

Low Liquid Level UST Containment Sump Testing in Missouri



1. The Underground Storage Tank regulations (10 CSR 26-2.035) allow the department to approve alternative containment sump testing procedures. This document provides procedures for the approved low liquid level hydrostatic (water) testing in lieu of traditional (full) containment sump testing in accordance with the Petroleum Equipment Institutes' Recommended Practice 1200 - Recommended Practices and the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities. The regulations mandate owners and operators test the integrity of their required containment sumps at installation and every three years thereafter. Following all of these procedures would satisfy the department approved option for containment sump testing. Note: Hydrostatic containment sump testing (traditional or low-level) is not required if the containment sump is double-walled with appropriate, documented interstitial monitoring between sump walls.

Low Level Sump and Sensor Testing Procedure

Low level testing is an alternative method that only requires filling the sump with test water to at least 4 inches above the sensor height to activate the sensor. This test method is only approved for routine testing; it may not be used as the post-install or post-repair test.

Sump Sensor Testing

1. Prior to testing, determine the brand and model number of your sensor and details of how the manufacturer specifies a functionality test be performed on the sensors.
2. Visual inspection of sump sensors must be conducted for signs of damage or corrosion of sensors. Non-operable sensors must be replaced and operating normally prior to low level testing.
3. Sensors are installed in accordance with manufacture's requirements and by the National Work Group on Leak Detection Evaluations listing requirements. nwgldc.org/
4. Sensor testing is conducted by adding sufficient water in the sump or separate container to activate the sensor, unless the manufacture specifies a different method.
5. Confirm sump sensor will alarm upon detecting liquid.
6. The sensor alarm will shut down all submersible turbine pumps (STPs) associated with the products monitored by the relevant sensor.



Sump Containment Testing

1. Sumps must be free of liquid and debris prior to testing and free of cracks, holes and compromised boots.
2. Sumps must be leak-tight to point of sensor alarm activation.
3. If you prefer, after determining alarm height and sensor operability, you may temporarily remove or raise the sensors before conducting the test, but they must be properly repositioned after the test.
4. Add water into sump until the liquid level is at least 4 inches above the height required to activate the sensor.
5. Due to the potential for sump deflection, wait 15 minutes before beginning the test.
6. Place a measuring stick vertically in the sump at the lowest level of the sump. Measuring stick needs to measure in 1/16 inch increments.
7. Document the water level in the sump and record the measurement and start time on a
8. Test Report Form.
9. Do not disturb the water in the sump for at least one hour.
10. After one hour has elapsed since measuring the height of the liquid, check the water level again. Record the liquid measurement and current time on the Test Report Form.

Sump Testing Pass/Fail Criteria

Pass - Sump water level changes less than 1/8 inch

Fail - Sump water level changes more than 1/8 inch

1. Record all data on Test Report Form.
2. If sump failed test, repairs must be made and sump tested again until passes test.
3. Maintain written documentation of the functional sensor and sump testing results until next test.

After the Test

1. Remove the measuring stick from sump.
2. Confirm sump sensor is correctly installed at lowest point in sump.
3. Remove water from sump. Test water from sumps must be properly handled, tested and disposed of in accordance with relevant waste management and disposal authorities. For more information, refer to MoDNR Publication 2640 for disposal guidance of water available online at dnr.mo.gov/pubs/pub2640.htm

Ongoing Operation

Owners and operators must respond to indications of a suspected release, including sensor alarms. Suspected releases must be properly reported, in accordance with 10 CSR 26-2.050. If the alarm investigation finds the source of the liquid ingress, and if the leak can be stopped by leaving only one of multiple STPs off, the product can be removed from the sump and the remaining STPs may be re-activated. The STP associated with the leak must remain off until the leak can be repaired. (For example, if the dispenser has three products, but only the source of the alarm is a leak at the fitting on the premium line in that dispenser, the premium STPs must remain off, the premium fuel removed from the sump), but then the regular and diesel STPs associated with the dispenser may be re-activated).

Sensors must remain properly installed at the lowest point in the sump.

Sensors are annually tested for proper operations.

Sensors must remain functional. A “sensor out” or relevant warning or alarm must be promptly addressed.

Owner or operators must respond to all leak detection alarms, including sensor alarms.

If these ongoing operational conditions are not met, a full containment sump test may be required.



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Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated by rule under chapter 536 or authorized by statute.