

Guidelines for the bulk carting of drinking water

Bulk carting of drinking water is an important service to the community and these guidelines are provided to ensure that the water delivered to premises will be fit for human consumption.

1. Background

These Guidelines are provided for use by health authorities, the public and those engaged in carting of water for drinking.

These guidelines do not apply to water being transported to a commercial bottling facility. Such a facility would be required to comply with the *Food Act 2001* and *Regulations 2002*.

2. Introduction

Water carting to premises that do not receive mains drinking water supplies is common in many rural areas, including the Adelaide Hills. In these areas, alternative sources of water such as rainwater are used as the primary supply for domestic purposes.

If rainwater collection is limited by the size of storage tanks or roof catchment areas or a lack of rain, drinking water supplies may need to be augmented with carted water.

There are three points at which the quality of household drinking water can be affected:

1. the source of the water to be carted
2. the carting process
3. the household storage tank.

This guideline discusses the source of carted water and the carting process. Maintenance of the storage tank is a matter for the householder to manage.

3. Application of the Guidelines

Water carters are defined as individuals, organisations or companies that transport drinking water to premises where it is intended to be used as a supply that is fit for human consumption.

Water carters are responsible for compliance with the conditions of these Guidelines and for compliance with the *Food Act 2001* and *Food Regulations 2002*. This includes notification of the appropriate enforcement agency of their operation as a food business (see below).

4. Legislation - The Food Act and Regulations

4.1 Drinking water as a food

Drinking water is defined as a food and as such is subject to the conditions and provisions of the *Food Act 2001* and associated *Food Regulations 2002*. In particular there are specific provisions relating to:

- Handling of food in unsafe manner
- Handling and sale of unsafe food
- Sale of unsafe food

4.2 Definition of a food business

Section 6 of the *Food Act 2001* includes a definition of a food business:

a business, enterprise or activity (other than a business, enterprise

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or activity that is primary production) that involves-

a) the handling of food intended for sale; or

b) the sale of food,

regardless of whether the business, enterprise or activity concerned is of a commercial, charitable or community nature or whether it involves the handling or sale of food on one occasion only.

4.3 Notification of food businesses

Under Section 86 of the *Food Act 2001* food businesses must provide information in the approved form to the appropriate enforcement agency. This is the Local Council except in the unincorporated areas where it is the Department of Health.

5. Source of water

The source of water to be carted must be of drinking quality. This requirement is the responsibility of the water carter. The most likely types of water suitable for carting are mains drinking water supplies or groundwater (bore water). However, other types of water such as rainwater collected from roof catchments may also be suitable.

If mains water is to be carted, the appropriate water authority (usually United Water or SA Water) should be consulted about the quality of water at the point of abstraction. The form of disinfection (chlorination or chloramination) will need to be determined (see **Section 7.1**).

Groundwater from a deep bore (50 metres or more) with an intact casing and a well-head protected from contamination by surface run-off should be microbiologically safe for use and chemical quality should be relatively stable. However, in most cases bore water will be pumped to a

storage tank which will then be used as the source of water for carting.

The storage tank provides a potential source for microbiological contamination and therefore it is important that the integrity of the tank should be checked. Any gaps or holes in the tank structure above the waterline, will increase the risk of contamination. It is important that the storage tank should have an intact roof and that all access points should be sealed.

Frequent testing of groundwater is not required. Groundwater should be tested for the presence of *E. coli* (or thermotolerant coliforms), total dissolved solids and inorganic chemicals of health significance as described in the NHMRC Australian Drinking Water Guidelines.

Groundwater that is suspected to be subject to contamination from other sources (such as landfill, industrial or human wastes) should not be used or should be tested for a wider range of chemicals prior to use.

Testing of groundwater should be repeated at least annually. Additional testing should be undertaken after any change to the water supply (such as the addition of a water storage tank) that may impact on water quality. Samples for testing should be collected from the point of abstraction of water for carting.

Advice should be sought from the relevant health authority concerning the testing required for other potential sources of water for carting.

Only laboratories accredited by NATA for the performance of the required tests are to be used.

Only water that complies with the health-related requirements of the NHMRC Australian Drinking Water Guidelines is to be supplied for drinking.

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6. Tankers used for carting potable water

Ideally tankers used should be dedicated for carting drinking water. Tankers used to carry toxic or hazardous chemicals, non-food liquids and/or human or animal wastes are not to be used.

All tankers to be used for carting drinking water should be fit for the purpose and tankers that incorporate materials in the tank itself or in hoses or associated fittings that may taint or contaminate carted water are not to be used.

All materials that come into contact with water for potable use should comply with Australian and New Zealand Standard AS/NZS 4020 "Testing of products for use in contact with drinking water".

Water tankers including hoses, pumps and associated fittings are to be kept clean and in sound condition. If a tanker has been used to carry water of unknown quality then it must be thoroughly flushed with drinking water prior to use.

7. Disinfection

All water supplied for drinking should be disinfected at the point of supply to the receiving premises. This provides protection against contamination introduced during filling of the water tanker and during transport to the point of supply.

7.1 Chlorination

Where chlorine is used as the disinfectant it should be added to the water volume shortly before discharge from the tanker at the point of supply. Liquid sodium hypochlorite (12.5% available chlorine)¹ or granular calcium

hypochlorite (70% available chlorine) can be used.

The chlorine doses recommended for use are:

- in tankers dedicated for carting drinking water
 - 20 mL of sodium hypochlorite or 3.5 grams of calcium hypochlorite per 1000 Litres of water (approx. 2.5 mg/L free available chlorine).
- in tankers not dedicated to carting drinking water
 - the first load should be dosed at 40 mL of sodium hypochlorite or 7 grams of calcium hypochlorite per 1000 Litres of water (approx. 5 mg/L free available chlorine),
 - subsequent loads dosed at 20 mL of sodium hypochlorite or 3.5 grams of calcium hypochlorite per 1000 Litres of water (approx 2.5 mg/L free available chlorine).

If filtered and chlorinated mains water is transported the chlorine doses provided above can be halved. If chloraminated mains water is transported chlorine should not be added. Extra care should be taken to avoid contamination and water containing a chloramine (or total chlorine residual) exceeding 1.0 mg/L should be used.

If the water tanker has a recirculation system it should be operated to provide mixing after the addition of chlorine and prior to discharge into the receiving storage.

¹ It should be noted that chlorine concentrations in liquid sodium hypochlorite deteriorate over time and

sodium hypochlorite should only be purchased in amounts sufficient to meet immediate needs.

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7.2 Handling chlorine

Care should be taken in handling or storing chlorine and it is important to carefully read and follow safety directions given on the package label.

Protective gloves and safety glasses should be worn. If chlorine solution is splashed onto the skin the area affected should be washed immediately with water.

Only a minimum amount of chlorine should be carried in the vehicle and it is recommended that measured doses of chlorine should be dispensed in containers prior to delivery.

Calcium hypochlorite will need to be dissolved in water before addition to the tank of carted water. This should be done in the open air by adding the granular disinfectant to water in a clean plastic bucket and mixing.

7.3 Other disinfectants

Other disinfection processes such as ultraviolet light irradiation can be used either solely or in combination with residual chlorination providing that the aim of supplying drinking water disinfected at the point of supply to the premises is achieved.

8. Health and safety

Water carters should be aware of requirements and obligations pursuant to the Occupational, Health Safety and Welfare Act.

9. Notification and further advice

As discussed in **Section 4**, food businesses that package, store or handle food are required to notify the relevant authority of their operation. Further advice can be obtained from the relevant health authority.

10. Records

The results of all tests performed to establish the suitability of carted water for drinking should be kept in a central record. In addition a delivery log book is to be kept by the water carter in which at least the following information will be recorded:

- date of delivery and identity of vehicle used
- source of water
- quantity of water delivered
- method of disinfection
- name and address of recipient of water.

Records and log books should be available and provided on request for examination by an authorised officer.

11. Summary

In many rural areas of South Australia including parts of the Adelaide Hills there are premises that are not supplied with mains drinking water and rely on other sources of water for drinking. Many use rainwater collected and stored in tanks as the sole source of drinking water. At times these alternative supplies may need to be augmented with carted water which must always be of drinking quality.

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Further information

- Department of Water, Land and Biodiversity Conservation:(08) 8463-6875
- your local council Environmental Health Officer
- SA Health's Drought webpage to access a range of water-related resources:
www.health.sa.gov.au/pehs/topics/drought-package.htm
- Australian Drinking Water Guidelines:
www.nhmrc.gov.au/publications/synopses/eh19syn.htm
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality:
www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality

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