

US EPA ARCHIVE DOCUMENT

Owners and operators of regulated underground storage tanks (USTs) on tribal lands must comply with federal UST regulations.

This compliance assistance brochure highlights best management practices for storage tank release detection.

**Note:** This document is a resource to promote compliance and does not replace the federal UST regulations.

EPA developed this brochure to help UST owners and operators in Indian country comply with the federal UST regulations.

This brochure is one in a series of EPA compliance assistance brochures designed to help owners and operators comply with UST regulations.

Other brochures focus on spill buckets, overfill protection, recordkeeping and notification, financial responsibility, insurance, and piping release detection.

[www.epa.gov/oust/pubs](http://www.epa.gov/oust/pubs)

# STORAGE TANK RELEASE DETECTION

## BEST MANAGEMENT PRACTICES FOR YOUR UNDERGROUND STORAGE TANK

**Effective through  
October 12, 2018**

Visit

<https://www.epa.gov/ust/managing-your-usts-indian-country>



Office of Underground Storage Tanks  
[www.epa.gov/oust](http://www.epa.gov/oust)  
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Compliance Assistance In  
Indian Country

## RELEASE DETECTION

### What is release detection?

Underground storage tank (UST) [release detection](#) is an electronic or manual method or combination of methods designed to help you quickly detect releases from your tank.

### What type of storage tank release detection must you use?

You must conduct one of the following:

- ☞ [automatic tank gauging](#) (ATG),
- ☞ [interstitial monitoring](#),
- ☞ [groundwater monitoring](#),
- ☞ [vapor monitoring](#),
- ☞ [manual tank gauging](#) (for tanks 2,000 gallons or less),
- ☞ [tank tightness test and inventory control](#) (in some cases, there is a ten year limit), or
- ☞ another method approved by the [implementing agency](#).

Your release detection device must be installed, calibrated, operated, and maintained according to manufacturer's instructions.

### What should you do to ensure your release detection method is working properly? If you use:

- ☞ **ATG:** Check your printout and make sure:
  - \* the ATG probe is working;
  - \* there is enough down time between fuel delivery and testing; and
  - \* the tank product level is at an appropriate test level.

Immediately respond and investigate any audible alarms or flashing lights.

Not all ATG alarms are due to releases. However, releases have gone undetected when alarms are either ignored or the ATG is turned off to stop flashing lights or beeps.



ATG in alarm status

- ☞ **Interstitial monitoring:** Inspect your system and:
  - \* look for liquid at the lowest point of the UST containment and record the results;
  - \* if the sensor alarms, contact your service provider to find the source of the alarm and replace malfunctioning electronic sensors.
- ☞ **Vapor or groundwater monitoring:** Check your well and well cover and make sure:
  - \* it is installed in an area where leaks can not enter into the monitoring well;
  - \* the well caps are secure; and
  - \* the well caps are not damaged.



Monitoring well placed in the flow surface run-off



Monitoring well with missing cover and filled with debris

- ☞ **Inventory control:** Use the right equipment and make sure:
  - \* the gauge stick is not warped; its ends are not worn, broken, or shortened; and markings are clearly legible
  - \* readings are recorded daily and reconciled monthly. Use water finding paste to check for water on the tank bottom with record the reading.



Gauge stick with a broken end.



Checking for water on bottom of tank with paste.

- ☞ **Statistical Inventory Reconciliation (SIR):** Collect the right information and:
  - \* record the data according to your vendor's instruction; and
  - \* have a trained professional analyze your data.

### What are some common UST release detection problems?

#### ATG

- ☞ Not performing a monthly leak test.
- ☞ ATG malfunctioning or improperly programmed.
- ☞ Not responding to ATG alarms.
- ☞ Malfunctioning or disconnected probe.
- ☞ Not having printer paper installed.
- ☞ Not having enough product in tank.
- ☞ Not allowing enough time for tests.

#### Interstitial Monitoring

- ☞ No sensor.
- ☞ Malfunctioning sensor.
- ☞ Improperly installed sensor.



Interstitial monitoring sensor

#### SIR

- ☞ Not further investigating inconclusive results.
- ☞ Not obtaining vendor reports in a timely manner.

#### Inventory Control

- ☞ Not gauging the tank daily, checking for water monthly, or recording all deliveries.
- ☞ Not performing proper calculations to reconcile data at the end of each month.
- ☞ Not conducting an annual tightness test.

#### Tightness Testing

- ☞ Not having enough product in the tank to perform the leak test.

#### Recordkeeping

- ☞ Not maintaining printed copies of electronic monthly leak detection records.
- ☞ Not maintaining written logs of manual monthly interstitial monitoring checks.
- ☞ Not keeping daily and monthly inventory records.

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LEAK TEST REPORT
T 2: SUPER
TEST STARTING TIME:
JAN 22, 2007 2:02 PM

TEST LENGTH 5 HOURS
STARTING TEMP = 31.0 F
ENDING TEMP = 27.7 F

LEAK TEST RESULTS
0.2 GAL/HR TEST INVALID
0.2 GAL/HR FLAGS:
RECENT DELIVERY
CHANGE IN TANK TEMP ZONE
TEMP CHANGE TOO LARGE

TEST ENDING TIME:
JAN 22, 2007 7:02 PM
```

Invalid test due to inadequate down-time

```
START LEAK TEST
FEB 7, 2011 12:30 AM

TEST LENGTH 2 HOURS

T 1: UNLEAD
VOLUME = 601 GALS
ULLAGE = 2407 GALS
90% ULLAGE= 2106 GALS
TC VOLUME = 613 GALS
HEIGHT = 16.25 INCHES
WATER = 0.00 INCHES
TEMP = 30.9 DEG F

0.2 GAL/HR FLAGS:
LOW LEVEL TEST ERROR
```

Invalid test due to low product level

For more information on storage tank release detection, see EPA's *Straight Talk On Tanks: Leak Detection Methods For Petroleum Underground Storage Tanks And Piping* at [www.epa.gov/oust/pubs/straight.htm](http://www.epa.gov/oust/pubs/straight.htm) or order free copies by calling (800) 490-9198.

