United States Environmental Protection Agency

Requirements For Field-Constructed Tanks And Airport Hydrant Systems

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EPA wrote this booklet for owners and operators of field-constructed tanks (FCTs) and airport hydrant systems (AHSs).

This booklet describes the 2015 revised *federal* UST regulation. Many states and territories (referred to as states in this booklet) have state program approval from EPA. To find a list of states with state program approval, see www.epa.gov/ust/state-underground-storage-tank-ust-programs.

If your UST systems are located in a state *with* state program approval, your requirements may be different from those identified in this booklet. To find information about your state's UST regulation, contact your implementing agency or visit its website. You can find links to state UST websites at www.epa.gov/ust/underground-storage-tank-ust-contacts#states.

If your UST systems are located in a state *without* state program approval, both the requirements in this booklet and the state requirements apply to you.

If your UST systems are located in Indian country, the requirements in the booklet apply to you.

Free Publications About UST Requirements

Download or read *Requirements For Field-Constructed Tanks And Airport Hydrant Systems* on EPA's underground storage tank (UST) website at www.epa.gov/ust. Order printed copies of many, but not all, of our documents from the National Service Center for Environmental Publications (NSCEP), EPA's publication distributor: write to NSCEP, Box 42419, Cincinnati, OH 45242; call NSCEP's toll-free number 800-490-9198; or fax your order to NSCEP 301-604-3408.

Photographs courtesy of: Florida Department of Environmental Protection

Contents

What Is This Booklet About? 1
What Must You Do When You Install An FCT or AHS? 13
What Must You Report? 14
What Are Your Spill And Overfill Prevention Requirements? 15
What Are Your Corrosion Protection Requirements? 19
What Are Your Release Detection Requirements? 21
What Must You Do For Walkthrough Inspections? 26
Compatibility With Biofuels And Other Regulated Substances 29
What Are The Operator Training Requirements? 30
How Do You Repair UST Systems? 31
Financial Responsibility 33
What Must You Do About UST Releases? 34
How Do You Close USTs? 36
What Records Must You Keep? 38
Links For More Information 39

Disclaimer

This document provides information about requirements for field-constructed tanks and airport hydrant systems. The document is not a substitute for U.S. Environmental Protection Agency regulations nor is it a regulation itself — it does not impose legally binding requirements.

For regulatory requirements regarding UST systems, refer to the federal regulation governing UST systems (40 CFR part 280).

What Is This Booklet About?

This booklet discusses requirements for field-constructed tanks and airport hydrant systems.

As of 2015, the U.S. Environmental Protection Agency (EPA) regulates over one-half million underground storage tank systems (USTs) that contain petroleum or hazardous substances. EPA's Office of Underground Storage Tanks was formed in response to the discovery in the early 1980s that thousands of USTs had leaked and contaminated groundwater supplies in the United States. While the number of annual releases since that time has gone down significantly, releases of petroleum from USTs into the environment are still a significant concern today. Underground storage tanks form a crucial part of our country's fueling infrastructure. It is important for USTs to be constructed, maintained, and operated in a manner such that petroleum and other regulated substances are stored safely. EPA developed the UST regulation to help owners and operators meet these goals.

A properly installed and managed UST system should not threaten our health or environment. Congress passed federal laws, which required EPA to develop the UST regulation described in this book. The federal UST regulation in 40 Code of Federal Regulations (CFR) part 280 requires owners and operators of USTs to:

- Prevent releases from USTs;
- Detect releases from USTs; and
- Correct the problems created by releases from USTs.

In addition, the regulation requires UST owners and operators maintain documentation showing they have the ability to pay for cleaning up a release if their USTs leak.

The 1988 UST regulation deferred UST systems with field-constructed tanks (sometimes referred to as field-constructed tanks or FCTs) and airport hydrant fuel distribution systems (sometimes referred to as airport hydrant systems or AHSs) from most of the regulation because these systems operated and were designed differently than conventional USTs.

Releases from USTs can threaten human health and the environment, contaminating both soil and groundwater. As of 2015, more than 525,000 UST releases have been confirmed.

Airport hydrant systems with aboveground storage tanks (ASTs) directly connected to underground hydrant piping are not regulated under 40 CFR part 280, unless 10 percent or more of the total system capacity, including underground piping, is beneath the surface of the ground.

Owners and operators of tanks that are not regulated under 40 CFR part 280 may have to follow other requirements such as those under the Spill Prevention, Control, and Countermeasure (SPCC) regulation.

Sufficient information and technology, in particular, release detection for piping, were not readily available for these unique systems. The deferral meant that FCTs and AHSs were not required to meet many of the UST requirements. Now, EPA has a better understanding of the operation and design of these systems. As a result, EPA removed the deferral and has added requirements for FCTs and AHSs under subpart K of 40 CFR part 280. These changes will help prevent and quickly detect releases from these systems.

What Is A Field-Constructed Tank? What Is An Airport Hydrant System?

A field-constructed tank is a tank constructed in the field. For example, a tank constructed of concrete that is poured in the field, or a steel or fiberglass tank primarily fabricated in the field is considered field constructed.

Field-constructed tanks are not built like conventional UST systems at gas stations. FCTs are typically bulk underground storage tanks that are built on-site and are not pre-fabricated. FCTs range from conventional sizes to very large capacities containing millions of gallons.

An airport hydrant fuel distribution system is an UST system, which fuels aircraft and operates under high pressure with large diameter piping that typically terminates into one or more hydrants, also known as fill stands. The hydrant system begins where fuel enters one or more tanks from an external source such as a pipeline, barge, rail car, or other motor fuel carrier.

EPA partially excludes aboveground tanks associated with FCTs and AHSs that meet the definition of an UST.

Airport hydrant systems often have more than one tank and include:

- aboveground and underground storage tanks storing aircraft fuel;
- directly connected underground piping; and
- other connected tanks holding aircraft fuel such as settling tanks or tanks used to relieve pressure in the system.

Airport hydrant systems do not include:

- tanks not storing aircraft fuel, for example, additive tanks;
- tanks not directly connected to the airport hydrant system, for example, tanks used to power an emergency generator in a pump house; and
- piping connected to those tanks.

Remember, partially excluded aboveground tanks associated with FCTs and AHSs are still required to comply with subparts A, F, and H, and may be subject to other regulations.

Airport hydrant systems may include field-constructed tanks. Field-constructed tanks, which are part of an airport hydrant system are treated as part of the airport hydrant system and not as separate UST systems.

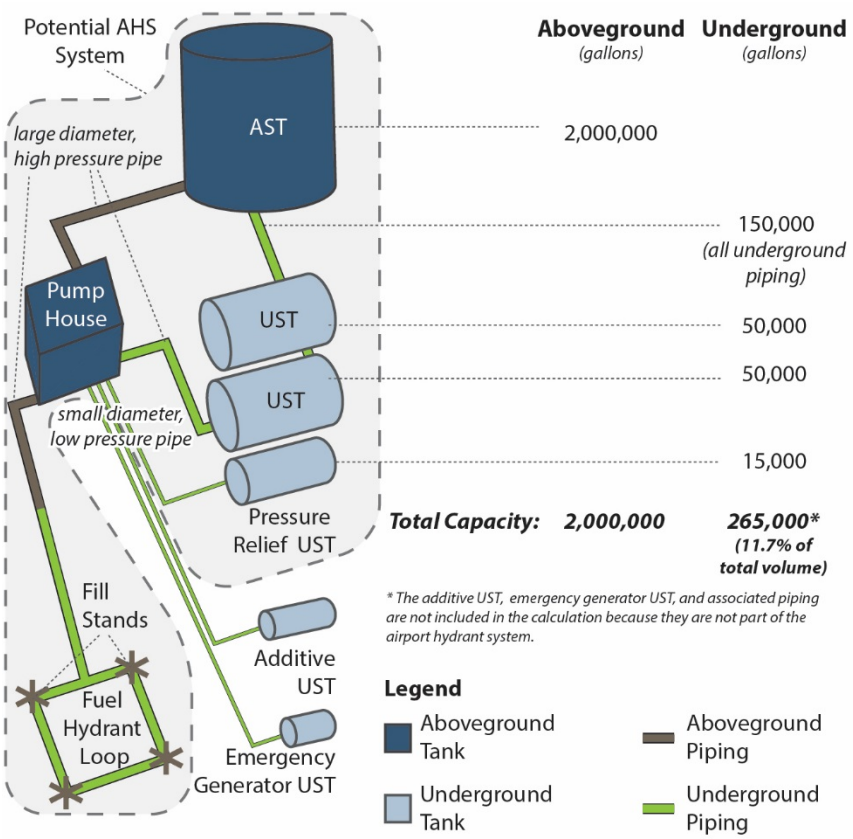
How Do You Determine Whether Your Airport Hydrant System Meets EPA's Definition Of A Regulated UST?

Example 1 - Airport Hydrant System That Is Regulated

The system below consists of one 2,000,000 gallon aboveground storage tank (AST); two 50,000 gallon USTs; underground piping with 150,000 gallons capacity; and one 15,000 gallon UST for relieving pressure in the line.

The total volume of the system is 2,265,000 gallons. The underground volume is 265,000 gallons or nearly 11.7 percent of the total system volume.

Because the underground capacity is greater than 10 percent of the total system capacity, it meets the definition of an UST and is an airport hydrant system according to EPA's definition.



Use the examples to help you calculate whether your UST system meets EPA's definition of an airport hydrant system.

Remember, when performing the calculation, use all aboveground and underground tanks storing aircraft fuel, including settling tanks and tanks used to relieve pressure in the system, and underground piping.

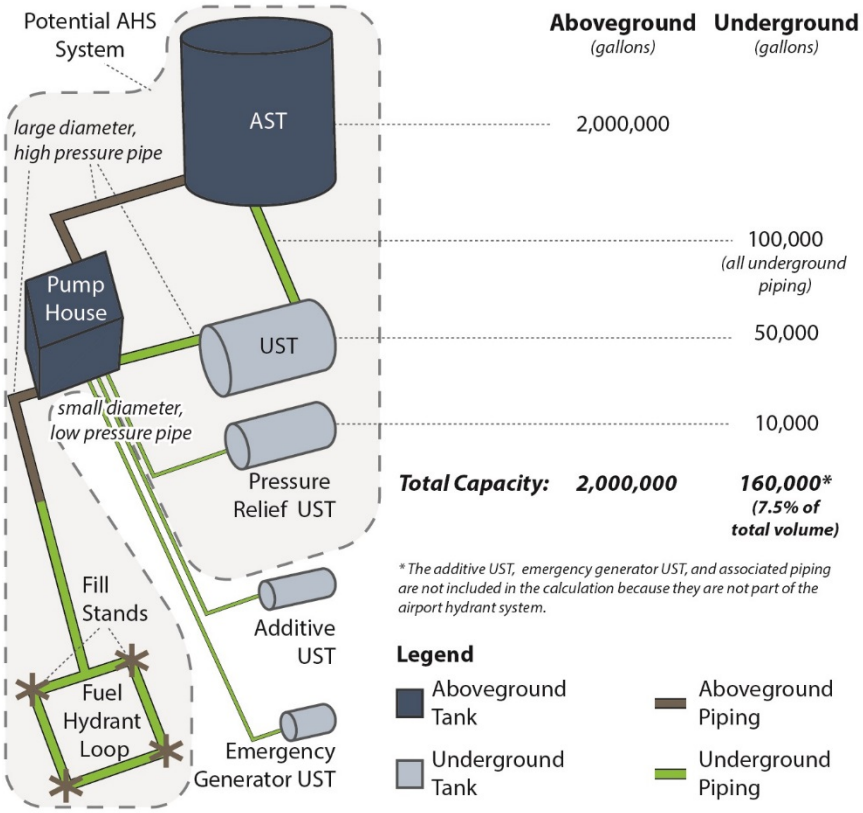
Aboveground piping is not included in the calculation because EPA's definition of UST does not include aboveground piping.

Example 2 - Airport Hydrant System That Is Not Regulated

The system below consists of one 2,000,000 gallon AST; one 50,000 gallon UST; underground piping with 100,000 gallons capacity; and one 10,000 gallon UST for relieving pressure in the line.

The total volume of the system is 2,160,000 gallons. The underground volume is 160,000 gallons or nearly 7.5 percent of the total system volume.

Because the underground capacity is less than 10 percent of the total system capacity, it does not meet the definition of an UST and is not an airport hydrant system according to EPA's definition.



What Are The Requirements For Field-Constructed Tanks And Airport Hydrant Systems?

FCTs And AHSs Installed On Or Before October 13, 2015

The 1988 UST regulation required owners perform corrective action when releases from FCTs and AHSs occurred. Now, you must meet release reporting, investigation, confirmation, and closure requirements.

You must meet these requirements by October 13, 2018:

- One-time notification of existence and financial responsibility;
- Spill, overfill, and corrosion protection;
- Release detection;
- Operator training; and
- General operating requirements, including compatibility, repairs, and periodic testing and inspections.

Owners and operators of FCTs or AHSs permanently closed before October 13, 2015 are subject to the closure requirements if a release from the UST may, in the judgment of the implementing agency, pose a current or potential threat to human health and the environment.

FCTs And AHSs Installed After October 13, 2015

You must meet these requirements at installation:

- Notification;
- Financial responsibility;
- Spill, overfill, and corrosion protection;
- Release detection;
- General operating requirements, including compatibility and repairs; and
- Release response, reporting, corrective action, and closure.

You must meet these requirements by October 13, 2018:

- Operator training;
- Walkthrough inspections; and
- Release detection equipment testing.

USTs Associated With FCTs, AHSs, Or Underground Piping Associated With FCTs Less Than 50,000 Gallons And Installed Or Replaced After April 11, 2016

You must meet the following in addition to the requirements listed above for FCTs and AHSs installed after October 13, 2015:

- Secondary containment with interstitial monitoring; and
- Under-dispenser containment for new dispenser systems.

FCTs And AHSs Installed After October 13, 2018

You must meet all requirements at installation.

The following differences to the UST requirements only apply to FCTs and AHSs:

- You may use alternative release detection options.
- After April 11, 2016, you may use single-walled piping when installing or replacing piping for FCTs greater than 50,000 gallons and piping associated with AHSs.
- You must perform periodic walkthroughs of your hydrant pits and vaults.

Hydrant pit

Except as provided in § 280.252, owners and operators must comply with the requirements of subparts A through H and J of 40 CFR part 280.

The three tables, which begin on page 7 discuss the UST requirements and their implementation dates based on when the UST was installed.

See page 38 for recordkeeping requirements.

For USTs Installed On Or Before October 13, 2015

For These Tanks Or Facilities:	You Must Have This Equipment Or Perform These Actions:
Installation (page 13)	
All Tanks	• If you install an UST system, meet the requirements concerning correct installation • Under-dispenser containment for new dispensers[1] installed after April 11, 2016
Reporting (page 14)	
All Facilities	• No later than October 13, 2018, submit a one-time notice of tank system existence to the implementing agency • Notify your implementing agency at least 30 days before permanently closing an UST • Notify your implementing agency within 30 days of acquiring an UST • Beginning on October 13, 2018, notify your implementing agency at least 30 days prior to switching to regulated substances blended with greater than 10 percent ethanol or greater than 20 percent biodiesel or other regulated substances identified by your implementing agency
Spill And Overfill Prevention (page 15)[2]	
All Tanks	No later than October 13, 2018: • Install spill buckets • Install automatic shutoff devices *or* overfill alarms • Use correct filling practices • Test spill buckets every three years[3] • Inspect overfill prevention equipment every three years
Corrosion Protection (page 19)[4]	
Tanks And Piping	No later than October 13, 2018: • Meet the same options as for tanks and piping installed after October 13, 2015; *or* • Cathodically protected metal *and* cathodic protection testing
Release Detection (page 21)	
FCTs With A Capacity Less Than Or Equal To 50,000 Gallons And Shop-fabricated Tanks Associated With AHSs	No later than October 13, 2018 meet one of the following: • Monthly monitoring;[5] *or* • Manual tank gauging[6]; *or* • Inventory control or manual tank gauging plus tank tightness testing; EPA allows this method for up to 10 years after tank was installed
FCTs With A Capacity Greater Than 50,000 Gallons	No later than October 13, 2018 meet any of the release detection methods for FCTs with a capacity less than or equal to 50,000 gallons, except that groundwater or vapor monitoring must be used only as indicated in the alternative options listed here. Alternatively, one of these options may be used: • ATG system combined with tank tightness testing, *or* • Active vapor monitoring using chemical tracers, *or* • Inventory control with biennial tightness testing or passive groundwater or vapor monitoring, *or* • Another method approved by your implementing agency
Pressurized Piping Associated With FCTs With A Capacity Less Than Or Equal To 50,000 Gallons	No later than October 13, 2018: • Automatic line leak detector, *and either* • Annual line tightness test *or* • Monthly monitoring[5], except automatic tank gauging

Pressurized Piping Associated With AHSs Or Piping Associated With FCTs Having A Capacity Greater Than 50,000 Gallons	No later than October 13, 2018 meet any of the release detection methods for FCTs with a capacity less than or equal to 50,000 gallons, except that groundwater or vapor monitoring must be used only as indicated in the alternative options listed here. Alternatively, one of these options may be used: • Semiannual or annual line tightness testing, *or* • Active vapor monitoring using chemical tracers, *or* • Inventory control with biennial tightness testing or groundwater or passive vapor monitoring, *or* • Another method approved by your implementing agency
Release Detection Testing	• No later than October 13, 2018, annually test release detection operability • No later than October 13, 2018[3], every three years test containment sumps used for piping interstitial monitoring
Facilities Using Vapor Or Groundwater Monitoring	• No later than October 13, 2018, begin keeping a record of a site assessment for as long as the method is used
Walkthrough Inspections (page 26)	
All Facilities	• Beginning on October 13, 2018, conduct 30 day and annual walkthrough inspections
Compatibility (page 29)	
FCTs And AHSs	No later than October 13, 2018: • Use UST systems made of or lined with material compatible with the substance stored; *and* • For systems storing certain regulated substances, maintain records demonstrating compliance with the compatibility requirement
Operator Training (page 30)	
All Facilities	• No later than October 13, 2018, have designated and trained Class A, B, and C operators
Repairs (page 31)	
All Tanks	• Test following repairs to your tank and piping within 30 days • Test following repairs to your cathodic protection system within six months • Test or inspect components within 30 days after a repair to spill or overfill prevention equipment or secondary containment areas
Financial Responsibility (page 33)[7]	
All Facilities	• Keep records demonstrating you have the financial resources to clean up a site if a release occurs, correct environmental damage, and compensate third parties for injury to their property or themselves
Release Response (page 34)	
All Facilities	• Take corrective action in response to releases
Closure (page 36)	
All Facilities	• Temporarily or permanently close your UST system properly

Notes:

[1] Dispenser does not mean containment for a hydrant fueling pit or pantograph; it is mobile rigid aboveground piping that connects a fuel source or fuel pit to an aircraft.
[2] Spill buckets are not required for UST systems that never receive deliveries greater than 25 gallons or USTs filled by a directly connected pipeline.
[3] Spill containment and containment sump testing is not required if the containment is double-walled and uses periodic interstitial monitoring.
[4] FCTs and AHSs installed after December 22, 1988 were required to have corrosion protection at the time of installation to meet the interim prohibition requirement in the 1988 UST regulation.
[5] Monthly monitoring, which does not exceed 30 days, includes: interstitial monitoring; automatic tank gauging; vapor monitoring, groundwater monitoring; statistical inventory reconciliation; continuous in-tank leak detection; and other methods approved by your implementing agency.
[6] Tanks 2,000 gallons and smaller may be able to use manual tank gauging.
[7] State and federal governments are exempt from the financial responsibility requirements.

For USTs Installed Between October 13, 2015 And April 11, 2016

For These Tanks Or Facilities:	You Must Have This Equipment Or Perform These Actions:
Installation (page 13)	
All Tanks	• If you install an UST system, meet the requirements concerning correct installation. • Under-dispenser containment for new dispensers[1] installed after April 11, 2016.
Reporting (page 14)	
All Facilities	• After you bring an UST system into use, notify your implementing agency within 30 days • Notify your implementing agency at least 30 days before permanently closing an UST • Notify your implementing agency within 30 days of acquiring an UST • Beginning on October 13, 2018, notify your implementing agency at least 30 days prior to switching to regulated substances blended with greater than 10 percent ethanol or greater than 20 percent biodiesel or other regulated substances identified by your implementing agency
Spill And Overfill Prevention (page 15)[2]	
All Tanks	• Spill buckets • Automatic shutoff devices *or* overfill alarms • Use correct filling practices • Test spill buckets every three years[3] • Inspect overfill prevention equipment every three years
Corrosion Protection (page 19)[4]	
Tanks And Piping	• Coated and cathodically protected steel *and* cathodic protection testing; *or* • Noncorrodible material, such as fiberglass reinforced plastic or flexible plastic for piping only; *or* • Steel tank clad or jacketed with noncorrodible material for tanks only
Release Detection (page 21)	
FCTs With A Capacity Less Than Or Equal To 50,000 Gallons And Shop-fabricated Tanks Associated With AHSs	• Monthly monitoring;[5] *or* • Manual tank gauging;[6] *or* • Inventory control or manual tank gauging plus tank tightness testing; EPA allows this method for up to 10 years after tank was installed
FCTs With A Capacity Greater Than 50,000 Gallons	Meet any of the release detection methods for FCTs with a capacity less than or equal to 50,000 gallons, except that groundwater or vapor monitoring must be used only as indicated in the alternative options listed here. Alternatively, one of these options may be used: • ATG system combined with tank tightness testing, or • Active vapor monitoring using chemical tracers, *or* • Inventory control with biennial tightness testing or passive groundwater or vapor monitoring, *or* • Another method approved by your implementing agency
Pressurized Piping Associated With FCTs With A Capacity Less Than Or Equal To 50,000 Gallons	• Automatic line leak detector; *and either* • Annual line tightness test; *or* • Monthly monitoring[5], except automatic tank gauging)
Pressurized Piping Associated With AHSs Or Piping Associated With FCTs Having A Capacity Greater Than 50,000 Gallons	Meet any of the release detection methods for FCTs with a capacity less than or equal to 50,000 gallons, except that groundwater or vapor monitoring must be used only as indicated in the alternative options listed here. Alternatively, one of these options may be used: • Semiannual or annual line tightness testing; *or* • Active vapor monitoring using chemical tracers; *or* • Inventory control with biennial tightness testing or groundwater or passive vapor monitoring; *or* • Another method approved by your implementing agency

Release Detection Testing	• No later than October 13, 2018, annually test release detection operability • No later than October 13, 2018[3], every three years test containment sumps used for piping interstitial monitoring
Facilities Using Vapor Or Groundwater Monitoring	• No later than October 13, 2018, begin keeping a record of a site assessment for as long as the method is used
Walkthrough Inspections (page 26)	
All Facilities	• Beginning on October 13, 2018, conduct 30 day and annual walkthrough inspections
Compatibility (page 29)	
FCT And AHSs	No later than October 13, 2018: • Use UST systems made of or lined with material compatible with the substance stored; *and* • For systems storing certain regulated substances, maintain records demonstrating compliance with the compatibility requirement
Operator Training (page 30)	
All Facilities	• No later than October 13, 2018, have designated and trained Class A, B, and C operators
Repairs (page 31)	
All Tanks	• Test following repairs to your tank and piping within 30 days • Test following repairs to your cathodic protection system within six months • Test or inspect components within 30 days after a repair to spill or overfill prevention equipment or secondary containment areas
Financial Responsibility (page 33)[7]	
All Facilities	• Keep records demonstrating you have the financial resources to clean up a site if a release occurs, correct environmental damage, and compensate third parties for injury to their property or themselves
Release Response (page 34)	
All Facilities	• Take corrective action in response to releases
Closure (page 36)	
All Facilities	• Temporarily or permanently close your UST system properly

Notes:

[1] Dispenser does not mean containment for a hydrant fueling pit or pantograph; it is mobile rigid aboveground piping that connects a fuel source or fuel pit to an aircraft.
[2] Spill buckets are not required for UST systems that never receive deliveries greater than 25 gallons or USTs filled by a directly connected pipeline.
[3] Spill containment and containment sump testing is not required if the containment is double-walled and uses periodic interstitial monitoring.
[4] FCTs and AHSs installed after December 22, 1988 were required to have corrosion protection at the time of installation to meet the interim prohibition requirement in the 1988 UST regulation.
[5] Monthly monitoring, which does not exceed 30 days, includes: interstitial monitoring; automatic tank gauging; vapor monitoring, groundwater monitoring; statistical inventory reconciliation; continuous in-tank leak detection; and other methods approved by your implementing agency.
[6] Tanks 2,000 gallons and smaller may be able to use manual tank gauging.
[7] State and federal governments are exempt from the financial responsibility requirements.

For USTs Installed After April 11, 2016

For These Tanks Or Facilities:	You Must Have This Equipment Or Perform These Actions:
Installation (page 13)	
All Tanks	• If you install an UST system, meet the requirements concerning correct installation. • Under-dispenser containment for new dispensers[1].
Reporting (page 14)	
All Facilities	• After you bring an UST system into use, notify your implementing agency within 30 days • Notify your implementing agency at least 30 days before permanently closing an UST • Notify your implementing agency within 30 days of acquiring an UST • Beginning on October 13, 2018, notify your implementing agency at least 30 days prior to switching to regulated substances blended with greater than 10 percent ethanol or greater than 20 percent biodiesel or other regulated substances identified by your implementing agency
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Release Detection (page 21)	
FCTs, Pressurized Piping Associated With FCTs Having A Capacity Less Than Or Equal To 50,000 Gallons, And AHSs	• Secondary containment with interstitial monitoring • Pressurized piping must also have an automatic line leak detector
Pressurized Piping Associated With AHSs Or Piping Associated With FCTs Having A Capacity Greater Than 50,000 Gallons	Meet any of the release detection methods for FCTs with a capacity less than or equal to 50,000 gallons, except that groundwater or vapor monitoring must be used only as indicated in the alternative options listed here. Alternatively, one of these options may be used: • Semiannual or annual line tightness testing; *or* • Active vapor monitoring using chemical tracers; *or* • Inventory control with biennial tightness testing or groundwater or passive vapor monitoring; *or* • Another method approved by your implementing agency
Release Detection Testing	• No later than October 13, 2018, annually test release detection operability • No later than October 13, 2018[3], every three years test containment sumps used for piping interstitial monitoring
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[4] FCTs and AHSs installed after December 22, 1988 were required to have corrosion protection at the time of installation to meet the interim prohibition requirement in the 1988 UST regulation.
[5] State and federal governments are exempt from the financial responsibility requirements.

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What Must You Do When You Install An FCT or AHS?

Make sure your UST system is installed correctly; use qualified installers who follow industry codes and manufacturers' instructions. See www.epa.gov/ust/underground-storage-tanks-usts-laws-regulations#code for more information on industry codes and installation practices.

- Make sure your installer completes and signs the certification for proper installation on the notification form available at www.epa.gov/ust/notification-forms-underground-storage-tanks.

Installation problems may result from installation practices, which do not follow standard industry codes and procedures. Improper installation could result in UST system failures. Installation includes activities such as excavation, UST system siting, burial depth, tank system assembly, backfilling around the UST system, and surface grading.

Make sure installers carefully follow the correct installation procedures called for by manufacturers' instructions and industry codes.

If you use dispensers with your FCTs or AHSs, dispensers installed after April 11, 2016 must have under-dispenser containment. Under-dispenser containment must be liquid-tight on its sides, bottom, and at penetrations. Under-dispenser containment must allow for visual inspection and access to the components in the containment system or be periodically monitored for leaks from the dispenser system.

Installation of AHS piping and vaults

If you modify your system by adding aboveground tanks or removing USTs or underground piping, your regulatory status may change. Always perform the 10 percent calculation to determine if your system must follow the UST regulation; see page 3 for the calculation.

Check with your implementing agency to see whether there are additional notification requirements you must follow.

Make sure installers carefully follow the correct installation procedures called for by manufacturers' instructions and industry codes.

What Must You Report?

You must report to your implementing agency on the following occasions:

When This Happens:	You Must Report This:	By This Time:
For systems installed on or before October 13, 2015	You must submit a one-time notice of tank system existence to your implementing agency.	October 13, 2018
After you install an UST	You must complete and submit a notification form available from your implementing agency. This form requests information about your UST, including a certification of correct installation.	Within 30 days of bringing the UST into use
After you acquire an UST	You must complete a notification of ownership change form available from your implementing agency.	Within 30 days after you acquire an UST
Before switching to certain biofuels or other substances identified by your implementing agency	You must notify your implementing agency.	At least 30 days before switching to certain biofuels or other substances identified by your implementing agency
When you suspect a release	You must report suspected releases to your implementing agency.	Within 24 hours (or another period specified by your implementing agency)
When you confirm a release	You must report follow-up actions you plan or have taken to correct the damage caused by your UST.	Within 20 days (or another period specified by your implementing agency)
Before you permanently close your UST	You must notify your implementing agency.	At least 30 days before you permanently close your UST

Check with your implementing agency for additional requirements not noted above.

What Are Your Spill And Overfill Prevention Requirements?

What Must You Do For Spill Prevention?

- No later than October 13, 2018, field-constructed tanks and airport hydrant system tanks must have spill prevention equipment if a delivery hose is used to fill the UST. Spill prevention equipment, which is commonly called spill buckets or catchment basins, is used to contain drips and small spills that can occur when the delivery hose is disconnected from the fill pipe.
- You must test your spill prevention equipment at least every three years for liquid tightness or use a double-walled spill bucket with periodic interstitial monitoring. The test must be conducted according to a code of practice or manufacturer's instructions or requirements determined appropriate by your implementing agency.
- No later than October 13, 2018, you must begin inspecting your spill prevention equipment at least every 30 days or before each delivery if you receive deliveries less frequently than every 30 days. See page 26 for more information about what you must check during your walkthrough inspections.
- You and your fuel deliverer must follow correct filling practices.

Many releases at UST sites come from spills. Spills often occur at the fill pipe when the delivery vehicle's hose is disconnected. Although these spills are usually small, repeated small releases can cause big environmental problems.

What Are Spill Buckets?

Spill buckets are also called spill containment manholes or catchment basins. Basically, a spill bucket is a contained area around the fill pipe.

To protect against spills, the spill bucket should be large enough to contain what may spill when the delivery hose is uncoupled from the fill pipe. Spill buckets range in size

Spill prevention equipment is required on all tanks, except when no hose is disconnected from the tank after filling, that is, tanks fed via a pipeline.

Your equipment supplier can help you choose the size and type of spill prevention equipment that meets your needs.

from those capable of holding only a few gallons to those that are much larger – the larger the spill bucket, the more spill protection it provides.

You should try to keep water out of spill buckets. Some spill buckets can collect water and sediment, along with spilled product, making draining this mixture into the tank unwise. If this happens, you may pump out the spill bucket and dispose of the liquid properly. If the liquid contains fuel or chemicals, it could be considered a hazardous waste. Contact your implementing agency responsible for hazardous waste for information on testing and handling requirements.

What Must You Do For Overfill Prevention?

- No later than October 13, 2018, field-constructed tanks and airport hydrant system tanks must have overfill prevention. Tanks installed after October 13, 2015 must have overfill prevention when they are installed. Automatic shutoff devices and overfill alarms are two types of overfill prevention devices, which are described below.
- You must inspect your overfill prevention equipment at least once every three years to ensure it will function properly to prevent overfills. The inspection must be conducted according to a code of practice or manufacturer's instructions, or requirements determined appropriate by your implementing agency.
- You and your delivery person must follow correct filling practices.

Overfill prevention is required for all FCTs and AHSs, even if they are not filled by a delivery hose.

Overfill prevention is not required for temporarily closed tanks.

Overfills usually release much larger volumes than spills. When a tank is overfilled, large volumes can be released at the fill pipe and at other areas of the UST system, such as loose fittings on the top of the tank, vapor recovery ports, a loose vent pipe, or other tank top openings.

To work properly, all overfill devices must be installed correctly at the proper distance below the tank top as specified by the manufacturer.

You can solve overfill problems by:

- Making sure there is enough room in the tank for the delivery before the delivery is made;
- Watching the entire delivery to prevent overfilling or spilling; and
- Using overfill prevention devices.

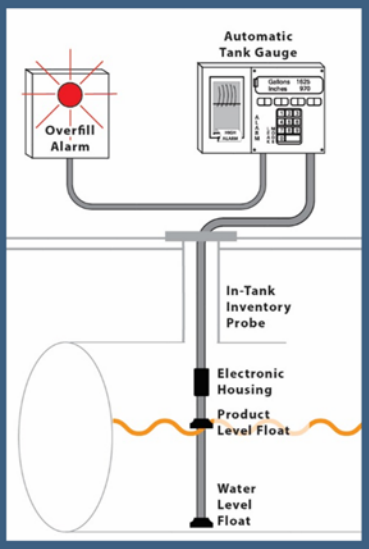
Note: If you receive pumped deliveries, which means fuel is delivered under pressure, you must make sure your overfill prevention device works properly with pumped deliveries. Also, remember that overfill prevention devices are effective only when combined with careful filling practices.

What Are Automatic Shutoff Devices?

An automatic shutoff device installed in an UST's fill pipe slows down and then stops delivery when the product reaches 95 percent capacity or before the fittings on top of the tank are exposed to product. This device – sometimes called a flapper valve – has one or two valves that are operated by a float mechanism.

Some automatic shutoff devices work in two stages. The first stage drastically reduces the flow of product to alert the delivery person that the tank is nearly full. The delivery person can then close the delivery valve and still have room in the tank for the product left in the delivery hose.

If the delivery person does not pay attention and the liquid level rises higher, the valve closes completely and no more liquid can be delivered into the tank, leaving the driver with a delivery hose full of product. Pipeline deliveries, where no delivery hose is connected or disconnected, should not experience this problem.



Overfill alarm

What Are Overfill Alarms?

Overfill alarms use probes installed in the tank to activate an alarm when the tank is either 90 percent full or within 1 minute of being overfilled. Either way, the alarm should provide enough time for the delivery person to close the shutoff valve before an overfill happens. Alarms must be located where the delivery person can see or hear them easily. Overfill alarms are often part of automatic tank gauging systems.

Overfill alarms work only if they alert the delivery person at the right time and the delivery person responds quickly. Remember to put the alarm on an electrical circuit that is active all the time so that the alarm will always work.

What Are Your Responsibilities For Correct Filling Practices?

Human error causes most spills. You can avoid mistakes by following correct tank filling practices. For example, you must make sure there is room in the UST for the delivery, and the delivery person must watch the delivery at all times. For this reason, the UST regulation requires that you follow correct filling practices.

If you and your delivery person follow correct filling practices, nearly all spills and overfills can be prevented.

As an owner or operator, you are responsible for ensuring that releases due to spilling or overfilling do not occur during fuel delivery. As part of this responsibility, you must:

- Ensure the amount of product to be delivered will fit into the available empty space in the tank; and
- Ensure the transfer operation is monitored constantly to prevent overfilling and spilling.

What To Do Before Your USTs Are Filled

- Post clear signs that alert the fuel delivery person to the overfill devices and alarms in use at your facility.
- Make and record accurate readings for product and water in the tank before fuel delivery.
- Order only the quantity of fuel that will fit into 90 percent of the tank.
- The formula for determining the maximum amount of fuel to order is: (Tank capacity in gallons x 90%) – Fuel currently in tank = Maximum amount of fuel to order
    - Example: (10,000 gal. x 0.9) – 2,000 gal. = 7,000 gal. maximum amount to order
- Ensure the fuel delivery person knows the type of overfill device present at the tank and what actions to perform if it activates.
- Review and understand the spill response procedures.
- Verify that your spill bucket is empty, clean, and will contain spills.

What To Do While Your USTs Are Being Filled

- Keep fill ports locked until the fuel delivery person requests access.
- Keep an accurate tank capacity chart available for the fuel delivery person.
- The fuel delivery person makes all hook-ups.
- The person responsible for monitoring the delivery should remain attentive and observe the entire fuel delivery; be prepared to stop the flow of fuel from the truck to the UST at any time; and respond to any unusual condition, leak, or spill that may occur during delivery.
- Keep response supplies readily available for use in case a spill or overfill occurs.
- Provide safety barriers around the fueling zone.
- Make sure there is adequate lighting around the fueling zone.

What To Do After Your USTs Are Filled

- Following complete delivery, the fuel delivery person is responsible for disconnecting all hook-ups.
- Return spill response kit and safety barriers to proper storage locations.
- Make and record accurate readings for product and water in the tank after fuel delivery.
- Verify the amount of fuel received.
- Make sure fill ports are properly secured.
- Ensure the spill bucket is free of product and clean up any small spills.

What Are Your Corrosion Protection Requirements?

The federal UST regulation requires corrosion protection to help prevent your USTs from releasing product into the environment.

Tanks and piping entirely made of non-corrodible material, such as fiberglass or concrete, do not need cathodic protection.

What Are Cathodic Protection Methods?

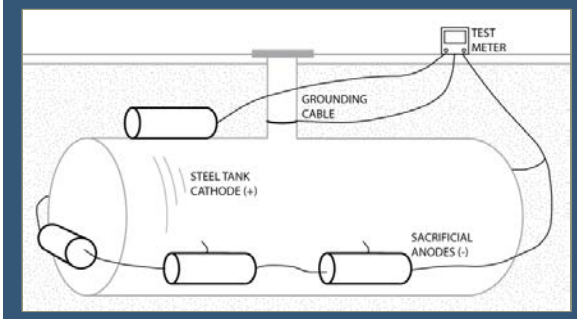
Sacrificial Anode System: Sacrificial anodes are buried and attached to UST components for corrosion protection. Anodes are pieces of metal that are more electrically active than steel, and thus they suffer the destructive effects of corrosion rather than the steel they are attached to.

Impressed Current System: An impressed current system uses a rectifier to provide direct current through anodes to the tank or piping to achieve corrosion protection. The steel is protected because the current going to the steel overcomes the corrosion-causing current flowing away from it. The cathodic protection rectifier must always be on and operating to protect your UST system from corrosion.

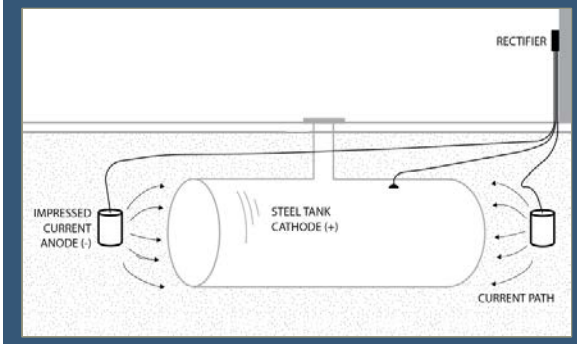
You must have a qualified cathodic protection tester test your cathodic protection system at least every three years to make sure the cathodic protection system is protecting the UST system. If you have an impressed current system, you must inspect it every 60 days to make sure the impressed current rectifier is running properly.

Never turn off your rectifier. If your rectifier is off, your UST system is not being protected from corrosion.

Corrosion results when bare metal and soil and moisture conditions combine to produce an underground electric current that destroys hard metal. Over time, unprotected USTs can corrode and leak.



Sacrificial anode system



Impressed current system

Corrosion Protection For Steel USTs

No later than October 13, 2018, steel USTs installed on or before October 13, 2015 must have cathodic protection. If the tank is greater than 10 years old, it must be assessed to make sure the tank is structurally sound and free of corrosion holes before adding cathodic protection. The assessment must be by internal inspection or another method determined by your implementing agency to adequately assess the tank for structural soundness and corrosion holes.

A qualified cathodic protection tester must test your cathodic protection systems within six months of installation and at least every three years thereafter. You must keep the results of the last two tests to prove that the cathodic protection is working. In addition, if you have an impressed current cathodic protection system, you must inspect it at least once every 60 days to verify that the system is operating. Keep results of your last three inspections to prove that the impressed current system is operating properly.

Note that field-installed cathodic protection must be designed by a qualified corrosion expert.

Corrosion Protection For Metal Piping

Not later than October 13, 2018, metal piping installed on or before October 13, 2015, must have cathodic protection. In addition, owners and operators must test, inspect, and keep records as described above for tank cathodic protection.

Metal tanks and piping encased or surrounded by concrete have no metal in contact with the ground and do not have to be cathodically protected.

Corrosion Protection For Steel Tanks And Piping

Your tanks and piping must meet one of the following to be protected from corrosion:

- Tank and piping are completely made of a noncorrodible material, such as fiberglass.
- Tank is made of steel and completely isolated from contact with the surrounding soil by being enclosed or jacketed in noncorrodible material, such as concrete.
- Tank and piping are made of steel having a corrosion-resistant coating and having cathodic protection. A corrosion-resistant coating electrically isolates the coated metal from the surrounding environment to help protect against corrosion. An asphaltic coating does not qualify as a corrosion-resistant coating. Galvanized steel does not meet the corrosion protection requirements. You must have cathodic protection systems tested and inspected and keep records, as explained above.

What Are Your Release Detection Requirements?

Owners and operators may use the conventional release detection options described in 40 CFR 280 subpart D and outlined below or alternative release detection options for FCTs and AHSs as described below.

When Do You Have To Meet Release Detection Requirements?

FCTs and AHSs installed on or before October 13, 2015 must have release detection no later than October 13, 2018.

FCTs and AHSs installed after October 13, 2015 must meet all release detection requirements at installation.

Tanks and some piping installed after April 11, 2016 must be secondarily contained and use interstitial monitoring at installation. Owners and operators may use single walled piping when installing or replacing piping associated with UST systems with field-constructed tanks greater than 50,000 gallons and piping associated with airport hydrant systems.

No later than October 13, 2018, you must conduct your first annual release detection equipment test to make sure components such as probes, sensors, and automatic line leak detectors are working properly. You must keep records of these tests for three years.

No later than October 13, 2018, you must begin conducting walkthrough inspections that check your release detection equipment every 30 days. In addition, you must check your hand-held release detection equipment annually. You must keep records of the walkthrough inspection for one year. See pages 26-28 for more information about what you must do on your walkthrough inspections.

What Are The Piping Release Detection Requirements?

For underground piping associated with FCTs less than or

The conventional release detection options are also covered in detail in *Straight Talk On Tanks,* which you can find at www.epa.gov/ust/straight-talk-tanks-leak-detection-methods-petroleum-underground-storage-tanks-and-piping.

Aboveground FCTs and aboveground tanks associated with AHSs are partially excluded from the UST regulation. These aboveground tanks do not have to meet the UST release detection requirements.

equal to 50,000 gallons installed on or before April 11, 2016, you must use these conventional release detection options:

- Underground pressurized piping must have an automatic line leak detector (ALLD) that:
    - Shuts off flow; or
    - Restricts flow; or
    - Triggers an audible or visual alarm.

The ALLD must be designed to detect a release at least 3 gallons per hour at a line pressure of 10 pounds per square inch within one hour, with a probability of detection of at least 95 percent and a probability of false alarm of no more than 5 percent.

- You must also use one other method**:**
    - Annual line tightness test
    - Monthly interstitial monitoring
    - Monthly vapor monitoring
    - Monthly groundwater monitoring
    - Monthly statistical inventory reconciliation
    - Continuous in-tank leak detection only for methods that include pipelines
    - Other monthly monitoring that meets performance standards or approved by implementing agency

The term monthly used as it applies to release detection monitoring frequency means release detection monitoring must occur at least once every 30 days.

EPA divided vapor monitoring into two categories: active monitoring which involves monitoring for chemical markers or tracers and passive monitoring which involves monitoring for stored product in the tank system.

Underground piping associated with FCTs less than or equal to 50,000 gallons installed after April 11, 2016 must be secondarily contained and use interstitial monitoring. In addition, this piping must use an ALLD.

For underground piping associated with all AHSs and those FCTs greater than 50,000 gallons, you must meet the release detection requirements by using either the conventional piping release detection options described above, except groundwater and passive vapor monitoring must be combined with inventory control, or one of these four alternatives:

- Line tightness testing at varying leak rates based on line segment volume

Maximum Leak Detection Rate Per Test Section Volume		
Test Section Volume (Gallons)	**Semiannual Test - Leak Detection Rate Not To Exceed (Gallons Per Hour)**	**Annual Test - Leak Detection Rate Not To Exceed (Gallons Per Hour)**
< 50,000	1.0	0.5
≥ 50,000 to < 75,000	1.5	0.75
≥ 75,000 to < 100,000	2.0	1.0
≥ 100,000	3.0	1.5

- Perform a semiannual or annual line tightness test at or above operating pressure according table below.

- Piping segment volumes greater than or equal to 100,000 gallons not capable of meeting the 3 gallons per hour leak rate for semiannual testing may be tested at a leak rate up to 6 gallons per hour according to the table below.

Phase In For Piping Segments ≥ 100,000 Gallons In Volume	
First test	No later than October 13, 2018 (may use up to 6 gallons per hour leak rate)
Second test	Between October 13, 2018 and October 13, 2021 (may use up to 6 gallons per hour leak rate)
Third test	Between October 13, 2021 and October 13, 2022 (must use 3 gallons per hour leak rate)
Subsequent tests	After October 13, 2022, begin using semiannual or annual line testing according to the Maximum Leak Detection Rate Per Test Section Volume table above

The terms semiannual and annual used as they apply to release detection monitoring frequency mean release detection monitoring must occur at least once every 180 days and 365 days, respectively.

- Active vapor monitoring using chemical markers or tracers
  - At least every two years, perform active vapor monitoring for a chemical tracer compound placed in the tank system. The monitoring must be capable of detecting a 0.1 gallon per hour leak rate.

- Inventory control with biennial tightness testing, or groundwater or passive vapor monitoring with monitoring of the stored regulated substance.
  - At least every 30 days, perform inventory control according to Department of Defense (DoD) Directive 4140.25 www.dtic.mil/whs/directives/corres/pdf/414025p.pdf, Air Transport Association (ATA) Airport Fuel Facility Operations and Maintenance Guidance Manual

https://publications.airlines.org/CommerceProductDetail.aspx?Product=40, or equivalent procedures that can detect a leak less than or equal to 0.5 percent of system flow through and either:

- At least every two years, perform a line tightness test using the release detection rate for the semiannual test in the Maximum Release Detection Rate Per Test Section Volume table above, or

- At least every 30 days, perform vapor monitoring or groundwater monitoring for the stored regulated substance.

- Another method approved by your implementing agency
  - Your implementing agency may approve another method of release detection for these types of piping if you can demonstrate that the method can detect a release as effectively as any of the methods listed above. In comparing methods, your implementing agency must consider the size of release the method can detect and the frequency and reliability of detection.

What Are The Tank Release Detection Requirements?

Shop-fabricated USTs associated with AHSs and FCTs with a capacity less than or equal to 50,000 gallons installed on or before April 11, 2016 must be monitored using any of the following conventional tank release detection options in 40 CFR subpart D.

Most shop-fabricated USTs are less than or slightly greater than 50,000 gallons. All shop fabricated tanks associated with AHSs must meet conventional tank release detection requirements.

- Secondary containment with interstitial monitoring
- Automatic tank gauging (ATG) systems with static testing
- Continuous in-tank leak detection
- Statistical inventory reconciliation
- Inventory control and tank tightness testing
- Manual tank gauging
- Groundwater monitoring
- Vapor monitoring
- Other methods meeting performance standards or approved by your implementing agency

FCTs with a capacity greater than 50,000 gallons installed on or before April 11, 2016 must be monitored either using any of the conventional tank release detection methods listed above, except groundwater and passive vapor monitoring must be combined with inventory control as stated below or use one of the alternatives listed below.

- Tank tightness testing
  - Conduct an annual tank tightness test that can detect a

0.5 gallon per hour leak rate.

- ATG systems with tank tightness testing
  - At least once every 30 days, use an ATG system to perform release detection, which can detect a leak rate of 1 gallon per hour or less; and at least once every three years, use a tank tightness test that can detect a 0.2 gallon per hour leak rate; **or**

  - At least once every 30 days, use an ATG system to perform release detection, which can detect a leak rate of 2 gallons per hour or less; and at least every two years, use a tank tightness test that can detect a 0.2 gallon per hour leak rate.

- Active vapor monitoring using chemical tracers
  - At least every two years, perform vapor monitoring for a tracer compound in the tank system capable of detecting a 0.1 gallon per hour leak rate.

- Inventory control with biennial tightness testing, or groundwater or passive vapor monitoring, which monitors stored regulated substance
  - At least every 30 days, perform inventory control conducted according to DoD Directive 4140.25; ATA Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures that can detect a leak equal to or less than 0.5 percent of flow through and either:

    - At least every two years, perform a tank tightness test that can detect a 0.5 gallon per hour leak rate, or

    - At least every 30 days, perform passive vapor monitoring or groundwater monitoring conducted according to §280.43(e) or (f), respectively, for the stored regulated substance.

- Another method approved by your implementing agency
  - There may be instances where your implementing agency approves another method. Your implementing agency may approve another method of release detection if the owner or operator can demonstrate the method can detect a release as effectively as any of methods listed above. In comparing methods, your implementing agency shall consider the size of release the method can detect and frequency and reliability of detection.

Remember, all FCTs and all tanks that are part of an AHS installed after April 11, 2016 must have secondary containment with interstitial monitoring.

What Must You Do For Walkthrough Inspections?

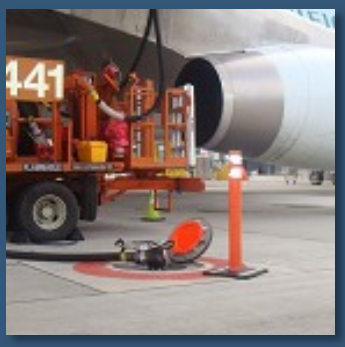
No later than October 13, 2018, you must conduct periodic walkthrough inspections for your airport hydrant systems and field-constructed tanks to make sure your equipment is working properly and to find and correct problems early. Walkthrough inspections must cover:

Every 30 days:

- If confined space entry according to Occupational Safety and Health Administration (OSHA; see 29 CFR part 1910) is not required, visually check hydrant pits and vaults for any damage, remove any liquid and debris, and check for any leaks.

- Spill prevention equipment
  - Visually check for damage
  - Remove liquid or debris
  - Check for and remove obstructions in the fill pipe
  - Check the fill cap to make sure it is securely on the fill pipe
  - For double-walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area
  - For tanks that receive deliveries less frequently than every 30 days, the spill prevention equipment inspection may be conducted before each delivery

- Release detection equipment
  - Check to make sure the release detection equipment is operating with no alarms or other unusual operating conditions present
  - Ensure release detection records are reviewed and current
  - Owners and operators who monitor their release detection system remotely may check the release detection equipment and records remotely as long as the release detection systems at the locations are determined to be in communication with the remote monitoring equipment



Hydrant pits are located on the fueling apron and contain valves used to connect the fuel servicing vehicle or cart to the hydrant system.

Hydrant piping vaults

Check with your implementing agency to determine whether inspections you may already be performing according to other recommended practices are sufficient to meet the UST requirements in the 2015 UST regulation.

Annually:

- If confined space entry according to OSHA is required, visually check hydrant pits and vaults for any damage, remove any liquid and debris, and check for any leaks

- Containment sumps
    - Visually check for damage, leaks to the containment area, and releases to the environment
    - Remove liquid from containment sumps
    - Remove debris
    - For double-walled sumps with interstitial monitoring, check for leaks in the interstitial area

- Hand-held release detection equipment
    - Check devices such as tank gauge sticks or groundwater bailers for operability and serviceability

AHS vault access cover showing confined space entry requirement.

You can also conduct walkthrough inspections according to a standard code of practice developed by a nationally-recognized association or independent testing laboratory or according to requirements developed by your implementing agency, if the code of practice checks equipment in a manner comparable to the requirements above.

You may perform walkthrough inspections yourself or have a third party conduct them.

You must keep records of your walkthrough inspections for one year. See a sample checklist on the next page.

Hydrant valve vault (inside)

Sample Walkthrough Inspection Checklist

Your initials in each box below the date of the inspection indicate the device or system was inspected and satisfactory on that date. Keep this record for one year after last inspection date on the form.

Date Of Inspection							
Required Every 30 Days (Exception: if your UST system receives deliveries at intervals greater than 30 days, you may check your spill prevention equipment prior to each delivery).							
Visually check spill prevention equipment for damage. Remove liquid or debris.							
If confined space entry is not needed, visually check hydrant pit for damage. Remove liquid or debris, and check for leaks.							
If confined space entry is not needed, visually check hydrant piping vaults for any leaks.							
Check for and remove obstructions in fill pipe.							
Check fill cap to ensure it is securely on fill pipe.							
For double-walled spill prevention equipment with interstitial montoring, check for a leak in the interstitial area.							
Check release detection equipment to ensure it is operating with no alarms or unusual operating conditions present.							
Ensure release detection records are reviewed and current.							
Required Annually							
If confined space entry is needed, visually check hydrant pit for damage. Remove liquid or debris, and check for leaks.							
If a confined space entry is needed, visually check hydrant piping vaults for leaks.							
Visually check containment sumps for damage and leaks to the containment area or releases to the environment.							
Remove liquid in containment sumps or debris.							
For double-walled containment sumps with interstitial monitoring, check for a leak in the interstitial area.							
Check hand-held release detection equipment, such as groundwater bailers and tank gauge sticks for operability and serviceability.							
Recommended Activities							
Fill and monitoring ports: Inspect all fill or monitoring ports and other access points to make sure that the covers and caps are tightly sealed and locked.							
Spill and overfill response supplies: inventory and inspect the emergency spill response supplies. If supplies are low, restock the supplies. Inspect supplies for deterioration and improper functioning.							
Containment sump areas: look for significant corrosion on the UST equipment.							
Dispenser hoses, nozzles, and breakaways: inspect for loose fittings, deterioration, obvious signs of leaks, and improper functioning.							

Explain below actions taken to fix issues:

Date	Action Taken

Compatibility With Biofuels And Other Regulated Substances

Compatibility is the ability of two or more substances -- in this case, your UST system and the regulated substance stored -- to maintain their respective physical and chemical properties when in contact with one another. Compatibility is required for the design life of the UST system and under conditions likely to be encountered by the UST.

No later than October 13, 2018 you must meet these requirements.

Your UST system must be made of or lined with materials compatible with the regulated substance stored.

You must notify your implementing agency at least 30 days before switching to any of these products and must meet the compatibility requirement for storing the following fuels:

- Regulated substances containing greater than 10 percent ethanol.
- Regulated substances containing greater than 20 percent biodiesel.
- Any other regulated substance identified by your implementing agency.

In addition, you must meet specific requirements for storing these fuels. You may either demonstrate you are using equipment or components approved for use with the regulated substance stored, or use another option determined by your implementing agency to be no less protective of human health and the environment than the compatibility demonstration options listed below. Ways to demonstrate compatibility include having the following documentation:

- Certification or listing of the equipment or component by a nationally recognized, independent testing laboratory for use with the regulated substance stored; or
- Written statement from the manufacturer affirming the equipment or component is compatible with the regulated substance stored.

It is important for you to make sure your FCTs and AHSs are compatible with the fuel stored in them.

The composition of jet fuel is different from gasoline and diesel and must meet stringent, safety-based fuel specifications for use in aircraft.

The commercial aviation industry is actively developing alternative drop-in jet fuels that meet these specifications.

Accordingly, EPA anticipates that fuels stored in AHSs will contain jet fuel, including alternatives that meet these stringent specifications.

As long as you store regulated substances containing greater than 10 percent ethanol, greater than 20 percent biodiesel, or any other regulated substance identified by your implementing agency, you must keep records demonstrating compliance with the compatibility requirement.

What Are The Operator Training Requirements?

No later than October 13, 2018, you must have designated Class A, B, and C operators and train them on their UST responsibilities. There are three classes of operators, each with different responsibilities:

- Class A operator is the person who has primary responsibility to operate and maintain the UST system according to the UST regulation. Class A operator training provides a general knowledge of the UST regulation.
- Class B operator is the person who has day-to-day responsibility for implementing the UST regulation. Class B operator training provides more in-depth understanding of operation and maintenance aspects of the UST regulation.
- Class C operator is any person responsible for the immediate response to a problem at an UST facility, such as a gas station attendant. Class C operator training must cover how to respond to an alarm or emergency.

A single individual may be designated as more than one class of operator, as long as that individual is trained in all responsibilities for each class of operator designated.

Operators may need to be retrained if the UST system is not in compliance.

You must keep a list of currently designated operators trained for each facility and proof of training or retraining for each operator. You may keep the records off site.

Most states already have their own operator training program. Contact your implementing agency for information specific to the state where your USTs are located.

Although airports are required to follow the Federal Aviation Administration (FAA) fuel facility training requirements and other recommended practices, check with your implementing agency to ensure that those activities are sufficient to meet the UST requirements. See www.epa.gov/ust/underground-storage-tank-ust-contacts#states for a list of contacts.

Facilities with USTs in temporary closure must have trained operators no later than October 13, 2018.

How Do You Repair UST Systems?

Can Leaking Tanks Be Repaired?

You can repair a tank if the person who repairs the tank carefully follows standard industry codes that establish the correct way to conduct repairs. See www.epa.gov/ust/underground-storage-tanks-usts-laws-regulations#code for industry codes and standards.

No later than October 13, 2018, you must meet the following requirements:

Within 30 days of the repair, you must prove that the tank is repaired by:

- Having the tank inspected internally or tightness tested following standard industry codes; or
- Using one of the monthly release detection monitoring methods on pages 21-25; or
- Using other methods approved by your implementing agency.

Within 30 days after repairs to secondary containment areas of tanks, you must have the secondary containment tested for tightness.

Within 30 days after repairs to spill or overfill prevention equipment, you must test or inspect the repaired spill or overfill prevention equipment, as appropriate, to ensure it is operating properly.

Within six months of repair, USTs with cathodic protection must be tested to show that the cathodic protection is working properly.

Can Leaking Piping Be Repaired?

No later than October 13, 2018, you must meet the following requirements:

A component compatibility determination is typically needed when performing repairs on an UST system where only parts of a piece of equipment are replaced.

Replace damaged metal piping; do not repair it.

Damaged metal piping cannot be repaired and must be replaced. Loose fittings can be tightened, and in some cases that may solve the leaks.

Piping made of fiberglass-reinforced plastic can be repaired, but only according to the manufacturer's instructions or national codes of practice. Within 30 days of the repair, piping must be tested in the same ways noted above for testing tank repairs, except for internal inspection.

Within 30 days after repairs to secondary containment areas of piping used for interstitial monitoring and to containment sumps used for interstitial monitoring of piping, you must have the secondary containment tested for tightness.

After April 11, 2016, if you repair 50 percent or more of your piping in a single piping run, that piping must be replaced. This only applies to piping associated with field-constructed tanks less than or equal to 50,000 gallons in capacity. This means you must remove the entire piping run and install secondarily contained piping.

You must also use interstitial monitoring and an automatic line leak detector for release detection. For pressurized piping, a piping run is all piping that connects the submersible turbine pump to all of the dispensers fed by that pump. For suction piping, a piping run is the piping that runs between the tank and the suction pump.

What Records Must You Keep?

No later than October 13, 2018, you must keep records for each repair until the UST is permanently closed or undergoes a change-in-service.

Financial Responsibility

You must maintain documentation showing you have the financial resources to clean up your UST site if a release occurs, correct environmental damage, and compensate third parties for injury to their properties or themselves. The amount of coverage depends on the type and size of your business, as summarized in the chart below.

Group Of UST Owners And Operators	Per Occurrence Coverage	Aggregate Coverage
Petroleum marketers *or* owners and operators who handle more than 10,000 gallons per month	$1 million	$1 million if you have 100 or fewer USTs *or* $2 million if you have more than 100 USTs
All others	$500,000	

You have several options to demonstrate financial responsibility. These include:

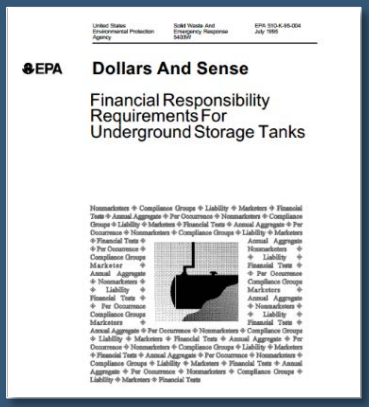
- Obtain insurance coverage from an insurer or a risk retention group;
- Use a financial test to demonstrate self-insurance; obtain corporate guarantees, surety bonds, or letters of credit;
- Place the required amount into a trust fund administered by a third party; or
- Rely on coverage provided by a state financial assurance fund.

Local governments also have four additional options tailored to their specific characteristics: a bond rating test, a financial test, a guarantee, and a dedicated fund.

For FCTs and AHSs installed on or before October 13, 2015, you have until October 13, 2018 to submit your one-time notification of tank system existence form. The financial responsibility requirement applies when you submit your notification form.

For FCTs and AHSs installed after October 13, 2015, the financial responsibility requirement applies at installation.

State and federal governments are exempt from the financial responsibility requirements of subpart H.


EPA

Dollars And Sense

Financial Responsibility Requirements For Underground Storage Tanks

EPA's *Dollars And Sense* briefly summarizes the financial responsibility requirements; see www.epa.gov/ust/dollars-and-sense-financial-responsibility-requirements-underground-storage-tanks.

What Must You Do About UST Releases?

Warning signals indicate that your UST may be leaking and creating problems for the environment and your business. You can minimize these problems by paying careful attention to early warning signals and reacting quickly before major problems develop.

You should suspect a release when you observe these warning signals:

- Unusual operating conditions. Check first to see if the problem results from equipment failure that can be immediately repaired or replaced. Remember to remove any liquid not used for interstitial monitoring from the interstitial space of secondarily contained systems.
- Results from release detection monitoring and testing that indicate a release. In the event of an alarm, investigate to determine whether the cause of the alarm is from a non-release event such as a power surge.

Unusual operating conditions may include erratic behavior of product dispensing equipment such as hydrants or fill stands, sudden loss of product or line pressure, or alarms associated with release detection monitoring.

If you investigate an unusual operating condition or release detection alarm and determine a release has not occurred, you do not need to report a suspected release as long as you immediately fix the problem. Otherwise, you need to call your implementing agency and report the suspected release. Then find out quickly if the suspected release is an actual release. Use these investigative steps:

- Conduct tightness testing or interstitial integrity testing of the entire UST system.
- Check the site for additional information on the presence and source of contamination.

If the system tests and site checks confirm that a release has occurred, follow the actions for responding to confirmed releases described below.

You must also respond quickly to any evidence of released petroleum that appears at or near your site. For example, if a release is discovered during routine monitoring or an oily

sheen is observed floating on the surface of an adjacent waterway, you must report this discovery immediately to your implementing agency and take the investigative steps and follow-up actions noted above.

Your action to confirmed releases comes in two stages: short term and long term.

Short-Term Actions

- Take immediate action to stop and contain the release.
- Report the release to your implementing agency within 24 hours or the time frame required by your implementing agency. However, petroleum spills and overfills of less than 25 gallons do not have to be reported if you immediately contain and clean up these releases.
- Make sure the release poses no immediate hazard by removing explosive vapors and fire hazards. Your fire department should be able to help or advise you with this task. Make sure you handle contaminated soil properly so that it poses no hazard from vapors or direct contact.
- If necessary, remove petroleum from the UST system to prevent further release into the environment.
- Find out how far the petroleum has moved and begin to recover the released petroleum, such as product floating on the water table. Report your progress and any information you collect to your implementing agency no later than 20 days after confirming a release.
- Investigate to determine if the release has or might damage the environment. This investigation must determine the extent of soil and groundwater contamination. You must report to your implementing agency site investigation results according to the schedule established by your implementing agency. At the same time, you must also submit a report explaining how you plan to clean up the site. Additional site studies may be required.

Contact your implementing agency for additional guidance on spill reporting, doing site assessments, and performing corrective action.

Long-Term Actions

Based on the information you provide, your implementing agency will decide if you must take further action at your site. You may need to take two more actions:

- Develop and submit a corrective action plan that shows how you will meet requirements established for your site by your implementing agency.
- Make sure you implement the actions approved by your implementing agency for your site.

How Do You Close USTs?

You may close your UST temporarily or permanently.

Closing Temporarily

You may temporarily close your UST by following these requirements:

- Continue to maintain and monitor corrosion protection systems
- Continue to maintain financial responsibility
- No later than October 13, 2018, your Class A, B, and C operators must be trained
- If your temporarily closed UST is not empty, you must also:
    - Continue to monitor for leaks by performing release detection
    - Begin performing monthly walkthrough inspections for your release detection no later than October 13, 2018
    - Begin performing annual inspections and tests of release detection equipment no later than October 13, 2018
    - Begin performing three year containment sump testing if using the containment sump for interstitial monitoring of the piping no later than October 13, 2018
- If a release is discovered, quickly stop the release, notify your implementing agency, and take appropriate action to clean up the site
- If the UST remains temporarily closed for more than three months, leave vent lines open, but cap and secure all other lines, pumps, manways, and ancillary equipment

USTs in temporary closure are not required to meet the following requirements:

- Spill prevention equipment and periodic testing
- Overfill prevention equipment and periodic inspections
- Empty USTs do not require:

Facilities with USTs in temporary closure must have trained operators no later than October 13, 2018.

Some implementing agencies require removal of the regulated substance from the tank while in temporary closure. Other implementing agencies may require permanent closure after one year. Check with your implementing agency for additional information on UST closure.

- Release detection
- Annual release detection testing and inspections
- Monthly walkthrough inspections
- Three year containment sump testing

An UST is considered empty if no more than one inch of residue is present or not more than 0.3 percent by weight of the total capacity of the UST system remains in the system.

USTs in temporary closure do not need spill or overfill prevention equipment because they should not be receiving fuel deliveries.

After 12 months of temporary closure, you must permanently close your UST if the tank does not meet the corrosion protection requirements. You can indefinitely keep your UST closed temporarily, if it meets the requirements for new or upgraded USTs, except that spill and overfill requirements do not have to be met, and you meet the requirements above for temporarily closed USTs.

Closing Permanently

If you decide for any reason to close your UST permanently, follow these requirements for permanent closure:

- You must notify your implementing agency 30 days before you permanently close your UST.
- You must determine if contamination from your UST is present in the surrounding environment. If there is contamination, you will have to take the actions described on pages 34 and 35.
- You can either remove the UST from the ground or leave it in the ground. In both cases, the tank must be emptied and cleaned by removing all liquids, dangerous vapor levels, and accumulated sludge. These potentially very hazardous actions need to be carried out carefully by following standard safety practices. See www.epa.gov/ust/resources-owners-and-operators#closing for a safe closure standard. If you leave the UST in the ground, you must also either fill it with a harmless, chemically inactive solid, like sand, or close it in place in a manner approved by your implementing agency. Your implementing agency can help you decide how best to close your UST so that it meets local requirements for closure.

People can be killed or injured while closing or removing tanks. Use safe removal practices; see www.epa.gov/ust/resources-owners-and-operators#closing for a safe closure standard. Only trained professionals should close or remove USTs.

What Records Must You Keep?

You must keep records that you can provide to an inspector during an inspection and prove your facility meets certain requirements. Check with your implementing agency to determine if there are additional records you must keep. See tables on pages 7-12 for specific implementation dates for existing and new systems.

You Must Keep These Records:	For This Long:
Spill And Overfill Prevention	
Testing and inspection records for spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping	Three years
Documentation showing spill prevention equipment and containment sumps used for interstitial monitoring of piping is double-walled and the integrity of both walls is periodically monitored	For as long as periodic monitoring is conducted
Corrosion Protection	
Records of your 60-day inspections for your impressed current corrosion protection system	Three most recent inspections
Records of cathodic protection tests for your corrosion protection system	Two most recent tests
Release Detection	
30-day monitoring results	One year
Tightness test results	Until the next test
Records for your annual release detection equipment tests	Three years
Copies of performance claims provided by release detection equipment manufacturers or equipment installers	Five years
Records of maintenance, repair, and calibration of on-site release detection equipment	One year after servicing is completed
If you use vapor monitoring or groundwater monitoring, records of a site assessment showing that the monitoring system is set up properly	For as long as vapor monitoring or groundwater monitoring is used
Walkthrough Inspections	
Records showing you performed periodic walkthrough inspections	One year
Compatibility	
If you store certain biofuels or other substances identified by your implementing agency, you must keep records demonstrating compliance with the compatibility requirement	For as long as the UST system stores the regulated substance
Operator Training	
Records for each designated Class A, B, and C operator showing they have been trained	For as long as the operator is designated at the facility
Repairs	
Records showing that a repaired UST system or UST system component was properly repaired	Until the UST system is permanently closed or undergoes a change-in-service
Financial Responsibility	
Records that document you have financial responsibility, as explained in EPA's booklet, *Dollars And Sense* www.epa.gov/ust/dollars-and-sense-financial-responsibility-requirements-underground-storage-tanks	Until the UST system is permanently closed or undergoes a change-in-service
Closure	
Records of the site assessment results required for permanent closure	For at least three years after closing an UST

Links For More Information

Government Links

- U.S. Environmental Protection Agency's Office of Underground Storage Tanks: www.epa.gov/ust. EPA's UST compliance assistance: www.epa.gov/ust/resources-owners-and-operators
- State UST program contact information: www.epa.gov/ust/underground-storage-tank-ust-contacts#states
- Tanks Subcommittee of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO): www.astswmo.org/
- New England Interstate Water Pollution Control Commission (NEIWPCC): www.neiwpcc.org

Industry Codes And Standards

www.epa.gov/ust/underground-storage-tanks-usts-laws-regulations#code

Other Organizations To Contact For UST Information

www.epa.gov/ust/underground-storage-tank-ust-contacts#other

United States
Environmental Protection
Agency

United States Environmental Protection Agency
5401P
Washington, DC 20460

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