

Performance Management

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Redefining Roles and Responsibilities for Onsite Wastewater Treatment System Management in the New Millennium

In the last two decades, the perception of onsite wastewater treatment and the role it will play in the future has dramatically changed. For much of the Twentieth Century, onsite treatment was thought to be appropriate only for remote, rural homes. In more urbanized areas beyond the reach of existing sewers, onsite systems were assumed only to be interim methods of treatment that would be quickly abandoned as sewers were extended. It is now widely recognized in the United States that conventional sewerage will not be able to meet the demand for wastewater treatment because of both monetary and non-monetary costs. It will be onsite systems that will provide the necessary treatment needed for unsewered areas but only if they are accepted as effective, reliable treatment systems.

In the Response to Congress on Use of Decentralized Wastewater Treatment Systems, several barriers were identified that could prevent onsite treatment systems from fulfilling their potential as a solution to wastewater treatment in unsewered areas. The most significant barriers identified were

- lack of knowledge of onsite systems by the public, planners, engineers, and regulators resulting in the misperception that onsite systems are unable to meet water quality goals;
- regulatory programs that are prescriptive, bifurcated between or within agencies, and lacking statutory authority to implement management programs; and
- lack of continuous and reliable operation and maintenance of onsite systems (1).

The technology exists to meet human health and environmental protection requirements. Demonstration projects throughout the country have shown that onsite treatment systems can be designed to meet most water quality goals. But the paradigm of private ownership of prescriptive designs, resulting in the lack of effective management has prevented onsite wastewater treatment from being accepted as a permanent option that can be integrated with conventional sewerage. To

achieve the full potential of onsite wastewater treatment as a cost-effective solution to wastewater treatment in rural areas, small communities, and urban fringe developments, effective management must be provided. To realize effective management, there must be clear lines of authorities and responsibilities between the regulatory agencies, public and private service sectors, and property owners.

Management Objectives and Needs

The objective of any wastewater program is sustainable residential and commercial development through protection of human health, environment quality, and quality of life. The future of onsite treatment lies in its integration with conventional sewerage. To achieve this status, it must be perceived to be just as effective and reliable [Otis (2)]. This requires the following:

- **Systems designed to meet specific performance requirements based on risk assessment at the receiving site must be permitted.** Under prescriptive codes, we must find sites that fit the permitted technology, but suitable sites are not always the sites that are most appropriate to develop. Performance-based codes allow technologies that fit the

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given sites and, therefore, are necessary for sustainable development.

- **Oversight of planning, siting, design, and construction must be provided to ensure appropriate treatment systems are implemented.** This aspect of management is the usual focus of current management programs; however, it is not always done well. The emphasis is on conformance to the code rather than performance to meet requirements.
- **Continuous operation and maintenance must be provided to ensure that performance to requirements is maintained.** Traditionally, operation and maintenance has been neglected. The property owner is usually left to maintain the system as the untrained owner may see fit. The “bury and forget it” syndrome is common.
- **Owners must be continuously accountable for performance of their systems.** Regulatory agencies typically relinquish control of systems after the system is constructed. They only become involved when obvious hydraulic failures occur or there are complaints filed. This allows potentially preventable problems to occur.

To satisfy these needs, a performance management program is needed. Performance management is a comprehensive management program involving the regulatory agency and its delegated local unit of government, private services sector, and system owners. The objective of the program is to manage the performance of all the actors as well as the system. Each group of actors has specific authorities, responsibilities, and roles to play in onsite system management. A performance management program coordinates the responsibilities of these various actors with their appropriate authorities to act.

Traditional Management Programs

Effective management involves three entities; the regulatory agency, the service sector, and the owner or permit holder, each with its own set of responsibilities. It is the responsibility of the regulatory agency to establish and enforce the rules by which onsite treatment systems will be applied and implemented. The agency sets the minimum permissible requirements within which the owner must apply and operate the system (figure 1). Also, it is responsible for establishing the appropriate qualifications and experience of service providers through a licensing or

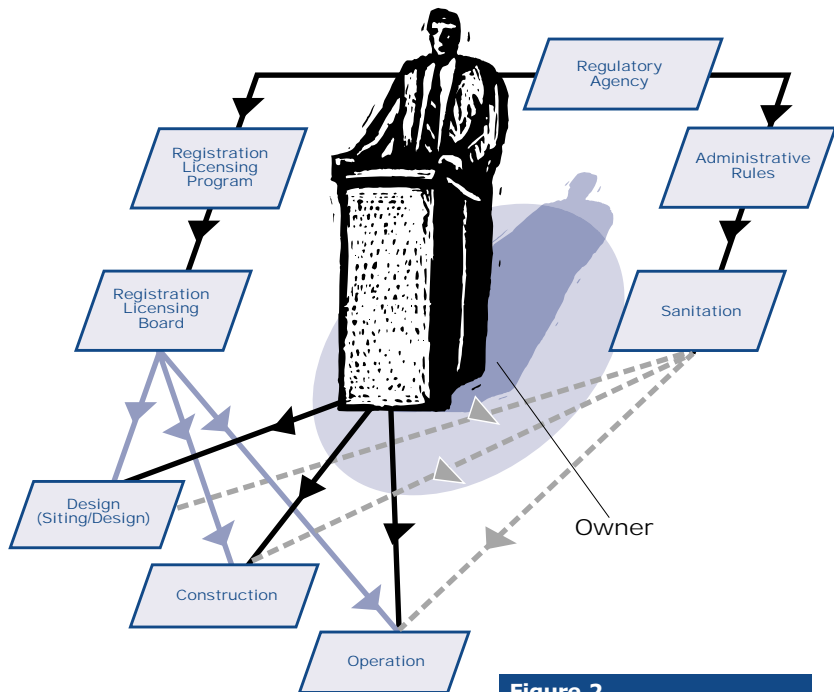


Figure 2

Traditional regulatory-based management program illustrating the assumed responsibilities of the actors

certification program. The owner is responsible for the system. This includes siting, designing, constructing and operating the system in a manner that meets the requirements of the regulatory agency. The owner hires the appropriate services from qualified service providers who act as the owner's agents in complying with the requirements. The service providers are responsible for demonstrating and maintaining their competence to practice in accordance with all applicable rules and regulations, and to perform their services competently for the owner.

This model should also apply to traditional programs, but most often, the regulatory agency assumes many of the responsibilities of the owner and service provider. Though such regulatory involvement generally has served its purpose, it severely blurs the lines between roles and responsibilities of the actors, weakening the management program.

Traditional regulatory programs usually are administered by sanitarians. In addition to the typical regulatory func-

tions of design review, permitting, and construction inspection, sanitarians often perform the site evaluations and specify the type of system design to be used. While their statutory obligation is to the public in enforcement of the administrative rules, many sanitarians feel they are service providers that play an important consumer

protection role to protect the property owner from unscrupulous or expensive service providers. This is not their role! By accepting such roles and responsibilities outside of their regulatory functions, conflicts of interest and increased liabilities arise.

The permit holder, usually the property owner, is the individual who is responsible for performance of the treatment system. The owner is responsible for hiring qualified professionals to site, design, and construct the system. When a sanitarian performs the site evaluation and/or specifies the design, however, the sanitarian assumes the position of being both an agent of the regulatory agency and an agent of the property owner (figure 2). This is not in the best interest of the owner because the interests of the regulatory agency will take precedence over the owner's. The sanitarian usurps the owner's authority for the siting and design of the system but leaves the owner responsible for the system's performance. The sanitarian may also assume responsibility for directing the contractor in construction of the system, yet the sanitarian has no authority to spend the owner's money. These are serious conflicts of interest. If there is a problem with the system, the owner may be left with little recourse in pursuing the service providers since the system was sited, designed, and constructed according to the direction of the sanitarian. Further, effective enforcement is difficult because the sanitarian is faced with writing orders against a system sited and designed by

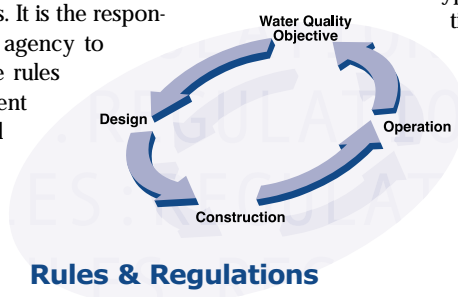


Figure 1

Rules and regulations establish the minimum requirements within which the onsite wastewater treatment system must perform

the sanitarian. In effect, the owner is left out of the loop and this is expressed in the management program by the lack of attention to the owner in the form of information and training regarding the function, operation, and maintenance of the system.

If management programs are to work, the actions of the actors (regulatory staff, service providers, and owners) should be limited to those for which the responsibility and authority is given. A performance management program rather than a regulatory-based management program is needed.

Performance Management

Under performance management, the objective is to control the performance of the service providers and owners so that the systems perform as required. Clear lines between the functions and responsibilities of the actors are maintained to avoid conflicts of interest and exposure to undesired liability. Note that the transactions between the service providers and owner are not controlled in this model because these are the jurisdiction of the civil courts.

The responsibilities of each group of actors should be assigned to the actor with the appropriate authority.

Regulatory Agency

Role: To enforce the administrative rules for the good of the public.

Responsibilities:

- establishes fair and reasonable performance requirements based on risk assessment procedures (3);
- provides technical guidelines for acceptable procedures and practices to meet the performance requirements (which may include prescriptive designs for specific site characteristics);
- regulates onsite treatment systems through design review, permitting, compliance monitoring, and enforcement activities; and
- regulates service providers through licensing/certification programs.

Owner (permit holder)

Role: To own and operate the system.

Responsibilities:

- sites, designs, and constructs a system capable of complying with the performance requirements (typically by hiring qualified service providers); and
- provides perpetual operation, maintenance, and monitoring of the system such that it performs within the established requirements.

Service Sector

Role: To provide competent services to the owner.

Responsibilities:

- maintains demonstrated competence

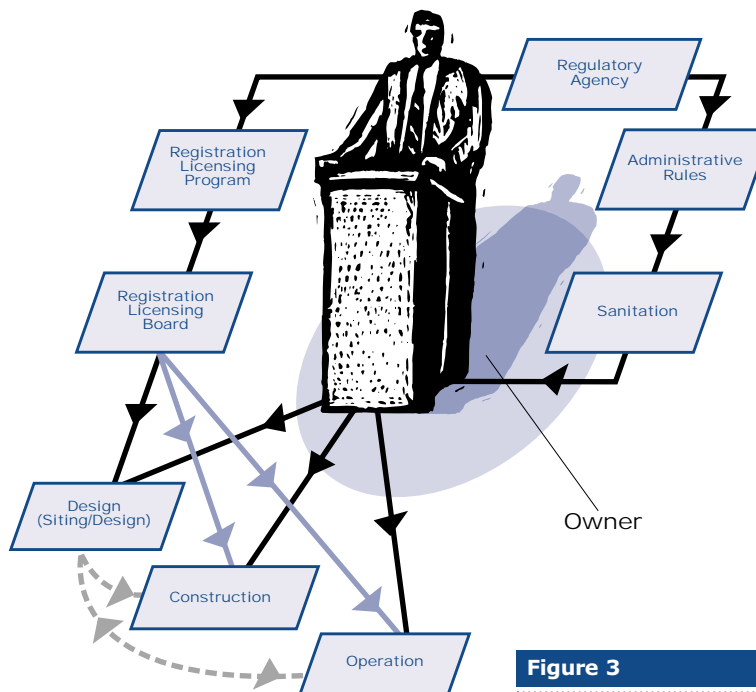


Figure 3

Comprehensive management program illustrating the lines of responsibility of the actors

- under the licensing/certification program;
- performs services in accordance with all applicable rules and regulations;
- provides siting, design and construction of systems in accordance with the established rules and regulations; and
- provides operation, maintenance, and repairs of systems.

The success of this model depends on the coordination of roles of each actor to maintain clear and separate responsibilities. The regulatory agency controls the performance of the system through issuance of construction and operating permits to the owner (figure 3). If an owner fails to comply with the permit requirements, the operating permit may be revoked or fines and penalties assessed until compliance is achieved. If the service provider fails to comply with the licensing/certification program requirements, the board may revoke the service provider's license to practice. This is all the control the agency needs to achieve its goal of human health and environmental protection.

This leaves the relationships between the owner and service providers outside the jurisdiction of the agency. The sanitarian's responsibility is to the general public in protecting human health and the environment. It is not to the property owner or service provider. If problems occur between the owner and a service provider, it is for those parties to settle on their own or with help from the civil courts. Thus, responsibility for system performance is solely the owner's based on specific and measurable performance requirements.

Summary

A comprehensive model is necessary for performance management if onsite wastewater treatment is to be integrated with con-

ventional sewerage. This model mirrors the management model traditionally used in municipal wastewater treatment, allowing a smooth integration process. It is necessary because it assigns the roles and responsibilities to those actors who have the authority to act. It differs from the traditional regulatory-based programs by limiting the role of the regulatory agency to establishing and enforcing the rules. The property owner is responsible for the system siting, design, construction, and performance of the system. Regulatory oversight of performance is achieved through renewable operation permits issued to the owner after demonstrating compliance.

This model can be used for either prescriptive- or performance-based regulatory programs. But, without specific and measurable water quality standards that are part of performance-based rules, innovative designs are difficult to implement and perpetual operation and maintenance is not assured. Therefore, performance-based regulatory programs will be necessary for integration with conventional sewerage. **SI**

References

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