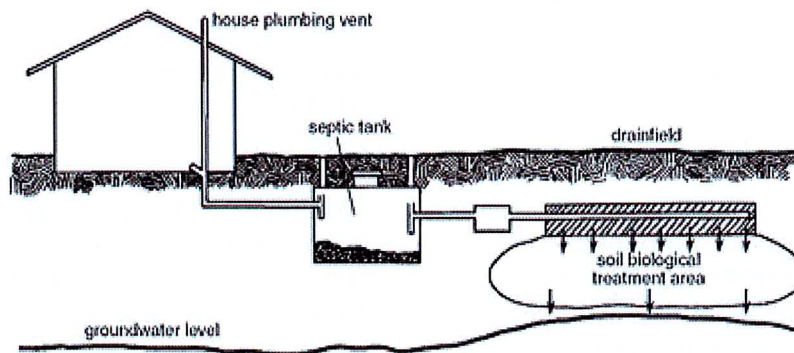


## Advisory Note 9 – May 2021

### Bushfire and On-site Wastewater Management Systems

On-site wastewater systems, such as septic tanks and aerated wastewater treatment systems (AWTS), and their land application systems such as sprinklers and below ground drippers, can be easily damaged during a bushfire. Therefore, avoid using, driving or walking over or near the system until it is assessed by a licenced plumber or service technician familiar with on-site wastewater management systems.

#### Types of On-site Wastewater Management Systems



The most common on-site wastewater management systems are septic tank (ST) installations (see above diagram) and aerated wastewater treatment system (AWTS) installations:

- a ST or similar primary treatment system such as a septic closet or greywater tank receives and biologically treats sewage by solids separation, scum floatation and sludge digestion. A drain from the ST connects to the drain-field or land (sub-soil) application area also known as an absorption trench. The land application system is typically covered by at least 300 mm of soil. A ST does not decrease the infectiousness of the treated effluent and can increase the number of bacteria by about ten-fold;
- A secondary treatment system, such as an AWTS, which after primary treatment also includes biological treatment, clarification, sludge return, and disinfection. Treated effluent is pumped to a related land application system where disinfected wastewater infiltrates into the sub-surface soil of less than 100 mm depth or a designated above ground irrigation system.

Other wastewater management systems include waterless composting toilets, wet composting toilets, worm farms and passive recirculating systems such as reed beds and sand filters.

Personal contact and contact by pets with sewage or untreated wastewater irrespective of whether the system is

working or damaged can cause illness and should always be avoided. Both treated and untreated effluent is a source of disease-causing micro-organisms which will cause gastro-intestinal illness and skin infections. After any contact strict personal hygiene should be practiced immediately.

### **System Information**

It is important to know the location of the on-site wastewater management system of both the treatment and land application system on the premises. Contact your local council if the location is not known as the local council should have information about the ST or AWTS on their property files. It is important to also have installation and operation manuals especially for those systems with moving parts and which use electricity such as an AWTS. These manuals are often available on-line from the manufacturer depending on the age of the AWTS.

### **System Maintenance**

All on-site wastewater management systems need maintenance. AWTS for example must be serviced at 3 monthly service intervals by a service agent authorised by the manufacturer or supplier. Systems must also be operated and maintained in accordance with an operating permit issued by the local council. The local council may periodically alter the operating permit depending on the level of risk to public health and amenity.

### **Bushfire Damage to On-site Wastewater Management Systems**

Plastic and fibreglass on-site wastewater systems, or and systems made with plastic components, are more susceptible to damage and destruction by bushfire than concrete tanks particularly if installed above ground. This also includes shallow PVC pipes, plastic pump tanks and sumps, and plastic irrigation pipework which may be installed above or below ground. Pumps and other equipment with electrical components may also be damaged or destroyed. Damaged and destroyed on-site

wastewater systems should not be used and the dwelling is uninhabitable until repaired or replaced.

Depending on the severity of the bushfire and the damage caused it could be many months before repairs or replacements may be completed. This depends on the demand for services and availability of components in bushfire affected areas.

All on-site wastewater systems should be inspected after a bushfire by a licenced plumber or authorised service technician familiar with on-site systems to determine the extent of the damage. Appropriate work, health and safety practices need to be employed on any site affected by bushfire. The system may need to be pumped out prior to an inspection.

While septic tanks made of concrete are less susceptible to bushfire damage they should still be inspected as inspection openings could be made of plastic.

It is important to ensure that the damaged wastewater management system and vessels cannot harbour insects and vermin. Mosquitos could breed in a vessel and transmit diseases. Rats and other rodents could be attracted to open tanks, vessels and pipes and rapidly breed.

### **System Recovery After a Bushfire**

If either of the ST or AWTS are damaged, then poor sanitation and public health risks could result.

- If the on-site systems are damaged, sewage may back up into the house or onto the ground surface. Arrangements should be made for repair of the system as soon as possible otherwise the dwelling is uninhabitable.
- Reduce water use as much as possible until the system is inspected and repaired by:
  - Reducing the frequency of toilet flushing for liquid waste
  - Taking shorter showers or shower elsewhere
  - Limit laundry and dishwashing as much as possible. If possible,

avoid using automatic clothes washers and dishwashers. It is preferable to wash clothes at a laundromat.

- Hire a portable ablutions block or toilet with storage capacity.
- Excess water from the septic tank should not be pumped onto the ground as it poses a serious health hazard particularly to children and pets or it can flow into a waterway. Waterborne diseases can be spread from person to person and from a contaminated environment quickly.
- If power hasn't been restored, or if the irrigation system is damaged, the tank (if undamaged) can be used as a temporary holding tank and pumped-out frequently until the system is repaired. You may need to disconnect the pump (if present) and block the outlet to the land application area. Electricity to an on-site wastewater management system should be turned off at the fuse box.
- If the tank is significantly damaged and can't be used as a temporary holding tank, the system cannot be used safely until fully repaired or replaced.
- Shallow PVC pipes may have melted and cause blockages and will need to be replaced.
- Damaged electrical components and pumps will need to be repaired or replaced as soon as possible.
- Prevent access to the area as much as possible and particularly:
  - Underground pipes, tanks and tank covers, which may have been weakened or damaged.
  - Avoid driving or walking over or near the tank and land application system.
  - Once power is restored, wastewater may pool on the ground surface. Avoid contact with the area until the system is repaired.
- Sanitation is very important particularly for a whole community and the local

council may have to decide if premises are un-inhabitable until the on-site wastewater systems are repaired or replaced.

- Prevention of rodent and vermin attack to broken pipes and systems is essential.

A ST should not be used except for emergency toilet use. Alternate accommodation or shelter should be sought until the house becomes habitable again. Alternatively, a portable temporary toilet or ablution facility with a storage tank could be hired if available until the sewage management facility is fully functional.

The ST should be pumped out by a local council authorised tanker and the contents including any sludge removed to a depot authorised by the local council. Removing more than half the contents of the ST, particularly plastic tanks, could cause the tank to float out of the ground and damage the inlet or outlet pipes.

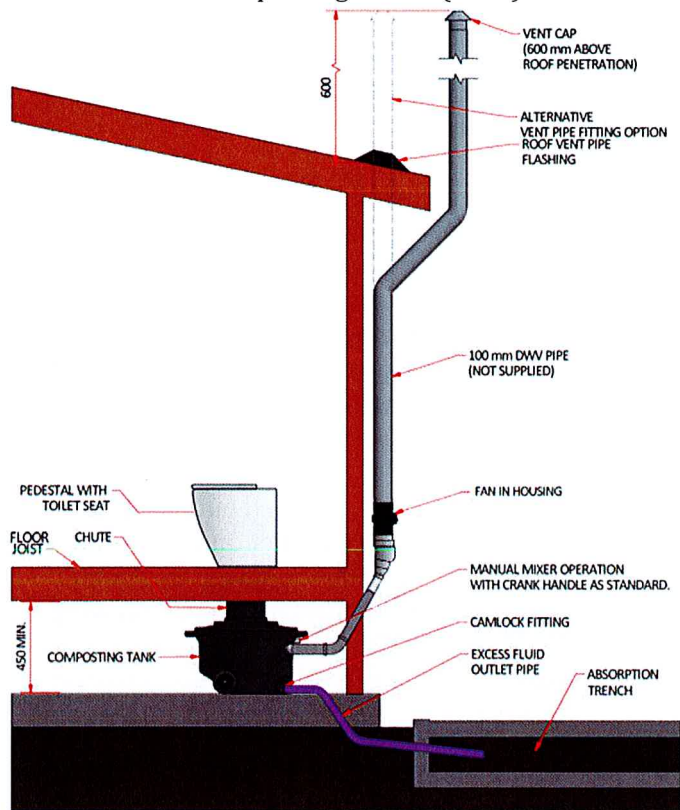
The power to an AWTS should be turned off and the operation manual consulted. A service agent authorised by the manufacturer/supplier should be contacted before the AWTS is used. Also, all the spray irrigation nozzles or sub-surface drippers should be checked and replaced as appropriate during re-commissioning and fresh chlorine tablets added as needed. The AWTS may take a few weeks to reach peak operation after re-commissioning and any contact with treated effluent should still be avoided.

### **Domestic Greywater Treatment Systems (DGTS)**

DGTS treat only household greywater. They are primarily installed in sewered areas so that the treated greywater can be used on the garden instead of drinking water. DGTS are like an AWTS in operation and the same comments apply.

## Waterless Composting Toilets (WCT)

Most waterless composting toilets (WCT) are installed below floor level and are designed to operate aerobically with vented air circulation and a small land application system to absorb urine.



The use of a WCT, particularly above floor models, depends on the damage to the building and the integrity of the WCT. Most WCT are of plastic construction and will be susceptible to heat. All components of the WCT including the ventilation pipe need to be intact. The ventilation pipe will work without an exhaust fan if the cowl at the top of the vent pipe is higher than the roof.

The compost tank should put back into service following the manufacturer's instructions in the operating manual. Any area of land contaminated with immature compost should be buried according to the manufacturer's instructions and if practicable and contaminated land should be

disinfected using a liberal application of "Builder's Lime" (protective clothing should be worn).

### For further information

1. Contact your local council: <https://www.olg.nsw.gov.au/public/find-my-council/>
2. Contact your local Public Health Unit by calling 1300 066 055: <https://www.health.nsw.gov.au/Infectious/Pages/phus.aspx>
3. Refer to the NSW Health Guidelines and Advisory Notes: <https://www.health.nsw.gov.au/environment/domesticwastewater/Pages/default.aspx>