

## **SEPTIC TANK SYSTEMS** **CARE AND MAINTENANCE**

A Septic Tank installation is a biological system where anaerobic bacteria, which thrive where light and oxygen are excluded, gradually break down solids from human sources (including household sullage where the septic tank is of an 'all waste' type).

Most of the solids will decompose over a period of time, but some will not and there is a gradual accumulation of sludge. The rate that such sludge accumulates depends on a number of factors including the number of persons using the system, the temperature of the sewage in the tank, and the excessive use of disinfectants.

Households using septic tank systems must accept the fact that these systems require regular inspection and maintenance for successful long term, low cost operation.

Septic waste disposal systems have two main parts:

1. A Septic Tank which reduces the solid waste load by bacterial decomposition to produce a sludge which collects at the bottom of the tank; a floating mat of scum; and a liquid effluent which requires further treatment or disposal (refer to diagram).
2. Effluent Disposal/Treatment System which absorbs the septic tank effluent into the ground or treats it to an acceptable standard.

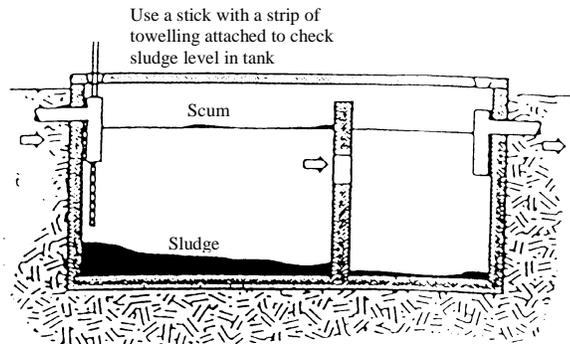
The following information will assist in the efficient operation of your septic tank system:

- Do not pour waste cooking oils/fats down the drain; instead allow these to cool and solidify, or absorb into paper towel, and put into the rubbish bin.
- Restrict food scraps from entering the system by use of a sink strainer. Do not use garbage disposal units.
- Restrict the use of germicides in the household - ie: strong detergents, disinfectants, acidic toilet cleaners, nappy sanitisers, bleaches, etc - as they will kill the bacteria which make the septic tank work.
- Do not pour disinfectants directly into the pan. The pan should be cleansed with a pan brush and a solution of warm water and disinfectant. The pan brush may be stored in a container holding disinfectant.
- At least once a year, lift inspection covers over inlet and outlet pipes to determine the depth of the scum mat and sludge. Failure to clean out a tank when required may cause sludge or scum to be carried out of the tank, which will clog the underground

disposal system. In this case, not only does the tank have to be cleaned, but the disposal system may also have to be reconstructed.

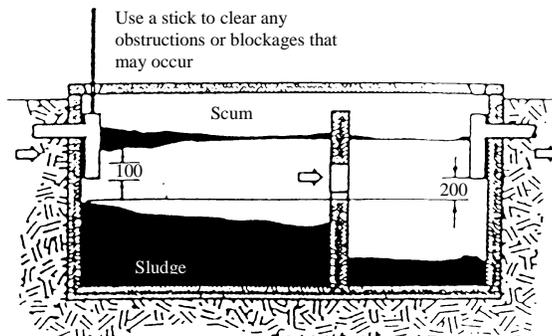
If the tank is more than half full of sludge (measured from the bottom of the tank to the water level at the inlet inspection hole), or if the water leaving the tank is high in solids, it should be de-sludged. Failure to do so will lead to early failure of the effluent disposal/treatment system. The sludge depth can be determined by pushing a stick with a small lid (50-70mm) nailed to the bottom, down the inlet inspection hole until resistance is felt from the top of the sludge.

Satisfactory  
Operation



Reasonably clear  
effluent is discharged to  
the disposal area for  
further treatment

Desludging of  
Tank required



When the scum is within  
100mm of bottom of inlet  
and/or sludge is within  
200mm of bottom of  
outlet, desludging of the  
tank is required to prevent  
any solids passing  
untreated and so clogging  
the disposal area.

All dimensions are in millimetres

- Tanks should not be washed or disinfected after the sludge and scum have been pumped out, but simply refilled with water to reduce odours on start up. The means and place of disposal of the tank contents should be approved by the local Council.
- Dishwashers are not recommended with septic systems, but if used, use a detergent with low alkaline salts levels and low chlorine level.
- Do not flush sanitary napkins or disposable nappies down the toilet.
- Use a soluble type of toilet paper and never use newspaper or similar paper.
- Odour may be experienced shortly after initial use or after addition of a large quantity of germicide. To abate odour, discontinue use of all germicides for a few days and flush one cup of lime down the toilet each day for a few days.

- The use of proprietary or chemical additives is not recommended at any time for septic systems (except for lime used as above).

## **TREES AND PLANTS SUITABLE FOR USE WITH SEPTIC TANKS**

**Agapanthus** blue or white variety

**Cannas** red, pink, orange – both tall and dwarf varieties

**Japanese Irises** two to three feet, colourful variety with flat topped blooms

**White calla lillies, Japanese Anenomes**, white or pink

**Heleniums, Dwarf bamboos** (golden or striped tems)

**Phormium (NZ flax), Hesta (Plantain lily), Bonfire Salvia**

These are all strong growing perennials which form clumps and (excepting Salvia) can remain without much attention for several years.

Keep them tidy by removing dead blooms and leaves.

If not exposed to frosts, even the Salvias will last two or three years, although they are usually treated in gardens as annuals.

The following evergreen shrubs usually tolerate poorly drained soil and should flower.

**Sprengelia** pink, three feet

**Zenobia** white flowers, grey feet, several colours

**Kalmia angustifolia** not latifloia pink, three feet

**Hypericum** yellow, several species, two to six feet

**Bauera sessiliflora** rose, four feet

**Leycesteria** purple and white, six feet

**Melaleuca gibbesa** tiny leaves, purple, six feet

If still more are wanted, the following deciduous shrubs without leaves in winter may be distributed among the evergreen.

**Clethra Ahifolia** white, fragrant (not arborae) six feet

**Cornus Stololifera** red winter stems, four feet

**Itea verginica** white fragrant, four feet

**Spiraea donglasi** pink, six feet

**Vaccinium corymbosum** autumn leave, blue berries, four feet

**Virburnum opulas (Guelder Rose)** white, six feet

**Weigela** pink, white, red, four to six feet

**Melaleuca squamea** pink, five feet cream, scented eight feet

**Melaleuca nesohila** mauve, eight feet

## **EFFLUENT DISPOSAL SYSTEMS**

There are three main types of domestic disposal systems – Sub-soil Absorption; Sand Filter; and Mechanical Treatment Plant.

1. **Sub-soil Absorption** The specific tank effluent is absorbed into the ground via slotted plastic pipes, or reln drain, in an underground trench system. The effluent water and nutrients are then absorbed by the plants and microbes in the disposal area.

**NB Desludging of these systems is required every 4 years. This period maybe lessened depending on the usage rates etc. Please use above diagrams for your information.**

2. **Sand Filter.** The effluent is further treated by organisms living within the filter sand to an acceptable standard.

The following information is important for these two systems:

- Do not place more than 300mm of soil over the effluent absorption drains. Grass roots need to be able to reach the effluent and some grasses are shallow rooted.
- Establish a lawn over the effluent disposal area as soon as possible and keep it well maintained.
- Do not allow vehicles to pass over the drains as they are close to the ground surface and may be crushed; this would then require costly replacement.
- Do not construct paths or sealed surfaces over the area.
- Do not use the effluent disposal area for vegetable cultivation.
- Do not discharge swimming pool water over areas where the disposal system is located.
- Do not construct sheds etc over the area.
- Take care with tree and shrub planting in these areas to avoid root damage to underground system.
- Ensure air vents are not covered with soil or blocked with grass.
- Check pumps, alarms and pits for proper function on a regular basis.
- Do not turn the sand filter effluent pump off when the system is in use, otherwise the sand filter will flood.

- The use of absorption drain “enhancing” products and root killing additives are not recommended at any time.
- 3. **Mechanical Treatment Plant** (AWTS). The effluent is further treated by organisms within the plant before being irrigated on a disposal area.
  - **Regular maintenance every 3 months by a qualified service person is required.** A maintenance contract is usually provided by the installer/seller and forms part of the approval process.
  - **Desludging of the septic component of the aerobic septic tank is required every 4 years or maybe lessened depending on usage and specific conditions. This pumping of the tank is to be completed by a licensed contractor.**
- Regularly check the alarm system which indicates a plant malfunction.
- Do not turn off the power supply when going on holidays as continuous operation is essential.
- Check the disinfectant (chlorine) levels at least monthly where applicable.
- Check operation after power failures.

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**And remember, All these systems above must have adequate setbacks for disposal of effluent and ARE NOT PERMITTED in areas of edible, fruits and vegetables in your yard to avoid possible contamination and sickness of your family members.**

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**Further advice may be obtained from Council’s Manager Environmental Health Services on (08) 8641 9100**