THIRTY-FIRST EDITION, 2024 LIST OF LEAK DETECTION EVALUATIONS FOR STORAGE TANK SYSTEMS



https://neiwpcc.org/nwglde/

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 <u>EPA Standard Test Procedures for Evaluating Leak Detection</u> <u>Methods</u> (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 <u>not</u> 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 <u>DOES NOT APPLY</u> 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 nonvolumetric 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 31st Edition, 2024 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: <u>https://neiwpcc.org/nwglde/</u>. 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 (30th Edition, January 2023). 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 <u>djwilson@utah.gov</u>, 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 (<u>https://neiwpcc.org/nwglde/group-members/</u>). The work group team and team leaders are also listed on our webpage to help you determine the appropriate contacts (<u>https://neiwpcc.org/nwglde/team-members/</u>).

Vendors should send new third-party evaluations, which were performed by an "independent thirdparty 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)

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What's New & Upcoming Events

What's New Since The 30th Edition List, 2022 (01/18/2023)

Most Recent Website Additions/Revisions:

Dover Fueling Systems

MagLink LX Electronic Line Leak Detector for Rigid, Semi-Rigid, Flexible and/or Combination Pipelines

Added to Automatic Electronic Line Leak Detector Method February 24, 2023

ProGauge MagLink LX ATG with CSLD (924B and DMP Magnetostrictive Probes)

Added to Coninuous In-Tank Leak Detection Method (Continuous Automatic Tank Gauging) October 10, 2023

PMP Corporation

PMP Piping Sump Sensor 63228 and 63229 as evaluated with the Veeder-Root TLS-350 (firmware version 336)

Added to Interstitial Detector (Liquid-Phase) Method August 16, 2023

PMP Tank Interstitial Sensors 63409, 63420, and 63460 as evaluated with the Veeder-Root TLS-350 (firmware version 336)

Added to Interstitial Detector (Liquid-Phase) Method August 16, 2023

Think Tank Petroleum Service, LLC

Think Tank – Tank Tightness Tester

Added to Non-Volumetric Tank Tightness Test Method (Vacuum) September 1, 2023

Franklin Fueling Systems <u>INCON EVO 200 and EVO 400 consoles</u> (INCON TSP-LL2 & amp; FMP-LL3 Magnetostrictive Digital Probe)

Dover Fueling Solutions

MagLink LX Electronic Line Leak Detector for Rigid, Semi-Rigid, Flexible and/or Combination Pipelines

AUTOMATIC ELECTRONIC LINE LEAK DETECTOR

Certification	Leak rate of 3.0 gph at 10 psi* with PD = 100% and PFA = 0%. Leak rate of 0.2 gph at operating pressure with PD = 100% and PFA = 0%. Leak rate of 0.1 gph at 1.5 times operating pressure* with PD = 100% and PFA = 0%. *Since leak rate varies as a function of pressure, this leak rate and pressure were certified using an equivalent leak rate and pressure, in accordance with an acceptable protocol.
Leak Threshold	1.5 gph for leak rate of 3.0 gph.0.1 gph for leak rate of 0.2 gph.0.05 gph for leak rate of 0.1 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, #4 and #6 fuel oil, solvents, used oil, ethanol blends up through E100, biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751.
Specification	System tests pressurized rigid, flexible, and combinations of rigid and flexible pipelines. Tests are conducted at operating pressure. System will not function with a mechanical line leak detector installed in the pipeline.
Pipeline Capacity	For 3.0 gph (hourly), 0.2 gph (monthly) and 0.1 gph (annual) leak rate test: Maximum of 124 gallons flexible or semi-rigid pipe Maximum of 559 gallons for combination (flex, semi-rigid, rigid) pipelines with a minimum bulk modulus of 21,987 psi.
Waiting Time	None between delivery and testing. None between dispensing and testing.
Test Period	Response time is 13 to 14 minutes (average test time of 14 minutes) for a leak rate of 3.0 gph. Response time is 5 to 6 hours (average test time of 5.5 hours) for a leak rate of 0.2 gph. Response time is 5 to 15 hours (average test time of 14.25 hours) for leak rate of 0.1 gph. Test data are acquired and recorded by a microprocessor. Calculations are automatically performed by the microprocessor.
System Features	Maglink LX console used in this evaluation with Dover ELLD. Permanent installation on pipeline. Automatic testing of pipeline. Preset threshold. Pump shutdown (optional), message display and alarm activation if leak is declared.
Calibration	System must be checked annually and, if necessary, calibrated in accordance with manufacturer's instructions.
Comments	System was evaluated on a pipeline consisting of rigid and flexible piping, and the resulting combined bulk modulus was determined by physical measurement at evaluator's facility. During initial setup, it is necessary to program the console by activating the consoles "learn" mode in order for the console to gather data on the pipeline with a Dover supplied leak orifice installed. Once the "learn" mode is finished, the system is ready to monitor the pipeline and will not need to be reprogrammed unless the line characteristics change.

1/18/24, 7:30 AM

3814 Jarret Way Austin, TX 78278 Tel: (708) 485-4200 E-Mail: atg@doverfs.com URL: www.doverfuelingsolutions.com Pneumercator Company, Inc. A

Tel: (816) 443-2494 Date of Evaluation: 07/08/2022

Dover Fueling Solutions

ProGauge MagLink LX ATG with CSLD

(924B and DMP Magnetostrictive Probes)

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

Certification	Single tanks - Leak rate of 0.2 gph with PD = 99.42% and PFA = 0.58% Manifold tanks - Leak rate of 0.2 gph with PD = 98.555% and PFA= 1.445%			
Leak Threshold	Tank categoryThresholdPFAPD (at 0.2 gal/hr)Single0.1 gal/hr0.58%99.42%Manifold0.1 gal/hr1.445%98.555%			
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, solvents and biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751 and other liquids with known coefficients of expansion and density may be tested after consultation with the manufacturer. Ethanol and ethanol-gasoline blends			
Tank Capacity	Maximum of 25,215 gallons for the leak thresholds shown above. Maximum tank capacity listed is for single tanks and up to 4 tanks manifolded together. The minimum product level required to test is 14% full.			
Throughput	Monthly maximum of 351,190 gallons for leak thresholds shown above.			
Waiting Time	None. The algorithm tests the data for stability and discards those collected before the tank is stable.			
Test Period	Data collection can range up to 31 days. The minimum number of days to make a leak rate estimate is 8 days, with a maximum of 31 days in which to acquire it. The more qualified test time available the higher confidence the leak rate estimate. Data sampling frequency is at least once per minute.			
Temperature	Average for product is determined by a probe with 5 thermistors.			
Water Sensor	The minimum water level (threshold) in the tank that the CITLDS can detect is 1.016 inches with a 924B probe and 0.681 inch with a DMP probe. The minimum change in water level that can be detected by the CITLDS is 0.0098 inch with a 924B probe or DMP probe			
Calibration	Probe must be checked and, if necessary, calibrated in accordance with manufacturer's instructions.			
Comments	System reports a result of "pass" or "fail." Evaluated using both single and manifolded tank systems with probes in each tank. 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. Constant and variable leaks were mathematically induced into tight tank test records which were collected by systems installed at various active tank sites. The database for evaluation of the system included sites with vapor recovery and blending dispensers. Tanks used in this evaluation contained gasoline and diesel.			

Dover Fueling Solutions 3814 Jarrett Way Austin, TX 78778 Tel: (708) 485-4200 E-Mail: atg@doverfs.com URL: www.doverfuelingsolutions.com

Evaluator: Ken Wilcox Associates Tel: (816) 443-2494 Date of Evaluation: 09/26/2023

PMP Corporation PMP Piping Sump Sensor 63228 and 63229 as evaluated with the Veeder-Root TLS-350 (firmware version 336)

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type:	qualitative					
Sampling Frequency:	continuous					
Operating principle:	float switch					
Test Results: Piping Sump Sensor 63228 & 63229	<u>premium</u> g <u>asoline</u>	<u>diesel*</u>	water	<u>E10</u>	<u>E25</u>	<u>E85</u>
Lower detection limit (in) Precision (in) Detection time (sec)	1.43 0.01 <1	1.33 0.01 <1	1.2 0.01 <1	1.43 0.02 <1	1.37 0.01 <1	1.36 0.01 <1

*Evaluations determined these sensors' 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 lower detection limit is exceeded. Responses to these fuels were not determined but would be expected to be very similar to the diesel responses.

Comments:

These sensors were third party evaluated with a Veeder Root TLS-350 console (software version 11.02). The only difference between the 63228 and 63229 sensors is cable length. PMP Corporation claims that these sensors will work with these other consoles: the TLS-450, TLS-4 series, TLS-350 series, TLS-300 series, TLS-PC, ILS-350, Simplicity, Gilbarco EMC series, EMC Basic series, EMC-PC, Red Jacket ProMax and ProPlus.

PMP Corporation 25 Security Drive Avon, CT 06001-0422 Tel: (860) 677-9656 Toll Free: (800) 243-6628 E-mail: sales@pmp-corp.com URL: www.pmp-corp.com Evaluator: Solutions Engineering Group 420 N. Main Street Montgomery, IL 60538-1367 Tel: (630) 701-7703 Date of Evaluation: 5/09/2023

PMP Corporation PMP Tank Interstitial Sensors 63409, 63420, and 63460 as evaluated with the Veeder-Root TLS-350 (firmware version 336)

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type:	qualitative						
Sampling Frequency:	continuous	continuous					
Operating principle:	float switch						
Test Results: Fiberglass Tank Sensor 63409	<u>premium</u> g <u>asoline</u>	<u>diesel*</u>	water	<u>E10</u>	<u>E25</u>	<u>E85</u>	
Lower detection limit Precision (in) Detection time (sec)	(in) 0.59 0.01 <1	0.56 0.01 <1	0.52 0.01 <1	0.60 0.02 <1	0.59 0.02 <1	0.57 0.01 <1	
Steel tank Sensors 6342 63460	20,						
Lower detection limit Precision (in) Detection time (sec)	(in) 1.51 0.02 <1	1.36 0.01 <1	1.25 0.01 <1	1.51 0.02 <1	1.43 0.01 <1	1.40 0.01 <1	

*Evaluations determined these sensors' 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 lower detection limit is exceeded. Responses to these fuels were not determined but would be expected to be very similar to the diesel responses.

Comments:

These sensors were third party evaluated with a Veeder Root TLS-350 console (firmware version 336). PMP Corporation claims that these sensors will work with these other consoles: the TLS-450, TLS-4 series, TLS-350 series, TLS-300 series, TLS-PC, ILS-350, Simplicity, Gilbarco EMC series, EMC Basic series, EMC-PC, Red Jacket ProMax and ProPlus.

PMP Corporation 25 Security Drive Avon, CT 06001-0422 Tel: (860) 677-9656 Toll Free: (800) 243-6628 E-mail: sales@pmp-corp.com URL: www.pmp-corp.com Evaluator: Solutions Engineering Group 420 N. Main Street Montgomery, IL 60538-1367 Tel: (630) 701-7703 Date of Evaluation: 5/09/2023

Think Tank Petroleum Service, LLC

Think Tank - Tank Tightness Tester

NON-VOLUMETRIC TANK TIGHTNESS TEST METHOD (VACUUM)

Certification	Leak rate of 0.1 gph with PD = 100% and PFA = 0% .
Leak Threshold	A tank system should not be declared tight when the acoustic signal detected is different from the baseline signal before a vacuum is placed on the tank, or when water ingress is detected by the water sensor.
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, fuel oil #6, solvents, and waste oil.
Tank Capacity	Maximum of 30,000 gallons. Evaluated at product levels between 9%* and 95% full. Maximum of 30,000 gallons per tank for manifolded tank systems with microphone, water sensor and pressure monitoring gauges in each tank.
Waiting Time	None between delivery and testing.
Test Period	 When groundwater level in tank excavation backfill is below bottom of tank: A few minutes to determine background noise and at least 30 seconds to run the test after desired vacuum is reached. When groundwater level in tank excavation backfill is above bottom of tank or when the groundwater level in the tank excavation backfill has not been determined: The time it takes for water ingress to increase the water level in the tank to allow the water sensor to detect the "minimum detectable change in water level" (see "Water Sensor" section below). Test period based on water ingress is dependent on tank size. Before starting test, water sensor must be calibrated to "minimum detectable water level" (see "Water Sensor" section below) according to manufacturer's instructions. There must be no dispensing or delivery during test.
Test Pressure	Pressure differential across tank wall at bottom of tank must be at least 1 psi or up to 3.7 psi. Pressure differential across tank wall is equal to the absolute value of vacuum applied to tank, plus groundwater pressure on tank, minus pressure of liquid in tank.
Temperature	Acoustic signal is independent of product temperature.
Water Sensor	Conductivity water sensor must be used to detect water ingress and must be calibrated for every test when groundwater level in tank excavation backfill is above bottom of tank or when the groundwater level in the tank excavation backfill has not been determined. Minimum detectable water level is less than 0.125 inch. Minimum detectable change in water level is 0.125 inch. Minimum water level in tank must be adjusted to at least 0.125 inch (sensor's minimum detectable water level) before calibrating sensor and starting test.
Groundwater	Groundwater level in tank excavation backfill must be determined by observation well or soil probe in tank excavation backfill. If groundwater level in tank excavation backfill is above bottom of tank or the groundwater level in the tank excavation backfill has not been determined, water sensor must be used and test time extended to ensure water ingress detection during test. Method should not be used to test tanks containing fuel higher than a 10% ethanol content if the water table is above bottom of the tank.
Comments	Microphone was 25 ft away from leak source during evaluation. *Although not evaluated on empty tanks a third-party acoustics specialist has certified that the

measured acoustic signal of a 0.1 gph leak would be detected in an empty tank.

Test may be inconclusive if there is high background noise.

Vacuum test method may not be effective in some tank excavation backfill (such as clay) because it may plug holes in tank.

If free product is present in tank excavation backfill, a leak in the free product zone may not be detected by a vacuum test method.

An observation well or soil probe in tank excavation backfill may help determine backfill material, water level in tank excavation backfill, and free product.

Requires annual tester certification for operator and equipment by the manufacturer.

Operator hearing test should be within normal range, 0 to 20 decibels for annual exam. More than 4 psi pressure differential across the tank wall at any location in the tank could damage tank.

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 Date of Evaluation: 02/10/2023

Franklin Fueling Systems

INCON EVO 200 and EVO 400 consoles

(INCON TSP-LL2 & FMP-LL3 Magnetostrictive Digital Probe)

AUTOMATIC TANK GAUGING METHOD

Certification	Leak rate of 0.2 gph with PD = 99.94% and PFA = 1.006%. (FMP-LL3 Probe) Leak rate of 0.2 gph with PD = 95.85% and PFA = 4.15%. (TSP-LL2 Probe) Leak rate of 0.1 gph with PD = 97.20% and PFA = 2.76%. (FMP-LL3 Probe) Leak rate of 0.1 gph with PD = 99.4% and PFA = 0.60%. (TSP-LL2 Probe)
Leak Threshold	0.1 gph for leak rate of 0.2 gph.0.05 gph for leak rate of 0.1 gph.A tank system should not be declared tight if the test result indicates a loss or gain that equals or exceeds this threshold.
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751.
Tank Capacity	Maximum of 30,000 gallons for leak rate of 0.2 gph. Maximum of 20,000 gallons for leak rate of 0.1 gph. Tank must be between 14 and 90% full. Tank must be between 50 and 90% full. (0.1 gph, FMP-LL3 Probe)
Waiting Time	Minimum of 5 hours 20 minutes between delivery and testing. (FMP-LL3 Probe) Minimum of 6 hours between delivery and testing. (TSP-LL2 Probe) None between dispensing and testing. There must be no delivery during waiting time.
Test Period	Length of the test is determined automatically based on quality of test data. Average data collection time during evaluation was 5 hours 21 minutes for leak rate of 0.2 gph. (FMP-LL3 Probe) Average data collection time during evaluation was 7 hours 28 minutes for leak rate of 0.2 gph. (TSP-LL2 Probe) Average data collection time during evaluation was 4 hours 3 minutes for leak rate of 0.1 gph. (TSP-LL2 Probe) Average data collection time during evaluation was 4 hours 39 minutes for leak rate of 0.1 gph. (FMP-LL3 Probe) Test data is acquired and recorded by system's computer. Leak rate is calculated from data determined to be valid by statistical analysis. There must be no dispensing or delivery during the test.
Temperature	Probe contains 5 thermistors to monitor product temperature. At least one thermistor must be submerged in product during testing.
Water Sensor	Must be used to detect water ingress. Minimum detectable water level in the tank is 0.201 inches. Minimum detectable change in water level is 0.011 inches.
Calibration	Thermistors and probe must be checked and, if necessary, calibrated in accordance with manufacturer's instructions.
Comments	Not evaluated using manifolded tank systems. Therefore, this certification is only applicable when there is a probe used in each tank and the siphon is broken during testing. Tests only portion of tank containing product. As product level is lowered, leak rate in a leaking tank decreases (due to lower head pressure). Consistent testing at low levels could allow a leak to remain undetected.

EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. EVO 200 can support up to 6 tanks. EVO 400 can support up to 14 tanks.

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 Dates of Evaluation: 10/05/2017 (20,000 gallons) 10/06/2017 (30,000 gallons) 11/6/2018 (30,000 gallons, TSP-LL2) 10/04/2019 (20,000 gallons, TSP-LL2) 1/14/2020 (30,000 gallons, TSL-LL2)