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| --- |
| *Safe Drinking Water Act 2011* |
| Standard Drinking Water Risk Management PlanINSERT BUSINESS NAME OF DRINKING WATER SUPPLY |
| Water Carting – mains supply |

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## For drinking water quality assistance and enquires contact

## Water Quality Unit, SA Health

* Phone: 0421 618 311 – for incident reporting
* Phone 8226 7100 – for non-incident related enquires
* Email:waterquality@health.sa.gov.au

# Document control and review

Documentation related to or generated as part of this plan (e.g., inspection reports, incident reports, evidence of remedial action and chlorine residual results) must be kept for at least 5 years.

|  |  |
| --- | --- |
| **RMP prepared by**  |  |
| **Date prepared** |  |
| **Version number** |  |
| **Next revision date** |  |

# Key contacts

Details of the drinking water provider registered under the *Safe Drinking Water Act 2011.* An approval letter provided by SA Health outlines the requirements and responsibilities of the owner/ manager under the *Safe Drinking Water Act 2011*. **SA Health must be notified of any changes to business details within 14 days of the change being made.**

## Business details

|  |  |
| --- | --- |
| **Business trading name** |  |
| **Name of owner / manager**  |  |
| **Contact details of the registered drinking water provider / water supply** |  |
| **Address** |  |
| **Operator name and contact details** |  |

## Other important contacts

|  |  |
| --- | --- |
| **Name**  | **Name and Phone Number** |
| **Local Council** |  |

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# Section 1: Description of drinking water supply system

### Table 1: Mains water supplier and extraction points (including photographs of the infrastructure)

|  |  |
| --- | --- |
| Water source |  |
| Extraction Points  |  |

### Table 2: Water tanker and equipment information

|  |  |
| --- | --- |
| Tanker(s) and equipment details | *
 |

### Table 3: Disinfection, tanker cleaning and chlorine testing

|  |  |
| --- | --- |
| Disinfection and tanker cleaning maintenance  |  |
| Chlorine Testing  |  |

###

# Section 2: Water Quality Hazards

Table 4 provides a list of potential hazards that may compromise the quality and safety of carted drinking water. Many of these hazardous events can be avoided with regular maintenance that are documented in Section 3.

### Table 4: Mains water carting hazards, risks, and preventive measures

| **Hazardous event** | **Risk** | **Preventive Measure** |
| --- | --- | --- |
| Poor source water quality | * Aesthetic or health issues
 | * Only use water from a registered water provider
 |
| No chlorine residual in water supply | * Reduced protection from recontamination during transport
 | * Measure chlorine residual in supply:
	+ For chlorinated supplies - if free chlorine is less than 0.5 mg/L, add chlorine to achieve 1.0 mg/L free chlorine
	+ For chloraminated supplies - if total chlorine is less than 1.0 mg/L, seek advice from Water Quality Unit, SA Health
 |
| Too much chlorine added to water during chlorination | * Irritation of skin and mucous membranes
 | * Measure the amount of chlorine prior to adding to the water and measure residual prior to delivery to customer.
* If free chlorine or total chlorine is greater than 5 mg/L - Allow the tanker to sit. Retest the chlorine to ensure that it is below 5 mg/L before delivery
 |
| Contamination of mains water during filling | * Illness due to ingestion of harmful pathogens
 | * Drain tanker and clean as per tanker cleaning method to prevent supply of contaminated water
* Install appropriate backflow prevention device on water tanker to prevent contamination of mains water
* Ensure that appropriate hygiene procedures are in place
 |
| Contamination of drinking water during transportation | * Illness due to ingestion of harmful chemicals, pathogens or changes to water quality
 | * Check all tanker openings are closed prior to transport
* Only use water tankers that are suitable for use with drinking water
* Use water tankers dedicated to carrying drinking water only.
* Regularly clean tanker
* Do not allow water to stand in tankers for long periods of time
* Ensure that appropriate hygiene procedures are in place
 |
| Contamination of customer tank during filling | * Illness due to ingestion of harmful pathogens or chemicals
 | * Keep hoses clean at all time
* Maintain an air gap between the water in the customer tank and the hose during filling of container
* Ensure that appropriate hygiene procedures are in place
* Do not allow hose openings to come into contact with the ground
 |

# Section 3: Maintenance program

Regular maintenance of the water tanker is critical as equipment in poor condition can impact water quality. Records of completed maintenance activities and chlorine residual testing should be kept with the RMP.

The prescribed tanker cleaning and disinfection procedure is as follows:

## Tanker cleaning and disinfection procedure

**Tanker Cleaning**

* Physically clean the inside of the tanker with drinking water, if possible, using a high-pressure hose. Clean the outside of the tanker and all fittings, particularly near to the fill point. Flush the tank with clean drinking water after cleaning.

**Tanker Disinfection before use**

* **Chlorinated supply** - Fill the tanker (full) with water containing free chlorine residual of at least 1.0 mg/L and hold for approximately 2.5 hours. Dispose water for non-drinking purpose.
* **Chloraminated supply** - Fill the tanker (full) with water containing total chlorine residual of at least 2.0 mg/L and hold for approximately 15 hours. Dispose water for non-drinking purpose.

**Ongoing tanker disinfection – *every 3 months***

* **Chlorinated supply** - Fill the tanker (full) with water containing free chlorine residual of at least 1.0 mg/L and hold for approximately 15 mins. Dispose water for non-drinking purpose.
* **Chloraminated supply** - Fill the tanker (full) with water containing total chlorine residual of at least 2.0 mg/L and hold for approximately 3 hours. Dispose water as for non-drinking purpose.

**After disinfection**

* Refill tanker with clean water for delivery OR empty the tanker and close all openings to stop dust, other contaminants, or sunlight from entering the tank.

**Hoses and fittings – *every month***

* **Cleaning** - Clean all fittings with soft brush including fill point
* **Disinfection** - Fill hose with water containing free chlorine residual of at least 1.0 mg/L and hold for approximately 15 mins. Rinse with clean water. Drain, dry and secure hose end to prevent dust entry. Store all fittings in a manner that will prevent contamination.

The maintenance program for a water carter is detailed in Table 5:

### Table 5: Maintenance program

| Area | Frequency | Maintenance Activity | Corrective Actions |
| --- | --- | --- | --- |
| Tanker interior | * 3 monthly
 | * Inspect interior of tanker for cleanliness / hygienic condition
* Inspect interior of the tanker for any rust, damage to linings or any foreign matter
 | * Clean and disinfect interior of water tanker
* Flush out any foreign matter in the tanker
 |
| Tanker/trailer exterior surfaces | * 3 monthly
 | * Check external surfaces are in good order
 | * Repair external surfaces as required
 |
| Delivery hoses and pipes | * 3 monthly
 | * Check hoses are in good order and free from slime
 | * Repair/replace hoses if structurally unsound
 |
| Chlorination | * 3 monthly
 | * Ensure adequate supplies of chlorine
* Check use-by date of chlorine
 | * Dispose of out-of-date chlorine and replace as required.
 |
| Tanker Cleaning  | * Initial use and 3 monthly
 | * Water tanker cleaning and disinfection
 | * Clean and disinfect interior of water tanker as documented – see above procedure
 |

# Section 4: Water quality testing

The drinking water must be tested prior to distribution to customers to ensure there is adequate chlorine residual.

* Use a test kit to test chlorine residuals (free and total) (swimming pool kits are acceptable)
* Record water quality testing results in delivery log sheet (see Appendix B for template)
* For chlorinated supplies - the free chlorine residual in the tanker must remain > 0.5 mg/L prior to delivery to customers.
* For chloraminated supplies - the total chlorine residual must remain > 1.0 mg/L prior to delivery to customers.

The chlorine testing program that is conducted at every drinking water delivery is outlined in Table 6.

Table 8 outlines the responsible person who is undertaking the chlorine residual testing and contacts SA Health if required.

### Table 6:

| **Sample Point** | **Frequency** | **Corrective Action** |
| --- | --- | --- |
|  |  |  |

# Section 5: Incident identification and notification protocol

The approved incident identification and notification protocol for this drinking water supply is as follows:

## Incident response

If any of the criteria in Table 7 are confirmed for your drinking water supply:

* Contact Water Quality Unit, SA Health immediately on **0421 618 311**
* Undertake immediate remedial actions (see Table 6). Use packaged water while corrective action is taken.
* Complete the [SA Health Water Quality Incident notification form](https://www.sahealth.sa.gov.au/wps/wcm/connect/public%2Bcontent/sa%2Bhealth%2Binternet/resources/incident%2Bnotification%2Bform%2Bsafe%2Bdrinking%2Bwater%2Bact%2B2011) available from the SA Health website. Documenting the corrective actions taken.
* Submit the completed form within 24 hours to Water Quality Unit, SA Health via email waterquality@health.sa.gov.au

### Table 7: Incident identification and notification protocol

| **Parameter** | **Criteria** | **Notification requirements to SA Health** |
| --- | --- | --- |
| Odours / taste / discolouration | * Observation or customer complaint(s) due to odours / taste / discolouration of water (other than chlorine)
 | Immediate notification to SA Health on **0421 618 311** AND incident notification form is submitted within 24 hours via email waterquality@health.sa.gov.au. |
| Undefined incident | * Any other incident or where specific concerns exist over the quality of the drinking water supply
 |

# Section 6: Management and record keeping

Personnel outlined in Table 8 have been assigned to take responsibility of the activities required to manage this water carting business under the *Safe Drinking Water Act 2011*.

### Table 8: Responsibility table

|  |  |
| --- | --- |
| **RMP review** |  |
| **Maintenance activities** |  |
| **Chlorine residual testing** |  |
| **Who notifies SA Health if required?** |  |
| **Corrective action in response to a water quality incident** |  |
| **Record keeping location** |  |

# Appendix A: Determining the size of tanks for chlorination and chlorine dose rates

## Tank volume calculation

### To calculate the volume of a rectangular tank, use the formula:

* Volume (in litres) = depth (cm) x width (cm) x length (cm) ÷ 1000

### To calculate the volume of a cylindrical tank either use the formula:

* Volume (in litres) = π x diameter2 (cm2) x depth (cm) ÷ 4000 (where π = 22 ÷ 7)

**OR** use one of the following methods, **remember to calculate the volume of water in the tank and not the volume of the tank:**

 Diameter (cm)

water depth

(cm)

**FORMULA 1**: Volume (in litres) = 0.8 x water depth (cm) x diameter2 (cm2) ÷ 1000

**FORMULA 2**: Volume (in litres) = 0.08 x water depth (cm) x circumference2 (cm2) ÷ 1000

Circumference (cm)

Use a string or tape to measure circumference.

Water depth

(cm)

## Chlorine doses

To achieve 5 mg/L of free chlorine, use the following measurements (mL or g) of hypochlorite (liquid or granular) assigned for the tank volume (calculated above).

**Remember to calculate the volume of water in the tank not the volume of the tank.**

|  |  |
| --- | --- |
| Chlorine Concentration | 5 mg/L |
| Tank Volume (L) | 12.5% liquid Sodium Hypochlorite | 70% granular Calcium Hypochlorite |
| mL | g |
| 1000 | 40 | 7 |
| 2000 | 80 | 14 |
| 3000 | 120 | 21 |
| 4000 | 160 | 28 |
| 5000 | 200 | 35 |
| 6000 | 240 | 42 |
| 7000 | 280 | 49 |
| 8000 | 320 | 56 |
| 9000 | 360 | 63 |
| 10000 | 400 | 70 |
| 11000 | 440 | 77 |
| 12000 | 480 | 84 |
| 13000 | 520 | 91 |
| 14000 | 560 | 98 |
| 15000 | 600 | 105 |
| 16000 | 640 | 112 |
| 17000 | 680 | 119 |
| 18000 | 720 | 126 |
| 19000 | 760 | 133 |
| 20000 | 800 | 140 |

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| For more information |
| Water Quality UnitHealth Protection and RegulationPublic Health DivisionPO Box 6Rundle Mall SA 5000Telephone: 08 8226 7100[www.sahealth.sa.gov.au](http://www.sahealth.sa.gov.au)  |
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