

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION

BULK WATER HAULING GUIDELINES

Effective Date: February 1, 2008

Definitions

(1) Bulk water: as used in these guidelines means a volume of water intended for potable uses which is stored and transported in a tank.

(2) Bulk water hauling: as used in these guidelines means the physical transport of drinking water, by a vehicle having a permanently mounted or detachable water tank (i.e. tanker truck or "water buffalo"), from an approved source of supply to a public water system (PWS) for the purpose of human consumption. The transport vehicle may have pumps, hoses, and other equipment for distribution of drinking water.

Background: It may be necessary for a PWS to have bulk water hauled in during an emergency situation such as a water shortage (i.e. pump or power failure) or a water quality problem. These guidelines have been developed to provide technical guidance for PWSs on best management type practices that should be followed when hauling in bulk water to assure the sanitary quality of water delivered to customers. Bulk water hauling, if not done in a sanitary manner, can be a source of contamination of a PWS. It is the responsibility of the PWS receiving bulk water to ensure that the delivered water does not contaminate the water system.

It is important to note that bulk water hauling may be acceptable as a temporary solution to a water shortage, however, it is not an acceptable long-term solution for system infrastructure deficiencies such as inadequate sources of supply. Community PWSs that have supply deficiencies will be required to correct such deficiencies in accordance with Sections 19-13-B102(o) and 19-13-B102(p) of the Regulations of Connecticut State Agencies (RCSA) rather than relying on long-term bulk water hauling.

Notification: The Department should be notified by phone prior to a PWS hauling in water. In addition, the PWS should complete and submit a *Bulk Water Hauling Notification Form* after the PWS receives a bulk water delivery. The notification form should also be submitted to the local health department. Note that if the need to haul in bulk water is due to an emergency as defined in Section 19-13-B46 of the RCSA, then a completed *Notification Form to Confirm Compliance with Sections 19-13-B46 & 19-13-B102 of the Regulations of Connecticut State Agencies (RCSA)* must be completed and submitted to the Department.

Source of Supply

The source of water supply for a bulk water delivery should be from a regulated PWS that is in compliance with Section 19-13-B102(e) of the RCSA regarding water ready for consumption. In addition, the source supplier, if a community PWS, must have sufficient supply capacity in accordance with Sections 19-13-B102(o) and 19-13-B102(p) of the RCSA.

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General

- (1) Personnel handling bulk water delivery equipment, such as hoses, caps, etc., should conduct and maintain good hygiene practices to prevent contamination of the bulk water.
- (2) Bulk water should not be stored in a bulk water tank for more than 3 days.
- (3) The certified operator for the PWS receiving the bulk water delivery should be present when the delivery is made.

Tank Use, Materials, and Equipment

- (1) Any water tank used for bulk water hauling should be used exclusively for hauling bulk water only. When the prior use of a water tank is unknown or if it has been used for hauling a material other than potable water, the water tank should be disinfected as indicated below. In addition, the water tank should be filled with potable water and held for at least 24 hours after which water quality samples should be collected and analyzed, at a minimum, for total coliform bacteria, HPC, taste, odor, pH, turbidity, inorganic chemicals (IOCs), and volatile organic chemicals (VOCs). Water tanks previously used for hauling food grade materials such as juice or milk may be used for hauling bulk water provided they are adequately cleaned and disinfected as indicated below. Water tanks previously used for hauling petroleum products or other toxic materials should never be used for hauling bulk water.
- (2) All materials in contact with bulk water should be constructed of non-toxic, non-absorbent, and corrosion resistant materials which can be adequately cleaned and disinfected. Whenever possible, all materials should be certified to ANSI/NSF Standard 61 especially plastic tanks. Stainless steel tank materials are preferred whenever possible.
- (3) To prevent contamination of the supply source and water tanks being filled, a vacuum breaker or air gap must be provided on the water tank fill line inlet if the inlet may become submerged in accordance with Section 19-13-B38a(e)(3) of the RCSA. Hoses used for filling bulk water tanks should be capped and securely stored off the ground when not in use.
- (4) The ends of all hoses, including any which are used to fill bulk water hauling tanks, should be provided with threaded or clamped caps. All caps should be in place when the hoses are not in use. Hoses should, at a minimum, be constructed of food grade materials. Garden hoses should not be considered acceptable.
- (5) Bulk water tank inlet and outlets should be equipped with threaded or clamped caps tethered to the ports with chain or cable. Inlets and outlets should be securely capped at all times except when filling or draining the tank.
- (6) When the bulk water tank is not in use, all tank hatches should be locked, inlet and outlet pipes securely capped, and hoses capped and stored off the ground in a secure location. If at anytime the sanitary condition of the water tank or hoses and equipment has been compromised, the bulk water

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tank and equipment should be disinfected as indicated below. Water tanks, hoses, and equipment should be routinely disinfected as indicated below if not used for four weeks or more.

Tank Construction and Appurtenances

- (1) Hatches and other access openings should be sealed watertight with overlapping covers and permanently mounted food-grade gaskets. Hatches should be securely sealed with screw or clamp fasteners. Security locks should be provided. Hatches should be elevated (i.e. curbed) off the tank shell to prevent surface wash from entering the water tank.
- (2) Water tank vents should be downward facing, or otherwise protected to prevent precipitation from entering the tank, and fitted with a minimum 24 mesh screen to keep out foreign matter.
- (3) A drain should be provided to allow for complete draining of the water tank.

Maintenance of Free Chlorine Residual During Transport

After the bulk water tank has been filled for delivery, the bulk water should be tested for free chlorine residual. A minimum free chlorine residual of 1.0 mg/l (but not more than 4 mg/l) should be achieved at the beginning of each bulk haul. If the source water is not chlorinated, approximately 1 cup of 5.25 percent bleach should be added for every 1000 gallons of water added to the tank, or equivalent, to provide sufficient residual and mixing.

Disinfection of Water Tanks

- (1) Prior to disinfection, water tanks should be thoroughly flushed and drained.
- (2) The surfaces of water tanks, connecting hoses, and appurtenances in contact with potable water should be exposed to a minimum chlorine dose of 50 mg/l and a contact time of 24 hours. Approximately one gallon of 5.25 percent bleach added to every 1000 gallons of water, or equivalent, will produce a dose of 50 mg/l. To ensure proper mixing, the chlorine solution should be added slowly as the tanker is being filled with water. For example, approximately one half gallon of bleach should be added for every 500 gallons of water filled in the tank.
- (3) Bleach used in the disinfection process should be certified to ANSI/NSF Standard 60 and should not contain any dyes or fragrances.
- (4) At the end of the disinfection contact period, the water tank should be drained and refilled with potable water. Water quality samples should be collected from the bulk water and analyzed, at a minimum, for total coliform bacteria, HPC, and physical parameters (taste, odor, pH and turbidity) if the prior use of the water tank was for storing potable water only. If the water tank was previously used to haul materials other than potable water, additional water quality samples should also be collected and analyzed for IOCs and VOCs. It is important to note that the disinfected water may need to be dechlorinated prior to discharge to the environment if it still has high chlorine residual. If water quality results indicate the presence of total coliform bacteria, the disinfection procedure should

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be repeated. If water quality results indicate the presence of total coliform bacteria after multiple disinfection procedures, the tank should not be used for bulk water hauling.