



Checking Frozen Septic Systems

If an onsite septic system freezes during a cold winter it is important to know why and where the system froze. This will help determine if repairs, corrections or changes to the system are necessary to make sure it will operate properly in the future. The steps needed will depend on the type of system and where the freezing occurred. If the freezing problem was simply because of cold temperatures and/or lack of snow cover to insulate the system, it may just need to be checked for problems and perhaps minor repairs or improvements made.

However, some freezing problems are the result of problems with the design, installation or use of the system that may require significant repairs or changes to solve the problem. Other factors, such as excessively high or very low water use, can also be a contributing factor to the freezing problem. For more information about why systems freeze and measures to prevent freezing, please see the fact sheet entitled Freezing Problems with Onsite Sewage

Treatment Systems.

There are four common locations where systems can freeze.

1. Pipe from house to tank
2. Septic tank and/or pump tank
3. Pipe to soil treatment area
4. Soil treatment area

It is important to determine where and why the system froze so corrective actions can be taken to avoid freezing in the future. A licensed onsite professional should be able to determine where the system froze if it is not obvious. Homeowners should also know where each component of the system is located to aid in problem solving and proper maintenance. After a system has been frozen and thawed each component should be checked.

1. Pipe from house to tank

If the pipe between the house and septic tank froze, two issues need to be evaluated. First, make sure there are no leaking fixtures, such as toilets or faucets, or low wastewater generating devices, such as a high efficiency furnace, discharging into the system. Secondly, make sure the entire pipe has sufficient slope without any sags to assure water is draining into the septic tank (minimum of 1" drop in eight feet and a maximum 2" in eight feet). This slope must be toward the tank.

2. Septic tank and/or pump tank

When a septic tank freezes the baffles need to be checked to verify that they are still in place and have not been damaged. The tank(s) should also be checked for cracks, although this occurs very rarely. Styrofoam, which is designed to be buried, can be placed over the tank to insulate it by removing the soil cover, placing 1-3 inches of Styrofoam and replacing the soil cover. If the tank was pumped out because of a freezing problem and this pumping was not done through the manhole (>20 inches in diameter) then proper maintenance of the tank was not performed. In this case the tank should be pumped on its normal 2-3 year interval from the last date of proper maintenance.

If there is a pump in the system, it should be inspected to make sure the floats have not been damaged. The pump should be checked to assure it is pumping effluent and it will turn off and on as necessary. It is important that the pump

is accessible at all times. This may require the installation of a riser to bring the access to the surface. Because bringing the manhole to the surface will allow more heat loss from the tank, it is a good idea to add Styrofoam under the manhole cover or place insulation (loose material such as straw, hay or leaves) over the top of the cover each fall.

3. Pipe to soil treatment area

The pipe from the tank to the soil treatment area may have frozen for the same reasons as the pipe from the home (# 1). If so, the same remedies would apply. In addition, if there is a pump in the last tank, it is critical that when the pump shuts off, all the effluent drains back into the tank through a weep hole. A weep hole is typically a ¼ hole in the lowest portion of the piping in the manhole. This weep hole will drain water even when the pump is on. Two common problems in pump tanks are check valves that do not allow effluent to drain back and pumping systems designed for drainback through the pump. A licensed onsite professional can determine if a check valve is in place or if the effluent is draining through the pump.

4. Soil treatment area

If the soil or mound was soggy or wet before the winter, the system needs a thorough evaluation by an onsite professional to determine why it is not operating properly. If sewage comes to the surface while frozen in the winter, this creates a health risk to people or animals that can easily come in contact with it. This problem is serious and must be corrected. If ignored after the freezing problem, sewage is likely to surface in this area in the future. The solution may be as simple as bringing in additional topsoil or a more extensive reworking of this part of the system. Checking the distribution system should also be done. In gravity situations drop or distribution boxes should be checked and in pressure applications the system should be verified.

If a drip distribution system froze, a licensed onsite professional trained to maintain the system should troubleshoot the system to determine if a problem exists. Common reasons for drip systems freezing include improper drainback and frozen air relief valves.

For More Information:

Please see our website at: <http://septic.umn.edu/owners/index.htm> for more information about proper operation of septic systems. You can also contact our staff by calling (612) 625-7243.