

# **A Homeowner's Guide to Evaluating Service Contracts**

**Bruce J. Lesikar<sup>1</sup>, Courtney O'Neill<sup>2</sup>, Nancy Deal<sup>3</sup>, George Loomis<sup>4</sup>, David Gustafson<sup>5</sup>, and David Lindbo<sup>6</sup>**

## **Introduction**

Proper maintenance of onsite wastewater treatment systems is critical to ensure good performance. It is also an important way that you, the homeowner, can protect a significant investment. Having a service contract with a professional trained in the operation and maintenance (O&M) of onsite wastewater treatment technologies is a sound approach to achieving proper maintenance of your system. O&M service visits often result in early detection of problems that could lead to a malfunction. Early detection makes it possible to take remedial action before a system becomes a public health hazard, detriment to the environment or a liability for the homeowner. Some counties and states have regulations that require a certain amount of system management. Whether or not they are required in your area, routine inspection and proper system maintenance will ensure that onsite wastewater treatment systems will continue to be a permanent and effective part of our wastewater treatment infrastructure.

People seeking services from a maintenance service provider desire proper service for a fair price, but they often don't know what services are necessary for their system. As an onsite wastewater treatment system owner, you should be aware of the different contracts that may be available and know exactly what service you can expect. In many cases, fees for service agreements are comparable to or less than those charged for centralized sewer service.

## **Communicating with the Service Provider**

The following terms and definitions are provided to establish an understanding of terms that might appear in an O&M service contract.

**Service** is the action of performing activities such as, but not limited to, inspection, assessment and maintenance of system components.

**Inspection** is the process of identifying the current status of system performance for reporting purposes. Inspections may be performed for various purposes including monitoring, troubleshooting, or point of sale evaluation.

**Operation** is the action of assessing the functionality of each component of the system. Each component must be operational in order for the entire system to achieve the desired performance. For example, a properly operating septic tank exhibits three distinct layers, indicating that solids are settling to the bottom and scum is rising to the surface, allowing a clear zone to develop in the middle. Likewise, chlorine must be present in a chlorinator for it to be operating properly.

**Acceptable** is a condition in which a component is performing its intended purpose and is considered to be in an operable state or *operational*.

**Unacceptable** means a condition in which a component is not operational. This condition indicates the need for maintenance, repair, replacement, upgrade or further investigation.

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<sup>1</sup> Bruce Lesikar, Professor and Extension Agricultural Engineer, Texas Cooperative Extension. <sup>2</sup>Courtney O'Neill, Extension Assistant, Texas Cooperative Extension. <sup>3</sup>Nancy Deal, Extension Associate, North Carolina State University Cooperative Extension, <sup>4</sup>George Loomis, Extension Soil Scientist, University of Rhode Island Cooperative Extension. <sup>5</sup>David Gustafson, Assistant Extension Specialist, University of Minnesota Cooperative Extension. <sup>6</sup>David Lindbo, Associate Professor, North Carolina State University Cooperative Extension.

**Maintenance** is the action of performing routine activities to keep the system operational. This may include making minor repairs or replacements to ensure continued proper performance of the system. Examples of maintenance activities include cleaning and/or replacement of air filters, cleaning effluent screens, cleaning pump intakes, cleaning the air delivery system and removal of residuals from tanks (pumping).

**Repair** is the action of fixing or replacing substandard or damaged components. Repairs may be required repairs, recommended repairs or upgrades. A required repair is refers to the repair of a component that must be operating for the system to properly treat wastewater. Examples of instances where required repairs are indicated include a baffle missing in a septic tank, an air pump not performing, or an effluent pump not performing. Recommended repairs refer to items that are still operating but may be reaching the end of their useful life. An example of this is when the discharge rate for an effluent pump decreases over time and approaches the minimum acceptable rate.

**Replacement** is the process of exchanging a component with an equivalent component. This should be the proper equipment for the technology or product being used for treatment. For example, a broken valve is replaced with the same model valve, the effluent pump replaced with a pump that has the same operating characteristics, and a riser cover is replaced with the same type riser cover. While the new component might *look* different, it would perform equally as well as the one it replaced.

**Upgrade** is the action of creating a better system by adding a component or increasing the effectiveness of a component. Upgrades do not necessarily change system performance but instead, make the system easier to maintain or increase the robustness of the treatment process. Examples of upgrades may include addition of effluent screens, adding risers to frequently accessed components, installing additional sensors to the system, adding remote monitoring or changing the type of disinfection component used.

**Monitoring** is the action of verifying performance requirements for a regulatory authority. This may include collecting samples for analysis of nutrients and pathogens to assess the treatment performance of system components. Monitoring may also include measuring the amount of flow to various system components to make sure that recommended rates are not exceeded.

**Reporting** is the action of submitting a detailed account of operation and maintenance activities performed on a system. Reports are sent to the system owner and to the permitting authority. Reports serve to document the activities performed at the site as well as the current status of the onsite wastewater treatment system.

**Troubleshooting** is the act of locating and eliminating sources of trouble. It is not included in maintenance, monitoring or operation. Troubleshooting is a separate category because the service provider evaluates the system to determine why it is not meeting performance criteria. Troubleshooting requires the service provider to have in-depth knowledge of treatment processes and how the treatment components react to various wastewater constituents. A service provider capable of conducting troubleshooting is a specialist in their field.

**Mitigation** is the act of fixing a system that is in failure. Fixing the system should be preceded by an evaluation of all the components (source, pretreatment, final treatment and dispersal) to determine all the reasons for the malfunction.

**Compensation** is the action of receiving a fair price for proper service and is critical to the whole management process. Compensation is generally received in the form of a base contract fee. Fees for repairs, replacement parts, maintenance, and associated labor costs for additional service may apply. Consumers must clearly understand what is included in the base price and what is considered an extra charge. Also, it should be clearly understood how authorization is given to allow the extra charges to be accrued.

**Contract** (Service Contract) is a legal document that describes the relationship between a facility owner and service provider. The Service Contract should list services included in the base price, services requiring an extra charge, maintenance parts included in the base price, maintenance activities outside the scope of the contract, and facility owner responsibilities regarding use of the onsite wastewater treatment system.

**Management** is a collective term that describes all the necessary steps to conduct operational services, maintenance, monitoring and compensation. All of these activities are essential to proper performance of onsite wastewater treatment systems.

### **Frequency of Service Activities**

Without exception, all onsite wastewater treatment systems require some level of service. However, the frequency of service activities is typically determined by four factors:

- Regulations
- Site conditions
- Technology
- Wastewater source or use

Regulatory authorities are mainly established to protect public and environmental health. Thus, in developing regulations that define the frequency of system monitoring activities, these authorities consider the relative risk to public health and the environment. Additionally, population density is also taken into account. Where risk is perceived as high, required monitoring frequency is increased. System monitoring at an appropriate frequency measures the performance of onsite wastewater treatment systems and minimizes risk of exposure to pathogens.

Site conditions will influence the required frequency of service. This is again because of environmental/public health risks and population density. Environmental risk is based upon the sensitivity of your site to the addition of wastewater. A site with deep, medium textured, well-drained soil will have an excellent ability to accept and treat wastewater: the environmental risk is low. A site with extreme soil texture (excessively sandy, clayey or rocky), or a site with shallow soil overlying rock has limited treatment and/or dispersal capability. Likewise, a site with seasonally saturated soil or poor surface drainage has a limited ability to accept or treat wastewater. Wastewater treatment systems located on these tougher sites pose a greater risk to public and environmental health.

Systems located near surface water such as lakes, rivers, or wetlands are also a greater risk to public health and the environment since there is a greater chance of human contact with the wastewater. Additionally, as population density increases and wastewater treatment systems are placed on smaller lots, the risk is greater that pathogens leaving underperforming systems may reach the neighbors. In many areas, increased population also means an increase in the number of water wells that may become contaminated by inadequately treated wastewater from nonperforming systems.

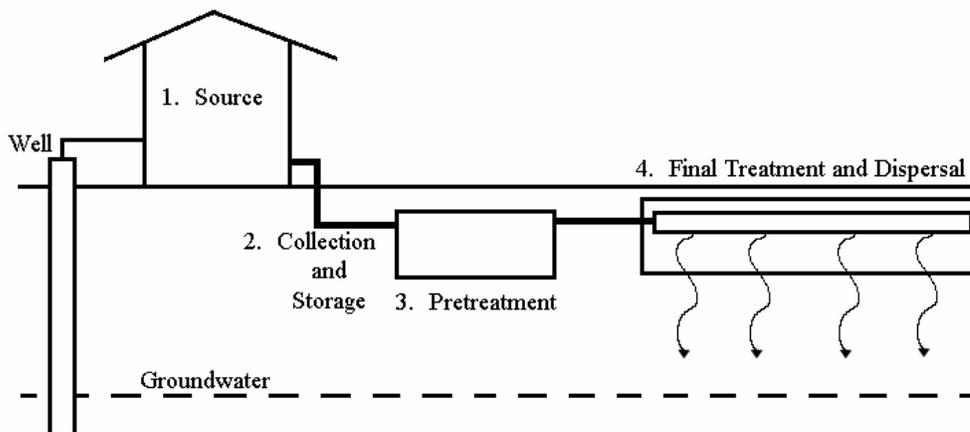
Wastewater treatment technologies require specific service activities based on their treatment processes. Ultimately, service activities are unavoidable because all treatment technologies require some level of service to keep them functioning properly. The manufacturer of each technology generally establishes service guidelines to ensure proper operation of their product. In general, advanced treatment technologies require more frequent service visits because they are more complex. If a specific configuration of treatment components and wastewater loading requires additional service visits to keep the system operating properly, the system designer may specify more frequent service.

Wastewater source or use may well be the most important factor to determine the required frequency of service. All wastewater treatment systems have a *design loading rate* based upon a specific *quantity* and *strength* of wastewater. Wastewater *quantity* is the amount of wastewater that a source or use generates. This is usually estimated based upon the number of people that might occupy a residence or business on a daily basis. Wastewater *strength* will depend on people's tendency to put additional waste material into the system. For example, the use of a garbage disposal typically results in higher strength wastewater because a greater amount of fats, oils and grease (known as FOGs) and other solids are introduced. The wastewater source or use determines the *actual loading rate* to the onsite wastewater treatment system.

If a system is loaded at a rate less than the design rate, some service activities could be performed less frequently than expected. Likewise, if a system is loaded at or greater than the design rate, service activities must be performed more frequently than normal. Generally, when systems are designed, it is assumed that the onsite wastewater treatment system will not be hydraulically loaded at a rate greater than 70% of the design loading rate. This 70% average maximum hydraulic loading assumption can be dealt with by adding additional components to the treatment system such as a flow equalization tank and a timer. This flow equalization tank and timer will assist in limiting the risk of hydraulically overloading the treatment components and thus allow a hydraulic loading closer to the maximum design hydraulic loading rate. The organic loading would be based on the number of people. If the organic loading rate exceeds the design value, the frequency of service activities will need to be increased.

### Understanding your onsite wastewater treatment system

The first step for selecting a maintenance provider requires a simple understanding of your system. The onsite wastewater treatment system can be divided into four components: wastewater source or use, wastewater collection, pretreatment, and final treatment and dispersal (Figure 1).



**Figure 1 Diagram showing typical components of an onsite wastewater treatment system**

The *wastewater source or use* is the facility that the wastewater treatment system serves. This may be a residence or a commercial operation. The *wastewater collection system* is generally the plumbing that conveys the wastewater to the pretreatment component.

*Pretreatment components* remove contaminants (nutrients and pathogens) from wastewater to produce effluent of sufficient quality that it can be accepted and treated by the final treatment and dispersal component. A septic tank is the most commonly used pretreatment component. Additional pretreatment components that may be used are aerobic treatment units, media filters, constructed wetlands and/or disinfection units. Site conditions and the nature of the final treatment and dispersal component determine which pretreatment components are used.

The *final treatment and dispersal* component accepts the effluent from the pretreatment component, completes the treatment process, and disperses the effluent into the receiving environment. It may be constructed of a media filled trench, gravel-less trench technology, low pressure pipe drainfield, drip distribution field or spray distribution field. Your designer selected the required components to construct a system that could accept the wastewater from your facility and disperse clean water back into the environment.

Knowing the type of system will help you determine your service needs. Start with the local permitting authority to obtain the following basic information:

- Where is your onsite wastewater treatment system located on your property?
- What pretreatment and final treatment and dispersal technologies are used to treat the wastewater generated in your home or commercial facility?
- Are there any special laws or regulations regarding the service of your onsite wastewater treatment system?

Now that you have the basic information on your system, you can begin to evaluate your service needs in detail:

#### **Who is required to have a service contract?**

Legal requirements for service contracts vary from state to state. Consult your local or state agencies to learn whether or not you are required to have such a contract for your system, but remember that all systems benefit from regular service. The long-term performance of your onsite wastewater treatment system can be better achieved with a long-term relationship with a service provider.

#### **How do you know what service is necessary for your system?**

Most manufacturers provide a list of maintenance activities for components or systems they produce. The manufacturer may specify the frequency for service activities or estimate the hours required to maintain the system. The manufacturer should also provide an estimate of parts that may need to be replaced and the frequency for their replacement. If no information on your system is available, check similar technologies, seek advice from a professional, or check with your local regulator for any guidelines or regulations that may be in place in your area for certain technologies.

#### **What types of service contracts are available?**

A variety of service contracts are available. It is important that homeowners know exactly what service they will receive under any service contract they consider. It is no surprise that as the amount of service provided increases, the cost also increases to cover the additional activities. A description of different types of contracts follows.

- **Monitoring Contract** is a contract for monitoring the onsite wastewater treatment system performance. The service provider records system data and collects samples for laboratory analysis. The results are delivered to you and to any permitting authority that may require such monitoring. Other actions will typically add costs.
- **Operating Contract** is a contract to assess the current operational status of each system component. The service provider identifies components that need maintenance or repair but does not perform these services under this contract.

- **Maintenance Contract** is a contract to conduct routine activities needed to keep the components operating properly. The service provider performs maintenance recommended by the manufacturer to keep the onsite wastewater treatment system functioning. This contract may not include the less frequent activities such as removal of residuals from the treatment components (pumping).
- **Repair Contract** is a contract for replacement of components as they break or if they are not operating properly. The contract should be evaluated to determine what is covered regarding parts and the labor to replace them.
- **Management Contract** is a relatively new type of contract that is an all-inclusive plan. This contract might be considered equivalent to being served by a centralized sewer system. The service provider performs all required activities for monitoring, operation, maintenance, and repair. A few providers even include mitigation as a part of the contract.

Currently, only a few service providers offer Management contracts. Most service contracts are typically a combination of the other contracts listed above.

For example, a service contract may cover monitoring and operation or may include monitoring, operation and maintenance (MOM). MOM contracts are recommended as the minimum level of service. This is because the service provider conducts required performance monitoring specified by the permitting authority, evaluates the operational status of the components and provides routine maintenance activities. The service provider may offer other services such as non-routine maintenance and repairs on a fee basis. MOM contracts may or may not include less frequent activities such as residuals removal (pumping).

It is important to note that having a service contract never relieves the homeowner of their responsibility regarding wastewater constituents that they add to the system.

### **How do I compare Service Contracts?**

The homeowner or facility owner must compare not only price but also what is included in the base price of the contract. The previous discussion was provided to increase your understanding of the types of service that may be required to keep your system performing satisfactorily. You should evaluate any contract thoroughly to determine:

- What services are included in the base price?
- What services are available for an additional fee?
- What is the hourly rate for performing additional services?
- When does an additional charge begin to accrue?
- How is the additional service and associated fee approved?
- When is payment due for the services performed?
- What information will you, the homeowner, receive to let you know what base service was performed and when that service occurred?
- How will you know when someone will arrive to conduct the service?
- How should you contact the service provider when an alarm has sounded indicating the need for service? How is the charge calculated for that extra service call?
- How will troubleshooting and subsequent repairs be handled when a system needs extra service?
- What is the homeowner or facility owner's responsibility regarding wastewater loading to the onsite wastewater treatment system?
- What are the homeowners required activities associated with the operation of the system?

The answers to all of these questions are necessary to help you make an informed decision regarding the selection of a service contract and provider. The least expensive base service contract may not be the best deal when evaluating the contracts. It is important to know what is included in the base price and which services will require an additional fee.

### **How do I locate a local service provider?**

Contact the local permitting authority to obtain a listing of the professionals in your area approved for service on your particular system. Contact the manufacturer of your onsite wastewater treatment system and ask them for a listing of approved service providers in your area. System installers may also be able to provide you with potential names.

### **Summary**

Wastewater will continue to be generated as a part of our daily activities. Effective management of this wastewater is critical to protecting public health, environmental health, and property value. All wastewater treatment technologies require service. However, the type and frequency of service depends on the specific technologies that make up your system, and how you use it. There may also be regulatory requirements that must be met.

Several different types of service contracts are available to the homeowner. The basic monitoring contract only meets minimum regulatory requirements. Additional components of contracts can offer greater service and limit the homeowner's involvement in the operation, maintenance, and monitoring of their system. Therefore, one question to ask yourself when evaluating service contracts is to determine what level of involvement you wish to have in the service of your system. When evaluating contract options, you should have a clear understanding of who is responsible for the different actions (you or your service provider) and what is included in the base price of the contract.

In the absence of a maintenance contract, homeowners should at least keep a maintenance record that reminds them of what service is needed and when that service should be performed. It is also helpful to maintain a list of local service providers that can assist in performance of different types of activities. Some tasks should be left to professionals to ensure the job is performed correctly and so that you do not subject yourself and your family to undue health risks. A service contract guarantees that your system is getting the proper attention it needs, and can save you time, the hassle of maintaining the system yourself, and the cost of replacing a system prematurely due to simply not taking care of the system.