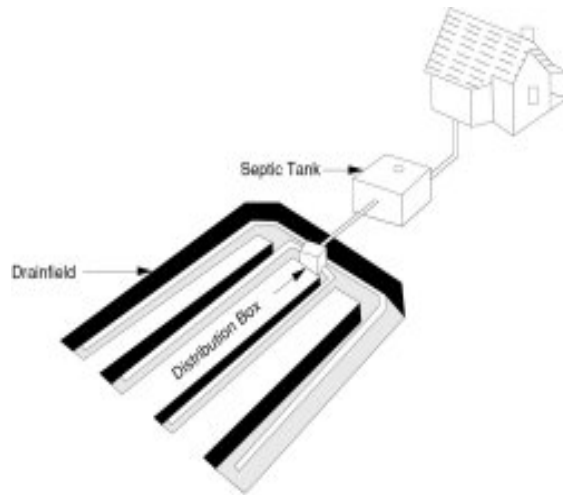




## Operation & Maintenance Tips for Onsite Wastewater Management Systems

Like all of the appliances and structures in your home, onsite wastewater management systems (OWMS) require care and maintenance and will eventually need to be upgraded or even replaced.

OWMS consist of two basic parts; a **septic tank** and a **soil absorption system** (also known as a *drainfield* or *disposal field*). The septic tank provides preliminary treatment of the wastewater by settling, storing and partially digesting solids, oils and greases. The partially treated wastewater flows from the septic tank to the soil absorption system where it undergoes final treatment through physical, chemical and biological processes as it flows into and through the soil pores. A relatively dry and oxygen rich environment must be maintained below the soil absorption system to ensure pollutants are effectively removed before entering groundwater or a surface water body.



Septic systems are simple to operate and when properly designed, constructed, and maintained, do an excellent job of protecting Manitoba's water resources by removing harmful wastewater pollutants. Property owners must do a few important things to keep their system operating properly and to ensure a long service life. OWMS that are properly operated and maintained can last for 20 years or longer.

### **Tips for Using and Maintaining Your OWMS** (to avoid system malfunction and failure)

#### **1. CONSERVE WATER**

Since the soil must accept all of the water used in your home, using less water is the best thing a resident can do to maintain their septic system. Disposal fields do not have an unlimited capacity. Limiting water use can help prevent hydraulic overloading of a system.

Water conservation tips:

- Space out water use throughout the day and week. For example, avoid washing all of your laundry in one day.
- Install water conserving fixtures like low flow shower heads, low flow toilets, and even purchase a front-loading washing machine.
- Typical water use is about 500 litres (110 gallons) per bedroom/day. Try not to exceed that amount. A water meter will help monitor water usage.
- Keep your fixtures in good repair. A slow-running toilet can add large amounts of water. A running toilet discharging  $\frac{1}{4}$  gallon per minute will result in 360 gallons per day. *To test the toilet, put a few*

*drops of food colouring in the toilet tank. If it shows up in the bowl, it is leaking. It may take as long as an hour for colour to show in bowl.*

- Wastewater not included in the system's design should not be put into the system. This may include wastewater from:
  - foundation weeping tile drains
  - a hot tub, spa or hydro massage bath exceeding a 2-person capacity
  - a swimming pool
  - an iron filter
  - water conditioning equipment that generates excessive amounts of wastewater

When the soil absorption system is overloaded with wastewater, the soil becomes saturated and can no longer provide effective treatment due to the lack of oxygen and reduced activity of the soil microorganisms. Under these conditions, wastewater pollutants are not effectively broken down and will accumulate in the soil pores and clog the disposal field. If these conditions persist, wastewater will pond in the disposal field and eventually surface on the ground thereby creating a potential risk to the environment and public health. A saturated soil absorption system can take a long time to recover and should be viewed as a warning that the system has been improperly located, designed, installed and/or operated and maintained. A continuously saturated system will fail and may be very difficult if not impossible to rejuvenate.

## **2. CAREFUL LANDSCAPING**

The soil absorption system is the most important part of an OWMS so it is very important to protect the soil absorption area. The following landscaping tips will help to maintain your soil absorption system:

- Divert downspouts and other rainwater drainage away from the soil absorption system area. The extra rainwater can overwhelm the disposal field.
- Keep pavement, decks, above ground pools, and out buildings off of and away from the soil absorption system area. Construction activity can compact the soil and structures limit access to the disposal field for maintenance.
- Avoid too much soil fill over the soil absorption system area. Increasing the depth of soil over the leach field limits the infiltration of air into the soil needed by the microorganisms to treat wastewater.
- Maintain adequate vegetative cover over the soil absorption system. Plant grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the treatment field. Keep the grass trimmed.
- Keep automobiles and heavy equipment off the system. Because systems are installed near the ground surface, the piping and septic tanks can be damaged by heavy traffic. Traffic will also compact the ground and reduce its ability to absorb sewage effluent which may then surface in the yard or back-up into the house. In winter, traffic (even from snowmobile paths) will drive frost deeper into the ground causing the system to freeze.

## **3. BE AWARE OF WHAT IS GOING INTO YOUR SYSTEM**

- The only wastes that should be disposed of in sinks and toilets are those that break down easily. OWMS work on natural processes similar to composting. Wastes that do not break down easily (*facial tissue, large amounts of vegetable scrapings, coffee grounds, chemicals, paints, oils, sanitary napkins, applicators, condoms, medicines, pesticides, poisons, strong disinfectants, etc.*) can damage a system or substantially increase the need to clean the septic tank.

- Grease and oil is hard to break down and when it eventually moves into the soil it will plug the soil pores and cause the soil absorption system to malfunction or fail.
- In-sink garbage disposal units can significantly increase the organic and inorganic content of wastewater. Excessive amounts of organic/inorganic material in the sewage may cause the system to fail.

#### 4. PUMP OUT THE SEPTIC TANK

If a septic tank is not regularly maintained, suspended solids and organic material will not settle out, and will be discharged into the soil absorption portion of a system. The additional suspended solids and organic material will clog the soil, eventually causing failure of the system.

- Do not wait for the system to back-up before you pump out your septic tank. Back-ups can be caused by clogging of the soil from sewage solids transported out of a poorly maintained septic tank. Once the sewage backs-up, the damage is already done.
- Do not use biological or chemical additives in place of septic tank pumping. These products include bacteria, enzymes, yeasts, and inorganic or organic chemicals. If the additive increases the level of biological activity in the tank, the additional digestion of the sludge can increase the amount of gas given off by the microorganisms digesting the solids. This gas bubbles up and can cause the suspended material in the sewage to float up and not settle out in the tank as it should. It is then carried into the soil absorption system and can plug the soil pores that accept the wastewater.

**Other chemicals may emulsify greases, which will prevent their flotation and settlement in the scum layer of the septic tank.** They will then flow out to the soil and plug the soil pores. Some of these products may contain chemicals that will impair treatment processes in the soil absorption system portion and/or they will percolate down through the soil and contaminate groundwater and nearby wells.

- When the tank is pumped, **have the baffles inspected.** If they are missing or deteriorated, the tank will short circuit and not work properly. Have the baffles replaced with sanitary tees.
- If pumps are used in the system, **have any pump screens cleaned** (make sure they are re-installed) and have the control operations checked.

Tanks should be **checked every year in the spring or early summer** to determine how much sludge and scum has accumulated. Having the tank pumped out in the spring will allow the biological action to re-establish quicker during the warm summer months.

The size of the septic tank and the waste it receives affects how often it needs to be pumped out. If the bottom of the scum mat is less than 8 cm (5 in.) above the bottom of the baffle or outlet tee, or will be at this level before the next inspection, the tank should be scheduled for pumping.

If the top of the sludge layer is closer than 30 cm (12 in.) to the bottom of the outlet baffle or tee, or more importantly, if the bottom of the scum layer is within 8 cm (3 in.) of the bottom of the outlet baffle or tee, the tank should be pumped.

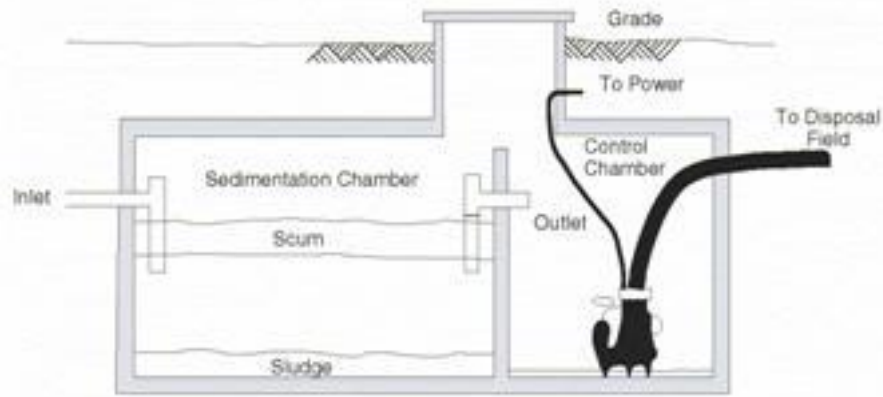


Figure: *Septic Tank showing compartments and scum/sludge layers*

It is **not necessary to thoroughly scrub and flush the septic tank** until it is visibly clean. The small amount of sludge that remains on the floor and walls will "re-seed" the tank and contribute to the re-establishment of its normal operation.

Vacuum trucks are available to pump out septic tanks. They are capable of doing a proper job without spillage. The sewage hauler will take the septage to an approved site such as a municipal wastewater treatment facility. Inquire about where your pumped sewage will go.

## 5. MAINTAIN & UPGRADE THE SYSTEM

Just like the house roof, driveway and furnace, OWMS require upgrades and possible replacement. Property owners with properly designed, installed, operated & maintained OWMS should plan on upgrading or replacing their system approximately every 20 years. Upgrades and replacements will allow homeowners to implement the latest technologies and advances in wastewater treatment.

- Install watertight manhole extensions if not already in place, to simplify septic tank access.
- Make sure the **access lids** are structurally sound, secure and child-resistant. If access lids are buried, consider raising them above grade to facilitate access and prevent the infiltration of surface water into the septic tank.
- Install risers and inspection ports. Because the system is buried, it is difficult to inspect to check for problems leading to a malfunction. To facilitate quick and frequent inspection, small inspection ports should be installed at the end of each lateral line. By extending the inspection ports up to the ground surface they can be easily mowed over, while still providing easy access to check for ponding in a lateral, which is an early warning sign of a malfunction.
- Never enter a septic tank. Any work or repairs should be performed from outside and by a qualified sewage contractor. The septic tank produces toxic gases that are potentially fatal. When working on a tank, make sure it is well ventilated and someone is standing nearby. Never enter a tank to retrieve someone. Call emergency services and put a fan at the top of the tank to blow in fresh air.

## 6. PROFESSIONAL MANAGEMENT

Have your system regularly inspected by a trained and qualified person. A quick annual inspection of the septic tank and soil absorption system may reveal possible problems. If ponding is observed, first check for excess water use or changes in drainage of rainwater on the lot. Fixing a water leak or moving a downspout may correct the problem. If not, a portion of the field may have to be repaired to restore its treatment capacity. Septic tanks should be checked for damage every year and pumped when needed.