



# Federal UST Requirements for Emergency Power Generator UST Systems

EPA developed this document for owners and operators of emergency power generator underground storage tank (EPG UST) systems.

It describes the applicable requirements of the *federal* UST regulation that apply to EPG UST systems. Many states, territories, and the District of Columbia (referred to as states in this document) received 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#which](http://www.epa.gov/ust/state-underground-storage-tank-ust-programs#which).

If your EPG UST systems are located in a state *with* state program approval, your requirements may be different from those identified in this document. 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-state-contacts](http://www.epa.gov/ust/underground-storage-tank-ust-state-contacts).

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

If your EPG UST systems are located in Indian Country, the requirements in this document apply to you.

### ***Free Publications About UST Release Detection Requirements***

Read and download *Release Detection for Underground Storage Tanks and Piping: Straight Talk On Tanks* on EPA's underground storage tank (UST) website at [www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks](http://www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks). Access additional UST documents on the National Service Center for Environmental Publications (NSCEP) website at [www.epa.gov/nscep](http://www.epa.gov/nscep).

### **Image credits:**

Montana Department of Environmental Quality (power generator on cover and in headers)

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National Petroleum Training Institute – Not for Reuse (generator on roof top on cover and in headers)

Roy Creley, Fuel Systems Specialist, Lake Region Environmental Contractors, Inc. (pictures in Figures 1-5, 13, and 14)

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## Disclaimer

This document provides information about requirements for emergency power generator UST systems. The document is not a regulation, nor is it a substitute for U.S. Environmental Protection Agency regulations. 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 Document About?



This document discusses requirements for emergency power generator (EPG) underground storage tank (UST) systems.

As of 2022, the U.S. Environmental Protection Agency (EPA) regulates more than a half million 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 decreased significantly, releases of petroleum from USTs into the environment are still a significant concern. USTs form a crucial part of our country's fueling infrastructure. It is important that they 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 the environment. Congress passed federal laws, which required EPA to develop the UST regulation described in this document. Federal UST regulation in 40 CFR part 280 requires owners and operators of USTs to:

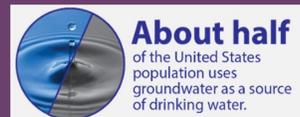
- prevent releases from USTs;
- detect releases from USTs; and
- correct the problems created by releases from USTs.

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

In the 1988 UST regulation, EPA deferred UST systems that store fuel for use by emergency power generators—sometimes referred to as EPG UST systems or emergency generator tanks—from the release detection requirement. All other federal UST regulatory requirements have been in effect. EPA deferred the release detection requirement because EPG UST systems often were located at unsupervised stations in remote areas and visited infrequently, which made monthly monitoring unworkable.

Since the 1988 UST regulation, release detection technologies have matured, which means the rationale for the deferral no longer

*Releases from USTs can threaten human health and the environment by contaminating both soil and groundwater. As of 2021, approximately 564,000 UST releases have been confirmed.*



*EPA deferred the release detection requirement because the monthly monitoring requirements of the 1988 federal UST regulation were unworkable because some EPG UST systems were located at unmanned stations in remote areas and visited infrequently.*

applies. Available technology can detect releases at remote sites. EPG UST systems can now be monitored for releases by most methods listed in 40 CFR, part 280 subpart D. As a result, EPA published new UST regulation in 2015 to remove the release detection deferral for EPG UST systems. At the time of publishing the 2015 federal UST regulation, EPA estimated that greater than 30 percent of EPG UST systems in the United States had some form of release detection. Systems were monitored in large part because many state UST implementing agencies did not defer them from the release detection requirement as EPA did.

## **What About Airport Hydrant Systems and UST Systems with Field-Constructed Tanks?**

This document primarily focuses on emergency power generator UST systems that are not airport hydrant fueling systems (AHS) and UST systems with field-constructed tanks (FCT). Information in this document may not fully apply to or completely cover federal UST requirements pertaining to AHSs and FCTs. EPA strongly recommends that owners and operators of these systems reference 40 CFR part 280, subpart K for applicable requirements and EPA publication *Requirements For Field-Constructed Tanks And Airport Hydrant Systems* at <https://www.epa.gov/ust/requirements-field-constructed-tanks-and-airport-hydrant-systems> for information on complying with the federal UST regulation for these systems.

It is important to note that emergency power generators can be part of either an AHS or UST system with field-constructed tanks. There is an important distinction between an EPG UST system that is located at the site of an AHS or UST system with field-constructed tanks versus one that is part of such UST systems. EPG UST systems that are merely located at the site of an AHS or UST system with FCTs, that are not part of the volume capacities of such systems, are separate UST systems. Therefore, the federal UST regulation fully applies. The Spill Prevention, Control, and Countermeasures (SPCC) requirements may also apply.

In the event the EPG UST system is an integral part of the total storage system, and that system meets the definitions of UST system, specifically an AHS or most likely UST system with field-constructed tanks, the associated aboveground storage tanks are partially excluded from the federal UST regulation. See EPA publication *Requirements For Field-Constructed Tanks And*

*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.*

*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.*

*Airport Hydrant Systems* at <https://www.epa.gov/ust/requirements-field-constructed-tanks-and-airport-hydrant-systems> for more information. SPCC requirements are likely applicable to components such as aboveground piping, day and belly tanks, and other aboveground appurtenances.

There are major differences in scope and requirements of the federal UST regulation for AHS and FCTs. Among these is the allowance for alternative release detection options. These options may be used in addition to those noted under subpart D. A significant difference in the scope of requirements is that aboveground storage tanks regulated under subpart K of 40 CFR part 280, associated with AHSs and FCTs, are partially excluded. Therefore, UST technical prevention requirements do not apply. Because of this and other statutory and regulatory factors, EPG UST systems at AHSs and FCTs may be, most notably but not exclusively, subject to the SPCC requirements.

EPA has noted in various areas in this document the potential applicability of SPCC requirements or more broadly, federal oil spill prevention programs. There may be overlaps between the federal UST requirements and federal oil spill prevention program requirements. Compliance with one set of federal program requirements, will not achieve compliance with all applicable regulatory requirements of each program. See page 12 for more information on SPCC and facilities subject to its requirements.

### **What Is An EPG UST System?**

An EPG UST system or emergency generator tank is an UST system that stores fuel for use by emergency power generators.

Emergency generator tanks are part of fueling systems; they contain unique features that are uncharacteristic of UST systems installed at conventional UST sites such as gas stations, convenience stores, and other retail and non-retail facilities. These features include, but are not limited to, return product piping, day tanks, sub-base tanks also called belly tanks, and a power generator. Because they were previously deferred from the release detection requirements, many EPG UST systems were installed without considerations for meeting federal UST system release detection requirements. Fire codes and other non-UST-related requirements apply to EPG fueling systems and must be addressed, in addition to meeting the federal UST requirements. Some EPG UST systems include relatively long pipe runs that begin at

*EPA points out potential applicability of SPCC and other federal oil spill requirements in this document. There may be overlaps between the federal UST requirements and federal oil spill prevention program requirements. All applicable regulatory requirements of each program must be met.*

*Fire codes and other non-UST-related requirements apply to emergency power generator fueling systems and must be addressed, in addition to meeting the federal UST requirements.*

underground locations and extend through multiple-story structures. These pipe runs contain underground and aboveground piping, some without transition sumps or separation points that more easily allow required testing of underground piping components. This booklet discusses some of these concerns in the section, *What are the Release Detection Requirements?*

## **How Do You Determine Whether Your Storage System That Includes an EPG Meets EPA's Definition of a Regulated UST?**

First, calculate what percentage of volume is underground to determine whether your storage system is a regulated UST. The calculation must include all aboveground and underground tanks storing regulated substances and all underground pipes connected thereto. If 10 percent or more of the total capacity is underground, then the storage system meets the definition of a regulated UST system. Next, determine whether the storage system is excluded from the 2015 UST regulation. Examples of excluded systems are those storing heating oil for consumptive use on premises, entire systems that are situated in an underground area that is accessible for inspection, farm or residential tanks of 1,100 gallons or less capacity, septic tanks, surface impoundments, pits, ponds, and lagoons.

In many cases, since the underground capacity of storage systems for EPGs meets or exceeds the 10 percent beneath the surface of the ground threshold and the system does not meet one of the regulatory exclusions, many emergency generator tank storage systems are regulated under 40 CFR part 280. Shop-built, day tanks, belly tanks, and other tanks situated aboveground, in addition to underground tanks and connected underground piping, are regulated as part of the UST system. Remember, aboveground tanks that are part of an AHS or UST system with field-constructed tanks are excluded from the federal UST technical prevention requirements.

EPA's *UST Technical Compendium* at <http://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators> provides information on determining whether 10 percent or more of the total capacity is underground and discusses two of the more common regulatory exclusions that could apply to EPG storage systems.

*Aboveground piping is not included in the calculation because EPA's definition of UST does not include aboveground piping. Aboveground piping is exempt from federal UST technical prevention requirements, but release investigation and cleanup requirements apply. SPCC requirements may be applicable.*

## ***What Components Are Regulated Under the Federal UST Regulation?***

EPA defines an UST system as one or a combination of tanks—including connected underground pipes—that contain an accumulation of regulated substances, and the volume of which—including the connected underground pipes—is 10 percent or more beneath the surface of the ground. This includes underground ancillary equipment and containment system if any.

EPA defines ancillary equipment as any devices, including, but not limited to, items such as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from a UST.

Although the power generator and other aboveground components, such as standalone filtration or polishing units, that are part of the complete fueling and power systems may be subject to other federal requirements, the federal UST regulation does not apply.

Previously installed EPG UST systems are more likely to include relatively small capacity shop-fabricated aboveground storage tanks (ASTs). Regardless of size, these ASTs must meet all applicable federal UST requirements. These ASTs—specifically belly tanks and day tanks—supply fuel to the power generator if the main storage tank is not located close enough to the generator to provide fuel directly. Sizing of day tanks is based on the desired runtime, which is how long the power generator must operate during an emergency event without getting a delivery. Some systems have belly tanks, which are located directly beneath the power generator. Other systems have day tanks that are manufactured and installed separately from the power generator and located in the same room as the generator or in a dedicated room. Fire codes, in particular National Fire Protection Association (NFPA) 37 (2021), allow fuel tanks of any size to be permitted within engine rooms or mechanical spaces, provided the engine or mechanical room is designed using recognized engineering practices with suitable fire detection, fire suppression, and containment means to prevent the spread of fire beyond the room of origin. Otherwise, as noted in section 6.3.2 *Fuel Tanks Inside Structures*, there are limits on the number of ASTs allowed for a single generator and the total storage capacity of the ASTs in a building as follows:

- Only one 660-gallon tank, or two or more tanks with the same aggregate capacity, are allowed to be connected to a single engine. Fuel tanks that are not in a room by themselves cannot exceed 660 gallons of capacity. If the

*The phrase “one or a combination of tanks” refers to tanks located either underground or aboveground.*

*The sizes of ASTs that are part of EPG UST systems may exceed the noted limits. Regardless, ensure you accurately determine whether your storage system is regulated under 40 CFR Part 280. Account for the underground capacity of your storage system to determine whether it meets or exceeds the 10 percent beneath the surface of the ground threshold discussed on page 4.*

fuel tank is larger than 660 gallons, it must be enclosed in a room, unless special considerations are met.

- Also, the combined capacity of all tanks in a building is limited to 1,320 gallons, unless that portion exceeding 1,320 gallons is enclosed in a room and special considerations are met.

## What are the Requirements for EPG UST Systems?

**Table 1: For USTs Installed on or Before October 13, 2015**

For These Tanks or Facilities:	You Must Have this Equipment or Perform These Actions:
<b>Installation (page 11)</b>	
Tanks and Piping Installed After 1988	<ul style="list-style-type: none"> <li>• Meet the requirements concerning correct installation</li> </ul>
<b>Reporting (page 16)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• Notify your implementing agency of the existence of the EPG UST system</li> <li>• As of 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</li> <li>• Notify your implementing agency at least 30 days before permanently closing an UST</li> </ul>
<b>Spill and Overfill Prevention (page 17)<sup>1</sup></b>	
All Tanks	<ul style="list-style-type: none"> <li>• Be equipped with spill buckets</li> <li>• Be equipped with automatic shutoff devices or overfill alarms; installation standards and fire codes recommend against or prohibit using ball float vent valves</li> <li>• Use correct filling practices</li> <li>• Test spill buckets every three years<sup>2</sup></li> <li>• Inspect overfill prevention equipment every three years</li> </ul>
<b>Corrosion Protection (page 25)</b>	
Tanks and Piping Installed on or Before December 22, 1988	<ul style="list-style-type: none"> <li>• Same options as for tanks and piping installed after December 22, 1988, (see below); or</li> <li>• Cathodically protected steel and cathodic protection testing; or</li> <li>• Tank interior lining and internal lining inspections; or</li> <li>• Tank interior lining and cathodic protection and cathodic protection testing and internal lining inspections, as appropriate<sup>3</sup></li> </ul>

For These Tanks or Facilities:	You Must Have this Equipment or Perform These Actions:
Tanks and Piping Installed After December 22, 1988	<ul style="list-style-type: none"> <li>• Coated and cathodically protected steel and cathodic protection testing; or</li> <li>• Noncorrodible material, such as fiberglass reinforced plastic (FRP) or flexible plastic (piping only); or</li> <li>• Steel tank clad or jacketed with noncorrodible material (tanks only)</li> </ul>
<b>Release Detection (page 28)</b>	
All Tanks	<p>As of October 13, 2018, must have met one of the following:</p> <ul style="list-style-type: none"> <li>• Monthly monitoring;<sup>4</sup> <i>or</i></li> <li>• Manual tank gauging<sup>5</sup> plus tank tightness testing<sup>6</sup>; EPA allows this method for up to 10 years after the tank was installed; or</li> <li>• Visual-based assessment for aboveground tanks only<sup>7</sup></li> </ul>
Pressurized Piping (Underground)	<p>As of October 13, 2018, must have met one of the following:</p> <ul style="list-style-type: none"> <li>• Be equipped with an automatic line leak detector, <i>and either use</i> <ul style="list-style-type: none"> <li>○ Annual line tightness test <i>or</i></li> <li>○ Monthly monitoring<sup>4</sup>, except automatic tank gauging and continuous in-tank leak detection or</li> </ul> </li> <li>• Automatic interstitial monitoring (AIM) system</li> </ul>
Suction Piping (Underground)	<p>As of October 13, 2018, use:</p> <ul style="list-style-type: none"> <li>• Monthly monitoring<sup>4</sup>, except automatic tank gauging and continuous in-tank leak detection; or</li> <li>• Line testing every 3 years; or</li> <li>• No release detection requirements (if the system has the characteristics described in Table 6)</li> </ul>
Release Detection Testing	<ul style="list-style-type: none"> <li>• As of October 13, 2018, annually test the proper operation of electronic and mechanical components of release detection equipment</li> <li>• As of October 13, 2018<sup>2</sup>, test containment sumps used for piping interstitial monitoring every three years</li> </ul>
Facilities Using Vapor or Groundwater Monitoring	<ul style="list-style-type: none"> <li>• As of October 13, 2018, maintain a record of a site assessment for as long as the method is used</li> </ul>
<b>Walkthrough Inspections (page 49)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• As of October 13, 2018, conduct 30-day and annual walkthrough inspections</li> </ul>
<b>Compatibility (page 53)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• Use UST systems made of or lined with a material compatible with the substance stored; <i>and</i></li> <li>• For systems storing certain regulated substances, maintain records demonstrating compliance with the compatibility requirement</li> </ul>

For These Tanks or Facilities:	You Must Have this Equipment or Perform These Actions:
<b>Operator Training (page 54)</b>	
All Facilities	<ul style="list-style-type: none"> <li>As of October 13, 2018, designate and train Class A, B, and C operators</li> </ul>
<b>Repairs (page 55)</b>	
All Tanks and Piping	<ul style="list-style-type: none"> <li>Test repairs to your tank and piping within 30 days, unless using monthly monitoring</li> <li>Test repairs to your cathodic protection system within six months</li> <li>Test or inspect components within 30 days after a repair, according to code of practice, to spill or overfill prevention equipment or secondary containment areas</li> </ul>
<b>Financial Responsibility (page 57)<sup>8</sup></b>	
All Facilities	<ul style="list-style-type: none"> <li>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</li> </ul>
<b>Release Response (page 58)</b>	
All Facilities	<ul style="list-style-type: none"> <li>Take corrective action in response to releases</li> </ul>
<b>Closure (page 62)</b>	
All Facilities	<ul style="list-style-type: none"> <li>Temporarily or permanently close your UST system properly, when the UST system is no longer in use or needed</li> </ul>

*Notes:*

- <sup>1</sup> Spill buckets are not required for UST systems that never receive deliveries greater than 25 gallons or USTs filled by a directly connected pipeline.
- <sup>2</sup> Spill containment and containment sump testing are not required if the containment is double-walled (and both walls are monitored for integrity).
- <sup>3</sup> For information on the appropriate monitoring and inspection requirements when using the combination of internal lining and cathodic protection as a corrosion upgrade, reference Question 9 of the UST Technical Compendium: New/Upgraded UST System, at [www.epa.gov/ust/ust-technical-compendium-newupgraded-ust-systems](http://www.epa.gov/ust/ust-technical-compendium-newupgraded-ust-systems)
- <sup>4</sup> Monthly monitoring, which does not exceed 30 days, includes interstitial monitoring; automatic tank gauging; vapor monitoring, groundwater monitoring; continuous in-tank leak detection; and other methods approved by your implementing agency.
- <sup>5</sup> Depending on tank diameter, manual tank gauging may be able to be used for tanks 2,000 gallons or smaller.
- <sup>6</sup> States may no longer allow the use of the combination methods. Check with your implementing agency.
- <sup>7</sup> EPA allows visual-based assessments of aboveground situated tanks that are part of UST systems that were installed before April 11, 2016, and are part of EPG UST systems.
- <sup>8</sup> State and federal governments are exempt from the financial responsibility requirements.

**Table 2: For USTs Installed After October 13, 2015**

For These Tanks or Facilities:	You Must Have this Equipment or Perform These Actions:
<b>Installation (page 11)</b>	
All Tanks and Piping	<ul style="list-style-type: none"> <li>When UST system was installed, it met the requirements concerning correct installation.</li> </ul>
<b>Reporting (page 16)</b>	
All Facilities	<ul style="list-style-type: none"> <li>After you bring an UST system into use, notify your implementing agency within 30 days</li> <li>Notify your implementing agency within 30 days of acquiring an UST</li> <li>As of 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</li> <li>Notify your implementing agency at least 30 days before permanently closing an UST</li> </ul>
<b>Spill and Overfill Prevention (page 17)<sup>1</sup></b>	
All Tanks	<ul style="list-style-type: none"> <li>Be equipped with spill buckets</li> <li>Be equipped with automatic shutoff devices <i>or</i> overfill alarms</li> <li>Use correct filling practices</li> <li>Test spill buckets every three years<sup>2</sup></li> <li>Inspect overfill prevention equipment every three years</li> </ul>
<b>Corrosion Protection (page 25)</b>	
Tanks and Piping	<ul style="list-style-type: none"> <li>Use coated and cathodically protected steel <i>and</i> conduct cathodic protection testing; or</li> <li>Use noncorrodible material, such as fiberglass reinforced plastic or flexible plastic, for piping only; or</li> <li>Use steel tank clad or jacketed with noncorrodible material for tanks only</li> </ul>
<b>Release Detection (page 28)</b>	
All Tanks Installed Between October 13, 2015, and April 11, 2016	<ul style="list-style-type: none"> <li>Conduct monthly monitoring<sup>3</sup>; or</li> <li>Conduct manual tank gauging<sup>4</sup> plus tank tightness testing<sup>5</sup>; EPA allows this method for up to 10 years after the tank was installed; or</li> <li>Visually assess<sup>6</sup> tanks (for aboveground tanks only)</li> </ul>
All Tanks Installed or Replaced After April 11, 2016	<ul style="list-style-type: none"> <li>Be equipped with secondary containment with interstitial monitoring</li> </ul>
Pressurized Piping (Underground) Installed Between October 13, 2015, and April 11, 2016	<ul style="list-style-type: none"> <li>Be equipped with automatic line leak detector; <i>and either</i> <ul style="list-style-type: none"> <li>Annual line tightness test <i>or</i></li> <li>Monthly monitoring<sup>3</sup>, except automatic tank gauging and continuous in-tank leak detection; or</li> </ul> </li> <li>Be equipped with AIM system</li> </ul>
Pressurized Piping (Underground) Installed or Replaced After April 11, 2016	<ul style="list-style-type: none"> <li>Be equipped with automatic line leak detector, and secondary containment with monthly interstitial monitoring; or</li> <li>Be equipped with AIM system</li> </ul>
<b>Suction Piping (Underground) Installed Between October 13, 2015, and April 11, 2016</b>	<ul style="list-style-type: none"> <li>Conduct monthly monitoring<sup>3</sup>, except automatic tank gauging and continuous in-tank monitoring; or</li> <li>Conduct line testing every 3 years; or</li> <li>If the system has the characteristics described in Tables 6 and 7, there are no release detection requirements.</li> </ul>

<b>For These Tanks or Facilities:</b>	<b>You Must Have this Equipment or Perform These Actions:</b>
Suction Piping (Underground) Installed or Replaced After April 11, 2016	<ul style="list-style-type: none"> <li>• <b>Secondary containment and monthly interstitial monitoring; or</b></li> <li>• <b>No release detection requirements (if the system has the characteristics described in Table 6)</b></li> </ul>
Release Detection Testing	<ul style="list-style-type: none"> <li>• <b>As of October 13, 2018, annually test proper operation of electronic and mechanical release detection equipment</b></li> <li>• As of October 13, 2018<sup>2</sup>, every three years test containment sumps used for piping interstitial monitoring</li> </ul>
Facilities Using Vapor or Groundwater Monitoring	<ul style="list-style-type: none"> <li>• As of October 13, 2018, maintain a record of a site assessment for as long as the method is used</li> </ul>
<b>Walkthrough Inspections (page 49)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• As of October 13, 2018, conduct 30 day and annual walkthrough inspections</li> </ul>
<b>Compatibility (page 53)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• Use UST systems made of or lined with a material compatible with the substance stored</li> <li>• For systems storing certain regulated substances, maintain records demonstrating compliance with the compatibility requirement</li> </ul>
<b>Operator Training (page 54)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• As of October 13, 2018, designate and train Class A, B, and C operators</li> </ul>
<b>Repairs (page 55)</b>	
All Tanks and Piping	<ul style="list-style-type: none"> <li>• Test repairs to your tank and piping within 30 days, unless using monthly monitoring</li> <li>• Test repairs to your cathodic protection system within six months</li> <li>• Test or inspect components within 30 days after a repair (according to a code of practice) to spill or overflow prevention equipment or secondary containment areas</li> </ul>
<b>Financial Responsibility (page 57)<sup>7</sup></b>	
All Facilities	<ul style="list-style-type: none"> <li>• 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</li> </ul>
<b>Release Response (page 58)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• Take corrective action in response to releases</li> </ul>
<b>Closure (page 62)</b>	
All Facilities	<ul style="list-style-type: none"> <li>• Temporarily or permanently close your UST system properly, when the UST system is no longer in use or need</li> </ul>

*Notes:*

<sup>1</sup> Spill buckets are not required for UST systems that never receive deliveries greater than 25 gallons or USTs filled by a directly connected pipeline.

<sup>2</sup> Spill containment and containment sump testing are not required if the containment is double walled (and both walls monitored for integrity).

<sup>3</sup> Monthly monitoring, which does not exceed 30 days, includes interstitial monitoring; automatic tank gauging; vapor monitoring, groundwater monitoring; continuous in-tank leak detection; and other methods approved by your implementing agency.

<sup>4</sup> Tanks 2,000 gallons and smaller may be able to use manual tank gauging, depending on tank diameter.

<sup>5</sup> States may no longer allow the use of the combination methods. Check with your implementing agency.

<sup>6</sup> EPA allows visual-based assessments of aboveground situated tanks that are part of UST systems that were installed before April 11, 2016, and are part of EPG UST systems.

<sup>7</sup> State and federal governments are exempt from the financial responsibility requirements.

# What Must You Do When You Install an EPG UST System?



Make sure your UST system is installed correctly and use qualified installers who follow industry codes and manufacturers' instructions. See [www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry](http://www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry) 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 at [www.epa.gov/ust/notification-forms-underground-storage-tanks](http://www.epa.gov/ust/notification-forms-underground-storage-tanks).

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

Make sure installers carefully follow the manufacturers' instructions and industry codes. Below are frequently referenced industry codes of practice for installing UST and AST systems:

- *Petroleum Equipment Institute (PEI) RP100, Recommended Practices for Installation of Underground Liquid Storage Systems* at [www.pei.org/rp100](http://www.pei.org/rp100).
- *PEI RP200, Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling* at [www.pei.org/rp200](http://www.pei.org/rp200).
- *PEI RP1400: Recommended Practices for the Design and Installation of Fueling Systems for Emergency Generators, Stationary Diesel Engines and Oil Burner Systems* at [www.pei.org/rp1400](http://www.pei.org/rp1400). This code of practice addresses most aspects of the complete emergency generator system, including AST and UST system requirements and other applicable federal, state, and local requirements such as the fire codes.
- *American Petroleum Institute RP 1615, Installation of Underground Petroleum Storage Systems* at [https://www.techstreet.com/standards/api-rp-1615-r2020?product\\_id=1780646](https://www.techstreet.com/standards/api-rp-1615-r2020?product_id=1780646).

In addition, EPG UST systems have components, such as the power generator, aboveground piping, and day tanks that are not



*Vent lines of an EPG UST system*

*If you modify your system by adding aboveground tanks or removing USTs or underground piping, your regulatory status may change. After the modification, perform the 10 percent calculation to determine if your system must follow the UST regulation; see page 4 for information about 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.*

part of conventional UST systems. These components and other system characteristics must meet other federal, state, and local requirements, as applicable, such as fire codes and the federal SPCC regulation found at 40 CFR part 112.

Many states adopt as their fire code either the International Fire Code (IFC) or the Codes and Standards from the National Fire Protection Association (NFPA). Below are three codes or standards that are applicable in most states as of the date of this document. IFC references these NFPA codes.

- *NFPA (National Fire Protection Association) 30, Flammable and Combustible Liquids Code* at [www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=30](http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=30).
- *NFPA 37, Standard for the Installation and Use of Stationary and Combustible Engines* at [www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=37](http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=37).
- *NFPA 110, Standard for Emergency and Standby Power Systems* at <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=110>.

The SPCC rule applies to facilities that:

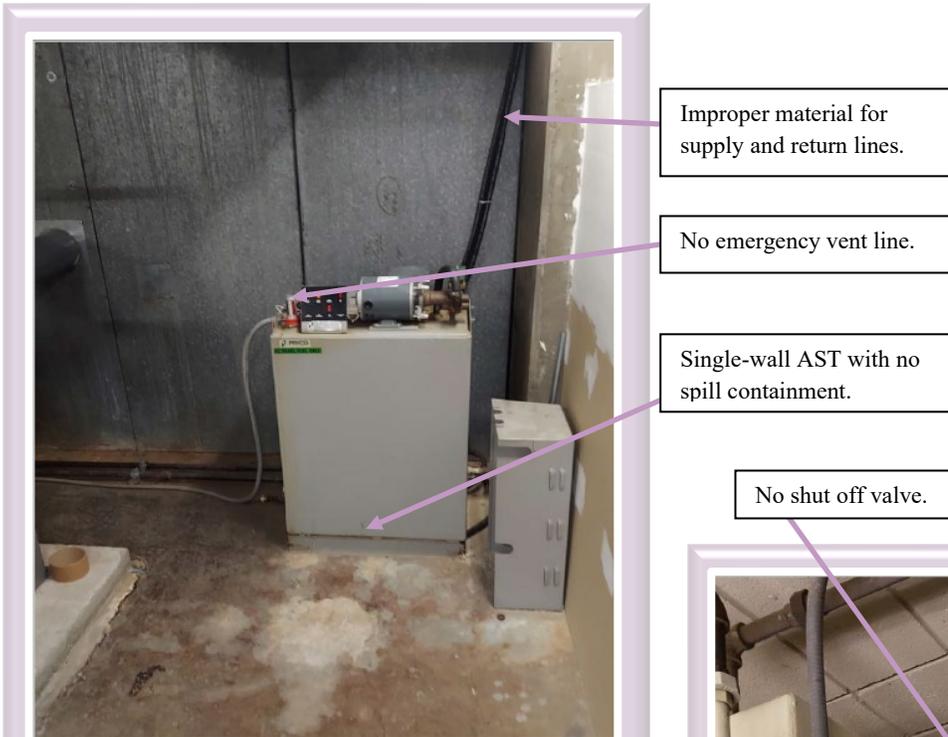
- Are engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products;
- Are non-transportation-related;
- Have an aboveground oil storage capacity of greater than 1,320 U.S. gallons or a completely buried oil storage capacity greater than 42,000 U.S. gallons; and
- Due to its location, could reasonably be expected to discharge oil in quantities that may be harmful, as described in 40 CFR part 110, into or upon the navigable waters of the United States or adjoining shorelines.

Refer to 40 CFR, part 112, for a complete description of SPCC requirements. EPA's website for the SPCC program can be found at <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations>. You can obtain a guide about the SPCC regulation at [www.epa.gov/sites/production/files/documents/spccbluebroch.pdf](http://www.epa.gov/sites/production/files/documents/spccbluebroch.pdf).

*Many EPG UST systems are also regulated under EPA oil spill prevention programs. For example, aboveground piping and day tanks are components that may be subject to the SPCC regulation. States with AST programs will have requirements that must also be met.*

## Teachable Moments: What Are Examples of Improper Installations?

While fire code compliance is beyond the scope of the federal UST regulation, this section provides a few examples of installations that do not meet noted fire codes. This information is provided to promote reader awareness of these codes and better acclimate stakeholders to possible problems. EPA encourages readers to consult the latest applicable codes regarding all aspects of EPG systems, those regulated by the federal UST regulation, and others



**Figure 1:** 50-gallons single-wall day tank with improper supply and return lines, no emergency venting, and no secondary containment.

- Piping for supply and return lines (NFPA 37 (2021) 6.8.1): In general, shall be steel or other metal and supported and protected against physical damage and excessive stresses. Piping must meet all applicable requirements of Chapter 27 of NFPA 30.
- Emergency vent line (NFPA 30 (2021) 27.8.1.6): Shall be sized to provide emergency vent flows that limit the back pressure permitted by the design of the tank.
- Tanks must have secondary containment (NFPA 37 (2021) 6.3.2.4): Shall be provided with spill containment: either a wall, a curb, or a dike having a capacity at least equal to that of the largest tank enclosed. See code for exceptions that include allowance for a listed or approved secondary containment tank.



**Figure 2:** 50-gallons day tank with no shutoff valve and bottom connection incorrectly below the liquid level of the tank.

- A shutoff valve is required (NFPA 37 (2021) 6.8.3) – Valves shall be provided to control the flow of liquid fuel in normal operation and to shut off the flow of fuel in the event of a pipe break.

such as NFPA or International Fire Code (IFC). Readers should read all pertinent portions of the fire code to fully understand and meet all aspects of EPG-related requirements. A requirement may be contained in various sections of the code.

Figures 1 through 5 show day tanks with various improperly installed components, as noted.

Improper material for vent line.

Area too tight for inspection and repairs.

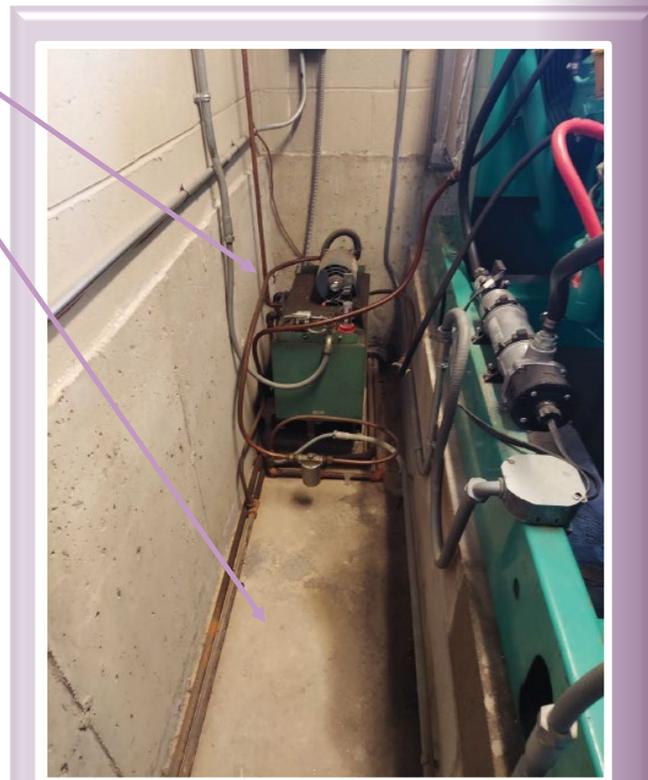
No overflow line. Outlet plugged.

No emergency vent line. Outlet is plugged.



**Figure 3:** 50-gallon day tank showing overflow and emergency vent plugged.

- Tank must have overflow line (NFPA 37 (2021) 6.5.4) – Fuel tanks supplied by pumps shall have an overflow line. Its piping shall be continuous, without valves or traps, back to source tank or collection system.
- Emergency vent line (NFPA 30 (2021) 27.8.1.6): See comment about this requirement in Figure 2.



**Figure 4:** 10-gallon day tank with improper material for vent line and insufficient room for inspection and repair.

- Copper tubing is not allowed for vent line (NFPA 30 (2021) 27.4.4.2) – \*Low melting point materials shall not be used as part of a tank’s normal or emergency vent piping.  
Insufficient clearance around tank (NFPA 37 (2021) 6.3.5.1.2) – At least 15 inches clearance around tank for inspections and repair.

\*Per NFPA 30 (2021) 27.2.4, low melting point materials are materials that melt at a low temperature including, but not limited to: aluminum, copper, or brass; materials that soften on fire exposure, such as plastics; or nonductile materials, such as cast iron.

No overflow line. Outlet is plugged.

Vent line below liquid level in tank



**Figure 5:** 400-gallons day tank with plugged overflow and emergency vent below liquid level.

- Tank must have overflow line (NFPA 37 (2021) 6.5.4) – See comment about this requirement in Figure 4.
- Emergency vent line (NFPA 30 (2021) 27.8.1.6): See comment about this requirement in Figure 2. Location of this line is below liquid level of tank.

**Note:** As configured, if the tank were full and a fire were to develop to a point where the emergency vent needed to open, it could blow fuel out onto the fire.

# What Must You Report?



**Table 3: Occasions When You Must Report to Your Implementing Agency**

When This Happens:	You Must Report This:	By This Time:
<b>After you install an UST system</b>	Complete and submit a notification form available from your implementing agency. This form requests information about your UST, including a certification of correct installation.	<b>Within 30 days of bringing the UST into use</b>
<b>After you acquire an UST system</b>	Complete a notification of ownership change form available from your implementing agency.	<b>Within 30 days after you acquire an UST</b>
<b>Before switching to certain biofuels or other substances identified by your implementing agency</b>	Notify your implementing agency.	<b>At least 30 days before switching to certain biofuels or other substances identified by your implementing agency</b>
<b>You suspect a release</b>	Report suspected releases to your implementing agency.	<b>Within 24 hours, or another period specified by your implementing agency</b>
<b>You confirm a release</b>	Report follow-up actions you plan or have taken to correct the damage caused by your UST.	<b>Within 20 days, or another period specified by your implementing agency</b>
<b>(For compliance with SPCC requirements, when applicable) A release from the UST system results in an oil discharge to navigable waters or adjoining shorelines</b>	Report the oil discharge and required information to the National Response Center (NRC). Additional oil spill reporting requirements may apply to EPG facilities subject to the SPCC rule. See page 59 for more information.	<b>Immediately notify the NRC</b>
<b>Before you permanently close your UST system</b>	Notify your implementing agency.	<b>At least 30 days before you permanently close your UST</b>

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

# What Are Your Spill and Overfill Prevention Requirements?



## What Must You Do for Spill Prevention?

### *For All Regulated Tanks*

- Tanks that are part of the UST system—for example, those situated underground or aboveground, such as day tanks and sub-base tanks—must have spill prevention equipment **if the tank is filled from a delivery hose**. The goal of the federal UST regulation’s spill prevention equipment requirement is to contain drips and small spills occurring when the delivery hose is disconnected from the fill pipe. The most frequently used spill prevention equipment for tanks situated underground is commonly called a spill bucket or a catchment basin.
- You must test your spill prevention equipment at least every three years for liquid tightness or use a double-walled spill bucket with periodic monitoring that determines the integrity of both walls. Conduct the test according to a code of practice or manufacturer’s instructions or requirements determined appropriate by your implementing agency.
- As of October 13, 2018, 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 the [\*What Must You Do for Walkthrough Inspections?\*](#) section 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.

### *Special Considerations for Regulated ASTs*

Federal UST regulations establish minimum technical requirements for spills, overfill prevention, and other regulatory requirements that EPG UST system owners and operators must meet. Industry codes address requirements and recommended practices to achieve compliance with regulatory requirements and

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*Spill prevention equipment is required on all tanks, except when the delivery hose remains connected to the storage tank fill port used for filling the storage tank. Check with your implementing agency to determine whether it has more stringent requirements.*

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

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optimal protection of human health and the environment. Industry codes may differ from stated minimum regulatory requirements. For example:

- PEI RP200, *Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling*, notes that filling aboveground storage tanks from transport vehicles is normally accomplished with a pump that is either mounted on the vehicle or permanently fixed in the tank-filling area. **The federal UST spill prevention requirement would apply in the event the delivery hose is disconnected from the fill pipe.**
- Storage systems with large capacity aboveground storage tanks, such as those in the tens of thousands of gallons range, would likely not be regulated by the federal UST requirements. Most likely, the system would not meet the 10 percent or more volume located beneath the surface of the ground threshold. See page 4 to determine whether your storage system meets EPA’s definition of a regulated UST.
- For previously installed systems, day tanks and sub-base tanks that are part of regulated EPG UST systems are typically of small capacities—in the range of hundreds of gallons, these tanks are more likely equipped to be filled by delivery hose as a primary or alternative means of fueling versus supply from the main tank. **In this case, the federal UST spill prevention requirement would apply in the event the delivery hose is disconnected from the fill pipe.**
- PEI RP200 notes the use of secondary containment tanks in lieu of dikes. Secondary containment tanks may be allowed by some fire codes when certain requirements are met such as installation of overfill prevention devices, overfill alarms, fill gauges, antisiphon devices and use of secondary containment interstitial monitoring. Spill prevention is still required.
- Perhaps most important, for day tanks and sub-base tanks to be in compliance with the federal UST spill prevention requirement, PEI RP200 notes that on small aboveground tanks, delivery hoses are often connected at the tank top. The standard recommends providing a spill container around the fill pipe to prevent spills of fuel when the delivery hose is disconnected. The standard is broad to cover all ASTs. To meet requirements of the federal UST regulation for tanks that are regulated as part of EPG UST systems, spill prevention is required.
- Regarding the relatively small shop-fabricated aboveground storage tanks typically located at emergency generator UST systems, PEI RP1400, *Recommended*

*Practices for the Design and Installation of Fueling Systems for Emergency Generators, Stationary Diesel Engines and Oil Burner Systems*, references requirements in PEI's installation standards on underground and aboveground storage systems, in PEI RP100 and PEI RP200, respectively. While the federal UST requirements do not establish a minimum size for spill containment equipment, the recommended practices note that the fill port typically is located outside of the building. Regardless of its location, the fill port should be equipped with spill containment or a spill bucket with a minimum 5-gallon capacity.

## **What Is a Spill Bucket?**

A spill bucket is a contained area around the fill pipe. It is also referred to as a spill containment manhole and catchment basin.

To protect against spills, the spill bucket should be large enough to contain the volume that may spill when the delivery hose is uncoupled from the fill pipe. Spill buckets range in size from a few gallons to those that are much larger. The larger the spill bucket, the more spill protection it provides. While the federal UST requirements do not establish a minimum size for spill containment equipment, PEI RP 1400 recommends that the fill port for emergency generator tanks (whether situated underground or aboveground) should be equipped with spill containment or a spill bucket with a minimum 5-gallon capacity.

You should keep water out of spill buckets. Some spill buckets collect water and sediment, along with spilled product. If this happens, pump out the spill bucket and dispose of the liquid properly. It is unwise to drain the water and spilled product mixture into the tank. For disposal purposes, 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 how to determine if this liquid is a hazardous waste and proper handling requirements.

## What Must You Do for Overfill Prevention?

### *For All Regulated Tanks*

- Tanks that are part of the UST system must have overfill prevention.
- Automatic shutoff devices and overfill alarms are the two types of overfill prevention devices commonly used for tanks located underground or aboveground. Fuel level gauges are also described below for use with ASTs. While fuel level gauges are not required or recognized as an overfill device by federal UST regulation, PEI RP 1400 recommends their use in combination with an automatic shutoff device and an audible or visual alarm, as noted 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.

When a tank is overfilled, large volumes can be released at the fill pipe and at other areas of the UST system, such as fittings on top of the tank, a vent pipe, or other tank top openings. Overfills usually release much larger volumes than what might be released when the hose is disconnected from the fill pipe.

You can help to prevent overfill problems by:

- Ensuring there is enough room in the tank for the delivery before the delivery is made.
- Using overfill prevention devices.
- Watching the entire delivery to respond to any problems and to stop the delivery when the prevention device signals that an overfill could occur; and
- Ensuring an overfill alarm is within sight or hearing range of delivery persons filling tanks, which might not be visible. Follow applicable codes of practice.

**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.

*Overfill prevention is required for all EPGs, even if they are not filled by a delivery hose.*

*Overfill prevention is not required for temporarily closed tanks.*

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

*Reference codes of practice, such as PEI RP200, Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling, for overfill prevention measures associated with ASTs.*

## ***Special Considerations Depending on Tank Location***

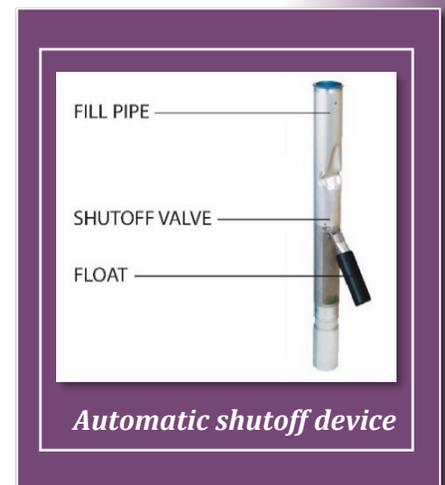
- If installing the EPG UST system according to PEI RP1400, then the following overfill prevention equipment is recommended by the code, based on the type of tank:
  - Underground storage tank—equipped with an overfill prevention drop tube with a valve to close and stop or significantly reduce the flow of fuel into the tank when the fuel level reaches 95 percent of tank capacity.  
**Note:** You can accomplish this by using one or more of the automatic shutoff devices described below.
  - Aboveground storage tank—may be equipped with a fuel level gauge that is visible to the driver during fuel delivery, a flow shutoff device rated for pressure or gravity delivery in the fill piping assembly, and an audible or visual alarm.
  - Day tank—equipped with a fuel level gauge and a fuel shutoff device that activates at a pre-set overfill threshold, as well as overflow return piping to direct fuel back to the main tank by gravity flow or a return pump system.
  - Sub-base tank—the same as noted above for aboveground storage tanks. Flow shutoff devices are available that are specifically designed for these relatively shallow tank constructions.

Reference PEI RP1400 for more detailed information on these and other devices.

## **What Are Automatic Shutoff Devices?**

An automatic shutoff device, also known as a flow shutoff device, installed in a tank'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. An example of this type of 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 product 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 that do not use a delivery hose should not experience this problem.

## 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 one 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. Indications of 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 always works.

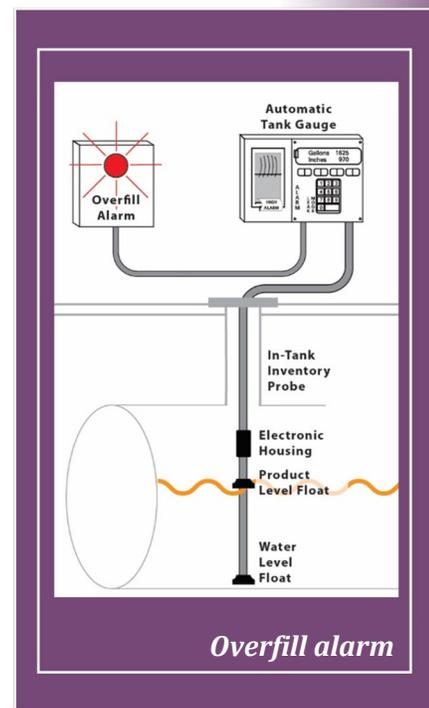
## What Are Fuel Level Gauges?

Fuel level gauges, also called liquid level gauges, are electronic or mechanical devices that indicate the level of fuel in a tank. **These devices by themselves are not overfill prevention equipment. While not required by regulation, they are recommended to be used for ASTs, as noted in PEI RP1400, in combination with a flow shutoff device and an audible or visual alarm.**

## What About Using Ball Float Vent Valves?

Do not use ball float vent valves in emergency generator UST systems. In addition to the two types of overfill prevention described above, flow restrictors in vent lines, also called ball float valves, are commonly used in traditional UST systems such as commercial fueling facilities. These devices are placed at the bottom of the vent line several inches below the top of the UST. The ball floats on the product and rises with product level during delivery until it restricts vapor flowing out the vent line *before* the tank is full.

The federal UST regulation does not allow the use of ball float vent valves when overfill prevention is installed or replaced on any UST system after October 13, 2015. If you are using a ball float vent valve in an emergency generator UST system that was installed on or before October 13, 2015, EPA encourages you to immediately discontinue using it and switch to another method to



comply with overfill prevention requirements. There are numerous safety concerns associated with the use of these type of devices. Equipment manufacturers do not recommend using ball float vent valves with suction piping or pressurized delivery. When there is suction piping and the ball of the device seats or locks-in-place, it pressurizes the tank and lines. It has the potential to flood the fuel system on the generator and cause a release or potential fire condition. If you discontinue using a ball float vent valve and use a flapper valve but you cannot remove the riser inside the tank, then you may need to set the flapper valve to activate lower than where the ball float vent valve was set to activate.

PEI RP1400 and fire codes either warn against installing these devices or prohibit the use of them in EPG UST systems.

## What Are Your Responsibilities for Correct Filling Practices?

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 Should You 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.
- Keep fill ports locked until the fuel delivery person requests access.
- Keep an accurate tank capacity chart available for the fuel delivery person.
- 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, when using a ball float vent valve or overfill alarm and 95 percent, when using an automatic shutoff device.
- Replace 90 percent with 95 percent in the formula when using an automatic shutoff device. Use this formula for determining the maximum amount of fuel to order:  
(Tank capacity in gallons x 90%) – Fuel currently in tank =  
Maximum amount of fuel to order
  - Example: For a 10,000-gallon tank holding 2,000 gallons of fuel, (10,000 gal x 0.9) – 2,000 gal =

7,000 gal maximum amount to order. **It is important to use the tank capacity given by the manufacturer and not just the nominal tank capacity, as given by this simplified example.**

- 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 Should You Do While Your USTs Are Being Filled?**

- 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.
- Ensure the fuel delivery person makes all connections.
- Ensure the person responsible for monitoring the delivery remains attentive and observes the entire fuel delivery, is prepared to stop the flow of fuel from the truck to the UST at any time, and responds to any unusual condition, leak, or spill that may occur during delivery.

### **What Should You Do After Your USTs Are Filled?**

- Ensure the fuel delivery person responsibly disconnects the hose after delivery is completed.
- 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 product that may have spilled.

# What are your Corrosion Protection Requirements?



Federal UST regulation requires corrosion protection for underground tanks and underground piping that are in contact with the ground and routinely contain product. This requirement helps prevent your USTs from releasing product into the environment.

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

Federal UST corrosion protection requirements do not apply to ASTs that are not in contact with the ground—such as day tanks and sub-base tanks that are part of UST systems—as they are not underground. Installation codes and other specifications may require coatings and other means of corrosion protection to address concerns that are beyond ground contact and the scope of the federal UST regulation. Also, it is ideal to protect the bottom of a belly tank from corrosion by allowing water to drain or providing airspace beneath it.

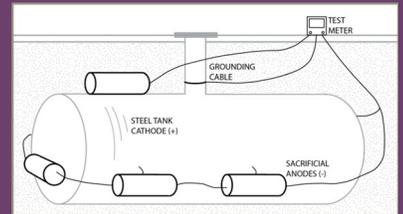
## What Are Cathodic Protection Methods?

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

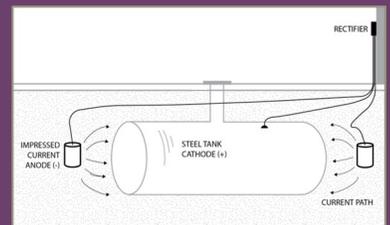
*Impressed Current System:* An impressed current system uses a rectifier to provide direct current through anodes to either the tank or piping or both to prevent corrosion. The steel is protected because the current going to the steel overcomes the corrosion-causing current flowing away from it. The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

A qualified cathodic protection tester must 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.

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



*Sacrificial anode system*



*Impressed current system*

Never turn off your rectifier. If your rectifier is off, your UST system is unprotected from corrosion.

## Corrosion Protection for Steel USTs Installed on or before December 22, 1988

Steel tanks installed on or before December 22, 1988, must either have been assessed and upgraded with corrosion protection using one of these three methods:

- *Added cathodic protection.* A qualified cathodic protection tester must test your cathodic protection system within six months of installation, or repair, and at least once 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 the results of your last three inspections to prove that the impressed current system is operating properly.
- *Added interior tank lining.* The interior of a tank could have been lined with a layer of noncorrodible material (see [www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry](http://www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry) for industry codes). Tanks using only an interior lining for corrosion protection must have passed an internal lining inspection within 10 years of installation of the internal lining and every five years after that to make sure that the lining is sound. Keep records of the inspection results.
- *Combined cathodic protection and interior lining.* Both cathodic protection and interior lining could have been added. This combined method does not require you to have the interior lining periodically inspected if your tank was assessed and found to be structurally sound and free of corrosion holes when you added cathodic protection. You still must test and inspect the cathodic protection system periodically and keep records as explained in the first bullet above.

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

*Only tanks that were proven to be structurally sound could have been lined.*

## Corrosion Protection for Metal Piping Installed on or Before December 22, 1988

Metal piping installed on or before December 22, 1988, must have had cathodic protection no later than December 22, 1998. Owners and operators must test, inspect, and keep records as described above for tank cathodic protection.

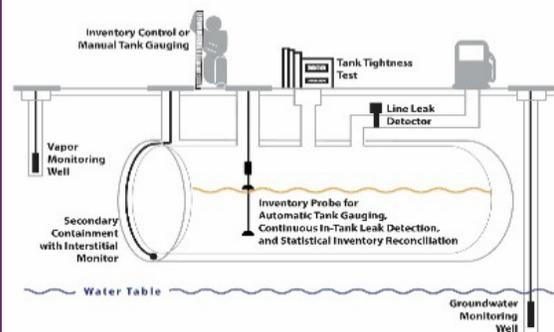
## Corrosion Protection for Steel Tanks and Piping Installed After December 22, 1988

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. This option does not typically apply to piping.
- Tank and piping are made of steel with a corrosion-resistant coating and cathodic protection, such as a sti-P3® tank with appropriate piping. 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 test and inspect cathodic protection systems and keep records as explained in the “Added Cathodic Protection” section on page 26.

*Cathodic protection systems typically only protect the outermost surface of the tank and does not prevent corrosion of inner surfaces which could include those exposed in the interstice, as well as the inner tank.*

# What Are the Release Detection Requirements?



All federally regulated USTs, including EPG UST systems, must have a release detection method, or combination of methods, that:

- Can detect a release from any portion of the tank and the connected underground piping that routinely contains product, and
- Is installed and calibrated according to the manufacturer's instructions.

Tanks and underground piping installed or replaced after April 11, 2016, must be secondarily contained and use interstitial monitoring, except for suction piping that meets safe-suction requirements.

All UST owners and operators must monitor their tanks and underground piping at least once every 30 days. This document uses the terms monthly or month and annually or annual. These terms mean at least once every 30 days and not to exceed 365 days, respectively.

For tanks installed on or before April 11, 2016, you can use any of these release detection methods:

- Secondary containment with interstitial monitoring
- Automatic tank gauging systems (performing in-tank static tests)
- Continuous in-tank leak detection
- Manual tank gauging (for tanks 550 gallons or less and tanks 551-1,000 gallons with 48- or 64-inch diameter) may use this method
- Groundwater monitoring
- Vapor monitoring
- Other methods meeting performance standards or approved by implementing agency

**Note:** While statistical inventory reconciliation and tank tightness testing with inventory control are acceptable methods of release detection for UST systems installed before April 11, 2016, this document does not describe these. Emergency generator UST systems typically do not have metered output. These methods may be used if output is metered.

*State or local regulations may differ from the federal requirements. Contacts for your implementing agency can be found at <https://www.epa.gov/ust/underground-storage-tank-ust-state-contacts>*

*If your USTs do not meet the release detection requirements described in this document, you can be cited for violations and fined.*

*ASTs, such as day tanks and sub-base tanks, must meet the secondary containment requirement. PEI RP200 discusses dikes and alternative methods of providing secondary containment for ASTs. Dikes might not meet federal UST requirements. Any secondary barrier used for the purpose of secondary containment, per federal UST requirements, must meet certain design criteria that include compatibility with the product stored in the tank, thickness and impermeability standards, and ability to direct a leak from the tank to a monitoring point.*

*Replaced means: for a tank—to remove a tank and install another tank. for piping—to remove 50 percent or more of piping and install other piping, excluding connectors, connected to a single tank. For tanks with multiple piping runs, this definition applies independently to each piping run.*

For underground piping installed on or before April 11, 2016, you may use any of the release detection methods listed above that are appropriate for piping or conduct periodic line tightness testing. See below for more details.

Most pressurized underground piping connected to your USTs must also have automatic line leak detectors. See page 35 for more information.

UST systems that store fuel for use by EPGs must meet these release detection requirements:

- Systems installed on or before October 13, 2015, must use any of the applicable release detection methods listed above no later than October 13, 2018.
- Systems installed between October 13, 2015, and April 11, 2016, must use any of the applicable release detection methods listed above beginning at installation.
- Except for safe suction piping, systems installed or replaced after April 11, 2016, must meet secondary containment requirements and use interstitial monitoring as the primary release detection method.

To make sure your release detection equipment is working properly, you must do the following as of October 13, 2018:

- Annually test the operability of the electronic and mechanical components of your release detection equipment.
- Conduct walkthrough inspections every 30 days to visually check your release detection equipment and maintain applicable records of those checks.
- Conduct annual walkthrough inspections to visually check containment sumps and hand-held release detection equipment, such as tank gauge sticks and groundwater bailers.

Releases and leaks trigger different investigation and reporting requirements. For information on addressing suspected releases, see EPA's *Musts for USTs* at [www.epa.gov/ust/musts-usts](http://www.epa.gov/ust/musts-usts).

*Release means any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into groundwater, surface water, or subsurface soils.*

*Release detection means determining whether a release of a regulated substance occurred from the UST system into the environment, or a leak occurred into the interstitial space between the UST system and its secondary barrier or secondary containment around it.*

## How Do I Prove That Performance Requirements Are Met?

Federal UST regulation requires that your release detection equipment meet specific performance requirements. Performance claims and means of determining performance must be described in writing by either the equipment manufacturer or installer. At the request of equipment manufacturers, most release detection equipment, and methods available in the United States have been evaluated by a third party, who is independent of the manufacturer or vendor of the release detection system. The evaluation shows that a release detection system can work as designed. Evaluations follow recommended evaluation procedures and testing and often take place at a testing facility. EPA and third parties developed evaluation procedures for all release detection methods.

Although not mandated by federal UST requirements, many implementing agencies prefer, and some require, third-party evaluation of release detection equipment and methods. Check with your implementing agency to determine what is acceptable. Although an evaluation and its resulting documentation are technical, you should be familiar with the evaluation's report and its results form. Obtain this documentation from the release detection manufacturer and keep it on file. Whether by the manufacturer, installer, or third-party evaluation, performance claims determinations contain:

- A signed certification that the system performed as described.
- Documentation of proper monitoring or testing procedures.
- Any limitations of the system.

This information is important to your compliance with UST requirements. For example, if an automatic tank gauge was evaluated and you have documentation that the test takes two hours or more, then your UST must be tested for at least two hours, or it would fail to meet the release detection requirements.

The independent National Work Group on Leak Detection Evaluations (NWGLDE) maintains a list of release detection equipment whose third-party-conducted documentation has been reviewed. The list contains a detailed summary of specifications for over 390 release detection systems. Although you can use the list to help select systems and determine their compliance or acceptability, it does not consist of approved release detection systems. Approval or acceptance of release detection systems rests with your implementing agency, which in most cases is your state environmental agency. See NWGLDE's list at [www.nwglde.org](http://www.nwglde.org).

*You may use any technology if it meets a performance standard of detecting a leak of 0.2 gallons per hour with a probability of detection of at least 95 percent and a probability of false alarm of no more than 5 percent. Implementing agencies can approve another method if you demonstrate that it works as well as one of the methods listed in this document and you comply with any condition the agency imposes.*

*Perform release detection according to documented procedures.*

## Are There Required Probabilities for Certain Release Detection Methods?

The federal UST regulation requires that release detection methods detect certain leak rates consistently. Certain methods must detect specified leak rates with a probability of detection of at least 95 percent and a probability of false alarm of no more than 5 percent. This means that, of 100 tests of USTs leaking at the specified rate, at least 95 of them must be correctly detected. It also means that, of 100 tests of non-leaking USTs, no more than five can be incorrectly identified as leaking.

## What Release Detection Records Must You Keep?

For each release detection method you use, you must keep these written records:

- Proof that performance claims are met and the means of determining performance by either the equipment manufacturer or installer and probabilities of detection and false alarm, as required, are met. Retain these records for five years or another period determined by your implementing agency.
- Results of any sampling, testing, or monitoring. Retain these results for one year or another period determined by the implementing agency. Retain tank tightness test results until the next test is conducted.
- All calibration, maintenance, and repair of release detection equipment permanently located on site. Retain records for one year after servicing work is completed or the period determined by your implementing agency.
- Schedules of required calibration and maintenance are provided by equipment manufacturers. Retain the schedules for five years from the date of installation.
- Other records may be required and are discussed for individual release detection methods in EPA's *Release Detection for Underground Storage Tanks and Piping: Straight Talk on Tanks* at [www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks](http://www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks).

## What is Required When Responding to Alarms and Other Suspected Releases?

An alarm associated with release detection monitoring may indicate a release has occurred. Check with your implementing agency to determine whether your alarm

*Not all release detection methods must meet the required probabilities. the requirement applies to all tank release detection methods, except for secondary containment with interstitial monitoring and groundwater and vapor monitoring. It also applies to automatic line leak detectors and line tightness testing.*

incident must be reported. You must investigate, determine, and correct the source of the alarm.

You must report suspected releases to your implementing agency within 24 hours or another period specified by your implementing agency, unless:

- The monitoring device is found to be defective and is immediately repaired, recalibrated, or replaced, and additional monitoring does not confirm the initial result.
- The leak is contained in the secondary containment and:
  - Any liquid in the interstitial space not used as part of the interstitial monitoring method, for example, brine filled, is immediately removed; and
  - Any defective system equipment or component is immediately repaired or replaced.
- Using inventory control with periodic tightness testing, if allowed as the method of release detection; a second month of inventory control data does not confirm the initial result or the investigation determines no release has occurred; or
- The alarm was investigated and determined to be a non-release event, for example, caused by a power surge or by filling the tank during release detection testing.

## What Are Some Special Considerations with EPG UST Systems?

You may use all release detection equipment and methods currently on the market and available to meet release detection requirements at conventional facilities such as gas stations, convenience stores, and other retail and non-retail facilities.

This section addresses certain considerations either unique to or particularly challenging for owners and operators of EPG UST systems in complying with the federal release detection requirements.

### ***What to Consider for Shop-Fabricated Day Tanks, Belly Tanks, and Other Tanks Situated Aboveground***

Owners and operators of EPG UST systems must comply with the federal UST regulations discussed starting on page 6. Remember, aboveground tanks that are part of an AHS or UST system with field-constructed tanks are excluded from the federal UST technical prevention requirements.

Under other methods in 40 CFR § 280.43(i)(2), EPA allows visual-based assessments, with a thorough check of the exterior surface, as well as the areas below and surrounding the AST or ASTs that

*Aboveground tanks that are part of underground storage tank systems must meet release detection and other applicable UST regulatory requirements.*

are part of the UST system, to meet the federal 30-day monitoring requirement. Following the conditions listed below, the release detection requirements for both single-walled tanks and interstitial monitoring of double-walled tanks situated aboveground may be met.

#### Conditions That Must be Met:

- The bottom of the AST must be located four inches or more above the ground surface unless there is an impermeable barrier under the AST. Concrete is typically considered an impermeable surface. Asphalt is not considered an impermeable surface.
- Visual-based assessments of ASTs that are part of emergency power generator UST systems must follow a code of practice developed by a nationally recognized association or independent testing laboratory. At a minimum and as applicable, the practice must include checking for:
  - External damage to the tank.
  - Problems or damage to piping connections.
  - Product leaks from the tank or piping connections.
  - Cracks or deformations to the tank pad, support structures, and containment areas that could allow leaked product to escape the containment area, as applicable.
  - For tank bottoms, ensure there is no puddling of product around the base of the tank, or staining or discoloration of the area potentially indicative of a release from an unobservable portion of tank bottom.
- Documentation requirements: per 40 CFR § 280.45(b), the results of any sampling, testing, or monitoring must be maintained for at least one year, or for another reasonable period determined by the implementing agency.

*Aboveground tanks that are part of AHSs or UST systems with field constructed tanks are partially excluded from the federal UST regulation. Federal UST technical prevention requirements are not applicable. Federal UST cleanup requirements are applicable. SPCC requirements are most likely applicable.*

For more information about visual-based assessments, see *EPA's UST Technical Compendium about the 2015 UST Regulation* at <https://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators>.



*Figure 6: A Day tank located inside a building at ground level. Arrows point to some corresponding areas that are part of visual-based assessments allowed for ASTs regulated as part of EPG UST systems. Day tanks, belly tanks, and other aboveground components of EPG UST systems may be subject to EPA oil spill prevention programs (SPCC at 40 CFR part 112). See page 12 for information about SPCC rule applicability.*

Steel Tank Institute’s (STI) *SP001: Standard for the Inspection of Aboveground Storage Tanks* contains a monthly inspection checklist for meeting requirements of the visual-based assessment. A free version of the checklist is available at [www.steeltank.com/Portals/0/Shop%20Fab/SP001%206th%20edition%20checklists.docx](http://www.steeltank.com/Portals/0/Shop%20Fab/SP001%206th%20edition%20checklists.docx).

STI SP001 also contains an annual inspection checklist, in addition to the monthly checklist. Facilities using STI SP001 to meet the SPCC inspection requirements, must conduct and document both the monthly and annual inspections required by the SP001 standard. See page 12 for links to and more information about the SPCC rule.

UST system owners and operators should check with their state UST implementing agencies to determine state specific requirements, which may vary from EPA’s requirements.

## ***What to Consider for Complying with NFPA 110 to Meet Federal Line Leak Detection Requirements***

For EPG UST systems, pressurized underground piping, which is typically between the main tank and day tank, must have an automatic line leak detector as part of meeting release detection requirements. For conventional in-line automatic line leak detectors to function properly, underground piping must be isolated from aboveground piping. Lack of isolation may cause false-positive indications that leaks exist. You can achieve isolation by using a solenoid valve at a transition sump where the piping changes from underground to aboveground. With a properly configured solenoid valve in place, the automatic line leak detector only tests the underground portion of the line.

*National Fire Protection Association (NFPA) 110: Standard for Emergency and Standby Power Systems* at [www.nfpa.org/NEC/electrical-codes-and-standards/NFPA-110?code=110](http://www.nfpa.org/NEC/electrical-codes-and-standards/NFPA-110?code=110), specifies how to install, test, and maintain emergency and standby power systems. The standard also provides help with reducing risk and avoiding failure of critical systems during an emergency. The standard notes restrictions for using valves, in certain circumstances, on supply and return piping.

Owners and operators can meet the federal UST requirement for pressurized piping release detection by installing a solenoid valve to isolate underground piping from aboveground piping. To comply with NFPA 110 (2016, 2019, and 2022 editions), owners and operators can install valves, such as line leak detectors and solenoid valves, in fuel supply and return lines, if the provisions of NFPA 110, sections 5.6.3.2 through 5.6.3.2.1 in the 2019 and 2022 editions, as noted below, are met.

Owners and operators of EPG UST systems must install a solenoid valve with a manual or nonelectric operator or a manual bypass valve. EPA understands that the intent of the restriction of automatically actuated valves in the fuel oil supply lines for Level 1 emergency power supply systems (NFPA 110 section 7.9.13) is to address the dangers of having a fusible link. Fusible links are a mechanical or electrical safety device activated in the presence of heat. These devices can accidentally be tripped and result in shutting off the flow of fuel to the generator. Installing a solenoid valve as described above to meet the federal UST requirements does not raise this concern. For more information on NFPA 110 related to the UST requirements, see EPA's UST Technical Compendium at [www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators](http://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators).

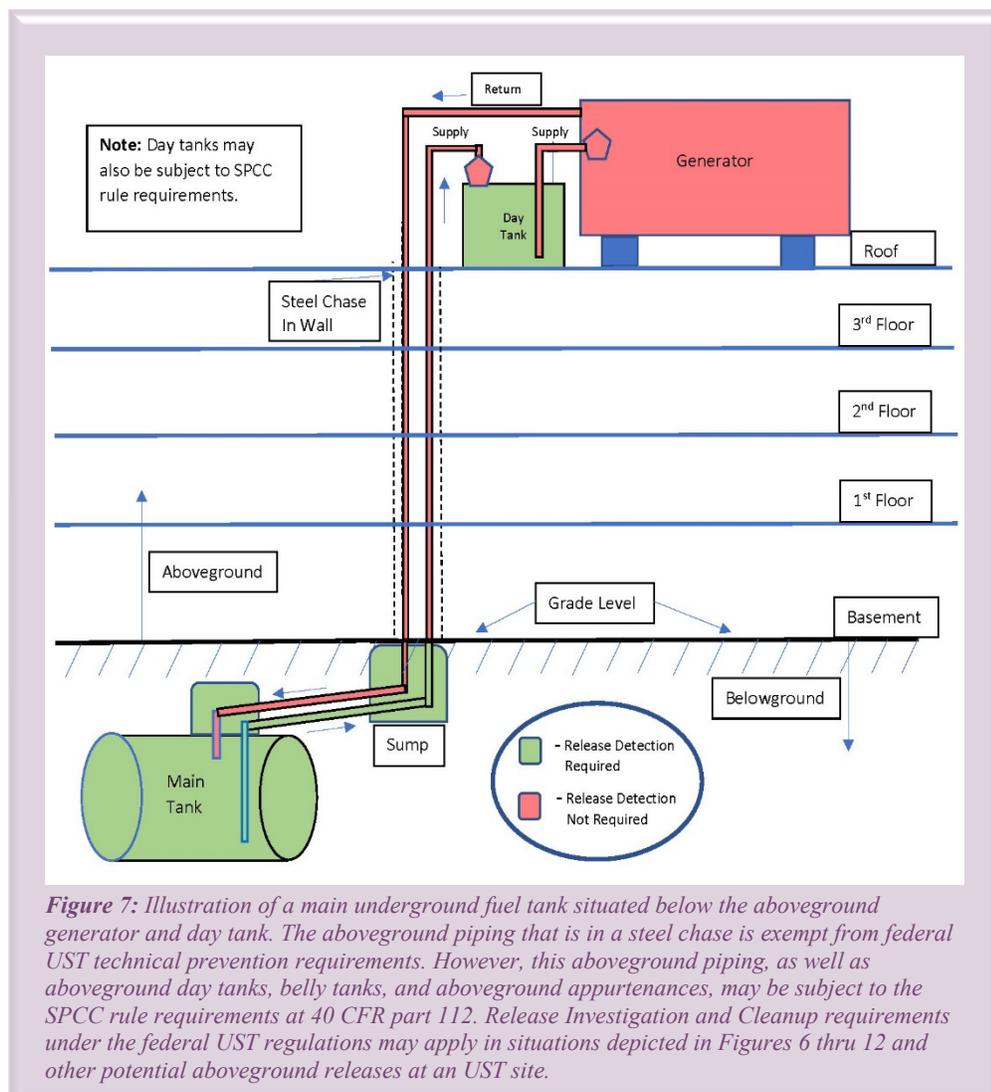
*To comply with NFPA 110 (2016 edition), valves, such as line leak detectors and solenoid valves, can be installed in fuel supply and return lines, if the provisions of NFPA 110 (2016 edition), section 5.6.3.2 are met.*

*Owners and operators should check with their state UST implementing agencies to determine applicable requirements and be aware that the state's requirements may be more stringent than the federal requirements.*

In addition, owners and operators should not use mechanical line leak detectors because they function by restricting product flow. EPA strongly recommends owners and operators use an electronic line leak detector that sounds an alarm instead of restricting or shutting off flow of product to the day tank. NFPA and IFC standards only apply when jurisdictions incorporate the standards into their regulations. NFPA standards are typically incorporated into fire codes. For example, IFC 1203.1 requires EPG UST systems to be installed according to NFPA 110.

### **What to Consider for Aboveground Piping**

Aboveground piping that is part of an UST system is exempt from federal UST technical prevention requirements. While the underground portion of the piping must meet release detection requirements, the aboveground portion does not. Consider isolating the aboveground portion from the underground portion, which will allow you to more readily meet federal UST release detection requirements. Check with your UST implementing agency to determine whether it has more stringent requirements.





*Figure 8: Illustration of aboveground piping in a ceiling (here ceiling tile moved to expose piping) that is exempt from federal UST technical prevention requirements.*



*Figure 9: Illustration of aboveground piping above floor of basement. This section of piping is exempt from federal UST technical prevention requirements but may be subject to the SPCC regulation. Note that the section of the piping back to the underground tank (not shown) that is routed through the concrete, but most importantly is in contact with soil, must meet federal UST release detection requirements.*

## ***What to Consider for Piping in Underground Rooms Such as a Basement, Cellar, or Vault***

Typically, piping runs inside buildings into basements and other rooms are enclosed in contained trenches with see-through metal grating and other similar coverings. These coverings allow easy access for inspection, repair, and maintenance operations.

If piping situated in underground areas—such as inside a basement, cellar, shaft, trench, or other similar areas—is **not** in contact with the ground (i.e., soil or other earthen material) and is accessible for visual inspection, then EPA’s UST program considers it aboveground piping. That means this piping is excluded from release detection and other federal UST technical prevention requirements. However, this aboveground piping may be subject to SPCC requirements under 40 CFR Part 112. If both criteria are not met, EPA considers the piping as underground, and the federal UST technical prevention requirements apply. The periodic testing requirement applies to containment sumps within trenches used for interstitial monitoring of the piping. Owners and operators should check with their state UST implementing agencies to determine whether additional state requirements apply.

Transition sumps may be installed where underground piping from the main tank can be isolated from aboveground piping to allow for appropriate release detection of the underground portion of the piping.

*Many EPG UST systems are also regulated under EPA oil spill prevention programs (SPCC at 40 CFR part 112). For example, aboveground piping, day tanks, belly tanks, and other aboveground appurtenances are components that may be subject to the SPCC regulation. States with AST programs, separate and distinct from the federal SPCC, may have requirements that must also be met.*



*Figure 10: Illustration of piping in trenches covered by see-through metal grating.*

## ***What to Consider for Piping Operating at Atmospheric Pressure***

Many EPG UST systems contain piping that operates at atmospheric pressure where product flows by gravity. This piping is generally associated with a flow of product from the day tank back to the underground tank, but also can occur with a flow of product from the emergency generator back to the underground tank.

Gravity feed piping that is part of EPG UST systems is a nonoperational component. EPA considers the following components found above the top of the tank to be nonoperational: tank bung holes, tank manholes, vent and fill lines, vapor recovery lines, and tank manifold, or siphon bar. These components are considered nonoperational because releases from these sources do not typically occur under normal operating conditions. Gravity feed piping in EPG UST systems functions the same as fill lines, particularly remote fill lines, in conventional UST systems. Gravity feed piping may be in several places in EPG UST systems. It relies on differences in height to allow fuel to flow under the force of gravity at atmospheric pressure through piping connections between the main tank, day tank, and generator. Gravity feed piping is identified as supply or product piping, return or product return piping, or overflow piping.

Note that states may have more stringent requirements for gravity feed piping and other potentially designated nonoperational components, regardless of the installation date. Owners and operators should check with their state UST implementing agencies to determine applicable requirements.

For more information on piping operating at atmospheric pressure, see EPA's *UST Technical Compendium* at [www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators](http://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators), which contains illustrations of gravity feed piping located in typical areas of EPG UST systems.

### ***Considerations for Meeting the Dual Release Detection Requirements for Pressurized Piping Systems***

As noted at the beginning of this section on release detection, underground piping has a dual release detection requirement. For all underground pressurized piping systems associated with EPG UST systems, regardless of the installation date of the piping system, EPA recognizes the use of an automated interstitial monitoring (AIM) system as an option to meet the requirements.

*Nonoperational components can be in various locations within an EPG UST system, located above the top of the main underground product storage tank.*

*EPA recognizes the optional use of an AIM system as meeting the federal pressurized piping release detection requirements.*

An AIM system is a continuous interstitial monitoring system. These systems monitor pressure, vacuum, or liquid levels or use liquid-detecting sensors located in containment sumps that are part of secondarily contained piping systems. These setups can meet the federal requirements for dual release detection for pressurized piping systems.

EPA developed two documents describing three categories of AIM systems. The first, *Owner and Operator Introduction: Automated Interstitial Monitoring Systems for Underground Pressurized Piping on Emergency Power Generator UST Systems*, provides information for EPG UST system owners and operators who are considering using an AIM system. The second, *In-Depth Discussion: Automated Interstitial Monitoring Systems for Underground Pressurized Piping on Emergency Power Generator UST Systems*, provides background and technical information about AIM systems. See EPA's documents at <https://www.epa.gov/ust/owner-and-operator-introduction-automated-interstitial-monitoring-systems-underground> and <https://www.epa.gov/ust/depth-discussion-automated-interstitial-monitoring-systems-underground-pressurized-piping>, respectively.

## Summary of Requirements and Considerations for Use

Tables 4-7 summarize release detection requirements and considerations for tanks, nonoperational piping components, suction piping, and pressurized piping.

Owners and operators of EPG UST systems that are part of an AHS or with field constructed tanks, may use alternative release detection options for tanks and piping, as allowed under 40 CFR part 280, subpart K. See EPA publication *Requirements for Field-Constructed Tanks and Airport Hydrant Systems* at <https://www.epa.gov/ust/requirements-field-constructed-tanks-and-airport-hydrant-systems>.

*Remember, aboveground storage tanks that are part of a AHS or UST system with FCTs are excluded from the federal UST technical prevention requirements. SPCC requirements may apply.*

**Table 4: Tanks**

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
All Tanks (Must meet this requirement)	On or after April 11, 2016	Contain a leak in a secondary barrier so it is detected within a 30-day period	Interstitial monitoring
All Tanks (Must meet one of these four requirements)	Before April 11, 2016	Contain a leak in a secondary barrier so it is detected in a 30-day period	Interstitial monitoring
		Identify 0.2 gallon per hour (gph) release in a 30-day period	A test at least every 30-days or continuous testing with a or b, below a) Automatic tank gauge (static test) b) Continuous in-tank leak detection
		Ensure variation between beginning and ending product level measurements do not exceed weekly or monthly control standards	Manual tank gauging (for tanks 550 gallons or less and for tanks 551-1,000 gallons with 48- or 64-inch diameter may use as the sole method)
		Detect in appropriate monitoring wells: • Free product on groundwater • Significant increase in vapor concentration above background levels of the regulated substance stored in the tank or tracer compound added to the tank	Groundwater or vapor monitoring monthly
Tanks <sup>1</sup> Situated Aboveground that are Part of an UST System (May meet this requirement)	Before April 11, 2016	Check the surrounding area for staining, drips, and indications of impact by regulated product in the tank. Not allowed when the tank is located directly on or less than four inches aboveground, unless there is an impermeable barrier beneath the tank. The bottom of the AST must be located four inches or more above the ground, unless there is an impermeable barrier under the AST.	Visual-based assessment <sup>2</sup>  Note: As applicable at SPCC regulated facilities, visual-based assessments used to meet the SPCC requirements must be conducted in accordance with an industry standard such as STI SP001.

*Notes:*

Tanks, situated either aboveground or below ground, that are part of a regulated UST system installed or replaced after April 11, 2016, must be secondarily contained, and use interstitial monitoring. Statistical inventory reconciliation (SIR) and inventory control are not listed for use with EPG UST systems because they do not collect the type of data these methods collect for analyzing inventory, delivery, and dispensing data, as applicable, that is typically collected manually.

<sup>1</sup>These tanks may also be subject to the SPCC requirements at 40 CFR part 112.

<sup>2</sup> See page 32 for minimum required areas to check for visual-based inspections.

**Table 5: Nonoperational Piping Components**

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
Nonoperational Piping Components	Any date	No release detection requirements if below grade pipe run is located above the tank, product flow is unobstructed into tank, and these criteria are met: <ul style="list-style-type: none"> <li>• Does not routinely contain product</li> </ul>	N/A

Aboveground piping, while not subject to the technical prevention requirements, is subject to investigation and cleanup requirements of the federal UST regulation. It may also be subject to the SPCC requirements under 40 CFR part 112. Check with your UST implementing agency to determine whether it has more stringent requirements.

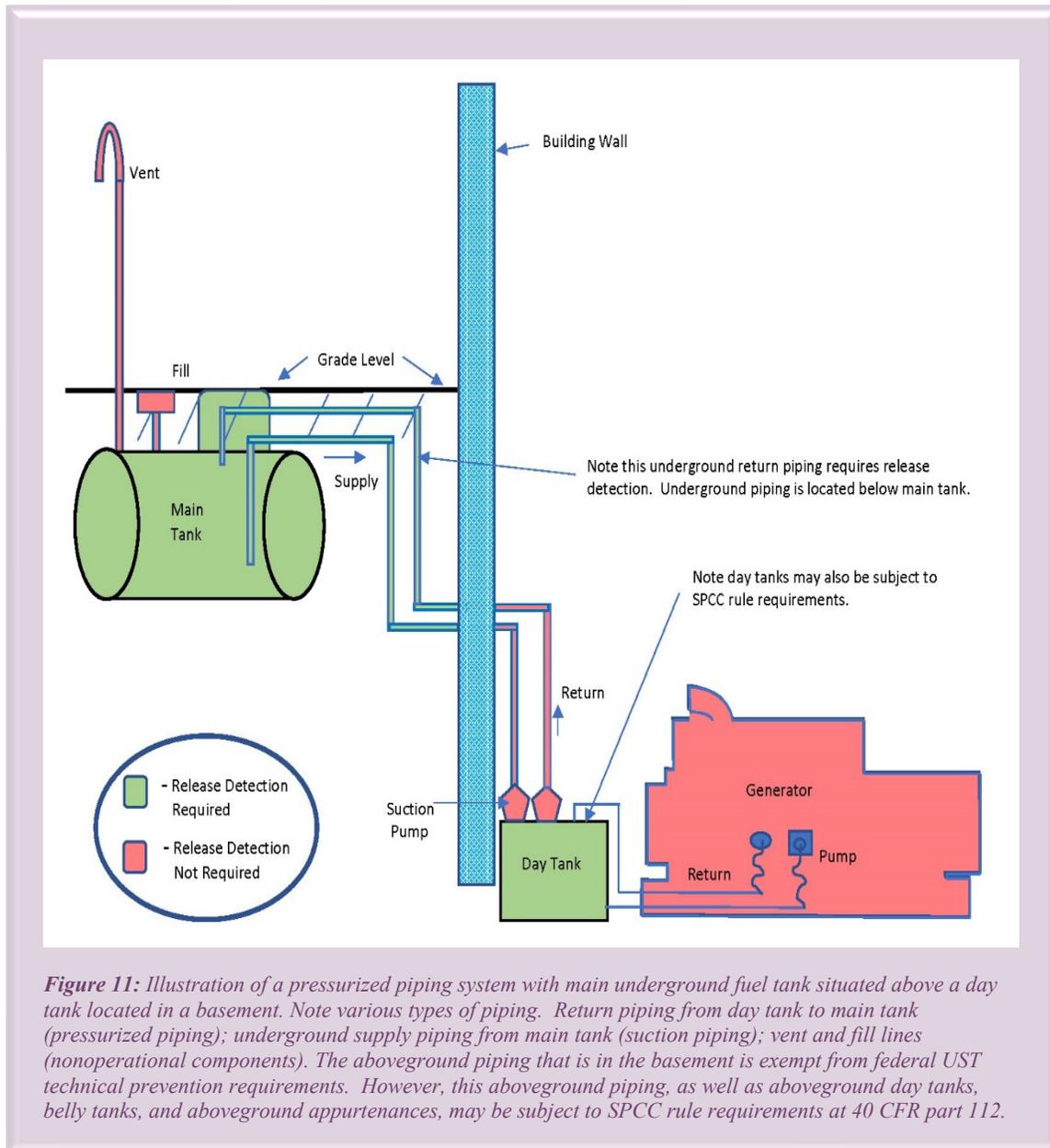
Some components and sections of piping, such as vent lines and fill lines, are considered nonoperational components. Because those components do not routinely contain product, release detection requirements do not apply.

For EPG UST system configurations where the underground piping is located above the main tank and product flow is assisted by a pump, underground return piping or overflow piping back to the main tank from the day tank or generator is a nonoperational component. There are no restrictions to product flow into the main tank from this type of piping. This piping functions as a fill line with the pump, like a pressurized delivery into fill lines at conventional UST locations. Release detection requirements do not apply.

Note that states may have more stringent requirements for this type of piping and other potentially designated nonoperational components. Owners and operators should check with their state UST implementing agencies to determine applicable requirements.

Figures 11 and 12 depict typical locations of suction piping and pressurized piping or a combination of these two types of regulated piping. They also show nonoperational components, such as vent lines and fill lines. Review these drawings carefully, especially to see how differences in positioning of the return line affect the

designation of the piping and determine whether release detection is required or not. Figure 11 shows return piping that does not meet the characteristics to be considered nonoperational. The underground return piping is located below the main tank and product flow in this piping is obstructed from freely flowing back into the day tank. The piping is considered as routinely containing product. Conversely, Figure 12 shows return piping considered nonoperational, provided the underground piping is located above the main tank and there are no restrictions to flow into the main tank.



**Figure 11:** Illustration of a pressurized piping system with main underground fuel tank situated above a day tank located in a basement. Note various types of piping. Return piping from day tank to main tank (pressurized piping); underground supply piping from main tank (suction piping); vent and fill lines (nonoperational components). The aboveground piping that is in the basement is exempt from federal UST technical prevention requirements. However, this aboveground piping, as well as aboveground day tanks, belly tanks, and aboveground appurtenances, may be subject to SPCC rule requirements at 40 CFR part 112.

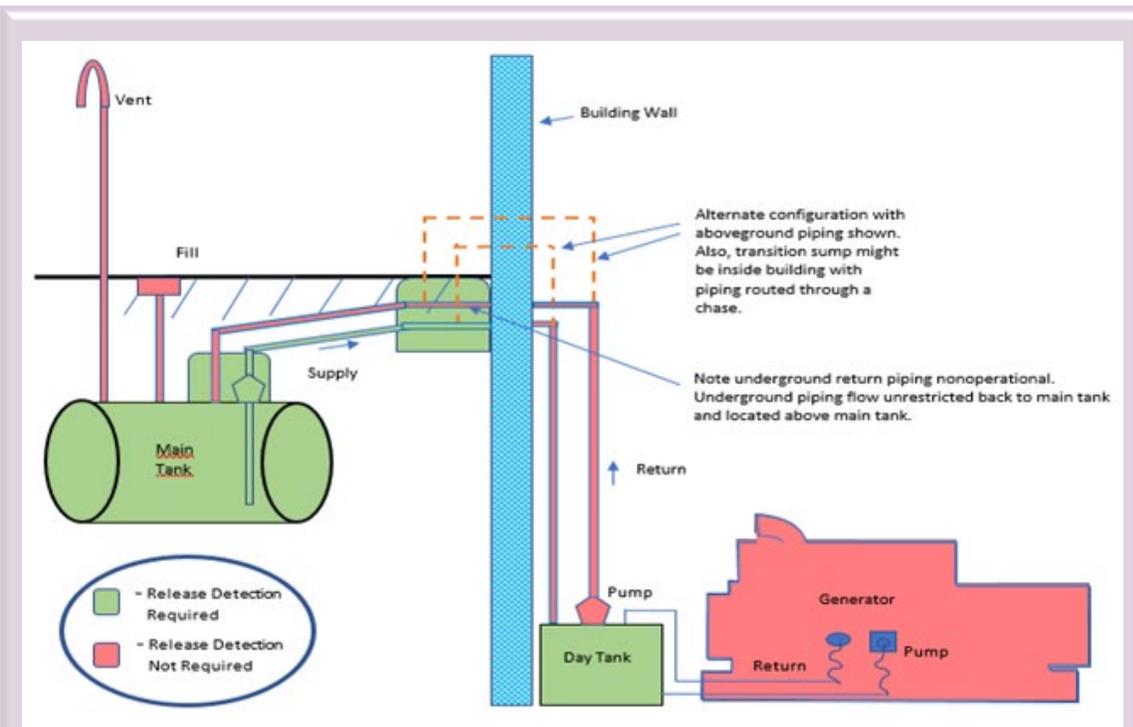


Figure 12: Illustration of a main underground fuel tank situated above a day tank located in a basement. Note various types of piping: return piping from day tank to main tank (pressurized piping); underground supply piping from main tank. The aboveground piping that is in the basement is exempt from federal UST technical prevention requirements. However, this aboveground piping may be subject (as well as aboveground day tanks/belly tanks and aboveground appurtenances) to SPCC rule requirements at 40 CFR part 112.

**Table 6: Suction Piping**

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
Suction Piping (must meet one of these requirements)	On or after April 11, 2016	Contain a leak in a secondary barrier so it is detected in a 30-day period	Interstitial monitoring
		No release detection required if you can readily determine these characteristics: <ul style="list-style-type: none"> <li>• Below-grade piping is sloped so that its contents will drain back into the storage tank if the suction is released</li> <li>• Each suction line has only one check valve which is located directly below the suction pump</li> <li>• System must operate at less than atmospheric pressure</li> </ul>	N/A

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
Suction Piping  (Must meet one of these three requirements)	Before April 11, 2016	30-day monitoring	Interstitial, groundwater or vapor monitoring, or other method accepted by implementing agency
		Line testing every 3 years	Line tightness test at 0.1 gallons per hour (gph)
		No release detection required if you can readily determine these characteristics: <ul style="list-style-type: none"> <li>• Below-grade piping is sloped so that its contents will drain back into the storage tank if the suction is released</li> <li>• Each suction line has only one check valve which is located directly below the suction pump</li> <li>• System must operate at less than atmospheric pressure</li> </ul>	N/A





*Figure 14: Sump containing submersible pump head, pressurized supply piping and a return pipe.*

**Table 7: Pressurized Piping**

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
<p><b>Pressurized Piping (Must meet the first two requirements or just the third requirement)</b></p>	<p>On or after April 11, 2016</p>	<p>Detect a 3 gph at 10 psi line pressure or equivalent release within 1 hour</p>	<p>Electronic line leak detector Continuous alarm system (in-line monitoring)</p>
		<p>Contain a leak in a secondary barrier so it is detected in a 30-day period</p>	<p>Liquid sensors in piping sumps Liquid sensors in transition or intermediate sumps Monitor interstice of double-walled pipe</p>
		<p>Meet dual requirements:</p> <ul style="list-style-type: none"> <li>• Detect a 3 gph at 10 psi line pressure or equivalent release within 1 hour, and</li> <li>• Contain a leak in a secondary barrier so it is detected in a 30-day period</li> </ul>	<p>Automated interstitial monitoring (AIM) systems - continuous alarm system monitoring) using one of three categories of AIM systems</p> <p>Category 1 Category 2 Category 3</p>
<p><b>Pressurized Piping (Must meet a combination of the first requirement plus one of the next four requirements)</b></p>	<p>Before April 11, 2016</p>	<p>Detect a 3 gph at 10 psi line pressure or equivalent release within 1 hour of occurrence</p>	<p>Electronic line leak detector Continuous alarm system (in-line monitoring)</p>
		<p>Contain a leak in a secondary barrier so it is detected in a 30-day period</p>	<p>Liquid sensors in piping sumps Liquid sensors in transition or intermediate sumps Monitor interstice of double-walled pipe</p>
		<p>Identify 0.2 gph release in a 30-day period</p>	<p>Electronic line leak detector</p>
		<p>Identify 0.1 gph release on an annual basis</p>	<p>Tightness test or electronic line leak detector</p>
		<p>Detect a release within 30-days in appropriate monitoring wells:</p> <ul style="list-style-type: none"> <li>• Free product on groundwater.</li> <li>• Significant increase in vapor concentration above background levels of the regulated substance stored in the tank</li> </ul>	<p>Groundwater or vapor monitoring</p>

UST Component	Installation Date of Component	Release Detection Performance Requirement	Method or Equipment Detecting Releases from UST Component
Pressurized Piping (Instead of the above combination of requirements, owners and operators of EPG UST systems may use an AIM system)	Before April 11, 2016	Meet dual requirements: <ul style="list-style-type: none"> <li>• Detect a 3 gph at 10 psi line pressure or equivalent release within 1 hour, and</li> <li>• Contain a leak in a secondary barrier so it is detected in a 30-day period</li> </ul>	Automated interstitial monitoring (AIM) systems - continuous alarm system monitoring) using one of three categories of AIM systems Category 1 AIM system Category 2 AIM system Category 3 AIM system

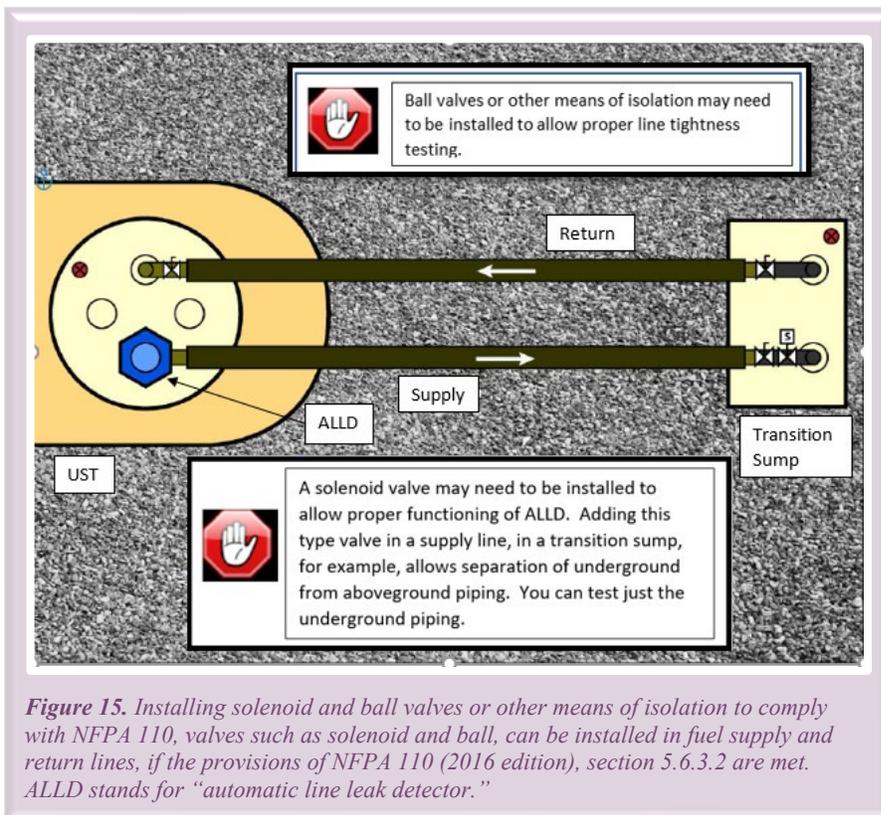


Figure 15. Installing solenoid and ball valves or other means of isolation to comply with NFPA 110, valves such as solenoid and ball, can be installed in fuel supply and return lines, if the provisions of NFPA 110 (2016 edition), section 5.6.3.2 are met. ALLD stands for “automatic line leak detector.”

**Warning:** Mechanical line leak detectors are allowable under the federal UST regulation. EPA strongly discourages use of these devices for EPG UST systems since they slow product flow. This could jeopardize safety in critical systems.

# How Must You Do Walkthrough Inspections?



As of October 13, 2018, you must conduct periodic walkthrough inspections of your EPG UST system to make sure your equipment is working properly and to find and correct problems early.

Every 30 days walkthrough inspections must cover:

- 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, including those for monthly visual-based assessments of applicable ASTs, such as the day tank and sub-base tank
  - Owners and operators who monitor their release detection system remotely may check the release detection equipment and records remotely if the release detection systems at the locations communicate with the remote monitoring equipment

Annually, walkthrough inspections must cover:

- Containment sumps
  - Visually check for damage, leaks to the containment area, and releases to the environment
  - Remove liquid from containment sumps
  - Remove debris

*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.*

*EPA's Operating and Maintaining Underground Storage Tank Systems at <http://www.epa.gov/ust/operating-and-maintaining-underground-storage-tank-systems-practical-help-and-checklists> provides additional information about operation and maintenance.*

- 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

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 all equipment in a manner comparable to the requirements above.

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

You must keep records of your walkthrough inspections for one year. See a sample checklist in Table 8 below.

### 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 the last inspection date on the form.

**Table 8: Sample Walkthrough Inspection Checklist**

Date of Inspection							
<b>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.)</b>							
Visually check spill prevention equipment for damage. Remove liquid and/or debris.							
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 monitoring, 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, including for visual-based assessments of applicable ASTs such as day tanks and sub-base tanks.							

Date of Inspection							
Required Every 30 Days When Using Visual-based Inspection for of ASTs (per § 280.43(i)(2))							
Check for external damage to the tank.							
Ensure no problems or damage to piping connections.							
Visually check for product leaks from the tank or piping connections in and around containment areas.							
Ensure no cracks or deformations to the tank pad, support structures, and containment areas that could allow leaked products to escape the containment areato the environment.							
Ensure there is no puddling of product around the base of the tank, or staining, or discoloration of the area, potentially indicative of a release from an observable portion of tank bottom.							
Required Annually							
Visually check containment sumps for damage and leaks to the containment area or releases to the environment.							
Remove liquid and-or debris in containment sumps.							
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.							

Date of Inspection							
Sample SPCC Required Inspections, As Applicable							
Check for external damage to the tank.							
Check for external damage to the tank, piping, valves and other appurtenances. Complete the other checklist requirements under SP001, as appropriate, to include the monthly and yearly checklist requirements.							
Ensure no problems or damage to piping connections.							
Visually check for product leaks from the tank or piping connections in and around containment areas.							
Ensure no cracks or deformations to the tank pad, support structures, and containment areas that could allow leaked products to escape the containment area. Ensure containment area is free of debris and that other items have not been placed in containment reducing containment volumes. For containment areas exposed to the elements, ensure all precipitation is removed from containment and inspected so no oil is discharged and is properly disposed in accordance with federal state and local requirements (See page 12 for additional reference to guidance under the SPCC program)							

Explain Actions Taken to Fix Issues	
Date	Issue Identified and Action Taken

# Is Your UST System Compatible 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.

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

As of October 13, 2018, you must notify your implementing agency at least 30 days before switching to any of these products and must demonstrate you 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
- A written statement from the manufacturer affirming the equipment or component is compatible with the regulated substance stored.

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*It is important for you to make sure your EPG UST system is compatible with the fuel stored in it.*

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*If 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.*

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*EPA's UST System Compatibility with Biofuels at [www.epa.gov/ust/ust-system-compatibility-biofuels](http://www.epa.gov/ust/ust-system-compatibility-biofuels) provides additional information about compatibility with biofuels and other regulated substances.*

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# What are the Operator Training Requirements?

As of October 13, 2018, you must have designated Class A, B, and C operators and train them on their UST responsibilities. These three classes of operators each have 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 a 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 facility maintenance personnel. Class C operator training must cover how to respond to an alarm or emergency presented by a spill or release from an UST system.

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

Operators may need to be retrained if the implementing agency determines during a compliance inspection, or other activity, that the UST system is not in compliance with the UST requirements.

You must keep a list of currently designated operators trained for each facility and proof of training or retraining for each operator. These records may be kept offsite, but readily able to be provided for inspection to the implementing agency upon request.

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

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

**To meet SPCC requirements, when applicable for ASTs, other training requirements may apply. See page 12 for link to SPCC requirements.**

# 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-and-regulations#industry](http://www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry) for industry codes and standards, primarily regarding belowground tanks. Aboveground tanks should be repaired, altered, or modified in accordance with applicable state and local code requirements and applicable industry standards, guidance, and specifications such as those published by NFPA, STI, API, UL, and PEI. An AST inspection or repair company may be able to assist in this regard.

Within 30 days of the repair, you must prove that the repaired tank is not leaking by:

- Having the tank inspected internally or tightness tested following standard industry codes; or
- Using one of the monthly release detection monitoring methods in the [Summary of Requirements and Considerations for Use section](#); 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.

## What's Required After Repairs are Made?

Within 30 days after repairs (according to a code of practice) 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 to a cathodic protection system, the cathodic protection must be tested to show that it is working properly.

## **Can Leaking Piping Be Repaired?**

Damaged metal piping cannot be repaired and must be replaced. Loose fittings can be tightened, which in some cases, may stop 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 (according to a code of practice) 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 replace 50 percent or more of your piping in a single piping run, the entire piping run must have secondary containment, unless piping meets the requirements for safe suction.

When the piping run is replaced, you must use interstitial monitoring for release detection. For pressurized piping, a piping run is all piping that connects the pressurized pump, such as the submersible turbine pump in the main tank or day tank return pump, to all regulated components fed by that pump. For suction piping, a piping run is the piping that connects the tank, including a day tank and a sub-base tank to the suction pump.

## **What Records Must you Keep?**

You must keep records for each repair until the UST is permanently closed or undergoes a change in service to store a non-regulated substance.

# What are Your Financial Responsibilities?



You must maintain documentation that shows you have the financial resources to clean up a release if it 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 <i>or</i> owners and operators who handle more than 10,000 gallons per month	\$1 million	\$1 million if you have 100 or fewer USTs  <i>Or</i>
All others	\$500,000	\$2 million if you have more than 100 USTs

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

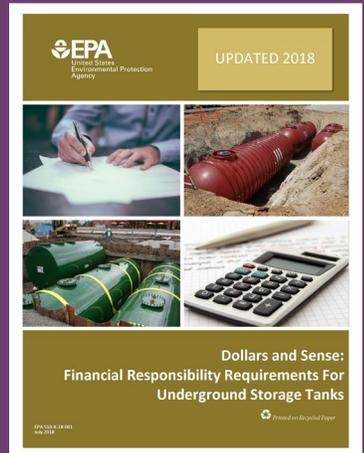
- Obtain insurance coverage from an insurer or a risk retention group;
- Use a financial test to demonstrate self-insurance; obtain corporate guarantees, surety bonds, or letters of credit;
- Place the required amount into a trust fund administered by a third party; or
- Rely on coverage provided by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

Local governments also have four additional options tailored to their specific characteristics:

- Bond rating test
- Financial test
- Guarantee
- Dedicated fund

The financial responsibility requirement is applicable for all EPG UST systems.

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



*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](http://www.epa.gov/ust/dollars-and-sense-financial-responsibility-requirements-underground-storage-tanks).*

# What Must You Do About UST Releases?



Warning signals may indicate that your UST is 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.

If you investigate an unusual operating condition or release detection alarm and determine within 24 hours that a release has not occurred, you do not need to report a suspected release if you immediately fix the problem. Otherwise, you need to call your implementing agency and report the suspected release. Check with your implementing agency, which may have more stringent reporting requirements. 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

*Unusual operating conditions may include erratic behavior of product pumps, sudden loss of product or line pressure, or alarms associated with release detection monitoring.*

must report this discovery immediately to your implementing agency and take the investigative steps and follow-up actions noted above.

## What's Required for Suspected Aboveground Releases?

If you detect weeping of product at a fitting or flange on the aboveground portion of a line before it transitions underground, you must address leaks and releases from UST systems or arising from the operation of the UST system under 40 CFR part 280. You must comply with the reporting and corrective action requirements under 40 CFR part 280 subparts E and F for leaks and releases from aboveground components of UST systems. The federal UST regulation requires different response actions for leaks compared to releases. If the leaked product reaches the environment, then it is considered a release. If it is not apparent whether a leak has reached the environment, you should address the leak as a suspected release and therefore must investigate to determine if the leaked product reached the environment.

For more information regarding the difference in response actions required for leaks versus releases, see the *UST Technical Compendium About the 2015 UST Regulations* at <https://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#above>. It provides illustrations on the differences between response actions under 40 CFR section 280.50(a) versus section 280.50(b), leaks versus releases, respectively.

In addition to the UST regulation, there may also be other applicable state and local reporting and cleanup requirements regarding aboveground releases. You should check with the UST implementing agency where the UST system is located to determine if the state has more stringent requirements than the federal UST requirements.

Also, if you operate any facility that discharges oil to navigable waters or adjoining shorelines, you are required to follow certain federal reporting requirements for oil discharges per the *Discharge of Oil regulation* more commonly known as the “sheen rule.” This Clean Water Act rule can be found at [40 CFR part 110](#). In general, 40 CFR part 110 requires that any person in charge of an onshore or offshore facility notify the [National Response Center \(NRC\)](#) immediately after he or she has knowledge of an oil discharge. [The NRC is the federal government's centralized reporting center, which is staffed 24 hours per day by U.S. Coast Guard personnel.](#)

*Aboveground release versus oil discharge...What is the difference.*

*In accordance with the UST regulation, aboveground release means any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of a UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system.*

*Clean Water Act programs use the term discharge to describe oil spills that reach navigable waters or adjoining shorelines and are also reportable under 40 CFR part 110 and possibly 40 CFR part 112.*

*Oil discharges that reach navigable waters must be reported to the NRC at 1-800-424-8802 or 1-202-426-2675.*

Finally, for facilities subject to the SPCC rule, there are additional reporting requirements under [40 CFR, part 112](#). See page 12 for a list of facilities the SPCC rule applies and a link to a guide about the SPCC regulation.

Your action to confirmed releases, under federal UST requirements, 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 (not impacting navigable waters) do not have to be reported if you immediately contain and clean up these releases. Check with your implementing agency since their reporting requirements might have a lower volume threshold.
- 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 vapors or direct contact with the soil pose no hazard to you or anyone else.
- If necessary, remove the petroleum from the UST system to prevent further release into the environment.
- Find out how far the released petroleum has moved and begin to recover the petroleum, such as products floating on the water table. Report your progress and any information you collect to your implementing agency no later than 20 days (or as directed by the implementing agency) 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 reporting spills, doing site assessments, and performing corrective actions.*

### **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.
- Make sure you implement the actions approved by your implementing agency.

# How Do You Close USTs?



You may close your UST temporarily or permanently when it is no longer needed.

## 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.
- As of October 13, 2018, your Class A, B, and C operators must be trained.
- If the temporarily closed UST is not empty<sup>1</sup>, you must also:
  - Continue to monitor for leaks by performing release detection.
  - Perform monthly walkthrough inspections for your release detection beginning October 13, 2018.
  - Perform annual inspections and tests of release detection equipment beginning October 13, 2018.
  - Perform three-year containment sump testing if using the containment sump for interstitial monitoring of the piping beginning 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:

<sup>1</sup> A 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.

*Facilities with USTs in temporary closure must have trained operators as of 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.

You can keep your UST closed temporarily for as long as 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. Check with your implementing agency and fire code for possible more stringent requirements.

## Closing Permanently

If you decide to close your UST permanently, you are required to:

- Notify your implementing agency 30 days before you permanently close your UST.
- Determine if contamination from your UST is present in the surrounding environment. If there is contamination, you will have to take the actions described in the [What Must You Do About UST Releases section](#).
- 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-ust-owners-and-operators#closure](http://www.epa.gov/ust/resources-ust-owners-and-operators#closure) for safe closure practices. 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.
- EPGs with aboveground components: piping, day tanks, belly tanks, and appurtenances which are subject to the SPCC rule may have additional permanent closure requirements (see page 12 for reference to more information on the SPCC program).

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

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

# What Records Must you Keep?



You must keep records to prove your facility meets certain requirements. Check with your implementing agency to determine if there are additional records you must keep. See Tables 1 and 2 for specific implementation dates for existing and new systems.

**Table 9: Required Records**

You Must Keep These Records:	For this Long:
<b>Spill and Overfill Prevention</b>	
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
<b>Corrosion Protection</b>	
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
<b>Release Detection</b>	
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
<b>Walkthrough Inspections</b>	
Records showing you performed periodic walkthrough inspections	One year
<b>Compatibility</b>	
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
<b>Operator Training</b>	
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
<b>Repairs</b>	
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
<b>Financial Responsibility</b>	
Records that document you have financial responsibility, as explained in EPA's booklet, <i>Dollars and Sense</i> <a href="http://www.epa.gov/ust/dollars-and-sense-financial-responsibility-requirements-underground-storage-tanks">www.epa.gov/ust/dollars-and-sense-financial-responsibility-requirements-underground-storage-tanks</a>	Until the UST system is permanently closed or undergoes a change-in-service
<b>Closure</b>	
Records of the site assessment results required for permanent closure	For at least three years after closing a UST

## Links for More Information



### EPA Documents About Release Detection Methods

- *Release Detection for Underground Storage Tanks and Piping: Straight Talk on Tanks:* [www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks](http://www.epa.gov/ust/release-detection-underground-storage-tanks-and-piping-straight-talk-tanks)
- *Owner and Operator Introduction: Automated Interstitial Monitoring Systems for Underground Pressurized Piping on Emergency Power Generator UST Systems:* <https://www.epa.gov/ust/owner-and-operator-introduction-automated-interstitial-monitoring-systems-underground>
- *In-Depth Discussion: Automated Interstitial Monitoring Systems for Underground Pressurized Piping on Emergency Power Generator UST Systems:* <https://www.epa.gov/ust/depth-discussion-automated-interstitial-monitoring-systems-underground-pressurized-piping>

### EPA Websites with UST Information

- U.S. Environmental Protection Agency's underground storage tanks website: [www.epa.gov/ust](http://www.epa.gov/ust)
- EPA's *UST Technical Compendium about the 2015 UST Regulation:* [www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation](http://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation)
- State UST program contact information: [www.epa.gov/ust/underground-storage-tank-ust-contacts#states](http://www.epa.gov/ust/underground-storage-tank-ust-contacts#states)
- Industry codes and standards: [www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry](http://www.epa.gov/ust/underground-storage-tanks-usts-laws-and-regulations#industry)

### EPA Websites with SPCC and Oil Discharge Reporting Information

- U.S. Environmental Protection Agency's Spill Prevention, Controls, and Countermeasures (SPCC) website: <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations>
- U.S. Environmental Protection Agency's Oil Discharge Reporting Requirements: <https://www.epa.gov/emergency-response/oil-discharge-reporting-requirements>

## **Other UST Organizations**

- Tanks Subcommittee of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO): <http://astswmo.org/tanks/>
- New England Interstate Water Pollution Control Commission (NEIWPC): [www.neiwpc.org](http://www.neiwpc.org)

## **National Work Group on Leak Detection Evaluations**

- <http://nwgldc.org/>