

# Results of U.S. EPA Standard Evaluation Nonvolumetric Tank Tightness Testing Method

This form tells whether the tank tightness testing method described below complies with the performance requirements of the federal underground storage tank regulation. The evaluation was conducted by the equipment manufacturer or a consultant to the manufacturer according to the U.S. EPA'S "Standard Test Procedure for Evaluating Leak Detection Methods: Nonvolumetric Tank Testing Methods." The full evaluation report also includes a form describing the method and a form summarizing the test data.

Tank owners using this leak detection system should keep this form on file to prove compliance with the federal regulations. Tank owners should check with State and local agencies to make sure this form satisfies their requirements.

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## Method Description

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Name: Alert 1050 Ullage System

Version Number: Model 1050 (-1.5 psi vacuum)

Vendor: **Alert Technologies**  
**636 East 11<sup>th</sup> St.**  
**Indianapolis, IN 46202**

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## Evaluation Results

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This method, which declares a tank to be leaking when the noise level at vacuum increase over the noise at ambient pressure in the bandwidths detectable by the transducer, has an estimated probability of false alarms [P{FA}] of **0.0%** based on the test results of **0** false alarms out of **25** tests. A 95% confidence interval for P{FA} is from **0** to **11.3** %.

The corresponding probability of detection [P{D}] of a **0.10** gallon per hour leak is **100** % based on test results of **25** detections out of **25** simulated leak tests. A 95% confidence interval for P{D} is from **88.7** to **100** %.

Does this method use additional modes of leak detection?  Yes  No. If Yes, complete additional evaluation results on page 3 of this form.

Based on the results above, and on page 3 if applicable, this method  does  does not meet the federal performance standards established by the U.S. Environmental Protection Agency (0.10 gallon per hour at P{D} of 95% and P{FA} of 5%).

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## Test Conditions During Evaluation

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The evaluation testing was conducted in a **20,000** gallon  steel  fiberglass tank that was **126** inches in diameter and **374** inches long, installed in **gravel** backfill.

The ground-water level was **0** inches above the bottom of the tank.

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## Test Conditions During Evaluation (continued)

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The tests were conducted with the tank 20 percent full.

The temperature difference between product added to fill the tank and product already in the tank ranged from N/A degrees F to N/A degrees F, with a standard deviation of N/A degrees F.

The product used in the evaluation was #2 diesel fuel.

This method may be affected by other sources of interference. List these interferences below and give ranges of conditions under which the evaluation was done. (Check None if not applicable.)

(X) None

Interferences	Range of Test Conditions
Vibration due to nearby equipment	Zero pressure must produce a flat-line
Dripping condensation	Response and sensor must be within 25 ft. of furthest Possible leak position

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## Limitations on the Results

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The performance estimates above are only valid when:

- 1.The method has not been substantially changed.
- 2.The vendor's instructions for using the method are followed.
- 3.The tank contains a product identified on the method description form.
- 4.The ullage volume 24,000 gallons or smaller.
- 5.The difference between added and in-tank product temperatures is no greater than  $\pm$  N/A Degrees Fahrenheit.

(X) Check if applicable:

Temperature is not a factor because Physical principles of the method do not depend on Temperature.

- 6.The waiting time between the end of filling the test tank and the start of the test data collection is at least N/A hours.
7. The waiting time between the end of "topping off" to final testing level and the start of the test data collection is at least N/A hours.
8. The total data collection time for the test is at least 1 minutes.
9. The product volume in the tank during testing is N/A % full
- 10.This method (X) can ( ) cannot be used if the ground-water level is above the bottom of the tank.

Other limitations specified by the vendor or determined during testing:

**11.The Alert 1050 tests only the ullage of the tank. It must be combined with other tests for a full system test. No information is provided as to the condition of the tank below the product level.**

Safety disclaimer: This test procedure only addresses the issue of the method's ability to detect leaks. It does not test the equipment for safety hazards.

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## **Additional Evaluation Results (if applicable) *NONE***

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This method, which declares a tank to be leaking when \_\_\_\_\_  
\_\_\_\_\_ has an estimated probability of false alarms [P(FA)] of \_\_\_\_\_% based on the test results of \_\_\_\_\_ false alarms out of \_\_\_\_\_ tests. Note: A perfect score during testing does not mean that the method is perfect. Based on the observed results, a 95% confidence interval for P(FA) is from 0 to \_\_\_\_\_%.

The corresponding probability of detection [P(D)] of a \_\_\_\_\_ gallon per hour leak is \_\_\_\_\_% based on the test results of \_\_\_\_\_ detections out of \_\_\_\_\_ simulated leak tests. Note: A perfect score during testing does not mean that the method is perfect. Based on the observed results, a 95% confidence interval for P(D) is from \_\_\_\_\_ to \_\_\_\_\_%.

Using a false alarm rate of 5%, the minimum water level that the water sensor can detect with a 95% probability of detection is \_\_\_\_\_ inches.

Using a false alarm rate of 5%, the minimum change in water level that the water sensor can detect with a 95% probability of detection is \_\_\_\_\_ inches.

Based on the minimum water level and change in water level that the water sensor can detect with a false alarm rate of 5% and a 95% probability of detection, the minimum time for the system to detect an increase in water level at an incursion rate of 0.10 gallon per hour is \_\_\_\_\_ minutes in a \_\_\_\_\_ gallon tank.

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## **Certification of Results**

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I certify that the nonvolumetric tank tightness testing method was installed and operated according to the vendor's instructions. I also certify that the evaluation was performed according to the standard EPA test procedure for nonvolumetric tank tightness testing methods and that the results presented above are those obtained during the evaluation.

H.Kendall Wilcox, President

\_\_\_\_\_  
(printed name)

\_\_\_\_\_  
(signature)

October 26, 1993

\_\_\_\_\_  
(date)

Ken Wilcox Associates, Inc.

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