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Onsite Wastewater Treatment Systems:

Responding to Electrical Power Outages and Floods

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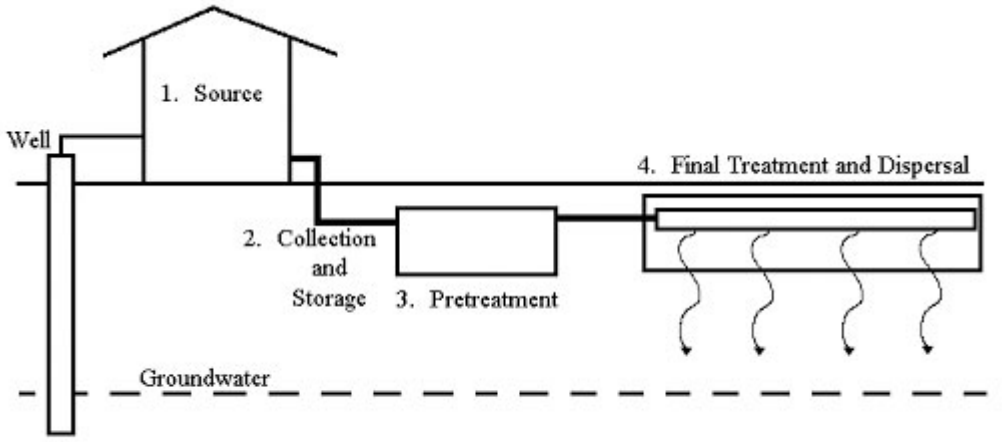
Electrical power outages and floods can affect you and your residential onsite wastewater treatment (septic) system. The appropriate response to a disaster depends upon the type of septic system you have and the type of disaster you have experienced. This document explains the components of an onsite wastewater treatment system and the potential hazards associated with electrical power outages and flooding.

System Components

To properly respond to a disaster, homeowners need to know the components of their onsite wastewater treatment system. These systems have four components: wastewater source or use, wastewater collection, pretreatment, and final treatment and dispersal.



Components of an onsite wastewater treatment system.

The **wastewater source** or use is the type of facility the system is serving; it can be a residence or a commercial operation.

The **wastewater collection system** is the plumbing that conveys the wastewater to the pretreatment component. Most collection components are constructed of piping placed on a slope to allow gravity to move the wastewater to the pretreatment component. However, some collection components have a pump tank and pump placed in the plumbing network to collect wastewater from the building and then pump it to the pretreatment component.

The **pretreatment component** varies with the site conditions and the type of final treatment and dispersal component installed. The pretreatment component removes contaminants from the wastewater before it is sent to the final treatment and dispersal component. Pretreatment components include septic tanks, aerobic treatment units, media filters, constructed wetlands and/or disinfection units.

The **final treatment and dispersal component** completes the wastewater treatment process and discharges the effluent into the receiving environment. Final treatment and dispersal components include media-filled trenches, gravel-less trenches, low-pressure pipe drain fields, drip distribution fields, or spray distribution fields.

Additional information on these technologies is available on the Onsite Wastewater Treatment & Reuse web site at http://ossf.tamu.edu .

Electrical Outages

The appropriate response to an electrical outage depends on the type of pretreatment and final treatment and dispersal components in your system. A gravity collection system that

feeds into a septic tank and soil absorption area will continue to operate properly after an electrical outage and you will be able to continue using your system. However, if your system has components that require electricity, the wastewater will collect in the system during the electrical outage and have to be treated and dispersed when electrical service resumes. Electrical components include:

1. Aerobic treatment units
2. Sand filters
3. Re-circulating media filters
4. Flow equalization tanks
5. Low-pressure distribution
6. Subsurface drip distribution
7. Spray distribution

These components usually have a reserve or alarm capacity that allows some use during electrical power outages or when components break. However, the minimum required reserve capacity in Texas is one-third of the daily design flow. Thus, a three-bedroom home would have a reserve capacity of only 80 gallons.

If you have electrically operated components and expect the power to be out for less than one day:

Limit water usage to essentials such as toilet flushing and hand washing. Do not use water for laundry, bathing, showers or dishwashing. Stop all water use if the plumbing begins to drain slowly. This may indicate that the reserve capacity has been exceeded and the system is full.

If you expect the power to be out for an extended time:

Stop all water use.

Once power is restored:

Limit laundry and dishwashing if your system has an advanced pretreatment component and if the power outage lasted less than one day. Discontinue these activities if the power outage was longer than one day. Limit showers and baths for at least one day if the power outage lasted longer than one day. This period of time allows the treatment system to begin working properly again.

Allow the system to operate normally until the water level recedes in the system. A time-dosed system may take 24 hours for all of the stored water to be distributed and the high-water alarm to be deactivated. System components that require electricity are usually equipped with a high-water alarm. This alarm may sound when the power is restored if you used water during the power outage. You can silence the alarm if it has a silence switch option. If the alarm remains on more than 24 hours, contact your service provider.

Where applicable, manually control the dose duration of the treated wastewater delivered to the dispersal field to prevent flooding the field. If the final treatment and dispersal component has an on-demand pumping system, the first dose after power is restored can overload your system.

Flooding

In a flood, the onsite wastewater treatment system is inundated with surface water.

During a flood:

Discontinue electrical power to the system by turning off power at the main circuit panel. Stop all use of water.

Plug any floor drains in the home connected to the wastewater treatment system to prevent water from backing up through the system and into the home.

After a flood:

Do not use the system until the flood water has receded from all components of the system.

Inspect the system for any signs of damage to the surface of the system (such as exposed components where soil has washed away and damage to lids or inspection ports).

Call a service provider to check the system for sediment or other debris if the system components are filled with flood water. Some water may be removed from the pretreatment components to reduce the water level to the normal operating level. Do not pump the tanks empty or below their normal operating level because the ground will usually be saturated after flooding and empty tanks are buoyant and will try to float out of the ground. This upward force can make the tanks shift, which can damage piping or even cause tanks to float to the ground surface.

If your final treatment and dispersal component is a trench system and it has inspection ports, the service provider may be able to pump water from the trenches to help the soil dry and aerate.

If the onsite wastewater treatment system has electrical components, your ability to restart the system will depend on the flood elevation. If the flood water covered only the tanks and the components in the tanks, you may be able to restart the system without further evaluation of the components. If the flood water covered components located on the ground surface (air pumps, panels), the system should be inspected by a service provider to determine whether it is safe to restart electrical service and use the system.