

THIRTIETH EDITION, 2023

LIST OF LEAK DETECTION EVALUATIONS FOR STORAGE TANK SYSTEMS



WWW.NWGLDE.ORG

DISCLAIMER

GENERAL

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment. Equipment should be installed and operated in accordance with all applicable laws and regulations.

This list of Leak Detection Evaluations was prepared by a work group consisting of State and EPA members and is limited to evaluations of leak detection equipment and procedures or systems, conducted by an "independent third-party evaluator" (see Appendix "Glossary of Terms") and reviewed by the work group. This list includes evaluations conducted in accordance with either EPA Standard Test Procedures for Evaluating Leak Detection Methods (EPA/530/UST-90/004 through 010) or other test procedures accepted by the NWGLDE as equivalent to the EPA standard test procedures (see Part III "Acceptable Test Protocols").

The National Work Group on Leak Detection Evaluations (NWGLDE) does not guarantee the performance of any leak detection method or equipment appearing on this List, nor does it warrant the results obtained through the use of such methods or equipment.

SPECIFIC

- The NWGLDE does not evaluate methods or equipment and appearance on this List does not mean they are automatically acceptable for use in any particular state or local jurisdiction.
- The NWGLDE List is not an EPA List, nor does appearance on this list constitute endorsement or approval by the NWGLDE or EPA. Anyone claiming that a device or method is "EPA approved" because it appears on this list is making a false claim.
- The NWGLDE makes no representations concerning the safe operation of any method or equipment. Users of any method or equipment appearing on this List assume full responsibility for the proper and safe operation of said equipment and assume any and all risks associated with its use.
- On each data sheet, this List reports parameters and data values for methods, equipment, and software that are specific to the most current third-party evaluation submitted to the NWGLDE. Subsequent modifications or changes to the method, equipment, or software may produce parameters and data values that are significantly different than the listed third-party evaluation parameters and data values. It is the responsibility of the local implementing agency to accept or reject those modifications or changes.
- NWGLDE Listings apply to leak detection functionality only and not material compatibility. Since long term material compatibility with the product stored is not addressed in test procedures and evaluations, the NWGLDE makes no representations as to the compatibility of leak detection equipment with the product stored.
- Unless specifically indicated on the individual data sheets, performance with alternative fuels has not been demonstrated **with the following exception:**

Biodiesel B6 through B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 may be used with all equipment listed for diesel whether or not these alternative fuels are included on individual data sheets. This exception DOES NOT APPLY to leak detection test methods using Out-Of Tank Product Detection (Vapor Phase) for B6-B20, and Out-Of Tank Product Detection (Liquid and Vapor Phase) and any tracer-based test methods for B100. For these methods, individual data sheets will have to be referenced to determine applicability.

- Measurements derived for minimum detectable water level and minimum water level change for automatic tank gauge method, continuous automatic tank gauge method, and certain non-volumetric tank tightness test method listings were calculated in 100% hydrocarbon fuels, unless otherwise noted.
- NWGLDE listed leak detection equipment may be applicable for use with additional liquids after consultation with the manufacturer and/or third party evaluator and subject to approval by the implementing agency.

The National Work Group on Leak Detection Evaluations (NWGLDE) is pleased to publish our 30th Edition, 2023 of the "List of Leak Detection Evaluations for Storage Tank Systems." Please note, the NWGLDE has significantly changed the format of this List. All of our listings are kept current on our webpage: <http://www.nwglde.org>. As this webpage has the current listings and most users access our information through the much easier-to-navigate webpage, the NWGLDE will no longer be maintaining a full, printed List of all of the NWGLDE evaluations. Instead, the new "List" will simply be a list of the changes made to the evaluations and methods within the past year. Attached, please find only those listings that are new or updated since the previous publication (29th Edition, January 2022). Please use our webpage to access current information, listings, and methods.

For help with accessing anything on our web site, please contact our webmaster, David Wilson, at djwilson@utah.gov, or give him a call at (385) 251-0893.

If you need to contact members of the work group, information for contacting them may be found on our webpage (http://www.nwglde.org/group_members.html). The work group team and team leaders are also listed on our webpage to help you determine the appropriate contacts (http://www.nwglde.org/team_members.html).

Vendors should send new third-party evaluations, which were performed by an "independent third-party evaluator" (see Glossary of Terms on webpage), to be reviewed by the work group to the team leader and all of the members of the team. Please follow all requirements and policies for submittals and include all documentation for a more prompt review (available on our webpage).

Please note, all reviews and listings are conducted and prepared by the NWGLDE, an independent work group consisting of state and EPA members. It is not a work group specifically affiliated with EPA or any specific state. The NWGLDE does not "approve" leak detection equipment or procedures. The "List" includes leak detection equipment/procedures that the work group has reviewed. The review confirms that the leak detection equipment/procedures were third-party evaluated in accordance with an acceptable protocol and in accordance with the EPA performance standards under appropriate test conditions. Implementing agencies must approve leak detection equipment and procedures, ensure appropriate installation, and determine compliance with UST regulations.

Thank you and we look forward to working with you soon.

Don Taylor, Chair
National Work Group on Leak Detection Evaluations (NWGLDE)





Search NWGLDE.org

News & Events

- Home
- Group Members
- Team Members
- Vendors: A - F
- Vendors: G - M
- Vendors: N - S
- Vendors: T - Z
- Testing Methods
- Downloads
- Links
- Library
- Disclaimer
- News & Events

What's New Since The 29th Edition List, 2021 (01/31/2022)

MOST RECENT WEBSITE ADDITIONS/REVISIONS:

- ◆ **Veeder-Root**
 - [8600 Series and 8601 Series Consoles Monitoring Systems with CSLD \(Model 8463 Magnetostrictive Probes\)](#)
Revised listing January 22, 2022
- ◆ **Think Tank Petroleum Service, LLC**
 - [Think Tank Product Line Volumetric Tightness Tester \(for Rigid and Flexible Pipelines\)](#)
Added to Line Tightness Test Method March 3, 2022
- ◆ **AC'CENT Environmental**
 - [Dri-Sump Containment Tightness Test Method](#)
Revised listing April 13, 2022
- ◆ **Franklin Fueling Systems**
 - [Secondary Containment Monitoring \(SCM\) EBW AS-SCM, EVO 600 Series Consoles, and Incon TS-SIM](#)
Revised listing December 27, 2022

FUTURE EVENTS

NWGLDE MEETING:
The NWGLDE Fall meeting will be held September 15-16, 2022 in Pittsburgh, PA, at the 27th [National Tanks Conference \(NTC\)](#).

Additional details are available by downloading the following Memo and Agenda:

[VENDOR INVITATION MEMO](#)

[MEETING AGENDA](#)

Contact [Don Taylorr](#) for more information.

Issue Date: February 13, 2015
Revision Date: January 22, 2022

Veeder-Root

8600 Series and 8601 Series Consoles Monitoring Systems with CSLD (Model 8463 Magnetostrictive Probes)

CONTINUOUS IN-TANK LEAK DETECTION METHOD (Continuous Automatic Tank Gauging)

Certification Leak rate of 0.2 gph with PD = 100% and PFA = 0%.

Leak Threshold Leak Thresholds for Maximum tank capacity of 58,752 gallons and monthly maximum throughput of 1,538,015 gallons.

	Threshold	PD	PFA
Single Tank Systems:	0.17	98.6%	<0.001%
Manifolded Tank Systems:	0.16	98.5%	<0.001%

A tank system should not be declared tight and a message printed for the operator, if the test results indicate a loss or gain that exceeds this threshold.

Applicability Gasoline, diesel, aviation fuel, fuel oil #4, solvents, biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751, ethanol and ethanol-gasoline blends, and other liquids with known coefficients of thermal expansion and density maybe tested after consultation with the manufacturer.

Tank Capacity Maximum of 58,752 gallons for the leak thresholds shown above.
Maximum tank capacity listed is for single tanks and up to 3 tanks manifolded together.
The minimum product level required to a test is 15% full.

Throughput Monthly maximum of 1,538,015 gallons for leak thresholds shown above.

Waiting Time Less than 3 hours stabilization time is required between delivery and data collection.

Test Period Data collection time can range up to 28 days. The minimum requirement of qualified idle test time is 6 hours to make a leak rate estimate, with a maximum of 28 days in which to acquire it. The more qualified test time available the higher confidence the leak rate estimate.
Data sampling frequency is once per minute.
System collects data at naturally occurring product levels without interfering with normal tank operation, and discards data from unstable periods when system performs test.

Temperature Average for product is determined by a probe which contains 5 thermistors. At least two thermistors must be submerged in product during test.

Water Sensor Must be used to detect water ingress.
Minimum detectable water level in the tank is 0.75 inch.
Minimum detectable change in water level is 0.08 inch.

Calibration Thermistors and probe must be checked and, if necessary, calibrated in accordance with manufacturer's instructions.

Comments System reports a leak rate and a "pass" or "fail" result.
System reports leak rates up to 5 gph as "fail" result. Leak rates from 7.5 – 10 gph as "no test".
Evaluated using both single and manifolded tank systems with probes in each tank.
The maximum throughput evaluated for a tank system open 24 hours was 359,096 gallons.
The extreme climate factor setting has not been evaluated to determine the PD of a 0.2 gph leak rate.
For valid monthly testing, a conclusive test report must be produced for each tank every month.
System warns operator if there are no "passing" tests completed during the month.
As product level is lowered, leak rate in a leaking tank decreases (due to lower head pressure).
Consistent testing or data collection at low levels could allow a leak to remain undetected.

Veeder-Root
125 Powder Forest Dr.
Simsbury, CT 06070-2003

Tel: (860) 651-2700
E-mail: info@veeder.com
URL: www.veeder.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluation: 06/29/98 (Rev. 4/17/02) 10/26/07,
02/29/08(water sensor), 10/03/14, 04/07/2021



| [Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment.

Equipment should be installed and operated in accordance with all applicable laws and regulations. For full details, please refer to our expanded "[DISCLAIMER](#)" page.

Issue Date: March 3, 2022

Think Tank Petroleum Service, LLC

Think Tank Product Line Volumetric Tightness Tester (for Rigid and Flexible Pipelines)

LINE TIGHTNESS TEST METHOD

Certification	Leak rate of 0.1 gph with PD = 99.9802% and PFA = 0.0198%
Leak Threshold	0.08 gph. A pipeline system should not be declared tight if the test result indicates a loss that equals or exceeds this threshold.
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, fuel oil #6, solvents, waste oil, biodiesel blends and all ethanol blended gasolines.
Specification	Systems tests rigid and flexible piping systems. Tests are conducted at 150% maximum operation pressure for fuel types and product line configurations. The safe maximum operating pressure for this method is 325 psi.
Pipeline Capacity	For rigid piping systems a maximum of 165.08 gallons with a bulk modulus of 30,843 psi for combination piping systems. For Flexible piping systems a maximum of 109.84 gallons with a bulk modulus of 13,858 psi for combination piping systems.
Waiting Time	None between delivery and testing for rigid or flexible piping systems. None between dispensing and testing for all piping systems.
Test Period	Under ideal conditions, test times can be as little as 30 minutes on a tight line depending on temperature conditions at the site. For a line where a leak is present, the minimum test time is 45 minutes under ideal conditions. Data is collected every 15 minutes. Three consecutive consistent readings are required for a valid test. Test data is acquired and recorded manually. Manual calculations are performed by the operator on site.
Comments	Requires annual tester certification for operation of this equipment by the manufacturer.

Think Tank Petroleum Service, LLC
P.O. Box 1729
Travelers Rest, SC 29690
Tel: 864-370-0637

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluation: 03/06/2021



[| Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment.

Issue Date: January 31, 2019
Revision Date: April 13, 2022

ACCENT 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 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.

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.

Danny Brevard, PG
AC'CENT Corporate Offices
P. O. Box 3289
Lufkin, TX 75903-3289
E-mail: info@info@accent-us.com
URL: www.accent-us.com

Evaluator: Ken Wilcox Associates
1125 Valley Ridge Dr
Grain Valley, MO 64029
Tel: (816) 443-2494
Dates of Evaluations: 10/04/18



| [Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment.

Equipment should be installed and operated in accordance with all applicable laws and regulations. For full details, please refer to our expanded "[DISCLAIMER](#)" page.

Issue Date: November 17, 2005
Revision Date: December 27, 2022

Franklin Fueling Systems

Secondary Containment Monitoring (SCM) EBW AS-SCM, EVO 600 Series Consoles, and Incon TS-SCM

CONTINUOUS INTERSTITIAL TANK SYSTEM MONITORING METHOD (PRESSURE/VACUUM)

Certification:

Certified as equivalent to European leak detection standard EN 13160-2, Part 2, as a Class I leak detection system.

Operating Principle:

System uses vacuum generated by the turbine pump to continuously maintain a partial vacuum within the interstitial space of double-walled tanks and double-walled piping.

System is designed to activate a visual and acoustic alarm, and optional turbine pump shutdown before stored product can escape to the environment.

System is capable of detecting breaches in both the inner and outer walls of double-walled tanks and double-walled piping.

Alarm Condition:

System alarms when a liquid or air leak occurs which causes the interstitial vacuum to decrease (pressure to increase) and the system is unable to maintain minimum vacuum.

System will also alarm if the interstitial vacuum level decreases at a rate exceeding manufacturer's allowable values.

Allowable values are based on an "AutoLearn line leak algorithm." The unit will record two curves (up curve and down curve) while a calibrated leak orifice is connected to the interstitial space being monitored. The "up" curve is learned while the vacuum pump is on and evacuating the interstice. The "down" curve is learned when the vacuum pump is off and interstitial vacuum is decaying. During normal operation when the vacuum level is between the upper and lower limits, the system is continuously comparing vacuum decay rates to the learned curves stored in memory.

Applicability:

Underground double-walled tank, connected double-walled piping, and other connected interstitial spaces storing gasoline, gasohol, diesel*, heating oil #2, kerosene, aviation fuel, motor oil, water.

EN13160-2 requires the use of separate monitoring systems for separate USTs.

*This evaluation determined the sensor's responses to the liquids shown above. Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

Manufacturer's Specifications:

Alarm will activate when interstitial vacuum decreases to approximately 1 psi vacuum (approx. 2" Hg).

Normal operating vacuum for the system is between 2" Hg and 6" Hg.

System does not restrict the vacuum source to 85 plus or minus 15 liters/hour flow rate at the "Alarm On" vacuum level.

Volume of monitored interstitial space must not exceed 8 m³ (2114 gal) for tanks and 10 m³ (2642 gal) for piping.

When monitoring double-walled tanks, the system does not require a liquid stop valve, a condensate trap or liquid sensors.

Since the vacuum line is connected to the pump siphon port, any liquid in the vacuum line will be returned to the tank.

Suction line must be located at lowest point of interstitial space.

Calibration:

Functional and operational safety tests should be performed in accordance with manufacturer's instructions.

Initial calibration with known leak is performed at system installation, using an orifice supplied by the manufacturer.

Comments:

The Franklin Fueling EVO 600 series consoles consist of the EVO 600 and EVO 6000 consoles.

Interstitial space is tested continuously.

Vacuum source is the submerged turbine pump siphon port.

Presence of a water table above the leak point will allow water to enter the interstice rather than air or vapor. The water would be detected in the same manner as fuel.

This system may not be compatible with all secondarily contained tanks and/or piping. Always consult with the tank and/or piping manufacturer and the manufacturer's applicable recommended installation practices before installing this system, or damage may be caused to the tank or piping by its use.

Franklin Fueling Systems
3760 Marsh Road
Madison, WI 53718
Tel: (800) 225-9787
E-mail: info@franklinfueling.com
URL: www.franklinfueling.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Date of Evaluation: 11/11/04, 11/10/22



| [Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment.

Equipment should be installed and operated in accordance with all applicable laws and regulations. For full details, please refer to our expanded "[DISCLAIMER](#)" page.