



STATE OF WISCONSIN
Department of Agriculture,
Trade and Consumer Protection

Approval # 20180002
(Replaces 20160002)

Bureau of Weights and Measures
Storage Tank Regulation
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin ATCP 93

Material Approval

Equipment: Leighton O'Brien Volumetric Wet and
Non-Volumetric Dry Tank Tightness
Tests

Manufacturer: Leighton O'Brien, Inc.
3024 Foust Dr
Spring Hill, TN 37174

Expiration of Approval: No expiration date unless changes
are made.

SCOPE OF EVALUATION

The Leighton O'Brien Volumetric Wet and Non-Volumetric Dry Tank Tightness Test Methods, manufactured by Leighton O'Brien USA, Inc. have been evaluated in accordance with **s. ATCP 93.130(1)(a)** of the current edition of the Wisconsin Administrative Flammable, Combustible and Hazardous Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – ATCP 93.

DESCRIPTION AND USE

The Leighton O'Brien Wet Test Volumetric Tank Tightness Testing Method consists of a console that houses a probe interface and microprocessor to process data obtained from a mass displacement probe. The probe measures changes in pressure which relates to changes in the product and water levels.

The Leighton O'Brien Dry Test Leak Detection Method for Non-Volumetric Tank Tightness Testing consists of a pressure sensor placed in the ullage area of the underground tank. The sensor is connected to a computer that monitors the pressure data in the ullage area of the tank.

TESTS AND RESULTS

The performance of the Leighton O'Brien Wet Test Volumetric Tank Tightness Testing Method was verified by Ken Wilcox Associates in accordance with the EPA Protocol for volumetric tank tightness testing systems. The Leighton O'Brien Volumetric Wet Test was found to detect a leak of 0.1 gph with 99.99 percent probability of detection and 0.0099 percent probability of false alarm.

The performance of the Leighton O'Brien Dry Test Leak Detection Method for Non-Volumetric Tank Tightness Testing was verified by Ken Wilcox Associates in accordance with the EPA Protocol for volumetric tank tightness testing systems. The Leighton O'Brien Volumetric Wet Test was found to detect a leak of 0.1 gph with 100 percent probability of detection and 0 percent probability of false alarm.

LIMITATIONS / CONDITIONS OF APPROVAL

- The Leighton O'Brien Wet and Leighton O'Brien Dry Tank Tightness Test systems are approved for use on pipeline systems for underground storage tank facilities that contain gasoline, diesel, aviation fuel, #4 fuel oil, biodiesel and ethanol blends that are compatible with the probe, used oil, solvents, and other liquids with manufacturer approval.
- If the water table is above the bottom of the tank, or is unknown, then both the wet and dry test methods must be used. The ullage pressure must also be increased to 15 kPa.
- The operating instructions and test procedures specified by Leighton O'Brien USA, Inc. shall be used to conduct all tests.
- Tank tester operation shall be verified annually, and calibrated in accordance with manufacturer's instructions if necessary. Technician must hold a current Leighton O'Brien certification to operate equipment. Re-certification is required by the manufacturer every 2 years.

- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- Data is collected and reviewed for accuracy by technician on-site; however, result declaration and certification can only be determined by remote analysis using Leighton O'Brien proprietary software.
- A sample Leighton O'Brien UPSS Precision Test report is provided in Appendix A of this approval.

Critical performance parameters for the **Leighton O'Brien Volumetric Wet Tightness Test:**

Parameter	Value
Maximum Allowable Tank Size	20,000 gal
Average Data Collection Time	1hr 7min
Average waiting Time After Delivery	2hr 59min
Maximum Allowable Temperature Difference if Test is Performed after delivery, but Before the Waiting Time Condition is Met.	±6.5 °F
Minimum Product Level Testing for Test	10 in

Critical performance parameters for the **Leighton O'Brien Dry Tightness Test**

Parameter	Value
Maximum Allowable Tank Size	30,000 gal
Average Data Collection Time	5-6 min
Average waiting Time After Delivery	2hr 59min
Maximum Allowable Temperature Difference	Not sensitive to temp. fluctuations
Minimum Product Level Testing for Test	Between 0% and 90%

This approval does not expire unless manufacturing modifications are made to the product, or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER


The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: November 21, 2023

Reviewed by: 

Date: 11/21/2023

Erik Otterson
Environmental Engineering Specialist
Bureau of Weights and Measures
Storage Tank Regulation

Approved by: 

Date: 11/21/2023

Greg Bareta, P. E.
Section Manager
Bureau of Weights and Measures
Storage Tank Regulation

Aim

To investigate the integrity of the UPSSs as a due diligence exercise.

Method

The tanks and all their associated tank top components (i.e. vent, fill, ATG) were subjected to the MassTech tank test.

Individual tests were performed on the product lines.

Summary of Tank Results as Tested

Test Round 1			
Tank	Test	Result	Rate
Regular Tank 1 (10000 Gal.) at 0 gal or 0 % fill (& 0 in. H2O) Jun 15 2011 Cert. No. 144086	Wet Static Test	not tested	
	Wet Pressure Test	not tested	
	Ullage Test	PASS	
Premium Tank 2 (10000 Gal.) at 0 gal or 0 % fill (& 0 in. H2O) Jun 20 2011 Cert. No. 144091	Wet Static Test	not tested	
	Wet Pressure Test	not tested	
	Ullage Test	PASS	

Nomenclature for tables above

- A 6.5 times ullage fail is the nitrogen decay equivalent to a liquid leak under 1.45 PSI at the USEPA threshold of 0.1 gal/hr
- 0.1 gal/hr is the PASS/FAIL criteria for a USEPA precision test.
- MassTech technology used: Masstech 2 wet test (mass based) and Masstech 002 ullage test (pressure). For further details go to www.nwglde.org/vendor_indexG_M.html
- (i) indicates a liquid ingress was detected during the test at the noted rate
- (e) indicates a liquid egress was detected during the test at the noted rate

Summary of Line Results as Tested

Line Test Round 1		
Description	Date	Result
Regular	20-Jun-11	PASS
Premium	20-Jun-11	PASS

Leighton O'Brien PM2 test equipment & procedure used

Other Relevant Observations

- All visible parts of the systems, sealed by the technician, were shown to be tight using soapy water.

Comments/Discussions

The Regular & Premium tanks & lines passed the tests.

Recommendations

There are no recommendations.

Addendum

Date of Test: June 20, 2011
 Licensed MassTech Tester: Casey Mangrum
 Report Prepared by: Jeff Stevenson
 Report ID:

Diagnostic Report to 20-Jun-11.doc

Glossary of Acronyms used

UPSS Underground Petroleum Storage System

USEPA United States Environmental Protection Agency

The underground pipe and tank configurations contained in this report are deduced from information gathered at the site by Leighton O'Brien and by information given to Leighton O'Brien by the client.

Details of Line Test

Regular				
Line	PASS	Time	psi	gal/hr
Valve	NA	10:35:37	48.59	0.003
Tested	Wet			
Start	10:30:00			
Date	20-Jun-11			
Unit SN				
Cert No.	242			

Premium				
Line	PASS	Time	psi	gal/hr
Valve	NA	11:26:15	48.61	-0.025
Tested	Wet			
Start	11:20:37			
Date	20-Jun-11			
Unit SN				
Cert No.	243			

