



Department of Commerce

Safety & Buildings Division

201 West Washington Avenue

P.O. Box 2658

Madison, WI 53701

Approval #

200019-U (Replaces 940060-U)

Wisconsin Material Approval

Material

TLD-1 Line Tester
Pipeline Leak Detection System
Line Tightness Test

Manufacturer

Tanknology Corporation International
5225 Hollister
Houston, TX 77040

SCOPE OF EVALUATION

The TLD-1 Line Tester, manufactured by Tanknology Corporation International, has been evaluated for use as an annual line tightness test, as specified in **s. Comm 10.615 (2)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

DESCRIPTION AND USE

The Tanknology TLD-1 Line Tester consists of a product reservoir that is connected to a cylinder of pressurized nitrogen that is used to maintain a constant pressure on the line. Volume changes are monitored on the product reservoir that is graduated in 0.000549 gallon increments.

To conduct a test, the tester is connected to the product line at some convenient location such as at the dispenser. The line is pressurized to 50 psi and the volume change in the product reservoir during the pressurization is noted. Excessive volume change indicates that the line may have trapped vapor present. The pressure is maintained at 50 psi and the product level is recorded at 10-minute intervals

during the test for a minimum of 4 readings. Consistent readings (within 0.02 gal/h) must be obtained for three readings for the test to be considered valid. If the results are not consistent, additional data must be taken. When consistent data are obtained, the test is ended and the leak rate is calculated in gallons per hour (gal/h).

If the volume increases during the testing due to thermal expansion, the increase is measured in the product reservoir. Testing must continue until the thermal expansion has subsided (three readings with no gains or an increasing leak rate) to assure that the expansion has not masked the presence of a leak.

The TLD-1 Line Tester may be used on pipes which are typically constructed of steel or fiberglass, or on flexible pipe, containing gasoline, diesel or aviation fuel. The system uses a single test to determine if the 0.05 gal/h threshold has been exceeded. The system can be used on pipelines pressurized to 50 psi.

This system may be used if vapor is trapped in the pipeline. A special test is used to detect the presence of trapped vapor. Vapor is removed if possible since this will usually increase the time required to conduct the test.

The minimum time required to conduct a test (including setup time, data collection and equipment removal) is approximately 45 minutes for steel and fiberglass pipe or 75 minutes for flexible pipe. The data collection time may be extended due to temperature differentials or trapped vapor until consistent readings are obtained. With the automated design, test data are acquired and recorded by microprocessor.

TESTS AND RESULTS

The performance of the TLD-1 Line Tester was evaluated in accordance with the US EPA test procedure for line tightness tests. This system uses a leak declaration threshold of 0.05 gal/h. The probability of detecting a 0.1 gal/h leak was estimated at more than 99.5%. The corresponding probability of false alarm is less than 0.5%. An additional evaluation showed that the TLD-1 performs in the same manner with flexible pipelines of low bulk moduli provided the minimum test time is increased to one hour.

LIMITATIONS OF APPROVAL

The operating instructions and procedures specified by Tanknology Corporation International shall be used to conduct all tests. The system may not be changed by subsequent modifications. Mechanical line leak detectors shall be removed from the piping system.

This system shall be used on pipelines which contain gasoline, diesel or aviation fuel only.

This system shall be used on steel or fiberglass pipes with a nominal diameter of between 1 and 3 inches and a capacity of less than 7.4 cubic feet and flexible pipeline with a nominal diameter of between 1 and 3 inches and a capacity of less than 50 gallons. The total time for data collection shall be at least 30 minutes for steel or fiberglass pipe and 1 hour for flexible pipe and shall continue until stable readings are obtained.

This approval will be valid through December 31, 2005, 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.

Reviewed by: _____

Approval Date: _____ By: _____

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Program Development Bureau