



Low-Level Hydrostatic Test Method for Sumps and Under-Dispenser Containment

This method may be used to test the tightness of sumps (e.g., product piping, transition, STP) or under-dispenser containment sumps in order to comply with State of Rhode Island Department of Environmental Management regulations and U.S. EPA regulations. This method is not approved for testing spill containment basins. Specific equipment configurations and testing are required for low-level hydrostatic testing, and there are strict limitations on when and where a low-level test can be performed, and not all facilities will be eligible to perform a low-level test. Please note that Rhode Island does not currently accept any alternative low-level test methods, including PEI low-level test methods. If you wish to perform a low-level hydrostatic test, you must follow this method exactly as described.



A low-level hydrostatic test does not allow sumps or under-dispenser containment (UDC) that have worn, damaged, or missing piping boots, damaged walls, or other deficiencies to bypass the tightness requirement. **Sumps and UDCs are still expected to be liquid-tight for their entire volume**, and if there is any indication that the sump would not pass a full tightness test, then a low-level test is not allowed!



Low-level hydrostatic tests must be performed by DEM-licensed tightness testers; Tests performed at sites which do not meet the eligibility requirements will not be accepted!

Eligibility requirements:

- This method is only approved for use in STP, transition, piping, or under-dispenser containment sumps. Spill containment basins (e.g., “spill buckets”) cannot be tested with this method;
- Each sump or UDC must contain a functioning liquid level sensor connected to an automatic shutdown device that shuts down the component associated with the containment being tested. For sumps, the liquid level sensor must fully shut-down the STP or suction pump. For UDC’s, the liquid level sensor must fully shut down the dispenser, or, all the STP or suction pumps. The activation of an alarm or other warning is not sufficient, the component must be fully shut down and de-energized;
- Liquid level sensors and automatic shutdown equipment must be installed by a qualified 3rd party vendor in accordance with the UST Regulations and have been approved by DEM. Facilities at which these components were added without approval or notification of DEM are not eligible to perform low-level hydrostatic tests;
- The facility must be manned by at least a C-level operator during operational hours;
- All liquid level sensors must be securely mounted within 1” of the lowest point of the sump and/or UDC;
- The liquid level sensors and automatic shutdown device must be tested for proper operation on an annual basis and immediately prior to the low-level hydrostatic test to ensure they operate as intended;
- Any facility that is found to have a liquid level sensor that has been raised so that it is no longer within 1” of the lowest point of the sump, or have disabled the liquid level sensor or automatic shutdown device is not eligible to perform a low-level test;
- A low-level hydrostatic test cannot be the first tightness test performed after any modification or replacement of the sump, UDC, product piping, or piping boots. All post-construction hydrostatic tests must be full level;
- The Class A, Class B, or Class A/B operator must open and inspect the sump and/or under-dispenser containment on a monthly basis as part of the monthly operator inspection to ensure that the liquid level sensor is mounted and placed properly and there is no accumulation of liquid. Facilities which do not have an assigned Class A/B operator, or facilities at which the A/B operator has not been performing routine inspections are not eligible to perform low-level testing;

Initial Survey:



DEM maintains a list of all facilities eligible for low-level testing on our website at <http://www.dem.ri.gov/ust>; the contractor should first check to ensure that the facility is approved by DEM for low-level testing.

Prior to commencing any test, the tester must perform an inspection of all components that are to be tested. The following conditions must be met in order to move on to the next step:

- Check to ensure the facility is on the approved list for low-level testing by RI DEM. If it is, proceed. If it is not, an alternative method must be used;
- Inspect all boots and bulkhead fittings for evidence of damage (e.g., cracking, rot) or severe degradation or wear. The presence of damage or severe degradation or wear of any component is an automatic fail;
- Inspect the inside of the sump and ensure that it is clean and contains no liquid or other debris;
- Inspect the liquid level sensor to ensure that it is securely mounted and within 1" of the lowest point of the sump. If the sensor is found to be missing, disabled, defeated, or evidence suggests it has been purposely moved or raised to defeat the automatic shutdown device, the facility is not eligible for low-level liquid testing and must be tested using an alternative approved method;
- Inspect the interior of the sump for evidence of cracks, holes, delamination, excessive rust, staining, discoloration, or evidence of liquid intrusion. You may need to clean the interior of the sump in order to provide a good view of all surfaces. In the event the sump is damaged, this is considered an automatic fail;
- Activate the liquid level sensor and ensure that it deactivates the associated component. When activated, no product should be able to be dispensed, and in the case of STP, product piping, or transition sumps, should prevent the product line from becoming pressurized.
- If these conditions are met a low-level hydrostatic test may be performed.

Low-Level Hydrostatic Test Procedure:

- 1) Download the Low-Level hydrostatic test form from our website at <http://www.dem.ri.gov/ust>
- 2) Add water to the component being tested until the liquid level is no less than 4" above the minimum liquid level sensor activation point; all measurements must be made with a ruler with at least 1/16" increments;
- 3) Allow the liquid to sit undisturbed for 15 minutes. This will allow the liquid to settle and reach an equilibrium.
- 4) After 15 minutes has elapsed, measure the liquid level depth using a ruler and record the depth on the test form; this will be your starting point (t=0);
- 5) After 15 minutes has elapsed (e.g., T=15), measure the liquid level and record on the test form. If the liquid level has dropped $\geq \frac{1}{8}$ " (0.125"), the component has failed and you must immediately empty all liquid from the component. If the liquid level remains unchanged or has dropped $< \frac{1}{8}$ " (0.125"), proceed to step 6.
- 6) Allow the liquid to sit undisturbed for an additional 45 minutes. It may be advisable to place a cover or tarp over the manway to limit evaporation on hot days, or, prevent water intrusion when it is raining or snowing.
- 7) After a total of 60 minutes has elapsed (15 minutes + 45 minutes), measure the liquid level using a ruler and record the final depth on the test form (t=60);
- 8) The final change in depth is determined by subtracting the initial measured water depth from the final measured water depth, OR, if you marked the wall of the sump, measure the distance between the mark made at the start of the test and the mark at the end of the test. Record this value on the test form. If the final change in water depth is $\geq \frac{1}{8}$ " (> 0.125 "), the sump is considered to have failed the tightness test.

Reporting and Failures

All data collected during the test must be recorded on the DEM-provided hydrostatic testing form and submitted to DEM within 30 days of the test, or in the case of failed tests, 7 days. DEM must be notified immediately of all failed tests by calling (401) 222-2797.