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Alternative Onsite Sewage Disposal Technology: A Review

EXECUTIVE SUMMARY

Affordable and effective onsite sewage disposal is a national problem—less than 35 percent of the land in the United States is suitable for conventional onsite sewage treatment and disposal systems. Nearly 30 percent of the homes in Washington are served by onsite sewage disposal systems, and up to one half of these systems do not perform satisfactorily or will fail entirely during their expected life. Pollution from failing onsite systems threatens public health and the quality of the environment.

Because of the problems and limitations of conventional systems, effective alternative systems have been developed over the last several decades. Most alternative systems are modifications or improvements to some aspect of conventional onsite systems.

* Improved soil absorption techniques, including dosing and pressure distribution systems and mound systems, are shown to be effective for some soils.

* Of the three alternative treatment devices evaluated, sand filters are the most common, most effective, and most expensive. Anaerobic filters are still in the experimental phase, and aerobic tanks in field conditions do not appear to offer an improvement over conventional septic tanks.

* The characteristics and volume of waste entering an onsite system greatly affect its performance. Water conservation measures have been shown to improve system performance and in some cases restore failed systems. In an effort to further reduce water use, several devices have been developed that separate toilet waste from the rest of the waste stream. None of these toilet systems have proven to be entirely satisfactory.

Washington State has a well developed program to evaluate the design and installation of alternative onsite systems. The Washington Department of Social and Health Services has developed guidelines for eight different alternative systems, as well as regulations for experimental systems.

One of the primary causes of failure in all onsite systems is lack of proper operation and maintenance. Although state regulations address the design and installation of onsite systems, there are no statewide requirements for maintenance of those systems. In other states, programs have been implemented to require periodic maintenance of onsite systems.