

Onsite System Management Can Take Many Forms

For the past eighteen months, officials with the Orange County Health Department in North Carolina have been struggling with an important public health question, one which faces many other communities across the country: namely, how to provide effective management for the onsite wastewater systems without breaking the bank.

To say the county is experiencing growth would be an understatement. Located almost equal distances from the mountains and the beach, it has both Chapel Hill, home of the University of North Carolina, and the town of Hillsborough within its borders. The county has been permitting an average of 500 new onsite systems per year. Many of these residents have never lived in a home served by an onsite system. Clearly, the time for management has come.

“We started monitoring certain onsite systems in our area about five years ago when the state began requiring it and when people expressed concern about the potential for pollution from failing systems,” explains Greg Grimes, an official with the Orange County Health Department. “We regularly inspect all alternative onsite systems in the county, all low-pressure pipe systems, conventional systems with more than one pump, and residential and nonresidential systems with flows greater than 3,000 gallons per day.” According to Grimes, the county’s limited onsite system management program has been a positive step, but it also has underscored the need of extending services to include more systems.

“Right now, the frequency of the inspections vary depending on the type and complexity of the system,” says Grimes. “We’re finding that many systems in the program would benefit from more frequent monitoring, which has increased our concern about the status of the many smaller and individual home systems not in the program.”

In response to this concern, the Orange County Board of Commissioners in conjunction with the Orange County Board of Health appointed a task force committee to explore the county’s options for expanding the current program.

“The committee is considering the entire spectrum of possibilities,” says Tom Konsler, who along with Ron Holdway and two other officials represent the county health department on the task force. “We are looking into everything from managing each system in the county through its entire life cycle, to focusing only on new construction, repaired systems, or systems at the time of transfer of property. We also want to include systems located in environmentally ‘sensitive’ or densely developed areas where residents also use drinking water wells.”

Many management options exist

But exactly what options does the county have for successfully managing its onsite systems? Is it essential that a community oversee every stage in the life cycle of every system in its jurisdiction? Or can effective management be achieved through more limited means?

According to Graham Knowles, program coordinator for phase IV of the National Onsite Demonstration Project, which focuses on the study of onsite system management, it is possible for a community to tailor onsite system management programs according to their individual needs and resources.

“There is no doubt that centralized management of onsite systems is the wave of the future,” says Knowles. “Management programs are essential for safeguarding public health and the environment. But while it may be ideal for communities to oversee every stage of the planning, construction, installation, and maintenance of every onsite system, a limited program is better than no management at all.

“In the real world, onsite management takes many forms,” Knowles adds. “Programs vary in the level of responsibility they assume and require of system owners, and communities can take heart in the fact they have many options for improving local onsite system performance and longevity.”

Although onsite management programs vary widely in scope and focus, they tend to share common elements. Communities often draw from the following options when implementing onsite system management:

- regulations and permit requirements,
- public education,
- homeowner incentives,
- certification or licensing of onsite system professionals,
- scheduled or required system inspection, monitoring, or maintenance, and
- establishing a local onsite management entity or authority.

Regulations and Permit Requirements

Regulations form the basis of onsite system management in many communities. Most states have codes governing aspects of onsite system design, such as system siting and size. For example, most state regulations require onsite systems to be sited at minimum setback distances from wells, groundwater, and surface water sources. However, exact laws vary among states and even locally within states.

Many local health agencies exercise some measure of control over onsite system performance through the issuance of permits. The permitting office of a local health department often acts as the principal management entity. It may restrict system design or require site evaluations as conditions of permit approval. Health departments also commonly oversee new system construction and installation or perform inspections before final ground cover as part of permit requirements.

Communities also often require permits whenever onsite systems are altered or undergo extensive repairs, or when homes are redesigned or expanded. They also may require operating permits for alternative or complex onsite systems.

Operating permits must be periodically renewed and ongoing monitoring and maintenance usually are defined as conditions for renewal. Local health officials may monitor the quality of the effluent, groundwater, or nearby surface water sources to approve permit renewal. A community’s costs for inspections and lab work often can be offset through permit renewal fees.

Communities also may use permits to require regular inspections, monitoring, and maintenance of conventional onsite systems. And inspections or maintenance of preexisting systems may be required at the time of sale or transfer of property.

“In our current program, all newly installed alternative and pumped systems are automatically entered into our inspections program as part of the permitting process,” says Holdway. “Some of the options we’re considering for expanding the program include extending the permit requirement only to new or repaired conventional onsite

systems, to systems only at the time of sale of the home, or only to those systems located near designated watersheds. Each option has its pros and cons. The disadvantage always is that some systems are left out.”

It would be difficult for any community to effectively manage its onsite systems through regulation alone. For example, older systems can fail or develop serious and costly problems long before a home is sold. New systems can malfunction before the next scheduled inspection or maintenance visit, especially if homeowners don’t know how to properly operate them. In addition, adequate enforcement of system regulations can be difficult and costly.

Therefore, to avoid leaving public health and the environment unprotected, communities usually combine regulatory programs with other onsite system management initiatives, such as public education, scheduled maintenance, or homeowner incentives.

Public Education

In its proposal to the Orange County Commission, the task force is giving one item special emphasis: the need for public education.

“We take public education very seriously,” explains Holdway. “In fact, we want to hire a full-time health educator to work for the county as a first step in implementing our new program.”

Orange County has identified the following public education program goals:

- promoting and protecting public health,
- preserving local water resources,
- increasing public knowledge about wastewater treatment, and
- changing public behavior to ensure optimal functioning of systems.

The county hopes to achieve these goals by increasing public awareness about the dangers of pollution from onsite system failures and the need for system management.

“In addition to hiring a full-time health educator, we plan to build community support for the program by identifying and developing materials for various target audiences, such as system installers, pumper/haulers, builders, lending institutions, developers, realtors, attorneys, and homeowner associations,” says Holdway. “We also plan to make good use of local media outlets by submitting news articles and developing brochures and flyers.”

The county will distribute the materials at public outlets, such as pharmacies, hardware stores, libraries, and churches. Brochures and other materials will describe the management program and its benefits and give tips for system operation and maintenance. County officials also are thinking of hosting an “information day” for the community about the program.

“We have plans to develop educational courses to train homeowners, inspectors, and maintenance professionals,” adds Holdway. Some of the proposed modules include proper inspection, monitoring, and reporting techniques for inspectors and possibly for homeowners to help them offset the costs of hiring someone.”

The county may offer a certification program for homeowners to teach them how to check solids levels in their tanks or help neighbors troubleshoot their systems. Course materials would include a technical/mechanical manual for homeowners, a list of “preferred pumpers,” how to troubleshoot or spot a failing system, and even video on home system maintenance. There also would be safety information for residents and professionals who will be inspecting or maintaining systems.

While Orange County's proposal is ambitious by any measure, it is important for every onsite management program to include a public education component. Simply educating homeowners about how systems work and how to operate and maintain them can go a long way in prolonging system life and protecting public health and the environment. A good program will make homeowners experts on such topics as the importance of conserving water, the importance of leaving land set-aside for system repairs intact, how to spot system problems, and when systems should be pumped.

Homeowner Incentives

One tried and true method for building support for onsite system management is to offer homeowner incentives, such as discounts on permit renewal fees for well-maintained systems or extensions on required inspections.

Orange County is considering extending the frequency of inspections for homeowners who check and pump their systems according to recommended guidelines. For example, if inspections of septic systems were to be required every five years, the county could extend that to ten years if homeowners provide documentation of regular maintenance or become certified in system operation and inspection.

Certifying/Licensing Professionals

Another management program component Orange County is considering is educating inspectors and pumper/haulers on how to properly measure the depth of solids in systems and to pump only when needed to reduce unnecessary septage disposal. Professionals also may receive training to assess the condition of filters, clean or replace them as needed, and report this information to the health department.

Certification programs can prepare professionals to properly perform site evaluations, oversee the construction and installation of new systems, inspect existing systems, and perform system maintenance. Pennsylvania, for example, trains and certifies sewage enforcement officers to perform site evaluations and oversee new system installations. These professionals are the only ones authorized to approve new system permits in their state.

Some states require certification or licensing for pumper/haulers to ensure that local systems are properly maintained and that the septage pumped from them is safely handled and disposed of in the community. The National Association for Waste Transporters (NAWT) offers a national training and certification program for pumper/haulers, which also is used by many state and community onsite management programs. They can be contacted at their headquarters at (800) 236-NAWT.

Inspections and Maintenance

One of the most common reasons that onsite systems fail is a lack of ongoing maintenance. This is why many communities focus their onsite system management efforts on providing regularly scheduled inspections and maintenance. In some communities, this may be the management program's sole function.

Many wastewater treatment technologies require regular maintenance to be effective. Systems also need regular inspections so that the need for maintenance or repairs can be identified and addressed quickly. Therefore, health agencies typically do require regular maintenance for alternative or more complex onsite systems, such as mound systems and

home aerobic treatment units. In the case of home aerobic units, homeowners may be required as a condition of permit renewal to renew a maintenance service contract with a local manufacturer's representative.

Health agencies that require regular onsite system inspection and maintenance may carry out these duties themselves or via a management district or entity established for this purpose. Some communities send registered sanitarians to perform the inspections and then contract out the system pumping or other maintenance, if needed, to reputable local contractors.

There are almost as many possible scenarios for managing onsite system maintenance as there are communities. A management entity may own its own maintenance personnel and equipment or it may allow homeowners to contract state licensed or certified contractors to perform these services at required intervals. Homeowners would be required to provide documentation on the condition of the system and proving that maintenance took place.

"One of the more difficult things we had to work out in our program proposal is how often to require system maintenance," says Holdway. "The committee debated extensively about whether to set the inspection frequency at every three years or every five years. We agreed to set the re-inspection frequency at every five years with a notice going to each homeowner in the initial maintenance packet and also in the second year of operation."

Ideally, conventional systems should be inspected yearly and pumped as needed. Experts estimate that properly designed and operated conventional septic systems should have solids pumped from the tank once every three to five years or longer. While it may be prudent to inspect all onsite systems yearly, it is especially important for new systems and old systems with new, inexperienced owners. However, communities must balance the many needs of the residents and onsite systems in their jurisdiction with the available resources.

For example, communities may decide that it less important to provide yearly inspections for all conventional systems than it would be to provide low-interest loans or grants to low-income residents to replace failing systems. Or communities may decide it is more cost-effective to educate homeowners about the advantages of initiating yearly onsite system inspections.

Establishing a Local Management Entity

Communities have several options for administering onsite system management. Programs can be run by the town, county, or state, or by a public agency, such as the local health department. In other cases, they can be administered by existing organizations, such as homeowner associations, or special entities formed expressly for this purpose. In some states, enabling legislation is needed to allow special entities to manage onsite systems.

Examples of special management entities include sanitary, water, and sewer districts; public utility districts; and multiple purpose special districts. Rural utility cooperatives and private corporations sometimes manage onsite systems through public/private partnerships.

The scope of a management entity's authority can vary greatly. Usually, individual onsite systems are privately owned and management entities oversee their inspection,

maintenance, and repair. But entities also may own all the systems in their jurisdiction and assume complete responsibility for their operation and maintenance.

The following list, adapted from the Spring 1996 issue of the National Small Flows Clearinghouse (NSFC) publication Pipeline (Item # SFPLNL05), illustrates the scope of responsibilities and powers that local governments, public agencies, organizations, or other types of management entities may assume:

- the power to propose legislation and establish rules and regulations for the management program;
- the authority to plan or approve system designs and applications for systems, land use planning, and the issuance of system permits;
- the ability to construct or install new systems or to oversee or inspect their construction and installation;
- the authority to perform routine system inspection and maintenance or to contract these services;
- the authority to regulate and manage septage handling and disposal;
- the ability to perform local water quality monitoring;
- the ability to keep records, perform database maintenance, bookkeeping, billing, payment processing, and other administrative responsibilities;
- the ability to perform grant writing, fundraising, and public relations;
- the authority to set rates, collect fees, levy taxes, acquire debt, issue bonds, make purchases, and other financing powers;
- the authority to obtain easements for access to property when needed or to acquire land when necessary;
- the authority to enforce regulations and require the repair or replacement of failed systems;
- the authority to acquire land; and
- the ability to educate, train, and certify professionals and the public.

The importance of two of these responsibilities may easily be overlooked. Keeping accurate records is vital to a management program's success. Inspectors and maintenance professionals need information such as the precise location of individual systems, descriptions of the systems, and records from previous inspections and maintenance. Also, the ability to perform billing, payment processing, and bookkeeping is vital and adds extra costs to running the program.

In addition, it is often necessary for management entities to have authority to obtain easements for all of the systems in their jurisdiction. Enabling legislation sometimes is needed to make this possible.

Paying for it All

Communities have several options for funding onsite system management programs. For most, cost will be the most important consideration in program design. One option is to charge fees, such as permit fees, member fees, annual service fees, or fees for specific services, like septic tank pumping. Some management entities will have authority to levy taxes, issue bonds, or receive state or local funding. Most will choose a combination of strategies.

“Our county is considering several options,” says Holdway. “One is to take the money needed from the county’s general fund. Although this approach would eliminate the

problem of collecting money from those that cannot or will not pay, municipal residents will be paying for the inspection of a county resident's septic system. The benefit to municipal residents would be protection of their watersheds."

Orange County also is considering setting up a special fund or an enterprise fund and charging monthly fees to system owners enrolled in the program. Other options under consideration include fees for inspections and other services, a sewer tax district, or a combination of approaches. The county also will attempt to establish a revolving fund loan program to assist homeowners repair their failing systems.

According to Knowles, communities should remember to emphasize the benefits of management when proposing funding options to the public.

"It is important to remind residents that the costs of providing central management for onsite systems in rural areas rarely equals the costs of constructing, operating, and maintaining a centralized sewerage system and wastewater treatment plant. Onsite system management also is a bargain when compared to the costs of cleaning up a polluted water supply. In fact, in addition to offering convenience, managing systems improves property values and helps a community to retain its rural character—the very thing that attracts prospective buyers and the reason that residents want to live their whole lives in a small community."

For more information about Orange County's proposed onsite system management program, contact Ron Holdway at (919) 245-2360. For more information about the National Onsite Demonstration Project, read the interview with Graham Knowles with this article, or contact him at (800) 624-8301, ext. 5573.