

Louisiana Department of Environmental Quality
Underground Storage Tank Division

UST Containment Sump Low Liquid Level Hydrostatic Test Procedures

This document provides a procedure for low liquid level hydrostatic testing as one method that meets the requirements in LAC 33:XI.511 for periodically testing the integrity of containment sumps that are used for interstitial monitoring of piping.

LAC 33:XI.511 requires that containment sumps used for interstitial monitoring of piping must prevent releases to the environment by meeting one of the following requirements: (1) be double-walled with the integrity of both walls periodically monitored (at least once every 30 days), or (2) be tested at least once every three years to ensure that it is liquid-tight.

When the testing option is selected, each containment sump used for piping interstitial monitoring must be tested at least once every three years to ensure that it is liquid-tight using a vacuum, pressure, or liquid test method according to one of the criteria listed in LAC 33:XI.511.A.1.b.i – iii:

- Requirements developed by the manufacturer (only if the manufacturer has developed requirements);
- Code of practice developed by a nationally recognized association or independent testing laboratory (DEQ accepts the integrity method listed in Petroleum Equipment Institute (PEI) Publication RP1200, *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities*, available on PEI's website <http://www.pei.org/recommended-practices-exams>); or
- Requirements developed by DEQ to be no less protective of human health and the environment than the two requirements listed above.

DEQ has determined that the requirements in this document are no less protective of human health and the environment as the first two requirements listed above if all of the conditions in this document are met and all of the procedures in this document are followed. This procedure is allowable to meet the periodic sump test requirement in LAC 33:XI.511 and the repaired sump test requirement in LAC 33:XI.507.A.5 as long as the required conditions specified in these procedures are met. If the required conditions and procedures are not adhered to, then low liquid level hydrostatic testing is not allowed.

Whenever repairs are required to containment sumps that meet the required conditions of this document and this testing procedure is utilized, the sump must be repaired to achieve tightness to at least 4 inches above the height required to activate the sensor.

Containment sumps that do not meet the required conditions of this document must be repaired to achieve tightness up to or above the highest penetration point of the sump so that it meets the manufacturer requirements or PEI RP1200 test standard.

These procedures cover:

- Required Conditions
- Pre-Testing Checklist
- Testing Steps
- After Completing the Tests

A form is available at <http://www.deq.louisiana.gov/ust> to document compliance with these procedures. If the DEQ form is not used, the form that is used must document compliance with all of the requirements listed in these procedures.

Required Conditions

The containment sump must meet all of these conditions in order for this test method to be used to comply with the requirements of LAC 33:XI.511.A.1.b.iii:

- A liquid sensor sump is mounted and remains at the lowest point in the sump.
- The functionality of the liquid level sensor is tested in conjunction with the low liquid level sump test and it is verified that the sensor works correctly and shuts down the appropriate sump or dispenser. In addition, LAC 33:XI.703.A.2.d.i requires an annual test of any liquid sensor used as part of a release detection system beginning September 20, 2021. The test of the liquid level sensor performed at the time of the low liquid level sump testing may be used to comply with the annual sensor test requirements of LAC 33:XI.703.A.2.d.i, if all other conditions of LAC 33:XI.703.A.2.d are completed as required.
- And either:
 - The pump automatically shuts off and an alarm is activated when liquid activates the sensor, or
 - The dispenser automatically shuts off and an alarm is activated when liquid activates the sensor, and the facility is always staffed when the pumps are operational.

To use these procedures, ensure that all sensors are properly installed and programmed so that they shut off either the pump or dispenser and alarms are activated per the instructions above when the

sensor detects liquid. This procedure can only be used if sensors are programmed to both alarm and shut off when in contact with any liquid.

Pre-Testing Checklist

Check the three items listed below before using the following step-by-step instructions to perform the low liquid level hydrostatic testing of a containment sump. If no issues are found after checking the three items, proceed with the step-by-step instructions to hydrostatically test the containment sump using a low liquid level. If any issues are found, the low liquid level hydrostatic test procedure cannot be used until the issues have been addressed.

Check 1 – Determine if there is liquid present in the sump at levels high enough to trigger a properly positioned sensor, even if the alarm is not activated. An active alarm may need to be treated as a suspected release in accordance with LAC 33:XI.707. Remove any debris or liquid in the containment sump prior to testing.

Check 2 – Identify if the sensor position is elevated or otherwise manipulated to prevent activation.

Note: At this point, DEQ recommends a visual inspection of the sensor and electrical connections for signs of damage, deterioration, or corrosion to a point where functioning may be impaired.

Check 3 – Determine if the sump has cracks, holes, or compromised boots located in the portion of the sump where water will be added during the low liquid level sump test. The test requires at least 4 inches above the height required to activate the sensor, so the area must be free of cracks, holes, or compromised boots. If any of these are present in this area, this test method cannot be used until the sump is repaired.

Note: At this point, DEQ recommends a visual inspection of the entire sump. Cracks, holes, or compromised boots anywhere in the sump, including above the sensor activation level, may indicate a degrading sump. Although not required as long as the required conditions in this document and these testing procedures are met, consider replacing or repairing all worn or damaged components, not just those required when using this test procedure.

Testing Steps

Part A contains the steps to test sump sensors for functionality and the ability to alarm and shut down the product flow. Part B contains the steps to test the integrity of the sump itself.

Part A – Functionality Test of the Sump Sensor

Step 1 – Prepare for the sensor functionality test by determining and documenting how the test should be performed. Record the minimum amount of liquid required to activate the sensor on the test report form.

- Determine the manufacturer of your sensor and details of how the manufacturer specifies a functionality test be performed. A functionality test is performed by adding sufficient

liquid to the sump to ensure that the sensor activates, unless the manufacturer specifies a different method.

- Different sensor manufacturers may specify different procedures or volumes of liquid required to properly test their products. The sensor activation test must be performed according to the sensor manufacturer instructions for testing non-discriminating or discriminating sensors. Some manufacturers may specify testing in a container other than the sump. If the manufacturer specifies testing in a separate container, complete the test and replace the sensor in the sump and proceed to step 2.
- Written documentation from the manufacturer must be maintained detailing the required procedure and minimum amount of liquid required to activate the sensor.

Step 2 – Secure a measuring stick vertically against the wall nearest the lowest level of the sump and ensure that it is located in a visually accessible place where markings on the stick can be read. Use a clamp, tape, or other adhesive method to immobilize the stick for the duration of the test. Leave several inches of markings visible.

Note: It may be impractical to access the bottom of some sumps to install a measuring stick against the wall. For this reason or other reasons, a float and console type of probe may be used to perform the integrity testing.

Step 3 – According to the manufacturer’s instructions, immerse the sensor in liquid at least to the height that ensures that the sensor alarm can activate.

Step 4 – Determine if the sensor is in alarm.

Note: This low level procedure can only be used if the sensor alarm activates at the level set according to the manufacturer’s instructions. If a sensor failed, this procedure can only be used if the failed sensor is repaired or replaced and an alarm activates.

Step 5 – If the sensor alarms successfully, verify that either:

- The pump has automatically shut off when the liquid activated the sensor, or
- The dispenser has automatically shut off when the liquid activated the sensor, and the facility is always staffed when the pumps are operational.

Step 6 – If the sensor passed the visual inspection, the functional inspection for alarm, and each pump or dispenser is disabled, then go to Part B for integrity testing.

Part B – Testing the Integrity of the Containment Sump

Step 1 – If necessary, add more water into the sump until the liquid level is at least 4 inches above the height required to activate the sensor.

Note: If testing other sumps, the sensor can be removed from this sump now or deactivated before adding water. Removing the sensor from the liquid or deactivating it allows for testing other sensors in the UST system for functionality and positive shutdown without interrupting the one-hour liquid tightness test of this sump.

Step 2 – Wait 5 minutes.

Note: Waiting allows the water level sufficient time to settle in case there is sump deflection from the weight of the water.

Step 3 – Measure and record the liquid height in the sump. Document the level and current time on the test report form.

Step 4 – Do not disturb the water in the sump for at least one hour.

Step 5 – After one hour has elapsed since measuring the height of the liquid, check the liquid level again. Record the liquid measurement and the current time on the test report form.

Step 6 – Compare the two liquid level measurement numbers. If the level has dropped by more than 1/8 inch, then the sump failed the low level liquid hydrostatic integrity test. Record the result on the test report form.

Note: Failed sumps must be repaired or replaced within 30 days of failing the test unless an alternative timeframe is granted, in writing, by DEQ. UST owners must submit a UST-ENF-04 form 30 days prior to conducting a UST system repair or UST system renovation. Repairing a failed containment sump is allowed prior to submitting the UST-ENF-04 form, but the form must be submitted to DEQ within 30 days of completion of the repair detailing the nature of the repair. Repair of a containment sump does not require a certified worker. Installation of a containment sump is an installation-critical juncture and requires a certified worker.

After Completing the Tests

Step 1 – Remove the measuring stick from the sump.

Step 2 – Remove the test water from the sump.

Note: Sump test water must be managed in one of the following ways: reused as test water, reclaimed as off-specification fuel, discharged under a hydrostatic water permit (LAG670000), or properly disposed.

Step 3 – Reposition the sensor, if needed, ensure that it is activated, and replace the sump cover and manhole cover.