

## Having your WSP approved

Send your completed WSP to a Drinking-Water Assessor (DWA) at the local District Health Board for approval. Check you have included the following information in your WSP.

| Have you included?   | Tick if included |
|--|------------------|
| <b>Organisation details</b> , including owner, contact details and supply name?  | √                |
| A flow chart and/or schematic and/or photos to <b>describe your supply</b> from catchment to distribution?   | √                |
| An assessment from catchment to distribution that identifies what could cause the water to become unsafe to drink, what could be done about it and <b>prioritises what needs attention</b> ? | √                |
| An <b>improvement plan to manage what needs attention</b> , giving priority to areas of greatest concern and things that can be easy fixed, including timeframes and estimated costs?        | √                |
| A <b>monitoring and inspection plan</b> that indicates when the water is becoming unsafe?  | √                |
| <b>Emergency and incident plans</b> that describe what action will be taken if things go wrong in the meantime?  | √                |

The Drinking Water Assessor will assess your WSP and return it to you with a report within 20 working days.

They may visit your supply in future years to assess your progress in using your WSP.

### Further information

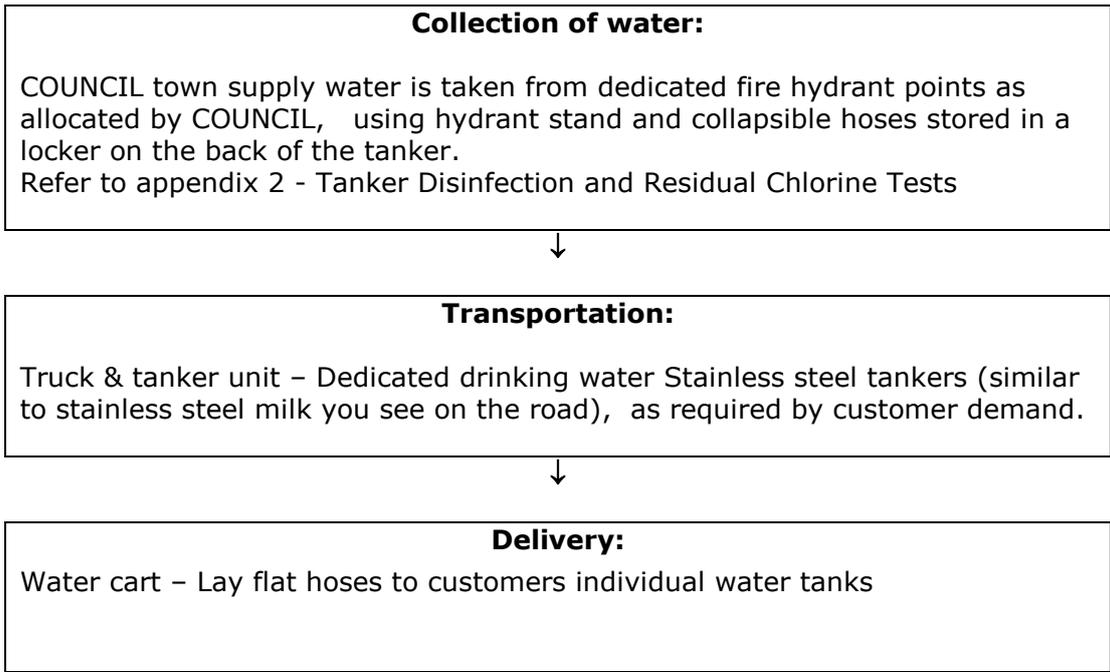
For further information please contact either your Drinking Water Assessor or Technical Assistance Programme Facilitator at the local District Health Board, or your Environmental Health Officer at your local council.

You can also find more information on the specific components of a water supply at [www.moh.govt.nz/water](http://www.moh.govt.nz/water).

## Tankered Drinking Water Carrier Water Safety Plan

| Water Carrier   |  |
|---|--|
| <b>Water Carrier Trading As:</b>  | XXXXXXXXXXXXXXXXXXXX   |
| <b>Water Carrier Company Name:</b>  | XXXXXXXXXXXXXXXXXXXX   |
| <b>Name of person responsible (owner):</b>  | XXXXXXXXXXXXXXXXXXXX   |
| <b>Name of Drinking Water Assessor &amp; Telephone Number:</b>  | South Island Drinking Water Assessment Unit<br>XXXXXXXXXXXX DHB – 03 123456  |
| <b>Base of Operations and Postal address:</b>   | XXXXXXXXXXXXXXXXXXXX   |
| <b>Geographical area of operations (based on water purchases from District Councils:)</b>                 | Predominately Beta Town private residents locations in the Alpha Gamma area by road or barge access <span style="float: right;">x</span> |
|   | On occasions we have delivered water to Dunny Valley private residents who are not on town supply <span style="float: right;">x</span>   |
| <b>People involved in the day to day operation of the service involved in the development of the WSP:</b> | Name: XXXXXXXXXXXXXXXXXXXX<br>Address: XXXXXXXXXXXXXXXXXXXX<br>Phone: 123456789<br>Email: XXXXXXXXXXXXXXXXXXXX                           |
| <b>Expiry date of Water Carrier Registration Certificate:</b>   | Date: 01/01/2015<br><br>Certificate Number123456789  |
| <b>Date WSP completed:</b>  | Date: 01/01/14   |
| <b>Review date:<br/>Who will revise it?</b>   | Date: July 2016 or before if any major changes made to the business<br><br>Name: XXXXXXXXXXXXXXXXXXXX                                    |
| Describe catchment of the source water.   | Not applicable as we use Council supplies  |

**Step 1: Flow chart**



| <b>Water Supply</b> |  |   |
|---------------------|--|---|
|                     | <b>Name of Supply</b>                                      | <b>Points of collection</b>                   |
| <b>1.</b>           | Approved Council filling point – Beta town supply Class 2  | Designated hydrants at xxxx street by COUNCIL |
| <b>2.</b>           | Approved Council filling point – Alpha town supply Class 1 | Designated hydrants at xxxx street by COUNCIL |
| <b>3.</b>           | Approved Council filling point – Gamma town supply Class2  | Designated hydrants at xxxx street by COUNCIL |
| <b>4.</b>           |  |   |
| <b>5.</b>           |  |   |

**Notes:**

| <b>Vehicle/Vessel/Rail Wagon/Tanks</b> |   |  |
|--|---|--|
| <b>1</b>                               | <b>Description</b>  | Tanker #1<br><br>1989 Domett Semi-trailer s/s tanker<br><br>9,5000 litre |
|  | <b>Registration:</b>  | ABC123   |
|  | <b>Type of fittings suitable for delivering potable water</b> | Lay flat hose's<br><br>Standpipe   |
| <b>2</b>                               | <b>Description</b>  | Tanker #2<br><br>Toyota UD s/s Tanker                                    |
|  | <b>Registration:</b>  | ABC456   |
|  | <b>Type of fittings suitable for delivering potable water</b> | Lay flat hose's<br><br>Standpipe   |

**Notes:**

We only deliver seasonally during the summer and we also deliver water for fire fighting so keep a tanker filled at all times.

**Step 2: Worksheets**

**Collection of water**

| <p><b>List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply)</b></p> | <p><b>Is this under control? Yes or No?</b><br/><i>If Yes, note why</i></p>  | <p><b><u>If not</u> under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i></b></p> | <p><b>Priority Ranking</b></p> |
|--|--|---|--------------------------------|
| <p>1. Source of water is likely to be contaminated</p>   | <p>Yes, we use registered sources only</p> <p>As we use the Council supply for potable water and it is a requirement that we notify Council each time we are taking town supply water for delivery and from which area we are taking this water any known contaminant of the water would be advised of at that time.</p> <p>It has been confirmed by the COUNCIL Water Engineer that we will be informed should there be any issues. A copy is attached in appendices.</p>   |   |                                |
| <p>2. Contamination through filling mechanism</p>  | <p>Yes.</p> <p>Dedicated hoses, all external couplings on the tankers when not in use are protected with a removable cap. Hoses when not in use are coupled to themselves and stored in a separate storage compartment on the tanker.</p> <p>Hoses flushed regularly after use or prior to use if not used for more than three months</p> <p>Good cleaning procedures – see appendix 1</p> <p>Follow Remedial action flowchart (from DWSNZ page 39) for checks and in case of breakdown. Contact DWA immediately.</p> <p>Use only Council approved filling points.</p> |   |                                |

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply) | Is this under control? Yes or No?<br><i>If Yes, note why</i>   | <b><u>If not</u> under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i></b> | Priority Ranking |
|--|--|--|------------------|
| 3. Tank not cleaned out prior to use   | Yes<br>Tanks are always inspected and cleaned out if necessary prior to use – see cleaning procedure in Appendix |  |                  |
| 4. Inadequate backflow at filling points   | Yes<br>Double backflow protector has been fitting to up stand and approved by COUNCIL for filling procedure      |  |                  |
| 5. Personal Hygiene  | Yes<br>Drivers have been instructed in appropriate hygiene and procedures  | A written hygiene operating manual is in the process of being written  | High             |

## Transportation

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of water supply) | Is this under control? <i>If yes, note why</i>   | If not under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i> | Priority Ranking |
|--|--|--|------------------|
| 7. Inadequately fitting lids, seals etc allow contamination  | Yes<br>All lids have locks and drivers have been trained to check  |  |                  |
| 8. Mixing/tainting with residuals in the tanker  | Yes<br>Dedicated tankers only used for drinking water.<br><br>Tankers flushed as per cleaning procedure – Refer Appendix.  |  |                  |
| 9. Contamination while tanker left unattended.   | Yes<br>Lockable lids,<br><br>Watercart returned to secured yard each night and not left unattended<br><br>Drivers instructed to avoid leaving tanker for long periods, especially in the sunshine. |  |                  |
| 10. Truck standing in the hot sun for long periods   | Yes,<br>Water Regularly flushed.<br><br>Replace water if left standing for more than 2 weeks, dump water and replace with new.   |  |                  |

## Delivery

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply) | Is this under control? <i>If Yes, note why</i>  | If not under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i> | Priority Ranking |
|--|---|--|------------------|
| 13. Disturbing debris in clients tank  | <p>Yes</p> <p>Water is added via standpipe with a baffle fitted or trickled down the inside edge of the tank. Water is added gradually.</p> <p>When filling tanks either council or private owned, discharge water onto baffles and or lower filling hose to just above water level to minimise any potential for disturbing debris within the customers tanks (always maintain air-gap to tank water level).</p> | Procedure for filling without disturbing bottom debris needed  | medium           |
| 14. Mixing with water already in the tank  | <p>Yes</p> <p>Delivery dockets advise customers of the risk Information on delivery docket to warn customer to the risk of contamination when delivering water to existing tank.</p> <p>see attached docket in appendix</p>   |  |                  |
| 15. Tank in poor condition which allows potential for on-going contamination   | <p>Yes</p> <p>Delivery dockets advise customers of the risk and condition of their tank plus advise to boil water if necessary, the drivers inspect the clients tank prior to delivery of water –</p> <p>see attached docket in appendix</p>  |  |                  |

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply) | Is this under control? <i>If Yes, note why</i>  | If not under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i> | Priority Ranking |
|--|---|--|------------------|
| 16. Dual tank which also collects rainwater which offers potential to contaminate delivered water                        | <p>Yes</p> <p>advise of the potential of contamination and refer information on delivery docket.</p> <p>Advise water to be boiled</p>   |  |                  |
| 17. Backflow from tank into tanker   | <p>Yes.</p> <p>We fill water tanks from the top using lie flat hoses, therefore the hose collapses at the time filling ends. The standpipe filling baffle has a 100mm air gap built into it to eliminate any chance of backflow</p> |  |                  |

## Other

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply) | Is this under control? <i>If yes, note why</i>  | If not under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i> | Priority Ranking |
|--|---|--|------------------|
| 19. Inexperienced drivers  | <p>Yes</p> <p>We have dedicated drivers but in the event of an emergency drivers would be briefed on our procedures at that point. Copy of the written procedures will be in the vehicle.</p> <p>Refer Appendix for Hygiene, operating &amp; delivery procedure.</p>  |  |                  |
| 20. Poor personal hygiene practices by drivers/drivers not following hygiene procedures                                  | <p>Yes</p> <p>Pre start job check and safety briefing</p> <p>Random spot check – verbal or on site.</p>   | Drafting written Hygiene Manual  | medium           |
| 21. Poor maintenance and storage of ancillary equipment (hoses, couplings etc)   | <p>Yes</p> <p>Storage in a dust proof dedicated locker on the tanker – see Cleaning Procedure in Appendix.</p>  |  |                  |
| 22. Water sampling procedure not followed  | <p>Yes</p> <p>Written Water Sampling procedures for FAC and E coli– see Appendix.</p> <p>Our staff doing the water sampling are trained water reticulation servicemen with NZQA training &amp; certificates.</p> <p>These are the same staff that do the COUNCIL water reticulation town supply maintenance work.</p> |  |                  |

| List what could happen that may cause drinking-water to become unsafe (deterioration in water quality or loss of supply) | Is this under control? <i>If yes, note why</i>   | If not under control, judge how urgently this needs attention. <i>Urgent attention is needed for something that happens a lot and/or could cause significant illness. (other issues may be risked as med or low)</i> | Priority Ranking |
|--|--|--|------------------|
| 23. Sabotage   | Yes<br><br>Tanker has lockable lids, filled tankers are not left unattended and empty tankers are kept in a locked yard. |  |                  |
| 24. Registration with Ministry of Health Public Health expires and 'certification' required                              | Not Yet  | Need to complete new registration application as registration expired Feb 2015. So cannot operate on more than 5 days a year. WSP needs approving plus Certification by DWA also needed                              | High             |

## STEP 3: PLANNING TO MANAGE WHAT NEEDS ATTENTION

Now that you have decided what needs priority attention so the water does not become unsafe to drink, you need to think about what improvements will fix the problem. Some improvements will be a simple adjustment of something you are already doing. Some improvements will cost very little, and others could be more major.

Even for those improvements you cannot fix straight away the risk of people getting sick remains. So, you should be thinking about temporary actions for these. It might be something like issuing a boil water notice, or manually shutting off the intake.

You also need to find some sign/indicator/trigger that things are going wrong and that you need to take this temporary action.

**Copy all of the events that need some attention from the previous section into the corresponding four tables in this section. Then fill in the rest of the tables.**

**Step 3: Plan to Manage the 'Needs Urgent Attention' Combined Section** (the template has these as one page each section)

| Section             | Copy any HIGH or MEDIUM priority items from the previous tables (You may wish to prioritise 3–5 items if you have more). If you don't have any HIGH or MEDIUM then maybe you have some LOW? Or maybe none at all in this section. | <p><b>IMPROVEMENT SCHEDULE</b> to lead to compliance with Drinking Water Standards NZ.</p> <p>How can you remove or reduce or remedy the cause and by when? Indicate clearly where additional resources are required.</p> | <p>Until remedied, how will you know when this is actually causing deterioration towards unsafe drinking-water?</p> <p>E.g. what monitoring or checks are to be carried out</p> | <p>What contingency management plan is in place when there is a problem?</p> <p>Who needs to know and how quickly?</p> <p>Who can help?</p> | Priority ranking |
|---------------------|---|---|---|---|------------------|
| Collection of water | Need a written hygiene operating manual for staff   | A written hygiene operating manual is in the process of being written   | Staff have been verbally briefed and spot checks will be carried out.   | Use another driver.<br>Inform customer if there is a risk and contact DWA   | Medium           |
| Transportation      |   |   |   |   |                  |
| Delivery            | Procedure for filling without disturbing bottom debris needed   | When filling tanks either council or private owned, discharge water onto baffles and or lower filling hose to just above water level to minimise  | Bottom debris is disturbed and tank water becomes very cloudy   | Water is added via standpipe with a baffle fitted or trickled down the inside edge of the   | Medium           |
| Other               | Unregistered with MoH so cannot operate on more than 5 days a year  | <p>Need to complete new registration application</p> <p>Certification by DWA also needed (need approved WSP)</p>  | Can't operate for more than 5 days a year   | Re-register and get certified   | HIGH             |
| Other               | Develop written Water Sampling Procedure for E.coli   | Make enquiries with labs etc  | WSP cant be approved  | No drinking water deliveries until WSP approved   | High             |

# IMPROVEMENT PLAN

This section helps you to think about detailed planning for the improvements that you have identified in the *Planning to Manage What Needs Attention* section.

You should focus on the improvements identified as the highest priority for attention. But it's also satisfying to complete improvements that take very little time and money, even if these are lower priority.

For each improvement, the plan should cover:

- a breakdown into significant practical steps, eg, gather quotes, obtain approval
- estimated costs and people/expertise needed
- a named person responsible for ensuring progress on the improvement
- the timeframe for the improvement.

It may be helpful to prepare a plan that organises the improvements into categories such as:

- improved operations and maintenance
- preparing documentation, such as standard operating procedures, emergency and incident plans
- investigations, such as a catchment assessment or a new source
- training for key staff or back-up people
- minor purchases
- major infrastructure purchase.

For example:

| Priority 1-5<br>(1 = high) | Action   | Timeframe to complete | Person Responsible | Progress                      |
|----------------------------|--|-----------------------|--------------------|-------------------------------|
| 1 High                     | Need to complete new registration application as registration expired Feb 2013. So cannot operate on more than 5 days a year. Certification by DWA also needed (need approved WSP) | 01/02/16              | Bob                | In progress once WSP approved |
| 1 High                     | Develop written Water Sampling Procedure for E.coli  | 01/01/16              | Bob                | In progress                   |
| 2 Medium                   | A written hygiene operating manual is in the process of being written  | By 01/05/16           | Bob                | In process                    |
| 3 Medium                   | Procedure for filling tanks without disturbing sediment  | By 01/10/16           | Bob                |                               |

# MONITORING AND INSPECTION PLAN

Important monitoring and inspections (observations) for your supply have already been identified in:

- *Prioritising What Needs Attention* section, under the column *Is this under control now? If so, describe how it is being controlled.*
- *Planning to Manage What Needs Attention* section, under the column *Until fixed, how will you know when this is actually causing unsafe drinking-water?*

It may be helpful to prepare a plan that organises these identified monitoring and inspections into **daily, weekly, monthly, and annual requirements.**

The plan should include:

- what you are looking for
- what will trigger action on your part
- what action you will take, including who needs to know and how urgently
- a place for a tick/signature to say the monitoring/inspection has been done with the date.

It is important to keep records of monitoring and inspection results and any actions that have been taken in response to the results.

Someone should look over the results every month or so for signs of anything changing that relates to the water to become unsafe to drink.

**Cleaning Procedures, Maintenance Schedules & Sampling Procedures are all in the Appendices.**

**Monitoring Plan (this has been to be agreed with our DWA)**

| Item   | Frequency   | Method   | Person responsible                 | Action to take afterwards  |
|--|---|--|------------------------------------|--|
| Regular <i>E coli</i> sampling by of Water Delivery Tanker, Pump delivery hoses and fittings | Monthly is acceptable or first load after a period of no fills for >30 days     | A trained operator will take a monthly sample of the drinking water in the tanker. Take sample at outflow tap This will be taken according to approved procedure. It is sent off to accredited lab (Hills). The results are kept on record for at least 5 years. | Bob, Bay, Bill                     | If tests come back with 1 E coli or more than 1 <i>E coli</i> then we need to follow the 'Response to transgression in a drinking water supply distribution zone' in Figure 4.2 at back of this WSP.<br><br>This will include informing the DWA, going through the cleaning procedure and re-sampling.<br>If the DWA approves and the 2 <sup>nd</sup> sample is negative for <i>E coli</i> then deliveries can re-commence.<br>If it is also positive for <i>E coli</i> the DWA must be advised again. |
| Towing vehicle used for delivery which includes the tankers road worthiness                  | Every time it is used   | A visual check and a 6 monthly Certificate of Fitness  | Driver / workshop maintenance crew | If any faults are found they must be remedied prior to using these vehicles on the road.   |
| Free Available Chlorine Residual Test  | When in use To be cleaned if not used for > 30 days & test FAC after each clean | Chlorine Residual Test after initial disinfection of tank at the start of each new period of use.  | Bob, Bay, Bill                     |  |
| Record sheets to be used for inspections, cleaning, FAC's, E. coli                           |   |  | Operator                           |  |

**Complaints Management Form**

| <b>Date Complaint Made</b> | <b>Date of Problem (complained about)</b> | <b>What Was The Issue? (brief description)</b> | <b>Who Took The Call</b> | <b>What Action was Taken</b> | <b>What Further Action Needs To Be Taken? By Who? By What Date?</b> |
|----------------------------|---|--|--------------------------|------------------------------|---|
|                            |   |  |                          |                              |   |
|                            |   |  |                          |                              |   |
|                            |   |  |                          |                              |   |
|                            |   |  |                          |                              |   |
|                            |   |  |                          |                              |   |

Complaints are recorded in Bob's diary taking the above information

**Inspection Plan – REFER to OUR MAINTENANCE PLAN**

**Example:**

| <b>Item</b>              | <b>Frequency</b> | <b>Method</b> | <b>Person responsible</b> | <b>Action to take if things are not right</b> |
|--------------------------|------------------|---------------|---------------------------|---|
| Please refer to Appendix |                  |               |                           |   |
|                          |                  |               |                           |   |
|                          |                  |               |                           |   |
|                          |                  |               |                           |   |
|                          |                  |               |                           |   |

# EMERGENCY AND INCIDENT PLANS

You have identified some important public health risks to your water supply. You know that addressing some of these risks will take some time, and in the *Planning to Manage What Needs Attention* section you have worked out early warning signs to alert you to take some temporary action in the meantime.

This section helps you to think about detailed planning of these temporary actions.

**Incident plans** bring the water supply back under control before it causes a major public health problem. These plans should be used when the early warning signs of routine monitoring and inspection alert you.

**Emergency plans** help you to respond when the water supply has gone seriously out of control. These typically need to be used with little to no warning. Examples include major microbiological or chemical contamination as a result of acts of nature such as earthquakes, floods, cyclones, volcanic activity.

Both levels of response plans require prompt action. This requires pre-arranging, so that everyone involved is aware of the plan and their roles.

Emergency plan responses often require rapid decisions to be made without a complete understanding of the situation. Someone needs to be responsible for making these decisions.

Example:

| # | Emergency Issue                                 | Action to be Taken   | Person/Dept responsible | Additional Information/comments   |
|---|---|--|-------------------------|---|
| 1 | Road traffic accident – blocks access to client | Inform the customer of late delivery time or the need for an alternative supplier  | Bob – Company Manager   |   |
| 2 | Road traffic accident involving the tanker      | Inform the customer, if it hasn't immobilised the tanker a visual check of the tanker and its contents would be undertaken. If the contents may have been contaminated dump the water.                         | Bob – Company Manager   | Check safety & integrity of watercart/tank and water carried. Ensure that water tank has not been punctured or lids fittings damages by visual inspection. If tank or fittings are damaged, return to depot and dispose of water in washbay (wastewater). Ready for repair. |
| 3 | Earthquake                                      | Client Requisitioned. In the event of an emergency we take instruction from the controlling authority – such as Civil Defence or Emergency Services.   | Bob – Company Manager   | Ensure road conditions are safe to drive on. Check ground water tank and fittings before putting water in from watercart to ensure it isn't damaged from earthquake.  |
| 4 | Water shortages/drought                         | Council forbids water take from a certain area in Townsville, it would then be trucked from alternative potable water supply specified by Council at that time. Inform customer asap if can no longer deliver. |                         | Confirm water source and permit/resource consent to take water from another source.   |

### **'Response to Transgressions':**

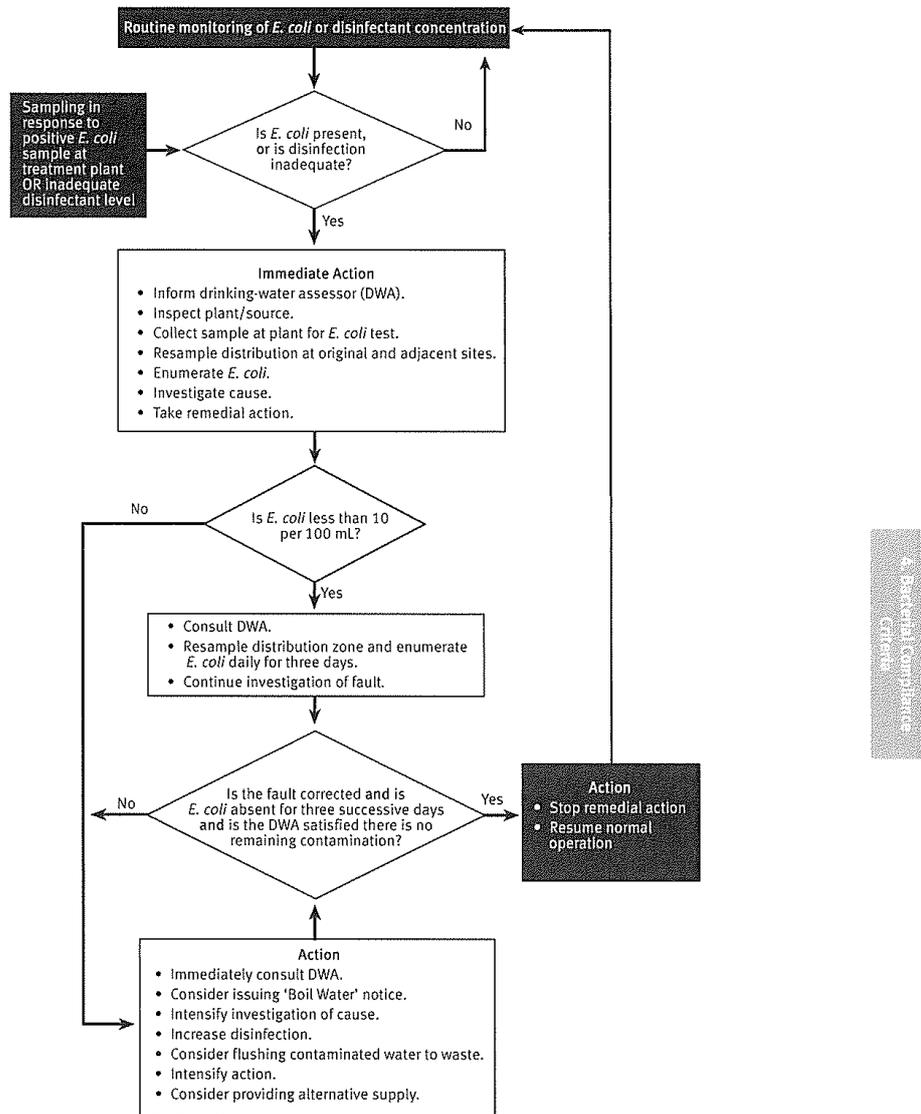
In the event that *E.coli* is found in a drinking water sample then do the following:

1. If the *E.Coli* count is 1/100ml or more follow Table 4.2 on page 39 of DWSNZ (see appendix).
2. *Notify the DWA and follow any advice they may give*
3. Issue a Boil Water Notice to the affected community if DWA advises
4. Inform the water supplier from whom the water was taken from
5. Take follow up samples (as advised by the DWA) to try to narrow down the source of contamination
6. Send these samples to accredited laboratory

# APPENDICES

## Appendix 1 Response to Transgressions

Figure 4.2: Response to a transgression in a drinking-water supply distribution zone



## Appendix 2: Cleaning Procedure

### **Purpose**

This document provides the cleaning procedure that can be used by tankers that have previously carried non-potable water such as sea or river water.

### **Tanker wash facility**

1. Reticulated or potable water should be used for cleaning.
2. Check with the local authority where the tanker & ancillary equipment can be washed and the cleaning water discharged.
3. If required, use only food grade approved cleaners at the stated concentrations.
4. Allow one to two hours for this procedure.

### **Washing instructions**

1. Drain the tank thoroughly.
2. If possible, open the tank and visually check the inside to make sure nothing is adhering to the sides. Scrape or hose out until the tank looks clean.
3. Wash and rinse with chlorinated solution, or any other approved formula (see Appendix 3), all hoses, fittings and other equipment used with drinking water.
4. If required, use a high-pressure jet washer with proprietary food grade chemical cleaner at the recommended level to remove staining.
5. Hose out the tank (& hoses and fittings) from top down until no cleaning solution is detected.
6. Reseal the tank.
7. Half fill with water.
8. Add the requisite amount of chlorine solution to give a minimum 5 milligrams per litre (mg/L). For a 10,000 litre tank, this is 1.25 litres of domestic strength bleach (sodium hypochlorite at 4 per cent strength) – see Appendix2.
9. Continue to fill tank to the top and allow overflowing for a few seconds.
10. Leave for a minimum of 30 minutes (or preferably overnight) to ensure sterilisation.
11. Drain the tank thoroughly using water delivery hoses (disinfecting water delivery hoses at the same time).
12. Flush or hose out dregs with clean water, same as above, flushing delivery hoses as well as tank at the same time.  
Disinfected hoses and ancillary equipment are to be stored in the side lockers and in cab of truck to ensure they are clean and ready for use.

The tank should now be ready for transporting drinking-water.

**Important note:** There are safety issues associated with cleaning in confined spaces. Please ensure that any cleaning of your tank is carried out in accordance with occupational safety and health guidelines.

### Appendix 3: Tanker Disinfection and Residual Chlorine Tests

The method of disinfection of the tanker and fittings using sodium hypochlorite or calcium hypochlorite (HTH) is shown below, together with the method for determining the chlorine content of the cleaning formula.

#### Sodium hypochlorite solution

All tanks and fittings that have been out of service for more than 30 days are to be disinfected with chlorine or another approved disinfectant before they are used for cartage of drinking. For ease of handling and safety, it is recommended that sodium hypochlorite be used as the disinfectant. Readily available from Cuddons Engineering. Check in chemical store at depot first!. The strength of the sodium hypochlorite is known (typically 15 percent available chlorine). Check strength on label of container. The shelf life of sodium hypochlorite is limited. Note any use-by date. The limited shelf life means that more than the stated dose may be needed to obtain the 5.0 milligrams per litre (mg/L) residual chlorine value in the tank being disinfected.

Hypochlorite is a powerful oxidising agent, is caustic and must be used with caution. Protective gloves and goggles must be worn when using sodium hypochlorite. Any spillages should be diluted immediately with lots of amounts of water. Chlorine compounds must not be washed into a waterway because they are extremely toxic to fish life. Either empty into wash bay or spray over yard to settle dust. Read the safety data carefully before using it.

An alternative sodium hypochlorite product is available in supermarkets and sold as household bleach. The strength of these products ranges from 3–4% available chlorine. For those bleaches in the 3% range, that is, 30 g/L of sodium hypochlorite, five times the volume of solution will be required to equal the strength of the commercial sodium hypochlorite solution. A 4% solution will require less than five times the volume of the commercial product as shown below. To get 5.0 mg/L of FAC (free available chlorine) in a tank see Table 1 below.

**Table 1:** Disinfection dosing rates using sodium hypochlorite (NaOCl) solution

| Tank volume, litres (m <sup>3</sup> ) | Volume of 15% sodium hypochlorite | Volume of 4% sodium hypochlorite | Volume of 3% sodium hypochlorite |
|---------------------------------------|-----------------------------------|----------------------------------|----------------------------------|
| 900 (0.9 m <sup>3</sup> )             | 32mL                              | 113mL                            | 153mL                            |
| 9,000 (9 m <sup>3</sup> )             | 315mL                             | 1125mL                           | 1530mL                           |

Volumes are in millilitres (mL) and have been rounded upwards.

To ensure even distribution and mixing of the chlorine in the tank, the hypochlorite solution should be added during the tank filling process and left for a minimum of 30 minutes before being emptied. Once the chlorine solution has been added and thoroughly mixed, a chlorine test must be carried out in accordance with the FAC test procedure described below. If the test result is higher than 5.0 mg/L, leave the tank for the required 30 minutes. If the test is lower than the required 5.0 mg/L, add more sodium hypochlorite solution and mix thoroughly and test again. For 900 litre tank use paddle of mixing or drive tanker for short journey (around block) to mix solution) or recycle through pump. Repeat the process until the required value of 5.0 mg/L is obtained.

## Determination of free available chlorine using *AquaCheck Test Strips*

Chlorine measurement for water used to wash the tank can be variable because of dosing rates, but must be at least 5.0 mg/L (sometimes expressed as 5 g/m<sup>3</sup> or 5 ppm) FAC.



### Instructions

Dip strip and remove.

Wait 15 seconds and compare colour of test strip with colour chart on container for *ppm FREE CHLORINE*. Colour needs to equal 5ppm or greater.

### Range

The working range for the test kit is 0–10 ppm FAC. However, it should be noted that chlorine is a powerful oxidising agent and is used as a bleaching agent. Therefore, if the sample being tested is from water that has been dosed incorrectly, and the actual level is much higher than that required (greater than 5.0 mg/L).. If in doubt, dilute the sample by a known amount to reduce the chlorine content and re-measure. Adjust the result to take account of the dilution. For example, if the sample was diluted 10:1 then multiply the answer by 10.

### Safe handling and storage

Refer to the safety data sheet for storage and handling of all chemical products, particularly chlorine-based products.

#### **Appendix 4 E. coli sampling**

**Water samples from delivery tank must be collected for *E.coli* testing** by a Ministry of Health-recognised laboratory, or another person that has been assessed as competent to carry out such field tests.

*E.coli* sampling requirements:

Every month, if drinking water is being carted we are required to collect a water sample for testing. The water sample is to be taken to the Cawthron Institute, Grovetown Park, SH 1, Blenheim 7202.

Initial training for taking of the water sample will be provided by the Water Sampling Ltd.

***A written procedure will also be needed to ensure trained staff keep to procedure.***

**Appendix 3: Delivery Docket**

(Source of Water Delivered & Class of water will be added at the time of delivery – depending on area water taken from.)

Bobs Water Carting  
Alpha Street  
Beta Town

Phone: 0123456

**Tankered Drinking-Water Carrier  
Listed in the Ministry of Health’s Register for  
Community Drinking-water Supplies and Suppliers**

Registration No. WC123456.....

Tanker ID.....

|                          |                              |                  |  |
|--------------------------|------------------------------|------------------|--|
| <b>Date</b>              |                              | <b>Docket no</b> |  |
| <b>Customer address</b>  |                              |                  |  |
| <b>For the supply of</b> | ..... load of drinking-water |                  |  |

| <b>Source</b>                         | <b>Class</b> | <b>Treatment plant grading</b> | <b>Reticulation grading</b> |
|---------------------------------------|--------------|--------------------------------|-----------------------------|
| Top Notch DC<br>Location:<br>Alpha St | 1a           | B (Satisfactory)               | b ( Satisfactory)           |
| Beta St                               | 2            |                                |                             |
| Gamma Street                          | 2            |                                |                             |

Please allow the water to settle and clear before using it.

While the water we deliver is usually potable we cannot guarantee the quality of the water currently in your tank. The Ministry of Health recommend that all drinking water from non-secure water sources (including rainwater) is treated to be sure it is safe to drink.

This treatment can include boiling the water. Boiling the water would mean just bringing the water to a rolling boil, as happens in an automatic kettle. This should be done for any water used for drinking, teeth cleaning or preparing food that won't then be cooked.

We can also advise you on or assist you with cleaning your tank out and sterilising it.

Signed.....

Date .....

**Please note that this is not a tax invoice but issued as a requirement under the Drinking-Water Standards for New Zealand 2005.**

## **Appendix 4 INSPECTION LIST – PRE DELIVERY**

Plant Operator needs to ensure he has all documentation in place and has the protective clothing supplied with him.

Prior to leaving the yard for filling the tankers they need to be visually checked over to ensure that no tampering has taken place since the last time they were used.

Checklist:

- All lids are secure
- Tanker is clean from last time used
- All tank fittings,
- Hoses,
- Caps for any damage or wear,
- Ensure storage compartments are clean and tidy,
- The components such as engine and pump are clean – there are no fuel spills around the engine of the pump
- The vehicle & pump are fuelled
- Vehicle has current COF and Registration, RUC's are up to date
- Running gear in order eg tyres, indicators, horn.

## **Appendix 5 FILLING PROCEDURE**

Only use 1 of the approved / nominated filling points (Fire Hydrant) from list provided by COUNCIL.

- Take cover of the hydrant and install the standpipe
- Put the filling hose onto the stand pipe
- Run at least 50litres of water through the filling hose to waste – this is to ensure only clean water goes into the tanker making sure there is no stale water that may have been sitting in the hydrant for a while
- Shut the hydrant back down to off position
- Remove the dust seal cover off the tanker and install the hose
- Turn the tanker filling valve to an open position
- Open the top inspection hatch on the tanker so that when filling the tanker is venting
- Open the hydrant slowly and start filling
- The hydrant should never be opened more than half of its maximum discharge capacity
- The operator then visually checks the inside of the tanker as it is being filled, once it is nearing full he slowly starts turning the hydrant to an off position
- Once the hydrant is completely off the top cover can be secured
- The valve on the side of the tanker is put to an off position and dust cover replaced
- The filling hose rolled and sealed and replaced in its compartment
- Stand pipe and key removed from the hydrant and placed back in its compartment
- Hydrant cover replaced

## **Appendix 6 TRANSPORTATION PROCEDURE**

- Ensure all lids are securely closed and hoses stored correctly.
- Ensure that as soon as truck has been filled transportation of water is undertaken immediately, for safety sake water must not be left to sit for a period of time before delivering to client.

## **Appendix 7 DELIVERY Procedure**

- Appendix On arrival at our clients property, a visual check is made of the outside of tank and then the inside of the tank for any damage or contamination, to the extent it would be pointless putting in a fresh supply of water until they are clean.
- If a tank has sediment on the bottom that needs to be cleaned prior to the next delivery of water, these comments are noted on the delivery advise form and the client advised at the time.
- Connect hoses to delivery pump ensuring you are not contaminating them in any way.
- Roll hoses out so there is no twists or kinks in hoses, they are not running over contaminated ground.
- Filling the clients tanks is generally done from the top through an inspection port
- At this end of the lie flat hose the water is added via standpipe with a baffle fitted or trickled down the inside edge of the tank.
- Water is added gradually.
- You must watch while filling to ensure the tank is not overfilled.
- Put the lid / cover back on the clients tanks and make sure it is secure.
- Drain lie flat hoses and put end covers back on.
- Roll up hoses and store correctly in back of tanker.
- Delivery dockets advise customers of the risk and condition of their tank plus advise to boil water if necessary – see attached docket in appendix.

## **Appendix 8 SAMPLING FREQUENCY**

In general water delivery is seasonal, therefore the tankers are often not used for a period of time up to 6 months of the year. Preceding the start of the water delivery season cleaning, shock dosing and then sampling will be completed at that point, then every 4 weeks through the delivery season samples will be taken from the delivered water once it has been through the tanker and its pumping system prior to entering a clients' tank.

Should there be the need for delivery outside our normal delivery season cleaning and sampling needs to be put in place prior to these delivery's if the tanker has been sitting for an extended length of time.

## **Appendix 9 MONITORING RESPONSE PLAN**

Daily - visual inspection of tank and equipment including hoses and couplings.

Weekly – wash down and hosing of equipment where there is a chance of contamination from road dust or any other contaminate that has been visually picked up.

Monthly – sampling

Annual – all the above plus shock dosing.

Refer attached Pre Delivery Inspection Schedule

Actions – if there is a fault or concern about any of the above pre-check inspections the driver will then deal with the problem and report to the manager immediately.

If there is road dust problems then the driver will completely wash the tanker down.

If anything appears to have been tampered with or contaminated with prior to filling the tanker with water, depending on the severity, the operator needs to refer to the water safety plan and procedures and report it to his manager.

## **Appendix 10 MAINTENANCE SCHEDULE MANUAL**

- Maintenance reporting is by the vehicle driver and delivery person, these guys are responsible for checking the vehicle and its equipment each time they use it.
- If repairs and maintenance are required they report it as soon practical to our workshop staff.
- Mechanical servicing is completed every 6 months at the same time as Certificate of Fitness Testing by our qualified mechanic's on staff.
- Also each time the tanker is cleaned and dosed the water technician will visually check all tank fittings, hoses, the pump and the tank including its lids, caps for any damage or wear, ensure storage compartments are clean and tidy, if repairs are required this work will be done immediately prior to its next delivery.
- Any repairs required are also noted on the drivers timesheet that is handed in on a daily basis, this ensures that all maintenance required is noted.

## **Appendix 11 OPERATOR PERSONAL HYGIENE MANUAL**

- Only trained operators will be used for this task.
- Dedicated overalls will be supplied to the drivers doing the water deliveries, these will be kept in a cupboard in the smoko room and laundered each time they have been used.
- The operator must look clean, tidy and presentable prior to leaving to deliver water, they must ensure that just prior to delivering water that they are wearing the appropriate laundered overalls, gloves are supplied, hands washed with the hand sanitizer supplied in our amenities room, there is also a supply of this hand sanitizer in the storage locker of each tanker.
- Once he is on site if the operator feels there is a requirement for a further hand wash required before handling the equipment used to transfer water into our customers tanks he should then use the hand sanitizer provided in the vehicle prior to filling.
- The operator is to be aware that any time that he is been to the toilet he must wash his hands or use sanitizer.
- Illness – if in the event our driver is feeling unwell they are to report immediately to Management and a replacement driver will be appointed to deliver the water to our client.
- Under no circumstances are they to continue a water delivery while feeling sick.



**Appendix 14 Delivery Request example**

DELIVERY 30/10/13

WEDNESDAY AFTER 10AM

**Request for Water**

Customer name:

Date.....

Postal Address:

Delivery Address: ...

#701

Phone: ...

- REFER MAP.

Access to site for large truck  
turn around area  
back in or out

Distance to tank from where truck would park 10-15m

Up hill or down hill to tank  
(pump up or free fall down)

How much water required 5,000 LITRES

Any neighbours require water  
(to help defray cost)

Delivery instructions:

Please take 10-15m FILTER HOSE  
TO REACH TANK, [REDACTED]

Drivers Comments: Tank inside shed. Go to back  
of building, park beside roller door, 1 hose.







**Appendix 17 Water Source Name & Codes (obtained from Public Health or Water New Zealand)**

|   |  |                                |          |                                |          |
|---|--|--------------------------------|----------|--------------------------------|----------|
| <b>Water supply 1<br/>Community name:</b> |  | <b>Source name:</b>            | XXXXXXXX | <b>Source code:</b>            | XXXXXXXX |
|   |  | <b>Treatment plant name:</b>   | XXXXXXXX | <b>Treatment plant code:</b>   | XXXXXXXX |
|   |  | <b>Distribution zone name:</b> | XXXXXXXX | <b>Distribution zone code:</b> | XXXXXXXX |
| <b>Water supply 2<br/>Community name:</b> |  | <b>Source name:</b>            | XXXXXXXX | <b>Source code:</b>            | XXXXXXXX |
|   |  | <b>Treatment plant name:</b>   | XXXXXXXX | <b>Treatment plant code:</b>   | XXXXXXXX |
|   |  | <b>Distribution zone name:</b> | XXXXXXXX | <b>Distribution zone code:</b> | XXXXXXXX |
|   |  |                                |          |                                |          |
|   |  |                                |          |                                |          |
|   |  |                                |          |                                |          |
|   |  |                                |          |                                |          |
|   |  |                                |          |                                |          |
|   |  |                                |          |                                |          |