



## Hazardous Materials: Long Bolt Emergency Vents

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**Learning Objective:** The student shall be able to explain the purpose of long bolt emergency vents.

Excessive pressure or vacuum can occur whenever filling, emptying, or a temperature change occurs in an aboveground liquid storage tank. Vents are provided to minimize this buildup and protect the tank from any excess pressure.

Tanks normally have two vents: an operating vent and an emergency vent. The operating vent allows air to enter and vapor to exit at a rate sufficient to prevent the tank from bursting or collapsing. The emergency vent provides the tank with relief from the pressure resulting from overfilling the tank or overheating the tank contents if the tank is exposed to fire.

One type of emergency vent design is a loose bolt manhole. Generally, these bolts are 1- 1/2-inch (38.1 mm) long. Operators frequently see these manholes open during a delivery because of the pressure increase that occurs during filling, and mistakenly tighten the bolts. Or, owners will tighten the bolts after rainstorms because the lid gets warped and water seeps into the stored liquid.

During pneumatic tank testing the normal long bolt is replaced with a short bolt and the manhole is bolted shut to allow testing. If the manhole is not reopened at the end of the test, then the emergency vent is effectively eliminated. Long bolts generally are installed in every other hole of the vent seat.

Eliminating the emergency vent results in a dangerous condition and should be corrected immediately. Without correction the tank could fail catastrophically if exposed to a fire or if over-pressurized.

The latest editions of American Petroleum Institute Standard No. 2000, *Venting Atmospheric and Low-Pressure Storage Tanks: Nonrefrigerated and Refrigerated*, National Fire Protection Association (NFPA) 30, *Flammable and Combustible Liquids Code*, and NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages* should be consulted for guidance on tank vent sizing.



The long bolts at the top of this liquid storage tank manway should never be tightened.

