



# Guidelines for Drinking Water Haulers

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# Introduction

Water is a precious resource, one that all life depends on.

Clean drinking water is essential so it is important to ensure that water is clean and safe to drink.

Water may contain many microorganisms like E. coli and Campylobacter that can make people sick. These microorganisms can cause stomach cramps or diarrhea and in some cases can be life threatening.

Drinking water haulage vehicles often supply water to homes in rural areas serviced by cisterns or shallow wells with poor or unreliable water yield. Hauled drinking water is also relied upon in emergency situations by municipalities, businesses and homes in cases where a risk to public health has been associated with or identified in drinking water supplies. The protection of drinking water is crucial to preventing the spread of water-borne disease and preventing contamination of water systems.

Municipal drinking water undergoes thorough treatment and extensive, ongoing testing to ensure its quality and safety. Therefore municipal drinking water is the best source of drinking water for water hauling services.

The Ontario Public Health Standards published by the Minister of Health and Long-term Care under the authority of the Health Protection and Promotion Act specify the mandatory health programs and services provided by boards of health. Boards of health are required to inspect drinking water haulage vehicles annually under drinking water protocols of the Ontario Public Health Standards and its Safe Water Program.

Drinking water can become contaminated during the process of transferring from the municipal supply to the water haulage vehicle to the point of delivery (cistern, well, etc.). Therefore it is important to take precautions to reduce or eliminate risks of contamination.

This information package is intended to provide water haulers with information to help them do their part to reduce or eliminate these risks.

Routine inspections will be conducted by Niagara Region Public Health of all drinking water haulage vehicles to help prevent contamination of the potable drinking water during storage, filling, transportation and delivery. Although each water hauler company is to obtain drinking water strictly from a supply that complies with the requirements of Ontario regulation 169/03, there is still a chance of contamination to the water supply from the tank and the equipment that is being used. Bacteria, virus, and parasites are found throughout our environment making it easy to contaminate the equipment and surfaces used in bulk water transport. It is important that all tanks and equipment are of sound and tight construction and are properly cleaned and sanitized. This will help to reduce the risk of contamination of the potable drinking water used for delivery. The drinking water haulage guidelines illustrate the proper maintenance that is required by each owner/operator to provide potable drinking water to their customer.

# Information for Hauling Drinking Water

Drinking water haulage vehicles often supply water to homes in rural areas serviced by cisterns or shallow wells with poor or unreliable water yield. Hauled drinking water is also relied upon in emergency situations by municipalities, businesses and homes in cases where a risk to public health has been identified or there is a disruption to the drinking water supply.

## **Source Water Supply**

An important consideration in assessing the potential risks of drinking water transported by hauled vehicles is the security and the quality of the source supply. Source water supplies should be those that are regulated under the Safe Drinking Water Act 2002 (Ontario Regulation 170/03) or under the Health Protection and Promotion Act (Ontario Regulation 319/08). Owners and operators of these drinking water systems should consult with the Ministry Of Environment or the local public health unit to determine any implications of supplying drinking water to hauling businesses.

The following information and recommendations are provided for drinking water haulers operating in the Region of Niagara:

### **I. General**

1. Drinking water must be obtained from a supply that complies with the requirements of Ontario Regulation 169/03 (Ontario Drinking- Water Quality Standards).
2. Take appropriate measures to protect the tank, equipment and connections from becoming contaminated during storage, filling, transportation and delivery of the drinking water.
3. Ensure that any article or piece of equipment that is used for the distribution of drinking water is:
  - i) of sound and tight construction;
  - ii) kept in good repair;
  - iii) made of surfaces that can be readily cleaned and sanitized (where drinking water comes in direct contact);
  - iv) are corrosion-resistant and non-toxic; and
  - v) free of cracks, crevices and open seams.
4. Ensure that inlets or openings of containers used for drinking water haulage are constructed and maintained in a manner that will prevent the entry of insects, rodents or any foreign material that may contaminate the water. With the exception of instances where cleaning, emptying or filling of the tank is occurring, inlets or openings should be covered and sealed at all times.
5. Ensure that, where lubricants are used that may come in contact with the drinking water, the lubricants are of such quality that the lubricants do not contaminate the water or cause a health hazard.
6. Ensure that bulk containers have not been previously used to transport any substance other than water and are cleaned and sanitized prior to transporting drinking water.
7. Ensure that bulk containers are clearly and appropriately labeled, ie. "Drinking Water" or "Potable Water"; "Water Not Safe for Drinking" or "Non-Potable Water", in letters at least 15 cm high.

8. Ensure that surfaces with which drinking water comes in direct contact are cleaned and sanitized as often as is necessary to maintain them in a clean and sanitary condition.

## II. Sanitizing a Bulk Water Container

All surfaces should be washed or scrubbed with a detergent solution, rinsed with clean potable water and,

- 1) Sprayed or rinsed with hot water or steam in a manner that creates a temperature of not less than 82° Celsius on the treated surface; or
- 2) Sprayed or rinsed with a chemical solution as follows:
  - i) immersion in a clean chlorine solution of not less than 200 parts per million of available chlorine at a temperature not lower than 24° Celsius for at least forty-five seconds;
  - ii) immersion in a clean quaternary ammonium compound solution of not less than 400 parts per million at a temperature not lower than 24° Celsius for at least forty-five seconds;
  - iii) immersion in a clean solution containing not less than 25 parts per million of available iodine at a temperature not lower than 24° Celsius for at least forty-five seconds;
  - iv) immersion in any solution containing a sanitizing agent that is non-toxic and that provides a bacteriological result not less than the result provided by clause (i), (ii) or (iii) and for which a convenient test reagent is available.

### Note:

- One should never enter a tank without first consulting with the Ministry of Labour to determine whether 'confined space' precautions are required.
- The solution and rinse water should be disposed of in a manner that does not adversely affect the environment.

## III. Sampling and Record Keeping

The owner or operator of a water haulage vehicle should:

1. It is recommended samples for microbiological quality of hauled water that is intended for human consumption be collected at the point of delivery. Water samples should be collected and tested with reference to the Ontario Drinking-Water Quality Standards for microbiological quality, at least once every three months of operation per year.
2. Consider sampling and testing for other chemical or radiological parameters, which will depend on the source supply, in consultation with the local public health unit or the Ministry of Environment.
3. Maintain a logbook that records:
  - a) The date, time and location of each occasion where the tanker is filled;
  - b) The chlorine residual (if applicable) of the water at the time of filling from the drinking water system;
  - c) The date, time and location of each water delivery;
  - d) The volume of water delivered to each location;

- e) The date and time when equipment was cleaned and sanitized;
- f) Comments regarding problems that may have been encountered with the source water supply, (ie. unusual water colour or odour), water haulage vehicle and any equipment used in the operation.

#### **IV. Water Delivery**

1. Ensure the end of the hose is not dragged along the ground during delivery
2. Ensure tank covers are closed during transport and delivery
3. Protect delivery hoses and connections from contamination with clean covers (i.e. single use plastic sleeves)
4. Properly sanitize the hose end prior to filling the cistern
5. Ensure any un-sanitized portion of the hose is not placed inside the cistern
6. Provide the home owner with a copy of Niagara Region Public Health's "Cistern Maintenance for Residential Settings"

If you have any questions, please do not hesitate to call Niagara Region Public Health at:

905-688-8248, Ext. 7268 or 1-888-505-6074.

# DRINKING WATER HAULAGE INSPECTION CHECKLIST

## Bulk Drinking Water Hauler Information

1. Establishment #: \_\_\_\_\_
2. Company Name: \_\_\_\_\_
3. Address: \_\_\_\_\_
4. Owner: \_\_\_\_\_
5. Telephone #: \_\_\_\_\_
6. Purpose(s) of bulk water  Drinking Water  Cistern  Other \_\_\_\_\_  
\_\_\_\_\_

## Water Source Information

7. Drinking Water System Information:  
Name: \_\_\_\_\_  
Location: \_\_\_\_\_  
Regulated Water Works# (if applicable)  Reg. 170/03  Reg. 319/08  
 Non-Regulated
8. Description of Source Water Supply if Non-Regulated \_\_\_\_\_  
\_\_\_\_\_
9. Free Available Chlorine Residual at the Time of Inspection: \_\_\_\_\_ ppm (minimum 0.05 ppm) Date: \_\_\_\_\_ Time: \_\_\_\_\_

## Vehicle and Equipment Standards

10. Vehicle Make & Model \_\_\_\_\_ Licence Plate \_\_\_\_\_
11. Truck Driver Name \_\_\_\_\_
12. Labelled 15 cm potable water/drinking water \_\_\_\_\_  
Tank Capacity: \_\_\_\_\_
13. Water Contact Surface  
 Stainless Steel  Fibreglass  Plastic  Aluminum  
 Other (*specify*) \_\_\_\_\_

*Note: Tank contact surface must be made of food-grade material. Contact surface must not be painted nor consist of other toxic/non-food grade metal or coating.*

14. (a) Hose Storage (describe)

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(b) Hose Disinfected Before Use:  Yes  No

15. Presence of Drain at Bottom of Water Tank:  Yes  No

16. The following items are corrosion resistant, readily accessible for ease of cleaning and sanitizing, and have food-grade contact surface:

Bulk Water Tank  Yes  No      Equipment  Yes  No  
Hose(s)  Yes  No      Pump(s)  Yes  No

17. Has the truck been used for transporting other material(s) prior to its use for transporting bulk/drinking water?  Yes  No

18. If the answer to # 17 is yes, state what was in the bulk content(s): \_\_\_\_\_

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19. Are all openings and vents constructed to protect the water from contamination ?  
 Yes  No

20. Are inlet and outlet connections protected from contamination of potable water at all times ?  
 Yes  No

21. Is the maintenance hole large enough for a person to enter for inspection?  
 Yes  No

22. If the answer is Yes to # 21, is there a confined space entry safety program in place?  
 Yes  No

23. Are chemical products used to clean, sanitize/disinfect the bulk water tank?  
 Yes  No

If the answer is Yes, please list:

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24. Exterior condition of the truck and equipment: Interior condition of tank:

Sanitary:  Yes  No

Sanitary:  Yes  No

Rusted:  Yes  No

Rusted:  Yes  No

In good repair:  Yes  No

In good repair:  Yes  No

Other: \_\_\_\_\_

25. Bulk containers are clearly and appropriately labelled?

Yes  No

26. Operator training provided by the employer for water tank maintenance and sanitation?

Yes  No

### Water Sampling and Record Keeping

27. Is sampling done at least every 3 months of operation per year for microbiological parameters?

Yes  No

28. Log book contains the following information?

(a) Date, time and location of each fill  Yes  No

(b) Chlorine residual recorded at time of filling truck  Yes  No

(c) Date, time and location of each water delivery  Yes  No

(d) Volume of water delivered to each site  Yes  No

(e) Date and time of equipment disinfection  Yes  No

(f) Comments or problems encountered with water supply (e.g. unusual water colour or odour) water haulage vehicle and/or equipment  Yes  No

Comments: \_\_\_\_\_

Date of Inspection: \_\_\_\_\_

Signature of  
Public Health Inspector: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Operator: \_\_\_\_\_

Date: \_\_\_\_\_

# Cistern Maintenance for Residential Settings

Some rural residents obtain their drinking water from a reservoir or cistern typically made from concrete. A cistern is used most often in areas where wells do not provide sufficient water or have historically produced water that is unsuitable for drinking. A properly constructed cistern filled with municipally treated water delivered by an approved water hauler should provide water that is safe to drink. However, a cistern still requires periodic inspection, cleaning, and disinfection. Poorly maintained cisterns are easily contaminated.

## Inspection

- Use a cistern made from a material suitable for holding drinking water.
- Maintain the cistern in a manner that will prevent the entrance of bugs, rodents, and surface water runoff.
- Inspect the cistern annually for sediment, bio-film (slimy coating), debris, cracks and seepages, ill-fitting lids, and broken vent screens.
- Do not direct rainwater into the cistern. Bacteria from bird and animal droppings, dust, leaves, and chemical residues from roofing materials will contaminate the cistern.
- Refill the cistern with potable drinking water only. Potable water haulers typically obtain their water from a municipal water supply, and are inspected by Niagara Region Public Health. Ask your water hauler if they are inspected by Public Health, or contact Public Health at 905-688-8248, Extension 7268 to ask if your water hauler is inspected.

## Cleaning

- Empty and clean the inside of the cistern every 1-2 years. You can remove sediment and debris, check and repair any cracks or seepages, remove any bio-film, and repair any damage. A cistern that requires entry into it for maintenance and cleaning should be considered a confined space. Hazardous gases or low oxygen levels may be present. Only individuals trained in confined space entry should enter a cistern.
- Disinfect the cistern after cleaning.

## Disinfection

1. Disinfect the cistern;
  - a) After cleaning
  - b) If the cistern has become or may be contaminated,
  - c) If a lab result indicates the cistern is contaminated
  - d) If an inspection reveals there is concern of contamination.
2. Add 4 ounces of household (5.25%) unscented bleach per 1,000 gallons of water.
3. Mix the bleach and water with a large clean object.
4. Run each water line (one at a time) in the house until a chlorine odour is noticed- that includes flushing all toilets, and running all baths and showers. If no odour is noticed, add a little more bleach to the cistern.
5. Let stand overnight. (minimum 12 hour contact time required)
6. After at least 3 days, submit a water sample for bacteria testing
7. Do not drink the water (or use it for brushing teeth or washing fruits/vegetables) until you have received your test results. The water should be safe for bathing, showering, laundry, and toilet flushing.

8. It is recommended that at least a 7 day supply of drinking water (bottled water) be arranged before starting this process. Typically 1.5 litres per person per day should be enough.

### **Bacterial Testing**

- Free sample kits for bacteria testing are available from Municipal Service Centers and Public Health as listed on following page.
- Sample freshness and temperature control is essential for proper testing for bacteria. We recommend you take the sample on your way to the drop off site. If that is not possible then bring the sample to the drop-off location within 12 hours of collection and keep it cool in transit and in storage.
- Samples must reach the testing laboratory within 48 hours of collection time.
- If sample test results indicate the drinking water supply is **unsafe**, stop drinking it. It is recommended to inspect the cistern and resample and test the water. If the re-sample results indicate the water is unsafe for drinking and the cistern appears clean and maintained, disinfect the cistern according to the procedure above.
- Chronic unsafe test results indicate a likely need to install a permanent disinfection device such as a chlorinator or ultraviolet system. A professional should be consulted for assistance.
- Cisterns should be tested seasonally (spring, summer, fall and winter). If regular seasonal samples cannot be taken, then 3 samples, 1 to 3 weeks apart should be obtained. A single sample may not be representative of the quality of your cistern water. Continue to sample a minimum of 4 times per year. You can test more often if you want! The best time to sample cistern water is when the probability of contamination is greatest. This is likely to be in the early spring, after an extended dry spell, following heavy rains or after lengthy periods of non-use. In addition to regular tests, cistern water should be tested immediately after:
  - Any repairs/replacement
  - The cistern has not been used for long periods of time (i.e. seasonal residences
  - After flooding
  - There has been a change in the surrounding land use
  - Or there is any change in the water clarity, colour, odour or taste.

## Free Drinking Water Sample Kit Pick-up and Drop-off Locations

Residents can pick-up free well and cistern drinking water testing kits and drop-off samples at the following locations:

<b>City/Town</b>	<b>Location</b>	<b>Hours</b>	<b>Pick-up Testing Kits</b>	<b>Drop-off Samples</b>
Fort Erie	Niagara Region Public Health 1264 Garrison Road, Unit 12	Monday-Thursday 8:30 a.m. - 12 p.m.	Yes	Yes
Grimsby	West Lincoln Memorial Hospital 169 Main Street East	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	Yes
Lincoln	Town Hall 4800 South Service Road	Monday – Thursday 8:30 a.m. – 4:30 p.m.	Yes	No
Niagara-On-The-Lake	Town Hall 3 Lorraine Street	Monday-Thursday 8:30 a.m. – 4:30 p.m.	Yes	No
Niagara Falls	Niagara Region Public Health 5710 Kitchener Street	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	Yes
Port Colborne	City Hall 66 Charlotte Street	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	Yes
Thorold	Niagara Region Public Health, Campbell East Building 1815 Sir Isaac Brock Way	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	Yes
Wainfleet	Township of Wainfleet 19M43 Hwy #3	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	No
Wainfleet	Long Beach Conservation Area 29L65 Lakeshore Road (R.R.#3)	Sunday / Holiday Monday 8:30 a.m. - 4:30 p.m. (Summer months only)	Yes	Yes
Welland	Niagara Region Public Health 200 Division Street	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	Yes
West Lincoln	Town of West Lincoln 318 Canborough Street	Monday-Thursday 8:30 a.m. - 4:30 p.m.	Yes	No

# Sample Daily Activity Log Sheet

Haulage Business Name: \_\_\_\_\_

Date (yyyy/mm/dd)	Time	Location of Fill (F) or Delivery (D)	Volume (gallons/litres)	Chlorine Residual Level at Time of Filling and Delivery (ppm)	Hoses Disinfected	COMMENTS (i.e. problems with water source, vehicle, etc.)	OPERATOR SIGNATURE

Owner or Supervisor Sign Off

\_\_\_\_\_  
Name (Please Print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date (yyyy/mm/dd)