



Department of  
**Environment &  
Conservation**

# 2018 UST Rule Changes- Contractor Series- 2<sup>nd</sup> Round

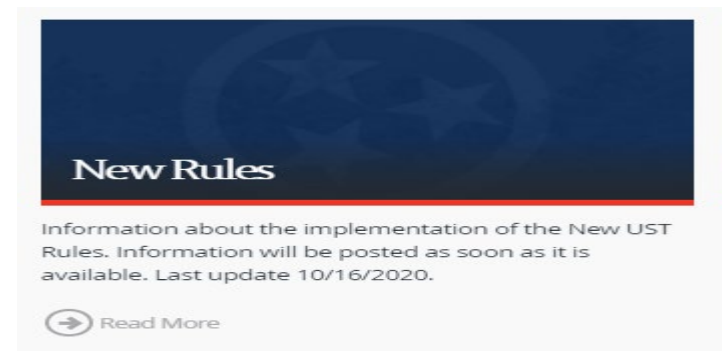
Emergency Generator/Dual Use Tank Systems

David Stone, Mac Pointer and Don Taylor

September 16, 2021

# 2018 UST Rule Changes - Contractor Series – 2<sup>nd</sup> Round

- Spill & overfill testing: August 19, 2021
- Sump Testing and Repairs: August 26, 2021
- Release detection: September 2, 2021
- Walkthrough inspections: September 9, 2021
- Generators/dual use tanks: September 16, 2021
- <https://www.tn.gov/environment/program-areas/ust-underground-storage-tanks/ust/new-rules.html>



# Disclaimer

The State of Tennessee does not endorse any specific brands, manufacturers, or vendors of equipment, products or services.

Any brand names mentioned or depicted of any equipment, products, or services in this presentation are used for illustrative purposes only and are neither endorsements nor recommendations for such equipment, products, or services and shall not be construed as such.

# Today's topics

- Emergency Power Generator (EPG) UST System Regulatory History in TN
- Typical EPG UST System Diagrams
- Summary of EPG UST System Release Detection Requirements
- Unique Issues with EPG UST Systems
- Dual Purpose UST Systems
- Other 2018 UST Rule changes that will impact EPG and Dual-Purpose UST systems
- EPG UST System Guidance Documents

# Emergency Power Generator (EPG) UST System Regulatory History in Tennessee

# EPG UST system Regs– prior to July 24, 2007

Deferrals. Rule 1200-1-15-.04 does not apply to any UST system that stores fuel solely for use by emergency power generators.

# EPG UST system Regs - July 24, 2007

Deferrals – Emergency generator tanks.

1. Except as provided for in parts 2 through 3 of this subparagraph, release detection for use by emergency power generators.
2. New tanks or pressurized piping components of an emergency generator UST system installed on or after the effective date of this rule, shall be secondarily contained and be equipped with interstitial monitoring in accordance with rule 1200-1-15-.02(2)(a) and (b).
3. Tank or piping components of an emergency generator UST system replaced on or after the effective date of this rule, shall be secondarily contained and be equipped with interstitial monitoring in accordance with rule 1200-1-15-.02(2)(a) and (b) and (6). However, if the replacement piping meets the requirements for suction piping set forth in rule 1200-1-15-.04(2)(b)2, the piping components do not have to be secondarily contained.

# EPG UST system Regs - 2012

## Deferrals – Emergency generator UST systems.

1. Except as provided for in part 2 of this subparagraph, release detection requirements in Rule 0400-18-01-.04 do not apply to any UST system that stores fuel solely for use by emergency power generators.
2. New tanks and piping components of an emergency generator UST system installed on or after July 24, 2007, shall be secondarily contained and be equipped with interstitial monitoring in accordance with subparagraphs (2)(a) and (b) and paragraph (6) of Rule 0400-18-01-.02. However, if the new or replacement piping meets the requirements for safe suction piping set forth in part (2)(b)2 of Rule 0400-18-01-.04, the piping components do not have to be secondarily contained.



# EPG UST system Regs – October 13, 2018

Program scope: applicability.

(a) The requirements of this chapter apply to all owners and/or operators of an UST system as defined in paragraph (4) of this rule except as otherwise provided in subparagraphs (b) and (c) of this paragraph. Any UST systems listed in part (b)1. of this paragraph shall meet the requirements of part (b)2. of this paragraph.

1. UST systems that store fuel solely for use by emergency power generators must meet the requirements of this chapter; provided that the release detection requirements in Rule 0400-18-01-.04 apply to:

(i) Those systems installed on or before the effective date of this rule no later than three years after the effective date of this rule; provided, that those systems may comply prior to such date; and

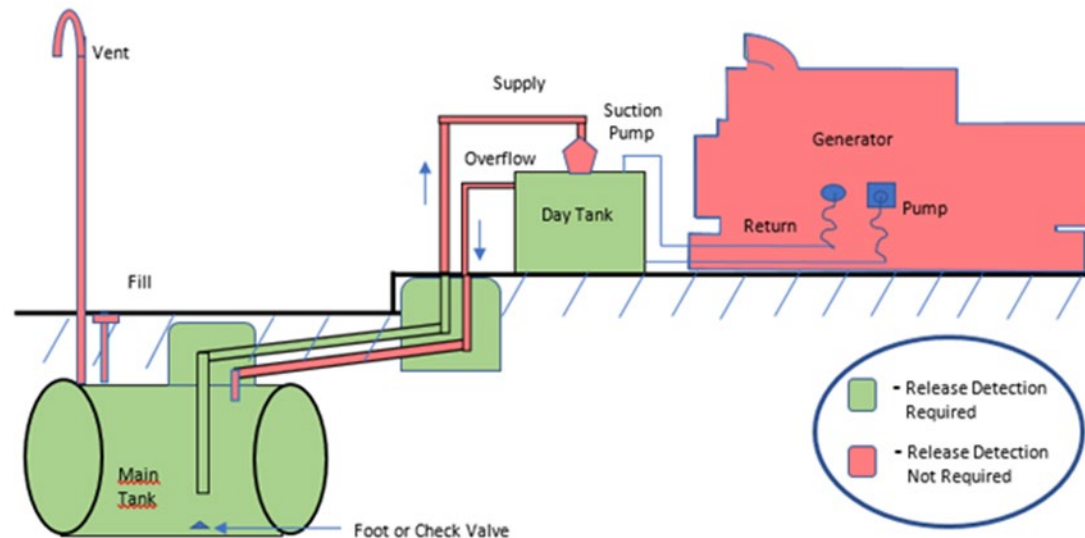
(ii) Those systems installed after the effective date of this rule at installation.

2. Airport hydrant fuel distribution systems and UST systems with field-constructed tanks must meet the requirements in Rule 0400-18-01-.17.

# Typical EPG UST System Diagrams

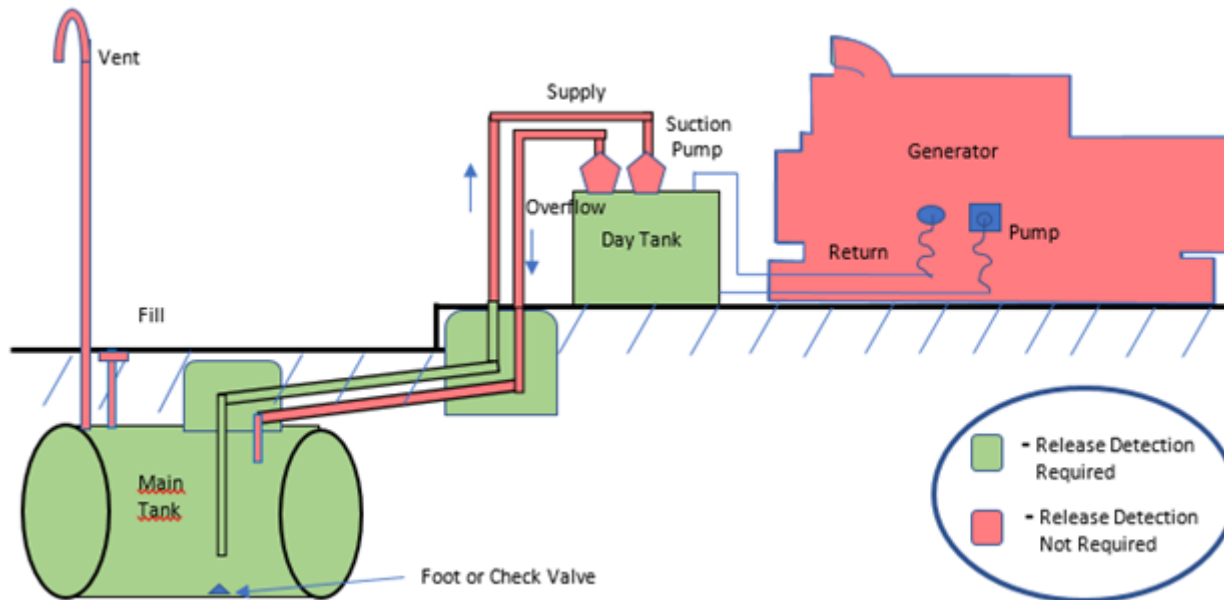
# Typical EPG UST System Diagrams

Main fuel tank below day tank. Overflow piping from day tank WITHOUT PUMP (gravity feed piping is nonoperational component); underground supply piping from main tank (suction piping); vent and fill lines (nonoperational components)



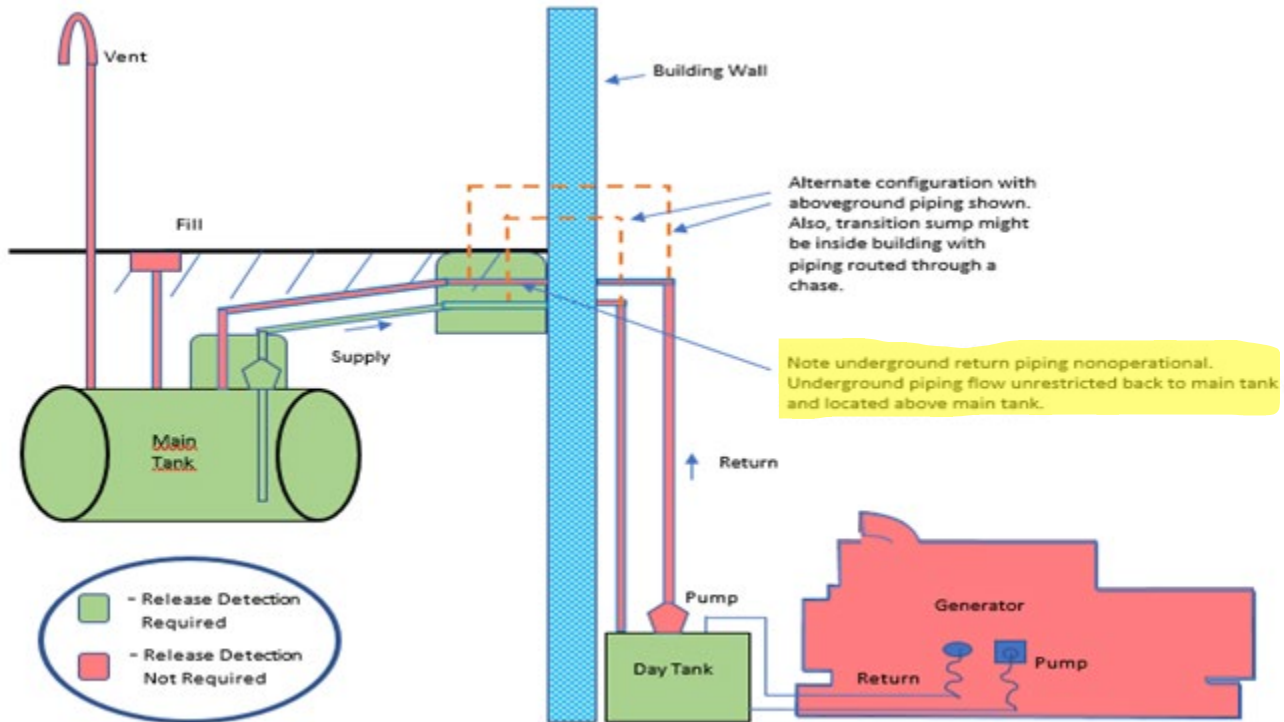
# Typical EPG UST System Diagrams

Main fuel tank below day tank. Overflow piping from day tank with pump (nonoperational component); underground supply piping from main tank (suction piping); vent and fill lines (nonoperational components)



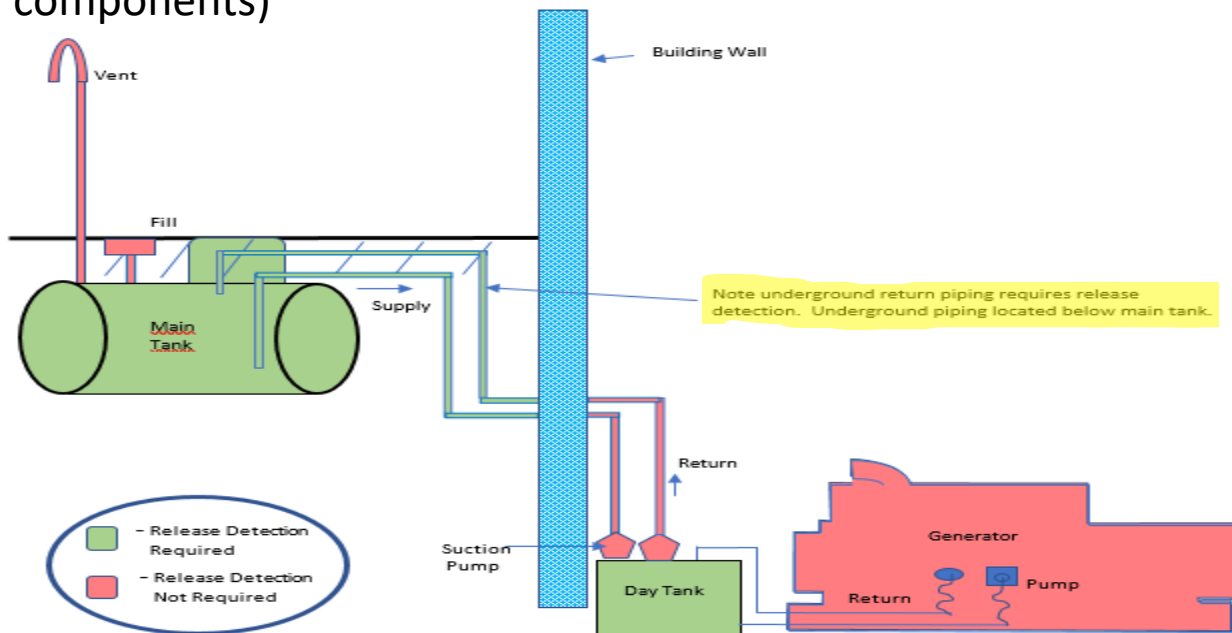
# Typical EPG UST System Diagrams

Main fuel tank above day tank. Return piping from day tank to main tank (pressurized piping); underground supply piping from main tank (pressurized piping); vent and fill lines (nonoperational components)



# Typical EPG UST System Diagrams

Main fuel tank above day tank. Return piping from day tank to main tank (pressurized piping); underground supply piping from main tank (suction piping); vent and fill lines (nonoperational components)



# Did you notice something unusual in the diagrams?



# What is a nonoperational component?

- For EPG UST system configurations where the underground piping is located above the main tank and product flow is assisted by 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, similar to a pressurized delivery into fill lines at conventional UST locations. Release detection requirements do not apply.
- Note that other States may have more stringent requirements for gravity feed piping and other potentially designated nonoperational components, regardless of installation date. Owners and operators should check with their state UST implementing agencies to determine applicable requirements.



# Do day tanks and belly tanks require release detection?

- “Underground storage tank” or “UST” means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of petroleum, and the volume of which (including the volume of underground pipes connected thereto) is 10% or more beneath the surface of the ground.
- <https://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#generators>

# Summary of EPG UST System Release Detection Requirements

# Summary of EPG UST system release detection requirements

Installation Date	Main Tanks	Day Tanks and Belly Tanks	Pressurized Piping	US Suction Piping	Safe Suction Piping
Prior to July 24, 2007	Statistical Inventory Reconciliation (SIR)*; <u>or</u> Automatic Tank Gauge; <u>or</u> Interstitial Monitoring (IM)**	Statistical Inventory Reconciliation (SIR)*; <u>or</u> Automatic Tank Gauge; <u>or</u> Interstitial Monitoring (IM)**; <u>or</u> Visual (part of monthly walkthrough inspection)	Automatic Line Leak Detector (ALLD); <u>and</u> Annual Line Tightness Test; <u>or</u> Monthly Monitoring (SIR) (IM**)	Line Tightness Test (every 3 years)	None
On or After July 24, 2007	Interstitial Monitoring	Interstitial Monitoring	ALLD; <u>and</u> Interstitial Monitoring	Interstitial Monitoring	None

# Summary of EPG UST system release detection requirements

- In order to assist owners, operators, and contractors in determining what methods of release detection are required at EPG UST system facilities, the Division will enlist EPG/Dual Purpose UST Systems sub-committee members to conduct compliance assistance inspections along with the routine compliance inspections and issue Return to Compliance Plans if needed based on the committee findings.
- This process will be like the Division's Return to Compliance Plans developed at marinas with UST systems.

# Unique Issues with EPG UST Systems

Verification of Safe Suction Piping

# Unique Issues – Verification of “Safe Suction” Pipe

- May need to verify “safe suction” on supply lines.
- This is like the “safe suction” verifications previously required for suction dispensers.
- Methods to determine “safe suction” piping:
  - Break union and verify that product drains back to the tank; or
  - Installation Records that verify the following:
    - (i) The below-grade piping operates at less than atmospheric pressure;
    - (ii) The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;
    - (iii) Only one check valve is included in each suction line;
    - (iv) The check valve is located directly below and as close as practical to the pump

# Unique Issues with EPG UST Systems

Level 1 EPG Systems and Automatically Actuated Valves

# Unique Issues – Level 1 EPG and Valves

- NFPA 110 4.4.1 Level 1 systems shall be installed where failure of the equipment to perform could result in loss of human life or serious injuries.
- 4.4.2 Level 2 systems shall be installed where failure of the EPSS to perform is less critical to human life and safety.



# Unique Issues – Level 1 EPG and Valves

- NFPA 110 7.9.13, indicates that “automatically actuated valves shall not be permitted in the fuel oil supply or fuel oil return lines for Level 1 emergency power supply systems”.
- However, Section 5.6.3.2 indicates that “solenoid valves, where used, both in the fuel line from the supply or day tank closest to the generator set and in the water-cooling lines shall operate from battery voltage. Solenoid valves shall have a manual (nonelectric) operator, or a manual bypass valve shall be provided. The manual bypass valve shall be visible and accessible, and its purpose identified. The fuel bypass valve shall not be the valve used for malfunction or emergency shutdown.”

# Unique Issues – Level 1 EPG and Valves

- Although these two provisions appear to conflict—one specifically allowing and one generally restricting the use of a valve in the fuel lines—discussions with NFPA concluded that for UST regulatory purposes of meeting the underground pressurized piping requirement, UST system owners and operators may rely on section 5.6.3.2, which specifically indicates that a solenoid valve is allowed.
- When owners and operators meet the UST requirement for pressurized piping release detection by installing a solenoid valve to isolate underground piping from aboveground piping and comply with NFPA 110, owners and operators must install a solenoid valve with a manual or nonelectric operator or a manual bypass valve.

# Unique Issues – Level 1 EPG and Valves

- Owners and operators should not use mechanical line leak detectors because they function by restricting product flow. The Division strongly recommends owners and operators use an electronic line leak detector that can sound an alarm instead of restricting or shutting off flow of product to the day tank.

# Unique Issues with EPG UST Systems

Unattended and Partially Unattended Facilities

# Unique Issues – Unattended and Partially Unattended Facilities

- Unattended facilities must have a designated Class A and Class B Operator but are not required to have designated operators on site. Class C Operator requirements for unattended facilities may be met by the designated Class B Operator who is also trained as the designated Class C Operator. The designated Class B/C Operator must respond to all emergencies and **alarms** caused by spills or releases from the underground storage tank facility.
- A facility that is unattended part of the time will be required to follow normal Class C Operator requirements during the times the facility is attended and the requirements in the bullet above during the time the facility is unattended.

# Unique Issues – Unattended and Partially Unattended Facilities



# Unique Issues – Unattended and Partially Unattended Facilities

- Like the previous slide, one may also philosophically question if an EPG UST system alarms and the operator is not around to hear it does it make a sound?
- So, for unattended or partially unattended EPG UST system facilities the Division recommends an auto-dialer, or similar device, to alert the Class A/B operator of alarms.
- The Division also recommends these devices at attended EPG UST system facilities where the release detection console(s) can not be monitored by the Class C operator. (ex. in a building or other location than that the operator's primary work area)

# Unique Issues with EPG UST Systems

Automatic Line Leak Detectors for Pressurized Pipe



# Unique Issues – ALLD for Pressurized Pipe

- Some EPG UST system pressurized pumps and piping are not designed to accommodate an automatic line leak detector as required by Rule 0400-18-01-.04(4).
- Automated Interstitial Monitoring (AIM) monitors pressure, vacuum, or liquid levels or use liquid-detecting sensors located in containment sumps that are part of secondarily contained piping systems to meet federal release detection requirements for pressurized piping.
- The AIM system is designed to meet the combined requirements for an automatic line leak detector (ALLD) - 3 gph @ 10 psi within 1-hour and for monthly (i.e., every 30-days) interstitial monitoring of double-walled piping.

# Unique Issues – ALLD for Pressurized Pipe

- The piping must be of double-walled construction and designed for secondary containment (e.g., meet UL 971). Piping installed within PVC pipe or an access pipe or chase would not work unless both the inner and outer walls have been evaluated and listed under UL 971. Chase piping that was not manufactured or intended to be used as secondary containment (e.g., corrugated chase piping, and PVC pipe) will not meet this requirement.
- AIM is currently under development and more detailed requirements should be available soon.

# Dual Purpose Tanks

# Dual-Purpose Tanks

- “Dual purpose tank” refers to a tank which is used to produce heat in permanently installed heating equipment *and* used for the generation of power in a power-outage emergency. Emergency generator tanks may be exempt from UST regulations if one of the petroleum products listed in the definition of heating oil is stored in the tank [petroleum that is No.1, No. 2, No.4-light, No. 4-heavy, No. 5-light, No. 5-heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel and Bunker C); and other fuels when used as substitutes for one of these fuel oils] and is used for the operation of heating equipment, boilers or furnaces for consumption on the premises where stored.

# Dual-Purpose Tanks

- In late 2017, the United States Environmental Protection Agency (EPA) notified the Division that diesel is no longer considered a substitute, therefore, many UST systems that were originally interpreted as exempt may now be subject to regulatory requirements. The type of fuel used and where that fuel is consumed are the two main factors to consider when regulating dual use tanks.

# Dual-Purpose Tanks

- Determining Regulated Status:
  - There are no restrictions on the use of heating oil under the exclusion, except that it be used consumptively on-site. Chapter 0400-18-01-.01 has the following definition: “Consumption” with respect to heating oil means consumed on the premises where stored. It is commonly agreed upon that the fuel used for dual use tanks is consumed on the premises, which leads us to determine the type of fuel used. The type of fuel delivered will determine how to regulate a dual use tank, depending on whether it is No. 2 fuel oil or diesel fuel.

# Dual-Purpose Tanks

- What does all this mean?
  - If the product stored in a “dual-purpose tank” is No. 2 fuel oil or diesel fuel, the tank system is regulated and subject to the same regulatory requirements as an emergency power generator system.

# Other Rule Changes Affecting EPG UST Systems



# Other Rule Changes- Spill/Overfill Testing

- Rule 0400-18-01-.02(3)(c) requires the spill prevention equipment to be tested at least once every three years to ensure the equipment is liquid tight by using vacuum, pressure, or liquid testing.
- Rule 0400-18-01-.02(3)(c) requires overfill prevention equipment to be inspected at least once every three years. At a minimum, the inspection must ensure that overfill prevention equipment is set to activate at the correct level and that it will activate when petroleum reaches that level.
- These requirements apply to all new UST systems installed on or after October 13, 2018 at installation and to all UST systems installed prior to October 13, 2018 by October 13, 2021. All records of testing or inspection must be maintained for three years

# Other Rule Changes- IM Pipe Sump Testing

- Rule 0400-18-01-.04(4)(c)(1) requires the containment sumps used for interstitial monitoring of piping which are single walled or double walled with a dry interstice and periodically monitored are tested at least once every three years to ensure the equipment is liquid tight by using vacuum, pressure, or liquid testing.
- This requirement applies to all new UST systems installed on or after October 13, 2018 at installation and to all UST piping systems using interstitial monitoring (IM) for piping release detection installed prior to October 13, 2018 by October 13, 2021. The results of any sampling, testing, or monitoring shall be maintained for at least one (1) year.

# Other Rule Changes- Walkthrough Inspections

- Rule 0400-18-01-.02(8) requires monthly and annual walkthrough inspections.
- This requirement applies to all UST systems by October 13, 2021. Owners and/or operators must maintain records of operation and maintenance walkthrough inspections for one (1) year.

# Other Rule Changes- Walkthrough Inspections

- Monthly Walkthrough:
  - 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; and, for double walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area.
  - Release detection equipment – check to make sure the release detection equipment is operating with no alarms or other unusual operating conditions present; and ensure records of release detection testing are reviewed and current.

# Other Rule Changes- Walkthrough Inspections

- Annual Walkthrough:
  - Containment sumps – visually check for damage, leaks to the containment area, or releases to the environment; remove liquid (in contained sumps) or debris; and, for double walled sumps with interstitial monitoring, check for a leak in the interstitial area.
  - Hand held release detection equipment – check devices such as tank gauge sticks or groundwater bailers for operability and serviceability;

# Other Rule Changes- Electronic and Mechanical Release Detection Equipment Testing

- Rule 0400-18-01-.04(1)(a)3 requires electronic and mechanical components to be tested for proper operation at least annually, and at a minimum cover the following components and criteria:
  - Automatic tank gauge and other controllers: test alarm; verify system configuration; test battery backup;
  - Probes and sensors: inspect for residual buildup; ensure floats move freely; ensure shaft is not damaged; ensure cables are free of kinks and breaks; test alarm operability and communication with controller;
  - Automatic line leak detector: test operation to meet criteria in subparagraph (4)(a) by simulating a leak; and
  - Vacuum pumps and pressure gauges: ensure proper communication with and controller.

# Other Rule Changes- Electronic and Mechanical Release Detection Equipment Testing

- The electronic and mechanical components testing requirements apply to all new UST systems installed on or after October 13, 2018 at installation and to all UST systems installed prior to October 13, 2018 by October 13, 2021.
- Rule 0400-18-01-.04(5)(b)2 requires the results of testing conducted in accordance with part (1)(a)3. of this rule shall be maintained for three years.

# EPG UST System Guidance Documents

 EPA  
United States  
Environmental Protection  
Agency



**Requirements For Emergency Power  
Generator UST Systems**

EPA 510-K-17-xxx  
Month 2021

 Printed on Recycled Paper



# EPG UST System Guidance Documents



## Atypical Systems

### Standardized Inspection Manual

#### Section 2.2

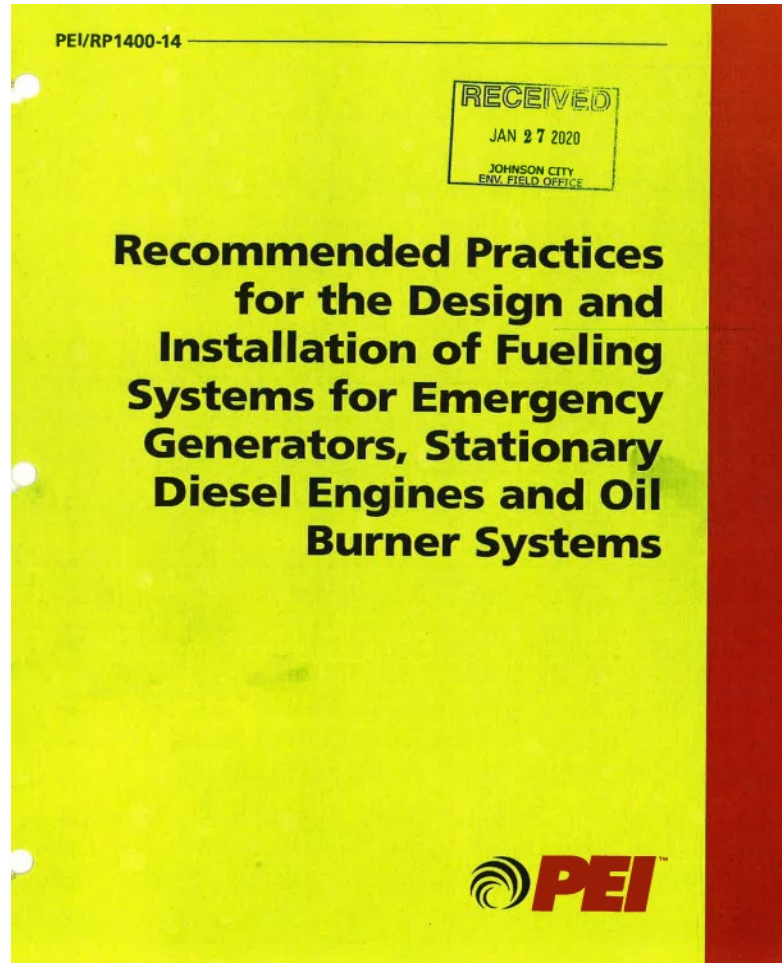
Tennessee Department of Environment & Conservation

Division of Underground Storage Tanks

Rules Effective October 13, 2018

Document Last Edited: 1/13/2021

# EPG UST System Guidance Documents



# Resources and outreach

- UST webpage
  - Google “TDEC UST”
  - Click on first listing
  - New rules link top center
  - <https://www.tn.gov/environment/program-areas/ust-underground-storage-tanks/ust/new-rules.html>
- Monthly newsletter
  - [Send name and email to: Mitzie.Berry@tn.gov](mailto:Mitzie.Berry@tn.gov) to subscribe
- Send feedback to [Tanks.UST@tn.gov](mailto:Tanks.UST@tn.gov)

# Thank you for your participation

- David Stone
  - (865) 315-2323
  - [J.David.Stone@tn.gov](mailto:J.David.Stone@tn.gov)
- Mac Pointer
  - (931) 337-1772
  - [Frank.Pointer@tn.gov](mailto:Frank.Pointer@tn.gov)
- Don Taylor
  - (423) 309-1599
  - [Don.Taylor@tn.gov](mailto:Don.Taylor@tn.gov)

