

AC'CENT Environmental

Dri-Sump Containment Tightness Test Method

SECONDARY AND SPILL CONTAINMENT TEST METHOD

Certification Leak rate of 0.1 gph with PD = 100%, and PFA = 0%

Please be aware that the authority having jurisdiction in your particular state, territory, tribe or municipality may have set a minimum detectable leak rate for secondary and spill containment testing.

Applicability For testing spill and sump containments for compliance purposes post installation or repair that are free of debris or measurable liquid, located in non-saturated backfill consisting of sand, pea gravel, or clay/silt.

Specification Containment must be free of debris and measurable liquid.
Containment backfill can be moist but not saturated with measurable liquid as verified by visual observation of liquid level in Vapor Stimulator Tubes (VST) or if the sump bottoms are deeper than the VST through observation wells located in the containment backfill.
VSTs shall be installed per manufacturer's installation training and certification procedures and instructions which include the minimum number of VSTs, placement and depth for each type of containment. Dri-sump test equipment and technicians must be current in certifications through ACCENT or its authorized representative.

Installation of VST tubes may be drilled through pavement or installed vertically pre-burial with access to the VST tube provided in the containment sump below the lid or "top-hat" of the sump. In both cases the placement chart below applies.

Although not evaluated, the VST tubes may be installed horizontally through the walls of the sump post construction or repair. In which case, the minimum number of VSTs per containment sump shown on the placement chart below applies. The horizontal VST tubes should be installed 36 inches below grade for STP sumps up to 60 inches deep and at 18 inches below grade for dispenser sumps. Lesser depths below grade maybe utilized pending appropriate pre-test verification is conducted to confirm that the horizontal radius of influence of the vacuum is greater than or equal to the depth of the sump. Length of the horizontal VST tubes should be a minimum of 6 inches into the backfill when appropriate pre-test verification is conducted.

VST tubes installed through containment sumps shall be installed in accordance with NLPA – Standard 823, PEI recommended practice, or manufacturer specifications. All exposed VST tube components must meet applicable compatibility requirements for the fuel stored.

Vapor Stimulator Tubes (VST) Placement Chart

Containment Sump Type	Minimum Number of VSTs per Containment Sump	Maximum Horizontal Distance from Sump Wall	Minimum Length of VST	Backfill Soil Type Acceptance	Minimum Test Time for pass or fail results
Spill Bucket	1	8 inches (±1")	18 inches	All	1 minute

Under Dispenser Containment Sump (UDC)	1	8 inches (±1")	18 inches	All	1 minute
Transition Sump (UDC depth)	1	8 inches (±1")	18 inches	All	1 minute
Transition Sump (STP depth)	2	8 inches (±1")	36 inches	All	1 minute
Submersible Turbine Sump (STP)	2	8 inches (±1")	36 inches	All	1 minute

Pre-test Verification	A manometer is used to indicate adequate air flow and communication between VSTs in a 5-10 second pre-test procedure. Communication will be verified between two VSTs within the tank, piping, and dispenser in the same type backfill.
Waiting Time	No waiting time before test begins.
Test Period	Minimum of one minute once the test begins. Test data and any associated telemetry are required to be in the current report format (e.g. written, online, cloud-based, etc.) designed by ACCENT or its authorized representative.
System Features	A leak is determined by observation through one of two view ports for a change in the specialized digital laser light beam from a dot to a line, which is indicative of the presence of the proprietary heavy vapor. Either view port can be used to see the laser, or a smart phone or other visual aid can be used from outside the view chamber.
Comments	All consumables (e.g., VSTs and Aerosol) are manufactured exclusively by AC'CENT or its authorized representative. Dri-sump Containment Tightness Test method uses the proprietary heavy vapor aerosol instead of water to completely fill the sump, interstice or vessel. AC'CENT states this proprietary vapor aerosol is made from a formula of chemicals which are all food grade, pH neutral, non-petroleum based, non-toxic, non-flammable, and pose no environmental impact. The dissipation of the aerosol reverts back to normal organic elements in ambient air. When installed per the manufacturer's placement requirements this method allows for detecting heavy vapor egress from the containment at any point. The method automatically tests for adequate flow of air and vapor through the backfill each time the system is activated. Any stoppage of flow through the VST or backfill will cause increased vacuum on the View Chamber that is quickly identified by a significant collapse of the View Chamber side walls. Temperature is not a factor. The evaluation testing was conducted with three different non-metallic commercially manufactured deep containment sumps, 300 gallon capacity, 47 inches diameter and 60 inches long. These were installed as would typically be found at a fuel service station. They were tested in different backfill types, including: sand; pea gravel, and clay/silt mix. The presence of water above the bottom of the sumps was not evaluated. This method was only evaluated for single walled applications. Any leak where the Aerosol must pass through two walls or barriers may not be detected. This method was not evaluated for testing of any other component not listed in the applicability section. Any such testing conducted should be utilized as an investigative tool and not utilized for certification of tightness. In the event that pre-burial testing is conducted utilizing this method the implementing agency should note that as pre-burial conditions may change during the backfilling process sump integrity testing should be conducted after sump installation is complete to account for any settling or damages that may have occurred.

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