28.0%	52	59.1%	30	40.9%	42	45.8%	26	54.2%	2	58.6%	1	41.4%
Cleaning the filters	8	46.4%	10	53.6%	11	43.0%	23	57.0%	24	25.5%	58	74.5%	29	38.0%	39	62.0%	2	58.6%	1	41.4%
Measuring sludge levels	8	48.1%	10	51.9%	8	37.3%	26	62.7%	15	9.8%	67	90.2%	18	21.7%	50	78.3%	2	58.6%	1	41.4%
Verifying pumps are working	5	21.4%	13	78.6%	22	53.9%	12	46.1%	37	31.0%	45	69.0%	39	54.0%	29	46.0%	3	100.0%		
Tightening wires that loosen	8	48.1%	10	51.9%	14	58.3%	20	41.7%	32	37.9%	50	62.1%	32	47.2%	36	52.8%	2	58.6%	1	41.4%
Determining the cause of alarms or improper function of alarms	6	32.7%	12	67.3%	11	54.9%	23	45.1%	13	3.7%	69	96.3%	21	30.4%	47	69.6%	2	58.6%	1	41.4%
Replacing parts that break	6	30.8%	12	69.2%	12	42.5%	22	57.5%	26	28.9%	56	71.1%	21	31.8%	47	68.2%	3	100.0%		
Taking samples to the laboratory	11	59.4%	7	40.6%	24	71.2%	10	28.8%	60	63.1%	22	36.9%	50	70.6%	18	29.4%	2	58.6%	1	41.4%
Don't know/not sure	18	100.0%			33	84.3%	1	15.7%	81	99.7%	1	.3%	63	88.1%	5	11.9%	3	100.0%		
Refused	18	100.0%			34	100.0%			82	100.0%			68	100.0%			2	82.7%	1	17.3%

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
You were having a problem with your system	14	92.0%	4	8.0%	25	65.9%	9	34.1%	48	79.0%	20	21.0%	42	58.0%	23	42.0%	1	50.0%	1	50.0%
You wanted to know how your system worked	7	37.9%	11	62.1%	16	44.2%	18	55.8%	24	37.6%	44	62.4%	24	25.5%	41	74.5%	2	100.0%		
You wanted to know your system's maintenance requirements	9	64.5%	9	35.5%	24	67.8%	10	32.2%	35	53.9%	33	46.1%	32	35.1%	33	64.9%	1	50.0%	1	50.0%
Some other reason	9	56.4%	9	43.6%	25	89.8%	9	10.2%	55	85.1%	13	14.9%	54	94.1%	11	5.9%	2	100.0%		
Don't know/not sure	18	100.0%			34	100.0%			68	100.0%			65	100.0%			2	100.0%		
Refused	18	100.0%			34	100.0%			68	100.0%			65	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	Respondent education (recoded)																													
	High school or less						Some college, 2-year degree						College grad						Graduate or professional degree						REF					
	A lot		Some		None		A lot		Some		None		A lot		Some		None		A lot		Some		None		A lot	Some	None			
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%		
News from newspapers, radio, television	1	.3%	16	18.4%	99	81.3%	2	2.0%	27	23.9%	100	74.1%	3	3.0%	45	31.1%	172	65.9%	1	.1%	40	27.6%	149	72.3%	2	3.5%	2	45.5%	8	51.0%
County Health Department or Virginia Dept. of Health	11	9.5%	52	48.6%	52	41.9%	30	30.0%	53	36.6%	46	33.3%	27	13.0%	115	53.9%	77	33.2%	28	20.9%	80	37.2%	82	41.9%		5	40.3%	6	59.7%	
Local government [IF NEEDED: Other than the local health department.]	4	2.8%	17	14.2%	94	83.0%	10	9.9%	23	15.5%	95	74.6%	7	3.9%	44	22.7%	169	73.4%	5	.4%	45	27.1%	140	72.5%		3	37.4%	8	62.6%	
Internet sources such as web sites, emails, blogs, listservs, etc.	6	1.0%	25	22.7%	85	76.3%	9	5.6%	42	25.3%	78	69.1%	30	13.7%	75	29.1%	115	57.2%	40	19.1%	63	40.2%	86	40.7%	1	1.7%	5	68.8%	6	29.5%
Friends, neighbors or family	14	14.4%	44	34.0%	58	51.6%	17	8.6%	57	59.8%	55	31.6%	35	18.7%	88	48.6%	97	32.7%	32	22.2%	68	34.3%	90	43.5%	3	22.6%	4	38.1%	5	39.2%
Sewage system professionals and contractors	39	28.5%	45	42.5%	31	29.0%	45	26.2%	48	39.9%	34	34.0%	95	30.3%	86	52.5%	39	17.2%	88	43.3%	71	37.7%	31	19.0%	4	7.9%	5	68.8%	3	23.3%
How much of your knowledge about sewage systems comes from the following sources:Other (specify)	12	13.6%	3	.7%	100	85.7%	7	1.2%	8	10.4%	114	88.3%	22	7.6%	10	4.0%	186	88.4%	13	9.2%	22	9.4%	152	81.4%	1	1.1%	1	14.9%	10	84.0%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Before selling their property	39	86.9%	4	13.1%	68	93.8%	5	6.2%	101	93.0%	11	7.0%	99	88.3%	12	11.7%	3	64.4%	1	35.6%
Before buying property	33	78.1%	11	21.9%	55	78.7%	17	21.3%	73	62.5%	38	37.5%	71	69.0%	38	31.0%	3	73.2%	1	26.8%
At a fixed interval regardless of buying or selling	30	68.1%	10	31.9%	54	75.5%	17	24.5%	88	73.8%	22	26.2%	92	83.2%	18	16.8%	4	100.0%		
After repairs are completed following a problem with the system	33	81.9%	8	18.1%	59	90.6%	11	9.4%	79	82.8%	29	17.2%	72	68.0%	33	32.0%	2	37.6%	2	62.4%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	12	28.7%	30	71.3%	21	25.2%	49	74.8%	23	19.6%	85	80.4%	44	48.7%	69	51.3%	1	35.6%	3	64.4%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	23	49.4%	5	50.6%	26	98.4%	2	1.6%	56	96.1%	1	3.9%	44	86.3%	9	13.7%	2	100.0%		
Sewage backing up into the house	26	97.1%	2	2.9%	25	96.2%	3	3.8%	53	89.2%	4	10.8%	49	95.0%	4	5.0%	2	100.0%		
Water draining too slowly	25	72.4%	3	27.6%	24	94.9%	4	5.1%	57	100.0%			48	86.3%	5	13.7%	2	100.0%		
Septic or musty odors	26	97.1%	2	2.9%	27	84.9%	1	15.1%	55	99.4%	2	.6%	49	98.0%	4	2.0%	2	100.0%		
Frequent alarms	23	73.8%	5	26.2%	25	97.1%	3	2.9%	43	84.4%	14	15.6%	42	81.3%	11	18.7%	2	100.0%		
High operating costs	28	100.0%			28	100.0%			57	100.0%			52	99.4%	1	.6%	2	100.0%		
Other specify	8	53.8%	20	46.2%	8	22.2%	20	77.8%	13	22.0%	44	78.0%	14	20.0%	39	80.0%			2	100.0%
Don't know/not sure	28	100.0%			28	100.0%			57	100.0%			53	100.0%			2	100.0%		
Refused	28	100.0%			28	100.0%			57	100.0%			53	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	Respondent education (recoded)											
	Some college, 2-year degree				College grad				Graduate or professional degree			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	2	100.0%			3	90.8%	1	9.2%	1	100.0%		
Sewage backing up into the house	2	100.0%			4	100.0%			1	100.0%		
Water draining too slowly	2	100.0%			3	90.8%	1	9.2%	1	100.0%		
Septic or musty Odors	2	100.0%			3	95.5%	1	4.5%	1	100.0%		
Frequent alarms	2	100.0%			3	90.8%	1	9.2%	1	100.0%		
High operating costs	2	100.0%			4	100.0%			1	100.0%		
Other specify			2	100.0%	2	18.4%	2	81.6%			1	100.0%
Don't know/not sure	2	100.0%			4	100.0%			1	100.0%		
Refused	2	100.0%			4	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	Respondent education (recoded)																			
	High school or less				Some college, 2-year degree				College grad				Graduate or professional degree				REF			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Overall construction and installation costs	3	89.3%	2	10.7%	5	100.0%			10	66.3%	3	33.7%	10	93.3%	2	6.7%	1	100.0%		
Maintenance costs	5	100.0%			3	45.1%	2	54.9%	11	92.5%	2	7.5%	8	89.3%	4	10.7%	1	100.0%		
Frequency of pump outs	5	100.0%			5	100.0%			12	95.7%	1	4.3%	10	95.1%	2	4.9%	1	100.0%		
Cost of pump outs	5	100.0%			4	68.4%	1	31.6%	12	95.7%	1	4.3%	11	98.4%	1	1.6%	1	100.0%		
Alarms (going off too frequently, not working, etc.)	4	25.2%	1	74.8%	5	100.0%			9	85.0%	4	15.0%	9	50.8%	3	49.2%	1	100.0%		
Reliability of your sewage system	5	100.0%			5	100.0%			11	92.5%	2	7.5%	9	92.6%	3	7.4%	1	100.0%		
Visual appearance of the system	5	100.0%			4	76.7%	1	23.3%	13	100.0%			10	94.2%	2	5.8%	1	100.0%		
Control of odors	4	95.7%	1	4.3%	5	100.0%			12	97.9%	1	2.1%	12	100.0%			1	100.0%		
Noise levels	5	100.0%			5	100.0%			13	100.0%			10	93.3%	2	6.7%	1	100.0%		
Response time for service calls	5	100.0%			5	100.0%			12	95.7%	1	4.3%	12	100.0%			1	100.0%		
Quality of maintenance providers	5	100.0%			5	100.0%			11	68.4%	2	31.6%	10	95.1%	2	4.9%	1	100.0%		
Knowledge displayed by maintenance providers	5	100.0%			5	100.0%			10	64.0%	3	36.0%	12	100.0%			1	100.0%		
Number of maintenance providers	5	100.0%			5	100.0%			13	100.0%			12	100.0%			1	100.0%		
Other specify	3	85.4%	2	14.6%	1	31.6%	4	68.4%	2	29.4%	11	70.6%	5	54.1%	7	45.9%			1	100.0%
Don't know/not sure	5	100.0%			5	100.0%			13	100.0%			12	100.0%			1	100.0%		
Refused	5	100.0%			5	100.0%			13	100.0%			12	100.0%			1	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	Respondent education (recoded)											
	High school or less				College grad				Graduate or professional degree			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
POWER FAILURES			1	100.0%	1	100.0%			2	100.0%		
FREEZING TEMPERATURES	1	100.0%			1	100.0%			2	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	1	100.0%			1	100.0%			2	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	1	100.0%			1	100.0%			2	100.0%		
OTHER (SPECIFY)	1	100.0%			1	100.0%					2	100.0%
DON'T KNOW OR NOT SURE	1	100.0%					1	100.0%	2	100.0%		
REFUSED	1	100.0%			1	100.0%			2	100.0%		

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Number of sewage systems on your property	ONE	101	94.0%	272	97.4%	261	95.1%
	TWO	2	6.0%	7	2.6%	11	4.9%
Total		103	100.0%	279	100.0%	272	100.0%
Your involvement in selecting or installing your sewage system	Had no involvement	56	67.0%	160	56.6%	110	38.6%
	Talked about the system with an engineer, builder or contractor	22	19.5%	57	21.3%	73	28.4%
	Worked closely with an engineer, builder or contractor to research, design, OR..., or	21	9.4%	54	18.9%	73	25.2%
	Installed the system yourself	2	4.1%	5	3.2%	14	7.8%
Total		101	100.0%	276	100.0%	270	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Who designed your system	Health department	9	28.3%	38	25.2%	35	31.1%
	Engineer	31	30.9%	60	25.7%	61	18.6%
	Onsite Soil Evaluator or did the	4	1.1%	5	4.2%	6	4.8%
	Engineer and Onsite Soil Evaluator working together	12	17.3%	42	17.5%	50	19.6%
	OTHER specify ____	14	22.4%	38	27.4%	44	25.9%
Total		70	100.0%	183	100.0%	196	100.0%
Does your system have a pump	YES	71	44.7%	195	54.1%	200	55.7%
	NO	24	55.3%	71	45.9%	65	44.3%
Total		95	100.0%	266	100.0%	265	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Did you receive information about your sewage system when you purchased or rented your home	YES	61	58.2%	185	59.4%	185	67.4%
	NO	38	41.8%	87	40.6%	81	32.6%
Total		99	100.0%	272	100.0%	266	100.0%
Age of current system (calculated) (recoded)	Less than one year old	2	4.3%	9	3.0%	11	.7%
	1-3 years	49	31.0%	122	35.5%	116	36.3%
	4-6 years	31	33.9%	78	26.9%	92	38.4%
	7-10 yrs	2	.5%	20	9.7%	18	5.4%
	11-20 yrs	4	10.0%	17	10.6%	17	9.3%
	More than 20 yrs	9	20.2%	27	14.3%	16	9.9%
Total		97	100.0%	273	100.0%	270	100.0%
Are there parts of your sewage system that were added or updated later	YES	14	15.6%	43	18.0%	20	12.1%
	NO	89	84.4%	229	82.0%	251	87.9%
Total		103	100.0%	272	100.0%	271	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
In what year were they done	1986			1	.4%		
	1994			1	.6%		
	1995					1	.6%
	1998					1	6.4%
	1999			1	7.0%		
	2000			1	.6%		
	2001			3	7.4%		
	2003	1	12.9%			1	8.2%
	2004			2	10.8%		
	2005			3	9.9%		
	2006	1	.4%	3	12.1%	3	16.8%
	2007	5	31.8%	8	19.1%	5	41.8%
	2008			12	14.4%	2	7.2%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
In what year were they done	2009	5	54.8%	7	17.7%	7	19.1%
Total		12	100.0%	42	100.0%	20	100.0%
Length of personal use of current system (calculated) (recoded)	Less than one year	8	9.3%	14	3.0%	15	3.1%
	1-3 years	50	24.7%	144	46.2%	126	37.2%
	4-6 years	29	36.1%	69	23.8%	86	37.4%
	7-10 yrs	3	4.6%	22	10.3%	23	8.9%
	11-20 yrs	4	10.3%	17	11.0%	12	6.7%
	More than 20 yrs	7	13.0%	12	5.2%	9	6.6%
	DK	2	2.1%			1	.1%
	Ref			1	.6%		
Total		103	100.0%	279	100.0%	272	100.0%
Are you aware of any legal obligations for using your sewage system	YES	40	31.6%	94	34.7%	93	26.6%
	NO	57	68.4%	170	65.3%	169	73.4%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Total		97	100.0%	264	100.0%	262	100.0%
Do you know where your sewage system is located	YES	98	99.7%	271	100.0%	256	100.0%
	NO	1	.3%				
Total		99	100.0%	271	100.0%	256	100.0%

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Which statement best describes how you maintain your sewage system	You make sure routine or preventive maintenance is done OR	80	84.4%	209	78.8%	199	69.2%
	You only react when problems occur	19	15.6%	59	21.2%	65	30.8%
Total		99	100.0%	268	100.0%	264	100.0%
Do you presently have a maintenance contract with an individual or company to maintain your sewage system	YES	39	20.9%	79	8.4%	86	15.5%
	NO	63	79.1%	196	91.6%	186	84.5%
Total		102	100.0%	275	100.0%	272	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How much does your maintenance contract cost per year	\$0 to \$299	10	22.0%	23	23.2%	24	28.6%
	\$300 to \$499	15	48.6%	31	41.3%	29	44.9%
	\$500 to \$799	3	27.4%	7	34.1%	7	13.8%
	\$800 or more	1	2.0%	1	1.3%	6	12.7%
Total		29	100.0%	62	100.0%	66	100.0%
In your opinion, is this amount	Very expensive	6	36.6%	9	24.2%	21	26.7%
	Somewhat expensive	11	18.3%	28	23.3%	21	32.2%
	Somewhat inexpensive	8	40.4%	14	31.8%	14	32.1%
	Very inexpensive	3	4.7%	6	20.6%	7	9.0%
Total		28	100.0%	57	100.0%	63	100.0%
Has routine maintenance of any type been performed on your sewage system within the last five years	YES	22	80.2%	83	80.2%	68	63.3%
	NO	8	19.8%	13	10.5%	23	31.2%
	BEEN HERE LESS THAN FIVE YEARS VOLUNTEERED			7	9.3%	4	5.5%
Total		30	100.0%	103	100.0%	95	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How many times has routine maintenance been performed on your system in the last five years	1	10	56.2%	49	64.9%	33	54.0%
	2	7	28.1%	13	16.6%	17	22.7%
	3	1	1.0%	3	6.8%	2	3.1%
	4			2	1.8%	5	10.9%
	5	3	14.1%	5	1.0%	3	5.0%
	6			4	5.5%	2	.6%
	7					1	.2%
	8			1	.2%		
	9					1	2.8%
	10			2	.5%	2	.7%
	11			1	2.3%		
	20	1	.6%				
	52			1	.2%		
	54			1	.2%		
Total		22	100.0%	82	100.0%	66	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How long has it been since you had routine maintenance performed on your unit	WITHIN THE LAST MONTH	2	7.6%	12	11.9%	6	4.6%
	WITHIN THE LAST SIX MONTHS	7	21.2%	18	11.4%	23	33.6%
	WITHIN THE LAST YEAR	3	24.3%	17	14.8%	8	7.4%
	1-2 YEARS	7	34.7%	21	29.7%	20	23.0%
	MORE THAN 2 YEARS	2	12.3%	15	32.2%	11	31.5%
Total		21	100.0%	83	100.0%	68	100.0%
Has routine maintenance ever been performed on your system	YES	1	3.9%	5	42.8%	4	19.0%
	NO	7	96.1%	8	57.2%	18	81.0%
Total		8	100.0%	13	100.0%	22	100.0%
Are you familiar with the pumping of your sewage system?	YES	65	65.3%	173	71.5%	184	75.8%
	NO [SKIP TO INSPKNOW]	31	29.3%	86	26.4%	67	22.1%
	DON'T KNOW/NOT SURE	3	5.4%	7	2.1%	8	2.1%
Total		99	100.0%	266	100.0%	259	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that yours system be pumped to remove solids	ONCE A YEAR	6	14.0%	7	5.7%	6	4.9%
	EVERY 2-4 YEARS	12	19.2%	40	27.8%	48	25.0%
	EVERY 5 YEARS	15	38.6%	44	35.2%	41	32.5%
	AS NEEDED	4	8.5%	6	3.5%	7	8.0%
	NEVER/NOT APPLICABLE	1	.6%	4	.2%	4	.3%
	NO RECOMMENDATION	8	18.1%	9	6.1%	13	12.7%
	OTHER	3	1.0%	25	21.4%	23	16.6%
Total		49	100.0%	135	100.0%	142	100.0%
How often do you have your sewage system tank pumped for routine maintenance	EVERY 1-3 YEARS	24	56.2%	52	27.7%	60	26.5%
	EVERY 4-5 YEARS	17	22.8%	54	40.9%	56	36.5%
	EVERY 6-10 YEARS	4	4.3%	10	4.6%	7	6.5%
	MORE THAN 10 YEARS			2	2.0%		
	NEVER [SKIP TO INSPKNOW]	15	4.8%	43	19.8%	37	24.4%
	DON'T KNOW/NOT SURE	5	11.8%	12	5.1%	24	6.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Total		65	100.0%	173	100.0%	184	100.0%
How long has it been since your sewage system was pumped?	WITHIN THE PAST YEAR	19	42.8%	57	44.7%	45	31.7%
	1-3 YEARS AGO	12	56.4%	32	38.7%	40	43.4%
	4-5 YEARS AGO	1	.8%	9	16.6%	9	16.3%
	MORE THAN 5 YEARS AGO					5	8.6%
Total		32	100.0%	98	100.0%	99	100.0%
Has your tank ever been pumped for other than routine maintenance	YES	7	17.9%	14	8.8%	10	9.1%
	NO	37	82.1%	104	91.2%	111	90.9%
Total		44	100.0%	118	100.0%	121	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	50					2	.5%
	65	1	10.8%				
	75			1	.3%		
	85			4	5.2%		
	95					1	4.0%
	100	1	.2%	3	2.8%	4	10.1%
	110					3	5.4%
	115			1	1.7%		
	120					1	2.6%
	125			3	6.5%	3	3.1%
	130			1	.3%		
	135					2	.6%
	150	2	13.9%	9	16.1%	7	6.3%
	160			3	6.2%		
	165			1	.2%		
170					1	2.6%	

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	175	1	.8%	3	2.7%	3	.7%
	180					2	5.1%
	190					2	2.2%
	195			1	2.3%		
	200	5	29.5%	10	17.0%	17	20.3%
	210			1	.1%		
	220			1	.3%	1	2.6%
	225			2	4.0%	1	.3%
	230			1	.3%	1	.4%
	235			1	.3%		
	250	5	10.9%	9	13.8%	8	13.7%
	275			1	.1%		
	280	1	6.9%				
	300	4	18.0%	7	5.5%	8	8.8%
	325			1	.2%	1	2.6%
	350			2	5.6%		

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
About how much does it cost to have your sewage system tank pumped	375					1	4.0%
	400			3	5.9%	1	4.0%
	450	1	9.0%	2	2.5%		
	500					1	.3%
	600			1	.2%		
	750			1	.1%		
Total		21	100.0%	73	100.0%	71	100.0%
Are you familiar with the process of having your sewage system inspected?	YES	48	36.6%	109	34.6%	139	47.9%
	NO	51	57.6%	162	61.1%	127	51.1%
	DON'T KNOW/NOT SURE	4	5.9%	8	4.3%	6	1.0%
Total		103	100.0%	279	100.0%	272	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that your system be inspected	EVERY 6 MONTHS	5	3.7%	5	3.1%	10	1.4%
	ONCE A YEAR	18	36.4%	36	15.9%	34	16.5%
	EVERY 2-4 YEARS	3	8.4%	10	15.6%	12	10.3%
	EVERY 5 YEARS	2	.3%	3	6.2%	10	10.0%
	EVERY 6-10 YEARS			1	.1%	1	2.4%
	AFTER A MAJOR REPAIR			1	.1%		
	NEVER			4	5.1%	10	11.1%
	OTHER	5	10.3%	7	12.4%	10	6.1%
	DON'T KNOW/NOT SURE	15	40.9%	41	39.7%	52	42.2%
	REFUSED			1	1.8%		
Total		48	100.0%	109	100.0%	139	100.0%
Has your sewage system ever been inspected for any reason	YES	36	66.7%	89	74.7%	116	69.9%
	NO	12	33.3%	20	25.3%	22	30.1%
Total		48	100.0%	109	100.0%	138	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was inspected	WITHIN THE PAST YEAR	29	45.6%	65	56.0%	86	61.2%
	1-3 YEARS AGO	5	36.6%	17	29.7%	19	24.1%
	MORE THAN THREE YEARS AGO	2	17.8%	7	14.3%	10	14.7%
Total		36	100.0%	89	100.0%	115	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	1					2	.6%
	30			1	3.2%	1	.4%
	35			1	.4%		
	40					1	.1%
	50	1	1.1%	9	15.4%	7	10.0%
	55			1	.3%		
	59					1	4.2%
	60	1	1.1%	1	3.2%	1	.3%
	65					1	.2%
	75	1	.3%	2	9.6%	8	19.8%
	80	1	12.9%				
	85			2	4.8%		
	99			1	4.1%		
	100	2	31.8%	9	9.6%	18	30.6%
	120			1	.3%		
125			3	6.7%			

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
What would you consider to be a reasonable charge to inspect your sewage system	140			1	.3%		
	150	3	4.4%	8	13.9%	5	11.2%
	200			8	19.1%	13	16.1%
	225			2	5.6%	1	2.0%
	250	2	17.7%	1	.3%	4	4.2%
	300	1	1.1%	1	.2%		
	350	2	29.5%			1	.2%
	400			1	3.2%	1	.2%
	Total		14	100.0%	53	100.0%	65
Are you familiar with the media or air blower for your system?	YES	14	20.2%	31	22.7%	48	26.4%
	NO /SYSTEM DOES NOT HAVE THEM	40	79.8%	97	77.3%	92	73.6%
Total		54	100.0%	128	100.0%	140	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system	EVERY 5 YEARS					1	1.5%
	EVERY 10 YEARS	2	32.6%	3	7.1%	2	51.6%
	ONLY AFTER A MAJOR FAILURE			4	43.2%	6	15.2%
	NEVER			2	6.3%	3	4.3%
	OTHER	7	67.4%	5	43.4%	13	27.4%
Total		9	100.0%	14	100.0%	25	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own						
		Less than 1 acre		1 acre to 3 acres		More than 3 acres		
		uN	w%	uN	w%	uN	w%	
About how much would it cost to have the media or air blower replaced for your system	200					1	11.9%	
	250			1	30.8%	1	11.9%	
	475					1	8.8%	
	500			1	4.2%	2	17.6%	
	539			1	1.8%			
	800	2	92.5%			1	8.8%	
	900	1	7.5%			1	11.9%	
	1000			1	30.8%	2	14.3%	
	1250			1	30.8%			
	2000					2	14.6%	
	2500			1	.7%			
	3000			1	.7%			
Total			3	100.0%	7	100.0%	11	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Are you familiar with field testing or laboratory testing on your sewage systems?	YES	19	16.6%	54	20.0%	64	27.0%
	NO [SKIP TO REPLACE]	84	83.4%	220	77.3%	204	72.8%
	DON'T KNOW OR NOT SURE			5	2.6%	4	.2%
Total		103	100.0%	279	100.0%	272	100.0%
Have you ever had a FIELD test done on your sewage system for any reason?	YES	10	17.1%	24	47.9%	23	23.6%
	NO	7	82.9%	25	52.1%	39	76.4%
Total		17	100.0%	49	100.0%	62	100.0%
How long has it been since your sewage system was field tested	WITHIN THE PAST YEAR	6	59.9%	12	28.1%	13	45.6%
	1-3 YEARS AGO	3	40.1%	5	31.0%	9	35.1%
	MORE THAN THREE YEARS AGO			5	40.9%	1	19.3%
Total		9	100.0%	22	100.0%	23	100.0%
Have you ever had a LABORATORY test done on your sewage system for any reason?	YES	5	7.6%	10	20.0%	15	17.7%
	NO	12	92.4%	39	80.0%	44	82.3%
Total		17	100.0%	49	100.0%	59	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How long has it been since your sewage system was laboratory tested	WITHIN THE PAST YEAR	3	69.0%	8	70.6%	7	37.3%
	1-3 YEARS AGO	1	31.0%			7	62.3%
	MORE THAN THREE YEARS AGO			1	29.4%	1	.4%
Total		4	100.0%	9	100.0%	15	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How often does the manufacturer or designer of your system recommend that you replace the pump	EVERY 5 YEARS			2	1.9%	4	1.8%
	EVERY 10 YEARS	3	1.4%	7	4.7%	6	6.1%
	ONLY AFTER IT QUILTS WORKING	10	16.9%	26	13.3%	37	18.6%
	NEVER	5	2.6%	7	3.6%	10	2.5%
	OTHER ____	1	.7%	10	4.2%	13	8.5%
	DON'T KNOW/NOT SURE	52	78.3%	143	72.5%	129	62.4%
	REFUSED					1	.1%
Total		71	100.0%	195	100.0%	200	100.0%
Do you have a maintenance manual or owners book for your sewage system	YES	57	37.1%	155	44.6%	153	45.9%
	NO	40	62.9%	111	55.4%	111	54.1%
Total		97	100.0%	266	100.0%	264	100.0%
Have you ever consulted the manual for any reason	YES	29	59.7%	74	43.8%	81	59.4%
	NO	28	40.3%	81	56.2%	72	40.6%
Total		57	100.0%	155	100.0%	153	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How helpful was the manual	Very helpful	12	41.3%	30	52.8%	30	39.4%
	Somewhat helpful	15	47.7%	34	44.1%	37	50.1%
	Not very helpful	2	11.0%	5	2.0%	9	10.1%
	Not helpful at all			4	1.0%	2	.4%
Total		29	100.0%	73	100.0%	78	100.0%
Are homeowners in your county or city required by law to have their sewage systems inspected?	YES	40	43.7%	118	54.9%	110	53.6%
	NO	38	56.3%	88	45.1%	88	46.4%
Total		78	100.0%	206	100.0%	198	100.0%
Should people be required by law to have their alternative sewage system inspected?	YES	62	66.6%	158	73.4%	121	66.6%
	NO [SKIP TO WHOINSP]	30	33.4%	75	26.6%	101	33.4%
Total		92	100.0%	233	100.0%	222	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How often do you think people might be required to have their systems inspected	Every six months	2	1.0%	5	2.8%	1	.2%
	Once a year	12	18.5%	27	11.0%	16	11.3%
	Every 2-4 years	12	27.0%	33	33.5%	35	40.4%
	Every 5 years	14	32.7%	36	35.8%	26	28.7%
	Every 6-10 years	5	18.8%	6	12.1%	5	6.9%
	Or some other interval? (SPECIFY)	4	2.0%	6	4.8%	10	12.5%
Total		49	100.0%	113	100.0%	93	100.0%
For a new sewage system, how long after the first use of the system do you think the first inspection should be	90 days	18	25.4%	33	19.4%	15	4.4%
	6 months	10	11.0%	18	11.8%	18	17.8%
	12 months or	8	11.5%	61	46.7%	43	44.8%
	Inspections should not be required	8	5.8%	13	9.1%	9	9.7%
	OTHER Specify	15	46.3%	22	13.0%	24	23.2%
Total		59	100.0%	147	100.0%	109	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Should an owner of an alternative sewage system be required to have a maintenance contract to insure that maintenance is done by a licensed operator	BE REQUIRED TO HAVE A MAINTENANCE CONTRACT	20	14.4%	39	11.0%	40	14.5%
	HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED	73	85.6%	217	89.0%	214	85.5%
Total		93	100.0%	256	100.0%	254	100.0%
Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system	SUPPORT	68	77.0%	200	71.8%	201	75.9%
	OPPOSE	23	14.5%	61	26.2%	61	24.1%
	VOLUNTEERED WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS	5	8.5%	3	2.0%	1	.0%
Total		96	100.0%	264	100.0%	263	100.0%
Have you had any problems with your main sewage system at this address in the past	YES	23	19.1%	67	18.8%	78	22.1%
	NO	80	80.9%	212	81.2%	193	77.9%
Total		103	100.0%	279	100.0%	271	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Are you having any problems with your sewage system or drain field now	YES			1	.1%	6	1.9%
	NO	102	100.0%	278	99.9%	265	98.1%
Total		102	100.0%	279	100.0%	271	100.0%
How many times has your sewage system failed since you have lived at this residence	ONE TIME	9	16.1%	21	6.3%	23	9.3%
	TWO TIMES	1	2.0%	2	1.7%	4	1.4%
	THREE TIMES			1	.0%	1	.8%
	MORE THAN THREE TIMES			3	.8%	1	.1%
	NEVER	93	81.9%	252	91.2%	242	88.5%
Total		103	100.0%	279	100.0%	271	100.0%
How old was this system when it first failed	LESS THAN ONE YEAR OLD			10	33.6%	10	39.7%
	1-3 YEARS OLD	1	.4%	3	11.0%	4	18.6%
	4-6 YEARS OLD	1	.4%	3	3.1%	8	21.1%
	6-10 YEARS OLD	1	2.5%			3	8.1%
	11-20 YEARS OLD	1	27.0%	2	7.3%	3	2.0%
	MORE THAN 20 YEARS OLD	4	69.6%	9	45.0%	1	10.5%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Total		8	100.0%	27	100.0%	29	100.0%
How often has the alarm on your sewage system sounded indicating a possible problem	ONE TIME	22	37.9%	52	21.7%	46	21.0%
	TWO TIMES	3	1.3%	20	5.8%	24	7.1%
	THREE TIMES	5	7.1%	12	5.5%	10	2.5%
	MORE THAN THREE TIMES	7	3.9%	26	13.7%	21	12.6%
	NEVER SOUNDED	41	43.8%	89	50.0%	102	55.5%
	DO NOT HAVE AN ALARM	3	5.9%	6	3.3%	4	1.3%
Total		81	100.0%	205	100.0%	207	100.0%
How satisfied are you with your sewage system	Very satisfied	77	83.1%	217	87.3%	206	87.8%
	Somewhat satisfied	15	9.6%	50	11.4%	49	9.3%
	Somewhat dissatisfied	5	3.6%	6	.4%	9	2.4%
	Very dissatisfied	4	3.7%	4	.8%	7	.5%
Total		101	100.0%	277	100.0%	271	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How reliable is your sewage system	Very reliable	92	93.8%	245	94.4%	242	93.6%
	Somewhat reliable	6	3.5%	28	5.5%	26	6.4%
	Somewhat unreliable	1	2.7%	1	.1%		
	Very unreliable			1	.0%	1	.1%
Total		99	100.0%	275	100.0%	269	100.0%

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
How long have you been living in your current residence? (recoded)	Less than 2 years	16	11.7%	41	9.4%	51	12.1%
	2-5 years	53	41.4%	157	53.7%	155	54.2%
	6-10 years	12	17.9%	30	9.9%	36	15.0%
	More than 10 years	21	29.0%	50	26.9%	30	18.6%
Total		102	100.0%	278	100.0%	272	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Do you own or rent your home	OWN	99	96.8%	274	99.6%	272	100.0%
	RENT	4	3.2%	4	.4%		
Total		103	100.0%	278	100.0%	272	100.0%
Is the property where you live used year round or seasonally	YEAR ROUND	92	97.6%	275	99.7%	271	99.2%
	SEASONALLY	11	2.4%	4	.3%	1	.8%
Total		103	100.0%	279	100.0%	272	100.0%
How many months out of the year do you spend in your home	0	1	2.6%				
	1			1	28.7%		
	2	1	14.8%				
	3	3	32.3%	1	44.7%		
	4	3	20.0%				
	5	2	15.5%				
	6	1	14.8%	1	18.8%	1	100.0%
	8			1	7.9%		
Total		11	100.0%	4	100.0%	1	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Age of house (calculated, recoded)	2 years or less	20	12.9%	55	11.4%	65	14.5%
	3-5 years	41	32.6%	122	43.6%	132	48.8%
	6-20 years	13	18.8%	52	22.9%	43	15.8%
	More than 20 years	23	35.6%	48	22.1%	32	20.9%
Total		97	100.0%	277	100.0%	272	100.0%
What size lot do you own	Less than 1 acre	103	100.0%				
	1 acre to 3 acres			279	100.0%		
	More than 3 acres					272	100.0%
Total		103	100.0%	279	100.0%	272	100.0%
How many people live in your household? (recoded)	1-2	51	48.9%	122	48.5%	101	36.2%
	3-4	39	37.7%	110	36.1%	126	43.7%
	3.00	13	13.5%	44	13.9%	44	19.3%
	98.00			1	.1%		
	99.00			2	1.5%	1	.8%
Total		103	100.0%	279	100.0%	272	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Would you describe the amount of usage of your household sewage system as	Light	47	45.4%	133	46.8%	126	48.1%
	Moderate OR	47	43.6%	124	46.6%	125	43.6%
	Heavy	7	11.1%	17	6.5%	20	8.3%
Total		101	100.0%	274	100.0%	271	100.0%
Confirm your gender	MALE	76	66.9%	195	62.8%	191	68.6%
	FEMALE	27	33.1%	83	37.2%	81	31.4%
Total		103	100.0%	278	100.0%	272	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
In what year were you born	19			1	.1%		
	22	1	2.9%				
	24			1	.1%		
	25	1	.4%				
	28	1	2.2%	1	1.4%		
	29	1	.1%	1	.9%		
	30	1	2.2%	2	1.4%		
	31					1	.1%
	32			3	.2%	1	.1%
	33	1	.1%	4	1.9%		
	34					2	1.3%
	35	1	.3%			2	2.3%
	36	1	.1%	5	2.2%	2	1.1%
	37					3	.2%
	38			5	1.5%	1	.1%
	39			1	.7%	3	2.4%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
In what year were you born	40			7	3.8%	3	.2%
	41	3	.9%	4	1.6%	5	1.5%
	42	4	7.0%	4	2.2%	3	.2%
	43	1	.2%	1	.0%	4	1.0%
	44	1	.3%	4	.3%	3	.2%
	45	3	.7%	6	1.7%	4	.3%
	46	4	3.1%	8	2.8%	5	2.9%
	47	4	.9%	6	2.3%	1	.8%
	48			6	3.0%	6	1.7%
	49	7	11.5%	6	3.2%	3	.9%
	50	2	2.6%	5	1.1%	6	2.4%
	51	5	.9%	5	2.0%	11	5.3%
	52	3	.8%	10	3.4%	8	1.3%
	53	1	.2%	9	6.1%	10	6.2%
	54	3	6.1%	6	1.7%	11	3.0%
	55	1	2.2%	12	8.4%	9	2.8%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
In what year were you born	56	4	8.5%	5	1.9%	15	6.4%
	57	1	3.7%	4	1.5%	8	2.6%
	58	5	7.3%	3	2.2%	13	5.6%
	59	3	3.5%	10	.6%	9	4.1%
	60	1	2.9%	7	2.3%	11	4.0%
	61	1	.3%	5	2.6%	12	6.2%
	62	2	4.4%	8	4.4%	9	1.2%
	63	1	.4%	9	3.0%	6	1.5%
	64	2	.5%	10	3.4%	7	3.8%
	65	5	3.9%	7	1.4%	7	3.0%
	66	1	.3%	5	1.2%	4	3.3%
	67	4	1.3%	8	3.2%	6	1.9%
	68	3	.8%	7	2.8%	11	4.4%
	69	3	4.7%	8	3.7%	7	3.4%
	70	3	3.2%	7	2.9%	6	3.4%
	71	1	.1%	9	3.0%	3	1.4%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own						
		Less than 1 acre		1 acre to 3 acres		More than 3 acres		
		uN	w%	uN	w%	uN	w%	
In what year were you born	72	1	2.9%	5	.2%	1	.0%	
	73			3	1.3%	3	1.6%	
	74	2	.5%	3	.3%	4	1.9%	
	75					3	1.2%	
	76	1	4.2%	5	.4%	2	.2%	
	77	1	.3%	4	1.1%			
	78			5	1.7%	2	.1%	
	79	1	.3%			2	.2%	
	80			2	.1%			
	81			1	.0%	2	.2%	
	82			1	.1%	1	.0%	
	83	1	.4%	1	1.3%	1	.0%	
	85	1	.3%					
	Total		98	100.0%	265	100.0%	262	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Respondent education (recoded)	High school or less	18	13.6%	41	13.1%	54	23.3%
	Some college, 2-year degree	21	20.3%	60	23.0%	45	12.6%
	College grad	32	39.4%	97	31.7%	91	36.0%
	Graduate or professional degree	32	26.8%	74	29.2%	81	28.1%
	REF			7	3.1%	1	.0%
Total		103	100.0%	279	100.0%	272	100.0%
Do you consider yourself to be of Hispanic origin	YES	2	.7%	7	2.0%	3	.9%
	NO	101	99.3%	268	98.0%	268	99.1%
Total		103	100.0%	275	100.0%	271	100.0%

Survey of Alternative Onsite Sewage System Issues

		What size lot do you own					
		Less than 1 acre		1 acre to 3 acres		More than 3 acres	
		uN	w%	uN	w%	uN	w%
Respondent's race (recoded)	White	93	91.2%	225	83.8%	251	93.0%
	Other	9	8.4%	39	10.1%	17	4.9%
	REF	1	.4%	15	6.2%	4	2.1%
Total		103	100.0%	279	100.0%	272	100.0%
Respondent's income (recoded)	Less than \$50K	12	13.6%	29	12.6%	21	8.7%
	\$50K-\$100K	36	54.6%	56	30.0%	58	26.1%
	\$100K or more	37	31.8%	122	57.4%	132	65.2%
Total		85	100.0%	207	100.0%	211	100.0%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Contractor	88	82.0%	13	18.0%	215	79.7%	44	20.3%	226	83.5%	36	16.5%
Builder	79	78.9%	22	21.1%	170	66.8%	89	33.2%	183	69.6%	79	30.4%
System designer	93	98.6%	8	1.4%	238	93.4%	21	6.6%	230	95.8%	32	4.2%
System manufacturer	99	99.6%	2	.4%	255	99.2%	4	.8%	258	98.6%	4	1.4%
The lending institution	101	100.0%			259	100.0%			262	100.0%		
Attorney at closing	101	100.0%			258	99.9%	1	.1%	262	100.0%		
Real estate agent	96	95.2%	5	4.8%	251	97.1%	8	2.9%	254	97.9%	8	2.1%
Previous owner of the house	98	95.8%	3	4.2%	249	96.6%	10	3.4%	253	96.6%	9	3.4%
Neighbor	100	99.8%	1	.2%	258	99.9%	1	.1%	262	100.0%		
Health department employee	88	88.8%	13	11.2%	215	82.1%	44	17.9%	214	81.4%	48	18.6%
No one	96	98.4%	5	1.6%	245	93.6%	14	6.4%	252	91.2%	10	8.8%
Self identified	77	64.7%	24	35.3%	234	88.4%	25	11.6%	223	78.0%	39	22.0%
Other specify	90	94.2%	11	5.8%	220	89.3%	39	10.7%	215	87.9%	47	12.1%

Survey of Alternative Onsite Sewage System Issues

Who told you what type of sewage system you have?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Don't know/not sure	97	97.2%	4	2.8%	250	94.9%	9	5.1%	256	98.4%	6	1.6%
Refused	101	100.0%			259	100.0%			262	100.0%		

Survey of Alternative Onsite Sewage System Issues

Which of the following are important routine maintenance needs of your sewage system?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Pumping solids from tanks	84	88.8%	16	11.2%	217	94.5%	39	5.5%	196	77.6%	55	22.4%
Cleaning filters	41	40.6%	40	59.4%	111	37.0%	105	63.0%	128	38.2%	107	61.8%
Adjusting flows	35	31.3%	46	68.7%	63	24.2%	147	75.8%	66	24.8%	155	75.2%
Maintaining adequate vegetation over the dispersal area	56	62.6%	37	37.4%	149	70.5%	84	29.5%	163	69.7%	84	30.3%
Adding bacteria or yeast	31	40.5%	67	59.5%	83	39.2%	154	60.8%	61	31.6%	177	68.4%
Which of the following things are important routine maintenance needs of your sewage system: Anything else	17	10.0%	84	90.0%	38	15.9%	226	84.1%	47	13.8%	213	86.2%

Survey of Alternative Onsite Sewage System Issues

Which of the following services are provided by your maintenance contract?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Monitoring the system	7	42.8%	32	57.2%	23	26.7%	56	73.3%	24	34.8%	62	65.2%
Annual inspection	11	45.8%	28	54.2%	24	47.4%	55	52.6%	20	39.3%	66	60.7%
Inspection twice a year	22	58.5%	17	41.5%	56	64.2%	23	35.8%	55	55.5%	31	44.5%
Cleaning the filters	16	41.2%	23	58.8%	29	40.9%	50	59.1%	28	25.8%	58	74.2%
Measuring sludge levels	9	32.9%	30	67.1%	23	26.8%	56	73.2%	18	10.7%	68	89.3%
Verifying pumps are working	18	41.5%	21	58.5%	43	48.6%	36	51.4%	44	36.9%	42	63.1%
Tightening wires that loosen	14	49.7%	25	50.3%	37	45.5%	42	54.5%	36	41.7%	50	58.3%
Determining the cause of alarms or improper function of alarms	8	31.4%	31	68.6%	20	22.8%	59	77.2%	24	16.2%	62	83.8%
Replacing parts that break	13	47.4%	26	52.6%	29	31.0%	50	69.0%	25	26.8%	61	73.2%
Taking samples to the laboratory	24	49.5%	15	50.5%	54	54.4%	25	45.6%	68	78.9%	18	21.1%
Don't know/not sure	35	74.4%	4	25.6%	77	98.5%	2	1.5%	85	99.4%	1	.6%
Refused	39	100.0%			79	100.0%			86	100.0%		

Survey of Alternative Onsite Sewage System Issues

Why did you consult the manual?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
You were having a problem with your system	22	58.8%	7	41.2%	50	65.1%	24	34.9%	55	75.4%	26	24.6%
You wanted to know how your system worked	10	45.0%	19	55.0%	31	30.4%	43	69.6%	31	33.8%	50	66.2%
You wanted to know your system's maintenance requirements	20	91.3%	9	8.7%	37	39.1%	37	60.9%	43	46.8%	38	53.2%
Some other reason	23	94.4%	6	5.6%	58	86.9%	16	13.1%	61	85.0%	20	15.0%
Don't know/not sure	29	100.0%			74	100.0%			81	100.0%		
Refused	29	100.0%			74	100.0%			81	100.0%		

Survey of Alternative Onsite Sewage System Issues

How much of your knowledge about sewage systems comes from the following sources?

	What size lot do you own																	
	Less than 1 acre						1 acre to 3 acres						More than 3 acres					
	A lot		Some		None		A lot		Some		None		A lot		Some		None	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
News from newspapers, radio, television	2	2.7%	32	39.7%	69	57.5%	3	1.7%	42	18.5%	234	79.8%	2	.9%	56	31.8%	214	67.4%
County Health Department or Virginia Dept. of Health	16	15.6%	44	43.9%	43	40.4%	28	11.3%	136	51.4%	113	37.4%	52	24.4%	120	39.3%	99	36.4%
Local government [IF NEEDED: Other than the local health department.]	7	9.9%	28	28.1%	68	61.9%	9	1.2%	58	20.5%	211	78.3%	10	4.4%	42	19.1%	218	76.5%
Internet sources such as web sites, emails, blogs, listservs, etc.	13	7.0%	34	34.6%	56	58.4%	33	11.6%	86	28.0%	160	60.4%	38	12.5%	90	34.1%	143	53.4%
Friends, neighbors or family	12	9.5%	44	47.5%	47	42.9%	43	20.0%	107	43.3%	129	36.7%	45	17.5%	105	44.0%	122	38.5%
Sewage system professionals and contractors	38	24.8%	39	48.5%	26	26.7%	99	26.3%	114	52.0%	63	21.7%	129	41.5%	100	37.7%	43	20.8%
How much of your knowledge about sewage systems comes from the following sources:Other (specify)	7	7.0%	5	4.3%	90	88.7%	23	8.4%	19	8.7%	236	82.9%	25	7.9%	20	4.9%	223	87.1%

Survey of Alternative Onsite Sewage System Issues

(If supporting inspections for alternative systems) When should people have to inspect their alternative system?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE		YES, AGREE		NO, DISAGREE	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Before selling their property	57	94.6%	4	5.4%	144	92.6%	13	7.4%	103	86.3%	16	13.7%
Before buying property	41	70.0%	20	30.0%	108	70.8%	46	29.2%	81	68.0%	38	32.0%
At a fixed interval regardless of buying or selling	50	80.4%	10	19.6%	119	75.7%	35	24.3%	94	75.7%	21	24.3%
After repairs are completed following a problem with the system	42	75.5%	13	24.5%	111	81.6%	38	18.4%	88	78.2%	30	21.8%
Is there another circumstance when you believe people should be required by law to have their sewage system inspected	16	19.8%	44	80.2%	37	31.1%	116	68.9%	44	34.2%	75	65.8%

Survey of Alternative Onsite Sewage System Issues

What type of problems have you had with your sewage system?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	21	84.5%	2	15.5%	55	77.1%	12	22.9%	75	93.8%	3	6.2%
Sewage backing up into the house	21	89.4%	2	10.6%	61	93.0%	6	7.0%	73	95.1%	5	4.9%
Water draining too slowly	22	89.8%	1	10.2%	61	93.8%	6	6.2%	73	87.8%	5	12.2%
Septic or musty odors	22	99.7%	1	.3%	62	97.6%	5	2.4%	75	93.9%	3	6.1%
Frequent alarms	20	97.3%	3	2.7%	55	87.4%	12	12.6%	60	78.0%	18	22.0%
High operating costs	23	100.0%			66	99.5%	1	.5%	78	100.0%		
Other specify	4	15.5%	19	84.5%	22	23.5%	45	76.5%	17	30.9%	61	69.1%
Don't know/not sure	23	100.0%			67	100.0%			78	100.0%		
Refused	23	100.0%			67	100.0%			78	100.0%		

Survey of Alternative Onsite Sewage System Issues

What type of problems are you having with your sewage system or drain field now?

	What size lot do you own							
	1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%
Sewage leaking onto the ground surface	1	100.0%			5	95.1%	1	4.9%
Sewage backing up into the house	1	100.0%			6	100.0%		
Water draining too slowly	1	100.0%			5	95.1%	1	4.9%
Septic or musty Odors	1	100.0%			5	97.6%	1	2.4%
Frequent alarms	1	100.0%			5	95.1%	1	4.9%
High operating costs	1	100.0%			6	100.0%		
Other specify			1	100.0%	2	9.8%	4	90.2%
Don't know/not sure	1	100.0%			6	100.0%		
Refused	1	100.0%			6	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Overall construction and installation costs	8	95.6%	1	4.4%	7	45.4%	3	54.6%	13	90.6%	3	9.4%
Maintenance costs	6	88.1%	3	11.9%	9	92.2%	1	7.8%	12	90.7%	4	9.3%
Frequency of pump outs	8	95.6%	1	4.4%	10	100.0%			14	95.3%	2	4.7%
Cost of pump outs	8	95.6%	1	4.4%	10	100.0%			14	95.3%	2	4.7%
Alarms (going off too frequently, not working, etc.)	9	100.0%			8	86.5%	2	13.5%	10	21.7%	6	78.3%
Reliability of your sewage system	9	100.0%			9	94.2%	1	5.8%	12	89.9%	4	10.1%
Visual appearance of the system	6	89.2%	3	10.8%	10	100.0%			16	100.0%		
Control of odors	9	100.0%			10	100.0%			14	97.0%	2	3.0%
Noise levels	8	95.6%	1	4.4%	9	92.2%	1	7.8%	16	100.0%		
Response time for service calls	9	100.0%			10	100.0%			15	96.9%	1	3.1%
Quality of maintenance providers	8	95.6%	1	4.4%	9	50.8%	1	49.2%	14	95.3%	2	4.7%

Survey of Alternative Onsite Sewage System Issues

(If satisfaction is low) What are you dissatisfied with?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
Knowledge displayed by maintenance providers	9	100.0%			9	50.8%	1	49.2%	14	93.7%	2	6.3%
Number of maintenance providers	9	100.0%			10	100.0%			16	100.0%		
Other specify	2	7.6%	7	92.4%	4	62.4%	6	37.6%	5	75.2%	11	24.8%
Don't know/not sure	9	100.0%			10	100.0%			16	100.0%		
Refused	9	100.0%			10	100.0%			16	100.0%		

Survey of Alternative Onsite Sewage System Issues

(If reliability is low) What are you dissatisfied with?

	What size lot do you own											
	Less than 1 acre				1 acre to 3 acres				More than 3 acres			
	NOT SELECTED		SELECTED		NOT SELECTED		SELECTED		NOT SELECTED		SELECTED	
	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%	uN	w%
POWER FAILURES	1	100.0%			1	78.5%	1	21.5%	1	100.0%		
FREEZING TEMPERATURES	1	100.0%			2	100.0%			1	100.0%		
HEAVY RAIN OR PERIODS OF WET WEATHER	1	100.0%			2	100.0%			1	100.0%		
LARGE GATHERINGS AT YOUR HOUSE	1	100.0%			2	100.0%			1	100.0%		
OTHER (SPECIFY)			1	100.0%	1	21.5%	1	78.5%	1	100.0%		
DON'T KNOW OR NOT SURE	1	100.0%			2	100.0%					1	100.0%
REFUSED	1	100.0%			2	100.0%			1	100.0%		

APPENDIX D

QUESTIONNAIRE

**VIRGINIA DEPARTMENT OF HEALTH
SURVEY OF ALTERNATIVE SEWAGE SYSTEMS**

INTRODUCTION

{INTRO}

Hello. My name is _____ and I'm calling from the University of Virginia. We are conducting a survey on behalf of the Virginia Department of Health. The Health Department is working on new regulations for on-site sewage or septic systems, and we are interested in knowing how satisfied people are with their current sewage or septic system. Your household was selected at random to be part of our sample from a list of addresses with conventional or alternative sewage systems.

- | | |
|------------------|---------------------|
| 1 NO ANSWER | 5 IMMEDIATE HANGUP |
| 2 BUSY | 6 IMMEDIATE REFUSAL |
| 3 ANSWER MACHINE | 7 CALLBACK |
| 4 BAD NUMBER | 8 GO ON |

{ADULTRES}

I need to confirm that you are at least 18 years old, and that you live at the residence I am calling, and that this is a residence, not a business. [DISPLAY ADDRESS]
[IF NECESSARY SAY: Your answers are confidential, and we don't use anybody's name.]

- 1 R IS RESIDENT ADULT AND THIS IS A PRIVATE RESIDENCE, PROCEED
- 2 R IS NOT RESIDENT OR ADULT, WE NEED TO GET ONE . . .
- 3 THIS IS NOT A PRIVATE RESIDENCE
- 4 REFUSED

IV: IF NECESSARY - We're not selling anything or asking for money. The Univ. of Virginia Center for Survey Research is conducting a survey on behalf of the Virginia Department of Health. All of your answers are confidential, and you can decline to answer any question at any time.

{ASKKNOW}

According to our selection procedure, I need to select the adult in the household who is the most knowledgeable about your sewage system at [ADDRESS]. Would that be you?

- 1 YES [GO TO R1GO]
- 2 NO [GO TO R2COME]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{RGO}

Okay, let's move on to the rest of the survey, and I want to remind you that all of your answers are confidential, and you can decline to answer any question at any time. This survey is being conducted by the Center for Survey Research at the University of Virginia. If you have any questions as we go along, please feel free to ask.

- 1 R2 READY, PROCEED
- 2 R2 CALLBACK [GET NAME OF R2 FOR CALLBACK MESSAGE LINE]
- 3 R2 REFUSES

IV: ONLY IF ASKED: The survey should take about 15 minutes, depending on your answers.

AWARENESS

{SEWAGE}

How many sewage systems are on your property at [ADDRESS]?

- 1 ONE
- 2 TWO
- 3 THREE OR MORE
- 4 NONE OR ON PUBLIC SEWER [TERMINATE SURVEY]
- 5 NOT MY ADDRESS [TERMINATE SURVEY]
- 8 DON'T KNOW/NOT SURE [TERMINATE SURVEY]
- 9 REFUSED [TERMINATE SURVEY]

{MAINSYS}

IF SEWAGE=2 or SEWAGE=3

For this interview, we would like to talk about the system that you consider to be the MAIN SYSTEM at this address.

{INVOLVE}

Which ONE of the following statements best describes your involvement in selecting or installing your sewage system? Would you say you or a family member...

- 1 Had no involvement
- 2 Talked about the system with an engineer, builder or contractor
- 3 Worked closely with an engineer, builder or contractor OR...
- 4 Installed the system yourself
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

[IV: IF RESPONDENT MENTIONS MORE THAN ONE ANSWER WITH CODES 1 THROUGH 4, SELECT THE CHOICE BETWEEN 1 AND 4 WITH THE HIGHEST NUMER.]

{DESIGN}

Who designed your system?

- 1 Health department
- 2 Engineer
- 3 Onsite Soil Evaluator
- 4 Engineer and Onsite Soil Evaluator working together
- 5 OTHER (specify) _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{HAVEPUMP}

Does your system have a pump?

[IV NOTE: A grinder pump is a pump.]

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{TYPE}

As far as you know, do you have a conventional or alternative sewage system?

- 1 CONVENTIONAL SYSTEM
- 2 ALTERNATIVE SYSTEM
- 3 OTHER {specify} _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

[IV: SHORT DEFINITION IF NEEDED: “In general, an alternative system includes more than just a septic tank and drainfield. Usually they include a mound of material like sand, peat moss or beads that filters the wastewater.”]

(READ ONLY IF NEEDED:

According to the Code of Virginia: “Conventional onsite sewage system” means a treatment works consisting of one or more septic tanks with gravity, pumped, or siphoned conveyance to a gravity distributed subsurface drainfield.” “Alternative onsite sewage system” or “alternative onsite system” means a treatment works that is not a conventional onsite sewage system and does not result in a point source discharge. (IF NEEDED: The section of the Code of Virginia is Title 32.1-163.)

{INFORM}

IF TYPE=1,2 or 3

Who told you what type of sewage system you have? (CHECK ALL THAT APPLY)

- 1 CONTRACTOR
- 2 BUILDER
- 3 SYSTEM DESIGNER
- 4 SYSTEM MANUFACTURER
- 5 THE LENDING INSTITUTION
- 6 ATTORNEY AT CLOSING
- 7 REAL ESTATE AGENT
- 8 PREVIOUS OWNER OF THE HOUSE
- 9 NEIGHBOR
- 10 HEALTH DEPARTMENT EMPLOYEE
- 11 NO ONE
- 12 SELF IDENTIFIED
- 13 OTHER {specify} _____
- 14 DON'T KNOW/NOT SURE
- 15 REFUSED

{PURCHASE}

When you purchased or rented your home, did you receive information about your sewage system?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{SYSAGE}

As far as you know, in what year was your current sewage system installed?

- Enter year here _____ (data check for answers >2009 and <9998)
- 9998 DON'T KNOW/NOT SURE
 - 9999 REFUSED

{PARTSAGE}

Are there parts of your sewage system that were added or updated later?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{ADDDONE}

IF PARTSAGE=1

In what year were they done? [IF MORE THAN ONE, ENTER THE MOST RECENT ONE.]

Enter year here _____ (*data check for this year to be later than the system installation year*)

9998 DON'T KNOW/NOT SURE

9999 REFUSED

{USESEWER}

For how long have you personally used your current sewage system?

Enter number here _____ YEARS (ESTIMATE IF NECESSARY)

0 FOR LESS THAN A YEAR

98 DON'T KNOW/NOT SURE

99 REFUSED

{USESEWMO}

IF USESEWER=0

For how many months have you personally used your current sewage system?

Enter number here _____ MONTHS (ESTIMATE IF NECESSARY)

(*11 is the maximum value allowed*)

0 FOR LESS THAN A MONTH

98 DON'T KNOW/NOT SURE

99 REFUSED

{LEGAL}

Are you aware of any legal obligations for using your sewage system?

1 YES

2 NO

8 DON'T KNOW/NOT SURE

8 REFUSED

{LOCATION}

IF INVOLVE=1, 2, OR 3

Do you know where your sewage system is located?

1 YES

2 NO

8 DON'T KNOW/NOT SURE

9 REFUSED

MAINTENANCE

{MAINND}

Which of the following things are important routine maintenance needs of your sewage system?

MAINTENANCE NEED	IMPORTANT	NOT IMPORTANT	DON'T KNOW/NOT SURE	REFUSED
Pumping solids from tanks	1	2	8	9
Cleaning filters	1	2	8	9
Adjusting flows	1	2	8	9
Maintaining adequate vegetation over the dispersal area	1	2	8	9
Adding bacteria or yeast	1	2	8	9
Anything else? (describe) _____	1	2	8	9

(Answer choices for Anything else are 1 YES, 2 NO, 8 DON'T KNOW/NOT SURE and 9 REFUSED).

{TYPEMAIN}

Which statement best describes how you maintain your sewage system? Would you say...

- 1 You make sure routine or preventive maintenance is done OR
- 2 You only react when problems occur
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

[IV: READ IF NECESSARY – Routine maintenance includes having tanks pumped regularly and cleaning filters. Problems include slow drains, sewage back-ups or odors]

{MAINTAIN}

Do you presently have a maintenance contract with an individual or company to maintain your sewage system?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{SERVICES}

IF MAINTAIN=1

Which of the following services are provided by your maintenance contract? (READ CHOICES, CHECK ALL THAT APPLY.)

- 1 Monitoring the system
- 2 Annual inspection
- 3 Inspection twice a year
- 4 Cleaning the filters
- 5 Verifying pumps are working [SKIP IF (TYPE=1 AND HAVEPUMP=2)]
- 6 Pumping the system to remove solids
- 7 Tightening wires that loosen
- 8 Determining the cause of alarms or improper function of alarms
- 9 Replacing parts that break
- 10 Taking samples to the laboratory
- 11 DON'T KNOW
- 12 REFUSED

{COSTMAIN}

IF MAINTAIN=1

How much does your maintenance contract cost per year? [IV: READ IF NECESSARY]

- 1 \$0 to \$299
- 2 \$300 to \$499
- 3 \$500 to \$799
- 4 \$800 or more
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{REASON}

IF COSTMAIN=1, 2, 3, OR 4

In your opinion, is this amount...

- 1 Very expensive
- 2 Somewhat expensive
- 3 Somewhat inexpensive
- 4 Very inexpensive
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{RTNPERF}

IF 2009-SYSAGE >= 5

Has routine maintenance of any type been performed on your sewage system within the last five years?

- 1 YES
- 2 NO
- 3 BEEN HERE LESS THAN FIVE YEARS [VOLUNTEERED]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{NUMMAIN}

IF RTNPERF=1

How many times has routine maintenance been performed on your system in the last five years?(Maximum value allowed is 60)

Enter number here _____

- 98 DON'T KNOW/NOT SURE
- 99 REFUSED

{WHENMAIN}

IF RTNPERF=1

How long has it been since you had routine maintenance performed on your unit? [IV: READ IF NECESSARY]

- 1 WITHIN THE LAST MONTH
- 2 WITHIN THE LAST SIX MONTHS
- 3 WITHIN THE LAST YEAR
- 4 1-2 YEARS
- 5 MORE THAN 2 YEARS
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{LONGMAIN}

IF RTNPERF=2

Has routine maintenance ever been performed on your system?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{PUMPKNOW}

Now we would like to ask some questions about pumping your sewage system.

Are you familiar with the pumping of your sewage system?

[IF NECESSARY: This refers to pumping the system to remove solids – NOT having a pump to move wastewater through the system.]

- 1 YES
- 2 NO [SKIP TO INSPKNOW]
- 3 SYSTEM DOES NOT REQUIRE PUMPING
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{ROUTPUMP}

How often does the manufacturer or designer of your system recommend that your system be pumped to remove solids? [IV: READ IF NECESSARY]

- 1 ONCE A YEAR
- 2 EVERY 2-4 YEARS
- 3 EVERY 5 YEARS
- 4 AS NEEDED
- 5 NEVER/NOT APPLICABLE
- 6 NO RECOMMENDATION
- 7 OTHER _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{NUMPUMP}

How often do you have your sewage system tank pumped for routine maintenance?

- 1 EVERY 1-3 YEARS
- 2 EVERY 4-5 YEARS
- 3 EVERY 6-10 YEARS
- 4 MORE THAN 10 YEARS
- 5 NEVER [SKIP TO INSPKNOW]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{WHENPUMP}

How long has it been since your sewage system was pumped?

- 1 WITHIN THE PAST YEAR
- 2 1-3 YEARS AGO
- 3 4-5 YEARS AGO
- 4 MORE THAN 5 YEARS AGO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{PUMPED}

Has your tank ever been pumped for other than routine maintenance?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{COSTPUMP}

SKIP IF SERVICES=6

About how much does it cost to have your sewage system tank pumped?

- Enter number here ____ (DOLLARS EST) (\$5,000 is the maximum allowed)
- 9998 DON'T KNOW/NOT SURE
 - 9999 REFUSED

{INSPKNOW}

Now we would like to ask you some questions about inspecting your sewage system.

Are you familiar with the process of having your sewage system inspected?

- 1 YES
- 2 NO [SKIP TO AIRKNOW IF TYPE=2, OTHERWISE SKIP TO TESTKNOW]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{ROUTINSP}

How often does the manufacturer or designer of your system recommend that your system be inspected?

[IV: READ IF NECESSARY]

- 1 EVERY 6 MONTHS
- 2 ONCE A YEAR
- 3 EVERY 2-4 YEARS
- 4 EVERY 5 YEARS
- 5 EVERY 6-10 YEARS
- 6 AFTER A MAJOR REPAIR
- 7 NEVER
- 8 OTHER _____
- 9 DON'T KNOW/NOT SURE
- A REFUSED

{INSPECT}

Has your sewage system ever been inspected for any reason?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{WHENINSP}

IF INSPECT=1

How long has it been since your sewage system was inspected? [IV: READ IF NECESSARY]

- 1 WITHIN THE PAST YEAR
- 1 1-3 YEARS AGO
- 2 MORE THAN 3 YEARS AGO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{COSTINSP}

SKIP IF SERVICES=2 OR 3

Accounting for drive time and up to an hour inspection of your system, what would you consider to be a reasonable charge to inspect your sewage system?

Enter number here ____ (DOLLARS EST) (*\$5,000 is the maximum allowed*)

- 9998 DON'T KNOW/NOT SURE
- 9999 REFUSED

{AIRKNOW}

IF TYPE=2

Are you familiar with the media or air blower for your system?

- 1 YES
- 2 NO/SYSTEM DOES NOT HAVE THEM [SKIP TO TESTKNOW]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{NEWAIR}

IF TYPE=2

How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system? [IV: READ IF NECESSARY]

- 1 EVERY 5 YEARS
- 2 EVERY 10 YEARS
- 3 ONLY AFTER A MAJOR FAILURE
- 4 NEVER
- 5 OTHER _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{COSTAIR}

IF TYPE=2

About how much would it cost to have the media or air blower replaced for your system?

Enter number here ____ (DOLLARS EST)(*Maximum value allowed is \$5000*)

- 9998 DON'T KNOW/NOT SURE
- 9999 REFUSED

{TESTKNOW}

Are you familiar with field testing or laboratory testing on your sewage system?

- 1 YES
- 2 NO [SKIP TO REPLACE]
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{FTESTED}

Have you ever had a FIELD test done on your sewage system for any reason? This would be a test done right on your property for things like Ph level, chloride level, or suspended solids.

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{WHENFTST}

IF FTESTED=1

How long has it been since your sewage system was field tested? [IV: READ IF NECESSARY]

- 1 WITHIN THE PAST YEAR
- 2 1-3 YEARS AGO
- 3 MORE THAN 3 YEARS AGO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{LTESTED}

Have you ever had a LABORATORY test done on your sewage system for any reason?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

[IV READ IF NECESSARY: This would be a test done in a laboratory using samples taken from your property for things like nitrogen level or biochemical oxygen demand, also known as B.O.D.]

{WHENLTST}

IF LTESTED=1

How long has it been since your sewage system was laboratory tested? [IV: READ IF NECESSARY]

- 1 WITHIN THE PAST YEAR
- 2 1-3 YEARS AGO
- 3 MORE THAN 3 YEARS AGO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{REPLACE}

IF HAVEPUMP=1

You mentioned earlier that your system has a pump. How often does the manufacturer or designer of your system recommend that you replace the pump? [IV: READ IF NECESSARY]

- 1 EVERY 5 YEARS
- 2 EVERY 10 YEARS
- 3 ONLY AFTER IT QUILTS WORKING
- 4 NEVER
- 5 OTHER _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{MANUAL}

Do you have a maintenance manual or owners book for your sewage system?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{USEDMAN}

IF MANUAL=1

Have you ever consulted the manual for any reason?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{WHYUSED}

IF USEDMAN=1

Did you consult the manual because... (CHECK ALL THAT APPLY)

- 1 You were having a problem with your system
- 2 You wanted to know how your system worked.
- 3 You wanted to know your system's maintenance requirements.
- 4 Some other reason _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{MANHELP}

IF USEDMAN=1

How helpful was the manual? Was it...

- 1 Very helpful
- 2 Somewhat helpful
- 3 Not very helpful
- 4 Not helpful at all
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{HELPWHY}

IF MANHELP=3 OR 4

Why was the manual not helpful?

{REGMN}

The following is a list of possible sources of knowledge about sewage systems. Please indicate how much of your knowledge about sewage systems comes from the following sources.

	A lot	Some	None	Don't know	Refused
News from newspapers, radio, television	1	2	3	8	9
County Health Department or Virginia Dept. of Health	1	2	3	8	9
Local government [IF NEEDED: Other than the local health department.] County Health Department or Virginia Dept. of Health	1	2	3	8	9
Internet sources such as web sites, emails, blogs, listservs, etc.	1	2	3	8	9
Friends, neighbors or family	1	2	3	8	9
Sewage system professionals and contractors	1	2	3	8	9

{REGMNOTH}

How much of your knowledge about sewage systems comes from other sources?

- 1 A lot [From what other sources do you get a lot of your knowledge? SPECIFY]
- 2 Some
- 3 None
- 8 DON'T KNOW
- 9 REFUSED

{KNOWLAW}

As far as you know, are homeowners in your county or city required by law to have their sewage systems inspected?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{INTROALT}

The next few questions are about alternative sewage systems. [*For conventional owners only:* Even though you may not have an alternative sewage system, we are interested in your opinions. In general, an alternative system includes more than just a septic tank and drainfield. Usually they include a mound of material like sand, peat moss or beads that filters the wastewater.]

{REQUIRD}

Should people be required by law to have their alternative sewage system inspected?

- 1 YES
- 2 NO [SKIP TO WHOINSP]
- 3 DON'T KNOW [SKIP TO WHOINSP]
- 4 REFUSED [SKIP TO WHOINSP]

[IV: READ IF ASKED FOR MORE INFORMATION: The Code of Virginia requires owners of alternative sewage systems to be responsible for the proper operation and maintenance of their systems. The Virginia Department of Health is drafting regulations for the proper operation and maintenance of alternative sewage systems. The regulations will probably include a requirement for regular inspections.]

{WHENREQ}

The following is a short list of times when some people might be required by law to have their alternative sewage system inspected. For each one, please tell me if you agree or disagree. (CHECK ALL THAT APPLY)

(Would you say that you agree or disagree that people should be required by law to have their alternative sewage system inspected...)

- 1 Before selling their property [IF NECESSARY: Responsibility of the seller]
- 2 Before buying property [IF NECESSARY: Responsibility of the buyer]
- 3 At a fixed interval regardless of buying or selling
- 4 After repairs are completed following a problem with the system

{WHNRQOTH}

Is there another circumstance when you believe people should be required by law to have their sewage system inspected?

- 1 YES (specify)_____
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

{WHNRQINT}

IF WHENREQ.3=1

You mentioned that people might be required to have their systems inspected at a fixed interval regardless of buying or selling. How often do you think this should happen?

- 1 Every six months
- 2 Once a year
- 3 Every 2-4 years
- 4 Every 5 years
- 5 Every 6-10 years
- 6 Or some other interval? (SPECIFY)
- 7 NEVER (VOL)
- 8 DON'T KNOW
- 9 REFUSED

{FIRSTINS}

For a new alternative sewage system, how long after the first use of the system do you think the first inspection should be?

- 1 90 days
- 2 6 months
- 3 12 months
- 4 Inspections should not be required
- 5 OTHER (Specify) _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{WHOINSP}

Should an owner of an alternative sewage system be required to have a maintenance contract to insure that it is maintained by a licensed operator, or should the owner have the option of getting a licensed operator to work on the system only when it is needed?

- 1 BE REQUIRED TO HAVE A MAINTENANCE CONTRACT
- 2 HAVE THE OPTION OF GETTING A LICENSED OPERATOR TO WORK ON THE SYSTEM ONLY WHEN IT IS NEEDED
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

[IV: FOR MORE INFORMATION: The Code of Virginia requires that only licensed operators perform operation and maintenance of alternative sewage systems.]

{DISCLOSE}

Would you support or oppose a state law that requires a home seller to give the new buyer a document that describes the function and condition of the property's alternative sewage system?

- 1 SUPPORT
- 2 OPPOSE
- 3 (VOLUNTEERED) WOULD SUPPORT FOR BOTH CONVENTIONAL SYSTEMS AND ALTERNATIVE SYSTEMS
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

PROBLEMS

{PASTPROB}

Now I'd like to ask you about your sewage system. Have you had any problems with your [if SEWAGE=2 or 3 show "main"] current sewage system at this address in the past?

[IF NEEDED: THE QUESTION APPLIES TO ONLY YOUR CURRENT SYSTEM. YOU NEED TO DECIDE IF REPAIRS OR PROBLEMS IN THE PAST RELATE TO THE CURRENT SYSTEM, OR IF THE CURRENT SYSTEM IS DIFFERENT FROM A PREVIOUS SYSTEM. PAST PROBLEMS ON PREVIOUS SYSTEMS BEFORE YOUR CURRENT SYSTEM DO NOT COUNT.]

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{PASTTYPE}

IF PASTPROB=1

What type of problems have you had with your sewage system? (CHECK ALL THAT APPLY, READ ONLY IF NECESSARY.)

- 1 SEWAGE LEAKING ONTO THE GROUND SURFACE
- 2 SEWAGE BACKING UP INTO THE HOUSE
- 3 WATER DRAINING TOO SLOWLY
- 4 SEPTIC OR MUSTY ODORS
- 5 FREQUENT ALARMS
- 6 HIGH OPERATING COSTS, OR
- 7 SOMETHING ELSE _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{CURRPROB}

Are you having any problems with your sewage system or drain field now?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{PROBTYPE}

IF CURRPROB=1

What type of problems are you having? (CHECK ALL THAT APPLY, READ ONLY IF NECESSARY.)

- 1 SEWAGE LEAKING ONTO THE GROUND SURFACE
- 2 SEWAGE BACKING UP INTO THE HOUSE
- 3 WATER DRAINING TOO SLOWLY
- 4 SEPTIC OR MUSTY ODORS
- 5 FREQUENT ALARMS
- 6 HIGH OPERATING COSTS OR
- 7 SOMETHING ELSE _____
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{NUMFAIL}

For this survey, the definition of a sewage system FAILURE is ANY time sewage backs up into the house or leaks onto the ground surface. Based on this definition of system failure, how many times has your current sewage system failed since you have lived at this residence?

- 1 ONE TIME
- 2 TWO TIMES
- 3 THREE TIMES
- 4 MORE THAN THREE TIMES
- 5 NEVER
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{FAILAGE}

IF NUMFAIL=1, 2, 3, OR 4

How old was this system when it first failed? [IV: READ IF NECESSARY]

- 1 LESS THAN ONE YEAR OLD
- 2 1-3 YEARS OLD
- 3 4-6 YEARS OLD
- 4 6-10 YEARS OLD
- 5 11-20 YEARS OLD
- 6 MORE THAN 20 YEARS OLD
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{ALARM}

ASK IF HAVEPUMP=1 OR TYPE=2

How often has the alarm on your sewage system sounded indicating a possible problem?

- 1 ONE TIME
- 2 TWO TIMES
- 3 THREE TIMES
- 4 MORE THAN THREE TIMES
- 5 NEVER SOUNDED
- 6 DO NOT HAVE AN ALARM
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{ALRMCON}

IF ALARM>4 SKIP

How much inconvenience have you experienced as a result of the alarm?

- 1 A lot of inconvenience
- 2 Some inconvenience
- 3 No inconvenience
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

SATISFACTION

{SATISFY}

How satisfied are you with your sewage system?

- 1 Very satisfied
- 2 Somewhat satisfied
- 3 Somewhat dissatisfied
- 4 Very dissatisfied
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{MAINSS}

IF SATISFY=3 OR 4

What are you dissatisfied with? _____

[IV: CODE ACCORDING TO THE FOLLOWING LIST AS MUCH AS POSSIBLE. READ ONLY IF NECESSARY]

1 OVERALL CONSTRUCTION AND INSTALLATION COSTS
2 MAINTENANCE COSTS
3 FREQUENCY OF PUMP OUTS
4 COST OF PUMP OUTS
5 ALARMS (GOING OFF TOO FREQUENTLY, NOT WORKING, ETC.)
6 RELIABILITY OF YOUR SEWAGE SYSTEM
7 VISUAL APPEARANCE OF THE SYSTEM
8 CONTROL OF ODORS
9 NOISE LEVELS
10 RESPONSE TIME FOR SERVICE CALLS
11 QUALITY OF MAINTENANCE PROVIDERS
12 KNOWLEDGE DISPLAYED BY MAINTENANCE PROVIDERS
13 NUMBER OF MAINTENANCE PROVIDERS
14 OTHER (SPECIFY)
15 DON'T KNOW
16 REFUSED

{RELIABLE}

How reliable is your sewage system?

- 1 Very reliable
- 2 Somewhat reliable
- 3 Somewhat unreliable
- 4 Very unreliable
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{RELWHY}

IF RELIABLE=3 OR 4

What makes your system unreliable?

[IV: CODE ACCORDING TO THE FOLLOWING LIST AS MUCH AS POSSIBLE. READ ONLY IF NECESSARY.]

1 POWER FAILURES
2 FREEZING TEMPERATURES
3 HEAVY RAIN OR PERIODS OF WET WEATHER
4 LARGE GATHERINGS AT YOUR HOUSE
5 DUMMY
6 DUMMY
7 DUMMY
8 DUMMY
9 DUMMY
10 OTHER (SPECIFY)
11 DON'T KNOW
12 REFUSED

{LASTWORD}

Is there anything else you would like to tell the state health department that you think would help them write regulations for operating and maintaining alternative sewage systems?

[IV:THIS IS THE LAST SCREEN FROM WHICH YOU CAN GO BACK]

(RECORD OPEN-ENDED)

DESCRIPTION OF RESIDENCE

We're near the end of the interview and I have a few final questions that are for statistical purposes only. Again, all your answers are confidential and if there are any questions you do not wish to answer, we can skip them.

{LENGTH}

How long have you been living in your current residence? [IV: READ IF NECESSARY]

(Data check: If this answer is less than 2009 minus the year the system was installed, you will be prompted to check the data and re-ask the system installation date and LENGTH. It is possible that the respondent will know the system installation date was a date before they moved in, but we just want to check it if that is the case.)

- 1 LESS THAN 2 YEARS
- 2 2-5 YEARS
- 3 6-10 YEARS
- 4 11-20 YEARS
- 5 MORE THAN 20 YEARS
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{OWNRENT}

Do you own or rent now? (IV: If needed, we are asking about your home at [Address])

- 1 OWN
- 2 RENT
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{YRROUND}

Is the property where you live used year round or seasonally?

- 1 YEAR ROUND
- 2 SEASONALLY
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{SEASON}

IF YRROUND=2

How many months out of the year do you spend in your home? _____

{HSEAGE}

When was the house built? (*The range of the value allowed is from 1700 to 2009.*)

- ____ YEAR
- 9998 FOR DON'T KNOW
- 9999 FOR REFUSAL

[IV IF NEEDED: AN ESTIMATED YEAR WOULD BE FINE.]

{SIZELOT}

What size lot do you own?

- 1 Less than 1 acre
- 2 1 acre to 3 acres
- 3 More than 3 acres
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{HHSIZE}

How many people live in your household?

- ____ PEOPLE (*Maximum value allowed is 20.*)
- 98 FOR DON'T KNOW
- 99 FOR REFUSAL

{LOAD}

Would you describe the usage of your household sewage system as...

- 1 Light
- 2 Moderate OR
- 3 Heavy
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

DEMOGRAPHICS

{RGENDER}

I need you to confirm your gender for me.

- 3 Male
- 4 Female
- 9 DON'T KNOW/REFUSED

IV: IF NECESSARY: The survey requires that you indicate your gender for me.

{YRBORN}

In what year were you born?

ENTER YEAR HERE 19__ AND PRESS RETURN(*Maximum value allowed is 92*)

TYPE 2 DIGITS ONLY!

ENTER "00" FOR ANY YEAR PRIOR TO 1900

ENTER "99" FOR REFUSED

{EDUC}

What is the highest level of education you have completed?

- 1 ELEMENTARY SCHOOL OR LESS
- 2 MIDDLE SCHOOL
- 3 SOME HIGH SCHOOL, DID NOT FINISH
- 4 COMPLETED HIGH SCHOOL
- 5 SOME COLLEGE, BUT DID NOT FINISH
- 6 2-YEAR COLLEGE DEGREE (AA, AS)
- 7 TECHNICAL SCHOOL OR TRADE SCHOOL
- 8 4-YEAR COLLEGE DEGREE (BA, BS)
- 9 SOME GRADUATE WORK
- 10 COMPLETED MASTERS OR PROFESSIONAL DEGREE
- 11 ADVANCED GRADUATE WORK OR PH.D
- 12 DON'T KNOW/NOT SURE
- 13 REFUSED

{HISPANIC}

Do you consider yourself to be of Hispanic origin?

- 1 YES
- 2 NO
- 8 DON'T KNOW/NOT SURE
- 9 REFUSED

{RACE}

Which of the following racial categories best describes you?

- 1 White
- 2 [READ ONE] African American/Black
- 3 Asian? [INCLUDING SOUTH ASIAN]
- 4 American Indian? [NATIVE AMERICAN; INCLUDES ESKIMO, ALEUT]
- 5 Pacific Islander?
- 6 MULTIRACIAL [RECORD IN ORDER GIVEN BY RESPONDENT]
- 7 OTHER [SPECIFY]
- 8 HISPANIC ONLY: PLEASE PROMPT (BELOW) BEFORE SELECTING THIS
- 9 REFUSED/NO ANSWER

[IF NECESSARY: Other than Hispanic, how would you describe yourself.]

[IF NECESSARY: Many Hispanic people may identify with a particular racial group, in addition to being Hispanic. They may think of themselves as “Black Hispanic,” “White Hispanic,” or some other racial group as well.]

{INCOME}

I am going to read a list of income ranges. Would you please stop me when I read the range that best describes your annual combined household income from all sources. That would be before taxes and other deductions.

- | | |
|--------------------------------------|---------------------|
| 1 Less than 10 thousand? | [\$0 - \$9,999] |
| 2 Ten to less than 30 thousand? | [\$10,000-\$29,999] |
| 3 Thirty to less than 50 thousand? | [\$30,000-\$49,999] |
| 4 Fifty to less than 70 thousand? | [\$50,000-\$69,999] |
| 5 Seventy to less than 100 thousand? | [\$70,000-\$99,999] |
| 6 One hundred thousand or more? | [\$100,000 or more] |
| 8 DON'T KNOW/NOT SURE | |
| 9 REFUSED | |

{RCOMM}

Those are all the questions I have for you. Are there any other comments you'd like to make?

RECORD OPEN-END

{THANKYOU}

We really appreciate the time you've taken to help in answering these important questions. If you have any questions about the survey or the Center for Survey Research you may visit our website at www.virginia.edu/surveys (SPELL OUT).
Thanks again. Goodbye.

[IV: IF THEY HAVE FURTHER QUESTIONS REFER TO THE FAQ SHEET]

APPENDIX E

METHODOLOGY

Overview

In spring 2009 the Division of Onsite Sewage and Water Services in the Office of Environmental Health at the Virginia Department of Health contracted with the Center for Survey Research at the University of Virginia to design and conduct a survey of Virginia residents regarding proposed emergency regulations for alternative onsite sewage systems.

The need for this survey arose out of new regulations regarding operation and maintenance of alternative onsite sewage systems enacted on July 1, 2009 by the Virginia Department of Health. Interim requirements on recording notices in the land records for newly installed alternative systems and operating alternative systems according to manufacturer's instructions, took effect on that date. Details on the legislative context for the study can be found at the beginning of Chapter 3 of the report.

The survey project and questionnaire were designed in collaboration with VDH staff. CSR administered the survey by telephone to 671 respondents in selected counties across the state. This section of the report describes the research questions that underpinned questionnaire development and research methods used to implement the survey.

Research Questions

The survey was designed to address the following research questions:

- 1 What are the levels of owner awareness of, expectations for, and historical experiences with operation and maintenance issues associated within and between conventional and alternative onsite sewage systems?
- 2 Are owners adequately aware of their onsite sewage system, its operation and its maintenance needs? What is their level of awareness? Are levels of awareness similar or different between conventional and alternative owners?
- 3 What percentage of systems is maintained by a service provider? What is the average cost?
- 4 What percentage of systems experience problems? Is there a difference between conventional and alternative systems? Is there a difference in failures or problems

between operator-maintained and homeowner-ignored systems?

- 5 What are owners willing to pay for operation and maintenance?
- 6 What types of problems do conventional and alternative system owners have? Are they similar or different?
- 7 What are the maintenance needs within and between these two groups?
- 8 Do alternative systems fail more frequently than conventional systems?
- 9 What is the average age of sewage systems when a problem first occurs?

In addition to questions addressing these issues, the questionnaire also asked for overall opinions about the onsite system's performance and a series of demographic and contextual questions.

Methodology

The survey methodology followed a series of steps designed to create a survey tailored to VDH's research needs, obtain high-quality data, and minimize the burden placed on survey respondents.

Survey mode

CSR and VDH staff met several times by phone and in person during spring 2009 to document the goals of the survey and create shared understandings of alternative onsite sewage system issues and how survey methods could be applied to create useful input into the regulatory discussion.

In order to learn more about the issues and acquire contextual information useful in designing a survey questionnaire, the CSR principal investigator attended two of the four scheduled meetings of the Alternative Onsite Sewage Systems Emergency Regulation Ad Hoc Committee in the summer of 2009.

These meetings resulted in the list of research questions listed above and the decision to conduct the survey by computer-assisted telephone interviewing. The telephone mode was preferred over a web-based survey and a self-administered mail questionnaire because of its reach and flexibility, as well as its ability to handle complex skipping and branching without undue burden on the respondent to follow a complicated path

through a paper questionnaire. These advantages outweighed the likely disadvantage that some effort would be needed to obtain telephone numbers for some of the sampled properties.

Sample design

One of the most important practical issues in every survey project is getting access to a good list from which to draw a representative sample. There are often tradeoffs between coverage of all elements in the population, the convenience of various sources, the efficiency of the lists, and the accuracy of the information in the lists. For this project, these tradeoffs applied more strongly than in most surveys because each locality in Virginia would have unique characteristics related to the number of alternative onsite sewage systems in the locality, the types of systems there, and the operations of local government that might affect the situation. In addition, there were additional assumptions – which turned out to be accurate – that the property records maintained by each locality would be an important resource in tracking down telephone numbers for calling, and that these systems would be unique to each county, which would require some investment of time for each county included in the study.

Therefore, the plan was to use the centralized Virginia Environmental Information System (VENIS) database as the primary sampling frame even though it was known to be an incomplete record of onsite sewage systems in Virginia. The advantages of using this one centralized source outweighed the potential disadvantages of incomplete data or varying data quality depending on how different localities maintained their information in VENIS. The VENIS data would be supplemented by locally maintained lists where necessary. The VENIS system provided a sampling frame of more than 83,000 property records for this survey. The estimated number of onsite sewage systems in Virginia ranges from about 700,000 to about 1 million. It is likely that the VENIS system captures a higher percentage of systems installed more recently than the overall fraction of about one in ten systems in total.

Telephone numbers were rarely found in the VENIS data, so once the properties were sampled the addresses were sent to Survey Sampling, International, for matching to residential telephone

numbers on file. Addresses that remained unmatched were researched by CSR in locally maintained online property records and online telephone number lookup services.

To minimize the number of locally maintained lists that might be needed to supplement the VENIS list, as well as the unique county property record systems that CSR would eventually need to use to look up telephone numbers, the sample was clustered into a set of twenty randomly selected counties in five regions of the state. Counties were stratified into five regions of the state to ensure that all regions would be represented in the survey. Within regions, counties were randomly selected in proportion to the number of alternative onsite sewage systems listed in the county, so that counties with more alternative systems had a greater chance of being selected. Relatively set numbers of addresses were then selected within each county, so that addresses in small counties had greater chances of being selected (given that the county had been selected) than did addresses in larger counties. This strategy, known as sampling proportional to size (PPS) provides a self-weighting sample within each stratum because the probabilities of selection at the first stage (selection of counties) are balanced by the inversely related probabilities of selection at the second stage (selection of addresses within selected counties). See more about weighting below.

Properties were included in the selection process if they had a valid onsite sewage system operational date in the VENIS system from 1992 or later, and a valid ZIP code for mailing and telephone lookup purposes. Properties listed in VENIS or the locally maintained list as having alternative systems were sampled at a rate of three-to-one over those listed as having conventional systems. The plan aimed to complete 450 surveys with residents at properties having alternative systems and 150 with residents at properties having conventional systems. Because of faulty data in one of the VENIS reports created specifically for this project, properties with conventional systems in Loudoun County were oversampled. Ultimately there were 439 interviews completed with residents at properties listed as having alternative systems and 232 at properties listed as having conventional systems.

Table 1: Sampling plan, lookups and completed surveys by listed system type and region

	Northwest	Northern Virginia	Southwest	Central	Eastern	Total
Number of alternative systems	3,110	2,674	637	1,493	2,182	10,096
Number sampled	360	517	360	450	450	2,137
Number completed after lookups and calling	92	107	93	91	56	439
Number of conventional systems	11,910	34,969	12,988	6,630	7,332	73,289
Number sampled	120	513	120	150	150	1,053
Number completed after lookups and calling	27	123	31	31	20	232
Total sampled	480	1,030	480	600	600	3,190
Total completed after lookups and calling	119	230	124	122	76	671

In summary, the sample design was a regionally stratified two-stage clustered design with sampling proportional to size (PPS) within regions. This design was used to control costs associated with each unique county from which property addresses could be selected and ensure representativeness by region and various types of counties.

Lists

Table 2 shows the twenty counties included in the sample, the region of the state in which each county is found, and the list from which the alternative and conventional properties were selected in each county.

Table 2: Lists used for each of the selected counties

Region and County	Alternative		Conventional	
	List used	Sampling	List used	Sampling
NORTHWEST				
Caroline	VENIS	60 from 269	VENIS	20 from 630
Frederick	VENIS	60 from 416	VENIS	20 from 171
Rockbridge	VENIS	60 from 90	VENIS	20 from 419
Rockingham	VENIS	60 from 224	VENIS	20 from 440
Spotsylvania	VENIS	60 from 382	VENIS	20 from 791
Stafford	VENIS	60 from 360	VENIS	20 from 498
NORTHERN VIRGINIA				
Fairfax	County list	86 from 580	County list	68 from 21,164
Loudoun	County list	345 from 2,465	VENIS	68 ^a from 13,521
Prince William	VENIS	86 from 783	VENIS	34 from 280
SOUTHWEST				
Bedford	VENIS	90 from 90	VENIS	30 from 1,944
Floyd	VENIS	15 from 15	VENIS	30 from 266
Franklin	VENIS	128 from 135	VENIS	30 from 975
Montgomery	VENIS	127 from 134	VENIS	30 from 411
CENTRAL				
Chesterfield	VENIS	175 from 281	VENIS	90 from 1,116
Henrico	VENIS	174 from 223	VENIS	30 from 175
Prince George	VENIS	101 from 101	VENIS	30 from 113
EASTERN				
Accomack	VENIS	129 from 307	VENIS	60 from 1,287
Essex	VENIS	65 from 65	VENIS	30 from 428
King William	VENIS	128 from 155	VENIS	30 from 47
Suffolk	VENIS	128 from 251	VENIS	30 from 334

^a Due to an error in a VENIS report, there were actually 411 conventional systems sampled in Loudoun County.

Questionnaire design

After the initial meetings with VDH staff and development of the research questions included in the memorandum of agreement for the project, a conceptual outline of the questionnaire was drawn up. The conceptual outline was used to guide the development of a draft survey, which rested partly on surveys done in other states and partly on original items constructed for the VDH survey.

The survey was revised through several draft versions until it was ready to bring to Virginia residents for comments.

Focus groups

To aid in the development of a useful survey, CSR recruited twelve residents in the Charlottesville-Albemarle area with conventional onsite sewage systems to attend a questionnaire focus group on August 11, 2009. CSR also recruited ten area residents with alternative onsite sewage systems to attend a questionnaire focus group on August 13, 2009. Recruitment was conducted by telephone using a random sample of addresses from the VENIS list. Telephone numbers were obtained using whitepages.com. The addresses were restricted to those located in ZIP codes beginning with 229 or ZIP code 24590, and at the same time located in Augusta, Albemarle, Nelson, Greene, Fluvanna, Louisa or Orange counties.

The purpose of the focus groups was to have members of the study population fill out a paper version of the questionnaire, discuss onsite sewage system issues in general, and discuss their reactions to the questionnaire. The discussion included asking about problems such as unclear definitions or question wording, the need to add questions about important issues that were not adequately addressed, and other feedback that could improve the questionnaire.

Feedback from the focus groups indicated that the questionnaire was lengthy, that it was not clear how respondents with multiple onsite sewage systems should respond, and that it would be useful to capture additional information about who installed the system.

There were also a number of comments about the wording or answer choices for specific questions.

CSR and VDH revised the questionnaire accordingly and programmed it in the WinCATI computer-assisted telephone interviewing (CATI) system for pre-test calling.

Pre-testing

As part of the preparations for pre-test calling, several veteran CSR telephone interviewers reviewed the draft survey and made additional comments regarding question wording and the flow of the interview. These suggestions were reviewed with VDH. The questionnaire and CATI program were modified where agreed on.

The survey was pre-tested on August 31 and September 1, 2009 with 92 cases selected at random from the VENIS list and resulting in ten respondents. Telephone numbers were obtained using whitepages.com. The addresses were restricted to those located in Augusta, Albemarle, Nelson, Greene, Fluvanna, Louisa or Orange counties.

The results indicated that the survey was too long (about 35 minutes on average) and too repetitive, especially for residents who did not know a lot about their onsite sewage systems. In collaboration with VDH, the survey was significantly reduced in length and tested a second time.

The second pre-test was conducted September 20-22, 2009 with 62 cases selected as before in the first pre-test and resulting in nine respondents completing the interview. The average survey length was within range at 16 minutes and the survey experience was much improved for the respondents. After final revisions and interviewer training, the survey was put into production.

Lookups

The 2,845 records that were originally sampled for the survey were sent to Survey Sampling, International (SSI) for telephone matching service – standardizing the addresses and matching directory-listed telephone numbers to

the sampled addresses. This process yielded 951 matches, which were immediately put into production. Subsequently, an additional sample of 345 records was drawn from Loudoun County's locally-maintained list of alternative onsite sewage systems, none of which were sent to SSI for telephone matching service. The total sample drawn for the project was 3,190. CSR staff researched 1,966 of the 2,239 records that were unmatched by SSI or were not sent to SSI, and obtained enough information for 835 of those 1,966 records to send an advance letter and attempt the survey by telephone. CSR also gratefully acknowledges the extensive assistance received from local VDH staff in selected counties, who provided additional information about unmatched addresses using publicly accessible data sources. In total, there were 1,786 households referred to the calling effort and 1,752 attempted in calling (34 cases referred to the calling effort were not attempted due to duplicated telephone numbers or other issues).

Advance letters

Prior to calling, all selected households were mailed a letter alerting the residents to the upcoming telephone call and describing the project. Survey methods research shows that advance letters are worth the cost and effort because they increase the response rate and help interviewers resolve calls faster, thus reducing the overall calling effort. Survey cases were handled in ten batches as they came out of the telephone matching and lookup process. A few days after mailing the advance letters for each batch, the cases in that batch were uploaded to the WinCATI system for calling.

Telephone interviewing procedures

CSR conducted the telephone interviews from its Computer-Assisted Telephone Interviewing (CATI) Laboratory at the University of Virginia. CATI is a system in which computers are employed to increase the efficiency, accuracy, and flexibility of telephone surveys conducted by trained interviewers. Questions appear on the computer screen in programmed sequence as the interviewer presses the keys on the keyboard to record the respondent's answers. Accurate, instantaneous data entry is assured by the

system. The computer system stores the database of telephone numbers and is used to control the sampling process, dial each sampled number, schedule call-backs, and record the disposition of each attempted call. CSR's CATI laboratory also allows for audio-visual monitoring of calls by lab supervisors.

Production calling

Production calling for the survey was carried out from October 9, 2009 through January 22, 2010, although more than half of the completions occurred by October 28, 2009. Telephone calls were made from the CSR CATI laboratory under the direct supervision of CSR staff. Numbers were dialed automatically by the WinCATI computer system except for cell phones, which were manually dialed to conform to Federal telecommunications regulations. Calling was done regularly on Sunday through Friday evenings, Sunday afternoons, and occasionally on Saturday and weekday afternoons.

The interviewers received at least six hours of training prior to production interviewing. Many had prior interviewing experience on similar studies.

Each phone number was given a maximum of 12 call attempts before it was treated as a "no answer" or "busy" number. Residential phones answered by automatic answering machines were treated the same as "no answer" calls (although counted separately). With respect to landline phones, CSR interviewers did not leave messages on the answering machines of potential respondents but simply returned the phone number to the sample pool for another calling attempt at a later time.

In order to reduce non-response bias, CSR conducted "conversion calling." Non-response bias in surveys results when qualified respondents do not complete a survey, usually because they refuse to cooperate. In conversion calling, CSR's most highly trained interviewers call back households in which a respondent had previously refused to take the survey. First, CSR kept track of the "tone" of initial refusals. "Hard" refusals, those in which people explicitly asked not to be called again or were noticeably agitated or upset about receiving a phone call,

were not called back at all. “Soft” refusals, those for which it seemed that interviewers only caught someone at a bad time, were called back and contacted again after an interval of at least three days. Respondents were removed from calling after three “soft” refusals.

Productivity and response rates

A total of 1,752 phone numbers were attempted in the course of the survey, resulting in 670 completions and 4 partial cases, of which one case was sufficiently complete to be used for analysis in the final dataset for a total of 671 interviews. The interviews took an average of 15.7 minutes to complete once a qualified respondent was identified through final respondent comments, with a median time of 14.4 minutes.

The final disposition of each of the attempted phone numbers is shown in two tables at the end of this Methodology report. The disposition report is presented in a format that has been recommended as an industry standard by the American Association for Public Opinion Research. The AAPOR rate was calculated by a custom analysis of the complete call history of each attempted number, using a program written in SPSS by CSR technical staff. CSR completed a total of 674 complete and partial interviews (including those completed in the conversion phase of calling and some cases that had to be excluded from the final dataset), for an overall response rate of 51.4% (RR4). An estimate of 51.2% for the RR3 response rate is also based on the most conservative assumption (equivalent to the CASRO rate) that the percentage of residential households among unreachable numbers is the same as the percentage among those we reached, i.e. 75%, but excludes the partial cases from the estimate.

The response rate is a way of expressing the proportion of completed interviews against the number of eligible possible contacts. It does not include failures to interview at the number dialed because the number has not been assigned to an eligible participant or is not working. It does include eligible respondents who refuse cooperation and other numbers whose eligibility

cannot be determined (busy or never answered numbers).

The true response rate depends on how one estimates the percentage of working residential phones that exist among the many numbers that never answered our many call attempts. Significantly, the response rate for this study does not include the selected addresses for which no phone numbers could be attached. It is only the response rate for the numbers entered into the calling sample. Finally, the efficiency of the calling can be expressed in terms of number of completions per hour of calling (CPH). The overall interview production rate was 1.48 interviews per hour.

Weighting

The strategy of sampling proportional to size (PPS) is designed to produce a sample in which elements have equal probabilities of selection and so weighting the dataset to adjust for unequal probabilities of selection is not necessary.

However, this sampling plan used different PPS schemes within five health planning regions of the state and intentionally overrepresented listed alternative systems. These disproportionate allocations are necessary to provide enough cases to represent relatively rare or relatively important subgroups, but they bias the overall results towards those who were oversampled. In this case, the bias is towards those with listed alternative systems and those in health planning regions with fewer onsite sewage systems.

In order to better reflect what a simple random sample of onsite sewage system owners statewide would say, the data file was weighted by region and listed system type.

Surveys are typically also weighted for socio-economic variables by comparing the demographics of the participants in the survey data to reliable population statistics such as those released by the U.S. Bureau of the Census. In this case, however, the survey respondents were not selected at random within households and it is unlikely that there are reliable data tables showing the demographics of those said to be the most knowledgeable about their onsite

sewage systems. So no demographic weighting adjustments were attempted. Based on data from the VENIS system, adjusted for local data in Fairfax and Loudoun counties, the weighting scheme assumed that about twelve percent of all operating onsite sewage systems in Virginia are alternative systems.

Definition of system type

The survey asked respondents to self-report whether they had a conventional or an alternative onsite sewage system. This information was also available from the lists used to generate the sample. About one-quarter of respondents reported a system type that did not match the data found for their property in the lists used for sampling. Because of the potential for confusion regarding this issue, for this report the sewage system type was defined by the data in the lists used for sampling rather than the self-report from the respondent. This is referred to in the report as “listed conventional,” “listed alternative,” or “listed system type.”

Sampling error and statistical testing

Because this survey used a probability sampling method, a margin of error can be calculated to support generalization of the results to the entire population of Virginia residents with onsite sewage systems. However, surveys are subject to other sources of error. Several factors make generalization of the data from this survey somewhat riskier than it would be to generalize from a more typical survey of the general population.

First, there may be very little existing information about these issues obtained from Virginia residents with onsite sewage systems. Therefore, unusual results would not stand out because there are no benchmark data. The experience and judgment of government, interest group and private sector people may be useful in assessing the “face validity” of the results.

Second, although an extensive effort was made to cover the entire population of interest and to represent a range of types of counties and regions across the state, the situation is different in each locality. Record-keeping procedures, past experience with onsite sewage systems,

current policies towards onsite sewage systems, geological characteristics and other factors will differ from one locality to the next.

Third, almost all of the properties represented in the survey (97.4%) are used year-round. Therefore, seasonal properties are not well-represented in the survey despite some effort to contact property owners at addresses that were different from the property addresses themselves. If the experiences with onsite sewage systems at seasonal properties are strongly different from those at properties occupied year-round, the results from this survey could be biased in the direction of experiences reported for year-round properties. Localities with high proportions of seasonal properties may not be well represented in this survey.

Fourth, despite the extensive work done to look up telephone numbers, roughly half of the selected addresses could not be identified in telephone lookup activities. The survey is essentially limited to properties that could be reached using directory listed telephone numbers. If responses that would be obtained from properties with onsite sewage systems and unlisted telephone numbers (or relying on cellular phones only) should differ strongly from those obtained from households with directory listed telephone numbers, the results of this survey would be biased.

In addition, the clustered sample design results in reduced efficiency of the sample, statistically speaking. Although there are many clusters (twenty counties), the similarities shared by respondents within the same county contribute to a reduction in the precision of the sample compared to a simple random sample of the same size. That is, this clustered sample of 671 cases will yield a margin of error equal to that of a simple random sample of fewer cases.

Specifically, if our final sample of 671 respondents had been drawn by simple random sample, the survey would have a margin of error of plus or minus 3.8 percentage points at the 95% level of confidence. However, in addition to sampling error there is a design effect that impacts the total margin of error which we calculate by introducing the weights described above into the Complex Sampling module of

SPSS statistical software. This tool allows calculation of a “design effect” for each question in the survey. The design effect shows how the variance of the sample estimates is increased by the effect of post-stratification weighting.

We base our estimate of the overall margin of error on a key survey question: the respondent’s gender. For that question, 665 respondents provided an answer and the design effect is 1.408, meaning that the margin of error in our sample is equivalent (because of the weighting) to the margin of error we would have obtained from a simple random sample of 472 (665/1.408). Therefore, 472 is the effective sample size for that question. The margin of error is increased by the square root of the design effect, a factor in this case of 1.19. The final margin of error is $\pm 4.51\%$ ($3.8*1.19$). This

means that in 95 out of 100 samples of this size drawn from the region surveyed, the results obtained in the sample would fall in a range of ± 4.51 percentage points of what would have been obtained had every household in the area with a working telephone been interviewed and sampling error were the only source of error in the survey. Larger sampling errors are present when analyzing subgroups of the sample or questions that were not asked of all respondents; smaller sampling errors are present when a lopsided majority gives the same answer (e.g., 80 percent of the sample are satisfied with a given service).

The following disposition reports detail the final resolution to every attempted phone number in the sample. The report form is arranged for calculation of AAPOR standard rates.

Table B-7: Sample Disposition Report

VDH-SASS 2009 – Disposition Listing for All Samples
 [dispositions arranged for calculation of AAPOR standard rates]

Disposition Code	Disposition Description	Disposition: All Cases
1100	Complete	670
1200	Partial	4
2110	Eligible: Refusal	169
2120	Eligible: Break-off	12
2210	Eligible: Resp Never Avail	74
2221	Eligible: Ans Mach, No Mess	280
2222	Eligible: Ans Mach, Message	0
2310	Eligible: Dead	0
2320	Eligible: Phys/Mentally Unable	6
2330	Eligible: Language Unable	5
2340	Eligible: Misc. Unable	6
3120	Busy	3
3130	No Answer	9
3140	Ans Mach (Don't Know if HU)	30
3150	Technical Phone Problems	16
3210	HU, Unknown Eligible: No Scnr	82
3220	HU, Unknown Eligible: Other	0
4100	Out of Sample	53
4200	Fax/Data Line	38
4310	Non-working Number	75
4320	Disconnected Number	87
4410	Number Changed	4
4420	Cell Phone	N/A
4430	Call Forwarding	0
4510	Business/Govt/Other Org	114
4520	Institution	0
4530	Group Quarter	0
4700	No Eligible Respondent	15
4800	Quota Filled	0
Total		1752

Table B-8: Sample Disposition Report
VDH-SASS 2009 – AAPOR Standard Rates Calculation
 [Dispositions summary for all Telephone Samples]

AAPOR Standard Rates and Dispositions Summary	Disposition: All Cases
<i>Estimated Residency 1</i>	0.750
<i>Estimated Residency 2</i>	0.932
Response Rate 1	0.490
Response Rate 2	0.493
Response Rate 3	0.512
Response Rate 4	0.515
Response Rate 5	0.547
Response Rate 6	0.550
Cooperation Rate 1	0.768
Cooperation Rate 2	0.773
Cooperation Rate 3	0.784
Cooperation Rate 4	0.788
Refusal Rate 1	0.133
Refusal Rate 2	0.138
Refusal Rate 3	0.148
Contact Rate 1	0.638
Contact Rate 2	0.648
Contact Rate 3	0.711
Complete Interview	670
Partial Interview	4
Refusal and Break-off	181
Non-contact	354
Other eligible but unable	17
Unknown if household	58
Unknown if other	82
Ineligible Numbers	386
Total Dialed Attempts	12226
TOTAL	1752

APPENDIX F
OPEN-END COMMENTS

**VIRGINIA DEPARTMENT OF HEALTH
SURVEY OF ALTERNATIVE SEWAGE SYSTEMS**

RESPONSES TO OPENENDED QUESTIONS

**Q_ADDDONE: Are there parts of your sewage system that were added or updated later?
When were they done?**

Added on a room and needed to put in an addition to the system.
Control box bought in 2007 with a pump; pump also installed a couple weeks ago (replaced).
Drain field was moved.
The new one is separate entirely - different location - at this address but actually for our business, restroom and kitchen for processing food - agricultural, vegetable farm
Added on a room and needed to put in an addition to the system.
Control box bought in 2007 with a pump; pump also installed a couple weeks ago (replaced).
Drain field was moved.

Q_AIRKNOW: Are you familiar with the media or air blower for your system?

a bio-diffuser

Q_ALARM: How often has the alarm on your sewage system sounded indicating a possible problem?

After heavy snow melts and heavy rains.
constantly
I would suggest that homeowners should test that their alarm is working monthly.
I'm not going to use the pump and haul times.
It sounded often when I first moved in, but they found the problem and I have not heard the alarm for at least a year and a half.
It sounds when the electricity goes off and comes back on, too.
It's just a red flashing light, not a sound.
Once every six months, it was a flaw in the alarm.
The problem was with the circuit board. Before it was fixed, it sounded daily. Since it was fixed, it hasn't sounded once.
They monitor and the alarm used to ring here, but they disconnected the alarm that is audible here, so there is just a blinking light. I only know of it going off once.

Q_ALRMCON: How much inconvenience have you experienced as a result of the alarm?

at the time
Basement flooded because they failed to turn a pump on.
It stayed on for a long time and the contractors kept saying they had fixed it when they were actually going to somebody else's house. Or they would never call back. Eventually we did call the installer who did fix it and correct the problem.
It was due to electrical surges.
It was just a matter of knowing how it worked and fixing it.
lots of anxiety
The job of replacing pumps was an awful one!

Q_COSTAIR: About how much would it cost of have the media or air blower replaced for your system?

\$9,000
\$40,000
several thousand dollars
The contractor said to have the blower motor replaced it would cost \$400 just for the motor.
There's no cost for replacing the media.
We just had it done, and it shouldn't have gone out in the length of time we had the system.

Q_COSTINSP: Accounting for drive time and up to an hour inspection of your system, what would you consider to be a reasonable charge to inspect your sewage system?

\$200 seems excessive but I don't have basis for comparison.
I will never hire anyone to inspect system.
I would have a problem with why they need to inspect it. Any charge is not OK.
If it's a state official, it shouldn't cost anything.
Inspection and pumping out are done together.
Inspection and pump-out are all done together as one service. So price actually includes both services.
It should be free.
It was only inspected upon installation and when it gets pumped out. So, I can't think of any reason for a separate, paid inspection.
They charged \$250.
They charged us \$135 which included a termite inspection.
They included in the \$85 pumping charge.
Why would it need to be inspected?

Q_COSTMAIN: How much does your maintenance contract cost per year?

A community contract, probably about \$200 per person.
 Contract may have been prepaid by the builder.
 I don't pay separate from HOA fees, except I haven't had it pumped yet and that will be extra.
 Included in new house warranty so far.
 It came with the system, no charge.
 It is included in our homeowners fees
 No cost for first 5 years. It's part of the upfront cost to have yearly maintenance and inspection.
 No costs for first 5 years.
 Nothing; it came with the house.
 Paid by builder for the first 10 years.
 The whole system costs \$17,500 and includes a maintenance contract.
 We have used system for less than two years. The first 2 years of the contract are provided by the builder at no charge. After the 2-year period, we will contract an independent company to perform maintenance.

Q_COSTPUMP: How much does it cost to have your sewage system tank pumped?

A friend did it but it was with certification.
 All included in routine maintenance each year which is \$350.
 For solids and 100 for gray water. They need to bring a bigger truck for both. There are two tanks.
 I bought the house in foreclosure; it had been vacant three months. No information came with it.

Q_CURRPROB: Are you having any problems with your sewage system or drain field now?

Not since the last 2 weeks and the \$2,000 bill I had then.

Q_DESIGN: Who designed your system?

[Builder's name deleted]
 [Builder's name deleted], a home builder
 [Company's name deleted] designed and approved by Loudon County.
 [Company's name deleted], licensed to design and sell sewage systems.
 [Construction company's name deleted] did the septic system.
 [contract company's name deleted] contractors' engineers
 A builder did it.
 A builder. We bought the house and it came with it
 A combination of the health department, engineer, and onsite soil evaluator.
 a contractor
 a contractor
 A contractor working with an engineer.

A contractor, but I'm not sure.

A county inspector came out and told us what we had to have, then there was an engineer.

A county representative and builder. The builder made the final decision and updated the septic system.

A low pressure system required by the Health Department; we put in [product name deleted].

also the Health Department

an engineer and the Health Department

An engineer and the health department working together.

an engineer, an OSE, and a sub-contractor

An engineer, onsite soil evaluator and the county.

An off-the-shelf system, the name of it is [product name deleted] made by [company name deleted].

And then the health department as well.

builder

builder [builder's name deleted]

Builder recommended a kind of septic system and we did it ourselves when we were adding an addition. We did the same type of system we had before.

building company

City of Leesburg

company

contractor

contractor

contractor and health department

contractor working for builder

developer

Engineer and Health Department

engineer and health department

engineer and health department

engineer and Health Department working together

Engineer and health department working together.

Engineer designed with Health Department inspection. The Health Department changed a few things.

health department and a contractor

health department and an engineer

Health Department and an engineer

health department and engineer

Health Department and local / state government

health department is the evaluator and the engineer

Health Department together with an onsite soil evaluator.

health department with an engineer

Hired a builder who hired a subcontractor who designed in consultation with the local Health Department

home builder

household designed system

I just bought the house and it came with it.

I suppose the contractor who built the house did it or at least chose it.

independent contractor

It was selected by the contactor [contractor's name deleted].

Lifestyle Builders had it put in, but I don't know who designed the system.

Loudon County

Me and the guy who put it in.

Myself, a contractor, and the Health Department

One of the companies designed it.

Onsite soil said an alternative system was needed, and then an engineer came in. They did the work together.

original builders

part of new home -- commercial company builder used

People who built the development.

Permitting arm of the county. The builder had to buy an extra piece of land for it to perc.

private firm

Secondary filtration system. An improved system, basically designed by the field engineer, who contacted a manufacturer, and the health department and myself who laid it out and had it installed.

septic engineer

sewage system professional (friend)

The 1st permit from the health department, designed by local contractor

the builder

the builder

the builder

the builder

the builder

The builder or contractor.

the contractor

The contractor and permitted by the county and inspected.

The contractor but I'm not 100% certain.

The contractor had someone come out and do it, but I am not sure who.

The contractor made an arrangement with a subcontractor based on a permit.

The contractor on the house and company [company's name deleted].

The contractor, I thought.

The county Health Department and an independent engineer.

The engineer is also a soil scientist.

The engineer was the soil evaluator.

The Health Department and contractor

The health department perked it, and then we needed an engineer.

The health department recommended someone.

The health department, an engineer and a soil evaluator all together.

The health department, an engineer, and an onsite soil evaluator.

The onsite soil evaluator and licensed installing company.

The soil scientist and engineer was the same person.

We built the house through a builder, who used an engineer, and the health department approved it. The builder and the engineer designed it.

Q_DISCLOSE: Would you support or oppose a state law that required a home seller to give the new buyer a document that described the function and condition of the property's alternative sewage system?

Also, the maintenance contractor should also provide documentation as well. The oncoming buyer should have the opportunity to take on that maintenance contract.

Don't limit it to alternative systems. Primary systems are more trouble. They leak sewage into the ground.

I agree as the home owner I should have to give some information about the function and condition of the system. But I can't support or oppose regulations without knowing how much would be required in the document.

I am not in favor of more laws.

I am selling my house, and I am intending to leave all the information to the new buyer.

I think that the buyer should be made aware of what type of system it is but when you want to know how well it is running you get into warranty issues. In the disclosures you have to tell the buyer.

I would oppose passing it onto a new guy, because as in my case, I do not have it. I was never given a document myself and was coerced into a contract for maintenance only on the day of closing on the property.

It should be the right of the homeowner to do their maintenance. They should not be required to hire anyone else.

The county is requiring me to have a maintenance contract for my system, so if I'm going to sell this house, then I think the county should provide the information to the prospective buyer.

This respondent found the questions to be ridiculous and refused to finish the survey.

Q_EDUC: What is the highest level of education you have completed?

DD [Doctor of Divinity]

Q_FAILURE: How old was this system when it first failed?

It was covered by the builder. They put rebar through a main pipe and it had to be dug up and replaced. It was inside the house as the foundation was being poured.

It was real wet that first year, and the soil just wasn't taking it.

There is no way to tell, probably 40 or 50 years.

Q_FIRSTINS: For a new sewage system, how long after the first use of the system do you think the first inspection should be?

10

1 month

18 months would be appropriate

2 years

2 years if it passes the first inspection from purchase; otherwise 90 days from purchase. Also, 12 months after there has been a major problem. Also, this should be for both alternative and regular systems.

2-4 yrs

3 years

3 years

30 days

30 days

5 years

5 years

5-7 years

9 months

a year plan

according to manufacturer

after 2 years

after 3 years

after 3 years

after 3 yrs

after years

as long as possible

As long as there are no problems, inspection should not be required.

Because it's already required to be inspected upon installation.

depends on type of warranty

every 2 years

every 3 years

every 5-10 years

every 5-7 years

Every new home should have its' sewage system checked when moving in and at least 6 months after moving in.

every year

every year

every years

For a proven system installed by licensed contractors, after 2 years. But for a new, experimental system, after 90 days or with certification from contractor.

If inspected properly upon installation, then there shouldn't be any further requirement.

If it was inspected at the initial installation then it shouldn't be a requirement.

If it's approved by the county, if they've signed off on it, it should be years, unless there's a problem with it.

immediately after installation

Inspection should be upon installation, and not after the first use.

It depends on how it works from the beginning, if everything's working, then in a year.

It depends on the system and depends on the design.

It depends on type and usage.

It should be based on how often the system is used. Guidelines should be disclosed at settlement.

It should be inspected by county when installed; then 2 years later.

It should be inspected when it is installed.

It should be the builder's responsibility for the first year.

It shouldn't be required unless there is a problem.

longer than 12 months

no more than thirty days

not qualified to answer

Right after the first flush; then at 2 year intervals.

The same as conventional systems. There should be no difference.

years

years

years

years

years

years

years

Q_FTSTED: Have you ever had a FIELD test done on your sewage system for any reason? This would be a test done right on your property for things like Ph level, chloride level, or suspended solids.

only upon installation

only upon installation

Only when it was installed.

The test box was covered up accidentally and we had to have an extender built on so it is now above ground.

Q_HAVEPUMP: Does your system have a pump?

It has an outside pump.

Q_HELPWHY: Why was the manual not helpful?

Because it told me how to maintain the system and who to call. It didn't tell me what I needed to know about the problem.

I could not understand it.

I didn't understand it.

I wanted to know what was wrong with the pump but it wasn't installed properly. An electrical issue but the manual didn't say what to do.

I was already knowledgeable.

It did not cover the subject I needed - power outage - the breaker had gone off.

It didn't contain the level of detail we needed.

It didn't explain anything about the voltage.

It didn't give a recommendation for the frequency of routine pump-outs. It said 'as needed'. It ought to give a more precise estimation.

It didn't have enough information for me to understand what was going on.

It didn't have the answer to the question.

It didn't provide me with enough information and concern to make me know all the answers to these questions, and all the things I should know.

It didn't stop the problem.

It doesn't describe the conditions I've actually encountered.

It explained how the system worked but did not help me troubleshoot my problem.

It is more for knowing how the system works before it is put in; how to install it and gage appropriate volume of usage.

It was a basic 2-page manual without much information. I would have wanted much more.

It was for dummies and gave no useful information. Worthless.

It was vague.

It was written for installers and not for the homeowner.

The original system was improperly installed altogether.

too technical

very complicated

Q_HSEAGE: When was the house built?

A double wide
A mobile home, put here three years ago.
Built in 1946, first sewage system.
Currently there is no house.
It was destroyed by hurricane and rebuilt 2005.
The original house was built in 1975 but burned down in May of 2006, and we rebuilt using the original drain field and tanks, and putting in a new distribution box that same year.

Q_INCOME: Which of the following best describes your annual household income before deductions?

It was \$85,000 but now it is 0, as of this week.

Q_INFORM: Who told you what type of sewage system you have?

[company name] certified technician
A new contractor came through and sold this system, but a local company installed it. They didn't tell us about the pumps, which broke, and they cost \$500 a piece.
A septic tank company in state, the health department, and the highway department.
a third party inspector; also original drawings
An inspector working for a private company.
Brochure was left for us when we bought the house.
city hall employee from the mayor's office
city of Suffolk
Company that installed it - [company name deleted]
County and engineer
county of Henrico
county officials
County where permits are given.
engineer
engineer
engineer
engineer
engineer
engineer
engineer
engineer
engineer who designed the system
engineering consultant
He said the health department wouldn't approve it without this extra \$9,000 system.
Health Department or County
home inspector
home inspector before closing on home

I didn't have a choice.

I had something else, but the land was ruined by the grader and we had to relocate the [manufacturer's name] system onto extra land. I was in court with this for two years. It was very complicated.

I knew what the health department approved. I am a contractor myself.

I received letter from Loudon County.

I was also a co-contractor and am a licensed master plumber.

I was given three options for alternative, and I selected the one I wanted.

Identified from information given in previous question.

inspector

installer

installment guy

It was mandated by county. I had no choice in type

It was on the permit.

Lightning struck it. I found out the hard way.

London County

London County via letter

maintenance company

maintenance provider

maintenance provider

maintenance providers

mother

My father had it put in.

On drawings and I saw them building it.

Our son built the house and told us how to maintain the sewage system.

owner of the house

Private company that installed the system.

private sewage company

real state agent

realtor

soil consultant

soil engineer

soil evaluator

soil evaluator

soil evaluator

Soil evaluator and engineer

soil guy

soil scientist

soil scientist

soil-evaluator

Someone hired by the builder to install the system.

Someone referred by Loudon County government

system maintenance provider

system maintenance provider

System maintenance provider contracted by the initial builder [for 5 years].

system maintenance providers

Technically a conventional system regulated by Loudon County.

The company I was buying my home from worked with the soil scientist to determine what kind of system I would need.

The company installs them.

the county and the state

The county selected the brand by the name of [manufacturer's name deleted].

The county told us our land did not perc and we had to get an alternative system and the plans were designed for a 5 bath and it was taken to the county and the county approved it.

The county; but not sure what department.

the developer

the developer

the engineer

the engineer

The guy who installed it;

The guy who pumped it out.

The Health Department recommended this type, we hired [name deleted] Engineers, and a contractor installed it.

The home inspector explained it.

The inspector told me what type I had to have.

The maintenance company who takes care of the system says it [company name].

the maintenance providers

The man who put everything in here, the health department and he decided what was needed.

the one who put it in and the engineer

the onsite soil evaluator

The outfit who maintains it. It also says [company name] on the big green boxes in my yard.

The owner, landlord told me.

The people who put it in, [company name deleted]

The permit department from the county

The person who came and perked the land; a soil evaluator.

The person who installed it.

The private company that inspects it once a year.

The state had just drafted a new law requiring the aerator pump. We were one of the first, it was the best design they had at the time. Ours had to be pushed through, not a gravity thing.

The state of Virginia mandated and the county selected.

The vender who sold and maintains the system.

We looked at different ways when we put this in. Our first one failed and we put this one in.

We took down the old house and built a new one with a new system. The county gave limitations and restrictions on what we could do and a separate engineer designed and set up the system we used.

When it was installed, that was the only type available.

You would have to talk with the builder.

Q_INSPECT: Has your sewage system ever been inspected for any reason?

I inspect it myself.
 by the maintenance person twice a year.
 Just when we bought house
 only upon installation
 only upon installation
 only upon installation
 Other than routine maintenance, yes.
 The county requires inspection - Loudon

Q_INSPKNOW: Now we would like to ask you some questions about inspecting your sewage system. Are you familiar with the process of having your sewage system inspected?

A report has to be sent to the contractor, but not aware of anything else.
 All of the inspectors provided/offered very different things.
 He just came and looked at it. The next time he wanted to come, he wanted money and we declined.
 It was inspected when we bought the house.
 not applicable
 not applicable
 Other than someone actually doing it
 That's what we do with the maintenance company.
 There was no way to inspect the conventional system other than to dig it up out of the ground. How can we inspect this system? Many of the questions on the survey are bogus and that those who wrote it need to do more research.
 There's nothing for me to inspect
 they come by and inspect and leave us a ticket with an explanation of what they have done

Q_INVOLVE: Which ONE of the following statements best describes your involvement in selecting or installing your sewage system?

already there
 did some research
 Had no choice of systems. This is the only one that would work here.
 I presented the county with a letter with stipulations to the contractor (Loudon County).
 Installed by builder and I was aware of the detail of the system and tried to have the builder move the location of the system further back from the house. The builder said I should deal with the county. Subsequent to moving into the house I contracted having it moved to the new location, with the same contractor who originally put it in.
 It was here when we bought the property.
 It was included with the construction of the house.

It was there when bought the house.

The modular home salesperson handled it.

The system was put in 48 years ago and has been put in again with new pipes, six years ago. Health Department.

We were ready to move in. They were putting in a gravity, and then they said we couldn't, so we had to have a pump. I felt I had no say-so in the selection process. They said I could get another engineer for more money or pay them \$9,000 for the pump system.

We were told what to put in by the Health Department.

Where we're located, we lost our house and our septic field to a heating fuel oil spill. The county and state grandfathered us in with a new home 200 feet back from the old house with new septic tanks with a pump system. We had no say-so in that.

Q_KNOWLAW: As far as you know, are homeowners in your county or city required by law to have their sewage systems inspected?

As far as I know, only upon installation.

at installation; Loudon

At the time of purchase and resale.

For "treatment systems", yes. For conventional septic systems, no, for alternative systems

If you have restricted wetlands on your property that flow into the Chesapeake Bay you have some requirements regarding pumping and inspection.

just at installation

Not beyond initial building and occupancy permit.

Not other than upon installation.

On purchase there has to be inspection, otherwise not aware.

only alternative systems

Only if they're alternative systems.

Only if you're selling or buying,

only in conjunction with installation

Only upon building and certain repairs.

Only upon initial installation or additional modification of system.

only upon installation

Only upon installation, otherwise, not that I've heard of.

only upon installation

Only upon installation; but not an on-going process.

only upon installment

Only upon sale of the house.

Only upon the sale of their home.

only upon the sale or the property

Only when it's first installed.

our system is very new kind of system, so it is required by law to be inspected, I think

Pumping yes, but not sure about inspection. But it is required to notify the county when we pump, I think - Chesterfield.

required inspection when first installed

There's no way to inspect a conventional system unless you dig up the yard.

They changed the soil laws in Montgomery County, so everyone will have put in more complicated systems, although the old systems were working just fine.

We live in restricted community and the builders should be responsible.

We live on a lake. I think the inspection is part of lakefront management.

When we bought it was but don't know about after move-in.

Yes, but only upon moving in, not in a regular basis.

Yes, only for alternative systems in Loudon County.

Q_LASTWORD: Is there anything else you would like to tell the state health department that you think would help them write regulations for operating and maintaining alternative sewage systems?

A lot of young people in our development have no clue about what to put in the toilet. Information to people like that, the 'dos and don'ts'. They have no idea and treat a septic tank like they would treat their sewer system. Information for the public is always positive.

All the pipes for the sewage are plastic, so how would you later add a pool if you did not know where the pipes were. You know how Miss Utility marks electric lines, why are water/sewer/septic lines not marked on personal property like gas lines and electric lines are.

Alternative systems cost \$35,000 and are better than conventional. Water that comes out is much cleaner. Better operated but much more regulated than conventional systems.

Alternative requirements are unreasonable. Check one spot and determine for an alternative or conservative; Very high costs. Broaden views on conventional systems.

Alternative systems are fine, but more research needs to be done. Our sand mound system is not even built anymore. They (SES) admitted they even used us as a guinea pig. They didn't design them that way for more than a year or two because the failure rate was so high.

Alternative systems are wonderful as an alternative to public sewer.

An alternative system was put in on our property and it is still operating even though nobody lives there at this time. I wasn't happy we had to go to all that expense when there were probably other alternatives. Our property is a farm surrounding an acre that belongs to someone else. When the property was to be sold, they were told they had to have an alternative system put in. I don't know why they have to do that when someone has been using that system for so long. It did back up but why couldn't they fix what was there. I know I don't know much about this, but it just seems like there are too many regulations here. It cost us \$30,000 to put in the alternative system on our property; I'm glad it has septic, but I don't know how long it will last. Nobody is even using the residence now.

Any time a person moves into a location with such an alternative system, a person

should be given general and specific information about what the system entails, what it requires, and what's available in terms of maintenance. And there should be an update any time there's a buy or sell of the property.

Anything the government tries to control - they have too much control already.

Arizona has wonderful grey water regulations. There should be some kind of allowances for those who use the grey water regulations.

As a new buyer of a house that had this system, it would have been helpful to understand this system. Everybody else has a conventional system around me but one other house. I have to pay this maintenance fee and I would like to have known more about why I have this system. Was it an option? Not sure I would have chosen this system had I been more knowledgeable.

As owners we hope we're not punished for having alternative systems.

At the act of sale it might be useful if there is a "septic 101" class.

Basically, the option of these alternative systems should be made much more known, rather than to have a property not perk. The alternatives are very successful. It needs to be well advertised and well known.

Be careful what you put down the drain such as bleaches etc. Even though the manufacturer tells you what not to put down you have to be careful and don't want to kill the bacteria.

Because they mandated the alternative [manufacturer's name deleted] system, they should go back years later and then say that these systems are defective, and all of use who have this "faulty-type" system are now stigmatized. They said we had to do it, and now I'm stuck with a lemon.

Better inspection during installation of valves and air vents. Open-hole inspections should be required.

Can they write regulations to get areas requiring sewage systems converted to public sewers? I would much prefer public sewage system.

Certain products should not go into the septic system such as certain toilet paper products, detergents (Charmin and Oxyclean) should not be put in there and I have been told that they will not inform the people. According to this home owner the septic maintenance people will tell you this but you can't get this information from any printed material on septic system of types that should be used. It would be so easy to inform people.

Consider the distance of the sewage system on the property from the house.

Consolidate the permitting process, worked with five different agencies; maybe make one form, maybe.

Consult experts or knowledgeable people of the systems as well as people who install the systems.

Continue to work on a system and create new systems that might be better for different homes.

Do not ban alternative sewage systems. They seem to have fewer problems than the public systems. I am comfortable with the inspections.

Do something about the cost.

Don't make it too complicated.

Don't over do it.

Don't pass any particular laws necessarily just help us. They don't have to be legalized.

Don't write any more.

Educational brochures must be provided to all owners. Owners need to be educated.

Encourage them to put a cap on inspection fees and let the public know the fees.

Every child deserves a home in which he isn't threatened by health problems by sewage.

For new homes the owner should have an opportunity regarding system's placement and location.

Go by the manufacturer because one sweeping regulation is too general for the variety of services provided.

Government is regulating too much.

Government or state inspections requiring the homeowners to get needed work done is what I'm strongly recommending. The private inspectors were like vultures; they knew we had no option and charged about \$300 for 15 minutes of inspection. They took undue advantage.

Guidelines should be stated as far as fees that should be allowable for maintenance. Maintenance contracts should not be required by law. Builders should be required to educate buyers/owners as to the requirements of the systems, so that they know what to expect will be required of them.

Has an alternative system and thinks that it is overpriced and would like to see the cost regulated.

Have cities keep the ditches clear so the systems will work properly, so drainage will work.

Having annual inspections is a good idea. More education for those owning this alternative system would help. Too many times users mishandle the system.

He was dissatisfied with the re-vegetation of the drain field by the installer of the alternative system. So, he had to basically do it yourself. He says it he installer should be required to have a certain coverage of grass within a year or so - not that seed is just put down, but that it actually grows. Also, there seems to be some kind of prohibition from removing stumps from drain fields. I didn't check into this, but should have. Removing of stumps by excavation or grinding should be required and the installer should do this.

He would require the builder/contractor that is selling the home to be very explicit about the cost of maintenance of septic system such as the land line for the maintenance company and that is like having an additional cost and he wasn't aware of this additional cost and wasn't aware of this cost when he purchased his home and the seller of a home should also inform the buyer the additional requirements on alternative septic systems only.

Hindsight is 20/20. When they design a drainage field, I think they need to extend the field where it's not so visible. Don't put the well-like looking thing so close to the house. Put it out of sight, in a wooded area, the rear portion of the land, just out of sight. That's what I would do differently.

Homebuyers should be aware that the alternative system is in a testing phase rather than approved by the state.

I agree with their new regulation for around lakes; that they should be pumped every five years. Not inspected. Pumped. If it does overflow, it would harm the environment. If it is not on the lake, I think it should be seven years, and I don't think that's been made a law.

I am here from the west coast and they are very strict in the west about this. I know nothing about the law or whatever here. I know I had an excellent contractor and they

are nearby and if there is a problem they will come and do it. We are new construction and our contractor picked people carefully for that reason.

I am very against alternative sewage systems. If the land doesn't perk don't build on it. Builders came up with this thing so that they can build more houses per acre.

I believe that the state needs to regulate the cost of what these guys can charge to do this job, like when you get your car inspected. When we first moved in here, there was only one certified contractor who was allowed and charged an arm and a leg. We finally got a second certified contractor and it was a little cheaper. The state needs to regulate and set standards and prices. I do want the state to know that alternative systems are a neat idea and in thinking green, I think they are good. I hope the overbuilding does not kill the earth.

I do hope they don't overregulated. The alternative systems regulations were not very well understood by the field agents; only a few systems were on the market, and I heard not all agents were on the up and up. Ridiculous to pay up to \$15,000 for a system when conventional ones are a fifth of that. They need to standardize what the requirements are and publish them so more of the systems can be brought to market and the price will become more reasonable.

I don't believe alternative systems should be allowed.

I don't believe that they should have regulations.

I don't feel qualified.

I don't have a problem with them checking on things, but making people pay for their services, I guess I'm anti-regulations,

I don't have anything to tell them because I don't know what an alternative system is.

I don't think it would a bad idea to require everybody to have their sewage system inspected.

I don't think it would be a health department issue. They failed our last one, but then never reinserted. We had problems with the contractor, who didn't fill in the holes properly, but that wasn't a health department issue. They did inspect when the new one was put in, but they never made sure it was done, it was left up to us, but no one double checked that it was taken care of.

I don't think the Health Department should "nickel and dime" people.

I feel it's unfair for homeowners to have to pay someone, by law, to maintain their systems when there have been no maintenance done. If I have an alarm I am perfectly capable of hearing the alarm and calling in someone to repair it. Nobody from the maintenance company comes around to the best of my knowledge. They seem uncommunicative and unresponsive to their customer's needs. These people who hold the contracts are just collecting money without results to warrant the money collected.

I felt they were very pushy over us getting a new system. It cost us \$10,000 to get the new system. Our previous system worked just fine.

I had to get my property reevaluated due to error on the engineer's part. Company should've been responsible for him. The state should be responsible.

I have a real concern about the county mandating that the systems have to be maintained and also concerned when the county mandates that certain properties are required to have alternative systems which require a lot of work and education on how to maintain them. It's a "racket" for the county to mandate a certain system and then require maintenance for these incredibly expensive systems. Many people don't know how to effectively maintain these systems and the systems fail a lot because they aren't cared for properly. The county (in this case, Loudoun County) should offer

education to residents if they're going to require that a specific system be used.

I hope they don't write laws regarding these. The homeowners can take responsibility tube diligent about finding out about their house

I just think if you're selling you should be required to provide a document to the buyer.

I live in Loudoun County but they have pushed the alternative sewage system and we live on a farm, a family subdivision and there are two more children that will not be able to build houses out here because of alternative sewage systems. My mother-in-law is often protesting.

I oppose alternative systems.

I really hope that they can make sure that builders provide adequate information to purchasers and home owners about the maintenance required.

I resented the fact that they insisted I do something. I suggested to them I'd like to do something and they later insisted that I do it. I really resent having to pay \$500 per year to an outside contractor to do testing that I could do myself. I have no problem with having it tested, but for them to dictate that I have to have an outside contractor do this work; I resent that.

I see no need for laws.

I suggest that when a system is installed that there would be a manual or instructions for the system. I was supposed to get such, and a schematic, from Montgomery County, but I never received anything.

I support the general maintenance contract requirements for alternative systems but am also concerned about older conventional systems. I'm in real estate and though it is important to regulate alternative systems, it is probably more important to update and upgrade old systems that may be nearing the end of their life. It should be very consistent and a state-agency regulated matter instead of different regulations between each locality for both alternative and conventional.

I support the new systems as long as it's not extremely costly. I was offered a maintenance contract for 400 dollars a year. I asked what I would get in return and told "We'll check your system."

I think alternative systems should be supported and developed by the state/federal government because they are more environmentally-friendly.

I think at least an annual inspection should be required.

I think government should be staying out of the regulation of operating and maintaining alternate sewage system, thinks that it would more efficient to let the private company handle the sewage system.

I think it is very unfair that homeowners have to have a signed contract with a company in order to have an alternative system. I have to pay 300 dollars a year whether I want to or not or they will have my house condemned. I feel like it is extortion that they are getting this money from me.

I think it should be inspected by the state/county rather than by the companies trying to make money. Should be regulated by the government rather than by the businesses.

I think it would be helpful to homeowners if the state would send a periodic email notice to homeowners reminding them of their legal obligations and giving them a link to the recommendations that the state has and some information about it.

I think it would make sense that there should be careful care taken if any regulations are made that require new obligations of the homeowner without sufficient budget allocations to provide information and education to the homeowner about what new requirements are expected of them.

I think like when we had to put our system in they told us what we had to put in and I think we could have done a better job. We were limited by the health department and I think we could have put in a much better system. They should stay out of regulating our choice of systems. They limited us. We don't feel they based their regulations sound technology.

I think that alternative systems should be allowed in Loudon County. They are trying to ban them. However, homeowners should have the responsibility of understanding the operating procedures of alternative systems.

I think that builders should be required to explain to homeowners what a septic system, in general, not just alternative systems, is and what it requires.

I think that due to the lack of awareness on the part of homeowners, there should be on some level of law requirements of the conveyance of information to the owner regarding the requirements for installation and maintenance of the property's sewage system.

I think that if there is an alternative system put in, it must have been approved or it would not have been put in. If they distrust the system, it should never have been legalized or approved. If the government wants to inspect it, I think that is fair enough.

I think that it is an area that many people do not know very much about so I think that when I started researching the system at the time it was very hi-tech and I had a hard time getting enough information on it. It was also hard getting objective information. I think that when you are going to have a very sophisticated system it would be very helpful to have a maintenance agreement. Suppliers should be forced to offer a maintenance agreement.

I think that the current laws are sufficient and that they do not need to be over-regulated. In the City of Suffolk, it's already required that before an alternative system can be installed one has to have a maintenance contract for annual maintenance which one has to have certified by a clerk at the court.

I think that the health department needs to broaden their choice of septic systems that people are allowed to have on a certain amount of property. In Prince William County they were only allowing one septic system which when we went to apply for our septic permit it was no longer allowed. Then what came about was a very, very expensive system; then they allowed a more reasonable priced septic system allowed on my property. Before then they would not allow it, but when they did away with that one, they were ready to allow a septic system I had wanted before. We should have a larger variety of systems to choose from. They need to make sure that the engineers do the proper soil test to allow for conventional systems. The original engineer said that I only had 17 inches of soil before shale - wrong.

I think that the homeowner should be responsible for maintaining their system, but they should not be required by law to have a maintenance contract or undergo routine, mandatory inspections.

I think that the routine annual checkup/inspection where people come up, look at the system and walk away, and charge \$75 is ridiculous. They come and look at the grass with their hands in their pockets.

I think that there should be optional classes on what alternative septic systems are because a lot of people don't realize that they have them. I think that a lot of questions can be discussed at the time of settlement. We sold a house in Great Falls, VA, roughly a 1.4 million dollar home, and the people purchasing the property were so afraid of the septic system that they wanted me to remove the system from the ground, clean and sterilize it, and then put it back in the ground. Once we paid our contractor to discuss how the system works, they were totally fine since it had been pumped every two years. There's a lot of misinformation.

I think the average homeowner has no idea about how their systems operate. Would be good to have better information on this.

I think the challenge for writing laws is the inability to enforce standards of contract with vendors who perform service. Then it falls on the homeowner, and you may not find out you need it before it becomes a real problem. It ends up costing a great deal. Should have homeowners' rights so the homeowner can take action against vendors. How will the law protect the homeowners? Should guarantee that the vendors adhere to a standard of maintenance, and/or pricing schedule. The guys who ripped us off were certified by the county. They charged us \$900 and didn't solve the problem. So there should not be legal regulation unless the homeowner is protected. I believe the Loudon situation only afforded the opportunity to make money. Also, we need more time - they gave 16 days or something.

I think the homeowner should be made aware of it before you go to closing; before we bought the house I was not informed it would not perk, and when I found out, they put the alternative system in and I was saddled with a very expensive one. Helpful to have more disclosure about how it works and soil and what you have to begin with.

I think the homeowner should oversee as things are put in so the homeowner would be knowledgeable about how it works. If homeowner could be there for installation, that would be a big plus.

I think the new home builders should be required to have adequate inspections done. In our neighborhood the builder and designer messed up 50-75% of the systems. The Chesterfield Board of Health got involved. I'm required to change the pump every 4-5 years and I should not have to do this just because of the shoddy workmanship.

I think the overall customer dissatisfaction is the fact that the burden of an alternative system that has been shown not to work. The state or county require you to install the system but then make it our responsibility to maintain it. The responsibility should be shared with the mandates and those who distribute the product and the builder and company that manufactures or designs the product.

I think the seller or builder must give information or instructions on systems.

I think the VDH should look at whether they should allow people to have alternative systems in the first place. There are a lot of alternative systems in this county that go unattended by owners and subsequently these systems cause problems for other neighbors. If the VDH is going to allow alternative systems they should have more regulations.

I think there should be proper soil studies. A subdivision by us has the alternative systems and it is a disaster. People cannot use their yards because they are always soggy and smelly. Soil should be tested and experts should design and install systems. It should be inspected and approved by the health department.

I think there shouldn't be a ban on installing new systems.

I think they are allowing the property to be too small. Lots should be bigger to

accommodate a septic system.

I think they need to inform buyers or people building homes or even builders not only the design but someone should come out to confirm that they are working correctly before people move into new homes. Checks to see that things are properly installed.

I think they should abolish regulations on it and let the homeowner operate and take care of his system. I believe in independence and self-responsibility.

I think they should be required to supply sewage systems to all residences, or there should be a tax credit, if we don't have access to the county system, we all pay the same taxes.

I think you need some kind of information to know how the thing works. I just happened to come here when the system was put in, and I took pictures. That's all we have to go on if we ever have a problem or to even understand how it operates. I don't like the location where they put it. I think I told you wrong before; I think an engineer designed it.

I think, in considering these regulations, consider long-term costs. It needs to be mandatory that fees are reasonable to meet these requirements.

I would be in favor of homeowners having the option of maintaining it themselves and not having a contract with a maintenance contractor.

I would have the VDH speak with the builders of the houses as they seem to know the most.

I would like a warranty on sewage systems that, if it backs up in the first 5 years of installation, then it should be paid for by the builder.

I would like the public to be aware that there are a wide range of contractors, some of them more competent than others. I wish the state would keep a list of the competent ones. Maybe the state should require renewable education for the contractors, like it does for lawyers. Also the older, conventional systems are grandfathered in, and so, they are the ones that I'm worried about leaking into the Bay. The new alternative systems work fine.

I would like to find somebody in Richmond, Virginia that can take care of my system.

I would like to see a more science-based approach. The county has gone back and forth on when it is mandatory, whether they are permitted or if they are alternative.

I would like to state the [manufacturer's name] septic system is by far the most superior alternative to any other system we have. And the chemotherapy issue is a big issue with [manufacturer's name] because it contaminates the system and bacteria dies and it does not work, but otherwise the system puts water out that is like rainwater. When it is working because of the consistency of the effluent, it is better than even a conventional. It has been abused. It is great technology, but it has been abused. If put in properly and engineered properly, they work wonderfully. They last just as long as a conventional system. I put in low-pressure systems and we were one of the first to do [manufacturer's name]; Maintenance contracts are very important. Right now the folks who monitor alternative systems do not want to continue.

I would not to see regulations because they try to do too much for the majority of the people and I may not be in the majority and that is not fair. I am a diligent, intelligent person and I will do what I have to do for myself; let my neighbor do what he needs to do for himself. The best government is a non-governing government.

I would recommend their installation as opposed to the old systems. They are more expensive and need maintenance, but I think they are superior. I do not think inspections should be required, but I feel the State should be allowed to come in and

check things out if for instance someone in the neighborhood thinks there is a problem somewhere. I think it will be more economical in new construction. People cannot afford to buy such large tracts of land to support the conventional systems.

I'd like to see builders provide documents for inspections as a mandatory requirement. There have been too many brand new homes in my neighborhood with problems.

I'd like to see Chincoteague on a mainline sewage system. It currently breeds mosquitoes and bugs and the health issues are strong.

I'd like to see the state mandate every community to have a public sewage treatment system and public water system. It should be funded through state and federal grants, if necessary, and grant writers should be employed to write the applications. In my community, it is evident that private systems are failing, and leakage can be seen in drainage systems. Creating more public systems would create more jobs, and the existence of public systems would attract more industry.

If documentation of a system is available, then it should be required by law to be made available to any purchaser.

If the VDH should require an alternative system, all services should be included in the cost.

If they are going to make inspection mandatory, then it should be every 2 years, unless the system fails, not every year. Also there should be a limit, a set price on the fee that the inspector can charge.

If they are going to write regulations that any system be maintained, there should be a way for the homeowner to qualify to do that maintenance. Any homeowner could take a test or a class, or who is a qualified engineer, should be able to do their own inspections. There has to be a way the homeowner can do it on a routine maintenance basis. It is all right out of a book. It is not rocket science.

If they must have inspections, have them every 5 years. There should be a waiver, for newer properties or newer homes.

If they request inspections by law in some parts of the state or counties, then everyone should be required by law everywhere. In my county, some are required to have inspections and some are not. That is not fair.

I'm not sure. I guess they should just study it and see what needs to be done. I haven't researched the alternative systems.

In drafting their regulations, they need to give the home owner maximum flexibility in how they implement anything.

In the Suffolk area, the mound system seems the way to go. Had problems with conventional system because the soil doesn't drain very well at all. The most important thing is to make sure that alternate and conventional systems be pumped regularly. The city should require routine pumping.

In this area, in Rockbridge County, there are a lot of people who have systems that are close to creeks and water runoff - that concerns me. Septic systems should not be allowed to drain into creeks or any other water for that matter.

Include all systems in any regulation, not just alternative. If there are requirements, then it should apply to all systems not just alternative. If there's a problem with systems, let the state supply money to bring in public sewer to replace them.

Initially the Bedford County health department told me not to cut down the pine trees over the drainage field to avoid disturbing the ground, but I noticed/feared that the pine trees would blow over in a big wind. I inquired of them about it, and they consulted with VA Tech, where they advised me to cut down the trees, but without

disturbing the stumps. This account to advise the VA Department of Health of my experience.

inspected yearly

Inspections: I think an inspection should be once a year because of the electrical parts involved. An inspection should be just an inspection. There should be a set fee, maybe 20 dollars. Some places who come out want you to sign a contract -- some 100 dollars a year for inspections.

Installers and inspectors need to be licensed and / or certified to work on the machines by law.

Instruction sheets should be provided by the county governments, informing people of septic systems.

It is important that everybody who has one be given a full and complete manual and regulations and recommended intervals for upkeep.

It seems to depend on the type of alternative system. Mine is very basic and worked fine for 9 years and then suddenly the inspection was required every year. Seems excessive. Alternative system is too broad a category it covers too much ground for a single rule to cover all of them. Overkill. Also when Loudon put in the requirement they were not prepared - not even the inspectors knew what they were supposed to be doing. I called several and they didn't know what aspects they were supposed to inspect, so they couldn't give me a cost estimate. Also, there were not enough inspectors. So be prepared when the law is put into practice.

It should be a law that a buyer of any home should be informed of the septic system that the house has. What type, what it requires, its condition, maintenance requirements, etc.

It should be the homeowners' responsibility to keep the systems in order. The government shouldn't be telling or mandating people how to maintain their system properly.

It would be helpful if they, on the county level, sent a letter notifying households of regulations, and provide an information pamphlet.

It's ridiculous to pay \$60,000 to install such a system. Someone should have been thinking of system reliability before installation of this. Who certifies the engineers who approve this? And then there are installation failures.

It's the business of local government to protect the welfare of the people so it becomes their business if I do something that hurts my neighbor but the government has no business protecting me from my own naivety or ignorance. Good strong engineering standards making sure they are installed in a way that they will work, but to go much further than that there's not a lot of point to it.

Just everybody I know has one and nobody has had any problems. I think this is an issue that has been overblown for conventional system installers to make bigger profits.

Just wish we could bring city sewers to somewhat rural areas without having to compromise land requirements, etc. Don't want overgrowth in neighborhood because we're on city sewer, but would like to have both rural life and city sewer.

Keep the laws to a minimum.

Keep their nose out of my business! Why mess up something that's not causing a problem? If I had a problem, then I can understand they might become involved. But if there's no problem, then it's none of their business.

Laws should apply to both alternative and regular sewage systems, but I'm not

opposed to regulations.

Leave homeowners alone because regulations make possible their being exploited by maintenance providers.

Leave property owners with large acreages (3+) alone. When people are on an acre or less, there is definitely a possibility for problems and a need for regulation.

Less regulation is better than more.

Less regulation is better.

Let them put a city sewage system in instead. That's what takes a lot of headache away.

Licensed contractors and inspectors is a good thing. And a list of them would be a good thing with information on what brands or types of systems they maintain or provide would be a good thing.

Like I stated before, that depends on the type of system allowed, which depends upon the topography of the land and so forth. There is precious little information available to the public here compared to other states in which I have lived. For instance, in Massachusetts, they have a Title 5 law that requires an inspector to certify the condition of a system before the transfer of ownership.

Loudon County has a law that we need to have inspections annually. This is a cash cow for the inspectors and companies they work for. They are selling deals that include the inspection and the maintenance program together. If you don't do this you are required to pay \$250 for the inspection annually. The recommended maintenance is every 3-5 yrs not annually. For residences this is unfair.

Lower the fees. They've gotten outrageous. People in this neighborhood have spent \$20-30,000 on their system installation.

Maintenance operations by professionals should be required by law. Owners should be required to have manuals. Also periodic state-mandated inspections should be required.

Maintenance should be required; the quality of the inspectors needs to be improved.

Make it easy to understand. Whatever they write. Not like a 2,000 page health bill.

Make sure contractors provide homeowners with a maintenance/operating manual.

Make sure that it does not seep into drinking water systems or wells.

Make sure that there's been enough testing of them to give a reliable life time for them before people are using them in large numbers. And also, if they're near a body of water that they've been tested enough to make sure that they don't leach into the water.

Make sure that when a home is purchased that they provide information on the maintenance and upkeep of that sewage system.

Make sure that whenever they do those permits for the three bedrooms; make sure the contractor puts the correct system in for that house, according to the number of bedrooms in the house.

Make sure you have a picture of the drain field included. You don't want to have a problem with breaking a pipe when digging or whatever. Don't want to put asphalt over it, so you need a picture, a design picture.

Make the guidelines clear for people to follow. Having to have service maintenance contracts won't solve the problem. It is just an aggravation. If they want to inspect, fine, but don't charge me for it.

Montgomery County subcontracts to outside people to be the inspectors. The inspector is hired by the only company in Montgomery County. If you are a builder you go to the county and say I want to build and they say you need to get it inspected

by this guy and this guy belongs to the one company. You are not given options. You have to buy the system that is available and it is the only system the recommended inspector will approve. There is only one inspector.

More detailed information for buyers and a more specific manual for the unit.

More information systems about the systems and how the work,

Most reasons for failure are based on owner misuse of the system. It could be your definition of failure or that the owner is not using it properly. There just needs to be education or awareness.

Need to make sure they are pumped out every 5 years.

Need to outline more long term costs for nontraditional septic systems.

Need to regulate the guys who offer maintenance service contracts. Can never get a hold of them. Should never be a monopoly on something like that because it is designed to fail.

Next time they do the survey have a contractor write the questions.

No more regulations - they are unnecessary.

No regulations. I got an email from state delegate [name deleted] warning that homeowners may face additional fees for inspections and such. I think the trend is to force people to have alternative systems and I disagree with that. Even if the ground perks! I do not want to see conventional systems done away with for alternative systems.

No, we are very happy with ours.

Not a fan of more regulations.

Not apart from recommending gray water system on principal.

Not so many rules and regulations controlling what people do on their own property.

On new construction, step up the inspection process through the county municipality, and share that information with the new home owner.

Only in keeping with the answers that I gave which is that people who are qualified to understand the systems and most people are not should be the ones installing, tending and inspecting them.

Our soil was so good, we didn't have to have an alternative system, but the county told you that you had to have that system or they couldn't live there. So, although it is a very expensive system, we had to install it. I don't think that's right.

over regulated

People like us should be rewarded somehow because our water comes out 99% clean. We should have some kind of rebate or something, because we are not polluting. Get punished for polluting, people like me should be rewarded for not polluting. Their systems are \$5,000 and pollute the ground and we pay \$16,000 for our pure system. A tax rebate or something.

Personal choice/responsibility is important for maintaining sewage systems; it is wrong to single out alternative systems for regulation. I don't understand why alternative systems have been singled out for inspection because a failure would have the same consequences for either type.

Please don't write any more regulations, and reduce current regulation levels. By law I have to send the Health Department a statement after my sewage system has been pumped. I don't want to have to do this.

Prefer not to spend any more money on inspections. I assume it would cost me more.

Rather have public access public sewage.

Regarding maintenance issues. I want to make clear that the homeowner should have

the opportunity to provide their own maintenance without being required to hire someone else to do it. If the homeowner wants to hire someone, then there should be set costs out there, there should be better or more competition out there. Homeowners shouldn't have to pay someone to maintain if there isn't enough competition out there, otherwise its highway robbery. Homeowners should be able to do his/her maintenance, should be provided with the necessary information to provide own maintenance. Also, the bigger problem is with improper installation, and not the routine maintenance. The state should take a look at the installer being required to repair the system for a longer period of time, maybe for years.

Regulate the price of installation of the system mandated Regulate the price of inspection if state required Law requires homeowners to show documentation of maintenance by a licensed operator.

Regulating the contractor, regulating the pricing if maintenance is going to be required and regulated. Maintenance contractors need to be experienced and certified.

Regulations have changed since I installed this system in 2000. On an experimental basis in Virginia then. To be monitored and checked. A Peat Moss filtration system at the time. Loudon County approved this in 2000. So much population growth in this area and lack of public water and septic led to many having their own system. This proliferated so that people did not know what their system entailed. So many failed because too many people in residences were using alternate systems. Loudon decided to inspect. Not every one fits into this (me included). This led to abuse of the system and shenanigans. My system had worked for 10 years. Then I was told in July that my system failed. They are trying to dictate to me what is not right. Conventional system owners do not have to have inspections and I know they failed.

Require documentation on the system.

Require home seller to provide information to home buyer.

Requiring more literature provided by the installer.

Research should be required. I understand the alternative systems last longer and are better for the environment.

She doesn't see the reason for these elaborate septic systems. The old ones work fine. Have heard problems about the "peat moss" systems.

Should allow homeowners to upgrade the system without having it fail first. In fact there should be incentives to upgrade a system. Be stricter on requiring people to have septic that actually fit the number of bedrooms of the house.

Should be required that new homeowners to have the manual and proper information on how to successfully maintain sewage systems. It was very frustrating to move into the new house without the proper instructions and information.

Should not require yearly inspection. Once every five years would be adequate.

Simpler is better.

Since our environment is so fragile and critical to us, they need to make sure our sewage and septic systems our regulated and maintained properly because what comes out of ours goes to somebody else's.

So many systems out there, my concern is that the county might want to approve the system before installation rather than after. Especially if it's a new type system.

State health department needs to spell out more clearly regarding inspection and who can do the work. Information we received when considering buying problem was not current.

State should regulate the price of inspections, repairs, etc.

State should require that professionals educate the home owners of the system's maintenance needs before purchase or installation.

Stay out of it; leave it alone!

Strongly opposed to any further regulation of such systems.

Taxpayers should have some rights, and it shouldn't be regulated and dictated to them what they have to put in.

The alternative systems should be pushed less by the government. Agricultural runoff is too much of a problem with alternative systems. Cow waste carries dangers to humans - cattle have no septic system and their biological runoff carries a hazard.

The builder should have a pamphlet or something explaining how it works, with maintenance schedules, etc.

The contractors should be verified by the county/state.

The cost is ridiculous.

The County (Loudon) came up with this new inspection thing annually, and the inspector said our system is overbuilt. It's terrific but doesn't need to be this terrific. It is more than it needed to be.

The government is intrusive enough into people's business; however I feel the state should make regulations to keep sewage systems maintained.

The health department doesn't do much - that's why I had to hire an on-site soil evaluator. The health department requires alternative systems but it has been very wet down here and drain fields become a problem due to the soggy ground. The more the government regulates the more the costs will go up.

The health department, we did not have a plan. That should be required. We had to dig it up to find the tank.

The HUNG systems (that require solids to be pumped uphill) are more maintenance-prone than the gravitational systems.

The installer needs to understand what the system is and tell any buyer about it.

The installer should have to walk you through it. There should be a lot more explanation or information provided to the homeowner by the installer about what the system requires for maintenance.

The installers of the system need to be licensed by the State so that the State can guarantee that the people know what they are doing. The system we have, the treatment in newer ones is better.

The installers should disclose any problems about possible smells.

The manufacturer should give as much information as possible about future use and problems.

The moratorium on building alternative sewage systems in Loudon County, Virginia should be lifted.

The more information people have about their systems, the better off they are.

The one comment is that what really makes all the difference in whether or not any system functions as it should depends upon the soil testing and the report as to what the site can handle. That has been an issue when an engineer has recommended one type of system, people have not followed the recommendation and they run into trouble. If the correct system is placed on the correct soil type according to soil factors, everything should function as it should. I do know people who have had one type of system recommended, did not follow the recommendations and several issues and problems arise until they then put in the recommended system. Soil conditions should dictate system type.

The one thing that jumps out is that I would be concerned whether it is alternative systems or anything else is that the State makes it reasonable in terms of cost and effort. Sometimes I wonder about some of the laws that are created in terms of the grief they cause people.

The only issue is that I think the requirements on alternative systems are not required for conventional systems, and I understand there is no documented evidence of a difference in failure rate, so I think regulations should apply equally to conventional and alternative systems.

The placement of system should be regulated better.

The pressure to regulate alternative sewage systems is an anti-growth tactic. This is probably less about health and more about city planning.

The real estate person or builder should provide information on septic and whatever system I have on maintenance, upkeep, who to contact for help.

The required inspection for the property. They need to expand the approved people who can do the inspections. The current inspectors have to have a soil or engineering degree when many septic service persons have the knowledge to do the inspections. You don't need to have every property have this new type of system when a conventional system would be sufficient.

The rules for alternative systems should depend on the type of alternative system. Blanket rules for all systems are probably too broad. Better to require pumping than inspecting.

The space that they allow at the moment between an alternative system and a well is too narrow is too close.

The state health department needs to convince the anti-growth people that alternative sewage systems are safe for residences.

The state needs to manage this but the health departments have to be more involved. How to pay issues exist. Loudon County has good soils compared to Southern Virginia.

The state shouldn't be so lenient.

The systems are really, really expensive. We had bids that ranged from \$17,500 to \$33,000. We were amazed.

The use of chemicals to increase the breakdown of solids should be highly suggested, if it can't/shouldn't be required. It would save money in the long run.

There are a lot of disclosures in the selling process. There should have been disclosure that there was an alternative system at this house.

There are lots that they said would never be built on, but now in my own neighborhood, there are huge ugly tanks for alternative systems, so these lots that were previously not suitable for septic systems are now being built on. Alternative sewage systems are just a way for developers and builders to make money off the community.

There needs to be routine inspections.

There needs to be some training for people. A lot of us live in remote areas. The local septic companies don't have enough knowledge for these new systems with new compartments.

There should be a manual that is specific to each type of system because that is not very well passed on to the homeowner. It should describe what is recommended whether from manufacturer/designer or from state requirements. Or what can be flushed and not. Need to know that certain brands of detergent might harm the lining

of my system; another is the landscaping - how that is effected; and maintenance and how often filters must be cleaned, etc.

There should be a requirement that people get their alternative sewage systems inspected every 2 years.

There should not be any inspections. If there has to be any regulations at all, then all sewage systems should be regulated, not just alt systems. Also, annually is too often (unless you failed the inspection). There needs to be a guideline for uniform inspections, and there should be a price limit. If the VA Department of Health decides to regulate, please do a better job of figuring out who really needs to be regulated other than Loudon County.

There's more complexity than what's needed. All one needs is a septic tank and a drainage field. The laws should allow for less. That would be safe and adequate. Tanks and fields.

They could periodically have someone from the Health Department come around and take a look at people's sewage systems.

They don't need a bunch of clowns sitting around creating more laws. Alternative systems have been around for 50 years. We've had ample time to observe them. They work beautifully. We don't need more laws. If you're going to regulate, then let's concentrate on the real estate people because the only time the systems don't work is when they put them on land that doesn't perk well. They're the crooks.

They have to look at the concept of cost and fairness. We have a hybrid system, so there shouldn't be a distinction between conventional and alternative. All should be subject to the same regulations. Both have the same impact. Builders don't disclose that alternative systems are necessary, and this is unfair. Builders don't disclose adequate information to the buyers. There needs to be heavier regulations to force builders to disclose, so buyers will have the option to walk away. We weren't told until after the fact; they already had our money and we couldn't do anything about that.

They need desperately to look into and make allowable alternative systems. The current codes are byzantine.

They need to get some kind of plan, they know about it.

They need to look a more constrictive alternative, when leech fields fail, and change to an engineered system to reduce environmental contamination.

They need to make sure that homeowners are adequately educated through some mechanism(s) to insure that they are capable of maintaining their system(s) responsibly, and thereby to avoid or reduce the need for expenses of regulated inspections and maintenance.

They ought to leave them natural flow. All these new systems, a lot of them are unnecessary. It's all for money, for the government and the health department to get richer.

They really need to be more informing of individuals buying homes about alternative systems so that they understand the costs associated with them.

They should be encouraged and anything the state health department can do to help us make better systems for the environment, I'm for it.

They should compile a list of trustworthy contractors. I had a contractor who was state certified, but not certified in Prince William County. So, they should perhaps integrate the system of licensing the contractors.

They should let the individual home owner be trained to maintain their own system.

And builders should be required to inform in writing homeowners of the type of system that's being put in and what it requires for maintenance.

They should make more information more available to people about what options there are in regard to alternative systems.

They should make sure that they always send out the reminder cards to everybody to remind them when their inspection's due.

They should require that all systems are maintained to manufacturer's recommendations.

Think current yearly inspection regarding cost is too much.

Think they ought to understand the systems completely before writing regulations and the impact on the environment and public health.

To me it's very simple. I don't notice any difference between alternative and conventional systems, but a lot of people that are unfamiliar complain and find any septic system worrisome.

Treat alt systems the same as conventional as far as regulations of operation.

Upfront, by law, the home buyer should know the monthly cost for alt system maintenance.

Very unhappy. The county came out and said we had to get inspections and gave a list of vendors. Didn't say we needed written documentation. (Loudon County). Then they said it had to be done again with new system of verification and with the new system the vendor we used was not included in new list. So we had to have it re-inspected. There was nothing wrong both times. I don't think there should be a blanket law on the alternative systems. Should be individualized according to the type of system and how long it has been in use.

Virginia should put proposed regulations out to the professionals to get feedback before enacting any laws.

We did not have a choice about alt systems and it was way too expensive.

We don't need alternative sewage systems.

We should collectively move away from septic systems and go to sewer systems.

We were frustrated. We were told that the alternative system was required. We doubt that now. Inspection system requirements and maintenance are expensive.

We were not made aware that a larger system would be required if we wanted a garbage disposal system installed in our sink. People should be made aware that they are not appropriate with bacterial-based systems.

What worries me is sewage getting into the water. I think they should be regulated, and the Health Department should do more.

Whatever the solution is, it shouldn't be extremely costly.

When a new homeowner purchases a house, they need to be walked through the maintenance schedule for the septic system, and have a sign-off sheet. The current contractor needs to do a kind of class, so you know about maintenance needs.

When I first built the house, I went to the county health department and they were very helpful - more than the builder. More education for the health department workers about the alternative sewage systems would be good since they were somewhat unfamiliar about them.

When I moved here, I was nervous about alternative sewage systems. Loudon County put a moratorium on alternative systems. When I had a conventional system, no one checked it. Now, I have a state of the art system and pay \$500 when it is better for the environment. I am being penalized for doing something good for the community. I

think we should receive tax breaks. My system is stable, state of the art. No one cares about the conventional systems and I paid nothing for it, and now, with a better system for the environment, I am being penalized.

When installing find ways to put it underground instead of on top.

When they hand out the permits, they should give out some kind of literature on it.

When they send code enforcement officers out then the sewage system needs to be one of the things that are inspected. Renters should not have to fix these things; landlords should have to maintain sewage systems.

When they're thinking about making these regulations, they ought to think about how much it's costing ordinary people. It costs me \$7,000.00. I had to dig into my 401K. They wouldn't run the public sewage line to my property. The City of Suffolk is now requiring me to pump my septic tank every 5 years, this to meet the requirements of the Clean Ground Water Act. But they allow the Smithfield packer to run a line and dump his waste into the river, and the new residential development[s] is hooked into that line. So they shouldn't blame me and charge me for the pollution in the river.

Why do they have to come out with all this stuff to make it so hard on working class people in this country? This came out because of Smith Mountain Lake, and now they are writing regulations for all over the county. I'm going to write my congressman about this.

Would like to see individuals not do so much of the footwork prior to installing the systems. Health department should take more responsibility.

Would like to see more alternative systems put in to replace old conventional ones that have been there since 1940s and 1950s.

Write the regulations and information in plain English so people can understand. Require truthful information from builder or seller to the buyer.

You entrust the design and installation to contractors and I have been totally unhappy with the performance of the system. We told them what we wanted to build. When I went to the builder I said we wanted a 5-bath home. That is what they approved it for. They designed a system for the home. From there it went to the county, they looked at it and approved it and on and on and on and here we are. Am I happy? You have to have a proven system that a good civil engineer designs and is carried through. We are going to be required by law to fix this and I am not a civil engineer. It cost us \$25,000 plus maintenance and we have a system that does not work and who is accountable? The system works other than the field where the water is supposed to be evaporated. The problem is ongoing.

You should have to, under regulations, have a maintenance contract with someone.

Q_LEGAL: Are you aware of your legal obligations for using your sewage system?

I don't understand the question.

I don't understand the question.

If I sell the place, the buyers must know about it.

It is required to be pumped every five years.

Not specifically, but generally I assume there are regulations.

Only aware of the legal obligation for approval upon installation.

Only that our old one was not up to code but the new one is legal.

Reporting is required to the health department. Someone is to take care of that for us.

We have to have it pumped out.

We have to maintain a current agreement with a company. A monitored system. Again, we have no choice in the matter.

We maintain it once a year.

We must have it pumped by a licensed person on a regular basis.

What does that mean? I don't know of any specifically.

Q_LENGTH: How long have you been living in your current place of residence?

5.5 years

Same residence, but the old house was demolished and a new house was built.

The property is a vacation lot.

Various times, it adds up to about one year.

Q_LOAD: In general how would you describe the load your household puts on your sewage system?

Light now that the kids are gone. When we had five kids living here, it was heavy.

We limit ourselves as possible

Q_LTESTED: Have you ever had a LABORATORY test done on your sewage system for any reason? This would be a test done in a laboratory using samples taken from your property for things like nitrogen level or biochemical oxygen demand, also known as BOD.

only upon installation

Q_MAINNDOTH: Which of the following things are important routine maintenance needs of your sewage system?

"Turning the field": every 6 months is necessary to change drainage from field A to field B, or back.

A compressor. Make sure vents don't get blocked. Also, we can't use anti-bacterial soaps.

A walk-through check on a quarterly basis.

air compressor

Alternating between two drain fields.

An adequate supply of electricity.

an alarm system

Annually the maintenance provider checks that the aeration system is functioning properly.

As low a use of anything down the garbage disposal; no grease or oil and a low use of toilet paper.

avoid chemical drainage

Avoid clogging it up with grease or oil.
avoid toxic chemical flushing

Avoiding putting any non-biodegradable materials in it.
Be careful what you are dumping down your sink so you don't kill the guys down there. You can not use bleach.

Being careful what you flush down the toilet; what you put in there.
blowing out the lines, drainage field

Check the peat to make sure it has a certain amount of aeration through the PurFlo.
Checking the level of peat.
checking the operation of aerator

CLR septic additive
Compressor running is important.
Computer control panel is important and different holding tanks before effluent gets pumped out, so the computer is important.
Controlling what you put into it.
cut the grass on top of it
Don't allow people to drive over it.
Don't drive heavy equipment over drain field.
Don't drive heavy equipment over it
Don't paper in it.
Don't plant any big trees on the drainage area.
Don't put grease down the drains and don't use bleach in the laundry.
Don't use bleach or other hazardous materials.
Every 15 years the replacement of the peat media.
Every seven years, the internal pod needs to be replaced. It's where the bacteria grows and does its job.
Every year we switch the alternative lines.
Food, fats, oils and greases - do not put down our sink. Moved to enzyme detergents.
Green box that mixes continuously and there is a concern in electricity cost.
have to stir it up once in awhile
having the system pumped out
He said he lifts the lid.
I avoid putting certain items or substances into the system like grease, anti-bacterial soap, etc.
I avoid putting fats and things that don't decompose down it.
In general, you have to have a maintenance check annually.
inspection of chloride tablets monthly
installation
Insure that there is not too much water in the tank.
It is automatically monitored.
It is important that you use the proper toilet paper product. For example, we use a biodegradable paper. Paper needs to be the proper weight. Also, there's a green septic tank cleaner you can pop down the tank, a green enzyme that I use.
It is monitored by the maintenance company.
It needs to be serviced according to the manufacturer's recommendations.
Just making sure it doesn't back up into your home.
Just the pumping about every year just to be on the safe side.

keeping grease, paint, etc out of the system

keeping the air compressor running

maintenance monitoring, alarm system

Making sure it's in full operation and no pumps or blowers go. The blower recently went.

Making sure keep heavy equipment off of the drain field.

Making sure that the blower is working.

Manufacturer is required to inspect it.

Modules must be checked for fungus, and check for clear water as it comes out of the modal.

monitoring the alarm system

Monitoring; it has a computer attached to it.

Mulch basins, so adding mulch to bases.

Never flush antibiotics or strong chemicals. Be very careful in what you put down the drain.

no flushing toxic chemicals

no heavy papers, grease or proteins

No unnecessary waste in the sewage system

Not putting certain things like meat by-products, oils, and chemicals down the system.

Not putting various items or substances in the system like paint or discharge from a water softener. Also you can't have a garbage disposer.

Not supposed to have to do anything for at least ten years. This system was mandated and it is a super system. It cost a fortune and it is supposed to be trouble-free. Henrico County said we must have this system.

Not to have any large vehicles run over the drain field.

Not to plant trees or anything like that over the drainage field.

not using bleach, raw undigested waste or grease down the drain

Once a year the peat installer people rake the peat and make sure it is fresh.

One more thing - never use garbage disposal or put grease down drains.

Periodic cleaning of two filters: take them out and rinse with pipe cleaner/brush and put back in/re-insert.

periodic inspection

PH checks for the peat moss

professional maintenance

pumping of tanks

Putting the chemicals in and making sure that the sprinkler heads are operating properly.

Raking and treating the carbon bed.

Regular maintenance, pumping solids, sealing leaks, and keeping vegetation over the drain field.

regulatory inspection

replacing peat moss and filter

Ridex

Routine maintenance with the provider.

taking low lying water away from the system

The annual service contract we have to have.

The county makes yearly inspections required.

The electric switchboard went bad, lightning hit it, and it had to be replaced. Checking this would be good.

The halogen ball that needs to be changed every six months.

The indicator light that tells if you have a problem, keeping an eye on the light

The peat bed and it needs to be fluffed up once a year.

The water tank needs bacteria checked, inspect aquatic monitoring systems, check alarm system, check leeching field, measure depths of the sludge in the tank two times a year.

Watching the alarm, and not putting chemicals in the commode.

We are careful about what we put into the system and are careful not to drive over the drain field. Do not use garbage disposal much. Have a regular maintenance contract.

We are very careful about what is put down the drain and careful about detergents going down the drain. We try to use ecologically friendly products.

We have a maintenance contract and I worry about most of these things. We don't use bleach, there's no garbage disposal, we don't let bits of food go down the drain, or hair.

We have a maintenance plan of twice a year servicing by a licensed professional.

We have inspections twice per year, formal and informal, and they tell us if anything needs to be done.

We have to clean the filter every three months. The alarm goes off.

We keep an eye on the alarms and make sure the equipment is working right because of the electronics involved.

We make sure we don't put grease down the drain.

We turn a valve on the top that changes the flow.

What you flush or put down your drain are important. You have to keep fats away from the drain and systems. You cannot flush toxic products down the drain.

When we use a water softener, we were told not to put salt in the system.

working air compressor

Yearly inspection and 3-5 year pumping.

Q MAINND: Which of the following things are important routine maintenance needs of your sewage system?

A guy put dirt down, and I put mulch over it, so I wouldn't have to 'weed-eat' it.

as part of first 18 months inspection

doesn't apply

I don't have to do any kind of maintenance.

I haven't changed the flow. I'm assuming that it's not.

I know it's supposed to be pumped, but I don't know if it means solids.

I perform maintenance on them monthly.

It doesn't apply for me.

It has a peat pod that needs to be raked.

It has two tanks.

no filter

no flow adjustments

no trees

none

none

Ours is out in the horse pasture. The grass hardly grows there.

The sewage system does this itself.

We weren't told we have pump but I know of neighbors who are pumping just in case, but I believe it was designed so we didn't have to pump.

Q_MAINSS: Please tell me how satisfied you are with each aspect of your main sewage system.

Alternate systems were mandated by Loudon County when the homes were built. However, homes were purchased before being built and homeowners were misinformed at having to have only alternate systems.

Complexity of the system as compared to a simple gravity flow system. The complexity is comparatively unnecessary and eventually it will create maintenance problems with time and wear.

Cost is just too high. This new system is too much.

Don't need a sewage system but was required to install it.

Failure rate, according to statistics, of the [name of manufacturer] system.

General age. The septic guy said they last 20 or 30 years and it's about 50 years old. I'm dissatisfied that I moved into the house and the real estate agent and inspector did not know anything about the sewage and water and so didn't tell us about it. I know we will have to put an alternative system in soon.

Having to have an alternative system when a conventional system would have been sufficient for my property.

He's dissatisfied with the concerns that seem to be outlawing the system rather than just requiring updates and things.

I have spoken with environmental people at the county, spoken with [name of engineering company] spoken with the excavators who put the system in and our maintenance contractor, and cannot get things straightened out.

just don't like the idea of sewage in my yard, wish it could be public sewer instead
maintenance frequency and functionality

More than adequate. I would prefer a standard system. They said the alternative systems were going to be mandated by law eventually, and they were just getting started early. After we bought the house we were told.

Original installation - parts broke but weren't fixed as it was installed. The box failed three times, the contractor messed up the chance of fixing it. Mew people came out to fix it three weeks ago and we haven't had a problem since.

quality of installation

service

The amount of equipment that requires maintenance.

The amount of time I have to spend on it to keep it running right. My time over a year is about 1 hour minimum.

The general idea of having a property owner sewage system. I would have moved into a place with public sewer, but it was my ex-husband's choice to build the house.

The green box accessory is not attractive in the yard. It is a chore trying to cover the unsightliness, and the extra cost of it running continuously.

The lack of resolution of the odor problem over the last three years.

The pumps aren't working. A man came here, he was from India, a foreigner, he didn't give us any information, he dealt with my brother, and my brother died.

The tank is too small; we use more water than the capacity.

These alternate systems are complex and delicate. If the computer card fails, the whole system goes down. Local or state government had to have approved these systems which are full of problems and then require the owner to have annual inspections. The people who installed are them are now inspecting.

To amplify, according to the brochure the whole system is supposed to be flushed with the yard and it is 18-24 inches above ground. It would be too costly to fill it over and grade, so it is unsightly and we have to mow around it. It is totally unnecessary. When they did the perk test here a standard system was here.

Too close to the house. The county should have gotten into it. When we are on the porch with a breeze I can actually smell the odor. This is a problem throughout the neighborhood. We think the county should regulate the placement of the system - not within 25 or whatever feet of your deck.

We are so close to sea level on Chincoteague that in high tides or rainy conditions we have sewage bubbles up all over the island from the old systems and drain fields.

Would like the sewers that they promised.

Q_MAINTAIN: Do you presently have a maintenance contract with an individual or company to maintain your sewage system?

a year warranty

Absolutely not. The maintenance contracts are a racket.

Have been under warranty from builder; plan to get contract.

HOA has a contract.

HOA has contract with a sewage treatment specialist.

I am familiar with what is meant by routine maintenance, sometimes people just react, I've only lived here a year and a half, I haven't done anything.

I don't know if the landlord has a contract.

It came with a seven year inspection, so it is part warranty, part inspection.

It is still under warranty.

No contract but do use the same company.

No, but according to the guy who put in the pump, he'd put in a new pump if it stopped working.

Regular maintenance is performed every six months, but he has no knowledge of a contract.

Switching, in between contracts and just cancelled a contract that I had set up.

The builder had a year contract that is still current.

Q_MANHELP: How helpful was the manual?

A little too technical

They give you a schematic but they should tailor it more to the zones on your particular property.

Q_MANUAL: Do you have a maintenance manual or owner's book for your sewage system?

Just for the pump, not for the drain fields.

None exists.

They never informed us about anything. We have the design the engineers gave us on paper but no maintenance book or anything. Health department has shown no interest. They put it in and left. It's supposed to be a good system, cost of \$16,000. All my neighbors only had to pay \$5000. One of the local contractors was found guilty for fraud and I think we fell into that. Kickbacks or something - that was the rumor. The building inspector was actually let go for taking kickbacks. I believe we were required to put in a system we didn't actually need. That actual contractor didn't do my system but the new guy came out and just confirmed that we needed the system, maybe not to get into trouble or something. This is a huge farm turned into building sights and why I had to have \$16,000 system.

We have some schematics we got from health department.

Yes for the pump, no for the Pur-flo tank, etc.

Q_NEWAIR: How often does the manufacturer or designer of your system recommend that you replace the media or air blower for your system?

20-Oct

15-20 years

20 years

50 years plus for the media

As needed or after inspection prior to failure.

calling it aerator

depends on functioning

eight year or when it fails

every 20 years

every 6 months

every 7 years

every 8 years (peat)

Every twenty years if it is maintained.

every year

every year

Every year for the blower filter, but no recommendation for the air blower as a whole.

I don't recall it said, I guess when it quits working.

It's cleaned annually. There's no specified time for its replacement just when needed.

no recommendation

once a year

one year

peat

seven years

The blower is supposed to last two years. I don't know about the media.

The blower may need replacing 8 -10 years according to person who put it in

They don't recommend replacement. It does not need replacement if you change the filters and maintain it properly.

They have a twenty year life air blower.

two years

When it breaks.

Q_NUMFAIL: For this survey, the definition of a sewage system FAILURE is anytime sewage backs up into the house, or has sewage leaking onto the ground surface. Based on this definition of system failure, how many times has your sewage system failed since you have lived at this residence?

Blockage as it entered the tank itself. It was removed.

But the leakage did not contain solids; just water leaked out of a separate chamber.

My pipes have pushed too much up into one spot and killed the grass and that has happened about 10 times. I had to fix the pressure relief valve which had been covered up before I moved into the house.

Q_NUMMAIN: How many times has routine maintenance been performed on your system in the last five years?

Eleven times, including turning of fields. Pump-out only once.

Pumped when we bought the property, then a year later we broke the line at a junction box, and that had to be fixed.

Several times, greater than zero and less than 5.

Q_NUMPUMP: How often do you have your sewage system tank pumped for routine maintenance?

A new system not pumped.

A new system, hasn't been done yet as needed

automatically pumps

does not apply

every 5-7 years

Has an alarm to indicate the need for pumping.

Haven't needed it yet by inspection,

I thought it is required every 5 years.

It has not needed it yet; too new.

It has tanks so haven't for this one.

Just had it done and will have it done every 5 years.

Just the two of us so it can go at least four years.

new system

new system

New system not pumped yet.

Not applicable. Not yet pumped out; only years old.

Not applicable. Not yet pumped out; only years old.

Not applicable. Only used it for 4 years, not yet 5 years.

Not applicable; not yet 5 years old.

Not applicable; not yet several years old.

Not applicable; system only 1 year old.

Not applicable; system only 5 years old. I will pump out after 6 years.

Not applicable; system only years old.

Not yet; only 4 years old.

Not yet; only years old

On an 'as needed' basis.

The first full year we were on pump and haul. We have sand mound and it was leaking. After a full year, they cored the mound. They did about 15 holes that were 5 feet deep, then they refilled the holes with sand, since then the system has worked.

Virginia law

Q_OWNRENT: Do you own or rent?

Reside in a tenet house and manage the farm, but neither owns nor rents.

Q_PARTSAGE: Are there parts of your sewage system that were added or updated later?

I had a sleeve put in.

Other than repair this system is more costly to operate.

Put in a sump pump myself.

System was added to previous system. Set up for a trailer on the property, inherited the house from father.

The leach field was put in prior by the developer. When we bought we connected our tank to it.

The system control line was reinstalled.

We had issues with the system originally; some parts of the system had to be tweaked. It failed the first year.

Q_PASTPROB: Have you had any problems with your main sewage system at this address in the past?

high water occasionally

I thought it was a no-pumping system and it is supposed to be pumped every year. I find out. Other than that, it works just fine. And with this system we cannot use any chlorine bleach products whatsoever. I cannot put in a garbage disposal.

Pump failure because of a clogged filter. I forgot to clean filter so pump burned out and had to be replaced.

The pump-counter was broken and he didn't know it.

Q_PASTTYPE: What type of problems have you had with your sewage system?

- flow switch malfunction
- A bad valve that was not allowing the tank to be emptied into the drain field.
- a breakage in one of the drainage pipes
- A bulldozer drove over the soggy ground, broke a pipe. It was corrected the following day.
- A circuit breaker tripped so that the aerator was not working properly.
- A clogged filter that had to be cleaned.
- A failed air compressor sets off the alarm at the unit and the alarm in the basement.
- A high level alarm has blown a fuse.
- A part of the pump faltered, it had to be replaced.
- A pipe broke and some of the stuff leaked to the field.
- A pipe clogs resulting in backup into the basement.
- A pipe replacement and improper items in placed in commodes.
- A power outage knocked out the alarm.
- A problem with the alarm. It said the septic system was backing up.
- A pump malfunction once.
- A snake got stuck in a ventilator and then the blower got too hot.
- A stuffed float caused the alarm to go off.
- Access. I had to dig up and install a new pipe.
- air blower malfunctioning
- Alarm sounded because the inspector left the water running while we were out of town.
- Alarm sounded once and they fixed the float.
- Alarm was going off, but not frequently. Several times it was a clogged filter.
- An electrical problem with the control board.
- Antiquated lines were starting to collapse.
- Breaker tripped on the alarm and it was repaired within days after immediate response from the contractor.
- broken pipe fittings
- broken pipe fittings and a bucket thrown into tank
- Cattle were sinking into the field because it was real wet.
- clogged filter
- clogged up
- Computer system failed and had to be reprogrammed; also storm water leaked into the system.
- Distribution box conduit stopped up and needed to be replaced.
- drain field failure
- electrical error, turned off pump
- Electrical, where the pump plugs into the electrical supplier.
- Electricity ran out of it. There was a storm and it destroyed my electrical panel.
- faulty alarm
- Faulty installation due to inexperienced people, it had to be corrected 4 times. A defective tank was installed; it sprung a leak within a couple of months. This tank had been recalled, but the septic installation folks cut corners and used it anyway.
- Faulty wiring of pump set the pump off only once.

Filters clogging. It seems to clog frequently.

frozen pipes

Ground water draining into the tank faster than it could drain out due to a leaky seal and heavy rain.

Gurgling of water, tank was full and the ditches were full of water.

Had to run more lines to alleviate problem.

Heavy rain causing an overflow in the tank. The tank had a leak basically.

Improper wiring resulted in alarm sounding once.

Inoperable, malfunctioning, float; also resulted from the electrical wiring.

It wasn't aerating, the compressor was broken.

Knocked over system hatch and raised piping was knocked and caused a gas leak.

Leakage of ground water into one of the tanks.

Leakage was of outfluent, treated effluent, not "influent", untreated.

Lightning hit the box which shut down the entire system. Then, since it shorted out, it didn't send an alarm as it was supposed to. The system backed up badly. They need to ground the boxes as well.

lightning strike

Maybe 10 years ago when pumped, we discovered some pipe fittings needed to be replaced and were worn out. No symptoms.

misplacement of microprocessor

Needed a bigger pump. Pipe was installed incorrectly. Lightning hit electronics and caused it to fail.

needed to replace a filter

None of the pumps are working, there are three of them.

odors like dead animals

Only when the pump wore out and we had to replace it.

overflowing toilet water

pump

Pump burnt out and was replaced.

Pump counter was screwing up.

pump failed

Pump failures and water seeping out of the field. It is supposed to evaporate.

Pumps failed twice.

Pumps had to be replaced because they were not working properly and alarms go off.

repair to the pump

Replacing a small section of a pipe in the tank.

replacing the pump

Self-repaired a broken line in the tank.

Settling around the tank, which made wires pull loose. The float body rose to the top when it wasn't supposed to and shut the system down. These were installation problems, and not routine maintenance issues.

switch went bad

System gets clogged with solids resulting in water backing up in the tank, and once the alarm sounded as a result.

System was stopped up and the City of Suffolk required him to put in a special plastic tank with an air compressor pump to bring system up to code. It costs \$7,000.

The air pump failed three times.

The airflows (balls) weren't working correctly. They were bad when the new system was bought, so they had to be replaced.

The alarm sounded once, but it was only a wire that needed to be fixed.

The alarm switch was not coming on.

The backflow valve was underwater when it rained, so rainwater sucked into tanks and that made the alarms go off.

The ball-cock broke, which is the equivalent of the back of the toilet arm that rises with water level.

The circuit board failed.

The circuit board on the alarm box failed.

The control panel was smoking

The distribution box had disintegrated from age and had to be replaced.

The distribution box needed replacing.

The drain field collapsed.

The electricity had been disconnected accidentally and the alarm wasn't working and the pump wasn't working. This was within month or so after moving in.

The field drain had blockage and had filled to capacity and required us to put another one in.

The filter got clogged once. It was miss-set.

The filter was not working.

The filters got clogged within less than a year.

The first system was not large enough and had to add another field on, plus another pump.

The first tank had too many solids and had to be pumped.

The float body floated to the top so the pump did not come on or off when it was supposed to.

The float system had to be replaced.

the floats faulted

The flow was more on one pipe then other and a light went on because pump wasn't going fast enough to disperse it.

The holes in the lines were too small and they were backing up and we had new lines, bigger ones, installed.

The line between the controller and the septic system didn't work, and had to be replaced.

The line needed to be replaced due to intrusion of roots.

The motherboard went out.

The peat moss containers had ponding on them and Loudon Co says that it was deficient.

The pump broke and the alarm for too much water in pump.

The pump burned out.

The pump burnt up.

The pump failed twice and we had it replaced.

The pump gave out, the motor burned out and it quit pumping.

The pump gave out.

The pump inadvertently got turned off and set alarm off once. Only needed to be turned back on.

The pump light was coming on. It was a warning light and an alarm. One of the floats

in the chamber needed to be replaced.

the pump replacement

The pump stopped and set off alarm.

The pump stopped working and heard the alarm. It was just a cable or some kind of contact that was easily fixed.

The pump was kicking on too often and the float was not working properly and it was adjusted and has not had any problems since.

The pump went out.

The system pump failed.

The tank had cracks and when it rained the water filled up.

The telemetry system alarm went off a couple months ago and the company was to come and inspect it. It took two weeks of lobbying the company to inspect it after the alarm went off and I could not get the alarm to turn off.

The water level is too high.

The well was pumping out too much water for our system to handle. The sewage system is very old, new well was put in.

The white water tank was damaged. A manifold that goes to the drain field froze, thus valves cracked and ruptured.

The whole system went bed - just stopped operating.

They put the tanks in on freshly dug dirt, didn't pack it down, and the tank sunk and pulled the wiring out of the alarm electrical box, so they had to rewire it.

toilet running; flapper defective; alarm went off; fixed by replacing the flapper

Turned pump off accidentally.

was improperly installed

Waster was flooding the system.

Water was running into the tank causing too much water and the alarm went off. They extended the pipe up so the water didn't run into it.

We had alarms because we were on pump and haul, and the system was full. Sometimes we were on second alarm.

We have to drain it uphill; we had to replace the pump.

We were paying to have maintenance performed but the contractors said they had done it but they failed to perform proper maintenance resulting in parts being broken, etc., for years before we found out and changed contractors.

Q_PROBTYPE: What type of problems are you having with your sewage system or drain field now?

A high level alarm going off.

Contractors washed their paint brushes into the system and it disrupted the bacterial growth.

Drain field requires repair. There are some spongy areas because distribution valves' flow is not even scheduled for repair.

The aerator pump is just replaced and needs to be installed.

We have a main pump and an alternate pump and one of them needs to be replaced. This would be the second pump we've had to replace.

Q_PUMPED: Has your tank ever been pumped for other than routine maintenance?

Electrical storm messing with panel. It stopped pumping, so we had to get it pumped until they could fix it.

to replace the pumps when they got knocked out by lightning

We just replaced the system, the other had problems. We replaced it two years ago.

Q_PUMPKNOW: Now we would like to ask some questions about pumping your sewage system. Are you familiar with the pumping of your sewage system?

A hi-tech computer controls it all.

I hire someone to do it.

It being a new house we've never had to do it.

It has to be done every 5 years so we have not had the experience of it. Been there some years and know it will be done.

Not applicable. The system is only 4 years old and the requirement is every 5 years.

The system not yet many years old. I think that the county requires pumping out every 5 years, but I am not clear on the details.

We haven't had to have it pumped yet.

Q_PURCHASE: When you purchased your home, did you receive information about your sewage system?

All decisions made about requirements of health from the Department of Suffolk city. build home

built home

Built house himself. Can from the health department.

Built my house myself.

I built it, did not purchase it. Watched them install system.

I built it.

I built my own home, I consulted with the county.

I built the home and installed the septic system myself. But obviously I possessed information and received more from the health department and contractor.

I had system installed myself.

I just bought a home from a builder. The state and Rockbridge County confirmed that it was okay and so that is all I know. I have no information.

Initially no. I had to figure it out myself. We bought the house 1 year ago.

It is a 109 year old house but a new septic system was put in about a few years ago. I lived in the house for long time.

it was just put in last year.

It was requested from the contractor, but didn't receive it. Later acquired information from the manufacturer.

low pressure distribution system

Mostly my brother talked to him.

Only prints of the land survey of a septic field.

Only word of mouth regarding the location.
 purchased the land first
 Purchased the system and it cost an additional 3,500 dollars!
 They said it would perk and put in a regular system, a lakefront property. After purchasing the property, we chose the septic system for the location I wanted.
 We built the house first, and then put in the eco-flow system.
 We had to put everything in brand new, there was no sewage system in here.
 When we built it all we had to have was drain lines and in 2000 I had the drain lines causing problems and the health department said I couldn't have more drain lines and came up with this system.
 When we purchased the home, we did not know what type of alternative system there would be.
 Wife inherited the place from her father.

Q_RCOMM: Additional respondent comments.

A lot of people on fixed incomes can't afford to upgrade. So they should seek to fund public systems through grants. So that would also attract industry, which is needed in the area, and help to boost the economy.
 All the land in my area is highly regulated because of the sewage systems. There should be no more regulations enacted. Additional regulations would not facilitate the livelihoods of residents or help protect the environment.
 Alternative -- referring to my septic system versus public sewage. Have one regular tank and regular drain field.
 Caution law makers to be more knowledgeable about the systems.
 Check out the new sewage aeration systems. We have a group of people who bought a building and want to put in a coffee shop and they're allowed to because they need an alternative sewage system. I vote out whoever is against alternative systems.
 Good luck with the rest.
 I am not into government controlling every thing about daily life. Less the government is involved the better it is.
 I could have purchased an alternative system for 15,000 dollars more. This was offered by the county. It would have automatically called a contractor of their choice if the alarm went off. This required an additional phone line in my name as well. [Company name deleted]. They did not tell me about the system that I did install. A third party engineer offered me the alternative system that I ended up going with, saving me 15,000 dollars [manufacturer's name deleted].
 I don't think folks should be required to have contracts. I have alarms that let me know if there is a problem. I can clean a filter faster than they can come and do it. I've watched the maintenance people and there is not a whole lot to it. If there are problems, okay, but if there are no problems, somebody is making some money. Pumping out and replacing major parts could be done by experts, but routine maintenance could be done by the homeowner.
 I don't think there should be any more laws or taxes concerning regulations for sewage systems. There are already too many. People should just know how to maintain their systems on their own and not have to have the government involve itself by law. There is too much government involvement in people's lives.

I feel very firmly that the manufacturers and the health department and/or state should give detailed information on what products should not be used in a septic tank.

I hate to see meddling in my affairs.

I have lived in several states and built homes in several places, I think that Virginia would be greatly served by putting together a broader base of live input across all homeowner issues. I sat on a committee in Hawaii on how to deal with the closing of the sugar plantations. There were regular people on the committee. I think people should be invited on a board for a matter of months to contribute. Listen to the people and stop writing regulations for people who are going to be paying the bill and who are experiencing the use of the systems.

I have no problems with the government regulating sewage systems.

I hope this study doesn't lead to more bureaucracy.

I just hope they do not start over regulating the situation. Government needs to get out of the way. We need more choices. I am not big on telling people what to do. Sometimes we have good intentions but there are unintended consequences.

I just want to thank the Health Department for helping me when I had trouble with my sewage system!

I think another survey should be done after regulations are formulated to see how people feel about them. Changes in systems should be made only when necessary.

I think banning the alternative systems is the wrong way to go. They've tried to do that in Loudon County, and that stigmatizes properties that have them. All you need is maintenance requirements. Virginia should test the systems out in the field before they are used in development instead of using the counties as guinea pigs.

I think the survey is terrible. It's too long, redundant, and not done in a way that allows two people engaged in it to answer the questions well.

I was told by the county that alternative was the only system they could have on our land. Alternative system is a huge expense for our family and our somewhat limited income. It's very wrong to demand such an expensive system be required.

I would like to have had a copy of the survey before hand for future reference.

I would love to have the sewer connected to the county system vs. septic.

If the Department of Health is going to act in terms of regulation according to my opinion, then I would find it a courtesy that they let us know what the plans for the future are.

If the state has addresses and names of residences, it would be helpful to alert us of changes in laws and regulations regarding these systems. The management entity of our area was required by the county to have development furnished. But, the county picked the vendor allowing no competition. The complexity of alternate systems and maintenance needs to be revealed to future homeowners.

If they're going to conduct a survey, then they should mail it, so that one has the time to think about one's responses.

Legislation to force builders to use alternative septic systems rather than a pump system.

Loudon County also needs to have inspections of conventional systems.

Maintenance contractors need to be experienced, certified, and even certified in the actual system they are working on.

Make sure people are notified when regulations are written or become official.

New homebuilders should have full disclosure mechanics, maintenance, appearance, and placement of system.

Now that you described the alternative system's possibly having a peat moss filtration system, I realize that our system does have such a peat moss filtration on the second tank. So it has a regular tank and an alternative tank.

Provide a summary of results to those interviewed.

Regarding question asking for further comments or recommendations to the Virginia Department of Health I would add a comment "beyond the Rubicon": If they can make information about various sewage systems easily available - like online - then that would be helpful because the builder didn't provide us with any information about our system.

Since you invested the resources to call us up and inconvenience us by requesting of us our time and participation, then it's only proper that you should expend the resources to let us know when the results become available, by sending us a postcard for instance. Also at beginning of the interview, you should have asked if they wanted to participate.

Thank you all very much for this study. I hope it can have a very positive impact on the community and people in rural areas. I hope people can be careful about what they flush, thinking that a septic system can handle it, and then having it end up in rivers and streams and watersheds.

The alarm went off once truly to let me know that the flap was not closing so it was really helpful to have the alarm. The alarm is definitely not an inconvenience.

The biggest problem with these systems is improper installation. Installers or designers should be charged with a longer period of upkeep after system is installed.

The county health department or environmental office, I think, mandated that we had to have the PuraFlo system.

The county should reduce the inspection fees. They should make the inspections bi-annual, meaning every year, not annual. Take half the population one year and the other half the other year. This would be less expensive. They'll still get the inspections done, but it doesn't need to be done every year.

The current sewage system on Chincoteague causes the largest oysters to grow on the whole planet.

The fact that this survey is going out, I do feel as though it has some sinister reasoning behind it to gather facts and bend them to impose more regulations and fees on those people who have alternative systems. The other thing is that the state already has decided to impose a \$75 fee that started last year out of the blue, claiming that they need these monies to continue testing septic systems. I pay taxes anyway as a Virginia resident, and it seems like they're imposing more taxes and tariffs and restrictions and punishing me for owning and using an alternative system.

The officials who I've dealt with at the Health Department in Henrico were very thorough. They get a 10/10. Most old conventional systems, I believe, work very well. The only reason they fail is due to misuse. However, the newer systems are probably the best for the environment. The amount of money I pay for the complexity of my system should bear results from the contracted company. The old systems are the ones that need the most maintenance.

The person who came out to check the filter said he would check it free of charge, but after that I would be required to sign a contract that I would have to pay for to have the filters checked on a regular basis. This was person who installed the system. I'm getting a lawyer about that.

The postcard gave me a heads up and made me more willing to do the survey.

The reason why I know about the alternative systems is that my father's house is about several miles up the road, and when we sold it we had to put in a new alternative system with a mound of beads and stuff. It doesn't really matter about the system if the soil is not right. What they try to do is if you have a rich or a clay soil or a black soil, the system will not drain. If you've got poor drainage, it does not matter what type of system you put in. My father's ground was red, hard clay; very poor ground to drain from. I don't know what kind of maintenance they have to do to it.

The reasons we had to get the sewage system were because the area was not properly configured.

The scope of the survey is too narrow. It needs to encourage alternative technology. The state and county should stop trying to control growth and should keep land undeveloped. We need to preserve landscape.

The state should be more encouraging of alt system installations. It felt like I was trying to fight the system to install it and it took a lot of red tape. Was told my current system had to fail before I could install a new one. This was in the early days of alt systems.

The survey is a very in-depth survey.

The survey is a waste of time and money. Why don't we use the money wisely and figure out a way to get rid of these illegal Mexicans?

The survey is awfully long and awfully cumbersome. I think if you want people to accommodate you, you need to shorten it up some.

The survey needs to be rewritten by someone who has lived under different types of septic systems. Also, the State of Virginia needs to hurry up and get through with the regulations because people are going ahead with installing these alternative systems, and they don't have enough people to make sure that the systems are installed correctly. The survey's just a waste of money to forestall the regulations being put into place. 1

There are a number of questions that you asked that made me think of other questions that you didn't ask, but should have. For instance, you didn't ask any questions about the distance a septic system should be from a water source or water body. In Franklin County, they require 50 feet, but it should be farther. In New York State, it was 100 feet which is more reasonable.

There should be regulations to have monitoring systems in place for people's septic systems.

There should be requirements that inform people more about their sewage system when they buy a property. We were informed just about nothing. Although we've been lucky having no problems except one minor one our neighbors on either side and across the street all have had problems and in a neighborhood where all the houses are about the same age, recent, and on 4 or 5 acre lots.

There should be tax credits for alt system users since it is friendlier to the environment than conventional. And they are much more costly than conventional.

There shouldn't be any more regulations when it comes to sewage systems. There are already too many regulations in life.

This is a very important issue. Alternative systems are important for commercial uses. We should not be too quick to ban them. I hope Richmond takes control and does not let some counties be too lenient or too harsh.

To the health department - "Get out of my business."

We had a compost toilet for four years before our present system was put in. Our land

wouldn't perk.

Whatever legislation that is implemented needs to be homeowner/user-friendly in terms of cost and according to the manufacturer recommendation. Lawmakers most likely do not know as much about the system as the engineers.

When they sell the older homes on the river, the systems should be upgraded automatically to alternative systems.

Whenever I've had contact with the health department in Montgomery County I've had no problems. I am a building contractor, and other people I know who are not as knowledgeable about septic systems have had issues with the health department because of their frustration with the codes and laws governing systems. They expect to be able to install whatever kind of system they want and they get frustrated when they find out they can't under law. County residents should inform themselves more when it comes to septic system installation and usage.

Q_REASON: In your opinion, is this amount...

Compared to public sewage before, it is somewhat less expensive.

It is not expensive but not convinced they actually check it out well. I don't know if we are getting what we paid for.

It is zero.

Outrageous and we feel like we were held hostage. We were told by the city what type of system we had to have and then were told if we did not send the money in to the company they would contact the health department and condemn the property.

System was very expensive and maintenance is included for 10 years.

The contract is inexpensive, but the alternate system itself was very expensive. About three times that of a conventional system.

Zero dollars; appropriate expense

Q_REGMN: The following is a list of possible sources of knowledge about sewage systems. Please indicate how much of your knowledge about sewage systems comes from the following sources.

I have installed some systems myself as a contractor.

My engineer and builder were not particularly forthcoming. I really had to dig deep and formulate the questions because they weren't going to tell me.

Son is a contractor for sewage systems.

The person who installed our system doesn't agree with the regulations either and thinks they can be abused.

Q_REGMNOTH: The following is a list of possible sources of knowledge about sewage systems. Please indicate how much of your knowledge about sewage systems comes from the following sources.

[Name deleted], retired professor
a book on the system

A neighbor who is a contractor.
age and experience
agricultural training and experience
An engineer and studied this in college.
an engineer background
books
books
books
books on grey-water systems
builder
builder / contractor
builder [construction company name deleted]
builders
builder's manual and flyer
building contractor and engineer
class at church
common sense
engineer
engineer
experience
experience from installing them
from a book about septic systems
from a State government environmental agency
from past personal experience
From the manufacturer and the health department from the standpoint of regulations.
hardware store
have a degree in sanitation
I am licensed to maintain and install and repair systems in Virginia.
I have installed other kinds of systems, conventional systems. It used to be my job.
I'm a chemical engineer.
I'm a home inspector and real estate appraiser, so I went to school to get this knowledge and got it from textbooks when I went to school.
I'm a plumber - from my job.
I've asked the county supervisor why this big change is going on in the county.
Living with it for 40 years.
Maintenance manual
manufacturers
My education as a chemical engineer; also a number of books about septic systems.
My job as a plumber.
My own personal experience.
My years of experience as an engineer.
myself
past experience
Past experiences with septic and sewage systems in other homes.
past personal experiences
personal experience
personal experience

personal history

prior personal experience

reading periodicals

the builder

The building department in Loudon County.

the engineer

The guy that installed it, the contractor and the inspector, very briefly in each case.

The man who pumps the tank.

the manual

The manufacturer trained me as far as how and when to clean the filter.

The person who installed the system, construction and septic guy.

the previous owner

Training. On-the-job training, when I'm out there doing it myself

utility chief marine core

VPI

Q_RELIALE: How reliable is your sewage system?

except for the pumps

If the electricity goes off, you don't have a pump or a system. If the pump doesn't work everything backs up into your house.

The system wasn't the problem, if someone had told us how to maintain it.

Q_RELWHY: What makes your system unreliable?

age

Just because of pumps wearing out.

Q_REPLACE: You mentioned earlier that your system has a pump. How often does the manufacturer or designer of your system recommend that you replace the pump?

7

2 years

about 1 year

Before it quits working and before it goes out.

every 10-11 years

every year

Guaranteed for 20 years and it lasted just about that long.

He didn't.

I did it all years. I don't know how often it needs to be done.

I don't know what the recommendation is. I'll replace it when it's broken.

I had it replaced four times in two years.

I replaced my pump because it failed after 4 years.

I think all of them have, I'm thinking, a five year warranty for the pump. I've already

gone through two since 2004 and am on my third one. They are about \$1,000 each.
It didn't actually say.
It didn't say.
It has a 20 year warranty.
It has a life span of 20 years.
It has an aeration pump of some kind that perks in the manhole cover for the tank.
It's a Jacuzzi pump, I'd say 20.
no recommendation
no recommendation
No recommendations that I know of.
Not applicable. : I'm sorry. Now, I don't think that we have a pump. In the past, at another location, we had a system with a holding tank and a pump.
Now it says it doesn't have a pump on the system.
Once a year. The owner just replaced it.
One part of the pump becomes corroded over time,
Only when the maintenance contractor recommends it.
The owner just had it replaced. The contractor who did the work said he thinks it is supposed to be checked or replaced every year.
There is no recommendation for it.
There is no solids pump, just the air pump.
They didn't say.
They never told us anything,
Unknown, but I'm finding out it's about every five years. We just had to replace the aeration pump.

Q_REQUIRE: Should people be required by law to have their alternative sewage system inspected?

All sewage systems should have to be inspected.
All should be inspected, both alternate and normal.
All should be inspected.
Any system needs some type of maintenance.
as long as they're working
But the charge for it should be not on the homeowner.
check primary systems more
Everybody, all systems, should be required to have inspections.
I don't think that it should be mandatory for alternative systems to be installed.
I think the alternative systems are a money racket.
If it's in regard to health or safety or something getting into your water.
If my neighbors had an alternative system, I hope they'd be compelled by law or by conscience to keep it functioning. Are people required to have their conventional systems inspected?
if not a holding tank
It depends if we will be charged for it.
It depends on the location of the system.
It depends on the set up they have. Mine is constantly monitored. Some people might

not have that.

It depends on the system. If they have to actively maintain it, then yes. If it requires minimal care, then no.

It depends: if their system would affect the neighbors, then yes. But if they have a large tract of land, then no.

No more than people who have conventional systems.

No one should have to pay someone else. The owners can learn to inspect it themselves.

Only if it's necessary for the functioning of the system.

only upon the sale of the house

System works fine, but he really wants to be hooked into a city system.

The ones with ready access, with a lid for inspection.

When the house is built.

Yes, all systems, not just alternative ones.

Yes, here in Northern VA; in more rural places probably not.

Yes, if the conventional system has to be inspected too.

Q_ROUTINSP: How often does the manufacturer or designer of your system recommend that your system be inspected?

Assuming it is once or twice a year.

County inspection is once a year. Manufacturer gave an initial inspection according to initial installation. A new monitoring company will come if needed to ensure any potential liability.

County requires an annual inspection.

County requires it every year.

every 15 years

every 3-5 years

every 7-11 years

Inspection is driven by the county.

It doesn't show that any inspection is needed. It is a bacteria-based system.

It's not the manufacturer; it is the county, by ordinance, (Loudon) once per year.

Loudon requires it once per year.

monthly

never ran across that

No one told me anything about that.

no recommendation

no set time

no specific time

quarterly

The county requirement is once a year.

The manufacturer did not recommend; the county requires it.

There is no recommendation.

They come every quarter but I don't know what the "recommended" time is.

Twice the first year and one more time and that's it.

Was not recommended, it's up to me to decide.

When it is pumped.

Q_ROUTPUMP: How often does the manufacturer or designer of your system recommend that your system be pumped to remove solids?

- 10 years, the monitoring person recommends a sooner date
- 15 years
- 15-20 years
- 7 years
- 7-10 years
- 8-10 years
- abide by the country regulations
- After the 2-year period, builder will recommend how often system should be pumped.
- Before the pumps went out we didn't have to do it.
- Between 3-5 years depending on usage.
- Between 5 and 6 years, depending on usage.
- county requirement
- County requires it every five years.
- Depends since they come out quarterly to check the system.
- done as needed
- every 10 years
- every 10 years
- every 10 years
- every 10 years
- every 15 years
- every 20 years
- every 3-5
- every 3-5 years
- every 3-5 years
- every 3-5 years
- every 3-5 years
- Every 3-5 years depending on usage.
- every 3-5 yrs, if necessary
- every 5 years
- every 5-10 years
- every 5-years
- every 6 months
- every 6 years
- every 7-10 years
- every 7-8 years
- Every five years or according to specific buildup.
- every year
- every year
- every year
- every year

every year

I think it might be 5 years.

It is automatic, part of the system.

It is continuous, an automatic system.

I've decided to do it every two years. When I had it pumped I talked to the guy who pumped it about it. One year not long enough.

once a year, then monitor

once every ten years

Previously it had been 5 years, don't know this one.

The county says three to five years.

The guy that does this maintenance said it doesn't have to be done as often as we thought. The system is pretty new.

When it gets full; it's automatic.

Q_RTNERF: Has routine maintenance of any type been performed on your sewage system within the last five years?

A wetlands cell system - Have to make sure there are plants and proper vegetation in the cell part. Wetland plants like rushes. Make sure it's doing ok on a regular basis.

Q_SATISFY: How satisfied are you with your sewage system?

A regular conventional system would have been better on my property. Everybody in my subdivision had to get this system, but not everyone needed it.

Due to the regulations that have been imposed on the land owner, I was required to have this type of system in accordance with the soil type, even though I didn't want it or think it was necessary. Given that fact, I'm somewhat satisfied.

Extremely satisfied, except for the fact that I don't have enough information on the system.

Had I known that so much was required for maintaining the system, I wouldn't have chosen a sewage system. I wouldn't have chosen a community with on-site sewage systems, whether conventional or alternative.

I am not satisfied with location. They put it in the center of my back yard but very satisfied with system itself.

I argued with the health department that I didn't need tanks. We pumped to the second tank where the liquid goes to two distribution boxes that go to drain field.

I would rather have public sewage.

I would rather have public sewers.

If I could have gotten a cheaper system, I would have had a regular system, but the property could not have the system.

I'm not satisfied with where they put it because it is right by the side of the house where I need to pull the vehicle up.

I'm very satisfied except I think somebody's making money having people have to put in an alternative system when other people around have a conventional system. It's something I question. It's really expensive.

It has never failed us but I would rather be tied into the municipal sewage system.

It wasn't bad until the pumps stopped working.

It works but it was too expensive; a conventional system would have been fine. The alternative system requirement because I'm up on a mountain. Overlay is overkill.

Not satisfied with the price, it doubled the price of the sewage system (having to get an alternative system),

Only somewhat satisfied because of the lightning strike and failure of the system, the cost of the maintenance, and it is an eyesore.

Very satisfied but it is not as good as the one in the cities.

Very unhappy because I would rather have it public sewer. But the answer is for this system as required.

We weren't aware how much maintenance we would need to do on them. The builder said [manufacturer's name] but didn't ever use the word nonconventional or explain how they would work or how much maintenance would be required or that it would be above ground. I don't like the aesthetics; plus I now understand the [manufacturer's name] system is not so reliable.

Q_SERVICES: Which of the following services are provided by your maintenance contract?

Inspection is done, but don't know the frequency.

inspection once a year

They also agitate the peat filters

They replace parts but I have to pay for them

will report to the county on the process

Q_SEWAGE: How many sewage systems are on your property at [ADDRESS]?

None are on my property. It is on my neighbor's property at the back of his lot. They are all five acre lots.

One at the barn and one at the residence.

One for garbage disposal and one for the house water.

Q_SIZELOT: What size lot do you own?

don't own the lot

don't own the lot

Q_STATIS:

I just think that they should focus on the standard systems as well as the alternatives ones when drafting legislation.

The state government should consider adding a section in the new homebuyer's guide provided by the insurance and mortgage company inspectors that describes the maintenance and operation of the sewage system or alternative sewage system, and it should be detailed for comment to the state health department.

Q_SYSAGE: As far as you know, about when was your sewage system installed?

I assume when it was built.

The original one was put in about 1946 and was replaced in 2007.

Q_TESTKNOW: Are you familiar with field testing or laboratory testing on your sewage system?

It was only tested upon installation.

Q_THANKYOU: We really appreciate the time you've taken to help in answering these important questions. If you have any questions about the survey or the Center for Survey Research you may visit our website at www.virginia.edu/surveys

The operation manual that the inspector gave me had only a basic description of the sewage system.

Q_TYPE:

A concrete box that is the tank and then it is pumped to tubes

A hybrid conventional and alternative. A peat moss filter before the drain field. It is designed to protect groundwater resources.

Bio-Filter system

complete system

From a holding tank a pump pumps it up to the drain field. Maybe a septic tank as well.

Instead of going straight out to the drain field, it goes to two tanks.

It is a drip irrigation system.

It is a drip system.

It is a very sophisticated - tanks, with filters and a drain field on the other side of the house. A pump-up system.

It is mostly conventional with some modern provisions that may categorize the system as alternative.

It's like something that's used on a ship, like a planned purification system.

It's not a septic tank, it's a new system, The pipe coming from the house goes to the first tank, then to a second tank, then if they get full, the pumps come on automatically, pulls to the mound, which then goes to the drain field.

neither

Neither; the engineer said it was very new and only two others exist. Built in 12/2005.

Pur-flo

Pur-flo

The lot didn't perk. A long distance drain field. It crosses over to some other property.

There's an extra distribution box required in mine because of the way the land perked.

We have an aerator, but it's down in the ground. We have an aquarium pump that aerates under the manhole cover, from underneath the house. A separate pump pushes the solid matter into the tank.

We have an aerator, so it's not 100% conventional.

Q_TYPEMAIN: Which statement best describes how you maintain your sewage system?

- A company does the maintenance.

- A little bit of both.

- A maintenance contract is required in a fee - a homeowner's sewage maintenance fee. An electronic monitor he can do off sight to see. To maintain a warranty on the system we pay directly to a company which does the maintenance. Not like a community up-fee; that is separate.

- both

- I have not had any problems.

- It does not need maintenance.

- Ours is new.

- She does nothing pertaining to routine maintenance. Routine maintenance is performed by a management company.

- That is why we pay our maintenance contractor. He cleans, monitors, and does our report mentioned earlier.

- The homeowner association hires a contractor and checks and maintains it every year.

- The landlord provides routine maintenance, but not the tenet.

- This system hasn't been in long enough. We have been instructed not to put any grease in the system.

Q_USESEWER: For how long have you personally used your sewage system?

- 1.5 years

- 1.5 years exactly

- 1year, 10 mos.

- A vacation home, we are there one week out of each month on average.

- A vacation house - used sewage system for about months a year for years.

- It has been there off and on since it was built.

- three

Q_WHENINSP: How long has it been since your sewage system was inspected?

- I inspect it. I make sure it's working.

- routine maintenance inspections

- when installed

Q_WHENPUMP: How long has it been since your sewage system was pumped?

- A brand new system, too new to need pumping.

- does not apply

- Has not been pumped yet,

- Has not needed it. It is not five years old yet.

- hasn't been

Haven't had it pumped yet.

I have only been there 15 months.

It has not been pumped since we moved in.

It has not been pumped so far - too new.

It has not been pumped yet as it has not been five years yet.

It has not been pumped.

It is coming due, haven't had it five years.

It is only two years old.

It is too new, not been pumped.

It's new. Not done yet.

Just built the house.

never

never

never

never

never

never

Never. It is a brand new system.

Never. I will do it this year. I have located access and am putting in a retaining wall.
new system

Not applicable, it has not yet been pumped; years old.

Not applicable. It has never been pumped because only 3.5 years old.

Not applicable. Not yet pumped once.

Not applicable. The system is only two years old.

Not applicable. It has not yet been pumped. It is only three years old.

Not applicable. Not yet done. It is only two years old.

Not applicable. The system is not yet two years old.

Not applicable. The system is only five years old.

not applicable; not yet

Not had it pumped yet. Has not been five years.
not yet

Not yet; only three years old.

System has not been pumped.

The system is too new. Have not had it pumped because it is not necessary.
too new -- never been done

Q_WHENREQ: The following is a short list of times when some people might be required by law to have their sewage systems inspected. For each one, please tell me if you agree or disagree

If it is done by a certified guy, you should not need an inspection by law.

If it is far enough out like every 15 years or more.

If repairs were done by a certified person, then I would be satisfied with that, but not if repairs were done by individuals themselves.

If the seller is required.

Inspection in addition to a reputable service provider should not be necessary.

Inspection requirement should be the same for alternative and conventional.

It depends on how the homeowner cares for the system, and on how much it costs. Someone should be required to inform the owner of the needs of their system, so they know not to abuse the system. Then the homeowner should be required to sign an acknowledgement and be held responsible.

It depends on if the system is close to other people and other homes.

It depends on the interval.

It depends on the system.

It depends on what kind of system it is.

It depends on what the repair might be. For example, if a problem occurs as a result of the circuit breaker, then no.

It depends.

Not if it is done by a licensed professional.

Only if it is required for conventional systems also.

Only if they're close to water bodies or sources.

Should be inspected by repairing maintenance provider. Nothing additional should be needed.

The person who does the repairs should inspect it and turn in the paperwork. Like an elevator inspector.

They made us put in a fancy system and there's no one that knows what to do with it. I don't know if I'll be able to find anyone to pump the solids out of it.

They're supposed to before they build to make sure the land perks.

Q_WHNRQINT: Would you say that you agree or disagree that people should be required by law to have their alternative sewage system inspected...

15, 17, 20 years or so

5-10 years

6 every 2-years

6 every to 5 years

Annually during the first seven years but, if deemed safe and reliable, then loosen up to every years after that.

At the interval where they say they should be pumped.

Based on how much you use it

between 1 and years

Depending on the warranty but at least once a year.

every 3-5 years

I think everyone should be required.

It depends on the alternate system. Some are more self-maintaining and require more maintenance. It is system specific.

It depends on what type of alternative system you have; some need more inspection because the nature of the filter.

It depends upon the type of alternative system. Some are more finicky than others. Hence, upon permitting, the schedule should be determined according to type.

It depends.

It should be based on usage.

Just whatever the manufacturer says.
 manufacturer's recommendation
 manufacturer's recommendations
 The same as a non-alternative requirement.
 There should be a stipulation informing buyer how long the septic system has been in use.
 When the property goes up for sale.

Q_WHNRQOTH: Is there another circumstance when you believe people should be required by law to have their sewage system inspected?

a flood
 A lot of systems that are traditional that are breaking down and need to be replaced by engineered systems.
 about every 5 to 7 years
 After a certain period of time, 5-7 years.
 After a natural disaster, like a flood.
 After an unusual amount of rain.
 after flooding (weather-related)
 After flooding or certain other natural events, groundwater contamination. If it's in a flood-prone place, which might even raise the interval of inspection.
 After heavy storms or floods.
 After some sort of natural disaster.
 after started and installed
 annual inspection
 Annually - I think Stafford County does this anyway.
 at a bank refinancing
 at initial installation
 At least every other year.
 at least once a year
 based on neighbors comments
 before obtaining a building permit
 Complaints by neighbors. Code enforcements. Health dept issues -- if they've noticed a high rate of illness coming from the house.
 During any change of ownership, not just buying or selling. A change of wills or deeds.
 Following a complaint by other parties to the health department.
 Following a complaint by other parties to the health department.
 following a problem
 For health reasons - some people have a bathroom in their house and just run a hose into the woods.
 Have it inspected by the county before a problem needs to be fixed, before the work is done.
 having repeated problems
 If a contractor does something wrong, and the county approves it, then it becomes the responsibility of the county and the contractor if they mess up.

- If a neighbor complained

- If a problem occurs.

- If causes problem to environment or damages ground water etc. then yes, but if it only affect the homeowner, should be optional, not required.

- If for any reason there was evidence there was leakage from adjoining property, for example.

- If I had a standard septic tank and my neighbors complained about smell and leaking sewage I think a mandatory inspection is appropriate. Same for any system, alternative or conventional.

- If it has repeatedly failed; monitored differently then.

- If it is commercial property.

- If it is found to be in violation of some environmental law then for some period afterward to enforce compliance.

- If it is near a spring or open water.

- If it will affect the neighbors it should be fixed and re-inspected for the common good.

- If it's causing health concerns to neighboring residences.

- If leakage occurs off property.

- If neighbors are complaining of problems with neighbors leaking sewage. A public health issue.

- If neighbors are having problems.

- If neighbors complains about leakage.

- If neighbors or others see soap suds or other elements coming out into the river by the house where an alternative system is located.

- If neighbors see something wrong.

- If neighbors smell foul odors or runoff.

- If one's septic system causes problems for other residents nearby.

- If someone complained about a problem.

- If someone complains about the smell

- If the alarm goes off.

- If the contents are coming out of the system into the ground. If there is some concern, soggy ground for instance, that is a health hazard and something should be done.

- If the system becomes environmentally unsafe, that is, in case of system failure.

- If there are issues with similar types within the county or state. If the controlling body is collecting stats with all users.

- If there are noticeable odors and water pooling,

- If there are obvious problems offending neighbors.

- If there is a contamination.

- If there is a noticeable problem then it should be inspected.

- If there is a problem, the system should be inspected and it should be inspected after the problem is fixed as well.

- If there is a problem.

- If there is a public health problem or to protect public health.

- If there is a strong odor in the area.

- If there is an ecological event. For example, if near a tributary and there has been pollution found from the upstream people.

- If there is ever a major failure.

- If there is some general environmental problem that indicates a sewage problem.

- _____ If there was a water quality problem in the area.
- _____ If there was any kind of physical damage to it like a tree falling on it.
- _____ If there's a problem that's noted in the area, or something's pertinent to the property that the home owner hasn't noticed.
- _____ If there's an obvious problem like odor or drains backing up.
- _____ if there's been heavy flooding
- _____ If there's enough warranted complaints from the area such as odor or leaking
- _____ If there's leakage above ground.
- _____ If they add an addition to their house that adds a bathroom.
- _____ If they are in a flood plain, it should be inspected. And especially after a flood it should be inspected.
- _____ If they modify it in any way.
- _____ If well water comes up, or if the quality of the well water is bad.
- _____ in the case of severe flooding
- _____ Inspect flows for alternative systems. Water pressure and pump inspections.
- _____ It should be a required law to have inspections when any significant land changes.
- _____ just frequently regardless
- _____ Maybe after a major event like a flood or release from the system.
- _____ On an annual basis.
- _____ once a year
- _____ Only if they're experiencing a problem with it, like if it's leaking.
- _____ Only when a builder or company initially installs it to ensure that it meets local health requirements; to make sure it is put in correctly.
- _____ Only when the law tells them to.
- _____ regularly - once a year
- _____ replace of system
- _____ severe storms
- _____ Should have it inspected at routine intervals, at least every 3-5 years to make sure it's working properly and to make sure it isn't leaching into the environment.
- _____ Upon alarm failure or visual failure or if we notice more leakage.
- _____ Upon complaints by adjoining land owners.
- _____ upon installation
- _____ upon installation
- _____ When adding on to a house or increasing the amount of bedrooms, etc.
- _____ when first installed
- _____ When it is first installed.
- _____ When it is first installed.
- _____ When it starts creating a health hazard for others.
- _____ When neighbors complain about smells.
- _____ When there is flooding.
- _____ Whenever there is a sewage bill, not If there is only an alarm.
- _____ Whenever there was any chemotherapy treatment done on anyone living in the house.

Q_WHOINSP: The Code of Virginia requires that only licensed operators perform operation and maintenance of alternative sewage systems. Should an owner of an alternative sewage system be required to have a maintenance contract to regularly inspect and operate his/her system?

Again, it depends on the type.

at appropriate intervals

Disposal of the waste should be monitored by the county, but the county shouldn't be allowed on your land, unless there's an obvious problem.

I think every system should have maintenance contracts that come with them, and there should be better maintenance by the people who design these systems in the first place.

I think it should be included with the installation.

I think this is another rip-off.

It should be required for all systems, not just alternative ones.

It's a good idea to have a compulsory contract only because it protects neighbors and other who may suffer from those who have alternative systems and neglect them. But, if compulsory, then the county better make sure there are enough contractors out there to ensure competitors and competitive pricing.

Just like a car.

Maintenance contracts are good but should be much cheaper. If you're going to regulate the maintenance, then you need to regulate the pricing of the maintenance and make sure there are licensed contractors doing the maintenance. They should be certified.

The owner should have the option to work on it himself.

The person who installed it should be the person who does the maintenance contract because they know the most about it.

There should be no requirement for something that I can do myself, but it should be available for those who need it.

They should have the option to be trained as a licensed operator so as to perform the maintenance themselves.

Q_WHYUSED: Why did you consult with the manual?

A poorly placed microprocessor. Company placed it on a bedroom wall.

Alarm went off and I used it to figure out what I should and should not do.

Alarm went off.

Alarm went off.

Alarm went off.

An alarm went off.

basic knowledge

Because it was new.

Because the alarm on the neighbors' system was sounding while the house was vacant.

Because the alarm was going off.

curiosity

Every time the alarm goes off and every time we want to figure something out.

for installation

I knew the man had quit coming to check the system, and I needed his name. I wanted to know why it smelled like dead animals. He said that was normal.

I specifically wanted to know the maintenance requirements so that we weren't getting ripped off by contractors and inspectors.

I wanted more information so I could talk to the man who was coming out in his own language; use the words that he uses.

I wanted to increase the blower pressure.

I wanted to know what you could put down toilet, what it would process.

I wanted to know where it was located because I put in basketball court.

I wanted to know where the filter was.

In order to install the pump, which he installed himself.

Just to familiarize myself with the "do's and don'ts".

Just to set it up initially.

My backyard caved in.

Need to do a repair.

Once the alarm went off and once there was an odor.

Our power went out.

Part of the system has an alert panel and I wanted to decipher the noise.

set the timers

She had a problem with odors which she assumed was the sewage system, but learned was in fact not.

the alarm

The alarm went off and I wanted to see how to deal with it.

The alarm went off because the pump needed to be replaced.

The alarm went off.

The alarm went off.

The alarm went off.

The flow rate was improperly set causing the alarm to go off.

To find out why a light was on.

To make sure the system's lights were okay.

To show system to a friend.

to switch the line

Trying to see what could or could not be put down the drain.

We had the tank pumped the first time. We wanted to be familiarized with access points.

When it was going off.

When the breakers went out.

