

<b><u>GUIDELINE</u></b> Guideline for Bulk Water Hauling		<b><u>SECTION</u></b> Environmental Health Services	
<b><u>AUTHORIZATION</u></b> Director, Health Protection	<b><u>DATE APPROVED</u></b> January 2007		<b><u>DATE REVISED</u></b> January 2010

## INTENT

Each tank truck or vehicle water tank that is used for the delivery of water for domestic purposes shall have an operating permit. See Appendix A for Application to be completed along with "Application for Health Approval" triplicate form.

All new and existing tank trucks or vehicle water tanks must meet the engineering specifications as outlined in Appendix B, "Construction of Truck Tanks and Loading Facilities Used for Potable Water Hauling" before an operating permit is issued.

Prior to the issuance of an operating permit, the applicant must satisfy the provision under Section 7(1) of the Drinking Water Protection Regulation. The requirements outlined in this application package are satisfactory to the Drinking Water Officer.

Section 8 of the Drinking Water Protection Regulation prescribes monitoring requirements.

Microbiological standards shall be those specified in the Drinking Water Protection Regulation (Schedule A).

In lieu of sampling the Drinking Water Officer may require the water supplier to maintain records indicating source and chlorine residuals. See Activity Log Book in Appendix C.

All water source locations must be approved by the Drinking Water Officer as prescribed under Section 6 of the Drinking Water Protection Act.

## LEGISLATION

### Drinking Water Protection Act

"domestic water system" means a system by which water is provided or offered for domestic purposes, including (d) a tank truck, vehicle water tank or other prescribed means of transporting drinking water, whether or not there are any related works or facilities".

Water supply systems must provide potable water

*6 Subject to the regulations, a water supplier must provide, to the users served by its water supply system, drinking water from the water supply system that*

- (a) is potable water, and*
- (b) meets any additional requirements established by the regulations or by its operating permit.*

"potable water" means water provided by a domestic water system that

- (a) meets the standards prescribed by regulation, and
- (b) is safe to drink and fit for domestic purposes without further treatment;

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### Drinking Water Protection Regulations

*Section 7 (1) A drinking water officer may issue an operating permit to a water supplier after receiving an application in a form satisfactory to the drinking water officer.*

### Water Monitoring Analysis

*8(2) For the purpose of section 11 (1) of the Act, a water supplier must monitor for total coliform bacteria and, effective April 1, 2006, Escherichia coli, at the frequencies set out in Schedule B of this regulation.*

*8(3) Despite subsection (2), a drinking water officer may establish different sampling frequencies for a water supplier.*

## Schedule A

### **Water Quality Standards for Potable Water**

*(sections 2 and 9)*

#### **Parameter:**

#### **Standard:**

Fecal coliform bacteria

No detectable fecal coliform bacteria per 100 ml

*Escherichia coli*

No detectable *Escherichia coli* per 100 ml

Total coliform bacteria

(a) 1 sample in a 30 day period

No detectable total coliform bacteria per 100 ml

(b) more than 1 sample in a 30 day period

At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

Frequency of bacteriological sampling and analysis shall be carried out as prescribed in Schedule B of the Drinking Water Protection Regulation.

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## **Schedule B**

### **Frequency of Monitoring Samples for Prescribed Water Supply Systems**

*(section 8)*

<b>Population Served by the Prescribed Water Supply System:</b>	<b>Number of Samples Per Month:</b>
less than 5 000	4
5 000 to 90 000	1 per 1 000 of population
more than 90 000	90 plus 1 per 10 000 of population in excess of 90 000

## **PROCEDURE**

### **I) Permitting:**

The following is required:

1. All new and existing tank trucks or vehicle water tankers intended to haul water for domestic purposes shall be inspected and approved as per these requirements;
2. All potable water shall be obtained from an approved source.
3. There shall be an appropriate backflow prevention device in place at all times when a vehicle is attached to an approved water supply.
4. All cross-jurisdictional referrals and recommendations between Health Authorities should be accomplished in writing:
  - where water will be obtained from outside a health authority's jurisdiction, a letter of acceptance shall be provided on the acceptability of the source water and fill site location;
  - a copy of the operating permit for the water supplier fill site location(s).
5. The terms and conditions on the Operating Permit shall include:
  - approved for potable water delivery only (see # 1 in 'Operation' below) ;
  - an activity log book;
  - frequency of microbiological sampling ;
  - permit to be kept in the vehicle at all times;
  - annual inspections at a specified location;

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- a unique identification number [vehicle identification numbers (VIN), decal number], unit number if applicable and;
- license plate number;

The authority to request the above terms and conditions on an operating permit is prescribed in Section 8 of the Drinking Water Protection Act.

## II) Operation:

The following is required:

1. Tank trucks or vehicle water tanks and associated equipment, which have been approved for potable water delivery, shall be used for no other purpose unless prior written approval has been obtained from the Drinking Water Officer. Where other purposes are permitted, it will be paramount to ensure disinfection procedures are suitable and written procedures are in place to ensure they are followed (See Appendix D). It may be appropriate to require a potable water sample be collected from the tank and analyzed after such use ;
2. The storage tank and all other equipment shall be free from contamination during filling, storage, transportation and delivery. Hoses and nozzles used for water intake or discharge be protected by a covering when not in use and cleaned before each use;
3. The water hauler shall maintain an activity log on each vehicle that includes all tank maintenance, cleaning schedules and water samples taken. The log shall also include the address of the fill site(s), chlorine level, date, time of loading, the volume of water loaded, delivery address(es) along with date, time and volume of water delivered. The log must be kept with the truck, and submitted to the inspector upon request;
4. Water in the tank needs to be adequately disinfected to ensure a minimum free chlorine residual of 0.2 mg/l at the point of delivery. Each water hauling vehicle shall have a suitable chlorine test kit for the purpose of accurately measuring chlorine residual to within 0.01 mg/L.;
5. Each water hauling vehicle shall have a copy of the operation and maintenance procedures, which shall include disinfection procedures, fill and back flow prevention procedures;
6. All tank trucks or vehicle water tanks must be clearly labeled "DRINKING WATER" in bold weather-resistant letters; all removable/transferable equipment (i.e., hoses) shall also be labeled "DRINKING WATER" in bold lettering. The Lettering must be permanently affixed to the surface. The hoses are to be used for no other purpose unless # 1 in "Operation" above, applies;
7. Where vehicle tank sampling for bacteriological analysis is required, the sample shall be collected from a tank outlet. There shall be no dipping into the filled tank for the purpose of obtaining a water sample;
8. When not in use, being cleaned or drained dry, water delivery hoses not stored in a secure hose compartment shall be capped at both ends or as otherwise recommended by the hose manufacturer.

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### III) Offenses:

Where a water supplier is found to be filling from an unapproved water source, the Drinking Water Officer shall consider progressive enforcement measures, such as issuing an order under Section 26 of the *Drinking Water Protection Act* and/or ticketing where appropriate.

### References

Construction of Truck Tanks and Loading Facilities Used for Potable Water, Public Health Engineering, Vancouver Coastal Health

Drinking Water Protection Act [SBC 2001] Chapter 9

Drinking Water Protection Regulation (B.C. Reg. 200/2003)

Violation Ticket Administration and Fines Regulation (BC Reg. 89/97)

Provincial Policy on Bulk Water Hauling, DW 98-001

Oregon Health Services – Drinking Water Hauling Guidelines (April 2003)

Public Health Seattle & King County, Truck Transportation of Potable Water

Drinking Water Haulage Guidelines, Ontario Ministry of Health and Long-Term Care Public Health Division (October 2003)

### **APPENDICES**

Appendix A Application for Bulk Water Hauling (FHA)

Appendix B Construction of Truck Tanks and Loading Facilities Used for Potable Water Hauling

Appendix C Example of Drinking Water Hauling Log

Appendix D Guidelines for Water Tank Disinfection

**Appendix A**



## Application for Bulk Water Hauling

Name and Unit number of Bulk Water Hauling Vehicle:

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Vehicle Identification Number (VIN): \_\_\_\_\_

Licence Plate Number: \_\_\_\_\_

**OWNER INFORMATION**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Province: \_\_\_\_\_ Postal Code \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Cell: \_\_\_\_\_ E-mail: \_\_\_\_\_

**LOCATION OF VEHICLE STORAGE**

Address: \_\_\_\_\_

City: \_\_\_\_\_ Province: \_\_\_\_\_ Postal Code \_\_\_\_\_

**TANK MATERIAL**

Stainless Steel Y  N  Other(specify) \_\_\_\_\_

**COMPLETION OF REQUIREMENTS**

Provide a written submission based on the Bulk Water Hauling Guideline requirements.

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Applicant

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Date

*Note: This Application is to be included with the triplicate, Health Protection, Application For Health Approval.*

## **Appendix B**

### **Construction of Truck Tanks and Loading Facilities Used for Potable Water Hauling**

#### **Materials of Construction**

Tanks must be constructed of a material and in a manner that will ensure there will be no rusting, scale or stress cracks during construction or that will develop when the tank is in use. Therefore:

Tanks for transporting water intended to be used for human consumption. i.e. potable water, shall be of stainless steel of the AISI 300 Series or other food grade approved material conforming to the ANSI/NSF 61 standard. Should there be a desire to use a tank made from a material other than stainless steel, the tank specifications including certification shall be submitted to the Public Health Engineer for approval.

Common Steel Tanks are not acceptable

Tanks of common steel with or without a plastic or epoxy coating can not be approved for the following reasons:

- It is not possible to ensure complete covering of all inner surfaces especially with existing vessels, and particularly when baffled compartments are involved;
- The on going integrity of the coating cannot be assured especially with the stresses and strains imposed on the vessel walls as the tank is hauled over varying terrain;
- When the inner epoxy coating is stressed, cracking and rusting of the steel tank occurs, the rusting may be enhanced by the creation of small osmotic cells;
- Thorough inspection of a vessel cannot be satisfactorily done to ensure all surfaces in contact with water are sound and that stress cracks and rusting have not developed; Inspection of tanks with fixed baffles is further complicated.
- Cracks in the epoxy liner and scale from rusting provide sites where bacteria can develop and then contaminate the potable water.

#### **Fabrication**

Fabrication of tanks shall be as follows:

- a) All water contact surfaces shall have a finish at least as smooth as No. 4 ground finish on stainless steel sheets and be free of imperfections such as pits, folds, and crevices in the final fabricated form;
- b) All permanent metallic joints in water contact surfaces shall be continuously welded. All welded areas on water contact surfaces shall be at least as smooth as a No. 4 ground finish and free of imperfections such as pits, folds, and crevices;
- c) All water contact surfaces shall be self-draining;
- d) All water contact surfaces including areas in and around baffles shall be easily accessible for cleaning and inspection;
- e) A stainless steel purging line shall be affixed within the tank at the roof/ceiling to facilitate flushing and disinfection under pressure. The line shall be attached in such manner as to prevent any cracks or crevices that could harbour bacteria;

- f) Trucks will have food/dairy grade hoses and camlock connections. Where it is impractical to use food grade hoses, flat type hoses may be used providing there is a satisfactory process in place to properly sanitize, dry and store hoses;
- g) A sampling cock should be provided at the discharge line of all tank chambers. There shall be no dipping into the filled tank for the purposes of collecting a water sample;
- h) In order to protect fittings from contamination a self-draining, clean, lockable compartment for containing and storing hoses, nozzles and related couplers shall be provided on the truck for when they are not in use.
- i) All water tank vents shall be screened and shall be designed to prevent access of rainwater, insects, birds, animals and any other deleterious objects.

### **Vessel Loading Facilities**

The following shall be provided at potable bulk water loading facilities:

- a) Install an approved back-flow device. If water is drawn from a municipal source the back flow device must be approved by the municipality.
- b) Provide locked valves on all water sources. Ensure no part of the system can be tampered with;
- c) Bulk water haulers shall have a source of pressurized chlorine solution available that can be connected to the inner spray/purging facilities of the bulk water hauling trucks. Alternatively, satisfactory written procedures shall be in place to ensure proper disinfection of the tank. Disposal of the chlorinated water shall be done in such a manner that the environment is not impacted and there is no opportunity for backflow conditions ;
- d) Bulk water haulers shall provide food/dairy grade fittings and hoses. Where it is impractical to use food grade hoses, flat type hoses may be used providing there is a satisfactory process in place to properly sanitize, dry and store the hoses



**Appendix C**

**Example of Drinking Water Hauling Log**

<b><u>Drinking Water Hauling Log</u></b>							
<b>Name of Company:</b>							
<b>Tanker ID:</b>							
<b>Name and Location of Source:</b>	<b>Date</b>	<b>Volume loaded in Gallons or Litres</b>	<b>Chlorine level Free or Total Specify</b>	<b>Address of Delivery</b>	<b>Volume delivered in Gallons or Litres</b>	<b>Comments</b>	<b>Driver's Initials</b>

## **Appendix D**

### **Guidelines for Water Tank Disinfection**

1. Drain all water from the vehicle.
2. Wash the inside surfaces of the tank using a high pressure hose and remove the wash water and sediment from the bottom of the tank.
3. Disinfect the inside of the tank using the pressurized chlorine injection system and the purge equipment installed in the tank. Alternatively disinfect the tank as follows:
  - a) Close the outlet port(s) on the tank.
  - b) Use 1 litre of household bleach (5.25% sodium hypochlorite) for every 1,000 litres of water. This will provide a disinfection solution of about 50 mg/l (ppm) chlorine. A 3,000 imp. gallon tank is about 13, 600 litres.
  - c) Add bleach during filling to help ensure a thorough mix.
  - d) Ensure the tank is completely filled to allow all surfaces to come into contact with the bleach solution. A minimum contact time of 12 hours is required.
  - e) After 12 hours has passed, drain the water into a municipal sewer line ensuring there is an air gap between the vehicle tank hose and the sewer disposal access to prevent cross contamination. Thoroughly disinfect the hose after such use.
  - f) Do not drain chlorinated water in any area where it is likely to enter fish bearing water.
  - g) Include dates of disinfection in the vehicle log book.

**This guideline is subject to revision as new information becomes available. Check with your Public Health Inspector to ensure you are working with the current version.**