

## FACTSHEET 6: AERATED WASTEWATER TREATMENT SYSTEMS (AWTS)

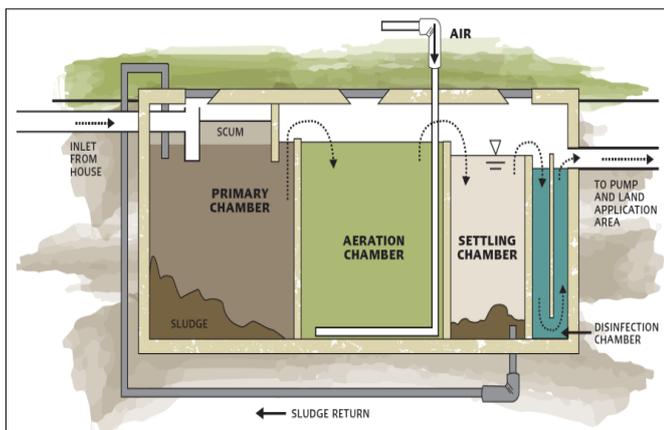
**AWTS can treat wastewater through a combination of biological treatment and aeration, resulting in a higher standard of wastewater effluent. This provides greater options for the disposal of treated effluent, although AWTS's will require power to operate, and be subject to regular maintenance requirements.**

The AWTS system consists of two tanks (sometimes within a single larger tank).

The first is a basic septic tank where solids settle and anaerobic digestion occurs.

In the second, oxygen is bubbled through the effluent to encourage aerobic bacteria to digest the waste.

Finally, the effluent is disinfected using chlorine or ultra-violet light before being pumped to an irrigation area.



Treated effluent is normally disposed of via pressure compensating sub-surface irrigation to a suitably sized and vegetated area, although dosed soil absorption trenches can be used in certain situations.

The extra treatment provided by an aerated septic tank reduces pathogen levels, (and can sometimes reduce nutrients) as long as the system is kept well maintained, and the disinfection unit is functioning properly.

AWTS may also be used to treat greywater to a standard suitable for garden watering of non-food plants.

People using AWTS are required to enter into a regular maintenance contract for 6-monthly servicing, which is randomly audited by Moyne Shire Council.

New accreditation requirements have been introduced for aerated septic systems in Victoria. All AWTS must be tested for six months by the Victorian EPA before being released for sale, their operation and maintenance is supervised by Council, and manufacturers must continue to audit system performance in the field.

### Package treatment plants

An AWTS is an example of a small package treatment plant that is in common use in Victoria. There are a number of other well designed package treatment plants available for sewage treatment for specialised applications.

Package treatment plants are commercially distributed sewage management systems that combine appropriate wastewater technologies in an integrated package. They have breakdown alarms and are sometimes equipped with electronic control systems allowing for remote control of treatment processes.



**For more information see:**

<http://www.epa.vic.gov.au/your-environment/water/onsite-wastewater/wastewater-secondary-domestic-treatment-systems>



### ATWS effluent disposal - pressure-compensating sub-surface irrigation

The default land application system for sustainably recycling secondary treated sewage or greywater effluent to land is pressure-compensating sub-surface irrigation (with disc or mesh filters and scour and vacuum valves), which evenly distributes effluent throughout the irrigation area.

The distribution pipes (drip-lines) fill up with effluent until a certain pressure is reached which opens the emitter valves. More controlled pressure can be applied when the field is divided into two or more zones and these smaller areas are intermittently dosed using a sequencing valve.

Soil absorption trenches can in some circumstances be used with AWTS as systems dose the absorption trenches by way of the AWTS's internal pump.

Irrigation distribution pipes must not have dripper-holes drilled or cut into them after purchase because the effluent will flow out of the holes in the first few metres of pipe at a far higher rate than the system is designed for, and higher than the soil is capable of sustainably absorbing.



A typical AWTS subsurface irrigation field.

Secondary quality effluent is a valuable water and nutrient resource and should be used beneficially to support vegetation growth, not be discharged deep in the soil profile where it provides very little beneficial use to the land or to the residents.

The default for recycling secondary quality effluent is sub-surface irrigation because water is not wasted by evaporation or runoff; water is delivered to the plants' roots in the topsoil layer, and it provides the highest protection for environmental and public health.

If the permeability of the soil is very low (i.e. heavy clay), the soil in the irrigation area must be improved by rotary-hoeing and adding gypsum. The irrigation area must be a permanent dedicated area for effluent disposal within the property to enhance evapotranspiration and its amenity.

For pressure compensating pipe, vacuum breakers (air valve) must be installed at the high point of the disposal area and a flushing valve must be installed at the low point of the disposal area. This allows for the disposal area to be flushed out preventing any blockages from sludge/scum build-up and therefore prolonging the life of the system. The flushing valve must either be connected so the wastewater is returned to the treatment system (preferable option) or disposed of via sub-soil absorption trenches.

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Information Guide adapted from existing EHPA resources.  
 Moyné Shire Council acknowledges these sources.

