



Maryland
Department of
the Environment

FACTS ABOUT: MARYLAND CONTAINMENT SUMP TESTING PROTOCOL

On January 26, 2005, the Maryland Department of the Environment (the Department) implemented, in the Code of Maryland Regulations (COMAR) 26.10, Oil Pollution and Tank Management, requirements for the testing of underground storage tank (UST) system spill catchment basins and containment sumps to ensure this equipment is not leaking. In addition, the Department developed the Maryland Containment System Testing Protocol, specifically for spill catchment basins (a.k.a. spill buckets) and containment sumps. The Department recognizes that this protocol is not necessarily the only method that can be used to determine the tightness of this equipment. There are electronic and vacuum methods available that may be more accurate than the process outlined in this protocol. However, before an alternative method can be used, the proposed testing method must be provided in detail to the Department for review and approval. The Department further recommends that spill catchment basin and containment sump testing be performed in conjunction with other UST compliance testing activities. After the initial test, the spill catchment basins are required to be tested annually and containment sumps every 5 years.

WHO CAN PERFORM THE TEST

The individual performing the inspection and testing as outlined in this protocol must be either:

- A Maryland certified Underground Storage System Technician in compliance with COMAR 26.10.06;
- A Maryland certified Underground Storage System Inspector in compliance with COMAR 26.10.06; or
- A certified UST system tester:
 - That performs an approved third party test method; and
 - Has a valid certification from the manufacture of the approved third party test method at the time of the test; and
 - Is employed by an UST testing company recognized by the Department on its list of approved UST test methods.

The list of approved UST test methods is available on the Oil Control Program (OCP) Fact Sheets, Publications, and Reports webpage:

<http://mde.maryland.gov/programs/Land/OilControl/Pages/factsheetspublications.aspx>.



SPILL CATCHMENT BASINS

Preventing environmental impacts by containing the inevitable small spills that occur during the transfer of fuel from the tanker truck to the UST was the driving force behind the requirement for spill catchment basins. This requirement is stated in COMAR 26.10.03.03. Under COMAR 26.10.03, Maryland requires spill catchment basins on every regulated UST installed on or after December 22, 1988. For tanks installed prior to that date, owner/operators had until December 22, 1998, to have them in place. New heating oil UST systems installed on or after November 4, 1996 require spill catchment basins. On July 1, 1998, Maryland further amended COMAR and required the installation of spill catchment basins on the Stage I vapor recovery connections of storage tanks (COMAR 26.10.03.03D).

The catchment basins are made of both steel and plastic and are installed on fill risers and remote fill pipes of the UST. Spill catchment basins must have a minimum of 5-gallon spill capacity; however, larger basins with capacities upwards of 25 gallons are available. Some have drains or hand pumps permanently installed while others require the use of an external pump or absorbent pads to remove product. Catchment basins should not routinely contain product or water.

SPILL CATCHMENT BASIN HYDROSTATIC TEST PROTOCOL

The Department testing procedure is described in detail below. Important facts to consider with this test are:

- The basins are hydrostatically tested (using water only);
- Care must be taken to isolate loss through the drain; and
- The standard for declaring a failure is 1/8 inch or greater loss of water within 1 hour (which is equal to a leak rate of 0.05 gallons per hour in a typical 12-inch diameter basin).

The Department highly recommends that photographic documentation be made part of all testing reports, to document the basin and sump conditions.

Note: If during your site visit you identify or suspect a release of fuel to the environment, you must report this finding to the Department immediately but no later than 2 hours after the discovery.

Single-Wall

1. This test cannot be performed in the rain or in freezing weather conditions.
2. Basins must be inspected for debris and liquid content. Any liquid content (fuel and/or water) found in the basin must be removed prior to testing and the liquid must be properly disposed of. Any accumulation of debris (leaves, trash, sediment, etc.) encountered in the basins must also be removed prior to testing and must be properly disposed of.
3. Examine all fill and vapor recovery caps and adapter fittings for loose or damaged parts and make necessary replacements.

4. Examine the basins for damage. A damaged basin may not be tested. It must be recorded as a test failure and arrangements made to repair or replace the basin.
5. The basin drain must be secured against possible leaks. This involves one of the following procedures:
 - a. Remove the plunger-drain and insert a temporary plug (the Department recommends that this plug be made permanent and the plunger mechanism not used);
 - b. Remove, clean, and reinstall the plunger-drain ensuring it seals properly; or
 - c. Adding +2 inches of water to the bucket prior to beginning the test to see whether the plunger-drain is liquid tight. Do not use fuels for testing.

If the drain cannot be secured against leaks by one of the above methods, the test is to be considered a failure and arrangements made for repairs.

6. Add water (do not use fuel for testing) to the basin to just over the top of the fill-pipe. The water must be allowed to settle before the level measurement is taken. To ensure an accurate measurement, a rigid straight edge is laid across the top of the basin and its location marked. A tape measure or other measuring device that is accurate within 1/16 inch is then lowered into the water perpendicular to the straight edge and the water level measurement is recorded. The location of the straight edge and the measuring device must be kept constant for each measurement. If possible the straight edge should be left in place.
7. The basin lid or alternative cover must be put back in place and the hydrostatic test performed for 1 hour. After the 1-hour test period, a liquid measurement is taken using the methodology described above
8. A liquid level drop of 1/8 inch or greater in 1 hour is considered a test failure.
9. All test failures must be reported to the Department immediately, but no later than 2 hours after the test.
10. Upon completion of the test, remove all water for further use or proper disposal and dry the catchment basin.

Double-Wall

- Must follow manufacturer's recommendations or the Petroleum Equipment Institute PEI/RP 1200 vacuum test procedure.
- Testing the primary portion of the basin only is not acceptable.

CONTAINMENT SUMPS

Containment sumps (sumps) were not required on USTs in Maryland until January 26, 2005. As a result of emergency regulations, sumps became mandatory for all new, replaced, or upgraded UST systems (COMAR 26.10.03.02). Sumps can be found as a subsurface structure directly under the product dispenser, at the tank top, at pipe transitions, and at vent riser pipes. Sumps are designed to provide access to equipment, fittings, and piping located below grade and to

prevent the stored product from being released into the environment. Containment sumps may also serve as leak detection monitoring systems for double-walled piping systems. Sumps must be UL-listed and made from material compatible with the product being stored. Sumps should not routinely contain product or water.

Some containment sump types:

- The turbine pump sump is designed to provide access to the turbine pump area above the tank. The turbine area may house the turbine pump head, line leak detectors, interstitial monitoring devices, wiring, and other equipment.
- Dispenser sumps are designed to contain releases and provide access to piping and other equipment located under the product dispenser.
- Transition / intermediate sumps are used for the transition from aboveground piping to belowground piping (e.g. vent riser sumps), to transition between different types of piping, or to achieve the proper slope on a piping run.

CONTAINMENT SUMP HYDROSTATIC TEST PROTOCOL

Safety precautions and care must be taken when opening the lids. The lids are generally cumbersome and heavy. Flammable vapors and liquids may be present in the sump. Square or rectangular sump lids can fall through the opening and damage the piping, submersible pump, or tank. Round or oval lids, while not typically capable of falling into the sump, may swing down and impact the submersible pump, line leak detector, or electrical connections. If applicable, follow the equipment manufacturer recommendations if special instructions are necessary to open the sump lids. Some lids are bolted down and hinged to allow ease in opening. In order to access the dispenser sumps, you may need a key to remove the dispenser cover. In rare instances, the dispenser may need to be removed for the inspection and testing procedure.

Containment sumps with missing or damaged entry test boots are considered a fail and must be reported to the Department in accordance with the below reporting requirements.

Sumps may not be tested by flooding the entire piping system.

The Department highly recommends that photographic documentation be made part of all testing reports, to document the basin and sump conditions.

Note: If during your site visit you identify or suspect a release of fuel to the environment, you must report this finding to the Department immediately but no later than 2 hours after the discovery.

Single-Wall

1. This test cannot be performed in the rain or in freezing weather conditions.
2. Test boots or sealed entry fittings must be present on piping that penetrates the sump. If test boots or sealed entry fittings are not installed and cannot be retrofitted, the test is considered a fail. Sumps may not be tested by flooding the entire piping system.

3. Sumps must be inspected for debris and liquid content. Any liquid content (fuel and/or water) found in the basin must be removed prior to testing and the liquid must be properly disposed of. Any accumulation of debris (leaves, trash, filters, sediment, etc.) encountered in the basins must also be removed prior to testing and must be properly disposed of.
4. Examine the sump for damage. A damaged sump may not be tested. It must be recorded as a test failure and arrangements made to repair or replace the sump.
5. Inspect all equipment for product leaks. All product leaks must be repaired before testing the sump.
6. Inspect all entry points and seals to ensure they are in good condition.
7. When liquid sump sensors are present, raise or disable the sensors before conducting the test. This is an excellent time to perform a functional test to ensure proper operation of the liquid sensors.
8. Ensure that there are no components that can be damaged by the addition of water to the sump. If such components are present discontinue the test and arrange to make repairs in order to perform the test or use an alternative testing method. Water can damage electrical connections, so caution must be taken.
9. Add water (do not use fuel for testing) to the sump to a minimum of 4 inches above the highest sump penetration or sump sidewall seam. To compensate for sump deflection, the water must be allowed to settle. To ensure an accurate measurement, a rigid straight edge is laid across the top of the sump and its location marked. A tape measure or other measuring device that is accurate within 1/16 inch is then lowered into the water perpendicular to the straight edge and the water level measurement recorded. The location of the straight edge and the measuring device must be kept constant for each measurement. If possible the straight edge should be left in place.
10. The sump lid or dispenser cover must be put back in place and the hydrostatic test performed for 1 hour. After the 1-hour test period, a liquid measurement is taken using the methodology described above.
11. A measured liquid level drop of 1/8 inch or greater in 1 hour is considered a test failure.
12. All test failures must be reported to the Department immediately but no later than 2 hours after the test.
13. Upon completion of the test:
 - a. Remove all water for further use or proper disposal and dry the containment sump;
 - b. Reinstall or activate all liquid sensors and test them for proper operation;
 - c. If necessary, reinstall and check the product dispenser for leaks; and
 - d. For double-wall piping systems, remove schrader valves from entry test boots and point in the downward position or test boots must be open to allow product flow to the lowest point of the sump for detection.

Double-Wall

- Must follow manufacture's recommendations or the Petroleum Equipment Institute PEI/RP 1200 vacuum test procedure.
- Testing the primary portion of the sump only is not acceptable.

TEST DATA REPORTS

Data collected during the test must be recorded on a report available from the Department or as described below. The Maryland Catchment Basin and Containment Sump Test Report form is recommended for use and is available on the OCP Fact Sheets, Publications, and Reports webpage:

<http://mde.maryland.gov/programs/Land/OilControl/Pages/factsheetspublications.aspx>.

Alternative forms may be used provided they include the following minimum information:

- Facility I.D. No. (see the following webpage: <http://mes-mde.mde.state.md.us/FacilitySummary/default.aspx>)
- Facility name and address
- Owner's name, telephone number, and address
- Testing company name and telephone number
- Test date
- Weather conditions
- Test data to include: test start time, start water level or vacuum (inches water column), test end time, end water level or vacuum (inches water column), water level change or vacuum change, test result (pass / fail)
- Tester certification type: Maryland certified Underground Storage System Inspector, Maryland certified Underground Storage System Technician, or Certified Precision Tester (Test Equipment Name) with expiration date
- Tester's name (print) and signature
- Comments: Indicate the condition of the basin or sump and any required repairs prior to and during the test

REPORTING AND RECORD KEEPING REQUIREMENTS

1. Within 30 days of completion of the catchment basin or sump test, a written report detailing all activities and results must be maintained on site. If a test failure is detected, a copy of the test report must also be forwarded to the Department, including all photo documentation.
2. The UST owner must maintain these records for 1 year at the facility and 5 years at a location determined by the owner.

3. In accordance with COMAR 26.10.08.01A, if a storage system fails a test for tightness, is otherwise determined to be leaking, or there exists evidence of a release to the environment, the person conducting the test, the owner, and the operator of the storage system shall notify the Department within 2 hours. Two consecutive inconclusive tests are considered a failure and shall be reported as required in this chapter.
4. Failures can be reported to the Oil Control Program at 410-537-3442 during normal business hours, or 1-866-633-4686 24 hours a day or via facsimile: 410-537-3092;

Note: In accordance with Section 4-417(c) of the Environment Article, Annotated Code of Maryland, “*False statements in required documents; tampering with monitoring devices.* – Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or requirement to be maintained under this title, or by any permit, rule, regulation, or order issued under this title, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this title or by any permit, rule, regulation, or order issued under this title, upon conviction, is subject to a fine not exceeding \$10,000, or by imprisonment not exceeding six months or both.”

CONTACTS

For further information on requirements for UST systems, please contact the Oil Control Program at (410) 537-3442 or (800) 633-6101 x3442. To report oil spills call 1-866-633-4686 Available 24 hours a day.

****DISCLAIMER****

The storage of petroleum products and the maintenance and inspection of storage systems is a hazardous endeavor. Only experienced storage tank personnel should perform the actions as outlined in this protocol. The Maryland Department of the Environment makes no claim as to the completeness or the quality of work performed by private parties. The use of this protocol is designed to demonstrate compliance with Maryland regulations. The damage of storage tank equipment, loss of life or injury is the sole responsibility of the storage tank owner and the person performing the test. Before performing any test, the UST equipment manufacture should be consulted to ensure the test will not damage or void the equipment warranty.