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EPA

UST Program Facts

Detecting Leaks: Technical Regulations

U.S. Environmental Protection Agency (EPA) regulations

EPA designed the technical regulations for underground storage tanks (USTs) to reduce the chance of releases from USTs, increase the likelihood of finding releases quickly when they do occur, and secure prompt cleanup. Owners and operators are responsible for detecting, stopping, and cleaning up leaks and spills.

Leak detection requirements for existing USTs (installed before 1988)

In addition to meeting 1998 requirements for upgrading (see Leak Prevention fact sheet in this series), owners and operators of USTs installed before 1988 must use one of the leak detection methods described below to detect leaks from both tanks and piping. Deadlines for compliance with the leak detection requirements have been phased in based on the tank's age. (See chart.)

Leak detection requirements for new USTs (installed after 1988)

Owners and operators of USTs installed after 1988 also must use one of the leak detection methods described below to detect leaks from tanks and piping. (See chart.)

Leak detection methods

Experts have developed several methods to help UST owners ascertain whether their tanks are tight. Owners and operators must choose a leak detection method that is listed in the regulations, meets a performance standard described in the regulations, or is approved by their state agency as being at least as stringent in detecting leaks as the methods and standards in the regulations.

The choice of a method is important because of the inherent problems in monitoring a tank: the UST is emptied and refilled periodically; the product level underground is not visible to the eye; and factors such as temperature can affect measurement.

- Internal types.

  Tank tightness testing does not require permanent installation of equipment or large capital expenditures. Line tightness testing is a similar method for checking the UST's connective pipes for leaks.

  Tank tightness testing must be used in conjunction with **inventory control**. Inventory control is an ongoing accounting system, like a checkbook, that owners have typically used as a business practice to keep track of their product and to detect leaks. This method, tank tightness testing and inventory control, can only be used on USTs installed or upgraded within the last 10 years.

Leak Detection Requirements For USTs

Type of Tank or Piping	Minimum Requirements	Deadlines
New tanks *(installed after December 1988)*	Monthly monitoring* **or** monthly inventory control and tank tightness testing every 5 years.**	At installation
Existing tanks	Monthly monitoring* **or** monthly inventory control and annual tank tightness testing (only permissible until December 1998) **or** monthly inventory control and tank tightness testing every 5 years.** Very small tanks may be able to use manual tank gauging.	If installation date unknown: December 1989 If installed before 1965: December 1989 1965-1969: December 1990 1970-1974: December 1991 1975-1979: December 1992 1980-1988: December 1993
Pressurized piping	Automatic line leak detector **and either** annual line testing **or** monthly monitoring* (except automatic tank gauging).	• Existing piping: December 1990 • New piping: At installation
Suction piping	Monthly monitoring* (except automatic tank gauging) **or** line testing every 3 years. There are no requirements if the system has the characteristics known as "safe suction" described in the final regulations.	• Existing piping: Same as existing tanks • New piping: At installation

**Monthly monitoring includes automatic tank gauging, vapor monitoring, interstitial monitoring, groundwater monitoring, and other approved methods.*

***For new tanks, permissible only for 10 years after installation; for existing tanks, permissible only for 10 years after adding corrosion protection and spill/overfill prevention or until December 1998, whichever date is later.*

Automatic tank gauging systems are permanently installed in USTs and provide automated, accurate inventory information and leak testing. Among the more expensive methods, they require minimal operator involvement, cause few service interruptions, and are relatively precise and sensitive. They do not check piping and may not work on very large tanks.

Manual tank gauging, an easy and inexpensive release detection method only for small USTs, can detect leaks as small as 0.2 gallons per hour. It requires shutting down tanks and does not check piping.

Statistical inventory reconciliation is a newer method that uses sophisticated computer software to determine whether a tank system is leaking. The computer conducts a statistical analysis of inventory, delivery, and dispensing data collected over a period of time and provided by the operator to a vendor.

- External types.

Soil vapor monitoring is a release detection method that is used primarily for petroleum UST systems. As petroleum leaks from a tank or its connective pipes, some of the liquid evaporates and spreads into the surrounding soil, where it can be detected by a vapor sensor.

Groundwater monitoring utilizes permanent observation wells placed close to the tank system. They must be checked periodically for evidence of leaking material floating on the groundwater. This method is effective only at sites where groundwater is within 20 feet of the surface.

Secondary containment and interstitial monitoring involves placing a barrier outside the primary tank and a release detection device between the inner and outer barriers – a space called the interstitial space. Either vapor or liquid monitors may be used, and the system detects leaks in tanks and piping. New USTs holding chemicals must use this method.

Reporting and record-keeping requirements for all tanks

In general, UST owners and operators need to report to the regulatory authority only at the beginning and end of the UST system's operating life. Reportable information includes data about the type of UST, certification of correct installation, and description of the leak detection device. Owners and operators also must report to the regulatory authority suspected and confirmed releases, as well as follow-up actions planned or taken to correct damage caused by the leaking UST.

UST owners and operators must keep records on leak detection performance and upkeep. These include the previous year's monitoring results, the most recent tightness test results, performance claims by the leak detection device's manufacturer, and records of recent maintenance and repair.

What if an owner or operator can't afford to comply with leak detection requirements?

The cost of complying with prevention and other requirements will be a burden to some owners and operators, especially those with older tanks. Seventeen states have established financial assistance programs that serve to mitigate the overall economic impact of the UST regulatory program. In six of those states, owners and operators are eligible to receive grants or low-interest loans to put leak detection methods in place.

Detecting Leaks: Technical Regulations *is one in a series of fact sheets about underground storage tanks (USTs) and leaking USTs. The series is designed to help EPA, other federal officials, and state authorities answer the most frequently asked questions about USTs with consistent, accurate information in language the layperson can understand. Keep the fact sheets handy as a resource. This fact sheet addresses federal regulations. You may need to refer to applicable state or local regulations, as well. For more information on UST publications, call the RCRA/Superfund Hotline at 800 424-9346.*