

On-Site Sewage Management Systems: Aerated Wastewater Treatment Systems (AWTS)

How does a conventional system work?

- An AWTS consists of one or two wastewater tanks, which contain a series of chambers.
- Wastewater enters the primary chamber where solids settle to the bottom to form a sludge layer.
- The scum layer, containing fats and greases, collects at the top of the chamber.
- The clarified wastewater flows between the two layers to the aeration chamber. In the aeration chamber, the wastewater is aerated and broken down further by biological activity.
- The wastewater then passes through to the settlement chamber where any solids that may still be present are separated/settled.
- The wastewater is finally disinfected in a chlorination or UV chamber and irrigated through fixed wastewater hoses across lawns or gardens either via a surface or drip irrigation system.

An AWTS should be fitted with an alarm having visual and audible components to indicate mechanical and electrical equipment malfunctions. The alarm should provide a signal adjacent to the alarm and at a relevant position inside the house. The alarm should incorporate a warning lamp which may only be reset by the service agent.

An AWTS must be regularly serviced and maintained as per their specifications in order to operate correctly.

Role of Owners

Owners must comply with the conditions of accreditation of the system, Australian Standards and conditions of approval issued by Council. This includes:

- Entering into a service agreement with an AWTS service technician who is accredited with the manufacturer of the system.
- Ensuring the time period between services does not exceed the prescribed limit, which is for most AWTS is 3 months.
- Immediately notify the service technician of any system malfunction.

- Ensuring that defects identified by the service technician are corrected without delay.
- Following the advice provided in the manufacturer's operation and maintenance manual.
- Providing information to tenants regarding operation and maintenance requirements.
- Checking with the manufacturer before leaving the house vacant for extended periods, as special 'shut-down' and 'start-up' procedures may be necessary.

Poorly maintained AWTS's are a serious source of water pollution and may present health risks, unpleasant odours, attract vermin and insects. By having your system regularly maintained you are protecting the environment and the health of your family.

Irrigation Areas

While wastewater from an AWTS has received advanced treatment and may be suitable for either above ground or subsurface irrigation, it may still be a health risk to animals or people who come into contact with it. Therefore drip or subsurface irrigation are preferred as they eliminate the risk of contact. Ensure:

- Surface irrigation is not located in areas where contact with people and/or animals are likely to occur.
- Treated wastewater is not used to irrigate fruit or vegetable crops for human consumption.
- A lilac pipe is used for all irrigation and distribution lines, fittings and fixtures and domestic type garden hoses, taps, fittings, sprinklers and pipe work are not used.
- Irrigation sprinklers comply with Australian Standards. Sprinklers producing heavy droplets are to be used. The use of 'micro-sprays' or sprinklers producing aerosols are not permitted.
- Wastewater runoff does not enter adjoining properties or any watercourse causing pollution.
- The size of the irrigation area, number and type of sprinklers or drippers is sufficient to prevent saturated soil conditions.
- Warning signs displayed stating that reclaimed effluent is in use

Responsibilities of AWTS Service Providers

Service providers undertaking the servicing of an AWTS are to have appropriate training and obtain manufacturer's approval prior to servicing an AWTS.

A service in accordance to the system's accreditations and manufacturer's instruction generally includes:

- Checking pumps, air blower, fan or venturi.
- Checking the alarm system.
- Checking slime growth on filter media.
- Measuring sludge depth in the primary clarification chambers.
- Checking operation of sludge return.
- Testing of free residual chlorine, pH and dissolved oxygen and replenishing the disinfectant (usually chlorine).
- Check the irrigation area including irrigation lines.
- Providing the owner/occupier with a fully completed Service Report.
- Discuss maintenance and repair issues with the home owner.

Sale of Premises

It is the responsibility of the owner of the premises to ensure that the new householders (new owners or tenants) receive an operating manual that includes all relevant information regarding the system installed. When the property sells, the new owner has 2 months to lodge an application for an 'Approval to Operate' with Council.

Performance Standards

The Local Government (General) Regulation 2005 specifies that an on-site sewage management system must be operated in accordance with the following:

- The prevention of the spread of disease micro-organisms.
- The prevention of the spread of foul odours.
- The prevention of the contamination of water.
- The prevention of the degradation of soil and vegetation.
- The discouragement of insects and vermin.
- Ensuring that persons do not come in contact with untreated sewage or effluent (whether treated or not) in their ordinary activities on the premises concerned.

- The minimisation of any adverse impacts on the amenity of the premises and surrounding lands.

Where a system is not meeting the above performance standards, it will be classified as a 'failed system' and rectification works or upgrades will be required to bring it up to compliance.

Signs Your System May Be Failing

Warning signs that signal to you that there are troubles with your AWTS include:

- Water that drains too slowly.
- Drain pipes that gurgle or make noise when air bubbles are forced back through the system.
- Sewage smells, this indicates a serious problem.
- Water backing up into your sink which may indicate your system is already failing.
- Wastewater pooling over the irrigation areas.
- Excess noise from the blower or pumping equipment.
- Poor vegetation growth in irrigation areas.
- Odour problems from a vent on the AWTS can be a result of slow or inadequate breakdown of solids. Call a technician to service the system.

Preventing Problems

Do:

- Have your AWTS inspected and serviced 4 times per year by an approved service provider.
- Have your system service include an assessment of sludge and scum levels in all tanks, and performance of irrigation areas.
- Have all your tanks de-sludged at least every 3-5 years.
- Have your disinfection chamber inspected and tested quarterly to ensure correct disinfection levels.
- Keep a record of pumping, inspections and other maintenance.
- Learn the location and layout of your AWTS and irrigation areas.
- Use biodegradable liquid detergents such as concentrates with low sodium and phosphorus levels.
- Conserve water.

Don't:

- Don't put bleaches, disinfectants, whiteners, nappy soakers and spot removers in large quantities into your AWTS via the sink, washing machine or toilet.
- Don't allow any foreign materials such as nappies, sanitary napkins, tampons, condoms and other hygiene products enter the system.
- Don't use more than the recommended amounts of detergents.
- Don't put fats and oils down the drain and keep food waste out of your system.
- Don't switch off power to the AWTS, even if you are going on holidays.

More information

Visit Council's website at www.federationcouncil.nsw.gov.au. Alternatively, contact Council on (02) 6033 8999 and ask to speak to the Environmental Health Officer (EHO).

Be Water Wise

Reducing the amount of water you use will help prevent problems such as overloading your AWTS, which may result in blockages or wastewater entering your house or nearby waterway. AWTS are unable to cope with large volumes of water such as several loads of washing over a short period of time. Avoid these 'shock loads' by ensuring water use is spread evenly throughout the day and week.