

FACTSHEET 13: GREYWATER RE-USE OPTIONS

Victoria is experiencing increasing pressure on its limited water resources. This pressure, combined with increasing community interest in water conservation, has prompted many inquiries to the EPA and local councils about recycling household wastewater.

Specific advice about wastewater conservation in your home can be obtained from the water authority (Wannon Water). The following will provide advice about the regulatory, health, and environment issues, associated with household wastewater reuse.

WHAT IS WASTEWATER?

Households produce significant quantities of wastewater that can harm public health and the environment if not managed appropriately.

This wastewater is generated in toilets, kitchens, laundries, and bathrooms.

On average, each person in a house provided with piped water generates about 150 – 200 litres of wastewater per day.

This wastewater can be divided into two separate waste streams:

1. 'blackwater' – wastewater that is contaminated by faeces and urine arising from toilets and urinals.
2. 'greywater' – also referred to as sullage, consists of non-toilet wastewater, that includes wastewater from showers, baths, spas, hand basins, washing machines, laundry troughs, dishwashers, and kitchen sinks.

RECYCLING GREYWATER

Household wastewater reuse options fall into two categories:

1. The diversion of untreated 'greywater' for immediate reuse; and
2. The installation of systems to collect and treat household wastewater and reuse the resulting effluent.

Untreated Greywater (reuse)

Untreated greywater is wastewater from the bath, shower, and washing machines, and is bucketed or diverted to water gardens and/or lawns.

This practice does not require a Permit to Install from Council; however, considerations for the environment and public health should be taken. Untreated greywater reuse should be performed in accordance with EPA Publication 884, *Greywater Use Around the Home*.

Treated Greywater (recycling)

Recycling greywater means the system collects, treats, and then reuses household wastewater. This practice has more stringent conditions than reusing greywater. A greywater system must include the following:

- A Council Septic Permit to Install for each installation.
- An EPA approved greywater treatment system.
- A diversion valve to divert greywater to sewer or blackwater treatment systems in the event of system failure; when greywater production exceeds demands; and during wet weather.
- The system must be designed so that it caters for the minimum and maximum volumes of the greywater from the household.

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People intending to install a greywater system should consult the relevant water authority, before commencing works and also consult Moyne Shire Council before any works begin. It is the system owner's responsibility to ensure that the greywater system is installed and maintained according to the EPA Certificate of Approval for the relevant system and the Council's permit.

NOTE: Work to install a greywater diversion system must be carried out by a licensed or registered plumber. The licensed plumber should notify the Plumbing Industry Commission prior to installation. While there are no specific local or state government controls on household diversion systems, the wastewater reuse must not create a public health hazard, an environment hazard or a nuisance. If it does, the owner/occupier of the property may expose themselves to a range of legal liabilities.

Managing Health and Environmental Risks

Greywater is often contaminated with micro-organisms.

The health risk presented by untreated greywater reuse can never be eliminated, however it may be minimised by careful management and responsible use.

Many particles contained within the greywater that have the potential for a negative environmental impact, including dirt, lint, food and human waste products (greywater from laundries and bathrooms may include body fats, urine, faeces, blood), chemicals derived from detergents and other cleaning products.

If the greywater is not treated then there can be a build-up of these pollutants in the soil, damaging the soil structure altering soil acidity/alkalinity balances, and possibly harming plant growth.

Greywater that finds its way into storm water drains, rivers, or streams, contributes to pollution loads in these environments.

Procedures that should be followed to minimise health and environmental risks associated with diverting untreated greywater.

- Utilise greywater only during prolonged warm/dry periods, and limit volumes only to meet plant requirements.
- Don't allow the ground to become saturated if irrigating with greywater. Carefully monitor the impact of the greywater on the irrigation area to minimise the risk of causing pollution.
- Ensure greywater does not contaminate any sources of drinking water. Risk minimisation includes the colour coding of pipe work and installing a backflow prevention device. Never consume grey water or allow pets near it.
- Ensure the diversion system is "fail-safe" so that greywater is automatically diverted to the sewer if the greywater system blocks or generally malfunctions.
- Direct greywater to sewer during periods of wet weather.
- Do not divert kitchen wastewater, as it has a high concentration of contaminants that are not readily broken down by soil organisms.
- Divert the lowest risk greywater, like shower, bath, hand basin and laundry rinse water only.
- Never divert greywater that could have gross faecal contamination. For example, water used to launder soiled nappies.
- Always wash your hands after gardening.
- Use low phosphorus detergents.
- Never store untreated greywater for more than 24 hours.
- Never allow greywater to pool or stagnate, as this may attract insects and rodents, which transmit diseases.

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- Never allow greywater to discharge beyond the property boundaries, to drains, or waterways.
- Greywater should be applied to the garden through sub-surface irrigation.
- Only irrigate plants with greywater if plants in the garden are healthy.
- Do not irrigate vegetable gardens that are supplying food crops that could be eaten raw or undercooked, as this could present an unacceptable health risk.
- Reduce the amounts of fertiliser used when irrigating with greywater.



Treating and Reusing Wastewater from Single Households.

This relates to systems that are intended for use to collect, treat, and reuse household wastewater for sewerred areas.

For unsewerred areas, effluent from individual households' wastewater systems may be irrigated in accordance with EPA Publication 451, EPA's *Guidelines for Environmental Management Code of Practice – Onsite Wastewater Management* Publication 891.3 February 2013 and Certificate of Approval CA 35/93 – Surface Irrigation)

Legislation and Policy



Approval of Household Reuse Schemes

Systems serving individual households are regulated by Part IXB of the Environmental Protection Act 1970. Typically, a household reuse system would include a wastewater treatment unit and a treated effluent irrigation area.

- The treatment Unit – Must be a type approved by the EPA. Gaining approval is the responsibility of the manufacturer; approved treatment units are listed on the EPA's website: www.epa.vic.gov.au
- The entire scheme (including the wastewater collection, treatment, and reuse components) must be approved by the local Council and once approved will be issued with a 'septic tank permit to install'.

Environmental Policy

Different requirements apply to household wastewater management in sewerred and unsewerred schemes.

- Clauses 28 and 40 (e) of the State Environment Protection Policy (Waters of Victoria) require wastewater disposal in sewerred areas to be via the sewer.
- Individual household systems in areas that are not sewerred must comply with the EPA's *Guidelines for Environmental Management Code of Practice – Onsite Wastewater Management* Publication 891.4: 2016.

Reusing household wastewater onsite within a reticulated sewerred district is only acceptable as an alternative to discharging to the sewer if the reuse is sustainable.

The typical pathway for wastewater reuse is to apply treated effluent to land to irrigate. Sustainable reuse occurs if the treated effluent is used to meet plant needs in summer, with onsite winter storage if required.

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Checklist for Reuse Schemes/ Further Issues

A householder in a sewerred area considering reusing their wastewater must consider the following issues in the preparation of a management plan:

- Irrigation area, storage volume
- Nutrients
- Salinity/Sodicity
- Soil
- Surface and Ground water
- Human and animal health
- Public amenity

Wastewater treated to secondary standard and if used for surface irrigation, must be disinfected. *EPA's Code of Practice for Small Wastewater Treatment Plants, Publication 500* describes secondary treatment technology.

- Winter storage designed to good engineering standards.
- Operating and maintenance procedures identified and documented (including sludge management procedure), to ensure that it functions reliably over its lifetime.
- Monitoring program documented, to make sure it is running properly or identify any adverse impacts. The monitoring program should include the regular submission of independent laboratory results to the local Council.

Householders with a reuse scheme should be aware that regular monitoring of the scheme (at their expense) would be required over the system's lifetime.

- Contingency plan prepared: as reuse cannot be used in wet years or if system fails.
- Cost: installation costs, as well as continuing costs to maintain, operate, and monitor. The water authority may still apply an annual charge for making sewer available to the allotment, even if the wastewater is completely reused on the site.

Partial Reuse Options

Many reuse schemes also discuss the use of the entire wastewater flow, instead of discharging it into the sewer. Using part of the household wastewater is a possible approach. For example:

- Toilet waste (blackwater) is discharged to EPA approved composting toilet; composted product is managed in accordance with EPA certificate of approval for that system. Other wastewater is directed to sewer. This system is acceptable in sewerred areas.
- Blackwater is discharged to sewer and greywater reused onsite. As greywater is wastewater the householder would have to demonstrate how greywater recycling complied with this information bulletin the same way as a scheme to reuse the entire wastewater flow.
- Part of a household's waste is reused, within capabilities of allotment and the excess discharged to the sewer. The householder would have to demonstrate that partial reuse could be achieved in accordance with this information bulletin.

Approval Process

The possibility of reusing wastewater onsite instead of discharging to sewer may occur when:

- A householder in a sewerred area wants to convert to full/partial onsite reuse. This would require the installation of an onsite wastewater system that achieves sustainable reuse as described in this guide.
- A house is located in and unsewerred area to which sewer is being provided. The house's onsite system would have to be modified to achieve sustainable reuse of all wastewater in accord with the guide if the householder wanted to avoid connecting to the sewer.

In both of these situations the householder must apply for a local Council septic tank permit before installing or modifying an onsite reuse system. This entails the preparation of a management plan, and addressing the issues presented in the Checklist for Reuse Schemes (above).

The local Council would assess whether the application demonstrates to its satisfaction that onsite reuse could take place in accordance with the relevant information bulletin before deciding whether to issue a septic tank permit.

Information Guide adapted from existing Glenelg Shire Council resources. Moyne Shire Council acknowledges these sources.