

VOWRA

The Virginia Onsite Wastewater Recycling Association, Inc.

WHITE PAPER

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Proposed Amendments to Loudoun County Code

Operations & Maintenance of:

Non-Conventional Onsite Sewage Disposal Systems

Conventional Onsite Sewage Disposal Systems

&

Limitation on the use of Non-Conventional Systems

Virginia Onsite Wastewater Recycling Association, Inc.

Ben C. Morrell, Executive Director

P.O. Box 155

Star Tannery, VA 22654

Tel: (540) 465-9623

Fax: (540) 465-9627

vowra@shentel.net

INTRODUCTION

This white paper is a position statement from The Virginia Onsite Wastewater Recycling Association (VOWRA) regarding the proposed changes to the Loudoun County Code to establish requirements for operations, maintenance, inspection, reporting and renewal of operations permits for non-conventional onsite sewage disposal systems, the required maintenance of conventional onsite sewage disposal systems and the limitation on the use of non-conventional onsite sewage disposal systems.

BACKGROUND

VOWRA was founded in 1992 and is an affiliate group member of the National Onsite Wastewater Recycling Association (NOWRA). VOWRA has more than 430 members and the national organization represents more than 6,000 members. Members represent all sectors with an interest in both conventional and non-conventional onsite systems and ensuring that each and every onsite system is designed, installed, inspected and maintained to be a permanent part of the United States wastewater infrastructure. VOWRA and NOWRA have both local and national affiliations with many other national associations such as the Water Environment Federation, American Groundwater Association and American Society of Civil Engineers. Membership groups include but are not limited to:

Soil Scientists and Site Evaluators	Professional Engineers	Well Drillers		
Academic Professionals	Manufacturers	Vendors	Wholesalers	Utilities
Regulators	Septic Installers	Maintenance Providers	Septic Pumpers	
Realtors	Owners	Developers	Design Build Contractors	Citizens & Builders

VOWRA has many directors and members who serve in positions appointed by the Governor on The Sewage Handling Appeals Board, The Board for Professional Soil Scientists and Wetland Delineators and The Board for Water and Wastewater Operators. VOWRA members also have designated seats on the Sewage Advisory Committee, AOSE Advisory Committee and The Virginia Center for Onsite Wastewater Training. VOWRA members assisted the State Health Department and Legislators draft bills passed by the 2007 & 2008 General Assembly requiring maintenance of non-conventional onsite systems and requiring the licensing of onsite soil evaluators, septic system installers and service providers. These pieces of legislation were signed by the governor and take effect July 1, 2009.

VIRGINIA PERSPECTIVE

There is considerable pressure throughout the Commonwealth of Virginia to develop real estate that does not have access to public sewer systems. This is partially due to the attraction that suburban areas such as Western Loudoun County offer over more urban environments to many potential homeowners and, perhaps more importantly, the realization by local governments that sewer systems are too expensive for cost effective service in many areas. The solution for development of these areas is individual and communal onsite wastewater disposal systems. The Virginia Department of Health regulates onsite wastewater disposal systems through the Sewage Handling & Disposal Regulations and numerous Guidance Memoranda & Policy (GMPs) that are "interpretations of the regulations." The current regulations were adopted July 1, 2000 and are currently being revised with a draft expected in May, 2008. These regs were adopted with revisions of regulations developed in 1982 and in the early 1970's. These regulations are implemented at the local level through environmental health specialists assigned to individual Health Districts.

Many of the non-conventional systems have been approved for use in The State through GMPs. These GMPs have been interpreted differently across the State and even differently within the same Health District and individual staff members. Some local jurisdictions in addition to Loudoun County have or are also revising local code to attempt to address issues that have not been addressed in state rules or where technology has moved in and consistency must be set forth.

ROLES OF PRACTITIONERS

There are many different practitioners who must interact in order to attain a sustainable onsite wastewater treatment and dispersal system. These practitioners include the Environmental Health Specialist (EHS) employed by the Department of Health as well as private sector practitioners including Authorized Onsite Soil Evaluators (AOSEs), Professional Engineers (PEs), Contractors who install onsite systems (installers) and Service/Maintenance Providers. Practitioners may perform slightly different roles depending on the locality in which they operate.

Environmental Health Specialist (EHS) from the Department of Health in years past were public sector employees who did the majority of the residential designs. When septic systems were considered temporary facilities, they evaluated, designed, inspected, and enforced compliance. Today, EHSs still perform these functions, but most localities allow AOSEs to do most of the evaluations, some conventional designs and almost all of the non-conventional designs in consultation with Professional Engineers. EHSs provide regulatory oversight of the evaluation, design, permitting and inspection processes for new construction. It should be noted that the more developed regions rely more heavily on the private sector while the more rural areas have a larger percentage of the work being completed by the EHS.

Authorized Onsite Soil Evaluator (AOSE) These private sector practitioners by code and regulation may perform site and soil evaluations and submit many traditional designs for residential onsite systems. They are limited in the complexity of the designs through the oversight given by the local and state Health Department. In almost all cases, the AOSE is called upon to evaluate the soils and site conditions for those systems designed by an engineer. They are also required to inspect the installed system and certify that the system was designed and installed in accordance with the applicable regulations. In most areas, the AOSE is in direct competition with the health department for the conventional system designs and site evaluations. Currently regulated by the Health Department, Onsite Soil Evaluators will be regulated by The Department of Professional Occupation & Regulation beginning July 1, 2009.

Professional Engineer (PE) The professional engineers design large or more complex systems. In most parts of the State, AOSEs are limited in their design capacity to conventional systems with and without pumps. Some localities allow AOSEs to design pre-engineered systems approved by GMP for residential dwellings up to 1,000 gallons per day. Some localities such as Fairfax County require every system to be designed by a PE. Due to the significant differences between technologies utilized in the onsite industry and those used in centralized wastewater treatment, some professional engineer's lack current knowledge, skills and abilities to design onsite systems. VDH and local health departments employ engineers to provide engineering support services and plan review. Professional Engineers are regulated by The Department of Professional Occupation & Regulation and will be required to complete continuing education classes in the near future.

Manufacturer Several Manufacturers have obtained VDH approval for "Pre-Engineered Systems" via the experimental or provisional process in the current regulations. These systems have design guidance, installation instructions and maintenance requirements which vary in completeness and complexity. Some require engineering design input, some only need an AOSE specification. Some require a maintenance contract and others do not address maintenance. The

route for approval may differ and the current system lacks a technical review committee. Product approvals are left exclusively to VDH central office personnel.

Onsite System Installer (Installer or Contractor) The installation contractor for onsite wastewater disposal systems follows the direction of the EHS for permits designed by the Health Department. In addition, the AOSE and or the P.E. will have input when a private sector design is part of the permit. The contractor typically installs based upon the construction permit unless detailed plans are provided by an AOSE or PE. He is not required to hold any special qualifications by the Health Department, only a contractor's license by DPOR. When an engineer is involved, the contractor typically works from detailed formal or informal plans. The public frequently relies on the contractor as their advisor especially for warranty and repair issues. This relationship is especially true where the installer is also a sewage handler (pumper) who removes sludge from tanks or pipes.

Service Provider/Maintenance Provider (O&M Provider) This class of practitioner will not officially exist in Virginia until July 1, 2009. Sewage handlers are approved to remove, transport and dispose of septage and wastewater by the Health Department. Some localities require bonding and personal guarantees that all such material will be documented and reported to the local health department. By default, contractors, wastewater operators, sewage handlers, AOSEs, PEs, NSF inspectors, Lab operators and off duty EHSs operate and maintain onsite wastewater systems. Some have wastewater experience and some do not. There are a small number of well qualified service providers that have experience with both residential treatment and disposal systems. Most of these service providers have gained their experience in working for or with manufacturers of pre-engineered systems.

The absence of a regulated practitioner as well as regulations for operation and maintenance from The State has resulted in local governments and health department's reluctance to allow non-conventional technology. In reaction, they often apply more restrictive requirements than are necessary to protect the public health, the environment and still be a sustainable component of the wastewater infrastructure. This is extremely unfortunate because all secondary treatment systems produce effluent that removes 85% - 95% of the impurities discharged daily from septic tanks. This is especially true for Nitrogen which is the leading cause of degradation of the Chesapeake Bay. Loudoun County lies entirely in the Chesapeake Bay watershed.

Responsible Management Entity/Authority/Utility/Sanitary District (RME) This is a new class of onsite practitioner in Virginia. Utilities, Authorities and Sanitary Districts are authorized in the state statues, but have typically been used for central systems or water systems. The RME is not in state code but is being used in Loudoun County to operate two residential subdivisions. This class of practitioner takes on a greater responsibility for the overall management and performance of systems within the service area. They may have authority from the initial evaluation to service. The systems may be individual systems comprising a territory such as a subdivision; or a decentralized system serving a cluster, subdivision or community; or some combination of each. The Loudoun County Sanitation Authority already operates several non-conventional onsite wastewater disposal systems in Loudoun County.

VOWRA has been successful in supporting legislation requiring licensure for all onsite wastewater practitioners. The role of the Health Department is changing from a service provider to one of more regulatory oversight. This theme is consistent with the 5-year plan conducted by E.L Hamm & Associates for the Health Department in 2005. The roles of the other practitioners will not change much from their current methods of operation except that they will be licensed and the limits of their practice more clearly defined. Continuing education will be essential for all practitioners including the EHS.

The US EPA has proposed 5 levels of management for onsite systems. Currently, Loudoun County has all four models in operation at the same time. Some people service their septic system when it malfunctions (Level 1). Some are notified by the County that it is time to have their septic tank pumped (Level 2). Some have voluntary service contracts to regularly inspect and maintain their conventional and non-conventional systems (Level 3). Some conventional and non-conventional systems are owned by private homeowners but inspected and operated jointly by an RME (Level 4). Finally some community systems were designed and constructed by developers under the oversight of LCSA and then ownership and operation were turned over to LCSA upon completion (Level 5). VOWRA recognizes Loudoun County is already at the forefront of managing onsite sewage disposal systems and is a model recognized and envied by others across the Nation and recently groups from Canada and Australia.

VOWRA Action Strategies

SHORT TERM Support the Virginia Department of Health's efforts to draft changes to the regulations in 2008 and support the final build out of the Virginia Onsite Wastewater Training Center. Support the Virginia Department of Health's efforts in drafting operations and Maintenance Regulations. Provide support to VOWRA members and other appointees to The Board for Water, Wastewater and Onsite practitioners as they develop regulations for the licensure of onsite soil evaluators, onsite system installers and onsite system service providers.

LONG TERM Develop a draft ordinance for local governments that provides the protection and assurances needed without being overly burdensome on the owners of conventional and non-conventional systems, the local government or the local health department. Provide education, information and comments on local ordinances for interested parties including but not limited to elected officials, local government staff, realtors, builders and owners of onsite sewage disposal systems. Continue to build VOWRA's reputation as the go to organization for all matters related to Onsite Sewage Disposal Systems.

VOWRA POSITION

PROPOSED LOUDOUN COUNTY ORDINANCE

1. Operations & Maintenance

VOWRA supports the ordinance amendment to require operations and maintenance for both conventional and non-conventional onsite sewage disposal systems. VOWRA believes operations and maintenance of all onsite sewage disposal systems is crucial to them being a permanent part of Loudoun County's wastewater infrastructure.

2. Limitation on the use of non-conventional onsite systems

- a. VOWRA opposes ordinance amendment to limit the use of non-conventional onsite sewage disposal systems. VOWRA believes that all options for onsite sewage disposal approved by the Virginia Board of Health should be available to all citizens of the Commonwealth.
- b. The intent of the amendment to limit the use of non-conventional systems indicates that there is documentation on the failure of non-conventional onsite sewage disposal systems and therefore a need to "prevent the spread of failing non-conventional onsite sewage disposal systems." VOWRA finds no facts to support this for the following reasons.

The graph at the end of Attachment 5 (Major Repairs of Onsite Sewage Disposal Systems) depicts 11 non-conventional system failures and 8 conventional failures from 1/1/2001 – 1/28/2008 for systems installed in the 2000s. A review of the data actually shows 12 conventional failures and 10 non-conventional failures of these systems during the period. A breakdown of the causes of the system failures can be found below.

Reason for failure	Conventional	Non-Conventional	Total
Damage	2.5	.5	3
Installation Problems	1.5	3.5	5
Usage	2.5	2.5	5
Unknown	5.5	1	6.5
Maintenance	0	2.5	2.5
Total	12	10	22

There were 5 systems where maintenance was listed as a contributing factor to the failure. The reasons are listed below.

Pump or Pump Chamber Broken	1
Pipe or filter Broken	2
Peat Modules	2

There is a sixth system where lack of maintenance is listed as the primary cause of failure. A review of this case shows that the owner of the property refuses to maintain the system and has ignored many notices from the Health Department and initial service provider.

Conclusion: There is no spread of failing non-conventional systems to be prevented.

The primary cause of failure of all systems installed in the 2000s is not due to a lack of maintenance or failure of the components that make them non-conventional systems. The reason for failure of 6.5 systems cannot be conclusively determined and 5.5 of these were conventional systems. The second highest cause of failure was due to Installation problems and over use by the owner. Only three of the non-conventional failures were due to non-conventional components. Two 2 peat filter systems failed primarily due to over use by the owner. This could most likely have been prevented if the owners had been educated on their system prior to use. One system failed due to an improperly installed or maintained drip filter system. This failure could likely have been prevented with regular maintenance.

3. Fiscal Impact

VOWRA believes that cost for implementation of the operations and maintenance program should be shared by the County and the owners of onsite sewage disposal systems. Permit renewal fees should be kept to a minimum such that the cost to the owner for operations and maintenance of their systems and renewal fees are similar to public sewer and water fees. Creation of a program that penalizes owners of properties served by onsite sewage disposal systems decreases property values and reduces revenue to the County.

4. Draft Motion

VOWRA supports an alternate motion as follows: ***“I move that the Board of Supervisors forward the adoption of an ordinance requiring maintenance of conventional and non-conventional onsite sewage disposal systems and amendments to Chapter 1066 of the Loudoun County Codified Ordinances placing no limits on the use of non-conventional systems to the April 1, 2008 Business Meeting for action.”***

END