

Framework for Unsewered Wastewater Infrastructure

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Introduction

This Framework is adapted from the Model produced by the National Onsite Wastewater Recycling Association (NOWRA) by the Agency of Natural Resources in consultation with its Technical Advisory Committee to promote sound state standards of practice regarding the design, installation and maintenance of unsewered wastewater infrastructure. This framework is intended to guide the Agency and its Technical Advisory Committee's work in reevaluation of the small-scale water supply and wastewater rules and in its consideration of appropriate management and oversight of new technologies.

Goal

The goal in developing and using this framework is to support sustainable development using soil based wastewater treatment and disposal systems that are protective of human health and the environment. The implementation of this structure will consider the cumulative impacts on the soils and the receiving groundwater and surface water.

This framework is based on the premise that with proper design, operation, and management, soil based wastewater systems can provide a permanent solution for the treatment and dispersal of sanitary wastewater. Because of the varying geologic and development density factors, the range of sensitivities of the receiving ground and surface waters, and the different risk factors for drinking water supplies, implementation rules will provide for both prescriptive and site-specific performance based solutions. The level of performance, both in terms of treatment and reliability, may need to vary from one location to another and the structure to review, approve, operate, maintain, and manage a wide variety of systems that require different levels of oversight must be in place.

Disposal system requirements for new development will consider the cost of design, installation, operation, oversight, and enforcement needed to ensure acceptable sustainable results. When replacing existing failed and substandard systems, the added cost of incremental improvements in environmental and health protection will be one factor in granting variances. Ability to pay will not be a basis for granting variances and must be addressed with a funding program to assist people with grants and loans.

The Framework

The framework is based on rules, permitting, licensing, and management that ensure performance: performance of the treatment systems, system owners, system practitioners (people doing site evaluations, designs, installation, pumping, operation, monitoring, and maintenance), and regulatory agencies.

The framework consists of eight elements:

1. Performance requirements that protect human health and the environment;
2. System management to maintain performance within the established performance requirements;
3. Appropriate compliance monitoring and enforcement to ensure system performance is achieved and maintained;
4. Technical requirements and guidelines for site evaluation, design, construction, operation and acceptable prescriptive designs for specific site conditions and performance standards for systems where the prescriptive designs are inappropriate or inadequate;
5. Education/training for all practitioners, regulators, and owners;
6. Certification/licensing for all practitioners to maintain standards of competence and conduct; and
7. Program reviews to identify knowledge gaps, implementation shortcomings and necessary corrective actions.
8. Funding for replacement of failed or substandard disposal systems and water supplies.

These aspects of the framework are to be implemented by the Agency as follows:

Rules

Rules will be updated on a regular basis. These will be developed using a performance based approach that ensures protection of the state's groundwater and surface water. Performance standards will also protect drinking water supplies. The performance standards will be developed using scientific methods, will be risk-based, and will provide a reasonable and adequate margin of safety.

A particular site will demonstrate compliance with the rules through use of a prescriptive design or a site specific design that demonstrates the ability to meet the performance standard using an alternative approach.

The rules will create a program for the review, evaluation, and approval of new technologies. New technologies include improvements to existing components, material replacements, and advanced treatment systems. The rules will allow for experimentation, for demonstration or pilot systems, and for general use.

Permitting

In implementing this framework, the Agency will change the way it reviews applications for compliance with the rules and its approval or denial of permits by shifting some resources from detailed plan review to site review.

It is essential that the initial site evaluation used to first develop a property be properly conducted. If the site conditions are suitable for development, any mistakes in design or operation can be fixed as long as the suitable soils are preserved. Strong field presence by Agency staff, working with property owners, designers, and installers is the best insurance that a suitable site for wastewater disposal will be identified and preserved. Accurate identification of the soil conditions and agreement on the performance standards applicable to the particular site are required to ensure sustainable soil based systems.

Designers are expected to provide plans and instructions that comply with the design requirements of the rules and are sufficient for a competent installer to properly install the wastewater disposal system. Designers must be responsible for preparing plans without the need for detailed review and comments by Agency staff. This will allow the Agency to greatly reduce the amount of time spent on plan review and exchanging comment letters and allow an increased focus on site reviews. The Agency, in turn, will review plans to ensure compliance with the field based decisions for the location and type of system. The Agency will take appropriate action through the relevant licensing authority to ensure designers meet their responsibility to prepare suitable plans.

Installers should be expected to install systems in accord with approved plans, and those installers should verify their work with a written certification stating compliance with the approved plans and noting any variations from those plans.

Licensing

In order assure the highest possible quality site evaluations, plan preparation, and system installation, the Agency believes that all designers and installers should be tested, licensed, and provided with ongoing training and review exercises.

The requirements for testing and training will be structured to ensure that the maximum number of designers and installers capable of providing the needed services will be approved. The requirements will be as flexible as possible and will include alternative methods, such as oral exams, to demonstrate competence.

There should be continuing education requirements for licensed practitioners.

Operation and Maintenance of Systems

All wastewater treatment and disposal systems require operation and maintenance. With respect to conventional septic tank leachfields, such O&M should be addressed with ongoing education and training. Permits for systems of a large or more complex nature, especially those involving mechanical devices, will include conditions requiring an appropriate level of operation and maintenance. These conditions will be specific to the particular site and system and could include annual inspections, having a maintenance contract, or continuous remote monitoring. In some cases the operation and maintenance will require specialized knowledge and the permit will specify that approved individuals are required to perform the work. The permit conditions will require that all information be reported to the Agency. Permits for complex systems will be operating permits that may be renewed upon a determination that the system has been, and will remain, in compliance with the Rules and the permit conditions.

Enforcement

There will be rare cases where a practitioner or property owner will not meet their responsibilities. When normal compliance methods such as warning letters, meetings, and other forms of communication have not achieved compliance with the rules, enforcement through the legal system is required. Failure to enforce results in public health and environmental risks and is unfair to all of the people who have met their responsibilities. Enforcement actions will be taken to stop illegal construction or property use, to require construction in compliance with the rules or an existing permit, or to ensure that inspection, monitoring, and operational conditions are met. Issues related to professional licenses will be handled through the appropriate licensing authority.

The Agency must obtain and consistently and fairly use authority to enforce directly against the practitioners, as well as a property owner or permit holder. This will allow the Agency to enforce against the responsible party, regardless of their role in the system failure or inadequacy. This replaces the present system of enforcing against the property owner only, who under the current system is left with the unattractive option of trying to recover a remedy against a designer or an installer. Enforcement authority is vital to ensure designers and installers can be held accountable for their actions.

Education

Education is an important part of any successful program. Education results in system owners, practitioners, and regulators who understand how to design, install, and operate systems that will sustain development using soil based wastewater treatment and

disposal systems. Education is the least cost method of obtaining public health and environmental protection as well as compliance with rules and permit conditions.

Regular training programs for practitioners, regulators, and system owners need to be developed and maintained. The Agency should create educational materials suitable for various groups and make them available for use.

Funding

The agency will work to create a funding program/s that will provide grants, low interest loans, and deferred repayment loans for use in replacing failed and substandard water and wastewater systems. The program/s will allow for and promote municipal involvement, cluster systems, and management of decentralized systems in addition to individually owned and managed systems.