

**PIEDMONT ENVIRONMENTAL COUNCIL POSITION  
ON  
NON-CONVENTIONAL SEPTIC SYSTEMS  
Presented to the  
Loudoun County Board of Supervisors'  
Public Safety-Human Services Committee  
May 20, 2008**

Loudoun County's Comprehensive Plan outlines specific sewer and transportation limits for the rural area. It also highlights a preference for rural economic land uses. Implicit in this vision is a recognition that the County will preserve and support those uses. However, the County lacks a comprehensive analysis of the level of residential growth and related impacts that can be sustained by the natural soil and water systems and by the transportation network and other public infrastructure. Without these analyses the County cannot rationally determine whether or not non-conventional septic systems are necessary in rural Loudoun. The Piedmont Environmental Council (PEC) believes that obtaining the missing information will be essential to achieving sustainable development in the rural areas

For this reason the PEC recommends that the Board of Supervisors immediately begins two critical initiatives in support of Loudoun's rural economic future.

1. An update of the rural economic study that was done ten years ago (*The 200,000 Acre Solution*), particularly in light of the significant changes that have occurred, not least of which is the substantial growth of Loudoun's vineyard and winemaking industry; and
2. A comprehensive analysis of sustainable development in the rural area and the requirements for transportation, public infrastructure and any changes in reliance on conventional septic systems.

PEC welcomes the opportunity to elaborate and discuss these two suggestions in more detail at the Board's convenience.

Before these actions begin, however and as an initial interim step, **PEC supports the immediate adoption of the maintenance and monitoring program outlined in the revised 1066 ordinance. This maintenance and monitoring program should apply to all private and public non-conventional systems in the county. In addition, the county should develop a pump out and maintenance program for conventional systems, and move to adopt this as a second phase of an overall maintenance and monitoring program.**

**It must be emphasized however; at this point the Piedmont Environmental Council is fundamentally opposed to non-conventional septic systems for residential, commercial or governmental uses.** This is not a position that PEC has taken lightly. Nor is it why PEC advocates considering the management of existing and future non-conventional septic systems separately. Rather it is because Loudoun County's past experience with non-conventional septic systems warrants such civic concern.

Given the ongoing failures and severity of the potential crisis, this action should be decoupled from further discussion on how to regulate systems that have not yet been installed, and whether rural economy uses should be exempted. PEC has always been a strong advocate for the rural

economy and recognizes that a general ban on non-conventional systems raises the specter of unintended consequences. Conversely, a blanket approval for all types of rural economic uses could have uncertain impacts since those uses are broadly defined. It may allow larger commercial entities to operate without any oversight, with potentially much greater impacts to the groundwater if their systems were to fail. Drawing a legally valid distinction between the various types of entities will take much time and careful deliberation.

In addition, PEC believes that Loudoun County should consider the pros and cons of devising septic regulations for its rural areas that might help protect prime farmland soils by encouraging the construction of homes and other buildings on agriculturally less valuable land. But, given the potentially vast implications of such a change on the viability of Loudoun's rural economy, this analysis must be part of the comprehensive analysis of the existing rural economy and how to sustain it best in the future; it cannot rationally be considered in isolation.

## **Background**

Conventional septic systems rely on the soil's absorptive capacities, and the health department approves these systems based on the soil's capacity. In some areas in the west, it is possible to develop a subdivision at densities of 1 unit per 3 acres on a conventional system, and in other areas, the density that local soils will support is much lower. In general, it takes approximately 7 acres in western Loudoun to support a conventional septic system, which includes a reserve field to use when the system fails.

Cases of failed systems in Loudoun highlight many of the reasons PEC supports the avoidance of non-conventional sewage disposal systems:

- According to the Health Department, when properly maintained, non-conventional sewage disposal treatment units do a better job of treating the wastewater than a septic tank. Unfortunately the users of the technology make it unreliable at this time. Systems not only require careful maintenance, but also cannot be used the same way as a public central sewer system. The amount of daily water use as well as the normal oils and food particles that may enter the system have contributed to impairment or failure in existing systems.
- Maintenance of conventional sewage disposal systems is typically an inspection and pump out every five years. However, maintenance of non-conventional systems may be as frequent as every 3 months depending upon the system.
- Non-conventional systems are costly to install and maintain. Replacement and disposal of filtering media can be challenging and/or costly. These burdens may have acted as a deterrent for regular replacement and maintenance.
- Many of these systems have not gone through a long-term, rigorous testing process outside of the manufacturer's own testing regime. Therefore, the State has essentially approved a high-stakes experiment with local jurisdictions (Loudoun in particular), and often unwitting private homeowners are the guinea pigs. The County must take the steps necessary to limit the negative impacts of this experiment.
- Installation of these systems has been fraught with problems. Installers or others working around the system have damaged or destroyed sensitive drainage or filtering components. Many residents themselves do not thoroughly understand all of the components of their systems, and often they have damaged or destroyed them unintentionally.

- Some homes are built on lots too small for a suitable reserve drainfield for these non-conventional systems, making the homes essentially dependent on a pump and haul system in the case of failure.

## **History**

In 2000, a wide range of non-conventional septic systems was approved for use in Virginia. By 2002, the Loudoun County Health Department had become aware of, failures in some of those systems and notified local decision makers, voicing concern due to the very short period of time that these systems had been used.

These non-conventional systems have nevertheless proliferated due to market conditions, local legislative actions and court decisions:

1. The local real estate market boomed between 2002 and 2006, with speculative investors, widespread use of sub-prime mortgages, and Loudoun's attractiveness for development in the region.
2. In January, 2003, the Board of Supervisors adopted revisions to the 1993 Zoning Ordinance which down zoned western Loudoun into the AR1 (1 lot per 10 acres) and AR2 (1 lot per 20 acres) districts. In advance of this action, landowners rushed to subdivide their land per the existing A-3 (1 unit per 3 acres) zoning.
3. In February, 2004, the Supreme Court of Virginia overturned the revision to the Zoning Ordinance, and the previously down zoned land reverted to A-3 zoning. Again a subdivision rush began.
4. In December 2006, the Board of Supervisors once more down zoned the rural area, though at somewhat higher densities than the previous time. AR1 is now 1 unit per 5 acres if clustered, and AR2 is now 1 unit per 15 acres. Throughout the process to adopt the latest Zoning Ordinance revisions, again landowners rushed to subdivide before being cut-off.

With the many pressures to develop during the 2002 - 2006 timeframe, developers and landowners sought quickly to take advantage of the market to the maximum extent possible, utilizing non-conventional systems to accomplish that goal. Non-conventional systems generally do not depend on the carrying capacity of the soil, and they are widely favored to maximize development potential. Currently there have been approximately 1,200 non-conventional sewage disposal systems installed in the County. Between 2001 and 2007, the Health Department as part of the subdivision approval process has approved 6,955 lots which will be served by on-site sewage disposal systems. Of that number, 3,386 of these lots (approximately 49%) will be served by non-conventional sewage disposal systems.

Unfortunately, the failure trend identified in 2002 has continued. Non-conventional septic systems are failing at a rate that portends a crisis and puts in jeopardy homeowner & business investments as well as groundwater protection.

The County has, for the last four years, known that this looming crisis exists, and it has held meetings, gotten input and discussed the value of requiring a regulated maintenance and monitoring system for these septic systems. Draft changes to the 1066 ordinance have been proposed and have sat idle. More recently, suggestions have been made to ban these systems entirely.

While the maintenance and monitoring guidelines have not been controversial, the banning of non-conventional systems has raised a controversy over the impacts to the rural economy.

In a recent public hearing, one thing that all members of the public agreed upon was the value of a regulated maintenance and monitoring system. There appears to be no dispute that if the county required such a system for every sewage disposal system, it would provide a safeguard against failing septic systems, or at a minimum it would prevent failing systems from going undetected for very long.

Therefore, as stated earlier, **PEC supports the immediate adoption of the maintenance and monitoring program outlined in the revised 1066 ordinance. This maintenance and monitoring program should apply to all private and public non-conventional systems in the county. In addition, the county should develop a pump out and maintenance program for conventional systems, and move to adopt that as a second phase of an overall maintenance and monitoring program.**