Emergency Generator Underground Storage Tanks (USTs) Release Detection

Overview

USTs used to fuel emergency generators became fully regulated on January 1, 2021, due to the advancements in technology to remotely monitor USTs. Release detection for emergency generator USTs has unique challenges. This fact sheet will discuss how to meet release detection requirements for regulated emergency generator tanks.

Tank Release Detection Methods

1. Emergency generator tanks installed on or after September 15, 2010 must use interstitial monitoring for release detection.
2. Emergency generator tanks installed prior to September 15, 2010 may use automatic tank gauging, interstitial monitoring (must be double-walled tank), groundwater monitoring, or manual tank gauging (for tanks less than 2,000 gallons). Statistical Inventory Reconciliation (SIR) may not be used for emergency generator tanks because there is no reliable way to determine the amount of product used. Vapor monitoring is not recommended because emergency generator USTs often use diesel. Diesel does not produce many vapors, which makes it very challenging to detect changing vapor levels as the method requires.

Piping Release Detection Methods

Piping release detection may be problematic for some existing piping set ups. Typically, emergency generator systems have supply piping that runs from the UST to an aboveground day tank and return piping from the day tank to the UST. The piping types associated with emergency generator tanks are safe suction, unsafe suction, pressurized/gravity, or a combination of the types. Aboveground piping, including piping inside a building, is not regulated as underground piping. Aboveground piping is regulated under the Statewide Building and Fire Codes and the National Fire Prevention Association and is not discussed in this document.

A. Pressurized Piping

The supply line (from the UST to the day tank) may be pressurized, safe suction, or unsafe suction. All return lines (from the day tank to the UST) are considered to be pressurized due to the head pressure of the fuel. Return lines from the day tank to the generator are usually non-regulated under the UST Technical Regulation because the lines are inside a building and therefore considered above-ground piping. The length of piping plays a major factor in the available methods of pressurized piping release detection since much of the available monitoring equipment has piping length limitations. With a professional's assistance, tank owners must ensure the piping release detection equipment can properly monitor the piping.

a. Pressurized Supply Piping

   i. Pressurized piping must be equipped with an Automatic Line Leak Detector (ALLD) or a sump sensor that meets the ALLD requirement. If a sump sensor is used to meet the ALLD requirements, then the Environmental Protection Agency (EPA) AIM System guidance must be followed. The AIM system guidance may be found on the EPA's website here: https://www.epa.gov/ust/depth-discussion-automated-interstitial-monitoring-systems-underground-pressurized-piping.
   Note: Mechanical leak detectors are not recommended for emergency generator UST systems since mechanical leak detectors can shut off product from the generator during an emergency.

   ii. Pressurized supply lines must also have one other method of release detection such as interstitial monitoring, annual line tightness testing, automatic tank gauging via electronic line leak detectors, or groundwater monitoring. Interstitial monitoring must be used if the piping was installed on or after September 15, 2010. Refer to DEQ's UST Piping Release Detection Fact Sheet located on DEQ's website for further information.

b. Pressurized Return Piping

   Return piping is considered pressurized piping. However, the automatic line leak detector requirement has been waived for return lines since the available technology usually cannot be installed on return lines. The return piping must be monitored for releases by using interstitial monitoring, annual line tightness

testing, automatic tank gauging, or groundwater monitoring. Refer to DEQ's UST Piping Release Detection Fact Sheet located on DEQ's website for further information.

Note: Piping only used for day tank overflows is not considered return piping and is not regulated by the UST regulation.

B. Unsafe Suction Piping

Unsafe suction piping (piping with a foot valve at tank) must be tightness tested every three years or monitored for releases using interstitial monitoring, automatic tank gauging, groundwater monitoring, or vapor monitoring. Interstitial monitoring must be used for piping installed on or after September 15, 2010. Refer to DEQ's Piping Release Detection Fact Sheet located on DEQ's website for further information.

C. Safe Suction Piping

Safe suction piping (piping that only has a check valve at the dispenser, no foot valve at the tank, and slopes back to the tank) does not pose a significant risk of a release to the environment and therefore does not require release detection.

What records must be kept for piping release detection?

- Results of monthly monitoring must be kept for at least 12 months.
- Line tightness testing records must be kept until the next test is conducted.
- Records of annual release detection equipment testing must be kept for 3 years.

For more information:

Contact the Office of Spill Response & Remediation at tank@deq.virginia.gov, or contact your regional DEQ Office: https://www.deq.virginia.gov/get-involved/about-us/contact-us

Additional information may also be found on DEQ's website located at https://www.deq.virginia.gov/our-programs/land-waste/petroleum-tanks/underground-storage-tanks.