



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

UST SECTION
August 15, 2005

MEMORANDUM

TO: Underground Storage Tank System Owners and Operators
Statistical Inventory Reconciliation Vendors/Service Providers

FROM: Ruth A. Strauss, Head *RAS*
Permits and Inspection Branch

SUBJECT: New Approval of Statistical Inventory Reconciliation as Monthly Leak Detection
Monitoring Method

This memorandum serves as notice that the Division of Waste Management (Division) has made modifications to its existing approval of Statistical Inventory Reconciliation (SIR) as a monthly leak detection monitoring method pursuant to 40 CFR 280.43(h)(2) (as adopted by 15A NCAC 2N .0504). This new approval supercedes all previous Division approvals of SIR and becomes effective on October 1, 2005.

The Division considers SIR to be an acceptable stand alone method of monthly leak detection for underground storage tanks and suction piping, and an acceptable stand alone method of monthly leak detection for pressurized piping when used in conjunction with an automatic line leak detector (ALLD) provided the following requirements are met:

1. Inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank must be recorded each operating day. A day is considered to be 24 hours. The measurements for consecutive days must be taken as close as possible to the same time of day as the previous day's measurement.
2. Tank inventory must be collected in accordance with 40 CFR 280.43(a)(2) – (6) (as adopted by 15A NCAC 2N .0504). However, conducting Product Inventory Control release detection pursuant to 40 CFR 280.43(a) (as adopted by 15A NCAC 2N .0504) is not required unless the SIR method requires the result for use in the SIR analysis. In addition, if Product Inventory Control release detection is conducted, the results of the SIR analysis take precedent over the Inventory Control results.
3. Tank charts must be calibrated in one-eighth inch increments and must clearly indicate which tank(s) they are calibrated for.
4. The vendor contracted to perform the SIR method or the vendor, from whom the SIR software was purchased, must have an independent third party evaluation conducted in accordance with EPA Standard Test Procedures for Evaluating Leak Detection Methods. The independent third party evaluation must indicate that the SIR method is capable of detecting a leak rate of 0.2 gallons per

hour or less with a probability of detection (Pd) of 0.95 and a probability of false alarm (Pfa) of 0.05 from inventory control data collected each operating day over a specific period of time.

5. Owners/operators of UST facilities using SIR as a monthly monitoring method must demonstrate compliance with the performance standards given above by making available for inspection a copy of the independent third party evaluation.
6. If the results of the SIR monthly statistical analysis for a UST system for any **one month** period indicate an unexplained loss or gain of product that exceeds the smallest leak rate for which the method has been certified to detect, the owner/operator must conduct all of the following actions:
 - a. Notify the Division of a suspected release within 24 hours of receiving this information by submitting a UST Suspected Release Reporting Form (Form UST-17).
 - b. Follow the SIR vendor's standard investigation procedures and any other vendor recommendations to determine and correct the problem.
 - c. Conduct a release investigation in accordance with 15A NCAC 2N .0603 within seven days of receiving this information. Notify the Division using the UST Suspected Release Reporting Form (Form UST-17) of the actions taken to investigate the suspected release and attaching copies of all results and other supporting documentation. A release investigation must be conducted as described above unless all of the following criteria are met:
 - i) The owner/operator can demonstrate that factors accounting for the unexplained loss or gain are not related to a release (e.g., incorrect conversion of tank gauge readings to gallons, inventory figures transposed, failure to record a delivery, meter miscalibration).
 - ii) These factors are immediately corrected.
 - iii) A re-evaluation of the UST system using the corrected data indicates that the tank is not leaking. (Note: The owner/operator may use the SIR vendor's standard investigation as part of the investigation). Owner/operators must make available for inspection all documentation necessary to demonstrate that factors accounting for the unexplained loss or gain are not related to a release.
7. If the results of the SIR monthly statistical analysis for a UST system are **inconclusive**, unusable, or anything other than a definite conclusion for any **one month** period, the owner/operator must follow the suspected release reporting and investigation steps specified in Requirement No. 6 above.
8. The first SIR report issued is often not a compliance report but a management report relating to the operation of the UST system. It often takes a couple of months until SIR produces valid monthly results. All regulated UST systems must have an acceptable method of release detection in place at all times. Therefore to ensure that continuous leak detection monitoring is performed, owners/operators that choose SIR as their method of release detection should begin SIR monitoring while conducting another valid method of leak detection at the same time until such time as the SIR analysis produces adequate results. When SIR begins to produce adequate results, the second leak detection method may be terminated.
9. SIR is not an approved method of meeting the Tank Tightness Testing requirements found in 40 CFR 280.43(c) (as adopted by 15A NCAC 2N .0504) or the Line Tightness Testing requirements found in 40 CFR 280.44(b) (as adopted by 15A NCAC 2N .0505).
10. SIR may not be utilized as a method of meeting the release investigation and confirmation requirements found in 15A NCAC 2N .0603.

Note: UST Suspected Release Reporting Forms (Form UST-17) may be obtained by calling (919) 733-8486 or by visiting the UST Section web page at <http://www.wastenotnc.org>.