

**REPORT OF THE  
JOINT SUBCOMMITTEE STUDYING**

# **The Management and Treatment of Wastewater**

**TO THE GOVERNOR AND  
THE GENERAL ASSEMBLY OF VIRGINIA**



## **HOUSE DOCUMENT NO. 2**

**COMMONWEALTH OF VIRGINIA  
RICHMOND  
2003**

## **Members of the Committee**

Delegate Harry J. Parrish, *Chairman*  
Senator William T. Bolling, *Vice-Chairman*  
Senator Stephen H. Martin  
Delegate Allen W. Dudley  
Delegate Allen L. Louderback  
Delegate Clarence E. Phillips  
Danny R. Hatch  
John Johnson  
Dan Beardsley

### **Division of Legislative Services**

#### *Staff*

**Martin Farber**, *Senior Research Associate*  
**Iris Kincaid**, *Senior Operations Staff Assistant*  
**Heather Butros**, *Editor*

## TABLE OF CONTENTS

<b>I. AUTHORITY FOR STUDY .....</b>	<b>1</b>
<b>II. SUBCOMMITTEE DELIBERATIONS.....</b>	<b>1</b>
<b>A. BACKGROUND .....</b>	<b>1</b>
1. Statutory Authority for the Management and Treatment of Wastewater .....	1
2. Agency Responsibilities in the Regulation of Wastewater Treatment .....	3
a. <i>Virginia's Department of Health</i> .....	3
b. <i>Department of Environmental Quality</i> .....	5
3. Local Health Department Role .....	5
<b>B. PUBLIC HEARING.....</b>	<b>7</b>
1. Connection to Public Systems .....	8
2. Management and Use of Conventional and Alternative Onsite Service Systems .....	8
3. AOSE Program .....	9
<b>C. RESPONSE TO JOINT SUBCOMMITTEE'S CONCERNS .....</b>	<b>10</b>
1. AOSE Program; Permit Revocation .....	10
2. AOSE Disciplinary Actions.....	12
3. Standards to Minimize Subjectivity of Soil Science.....	12
4. VDH Policy on the Use of Alternative Systems.....	13
5. VDH Staffing .....	14
a. <i>Preventing Backlog of Onsite Sewage System Reviews</i> .....	15
b. <i>Staff Support for AOSE Program</i> .....	15
c. <i>Standardizing Practices of Onsite Sewage Program</i> .....	16
6. Enhancing Data Collection Capability: Computer Information System.....	16
<b>D. PROMOTION OF WASTEWATER REUSE TECHNOLOGIES.....</b>	<b>17</b>
<b>III. FINDINGS AND RECOMMENDATIONS.....</b>	<b>18</b>
<b>IV. SUBCOMMITTEE MEMBER'S STATEMENT.....</b>	<b>22</b>
<b>V. APPENDICES .....</b>	<b>23</b>



## I. AUTHORITY FOR STUDY

The 2001 Session of the General Assembly passed House Joint Resolution 771 (Appendix A) creating a joint subcommittee to study the organization, structure, regulations, and policies of the Virginia Department of Health (VDH) and the Department of Environmental Quality (DEQ) relating to the management and treatment of wastewater. In conducting its study, the nine-member joint subcommittee was requested to examine (i) the policies and procedures of the Department of Health and Environmental Quality relating to the management and treatment of wastewater, particularly in relation to permitting various treatment, disposal, and reuse technologies; (ii) the overlap in various sets of regulations of the departments; (iii) the length of time taken in promulgating regulations; (iv) the need for wastewater treatment expertise at senior levels of management and on the Board of Health and the State Water Control Board (SWCB); (v) the best way to streamline the regulatory and permitting process, including the consolidation of responsibilities into one agency; and (vi) such other issues as it deemed necessary.

## II. SUBCOMMITTEE DELIBERATIONS

### A. BACKGROUND

#### 1. Statutory Authority for the Management and Treatment of Wastewater

Two state policy boards, the Virginia Board of Health and the State Water Control Board and their respective administrative agencies, VDH and DEQ, share oversight responsibilities for the management and treatment of wastewater in Virginia. Section 62.1-44.18 of the Code of Virginia (the Water Control Law) states that "all sewerage systems and sewage treatment works shall be under the general supervision of the State Department of Health and the Board (SWCB) jointly." In determining the nature and scope of the involvement of each of these agencies in wastewater and sewage management it is important to recognize the two governmental entities have differing missions.

The Board of Health, under § 32.1-164 of the Code of Virginia, is responsible for the supervision and control over the safe and sanitary collection, conveyance, transportation, treatment and disposal of sewage, sewerage system and treatment works as they affect the public health and welfare. This mandate is carried out through a set of agency regulations. The Code of Virginia specifies that the regulations may include criteria or standards covering 16 areas, some of which include:

- Standards for design, constructions, installation, modification and operation of sewerage systems and treatment works;
- Standards governing disposal of sewage on or in soils;
- Standards for specifying the minimum distance between sewerage systems or treatment works and various water sources;
- Standards governing the transportation of sewage; and
- Criteria for determining the demonstrated ability of alternative systems, which are not currently permitted, to treat and dispose of sewage as effectively as approved methods.

The Board, in establishing the various regulatory standards, is to give due consideration to the economic costs of such standards.

Currently, the VDH is given the statutory authority to regulate two smaller types of sewerage systems. The first of these are the onsite sewage systems, which include both the septic sewage system and newly designed innovative onsite system. The first types of systems do not discharge sewage into surface waters. The second, the alternative discharging sewage system, involves a device or system that results in a point source discharge into surface waters from an individual single family dwelling with flows of 1,000 gallons or less a day. Because these alternative discharging systems involve the discharge of treated wastewater into state surface waters, the SWCB requires a general permit under the Virginia Pollutant Discharge and Elimination System program (VPDES). The VDH's role is to issue a permit authorizing the construction and operation of both types of systems and is required, by statute, to conduct regular inspections of these systems.

In developing criteria for granting or denying permits for septic systems, the Board of Health is to consider varying circumstances such as population density, the extent of use of the septic tank, and other circumstances necessary to protect the public health and promote the general welfare.

In an effort to ensure that permits are issued in a timely manner, legislation was enacted in 1999 that required the VDH to accept private site evaluations and designs for septic systems and other onsite sewage systems from a licensed professional engineer, in consultation with an authorized onsite soil evaluator (AOSE), or by an authorized onsite soil evaluator. The use of an AOSE recognizes the ability of private sector professionals to perform tasks related to the permitting of onsite systems that had historically been the responsibility of the VDH. By hiring a private contractor, the property owner would be assured of having his permit application reviewed by a certain date. Under § 32.1-163.5, the Department has 15 working days to take final action on a request for approval of a site evaluation and design submitted by an AOSE for a single lot construction permit and 60 days for multiple lot certification letters or subdivision reviews. If the agency fails to take any action to approve or disapprove the designs, evaluations or subdivision reviews, the permits are deemed approved. The VDH is not required to perform a field check (Level 2 review) of these private evaluations and designs prior to issuing the requested letter, permit, or approval.

A septic tank permit is valid for a period of 18 months from the date of issuance, unless there has been a substantial change in the soil or site conditions where the septic system is to be located. If a permit is denied, the applicant has the right under § 32.1-164.1 to seek administrative remedies and after exhausting all administrative remedies any person aggrieved by the agency's decision has the right of judicial review in accordance with the provisions of the Administrative Process Act (APA) (§ 2.2-4000 et seq.).

There are certain circumstances under which a property owner can receive compensation for his failed onsite sewer system. The owner may request the Commissioner of Health to review the circumstances of the system's failure and grant indemnification from the Onsite Sewage Indemnification Fund (§ 32.1-164.1:01). If the Commissioner finds that the system was permitted by the Department and has failed within three years of construction and that the

failure resulted from the Department's negligence, he is required to grant the property owner's request for indemnification. If the Commissioner refuses the request for indemnification, the owner may appeal the refusal to the State Health Department's Sewage Handling and Disposal Appeal Review Board. In addition, if the Commissioner finds that the failure resulted from faulty construction, he can assist the owner in seeking redress from the system's builder.

The DEQ's authority for the control and management of wastewater systems derives from both the federal Clean Water Act and the Commonwealth's Water Control Law. Under state law "no right to continue water quality degradation in any state water shall exist nor shall such a right be deemed to have been acquired by virtue of past or future discharge of sewage, industrial wastes or other wastes" (§ 62.1-44.4). It is, therefore, illegal for any person to discharge into state waters sewage, industrial waste, other wastes or any noxious or deleterious substances without a VPDES discharge certificate from the DEQ. The VPDES permit is required of large industrial operations and municipal wastewater treatment plants that discharge pollutants into state waters. These permits prescribe the terms and conditions upon which the discharge of sewage, industrial waste, or other wastes may be made into any sewerage system or treatment works. The SWCB "may, after consultation with the State Department of Health, summarily revoke or suspend a permit when it determines that the permitted discharge poses a threat to the public health and safety or is interfering substantially with the treatment works or is grossly affecting usage of state waters as designated by the Board" (§ 62.1-44.18:2).

## **2. Agency Responsibilities in the Regulation of Wastewater Treatment**

### *a. Virginia's Department of Health*

Health Department officials were invited by the joint subcommittee to describe the evolution of the Department's onsite wastewater treatment program. Initially, onsite sewer systems were seen as temporary solutions for disposing of wastewater. When President Reagan eliminated federal subsidies for public sewage systems, many of the onsite systems began to be viewed as permanent solutions to the waste disposal problem. The period prior to 1982 was characterized by the proliferation of septic tank drainfields. During this period, the VDH issued the permits and visited all the sites. Consultants were used to identify acceptable sites for the location of the septic system and drainfield. In 1982, new regulations were promulgated that authorized, under specific criteria, the use of experimental or alternative systems. To receive approval such systems had to meet two requirements. Their design had to include a 100 percent conventional backup system and only 12 systems would be allowed to be installed statewide. Because these requirements severely limited a system's utilization, there were very few requests to test experimental systems and very few types of systems were approved. The experimental era lasted until June 1995.

In 1995, the Department entered what it termed the "policy era." The requirements changed, allowing the backup system to be an experimental system rather than a conventional system. A greater number of the systems could be installed statewide, enabling the company to establish a market in which to sell the systems. Initially, the number of systems that could be sold was limited to 100, until data was provided to the Department demonstrating the efficacy of the system. During the 1995-2000 time period, three experimental approvals were granted (Puraflo, Aquarobic and Alascan). The initial review period of these systems was six months, after which a protocol was issued. Once the protocol was approved, the company could offer the

system to consumers without having to go through any experimental review at the local level. As of now, only the Puraflo system has completed the testing period.

The "provisional approval era" bridged the gap between experimental approvals and general approvals. The status of "experimental" could be removed from a system's design if certain criteria were met based on three years of performance data of 50 installed systems. During the "provisional era" one system has received approval, one has been denied, one is under review, and one has been withdrawn.

In the current "footprint" era the focus of the review and evaluation of a system is the treatment level that a particular alternative system can attain. This approach is reflected in a proposed "footprint" regulation that provides alternative design options and maintenance requirements. Based on the treatment level, the agency will create a "footprint"<sup>1</sup> of suitable soil. Thus, the dispersal field's design will be based on the system's capacity to treat the effluent. The general rule would be the higher the level of treatment, the smaller the required footprint area. It is anticipated that those alternative systems that have the capacity for secondary or advanced treatment would have a footprint smaller than that of a conventional septic tank.

This new initiative moves the VDH away from solely prescriptive-based regulations for onsite sewage systems to more performance-based regulations. Commissioner of Health, Dr. Anne Peterson, in an appearance before the subcommittee, noted that while a prescriptive approach is simple, cheap and widely applicable, the agency is beginning to adopt a performance regulation that is outcome-based, enabling the agency to better answer the question of whether the public's health is being protected. It will address current siting limitations inherent with a prescriptive approach. She cautioned that moving toward performance-based regulations would result in the need for different safeguards. The prescriptive criteria rely on suitable site conditions and conservative, passive designs while emphasizing the need for minimal operation and maintenance for a system to work safely. In contrast, performance criteria rely on technology and are less reliant on the site, emphasizing active system design, monitoring, operation and maintenance, and enforcement. This new footprint initiative does not involve just amending regulations. According to Dr. Peterson, it means that the new regulations will emphasize operation and maintenance, monitoring, enforcement, training, and education.

While some critics have characterized the technical review process as "broken," Dr. Peterson believes that solutions exist but not within the current infrastructure. The problem has been that the process for approving new technologies is very difficult and time-consuming due in part to the number of requests for approval of innovative onsite systems and the applicant's need to demonstrate the efficacy of this system. Commissioner Peterson characterized the current period as a time of risk when the Department finds out whether all the preliminary work has been effective. Because there is no substantive operation and maintenance requirement, or ongoing monitoring or system verification, the only way to determine whether the procedures are working is to analyze the failures of the various permitted systems. She noted that all systems receive what she characterized as "benign neglect." According to Commissioner Peterson, this lack of operation and maintenance assurance is a barrier to fuller use of technology.

---

<sup>1</sup> According to proposed Health Department regulations, a "footprint" means the delineated area (measured in square feet) that is certified by the Department or AOSE/PE for the eventual design and placement of an effluent dispersal method and repair.



### *b. Department of Environmental Quality*

Mr. David Paylor, Director of Program Coordination at the DEQ, described the DEQ's role in the management and treatment of wastewater as one of ensuring that the quality of Virginia's waters is protected. The tool under which this is achieved is the VPDES permit, which is required when there is an actual or potential point source discharge of pollutants to state surface waters. The permit establishes limits on the quantity or concentrations of pollutants that are allowed to be discharged. It does not prescribe specific treatment technologies but rather the result that has to be achieved in order to ensure that water quality standards are protected. Currently, approximately 1,300 individual VPDES permits have been issued, of which 65 percent are issued to municipal/domestic wastewater facilities and 35 percent are issued to industrial facilities. A permit has a five-year term. General permits are issued to small systems that discharge less than 1,000 gallons of sewerage per day. These are referred to as single family home permits and are issued to homeowners who have installed a "small package" plant that treats water discharged from the home to the surface waters and not into drainfields. Currently, there are about 1,700 of these types of systems operating under a general permit issued by the DEQ.

Mr. Paylor described, through the use of a flow chart (Appendix B), the joint permitting and construction/operation certification process currently in place. An owner submits an application for a permit to both the VDH and the DEQ. The VDH reviews the application to determine whether the location of the discharge will affect drinking water standards or shellfish grounds. Once the DEQ receives the VDH's comments, it drafts a permit and notice is given to the public of the draft permit. The permit is then issued after the public comment period has elapsed. The VDH receives the DEQ permit containing the discharge requirements, as well as the plans and specifications of the proposed or expanded facility. The VDH is responsible for ensuring that the municipal wastewater treatment plant's design is adequate to meet the permit requirements. Once the design for the municipal wastewater plant is approved, a certificate to construct is issued by the VDH. Upon completion of the construction, the facility is inspected by the VDH, which may be joined by the DEQ. If the construction is approved, then a certificate to operate is issued. With the adoption of the new Sewage Collection and Treatment (SCAT) regulations, upon issuance of the VPDES permit by the DEQ, the DEQ will no longer have the joint responsibility for reviewing plans and specifications or performing inspections. However, the DEQ will continue its surveillance to ensure the facilities operation is in compliance with the permit's requirements.<sup>2</sup>

### **3. Local Health Department Role**

Dr. Jim Burns, District Director of the Rappahannock-Rapidan Health District, discussed the role of the local health departments. His office is responsible for overseeing the operations of Health Department services in Planning District 9, which includes the Counties of Culpeper, Fauquier, Madison, Orange and Rappahannock, and eight incorporated towns and two enterprise zones. The district encompasses 2,983 square miles and has a population of 134,785 residents for a population density of 45 persons per square mile. There are 53,813 housing units

---

<sup>2</sup> Appendix C details the changes of the joint permit process that will occur with the final adoption of the Sewage Collection and Treatment regulations.

in the district; of that number 45,765 or 85 percent utilize onsite systems. Soils in the district vary from the deep well-drained soils of the Piedmont region to the generally shallow or poorly-drained soils of the Culpeper Basin. Even as the district experiences growth pressures, more than 127,000 acres (33 percent) in the district remain farmland. The district's median adjusted gross family income is \$46,845. New home prices averaged \$142,700 in 1999. The district has an environmental health staff of 13, whose salaries are paid by the county and the State. Each year the district staff issues 2,500 septic tank drainfield permits and 1,000 permits for new private wells, and evaluates almost 1,000 subdivision lots. Last year only 36 applications for onsite systems were denied (1.44 percent); of these, seven are currently being considered for variances or alternative systems, further reducing the denial rate. According to Dr. Burns, there has been an average of less than 25 failures of onsite sewage systems per year in his district. The causes of failure range from the age of a system and poor installation practices to hydraulic overloading of the system. He noted that repairs have been able to be made on almost all failures, except in the instance of a number of houses in two adjacent communities on very small lots with "terrible" soils.

The backlogs of permit applications have been significantly reduced in the district. For example, from the 1970s through the 1980s, Fauquier County was one of the fastest growing counties in the Commonwealth. During this period there was a backlog in issuing a permit (from the time a permit application was received until it was issued) of up to two months. During the past few years, in spite of a 24 percent staff turnover rate and an increase in demand of 18 percent, the backlogs have been below the statutory time limit of 15 days for issuing single lot permits and the 60-day limit for multiple lots.

Ten to 15 proposals to discharge effluent into state waters (not onsite) are processed annually by the district office. The district attempts to monitor 52 existing discharging systems. It also has issued permits for a number of alternative sewage disposal systems including drip, peat moss, and mounds. In the case of permits to discharge into state waters, the district office handles the initial application for a proposed discharge permit after a site has been denied any type of soil-based onsite sewage disposal system. The local district assesses the site, assists the client with the necessary paperwork, and when the discharge has been approved by the DEQ, and the discharge limits are established, the district office reviews the system's design to determine whether it is adequate to meet the DEQ's effluent limits. Over the past 18 months, the district has experienced an increased spirit of cooperation from the regional DEQ office and a serious effort has been made to ensure that both the VDH requirements and the DEQ requirements are as similar as possible. This has greatly reduced confusion and duplication of effort on the part of the applicant.

After the creation of the AOSE program, four out of the five counties asked the district office to attempt to perform quality assurance reviews on 100 percent of the AOSE lot submissions. So far, 342 lots proposed by AOsEs have been reviewed; of those proposals, 62 percent were complete and accurate or could be approved with minor changes. Three proposals were denied after field reviews, five were returned to the AOsEs because of substantial errors in the paperwork, and four lots are pending review. Of the remaining 118, changes were made to the design or siting of the system, in consultation with the AOSE, which allowed the proposal to eventually be approved. Dr. Burns characterized the 62 percent initial approval rate as "substantially lower" than the historical 95 percent plus rate of acceptable private soil consultant submissions. He indicated that there is no data that explain this difference. Since the beginning

of the AOSE program, the district has not revoked any AOSE approvals. As a matter of procedure, the district provides copies of all correspondence to the AOSE, the applicant, and when appropriate, to the central office.

Dr. Burns concluded his remarks by offering the following observations:

1. Any change in the regulations should take into consideration the varied needs and desires of local governments.
2. The current system for managing the monitoring and maintenance requirements of some of the alternative systems continues to experience challenges, which might need to be addressed.
3. Improvements need to be made in the VDH's ability to target resources to localities with growth-driven needs.
4. From his perspective, conventional gravity systems have long lives, are simple to operate, are highly reliable, and should continue to be the preferred onsite systems.

## **B. PUBLIC HEARING**

The subcommittee held a public hearing to solicit the views of local government representatives, affected interest groups, and the public in general, regarding issues before the subcommittee. Mr. Larry Land spoke on behalf of the Virginia Association of Counties and its member localities. His comments also were endorsed by the Virginia Municipal League whose representative was unable to attend. The localities expressed concern in three areas. The first concern is the inadequate staffing and funding of the VDH. While some local governments have their own ordinances regulating the installation and ongoing maintenance of onsite sewage treatment options, the majority of them rely upon the VDH's program. Local officials, according to Mr. Land, consistently voice concern that the VDH is not adequately staffed and funded to adequately review permit applications. The inadequacy of this review and its possible long-term consequence is of particular concern in high-growth localities. One locality suggested that the lack of staff and funding of the VDH is resulting in large numbers of septic applications "being deemed approved based on the mere passage of time without review." Many times the new homeowner has purchased a house that is served by a system that was never reviewed and when faced with a system failure, the homeowner looks to local government for assistance.

The second concern relates to the AOSE program. Loudoun County has an ordinance that requires the local health department to review AOSE submittals before they are approved. Using this procedure, the County determined that out of 4,000 submittals, approximately 1,000 (25 percent) did not correctly reflect onsite conditions. Loudoun County noted that such errors could only be discovered by conducting evaluations onsite prior to final permit approval. Under legislation passed in 2001, local governments must meet the same mandated deadlines for approval or denial of an onsite sewage permit that apply to the Health Department. To meet this requirement, the County will have to spend more than \$600,000 for additional staff, overtime and professional contracts.

The third issue is related to the use of alternative onsite systems. Localities are worried that alternative technologies will not function safely or their use may promote growth and development in areas they want to protect for conservation and related purposes. Local officials

have frequently expressed the desire that effective monitoring programs need to be in place to assure the proper operation and maintenance of these alternative onsite systems. There is some anxiety regarding the possibility of these systems failing and causing subsequent environmental and health problems for which they may be potentially liable. Mr. Land concluded his presentation by stating that the message he received from local governments is the need for a strong state program that assures major problems will not occur and is responsive to the dual objectives of local growth and environmental protection.

The comments received during the hearing from representatives of individual localities and such organizations as the Virginia and National Onsite Wastewater Recycling Associations, The Virginia Association of Soil Scientists, The Virginia Environmental Health Association, private corporations and individual citizens can be grouped into three broad areas of interest. A summary of comments in each of these areas follows.

### **1. Connection to Public Systems**

- Citizens in at least one locality (Prince William County) are precluded from being connected to a public sewer line even though the line runs adjacent to their properties because of the locality's comprehensive plan. In the interest of health, safety and welfare, this issue of the right of citizens to connect to public sewer systems should be addressed at the state level.

### **2. Management and Use of Conventional and Alternative Onsite Service Systems**

- Such systems are (i) technically sound, (ii) environmentally friendly, and (iii) designed to protect groundwater and remove nutrients. Their use is limited by the VDH policies and the lack of technical expertise at the VDH to provide timely review of alternative systems.
- The functions of design, review and evaluation of alternative systems should be separated from compliance monitoring and enforcement and not reside within one agency thereby avoiding an internal conflict of interest. The Department should be "phased-out" of its design and evaluation responsibilities.
- The penalties for failed systems should be decriminalized.
- The Environment Protection Agency, in its study Response to Congress On Use of Decentralized Wastewater Treatment Systems,<sup>3</sup> states that "adequately managed decentralized wastewater treatment systems can be cost effective and a long-term option for meeting public health and water quality goals, particularly for small, suburban, and rural areas." This same report cited the following as barriers that inhibit the use of these systems: lack of knowledge and public misperception, legislative and regulatory constraints, lack of management programs, liability, engineering fees and other financial factors.
- Persons with technical expertise in wastewater treatment technologies and environmental health issues should be appointed as members of the Virginia Board of Health and the SWCB.

---

<sup>3</sup> U.S. Environmental Protection Agency, Office of Water Management, Washington, D.C., April 1997.

- Training in alternative systems for the VDH personnel and AOSEs should be coordinated by the VDH in cooperation with the manufacturers and the private sector.
- Both the VDH and the DEQ should cooperate in finding ways to streamline the approval process for proprietary sewage disposal systems.
- Any proposal to allow the installation of proprietary systems or systems approved solely on the basis of future performance should include a requirement that the manufacturer or designer be adequately insured or bonded in order to protect the public from the financial consequences of error by the manufacturer or designer.
- The policies for regulating various treatment and disposal technologies need to be revised. The Health Department has unfairly given an exclusive market position to one specific technology.
- System design and performance standards should be established in order to determine the efficacy of a particular system. Such standards should be consistent between the VDH and the DEQ, particularly with respect to the larger systems.
- Instead of examining possibly consolidating the wastewater treatment responsibilities under one agency, there should be a review of options for providing the necessary financial support for increasing the VDH staff, upgrading agency expertise both at the state and local levels, and developing a more effective local management system.
- Decisions on the siting of alternative onsite systems should not be used as a tool by local government to regulate land use.

### **3. AOSE Program**

- Permits or other approvals given by the VDH and based on AOSEs' evaluations should not be revocable.
- An AOSE must have a reasonable avenue to defend himself when a complaint is filed against him or a revocation of his AOSE credential is recommended. The VDH currently has "absolute" control over the process. It determines the rules under which an AOSE must operate, gathers the evidence in order to file a complaint, files the complaint, hears the case, and determines the penalty.
- The standards to become an AOSE should be so rigorous as to (i) remove any doubt about the AOSE's ability to perform his job and (ii) ensure a high quality of work that protects the health, safety and welfare of the public and the environment.
- The VDH is an agency that does not have the resources, knowledge, or ability to function as an occupational regulatory agency, yet it attempts to function as one. Every other group of professionals is regulated by a professional board under the Department of Professional and Occupational Regulations. The AOSE certification program should be placed under an existing board such as the Board for Professional Soil Scientists.
- Level 2 inspections performed by the VDH should be conducted under the same conditions that were present when the AOSE did the original work for the application. Such inspections should be completed in a timely manner, not months after the certification letter has been issued.
- Because the most complex septic system design could fail if the soil that it uses is not properly characterized and matched to the system, the qualifications to become an AOSE should include those required of professional soil scientists.

- Field reviews by the VDH of work submitted by AOSEs should be eliminated. The Department should be limited to Level 1 reviews to assure that the paperwork is in order. If the agency review finds that the paperwork is complete, the permit should be issued. There should be no onsite assessment of the soil by the VDH.
- Because of the new AOSE regulations, many qualified soil consultants may not be allowed to submit work after December 2002 unless they become an AOSE. This December time limit should be extended through 2004 for those wishing to become an AOSE.
- Not only should there be a certification process for the "credentialing" of AOSEs but a similar certification process should be developed for those persons who design onsite systems, installers of onsite systems, and all sewage handlers.

### **C. RESPONSE TO JOINT SUBCOMMITTEE'S CONCERNS**

During the joint subcommittee's deliberations several issues were raised regarding certain VDH policies and procedures. In an effort to thoroughly examine these concerns, the subcommittee invited officials of the VDH to brief the subcommittee on the following:

1. The AOSE program and permit revocation.
2. AOSE disciplinary actions: should the VDH have a role in these?
3. The need for design, or other standards, to eliminate or minimize the "subjectivity" of soil science.
4. The VDH policy on the use of alternative systems.
5. Is the VDH adequately staffed to oversee operation and maintenance of onsite sewage systems? What will it take to address staffing issues?
6. Enhanced data collection: what data is the VDH currently collecting, and how is it being used? (i.e., the percentage of systems working/failing, processing times, AOSE success/denial ratios).

#### **1. AOSE Program; Permit Revocation**

Mr. Bob Hicks, Director of the Office of Environmental Health Services of the Department of Health, responded on behalf of the agency. In describing the AOSE program, Mr. Hicks stated that the Board of Health is statutorily mandated to "establish a program for qualifying individuals as authorized onsite soil evaluators." Pursuant to the statute, the Board is proposing to promulgate new regulations to replace the expired Emergency Regulations for Authorized Onsite Soil Evaluators. A number of changes are proposed in the new regulations based on the recommendations of an ad hoc advisory committee and VDH's experience with the program since its inception on July 1, 1999.

Most of the advisory committee's 22 recommendations, according to Mr. Hicks, are part of the proposed regulations or will be incorporated into guidance documents and policies for implementing the program. Much of the work of the ad hoc committee focused on issues related to the VDH's oversight activities, including the revocation of approvals, the timing of field checks (Level 2 reviews), the potential liabilities of AOSEs, disagreement between the VDH and AOSEs regarding the suitability of land for sewage systems, and assuring the competency of AOSEs conducting evaluations and providing system designs. Some on the ad hoc committee

believed that the VDH should be barred from revoking an approval or conducting a field check after a certain period of time had elapsed since approval of the submission by the VDH. This idea appealed to many members of the ad hoc committee as a way of protecting a property owner's financial interest. However, Mr. Hicks believed that such a prohibition, while not only "contrary to well-established" legal principles, carries "more ominous" implications for public health and safety. According to him, there has been, and there will continue to be, instances when the fundamental governmental interests of protecting public health and safety will necessitate the revocation of a permit. Examples of such a situation would be the siting of sewage systems too close to water supplies, physical damage to approved sites, or when a sewage system has been mistakenly sited on the wrong property.

All permit revocations are case decisions and as such are governed by the APA. Under the APA, the affected party is entitled to (i) reasonable notice of the proceedings, (ii) appear in person or with counsel or other qualified representatives for the presentations of factual data, argument, or proof (informal or formal hearing), (iii) be given notice of any contrary fact or information in the possession of the agency that could be relied upon in making a decision adverse to the affected party, (iv) receive a prompt decision on any application for a license, benefit, or renewal, and (v) be informed in writing of the factual or procedural basis for an adverse decision in any case. In response to complaints about their procedures, local health departments have been advised to notify the affected party and the AOSE informally of the potential problem. The affected party and the AOSE then have the opportunity to respond to the agency's concerns. If the matter cannot be resolved, an informal conference is held during which the affected party is afforded the opportunity to present evidence for the agency's consideration. An AOSE may be present and may submit factual information. The affected party may have other experts offer evidence as well. The local health department also presents its evidence and arguments before the hearing officer who, in most instances, is the district health director. The district director then renders a case decision, which may be appealed by the affected party to the circuit court.

To date, local health departments have revoked seven lot approvals (either permits, letters, or subdivision lots). In two instances, the local health department has notified the county zoning authority that it has withdrawn its approval for the entire subdivision. In one case, the local health department worked with the owner and the AOSE to locate approved sites for all the lots, and in the other the AOSE and the owner are in the process of resubmitting site evaluations to address the local department's concerns.

Much of the criticism directed at the AOSE program had focused on the fact that an AOSE is not considered an affected party in the administrative proceeding held to determine whether a permit should be revoked. The ad hoc committee recommended that AOSes be given standing to challenge the factual basis for the case decision. The VDH believes that the property owner is the party affected by a decision to revoke an approval and the Board of Health does not have authority to give legal standing to an AOSE in such matters. Mr. Hicks suggested that the best alternative to revocation is prevention, noting that the AOSE program should be designed to prevent those circumstances where revocation of a permit is necessary to protect public health and the environment. To this end, the VDH, in his words, "has emphasized a high-quality work product as the most important aspect of the program." According to him, improved education, experience requirements for AOSes, and courtesy reviews may improve the quality of AOSE work and reduce the need for revocations. Another alternative suggested

by many as a means of preventing revocations would be for the VDH to perform a field check on every AOSE submission. The Department believes that this is not practical statewide given current VDH staffing levels. In response to suggestions from the ad hoc committee, the VDH incorporated language into the proposed regulations that would change the timing of Level 2 field checks. Instead of performing these checks only after the issuance of an approval, the proposed regulations allow the field checks to be performed at any time, which includes the time prior to issuing an approval.

Another significant change to the proposed regulations was not recommended by the ad hoc committee but was initiated by the VDH. This change would define revocations of permits, letters, or subdivision approvals as "permit denials," making it possible for the owner of the property to appeal the decision to the Sewage Handling and Disposal Appeal Review Board. This will afford citizens the opportunity for an independent review of their cases. The VDH expects this provision to address many of the concerns associated with revocations under the AOSE program because the Review Board is a citizens' board with statutory authority to interpret the Board of Health's regulations.

## **2. AOSE Disciplinary Actions**

Given the statutory mandate for qualifying individuals as AOSEs and for removing individuals from the list of qualified AOSEs, the VDH believes that it must have a role in AOSE disciplinary actions. As with decisions to revoke permits or other approvals, any VDH decision affecting an AOSE's status is a case decision and is subject to the requirements of the APA. The VDH must (i) give proper notice to the AOSE when it contemplates action, (ii) inform the AOSE of the opportunity for an informal fact-finding conference, and (iii) inform the AOSE, generally in writing, of the outcome of an action it plans to take.

Since the program began in July 1999, the VDH has taken actions affecting four AOSEs. Two of those AOSEs signed consent orders and waived their right to a hearing after consulting with private attorneys. In one of the consent orders the individual agreed to a 10-day suspension, additional training, and the payment of a \$250 civil charge. In the other instance, the AOSE agreed to a minimum 12-month suspension and also agreed to pay a civil charge of \$500. In the other two cases, informal fact-finding conferences were held. All four AOSEs had the right to appeal to the circuit court. One individual has exercised that right and that case is currently pending.

## **3. Standards to Minimize Subjectivity of Soil Science**

The VDH recognizes that there is a certain degree of subjectivity inherent in the practice of soil science. While acknowledging this, Mr. Hicks suggested that to say that a particular site factor or condition is not important to the functioning of an onsite sewage system because its description or determination requires judgement or interpretation is to ignore the science that is being criticized. He stated the site and soil evaluation criteria of the current Sewage Handling and Disposal Regulations are well-founded in research and in practice, and are accepted in most of those states where soil evaluation is used as part of the site selection process for onsite sewage systems. Uniformity of interpretation and standardization are necessary for the implementation of a regulatory program that is fair and consistent. He acknowledged that while the Department strives for such consistency, there is much room for improvement.



The VDH is considering an implementation strategy that would allow for more discretion in the decision-making process. Under this approach, site and soil criteria would be divided into two or more categories. The categories would then be classified as to the potential for non-compliance to pose a direct and imminent threat to public health or the environment. For example, placing a sewage system too close to a well would be considered much more threatening than placing a system too close to a property line or building foundation. Revoking a permit would be necessary in the first instance; in the latter, notice to the owner with a possible suggestion for remedying the problem may be all that is required. In both instances, an AOSE might be subject to some form of disciplinary action, even though the VDH would not have revoked the permit in the latter case.

The professional courtesy reviews that are proposed in the AOSE regulations as well as the increased education and experience requirements should also, according to VDH, alleviate some of the concerns about minor disagreements over site and soil characteristics. Another strategy for addressing the potential for minor disagreements or subjectivity would be to establish a policy requiring internal review of any decision to revoke an AOSE-certified permit, letter, or subdivision prior to that decision taking effect. A potential tool for dealing with the issues of subjectivity and site evaluations is an Onsite Training Center. These centers have been created in other states and serve as a focal point for education and training in site and soil evaluation as well as for technology transfer. A training center can provide opportunities for hands-on experience in many onsite technologies in a nonregulatory environment where the regulated community and the regulators can share experiences.

#### **4. VDH Policy on the Use of Alternative Systems**

Since 1982, the Board of Health's regulations have ostensibly encouraged the development of innovative methods, processes, and equipment for the treatment and disposal of sewage and have contained procedures for the experimental testing of innovative systems. Because of the requirements for an approved backup system, bonding, and testing, few companies have used the experimental provisions of the regulations. In 1993, the Department began to permit systems utilizing secondary or advanced secondary treatment in soils that did not meet the minimum requirements of the Sewage Handling and Disposal Regulations. Permits were issued under variances granted by the Commissioner. Final amendments to the regulations effective on July 1, 2000, incorporated those systems into the regulations. The July 2000 amendments also made changes to the procedures for testing alternative systems prior to acceptance as generally approved systems. A third category of approvals, provisional approvals, was added. Under the new procedures, a system design or product could be permitted even though it had not been through the experimental testing procedures. The new procedures require that the applicant provide data from 50 systems installed and monitored in other states or countries showing successful operation of the system under the conditions for which approval is being sought. Since 1993, a number of other policies have been adopted allowing for the use of such alternative technologies as drip irrigation, spray irrigation, and chamber systems.

When higher quality effluent treatment is utilized the proposed amendments to the regulations will establish minimum design, construction, and performance requirements for such systems. To assure the public health and the environment are protected from the adverse

effects of improperly treated sewage these amendments may also establish requirements for maintenance, monitoring, and operation of all onsite systems. The requirements will most likely be scaled according to the complexity of systems and the sensitivity of the receiving environment. As more and more systems that utilize advanced wastewater treatment are installed in the Commonwealth, the VDH recognizes that proper operation, maintenance, and monitoring of those systems becomes an increasingly important element of the agency's onsite wastewater program. The Department is convinced that, with proper maintenance and monitoring, secondary and advanced secondary systems can be used on many sites that have previously been considered unsuitable for conventional septic systems. According to Mr. Hicks, the VDH is moving from a program where the permitting requirements were entirely prescriptive to one where the requirements involve some measure of performance. Whether the performance involves advanced wastewater treatment or periodic inspection of components, compliance monitoring, data management, and enforcement are becoming increasingly important.

## **5. VDH Staffing**

In his response to the joint subcommittee's inquiries regarding the staffing of the agency's onsite sewage program, Mr. Hicks suggested that any analysis of staffing needs would require consideration of the changing role of the VDH. Under its current mission, the Department administers the AOSE program, processes applications and provides inspections and other services expected by the public. As the onsite sewage program becomes more performance-oriented and as the private sector plays a greater role in the program, the VDH must, according to Mr. Hicks, allocate resources to those activities associated with regulatory oversight. This is a role that is different from VDH's traditional role. Some of these new activities will include periodic inspections of systems, collecting monitoring samples, conducting field checks of AOSE submittals, and gathering supporting documentation when performance failures necessitate enforcement or disciplinary actions. Mr. Hicks reiterated that these activities divert resources away from the agency's primary mission of processing applications for citizens and responding to environmental and public health complaints.

In FY 2000, the VDH received 52,129 requests for site approvals in the onsite program. This included requests for construction permits, certification letters and subdivision lot approvals. AOSes handled 5.5 percent of the total requests for approvals, responding to 16.8 percent of the subdivision lots submissions, 14.2 percent of the letters submissions, and 1.6 percent of the construction permits submissions. Although the data are not yet available, the VDH believes that the AOSE percentages are increasing. In addition, the VDH performed 35,354 inspections of onsite systems at the time of construction. Even with this coverage, the central office is aware of sporadic backlogs in some counties. Thus, one may conclude that the VDH is still not adequately staffed for its present mission, even with the private-sector AOSes handling a growing percentage of the submittals.

The few revocations that have been necessary have required additional resources in those localities and districts where they have occurred. The central office has also committed considerable resources to the AOSE program, including the administrative procedures associated with disciplinary actions. While the resource demands in these areas have been high, the VDH expects that these activities will level off as the program matures. Moving staff from areas of relatively slow growth and activity to regions experiencing high growth might enable

the agency to more effectively manage staffing needs. However, cooperative budgets and contracts for services tend to hamper such movements. According to Mr. Hicks, adding several positions that could function statewide, or additional funding that would allow districts or localities to hire AOSEs during a time of high demand, represent potential solutions to the current staffing problems.

Mr. Hicks acknowledged what several members of the joint subcommittee have suggested, that the agency should conduct a needs and resource assessment to determine what the level of financial and staffing support would be required if the VDH is to provide the traditional services expected by the public as well as assume the additional responsibilities inherent in moving toward a performance-based system. The joint subcommittee requested that such a resource and staffing plan be developed by the agency and presented at a subsequent meeting. The plan that was offered addressed concerns raised during the course of the joint subcommittee's deliberations and reflected the changing role of the agency. The specific elements of the proposal presented by Mr. Hicks included the following:

*a. Preventing Backlog of Onsite Sewage System Reviews*

Of the 35 local health districts, 12 districts handle nearly 80 percent of the 51,000 onsite sewage applications. These 12 are also very active in the AOSE program. The districts cover areas from Interstate Route 95 east to the Chesapeake Bay, Northern Virginia south to Culpeper and west to the Shenandoah Valley. The VDH estimates that 20 additional environmental health inspectors would have to be employed in this high-growth area if the agency is to respond to citizens' requests in a timely manner. The total estimated cost of \$1,063,322 would be shared, with the state providing \$639,199 in state general funds and the localities contributing \$424,123. The Department is presently reviewing how its current resources are being utilized with the view of possibly reallocating staff among districts.

One factor contributing to the backlog is the high turnover rate of staff. A review of personnel records of those who have left the agency indicates that the most often cited reason for leaving the agency is the high work volume and stress, followed by low pay, lack of opportunity for advancement, lack of continuing training (mostly for supervisors and managers), too many programs to carry out, and inequity with other state jobs (work volume, number of programs, and pay). Turnover in the environmental health program is running about 15 percent for the last several years with some districts showing turnover rates as high as 25 to 35 percent. Individuals report that they are able to make more money and are subject to less stress in the private sector. The VDH believes that one of the reasons for the increased stress, in addition to the change in the VDH's mission, is the lack of training for agency field staff. While there are many educational opportunities available both in the Commonwealth and in nearby states, most environmental health specialists cannot take advantage of them because of budget restrictions and because their absence from the locality results in unacceptable delays in providing services.

*b. Staff Support for AOSE Program*

Virginia Polytechnic Institute and State University (VPI-SU), under a contract with the VDH, makes four soil scientists available to local health departments to address problems that might occur in the onsite sewage system program. Specifically, they resolve disputes and

provide training to local department personnel. The VDH recommends increasing the current four-person assistance team by contracting with VPI-SU for two additional soil scientists. The agency would also place five additional staff personnel in the high-growth areas of the Commonwealth to assist citizens and AOSEs who are experiencing problems. Characterized by Mr. Hicks, these five individuals, as ombudsmen, would be responsible for resolving any problems associated with AOSE services, permit disagreements over the application process, etc. With their knowledge about the AOSE program and local ordinances, they would be able to communicate with all affected parties, including homeowners, and seek to resolve matters in a timely fashion. The cost of employing two VPI-SU soil scientists and five ombudsmen is estimated to be \$472,763, all of which would be financed with state general funds.

### *c. Standardizing Practices of Onsite Sewage Program*

Mr. Hicks suggested that standardized procedures and the certification of inspectors that occurs in the food safety inspection program could be applied to the onsite sewage program. Using this approach, 13 positions (12 technical consultants and one clerical support position) would be created at a cost of \$698,398 (state general fund). These individuals would be responsible for (i) standardizing local practices, (ii) providing in-the-field training for local health department inspectors and AOSEs, and (iii) reviewing the work of agency personnel and private sector consultants.

## **6. Enhancing Data Collection Capability: Computer Information System**

The VDH is not currently collecting data in a systematic way on sewage system failures, application processing times, or AOSE approval and denial rates. Local and district health departments, for the most part, collect such information. However, there is no mandate to collect or report this information to anyone. From time to time the central office requests that the districts report this information. The Department has entered into a contract with a private vendor to develop and implement an information management system that will provide the capability to collect and report this environmental health data. The information system should be operational by March 2002.

Because the joint subcommittee believes that the current and proposed data information system presents a limited view of the impact of onsite sewage systems in Virginia, it asked the Department to present a more comprehensive data collection and analysis plan. In response, the VDH offered a plan that would not only collect more repair data but would include information collected from real estate certifications, inspections data from a sample of systems, and an aerial infrared survey of onsite systems. Currently, when a house is put up for sale most mortgage contracts require septic systems and wells to be inspected and certified. Local health departments had provided the inspection and certification service but because of due budget constraints most local health departments stopped offering the service over the past 10 years. Because the VDH no longer engages in this type of activity, the 2001 General Assembly established accredited private septic system inspectors. In the one local district (Culpeper region) that still performs real estate certifications, there are 45,765 installed systems. There have been 314 repair permits issued during the last two years or an annual failure rate of 34 percent for the district. The data from 638 real estate "walkover" show 76 malfunctions, for an annual malfunction rate of six percent. This data on failure rates are a valuable source that could be incorporated in a new database.

A second source of information would be generated as a result the inspection of a sample of onsite systems. The objective would be to inspect one percent of the installed systems per year. This would require the hiring of seven to 10 inspectors at an annual cost of \$372,000-\$531,000 in state general funds. Currently, the inspectors have to ask permission to go onto private property. More accessibility for inspection purposes would be desirable. This would entail a change in current law to allow such access to inspect onsite systems. As part of the inspection, samples of well water would be taken to determine whether ground water has been contaminated. This is an important indicator of a system's performance. It is estimated that such sampling and analysis would cost \$100,000. Mr. Hicks suggested that the data collection effort set a goal of inspecting 10 percent of the systems annually, rather than one percent. To visit every system once every 10 years would cost between \$3 million and \$5 million.

The final data source would be an aerial infrared survey. Preliminary tests of this approach show some promise. This technique would have to be supplemented by on-ground inspections. The Department estimated that a pilot project could be conducted for approximately \$50,000.

#### **D. PROMOTION OF WASTEWATER REUSE TECHNOLOGIES**

Among the issues that the joint subcommittee was requested to examine were the policies and procedures relating to the permitting and regulation of technologies for the reclamation reuse of wastewater. During the 2000 Session of the General Assembly, legislation was enacted (HB 1282) that established a policy of "promoting and encouraging the reclamation and reuse of wastewater in a manner protective of the environment and public health." The bill directs the SWCB to establish requirements for wastewater reclamation and reuse. Officials from the DEQ were invited to discuss what steps the agency has taken to promote and encourage the reclamation and reuse of wastewater. Mr. David Paylor, Director of Program Coordination at the DEQ, began his presentation by defining the terms reclamation and reclaimed water. Reclamation is the "treatment of domestic, municipal or industrial wastewater or sewage to produce reclaimed water for a direct beneficial or controlled use that would not otherwise occur," and reclaimed water is "water resulting from the treatment of domestic, municipal or industrial wastewater that is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Under the existing regulatory framework the VDH and the DEQ have specific responsibilities for the treatment and reclamation of wastewater. The reclamation of municipal wastewater is subject the Health Department's Sewage Regulation. Land irrigation of reclaimed water, a major use of this technology, is permitted under either of the two programs. If there is no discharge to state waters, the activity is regulated under the Virginia Pollution Abatement Program, or in the case of an activity that requires a discharge into state waters, a Virginia Pollutant Discharge Elimination System permit would have to be obtained. When the reuse of reclaimed water is for other purposes such as cooling for power generation, a permit is not required from the DEQ.

While a regulatory framework does exist, a DEQ study noted that no technical standards regarding land irrigation or other reuse categories exist. The study suggests that if the reuse and reclamation of wastewater is to be encouraged and promoted, as required by statute, specific criteria for categories of acceptable use should be developed. These specific reuse categories/activities could include: land irrigation (agriculture or crop production, sod farms,

silviculture, golf courses, athletic fields, parks, schools, cemeteries, highway medians, residential and landscape areas); industrial (boiler feed); and other categories of use (fire protection, street washing and vehicle washing). In January 2001, an interim guidance document was developed proposing criteria for the various uses. On March 26, 2001, a Notice of Intended Regulatory Action was published and public meetings were held on April 26, 2001. Because of the complexity of the issue, the DEQ formed a technical advisory committee, which held its first meeting in July 2001. The committee will examine such technical questions as:

- What level of treatment can be expected from crops and plants when reused or reclaimed water is applied to land?
- Will the level of treatment provided by crops or plants allow wastewater treatment facilities to reduce their levels of treatment?

As noted by Mr. Paylor, if there is going to be reliance on the capacity of a crop to treat wastewater, it is important to know what the crop is, its specific capacity to provide treatment, the extent of water uptake, and the impact on ground water. Two more meetings of the technical advisory committee have been scheduled to discuss these and associated concerns. A draft regulation will be presented in March 2002 to the SWCB. It is anticipated that the Board will adopt a final water reuse and reclamation regulation in September 2002, with the regulations becoming effective October 2002.

### **III. FINDINGS AND RECOMMENDATIONS**

The joint subcommittee does not recommend any significant structural changes to the Commonwealth wastewater management and treatment program in light of the new regulatory changes being made in the VDH's onsite sewage program that ostensibly addressed many of the concerns raised before the joint subcommittee. However, the joint subcommittee believes that the VDH should further review its policies and procedures as certain aspects of its onsite sewage program. One further area of concern is the policy regarding the revocation of an onsite sewage system permit. The subcommittee documented at least seven instances in which a permit had been issued and then subsequently revoked. These individuals have constructed their houses based on the approval of the permit only to have the agency reject the siting or design of the system. While this is not a large number statewide, each case represents additional cost that the homeowner has to bear.

The subcommittee recognizes the fact that some of the revocation problems are a consequence of what might be seen as a dual system. The AOSE program was established to expedite the processing of applications in those locations where the VDH could not perform its permit review responsibility in a timely manner. It was not to remove the VDH from the process but rather to provide an alternative means of expediting the process. The alternative to this approach is either (i) reverting to the old way of doing things, or (ii) removing the VDH from its permit review responsibilities. Reverting to the previous procedure in which the VDH performed all the field checks, site evaluations and system design reviews will require a commitment to funding the positions necessary to provide the needed services. This option is problematic in light of the Commonwealth's current financial situation. The other option of removing the VDH from the permit approval process is not acceptable. The joint subcommittee

is not ready to recommend that the Commonwealth abrogate its responsibility for protecting the public's health by removing the VDH's authority to review and approve permits.

It is inevitable that in a small number of cases the judgements made by the agency and AOSEs will differ. One member of the joint subcommittee suggested that the VDH staff accompany an AOSE during the Level 2 field review prior to issuing the permit, thereby affording an opportunity to resolve any differences in their assessments while onsite. Although the purposed regulations are silent on the timing of the field checks, agency officials stated that the local health departments would conduct field reviews before giving final permit approval. What is important is that the agency put in place procedures that will minimize the number of permit revocations that occur because of disagreements between the health department field staff and private sector consultants. However, any procedure that may be instituted for resolving differences should not be a creature of statute but rather adopted either in the form of regulations or guidance documents.

A concern raised by the private sector was that the regulatory procedures for approving the design and marketing of innovative onsite sewage systems are cumbersome and lengthy. As previously described in this report, the certification of system designs by the VDH has been an evolving process. The agency recently has made progress in developing a more efficient approval process. Prior to July 2000, systems classified as experimental had to meet, what even the VDH characterized as, "somewhat onerous" requirements in order to be deemed a generally approved system. They had to comply with specific bonding requirements, severe limitations on the number of systems that could be installed statewide, and an extensive testing regimen. In July 2000, amendments were made to the regulations to address the criticism of the approval process. These amendments state that if the applicant has performance data from 50 installed systems located either within or outside of Virginia demonstrating that the particular product or design performs at least as effectively as the conventional gravity septic system, manufacturer/designer would receive a provisional approval on the system from the Department. Under this classification, the manufacturer/designer could sell up to 1,000 systems within the Commonwealth in a five-year period, during which certain data on the performance of these systems would be collected. If the system performed well, it would be removed from the provisional classification and placed in the general approval category, allowing the system to be mass marketed.

The joint subcommittee understands the frustration experienced by the private sector in attempting to gain general approval for the installation of innovative systems. Questions still remain with regards to the time frame for approval and the restrictions placed on the number that can be marketed prior to gaining general approval. However, the joint subcommittee is reluctant to propose statutory changes to the system, believing that technical issues with respect to the efficacy of a particular system are best left to experts within the agency and the Board of Health. The joint subcommittee encourages agency officials to examine ways the review process can be expedited further, while at the same time protecting the public's health and the environment.

The joint subcommittee recommends two somewhat related measures. The first recommendation is aimed at determining the impact that conventional and alternative/innovative onsite sewage systems have on Virginia's environment. Currently, the VDH can only speculate on the answers to such questions as:

- How many of Virginia's septic systems fail each year?
- Do those failures merely represent an inconvenience to homeowners, or do they also result in the contamination of surface or ground water resources?
- What is the extent of possible contamination?

Agency officials acknowledge that the VDH is not currently collecting data in a systematic way on sewage failures, application processing times or AOSE approval and denial rates. Local and district health departments in many cases collect such information, but there is no requirement to collect or report this data. The only indicator of system failures comes from simply counting the number of repair applications, a highly unreliable measure. The Department has contracted with a private vendor to develop and implement an information management system that will have the capability to collect and report the data previously mentioned. While such an effort will provide the agency with information essential in managing the program it does not enable the agency to determine the impact of the various types of systems on the environment. The joint subcommittee is concerned that in developing its new "footprint" regulations, which allow innovative systems to be installed in locations and on lot sizes previously prohibited for the siting of conventional systems, the agency will be adopting policies without the benefit of further research. The Commonwealth could end up with a program that is more expensive for the State, homeowners and taxpayers than may be needed or a program that does not go far enough to protect the state's surface waters and ground water.

The subcommittee believes that money expended for research on this issue now will pay large environmental and economic dividends later. Protocols for this kind of research are well established. Based on the study's findings, the VDH could gain a better understanding of the nature and extent of the environmental issues associated with the operation and maintenance of onsite sewage systems. Therefore, the joint subcommittee recommends:

Recommendation #1: That the General Assembly amend the 2001 Appropriation Act in the amount of \$200,000 to fund basic research to determine the environmental impacts of onsite sewage systems on Virginia's ground water surface water resources. The research should be conducted by a third party, preferably academic experts from the Commonwealth's universities.

Unlike such agencies as the Department of Forestry, the Department of Mines, Minerals and Energy, the Department of Environmental Quality, and the Virginia Department of Agriculture and Consumer Services, the Department of Health's onsite sewage system inspectors do not have the right of entry upon private land to conduct inspections without prior approval of the landowner. The agency indicated that it can be time consuming and expensive to gain permission from homeowners or lot developers to inspect systems. In addition, the agency's ability to have access to the greatest number of systems will enhance the ability of the researchers conducting the joint subcommittee's recommended study to obtain a valid sample of sites. The subcommittee also notes that the VDH has emphasized, in testimony before the joint subcommittee, that even with its new management information "an accurate assessment of the true performance of systems will necessitate in-the-field sampling of systems..." Therefore, the



ability to have access to a greater number of sites and broader variety of system types will be important in determining whether systems are operating properly. One means of assuring greater access is to provide the Commissioner of Health or his designees with immunity from any action for trespass. The subcommittee, therefore, recommends:

Recommendation #2: That the General Assembly enact legislation that provides immunity to the Commissioner of Health and his employees from any action for trespass while they are carrying out their responsibilities to enforce the onsite sewage laws (Appendix E).

Respectfully submitted,

Delegate Harry J. Parrish, *Chairman*  
Delegate Allen W. Dudley  
Delegate Allen L. Louderback  
Delegate Clarence E. Phillips

Senator William T. Bolling, *Vice-Chairman*  
Senator Stephen H. Martin  
Dan Beardsley  
Danny R. Hatch  
John Johnson\*

**\*Member's submitted statement appears on following page.**

## **IV. SUBCOMMITTEE MEMBER'S STATEMENT**

## Statement 1

TO: Marty Farber, Sr. Research Associate  
FROM: Bernard C. Nagelvoort (for John Johnson)  
SUBJECT: Final Report  
DATE: July 8, 2002

My objection is not to the Report itself, but rather to the proposed regulations from DEQ related to D. Promotion of Wastewater Reuse Technologies.

I believe the Members of the Committee need to recognize that proposed regulations prepared by DEQ not only will not promote wastewater reuse technologies, but will absolutely discourage reuse on cropland where it has the potential for being the most widespread and effective utilization of nitrogen to keep it out of surface waters including the Chesapeake Bay.

Specifically, DEQ proposes limiting the irrigation of reclaimed wastewaters on cropland to amounts which do not exceed a term called "field capacity." Restricting irrigation rates to "field capacity" means that no irrigation can take place when to do so would likely result in movement of water through the soil profile to groundwater. The rationale for this limitation is that reclaimed treated wastewater will have in it nitrate nitrogen which can cause groundwater to exceed Health Department drinking water standards.

The implication in this restriction is that crops will not take up nitrate nitrogen as a fertilizer element. It is an ultra conservative position which will make it impossible for any entity treating wastewater to irrigate such reclaimed water on cropland except during periods of drought when the absence of rainfall keeps soils from reaching "field capacity."

The appropriate language in the regulations would provide that irrigation rates of reclaimed wastewater will be limited by crop uptake of nitrogen in the reclaimed water **and** amounts of water which do not cause a reduction in crop production due to soil saturation with water. (Soil saturation does not take place until water levels in soils are much higher than those which cause the soils to be at "field capacity." Higher levels of moisture than "field capacity" will also help to optimize crop yields, a valuable secondary goal of irrigation when the primary goal is reduction of nutrients to surface waters.)

There will be no incentive for owners of wastewater treatment plants to incur the cost of irrigation equipment if such equipment will not be allowed to be utilized except during years of drought. At the same time, because such restrictions on irrigation would not allow them to irrigate all of the reclaimed wastewater they produce, they will need to discharge reclaimed wastewater to surface waters, thus defeating the purpose of reuse.

**The irony here is that DEQ currently permits the discharge of nitrogen to surface waters (with limitations on ammonia discharges in warmer months) while irrigation of the nitrogen on cropland to reduce such surface water discharges (and protect the Chesapeake Bay) is discouraged by the draft regulations.**

\*\*\*\*\*

**Bernard C. Nagelvoort is Special Assistant to the Chairman of the Board of Sheaffer International, L.L.C. John Johnson was a Vice President of Sheaffer International at the time of the Joint Subcommittee meetings and is now the Virginia Director of the U.S.D.A. Farm Services Agency.**

## **V. APPENDICES**



## 2001 SESSION

ENROLLED

## HOUSE JOINT RESOLUTION NO. 771

*Establishing a joint subcommittee to study the organization, structure, regulations, and policies of the Department of Health and the Department of Environmental Quality relating to the management and treatment of wastewater.*

Agreed to by the House of Delegates, February 22, 2001

Agreed to by the Senate, February 21, 2001

WHEREAS, the Virginia Department of Health has responsibility for the supervision and control of the safe and sanitary collection, conveyance, transportation, treatment, and disposal of sewage, sewerage systems, and treatment works in protecting the public's health and welfare; and

WHEREAS, the Department of Environmental Quality has the authority to issue, revoke, or amend certificates under prescribed conditions for the discharge of sewage, industrial wastes and other wastes into or adjacent to state waters and to promote and establish requirements for the reclamation and reuse of wastewater that protect state waters and public health as an alternative to directly discharging pollutants into waters of the state; and

WHEREAS, the Virginia Department of Health and the Board of Health have taken up to 10 years in adopting new regulations affecting wastewater handling and disposal practices; and

WHEREAS, the Virginia Department of Health has failed to initiate a process for proposing regulations that would allow wastewater facilities to offer wastewater services in areas that are not currently served by a public service authority; and

WHEREAS, the Virginia Department of Environmental Quality has yet to draft new regulations for the reclamation and reuse of wastewater as authorized by the General Assembly; and

WHEREAS, individuals and corporations in the business of wastewater treatment and management express confusion and frustration at the Commonwealth's seeming inability to keep its regulations current with new technologies and to eliminate overlap and duplication of responsibilities between the Departments of Health and Environmental Quality; and

WHEREAS, the Commonwealth has more than 750,000 septic drainfields that will fail with age, posing a serious threat to the environment; and

WHEREAS, the Commonwealth has more than 30,000 homes without indoor plumbing and unknown numbers of straight pipe discharges of raw sewage into state waters; and

WHEREAS, many industries and local governments are searching for cost-effective solutions and new technologies for wastewater treatment solutions as they seek to upgrade treatment processes for the protection of state waters, including the Chesapeake Bay; and

WHEREAS, new technologies are being developed for the treatment and disposal or reuse of wastewater; and

WHEREAS, the approval process for new technologies for wastewater management is technically unsound and unnecessarily restrictive, cumbersome, and lengthy; and

WHEREAS, the health, safety, and welfare of the citizens of the Commonwealth are being compromised by antiquated septic systems; and

WHEREAS, superior environmentally friendly systems have been suppressed by an overly restrictive and lengthy approval process; and

WHEREAS, members of the Board of Health lack expertise in engineering or wastewater management, and both the Virginia Department of Health and the Department of Environmental Quality could benefit from wastewater engineering expertise in senior management and the decision making process; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That a joint subcommittee be established to study the organization, structure, regulations, and policies of the Department of Health and the Department of Environmental Quality relating to the management and treatment of wastewater. The joint subcommittee shall consist of 9 members, which shall include 6 legislative members and 3 nonlegislative members as follows: 4 members of the House of Delegates to be appointed by the Speaker of the House in accordance with the principles of proportional representation contained in the Rules of the House of Delegates; 2 members of the Senate to be appointed by the Senate Committee on Privileges and Elections; 2 citizens to be appointed by the

Speaker of the House of Delegates; and 1 citizen to be appointed by the Senate Committee on Privileges and Elections. The citizen members shall be persons who are involved in the business of treating or managing wastewater.

In conducting its study, the joint subcommittee shall consider (i) the policies and procedures of the Departments of Health and Environmental Quality relating to the management and treatment of wastewater, particularly in relation to permitting and regulating various treatment, disposal, and reuse technologies; (ii) the overlap in various sets of regulations of the Departments; (iii) the length of time taken in promulgating regulations; (iv) the need for wastewater treatment expertise at senior levels of management and on the Board of Health and the State Water Control Board; (v) the best way to streamline the regulatory and permitting process, including the consolidation of responsibilities into one agency; and (vi) such other issues as it deems necessary.

The direct costs of this study shall not exceed \$11,200.

The Division of Legislative Services shall provide staff support for the study. Technical assistance shall be provided by the Virginia Department of Health and the Department of Environmental Quality. All agencies of the Commonwealth shall provide assistance to the joint subcommittee, upon request.

The joint subcommittee shall complete its work in time to submit its written findings and recommendations by November 30, 2001, to the Governor and the 2002 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

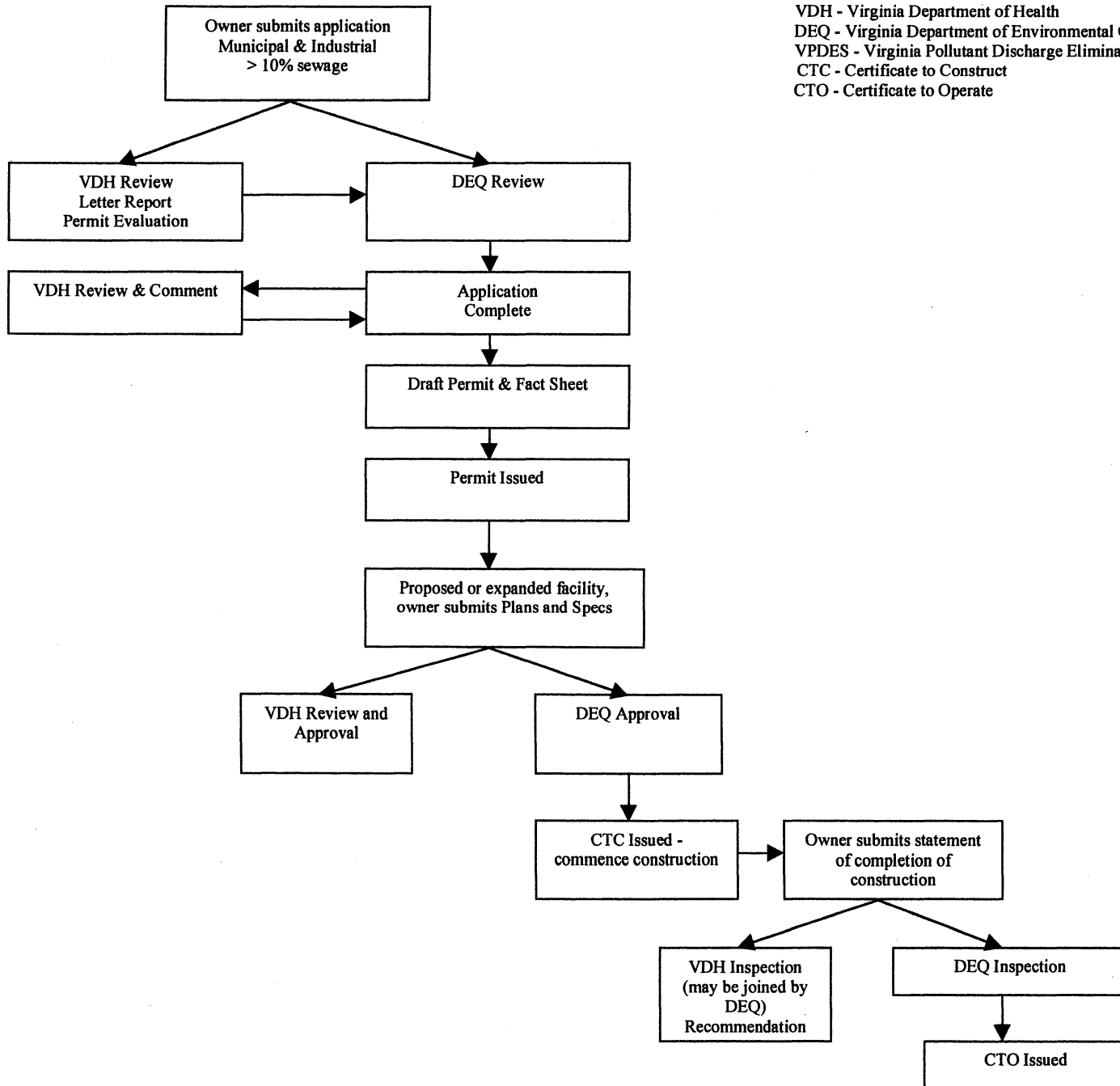
Implementation of this resolution is subject to subsequent approval and certification by the Joint Rules Committee. The Committee may withhold expenditures or delay the period for the conduct of the study.



**INDIVIDUAL VPDES PERMIT AND CTC/CTO PROCESS**  
(Prior to Adoption of Sewage Collection And Treatment Regulations)

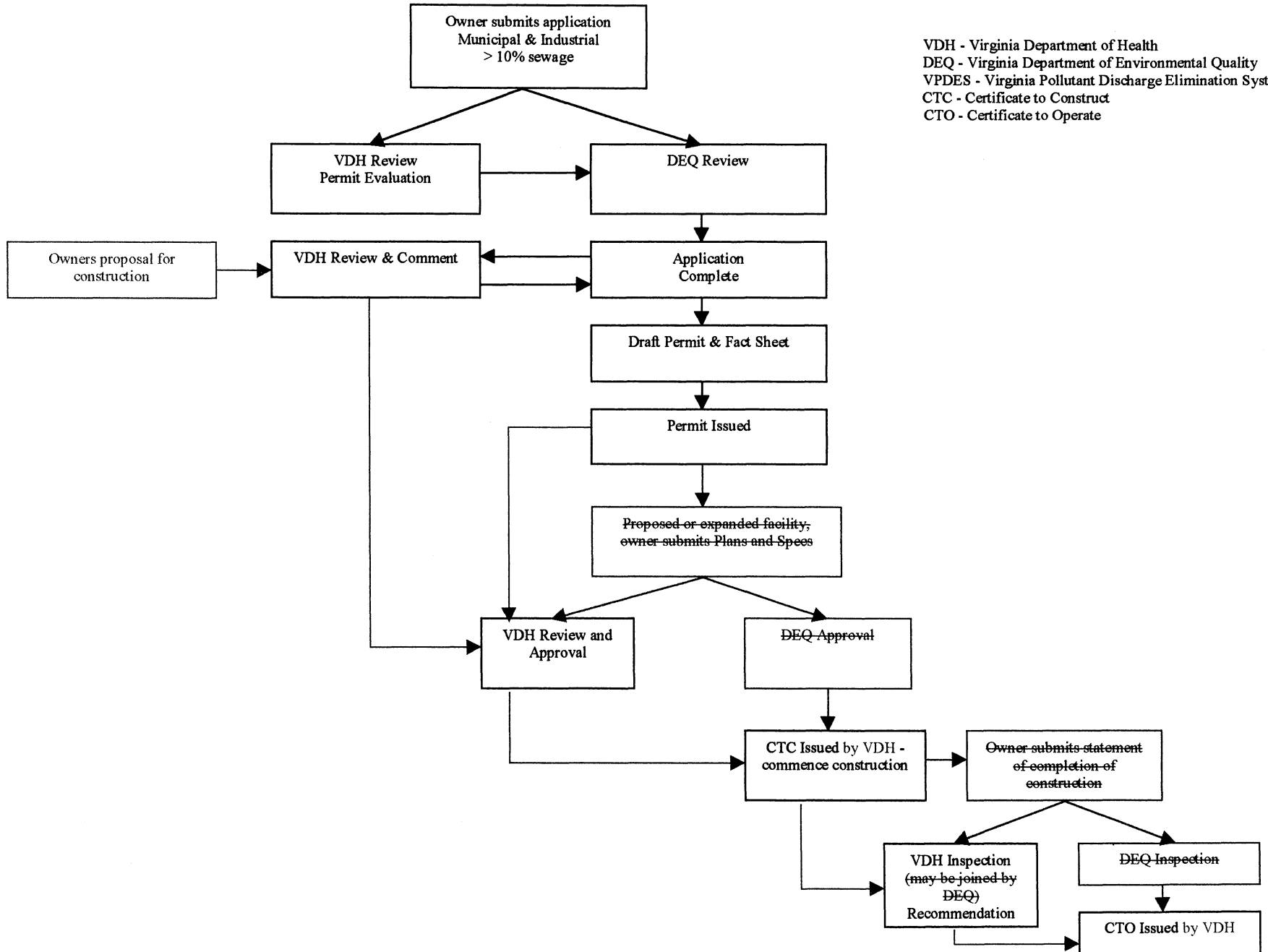
**Appendix B**

VDH - Virginia Department of Health  
DEQ - Virginia Department of Environmental Quality  
VPDES - Virginia Pollutant Discharge Elimination System  
CTC - Certificate to Construct  
CTO - Certificate to Operate



# INDIVIDUAL VPDES PERMIT AND CTC/CTO PROCESS (After Adoption of Sewage Collection And Treatment Regulations)

## Appendix C



**Joint Subcommittee Studying the Management and  
Treatment of Wastewater  
(HJR 771)**

Policy Questions/Options

Based on testimony received by the joint subcommittee, the following are the significant policy issues raised during the joint subcommittee's deliberations:

1. **Prescriptive vs. performance based onsite sewage system standards**

- Is the transition from prescriptive to performance based standards progressing in a satisfactory manner?
- Are system design reviews being conducted in an efficient manner?
- Has a well-defined procedure for the review of alternative/experimental system been developed and has the industry been adequately informed?
- Have the Virginia Department of Health (VDH) policies encouraged and promoted the use of alternative onsite systems? Are there actions that can be taken to expedite the approval of such systems while at the same time protecting the public health and the environment?
- What do we know and how can we obtain more information on the costs and benefits of new technology and its affect on the environment (groundwater)?
- Will the implementation of performance-based standards require an enhance level of monitoring and maintenance and, if so, who should have primary responsibility and what will be the costs?

2. **Permit revocation**

- Should permits be revocable once issued?
- If a permit is revoked are administrative procedures under the APA sufficient to provide the affected property owner a full hearing?
- What measures can be implemented to minimize permit revocations (due to public health and environmental concerns)? Are (i) improved education and experience requirements of AOSEs and (ii) courtesy reviews effective in minimizing such revocations?

- Should VDH be prohibited from revoking an approval or conducting a field check after a certain period of time has elapsed after approval? Does such a "deemed approved" time limit protect public health and the environment.
- Should the AOSE have standing (as an affected party) and be able to challenge the factual basis for VDH's permit revocation?
- When should field checks (level 2) be conducted? (New regulations state that VDH may conduct field checks at any time including prior to permit approval).

### 3. Oversight of the AOSE Program

- Should the AOSE program continue to exist?
- Should VDH continue to administer the program?
- Should disciplinary responsibilities remain with VDH or moved to the Board of Soil Scientists under the Department of Professional and Occupational Regulation?
- If the oversight responsibility was placed in another entity how will the public's interest in protecting health and the environment be assured.
- Should final inspections continue to be conducted by VDH or should AOSEs be given the responsibility?
- Should a standard be established for the percentage of level 2 reviews that VDH should perform?
- Who should conduct level 2 reviews? Should they be performed jointly by VDH and AOSEs?
- What should be the policy if there is a disagreement between VDH and AOSEs regarding the suitability of land for the siting for onsite sewage systems?
- Can standards be adopted that eliminate or minimize the subjectivity of soil science? Can subjectivity be removed or is it inherent in the practice of soil science given differing site conditions? Do the current soil evaluation criteria have a scientific basis and are they accepted in practice? Is their uniformity of interpretation and standardization to the extent that the regulatory program is fair and consistent?
- Does the subcommittee have enough information to determine if the AOSE program is working?

#### 4. VDH organizational structure and resources

- Does VDH have the appropriate staffing level to carry out its responsibilities?
- Does the expertise exist in the central office and within local health department to effectively administer the onsite sewage system program?
- Is there a disparity in expertise between VDH sanitarians and private sector AOSEs?
- Should VDH staff be certified soil scientists?
- Is their capability within VDH to conduct an appropriate level of systems monitoring, maintenance reviews and periodic inspections?
- Should performance monitoring and enforcement be a separate function from design review?
- Should a comprehensive needs and resource assessment be conducted to assess program needs and the financial resources available to meet such needs?
- What options/incentives are available for increasing the retention rate for VDH staff?
- What data should be collected on an ongoing basis and used as a management tool to allocate resources?
- How can information on the operation and maintenance of onsite systems best be provided to property owners?
- Are sanctions too narrow for violators of onsite system regulations? Should VDH have the option of imposing civil penalties in lieu of criminal sanctions?

022175880

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15

**HOUSE BILL NO. 191**  
Offered January 9, 2002  
Prefiled January 2, 2002

*A BILL to amend the Code of Virginia by adding a section numbered 32.1-163.6, relating to trespass in the performance of duties.*

Patrons—Parrish; Senator: Colgan

Referred to Committee on Militia, Police and Public Safety

**Be it enacted by the General Assembly of Virginia:**

**1. That the Code of Virginia is amended by adding a section numbered 32.1-163.6 as follows:**

*§ 32.1-163.6. Not liable for trespass in performance of duties.*

*No action for trespass shall lie against the Commissioner of Health or any agent or employee of the Commissioner of Health for lawful acts done in performance of his duties in carrying out the provisions of this article.*

022175880

HB191

1/8/02 11:29

Official Use By Clerks			
<b>Passed By</b>		<b>Passed By The Senate</b>	
<b>The House of Delegates</b>		<b>The Senate</b>	
with amendment	<input type="checkbox"/>	with amendment	<input type="checkbox"/>
substitute	<input type="checkbox"/>	substitute	<input type="checkbox"/>
substitute w/amdt	<input type="checkbox"/>	substitute w/amdt	<input type="checkbox"/>
Date: _____		Date: _____	
_____		_____	
Clerk of the House of Delegates		Clerk of the Senate	