WAC 296-826-50015 Refrigerated tanks.

Important:

In addition to this section, you need to follow the Appurtenances requirements for all systems, WAC 296-826-50005.

(1) You must protect container appurtenances against the following:

(a) Physical damage during transit of containers intended for underground installation;

(b) Damage from vehicles.

(2) You must make sure safety relief devices have a total relieving capacity larger than either of the following:

(a) A possible refrigeration system upset such as a cooling water failure, power failure, instrument air or instrument failure, mechanical failure of any equipment, excessive pumping rates or changing atmospheric pressure; or

(b) The amount based on using either one of the following fire exposure formulas (see note below for codes):

(i) Valve manufacturers who use weight of vapors to be relieved as the classifying basis, use this formula:

$$W = \frac{34{,}500\ F\ A\ (0.82)}{L}$$

(ii) Valve manufacturers that classify valves based on air flows, use this formula:

$$Q_{(a)} = \frac{633{,}000\ F\ AO.32}{LC}$$

(3) You must make sure safety relief devices meet the following additional requirements:

(a) Are set to start-to-discharge at a pressure not in excess of the design pressure of the tank;

(b) Have a total relieving capacity sufficient to prevent a maximum pressure in a tank of more than one hundred twenty percent of the design pressure.

(4) You must provide shut off valves for all connections including plugs, safety valves, and thermometer wells.

Locate them as close to the tank as is practical.

EXEMPTION: Shut off valves do not need to be provided on connections with a No. 54 drill size restriction.

Note: Install, when operating conditions make it advisable, both of the following:
1. A check valve on the fill connection;
2. A remotely operated shut off valve on other connections located below the maximum liquid level.

(5) You must follow requirements found in Table 10, Refrigerated Tank Appurtenances.

Table 10
Refrigerated Tank Appurtenances

If you have:	Then make sure they:
Shut off valves used as a means of lock out for inspection or repair	1. Are of adequate flow capacity. 2. Are arranged to be locked or sealed open and not closed except by an authorized person who does both of the following: a. Remains there while the valve is closed;

If you have:	Then make sure they:
	b. Locks or seals the valve open when leaving the station.
Discharge line and header	1. Are designed to accommodate the maximum flow. 2. Have a back pressure not greater than 10% of the design pressure of the storage container. 3. Include the back pressure in the 120% of the maximum pressure of the design pressure. 4. Do not have other containers or systems that exhaust into the discharge line or header. 5. Have vent lines installed to prevent the accumulation of liquid in the lines. Note: Multiple safety relief valves on the same storage unit may be run through a common discharge header.
Vacuum breakers	Are provided with atmospheric storage.
Stacks	Do both of the following: 1. Prevent any obstructions by rain, snow, ice, or condensation; and 2. Have an outlet size not smaller than the size of the safety relief valve outlet connection.

(6) You must make sure appurtenances meet all of the requirements found in the following:

(a) ANSI CGA C-7 2004;

(b) ANSI CGA G2.1 1999;

(c) API Standard 620 4th Edition, 2002;

(d) ASHRAE 15 2004;

(e) ASME 2001, Section VIII, Division 1;

(f) ANSI B95.1 1977.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050. WSR 15-23-086, § 296-826-50015, filed 11/17/15, effective 12/18/15. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 06-10-067, § 296-826-50015, filed 5/2/06, effective 9/1/06.]