

# Septic tank sludge management

Updated October 2016

*EPA 247/16: This guideline applies to septage (or septic tank sludge) derived from domestic septic tanks. It does not apply to sludge from community wastewater management schemes (CWMS), wastewater treatment plants (WWTP) or biosolids which are produced from the processing of sludge or any industrial sources. This guideline replaces an earlier document Liquid biosolids from domestic septic tanks: Disposal onto agricultural land.*

## Introduction

Septage should be treated at a sludge-handling facility or biosolids depot. For larger regional CWMS or WWTPs the Environment Protection Authority (EPA) may require the construction of a sludge-handling facility or biosolids depot in order to sustainably manage the higher volumes of septage and sludge waste. If stabilisation and contamination grades are met, sludge that has been through a treatment process may be classified as a biosolid.

For information about biosolids, and classification of stabilisation and contamination grades, refer to the [South Australian Biosolids Guideline for the Safe Handling and Reuse of Biosolids](#) (2009) or Biosolids Guideline.

Where a sludge-handling facility is not available, and it is not practicable to transport the material (for example in some regional centres and small townships) sludge from septic tanks may be applied to land for beneficial reuse if done so according to this guideline.

Sludge from septic tanks may be beneficially used for activities such as agriculture (excluding horticulture for food production). Providing that the recommendations of this guideline are observed, this may be done without reference to the Department for Health and Ageing (DHA) or the EPA. The direct application of septage directly from septic tanks to home gardens is not allowed because of the associated health risks.

The purpose of this guideline is to advise on how septic tank sludge should be managed for beneficial reuse where it is not reasonable or practicable to take the sludge to a sludge-handling facility.

A note on terminology:

- The term **should** is used where a particular course of action is considered by the EPA as best practice.
- The term **must** is used where a failure to comply with the action stated in the guideline will, in the EPA's view, expose the environment to a risk of harm or may lead to a breach of the *Environment Protection Act 1993* or relevant [environment protection policies](#).

## Definitions

For the purpose of this guideline:

<b>Agricultural land</b>	includes land used for pasture and cereal crops except when precluded by the <i>Livestock Act 1997</i> or by EPA licence conditions
<b>Biosolids</b>	organic solids from a wastewater treatment process that have met the required stabilisation and contamination grades (see <a href="#">Biosolids Guideline</a> )
<b>CMWS</b>	a system for the collection and management of wastewater generated in a town, regional area or other community, but does not include SA Water sewerage infrastructure or after 1 July 2015 – a system with a capacity that exceeds 2,000 Equivalent Population (EP). A wastewater treatment system with a capacity which exceeds 2,000 EP is referred to as a WWTP
<b>Field capacity</b>	the amount of soil moisture or water content held in the soil after excess water has drained away
<b>Septage</b>	any product consisting totally or in part of organic matter that results from septic tank sludge
<b>Septic tank effluent</b>	the liquid portion discharged from the septic tank

## EPA licence requirements

Under section 35 of the *Environment Protection Act 1993* (EP Act) a person must not undertake a prescribed activity of environmental significance except as authorised by an environmental authorisation in the form of a licence. The penalty for this offence is \$120,000 if the offender is a body corporate, and a Division 1 fine if the offender is a natural person.

Persons wishing to carry out work involving pumping waste from septic tanks and transporting that waste for fee or reward are required to have a licence from the EPA to do so, under Schedule 1, clause 3(6) of the EP Act:

Activity 3(6)(c) Waste Transport Business (category B) — the collection or transport for fee or reward or septic tank effluent.

Enquiries concerning waste transport licences should be directed to an EPA Senior Licensing Officer at the EPA (refer to Further information at the end of this document).

Regardless of licensing requirements, all persons must comply with the general environmental duty under section 25 of the EP Act to take all reasonable and practicable measures to prevent or minimise any environmental harm.

## Management of septage

The preferred management of sludge or septage is for the material to be taken to a sludge-handling facility or biosolids depot. This guideline is only relevant to the situation where this course of action is not viable. Management of sludge and septage must be consistent with the waste management hierarchy established under the *Zero Waste SA Act 2004* (also refer to clause 4 of the *Environment Protection (Water Quality) Policy 2015*).

Handling and disposal of septage in accordance with the guideline aims to ensure that public health is protected and environmental harm will be prevented.

Spreading of sludge from domestic septic tanks on land used for intensive horticulture for food production is not permitted. Disposal of liquid wastewater or septage from commercial or industrial sources on agricultural land is not advised and this material should be kept separate from domestic septage and handled in accordance with the [Biosolids Guideline](#) or taken to a depot licensed by the EPA to receive that type of waste. If a vehicle is used to transport both industrial and domestic septage, the mixed load must be considered as industrial waste.

## Pump out and safe handling of septage

Septage derived from septic tanks are human wastes and must be handled with due care and in a manner that ensures the health and safety of the community and protection of the environment. The contractor, landholder, or whoever is responsible for the pump out of septic tanks, should keep adequate records including details of dates when premises have been desludged and where the biosolids have been disposed of.

It is common to find foreign material in septic tanks (toothbrushes, toys, rags, baby wipes, etc). This material should be removed from the septic tank during the cleanout process, using an appropriate tool. The foreign material should be:

- hosed down in the tank as it is being removed (in order to remove as much sludge and wastewater from the material)
- bagged (or if required double bagged) and sealed
- disposed into a general waste bin or disposed to landfill.

## Period for cleanout

Septic tanks and/or the septic tank components of aerobic wastewater treatment systems must be desludged in accordance with SA Health [On-site Wastewater Systems Code](#) (2013).

Generally, only sections of a township are pumped out at any one time, to avoid generation of large amounts of septage. Any contract for desludging of septic tanks within a CWMS should contain provision for a program agreed between the council and the contractor indicating location of properties where septic tanks are to be desludged and proposed dates of desludging.

If septage is to be applied to land, pump out should occur at a time of year that best suits the agricultural purpose of applying septage to land, particularly if seasonal storage is not available. This requires proactive planning to ensure pump-out volumes are manageable and there is sufficient appropriate land to apply the sludge.

Septic tanks for industrial and commercial premises are typically designed to allow a period of one to four years between desludging. Septic tanks for residential dwelling are usually designed to be pumped out every four years, although this may need to be done more frequently depending on the design of the system.

## Uncovering and sealing

All inspection openings and access covers for septic tanks must be extended to surface level by means of access shafts and covers. This is in accordance with the [On-site Wastewater Systems Code](#). Tank lids must be sealed to the satisfaction of the local council when they are replaced after pump out to prevent entry of surface water.

## Transport of septage

Vehicles used to transport septage should only be cleaned in a location such that washdown water cannot enter the stormwater system, preferably at wastewater treatment plants (WWTPs), or at sites for the reprocessing of biosolids. Vehicles should not be cleaned while parking on farm drives or on other compacted areas where there is a risk that the washdown water will remain ponded on the surface for any significant time.

Any transport spills should be cleaned up rapidly. Dry clean-up methods are always preferred. Flushing of spilt septage into waters is prohibited and may result in enforcement action being taken by the EPA.

If the transporter of sludge or septage is also the person who will be applying the material to land, they should follow the requirements for site selection and application criteria. Transporters should be aware of prevailing wind directions and rainfall events before spreading septage to land.

## Application of septage to agricultural land

The spreading of septage from domestic septic tanks to agricultural land has historically been practised in South Australia where purpose-built drying and storage facilities (sludge-handling facilities) have not been available. It is the preference of the EPA that septage is taken to a dedicated depot, and land spreading should only occur provided the recommendations in these guidelines are observed.

Any CWMS constructed to treat effluent from an equivalent population of 10,000 or more should have a sludge handling facility, unless the septage is going to an alternative appropriate facility. For managing septage at a dedicated depot refer to the [Biosolids Guideline](#).

## Land spreading of septage

### Site selection criteria

Septic tank effluent should only be spread on land with suitable soil properties and of sufficient area to allow for sustainable land use. The application of septage to land where shallow groundwater exists should be avoided.

Septic tank effluent should not be applied, spread or buried on land within:

- the 1956 flood level of the River Murray
- 100 m of any river, creek or other natural watercourse (whether modified or not), or a channel (which can include a drain, gutter or exposed pipe) identified:
  - as a blue line on a current series 1:50,000 Department for Environment and Heritage topographic map, or
  - by an on-site inspection.
- 100 m of any bore, well, dam or lake
- 100 m of the mean high water mark along coastal foreshore areas
- 400 m of any dwelling on neighbouring properties, or a town boundary
- 5 m of a farm drive
- 50 m of any property boundaries or public roads.

Septic tank effluent should not be applied to land or soil with any of the following properties:

- steep land slope greater than 1 in 5 (20%)
- rocky – depth of soil should be greater than 1.2 m
- seasonally waterlogged or classified as being poorly or very poorly drained
- subject to flooding – the site should not be subject to flooding more frequently than one in 10 years
- where the depth to a permanent water table is less than 1.2 m from the natural surface
- with known or potential problems with salinity that may be exacerbated by any application of septage
- where there is a risk of nutrients being leached from the root zone into groundwater
- bare or with no groundcover
- where there will be no plants or pasture to utilise the nutrient loading.

### Suitability of land

Apply septage only to land that is well drained and not steeply sloping. If septage is applied to sloping land, take preventive measures to avoid runoff, erosion and environmental harm, and risks to public health. Do not apply septage to land in such a way that it could impact adversely on ground or surface waters, and ensure the minimum distance

between any septage application area and any open surface watercourse is at least 100 metres. Do not apply septage to rocky or waterlogged ground.

## Exclusion of the public and buffer zones

It is essential that land which septage is applied to, is adequately fenced to prevent access by the public.

Do not apply septage within 400 m of any dwelling on neighbouring properties or town boundaries. This separation distance may need to be increased to 1,000 m if there is a history of offsite odour impacts or odour complaints at the site. Pay due regard to weather conditions at the time of application to prevent odour transmission to any residence.

## Application criteria

- Septage should be spread onto land only in a manner that will allow for sustainable productive land use
- Septage should be disposed over land so that:
  - material does not pool or run off
  - material does not create offensive, nuisance and/or unsanitary conditions on or beyond the site.
- As septage is applied or spread on the land it is recommended that:
  - it be screened so that intractable wastes or foreign objects (eg plastic, rags, etc) are removed and therefore prevented from contaminating the land
  - the waste transport vehicle is kept moving
  - the outlet from the vehicle is designed to reduce spray and aerosols, and spread the effluent evenly and thinly over the land. A flared application is preferred.
- Septage should not be applied continuously to one area where septage has previously been spread. Liquid waste transporters should identify and use several suitable areas for disposal in any one year. Each area should be rested for a period each year during which septage is applied, eg during the winter months. Continued application to the same area for more than three consecutive years should not occur.
- Repeated application of septage to land may cause impacts to soil, groundwater and surface water, and breach the EP Act. Septage contains a higher percentage of nitrogen than biosolids and sites that regularly receive septage should be conducting monitoring for soil health, nutrient levels and other possible environmental harm. Monitoring should be relative to the risk of the application. Risk can be influenced by the application rate, application frequency, and the nutrient removal.
- Following application of septage to land, septage should be incorporated into the soil within a time period so as to prevent odour from leaving the site. Apply septage at rates that allow it to dry rapidly, preventing odour generation and minimising vector attraction (eg birds, flies, mosquitos and rodents). If crops are to be grown, establish them soon after the application to minimise leaching of nutrients into the groundwater
- Due to the risk of infection of stock, septage should not be spread on land used for grazing cattle or pigs (refer to section 32 of the *Livestock Act 1997*). Once septage has been incorporated into the soil and pastures has been re-established, advice should be sought as to the suitability for grazing of stock, including cattle and pigs.

## Application rate

The maximum application rate for septage may be determined by the nitrogen-loading rate. The recommended maximum application rate for biosolids is 100 kg of nitrogen per hectare per year. Typical septage from a septic tank contains an average of 700 mg total Kjeldahl nitrogen (a measure of the concentration of organic nitrogen plus nitrogen as ammonia) per litre.

To achieve the recommended rate, spread or apply the septage evenly and thinly from a 8-kL tanker over a minimum of 600 m<sup>2</sup>. For example, each year a 1 ha plot of land can receive effluent from 16 8-kL tankers. Where a site is used for

septage spreading, each disposal event should be pegged or marked in some way so that repeat applications on the land are avoided.

Septage and biosolids should not be applied at a higher rate than is required to maintain the field capacity (at field capacity there is very little downward movement of water through the soil profile).

**One 8-kL tanker of septage contains on average 700 mg TKN/L**

$$1 \times \img alt="Icon of a tanker truck" data-bbox="398 175 548 244"/> = 8 \text{ kL}$$

**Minimum spreading area = 600 m<sup>2</sup>**

$$16 \times \img alt="Icon of a tanker truck" data-bbox="408 291 558 359"/> = 1 \text{ ha}$$

**Recommended maximum of 16 x 8 kL tankers of septage**

## Record keeping

When applying septage to land, a register of information should be kept, and should include:

- the source or location of where the material has been transported from
- the contractor or company who transported the septage
- the volume of material
- the size and location of the area where the septage was applied
- the date and time the material was applied to land.

Records of sludge for CWMS licensed by the EPA must be provided in accordance with licence conditions. Records should still be maintained on unlicensed CWMS or wastewater treatment plants, to demonstrate compliance with general environmental duty as described in section 25 of the EP Act.

You may need to check with the EPA if a [waste transport certificate](#) (WTC) is needed to be completed for the transport of the material.

## Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

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## Further information

### Legislation

[Online legislation](#) is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet  
Adelaide Service SA Centre  
108 North Terrace  
Adelaide SA 5000

Telephone: 13 23 24  
Facsimile: (08) 8204 1909  
Website: <[shop.service.sa.gov.au](http://shop.service.sa.gov.au)>  
Email: <[ServiceSAcustomerservice@sa.gov.au](mailto:ServiceSAcustomerservice@sa.gov.au)>

### General information

Environment Protection Authority  
GPO Box 2607  
Adelaide SA 5001

Telephone: (08) 8204 2004  
Facsimile: (08) 8124 4670  
Freecall: 1800 623 445 (country)  
Website: <[www.epa.sa.gov.au](http://www.epa.sa.gov.au)>  
Email: <[epainfo@epa.sa.gov.au](mailto:epainfo@epa.sa.gov.au)>

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