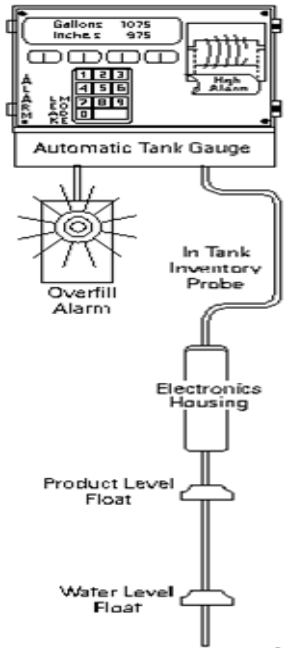
Automatic Tank Gauging – Release Detection for Underground Storage Tanks

Overview

Release detection is required for all regulated underground storage tanks (USTs) in Virginia, as it provides quick detection of leaks to minimize environmental damage and threats to human health. This handout explains the regulatory requirements for the Automatic Tank Gauging (ATG) method, using a tank monitoring system.



In an Automatic Tank Gauging (ATG) system, a probe installed in the tank is connected to a monitor to provide information on product level and temperature. These systems calculate changes in product volume that can indicate a leaking tank. **Each UST must pass at least one 0.2 gallon per hour (GPH) test, once every 30 days.**

Tank owners can program leak test frequency, print out test results and alarm histories, and investigate alarms using the buttons on the ATG monitor. You will need to know the basic functioning of your monitor to know how to print compliance reports, be able to recognize a problem, including suspected releases, and notify your contractor when a problem arises.

Important! This method may not be used as the only method of tank release detection for tanks installed on or after September 15, 2010. Tanks installed after this date must use Interstitial Monitoring (IM) as the primary method for tank release detection. ATG may be used as a secondary method.

Monthly Tank Release Detection Test

ATG systems can be programmed to perform monthly leak detection on a periodic or continuous basis:

Periodic – also called in-tank static test or tank leak test. The ATG can be programmed to perform a leak test at your preferred frequency; however, the test must occur no less frequently than every 30 days. This type of ATG system can be problematic for a couple of reasons: (1) the tank must be inactive (no deliveries or fueling) for an extended period of time before the test is run and during the test in order for the test to be performed accurately. This results in the likelihood that the tank will be out of service for up to 12 hours. Consult your ATG manual to determine the amount of "quiet time" recommended by the manufacturer. (2) In general, the tank must be at least 30% full to obtain a valid test result so this type of monitoring system will not work for a tank that consistently carries a low volume.

Continuous - also called Continuous Statistical Leak Detection (CSLD) or Statistical Continuous Automatic Leak Detection (SCALD). The system takes multiple volume readings when fuel is neither being added to or removed from the tank and uses a statistical program to determine the likelihood of the tank leaking. All data collected is averaged over the past 30 days to provide a test result. Because this method requires very little "quiet time" to obtain a result, delivery and fueling operations are not impacted. **DEQ recommends owners use the CSLD method to monitor their tanks for releases to reduce the number of invalid tests due to fueling operations and low product levels.**

Test results will be one of the following:

Pass – the 0.2 gallons per hour (gph) tank test did not detect a leak/release from the tank. Some monitors can be programmed to run a 0.1 gph periodic test which is also acceptable.

Inconclusive – no valid result. The test report will often have a reason for this result, such as a low fluid level ("low level test error" or "percent volume too low"), an unexplained fuel increase during the test ("product level increase" or "recent delivery") or large unexplained changes in temperature ("temp change too large"). If test results are Inconclusive, you must make sure the test runs again during the 30-day period with a valid "Pass"/"Fail" result.

Fail – the 0.2gph tank test has detected the probability of a leak with 95% certainty and the cause must be investigated and identified immediately. **A "fail" test result is a suspected release and must be reported to DEQ within 24 hours unless the cause of failure is immediately investigated and determined to be due to a reason other than a leak.** Please see below for release reporting requirements.

Equipment Checks and Testing:

Monthly**:** At least every 30 days (as part of the walkthrough inspection), you must check the ATG monitor for warnings, alarms, or other unusual operating conditions. Address the alarms and note on the inspection form what actions you took to resolve the problems. **DEQ strongly recommends checking the ATG whenever it alarms to ensure the alarm is not indicating a leak is occurring**.

Annual**:** ATG equipment must be tested annually by a qualified person in accordance with manufacturer's instructions or an accepted industry standard. In general, annual ATG testing involves:

- Verifying system configuration and that it is set up properly to detect a leak.
- Testing the backup battery (if applicable – some newer monitors do not have a backup battery)
- Removing the ATG probe from each tank.
- Inspecting probes and sensors for residue and buildup.
- Assuring the floats move freely, the shaft is not damaged, and cables are free of kinks and breaks.
- Testing the alarm.

Recordkeeping

Monthly Monitoring Records: You must have at least one passing 0.2 gph test every 30 days for each UST. Records must be kept for at least 12 months and be provided to DEQ promptly upon request.

- The ATG monitor can be programmed to print the tank leak test report automatically, at intervals once per month, twice per month, weekly, or daily. DEQ recommends that you have the monitor programmed to print more often than once per month. This will provide time to troubleshoot/investigate if the tank does not receive a valid result.

Annual Equipment Tests: You must keep annual equipment test records for at least 3 years. At a minimum, the testing records must indicate which components were tested, whether the equipment passed or failed, and, for failing equipment, what actions were taken to correct the problem.

Release Reporting

Immediately contact your petroleum service company to identify the source of the leak, and report a release to DEQ using the form at https://www.deq.virginia.gov/our-programs/land-waste/petroleum-tanks/cleanup-activities/tools-and-resources, https://portal.deq.virginia.gov/v2/prep/createReport, or by contacting your DEQ regional office (https://www.deq.virginia.gov/get-involved/about-us/contact-us).

For more information:

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