



# **VDH RE-ENGINEERING INITIATIVE**

## **ONSITE SEWAGE SYSTEM PROGRAM**

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*Prepared By:*  
**E. L. Hamm and Associates, Inc.**  
**4801 Columbus Street, Suite 400**  
**Virginia Beach, Virginia 23462-6751**  
**757-497-5000**  
**Fax: 757-497-5707**  
**E-mail: [elhamm@verizon.net](mailto:elhamm@verizon.net)**

**E. L. Hamm & Associates, Inc.**

## TABLE OF CONTENTS

I. EXECUTIVE SUMMARY .....	1
II. INTRODUCTION.....	4
A. Virginia's Onsite Sewage Program.....	4
B. Sewage Handling and Disposal Regulations.....	5
C. AOSE Regulations .....	6
D. Study Methodology.....	7
III. THE CURRENT REALITY .....	10
A. Business Process at the Field Office level .....	14
B. Business Process at Central Office level.....	16
C. Business Process for Soil Scientists .....	18
D. Business Process for database system (VENIS) .....	19
E. Current Shortcomings with Processes.....	19
IV. THE BUSINESS CASE .....	29
V. WEAKNESSES OF CURRENT BUSINESS MODEL .....	39
VI. STRENGTHS OF NEW BUSINESS MODEL.....	41
VII. FINDINGS, CONCLUSIONS and RECOMMENDATIONS .....	43
A. Current Reality.....	43
B. AOSE Program.....	53
C. Regulations.....	62
D. Communications .....	68
E. Staffing .....	74
F. VENIS Database.....	83
G. Regional Differences.....	87
VIII. RECOMMENDATIONS SUMMARY .....	92
IX. VDH BEST PRACTICES FOR ONSITE SEWAGE SYSTEM PROGRAM .....	100
ATTACHMENT A: DATA COLLECTION AND ANALYSIS .....	103
A. Survey Methodology.....	103
B. Analysis of Survey Return and Interview / Visit Data.....	103
C. Survey Findings.....	106
D. Survey Results Summary Observations.....	111
ATTACHMENT B: NARRATIVE RESPONSES SORTED BY STAKEHOLDER TYPE....	118

# VDH Reengineering Initiative Onsite Sewage System Program

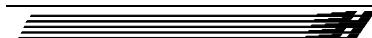
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## I. EXECUTIVE SUMMARY

As part of the ongoing statewide initiative to improve business processes and operating efficiencies among the various agencies in the Commonwealth of Virginia (see <http://www.future.virginia.gov>), the Virginia Department of Health (VDH) commissioned this study of its Onsite Sewage System program. The study period commenced in September 2005 and concluded in early 2006. This document represents an analysis of the current business model of the VDH Onsite Sewage program, and is intended to provide findings, conclusions, and recommendations for system efficiency improvements. The goal of this study is to understand the current business model and processes, i.e. the current reality, of the VDH Onsite Sewage Program; to offer ideas on how the current reality might be improved in the near term; and to offer ideas on defining the “to be” organization and the appropriate services it should be offering in light of the current discussions about the proposed changing role of the onsite sewage program. These discussions include the accommodation of the private sector integration into the program.

The functional area candidates for efficiency and qualitative improvements include the VDH timeliness of services, VDH consistency of services, the appropriate services that VDH should be offering to fulfill its public health mission; the AOSE program; Sewage Handling and Disposal Regulations (SHDR) and Authorized Onsite Soil Evaluators (AOSE) regulations; overall onsite sewage program communications; VDH staffing; VENIS database; and regional onsite sewage disposal issues. VDH has been wrestling with many of these issues for some years.

The current reality of the VDH Onsite Septic Program is that the program is vital to the general public environmental health of the Commonwealth of Virginia. The climate of rapid residential growth driving exponential increases in demands for the direct services of site and soil evaluation, system design and installation inspection is outstripping the capacity of VDH to keep pace. VDH field staff levels have remained flat over time in the face of these increasing demands. Backlogs of septic permit applications are continuing to occur in localities that are experiencing rapid growth, and in localities where there is an increasing need for the use of engineered, or alternative, systems. There is an increasing need for alternative septic systems as increasing residential growth pushes owners to find solutions for marginal soils and geology. The exponential growth in the value of buildable land is also putting pressure on the increasing reliance on alternative systems. The AOSE program was initiated to help relieve the pressures of increasing demand for onsite septic permitting services; and indeed it did contribute to improvements relating to some of the problems that existed under the system that preceded the



implementation of the AOSE program. The AOSE program has become a bit contentious between the AOSEs and the VDH permitting staff over the functions of site and soil evaluations, system design and system installation inspection. Direct competition exists between the public and private sectors over this work. The public sector competes for the direct services part of the permitting process with subsidized prices, i.e., its costs are not fully supported by user fees, while the private sector provides its services at market prices. The public sector and the private sector are providing the same services of site and soil evaluation, system design and inspection at different prices; while at the same time, the public sector maintains oversight and regulatory control over the private sector. This is a cause for friction and is holding the program back.

Historically, the VDH has expended its resources on the permitting process, which includes the direct services of site and soil evaluation, system design and installation inspection, and not on risk assessment, monitoring or management of the existing systems. The private sector has the technical capability to adequately provide the direct services of site and soil evaluation, system design and installation inspection; consequently, this can allow the VDH to focus its resources in areas that can more fully realize its public health mission and assure that public health and groundwater supplies are adequately protected.

This study recommends that the VDH develop and implement a mechanism for handing over the delivery of the direct services of site and soil evaluations, system design and system installation inspection to the private sector. Completing the transition of these services to the private sector would allow for the free and open market to stabilize the process. VDH will remain responsible for the oversight and regulation of the AOSE program. In those areas of the state where providing these services is unprofitable or there is a large indigent population, VDH will need to provide for the services through unconventional or alternative means, such as subsidizing the private sector or enlisting help temporarily through related industries. It might even be necessary to continue to provide the direct services part of the septic permitting process throughout a transitional period as a provider of last resort to the indigent and in those areas of the state that are not adequately serviced by the private sector. The transition period should be long enough to allow for orderly change, but the process should be encouraged to move along at a rapid, albeit orderly, pace. In the meantime, the transition period will allow VDH to move toward its new vision and business model, which will include implementation of the ten essential environmental health services, and development of the core competencies necessary for implementation.

VDH needs to move toward its new vision and business model as quickly as possible; however, the transition from the current business model should be controlled and deliberate in order to avoid disruption of those services that protect the public environmental health. The current business model, or reality, can be improved with some short term measures intended to make the current process flow better; thereby addressing some of the current problems with backlogs, while providing a sounder base for a transition to a new vision. Those recommendations provided in the Findings, Conclusions and Recommendations section of this report that can improve the current reality while VDH moves toward a new vision include the following:

1. Improve the process for accepting applications with support staff dedicated to this part of the application process, as illustrated in a best practice.
2. Improve the data entry process for EHSs by providing for automatic upload of data.

3. Improve the data entry process for AOSEs by providing web interface to accept applications online with automated Level I review.
4. Level the competitive field by changing the VDH fee structure to charge for delivery of service. Continue to provide subsidized fees for the indigent.
5. Stop performing certain services by VDH staff, such as certification letters, subdivision reviews, re-visits on previously approved sites, etc., because the private sector is capable of performing these services.
6. Assert management control over the use of “deemed approval”.
7. Assess the management skills of VDH supervisors and managers, and offer management training.
8. Fund additional training opportunities through savings realized by retaining VDH employees, rather than having to train new employees.
9. Train clerical people to receive and review applications for completeness.
10. Assure that all in-band adjustments to pay are made where experienced staff are being paid less than new hires.
11. Develop and foster better use of VENIS for data collection and evaluation. Provide the necessary resources to maximize the utility of VENIS.

## II. INTRODUCTION

### A. Virginia's Onsite Sewage Program

The Virginia Department of Health (VDH) is a large state agency that is statutorily required to administer a comprehensive program of public health services. Through Section 32.1-2 of the Code of Virginia, the general assembly outlined the purpose and priorities for public health with the following language:

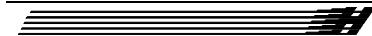
The General Assembly finds that the protection, improvement, and preservation of the public health and of the environment are essential to the general welfare of the citizens of the Commonwealth. For this reason, the State Board of Health and the State Health Commissioner, assisted by the State Department of Health, shall administer and provide a comprehensive program of preventive, curative, restorative and environmental health services, educate the citizenry in health and environmental matters, develop and implement health resource plans, collect and preserve vital records and health statistics, assist in research, and abate hazards and nuisances to the health and to the environment, both emergency and otherwise, thereby improving the quality of life in the Commonwealth.

VDH's mission is to achieve and maintain optimum personal and community health by emphasizing health promotion, disease prevention, and environmental protection. VDH is located at the James Madison Building, 109 Governor Street, Richmond, VA 23219, with 35 districts and approximately 175 health department sites located throughout the state within those districts.

In its January 2000 report "Review of the Performance and Management of the Virginia Department of Health", the Joint Legislative Audit and Review Commission (JLARC) identified VDH's onsite sewage system and permitting process as one of six focal points for needed improvements. More pointedly, JLARC emphasized the need for the VDH to improve the timeliness of the permitting process for septic system permits. An earlier piece of legislation, Senate Bill 415, provided for certification letters to be issued instead of construction permits in some cases. In addition, the new law established a timeliness standard for the permitting process by requiring the health department to contract with an Authorized Onsite Soil Evaluator (AOSE) for applications that are not processed within 15 working days.

The VDH also recognizes that there is an overall lack of consistency of services provided to its customers, as indicated by the growing numbers of complaints coming forth from all parts of the state. These complaints come from AOSEs, property owners, real estate practitioners, and other program stakeholders, which are often brought to light through political channels locally or at the state level.

Recognizing the issues raised by the JLARC report as well as those enumerated in the AOSE Ad Hoc Advisory Committee and the August 18, 2000 AOSE Program reports, VDH published its "Five-Year Report on the Status of Onsite Sewage Handling and Disposal" (2002) for the



governor and the general assembly.<sup>1</sup> VDH's 2002 report discusses significant improvements in environmental and public health protection that are being realized as a result of amendments to the Sewage Handling and Disposal Regulations, and because of the increased use of advanced (secondary and better) wastewater treatment. Also included in the report are data that detail the 52,129 requests for onsite approvals received by VDH in fiscal year 2000. A number of related topics, including an Onsite Wastewater Training Center, retention of VDH environmental health staff, and the need for alternatives to criminal enforcement are also discussed.

Out of that report and the discussions that followed, it was also determined that VDH must allocate resources to those activities with regulatory oversight. The regulatory oversight role is different from VDH's traditional role. VDH is currently redefining its mission and identifying the appropriate services it should offer in order to protect the public health and groundwater supplies.

## B. Sewage Handling and Disposal Regulations

The Sewage Handling and Disposal Regulations (SHDR), authorized under sections 32.1-12 and 32.1-164 of the Code of Virginia, became effective July 1, 2000 and was promulgated by the State Board of Health to:

1. Assure that all sewage is handled and disposed of in a safe and sanitary manner;
2. Guide the State Health Commissioner in his determination of whether a permit for handling or disposing of sewage should be issued or denied; and
3. Guide the owner in the requirements necessary to secure a permit for handling and disposing of sewage.

These regulations are supplemental to the current Virginia Sewerage Regulations, which were adopted jointly by the State Board of Health and the Department of Environmental Quality. The regulations are administered as follows:

1. The State Board of Health has the responsibility to promulgate, amend, and repeal regulations necessary to ensure the safe and sanitary handling and disposal of sewage.
2. The State Health Commissioner is the chief executive officer of the State Department of Health. The commissioner has the authority to act, within the scope of regulations promulgated by the board, for the board when it is not in session. The commissioner has final authority to adjudicate contested decisions of subordinate delegated powers under this section prior to appeal of such decisions to the circuit court.
3. The State Department of Health is designated as the primary agent of the commissioner.
4. The districts or local health departments are responsible for implementing and enforcing the operational activities.

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<sup>1</sup> Section 32.1-163.2 of the Code of Virginia requires the Board of Health to develop and revise as may be necessary a five-year plan for the handling and disposal of onsite sewage. The Code also requires the Board to report to the governor and the General Assembly every five years, beginning in 1992, on the status of onsite sewage handling in Virginia and the progress in implementing its long-range plan.

## C. AOSE Regulations

The Authorized Onsite Soil Evaluators Regulations became effective July 1, 2002, and replaced the Emergency Authorized Onsite Soil Evaluator Regulations (12 VAC 5-615) promulgated by the Board on January 3, 2000, pursuant to the 1999 Acts of Assembly, Chapter 871. The Emergency Authorized Onsite Soil Evaluator Regulations expired January 2, 2001.

Section 32.1-164 of the Code of Virginia provides that the State Board of Health has the duty to qualify individuals as authorized onsite soil evaluators (AOSEs) and establish procedures for utilizing the work of AOSEs and professional engineers (PEs) in consultation with AOSEs when issuing construction permits, certification letters, and subdivision approvals. Section 32.1-163.4 of the Code of Virginia provides that the department shall contract with an AOSE for the field evaluation of backlogged application sites and that the department shall only accept private evaluations from AOSEs. Section 32.1-163.5 of the Code of Virginia provides that the department shall accept private evaluations and designs for residential development from an AOSE or a PE in consultation with an AOSE and that the department is not required to perform a field check of such evaluations and designs prior to issuing an approval; the department may, although it is not required to, accept evaluations and designs from an AOSE, or a PE in consultation with an AOSE, for a proprietary, pre-engineered system that has been deemed by the department to comply with the board's regulations.

The AOSE regulations have been promulgated to:

1. Guide the state health commissioner in determining who should be listed as an authorized onsite soil evaluator.
2. Guide certified professional soil scientists and others in the procedures necessary to become and maintain the status of authorized onsite soil evaluator.
3. Guide authorized onsite soil evaluators and professional engineers in the processes and site documentation procedures necessary to secure timely responses to applications submitted to the department.
4. Establish standards of practice and conduct for AOSEs.

The AOSE regulations are supplemental to the current Sewage Handling and Disposal Regulations (12 VAC 5-610-20 et seq.) adopted by the State Board of Health pursuant to Title 32.1 of the Code of Virginia. These regulations address the department's program for qualifying authorized onsite soil evaluators, processing applications with AOSE/PE supporting documentation, quality control procedures, and enforcement.

The AOSE regulations are administered by the following:

1. The State Board of Health has the responsibility to promulgate, amend, and repeal regulations necessary to recognize and use the work of AOSE/PEs to site and design onsite wastewater systems in a manner that protects public health and the environment.
2. The State Health Commissioner is the chief executive officer of the State Department of Health. The commissioner has the authority to act, within the scope of regulations promulgated by the board, for the board when it is not in session.

3. The State Department of Health is designated as the primary agent of the commissioner for the purpose of administering these regulations.
4. The district or local health departments are responsible for implementing and enforcing the operational activities required by these regulations.
5. The Sewage Handling and Disposal Appeal Review Board may hear the appeal of an aggrieved named party in any case where the department has revoked a sewage disposal system permit, certification letter, or subdivision approval when that approval was issued in reliance upon the certified evaluation and design of an AOSE/PE.

## D. Study Methodology

The data to support this re-engineering initiative was derived from interviews, district visits, and a statewide stakeholder survey. Interviews and district visits were conducted in many of the VDH districts in the state. Most of the interviews were conducted in a face-to-face setting. The survey was supplemental to the interview process. Survey categories are based on the primary functional categories studied (Survey Structure Table 1). Of the surveys sent or given to stakeholders approximately 10% were returned (Survey Return Summary Table 3).

The data collection design, methodology, analysis and findings are contained in the Survey / Interview / visit analysis section. The varied data collection tools enabled stakeholder contact in over 89% of the health districts (VDH Onsite Study Contact Summary Table 4). Specific survey results are displayed in the Stakeholder results Summary Table 5 followed by the Survey Results Summary Observations.

### 1. Observations and Interviews

- Interview questions were designed primarily to elicit responses meant to provide a picture of the current reality, the processes, and business practices within the VDH onsite septic program.
- Twelve of 35 health districts were visited for face-to-face interviews with managers, environmental health specialists, supervisors, and directors. Of these visits, approximately half included field observations to view site conditions and topography, etc.
- Interviews were conducted face-to-face with representatives of various stakeholder groups such as AOSEs, professional engineers, county supervisors, real estate practitioners, property owners, and builder/developers.
- Face-to-face interviews were conducted with environmental health managers and soil scientists in Roanoke, Virginia during the Fall Environmental Health Workshop on November 2 & 3, 2005.
- Written responses to the interview questions were requested and received from an additional 17 health districts.

### 2. Survey

- Survey questions were designed to delve deeper into the current reality to provide data relating to 10 categories comprising the primary components of the VDH onsite program mission. Those categories were regulations, staffing, regional

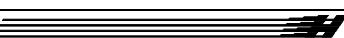
differences, lines of communication, technology, VENIS database, health department objectives, the current reality, best practices within the program, and problems within the program.

- The survey was sent via email to over 400 of the onsite program stakeholders with a request to return the completed survey electronically. It was also sent to every real estate board, or association, in the state for distribution to the members; and the overall response from this group was negligible.
- The survey was hard copy mailed in some instances, and hand delivered on a number of occasions. These responses were faxed or mailed back to the study team. All stakeholder groups were included in the solicitation for response to the survey questions.
- The survey response rate was just under 10%. This would be considered a good rate of response when compared to a more typical response rate of 4-6% for surveys in general. Surveys in general, however, usually target a broader audience than the target market for this survey. Considering the scope of a narrowly defined stakeholder group and the direct solicitation via email, there are several possible explanations for what should be viewed overall as a weak response:
  - 1) The stakeholders are not really as upset with the system as they appear publicly.
  - 2) Despite disclaimers of confidentiality, the stakeholders might have feared breach of confidentiality.
  - 3) The delivery mechanism – email – might have fallen victim to firewalls and spam blockers.

### **3. Data, Regulations and Policy**

In conducting this review, the study team:

- Interviewed VDH onsite program staff, AOSEs, PEs, and other stakeholders in the onsite program.
- Obtained and reviewed documents pertaining to the operational aspects of the VDH onsite program.
- Compiled and analyzed data within an Access Database about the operations of the VDH onsite program.
- Documented the processes and organizations of the VDH onsite program.
- Obtained information pertinent to the study from other agencies and organizations including Department of General Services, Department of Human Resource Management, Department of Environmental Quality, Joint Legislative Audit and Review Commission, United States Environmental Protection Agency, Weldon Cooper Center, Virginia Onsite Wastewater Recycling Association, AOSE Advisory Committee, and Planning District Commissions.
- Reviewed regulations and implementation manual, including Sewage Handling and Disposal Regulations, AOSE Regulations and AOSE Implementation Manual.
- Reviewed Guidance, Memoranda and Policy (GMP) documents.
- Developed and distributed Survey Questionnaire to onsite program stakeholders.



**4. Diagrams and Process Analysis**

- Workflow processes were observed and were the subject of interviews. “As is” workflow processes were captured and reviewed. All relevant processes were studied for efficiencies. Suggestions and recommendations were made as appropriate for efficiencies or improvements.

**5. Comparative Data Analysis**

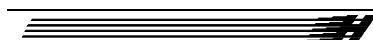
- This method was used to justify recommendations concerning expense reimbursement items.

**6. Cost and Capital Analysis**

- This method as used in the reviews of training expenses, potential lost revenues, and pay reviews and comparisons.

**7. Organizational Design**

- This method was required for recommendations for additional staff positions.



### III. THE CURRENT REALITY

This study addresses the onsite sewage program managed by the Division of Onsite Sewage and Water Services (DOSWS). The DOSWS is one of four divisions of the Office of Environmental Health Services (OEHS). Those four divisions include:

Food and Environmental Services  
Onsite Sewage and Water Services  
Shellfish Sanitation  
Wastewater Engineering

The VDH consists of 35 health districts, each with a supervisor, 32 with a manager, and most with an office support specialist. There are 386 environmental health specialists dispersed throughout the health districts. Available to the 35 districts via contract are four soil scientists for staff training, research and review concerning soils issues. The central office of DOSWS includes one director, three program managers, three professional engineers, and support staff. As of January 2006, OEHS added two new Environmental Health Coordinators, which will serve in the central office as liaison, or mediator for problems, issues or concerns that arise with the field staff or stakeholders; and one part-time web manager. The database system (VENIS) to support VDH is provided and managed by HealthSpace Integrated Solutions, Ltd., a Canadian company.

VDH continues to struggle with backlogs of septic system permit applications. The Virginia legislature created the AOSE program to provide for assistance from the private sector to help alleviate the application backlog problem. It has provided guidance and clarification throughout the years through GMPs. The backlog problem has been mitigated by various past efforts, however, the onsite sewage program is experiencing an extraordinary demand for ever increasing permitting services; and there are demographic and economic forces that continue to put upward pressure on this demand for services. The increased demands for permitting services are being driven by market forces that differ significantly from ten years ago. VDH, lacking the necessary resources, can only react to the intensity of the market demand, rather than plan for its direction. Market demand, it seems, will only be satisfied by market supply forces; in other words, the private sector, if given the opportunity, will rise up to meet the challenge of satisfying market demand through economic means.

The law of supply and demand predominates in the free market, influencing prices toward an equilibrium that balances the demands for the service against the available supply of the service. At equilibrium prices, the market distributes the service to the purchasers according to each purchaser's use (or utility) for the service and within the relative limits of each buyer's purchasing power. In economics, equilibrium means "balance" between supply forces and demand forces. Balance, or equilibrium, occurs when a market for a service, such as septic permitting, has attained the price where the amount supplied equals the amount demanded. In a free market, purchaser satisfaction alone would determine the success or failure of a particular service provider.



New goods and services are often very expensive for consumers and very profitable for producers. But because profits attract competitors and motivate a constant search for ways to improve quality and lower costs, consumers benefit from better products at less cost. The most successful firms are those that figure out how to reduce the cost of goods and services so that the masses can afford them. Few economic concepts are as misunderstood as profits. The common view is that firms increase profits at the expense of consumers. The truth is that profits are the consumer's best friend. The most effective consumer protection policy is one that allows firms to make as much profit as possible (without the help of government protections or subsidies). Profits are the most effective means consumers have of communicating their preferences to firms. Consumers will reward a firm with a profit only if the firm is using resources to produce the goods consumers value most. If a firm uses resources to produce less value than other firms could produce with the same resources, consumers will punish that firm with a loss and reward the other firms with profits. This allows the firms providing the most value to expand production by bidding resources away from firms providing less value. Furthermore, consumers' ability to reward some firms with high profits and punish others with low (or negative) profits results in lower prices. Indeed, firms with the highest profits often charge the lowest prices.

By completing the transition of the direct services of site and soil evaluation, system design and installation inspection to the private sector, VDH could allow the forces of the free market to flourish. At the same time, VDH could focus its resources on regulatory oversight - a function that could be provided by both the Department of Professional and Occupational Regulation (DPOR) and VDH. The pricing for these direct services will be subject to the laws of supply and demand, but the general demand for these services will be driven by regulatory practices. In other words, the public will be regulated into demanding the services, but they will have free will to choose the type, quantity and quality of services desired and the provider of services. It is the role of the VDH to make sure that the direct services of site and soil evaluation, system design and inspection are provided to the citizens of Virginia. In those areas where providing these services is unprofitable or there is a large indigent population, VDH will need to provide for the services through unconventional or alternative means. It may have to provide incentives for the private sector to provide services in those areas, or it may have to require a certain amount of pro bono work from the private sector, as is required of the legal and medical fields.

Having demand for a regulated service creates a guarantee that there will be a certain level of business for the service providers. The best providers will rise to the top and attract the most business. Competition from others will drive quality up and prices down, so that in the long run the consumer will be the winner. Like many industries, the individual proprietor and small company providing these direct services will be pressured by larger companies seeking some of the profits, further driving down prices. Ideally, privatization propels the establishment of social, organizational and legal infrastructures and institutions that are essential for an effective market economy. Free-market economics will force the industry to have the bureaucratic tools necessary to regulate it.

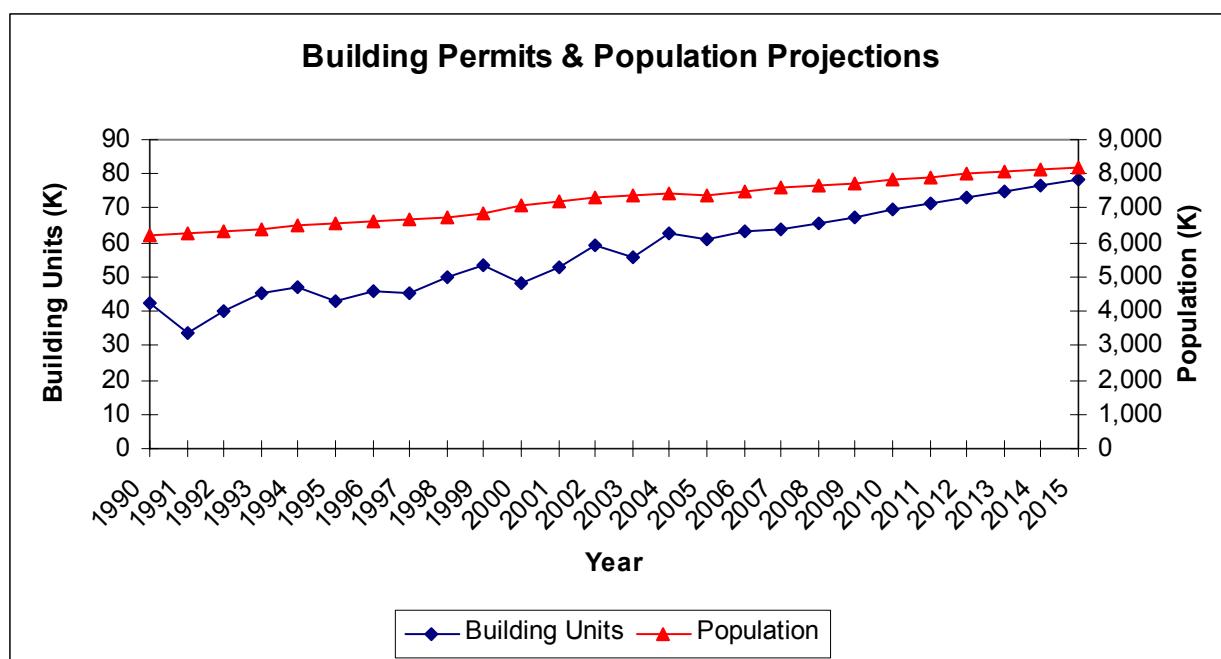
The Virginia Department of Health (VDH) estimates there are in excess of 1,000,000 onsite sewage systems in Virginia, with an additional 25,000 or more sites added each year. VDH approves approximately 30,000 construction permits, 5,000 certification letters, and 10,000 new subdivision lots each year. In new subdivision lots alone, the program affects more than

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\$500,000,000 worth of economic activity in the Commonwealth. For most of these approvals, VDH performs site and soil evaluations, designs and inspects onsite sewage systems, and/or performs quality assurance checks of private sector work to assure that groundwater supplies and public health are protected (32.1-163 e. seq. of the Code of Virginia). Many of the services VDH provides, such as site and soil evaluations, system designs, and inspections are also provided in the private sector through Authorized Onsite Soil Evaluators (AOSE) or Professional Engineers (PE) working in consultation with AOSEs. When the AOSE program gained statutory authority, AOSEs were completing approximately 20% of the roughly 40,000 annual construction permits, certification letters and subdivision applications submitted to VDH. That percentage is higher today, and significantly higher in districts such as Rappahannock and Lord Fairfax, where there is greater reliance on alternative systems because of soil conditions.

Overall, the state's population has been growing, and building permits within the state have been growing at a slightly faster rate. The VDH onsite sewage program activity is directly correlated to the rate of growth of building permits.



- 1) Building Unit historic data obtained from the Weldon Cooper Center for Public Service Demographics and Workforce web site. Building unit figures for 2005 through 2015 extrapolated from historic data.
- 2) State totals for building units used, if available. Includes estimates made by the Census Bureau for missing data.
- 3) 2004 totals for building units include no imputed data.
- 4) Population historic data obtained from Virginia Department of Health, Health Statistics Web site. Figures for 2005 through 2015 extrapolated from historic data.

Residential septic permit applications in the Commonwealth of Virginia in recent years have been exploding in some parts of the state. Twenty or more localities receive a high volume of permit applications. These locations include Spotsylvania, Loudoun, Prince William, Fauquier, Caroline, Westmoreland, Northumberland, Lancaster, Middlesex, Gloucester, Bedford,

Chesterfield, Powhatan, Franklin, Isle of Wight, York and James City counties, and the cities of Suffolk, Virginia Beach and Chesapeake.

Driven by significant increases in property values in general, property owners now realize the significant value improvement of a parcel of land if it can be built upon or developed. There is now an abundance of new onsite wastewater technologies that provide an avenue to the potential development of parcels of land that previously had been unbuildable and worth considerably less money. Finding a sewage treatment system that converts a previously marginal building lot into a buildable lot has significant financial rewards for owners and developers.

The rapid development of onsite wastewater technologies continues to respond to the increasing demands of the public to overcome difficult site conditions in the Commonwealth. The number of VDH staff performing work is not keeping pace with the requests for approval. In Loudoun County, for instance, the number of applications per EHS doubled from 150 to 300 in 2004. The current approval processes for new technologies and designs are slow and burdensome; and the onsite sewage system stakeholders, including property owners, AOSEs, and PEs, are frustrated when new technologies are not yet available in Virginia. Further, guidance on the acceptable operation, maintenance and monitoring of advanced onsite wastewater systems by their individual owners is not yet fully integrated into the onsite sewage program.

Greater reliance upon technology and more private-sector involvement in the onsite program, particularly in the program for Authorized Onsite Soil Evaluators (AOSE), have increased the need for training and education for VDH staff and the private sector. VDH's program for AOSEs has been successful in speeding the application process for many citizens. However, it has also resulted in instances where VDH approvals were revoked after it was discovered that AOSEs had not properly certified the affected sites. These relatively few incidents have affected relationships between some AOSEs, local governments, citizens, and VDH.

Stakeholder interest in the onsite sewage program varies significantly depending on their geographic location within the Commonwealth. The following is a list of some of the stakeholder groups identified by VDH:

- Authorized Onsite Soil Evaluators
- Professional Engineers
- End-users (homeowners)
- Local government (planning, zoning, building departments)
- Septic System contractors
- Surveyors
- Well drillers
- VDH staff
- Realtors/Builders/Developers
- System and Product manufacturers
- Property buyers and sellers

VDH is responsible for adopting and implementing regulations governing private wells and onsite wastewater treatment and disposal. Its goal is to implement an onsite wastewater program based on sound scientific, engineering, and public health principles. The Division provides guidance, training, technical, and administrative support to over 300 field staff, who process over 40,000 permit applications annually. The field staff are primarily responsible for water and sewer activities, however, in some of the smaller districts especially, the field staff also perform other functions such as emergency calls concerning rabies, poisonings and environmental complaints, and restaurant, marina and campground inspections.

This section of the report will conclude with a discussion of the business processes within the VDH at the field office level, the central office level, for the soil scientists, and with the database system (VENIS). Discussion of the business processes will then be followed by a discussion of the issues and shortcomings surrounding those processes.

## A. Business Process at the Field Office level

The onsite sewage program responsibilities to the localities of Virginia include issuing permits for new construction of onsite septic systems; issuing permits for repair of onsite septic systems; issuing certification letters for individual parcels of land; and issuing certification letters for subdivision parcels of land. Generally, once the septic system is installed, the local health department has no further involvement with the system, unless there is a failure. The public health is minimally impacted during this stage of the process, i.e., before the first toilet flush. This is the stage, however, where VDH spends the bulk of its resources. VDH has not been spending its resources after the system is in use, and after the system is in use is where the public health is at risk from system failure. There is no risk assessment, no performance monitoring, and no maintenance programs of existing septic systems.

To complete the picture of the other parts of the process at the field staff level, the program has the responsibilities to:

- Issue, process and receive applications for onsite sewage systems.
- Address customer needs dealing with complaints, clarifications, etc., and draft response letters.
- Perform site and soil evaluations.
- Design conventional septic systems.
- Issue construction and repair permits, certification letters and denial letters.
- Inspect onsite sewage system construction/installation.
- Process subdivision review requests from local governments.
- Prepare formal reply to county on subdivision requests.
- Issue notices of violation.
- Hold informal fact-finding conference, and prepare findings of fact for informal conferences.
- Prepare informal opinions for county on zoning issues.
- Perform enforcement actions for non-compliance of regulations.
- Attend local government meetings on planned development.
- Enforce local ordinances adopted by county impacting sewage.

- Review existing septic systems for local building official.
- Review existing septic systems for safety, adequacy and proper operation.
- Perform Level 1 & 2 reviews of AOSE work.
- Advise changes to VENIS database.
- Keep informed of matters relevant to the onsite sewage program, including technological improvements.
- Budget planning for the district for the onsite program.

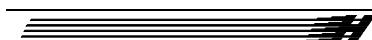
Direct outputs at the locality level include:

- Septic permits.
- Septic repair permits.
- Certification letters for individual lots.
- Certification letters for subdivisions.
- Bare applications for customers, including inspection and approval forms.
- Formal reply documents to county for subdivisions.
- Opinion letters to county for zoning issues.
- Denial letters.
- Notices of Violation.
- Response letters to constituent issues.
- Findings of fact reports.
- Reports concerning emergency issues.
- Reports concerning complaints.
- Administrative reports to central office.
- Management reports to central office.
- District budget.

Objectives at the locality level include:

Short-term objectives:

- Property owners can install septic systems.
- Property owners can repair septic systems.
- Septic systems operate safely within environmental guidelines.
- General compliance by all citizens with the regulations and guidelines put forth by local, state and federal entities through oversight, notification and enforcement.
- Citizens receive proper guidance and understanding of what is required of them concerning the installation, repair and use of septic system.
- Subdivision requests are processed adequately and expeditiously upon request by the locality.
- Community complaints are investigated and resolved.
- The VENIS database remains an effective management tool by keeping the data current, and by continually adapting to the needs of VDH.



Long-term objectives:

- Safeguard the public health by keeping sewage under the ground surface, and out of the groundwater and surface water.
- Safeguard the public health by assuring a safe drinking water supply.

## B. Business Process at Central Office level

The DOSWS, through its central office in Richmond, has responsibility for onsite sewage and water services throughout the Commonwealth of Virginia. The subject of this study is the onsite sewage program. As such, the primary responsibilities of the central office are to promulgate regulations governing the onsite sewage treatment and disposal. DOSWS provides guidance, training, technical, and administrative support to the field staff for the protection of the public health.

To complete the picture of the other parts of the process at the central office level, the program has the responsibilities to:

- Manage the Onsite Sewage program:
- Provide guidance and training to the field staff, to include the latest wastewater trends and technologies.
- Develop training center and its activities.
- Set up training conferences.
- Respond to constituent issues
- Assist field staff with high community-profile issues or disputes.
- Respond to political requests for intervention.
- Receive management reports from field offices.
- Generate management reports from VENIS.
- Provide review for large and/or complex sewage system designs.
- Develop policies and regulations, new and amended, for sewage, water, fees, and discharging systems.
- Interpret and enforce policy and regulations statewide.
- Develop and maintain policies and regulations for the AOSE program.
- Review plans and specifications for engineered systems.
- Manage the AOSE program:
- Hold Advisory Committee meetings.
- Process applications for AOSE certification.
- Administer written and field tests for AOSE certification.
- Enforce AOSE disciplinary actions.
- Implement the Indemnification Fund, process Indemnification Fund requests, perform field evaluations of failed sewage disposal systems, and draft recommendations.
- Provide training to VDH staff and appropriate private sector persons regarding indemnification policies.
- Process variance requests and draft recommendations to the commissioner.

- Process requests for new technology to be allowed for use in the state.
- Coordinate the preparation and presentation of formal appeals under the Sewage Handling and Disposal Regulations, and the Alternative Discharging Sewage Treatment System Regulations for individual single-family dwellings, including the development of findings of fact.
- Represent OEHS in administrative proceedings as authorized by the Attorney General.
- Represent OEHS with other environmental agencies such as DEQ and DCR.
- Develop Memoranda Of Agreement (MOA) with other state agencies.
- Administer special projects.
- Manage grants.
- Research designed to assist the division's staff in finding environmentally sound, cost-effective, permanent, onsite wastewater management solutions for citizens who do not have sanitary sewer.
- Administer VENIS database.
- Maintain DOSWS segment of VDH website.
- Inform and advise OEHS.
- Budget planning for the division, including special requests.

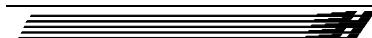
Direct outputs at the central office level include:

- Regulations for onsite sewage program.
- Regulations for AOSE program.
- GMPs for interpretation and implementation of regulations.
- MOAs
- Letters and email messages to staff for interpretation and implementation of regulations and policy.
- Response letters to constituent issues.
- Approval or denial letters concerning - the indemnification fund issues; variance issues; mass drainfield issues; AOSE application for certification; new technology requests.
- Findings of fact for appeal cases.
- Research-based solutions for onsite sewage system issues.
- Training programs guides and material.
- Grants.
- Minutes of AOSE Advisory Committee meetings and Sewage Handling and Disposal Advisory Committee meetings.
- Budget for division.

Objectives at the central office level include:

Short-term objectives:

- Local health departments are enabled to perform their prescribed duties.
- Field staff are adequately trained and informed regarding onsite sewage issues.



- Regulations and policies are adequately developed, interpreted and disseminated to all stakeholders.
- Persons may perform work as AOSEs.
- AOSEs are held accountable to their work.
- Information is timely and properly disseminated concerning AOSE Advisory Committee discussions.
- All constituent issues are addressed.
- Constituents receive decisions concerning their requests for variance, indemnification and product approval.
- The VENIS database remains an effective management tool by keeping the data current, and by continually adapting to the needs of VDH.

Long-term objectives:

- Safeguard the public health through more effective sewage regulations and policy.
- More AOSEs to design and inspect sewage systems and wells.
- More effective communication and collaboration on regulation and policy changes.

## C. Business Process for Soil Scientists

The VDH, through the OEHS, has contracted with Virginia Polytechnic Institute and State University to make available to the field staff soil scientists to serve all health districts in the Commonwealth of Virginia.

To complete the picture of the other parts of the process for the soil scientists, the program has the responsibilities to:

- Train the VDH staff and AOSEs in matters pertaining to soils.
- Review soil properties at controversial sites as requested by EH managers, and provide site and soil evaluation reports.
- Testify as expert witness at formal hearings.
- Research soil issues as related to onsite sewage and report research findings.

Direct outputs for soil scientists include:

- Site-specific soil reports.
- Research findings pertaining to soils.
- Training documents pertaining to soils.

Objectives for soil scientists include:

Short-term objectives:

- Provide recommendations to VDH field staff concerning appropriate actions for specific permit applications.
- Provide research findings to stakeholders for educational and training purposes.

Long-term objectives:

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- Improve the knowledge base of VDH staff and AOSEs to enhance evaluation techniques for site and soil conditions throughout the state.

## D. Business Process for database system (VENIS)

The OEHS employs HealthSpace Integrated Solutions, Ltd. to manage its data. HealthSpace initially developed the VENIS database system to accommodate the restaurant inspection function, and later expanded it to provide for a data collection system for the onsite sewage program and the private well program. This legacy system employs a hierarchical approach, rather than a relational approach, to storage and retrieval of data, resulting in multiple entries of the same data pieces to accommodate different reports. By-products of this approach are higher risk of error at input, and the likelihood of missing the inclusion of some data when certain reports are generated.

The database process develops the responsibility to:

- Provide, maintain and update the database for the DOSWS onsite sewage program.
- Provide, maintain and update the database for the DOSWS private well program.
- Provide, maintain and update the web site for the DOSWS.

Direct outputs for the database process include:

- Functioning database with current information.
- Current, user-friendly Web site.

Objectives for database process:

Short-term objectives:

- A more efficient and useable database for VDH.
- A current web site that is easy-to-use by all stakeholders and citizens in the Commonwealth of Virginia.

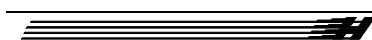
Long-term objectives:

- VDH has a reliable and efficient source of data that is an effective management and research tool.
- VDH has a reliable and efficient web site that can be easily accessed by all seek information there.

## E. Current Shortcomings with Processes

### 1. Field Office Issues

The primary business processes have evolved into an entrenchment of the performance of mundane activities by the field staff. The mundane activities are geared to determining whether site and soil conditions are adequate for the installation of a sewage treatment system on a particular parcel of land, and then issuing a permit to allow construction or repair of a suitable system. This is a greatly simplified view, but it accurately reflects the thinking of many in the



VDH. The “hands in the dirt” activities are performed with the intention of protecting the public health by providing for conditions that are intended to safeguard the public water supply by preventing the introduction of sewage into the water supply. These needed services are comprised primarily of permitting activities for the construction or repair of onsite septic systems. The volume of these services has grown exponentially in recent years due to incredible growth in residential construction and the value of land, buildable land. With the advancement and technological improvements in engineered, or alternative, septic systems, parcels of land that were previously of marginal value for building purposes can now be built upon. The current abundance of available alternative septic systems has contributed to the need for more time and effort devoted to consultation for the repair and design of onsite systems. Alternative systems require a more detailed site and soil evaluation than conventional systems, and more consultation with the property owner because of the complexity of most systems. The complexity of these systems has increased in part to overcome environmental issues of today.

The current agency paradigm of the VDH providing all or most of the needed onsite sewage services for the citizens of Virginia cannot continue. Today, the challenges are greater than ever for government to meet the demands of its citizens. The DOSWS onsite sewage program is bogged down with several vicious cycles that have been unbreakable - it is losing VDH employees to better pay in the private sector; it suffers low morale among the field staff due to heavy workloads and stress; and the division and its customers are frustrated with the perpetual backlog of septic system applications. Population and building growth, and the more prevalent usage of alternative systems designed for use in marginal situations, has spurred an explosion in the number of septic system applications in the Commonwealth of Virginia. Growth trends are likely to continue, but at a less dramatic pace. Inconsistent services from the VDH and backlogs are the norm. Constant budgetary constraints increase the pressure to do more with less. The number of VDH staff performing onsite permitting work is not keeping pace with the growing volume of applications. This is a weakness of the current business process. The costs of maintaining the status quo will result in continued processing delays, inconsistent VDH services, inadequate consultation, and further delay. The need to constantly put out the daily “fires” involving the permitting process distract the VDH from engaging in activities that would result in risk assessment and risk management of the existing onsite sewage program infrastructure. The program could be adequately described as a building permit program, rather than a public health program whose overall mission should be to protect the public environmental health.

Through regulatory channels, VDH has provided for private sector support of the onsite septic system permitting function through the AOSE program. The AOSE program has alleviated some of the productivity pressures by participation in the site and soil evaluation, system design, and installation inspection of onsite sewage systems. At the same time, the private sector AOSE program has been successfully luring experienced staff away from VDH through perceived better opportunities and higher salaries. VDH has trained over 175 new employees from a total staff level of about 350, which translates to over 50% turnover in five years. Of the newly trained employees, 38% have already left. Since 1999, 52 experienced employees have also left VDH employment. VDH estimates that it has spent 3.5 to 4.0 million dollars training new staff, not counting the processing delays caused by training new staff.

The AOSE program was created out of necessity; it has proved to be beneficial to the permitting process; and various areas of the state utilize the program at different levels because of varying needs stemming from soil variations. The AOSE direct services are more expensive to the public than VDH direct services, but those services are generally faster, and they have contributed to reducing, but not eliminating, the problem with backlogged applications in the permitting process. The AOSE program has flourished primarily because of increasing needs for alternative septic systems throughout the state. Some localities in the state have experienced unprecedented growth and depend heavily on the use of alternative, or engineered, septic systems. The terrain and geology of the Lord Fairfax district, for instance, necessitate the requirement for alternative systems in roughly 70% of new applications. In the Cumberland Plateau, likewise, the use rate of alternative systems is approaching 95%. AOSEs are absorbing the bulk of the workload involving alternative systems in many of these localities; but in the Cumberland Plateau and Lenowisco areas, for instance, AOSEs are not available in enough numbers to absorb the workload.

The Virginia General Assembly created the AOSE program through a legislative mandate to help alleviate the ongoing problem with backlogs of onsite septic applications. AOSE regulations were established to govern the actions of the private sector doing public health work. VDH has oversight responsibility for AOSEs, yet it competes against AOSEs for the same business, i.e., the direct services part of the onsite septic system permitting process. It competes for these services at subsidized prices that far undercut what the private sector can provide. Some areas of the state, such as Loudoun County and the Fredericksburg area, rely heavily on private sector participation in the onsite program, while other areas, such as the southwestern part of the state, only have limited participation by the private sector. Overall, the VDH still does the majority of all onsite permitting work. The private sector is having difficulty making major inroads because of a pricing imbalance. At the same time the VDH is competing with the private sector at subsidized prices, it also regulates and provides oversight of the private sector functions. The situation as it currently exists is a cause of friction between the two groups, and has led to a position of mutual mistrust. The public is caught in the middle. Some localities have gone so far as to require the VDH to complete a field review of 100% of AOSE submissions, which is beyond the scope of the AOSE regulations provisions and the business process.

Providing direct services such as system design services is unprecedented with other state agencies that are engaged in permitting activities. VDH does not design proprietary systems, but the design of traditional systems for onsite program applications has been standard practice. The private sector is the provider of choice for design services required by other agencies. Direct services such as this can be provided efficiently and effectively by the private sector for the onsite sewage program, as well. There are sufficient safeguards in place to provide the necessary protections to the public while allowing the private sector to provide the services. The private sector by design must be competent, knowledgeable and it is subject to oversight of its activities. The requirements for certification include: 4 years of full time experience, a 4-year science degree, as well as written and field tests. Further, any permitting activity is subject to quality assurance oversight through Level I & Level II reviews of applications, designs and installations of systems; and subject to regulatory oversight through enforcement actions and possible decertification.

The VDH should complete the transition of the direct services of site and soil evaluation, system design and installation inspection to the private sector. By doing so it would be allowed more opportunity to assess the risk from onsite sewage systems; communicate risk from failing sewage systems to the public; and manage the risk of onsite sewage systems using the 10 Essential Environmental Health Services. Risk assessment, communication, and management are not being addressed by VDH staff or the private sector. Consequently, in order to minimize the risk of human exposure to disease agents in the environment that are associated with onsite sewage systems, change in the business model is necessary.

Volume 18, Issue 2 of the Virginia Register of Regulations (October 8, 2001) putting forth the case for the proposed AOSE regulations, stated the following: "The Board of Health has a statutory mandate to establish a program for AOSEs (and PEs in consultation with AOSEs) and for accepting evaluations and designs from AOSEs and PEs. Under the regulations the Department of Health is not required to conduct routine field checks on submittals by AOSEs and PEs prior to making a decision to approve or disapprove an application. Errors in evaluation or design by an AOSE or a PE may result in costly delays for owners, potential damage to the environment and threats to public health, and in some cases loss of significant investments. Therefore, to minimize the potential for such errors and to protect the health, safety, and welfare of the citizens, it is essential that the regulations establish minimum qualifications for AOSE training and experience (and other requirements), as well as standards of conduct and enforcement procedures. Because "deemed approval" may result in the issuance of a permit, letter, or subdivision approval (for residential development) without any review by the department and because the department may only conduct field checks on a portion of the sites certified by AOSEs and PEs as part of its quality control and oversight duties, the regulations must establish minimum standards for the content of packages submitted for approval. These regulations are specifically intended to speed the processing of requests for onsite sewage system permits, certification letters, and subdivision approvals by defining roles and responsibilities for private evaluators and designers.

The primary advantages associated with the AOSE regulations are that citizens have an avenue for securing health department approvals (permits, letters, subdivision review) for residential development within very specific time limits by going to the private sector for evaluations and designs. This is a benefit in areas where the number of requests exceeds the local health department's resources, and applicants would otherwise have to wait for the health department to respond to their requests. Some citizens expressed concerns that private evaluations and designs may not comply with regulations and may be less reliable than the department's evaluations and designs. They asked that the health department conduct field reviews on all AOSE/PE submittals prior to approval. To these individuals the program represents a liability and a potential for environmental, public health, and financial losses. Some other issues associated with the program include 'deemed approval,' resolving difficulties with local ordinances and local governments, requirements for becoming an AOSE, and whether or not the department should conduct field checks prior to issuing an approval. Law mandates the provisions for 'deemed approval', and the board does not have discretion to include or exclude them from the proposed regulations. Many localities have ordinances governing onsite sewage systems that are more stringent than the Board of Health's regulations and most have subdivision ordinances that are unique. Some localities have been reluctant to accept the concept that a private

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evaluator/designer could provide the same level of public health and environmental protection as the local health department. The regulations provide that a locality may decide to include its more-stringent ordinances in the AOSE/PE program or it may hold those ordinances separate from the program. Those localities that choose to hold their ordinances separate from the AOSE/PE program will most likely experience delays in processing requests and some confusion on the part of citizens and AOSE/PEs seeking approvals. In such localities a submittal may be 'deemed approved' in accordance with the Board of Health's regulations but still require a separate onsite review to determine whether or not it complies with more stringent local ordinances. The regulations seek to establish a measurable and consistent standard for submitting subdivision requests. However, the subdivision process varies widely among localities. Differences in subdivision ordinances and local policies in some cases have necessitated working out new procedures with local subdivision administrators and local government officials. Some localities seem opposed to the program because they see it as eroding local control over growth and zoning and, that errors by AOSEs may result in problems for citizens. The regulations provide that the department will review a package submitted in proper form and it may make a decision to issue or deny approval without conducting a field check. Field checks are to be conducted on a percentage of the submittals as a quality control measure to assess the performance of AOSE/PEs and to protect public health and the environment. These field checks may be performed before an approval is issued or they may be performed at a later time. Many have expressed concerns that this will result in approvals issued for sites and designs that do not comply with the Board of Health's regulations. In addition to being consistent with the legislative mandate, the regulations are intended to ensure the quality of the private evaluations and designs through the adoption of appropriate AOSE training, testing, and experience requirements and through a quality control program with appropriate enforcement and disciplinary actions when needed."

At a stakeholders meetings facilitated by the University of Virginia's Institute for Environmental Negotiation that occurred between April and July 2000, multiple individuals expressed concerns about the issue of 10% random field checks since it increases exposure to potential financial, environmental, and health losses. However, it was determined that elimination of these concerns requires a field investigation for every application submitted. The participants decided that this option is not feasible given the lack of necessary personnel at the agency.

Mechanisms in the AOSE regulations to mitigate the financial, environmental and/or health risks associated with the work of AOSEs include:

- Holding the initial approvals subject to revocation at all times.
- Courtesy reviews.
- Improved AOSE education
- Experience
- Long-run free market forces

Courtesy reviews and deemed approval are seldom used even though the current business process makes allowance for and speaks to the need for both. As a practical matter, deemed approval is avoided at the local level because of the belief that the public health is at significant risk when used. Courtesy reviews are used sparingly in some areas and not at all in other areas.

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Personal relationships that are less than amicable account for some of the instances of non-use; while locally mandated 100% field review in some areas virtually eliminates the necessity in other instances.

The AOSE regulations did not provide for a financial assurance mechanism because the belief was that such a mechanism would primarily protect AOSEs and the property owners' interests rather than the public health. The belief has remained that, over time, "property owners are likely to be better informed about the potential financial consequences of hiring an AOSE and likely to request and promote a hedge against potential financial losses. Similar to the property owners, AOSEs will likely realize potential risks and have a need for insurance for their own financial protection. Faced by the demand for insurance from property owners and their own need, AOSEs are likely to start offering guaranteed or insured work to their customers. Since the insurance will not eliminate the risks but merely will shift the risks to someone else, both AOSEs and the property owners are likely to pay premiums to insurers in addition to the other associated costs with an application under the AOSE program. In this framework, information is likely to affect the speed of the market's development. For example, if disclosure of information regarding the associated risks in this program to the property owners were required, it would help create demand for insurance and mitigate potential risks faster."<sup>2</sup> This apparently is an element of the current business process that needs additional emphasis. Property owners and AOSEs alike do not have a clear understanding of, nor has a viable market emerged for, financial assurance mechanisms for onsite septic installation and repair. The dissemination of adequate information to AOSEs and the public (property owners) on this topic needs additional emphasis.

The oversight and regulation of AOSEs is important to the business process for obvious safeguard reasons. Allowing the private sector to participate in public health issues requires close observation and enforcement action when there is a violation. Enforcement power over AOSEs resides with the VDH central office, not with the field offices. The field offices generally report violations to the central office in Richmond, who then investigate the matter and begin enforcement procedures if warranted. The central office must maintain the integrity as well as the viability of the AOSE program; consequently, a certain degree of judgment enters into all decision-making regarding any enforcement actions. The field staff, on the other hand, many times expect a zero tolerance approach from Richmond in order to best protect the public health; even though the field staff do not uphold such high standards for their colleagues. A rule of reason needs to be employed here, and some field offices do not seem to make the connection.

Objectives set forth by the division regarding oversight and regulation of the citizenry of Virginia are largely going unmet. These objectives call for the safe operation of septic systems and wells within environmental guidelines. VDH knows that there are unsanitary sewage disposal situations throughout the state, but it does not have the data to quantify the extent. VDH knows that septic systems fail, but it knows the quantity only to the extent that repair permits are requested. The numbers are unknown of those systems that fail and do not get repaired for whatever reason, or that get repaired without the benefit of a repair permit. Data concerning these situations has not been collected, so an educated estimate based on trends and patterns is

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<sup>2</sup> Vol. 18, Issue 2, Virginia Register of Regulations, October 8, 2001, "Proposed Regulations" 12 VAC 5-615-10 et seq. Authorized Onsite Soil Evaluator Regulations.

what decisions are dependent upon for possible solutions. Citizens are to receive proper guidance and understanding of what is required of them, but this is done only to the extent that the VDH has contact with those citizens needing services, not so much with the public at large.

The number of VDH employees with five or more years of experience is declining over time as the private sector continues to hire staff who are qualified for the AOSE certification. VDH is hiring inexperienced staff and training them to perform site and soil evaluations and inspections for conventional systems. As VDH loses its experienced employees to the private sector, more resources are spent on training and staff development. VDH does not emphasize training new employees concerning complex, engineered, or alternative, system designs because new staff do not design or inspect those systems. Consequently, VDH is losing its field expertise regarding complex systems while the percentage of alternative system applications is increasing relative to conventional system applications. Alternative systems do a better job of reducing the amount of pollutants (nitrates, phosphates, and bacteria) in sewage than conventional systems. VDH's expertise to manage and monitor engineered, or alternative, systems is being reduced over time. Field office staff are charged to stay abreast of onsite sewage program matters, including technological improvements. The central office, similarly, is charged to provide related training to the field staff. The central office does provide such training, however, the field staff would like to see more training opportunities being made available, even though much of the training made available to them goes unnoticed or unused. This situation represents a diversion from the current business model.

"Bare applications" are applications without any supporting documents. Even though the overall number of "bare applications" is rising, the number of "bare applications" being processed by VDH has been falling due to AOSEs accepting some of that work. However, the numbers of these applications being processed by VDH continues to be significant. To process a "bare application" typically requires 3 to 4 hours of VDH pure processing time, however, this time does not allow for travel to and from the site, multiple visits, unusual circumstances, interruptions or other duties. Whereas to review this type of application supported by the private sector only requires less than an hour of review work by VDH. A significant element of the application process involves the amount of time necessary to perform the site and soil evaluation.

Certification letters were introduced initially as a step to help alleviate the application backlog problems. The procedure to bring about a certification letter is less cumbersome and time-consuming than for a construction permit because a septic system design is not required for a certification letter. Certification letters were intended to divert some of the demand for construction permits. It was intended that property owners would request the certification letter for real estate transfers to ease the demand for construction permits. The reality is that property owners are routinely requesting construction permits for real estate transfers, thinking that this puts the property in a stronger position for building purposes than a certification letter. This apparently results from a lack of understanding of the difference between the letter and permit. VDH field staff or the private sector should be more perceptive to the needs of the customer when using these tools.

## 2. Central Office Issues

It is the responsibility of the central office to develop and interpret policy and regulations statewide. Regulations have been written and disseminated throughout the division, to stakeholders and the public. Amendments, interpretation, clarification and guidance are promulgated from time to time through GMPs, emails and other methods. Regardless of the method of delivery, however, there continues to be misunderstanding of regulation and policies among many employees in the field and stakeholders. Misunderstandings result from numerous causes, such as:

- The overall complexity of the state regulations and policies.
- Further complication of the regulations and policies by local ordinance.
- Local department interpretation and implementation of the regulations, policies and ordinances.
- Individual VDH employees' own interpretation.
- Stakeholders' own interpretation.
- The unique characteristics of each application that often require individual judgment decisions.

The lack of a consistent, calculated and measured response from the central office to the field, where every word creates nuance and implication, can be a major contributor to misunderstanding. The tendency in the field is to call someone in the central office when a question or issue arises. Often there is a customer pressing for a quick response, so the VDH field employee will call until they reach the first available central office staff person. For speed and efficiency sake, the central office person will often provide an immediate interpretation and the conversation ends. Problems develop when two different field staff encounter similar problems or issues, but reach two different central office staff with their similar questions. Slight differences in wording of the response can lead to different interpretation or implementation in the field. This situation, however, should be sufficiently mitigated by the recent employment of two "coordinators" in the central office who are to be the "go to" individuals for issues and problems in the field. Having these two coordinators available to field requests for help, coordinate an appropriate response and follow up the interpretation/response in writing to the stakeholders for future use should be effective in leading to better understanding among the agency and its stakeholders.

Objectives for the short term provide that the central office guide, assist and support the field staff for the protection of the public health such that the field staff are adequately trained and informed regarding onsite sewage and well water issues. VDH staff are not allowed to design any system other than the conventional system so as not to create a conflict of interest resulting from its capacity to approve such systems for use in the state. Consequently, training, both initial training for new EHSs and any ongoing training efforts, do not focus on advancements in new technologies. Most efforts to increase one's knowledge base in this realm come from individual effort to secure information from system manufacturers and the Internet. This puts the VDH employee at a disadvantage when oversight of the private sector work is required. Coupled with the loss of experienced VDH personnel to the private sector, oversight of the private sector could become difficult or impossible for a portion of the work performed by the private sector.

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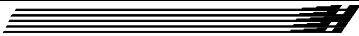


The development, interpretation and dissemination of regulations and policies to all stakeholders are important to the business process of the onsite program. Regulations and policies (GMPs) are posted on the VDH website for easy access to all interested parties. They are viewable on-line and easily downloaded and printed if desired. This is the base body of information that drives the division in directing its onsite sewage program for all stakeholders. Not as readily available are the interim or impromptu interpretations that emerge from time to time in response to issues or problems that regularly occur. Generally, responses to these issues are informal in nature, and will be responded to verbally or via email. These informal responses should be shared with the entire stakeholders group when appropriate, or as a practical matter, at least with the daily practitioners, i.e., all VDH employees, AOSEs and PEs. The key to effective dissemination of information involves the consistency of the availability of the information; in other words, is the information consistently available in the same place so that whoever wants to see it knows exactly where to look? This type of system of dissemination would serve to nullify one of the big gripes among some VDH field staff and many AOSEs that they were not notified concerning pertinent information.

Another important element of the onsite program business process involves the regulation, oversight and management of the AOSE program. This has been provided for through the AOSE regulations and the guidelines for implementation, and it has been examined in the AOSE section of this report above. An element of the program that the division holds out as a short-term goal, however, is to hold AOSEs accountable for their work. The current reality of the situation is that when all else fails, the VDH will be there as the safety net to correct any problem. This is the perception held by the public, by local governing bodies, to a lesser degree by VDH field staff, and even by AOSEs themselves. The accountability and liability issue was anticipated and provided for in the AOSE regulations, however, the approach was to allow the market forces to evolve into a self-sustaining system. For a system to evolve to efficiency and self-sustainability it is dependent on the evolution of all parts of the system, in this case, the accountability chain should include the system manufacturers, installers, pumpers, maintenance companies and property owners. Having a zero tolerance for failure or problems simply pushes the problem into the lap of the VDH to determine and implement a satisfactory remedy. Repair of the problem is the primary concern; accountability is a secondary concern. The safety net syndrome of the VDH simply serves to reinforce the unaccountability problem with AOSE program in many localities throughout the state.

Long-term objectives for VDH include the need to safeguard the public health through more effective sewage regulations and policy. The current regulatory paradigm has the majority of VDH expenditure of resources occurring during the analysis, design and installation stage – before the system is used. There is no provision for assessment of risk, nor is there provision for monitoring of maintenance and operation. There is no reliable data for the actual number of septic systems in Virginia, or for the number of failures. There is no provision for septic system maintenance in Virginia. Of course, without maintenance, failures are more prevalent. There are no VDH guidelines for septic system installers, pumpers and system operators. Monitoring and reporting of this data for advanced systems would be a key element of any attempt to do analysis and research concerning onsite septic systems. The resources are not being used in this regard at the present time in Virginia. Any data that is being collected is not routinely shared with elected officials, the public, or other decision-makers.

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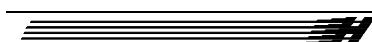
### 3. Database Issues

The VENIS database is not being used to its full potential by the field staff. With one exception, the study found that the field staff regard the VENIS system to be cumbersome, slow and not user-friendly. At least two health districts report the data output to be unreliable, to the point where it is not used for budgetary requests before local governing bodies. Management reports and research reports are not trusted for accuracy. Data input requires multiple entries in order to populate all output reports with the same data. This allows more opportunities for error. In fact, some local health departments and districts maintain a completely separate database for use internally, in front of local governing bodies, and for reporting data to the central office. Two health districts reported that they maintain a separate database in conjunction with the local county databases in order to access and utilize the counties' GIS mapping and land records. The VENIS database, in its current state, is not an effective management tool, either at the field office level or at the central office level. The central office use of VENIS is dependent on the input of data from the field offices, and this is sporadic. Various local health departments prepare management reports, for internal use and for submission to the central office, in Excel spreadsheets rather than VENIS. This tends to result in the necessity to manually assemble data for reports at the central office.

The current database system has led to a situation where the same data is being entered multiple times, and into more than one system. Consequently, the users of the system are not satisfied with the system or its output. VENIS is complex and redundant, two features that adversely impact data quality. There are efficiencies to be gained and costs can be reduced by getting rid of redundant, legacy applications and getting processes to run faster. If the process is more manageable, then fewer staff are needed to operate the system. As it is, some local health departments do not use the system properly, and some do not use it at all. In order for the division to be able to see everything across the organization, it has to have good and reliable data. The "ownership" of the information management function needs to be at the top of the organization primarily because standards need to be pushed down from the top: development standards, data standards, and content standards. The top of the organization sets the standards and the prioritization, but ideas and feedback need to be heard from the users down the line and integrated into the information management function.

Use of the database system by the field staff has also been hampered by an ineffectual system of training. Basically a "train-the-trainer" system has been used whereby a "PAC" (VDH employee – usually the manager) at each local health department office is trained to use the database system. This person then attempts to train the others in the local office. This person may or may not be adept at training other people, and usually does not possess the depth of knowledge about the database system to properly deal with extraordinary or unusual occurrences, which, in actuality, are commonplace. This leads to frustration and confusion, and ultimately to insecurity about using the system, followed by implementation of a backup system to assure accuracy in the data. This defeats the purpose of the information management function.

The VDH website continues to improve and is updated with pertinent information and guidance for the VDH field staff and AOSEs/PEs. It is easy to find and easy to use by any interested party.



## IV. THE BUSINESS CASE

VDH is alone among state agencies in delivering direct services, such as site and soil evaluation, system design and installation inspection, to the citizens of the Commonwealth of Virginia in terms of analysis and design of specific systems to be used for environmental purposes. The VDH services include site and soil evaluation, system design, system construction inspection, consultation, review of AOSE work and final approvals. Other agencies tend to only consult, review and approve systems having an environmental impact, and the numbers of these systems is significantly less than the 40,000 plus applications for permits and certifications requested of the VDH annually. VDH should change its business model to align itself with other state agencies that provide environmental regulatory oversight.

The delivery of site and soil evaluations, septic system design, and system construction inspection services is time consuming, and becoming even more so with the advances in technological improvements leading to more complexity in engineered septic systems. This, coupled with dramatic increases in public demand for onsite septic permitting services, has produced an onsite program fraught with backlogs, inconsistent services and inadequate consultative services to property owners. Many within VDH, as well as the various stakeholder groups, feel that the conditions are such, and the timing is appropriate, to complete the process to transition the direct services of site and soil evaluation, system design, and installation inspection to the private sector. The AOSE program, i.e., the private sector, was initiated to be a safety valve for the excess demand for permitting services that was not being met in a timely fashion by VDH. The AOSE program has been absorbing a greater percentage of the onsite septic system application business every year, and that trend is accelerating due to more reliance on alternative systems. With limited government resources, growth of the VDH workforce cannot keep up with market demand. Most debates will conclude that the free and open market will always lead to faster, more efficient, and in most cases, cheaper services through competitive forces in the long run. Time is money arguments and tax subsidized services arguments will always favor the open and free market forces. The direct services of site and soil evaluation, system design, and installation inspection can be performed faster and more efficiently through the private sector.

Several dichotomies exist with the VDH in competition with the private sector for septic permitting services. One is that VDH is proving to be a training ground for AOSEs who get their training and experience with the VDH and then jump to the private sector for higher salaries. The expenses related to training and gaining practical experience are high for VDH. From a competitive standpoint, this is not a desirable situation. Two, VDH competes with AOSEs for the direct services part of the septic permitting process, yet it is charged with regulatory and oversight functions of the AOSE program. Three, by competing with the private sector for the direct services part of the septic permitting process and providing subsidized fees, the VDH is actually undercutting the competitive market forces, which tends to slow the rate of growth and prosperity of the AOSE program. The AOSE program needs to be able to manage and monitor itself in order to nurture the necessary degree of professionalism for it to grow and prosper.

The VDH, on the other hand, needs more opportunity to assess risk within the onsite sewage program in the Commonwealth of Virginia by way of data collection; and then it needs to be able to effectively manage risk within the onsite program through evaluation of the data. Data by

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itself is not knowledge, but it is the first step in the progression toward knowledge. The progression to knowledge goes from data to information, from information to facts, and finally, from facts to knowledge. Once knowledge is gained, the risks associated with that knowledge could then be effectively communicated to the public. The ultimate goal of assessing, managing and communicating environmental risk is to minimize the risk of human exposure to disease agents in the environment. What the VDH does know as a result of a study of private wells by B. B. Ross, et al, Virginia Tech Extension Services concluded in 2000 is that well water contaminations are at unacceptably high levels in the state. It showed that over 30 percent of water supplies tested positive for coliform bacteria and over 10 percent tested positive for fecal coliform. The results of this study point directly to the need for more monitoring and research concerning wells and drinking water. Monitoring and research is not adequately performed in Virginia under the current business model.

The preponderance of circumstance and evidence suggests that the VDH should allow the private sector to provide those services that it is capable of providing, for which there is a profit motive, and for which competitive forces eventually will stabilize the cost – i.e., site and soil evaluations, septic system design and installation inspection. Along with the profit, the private sector will also assume the requisite responsibility and liability for the services. By facilitating this occurrence, the VDH can then proceed to realizing its vision of the future: Implementing the 10 Essential Services of Environmental Health in the onsite program.

The principal architect of the 10 Essential Services of Environmental Health is Carl Osaki, a member of the Washington State Board of Health. The Institute of Medicine report, *The Future of the Public's Health in the 21st Century*, reaffirmed the importance of local and state health agencies to strengthen their capacity to successfully identify and manage environmental problems through the understanding and use of the 10 Essential Public Health Services. *The Future of the Public's Health in the 21st Century* reviews the nation's public health capabilities and presents a comprehensive framework for how the government public health agencies, working with multiple partners from the public and private sectors as an inter-sectoral public health system, can better assure the health of communities by:

- Adopting a population health approach that considers the multiple determinants of health.
- Strengthening the governmental public health infrastructure, the backbone of the public health system.
- Building a new generation of inter-sectoral partnerships.
- Requiring accountability from and among all sectors of the public health system.
- Making evidence the foundation of decision-making.
- Enhancing and facilitating communication within the public health system.

The table below presents the 10 Essential Environmental Health Services, and proposes some initial program standards as examples by which to begin building the newly refocused VDH. If VDH does decide to follow the recommendation of this report to change its business model, then development of its own set of performance standards, indicators, and measures would be necessary.

<b>10 Essential Environmental Health Services</b>	<b>Corresponding VDH Program Standard Examples/Possibilities</b>
1. Monitor environmental and health status to identify community environmental health issues.	<ul style="list-style-type: none"> <li>• The program establishes a system to collect data using GPS mapping of all known wells and septic systems in state; and provide for monitoring, maintenance and testing.</li> <li>• The program provides funding, staff and equipment necessary to accomplish compliance.</li> </ul>
2. Diagnose and investigate environmental health problems and health hazards in the community.	<ul style="list-style-type: none"> <li>• The program establishes a system to analyze data, identify contaminants and their risks; and investigate environmental health complaints.</li> <li>• The program provides funding, staff and equipment necessary to accomplish compliance.</li> </ul>
3. Inform, educate and empower people about environmental health issues.	<ul style="list-style-type: none"> <li>• The division engages in public communication and media campaigns on environmental protection. The division documents outreach activities that provide educational information on environmental safety.</li> </ul>
4. Mobilize community partnerships to identify and solve environmental health problems.	<ul style="list-style-type: none"> <li>• The division identifies community partnerships and organizations to cooperate and assist with developing data collection and analysis. The division documents activities that enhance data collection efforts.</li> </ul>
5. Develop policies and plans that support individual and community environmental health efforts.	<ul style="list-style-type: none"> <li>• The division develops support for rules changes to allow cooperation and sharing of data. The division documents activities that foster MOAs, etc. for cooperative efforts with local governments, Division of Shellfish Sanitation, DEQ, and others.</li> </ul>
6. Enforce laws and regulations that protect health and safety.	<ul style="list-style-type: none"> <li>• Program management establishes a quality assurance program to ensure uniformity among regulatory staff in the interpretation and application of environmental health laws, regulations, policies, and procedures.</li> <li>• Compliance and enforcement activities result in follow-up actions for out-of-control risk factors and timely correction of code violations.</li> </ul>
7. Link people to needed	<ul style="list-style-type: none"> <li>• The division documents outreach activities to</li> </ul>

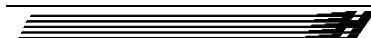
environmental health services and assure the provision of environmental health services when otherwise unavailable.	the indigent and elderly that provide educational information concerning water and sewage health and safety issues. The division documents efforts to facilitate funding to the needy for water and sewage health and safety issues.
8. Assure a competent environmental health workforce.	<ul style="list-style-type: none"> <li>• The regulatory staff shall have the knowledge, skills, and ability to adequately perform their required duties.</li> <li>• Program management establishes a quality assurance program to ensure uniformity among regulatory staff in the interpretation and application of laws, regulations, policies, and procedures.</li> <li>• The program provides funding, staff and equipment necessary to accomplish compliance with VDH DOSWS Program Standards.</li> <li>• The program provides for succession planning and managerial development.</li> </ul>
9. Evaluate effectiveness, accessibility and quality of personal and population-based environmental health services.	<ul style="list-style-type: none"> <li>• Program conducts initial self-assessment, regular self-assessments every 36 months thereafter, baseline survey, baseline information updated every 3 years, and verification audit initially and every 36 months thereafter.</li> </ul>
10. Research for new insights and innovative solutions to environmental health concerns.	<ul style="list-style-type: none"> <li>• The program provides funding, staff and equipment necessary to accomplish compliance with VDH DOSWS Program Standards.</li> </ul>

The core competencies of Environmental Health consist of 14 non-technical competencies that were developed in 2000 by an expert panel assembled by the National Center for Environmental Health, Centers for Disease Control and Prevention, and the American Public Health Association. The 14 core competencies have been identified as necessary for environmental health practitioners in local, state, and tribal environmental health units to successfully address environmental health challenges.

## Core Competencies

### Assessment

1. Information gathering
2. Data analysis and interpretation
3. Evaluation



## Management

1. Problem Solving
2. Economic and Political Issues
3. Organizational Knowledge and behavior
4. Project Management
5. Computer and Information Technology
6. Reporting, Documentation and Record-Keeping
7. Collaboration

## Communication

1. Educate
2. Communicate
3. Conflict Resolution
4. Marketing

The 10 Essential Services of Environmental Health serve as a goal for Environmental Health units. The Core Competencies are the skills or abilities that are needed to effectively perform the Essential Services.

The Centers for Disease Control and Prevention espouses and promotes the 10 Essential Services of Environmental Health through its Environmental Health Services program. Its program to integrate local, state and national environmental health programs should play an integral part of the VDH DOSWS plan to incorporate and institutionalize the 10 Essential Services of Environmental Health in the Commonwealth of Virginia.

The Environmental Health Services at the Centers for Disease Control and Prevention in the Department of Health and Human Services strives to promote health and quality of life by preventing or controlling those diseases or deaths that result from interactions between people and their environment. The objective of the Environmental Health Services is to strengthen the role of state, local, and national environmental health programs and professionals to better anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures to human health.

Workforce development for the improvement of environmental health services has been a goal of the CDC. The CDC provides funding and technical assistance to public health agencies, associations, and universities to establish programs for developing a competent and effective environmental health services work force. According to CDC, several public health problems regarding the environmental health services work force include:

- State and local health departments historically have been responsible for providing essential environmental health services to protect the public's health, including preventing or addressing problems with potable water, sewage systems, food safety, and vector control. However, new and emerging issues (e.g., highly toxic wastes, terrorism, and newly discovered diseases) have arisen at a time when state and local capacities are limited.

- Local environmental health practitioners are the "front-line troops" in the public health battle to prevent disease, yet many have no formal training in environmental health or public health.
- State and local environmental health programs do not have performance standards and their activities may not coincide with community needs.
- Environmental health practitioners have inadequate resources to determine the role environment plays in disease transmission. Estimates from 2000 tabulate the size of the environmental health work force employed by local health departments at 19,431, however, this number is shrinking, further diminishing work force capacity.

Among its many accomplishments, the CDC and the American Public Health Association sponsored the Environmental Health Competency Project, which outlines core competencies needed by environmental health practitioners to anticipate, recognize, and respond to environmental health challenges. Further, it is working to develop an environmental health problem-solving methodology for environmental health practitioners; to develop and implement an environmental health leadership institute; and to develop and make available to state and local programs environmental health performance standards based on the ten essential services of public health.

CDC has also accomplished a great deal toward community environmental health assessment. According to the CDC, environmental health is protected and improved most effectively when it is defined, understood, and acted upon locally. However, there are very few mechanisms for local community members to express their public health concerns. To effectively measure environmental health problems at the community levels, the environmental health program needs to provide mechanisms for community members to express their concerns. To allocate resources to address these problems, communities need guidelines and a standardized process.

Working with the National Association of County and City Health Officials (NACCHO), CDC developed the Protocol for Assessing Community Excellence in Environmental Health (PACE-EH) process to help communities systematically conduct an assessment of the environmental health status of their localities. The methodology takes the user through a community-based process to characterize and evaluate local environmental health concerns, identify populations at risk of exposure to environmental hazards, collect meaningful environmental health data, and set priorities for local action to address environmental health problems. PACE-EH is an innovative tool that allows communities and local governments to identify environmental health issues, rank local environmental health concerns, and prioritize environmental health program activities. The process mobilizes the community to take an active role throughout the entire environmental health assessment process.

The PACE EH program helps local health agencies integrate community concerns into their programs, and it redefines the way agencies practice environmental health by enabling them to be advocates for the communities that they serve. PACE EH offers a way to integrate data-driven assessments of environmental health concerns with the values and perceptions of communities. Initial users of the program report that the process enables them to:

- Be more responsive to community environmental health concerns
- Gain visibility in the community as leaders in environmental health

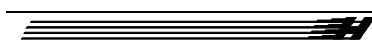
- Work for environmental justice with disenfranchised communities
- Have community-based coalitions that lobby for local environmental health ordinances
- Have a health department staff that is comfortable being engaged with communities.
- Become more effective in engaging community members in environmental health issue identification and problem solving
- Educate communities on the importance of science-based decision making
- Provide state and national policy-makers with community-driven findings that could be used to shape environmental health policies and resource allocation

The New Business Model for VDH should build on what has been established and proved operational by Osaki and *The Future of the Public's Health in the 21st Century*, incorporating the core competencies of Environmental Health developed by the blue ribbon panel assembled by the National Center for Environmental Health, the Centers for Disease Control and Prevention, and the American Public Health Association. The Environmental Health Services at the Centers for Disease Control and Prevention in the Department of Health and Human Services has laid out the road map, and is continuing to improve the effectiveness of establishing, implementing and operating the 10 Essential Services of Environmental Health so that they are fully integrated at the local, state and national levels. This is the foundation on which VDH should build its new business model.

The new vision of the VDH will also include many elements of the current business model. In addition to the core competencies for implementing the ten essential public health services, the agency may need to continue providing the direct services part of the septic permitting process throughout a transitional period, during which it will need to develop a permanent system to provide for the services through unconventional or alternative means. Unconventional, or alternative, means could include subsidized costs to induce the private sector into otherwise unprofitable areas, or providing for the services through other service sectors such as surveyors, etc. Unconventional, or alternative, means would be necessary in circumstances, such as:

- For the indigent in all parts of the state. The indigent will also require subsidized services for repair and for new construction in cases where sanitary systems do not exist.
- For those areas of the state where the private sector has not shown a significant presence. Incentives should be developed to entice the private sector to these areas for a long-term solution to the lack of private services.
- As a safety valve during the transition period to handle overloads on the private sector.

Otherwise, the private sector should be encouraged to handle all applications for certifications and subdivision approvals immediately, followed by a phase-in period to handle "bare applications". The private sector currently handles applications for alternative systems. The private sector should continue handling applications for both repair and new work. A major repercussion of shifting this work to the private sector will be the likely loss of VDH AOSEs to the private sector. The uncertainty of their role in the new business model of the VDH DOSWS and the lure of a higher salary in the private sector will serve as sufficient enticement to many of those who change employment as a result of this endeavor. Except for those VDH employees



who are nearing retirement, and new employees who do not have the experience to become AOSEs, there could be a significant loss of experience from the program. This loss of experience will have its biggest impact on the oversight function of the program. If not handled properly during the initial changeover years, the blow could be harmful to the program. Of course, in the long-run, staff will be hired under a new profile geared toward implementation of the ten essential environmental health services. Existing staff will have to undergo some retraining in order to accommodate the new model.

Overcoming the hurdle of transferring the bare applications processing function to the private sector will free up a significant amount of time for the field staff to perform the functions that remain in the business model as well as the functions associated with implementation of the ten essential public health services. A typical “bare application”, for instance, currently requires an average of three and one half hours to process, including the fieldwork and paper work, by the EHS. The review time for an AOSE-submitted “bare” application is typically about one half hour. At an average quantity of roughly 2.25 bare applications per week per FTE, and a net time savings of 3 hours per application, the time made available from this function alone over 52 weeks from 386 FTE of EHS is over 135,486 hours. This, of course, has not factored in any calculation for travel time to and from the site, repeats visits, interruptions, etc. Taking these factors into consideration would increase the net time savings per application. The addition of one hour of net time savings, for example, would add another 45,162 hours per year as time available for implementation of the ten essential environmental health services.

A big obstacle to overcome in changing to the new business model will be gaining the acceptance of the local governing bodies throughout the state. Some localities had bad experiences with AOSEs from the initial implementation of the AOSE program and have not yet recovered. Some of these localities still require 100% field reviews of AOSE work. This, of course, far exceeds the 10% quality assurance level provided for in the AOSE regulations. VDH does not have the personnel to accomplish this level of review now, and the situation will only be exacerbated with the new business model.

The effort to fully integrate the private sector into the onsite sewage program includes more than just the AOSE and PE groups. In order for the effort to work properly, upgrading of all onsite industry practices will be necessary. For AOSE/PE work to be held to a higher standard that will stand up to new accountability and liability measures, it will have to be supported by a higher standard of work from the other participants, including the installers, pumpers, and operators who maintain the system. The industry needs greater uniformity in practices and procedures, which can be achieved through credentialing and skills certification. This will contribute significantly to consumer protection. Licensing by the Commonwealth of Virginia through the Department of Professional and Occupational Regulation should be encouraged in order to add to the enforcement capabilities against these groups who have been operating in an unregulated environment. Bad practices and questionable dealings can be reduced through standardization and peer oversight. Accountability and responsibility will not be unfairly dumped on one subset of the process if they are properly dispersed to whomever might be the party at fault. Warranties and insurance plans are being tested in other states for viability and reliability. The costs of the protection from liability can also be more equitably distributed. In the case of engineered, or alternative, systems, even the property owner should be considered in the mix. Ignorance is no

longer an excuse in most jurisdictions, so owners should be held to a higher standard as well. Providing for routine upkeep such as, cleaning or replacing filters, screens, air delivery systems, intake pumps, and making minor repairs is critical to system operation.

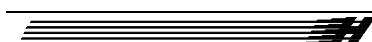
In some local health departments the EHSs who work in the onsite program also perform various other functions such as inspections (restaurant, marina and campground), and emergency response to rabies and West Nile virus episodes. While the onsite sewage program will be seeking to forge stronger partnerships and associations outside of the division as part of the implementation of the ten essential environmental health services, the onsite program should devote as many resources as it can muster toward developing the core competencies for implementation of the ten essential environmental health services. VDH staff under the new business model will be higher skilled network managers rather than lower skilled service providers; consequently, the additional skills needed for the new positions will extend beyond the current skill level in the onsite program. The positions will be more like program managers with supervisory skills needed for QA/QC duties, epidemiology skills, database management and greater communication skills. The numbers of positions necessary for the new business model will be fewer, but more highly skilled than at present.

The new business model will have similarities with the old business model in terms of its interaction with essentially the same stakeholder groups. The major difference will be found in its interaction with the AOSE and PE groups, in that the AOSEs/PE will become the major intermediaries with the property owners in terms of the application process. They will, for the most part, take over the onsite soil and site evaluations, system designs and installation inspections. The VDH will assist in the case of indigents and to some degree in those areas where AOSEs are not yet available. On the other hand the new model will have added the functions and core competencies associated with the ten essential public health services. The desired result will be that the public environmental health is the major beneficiary.

### **The Transition Period**

The VDH must create an effective and seamless transition from its current business model to a new business model. The current business model includes providing the direct services of site and soil evaluation, system design and installation inspection in competition with the private sector as well as the mandate to protect the public health. Protecting the public health has always been the top priority of VDH, and it will remain the top priority; however, the VDH DOSWS now needs to incorporate into its processes the capability and systemic processes to allow it to concentrate resources on broader issues encompassing the risks associated with improper system operation and failure. In other words, its oversight and regulatory functions will be significantly expanded, while its hands-on provision of direct services will be curtailed.

The transition period will be a gradual process because of the necessity to indoctrinate all stakeholders, including the VDH staff at all levels, initially to a new business model that redirects the direct services part of the permitting process to the private sector. The transition period should begin with the formulation and implementation of the marketing/communication effort to gain the support of all stakeholders.



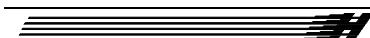
Employee communication is a key first step in the transition process. Communicating, educating and sharing knowledge with affected employees will help ease their concerns regarding the transition. Full and open communication with all affected employees is critical to maintaining workflow and productivity during the transition and to the ultimate success of the effort. It is critical to keep employees informed of progress made and how they may be impacted.

Stakeholders are those groups and organizations with a direct interest in the functioning of the onsite program. Stakeholders will have some level of responsibility for participating in meetings, discussion groups, workshops or other communication vehicles. Their level of responsibility may range from providing input to disseminating information, to monitoring developments as they arise in order to make informed decisions. A key stakeholder group in this effort will be the local government bodies that provide financial support to the onsite program in their localities. As a provider of funding, the input and support of this group will be crucial to the success of the transition.

The potential methods of communication/marketing for the transition are many. Use of the Internet website and video teleconferencing (VTC) are given. Development of a special home page on the VDH website to provide information regarding the transition, with links to documents that govern the initiative is recommended. As part of this endeavor, an employee FAQ Bulletin Board can provide an alternative to public questions and answers for those employees who hesitate to raise their concerns among fellow workers in the company of their managers. Of course, official correspondence sets the tone for all communication to follow. This correspondence provides an official record of policy messages, strategic vision and actions taken to develop and implement the business decisions. This correspondence should stress the agency's commitment to the equitable treatment of government employees during the transition process.

Early and clear dissemination of the agency's intent to local operational managers and supervisors through management meetings is a vital element of a good communications plan. These meetings should be geared toward assigning responsibility for communicating with employees and ensuring top-level understanding and support of the transition process. Local meetings provide managers and employees an opportunity to discuss issues and initiate group-level actions.

A coherent communication plan is needed to ensure that the right message gets through to the right people. Important elements of the transition are that it be accomplished with minimal turnover and loss of valued employees; that the transition period be accelerated at every opportunity; and that productivity loss and employee resistance is minimized. Although the proposed change will have to be initiated from the top of the agency, the ownership of the change will have to be moved down to the people who actually have to implement the changes, and who are most affected by the changes. From lessons learned in the corporate realm, the success of the transition will be dependent on the commitment of senior management, a certain empowerment of the VDH field staff, a shared vision, full-time focus of the transition team, and sufficient budget. The transition should encourage process-oriented thinking and provide a continuous improvement mechanism for the agency.



## V. WEAKNESSES OF CURRENT BUSINESS MODEL

1. VDH and its customers are frustrated with the perpetual backlog of septic system applications.
2. VDH lacks consistency in the delivery of services to its customers.
3. Consultation services with its customers are inadequate because of growing time constraints caused by significant increases in septic system applications.
4. The number of VDH staff performing onsite-permitting work is not keeping pace with rapidly growing volume of applications.
5. VDH incurs a heavy training expense for new employees due to high turnover among trained employees.
6. VDH is losing employees to better pay in the private sector.
7. VDH suffers low morale among the field staff due to heavy workloads and resulting stress.
8. VDH suffers from limited resources to meet increasing expense needs from employee turnover and a rising workload.
9. The VDH competes with the private sector in providing the direct services of site and soil evaluation, system design and installation inspection. It competes for these services at subsidized prices that far undercut what the private sector can provide. At the same time the VDH is competing with the private sector at subsidized prices, it also regulates and provides oversight of the private sector functions. The situation as it currently exists is a cause of friction between the two groups, and has led to a position of mutual mistrust. It is also a hindrance to free competitive forces, which would help force prices down.
10. The AOSE regulations did not provide for a financial assurance mechanism because the belief was that such a mechanism would primarily protect AOSEs and the property owners' interests rather than the public health. Economic theory explains that these mechanisms will develop given a free and open market, without competition from VDH with subsidized prices.
11. VDH does not emphasize training new employees concerning complex, engineered, or alternative system designs because new staff do not design or inspect those systems. Consequently, VDH is losing its field expertise regarding complex systems while the percentage of alternative system applications is increasing relative to conventional system applications. This creates a disadvantage with VDH oversight of the private sector.
12. The central office provides ongoing training opportunities for VDH staff, however, the field staff express the desire to see more training opportunities being made available, even though much of the training made available to them goes unnoticed or unused. This situation represents a diversion from the current business model.
13. Certification letters are not being used adequately to have a significant impact on the reduction of backlogs of applications.
14. The public/property owners do not adequately hold the AOSEs accountable for their work. The current reality of the situation is that when all else fails, the VDH will be there as the safety net to correct any problem.
15. Long-term objectives for VDH include the need to safeguard the public health through more effective sewage regulations and policy. Objectives set forth by the division regarding oversight and regulation of the citizenry of Virginia are largely going unmet.

These objectives call for the safe operation of septic systems and wells within environmental guidelines. The current regulatory paradigm has the majority of VDH expenditure of resources occurring during the analysis, design and installation stage – before the system is used. There is no provision for assessment of risk (data collection), nor is there provision for monitoring of maintenance and operation. There is no reliable data for the actual number of septic systems in Virginia, or for the number of system failures.

16. VDH is not adequately exercising its duties in risk management (assessment and assurance) for onsite sewage systems and water supplies.
17. There are no VDH guidelines for septic system installers, pumpers and system operators. Monitoring and reporting of this data for advanced systems would be a key element of any attempt to do analysis and research concerning onsite septic systems.
18. The market is experiencing an increasing need for alternative systems through environmental demands for better protection of the water supply and economic forces to enable the utilization of marginal properties.
19. Oversight and regulation of the AOSE program currently operates with a double standard that holds the private sector to a higher standard than what is demanded of the VDH permitting staff. VDH staff expect no errors in the onsite application process from AOSEs. Zero tolerance for error is not an acceptable standard, although it is a worthy goal.

## **Strengths of Current Business Model**

1. There is a comfort level in working within a known system.
2. The current business model addressed and improved a different set of problems that existed within the onsite sewage permitting process prior to the implementation of the AOSE program.
3. The public currently accepts the role of the VDH as the provider of last resort for the direct services of site and soil evaluation, system design, and installation inspection.
4. The current business model maximizes control over the pre-use, pre-flush permitting activities.
5. The current business model allows the VDH to maintain tighter control of the permitting process.

## VI. STRENGTHS OF NEW BUSINESS MODEL

1. Implementing the new business model will provide more opportunity to assess the risk from onsite sewage systems by way of data collection.
2. Completing the transition of the direct services of site and soil evaluation, system design and installation inspection to the private sector will allow VDH the opportunity to communicate the risk from failing sewage systems to the public.
3. Completing the transition of the direct services part of the permitting process to the private sector will allow VDH the opportunity to manage the risk of onsite sewage systems through evaluation of the data as a step in the implementation of the 10 Essential Environmental Health Services.
4. The direct services part of the permitting process can be performed faster and more efficiently through the private sector.
5. Implementing the new business model will help stem the turnover of so many employees and reduce the significant training expense now being incurred as a result of the current turnover.
6. Allowing the private sector to provide the direct services of site and soil evaluation, system design and installation inspection will result in a better value for the services rendered to the public through competitive forces that will stabilize the price and improve the quality of service.
7. The responsibility and liability for the services will accrue fully to the private sector as provider of the direct services. Warranties and insurance plans will evolve. The consumer will be better protected.
8. Formal inclusion of peripheral groups, such as installers, pumpers, and O&M providers into the onsite program for certification and regulation will lead to greater uniformity in practices and procedures, which can be achieved through credentialing and skills certification. This will contribute significantly to consumer protection. The costs of the protection from liability can also be more equitably distributed.
9. The VDH oversight and regulatory functions will be significantly expanded, while its hands-on provision of the direct services part of the permitting process will be curtailed.
10. Long range planning by VDH will be significantly enhanced.
11. Implementation of the new business model will allow the capability to shift personnel resources into other important programs.
12. Implementation of the new business model will also allow more effective collaboration, interaction and integration with other state agencies on water programs and nutrient management.

## Weaknesses of New Business Model

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1. The new business model requires a re-focus of VDH priorities.
  2. The new business model requires a transition period, which could result in temporary confusion by the stakeholders.
  3. The new business model requires re-tooling of the skills level of the VDH staff.

4. The new business model requires acceptance by all stakeholders, including the public, local governing bodies, and the VDH staff to be fully implementable.



## VII. FINDINGS, CONCLUSIONS and RECOMMENDATIONS

The following findings, conclusions and recommendations were developed during this study of the issues within the VDH onsite sewage program. The various categories studied include the Current Reality, AOSE program, Regulations, Communications, Staffing, VENIS database, and Regional differences.

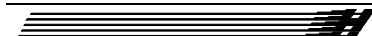
### A. Current Reality

**Finding:** VDH does not provide timely services for onsite septic permitting process.

**Conclusion:** The onsite septic program permitting process has been under review for a number of years largely because of an ongoing problem with septic permit application backlogs. The VDH onsite program permitting process was studied in 1993 by a legislative subcommittee with a goal to reduce or eliminate permit backlogs. Resulting legislation passed by the Virginia General Assembly in 1994 in Senate Bill 415 provided, among other things, for the implementation and use of certification letters for those permit applications that do not involve the repair of a failing system or a building construction permit. The intent of the certification letters was to eliminate time spent designing and drafting permits for systems that are never installed. Senate Bill 415 also required the VDH to contract with authorized onsite soil evaluators (AOSE) when backlogs are experienced. Guidance, Memoranda and Policy (GMP) 54 defined backlogs, and they are defined in the AOSE Regulations. The provisions in Senate Bill 415 did not eliminate septic permit backlogs as anticipated. Backlogs of permits and bottlenecks in the processes have been growing rather than shrinking, and the causes are growing faster than the remedies. The JLARC report, "Review of the Performance and Management of the Virginia Department of Health", dated January 6, 2000 emphasized the need for the VDH to improve the timeliness of the permitting process for septic system permits.

The problem with septic permit application backlogs persists today; and the problem is exacerbated by surges in applications brought about whenever there is a change in state regulations or local ordinances that may affect land use. As an example, long backlogs occurred as a result of a huge surge in applications sought to "grandfather" lots when the Chesapeake Bay Preservation Act and local Chesapeake Bay Ordinances were being enacted. Those ordinances required reserve sewage disposal areas and greater setbacks from shorelines and marshes for new lots. Even the most productive EHSs cannot hold down the level of backlog that results from a tidal wave of applications at such times. Also, because of the time it takes to train an EHS, it is not possible to hire extra help for a time, unless a district can access retired staff.

Hiring AOSEs, as required in Senate Bill 415, in response to septic application backlogs is not economically feasible in anyone's opinion because it is an unfunded mandate. GMP #99 (then GMP #100, then Emergency AOSE Regulations, January 2000), were other precursors to the current July 2002 AOSE Regulations. GMP #126 is VDH's implementation policy for the AOSE Regulations.



Backlogs occur for many reasons - from big picture items to minute details. Rapid residential building growth fueled by a healthy economy, in conjunction with level staffing at VDH during the period, have contributed most significantly to the present backlog of onsite septic applications.. Onsite septic permits are directly correlated with the number of building permits. New building permits are not coming in one at a time – there is a surge in subdivision submissions. Loudoun County, for instance, has been experiencing a surge in subdivision submissions due to a potential zoning change, resulting in a significant increase over the number of applications they are normally staffed to handle. Subdivision approvals are a very time consuming process in Loudoun County because every lot in the proposed subdivision will get a Level II review. The state regulations, however, provide for a review of 10% of the lots as a quality control measure. Other localities in the state have informally asked local health departments to perform a 100% Level 2 review.

Backlogs occur because of bottlenecks in the process. Bottlenecks cause delays that are avoidable through better planning. Some common causes of delays involve:

- Data entry – problems with VENIS (complexity, and the double effort required of transcribing written field notes into the database upon return to the office), inexperienced staff, numbers of applications from AOSEs/PEs and EHSs, incomplete or inadequate applications from AOSEs (causing too many touches of application), time delays in obtaining documentation, and lack of screening reviews of newly submitted applications for completeness. This suggests a training issue for clerical staff.
- Staffing – new and inexperienced, as well as understaffed to meet the surge in applications, (private firms are recruiting licensed AOSEs and are paying higher salaries than VDH will match), vacation, sick leave, and personal issues where employee is out for an extended period of time. Other emergency duties of VDH staff take precedence over septic permitting.
- Lot problems – overgrown, lines not marked, improvement locations not marked, surrounding wells and septic systems not identified, underground utilities not marked. Backhoe auger needed. AOSE/PE required.
- Surges in numbers of applications – due to seasonal variations, changes (or proposed changes) in regulations affecting land use, rapid residential growth (subdivisions).
- New technology – not being current with the complexities of new technology or with improvements.
- Policies and procedures – responses to questions and issues in the field by VDH staff can be difficult and untimely, and contribute to backlogs when the field staff do not adequately understand the regulations and policies. On the other hand, the field staff maintain that the policies and procedures are not clear. Clarifications are issued routinely through GMPs. Regulations and policies meant to be utilized across a wide range of applications throughout the state are, of course, going to be complicated and broad in scope. By nature, this requires the use of judgment for

each application situation. It is in the application of judgment that experience comes into play. A lack of experience can lead to frustration, which often results in placing blame elsewhere. VDH is currently losing experienced staff to the private sector, which is exacerbating the situation. It is incumbent upon the VDH employee who lacks significant experience to know and understand the regulations, policies, interpretations, etc. that drive and control their employment. This holds true for the private sector as well.

- Time management and trips back to the office to learn of new assignments of emergencies. Cell phones are available to all field staff for this purpose. Some districts apparently are unaware of the availability of this resource and do not make use of them. There are still some areas of the state with inadequate cell phone service coverage. It is incumbent upon all managers to know what resources are available to their staff, and to make those resources available.
- Financial considerations - resistance of clients to use AOSEs because of cost.
- Changes after permit or certification - having to re-process sites that have already been permitted or certified because the owner wants to shift the location of the septic system or lot improvements. (Solution is to turn this function over to the AOSE sector – costs applicant more. Once VDH knows that a lot has a suitable site, there should be no further involvement until actual construction takes place.) Multiple revisions of a permit.

The volume of applications received by the local health department has been steadily increasing in recent years while the level of VDH staffing has remained steady. The AOSE program has lessened the burden on VDH to a certain extent, but the VDH managers and the local governing bodies have been reluctant to put their full trust in the AOSE program and get away from the 100% Level II review stance. Consequently the workload on the EHS and managers remains at a high level. Employees, generally speaking, will work frenetically for short periods of time to deal with unusual situations, but they will not maintain the frenetic pace without an opportunity for relief, or without additional financial compensation. Human Resources policy and laws provide for additional compensation under certain extraordinary circumstances, and this allowance should be invoked when backlogs exist. As an impetus to EH Managers to pursue this alternative, the use of it should not impact the local health department budget. Guidelines for invoking this allowance could include a direct tie into the regulations such that when regulations are followed to the letter, i.e., 10% Level II reviews instead of 100%, and a backlog exists as defined in the regulations. If this is in place and the AOSE program is backlogged, then allow overtime for EHS and Managers who wish to supplement their income. Direct hiring of AOSEs by the government for these occurrences has proved to be ineffective because of the expense and/or availability of the private sector.

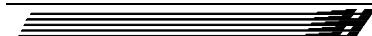
Some believe that allowing the private sector to perform all of the direct services related to onsite septic permitting could eliminate the backlog problem. While this scenario might relieve the problem for the EHS, it will not eliminate the backlog problem in the short term, because the backlog problem merely shifts to the AOSE. The belief is that free market factors will force efficiencies that will create equilibrium between market demand for services and the level of

manpower necessary to meet that demand. During a transition period, a provision such as that outlined in the previous paragraph would help alleviate an AOSE backlog situation.

The use of certification letters has become a marketing tool for some developers, real estate practitioners and property owners. Certification letters are requested, when no residential building permit is being sought, as evidence that the lot will support a septic system. AOSEs can churn out certification letter applications rapidly because the application requirements are less complicated than for a construction permit. Construction permit applications are more costly and time-consuming for the AOSE to prepare, so the tendency is for the lot owner to go directly to the VDH for help in designing a septic system for the lot. Since VDH fees are at a subsidized level, the expense to the lot owner is considerably less than if the private sector is employed for the system design. Similarly, lot owners will request changes or modifications to an existing certification letter or construction permit through the VDH, rather than the AOSE, because of cost considerations. Construction permits, as a follow-on to certification letters facilitated by AOSEs, should be referred to the AOSE who facilitated the certification letter as a means to relieve some of the heavy workload on the VDH field staff, and, in turn, help alleviate some of the backlog problem. These are responsibilities that can be immediately relegated to the private sector (AOSE) during transition to the new business model where the private sector provides the direct services of evaluation, design and inspection.

VDH should develop the means for providing the direct services of evaluation, design and inspection to the indigent as well as in those areas of the state where service is not readily available from the private sector. The means for providing these direct services can be conventional or unconventional. In other words, VDH might continue in the role of provider of last resort during a transitional period to indigents and those without services. Any subsidy should be reserved for the indigent or the elderly on fixed income, not for all applicants. Instead of competing with the private sector with subsidized prices, perhaps a two-tiered pricing structure during transition would remove the incentive on the part of the general public to rely as heavily on the VDH for the direct services of evaluation, design and inspection. The result would be subsidized services for a special group of individuals, and market prices, following the lead of the private sector, for the general public.

The VDH might also subsidize a part of the fee to the private sector for providing the services to the indigent and in those areas of the state where services are not readily available. Another solution could be to enlist the services of a related industry group, such as surveyors or well drillers, etc. to perform some of the services. These industries are already familiar with soils and separation distances, etc., so performing some of these services could be a natural extension of what they normally do every day. Also, in today's society where the poor seem to be growing in numbers rather than shrinking, providing a safety valve for dealing with an increase in the number of indigents could be achieved by requiring a certain degree of pro bono services from the private sector, as we do from doctors and lawyers. The establishment of a threshold based on a certain number of the state's population falling below a pre-determined poverty level could provide the trigger for pro bono work to be required.



**Recommendations:**

1. VDH should dedicate support staff at all local health departments experiencing backlogs to a best practice process where the local health department provides for trained support staff to receive applications, review them for completeness, log them in, schedule appointments for the EHS, and input data into the database when necessary.
2. VDH should provide the capability for the EHS to enter data onto an enhanced laptop computer in the field, which can be automatically uploaded into the system via the website, or through hard wiring in the local health department office.
3. VDH should provide the capability for AOSEs to enter permit application documents via the website.
4. The VDH, for implementation with its new business model, should develop appropriate criteria for the implementation of the process by which the private sector would be required to provide pro bono services in a limited way to the indigent. Those criteria should include the establishment of a threshold at which private sector pro bono services would be required.
5. VDH should begin transition to the new business model by encouraging the private sector to handle all applications for certification letters and subdivision approvals immediately, followed by a “phase-in” period to handle “bare applications”. Further, the new VDH business model should include sending all requests for changes to certification letters and/or construction permits to the AOSE who originally prepared the letter or permit. Likewise, send all requests for construction permits on lots with certification letters to the AOSE who provided the certification letter. If an engineered system is required for the follow-on construction permit, the AOSE can make arrangements with any necessary PE for design work, as provided for in the regulations.
6. The VDH should consider establishment of a two-tiered pricing structure for the transition period of the direct services part of the permitting process to the private sector. One tier for continuing to serve the indigent at current subsidized prices (whether subsidized directly or through the AOSE program); and another tier for those who are willing to pay market prices. With a new pricing structure the VDH should consider charging an additional fee for minor (cosmetic) construction permit or certification letter changes, unless the change was initiated by VDH. Competitive pricing would bring about more equilibrium in terms of where the public would go to request their permitting services, i.e., more of the burden would shift to the private sector.

**Finding:** VDH does not provide consistent services for onsite septic permitting process.

**Conclusion:** A significant element of the lack of consistent services for the onsite septic permitting process can be found in the regional differences throughout the agency. The difficulty of successfully promulgating a set of regulations that would be completely implementable across a state of vast regional differences in terms of soils and topography, without regional guidelines for implementation is extreme. The VDH previously had a regional layer of management that served to provide this regional guideline element; however, it was eliminated as a budgetary consideration. Inconsistent services also result from a basic lack of understanding or

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misinterpretation or misapplication of the regulations as promulgated by the OEHS. Additionally, the fear of legal liability may play a role in decision-making and interpretation of the regulations. This fear can drive decisions made, as well as those decisions not made, at the local level. It also impacts those decisions made from the central office. The fears, usually born out of a lack of full understanding of the regulations and civil liability law, always exceed reality. There are many regional factors that contribute significantly to the perception of inconsistent services being provided by VDH for its onsite septic permitting process throughout the Commonwealth of Virginia. The application of services at the local level is going to be different among localities because of regional differences. Among them are:

- Soil types and components – percolation characteristics, depth to water and rock, karsts, speed at which water moves through soil, how well the soil cleans contaminated water.
- Site conditions - topography and geology
- Water – sources, depth of groundwater.
- Sources of contaminants – types of manufacturing, power plants, superfund sites.
- Local ordinances - OEHS develops content (regulations) but does not directly administer the local health departments.
- Involvement by the localities - The mentality in every district is different (pro-growth vs. anti-growth, more stringent regulations vs. less stringent, level of funding for additional staffing).
- Local interpretation – of state regulations, GMPs, and policy. Common sense and good judgment have a significant Impact on the quality of interpretation.
- Local staff training - reliance by central office in Richmond on training from the district office staff allows for the reinforcement of bad habits and non-compliant processes that tend to become institutionalized.
- Staffing – experience level of employees, experience level of personnel answering questions impacts answers given. Staff upheaval caused by retirements and qualified personnel leaving for higher paying positions adversely impacts consistent interpretation and implementation. Individuals from office to office differ in their management, interpretation and implementation skills. Example: One district has low turnover with higher qualified EHSs and is able to conduct more thorough monitoring of the private sector. Another district may have 25% vacancies, 50% “new hires”, and only 25% experienced EHS who are spread too thin to provide adequate oversight of the AOSE program.

There are factors emanating from the DOSWS that contribute significantly to the perception of inconsistent services being provided by VDH for its onsite septic permitting process throughout the Commonwealth of Virginia. Among them are:

- Guidance – the VDH field staff desire more guidance from the division leaders. The study team noted that there is a general hesitancy to make controversial decisions in the field, and that the feeling in the field is that any such decisions would be better made out of the central office. Hesitancy to make controversial decisions comes from uncertainty, which can have numerous causes. The lack of a

complete understanding of the regulations and policies, coupled with a falling experience level due to loss of experienced employees lead to uncertainty. The central office needs to be able to rely on its field staff to make tough decisions in the field because the central office focus needs to be on policy-level issues that impact the environmental health and safety of the public at large. The local EH managers are empowered to make such local field decisions, and they should expect that their decisions will be supported by the central office to the extent that the local decisions are supported by regulation and policy. The local EH Managers must take the leadership role here. Recently, two Environmental Health Coordinators have been hired by VDH to assist with communication issues between the central office and the field offices.

- Staff training – There is little ongoing formal training for VDH field staff from OEHS; consequently, over time gray areas become even more unclear. Information concerning new septic systems, or innovations, is not timely; consequently, VDH field staff that want to stay current or informed on this issue must learn what they can mostly over the Internet and directly from manufacturers. This results in inconsistency among districts, local health departments and among individuals in knowledge of technological changes. Training is a big issue. It is costly and work does not get done when people are away training. Even when training is provided (such as the excellent Advanced Onsite Wastewater Conference in 2005 and 2006) some staff do not or cannot attend, generally because of the expense. Training should be vigorously supported and financed.
- Communication issues – Communications come out of the OEHS in the form of GMPs, emails, phone calls, face-to-face conversations, etc. These communications may come forth to the public, to the agency as a whole, to a district, to a local health department, to a manager, to an EHS, to any one stakeholder, or to a politician individually. If OEHS makes an interpretation or provides guidance, as it does on a regular basis, it should be consistently and equally shared across the state. This does not always happen. All responses from OEHS should be consistent. This situation should be enhanced significantly through the recent hire of two Environmental Health Coordinators at OEHS. Another problem is that the onsite world is changing so rapidly with new products and technologies that new regulations and interpretations are not always timely in being disseminated to the districts. Quicker turnaround times would be particularly helpful to field staff trying to stay current with the private sector for purposes of oversight.
- Implementation emphasis - The VDH onsite septic program is structured to place the majority of effort on the process involving the installation of septic systems. Because of this, the EHS in the field believes that the septic system installation stage is the only opportunity there is to assure public health and safety with respect to the impact of an onsite system. Therefore the EHS mindset is that more is better – “go beyond rules if you can to get the most robust system in place.” VDH is currently studying the possibility of moving to performance-based thinking. If VDH does indeed shed the direct services part of the permitting

process, its resources can then be directed to the after-installation processes of risk analysis, assessment and research.

- Quality assurance – VDH lacks a quality assurance program to determine local compliance with septic regulations. Quality control and quality assurance will be an integral part of any new business model for the VDH onsite sewage program.

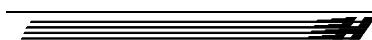
### **Recommendations:**

7. The VDH districts need to make more effective use of the soil scientists available to them in dealing with soil and geologic issues as they differ among the regions. The four soil scientists are primarily used as an expert arbiter when AOSEs and local EHSs disagree on a soil interpretation. The soil scientists' skills would best be used to train staff rather than as a dispute facilitator and analyst. Staff can use the soil scientists as a crutch to resolve difficult problems rather than making a decision themselves. Under a new business model, the soil scientists would primarily be used in research and policy assessment rather than dispute resolution. For other regional issues, the districts now have another resource at the division office in two recently hired Environmental Health Coordinators. Having fewer numbers of central office staff to call upon with questions and issues will be more efficient and effective for the division, because it will serve to minimize the number of different answers that can be gotten.

8. All policy decisions, interpretations and guidance, regardless of significance, should be put in writing and disseminated to all. The two new Environmental Health Coordinators, acting in concert with each other, will provide for the possibility of a single source of information for field staff issues.

**Finding:** The role of the VDH onsite septic program has been relegated to that of issuing permits for the construction of onsite septic systems in the Commonwealth of Virginia rather than to its best use role. The purpose of the VDH is to protect the public health through providing for safe drinking water and the safe discharge of wastewater into the ground; instead, VDH resources focus on processing applications.

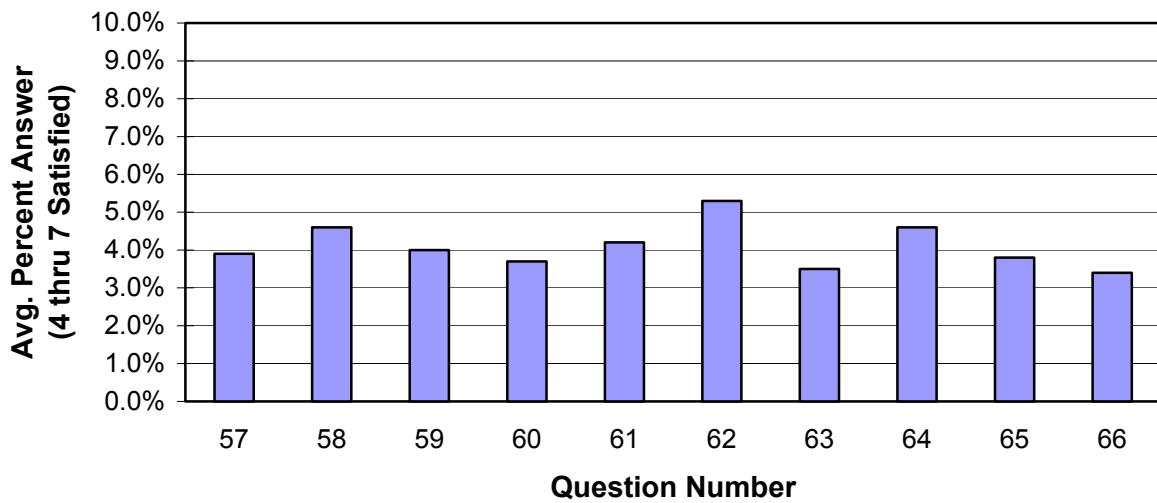
**Conclusion:** VDH performs site and soil evaluations, designs and inspects onsite sewage systems, and/or performs quality assurance checks of private sector work to assure that groundwater supplies and public health are protected. Many of the services VDH provides, such as site and soil evaluations, system designs, and inspections are also provided in the private sector through the AOSE program. Most of VDH's resources are expended on issues dealing with permitting through the installation of the onsite septic system, and not with the assessment and analysis of public health risk after installation. The current business model of the VDH onsite sewage program includes, in addition to these direct services and other things, a provision for the safe operation of septic systems, and that citizens receive proper guidance and understanding of what is required of them concerning the installation, repair and use of septic systems. Providing for the safe operation of septic systems will require development of a process to monitor all septic systems in Virginia. Guidance in the safe use and repair, and monitoring the safe operation of septic systems occur after the installation and are not currently receiving adequate attention by VDH. The new business model proposed by this study would refocus the VDH resources to post-installation assessment, analysis and management.



The primary focus of the VDH efforts should be re-directed toward protecting the public health through oversight, regulation and strategic planning, rather than on direct services to the public. Direct services can be provided by the private sector under the control of the VDH. Oversight, regulation and strategic planning are best achieved through knowledge and understanding gained through quality control inspections; education of system owners and the public; locating all onsite systems; discovery of malfunctioning systems; enforcement of performance standards, rules and regulations; promoting education of AOSEs; and communication with local governments on all matters related to onsite systems. The current dynamics have the VDH competing with the private sector with respect to soil and site evaluations and designs. The VDH needs to maintain its competency to review plans and understand designs, especially changes and new technologies. The VDH role should be that of "problem solver", in other words, VDH should facilitate the solution. VDH is alone among state agencies in providing direct services, such as system design, which it will in turn monitor for safe operation. Design should be understood and inspected by the regulatory body, but design is best provided by the private sector where efficiencies can best be implemented.

## 10 EPHS Survey Answers

### 10 ESSENTIAL PUBLIC HEALTH SERVICES SURVEY ANSWERS



The graph above depicts the responses of the various stakeholders in the onsite sewage program to the survey that was administered as part of this study. The ten questions enumerated above relate to the ten essential public health services. The survey revealed that the respondents mildly agree with the following five statements (shown with survey statement number), which probe the current effectiveness in providing for the ten essential public health services:

58. VDH effectively diagnoses and investigates environmental health problems and health hazards in the community.
59. VDH programs are effective in informing, educating and empowering people about environmental health issues.
61. VDH policies and plans effectively support individual and community environmental health efforts.
62. VDH effectively enforces laws and regulations that protect public health and safety.
64. VDH officials effectively link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable.

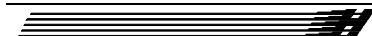
From the graph above, the survey also revealed that the respondents mildly disagree with the following five statements, which probe the current effectiveness in providing for the ten essential public health services:

57. VDH programs provide effective means for monitoring health status to identify and solve community health problems.
60. VDH programs are effective in mobilizing community partnerships to identify and solve environmental health problems.
63. VDH quality assurance program effectively ensures uniformity among regulatory staff in the interpretation and application of laws, regulations, policies, and procedures.
65. VDH forums foster communication and information exchange among the regulators, industry and consumer representatives.
66. VDH sponsors outreach activities that provide educational information on ground water protection and proper operation and maintenance of septic systems. These activities are effective.

The survey of VDH stakeholders revealed that many of the stakeholders believe that the proper direction for the onsite septic program should be toward:

- Onsite system monitoring
- Discovery of failing or failed systems
- Discovery of lacking or inadequate systems
- Maintaining an information base of existing systems
- Research for onsite systems improvement
- Environmental research activities
- Informing the public regarding environmental issues

This line of thinking is in step with the promulgation of the 10 Essential Environmental Health Services (chart below). This line of thinking also is on a different level from “issuing septic permits.”



<b>10 Essential Environmental Health Services</b>	
1.	Monitor environmental and health status to identify community environmental health issues
2.	Diagnose and investigate environmental health problems and health hazards in the community
3.	Inform, educate and empower people about environmental health issues
4.	Mobilize community partnerships to identify and solve environmental health problems
5.	Develop policies and plans that support individual and community environmental health efforts
6.	Enforce laws and regulations that protect health and safety
7.	Link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable
8.	Assure a competent environmental health workforce
9.	Evaluate effectiveness, accessibility, and quality of personal and population-based environmental health services.
10	Research for new insights and innovative solutions to environmental health concerns

The role of VDH needs to change to meet the requirements of the ten essential public health services. The new business model needs to reflect the new vision, and the direct services of site and soil evaluation, system design and installation inspection need to be provided by the private sector. The VDH should maintain oversight and advisory responsibility for the AOSE program.

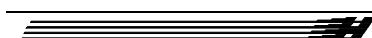
#### **Recommendations:**

9. VDH should design and implement a system for monitoring all onsite septic systems in Virginia. This is necessary to help fulfill requirements of the current business model to provide for the safe operation of wells and septic systems in Virginia. Knowing of their existence and where they are would be a good first step in that direction. Providing for this monitoring will also help fulfill requirements for the new business model for the same reason.
  
10. VDH should begin the process of incorporating the ten essential public health services into its new business model utilizing the core competencies of environmental health as proposed in conjunction with the ten essential services. VDH should also complete the transition of the direct services of site ad soil evaluation, system design and installation inspection to the private sector.

## **B. AOSE Program**

**Finding:** AOSE work is backlogged.

**Conclusion:** The AOSE program has been evolving since it was initiated in 2000. Early growing pains with the program included poor AOSE effort in getting all the required elements into the permit application package, and a lack of quality control on the part of the AOSE, e.g., checking math and ensuring that the package was complete when submitted. This has improved greatly over time. Both the AOSE and VDH personnel have been learning to communicate effectively with each other. As part of the process of learning the roles each party is to fulfill in the AOSE

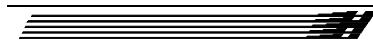


program, the VDH is currently in a transition phase of identifying problems and referring property owners to the AOSE/installer who performed the work, and then monitoring the repair efforts. Some districts are further along than others in this regard, but the intent of the regulation is to have the AOSE perform those functions. AOSE backlogs in some areas at present are at levels that rival the backlog levels of the VDH backlogs.

As judged by local EHSs, the error rate of AOSE applications runs high in those localities that have been relying heavily on the use of AOSEs for permit applications. Localities experience different amounts and kinds of errors, but on average, AOSE errors fall into the following categories: typographical, administrative, and technical – with the predominance of errors falling into the typographical and administrative categories. Errors are aggravating to both the VDH and to the AOSE, and leads to some of the frustrations in the program. These errors cause administrative denial letters to be issued, and this contributes to the system getting bogged down and, consequently, to backlogs. The current business model experiences backlogs because of this situation, and the new business model where the direct services of site and soil evaluation, system design, and installation inspection are to be provided by the private sector will also experience similar backlogs of applications. Providing a solution to this problem area now would be useful to the current business process, as well as to the new business process. A potential solution that needs to be developed more thoroughly would be to allow the AOSE to input the entire application package directly into the database through the website. This process can be controlled to the point that any submission that does not conform to the predetermined parameters will not be accepted into the system. This serves the purpose of assuring that the submission is correct and complete, and it also reduces the need for as much staff support at the VDH to accept the applications, log them in and schedule future events related to the permitting process.

### **Recommendations:**

11. Initiate more general meetings with the VDH, AOSEs and professional engineers to discuss mutual problems and to build trust.
12. AOSEs need guidance and training regarding mass drainfields and community systems. They will eventually learn to price their work accordingly so they do not lose financial incentive when recommending one of these systems over individual systems. The result will be that property owners and developers might end up with a septic system that is more efficient, more environmentally friendly and more cost effective, with the ultimate result being that the public environmental health is better served. This fits the new business model for VDH as well, by enhancing the AOSE's capability to provide direct septic permitting services.
13. Develop the DOSWS section of the VDH website to allow for the input of onsite septic program permit applications directly by AOSEs. The computer could do a Level 1 review automatically and kick out anything that does not pass. This should facilitate and speed up processing, reduce the need for Level 1 reviews, and help reduce the current backlog of applications.



The following graphs depict the current process flows for the VDH application process and the AOSE application process. The AOSE application process, being a longer and more complicated process gives an indication of the required steps that will become the norm under the new vision of the VDH business model where the direct services of site and soil evaluation, system design and installation inspection will be transitioned to the private sector. The new VDH business model will also provide for the implementation of the ten essential public health services through the incorporation of the core competencies for implementation.

#### CURRENT AOSE AND VDH APPLICATION PROCESSES



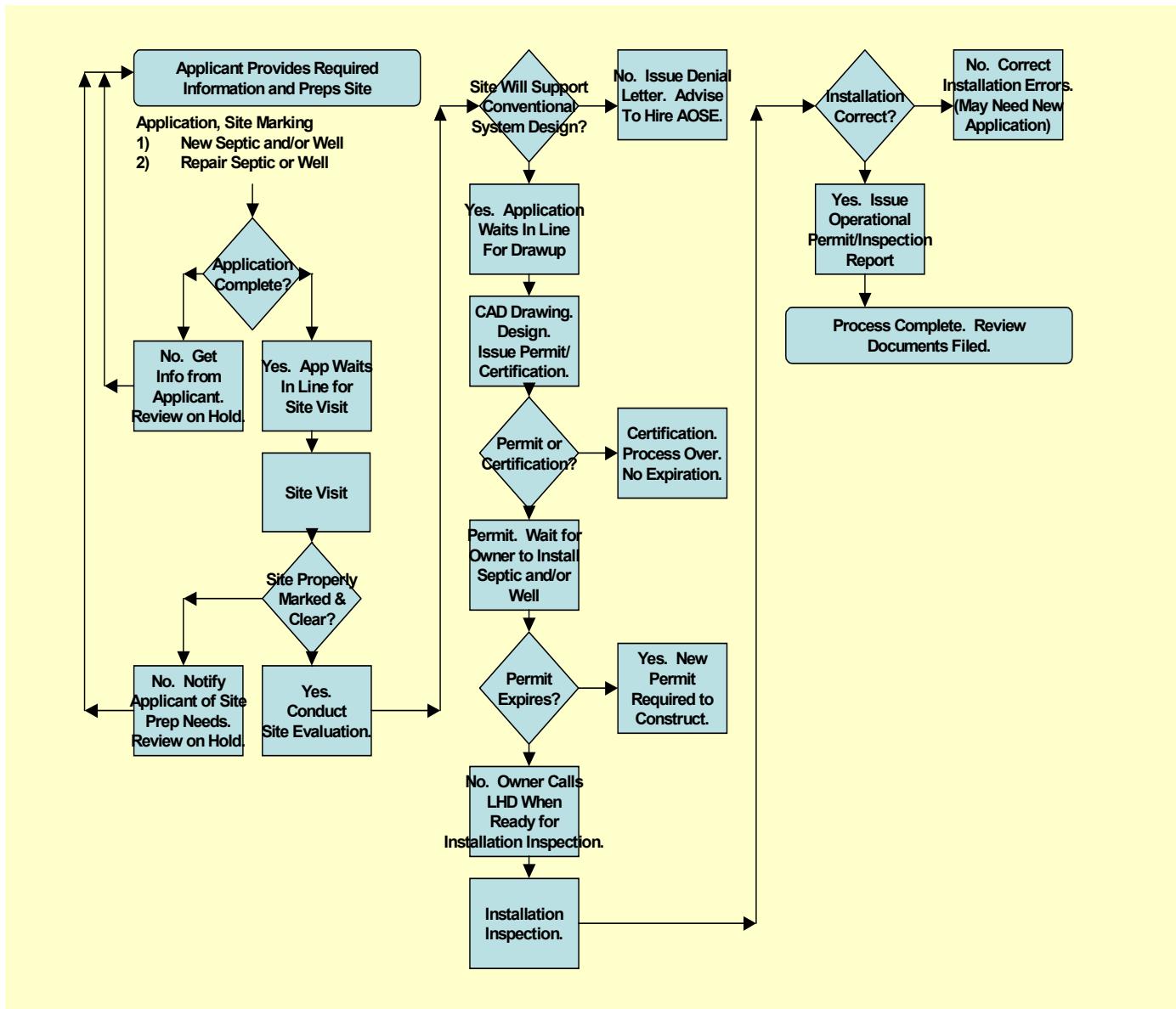


Figure 1 - VDH Application Process

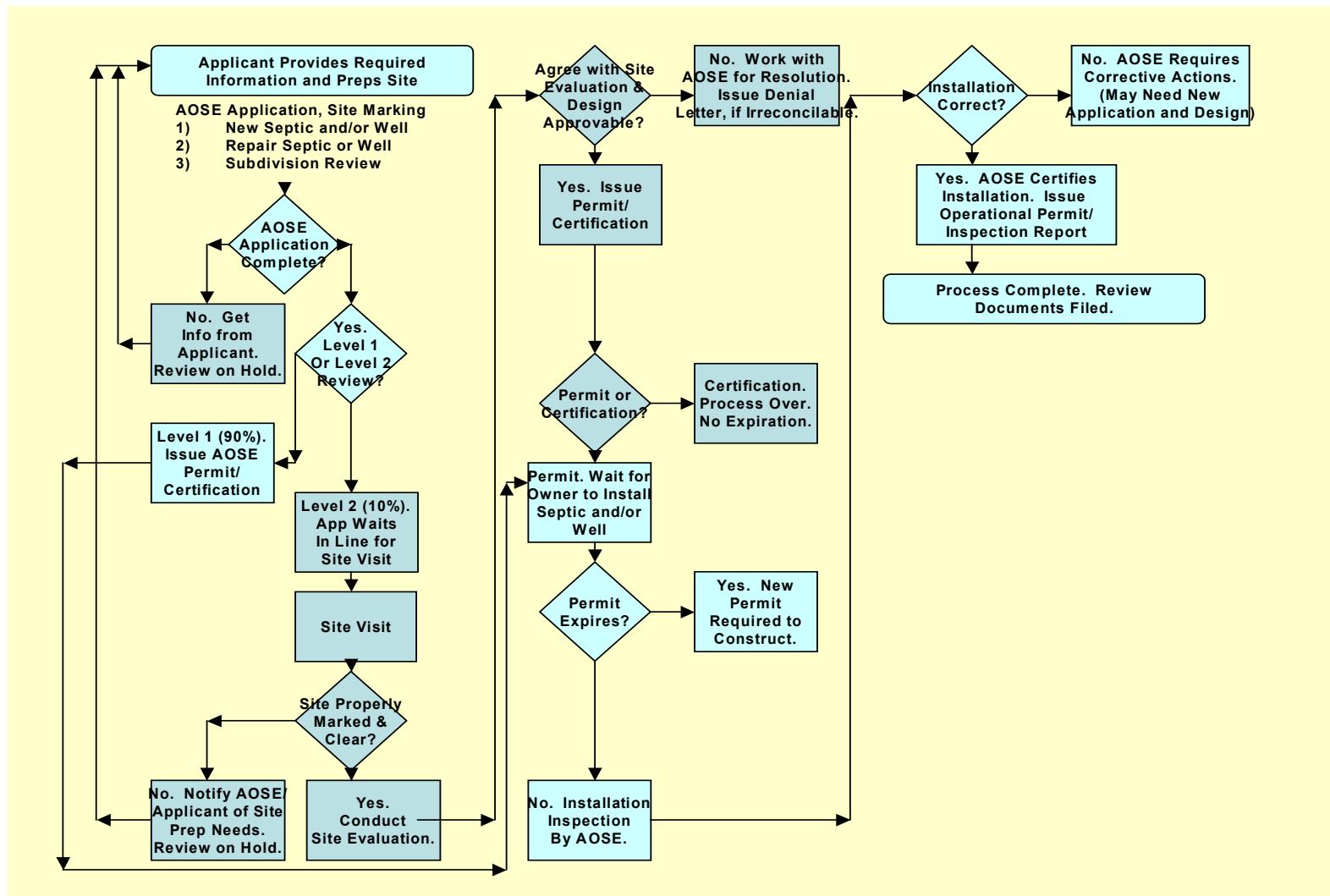


Figure 2 - AOSE Application Process

**Finding:** AOSE's and other direct service providers, such as system installers, are not being held adequately accountable and liable for their work by property owners under the present process for resolving design and installation problems.

**Conclusion:** Poor quality work can result in loss of certification by an AOSE; however, property owners do not always hold AOSEs accountable for their evaluations and designs. Property owners typically take their case to the VDH when a problem first occurs for resolution. In reality however, the property owner should first seek resolution of an installation or design problem with the AOSE who assisted in the initial evaluation and design of the system. VDH is generally eager to help resolve any problems because they wish to avoid any environmental problems or sensitive political situations. Further, since VDH provides direct services as part of the permitting process to the public, its situation is more precarious than other state agencies who do not provide direct services but do regulate its competitive service providers

In the event of a problem, the procedure at VDH is to make a visit to see the extent of the problem. If there is a surface eruption VDH would recommend that the owner contact the AOSE and/or contractor who issued the permit/installed the system. VDH often becomes further involved because the AOSE or contractor does not respond adequately in the owner's opinion. VDH may then question the owner and make suggestions for further investigating the problem. If there is sewage on the ground surface, VDH has an obligation to see that problem solved and may have to progress to enforcement action (at least a Notice of Violation) in order to press the owner to seek a solution wherever possible.

The following chart displays where stakeholders who responded to the accountability question in the survey typically look to accountability and a solution to their problem. Numbers are from the stakeholder survey that was conducted as a part of this study.

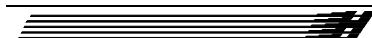
**ACCOUNTABILITY TABLE**

RANK	Percentage of Times Selected	Stakeholder
1.	36.7%	The Virginia Department of Health
2.	26.7%	The AOSE
3.	13.3%	Myself – The Homeowner

4.	10.0%	The Legal System
5.	6.7%	The System Installer
6.	3.3%	The System Manufacturer
7.	3.3%	Professional Engineer
8.	0	The Builder/Contractor
9.	0	The Realtor involved

As the table above points out, the onsite sewage program stakeholders look most frequently to the VDH for accountability and a solution to the problem as a first course of action. In the case of problems with initial submittals the property owner, who may have hired the AOSE to reduce processing time, needs to hold the AOSE accountable for time lost in making corrections, submitting missing documents, etc. In the case of problems with installations that malfunction, VDH is rightly contacted since a repair may be necessary; however, if the AOSE approved the soils, design and construction, then that's who needs to be the primary contact in figuring out the cause of the problem and a solution. The VDH, as a standard practice, works with the AOSE, homeowner, and contractor to help resolve the problem.

The property owner with a problem does not have a transparent system to hold the AOSE accountable for his part of performance other than civil litigation. Regulation of the AOSE program by VDH does provide a control mechanism; however, there appear to be some loopholes for circumventing certain enforcement actions. Suspension or revocation of the AOSE certification does not appear to be a hindrance to practice, and is where a loophole exists for circumventing the enforcement system. The suspended or revoked AOSE simply finds another AOSE to sign and stamp his work. VDH needs to actively pursue those AOSEs who consistently do poor work, or who are unethical in their dealings with clients. There are some AOSEs, for instance, who might suggest a proprietary system for a site, when a traditional gravity system might suffice, in order to possibly receive a kickback from the manufacturer of the pre-engineered system. In regulated industries it is unethical to receive an undisclosed fee, or kickback, from a source that has an interest in the transaction. Developers also contribute to ethical "situations" by going from AOSE to AOSE until they get the approval they desire on a property. Closer scrutiny of AOSE work with enforcement enhancement should alleviate this. If the AOSE program was regulated by DPOR, the likelihood of the emergence of a professional industry group to help protect their interests would be greater. Generally, professional groups formed out of self-interests will create more stringent standards of practice to guard against egregious ethical misconduct.

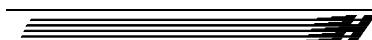


Loss of AOSE certification is the greatest penalty, although the possibility also exists for temporary suspension, or a requirement for additional training, etc. Aside from that, the potential for civil action by a client is present if a written contract exists, although the public tends to believe that VDH should bear the responsibility (including financial responsibility) for AOSE errors. The public would naturally come to believe this when what it sees is an agency that provides the service directly, and it historically provides the advice and counseling necessary to rectify the problem at no cost to the customer. The public sees the VDH as the primary provider of the direct services. The VDH needs to complete the transition of the direct onsite services to the private sector to distinguish its regulation role from that of a direct provider of evaluation and design services. Once these direct services are being fully provided by the private sector, a public relations effort should be undertaken to inform the public of its new role under a new business model.

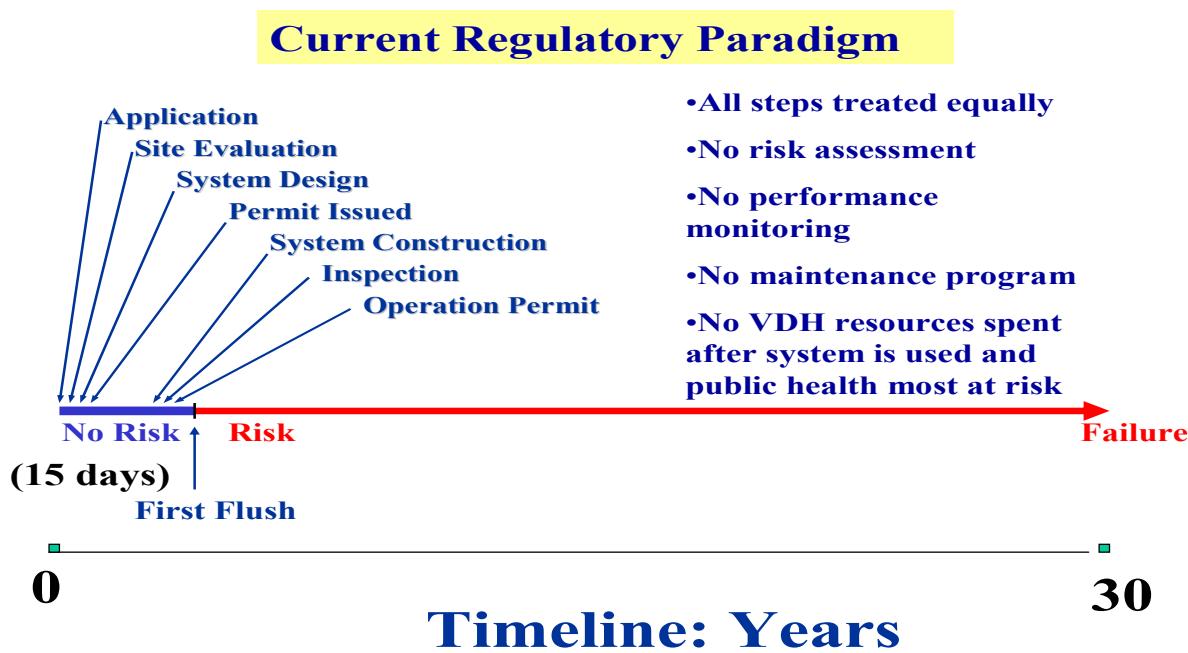
Also, information from septic contractors suggests that some AOSEs may not be conducting inspections of onsite systems. To date, VDH has not received any complaints to substantiate this perception. Septic contractors maintain that the AOSE will merely ask the contractor if the system has been installed according to the permit, then they sign the completion statement without ever seeing the system installed. This is a dangerous practice that needs some controls in order to prevent abuse. The AOSE is depending on, and indeed staking his certification on, the reliability of the system installation contractor to satisfactorily complete the installation process. The installation process requires interpreting the plan, construction, and re-landscaping. If that contractor does not measure up to certain standards, the results can be disastrous for the AOSE, as well as for the property owner. Other states are considering two levels of credentialing for installers: one for "basic" installers who can do standard septic systems, and another for installers who know the more advanced systems. Onsite septic system installers (contractors) are not required to be certified by Virginia. Septic system manufacturers employ different methods to approve certain installers for their product. These manufacturers should, but most often do not, provide a ready list of those contractors who are approved for their septic system installation in Virginia. The availability of a list of approved installers for some manufacturers is often difficult to locate and is not updated regularly.

Training and certification standards should also be developed for septic system operation and maintenance providers. This practice is occurring in other states, and should be deemed necessary in the state of Virginia should the VDH adopt and implement a new business model and provide for septic system maintenance and monitoring. Doing routine upkeep, such as cleaning or replacing filters, screens, air delivery system, intake pumps, and making minor repairs is critical to system operation. The explosion in the use of engineered systems practically demands the implementation of standards in order to monitor the installed systems. This becomes especially relevant upon implementation of the new VDH business model.

Another group, septic system pumbers, typically learns their skills on the job; and the result can be the perpetuation of bad practices or erroneous information acquired in an unstructured learning situation. In order to protect the public environmental health properly, pumbers should be familiar with septic regulations, pumping procedures, operational safety, spills and responses, customer interaction, and documentation and reporting.



The business of providing septic services, such as installation, maintenance and pumping, in Virginia is still a family-style business with few barriers to entry, yet its importance to the public environmental health is significant. The performance of critical onsite septic tasks needs to be standardized and improved in order to upgrade the industry practices. Credentialing and skills certification should be applied to critical onsite tasks, such as system installation, system pumping, as well as the operation and maintenance function of septic systems. This should be desirable under the current VDH business model, but it becomes vital under the new business model seeking to implement the ten essential public health services.



As the graph above depicts, the current regulatory paradigm has the agency resources being expended in an effort to prevent harm to the environment by controlling the septic systems process up through installation. Resources are not being used for risk monitoring and assessment, and research and analysis of the resulting data for the better protection of the public environmental health. The VDH DOSWS needs more opportunity to assess risk within the onsite sewage program in the Commonwealth of Virginia by way of data collection; and then it needs to be able to effectively manage risk within the onsite program through evaluation of the data. The new VDH business model that no longer provides the direct services of soil and site evaluation, system design and installation inspection, and incorporates the ten essential public health services can accomplish this outcome.

Many stakeholders suggest that there is an inherent conflict of interest between the VDH onsite system EHSs and AOSE in competition for the same work, i.e., soil and site evaluation, system design and installation inspection. They further suggest that the regulatory oversight of the AOSE program by VDH exacerbates the situation, and that the Department of Professional and Occupational Regulation (DPOR) should ultimately regulate AOSEs. The other industry participants, such as septic system installers, septic system pumbers and septic system operations and maintenance providers should be studied further to determine the appropriateness for

licensing or certification as well. Regulation by DPOR will result in a higher cost of doing business through requirements for continuing education, E & O insurance, trade organizations to assist with regulatory control and lobbying efforts. This also subjects the licensee to civil and criminal liabilities.

The public environmental health is not likely to suffer as a result of a transition to private sector onsite septic permitting. The public environmental health should actually be better protected with more vigilance by the VDH being a result of the privatization effort. VDH should remain in an oversight capacity to assure quality control. VDH will provide for monitoring and maintenance mechanisms for the septic systems, and will monitor the AOSE program as well. VDH will constantly assess septic system risk factors, and will be in a better position to respond to the public needs and demands under the new business model with the implementation of the ten essential public health services. The VDH onsite staff will be in a position to focus on potential risk factors from failing, non-functioning, or non-existent systems that they are not now properly monitoring. The VDH focus can become more proactive than reactive to problems or potential problems. Investigative and outreach activities should receive more attention, as should regulation and enforcement, and research and analysis. These are the duties the VDH should be performing in the interest of public environmental health.

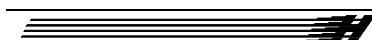
### **Recommendations:**

14. Push for regulatory change to allow for AOSE licensing through DPOR. This would provide for safeguards for the public in terms of guaranties and warranties, as well as civil and criminal liabilities. The dissemination of adequate information to AOSEs and the public (property owners) on financial assurance mechanisms, such as guarantees, warranties, etc., needs additional emphasis. Further study is needed to determine the appropriateness of licensing or certification of septic system installers, pumpers, and operations and maintenance providers; but other states are moving in this direction, and the potential positive impact on professionalism and ethical standards would be beneficial.
15. VDH should complete the transition of providing the direct services of soil and site evaluation, system design and installation inspection as part of the onsite septic program permitting process. The process should begin with a close coordination of effort with the AOSE community to develop a manageable transition process and period. Recognizing that a number of VDH AOSEs will likely jump to the private sector during the transition period, VDH should be ready to hire additional staff at competitive wages, or offer more competitive wages to current VDH AOSEs as an enticement to stay with VDH. Retaining current employees is less costly than incurring a training expense for new employees, and disruptions of the business processes will be minimized.

### **C. Regulations**

**Finding:** The Sewage Handling and Disposal Regulations (SHDR), and the AOSE Regulations are not adequately understood by many of the VDH onsite program stakeholders.

**Conclusion:** A near universal theme that emerged from interviewing the various stakeholder groups during the study period was that the regulations are not effective in guiding the onsite



sewage program in its most productive manner. There is a clarity that is lacking which is not unlike what occurs with the regulations that guide other agencies when there are diverse areas and regional differences that cannot be reconciled locally with a universal set of guidelines. The standard procedure for seeking to clarify guidelines is through policies that are promulgated through standards of practice, or Guidance, Memoranda, and Policy (GMP) that are issued from time to time from the OEHS. The GMPs that are issued from OEHS to clarify issues do not always accomplish that objective. In seeking to implement the guidance or policy, the VDH staff in the field, as well as the AOSEs, view the guidance or policy strictly at the local level, obviously because that is where it will be implemented. The policy from OEHS, of course, must be broad in scope to be applicable statewide. To further complicate the matter, local ordinances, which vary from locale to locale, are placed on top of the state regulations. It is common to see differences in interpretation or implementation among health departments and health districts, and even between two health departments within the same district. Finally, as is the nature with rules, regulations, and policy they are subject to interpretation at various levels down to the personnel in the field. Interpretations of anything vary from individual to individual, and even by the same individual from day to day – impacted by many variables, including interpersonal relationships and exterior influences or pressures.

A result of the process is that stakeholders who must rely on what is promulgated publicly by the VDH, and who are active in multiple jurisdictions are often bewildered by the array of regulations, policy, local ordinances, and their interpretations and implementations. AOSEs must rely on their own methods and devices to expose themselves to regulatory information as it affects their job performance. They utilize the VDH website, reports from AOSE Advisory Committee meetings and personal relationships with the local VDH offices. The assimilation of information and interpretations from multiple sources or entities is not an insignificant undertaking. As an element of their chosen profession, it is incumbent upon the private sector to know what is required of them. This is not new, but it is also incumbent upon the VDH to enhance the process of information-flow to the private sector. Keeping the private sector informed and up-to-date will only make the application process work smoother and faster. In an environment where backlogs of applications are significant, as they are today, a smoother and faster application process will shorten the backlog delay. This outcome is equally significant where the new VDH business model is implemented. Direct correspondence with the private sector regarding all matters of regulation, policy and interpretation is of paramount importance to its capability to make better decisions regarding the onsite sewage program.

A similar situation exists with the VDH field staff that must also assimilate information regarding the onsite sewage program from multiple sources. Frustrations exist because of differences in interpretation and implementation methods among VDH staff. As it is with the private sector, it is incumbent upon the VDH staff to develop a full and complete understanding of the regulations, policies and interpretations that guide their profession. It is equally important that OEHS assist the field staff in coming to a complete understanding of the information that flows to the staff. This situation presents a management issue where the process that makes up the flow of information to all appropriate parties in the onsite program experiences lapses. The VDH is currently taking appropriate steps to improve the situation through the recent hiring of two Environmental Health Coordinators to assist with issues and questions, and the recent hiring of a new data manager.

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Apparently, the preferred method of correspondence of late between OEHS and the district and local health department offices is email. An email message is direct and timely; however, it has a tendency to be one-to-one correspondence and very often does not get disseminated to the entire group. When this happens, there is inconsistency in the interpretation and implementation of policies by virtue of some parties not receiving the information. This also leads to misunderstandings and mistrust by those parties who feel they were left out of the information loop.

Local ordinances and restrictions impacting the onsite sewage program contribute significantly to the confusion on the part of the stakeholders. Local ordinances that are more stringent than state regulations will override the state regulations. Local government is limited in what it can do in any case as Virginia is a Dillon Rule state – they cannot do anything that the state has not given them authority to do, e.g., they cannot license engineers. Local government makes changes that the state cannot accept politically, i.e., requiring a new septic system operation permit upon transfer of property. The local codes most often address issues neglected in the state regulations. Examples are maintenance and monitoring of “alternative” systems, and requiring additional drain field reserve areas. This is evident in the implementation of the Chesapeake Bay Preservation Act provisions (which is a state requirement but done under local ordinance). Some counties have a very strict interpretation and implementation while others seem to be very loose and lenient. Many believe that local governments have historically tried to control development and density in rural areas through the onsite sewage system program. By requiring, for instance, that lots must provide for 100% or even 200% reserve drainfields, the lots, by necessity, must be larger and the soil must be more agreeable for drainage. Local governments are also sensitive to issues that the regulations do not address.

Local funding for staff to assist VDH programs drives the desire of some localities to be more involved than others in the establishment and enforcement of local guidelines over and above the state onsite guidelines. Some localities accept AOSE work while others do not have much confidence in AOSE work because of previous problems with onsite sewage program applications. Inadequate, erroneous, or even fraudulent applications for subdivisions have been at the root of most problem issues with AOSEs.

### **Recommendations:**

16. Renewed emphasis needs to be placed on the necessity for all onsite program stakeholders to assume the ultimate responsibility for their own level of knowledge and understanding about their chosen profession. Questions of judgment will continue to occur in the field, but those judgment calls will be made easier with a more comprehensive knowledge of the regulations, policies and interpretations, and through experience. The recent addition at VDH of two environmental health coordinators will now provide a sounding board and a resource for helping to make the tough decisions.
17. The VDH should make an effort to work in conjunction with local governments to clarify the relationship between VDH rules and regulations and local ordinances to the public and to VDH stakeholders. This requires an outreach program designed to educate and inform the public and the onsite program stakeholders through local publications and community forums. When

individuals understand the processes and what is required of them, there are fewer misunderstandings, and, consequently, fewer backlogs of applications.

18. Encourage the focus groups, or professional organizations that represent the particular stakeholder groups to provide an understanding and interpretation of the regulations from the perspective of each stakeholder group. Submit this interpretation to OEHS for use in developing or amending regulations, with the ultimate objective of improving the public environmental health, while gaining the support of the public through their participation in the process.

**Finding:** Various VDH onsite septic program stakeholder groups suggest improvements for the SHDR and AOSE regulations.

**Conclusion:**

As a practical matter, stakeholders in the field, VDH staff included, perceive numerous flaws with the current regulations as they relate to their individual perspectives within the onsite sewage program. Stakeholders note that there are shortcomings in providing for issues that have evolved recently, such as maintenance and monitoring of septic systems; some would prefer broader enforcement capabilities; some suggested that parts of the regulations need to be simplified; and others suggest the need to expand the breadth of the regulations. There are regulations that some would like to see eliminated, such as for various conditional permits. Then there are regulations that some would like to see added dealing with enforcement issues, and oversight and regulatory concerns.

Maintenance and monitoring requirements for all systems, alternative and traditional, has emerged into a significant issue in the onsite sewage program because of heightened awareness of environmental issues, and because of greatly expanded use of engineered systems in Virginia. Failures of onsite septic systems are more prevalent without a program of maintenance. This is especially true with alternative systems, which are growing in utilization rates faster than traditional systems today. Many homeowners are unaware of O&M requirements because the developer/builder may have failed to inform, or the previous owner failed to inform at the time of sale.

VDH field staff in the onsite program are charged with enforcement responsibilities as part of the overall program mission. Some staff feel that the enforcement actions available to them are not adequate, or lack real deterrent effect, and would like to be empowered to impose civil penalties for onsite sewage violations when they are not remedied as directed.

Perceived flaws in the current regulations, as specified by various stakeholders in the onsite sewage program, are that they:

- Disregard maintenance and monitoring.
- Should be performance-based in light of the availability of alternative systems and continually newer innovations.
- Need a manual of practice to help alleviate some of the complexity.
- Are vague with respect to soil structure, restrictions, and extent of mottling, etc.
- Are contradictory with respect to enforcement as put forth in GMPs.
- Are outdated.

- Lack immediate enforcement powers.
- Do not provide a consistent footprint for secondary treatment.
- Need to clarify tables offset to system components and trench bottom offsets.
- Seem to have been drafted based more on politics than on risk assessment.
- Should provide for certification and licensure of septic contractors.

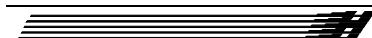
The perceived flaws noted here suggest some observations. One is that the stakeholders are forward thinking in their ideas about where the onsite program is heading with the need for things like system maintenance and monitoring to provide for the growing numbers of engineered systems in use today. Providing for system maintenance and monitoring is also vital to the implementation of the ten essential public health services as part of the new VDH business model. The perceived flaws list also suggests that basic understanding of the regulations needs strengthening as discussed in a previous section of this report.

**Recommendations:**

19. VDH should begin the process to institute monitoring and reporting requirements for all septic systems in Virginia with the intent of standardizing the process. This would require an update to the current regulations since monitoring and reporting for septic systems is not currently a requirement. The proposed regulations should include a provision that homeowners obtain renewable operating permits and report the results of testing to local authorities. Any resulting regulation would need to have a provision that would force the homeowners to take action.

**Finding:** Virtually no health district in the state allows "Deemed Approval" to occur. Local health departments have policies, written or unwritten, to prevent deemed approval from occurring.

**Conclusion:** "Deemed approved" or "deemed approval" means that the department has not taken action to approve or disapprove an application for a permit, an individual lot certification letter, multiple lot certification letters, or subdivision approval for residential development within the time limits prescribed in §§ 32.1-163.5 and 32.1-164 H of the Code of Virginia. In such cases, an application submitted in proper form pursuant to this chapter is deemed approved and the appropriate letter or letters, permit, or approval shall be immediately issued by the department. Deemed approval applies only to applications for single-lot construction permits, subdivision review, and single or multiple-lot certification letters submitted with evaluations and designs certified by an AOSE/PE in accordance with the provisions of the Code of Virginia, the Sewage Handling and Disposal Regulations, and the AOSE regulations. Sites that have been previously denied by the department and proprietary, pre-engineered systems deemed by the department to comply with the board's regulations are not subject to the provisions of deemed approval. An application "deemed approved" means that it is approved only with respect to the Board of Health's regulations. In accordance with 12 VAC 5-615-60.B a local government may authorize the department in writing to implement the provisions of any local ordinance that are more restrictive than the Sewage Handling and Disposal Regulations.



Deemed approval was provided for as a means to help alleviate the backlog problems with applications for onsite septic systems. In theory, it is a great tool for assistance with the backlog problem, but in actual practice, it is usually not allowed to occur by local practice in order to maintain controls over the AOSE process. The AOSE program suffered from credibility problems in several Virginia localities stemming from a handful of errors or questionable practices dealing with subdivision application packages by AOSEs soon after the program was initiated. Deemed approval, as it is currently employed, is not an effective tool to fight the backlog problem. It does not seem to be doing any harm, but, on the other hand, it seems to be completely ineffective at present.

The application for construction permits tends to get top priority. The deemed approval situation arises too easily because of workload issues at VDH, and could result in deemed approval occurring. To many VDH staff, this is too great a risk, and it tends to force VDH away from “first come-first served”. This conflicts with the construction permit application.

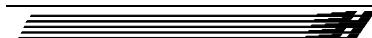
**Recommendation:**

20. VDH should assert adequate management controls over the deemed approval tool to assure that it is used as it was designed, to alleviate the application backlog problem. The local governments need to understand that deemed approval can be an effective tool to help alleviate the problem with backlogs, and that the AOSE program is now a viable and reliable onsite septic permitting resource. The local health departments also need to understand that deemed approval will help alleviate the backlog problem without subjecting the public environmental health to harm.

**Finding:** The VDH regulations are prescriptive in nature. There seems to be a groundswell of support within the onsite system program for more performance-based regulations that would accommodate today’s environment of advanced wastewater treatment technologies.

**Conclusion:** Technological advancements in onsite sewage systems are making major strides in systems that offer improved treatment performance and that can be located in areas with marginal soils. The functioning of these systems is an important consideration in protecting the public health and water quality in the state. In recent years there have been significant advances in onsite wastewater technology enabling residential development to take place in areas where unsuitable soil, groundwater height, slope, size or other conditions had previously ruled out such locations as potential building sites. In addition, many of these new technologies provide more thorough treatment of wastewater than was true with earlier systems.

A performance-based system is one that promotes responsibility and accountability for onsite sewage system performance but allows flexibility in the design of the system consistent with the specifications needed to the project. Under a performance-based approach, the standard that needs to be met is defined, and the technology is designed to meet that standard. A “performance code” means an administrative regulation that specifies the ends or results of a process or activity and allows solutions to occur that can demonstrate achievement of the objective requirement or standard.



A “prescriptive code” specifies the means of achieving an objective and excludes other means of achieving the same objective. Prescription specifies a finite number of system designs that are pre-approved for use on sites with specific site and soil characteristics. Any other viable designs are excluded and adding these concepts usually requires a code change. Virginia has prescriptive regulations and resulting guidance, so it is hard to put innovative technologies into practice. It needs to move towards a performance-based approach. The National On-site Wastewater Recycling Association is working on a model code. Properly treated effluent will not be harmful to the environment, regardless of where discharged. Looking at the treatment first would provide an avenue for getting away from a fixation on minimum size drainfields, and allow for a system of discharge suitable for the effluent. This approach would be in keeping with the achievements that need to be made with regard to risk assessment assuring the public environmental health “after the first flush.”

Recommendation:

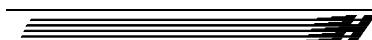
21. VDH should continue its efforts to bring about changes to the current onsite sewage regulations that would allow the latitude to accommodate technological advancements in a timely manner, and which would better serve the public environmental health. The new business model for VDH will place added emphasis on protecting the public health through oversight, regulation and strategic planning, rather than on providing direct services of evaluation and design to the public. Part of the new vision of the VDH should include providing for innovative solutions to environmental health concerns.

## D. Communications

Communications in general within the entire onsite septic system program is a vital function to the overall mission of the DOSWS under its current business model; and it is one of the three main categories comprising the core competencies necessary for implementing the ten essential public health services, which is a key element in the VDH vision of a new business model. Communication, in the context of the core competencies, involves the capacity to:

- Use the environmental health practitioner’s front-line role to effectively educate the public on environmental health issues;
- Effectively communicate risk and exchange information with colleagues, other practitioners, clients, policy-makers, interest groups, media, and the public through routine activities, public speaking, print and electronic media, and interpersonal relations;
- Facilitate the resolution of conflicts within the agency, in the community, and with regulated parties; and
- Articulate basic concepts of environmental health and public health and convey an understanding of their value and importance to clients and the public.

When various functions within an organization fail to communicate properly with each other, problems with interpretation, application, implementation, and misunderstandings of all kinds, personal and professional, will occur. These types of problems are occurring in the onsite septic system program, and contribute to the problems that are occurring with the ongoing timeliness and consistency issues.



**Finding:** Communications between the Office of Environmental Health Services (OEHS), the Division of Onsite Wastewater Services, and district offices dealing with regulation and policy interpretation, implementation and clarification, and with problem resolution needs improvement.

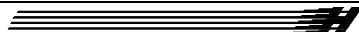
**Conclusion:** This study revealed that there are misunderstandings, mistrusts, and sometimes, feelings of ill will within the onsite program that seem to stem from problems or issues involving communications or miscommunications. The various stakeholders seem fairly well entrenched in their own convictions concerning what is right and correct in providing the safest environment for the protection of the public health. Each group has its own perspective on different issues.

1. On the issue of problems or issues in the field:

- VDH field staff feel that OEHS and DOSWS do not respond adequately.
  - Response not timely
  - Response too quick
  - Response did not solicit feedback from district
  - Decision not put in writing
  - Decision put in writing but not distributed to all districts
  - Decision only has local application, but was distributed to all
  - Decision was made because of political pressure
- OEHS and DOSWS feel that field staff should be more self-sufficient.
  - Should use their own knowledge and experience to make decisions
  - Some of its responses are advice and opinion
  - Some of its responses involve a local interpretation
  - Some of its decisions do apply to all districts
  - Decisions are guided by the regulations and policy, but local applications must still be factored in
- Private sector participants feel a lack of consistency in responses.
  - Response to same issue will vary from locality to locality
  - Response to same issue will vary from district to central office
  - Resolution of issues between district and central office not always shared with private sector
  - Interpersonal relationships will impact decisions

What can be concluded from this is that the lines of communication between the participants in the process of resolving issues and problems in the field are not connected. Each party to the process has expectations of the other parties that exceed the perceptions of the others. The VDH field staff expect that their problems can be dealt with by sending them to the central office. The field staff should expect assistance from the central office in the performance of their duties, and the central office should provide assistance when necessary, but the field staff should not view the central office as a dumping ground for their problems. The central office has an obligation through its mission to train the VDH staff, keep them informed, and interpret regulations and policy for all stakeholders. It has a further obligation to manage the AOSE program. The central office does not have the obligation to be the recipient of all of the unwanted problems of the onsite program. AOSEs, rightfully, can expect that they shall be managed, guided and directed in a consistent manner by the VDH. The local offices have the obligation of providing the daily or

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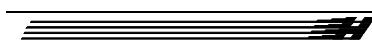
routine necessities of the AOSE program. Conversely, AOSEs have an obligation to understand the regulations and policies that guide their professional activities. They should also expect that unusual circumstances should demand assistance when necessary.

All participants in the onsite program have experienced heavier workloads as a result of the rapid growth in onsite applications in recent years, and, consequently, all parties have become less tolerant of assuming any additional responsibilities, such as with unusual circumstances that arise in the field. The field staff should take it upon themselves to understand the regulations well enough to be able to deal with situations as they arise. The chain of command should be followed for those situations that cannot be successfully resolved in the field, i.e., the EHS should seek resolution from the LHD manager. Going to the central office for resolution should be the last resort. The central office has recently hired two Environmental Health Coordinators to function as a resource for problems and issues that arise needing assistance from the central office. These managers know policy, advise on policy, create new policy when necessary and disseminate policy.

2. On the issue of information flow from the central office:

- VDH field staff prefer a formal flow of information from OEHS and DOSWS.
  - Information flow is not as detailed as it should be
  - Too little time to implement new policy and work through problems
  - Policy is delivered via email, which is not always distributed properly
  - GMPs posted on website are primary source of information on septic systems, with too little detail
- OEHS and DOSWS distribute a significant amount of information to the districts.
  - Email is fast and reliable, but redistribution by recipients is unreliable (This is a management issue.)
  - OEHS should not be the only source for information on septic systems - other sources should be reviewed
  - Decisions should be made by the local manager whenever possible
  - Information will also come in the form of advice – formally and informally
- Private sector participants feel out of the information loop.
  - Get what information they can from the website
  - Usually not included in email flows

Having adequate, effective and free-flowing information is important to the knowledge base of any organization. All parties perform their duties better and more effectively when operating from a position of strength, and information helps support the position of strength. There are plenty of sources of information available today, especially via the Internet, but the opportunities to go searching for this information is what is lacking with most busy employees. The field staff at VDH are busy with heavy workloads of septic permit applications, and they do not have the opportunities to do much research under the current VDH business model, which is primarily onsite septic permitting. The central office is also busy with heavy workloads relating to issues generated as a result of the extraordinary volume of septic permit applications. Opportunities for additional research are rare at the central office, as well. The private sector is equally busy and has similar time constraints.



The information that flows in great quantities within the VDH is focused on extraordinary issues and concerns, and not in sufficient quantities about research and technological advances. These extraordinary issues and concerns spring from the inordinate volume of permitting activity coming from heavy residential growth and exceptionally heavy reliance of alternative systems to overcome marginal situations. The VDH operating in the current business model has scant time for pure research, and dissemination of information about research; it is spending its resources putting out fires related to the septic permitting process.

Other agencies in the Commonwealth of Virginia use innovative approaches to increasing the flow of information to its constituents and any other interested parties. The U. S. Department of Transportation's (DOT) Federal Highway Administration (FHA), for instance, hosts a website - **Disadvantaged Business Enterprise Community of Practice (CoP) Website.** (<http://knowledge.fhwa.dot.gov/cops/dbex.nsf/home>) This site allows people with common interests, goals or expertise to share their experiences and knowledge, collaborate on work, identify and exchange best practices and advance the state-of-the-art in their field. Its goal is a transfer of knowledge within and throughout the agency to promote better decision-making, spark innovation, and improve the quality of service to its customers and partners. This site allows the contribution of thoughts and ideas in an open forum. As such, the content found in the group discussions may not reflect the opinion or policy of the Federal Highway Administration. A proposed site such as this for the VDH would provide a forum for EH Managers and EH Specialists to collaborate with their peers and others to reach decisions about issues using lessons learned from others, as well as helpful advice.

### **Recommendations:**

22. The AOSE program is on the front line of battle along with the EHSs in the onsite septic permitting program, and should be receiving as much information as the EHS in order to effectively carry out its duties. Postings on the DOSWS website and minutes of meetings from the AOSE Advisory meetings are not enough. Active and directed contact with the AOSEs, similar to the interaction between the DOSWS and its field offices and staff, such as through email messaging, is relatively easy to accomplish, and its effect can be enormous. This type of information sharing is important under the current business model where the AOSEs are performing services that are also performed by EHSs; and it should be implemented immediately. This type of information sharing will be vital under the new business model where these direct services are provided exclusively by the private sector.

23. EH Managers and Supervisors are busy like everyone else, but it is their responsibility to communicate directly with the EHS, and keep them informed and educated. The manager is the liaison between the field and the central office. Environmental Health Managers are good people and technically very competent, but not all environmental health people make good managers. Some managers are effective communicators, and others are not. An assessment of the managerial skills of the EH Managers should be considered by VDH to assess their capabilities to direct the activities of subordinates in such a way as to best achieve the agency mission while still accommodating the needs of the individual. Having superior information and knowledge is a key element in job performance for any employee, and it is incumbent upon a manager to enhance the employee's opportunities for processing information to the maximum.

24. VDH should host a space on its website through which the entire agency and others can have access to a forum where individuals can get advice and assistance regarding issues as a supplement to the advice and assistance they can get from the central office. This would allow perpetual access to a source for assistance. Improving advice and assistance would contribute to better understanding of VDH issues and reductions in bottlenecks and backlogs. The website provides the forum through which the vital function of communications during the transition period to the new business model is provided. A special transition site can provide vital links for information as well as a proposed FAQ bulletin board for employees to ask questions and receive answers to their concerns.

25. VDH should develop a detailed communication plan to guide it through the transition period to the new business model. A good communication plan starts at the top of the organization with its full and complete support; and it provides the strategic vision with all the action steps to carry out the transition plan. The plan should be communicated thoroughly and often with all employees throughout the process to keep them engaged and supportive.

**Finding:** Communication between the VDH and the onsite system stakeholders needs enhancement.

**Conclusion:** A certain level of trust must exist between participants in any endeavor in order to accomplish the goals and objectives of the mission. The level of trust between the VDH and the private sector is eroding and needs to be addressed. The private sector is performing the work of the VDH by providing direct services of site and soil evaluation, system design and installation inspection; yet it competes directly with the VDH for this business at a disadvantage through higher, unsubsidized prices, and it is regulated by its competitor, the VDH. This issue has been addressed earlier in this report, and a proposed recommendation was for the VDH to complete the transition of this function to the private sector. This is mentioned here because it contributes to the erosion of trust between the VDH and the private sector.

Another contributor to the erosion of trust between the VDH and the private sector is found in a lapse in the communication network. The private sector (AOSE) is actively engaged in providing the direct services of site and soil evaluations, septic system design and installation inspection for the VDH under its current business model. All policy discussion, decisions, and training should be distributed to the private sector doing this work. The private sector is not being kept fully informed, even though it can receive information through the VDH website and through updates from the AOSE Advisory Committee meetings. Eventually, the private sector will receive pertinent information through these channels; however, timing is the important element here. The private sector will be able to carry out its duties more professionally and effectively with timely information; after all, they are in the field face-to-face with the public where a professional and knowledgeable approach is demanded. Continual correspondence through an email structure would greatly enhance their exposure to timely information.

According to AOSEs interviewed during this study, there are localities in Virginia where the local VDH apparently does not notify AOSEs of Level 2 Reviews. Also in those same localities, acknowledgement is not provided to the AOSE that a permit has been issued as a result of an application submitted by the AOSE. Further, there is a tendency for the EHSs to call an AOSE

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and tell him what is needed when reviewing submittals, even though administrative denial letters should be, and often are, used. If letters were used consistently, the AOSEs would have them to reference for that case and in the future. Also, those letters are copied to the owner, and this increases the likelihood that the AOSE will be responsive to owners. A formalized approach by the local health department and EHS to correspondence with the private sector, as provided for in GMP 113, would keep relationships at a professional level and provide fewer opportunities for mistakes, which lead to bottlenecks and backlogs.

Septic System installers, operators and maintenance providers, and septic tank pumbers, all as AOSE stakeholders, are given insufficient opportunities for training on VDH regulations and policies. Awareness levels need to be raised concerning these “peripheral” businesses to the onsite septic program. These businesses are key elements to the onsite program and should be brought into the mainstream of thought for the protection of the public environmental health. Generally, they are not even on a mailing list for new GMPs that may apply to them. There are sometimes requirements listed in GMPs for manufacturers of proprietary systems to train and/or certify installers for installation of their specific system. Those opportunities are limited. The VDH website is available to them for informational purposes, however, there is little incentive for these groups to visit the website aside from curiosity.

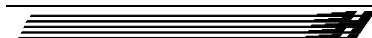
### **Recommendations:**

26. As a condition for doing business in the Commonwealth of Virginia, OEHS should demand that manufacturers provide, and keep current on their own website, a list of system installers who are certified to install their engineered septic system. Also, with an eye toward implementation of the new business model for the VDH, installers would be a logical choice for providing services related to operations and maintenance of the installed systems. VDH’s new business model should make provisions for including these peripheral businesses into the mainstream of public environmental health protection efforts.

27. As part of its effort to include system installers, O&M providers and pumbers into the overall onsite program, VDH should include the private sector, through their respective professional organizations, when disseminating correspondence concerning onsite policy decisions, training materials, and technological updates. Questions and answers to policy and regulation issues can readily be received through professional organizations and then be posted to the VDH website. Not all of the peripheral groups have a professional organization presence in the state of Virginia at this time, but some have formed or are forming in other states, and can provide some means of contact. It should also begin gathering information from other states and federal agencies, such as the EPA and CDC concerning their efforts to organize the inclusion of peripheral groups into the onsite septic program as part of the implementation of the ten essential public health services.

**Finding:** The VDH is missing some opportunities to enhance its public image.

**Conclusion:** VDH needs to improve its public relations efforts and do more to educate the public about its mission and interaction with local communities. Good public relations events are not frequent occurrences and should be fully exploited at every opportunity. Any public generosity through grants, etc. should be used to maximize any potential good will, both at the state level and the local level.



The central office in Richmond does not take full advantage of promoting the good things they do for the districts. Any public relations effort should extend to the public and to other agencies (federal or state), such as DEQ and DCR, that VDH interacts with or is impacted by. Any issues that extend to or impact the local VDH offices that involve other agencies should always include the local VDH as part of the process. The local VDH should be included as part of the discussion process, as well as part of the solution – especially concerning those issues, such as water and sewage, that are regulated by VDH. The VDH, generally, has a less than stellar public image in dealing with water and sewage issues even though it does many good things, so any opportunity to capitalize on a success or good will effort should be taken. The central office needs to be aware that good public relations at the local level is important to achieving the overall mission of the agency, particularly as the agency progresses toward full implementation of the 10 essential public health services.

**Recommendation:**

28. VDH should capitalize on every opportunity to enhance its public relations. Merely protecting public health is not good enough; it needs to enlist the public support for its initiatives through the dissemination of good news. In order to improve communications with the public, the VDH onsite program should implement a public awareness campaign that will educate the public as to the mission of the onsite sewage program within the Division of Environmental Health. Disseminate simplified rules and regulations for public consumption. Coordinate state level efforts with the local health departments in order to incorporate local ordinance requirements. Lay out processes for various functions, such as application process, or how to deal with repairs, or monitoring and maintenance of engineered systems. Coordinate good will efforts with other agencies, such as DEQ, when any water and septic issues are involved.

**E. Staffing**

**Finding:** Many districts of VDH are presently experiencing an inadequate staffing level for the current level of workload due to turnover of employees.

**Conclusion:** In addition to the rapid growth in the number of onsite septic applications causing delays and backlogs in the permitting process, districts and local health departments are experiencing a turnover of employees. Employees leave for various reasons in any organization. Within VDH, pay issues and employee burnout are the most vocalized reasons for staff turnover. Sometimes staff will transfer from one area to another within VDH, but experienced staff, generally speaking, do not transfer to other areas, primarily because of workload issues. Some staff are lost to private sector AOSE work primarily for the perceived financial rewards. Nonetheless, VDH is training many Environmental Health Specialists. VDH numbers indicate that since 2000, VDH has trained over 175 new employees from a total staff level of about 350, which translates to over 50% turnover in five years. Of the newly trained employees, 38% have already left. Since 1999, 52 experienced employees have also left VDH employment. VDH estimates that it has spent 3.5 to 4.0 million dollars training new staff, not counting the processing delays caused by training new staff.



The cycle for new hires in some areas is that the new VDH hires are generally good for up to 3 years. They train for 6 months to a year, and then they gain valuable experience and confidence in what they are doing for another year, and then around the third year either burn out or move to the private sector. The fact that there is little opportunity to advance within the organization also contributes to employee fallout. VDH training becomes perpetual under these circumstances. Replacing experienced staff with inexperienced staff impacts consistency, which is unachievable when there is high turnover. Many VDH AOSEs with 5-10 years experience, having to train new hires who may come in at higher pay, develop morale problems. Another problem area is emerging with the retirement of VDH staff with 20-25 years experience. The problem becomes manifest in the loss of significant amounts of experience and knowledge. Complicating this in some areas is the small size of the applicant pool for new VDH hires. Finding experienced personnel to fill vacancies is becoming difficult. Consequently, the EH manager is left with little choice but to hire youngsters out of college with a science degree in geology or soil science. Some areas will, instead, hire at the mid-range level, but this causes problems with existing staff because of the higher starting salary for the new hire – hire one, lose two!

VDH staff in those northern Virginia health districts above the Rappahannock Health District receive 15-20% increase in pay to compensate for a higher cost of living. The Rappahannock Health District suffers from this because it trains staff who, once trained, immediately seek high paying work to their north, and tend to commute.

Some areas experience the burden of employees, such as clerks, who are not motivated to excel, and in some cases, not motivated to do more than the minimal work required for the position. Ideally, these employees would progress to the point where they would gain enough technical knowledge to enable them to review applications and lessen some burden on EHSs, and help move the agency in the right direction. Lacking sufficient competent help, some areas must rely on the manager to review applications. Clerical people in areas where the labor pool is slim can be adequately trained to perform functions such as reviewing applications for completeness of the package. If clerical staff were to accept expanded duties, a step up in pay would be justified and should provide the incentive needed to motivate the action. A 3A pay level would be in a pay range of \$24,000 to \$25,000.

VDH staff is being pulled in too many directions with not enough people, particularly in some rural areas where staff usually is not dedicated to one function. VDH EH staff cover up to 10 different sets of state regulations (rabies, food, wells, on site sewage, discharge, hotels, campgrounds, swimming pools, migrant labor, milk and complaints) while other state agency EH staff only have one (or a portion of one) set of regulations. This disparity can make other state agencies look more attractive and lead to a higher turnover.

### **Recommendations:**

29. Consider the creation of another level or pay grade for clerical people who achieve the technical ability to review an application package for completeness.
  30. The experience and knowledge drain that is occurring cannot likely be prevented due to VDH budget constraints and the pull of free market forces of supply and demand. The private sector demand for AOSE services will continue to be supplied by those experienced participants,
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VDH AOSE. The market forces that pull the experienced providers have been building, and that force is not likely to change without an extraordinary effort. Rather than resist the forces of change, VDH should yield to those forces and complete the transition of these services to the private sector. Completing the transition of the direct services of site and soil evaluation, system design and installation inspection to the private sector will make valuable resources available to the VDH, resources that can better be expended on risk assessment, management and control.

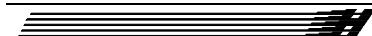
31. VDH will need to maintain a certain level of experience and knowledge to sustain the current business model in the short run and through a transition period to the new business model. It will also need to maintain a certain level of experience and knowledge to sustain the new business model for oversight and regulatory purposes. To achieve or maintain these needs, VDH should consider hiring experienced AOSEs with competitive salaries rather than hiring new college graduates that must be trained.

**Finding:** Compensation levels at VDH are perceived to be low when compared to other agencies or the private sector.

**Conclusion:** The prevailing opinion among EHSs is that the compensation at VDH is low when compared to other agencies, such as DEQ and DCR, where the level of responsibility and liability is not as great as at VDH. They also believe that salaries in the private sector (AOSEs) far outpace VDH salaries for soil and site evaluation and design. Salaries at the VDH, when compared to other agencies such as DEQ, appear to be similar and comparable with the exception of the manager rank. VDH evaluated salaries a few years ago and found that EH supervisors were not properly graded. EH supervisors were subsequently re-graded, but the manager rank was not.

The nuance that seems to set VDH employees apart from employees at other state agencies has to do with exposure to and interaction with the public. The public has become much more demanding of the onsite program, and the reasons stem from a more aware public to environmental issues, as well as the economics of the consequences of their actions. Land values are now significantly higher for properties that can accommodate a septic system and the technologies now available to change the potential use of properties is much more costly than traditional septic systems. Exposure to the public demands has contributed significantly to the stress factors impacting VDH employees.

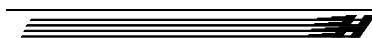
Private sector income has a direct relationship to effort. AOSEs charge a considerably higher fee for their services than VDH is allowed to charge, and the perception among VDH employees is that the fee translates directly into income. AOSEs in business for themselves have overhead and other expense items that cannot be avoided.



<b>AOSE Typical Annual Income and Expense Statement</b>	
<b>Revenue:</b>	
Fee income (200 applications @ \$800)	<b>160,000.00</b>
<b>Expenses:</b>	
Rent	14,400.00
Utilities	3,000.00
Communications - cell, email, internet	1,200.00
Advertising - yellow pages	480.00
Subscriptions, professional organizations	600.00
Auto expense (25000 miles @ \$.35)	8,750.00
Insurance - Liability and E&O	4,500.00
Supplies - office and field	1,600.00
Legal/Accounting	1,000.00
Misc	1,200.00
Administrative assistant (burdened rate)	32,500.00
Office cleaning, etc.	6,500.00
<b>Total Expenses</b>	<b><u>77,730.00</u></b>
<b>Total Operating Income</b>	<b>82,270.00</b>
Less: Health Insurance (Family of 3)	9,360.00
Retirement (SEP 20%)	<u>16,450.00</u>
Paid vacation and sick days - none	
<b>Total Other Expense</b>	<b>25,810.00</b>
<b>Total Net Income</b>	<b>56,460.00</b>

A typical, but fictitious, scenario has been laid out above that illustrates that the actual income difference between an AOSE in business for himself and a typical EH Specialist (4A) is roughly \$25,000 per year. If compared to the typical EH Specialist (4B), then the AOSE makes roughly \$15,000 per year more income. The private sector AOSE can make significantly more than the typical EHS, however, the difference is not as great as they might expect. AOSEs also have other opportunities for producing income through inspecting septic systems and wells, which could result in greater earning differences with the public sector.

A private sector AOSE working for another private sector AOSE would probably do better financially than one working for himself because of economies of scale related to overhead expenses. The difficulty of competing against the private sector has been discussed previously in this report, and is likely a no-win situation for a public agency. Competing against another agency is a different matter where pay rates are set by the state. At the VDH, the public servants would like to have less exposure to the public in a confrontational manner, and the prevailing thought is that the staff at other agencies are not as exposed to confrontational encounters as the VDH. This may be true with the current VDH business model, however, it would not be true under the new vision for the VDH where the direct services part of onsite permitting would be



exclusively provided by the private sector and the ten essential health services would be implemented.

**Recommendation:**

32. Other agencies do not engage in providing direct services such as site and soil evaluation, system design and inspection. These services are better left to the private sector so that the public sector can focus on risks to the public environmental health. By completing the transition of these services to the private sector, those VDH AOSEs who enjoy site and soil evaluations will leave VDH, while those VDH staff who are interested in focusing on community health impacts will remain. VDH employees who are nearing retirement and new employees who do not have the experience to become AOSEs will also remain, but the loss of experience from the program will be significant. This loss of experience will have its biggest impact on the oversight function of the program. If not handled properly during the initial changeover years, the blow could be harmful to the program. Those remaining will perform Quality Assurance/Quality Control on the private sector work. Since the employees who leave are most likely seeking higher wages, the most likely way to retain them would be through an enhanced compensation package.

**Finding:** VDH employee training appears to be adequate for entry into the environmental health onsite program.

**Conclusion:** A majority of the environmental staff possesses college-level degrees in related fields, such as environmental sciences, health sciences, soil science, etc.; and then undergo extensive initial training to enter a career with the VDH. The training modules used for the initial training in environmental health include orientation, wells, sewage system design I & II, and soils training. Additionally, Environmental Health Services personnel must pass the AOSE written and field tests.

VDH estimates recruiting and training direct service providers costs about \$23,050 per employee as depicted in the following table.

Course Title	Days to Complete	Course Instructor Fee	Lodging & Meals (Est.)	Mileage Reimbursement (Est.)	Community College Fee
Orientation to Env. Health	2.5	\$60.00	\$250.00	\$62.50	\$50.00
Private Well Regulations	2	\$600.00	\$0.00	\$0.00	
Basic Skills	2.5		\$250.00	\$62.50	
Design I	5		\$500.00	\$125.00	
Soils	5		\$500.00	\$125.00	
Design II	5		\$500.00	\$125.00	
Sub-Total	20	\$660.00	\$2,000.00	\$500.00	\$50.00

Most agree that the initial training given to new hires is adequate. One of the weak points, however, is that it relies heavily on on-the-job training by peers at the new hire's home health

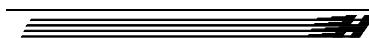
department. This allows for potential bad habits, as well as any variances from OEHS guidance, to be established and even reinforced in the new hire. Some VDH staff feel that the training should have more face-to-face training components, and that some trainees rarely have the opportunity to “turn the auger.” Training is geared toward performing specific tasks, and does not provide an overall understanding of how the program fits into public health, or its environmental purpose.

Hiring and training will need to be refocused under the new business model. The new model will require a slightly different individual than what has been the profile for providing direct services. In addition to knowledge of environmental health and soils, the EH Specialists under the new business model will need many of the skills they now have dealing with enforcement and regulatory procedures pertinent to the field, federal and state, working knowledge of computer databases, and some knowledge of statistical analysis. They will also need many or most of those traits and characteristics developed in conjunction with implementation competencies needed for the ten essential public health services. The Environmental Health Competency Project of 2001 ([http://www.apha.org/ppp/Env\\_Comp\\_Booklet.pdf](http://www.apha.org/ppp/Env_Comp_Booklet.pdf)) identified what it referred to as the “Traits and Characteristics of an Effective Environmental Health Practitioner”. The group identified additional traits and characteristics thought to be common among effective environmental health practitioners as:

- Positive attitude
- Versatility and flexibility
- Practical perspective and common sense
- Strong principles and ethics
- Practitioner integrity
- Strong work ethic
- Tenacity
- Willingness to learn
- Focus on fair solutions
- Collaborative spirit
- Willingness to embrace change
- Involvement with community
- Calmness during conflict
- Understanding of other points of view
- Ability to observe
- Focus on team accomplishments
- Appropriate appearance and body language
- Ability to lead
- Big-picture perspective
- Respect for diversity
- Knowledge of when to ask for help

#### **Recommendation:**

33. VDH hiring practices for the current business model should continue to focus on hiring individuals to provide the direct services of site and soil evaluation, system design and installation inspections. VDH resources for the onsite sewage program are currently expended primarily in support of these services. These employees should be college-degreed in



environmental health or a related field as a base upon which entry level training can commence. For the new business model, however, new employees should also possess some knowledge of statistical analysis and computer databases, as well as the traits and characteristics identified in The Environmental Health Competency Project of 2001 to be an effective environmental health practitioner.

**Finding:** VDH employees in the onsite program want more on-going training than is being provided.

**Conclusion:** A reality of budget constraints is that the responsibility for staff training falls to the district. In times of tight budget, training becomes prohibitive because it oftentimes involves overnight lodging, vehicle for travel, registration fee, and time of the employee away from work.

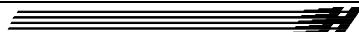
On a district level, managers call for attendance at district EH staff meetings, where information is disseminated about new policies, and at least one outside training conference, although funding for attendance is limited to \$50.00 per EHS per year. Some individual districts have a requirement for EHSs to undergo some training annually as part of their annual performance review. The quality of district level training varies between districts. Any state sponsored training is sporadic, not regular. An example of a state sponsored training session was the Alternative Systems Seminar (Advanced Wastewater Technology) that was very well received by field staff. Vendors were there, AOSEs were invited, and installation contractors should have been invited.

Some training comes by way of VOWRA, Virginia Well Water Association, and from manufacturers. VEHA training is offered and EHSs are encouraged to go, but at their own expense. Many, however, do not participate because of the expense.

Currently there are no formal continuing education requirements. However, various professional environmental organizations and professional societies sponsor conferences, symposiums, and seminars offering opportunities to keep up to date on latest concepts and technical information. Associations offering continuing education opportunities include the Tidewater Environmental Health Association (TEHA), Virginia Environmental Health Association (VEHA), and National Environmental Health Association (NEHA). While continuing education is not required for EHSs, it is required for AOSE and/or REHS.

There are some sources for information on septic system innovations, such as mailings from manufacturers, journal articles, internet, National Small Flows Clearinghouse, and the EPA Environmental Technology Verification Program website. Manuals from manufacturers of pre-engineered, or alternative systems are available in-house. GMP requires formal training by the manufacturers, but these happen infrequently. Manufacturer's representatives occasionally contact local health department personnel for a meeting in which to explain and pitch their product. Manufacturers of some proprietary systems have been required in the past to provide training to VDH personnel, as well as installers, as part of the approval protocol. The requirement is generally limited in scope and does not make provision for training of new personnel. EHSs in some areas rely on engineers for advice and information regarding new technology and innovations, and to a lesser degree on AOSEs.

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Training for the onsite septic program could be offered through various other means, such as through the private sector specialty schools, the community college system, or professional organizations. The training curriculum through these educational media is usually more responsive to change, which allows for updates based on technological innovations, etc. Training modules or pods can be added or deleted as the market demands.

**Recommendations:**

34. In the absence of financial remuneration to EHSs who advance their onsite related technical or scientific education on their own, VDH should provide some form of recognition, or "atta boy", or positive reinforcement, such as a letter of commendation for the employee's personnel file to be used during annual reviews or during consideration for compensation increase.

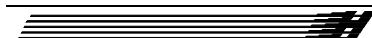
35. VDH recently hired a part-time web page manager. This person should be utilized outside of HealthSpace to design interactive elements for the DOSWS web site that would be effective for training purposes or for purely informational purposes. This site should be accessible by all VDH stakeholders for educational purposes.

36. Provide funding for additional training for onsite program employees in exchange for commitment to continue employment with the agency. If employee leaves before six months, require pay back. At a cost of roughly \$23,000 to train a new employee, this could be cost effective if it results in only a handful of retained employees. A better-trained employee will more professionally carry out the mission of the agency, and the training could be focused also on the new vision for the agency.

37. Training for the agency can be provided by an outside party, such as VOWRA or the Community College system, for the onsite septic program. VOWRA is currently working on a proposal to provide training to the onsite sewage program, and the community college system regularly provides training for regulated industries and public agencies. Either entity could provide the training, although the community college system might be more appropriate if the onsite program goes to the private sector and becomes regulated by DPOR. If the onsite program does go to the private sector, outside training should be provided; and if it does not go to the private sector, private training should still be provided in order to bring about a consistency through market demand for elements of the training that will be appropriate to the conditions of the market.

**Finding:** Among the EHSs throughout the onsite septic system, morale is low.

**Conclusion:** There are numerous reasons for low morale among the staff at VDH. Low pay is the most vocalized reason; however, our review of VDH pay scales in comparison to other agencies, such as DEQ or DCR, does not corroborate the claims. Pay scales seem to be comparable, but the corresponding level of responsibility or exposure to the public is different. The exposure of the onsite septic system has increased dramatically in recent years due primarily to rapid residential growth driving up the numbers of permits, certification letters, and other general direct correspondences with the public. Many more confrontational types of public



exposure have evolved through sheer numbers, and because of greatly increased financial stakes in the outcome of the permitting process.

Pay problems do, however, still exist within VDH. New EH staff are often hired at more starting pay than existing EH staff with several years of experience; and then the lower paid, senior staff member is tasked with training the new, higher paid staff member. The senior staff member is not happy with this arrangement. Sometimes the senior staff member will leave; and sometimes the VDH experienced staff will seek innovative ways to achieve pay increases. One such innovative approach would be to allow EHSs to hire themselves out to the private sector outside of their normal work hours. Current policy regarding EHS employment outside of regular work hours within the onsite program holds that this arrangement would create a conflict of interest. Given the apparent frustration level of some VDH staff with the level of pay compared to the private sector, allowing this type of work outside of regular work hours could actually help to alleviate some pressing issues – those of perceived inadequate pay and backlogs. With adequate controls, such as requiring any outside work to be performed outside the district of primary employment, and limiting the type of work to just certification letters and subdivision work, the motivated EHS might be able to satisfy his financial needs while keeping his primary job. This would allow a staff member to keep state benefits while supplementing his income, and as a consequence, the onsite program might not lose as many experienced VDH staff to the private sector. Perhaps some of these defectors could have been enticed to stay with a little more financial incentive. This employment arrangement would also serve to alleviate some backlog issues in other districts. Some constraints – the program would not want someone in a position to review his own work. The potential for conflict of interest does exist with this scenario, so it would bear closer scrutiny. Presently, there is no standard from the state as to what would be an acceptable part-time job for an EHS to hold.

Stress is also an issue. The sheer numbers of applications are way up as a result of rapid residential growth. This, coupled with VDH staff numbers remaining flat, causes a vastly increased workload. Frustrations continue when new staff are hired and go through the training and are ready to relieve some of the burden, and then they quit or go to the private sector. Then the process begins again.

Some local health departments are understaffed with administrative personnel. This leads to problems such as not getting the date/time stamp on applications, and delays in getting the application from the front of house to the back of house. This can take a week in some localities. Level I review by web interfacing would help in this situation, particularly if additional administrative staff positions are not easily funded.

Management at the district level is a problem in some areas. EHSs feel like there is lack of support by district management for their efforts. Part of this stems from a lack of experience on the part of management. Management does not support the EHS on pay issues in some cases. One staffer with 11 years experience, for instance, said that he is paid less than some new hires that he must train. Higher starting pay is sometimes used as an inducement to hire new people. Positive reinforcement is needed for the existing personnel, especially in times of high stress. Mid-management staff is leaving VDH. New employees are not getting the guidance and training that is needed because of a dearth of managers with long-term experience. VDH promotes from within, which means that technical specialists are often promoted into administrative leadership

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roles and have no background or training for the new job. These new employees need someone in supervisory position available to answer questions and “how to” issues. The capability to handle this comes from long-term experience. (The regional management level that was eliminated in a prior administration for budgetary reasons used to provide a clearinghouse with someone available for more consistent information and guidance.)

Morale issues will generally boil down to problems at the local level with management issues that can often be readily dealt with through open lines of communication. Open lines of communication do not exist at some localities.

#### **Recommendations:**

38. Low morale is generally a management issue and should be dealt with as such. Supervisors and managers should be knowledgeable in human resource management issues. Management should be reviewed for managerial capabilities, and offered managerial and administrative training where appropriate.
39. All EH managers should do an in-house review of their staff to assure that any staff who deserve a pay band adjustment get one.

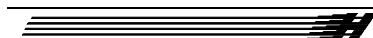
#### **F. VENIS Database**

In 2001, HealthSpace Integrated Solutions, Inc., a Canadian company, became an international application service provider when it earned the business of the Virginia Department of Health (VDH). The company broke new ground a second time by implementing the first statewide EHIS, throughout the Commonwealth of Virginia.

HealthSpace’s Land Development program was designed to help monitor all activities related to subdivisions and onsite wastewater disposal. All of the tools required to conduct assessments and inspections and generate reports are provided. The program is designed to gather information on separate components of an on-site system; monitor plans and reviews submitted by approved installers or private citizens, monitor maintenance programs and share information with related agencies. All the site assessment recording tools are provided; percolation tests, soil evaluation tools, design standards and all of the associated letters of approval, denial, permits and invoicing for services. The agency can monitor the time from receiving a service request to response time, and track any reasons for delays. It can also track time invested in this program by the EH staff.

Every successful implementation done by HealthSpace is supported by comprehensive implementation training. They provide five levels of training: Train the Trainer, Primary Administration Contact (PAC) SuperUser, Clerical, Inspector, and Manager. HealthSpace also provides support training on two levels: Unlimited refresher or new employee, and e-learning (new), which is an on-line extension of the refresher and new employee training. Implemented in spring 2005, all HealthSpace clients can now log on to a secure website (24/7) and take refresher or new employee training in the comfort of their own office or home.

**Finding:** The training provided by HealthSpace for use of the VENIS database has not proved effective with many of the field staff at VDH.

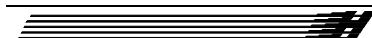


**Conclusion:** When VENIS was initially introduced at VDH the implementation plan provided that the EH managers play the key role at each local health department by undergoing the initial training in the use of VENIS. A “train-the-trainer” approach was utilized, with a PAC SuperUser trained for each district. According to some PACs interviewed, the PAC was “pretty much self-taught.” The EH manager who was already carrying a full workload, assumed the trainer role. Since the time of the initial training, a significant number of VDH staff have left the program, and a significant number of new VDH staff have replaced those who left. A depleted number of the original core of trainees remains to assist new users after their initial training. New people are being trained by VDH “trainers”. These are not ideal circumstances under which to train new people; consequently, training of new people and refresher training appear to be slipping in quality. HealthSpace suggests four to six days of initial training for clerical, and two to three days of training for inspectors.

No VDH staff interviewed as part of this study indicated that they take advantage of the e-learning capability of the database system. The current workload carried by many VDH field staff as a result of heavy permitting activity no doubt has an impact on their propensity to voluntarily engage in that activity. There is a natural tendency to avoid activities that are considered voluntary when one is busy with required activities. As a result many users of the system do not have a good working knowledge of the system. This causes an underutilization of the system, and contributes to a lack of understanding of the system and its potential outputs.

VDH uses VENIS in the onsite program to produce permit documents, for data collection and management reporting. A significant number of VDH employees responded in this study that there is virtually no confidence in the validity of the data that can be retrieved from the VENIS database. They find the system to be unusable for collectively reviewing all data. The VENIS operating system utilizes a hierarchical data system (Lotus based) rather than a relational data system. The result is often multiple-entry of data for use in different reports. The VENIS database, for example, does not presently recognize a locality typed into the physical location form to enable it to carry that location through all the subsequent forms. Presently, if a location is not on a pre-populated dropdown list, the locality can be put on the physical locations but will not carry through the other forms (such as permits and letters). This may require a relational database versus hierarchical.

Recent programming improvements may have dealt with some of the double entry of data, but limits still exist on getting reports out of the system. Different reports should have equal access to the same data, but this does not really exist. Example: two different reports asking for the same thing will get different results. If the manager cannot get the information he needs out of the system, then the end result will be minimal use of the system. There needs to be an inherent “value” to be gotten out of the system, and that “value” is questionable to many users. The TJHD, for example, is hesitant to generate reports from VENIS when addressing the county board of supervisors because they do not have adequate confidence in the validity of the data. They need good and defensible numbers in their reports in order to be believable. They cannot adequately defend the numbers they get from VENIS. Several districts also maintain a backup database system as a control and verification mechanism.



Good data is also important in the preparation of the budget for each local health department, as well as for the district, in reporting to the central office. Confidence in the data is vital to the preparation of the budget, and then later performing to the budgeted numbers. Good and reliable budget numbers are not available from the VENIS system, according to many of its users. Further, the health department supervisor relies on valid data to review the performance of the EHS. The supervisor would like some degree of confidence that the metric he is drawing from another district in the state, and applying to the EHS under review, is valid. This information also is not considered to be reliable.

Many users find VENIS to be complicated, not well designed for ease of use, and that it has actually added to the workload for some. EHSs continue to fill out and submit Activity Sheets in hard copy. VENIS was supposed to eliminate or minimize EHSs having to fill out and submit activity sheets. This was supposed to have been a time-saver; instead, it added to the workload.

As it is, some local health departments do not use the system properly, and some do not use it at all. In order for the division to be able to see everything across the organization, it has to have good and reliable data. The “ownership” of the information management function needs to be at the top of the organization primarily because standards need to be pushed down from the top: development standards, data standards, and content standards. The top of the organization sets the standards and the prioritization, but ideas and feedback need to be allowed to be heard and integrated into the information management function.

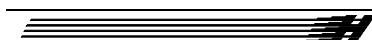
### **Recommendations:**

40. HealthSpace wants to continue having VDH as a customer and to have their database system function as an effective tool in data management. HealthSpace should be alerted to the utilization problems facing VDH, and enlisted to help improve the utilization and effectiveness of VENIS.

41. The VDH field staff apparently are not taking the initiative to understand and properly utilize the database system (VENIS). Management should first collaborate with the central office, in conjunction with HealthSpace, to evaluate the capabilities of the system and current database needs regarding the existing business model; and reassess those needs in relation to the new business model where they no longer provide the direct services of the onsite program and implement the ten essential public health services. Those standards desired to be met should be clearly defined and disseminated to the field staff, and then any refinements needed for adequate and proper implementation should be heard and incorporated. Following this, direct intervention with the VDH field staff to utilize the training capabilities through HealthSpace should be initiated.

**Finding:** The VENIS database system is slow and sluggish and, consequently, not utilized to its potential.

**Conclusion:** The sluggishness and unresponsiveness of the system due to its large size, complexity, and the relative slowness of the computer processors in use at many of the local health departments in the field contributes to the minimal use of the system. Many say the system is slow even with new Pentium IV processors.



“Time outs” by the system while in use are common occurrences and tend to generate frustrations with the users and further contribute to minimal use of the system. Disappearing screens that result in lost work, especially with CAD, are sources of frustration. The length of time between screens is unacceptable to those who are usually in a hurry to complete a task and move on to the next one. Some of the local VDH offices are housed in older buildings with older wiring, which can cause a volt differential that creates problems with computers and the network.

Budget constraints prevent some districts from upgrading their hardware, which is still another source of frustration.

**Recommendation:**

42. A technical analysis needs to be performed to discover ways to improve the responsiveness of the system. This should be done in conjunction with system improvements to increase utilization.

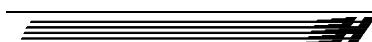
**Finding:** Currently, VDH staff performs all data input into the VENIS database system.

**Conclusion:** Entering the data into the VENIS database system is a slow and cumbersome process. AOSEs do not currently use VENIS. The EHS must input the data for the AOSE applications into the VENIS system. Inconsistencies and errors by AOSEs contribute to a lengthy time element of data input problems. No resources were provided to local health departments for the input of this AOSE application data. This is a very time-consuming effort that can take up to three hours to input the application. A web interface allowing AOSEs to enter data directly would be very helpful in this situation. Some local health departments have been able to upgrade CPUs to the Pentium IV level, which has improved the time involved in the input process. Inexperience of the data entry person also contributes to the length of time involved in the process, but this should improve over time.

CAD work is also a time consuming effort, which involves an initial period of time to become proficient in using; for instance, a new person will take 4-5 months to become proficient at use of CAD. No formal training is provided to the EHS. They must undergo a crash course by someone in office (PAC).

The cost to the localities for a staff person to input data into the database system is measured in FTEs. While this is not a problem area for wealthy districts, it does pose a problem in poorer districts where all employees will often share all the duties required to operate the office. There is a license fee involved with the installation of new users of VENIS that must also be considered. Allowing others, such as AOSEs, to input data would free up more time for VDH employees and perhaps lessen the number of VDH employees necessary to perform the function. Perhaps this would result in lower user fees to VDH.

The VENIS database is not compatible with Geographic Information Systems (GIS) data, which is currently used by many of Virginia’s localities for real estate tracking purposes. When VDH adopts and implements the capability to monitor wells and septic systems, the GIS system will be vital to the effort.



**Recommendations:**

43. As a step to be taken in the short term, under the current business model, to help alleviate the backlog situation, use a best practice process to provide for support staff at local health departments to receive applications, review them, log them in, schedule appointments for the EHS and input data into the database when necessary.
44. The data manager should, with the assistance of HealthSpace, provide for the capability of the database to receive electronic applications in the current business model as one of the steps necessary to help alleviate the backlog of applications. Also, the VENIS database will need to be capable of receiving electronic applications, in addition to performing the requirements of risk assessment and analysis in the onsite sewage program under the new business model. As part of the risk assessment function, the database will need the capability to interface with the GIS data collection effort related to identifying the location of systems throughout the state.
45. Allow AOSEs to obtain training and begin to input applications directly into VENIS with the proper safeguards.
46. Under the current business model, formal CAD training should be provided to EHSs.

**G. Regional Differences**

**Finding:** Regional issues and concerns create local ordinances.

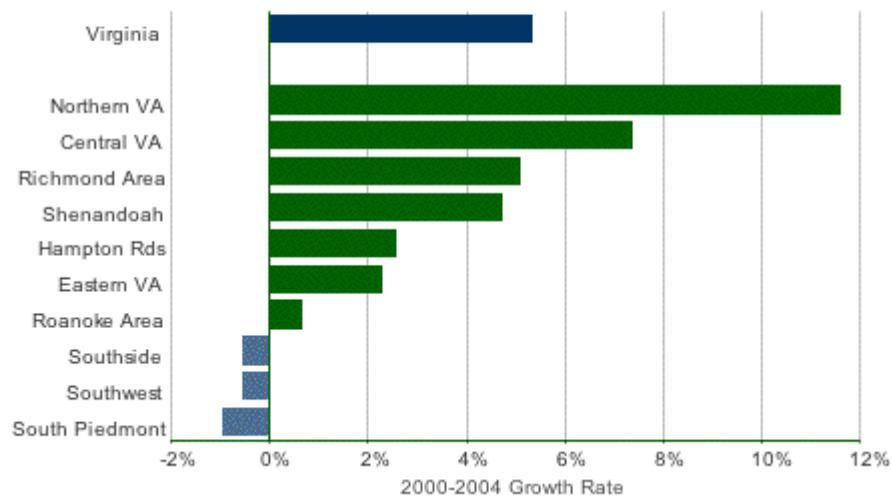
**Conclusion:** Different soil types and topography necessitate different onsite septic system needs. Generally speaking, the harsher the geology, the more reliance is necessary on engineered and pre-engineered onsite septic systems. The mountainous regions, because of rock and slope, etc., require use of a higher percentage of engineered systems than does the coastal region.

Residential growth pressures create different levels of demand for onsite system processing. The northern regions and those regions surrounding metropolitan areas in Virginia are exploding with growth and, consequently, require more use of AOSEs. To achieve higher densities, these areas are also relying more heavily on alternative systems.

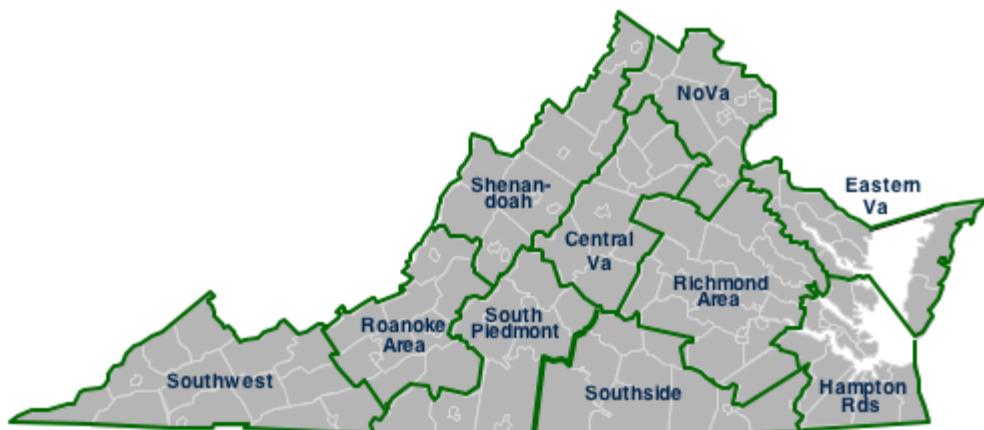
The Chesapeake Bay Preservation Act is a federal program assigned by statute to local governments for implementation. The Chesapeake Bay Act requires a mandatory 5-year pump-out of septic systems in some coastal areas (each locality adopted its own variation of the Bay Act); however, no credentials exist, nor even a list of inspectors, for the function. Having no credentials requirements, or a list of certified inspectors, opens the door for fraud and abuse, which is now coming to pass. Localities develop their own maintenance plans for alternative septic systems.



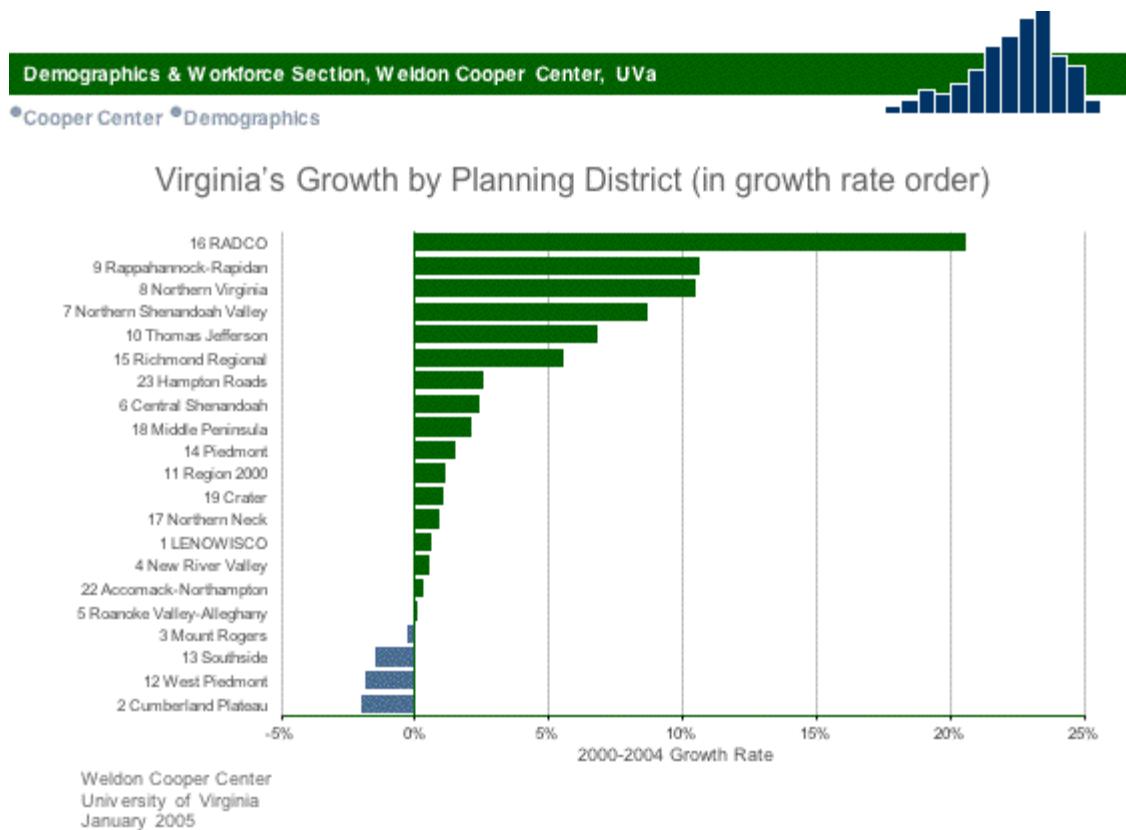
### Regional Growth in Virginia, 2000-2004



### Virginia's Regions



Weldon Cooper Center  
University of Virginia  
January 2005



Some areas of the state have seen phenomenal growth over the past several years and some areas have experienced negative growth as the charts above depict. There are no indicating factors to suggest that these trends are going to change. Those areas in the south and southwest experiencing negative growth are also areas with significant numbers of indigent people. The new vision of the VDH business model will allow for the VDH to provide for direct services of the onsite permitting process through unconventional or alternative means in those areas with large numbers of indigents and few AOSEs. Eventually the open market will provide for these services from the private sector, but probably not in the short or intermediate terms. This issue will need to be addressed in the short term, however, in order to provide for the direct services until the market for these services evolves. Perhaps there is a related industry group with a presence in these areas of the state (such as the Southwest) who could be cross-trained to do site and soil evaluations. Well drillers, for instance, have some familiarity with soils and, of course, siting of wells in relation to drainfields, making them candidates for cross training. Surveyors might also fall into this category.

Local political pressures demand different degrees of implementation of local ordinances. Local ordinances must be stricter than state regulations in order to be enforceable. Local government is limited in what it can do because Virginia is a Dillon Rule state – they cannot do anything that the state has not given them authority to do, e.g., they cannot license engineers. Local government makes changes that the state cannot make because of political reasons, e.g., requiring a new operation permit upon transfer of property.

The local codes most often address issues neglected in the state regulations. An example is maintenance and monitoring of “alternative” systems, and additional reserve areas for subdivisions. This is a reality in the implementation of the Chesapeake Bay Preservation Act. Some counties use a strict interpretation and implementation while others seem to be more lenient. Local governments have also historically tried to control development and density in rural areas with whether or not land “percs” and through the size of the drain field required, which many consider to be a bad idea. Local governments are also sensitive to issues that SHDR and AOSE regulations do not address. A good example is the lack of regulatory requirement for maintenance and monitoring of alternative treatment systems. Some localities are moving to adopt local ordinances to require this since the state has not. Local ordinances can be used to regulate and fix situations that state might not provide for.

Funding drives the desire of some localities to be more involved than others in the establishment and enforcement of local guidelines in addition to the state onsite guidelines. Some localities accept AOSE work and some do not have much confidence in AOSE work (particularly subdivision work – insist every lot gets inspected). Some localities see the AOSEs as more liberal in their approach to permitting.

Local socio-economic conditions dictate emphasis on cost considerations. There is no real consensus, or even any real ideas on how to best pay for repairs or new installations where no septic system previously exists. In some areas, the cost of an engineered system can exceed the value of the home (mobile home, etc.). Indigent population in most areas of the state often cannot afford the application fee for septic system repair, and usually cannot afford any required repairs – even traditional system repair. Indigent populations in some parts of the state resort to unsanitary systems such as straight pipe discharge. It would not be politically expedient to put indigents in this situation off their land. The community accepts these issues in most cases because they see no resolution to the problem. There are some few grants available, but most do not know how to take advantage of them. One is required to have extremely low income to qualify. Some economic relief exists through regional planning district commissions. This relief, however, is in the form of a very low payback loan that becomes a lien against the property. If the loan is not paid back, then it will get paid back upon the sale of the property. Most people, even poor people do not want liens placed against their property.

Some regions have very limited availability of AOSEs to do permitting work. Other regions simply do not want AOSEs to do septic permitting work for subdivisions, for instance, because of previous problems, and actually promulgate local ordinances to prevent certain work by AOSEs.

### **Recommendations:**

47. Residential growth patterns in the state drive the availability of the private sector for doing onsite septic permitting work. The private sector goes where the business can support them. Those areas of low or no growth offer no enticement until the market stabilizes all over. The implication is that the VDH will likely have to provide for direct services through unconventional or alternative means in those low or no growth areas. VDH must provide for these services in these areas through unconventional means because of a scarcity of private sector providers and to serve the indigent populations that also inhabit these areas. VDH should

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stay geared up initially, but temporarily, to remain active in these areas, but they could begin to provide a backup force of individuals from peripheral groups such as well drillers or surveyors who could be quickly trained to perform some of the needed services, including site and soil evaluations. Meanwhile VDH should immediately begin gearing down in other areas of the state where direct services can be absorbed by the private sector.

48. Expand the existing dialog with the AOSE community through the AOSE Advisory Committee to help identify those areas where few AOSEs are available to provide direct services, and start formulating ideas from the perspective of the private sector as to how to provide services through the private sector to those areas.

## VIII. RECOMMENDATIONS SUMMARY

This section enumerates the possible solutions for issues within the VDH onsite sewage program:

1. VDH should dedicate support staff at all local health departments experiencing backlogs to a best practice process where the local health department provides for trained support staff to receive applications, review them for completeness, log them in, schedule appointments for the EHS, and input data into the database when necessary.
2. VDH should provide the capability for the EHS to enter data onto an enhanced laptop computer in the field, which can be automatically uploaded into the system via the website, or through hard wiring in the local health department office.
3. VDH should provide the capability for AOSEs to enter permit application documents via the website.
4. The VDH, for implementation with its new business model, should develop appropriate criteria for the implementation of the process by which the private sector would be required to provide pro bono services in a limited way to the indigent. Those criteria should include the establishment of a threshold at which private sector pro bono services would be required.
5. VDH should begin transition to the new business model by encouraging the private sector to handle all applications for certification letters and subdivision approvals immediately, followed by a “phase-in” period to handle “bare applications”. Further, the new VDH business model should include sending all requests for changes to certification letters and/or construction permits to the AOSE who originally prepared the letter or permit. Likewise, send all requests for construction permits on lots with certification letters to the AOSE who provided the certification letter. If an engineered system is required for the follow-on construction permit, the AOSE can make arrangements with any necessary PE for design work, as provided for in the regulations.
6. The VDH should consider establishment of a two-tiered pricing structure for the transition period of the direct services part of the permitting process to the private sector. One tier for continuing to serve the indigent at current subsidized prices (whether subsidized directly or through the AOSE program); and another tier for those who are willing to pay market prices. With a new pricing structure the VDH should consider charging an additional fee for minor (cosmetic) construction permit or certification letter changes, unless the change was initiated by VDH. Competitive pricing would bring about more equilibrium in terms of where the public would go to request their permitting services, i.e., more of the burden would shift to the private sector.
7. The VDH districts need to make more effective use of the soil scientists available to them in dealing with soil and geologic issues as they differ among the regions. The four soil scientists are primarily used as an expert arbiter when AOSEs and local EHSs disagree on a soil interpretation. The soil scientists’ skills would best be used to train staff rather than as a dispute facilitator and analyst. Staff can use the soil scientists as a crutch to resolve difficult problems rather than

making a decision themselves. Under a new business model, the soil scientists would primarily be used in research and policy assessment rather than dispute resolution. For other regional issues, the districts now have another resource at the division office in two recently hired Environmental Health Coordinators. Having fewer numbers of central office staff to call upon with questions and issues will be more efficient and effective for the division, because it will serve to minimize the number of different answers that can be gotten.

8. All policy decisions, interpretations and guidance, regardless of significance, should be put in writing and disseminated to all. The two new Environmental Health Coordinators, acting in concert with each other, will provide for the possibility of a single source of information for field staff issues.

9. VDH should design and implement a system for monitoring all onsite septic systems in Virginia. This is necessary to help fulfill requirements of the current business model to provide for the safe operation of wells and septic systems in Virginia. Knowing of their existence and where they are would be a good first step in that direction. Providing for this monitoring will also help fulfill requirements for the new business model for the same reason.

10. VDH should begin the process of incorporating the ten essential public health services into its new business model utilizing the core competencies of environmental health as proposed in conjunction with the ten essential services. VDH should also complete the transition of the direct services of site ad soil evaluation, system design and installation inspection to the private sector.

11. Initiate more general meetings with the VDH, AOSEs and professional engineers to discuss mutual problems and to build trust.

12. AOSEs need guidance and training regarding mass drainfields and community systems. They will eventually learn to price their work accordingly so they do not lose financial incentive when recommending one of these systems over individual systems. The result will be that property owners and developers might end up with a septic system that is more efficient, more environmentally friendly and more cost effective, with the ultimate result being that the public environmental health is better served. This fits the new business model for VDH as well, by enhancing the AOSE's capability to provide direct septic permitting services.

13. Develop the DOSWS section of the VDH website to allow for the input of onsite septic program permit applications directly by AOSEs. The computer could do a Level 1 review automatically and kick out anything that does not pass. This should facilitate and speed up processing, reduce the need for Level 1 reviews, and help reduce the current backlog of applications.

14. Push for regulatory change to allow for AOSE licensing through DPOR. This would provide for safeguards for the public in terms of guaranties and warranties, as well as civil and criminal liabilities. The dissemination of adequate information to AOSEs and the public (property owners) on financial assurance mechanisms, such as guarantees, warranties, etc., needs additional emphasis. Further study is needed to determine the appropriateness of licensing or certification of septic system installers, pumpers, and operations and maintenance providers; but

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other states are moving in this direction, and the potential positive impact on professionalism and ethical standards would be beneficial.

15. VDH should complete the transition of the function of providing the direct services of soil and site evaluation, system design and installation inspection as part of the onsite septic program permitting process. The process should begin with a close coordination of effort with the AOSE community to develop a manageable transition process and period. Recognizing that a number of VDH AOSEs will likely jump to the private sector during the transition period, VDH should be ready to hire additional staff at competitive wages, or offer more competitive wages to current VDH AOSEs as an enticement to stay with VDH. Retaining current employees is less costly than incurring a training expense for new employees, and disruptions of the business processes will be minimized.

16. Renewed emphasis needs to be placed on the necessity for all onsite program stakeholders to assume the ultimate responsibility for their own level of knowledge and understanding about their chosen profession. Questions of judgment will continue to occur in the field, but those judgment calls will be made easier with a more comprehensive knowledge of the regulations, policies and interpretations, and through experience. The recent addition at VDH of two environmental health coordinators will now provide a sounding board and a resource for helping to make the tough decisions.

17. The VDH should make an effort to work in conjunction with local governments to clarify the relationship between VDH rules and regulations and local ordinances to the public and to VDH stakeholders. This requires an outreach program designed to educate and inform the public and the onsite program stakeholders through local publications and community forums. When individuals understand the processes and what is required of them, there are fewer misunderstandings, and, consequently, fewer backlogs of applications.

18. Encourage the focus groups, or professional organizations that represent the particular stakeholder groups to provide an understanding and interpretation of the regulations from the perspective of each stakeholder group. Submit this interpretation to OEHS for use in developing or amending regulations, with the ultimate objective of improving the public environmental health, while gaining the support of the public through their participation in the process.

19. VDH should begin the process to institute monitoring and reporting requirements for all septic systems in Virginia with the intent of standardizing the process. This would require an update to the current regulations since monitoring and reporting for septic systems is not currently a requirement. The proposed regulations should include a provision that homeowners obtain renewable operating permits and report the results of testing to local authorities. Any resulting regulation would need to have a provision that would force the homeowners to take action.

20. VDH should assert adequate management controls over the deemed approval tool to assure that it is used as it was designed, to alleviate the application backlog problem. The local governments need to understand that deemed approval can be an effective tool to help alleviate the problem with backlogs, and that the AOSE program is now a viable and reliable onsite septic

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permitting resource. The local health departments also need to understand that deemed approval will help alleviate the backlog problem without subjecting the public environmental health to harm.

21. VDH should continue its efforts to bring about changes to the current onsite sewage regulations that would allow the latitude to accommodate technological advancements in a timely manner, and which would better serve the public environmental health. The new business model for VDH will place added emphasis on protecting the public health through oversight, regulation and strategic planning, rather than on providing direct services of evaluation and design to the public. Part of the new vision of the VDH should include providing for innovative solutions to environmental health concerns.

22. The AOSE program is on the front line of battle along with the EHSs in the onsite septic permitting program, and should be receiving as much information as the EHS in order to effectively carry out its duties. Postings on the DOSWS website and minutes of meetings from the AOSE Advisory meetings are not enough. Active and directed contact with the AOSEs, similar to the interaction between the DOSWS and its field offices and staff, such as through email messaging, is relatively easy to accomplish, and its effect can be enormous. This type of information sharing is important under the current business model where the AOSEs are performing services that are also performed by EHSs; and it should be implemented immediately. This type of information sharing will be vital under the new business model where these direct services are provided exclusively by the private sector.

23. EH Managers and Supervisors are busy like everyone else, but it is their responsibility to communicate directly with the EHS, and keep them informed and educated. The manager is the liaison between the field and the central office. Environmental Health Managers are good people and technically very competent, but not all environmental health people make good managers. Some managers are effective communicators, and others are not. An assessment of the managerial skills of the EH Managers should be considered by VDH to assess their capabilities to direct the activities of subordinates in such a way as to best achieve the agency mission while still accommodating the needs of the individual. Having superior information and knowledge is a key element in job performance for any employee, and it is incumbent upon a manager to enhance the employee's opportunities for processing information to the maximum.

24. VDH should host a space on its website through which the entire agency and others can have access to a forum where individuals can get advice and assistance regarding issues as a supplement to the advice and assistance they can get from the central office. This would allow perpetual access to a source for assistance. Improving advice and assistance would contribute to better understanding of VDH issues and reductions in bottlenecks and backlogs. The website provides the forum through which the vital function of communications during the transition period to the new business model is provided. A special transition site can provide vital links for information as well as a proposed FAQ bulletin board for employees to ask questions and receive answers to their concerns.

25. VDH should develop a detailed communication plan to guide it through the transition period to the new business model. A good communication plan starts at the top of the organization with

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its full and complete support; and it provides the strategic vision with all the action steps to carry out the transition plan. The plan should be communicated thoroughly and often with all employees throughout the process to keep them engaged and supportive.

26. As a condition for doing business in the Commonwealth of Virginia, OEHS should demand that manufacturers provide, and keep current on their own website, a list of system installers who are certified to install their engineered septic system. Also, with an eye toward implementation of the new business model for the VDH, installers would be a logical choice for providing services related to operations and maintenance of the installed systems. VDH's new business model should make provisions for including these peripheral businesses into the mainstream of public environmental health protection efforts.

27. As part of its effort to include system installers, O&M providers and pumbers into the overall onsite program, VDH should include the private sector, through their respective professional organizations, when disseminating correspondence concerning onsite policy decisions, training materials, and technological updates. Questions and answers to policy and regulation issues can readily be received through professional organizations and then be posted to the VDH website. Not all of the peripheral groups have a professional organization presence in the state of Virginia at this time, but some have formed or are forming in other states, and can provide some means of contact. It should also begin gathering information from other states and federal agencies, such as the EPA and CDC concerning their efforts to organize the inclusion of peripheral groups into the onsite septic program as part of the implementation of the ten essential public health services.

28. VDH should capitalize on every opportunity to enhance its public relations. Merely protecting public health is not good enough; it needs to enlist the public support for its initiatives through the dissemination of good news. In order to improve communications with the public, the VDH onsite program should implement a public awareness campaign that will educate the public as to the mission of the onsite sewage program within the Division of Environmental Health. Disseminate simplified rules and regulations for public consumption. Coordinate state level efforts with the local health departments in order to incorporate local ordinance requirements. Lay out processes for various functions, such as application process, or how to deal with repairs, or monitoring and maintenance of engineered systems. Coordinate good will efforts with other agencies, such as DEQ, when any water and septic issues are involved.

29. Consider the creation of another level or pay grade for clerical people who achieve the technical ability to review an application package for completeness.

30. The experience and knowledge drain that is occurring cannot likely be prevented due to VDH budget constraints and the pull of free market forces of supply and demand. The private sector demand for AOSE services will continue to be supplied by those experienced participants, the VDH AOSE. The market forces that pull the experienced providers have been building, and that force is not likely to change without an extraordinary effort. Rather than resist the forces of change, VDH should yield to those forces and complete the transition of the services to the private sector. Completing the transition of the direct services of site and soil evaluation, system design and installation inspection to the private sector will make valuable resources available to the VDH, resources that can better be expended on risk assessment, management and control.

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31. VDH will need to maintain a certain level of experience and knowledge to sustain the current business model in the short run and through a transition period to the new business model. It will also need to maintain a certain level of experience and knowledge to sustain the new business model for oversight and regulatory purposes. To achieve or maintain these needs, VDH should consider hiring experienced AOSEs with competitive salaries rather than hiring new college graduates that must be trained.

32. Other agencies do not engage in providing direct services such as site and soil evaluation, system design and inspection. These services are better left to the private sector so that the public sector can focus on risks to the public environmental health. By completing the transition of these services to the private sector, those VDH AOSEs who enjoy site and soil evaluations will leave VDH, while those VDH staff who are interested in focusing on community health impacts will remain. VDH employees who are nearing retirement and new employees who do not have the experience to become AOSEs will also remain, but the loss of experience from the program will be significant. This loss of experience will have its biggest impact on the oversight function of the program. If not handled properly during the initial changeover years, the blow could be harmful to the program. Those remaining will perform Quality Assurance/Quality Control on the private sector work. Since the employees who leave are most likely seeking higher wages, the most likely way to retain them would be through an enhanced compensation package.

33. VDH hiring practices for the current business model should continue to focus on hiring individuals to provide the direct services of site and soil evaluation, system design and installation inspections. VDH resources for the onsite sewage program are currently expended primarily in support of these services. These employees should be college-degreed in environmental health or a related field as a base upon which entry level training can commence. For the new business model, however, new employees should also possess some knowledge of statistical analysis and computer databases, as well as the traits and characteristics identified in The Environmental Health Competency Project of 2001 to be an effective environmental health practitioner.

34. In the absence of financial remuneration to EHSSs who advance their onsite related technical or scientific education on their own, VDH should provide some form of recognition, or "atta boy", or positive reinforcement, such as a letter of commendation for the employee's personnel file to be used during annual reviews or during consideration for compensation increase.

35. VDH recently hired a part-time web page manager. This person should be utilized outside of HealthSpace to design interactive elements for the DOSWS web site that would be effective for training purposes or for purely informational purposes. This site should be accessible by all VDH stakeholders for educational purposes.

36. Provide funding for additional training for onsite program employees in exchange for commitment to continue employment with the agency. If employee leaves before six months, require pay back. At a cost of roughly \$23,000 to train a new employee, this could be cost effective if it results in only a handful of retained employees. A better-trained employee will

more professionally carry out the mission of the agency, and the training could be focused also on the new vision for the agency.

37. Training for the agency can be provided by an outside party, such as VOWRA or the Community College system, for the onsite septic program. VOWRA is currently working on a proposal to provide training to the onsite sewage program, and the community college system regularly provides training for regulated industries and public agencies. Either entity could provide the training, although the community college system might be more appropriate if the onsite program goes to the private sector and becomes regulated by DPOR. If the onsite program does go to the private sector, outside training should be provided; and if it does not go to the private sector, private training should still be provided in order to bring about a consistency through market demand for elements of the training that will be appropriate to the conditions of the market.

38. Low morale is generally a management issue and should be dealt with as such. Supervisors and managers should be knowledgeable in human resource management issues. Management should be reviewed for managerial capabilities, and offered managerial and administrative training where appropriate.

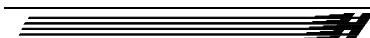
39. All EH managers should do an in-house review of their staff to assure that any staff who deserve a pay band adjustment get one.

40. HealthSpace wants to continue having VDH as a customer and to have their database system function as an effective tool in data management. HealthSpace should be alerted to the utilization problems facing VDH, and enlisted to help improve the utilization and effectiveness of VENIS.

41. The VDH field staff apparently are not taking the initiative to understand and properly utilize the database system (VENIS). Management should first collaborate with the central office, in conjunction with HealthSpace, to evaluate the capabilities of the system and current database needs regarding the existing business model; and reassess those needs in relation to the new business model where they no longer provide the direct services of the onsite program and implement the ten essential public health services. Those standards desired to be met should be clearly defined and disseminated to the field staff, and then any refinements needed for adequate and proper implementation should be heard and incorporated. Following this, direct intervention with the VDH field staff to utilize the training capabilities through HealthSpace should be initiated.

42. A technical analysis needs to be performed to discover ways to improve the responsiveness of the system. This should be done in conjunction with system improvements to increase utilization.

43. As a step to be taken in the short term, under the current business model, to help alleviate the backlog situation, use a best practice process to provide for support staff at local health departments to receive applications, review them, log them in, schedule appointments for the EHS and input data into the database when necessary.



44. The data manager should, with the assistance of HealthSpace, provide for the capability of the database to receive electronic applications in the current business model as one of the steps necessary to help alleviate the backlog of applications. Also, the VENIS database will need to be capable of receiving electronic applications, in addition to performing the requirements of risk assessment and analysis in the onsite sewage program under the new business model. As part of the risk assessment function, the database will need the capability to interface with the GIS data collection effort related to identifying the location of systems throughout the state.

45. Allow AOSEs to obtain training and begin to input applications directly into VENIS with the proper safeguards.

46. Under the current business model, formal CAD training should be provided to EHSs.

47. Residential growth patterns in the state drive the availability of the private sector for doing onsite septic permitting work. The private sector goes where the business can support them. Those areas of low or no growth offer no enticement until the market stabilizes all over. The implication is that the VDH will likely have to provide for direct services through unconventional or alternative means in those low or no growth areas. VDH must provide for these services in these areas through unconventional means because of a scarcity of private sector providers and to serve the indigent populations that also inhabit these areas. VDH should stay geared up initially, but temporarily, to remain active in these areas, but they could begin to provide a backup force of individuals from peripheral groups such as well drillers or surveyors who could be quickly trained to perform some of the needed services, including site and soil evaluations. Meanwhile VDH should immediately begin gearing down in other areas of the state where direct services can be absorbed by the private sector.

48. Expand the existing dialog with the AOSE community through the AOSE Advisory Committee to help identify those areas where few AOSEs are available to provide direct services, and start formulating ideas from the perspective of the private sector as to how to provide services through the private sector to those areas.

## IX. VDH BEST PRACTICES FOR ONSITE SEWAGE SYSTEM PROGRAM

The VDH Onsite Septic Program has many commendable practices that contribute to increased efficiency and effectiveness. The best practices for the onsite septic program are listed below:

1. Some districts utilize support staff to input data into VENIS. This allows the EHSs to spend more time in the field, and to more efficiently issue permits, etc. It also allows the district to perform the workload with fewer of the higher paid EH staff. Other localities have no support staff for the health department.
2. Concerning access to VENIS, it was discovered that if the database is accessed daily and allowed to boot up, then the system will work faster than if it is accessed only once a week.
3. Some districts do not take any “bare applications”. Great time saver (takes 4 times longer to take a bare application than to accept and review the application from AOSE.) Initially, cost factor was a problem, but soon became a non-factor – builders/developers built the cost into the lot. Those districts that made a conscious push for their county supervisors to allow 100% use of AOSE and got their support.
4. Some districts receive significant support from their local government in staffing. Local fees are charged for permit applications and the fees go into local positions.
5. One district in particular uses a database system other than VENIS called Land Management Information System, which is the county’s system. This system integrates the needs of the entire county such that the health department has access to the county land records and GIS, and other county offices also have access to all records, including the onsite sewage system. Researching the history of a property becomes instantaneous and paper communications become minimized – a great time saver. Permit requests can be batched rather than dealt with all on an individual basis. Drawback is that data and reports provided to OEHS are slow due to non-use of VENIS for onsite. Reports must be generated outside of the VENIS system. Other districts also use a backup Access database as a safety net to VENIS.
6. A successful application process follows:
  - Application comes in from AOSE and is logged in.
  - Tech person (environmental health technician) performs a “boiled down” Level 1 review for completeness of application package. (County requires a site visit anyway, so tech person can do a cursory review using checklist approach.)
    - Scheduler takes the reviewed application and schedules site a visit for the EHS.
  - EHS makes the site visit and issues the permit. (By-product of this process is the elimination of the need, generally, for professional courtesy reviews.)
7. An idea for subdivision applications: issue one letter for the entire subdivision, then each lot gets a potential build-out (# of bedrooms). Very few areas where cannot get some successful percolation.
8. Bar code all files. When a file goes to an individual EHS, it is bar code scanned to that individual. This allows much more efficient tracking of the whereabouts of all files at all times.

9. An outside consultant designs all septic systems in one district. All applications are reviewed and all sites are reviewed. County code is drafted to require maintenance agreements for all alternative treatment and dispersal systems, discharging systems and pump and haul systems. Civil penalties (ticketing) can be issued when they do not comply. County code is drafted to issue renewable operating permits for all new systems, all alternative systems, pump and haul, and discharging systems. County is tracking maintenance, inspection, and monitoring on about half of systems in the county. The drafted code will increase the tracking to all systems. Goal is to see all practitioners licensed by the state. Another goal is to require a compliance inspection of the septic system upon expiration of the Operation Permit and at property transfer.

10. The presence of engineers in many of the health departments has been vital for satisfactory reviews of engineered systems.

11. In one district, a county ordinance allows VDH to charge a review fee of \$155 per subdivision application by an AOSE. They review every AOSE application, and the subdivisions typically involve 30-40 lots. This process funds one additional FTE, and is a net moneymaker.

12. There are four regional soil scientists, employed by Virginia Tech, but made available to VDH (through JLARC), who report to OEHS. These positions are critical to assisting the EHSs.

13. Some districts no longer bore auger holes with hand auger. Backhoe pits are required for VDH soil evaluation or confirmation. Could be 3-5 pits per area. The evaluation follows an accepted procedure in the practice of soil science. Soils are described as per the federal standard, (National Soil Survey USDA). The soil description is written in a uniform manner easily interpreted by any competent soil person.

14. Outreach activities are usually low priority occurrences, but this is changing. Since the end of 2004, one district has initiated a Quarterly Septic Summit meeting to share program information. Attendees include Environmental Health Services staff, VDH personnel from Richmond, AOSEs, builders, developers, and City staff.

15. Once the permitting process is complete in a particular district, it is Environmental Health Services policy to mail the homeowner a complete set of all the permit package documents along with brochures describing the procedures the homeowner should follow in order to maintain the septic system.

16. Environmental Health Services makes speakers available on request to address civic groups and schools on environmental issues and the protection of public health.

17. One district will occasionally issue permits based on specific site and soil data that refutes the requirements of the regulations. An example would be permitting a site that conducted a water table study, which proved the site wasn't wet when contrasting soil colors indicated it was.

18. The VDH onsite division sponsored an Alternative Systems Seminar (Advanced Wastewater Technology) that was very well received by field staff. Vendors were there, and AOSEs were invited (contractors should have been invited).

19. Some counties have required from the beginning that property owners employ an operator for all engineered septic systems. The operator monitors quarterly for first year, then annually. The operator is required to send in a report.

20. An AOSE in the one district developed a slide show for his customers. The slide show goes over the regulations, pre-treated wastewater and other high-tech systems, and what they look like, etc. He does this for all of his customers. He really attempts to educate people to the point where they can actually choose the system that is best for their needs.



## ATTACHMENT A: DATA COLLECTION AND ANALYSIS

### A. Survey Methodology

The survey consisted of 70 questions designed to capture respondents' opinion/attitude regarding the VDH AOSE program and the success of VDH in accomplishing its mission to protect the public health generally. The questions were grouped into 10 categories targeting specific aspects of the VDH mission. These categories are shown in Table 1.

Customer Table 1

SURVEY STRUCTURE

SURVEY CATEGORY (Pertinent to)	SURVEY QUESTIONS (NAR = Narrative Question, Y/N = Yes or No)
Regulations	21, 22, 23, 24, 25, 29, 32, 33, 55A
Staffing	36, 37, 38, 39, 40
Regional Differences	18, 30, 31, 34 (Y/N), 35 (Y/N)
Communications	4B3, 4A4, 4B3, 4B4, 4C3, 4C4, 17, 18, 59
Technology	2 (Y/N), 46 (Y/N)
VENIS	47, 48, 49, 50, 51, 52, 53, 54
Health Department Objectives	57, 58, 60, 61, 62, 63, 64, 65, 66, 67 (Y/N)
Current Reality	1 (NAR), 3A, 3B, 4A1, 4A2, 4B1, 4B2, 4C1, 4C, 5, 6, 7, 8, 12, 13
Best Practices	9, 10A, 10B, 11, 15, 16, 41, 42, 43, 44, 55B, 55C, 56B, 56C
Problems	14, 20, 26 (Y/N), 27, 28, 45 (NAR), 56A, 56D, 56E
Recommendation comments	68 (NAR), 69 (NAR), 70 (NAR)

Respondents evaluated VDH Onsite services with ratings of Strongly Agree / Extremely Satisfied (8-9-10), Agree / Satisfied (4-5-6-7), or Strongly Disagree / Extremely Dissatisfied (1-2-3). The survey legend is displayed in Table 2. Responses are recorded and entered into the applicable survey cell.

Customer Table 2

SURVEY LEGEND

Strongly Agree/Extremely Satisfied 8-9-10	Very well satisfied with VDH Onsite Services
Agree / Satisfied 4-5-6-7	Satisfied with VDH Onsite services
Strongly Disagree / Extremely Dissatisfied 1-2-3	Frequently dissatisfied with VDH Onsite services
Y – Yes    N - No	Agree or disagree with a statement
N - Narrative	Question has a text response.

### B. Analysis of Survey Return and Interview / Visit Data

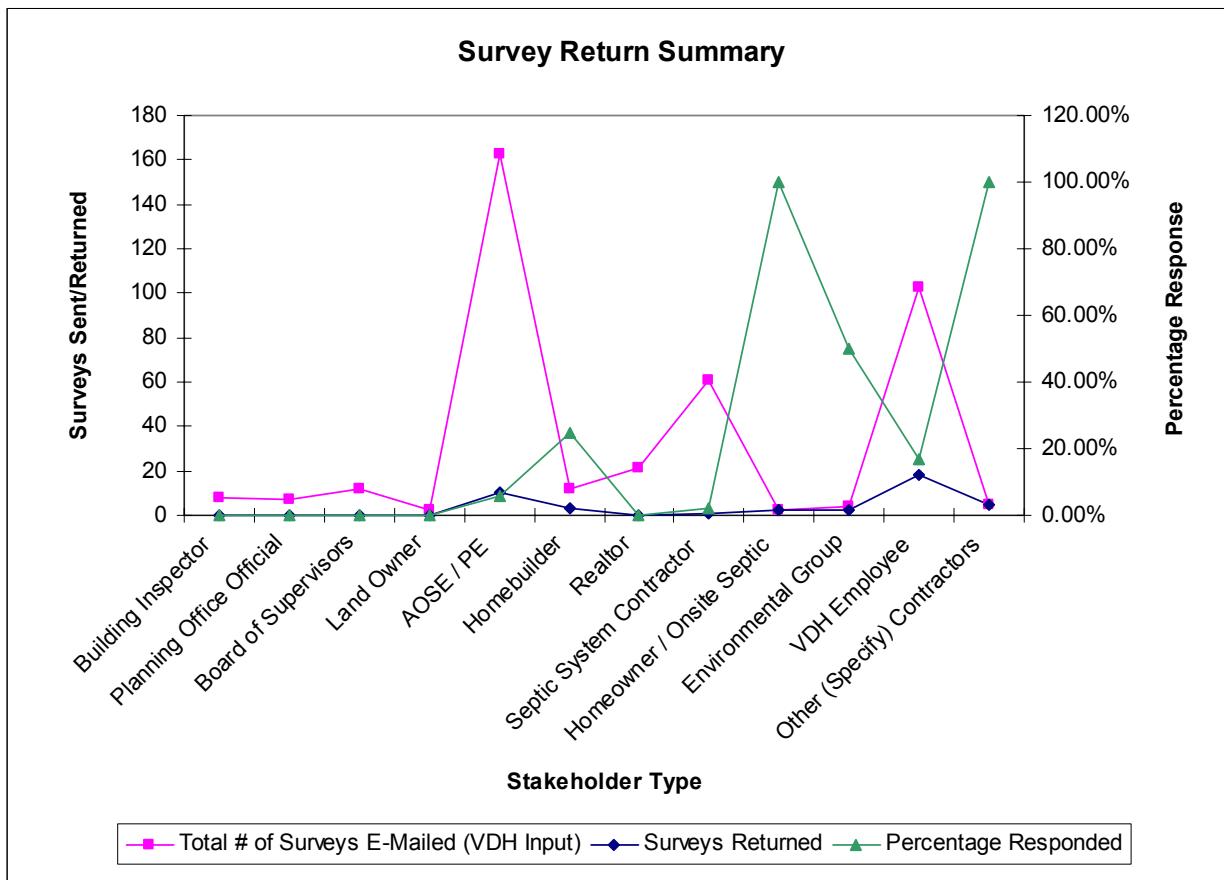
Stakeholder surveys were emailed to all stakeholders with a valid email address from lists provided by VDH and various health districts throughout the state. Request for stakeholders' email addresses yielded 400 valid addresses. All surveys were sent in two days followed by a

reminder on the requested return date. Stakeholders returned 41 surveys. With the exception of AOSE and VDH stakeholders, the return rate is very low. Though stakeholders in all health districts expressed a strong desire to participate in an onsite survey few took advantage of this opportunity to express their views and evaluate the onsite program.

The number of surveys sent and returned by stakeholder type is displayed in Table 3. Returned surveys where the stakeholder type is different from the survey list of stakeholder types are counted in the other category. Table 3A is a graphical representation of the survey return summary. The largest percentage of responses came from VDH employees followed by the AOSEs.

**SURVEY RETURN SUMMARY**

<b>Stakeholder Type</b>	<b>Total # of Surveys E-Mailed (VDH Input)</b>	<b>Surveys Returned</b>	<b>Percentage Responded</b>
Building Inspector	8	0	0.00%
Planning Office Official	7	0	0.00%
Board of Supervisors	12	0	0.00%
Land Owner	2	0	0.00%
AOSE / PE	163	10	6.00%
Homebuilder	12	3	25.00%
Realtor	21	0	0.00%
Septic System Contractor	61	1	2.00%
Homeowner / Onsite Septic	2	2	100.00%
Environmental Group	4	2	50.00%
VDH Employee	103	18	17.00%
Other (Specify) Contractors	5	5	100.00%
<b>Number and percentage of returned surveys.</b>			
	<b>400</b>	<b>41</b>	<b>10.00%</b>



Stakeholder survey and health district visits and interviews enabled contact with 89% of the health districts. The Virginia Health Department Onsite contact summary is shown in Table 4

Stakeholder Survey Table 4

VDH Onsite Study Contact Summary

Virginia Department of Health Onsite Study Contact Summary				
Virginia Health Districts	Visited	Interviewed	No Contact	Returned Survey
Alexandria			No	
Alleghany		Yes		
Arlington			No	
Central Shenandoah		Yes		Yes
Central Virginia		Yes		Yes
Chesapeake	Yes			
Chesterfield		Yes		
Crater		Yes		Yes
Cumberland Plateau	Yes			
Danville		Yes		Yes
Eastern Shore			No	Yes
Fairfax		Yes		Yes
Hampton		Yes		

Hanover		Yes		Yes
Henrico		Yes		Yes
Lenowisco		Yes		
Lord Fairfax	Yes			Yes
Loudoun	Yes			Yes
Mount Rogers	Yes			Yes
New River		Yes		Yes
Norfolk			No	
Peninsula		Yes		
Piedmont	Yes			Yes
Portsmouth			No	
Prince William		Yes		Yes
Rappahannock	Yes			Yes
Rappahannock Rapidan		Yes		
Richmond			No	Yes
Roanoke	Yes			
Southside	Yes			Yes
Thomas Jefferson	Yes			Yes
Three Rivers	Yes			Yes
Virginia Beach	Yes			Yes
West Piedmont		Yes		
Western Tidewater		Yes		Yes
4 HD had no contact of any kind. 11%				
35	12	17	6	21
% Contacted	83%	34%	49%	17% 60% Survey Contact
Stakeholder visits, interviews and returned surveys contacted 89% of VA Health Districts				

### C. Survey Findings

The number and percentage of stakeholders that responded to the survey and the average score for each question, less narrative responses, is shown in Table 5.

Stakeholder Survey Table 5

STAKEHOLDER SURVEY RESULTS SUMMARY

Onsite Sewage Program	I	II	III	
1. What is your primary activity?				
A. Building Inspector	8	0	0	
B. Planning Office Official	7	0	0	
C. Board of Supervisors	12	0	0	
D. Land Owner	2	0	0	
E. Authorized Onsite Soil Evaluator (AOSE) / Professional Engineer (PE)	163	10	6%	
F. Homebuilder	12	3	5%	
G. Realtor	21	0	0	
H. Septic System Contractor	61	1	2%	
I. Homeowner / Onsite Septic System Owner	2	2	100%	
J. Environmental Group	4	2	50%	

# of surveys emailed to stakeholders  
# of surveys returned per activity  
% of surveys returned per activity

Column I indicates # of surveys emailed to stakeholders.  
Column II indicates # of surveys returned per activity.  
Column III indicates % of surveys returned per activity.

Onsite Sewage Program	I	II	III									
K. VDH Employee	103	18	18%									
L. Other (Specify)	5	5	100%									
			YES	NO								
2. Have you ever visited the Virginia Department Of Health (VDH) WEB site?	38	93%	35 92%	3 8%								
Column I is # of surveys that answered the question. Column II is % of surveys that answered the question				Extremely Dissatisfied			Satisfied			Extremely Satisfied		
I	II	1	2	3	4	5	6	7	8	9	10	
3. Overall, how would you rate the effectiveness of the VDH On-Site sewage program regarding:												
A. Groundwater / well water public health issues?	38	93%				5.9						
B. Application process?	37	90%				5.3						
		Strongly Disagree			Agree			Strongly Agree				
		1	2	3	4	5	6	7	8	9	10	
4. Rate the onsite system permit application process:												
A. Certification Letter												
1. Application hard to complete.	32	78%			3.5							
2. Application instructions are easy to understand.	31	76%				5.1						
3. VDH staff assistance is available to complete application.	30	73%					6.3					
4. Your questions about the application are answered satisfactorily.	27	66%				5.8						
B. Construction Permit - Traditional System												
1. Application instructions are easy to understand.	32	78%				5.6						
2. Application is hard to complete.	31	76%			3.2							
3. VDH staff assistance is available to complete application.	33	80%					6.0					
4. Your questions about application are answered satisfactorily.	29	71%					6.0					
		Strongly Disagree			Agree			Strongly Agree				
I	II	1	2	3	4	5	6	7	8	9	10	
C. Construction Permit - Engineered System												
1. Application instructions are easy to understand.	32	78%				4.9						
2. Application is hard to complete.	32	78%			3.5							
3. VDH staff assistance is available to complete application.	31	76%					5.6					
4. Your questions about application are answered satisfactorily.	27	68%					5.3					
5. When you filed an application you received a date and time when services would be provided.	23	56%			3.4							
6. Services were provided on time.	27	66%				4.4						
7. For a bare application, traditional septic system, VDH fees for permit and certification letter are appropriate.	33	81%				4.7						

Onsite Sewage Program	I	II	III									
8. For a bare application, traditional septic system, AOSE fees for permit and certification letter are appropriate.	26	63%					4.5					
9. Discontinue use of certification letters. They have no value.	35	85%			3.8							
10. Should the purpose of the certification letter be expanded to:												
A. Authorize construction of a sewage system.	33	81%			3.4							
B. Contain a detailed description of the system certified to better facilitate real estate transfers.	34	83%					5.7					
			Extremely Dissatisfied			Satisfied				Extremely Satisfied		
	I	II	1	2	3	4	5	6	7	8	9	10
11. Indicate how satisfied you are with the availability of new information on septic system designs or technological innovations.	38	93%				4.7						
			Strongly Disagree			Agree				Strongly Agree		
	N/A	DNU	1	2	3	4	5	6	7	8	9	10
12. VDH should focus more of its' resources on processing applications.	37	90%					5.8					
13. VDH should focus more of its' resources toward quality assurance of AOSE/PE work.	36	88%					5.5					
14. VDH fees should be lowered from current level for applications that are supported by AOSE/PE work.	35	85%				4.5						
15. VDH should continue to provide the same services as can be obtained through the private sector.	36	88%				4.1						
16. VDH should focus more resources toward risk assessment, risk communication and risk management of onsite sewage systems, and how they affect the groundwater supplies.	36	88%						6.9				
17. VDH officials are open to customer suggestions.	36	88%				4.4						
18. Does VDH have a backlog problem in your area?	36	88%					5.5					
19. Feedback from VDH officials is considerate and useful.	31	76%					5.4					
20. Information provided by VDH is current and up to date.	33	81%					5.2					
21. State regulations are interpreted clearly and consistently.	35	85%			3.6							
22. State regulations are currently adequate to protect the public health.	37	90%					5.2					
23. Local ordinances, as they might relate to state regulations, are interpreted clearly and consistently.	32	78%				4.2						
24. Local ordinances are currently adequate to protect the public health.	31	76%				4.5						
25. State and local regulations conflict with each other.	33	81%					5.4					
	I	II	YES		NO							
26. Should mandatory application turnaround times be eliminated?	38	93%	14 37%		24 63%							
27. Is "Deemed Approval" useful in dealing with backlogs?	28	68%				4.3						
28. Is Hiring an AOSE/PE useful in dealing with backlogs?	30	73%				4.5						

Onsite Sewage Program															
	I	II	III			Strongly Disagree			Agree			Strongly Agree			
	I	II	1	2	3	4	5	6	7	8	9	10			
29. VDH keeps me advised of policy and regulation changes.	32	78%				4.6									
30. The quality and timeliness of services provided by the VDH office in your area are adversely affected by an increase in housing development.	33	81%							6.6						
31. The quality and timeliness of services provided by the VDH office in your area are adversely affected by additional local ordinances.	30	73%				4.5									
32. Local ordinances are too restrictive.	29	71%				4.0									
33. Local ordinances should be more stringent.	29	71%				4.2									
	I	II	YES		NO										
34. Do you agree that soil type in your area may necessitate more reliance on engineered septic systems?	37	90%	31 84%		6 16%										
35. Is your area experiencing high residential growth that requires onsite sewage systems?	38	93%	31 82%		7 18%										
	I	II	1	2	3		4	5	6	7	8	9	10		
36. There is adequate VDH staff for the current volume of on-site applications.	38	93%				3.7									
37. There is adequate VDH staff for the projected volume of on-site applications.	39	95%				3.4									
38. VDH staff is properly trained initially.	37	90%							5.0						
39. VDH staff is properly trained on a continuing basis.	35	85%					4.0								
40. VDH staff turnover adversely affects quality of VDH on-site services.	38	93%								7.8					
41. AOSEs are properly trained and certified to provide onsite sewage system permitting services.	34	83%							5.6						
42. AOSEs provide timely and professional services for onsite sewage system processes.	35	86%							5.4						
43. AOSEs provide consistent and professional services for onsite sewage system processes.	35	86%							5.4						
44. AOSEs are currently held accountable for the quality of their services.	36	88%					4.7								
45. As a homeowner with a septic system problem as a result of AOSE work, I know I can look for accountability and a solution to my problem from:															
A. A professional engineer		1													
B. The Virginia Department of Health		11													
C. The system installer		2													
D. The system manufacturer		1													
E. The builder/contractor		0													
F. The Realtor involved		0													
G. The AOSE		8													
H. The legal system		3													
I. Myself – the homeowner		4													
	I	II	YES NO												
46. Should applicants be allowed to file their onsite septic system application electronically?	36	88%	28 78%	8 22%											
Questions 47 thru 54 are directed to VDH personnel.					Strongly Disagree			Agree			Strongly Agree				
	I	II	1	2	3		4	5	6	7	8	9	10		

Onsite Sewage Program	I	II	III									
47. The VENIS database system is a reliable resource tool.	17	42%			3.5							
48. I regularly input data into the VENIS database.	17	42%						6.9				
49. I regularly generate reports / permits / letters from the VENIS system.	17	42%						6.5				
50. I utilize the full capabilities of VENIS adequately.	17	42%			3.8							
51. I utilize VENIS minimally because of its complexity.	17	42%					5.0					
52. I utilize VENIS minimally because of its slow response time.	17	42%					5.6					
53. VDH staff is adequately trained to use VENIS.	17	42%			3.8							
54. VDH staff is adequately trained to use Computer-Aided Design (CAD).	17	42%				4.5						
			Extremely Dissatisfied		Satisfied			Extremely Satisfied				
55. Indicate how satisfied you are with the following elements of the AOSE program:												
A. Current AOSE Regulations.	34	83%				4.7						
B. Permit process.	34	83%					5.0					
C. Requirements to be AOSE certified.	34	83%					5.1					
			Strongly Disagree		Agree			Strongly Agree				
	I	II	1	2	3	4	5	6	7	8	9	10
56. The biggest obstacles to full acceptance of the private sector AOSE program is:												
A. Resistance to change within VDH.	33	81%						6.2				
B. Cost of AOSE services.	32	78%					5.1					
C. Availability of low cost VDH application services.	33	81%						6.4				
D. Concerns protecting public health.	33	81%				4.9						
E. Other	4	9.8%					5.3					
The Institute of Medicine has identified public health activities that should be undertaken in all communities. These Essential Public Health Services provide a guiding framework for the responsibilities of local public health systems. Rate the following statements:			Strongly Disagree		Agree			Strongly Agree				
	I	II	1	2	3	4	5	6	7	8	9	10
57. VDH programs provide effective means for monitoring health status to identify and solve community health problems.	33	81%			3.9							
58. VDH effectively diagnoses and investigates environmental health problems and health hazards in the community.	36	88%				4.6						
59. VDH programs are effective in informing, educating and empowering people about environmental health issues.	36	88%					4.0					
60. VDH programs are effective in mobilizing community partnerships to identify and solve environmental health problems.	35	85%			3.7							
61. VDH policies and plans effectively support individual and community environmental health efforts.	36	88%					4.2					
62. VDH effectively enforces laws and regulations that protect public health and safety.	35	85%					5.3					
63. VDH quality assurance program effectively ensures uniformity among regulatory staff in the interpretation and application of laws, regulations, policies, and procedures.	35	85%			3.5							

Onsite Sewage Program	I	II	III											
					Strongly Disagree				Agree				Strongly Agree	
		I	II	1	2	3	4	5	6	7	8	9	10	
The Institute of Medicine has identified public health activities that should be undertaken in all communities. These Essential Public Health Services provide a guiding framework for the responsibilities of local public health systems. Rate the following statements:														
64. VDH officials effectively link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable.	34	83%					4.6							
65. VDH forums foster communication and information exchange among the regulators, industry and consumer representatives.	34	83%				3.8								
66. VDH sponsors outreach activities that provide educational information on ground water protection and proper operation and maintenance of septic systems. These activities are effective.	32	78%				3.4								
		I	II	YES	NO									
67. Are these outreach activities offered in your local area?			30	73%	10 33%	20 67%								

68. What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program? 38 of 41 surveys returned responded to this question. (93%) Narrative responses are displayed in the narrative response report.

69. What additional information would you like to see on the VDH WEB site? 37 of 41 surveys returned responded to this question. (90%) Narrative responses are displayed in the narrative response report.

70. Enter additional comments. 37 of 41 surveys returned responded to this question (90%). Narrative responses are displayed in the narrative response report.

#### **D. Survey Results Summary Observations**

##### **Question 2**

WEB sites are beginning to play an important role in the daily life of Virginia residents. As high speed internet is becoming available across the state more and citizens will demand all daily activities be available through the internet. Over 92% of the VDH stakeholders visited the VDH website. The website is a valuable tool that is being underutilized. Based on interviews, survey comments, and site visits the following actions are recommended:

- Place policy, regulations, regulation updates, and rulings on the website and update them daily.
- Create an area on the website that will enable all of the health districts to communicate with each other and post lessons learned and problems that are encountered in there health district.
- Modify the website so it can track number of hits, location, and type of user that access the VDH web site.
- Place the application online. Provide the capability of online application and payment.

**Question 3**

Over 90% of survey respondents indicate that they were satisfied with the VDH on-site sewage program regarding the health issues and the application process.

**Question 4.**

Stakeholders were asked to evaluate specific aspects of the onsite system permit application process (Complete process shown in diagram 1 and 2). With the following results:

- Respondents indicated that the application was not hard to complete and that instructions were easy to understand.
- VDH staff assistance is available if needed when completing an application
- The VDH staff answered questions about the application satisfactorily.

**Questions 5 thru 11 (APPLICATION/CERTIFICATION LETTER)**

The following observations come from the above listed questions.

One of the many goals of the Onsite program is to provide quality services within required time lines. Though stakeholders reported that they did not receive a date and time when services would be provided they did agree that services were provided on time.

Stakeholders agreed that bare application fees (traditional septic system) for permit and certification letter are appropriate.

Use of certification letters would not be discontinued or used to authorize construction of a sewage system. Stakeholders agreed that the certification letter should contain a detailed description of the system to better facilitate real estate transfers.

Stakeholders were satisfied with the availability of new information on septic system designs and technological innovations.

**Questions 12 thru 20 (OPERATIONS)**

The following observations come from the above listed questions.

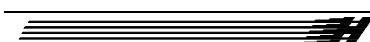
VDH should focus more of its resources on processing applications and quality assurance of AOSE/PE work.

VDH fees should continue to provide the same services as the private sector and focus more resources toward risk assessment, risk communication, and risk management of onsite sewage systems and their effect on ground water supplies.

Officials of VDH are open to customer suggestions.

Stakeholders agreed that VDH has a backlog problem in their area.

Information provided by VDH is considered useful and up to date.



**Questions 21 thru 25 (REGULATIONS)**

The following observations come from the above listed questions.

State regulations are not interpreted clearly and consistently, but are adequate to protect public health.

Local ordinances as related to state regulations are interpreted clearly and consistently and are adequate to protect public health.

Stakeholders agree that state and local regulations conflict with each other.

**Questions 27 thru 33**

The following observations come from the above listed questions.

Deemed Approval and hiring an AOSE/PE is useful in dealing with backlogs.

VDH does keep stakeholders advised of policy and regulation changes.

The quality and timeliness of services provided by the VDH office in your area are affected by an increase in housing development and additional local ordinances.

Local ordinances are too restrictive but should be more stringent.

**Questions 26, 34, 35, and 46 (Yes / No Questions)**

The following observations come from the above listed Y/N questions.

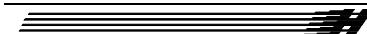
The mandatory application turnaround time should be maintained.

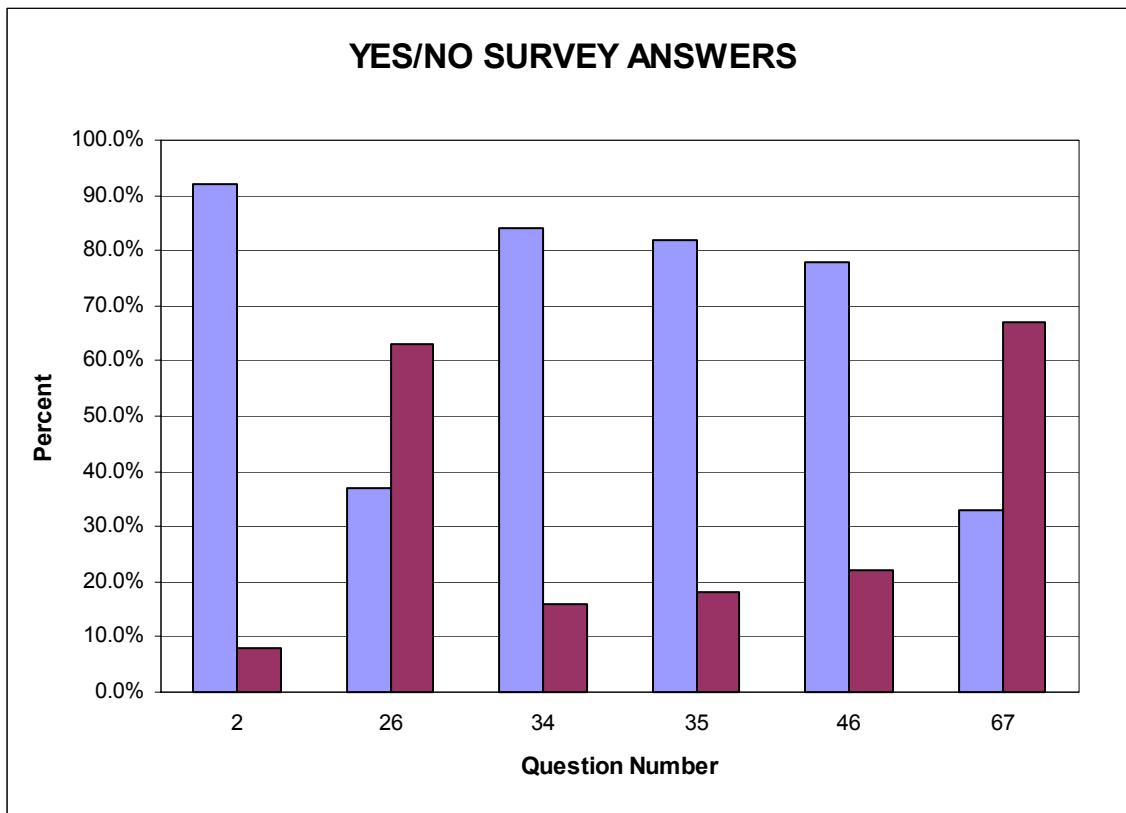
Over 80% of stakeholders agreed that soil type in their area may necessitate more reliance on engineered septic systems and is experiencing high residential growth requiring onsite sewage systems.

Stakeholders also agreed that applicants should be able to file their onsite septic system application electronically.

Electronic filing would be extremely beneficial to the public and business. This capability would also allow the applicant to go online and check the status of their application.

Table 6 displays the yes/no survey answers.



**STAKEHOLDER YES/NO SURVEY ANSWERS****Questions 36 thru 40 (VDH STAFF)**

The following observations come from the above listed questions.

There is not adequate staff for current or the projected volume of on-site applications.

VDH staff is properly trained initially and on a continuing basis.

Staff turnover does adversely affect the quality of VDH on site services.

**Questions 41 thru 45 and 55 thru 56 (AOSE)**

The following observations come from the above listed questions.

AOSEs are properly trained and certified to provide onsite sewage system permitting services.

Timely and professional services for onsite sewage system processes are provided by AOSEs.

AOSEs provide consistent and professional services for onsite sewage system processes and are held accountable for the quality of their services.



A homeowner will look at the following stakeholders for accountability and a solution to their problem. Listed from High to Low.

1. VDH
2. AOSE
3. MYSELF
4. LEGAL SYSTEM
5. SYSTEM INSTALLER
6. SYSTEM MANUFACTURER
7. PROFESSIONAL ENGINEER

Stakeholders are satisfied with current AOSE regulations; permit process, and requirements to be AOSE certified

The biggest obstacles to full acceptance of the private sector AOSE program is (High to Low):

1. Availability of low cost VDH application services.
2. VHD resistance to change.
3. Cost of AOSE service.
4. Concerns protecting public health.

#### **Questions 47 thru 54 (VENIS)**

The following observations are derived from survey questions 47 thru 54. VDH personnel only evaluated the questions. Table 7 charts the average answer for each question.

The VENIS is not evaluated as a reliable resource tool

VDH personnel do regularly input data into the VENIS database and generate reports, permits, and letters.

Personnel do not utilize the full capabilities of VENIS adequately.

VENIS is utilized minimally by personnel because of its complexity, slow response time, lack of adequate training.

VDH staff is adequately trained to use Computer-Aided Design (CAD).

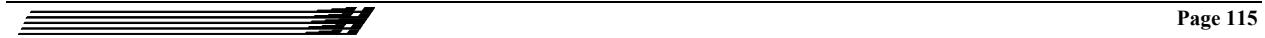
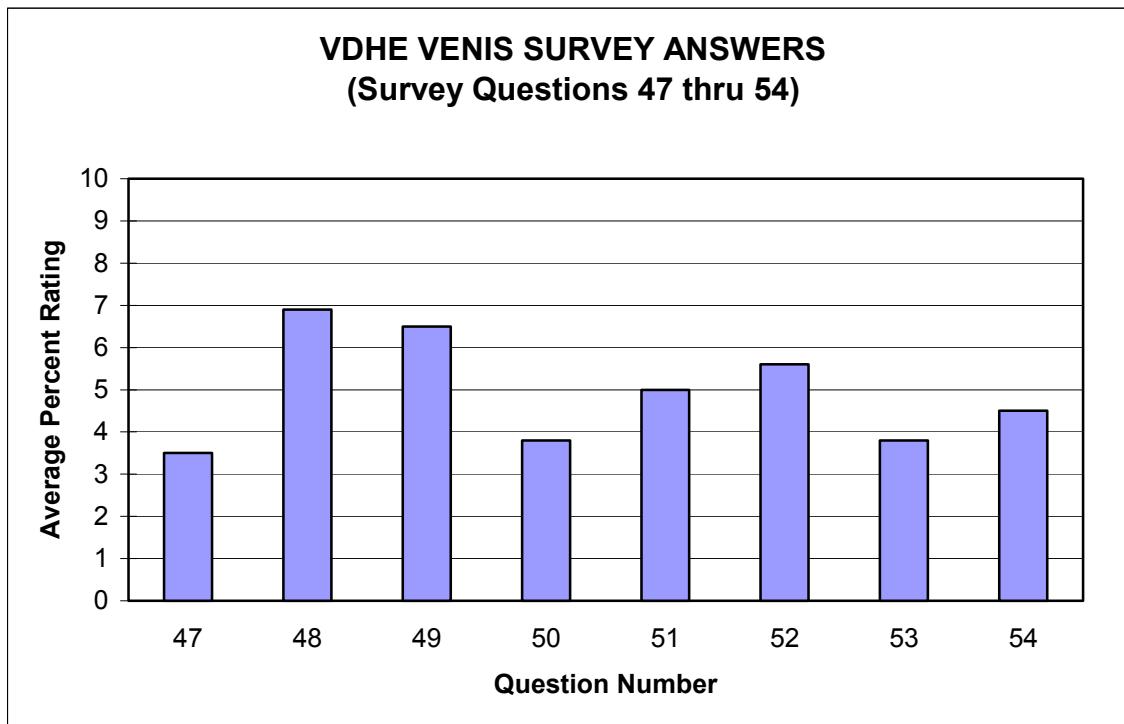


Table 7

## STAKEHOLDER VDHE VENIS SURVEY ANSWERS

**Questions 57 thru 67 (ESSENTIAL PUBLIC HEALTH SERVICES)**

The following observations come from the above listed questions.

VDH programs do not provide effective means to monitor health status to identify and solve community health problems.

VDH does effectively diagnoses and investigates environmental health problems and health hazards in the community.

VDH programs are effective in informing, educating, and empowering people about environmental health issues.

VDH programs are not effective in mobilizing community partnerships to identify and solve environmental health problems.

VDH policies and plans do effectively support individual and community environmental health efforts.

VDH does effectively enforces laws and regulations that protect public health and safety

VDH quality assurance program does not effectively ensures uniformity among regulatory staff in the interpretation and application of laws, regulations, policies, and procedures

VDH officials do effectively link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable

VDH forums do not foster communication and information exchange among the regulators, industry and consumer representatives

VDH sponsors outreach activities that provide educational information on ground water protection and proper operation and maintenance of septic systems. These activities are not effective.

## ATTACHMENT B: NARRATIVE RESPONSES SORTED BY STAKEHOLDER TYPE

**Stakeholder Type    AOSE**

### **QUESTION # 68**

#### **Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

#### **Responses**

VDH should not compete with the private sector in soil evaluation and system design. The idea that VDH performs the soil evaluation, designs the system, then guarantees its proper function for \$112.50 is unbelievable in this day and age. VDH should be the review agency for private sector work. VDH needs to provide consistent and unambiguous regulations and policies. At present policy often conflicts with regulation. Interpretations can only come from one or two people in VDH central office who relay it to the local HD then to the AOSE. This process can take several weeks. VDH needs to be less secretive in the use of E mail correspondence. AOSE's need to know what information central office is communicating to the Local Health Departments regarding policy and interpretation. VDH needs more formal training sessions for its own staff. At present when new regulations, GMP's, or "Implementation Manuals" are issued the local EHS's are presumably directed to read them, but it is obvious that many do not. Training sessions should be conducted with the private sector in attendance.

Get out of the conflict of interest of site evaluation, design then set the standard, inspect and enforce. Site evaluation and design should be private sector work.

Communication up and down. Proper training for VDH field staff. Pay field staff a better wage. Move the onsite sewage and water programs to DEQ or DCR or at the very least, remove the medical directors from overseeing the programs, as many do not have a clue what the programs are about. An onsite training center is a good idea and one is needed but the state should not be in the business of providing it. Also, the state's location - Fort Pickett is the wrong place. There needs to be less interpretation of the state regulations across county, district and state lines. In other words, VDH staff needs to get on the same page and then inform the private sector. The AOSE program shouldn't be an "Us versus THEM". We (private and VDH both need to work together to make the program work and provide a better service to and for the citizens of the Commonwealth.

Consistent and uniform interpretation of the Regulations throughout the state from one region to the next, from one county to the next, from one EHS to the next! To be enacted through a complete rewrite of the existing Regulations from Prescriptive to Performance based Regulations. With mandatory O&M /Service Contracts required per the Regulations ideally for all onsite systems including conventional septic systems, but without question for any and all Advanced Secondary treatment and Secondary treatment engineered onsite wastewater treatment systems. A VDH state training facility for all parties practicing professionally in onsite wastewater treatment. Engineers, AOSE, EHS, and the septic contractor installer. With monitory certification of septic system installers with different levels of expertise granted to the installer per their level of knowledge and experience determined through training, certification, and testing.

Do not privatize the onsite sewage disposal program - the only consumer protection is provided by local health departments.

I think the program should be converted to an advisory agency much as local zoning departments are. They respond to complaints, review work performed by professionals, issue construction permits based on work by a private entity, enforce O&M. Department should not do soils work and design systems.

1) VDH needs to be removed from offering the evaluation services that facilitate most of the permits, cert. letters, and subdivision approvals. This can be done more efficiently by the private sector and, eventually, this will create

market forces that will keep costs at appropriate levels for the services rendered. Prevention is where 99% of the focus is placed in the current program. I believe that prevention is important, but should not occupy 99% of the focus since no danger to public health is present at this stage of the process. Currently, any non-traditional system is being sent to the private sector for a design and/or new soils work. It leaves a very bitter taste in the mouth of the consumer and creates a terrible public relations situation when VDH does this. Typically, the consumer has come to VDH to secure a construction permit and, after a significant delay, gets told that they must hire a private firm to complete the work since VDH does not do alternative systems. Whether or not it is said, the consumer has the idea that they should have gone to the private sector first to avoid some of the delay and the consumer gets the impression that the private sector is more competent to do the work than VDH. From the AOSE's perspective, it makes you wonder how an agency that can not design a system is competent enough to review the design plans submitted by us for compliance. This is a horrible public relations situation for VDH to be in. If VDH simply did not perform any evaluations and were able to efficiently review the submitted work, the consumer's perception would be that VDH would be providing better service. (I would like to note that VDH should still remain as the record keeper and the source for field services where no other source is available.) This would also allow VDH to reallocate resources to other significant environmental health issues and stop being a building permit facilitator. 2) VDH needs to stop running 50+ different septic system programs and focus on one program. VDH is currently in the business of enforcing every local ordinance that a local government may decide to come up with regarding septic systems. They do this at no additional cost to the locality and at no additional benefit from any local fee that is added to the state septic system fees. This is not only bad from an economics standpoint, but it actually serves to promote the creation of additional local ordinances which further strains resources. (Since the county does not have to directly pay for additional manpower required to enforce their ordinances, they can just create unfunded mandates on the health department.) Having different rules in each locality creates slightly different programs in each locality and this makes it much harder to manage the overall environmental health program effectively. It creates many obstacles to providing adequate training to new employees, it promotes various interpretations of the same rules, it does not allow personnel from other counties to easily "fill the gap" when staffing issues arise, and it severely limits the ability of VDH to streamline the application, approval, enforcement, and other processes. I would suggest that VDH enforce their regulations only. Local governments should be required to create their own internal staff to determine compliance with additional regulations that they choose to enact. This will serve several purposes. It would force local governments to address the costs associated with creating septic system ordinances. It would force local governments to evaluate the political consequences of new ordinances since they could no longer blame the health department. It could remove VDH from the role of saying "no" to a client in some cases. (This would be a huge public relations boost for the agency.) It would also allow regional offices to be utilized versus county specific offices. This could be done since the need for knowing exactly what each county requires evaporates. I believe that this would allow electronic applications and data base management to become practical. This concept, coupled with item 1 discussed above, would likely improve efficiency to point that any reduction to VDH in funding from the local governments would be offset. This would allow VDH to provide better service through improved efficiency and a narrowing of its focus to enforcing the rules that govern the entire state. 3) Until VDH no longer performs field services for bare applications, it should adjust fees to reflect the level service that it is providing. This does not mean that the current fees should be decreased. VDH could charge the current fee for applications submitted requiring only "paper" review. Those where field investigations are required should have increased fees. Additional fees could also be charged for inspections of installed systems. (It should be noted that many local governments have extra fees that get paid directly to the local government on every septic system application. To make a VDH fee increase more acceptable to the public, I would mandate that any local fees be collected separately by the local government.) This would level the playing field, to a degree, with the private sector competitors and would create more resources to hire either better-qualified employees, a greater number of employees, or to implement other measures to improve service. 4) Lastly, I would suggest making the environmental health specialists and supervisors direct employees of the central office in Richmond. A major problem with service in this segment of VDH is the lack of understanding or caring about the septic industry by the district medical directors. They are medical doctors and typically don't put focus on the onsite program. The problem that this creates is the lack of communication between the environmental health specialists and the VDH personnel in Richmond that make interpretations or decisions. In other words, the people implementing the program have no direct link to the people making the rules and administering the program. This causes numerous problems that could be avoided if a single chain of command could be followed throughout the program. This ultimately leads to very poor service to the client when questions arise. This is due to the lack of a binding decision that can be obtained from Richmond in a reasonable time frame.

(Even if decisions are made, the EHS can ignore them, if he chooses, since his "boss" is not the one telling him what to do.)

There needs to be stronger CENTRALIZED management to provide consistent interpretation and enforcement of the regulations. The vast quantity of regulatory GMPS and regulations generate a conflicting, confusing, and downright frustrating regulatory environment. GMP's should NOT be used as regulations! The regulations need to be rewritten as performance based standards rather than prescriptive standards. There needs to be a dual track process for review of engineering plans - especially on complex projects. GMP 101 needs to be trashed! Write a bloody type III system regulation to address large volume, complex systems. Deemed approval needs to apply to ALL residential submittals, not just conventional AOSE/PE work where VDH is not involved. There needs to be a real appeal process. There needs to be a real variance process. There needs to be a way to get complex projects into the hands of reasonable, knowledgeable, and cooperative reviewers. All too often, complex projects struggle getting through the local review process - typically associated with an "administrative denial" prompting an interesting appeal process that no one really wants to go through. The inconsistent application and interpretation of the regulations between health districts and even between offices within health districts is mesmerizing. Reviewers need to be cognizant that their comments should reflect actual regulatory issues and NOT their opinion!

## **QUESTION # 69**

### **Question**

What additional information would you like to see on the VDH WEB site?

### **Responses**

Central Office VDH should use the web site a reference center for policy interpretation. When as AOSE / PE has a technical question it should be posted to an indexed page of the WEB site that shows what the answer was to the same question that was answered in the past instead of reinventing the wheel each time.

Regular updates. Electronic application of septic permits.

Due to the nature of our business and the many other management issues that need to be addressed, I would encourage you not to focus on the website as an important part of the solution to the VDH management problems. At present, the website is a source for information such as new policies or regulations. The only other role that I feel could be beneficial for the program would be to post "interpretations" of existing regulations so that everyone is aware of the rules. This has been a major problem in some regions due to the wide array of interpretations of the exact same regulation. It would be of value to have a site that takes questions and then posts the questions and answers for the entire group of stakeholders to digest. I personally think that this would go a long way to helping everyone, both public and private sector, serve the public more efficiently and more effectively.

## **QUESTION # 70**

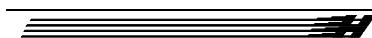
### **Question**

Enter additional comments.

### **Responses**

The present system is barely working. The actions and attitude of VDH staff have set up a "we vs. them" mentality that leaves the citizens of the Commonwealth of Virginia in the middle. It does not need to be like this. Hopefully this survey will require VDH to change for the better.

Communication from the central office to both private sector and even VDH field staff is a one-way street - they provide limited information to a select few and fail to provide the same information to all private sector stakeholders. I also believe - although I wish I was wrong - that some VDH Central Office employees are currently working behind the scene to provide themselves with new jobs after retirement. A few office central is out of touch with what actually is going on in the field. Poor pay to field staff is the primary reason for turnover. Personally, I would have stayed with the department in 2000 if pay had been better...\$32,000 is a paltry sum for a family of 4 to survive...My children actually qualified for reduced school lunches. I thought this study was on the



performance of the health department. Questions on rates and fees charged by an AOSE should not be addressed in this survey as we provide services the health department legally cannot provide and we ultimately take full responsibility, i.e., liability (professional liability and E & O insurance is not cheap and is required). State health department employees that become AOSEs are leaving for greener pastures and I don't blame them. However, many leave as soon as they become eligible and really don't have sufficient soils background to properly provide for the public. How did Don Alexander become an AOSE? Who proctored his field exam? A subordinate? Is that truly fair?

I would discourage the writing of law through policy. The GMP system is completely out of touch. Systems get approved and disapproved through policy. There are a couple of different interpretations of various GMP's (Adv. Secondary Treatment with Drip for example)

It bothers me that you have under Item 4 above several questions about application instructions for the three types of applications. To the best of my knowledge, there is not but one application for all of these items. This may need to be changed, but it makes me wonder about the level of background research that your firm has completed prior to constructing this survey. Please realize that the application process is not a real problem when compared with the internal management concerns listed in item 68.

VDH has an interesting penchant of creating terms that have no regulatory definition, such as Administrative Denial, Advanced Secondary Treatment. In addition, modifying regulations in a seemingly capricious manner - such as ignoring GMP's (see GMP 118 for specific guidance on ecoflo pump chambers), creating a secondary effluent standard of 10/10/5 instead of the regulatory 30/30/5, and arbitrarily writing conditional permits. Also, pretty much completely ignoring real regulations such as the application of the SCAT regulations for community decentralized systems and arbitrarily requiring level 4 wastewater treatment operators on small community systems. VDH staff seem to regard GMP's as regulations and not as GUIDANCE! Regulations are REGULATIONS, GMP's are guidance, memorandum & policy - hmmmm, which is it really? I don't get GMP 125 - seems to me, VDH has basically overloaded the AOSE system and allowed AOSE's to practice engineering - rather poorly, I might add. Just ask me for some AOSE design packages if you don't believe me. Engineers do engineering. AOSE's do soils. What's so difficult about that? Why not let the AOSE's do gravity systems under the prescriptive regulations and let Engineers do plans for all other systems using a performance-based regulation. Also, I'm totally amazed that soil work can now be obtained faster through the local health department rather than local AOSE's. YEAH - I really, really want to know what moron created the 100' by 400' box rotated around a drainfield to determine the 1200 gpd/acre mass drainfield test. He, or they, should be relocated to a cold, dark, basement office with only a stapler to keep them company! Getting Administrative Denials really gets my blood boiling. They make me look bad to my clients, and take time and energy to resolve - why not just make a phone call? Especially for trivial questions. I'm not sure what an Administrative Denial really is - but I've appealed a bunch of them and that seems to make them go away. Funny, huh?

**Stakeholder Type    CONTRACT SERVICES****QUESTION # 68****Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

More communication about upcoming regulations, events, conferences, and changes. Perhaps a quarterly newsletter like what DCR sends out to its stakeholders.

**QUESTION # 70****Question**

Enter additional comments.

**Responses**

Certification letters should be absolute and valid for a period of time, perhaps 5 years. Hire additional help in areas where growth is projected.



**Stakeholder Type    ECONOMIC DEVELOPMENT****QUESTION # 70****Question**

Enter additional comments.

**Responses**

While the Department of Economic Development does not feel qualified to answer the questions above, we do work with clients that have expressed antidotal comments that we would like to share with you. The process of evaluation of well and septic sites takes time, but seems to be thorough. There is concern with regard to rural economy projects, that septic requirements are excessive for the actual flow generated by the use, especially for restaurants. As rural economy uses in Loudoun are sometimes larger in scale, Salamander Inn, the best option outside of public water and sewer is alternative systems; however, the process for alternative systems is very lengthy and there does not seem to be much advice and assistance that is offered.



**Stakeholder Type    ENVIRONMENTAL GROUP****QUESTION # 68****Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

Provide districts with adequate number of personnel to effectively respond to applications. It is frustrating to the customer and the Department to have applications responded to three and four months subsequent to the application be made.

**QUESTION # 69****Question**

What additional information would you like to see on the VDH WEB site?

**Responses**

Information relative to protection of ground and surface waters. More detailed information relative to alternative systems.

**QUESTION # 70****Question**

Enter additional comments.

**Responses**

The on-site program should be completely privatized, with a remnant left in the Department to assure quality and accountability.



**Stakeholder Type    HOMEBUILDER****QUESTION # 68****Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

My role with Centex Homes is to obtain the building permits, which often requires the Health Department approvals. My dealings with the VDH are limited to checking the status of, and picking up our approval/denial letters. The timeframe from "application" to "approval to construct" seems to sometimes run excessively. The other issue is the attitude and lack of helpfulness I have received from the staff at one particular VDH on various occasions. Hopefully, the recent hiring of a couple of new staff members will continue to improve their morale.

Either increase staff to meet the demand, streamline the process, or empower the AOSE's more. The backlog is hurting everyone involved, including the state and local VDH, builders, and homeowners.

**QUESTION # 70****Question**

Enter additional comments.

**Responses**

Thank you for asking for my opinions. In general, I think the goals of VDH are excellent and the efforts made to achieve them are respectable. In Northern Virginia it comes down to there is too much growth and not enough staff, so the process becomes more difficult and cumbersome than it needs to.



**Stakeholder Type      ONSITE PRODUCTION**

**QUESTION # 68**

**Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

Accountability of EHS's in localities.

**QUESTION # 69**

**Question**

What additional information would you like to see on the VDH WEB site?

**Responses**

Updates on GMP's and approvals in a timely manner.



**Stakeholder Type    SEPTIC CONTRACTOR****QUESTION # 68****Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

VDH must decide whether they are in or out of the soil evaluation and design business. VDH efforts should be similar to those of the DEQ LUST program where consultants' work is reviewed and not done. You cannot walk into the building department and have the inspector visit your site and draw you house or even deck plans. Why should VDH? VDH staff is not given adequate training on alternative systems and are basically left to learn on their own which causes an enormous amount of confusion and local misinterpretation. AOSEs are forced to design it the way the local specialists want it done and then stamp it and take full responsibility for it. VDH review of AOSE or AOSE/PE applications should be brief to ensure the system type proposed is consistent with the soils described and sized in accordance with the application. Anything related to the design should be left to the AOSE / PE. If VDH personnel are not trained to design these systems and are not interacting with the installers and builders during inspections, they should not comment on the designs as to better ways to do things. The entire OEHS process is still set up and based on a homeowner walking into the health department who wants to build one house on one lot. This is not the case in most localities where developers develop lots; build some sell others and sometimes all within the same entity. The original pretense of a certification letter for property transfer is outdated for most. Sometimes property is transferred two or three times during the building process. The fact that the permit is null and void when the property is transferred is outdated. There should be separate simpler processes for builders.

**QUESTION # 69****Question**

What additional information would you like to see on the VDH WEB site?

**Responses**

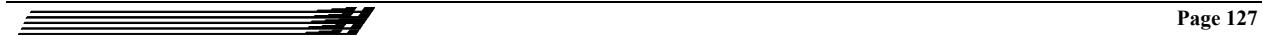
Updated system approvals and an AOSE / VDH web log with Q & A

**QUESTION # 70****Question**

Enter additional comments.

**Responses**

I think the central office has great ideas and the real brain-trust to figure these things out. However, I understand that the structure of the Department is such that those in the local health districts are not responsible to the central office and therefore no supervisory relationship exists. LOCAL REGULATIONS AND LACK OF CONSISTENT INTERPRETATION AND ENFORCEMENT ARE THE BIGGEST PROBLEMS



**Stakeholder Type    VDHE**

**QUESTION # 68**

**Question**

What changes or suggestions would you recommend to improve the level of services provided by Virginia's Onsite Sewage Program?

**Responses**

The Central Office needs to update the state regulations on a routine basis so that they are current with the technologies available. There need to be more consistency with interpreting the regulations. They need to more thoroughly study new system designs and technologies before accepting them. The Central Office needs to support the local Health Department and become familiar with the local politics and requirements. The Central Office needs to refrain from developing GMP that are more lenient than the regulation. Revise the regulations instead of continually developing GMPs that usurp the required public hearing requirements.

OEHS needs to make a greater effort to actively identify stakeholders aside from groups directly involved in issuing permits and installing systems. The program affects, in one way or another, all citizens of the Commonwealth, and we need to find people who will look at the program from a wider diversity of vantage points. These stakeholders need to be part of developing a mission statement and goals for the program. Then we need to set about developing policy that will meet those goals, rather than waiting for the General Assembly to drive our processes. More and better communication with all stakeholders is important. Internally, we need to understand that the Onsite Sewage Program is not a "stand-alone" program, but is affected and is affected by all other services provided by the health department. The program needs to become more integrated. We need to educate the staff involved in the program, at all levels, about public health and provide training about applying the principles of public health to the program.

I would get out of the business of designing systems and increase quality assurance, monitoring and truly look at risk assessment, developing outcome standards, increasing education opportunities and policy planning to save the groundwater and protect humans and the environment.

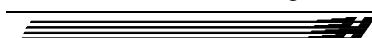
Put the responsibility of conducting site and soil evaluations completely in the hands of the private sector. Allow VDH to continue conducting Level I and Level II evaluations of private sector work (the public continues to look to VDH to provide quality assurance). Place total liability on the private sector for their quality of work or lack of.

Adequate staffing levels at the district and Central Office levels. We have outstanding staff members who could provide outstanding customer service, if they were not overloaded to the point of being overwhelmed and unable to spend the time necessary to give each customer the ideal level of service.

We inform customers of the 15 or 20 day rule if it is an AOSE submission, otherwise no promises made because too many things occur that have forced me to change expected pick up and work on dates. All I say is that it is taking me 4-6 weeks to process well application. VDH should focus resources on quality assurance of AOSE/PE work because we are the regulator. The public already believes if you know the right person, you can get a system, no matter the soil condition. I would like that view not to be the majority view. Sometimes-- when we finally get an answer. Sometime the information is long in coming and it gets hard to keep telling the customer you are still waiting for an answer from Richmond. Some of the information seems to be different from what other districts are told. Draft policies never seem to be finalized and in some cases, the policy is given by 'word of mouth'. The regulation information is jumbled together - it is hard to locate information when needed. If people can't agree on interpretation of text, then whose enforcement is correct? The intentions of how text was meant to be understood can't be enforced.

**INCREASE FEES, NO REFUND FOR REJECTION, BETTER ONGOING TRAINING AND PROFESSIONAL CERTIFICATION FOR EHS'S, SYSTEM/INFRASTRUCTURE FOR MONITORING SYSTEMS**

Have greater oversight of the AOSE private sector work. VDH should not be 'assuming' that a private for profit business will always look to protecting public health and sacrifice profit without better oversight and corrective enforcement actions. The private and public sector environmental health professionals should have equal latitude to



issue construction permits that may require secondary treated effluent for residential sewage disposal systems. If VDH staff does not continue fieldwork to some degree, there is concern that expertise in overseeing the private sector will dwindle and leave our Commonwealth at risk. Lastly, The on site technology is racing forward and VDH needs desperately to implement continual training of new and emerging technology to current staff.

Rework VENIS to speed it up. Issue a manual and keep it up to date. Give us some training that is worth something.

AOSE program needs to put responsibility for AOSE work on the individual AOSE. There should not be a need to review their work period.

Staffing must increase certification of contractors.

### **QUESTION # 69**

#### **Question**

What additional information would you like to see on the VDH WEB site?

#### **Responses**

I'd like to be able to share information about the status of individual permits and applications with the local building officials, and the applicants, via the web.

More public education.

Up-to-date and finalized policy documents for all EH programs. The food program has virtually no information on the VDH web site. In addition, the onsite program has a problem with finishing what they start. (The AOSE policy, GMP #126, has been incomplete since it went into effect over 16 months ago. All referenced forms should be finalized and published on the web site, for the benefit of VDH staff and the private sector.)

It would be helpful to the public to have regular tips on preventive maintenance (i.e. Pumping out septic tanks, reducing grease and chemicals into the system) and new devices, which can incorporate into their existing systems (i.e. Effluent filters and inspection ports) to enhance their system for modest cost. Another idea could be to develop a "Kids World" page (or at least a link) where concepts in pollution and protecting Mother Earth can be made understandable and interesting to a child.

Area for comments from the public.

### **QUESTION # 70**

#### **Question**

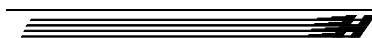
Enter additional comments.

#### **Responses**

Survey was confusing to complete because Fairfax is a locally administered health department that enforces local regulation that are, for the most part, more stringent than State regulations. All questions were answered by replacing VDH with Fairfax.

We are suppose to be in the business of protecting the public health, how did we become part of the building industry and why are we persisting in this madness.

If the concern of the re-engineering proponents is that VDH is not processing applications and producing permits fast enough or as fast as the private sector can do, I am in total agreement. However, speaking for my District Staff, the private sector cannot process applications and produce permits any better. If faster is what is wanted, go to the private sector. If you want the service to be better then provide adequate staff and resources to VDH or hold the private sector to full liability. I envision that in 5-10 years down the road there will be some major problems that must be addressed with onsite system failures and it will be the responsibility of the Health Department to resolve



the issues based on mistakes made by the private sector.

VDH could focus more resources on helping people repair systems. In my area, most repairs require secondary treatment. The older populations have limited funds. The population has 'heard' how much a new system cost and we believe are reluctant to come forward to let us know they are having problems, because they believe we will make them put in 'an expensive' system. To a degree, they are correct. If I have no way to assistance them with the financial cost, how can I force them to repair a failing system. People could use the house bill 930 waiver, but it appears that the people "with money" take the waiver and those without want to put in a correct system. Environmentally speaking, anywhere in the county is within a mile of tidal water. It is a good possibility that most road and property drainage ditches can be traced to a creek head outlet. I don't effectively enforce the laws for onsite system repairs because how can one force someone to repair a system when they appear to not have the funds; how can I get someone to repair their system when the contractor won't do their job (or the weather won't cooperate for dry soil installations); or a privy just needs pumping but the people can't afford to pay for the pump out. How can I take serious a violation to well driller for drilling a well without a permit when all I do to him is write a letter to not do it again (insurance sales people settle with the State Corporation Commission for each violation and repeat violations require doubling the settlement).

It should not be a concern as to who turns the auger or collects the water sample but rather who is responsible to our Commonwealth's health protection and that falls to VDH. To monitor trends in a community or our entire state will guide us to improved health through reduced risks. The close oversight of every private entity submission will allow the evaluation time to be absorbed by the AOSE but reviewed by VDH. This will free up resources to move into other areas of environmental health to further enhance the wellbeing of our citizenry.

VENIS is really slow and I would like to see it sped up. It takes 3-5 minutes just for the program to fully start up, and another 3-5 minutes with each screen that is saved. If the system was faster, it would take 10-20 minutes to fully enter an application, whether it would be an AOSE application or a bare application.