

Statistical Inventory Reconciliation (SIR) for Underground Storage Tanks

Overview

When performed properly, statistical inventory reconciliation (SIR) is an acceptable monthly leak detection method for underground storage tanks (USTs) and piping installed prior to September 15, 2010 in Virginia ([9VAC25-580-160.8](#)). This fact sheet provides a brief overview of how to conduct the method, as well as required recordkeeping.

How does SIR work?

- Precise daily inventory, delivery, and sales data is collected by an UST owner/operator. Each month, this data is sent to a qualified SIR vendor for a complex statistical analysis to determine whether the UST may be leaking.
- The SIR vendor will provide a monthly report, including a Pass, Fail, or Inconclusive result for each UST.

Will SIR work for your system?

- SIR can meet monthly release detection requirements for USTs and piping installed prior to September 15, 2010. (Note: all pressurized piping systems must also have automatic line leak detectors.)
- If exact delivery/input volume or sales/output volume data is not available for the UST system, SIR is not a suitable method. For example, SIR is usually not suitable for used oil or emergency generator USTs.
- Some SIR vendors may have limitations on tank size and throughput; consult with the vendor to determine whether their methods are suitable for your UST system(s).
- SIR requires an operator to measure product levels on-site every day (or almost every day). SIR vendors will specify a minimum data requirement, typically between 23 and 30 days of data per month.

What are the operational requirements?

- **Set-Up:**
 - Contract with a qualified SIR vendor. Ensure that your vendor's methods are suitable for your UST system(s) and verify that you can provide the necessary data for valid results.
 - Obtain a tank gauging stick that can measure accurately to 1/8 inch.
- **Every Day:**
 - Stick the UST(s) according to the exact procedures provided by your SIR vendor and record the fuel level to 1/8 inch on the data sheet they provide.
 - Carefully record any delivery and sales data on the data sheet, per your SIR vendor's instructions.
- **Every Month:**

Send your monthly data to the SIR vendor promptly and **at least every 30 days**. When the analysis is complete, they will send you a report with results for each UST:

 - Passed tests indicate that the UST system is not leaking.
 - Inconclusive tests are often caused by poor data collection and do not count as valid release detection. Consult with your SIR vendor to improve your data quality and keep a written explanation of the issue.
 - Failed tests indicate that the UST system may be leaking and must be reported to DEQ within 24 hours.
 - A suspected release must also be reported within 24 hours if results for two consecutive months are inconclusive or if there are three inconclusive results during any six-month period.
 - You may report releases by email or phone call to your DEQ Regional Office (<https://www.deq.virginia.gov/get-involved/about-us/contact-us>). If possible, please submit the Environmental Pollution Report (EPR) form found [here](#) via email.
- **Every Year:**
 - Inspect the tank gauging stick's condition. It must accurately measure to 1/8 inch and be in good condition (i.e., readable, not broken, crooked, or missing the end button), or else you must replace it.

What records do you need to keep?

- At least the previous 12 months of monthly reports from the SIR vendor.
- An annual assessment of the tank gauging stick (can be recorded on DEQ's *Annual Leak Detection Equipment Operability Check* form).
- Your current contract with a qualified SIR vendor.

For more information:

- Contact the Office of Spill Response & Remediation at tank@deq.virginia.gov, or contact your regional DEQ Office: <https://www.deq.virginia.gov/get-involved/about-us/contact-us>
- Review this 12-page booklet: <https://www.epa.gov/sites/default/files/2014-03/documents/sir.pdf>