Operating and Maintaining UST Systems

Bureau of Underground Storage Tank Regulations (BUSTR)

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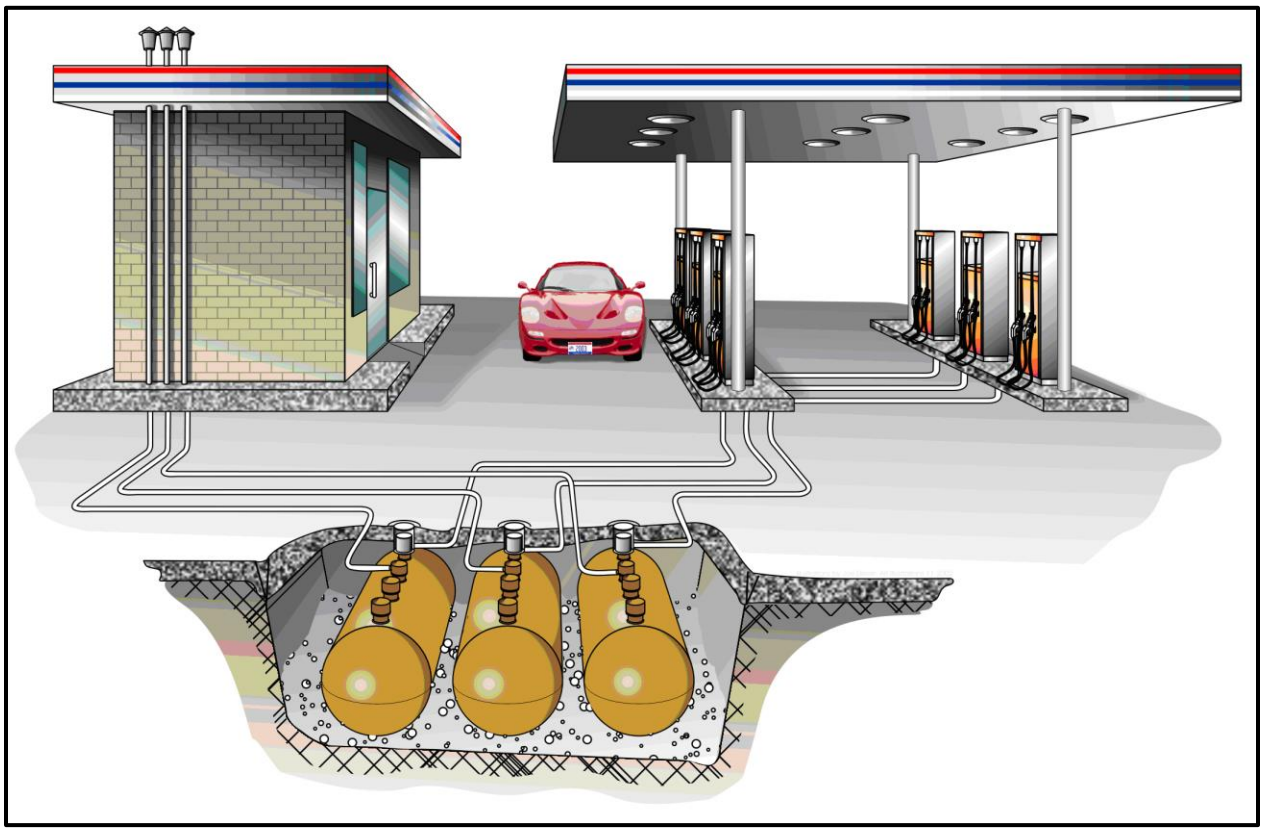


Fig. 1 - Cross sectional view of gas station

Table of Contents

The Purpose of this Guidance

Federal law requires the Division of State Fire Marshal, Bureau of Underground Storage Tank Regulations (BUSTR) to inspect your underground storage tank (UST) systems every three years. When BUSTR inspects your site, we will ask you to provide records demonstrating that you are in compliance. This guidance summarizes the steps to follow to properly operate and maintain your UST system and the records to keep to show that you are in compliance.

The Compliance Inspection Process

When BUSTR is at your site, we will examine the area where the USTs and dispensers are located. We will need access to tank top and dispenser containment sumps. BUSTR will ask you to provide proof that the following components and records are properly maintained:

- Release Detection Equipment
- Containment Sump Equipment
- Spill Prevention Equipment
- Overfill Prevention Equipment
- Corrosion Protection Equipment
- Operator Training Records
- Registration and Financial Responsibility Records
- Walkthrough Inspection Records

Strategy for Staying in Compliance

BUSTR recommends you review this guidance and do one of the following:

- Comply with the requirements yourself by setting up a schedule to make sure that you monitor your UST system to ensure that you comply with each of the requirements.
- Contact a Certified UST Installer or your service contractor and enter into an agreement with them to monitor your UST system to ensure that you comply with each of the requirements.

What to do First

To get things moving, first identify the equipment at your facility. Next, determine if your UST system is allowed to be single wall, or if your UST system is required to be double walled. See Appendices **I** and **II** for forms you can use to identify the equipment at your facility and for additional information you can use to verify your system configuration.

What are the basics of UST System Release Detection?

Release detection is the most important operational requirement you need to perform on your UST system. BUSTR regulations require all UST systems to be equipped with release detection. Also, release detection must be properly operated and maintained. Release detection applies to the following components:

- USTs
- Piping
- Containment Sumps

What are the basics of UST (i.e. Tank) Release Detection?

Newer USTs, specifically the tank portion of UST systems, shall meet secondary containment requirements (e.g. shall be double wall and shall use interstitial monitoring). Older USTs, installed prior to May 16, 2011, may be single wall and may use other methods of release detection such as:

- Interstitial monitoring (with secondary containment)
- Automatic tank gauging systems
- Continuous in-tank leak detection
- Statistical inventory reconciliation
- Manual tank gauging (for tanks under 2,000-gallons only)

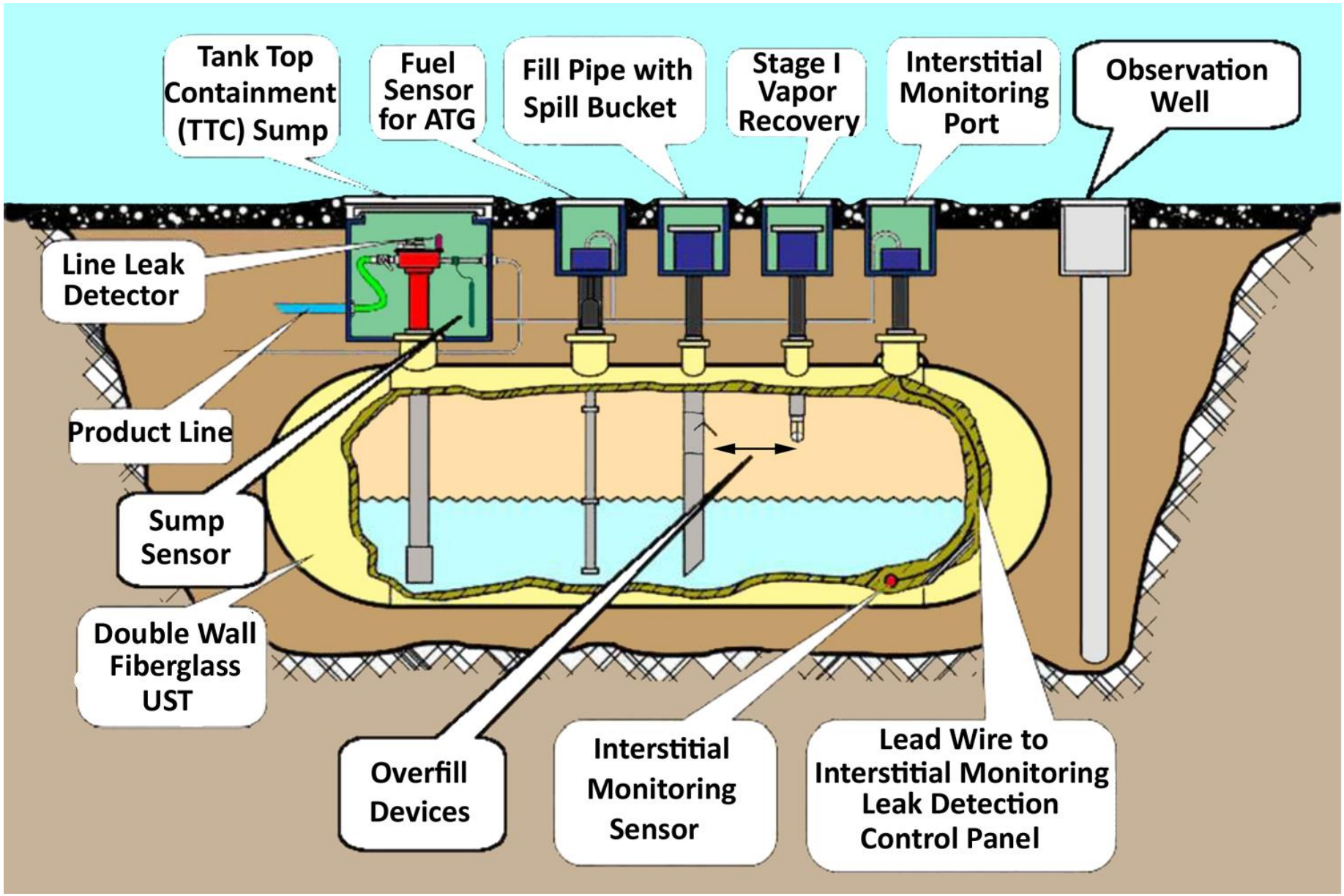
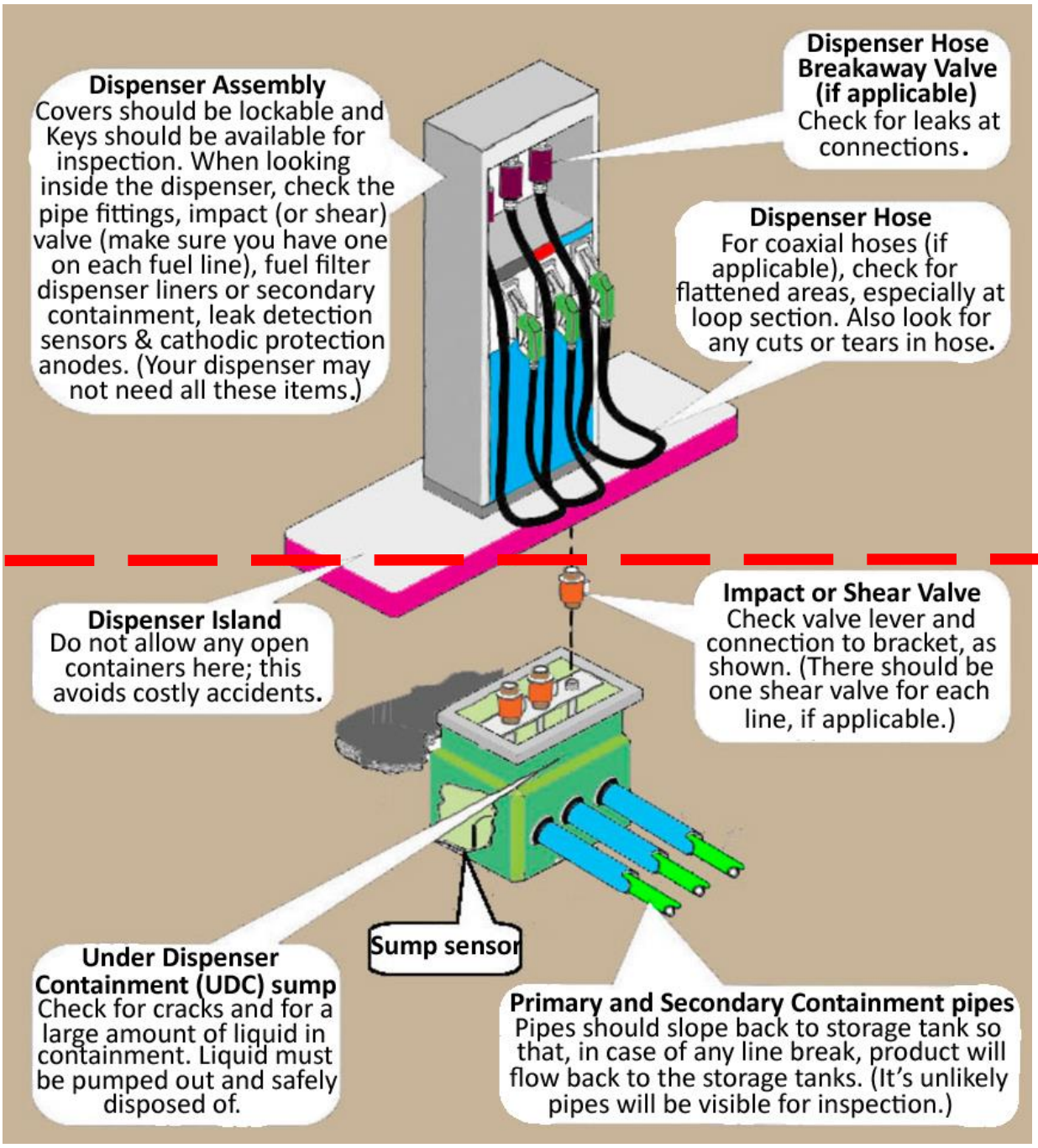


Fig. 2 - Cross section of double wall UST

Fig. 3 - Expanded view of dispenser & dispenser containment sump



Checklist For Secondary Containment With Interstitial Monitoring (For Tanks)

Description	Secondarily-contained UST systems have an inner and outer barrier with an interstitial space that is monitored for leaks. Interstitial monitoring for tanks shall detect a release through the inner wall in any portion of the tank that routinely contains a regulated substance as follows: • An automatic monitoring device must operate continuously and signal the operator if a failure occurs. • The interstice must be checked at least once a month at the bottom of the interstitial space and show no indication of failure. See **Appendix I** for additional information and sample forms.
Perform These O&M Actions	☐ Use your release detection system to test for leaks at least every month. ☐ Dry interstitial monitoring - Can be performed with an automatic sensing device, vacuum or by manually sticking the space for the presence of product and/or water. ☐ Brine interstitial monitoring - Can be monitored with an automatic sensing device or by checking the reservoir for an increase or decrease of the brine solution, indicating breach of the inner or outer wall may have occurred. ☐ You are required to inspect and test your release detection system every year in accordance with the manufacturer's requirements. At a minimum, you must inspect probes and sensors for residual build-up, ensure floats move freely, ensure the shaft is not damaged, ensure accessible cables are free of kinks and breaks, and test alarm operability and communication with the controller. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your release detection ever fails a test or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Checklist For Automatic Tank Gauging Systems (For Tanks)

Description	An automatic tank gauging (ATG) system consists of a probe permanently installed in a tank and wired to a monitor to provide information on product level and temperature. ATG systems automatically calculate the changes in product volume that can indicate a leaking tank.
Perform These O&M Actions	☐ Use your ATG system to test for leaks at least every month. ☐ Make sure the amount of product in your tank is sufficient to run the ATG leak test. The tank must contain a minimum amount of product to perform a valid leak test. One source for determining that minimum amount is the performance documentation for your release detection equipment. ☐ You are required to inspect and test your release detection system every year in accordance with the manufacturer's requirements. At a minimum, test the alarm, battery back-up, and verify the system configuration. For probes and sensors, you must inspect for residual build-up, ensure floats move freely, ensure the shaft is not damaged, ensure accessible cables are free of kinks and breaks, and test alarm operability and communication with controller. See **Appendix I** for additional information and sample form. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your ATG ever fails a test or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Fig. 4 - Automatic tank gauging (ATG)

By J. Feeman

Checklist For Continuous In-Tank Leak Detection (For Tanks)

Description	Continuous in-tank leak detection (CITLD) encompasses all statistically based methods where the system incrementally gathers measurements on an uninterrupted or nearly uninterrupted basis to determine a tank's leak status. There are two major groups that fit into this category: • Continuous statistical leak detection (also referred to as continuous automatic tank gauging methods). • Continual reconciliation. Both groups typically use sensors permanently installed in the tank to obtain inventory measurements. They are combined with a microprocessor in the ATG system or other control console that processes the data. CITLD must operate on an uninterrupted basis or operate within a process that allows the system to gather incremental measurements to determine the leak status of the tank at least once every month.
Perform These O&M Actions	☐ Use your ATG system to test for leaks at least every month. ☐ Make sure the amount of product in your tank is sufficient to run the ATG leak test. The tank must contain a minimum amount of product to perform a valid leak test. One source for determining that minimum amount is the performance documentation for your release detection equipment. ☐ You are required to inspect and test your release detection system every year in accordance with the manufacturer's requirements. At a minimum, test the alarm, battery back-up, and verify the system configuration. For probes and sensors, you must inspect for residual build-up, ensure floats move freely, ensure the shaft is not damaged, ensure accessible cables are free of kinks and breaks, and test alarm operability and communication with controller. See **Appendix I** for additional information and sample form. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your ATG ever fails a test or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Checklist For Statistical Inventory Reconciliation (For Tanks)

Description	Statistical inventory reconciliation (SIR) is typically a method in which a trained professional uses sophisticated computer software to conduct a statistical analysis of inventory, delivery and dispensing data. • You must supply the professional with data every month. Computer programs enable an owner or operator to perform SIR. In either case, the result of the analysis may be pass, inconclusive or fail. • SIR **<u>may not be used</u>** to meet release detection requirements for piping.
Perform These O&M Actions	☐ In order to use SIR, you must use a qualified vendor. A list of vendors may be found at: http://nwglde.org/ ☐ Each day, measure the product level using a gauge stick or other tank level monitor, keep records of all gallons dispensed and deliveries to the tank. Each month, you will submit the data to the SIR Vendor for processing. Each month, the SIR Vendor will provide a result of pass, fail or inconclusive for the tank back to you for your records. See approved vendor for additional information and form. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. Also, you must document compliance with annual checks of hand held release detection equipment (i.e. gauging stick). ☐ If you use ATG to collect your data, you are required to inspect and test your release detection system every year in accordance with the manufacturers requirements. At a minimum, test the alarm, battery back-up, and verify the system configuration. For probes and sensors, you must inspect for residual build-up, ensure floats move freely, ensure the shaft is not damaged, ensure accessible cables are free of kinks and breaks, and test alarm operability and communication with controller. See **Appendix I** for additional information and sample form. ☐ If your SIR method ever fails a test, indicates a release or provides an inconclusive result, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Checklist For Manual Tank Gauging and Tank Tightness Testing (For Tanks 1,000 Gallons Or Less)

Description	Manual tank gauging involves a person sticking the tank and watching for a drop-in liquid levels. This method is for small tanks of 1,000-gallons or less and requires the tank to be out of service for 36-58 hours each week. This method may be used only for tanks of 1,000 gallons or less capacity meeting certain requirements: • 550 gallons or less (No additional requirements) • 551-1000 gallons (Diameter is 48-inches) • 551-1000 gallons (Diameter is 64-inches) • 551-1000 gallons (Alternate diameter, tightness test every five-years)
Perform These O&M Actions	☐ Once a week take an inventory reading at the beginning of the test and a second reading at the end of the test. See **page 39 in Appendix I** for additional information and sample forms. Between the readings, allow the tank to sit undisturbed for the time specified in the manual tank gauging record. ☐ Reconcile the numbers weekly and record them on a manual tank gauging record. ☐ At the end of four weeks, reconcile your records for the monthly standard and record the result on a manual tank gauging record. ☐ Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height. ☐ For tanks 551-1000 gallons, with alternative diameters, conduct a tank tightness test at least every five years. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. Also, you must document compliance with annual checks of hand held release detection equipment (i.e. gauging stick). ☐ If your tank fails the weekly standard or monthly standard, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. ☐ Documentation of five-year tank tightness test, if applicable. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Checklist For Manual Tank Gauging and Tank Tightness Testing (For Tanks 1,001-2,000 Gallons)

Description	Manual tank gauging involves a person sticking the tank and watching for a drop-in liquid levels. This method is for small tanks of 1,001-2000 gallons and requires the tank to be out of service for 36 hours each week.
Perform These O&M Actions	☐ Once a week take an inventory reading at the beginning of the test and a second reading at the end of the test. See **page 39 in Appendix I** for additional information and sample forms. Between the readings, allow the tank to sit undisturbed for a 36-hour time period. ☐ Reconcile the numbers weekly and record them on a manual tank gauging record. ☐ At the end of four weeks, reconcile your records for the monthly standard and record the result on a manual tank gauging record. ☐ Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height. ☐ Conduct a tank tightness test at least every five years. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. Also, you must document compliance with annual checks of hand held release detection equipment (i.e. gauging stick). ☐ If your tank fails the tightness test, weekly standard, or monthly standard, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. ☐ Documentation of five-year tank tightness test. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

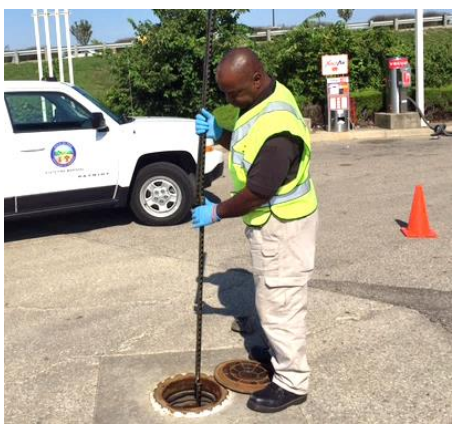


Fig. 5 - manual tank gauging (MTG)

By A. Myers

What are the basics of Piping Release Detection?

Most releases can be attributed to problems with piping. Piping may be found in a number of different styles and configurations; though most fit into one of the following categories:

- Newer piping that routinely contains product under pressure (installed after March 1, 2005) shall be double wall and shall use continuous interstitial monitoring. In most cases, interstitial monitoring is performed using a sensor in a containment sump. See **page 16** for an overview of how sensors should be installed, operated and maintained.

- Older piping that routinely contains product under pressure (installed prior to March 1, 2005) may be single wall and is not required to use interstitial monitoring. However, existing single wall piping that undergoes modification or major repair activities may be required to be equipped with secondary containment. A description of the conditions that could trigger retrofit requirements may be found in **Appendix IV**.

- Piping that routinely contains product under pressure, regardless of age, shall be equipped with automatic line leak detectors (ALLDs). In addition, pressure piping shall undergo periodic tightness testing (or equivalent).

- Safe suction piping, regardless of age, is not required to have release detection. Suction piping not using a safe suction configuration must undergo periodic tightness testing. See checklist on **page 18** or suction piping requirements.

Fig. 6 - line & automatic line leak detector (ALLD) testing

By J. Feeman

Checklist For Secondary Containment With Interstitial Monitoring (For Piping)

Description	Secondarily-contained piping has an inner and outer barrier with an interstitial space that is monitored for leaks. Interstitial monitoring shall detect a release through the inner wall of the piping that routinely contains a regulated substance. An automatic monitoring device must operate continuously and signal the operator if a failure occurs.
Perform These O&M Actions	☐ Continuous monitoring with piping is normally accomplished by utilizing a containment sump and sensor. ☐ In order to demonstrate continuous monitoring, you must do the following: • Affirm there are no holes in the bottom or sidewalls of containment sumps. • Affirm the sensors are installed, continuously functioning and maintained in the containment sumps per manufacturer's recommendations or an approved Code of Practice. • Affirm procedures are in place to assure any alarms from sump sensors are evaluated within 24 hours. ☐ You are required to inspect and test your release detection system every year in accordance with the manufacturer's requirements. At a minimum, you must inspect sensors for residual build-up, ensure floats move freely, ensure accessible cables are free of kinks and breaks, and test alarm operability and communication with the controller. See **Appendix I** for additional information and sample form. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your release detection ever fails a test or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of continuous monitoring of sumps or secondarily contained piping. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Checklist For Automatic Line Leak Detection (For Pressurized Piping)

Description	Automatic line leak detectors (LLDs) are designed to detect a catastrophic leak from pressurized piping. Automatic LLDs must be designed to detect a leak at least as small as three gallons per hour (gph) at a line pressure of 10 pounds per square inch within one hour. When a leak is detected, automatic LLDs must shut off the product flow, restrict the product flow, or trigger an audible or visual alarm. • Please note that mechanical LLDs need to be installed and operated as close as possible to the tank. LLDs are designed to detect a leak, restrict flow, or trigger an alarm.
Perform These O&M Actions	☐ If you have mechanical line leak detectors (MLLD), check for 'slow flow'. Customers will generally complain of slow product flow. ☐ If you have electronic line leak detectors (ELLD), respond immediately to any alarms on your ATG system. Do not silence or ignore the alarm. ☐ Annually you must test your LLDs by simulating a leak. Be sure to utilize a qualified person to perform this annual test. See **Appendix I** for sample form. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your LLDs detect a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of LLD test results. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

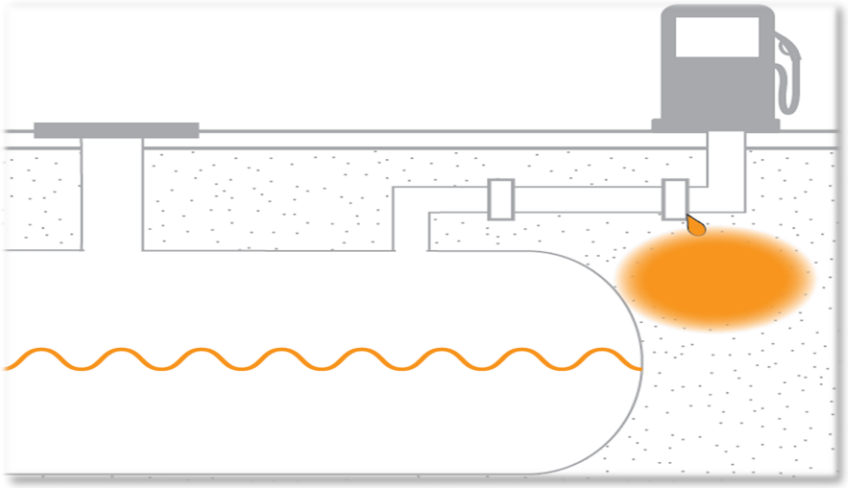


Fig. 7 - Line leaks are the leading cause of releases

Checklist For Line Tightness Testing (For Piping)

Description	This method uses a periodic line tightness test to determine if your piping is leaking. Tightness testing can be performed by a qualified person or by using a permanently installed electronic line leak detector, which is sometimes connected to an automatic tank gauging system: • This checklist is for normal operational compliance only. • This checklist **is not a substitute** for third party tightness testing as part of construction activities or release investigations.
Perform These O&M Actions	☐ If you have pressurized piping and use line tightness testing, you must conduct the test at least annually using a qualified person. See **Appendix I** sample form. ☐ If you have an electronic line leak detector (ELLD) installed, you shall obtain a monthly passing 0.2 gph test result from the onsite ATG system. ☐ If you have a mechanical line leak detector (MLLD) installed, you shall conduct an annual tightness test of the line by a qualified person. ☐ If you have safe suction piping with a check valve immediately below the dispensing unit, no tightness testing is required. ☐ If you have non-safe suction piping (e.g. foot valve, in-line check valve, etc.), you must conduct a line tightness test every three years. ☐ All line tightness tests must be conducted by qualified personnel. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with release detection at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your piping fails the tightness test or if the electronic system indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. ☐ A permit is not required to perform routine checks or maintenance on release detection equipment, though a permit may be required to replace an entire release detection system.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly release detection monitoring of pressure piping, if applicable. ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of annual pressure piping tightness test, if applicable. **3-years:** ☐ Documentation of annual calibration of release detection equipment. ☐ Documentation of three-year tightness test of non-safe suction piping. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

What are the basics of Containment Sump Operation and Release Detection?

It is important to determine if your UST system is required to have containment sumps. Many older UST systems are not required to be equipped with containment sumps; and as a result, any sumps that may be present are not required to be equipped with release detection. The following UST systems are required to be equipped with containment sumps and a method of sump release detection:

- All UST systems installed after March 1, 2005
- UST systems (installed prior to March 1, 2005) that undergo retrofit activities pursuant to Rule 1301:7-9-07(C) of the Administrative Code.
- All UST systems where the containment sump serves as part of an interstitial monitoring system.
- All UST systems containing hazardous substances pursuant to rule 1301:7-9-03 of the Administrative Code.

Fig. 8 - under dispenser containment (UDC)

By J. Feeman

If you own or operate an UST system that is not required to have containment sumps, you are obligated to inspect all sumps that may be present at the site at least once a year. These sumps shall be inspected for evidence of gross failure and any water, debris or regulated substances shall be removed and properly disposed of.

If you own or operate an UST system that is required to have containment sumps, the following checklist provides a summary of the requirements that apply to you.

Fig. 9 -top tank containment (TTC) sump undergoing new construction

By S Parsons

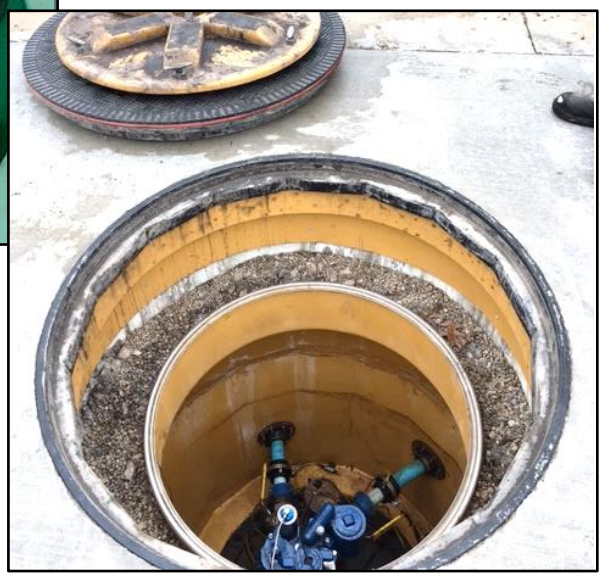


Fig. 10 -top tank containment (TTC) sump at an active facility

By J. Feeman

Checklist For UST Systems Required To Have Containment Sumps

Description	The purpose of containment sumps is to catch leaks before any contamination can escape into the environment. • Containment sumps are liquid tight containers located at tank tops, under dispensers and other locations (i.e. piping transitions). • Containment sumps normally house pipe connections, valves and flex lines. • Most containment sumps are required to be equipped with sensors that can detect leaks in the sump.
Perform These O&M Actions	☐ See **page 19** for a description of USTs systems required to have containment sumps. ☐ All required containment sumps shall be equipped and continuously monitored with sump sensors (except a small number of containments subject to certain retrofit requirements). ☐ In order to demonstrate continuous monitoring, you must do the following: • Affirm there are no holes in the bottom or sidewalls of containment sumps. • Affirm the sensors are installed, continuously functioning and maintained in the containment sumps per manufacturer's recommendations or an approved Code of Practice. • Affirm procedures are in place to assure any alarms from sump sensors are evaluated within 24 hours. ☐ On an annual basis, you must do the following: • Visually check containment sumps for damage and leaks. • Visually check containment sumps for releases to the environment. • Remove liquid and debris from containment sumps. • For double-walled containment sumps with interstitial monitoring, check for a leak in the interstitial area. ☐ Every three years, all required containment sumps shall be tested for tightness. See **page 45 in Appendix I** for additional information and sample form. ☐ If you use a double-walled containment sump and check the interstitial space during walkthrough inspections, then this testing is not required. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with continuous release detection at least every month. Also, you must document compliance with annual checks of required containment sumps. See **page 30 and Appendix I** for more information about these required walkthrough inspections. ☐ If your release detection ever fails a test or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor or maintain the release detection system know exactly what they must do and to whom to report problems. ☐ If you line a containment sump, you must first obtain a modification permit from BUSTR and you must obtain approval from the manufacturer of the containment sump.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of continuous monitoring of sumps or secondarily contained piping. **3-years:** ☐ Documentation of three-year tightness test of containment sumps. ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

What are the basics of Spill Protection?

Your USTs must have spill prevention equipment (also called spill buckets or catchment basins) installed at the fill pipe to contain small-volume spills that may occur because of fuel deliveries.

People sometimes ask who is responsible to ensure that spills do not occur during fuel deliveries to USTs. If a violation of the law exists, BUSTR will pursue the owner and operator. BUSTR realizes the delivery driver may be the only person present during a spill; however, state and federal laws clearly state it is the responsibility of the UST owner and operator to ensure spills do not occur. Therefore, BUSTR encourages owners and operators to keep their spill prevention equipment in proper working order and to choose petroleum distributors who employ well trained delivery drivers.

Note: Existing UST systems installed prior to March 1, 2005, that were filled with transfers of no more than twenty-five gallons at one time are not required to be equipped to meet spill prevention requirements. However, owners and operators are still obligated to monitor their UST systems to minimize the chance of spills into the environment.

Fig. 11 - Fuel delivery

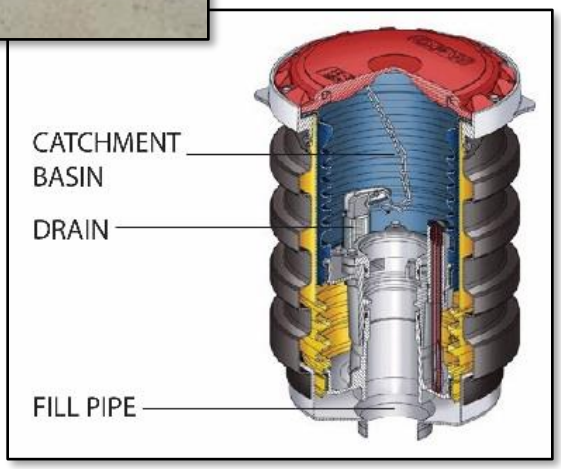


Fig. 12 - Spill prenvention equipment (spill bucket)

Checklist For Spill Protection Equipment

Description	Spill buckets are basins installed at the fill pipe to temporarily contain product spills that may occur during fuel delivery. Spill buckets may be single-walled or double-walled.
Perform These O&M Actions	☐ To demonstrate compliance with spill prevention, before each delivery, conduct the following: • Visually check for any damage to the spill bucket. • Remove any liquid or debris from the spill bucket. • Check for and remove any obstructions, such as tank gauging sticks, in the fill pipe. • Make sure your fill cap is securely fastened. • If you have a double-walled spill bucket with interstitial monitoring, check your interstitial monitoring device for a leak into the interstitial area. ☐ No later than October 13, 2018, you must complete a walkthrough inspection form and document compliance with spill prevention requirements at least every month. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ Note that if you receive deliveries less frequently than every 30 days, you may check your spill bucket before and after each delivery. ☐ No later than October 13, 2018, you must conduct the first 3-year test of your spill bucket. This test should be conducted by a person qualified to conduct spill bucket testing. If you use a double-walled spill bucket and check the interstitial space of your spill bucket for leaks during the walkthrough inspection, then this testing is not required. See **page 47 in Appendix I** for additional information and sample form. ☐ If you see signs of a spill, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ A permit is not required to perform routine checks or replace of spill prevention equipment; however, a permit may be required if work is performed at the point where a riser pipe connects to a bung at the tank top.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. **3-years:** ☐ Documentation of three-year tightness test of spill buckets. ☐ Documentation of annual calibration of interstitial sensors, if applicable. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Fig. 13 - Vacuum tightness test on a spill bucket

What are the basics of Overfill Protection?

Your USTs must have overfill protection equipment installed to help prevent overfilling of tanks. Three types of overfill protection devices are commonly used:

- Automatic shutoff devices
- Overfill alarms
- Ball float valves, also referred to as flow restrictors or float vent valves

People sometimes ask who is responsible to ensure that overfills do not occur during fuel deliveries to USTs. If a violation of the law exists, BUSTR will pursue the owner and operator. BUSTR realizes the delivery driver may be the only person present during an overfill; however, state and federal laws clearly state it is the responsibility of the UST owner and operator to ensure overfills do not occur. Therefore, BUSTR encourages owners and operators to keep their overfill prevention equipment in proper working order and to choose petroleum distributors who employ well trained delivery drivers.

Note: Ball float valves cannot be installed or replaced for use as overfill protection after **September 1, 2017**. However, you may continue using ball float valves already installed as long as they operate properly.

Note: Existing UST systems installed prior to March 1, 2005, that were filled with transfers of no more than twenty-five gallons at one time are not required to be equipped to meet overfill prevention requirements. However, owners and operators are still obligated to monitor their UST systems to minimize the chance of overfills into the environment.

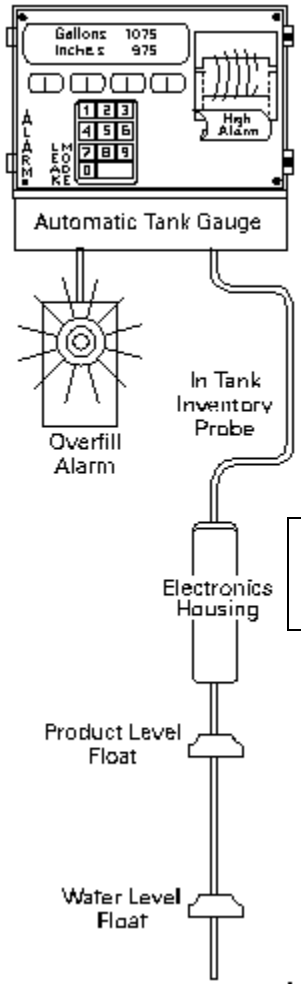


Fig. 14 – ATG with probe & overfill alarm

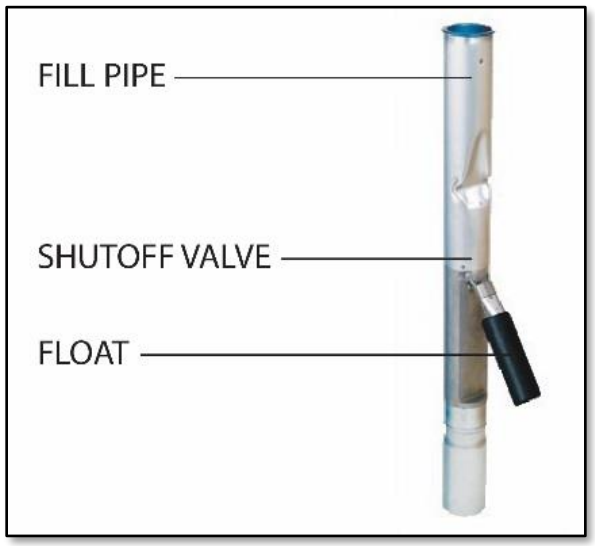


Fig. 15 - Automatic shutoff devices 'drop tube flapper'

Checklist For Overfill Protection Equipment

Description	Automatic shutoff devices (i.e. drop tube flapper) are mechanical devices installed in the fill pipe riser to slow down and stop delivery when product reaches 95% of the tanks capacity or before the fittings at the top of the tank are exposed to fuel. Overfill alarms activate an audible and/or visual warning to delivery personnel when the tank is either 90 percent full or is within one minute of being overfilled. Electronic overfill alarm devices have no mechanism to shut off or restrict flow. Ball float valves (i.e. ball vent) are a type of overfill protection device that function by restricting vapor flow in an UST vent line during delivery at 90% of UST's capacity or 30 minutes prior to over filling.
Perform These O&M Actions	☐ At all times, you must ensure that releases due to overfilling do not occur. ☐ In order to demonstrate proper overfill prevention you must do the following: • Ensure your overfill equipment is installed and configured properly. • Ensure that the volume available in the tank is greater than the volume of product to be transferred. • Ensure the transfer operation is monitored continuously. ☐ No later than October 13, 2018, you must conduct the first 3-year inspection of your overfill device. This inspection should be conducted per the manufacturer's recommendations or code of practice. See **page 48 in Appendix I** for additional information and sample form. ☐ In general, automatic shutoff devices should be inspected to: • Ensure the float operates properly. • Ensure there are no obstructions in the fill pipe that would keep the floating mechanism from working. ☐ In general, electronic overfill alarms should be inspected to: • Ensure that the alarm can be heard or seen from where the tank is fueled. • Ensure that the electronic device and probe are operating properly. ☐ In general, ball float valves should be inspected to: • Ensure the air hole is not plugged. • Ensure the ball cage is still intact. • Ensure the ball still moves freely in the cage. • Ensure the ball still seals tightly on the pipe. ☐ You should post signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility. ☐ If you see signs of an overfill, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ A permit is not required to perform routine checks or replace overfill prevention equipment; however, a permit may be required if work is performed at the point where a riser pipe connects to a bung at the tank top.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. **3-years:** ☐ Documentation of three-year inspection of overfill prevention equipment. ☐ Documentation of annual calibration of ATG probe and alarm, if applicable. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

What are the basics of Corrosion Protection?

Fig. 16 - STiP3 tank

To prevent leaks, all metal parts of your UST system that are in contact with the ground (e.g. covered by earthen material) and routinely contain a regulated substance must be protected from corrosion.

One way to protect UST components from corrosion is to make them with non-metallic or non-corrodible materials such as USTs that are made of clad steel or jacketed steel or with fiberglass reinforced plastic. However, UST components made from metal that are in contact with the ground (and routinely contain regulated substances) must have corrosion protection. The most common methods of corrosion protection are:

- Sacrificial anode systems attached to UST components
- Impressed current systems providing a direct current through anodes to UST components

Fig. 17 – Impressed current panel

Notes: In the past, BUSTR regulations allowed the interior of metal USTs to be lined to meet corrosion protection requirements. As of May 16, 2011, BUSTR regulations no longer allowed the use of lining to meet corrosion protection requirements. Existing metal USTs that are lined may continue to operate provided the lining passes a periodic inspection.

People sometimes ask if they can repair holes in a metal UST.

Holes may be repaired provided you comply with the manufacturer's instructions or codes of practice developed by nationally recognized associations, independent testing laboratories or other industry best practices. In addition, you will need to consult with a corrosion expert to determine if the holes (or the method used to fix the holes) will adversely affect the corrosion protection system on the metal UST.

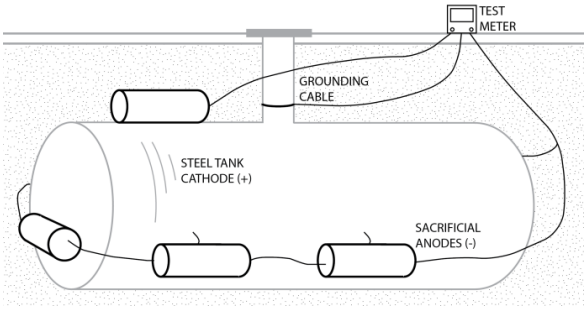


Fig. 18 – Sacrificial anodes

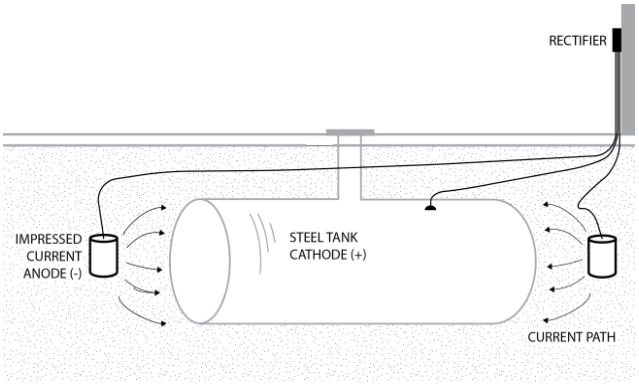


Fig. 19 – Impressed current

Checklist For Corrosion Protection Systems Using Anodes or Impressed Current

Description	Sacrificial anode systems have anodes normally attached to the tank at the factory. Some sacrificial anodes are installed and attached in the field to tank and piping components. The anodes are more electrically active than steel, so they suffer the destructive effects of corrosion rather than the steel they are attached to. Impressed current systems are installed in the field and use a rectifier to provide direct current through anodes to the tank or piping to achieve corrosion protection. The steel is protected because the current going to the steel overcomes the corrosion-causing current flowing away from it.
Perform These O&M Actions	☐ If you have metal tanks or metal piping, you must have corrosion protection working at all times (e.g. do not turn off your rectifier). ☐ For both sacrificial and impressed current systems, you must have a periodic test conducted by a qualified cathodic protection tester to make sure your cathodic system is adequately protecting your UST system. This test needs to be conducted: • Within six months of installation or maintenance. • At least every three years after the previous test. See **page 49 in Appendix I** for additional information and sample forms. ☐ In addition, for impressed current systems, you must inspect your rectifier at least every 60 days to make sure that it is operating within normal limits. See **page 50 in Appendix I** for additional information and sample forms. ☐ This inspection involves reading and recording the voltage and amperage readouts on the rectifier. You or your employees can perform this periodic inspection. ☐ Make sure your corrosion expert provided you with the rectifier's acceptable operating levels so you can compare the readings you take with an acceptable operating level. If your readings are not within acceptable levels, you must contact a corrosion expert to address the problem. ☐ You should have a qualified cathodic protection tester periodically service your impressed current system. If a problem is discovered, you must use a corrosion protection expert to resolve the issue. ☐ **Be aware** - If a rectifier is turned off more than twelve months, you must have the UST system assessed by a corrosion expert in order to demonstrate compliance with BUSTR regulations. ☐ A permit is not required to perform routine checks of corrosion protection systems.
Keep These O&M Records	**1-year:** ☐ For impressed current systems, you must keep records of at least the last six rectifier readings (taken every 60 days). In most cases, this is equivalent to keeping the records for at least one year. See **page 50 in Appendix I** for a sample 60-day impressed current cathodic protection system inspections form. **5-years:** ☐ Any schedules of required calibration and maintenance provided by the equipment manufacturer from the date of installation. **6-years:** ☐ For both sacrificial and impressed current systems, you must keep the results of at least the last two tests (performed every three years). In most cases, this is equivalent to keeping the records for at least six years. See **page 49 & 50 in Appendix I** for sample periodic testing of cathodic protection systems and 60-day record keeping forms.

What are the basics for the Periodic Inspection of Lined Metal USTs?

In the past, some metal USTs were lined with polymer resin as a way of meeting requirements for corrosion protection. As of May 16, 2011, BUSTR regulations no longer allowed the use of lining to meet corrosion protection requirements. Existing metal USTs that are lined may continue to operate provided the lining passes a periodic inspection:

- Within 10 years after lining and at least every five years thereafter, an inspection shall be performed, and the lined tank must be found to be structurally sound with the lining still performing according to original design specifications.
- The inspection shall be in accordance with American Petroleum Institute (API) RP 1631-2001, *'Interior Lining and Periodic Inspection of Underground Storage Tanks*'.
- Lining inspections shall be performed by qualified parties as described in API RP 1631-2001. As of September 1, 2017, owners are no longer required to use parties listed pursuant to prior BUSTR regulations.
- A modification permit shall be obtained prior to performing a lining inspection.
- Video camera inspections shall not be used to pass lining inspections. Video camera inspections may be used to fail lining inspections.
- Any lined USTs that fails to pass a lining inspection shall be removed in accordance with Rule 1301:7-9-12 of the Administrative Code.

Note: Current BUSTR regulations allow owners of lined USTs to forgo the periodic inspection of a lining if traditional corrosion protection (i.e. sacrificial anodes or impressed current) was installed on the UST prior to September 1, 2017. However, on or after September 1, 2017, owners may not add traditional corrosion protection to a lined UST in order to forgo a lining inspection. Keep in mind, owners must meet the requirements for checking and testing cathodic protection system as described on **pages 25-26**. Therefore, it is essential to maintain records showing the UST passed the original integrity assessment, and it is important to maintain records showing the cathodic protection system has been regularly checked and tested.

Fig. 20 – Lining of UST

What are the basics of Compatibility?

The regulated substances stored in an UST system must not interact with the materials comprising the system in any way that would change their performance. USTs contain many components made of different materials. If any of these materials are incompatible with the regulated substance stored and even temporarily lose their manufactured properties such as shape or flexibility, the UST system may fail to contain the substance. This could lead to a release to the environment and possibly a failure to detect the release.

In recent years, new blended fuels (commonly called biofuels) have come onto the market that may not be compatible with UST systems. **As of September 1, 2017, owners who switch to storing biofuels containing greater than 10 percent ethanol or greater than 20 percent biodiesel must obtain a 'change of product' permit from BUSTR and submit a modified registration application to BUSTR. Owners of USTs storing biofuels prior to September 1, 2017, are not required to obtain a permit or submit a modified registration application.**

- A copy of a permit application is available in **Appendix III** or you may obtain a copy on the BUSTR website at http://com.ohio.gov/fire/default.aspx.
- A copy of a modified registration application may be found in **Appendix II** or you may obtain a copy on the BUSTR website at http://com.ohio.gov/fire/default.aspx.

BUSTR regulations have always required UST systems to be made of or lined with materials compatible with the regulated substances stored in the UST system. BUSTR may request proof of compatibility at any time for any UST system, though BUSTR is more likely to request proof for the following scenarios:

- Any UST systems containing hazardous substances.
- Any UST systems containing 85 percent ethanol or 99 percent biodiesel.
- Any UST systems switching to biofuels containing greater than 10 percent ethanol or greater than 20 percent biodiesel.
- Any UST systems exhibiting overt signs of compatibility problems.

When checking for compatibility, BUSTR focuses on the following components: USTs, piping, containment sumps, ancillary equipment, release detection equipment, spill prevention equipment and overfill prevention equipment. In order to demonstrate compatibility, owners need to do one of the following:

- Provide a certification or listing by a nationally recognized, independent testing laboratory showing the components are compatible with the substance stored in the UST system.
- Provide written approval by the equipment or component manufacturer showing the components are compatible with the substance stored in the UST system.

Note: BUSTR regulations allow USTs and containment sumps to be internally lined for compatibility purposes. However, owners must obtain approval from the manufacturer prior to the addition of lining. You must keep records demonstrating compatibility as long as the UST system is used to store the regulated substance.

What are the basics of Operator Training?

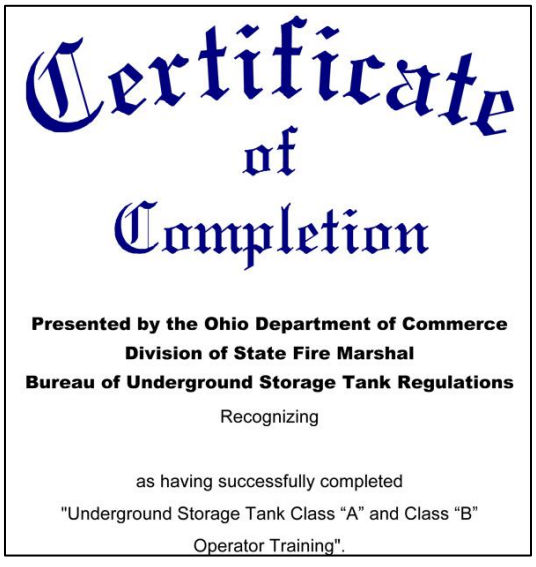
Each UST site is required to identify and train personnel in the proper operation of UST systems. These personnel are referred to as Class A, Class B and Class C operators. Class A and Class B must obtain a certificate showing successful completion of training. The training usually lasts four hours and is available online as well as in traditional classroom style. There is no exam as a condition of receiving a certificate of completion of training. Class C operators can be trained by Class A, Class B operators.

Each UST site shall identify a Class A, Class B, and a Class C operator for their site. It is possible for the same person to serve multiple roles at one site or at several sites. The rule allows for a variety of people to act as Class A, Class B, and Class C operators:

- Owner and/or operators.
- Persons employed by owners (i.e. store clerks, store managers, central office employees, etc.).
- Persons contractually obligated to owners or operators to perform the functions of a Class A or Class B operator (e.g. third party contractor).
- A Certified UST Installer with a current license from BUSTR.
- It is possible for a person to be the Class A, Class B or Class C operator for more than one site.
- Owners shall designate a Class A, Class B and Class C operator for an unattended UST site; however, the operator is not required to be present at the UST site.

Owners and operators may complete Class A and Class B training by attending a course offered by a private 'Sponsor of Training'. Information concerning Sponsors of Training may be found on the BUSTR web site at http://com.ohio.gov/fire/default.aspx. Class C training may be met by completing the '*Ohio Class "C" Underground Storage Tank Operator Training Form'* as provided in **page 46 in Appendix I**.

Note: The latest BUSTR regulations, effective **September 1, 2017**, do not require refresher training except in rare cases where a site is in a state of significant non-compliance as determined by BUSTR.


Certificate
of
Completion

Presented by the Ohio Department of Commerce
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations

Recognizing

as having successfully completed
"Underground Storage Tank Class "A" and Class "B"
Operator Training".

Fig. 21 – Class A & B certificate of training

What are the basics of Walkthrough Inspections?

No later than October 13, 2018, owners and operators shall perform walkthrough inspections of their sites and complete a walkthrough inspection checklist on a form prescribed by the state fire marshal. See **Appendix I** for a sample walkthrough inspection form. The form focuses on the following topics:

- Every month, owners and operators shall check and maintain spill prevention equipment. Also, owners and operators shall check and maintain release detection equipment.
- Annually, owners and operators shall check and maintain containment sumps. Also, owners and operators shall check and maintain hand held release detection equipment for operability and serviceability.

Note: If your release detection ever fails a test or indicates a release, see **page 32** for information on what to do next.

A permit is not required to perform monthly or annual walkthrough inspections; however, a permit may be required if you need to modify or repair a problem discovered as part of a walkthrough inspection.

Note: Owners and operators may perform walkthrough inspections. In general, for activities that do not require a permit, owners and operators may allow any person to perform such activities provided they follow manufacturer's instructions or codes of practice developed by nationally recognized associations, independent testing laboratories or other industry best practices.

Spill prevention equipment at UST systems receiving deliveries at intervals greater than every month may be checked prior to each delivery in order to meet monthly BUSTR requirements.
The following containment sumps are required to comply with the walkthrough inspection requirements:

- All containment sumps installed on new UST systems after March 1, 2005.
- All containment sumps associated with UST systems containing hazardous substances pursuant to Rule 1301:7-9-03 of the Administrative Code.
- All containment sumps installed on existing UST systems as a result of retrofit activities required by Rules 1301:7-9-06 or 07 of the Administrative Code.
- All containment sumps associated with UST systems where the containment sump serves as part of the interstitial monitoring system.

Fig. 22 – Inspection of TTC

By J. Feeman

What are the basics of Record Keeping?

Owners and/or operators shall maintain records demonstrating compliance with the requirements of the BUSTR regulations.

The following records shall be maintained for at least one year:

- Walkthrough inspection forms.
- Documentation of monthly monitoring of USTs.
- Documentation of continuous monitoring of containment sumps, if required.
- Documentation of continuous monitoring of secondarily contained piping, if required.
- Documentation of annual LLD test results.
- Documentation of monthly release detection of pressure piping, if required.
- Documentation of annual pressure tightness test, if required.
- For impressed current systems, you must keep records of at least the last six rectifier readings (taken every 60 days). In most cases, this is equivalent to keeping the records for at least one year.

The following records shall be maintained for at least three years:

- Records associated with the testing of spill prevention equipment, overfill prevention equipment and containment sumps.
- Records of annual calibration of release detection equipment.
- Documentation of three year tightness test of non-safe suction piping, if required.

The following records shall be maintained for at least five years or longer:

- For all equipment, written documentation of all calibration, maintenance, and repair of equipment permanently located at the facility, and any schedules of required calibration and maintenance provided by the equipment manufacturer.
- For release detection equipment, all written performance claims pertaining to any system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer.
- Records associated with the periodic tightness test of small USTs using manual tank gauging.
- For all components that are in contact with regulated substances, the records demonstrating compatibility shall be maintained for as long as the UST system is used to store the regulated substance.

The following records shall be maintained pursuant to the timeframes identified in the regulations:

- For UST systems using cathodic protection, the results from the last two tests relating to three-year check of all cathodic systems.

Note: Owners and operators shall provide the state fire marshal access to all records within one business day of a request. Within thirty days of transfer of ownership of an UST system, the transferor shall provide the transferee with all records or with equivalent copies of said records.

What are the basics for Suspected or Confirmed Releases?

If you see signs of a release or if your method of release detection ever fails a test or indicates a release, you must investigate the problem and report the event to BUSTR within 24 hours of discovery.

Immediately do the following:

- **Stop the Release!**
- **Contact BUSTR!**

Copy this page from the manual, fill it out, and post it near the office telephone or computer.

RELEASE RESPONSE CONTACT INFORMATION		
Contact	Phone #	Email or Alternate Number
BUSTR	(614) 752-7938	web.bustr@com.state.oh.us
Ohio EPA	(614) 644-3020	(614) 224-0946
Fire Department	911	
Police Department	911	
(Repair Contractor)		
(Environmental Consultant)		

Release Response Checklist

Stop the Release. Take immediate action to prevent the release or leak of additional fuel. Turn off the power to the dispenser and secure the nozzle. Know where your emergency shutoff switch is located.
Empty the tank, if necessary, to prevent further contamination to the site.
Isolate the area of the spill.
Contain the spill or overfill. Contain, absorb, and clean up any surface releases. Identify any fire, explosion, or vapor risks and take action to neutralize these hazards.
Do not expose anyone to possible injury.
Call for a trained emergency response contractor, according to your company policies.
Call for help and to report the suspected or confirmed release to your local fire or emergency response authority.
Contact BUSTR within 24 hours of discovery.

For More Information

Government Links

- Ohio Division of State Fire Marshal: http://www.com.ohio.gov/fire/
- Bureau of Underground Storage Tank Regulations (BUSTR) http://www.com.ohio.gov/fire
- Bureau of Testing & Registration: http://www.com.ohio.gov/fire/
- Code Enforcement Bureau: http://www.com.ohio.gov/fire/
- Petroleum UST Release Compensation Board (PUSTRCB): http://www.petroboard.com/
- Ohio Department of Agriculture: http://www.agri.ohio.gov/
- Ohio EPA: http://www.epa.state.oh.us/
- U.S. EPA's Office of Underground Storage Tanks: www.epa.gov/ust
- EPA's UST compliance assistance: www.epa.gov/ust/resources-owners-and-operators
- State UST program contact information: www.epa.gov/ust/underground-storage-tank-ust-contacts#states
- Tanks Subcommittee of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO): www.astswmo.org
- New England Interstate Water Pollution Control Commission (NEIWPCC): www.neiwpcc.org
- National Work Group On Leak Detections Evaluations: http://nwglde.org/
- USEPA 40 Code of Federal Regulation: https://www.epa.gov/laws-regulations/regulations#find

Industry Codes of Practice and Standards

- American Petroleum Institute (API): http://www.api.org/
- American Society of Mechanical Engineers (ASME): https://www.asme.org/
- Petroleum Equipment Institute (PEI): https://www.pei.org/
- Fiberglass Tank & Pipe Institute (FTPI): http://www.fiberglasstankandpipe.com/
- National Association of Corrosion Engineers (NACE): https://www.nace.org/home.aspx
- National Fire Protection Association (NFPA): http://www.nfpa.org/
- National Institute for Occupational Safety and Health (NIOSH): https://www.cdc.gov/niosh/about/default.html
- Steel Tank Institute/Steel Plate Fabricators Association (STI/SPFA): http://www.steeltank.com/
- Underwriters Laboratories (UL): http://www.ul.com/

APPENDIX I – Required Forms and Sample Forms

BUSTR Walkthrough Inspection Form

Facility Name:	BUSTR Facility Number:
Facility Address:	Year:
Facility City:	
Contact Name (print):	Contact Number:

Instructions: **No later than October 13, 2018, owners and operators of underground storage tank (UST) systems shall complete this form on a monthly and an annual basis. The form shall be maintained for one year (based upon the date of the annual walkthrough inspections) and shall be made available to BUSTR within one business day of a request.**

- Spill prevention equipment at UST systems receiving deliveries at intervals greater than 30-days may be checked prior to each delivery.
- Parts of this form may not apply to containment sumps installed prior to March of 2005. See paragraph (E)(4) of rule 1301:7-9-06 of the Ohio Administrative Code for further information.
- If the task does not apply, check 'not applicable' (N/A).

Monthly Walkthrough Inspections: **Each month, place a check in the corresponding box to affirm the task was completed.**	N/A	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1-Visually check spill prevention equipment for damage. Remove liquid and debris.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
2-Check for and remove obstructions in the fill pipe.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
3-Check the fill cap to make sure it is securely on the fill pipe.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
4-Make sure the release detection equipment is operating with no alarms or other unusual operating conditions present.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
5-Ensure records of release detection testing are reviewed and current.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
6-For double walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
7-For airport hydrant systems, check hydrant pits and vaults.	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑

Annual Walkthrough Inspections: **Once a year, record the date the task was completed.**	N/A	Date
8-Visually check containment sumps for damage.	❑	
9-Visually check containment sumps for leaks or releases to the environment.	❑	
10-Remove liquid or debris from containment sumps.	❑	
11-Check hand held devices such as tank gauge sticks for operability and serviceability.	❑	
12-For double walled containment sumps with interstitial monitoring, check for a leak in the interstitial area.	❑	
13-For airport hydrant systems, check hydrant pits and vaults (if located in confined space).	❑	

Comments: (Record unusual conditions and explain actions taken to address issues. Attached supplemental pages if needed.)

SFM-17-0032, Created 09/08/2017

Sample Annual Release Detection Testing Recordkeeping Form

BUSTR Facility Number:		**Qualified Person:**	
Facility Name:		**ATG Cert. Number:**	
Facility Address:		**Company Name:**	
Facility City:		**Phone Number:**	

Instructions: On an annual basis, owners and operators shall have their release detection equipment evaluated, including probes, sensors and monitoring units and hand held devices, evaluated by a qualified person to confirm proper calibration and operation in accordance with the manufacturer's requirements.

Date of Calibration: _____

Tank Number	Tank #1	Tank #2	Tank #3	Tank #4	Tank #5
Product					
ATG Manufacture					
ATG Model					
Serial #					
Positive Shut-down: MLLD or ELLD (Y/N/NA)					
Electronic LLD (Y/N/NA)					
Battery Back-up (Y/N/NA)					
Audible & Visual Alarms (Y/N/NA)					
External Overfill Alarm (Y/N/NA)					
Inventory Probe (Y/N/NA)					
Annular Sensor (Y/N/NA)					
Top Tank Cont. Sump Sensor (Y/N/NA)					
Transition Piping Cont. Sump Sensor (Y/N/NA)					
Dispenser Cont. Sump Sensor (Y/N/NA)					
Hand Held Release Detection Equipment (Y/N/NA)					
Other (Describe in comments section)					

Comments Section (Note unusual conditions, and explain actions taken to address issues):

Keep this record three years

Sample Monthly Tank Interstitial Monitoring Record

(May be used for manual sticking, vacuum or electronic interstitial monitoring)

BUSTR Facility Number:	
Facility Address:	
Facility City:	
Facility Zip Code:	
Contact Name (print):	

Date	Your Name	UST System (Tank) (Enter N for No Release Detected or Y for a Suspected Release)			
		UST #	UST #	UST #	UST #

Keep this record and associated printouts for at least one year

Sample Recordkeeping Form for Line and Line Leak Detector Testing

Facility Name:		BUSTR Facility Number:		
Facility Address:		Test Date:		
Facility City:		Tester Name (print):		
Facility Zip Code:		Tester Phone Number:		
Line Test Method: (List recognized industry test method)		Leak Detector Test Method: (List recognized industry test method)		
Line Test #:				
Product:				
Description:				
Pump Type:				
Line Construction:				
Line Diameter (in):				
Line Length (ft.):				
Test PSI:				
Start Time (h/m/s):				
Initial Level (ml):				
Final Level (ml):				
End Time (h/m/s):				
Duration (min):				
Leak Rate (gph):				
Line Results: **(1)**	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
Impact Valve Operational? **(2)**	Yes / No / NA	Yes / No / NA	Yes / No / NA	Yes / No / NA
Leak Detector Make:				
Leak Detector Model:				
Leak Rate (gph):				
Operating PSI:				
Resiliency (ml)				
Metering PSI:				
Opening Time (min):				
Leak Detector Results: **(3)**	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail

(1) *A 'fail' test indicates a release may have occurred and shall be investigated. The owner shall contact BUSTR at 614-752-7938 to report the event.*

(2) *A 'No' result for 'impact valve operational' requires the repair or replacement of the component. A permit is required prior to performing work. An UST Installer and UST Inspector are also required.*

(3) *A 'fail' test indicates the component is faulty and shall be fixed or replaced. Such activity falls under routine maintenance and does not require a permit. An UST Installer and UST Inspector are not required.*

Comments: (Record unusual conditions and explain actions taken to address issues. Attach supplemental pages if needed.)

My signature below affirms that I have sufficient education and experience to be a qualified tester, I am competent to perform the tests indicated above and that the results on this form are complete and truthful record of all testing at this location on date shown.

Tester Signature:	**Tester Certification #:** (Industry Recognized)

Keep this record for one year

Checklist for Manual Tank Gauging

- ❑ The following existing tanks may use manual tank gauging in compliance with paragraphs 1301:7-9-07(D)(1)(b) of the BUSTR rule as the sole method of release detection:
  - 110-550 gallons (no diameter restrictions)
  - 551-1,000 gallons (48 or 64 inch diameters)

- ❑ The following existing tanks may use manual tank gauging in compliance with paragraphs 1301:7-9-07(D)(1)(b) of the BUSTR rule provided that a tank tightness test is performed in accordance with 1301:7-9-07(F)(1) of the BUSTR rule once every five years:
  - 551-1,000 gallons (alternate diameters)
  - 1,001-2,000 gallons

Have Certification For Your Release Detection Method

None required.

Perform These Compliance Actions

Manual tank gauging shall be conducted weekly and comply with the following requirements:

- ❑ Tank liquid level measurements shall be taken at the beginning and end of a time period of at least 36-58 hours during which no liquid is added to or removed from the tank.

- ❑ Level measurements are based on an average of two consecutive stick readings at both the beginning and ending of the period.

- ❑ The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth of an inch.

- ❑ Gauging sticks and charts used in the performance of manual tank gauging as described in 1301:7-9-07(D)(1)(b) of the BUSTR rule shall be designed for the UST being measured and shall be maintained in working order.

- ❑ Make sure employees who run, monitor, or maintain the release detection system know exactly what to do and how to report problems. Conduct regular training programs for all employees.

- ❑ Keep your manual tank gauging records for at least one year. For correct compliance, you must record actual release detection results at least every month and maintain records for at least one year.

- ❑ A release is suspected and subject to the reporting requirements of sections 3737.88 and 3737.882 of the Revised Code and this chapter of the Administrative Code if the variation between the beginning and ending measurements exceeds the weekly or monthly standards in the following table:

Manual Tank Gauging Record

FACILITY NAME: _____

MONTH _____ YEAR _____

TANK IDENTIFICATION: _____

PERSON COMPLETING FORM: _____

Circle your tank size, test duration, and weekly/monthly standards in the table below:

Tank Size	Minimum Duration of Test	Weekly standard (one test)	Monthly standard (four-test average)
Up to 550 gallons	36 hours	10 gallons	5 gallons
551-1,000 gallons (when tank diameter is 64-inches)	44 hours	9 gallons	4 gallons
551-1,000 gallons (when tank diameter is 48-inches)	58 hours	12 gallons	6 gallons
551-1,000 gallons (requires tank tightness test every five-years)	36 hours	13 gallons	7 gallons
1,001-2,000 gallons (requires tank tightness test every five-years)	36 hours	26 gallons	13 gallons

GOOD MANUAL STICKING PRACTICES

- ❑ Use gauge sticks that are:
  - Marked to the 1/8 inch
  - Not cut off or worn off at the "0" end
  - Varnished and not warped.
- ❑ Measure through the same drop tube each time.
- ❑ SLOWLY lower stick.
- ❑ GENTLY touch stick on tank bottom.
- ❑ QUICKLY pull stick out.
- ❑ Instead of using a gauge stick, you may use a mechanical or electronic tank level monitor.
- ❑ Remember that the measuring device you use must be able to measure the level of product over the full range of the tank's height to the nearest 1/8 inch.
- ❑ Check for water at least once a month using water-finding paste.

REMEMBER: You are allowed to copy the form on the next page; use it to help you perform your testing.

Manual Tank Gauging Data Collection Form

	Week - 1	Week - 2	Week - 3	Week - 4	
Start Test	Date: Time:	Date: Time:	Date: Time:	Date: Time:	
First Gauge Reading (inches)					
Second Gauge Reading (inches)					
Average Reading (inches)					
Gallons (convert average inches to gallons) **[a]**					
End Test	Date: Time:	Date: Time:	Date: Time:	Date: Time:	How close are you to the monthly standard? Divide the sum of the 4 weekly readings by 4. Enter the result here. ↓
First Gauge Reading (inches)					
Second Gauge Reading (inches)					
Average Reading (inches)					
Gallons (convert average inches to gallons) **[b]**					
Change in Tank Volume in Gallons (+) or (-) **[a - b]**					
Tank Passes Test Circle YES or NO	**YES** **NO**	**YES** **NO**	**YES** **NO**	**YES** **NO**	

Compare your weekly readings and the monthly average of the four weekly readings with the standards shown in the table above.

If the calculated change is more than the weekly standard, the UST may be leaking. Also, you must compare the monthly average of the four weekly test results to the monthly standard in the same way.

If either the weekly or monthly results are more than the standards in the table, the UST might be leaking. Call your implementing agency as soon as possible to report the suspected leak and get further instructions.

Manual Tank Gauging of 551-1,000 gallons (alternate diameters) and 1,001-2,000 gallons shall be precision tested every five years.

Checklist for Inventory Control (For Tanks)

Description	Inventory control involves taking measurements of tank contents and recording the amount of product pumped each operating day, measuring and recording tank deliveries, and reconciling all this data at least once a month. Daily Inventory control shall be conducted as described in API 1621-01 *Recommended Practice for Bulk Liquid Stock Control of Retail Outlets.* Please note that the inventory control release detection method may only be used for: ☐ **60-days –** From the date of the last passing result while a method of release detection undergoes routine maintenance, modification or major repair. Afterwards, the owner shall take the tank properly out of service. ☐ **90-days –** From the date of the last passing result when a method of release detection is found to not be defective, but cannot conduct a successful release detection test during a 30-day period due to low levels of a regulated substance.
Perform These O&M Actions	☐ Take inventory readings and record the numbers at least each day that product is added to or taken out of the tank. You may use the sample daily inventory worksheet on **page 43**. ☐ Reconcile the fuel deliveries with delivery receipts by taking inventory readings before and after each delivery. Record these readings on a daily inventory worksheet on **page 43**. ☐ Reconcile all your data at least every 30 days. Use a monthly inventory record; see the sample on **page 44**. ☐ Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height. ☐ Ensure that your product dispenser is calibrated according to local standards or to an accuracy of six cubic inches for every five gallons of product withdrawn. ☐ Measure the water in your tank to the nearest one-eighth inch at least once a month and record the results on the reconciliation sheet. You can use a paste that changes color when it comes into contact with water. If you find water in your tank, you must investigate and determine the reason for its presence. The presence of water in your tank is an unusual operating condition. You should remove the water as soon as possible because it can cause problems such as corrosion and degrading fuel quality. ☐ No later than October 13, 2018, you must begin performing periodic walkthrough inspections. These inspections include checking your tank gauging stick for operability and serviceability. See **page 30** and **Appendix I** for more information about these required walkthrough inspections. ☐ If your Inventory Control ever fails a 'monthly test' or indicates a release, see **page 32** for information on how to report the release and the steps that need to be taken. ☐ Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.
Keep These O&M Records	**1-year:** ☐ Documentation of monthly and annual walkthrough inspections. ☐ Documentation of monthly monitoring of tanks. **3-years:** ☐ Documentation of annual calibration of release detection equipment. **5-years:** ☐ Documentation of performance claims by the manufacturer or contractor. Schedules of required calibration and maintenance. **Other:** ☐ Documentation demonstrating compatibility for as long as the UST system is used to store the regulated substance.

Daily Inventory Control

You must keep a daily inventory record, according to the Ohio Administrative Code 1301:7-9-07 (D)(1)(a):

> "UST's containing motor or aviation petroleum fuels shall be monitored daily by the owner or operator using product inventory control conducted as described in 'American Petroleum Institute 1621-01: Recommended Practice for Bulk Liquid Stock Control of Retail Outlets'."

DAILY INVENTORY WORKSHEET

FACILITY NAME: _____

YOUR NAME: _____

DATE: _____

TANK IDENTIFICATION	**1**	**2**	**3**	**4**	**5**
Type of Fuel					
Tank Size (gallons)					
Day Begin Gauge/Stick Inches					
Day Begin Gauge/Stick Gallons					
Day End Gauge/Stick Inches					
Day End Gauge/Stick Gallons					
AMOUNT PUMPED	▼	▼	▼	▼	▼
Today's "Opening the Day" Gallons					
Today's "Closing the Day" Gallons					
Amount Pumped Today					
DELIVERY RECORD	▼	▼	▼	▼	▼
Inches of fuel before delivery (gauge/stick)					
Gallons of fuel before delivery (tank chart)					
Inches of fuel after delivery (gauge/stick)					
Gallons of fuel after delivery (tank chart)					
Actual Gallons Delivered Subtract "gallons before" from "gallons after"					
Gross Gallons Delivered (Receipt)					

REMEMBER: To check daily inventory results, transfer information on this worksheet to the "Daily/Monthly Worksheet". These worksheets meet the Ohio Administrative Code 1301:7-9-07 (D)(1)(a) Requirements.

Daily / Monthly Inventory Worksheet

FACILITY NAME: _____ MONTH/YEAR: _____/_____
TANK ID & TYPE OF FUEL: _____ DATE OF WATER CHECK: _____
LEVEL OF WATER (INCHES): _____

DATE	START INVENTORY (GALLONS)		GALLONS DELIVERED		GALLONS PUMPED		BOOK INVENTORY (GALLONS)	END INVENTORY (INCHES)	END INVENTORY (GALLONS)	DAILY OVER (+) OR SHORT (-) ["End" - "Book"]	INITIAL
1		(+)		(-)		(=)					
2		(+)		(-)		(=)					
3		(+)		(-)		(=)					
4		(+)		(-)		(=)					
5		(+)		(-)		(=)					
6		(+)		(-)		(=)					
7		(+)		(-)		(=)					
8		(+)		(-)		(=)					
9		(+)		(-)		(=)					
7		(+)		(-)		(=)					
8		(+)		(-)		(=)					
9		(+)		(-)		(=)					
10		(+)		(-)		(=)					
11		(+)		(-)		(=)					
12		(+)		(-)		(=)					
13		(+)		(-)		(=)					
14		(+)		(-)		(=)					
15		(+)		(-)		(=)					
16		(+)		(-)		(=)					
17		(+)		(-)		(=)					
18		(+)		(-)		(=)					
19		(+)		(-)		(=)					
20		(+)		(-)		(=)					
21		(+)		(-)		(=)					
22		(+)		(-)		(=)					
23		(+)		(-)		(=)					
24		(+)		(-)		(=)					
25		(+)		(-)		(=)					
26		(+)		(-)		(=)					
27		(+)		(-)		(=)					
28		(+)		(-)		(=)					
29		(+)		(-)		(=)					
30		(+)		(-)		(=)					
31		(+)		(-)		(=)					
TOTAL GALLONS PUMPED								**TOTAL GALLONS OVER OR SHORT**			

LEAK CHECK:

_____ (+) 130 (=) _____

1) Write the last two numbers from the **TOTAL GALLONS PUMPED**

2) add 130

3) Compare your sum to the **TOTAL GALLONS OVER OR SHORT**

If your TOTAL GALLONS OVER OR SHORT is **LARGER** than the LEAK CHECK result, **you must notify BUSTR 614-752-7938**

Sample Recordkeeping Form for Tightness Tests of Containment Sumps

Facility Name:		BUSTR Facility Number:		
Facility Address:		Test Date:		
Facility City:		Qualified Person:		
Facility Zip Code:		Contact Number:		
Tank Number				
Product Stored				
Containment Sump ID				
Liquid or debris removed from containment sump? **(1)** (Circle one)	Yes / No	Yes / No	Yes / No	Yes / No
Visual inspection for cracks, loose parts or separation? (Circle one)	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
Test Method Utilized **(2)**				
Starting Water or Vacuum Level				
Test Start Time				
Ending Water or Vacuum Level				
Test End Time				
Test Duration				
Water or Vacuum Level Change				
Test Results **(3)** (Circle one)	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail

(1) *All liquids and debris must be disposed of in accordance with local, state and federal requirements.*
(2) *Indicate the manufacturer's instructions, code of practice or industry best practice used to perform the test.*
(3) *Pass or fail criteria are based on the method used for testing. For example, BUSTR allows PEI RP 1200 to be used for this testing. This code of practice contains information about the pass or fail criteria.*

Comments: (Record unusual conditions and explain actions taken to address issues. Attach supplemental pages if needed.)

Keep this record for three years

Department of Commerce
Division of State Fire Marshal
John R. Kasich, Governor
Andre T. Porter, Director

Ohio Class "C" Underground Storage Tank Operator Training

Instructional Material, Evaluation and Certificate Form

The purpose of this form is to document that employees designated as Class C operators have completed training required by Ohio Administrative Code Rule 1301:7-9-19. Class C operators are responsible for the initial response to alarms or other indications of emergencies at a facility. Class C operators shall complete the following questions:

1) Have you received training identifying the telephone number to call the fire department for this facility and is this number posted in a clearly visible location?
☐ Yes ☐ No

2) Have you received training identifying the list of company people who should be notified in an emergency and is this list posted in a clearly visible location?
☐ Yes ☐ No

3) Have you received training identifying the actions to take concerning the Emergency Shut off Switch?
☐ Yes ☐ No
☐ Not Applicable (describe)*_____

NOTE: The emergency stop switch shuts off power to all the dispensers and fuel pumps. The emergency stop switch is different from the "Stop" or "All Stop" button on the point-of-sale (POS) console. The emergency stop switch is required by national fire codes. Contact a qualified petroleum storage system service contractor if you cannot locate the emergency stop switch.

4) Have you received training identifying how to respond to various alarm messages that may appear on the display of the tank monitoring system?
☐ Yes ☐ No
☐ Not Applicable (describe)*_____

Note: If you do not know how to read the display or what messages to expect if there is a problem with the storage system, look in the tank monitor manual to find this information or call a qualified petroleum system contractor and have him or her explain this information to you.

5) Have you received training identifying how to locate and properly recognize the dispensing unit components. For example, the dispenser, the hose, the nozzle and the breakaway coupling.
☐ Yes ☐ No
☐ Not Applicable (describe)*_____

Class C operator name: _____

Class C operator signature: _____ Date: _____

Name of the Class A or B operator approving the Class C training: _____

Signature of party administering training: _____

Name and address of the facilities where training is applicable:

All Class C operators shall complete this form no later than August 8, 2012, or before assuming responsibilities as a Class C operator. Owners shall maintain this form and make it available to the state fire marshal upon request. Completing this form meets the requirements of paragraphs (D)(3)(e) through (g) of rule 1301:7-9-19 of the Administrative Code. No passing score is necessary to meet the requirements of rule 1301:7-9-19 of the Administrative Code.

* Not applicable generally applies to emergency generator, manufacturing and some hazardous substance UST's.

Sample Recordkeeping Form for Tightness Tests of Spill Prevention Equipment

Facility Name:		BUSTR Facility Number:		
Facility Address:		Test Date:		
Facility City:		Qualified Person:		
Facility Zip Code:		Contact Number:		
Tank Number				
Product Stored				
Spill Prevention Equipment ID				
Liquid or debris removed from spill prevention equipment? **(1)** (Circle one)	Yes / No	Yes / No	Yes / No	Yes / No
Visual inspection for cracks, loose parts or separation? (Circle one)	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
Test Method Utilized **(2)**				
Starting Water or Vacuum Level				
Test Start Time				
Ending Water or Vacuum Level				
Test End Time				
Test Duration				
Water or Vacuum Level Change				
Test Results **(3)** (Circle one)	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail

(1) *All liquids and debris must be disposed of in accordance with local, state and federal requirements.*
(2) *Indicate the manufacturer's instructions, code of practice or industry best practice used to perform the test.*
(3) *Pass or fail criteria are based on the method used for testing. For example, BUSTR allows PEI RP 1200 to be used for this testing. This code of practice contains information about the pass or fail criteria.*

Comments: (Record unusual conditions and explain actions taken to address issues. Attach supplemental pages if needed.)

Keep this record for three years

Sample Recordkeeping Form for Overfill Equipment Inspections

Facility Name:		BUSTR Facility Number:		
Facility Address:		Inspection Date:		
Facility City:		Qualified Person:		
Facility Zip Code:		Contact Number:		
Tank Number				
Capacity				
Product stored				
Overfill equipment manufacturer				
Type (Check all that apply)	❑ Shutoff device ❑ Ball float valve ❑ Overfill alarm	❑ Shutoff device ❑ Ball float valve ❑ Overfill alarm	❑ Shutoff device ❑ Ball float valve ❑ Overfill alarm	❑ Shutoff device ❑ Ball float valve ❑ Overfill alarm
Automatic Shutoff Device Inspection				
Drop tube removed from tank?	Yes / No	Yes / No	Yes / No	Yes / No
Drop tube and float mechanisms are free of debris?	Yes / No	Yes / No	Yes / No	Yes / No
Float moves freely without binding and poppet moves into flow path?	Yes / No	Yes / No	Yes / No	Yes / No
Bypass valve in drop tube (if present) is open and free of blockage?	Yes / No	Yes / No	Yes / No	Yes / No
Flapper is adjusted to shut off at 95% capacity?	Yes / No	Yes / No	Yes / No	Yes / No
Overfill Alarm Inspection				
Electronic device and probe are operating properly?	Yes / No	Yes / No	Yes / No	Yes / No
Alarm activates at 90% capacity or within one minute of overfill?	Yes / No	Yes / No	Yes / No	Yes / No
Alarm can be heard and/or seen from where the tank is fueled?	Yes / No	Yes / No	Yes / No	Yes / No
Ball Float Valve Inspection				
Tank top fittings are vapor-tight and leak-free?	Yes / No	Yes / No	Yes / No	Yes / No
Ball float cage free of debris?	Yes / No	Yes / No	Yes / No	Yes / No
Ball is free of holes, cracks and moves freely in cage?	Yes / No	Yes / No	Yes / No	Yes / No
Vent hole in pipe is open and near top of tank?	Yes / No	Yes / No	Yes / No	Yes / No
Ball float pipe is proper length to restrict flow at 90% capacity?	Yes / No	Yes / No	Yes / No	Yes / No
Inspection Results (Circle One)	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
Comments: (Record unusual conditions and explain actions taken to address issues. Attach supplemental pages if needed.)				

Keep this record for three years

Sample Record for Periodic Testing of Cathodic Protection Systems

Facility Name:		BUSTR Facility Number:		
Facility Address:		Test Date:		
Facility City:		Cathodic Protection Tester:		
Facility Zip Code:		Tester Contact Number:		
Cathodic Protection Tester Qualifications: (List recognized industry cathodic protection certification)				
Identify which of the Following Testing Situation(s) Apply (1)				
Type (Check all that apply)	☐ Field Anodes (FLDA) ☐ Factory Anodes (FACA) ☐ Impressed Current (IP)	☐ Field Anodes (FLDA) ☐ Factory Anodes (FACA) ☐ Impressed Current (IP)	☐ Field Anodes (FLDA) ☐ Factory Anodes (FACA) ☐ Impressed Current (IP)	☐ Field Anodes (FLDA) ☐ Factory Anodes (FACA) ☐ Impressed Current (IP)
Component ID				
6-month Test for Initial Installation	Yes / No	Yes / No	Yes / No	Yes / No
6-month Test for Repair Activity	Yes / No	Yes / No	Yes / No	Yes / No
3-year Periodic Test	Yes / No	Yes / No	Yes / No	Yes / No
Cathodic Protection Test Method Used (Check one)				
100 mV Cathodic Polarization Test	☐	☐	☐	☐
850 mV Test (Check one) (Note: All readings taken must meet -850 mV criteria to pass)	☐ Polarized potential (instant off) ☐ Potential with CP applied, IR drop considered	☐ Polarized potential (instant off) ☐ Potential with CP applied, IR drop considered	☐ Polarized potential (instant off) ☐ Potential with CP applied, IR drop considered	☐ Polarized potential (instant off) ☐ Potential with CP applied, IR drop considered
Other Acceptable Method (Please Describe)				
Is Cathodic Protection System Working Properly? (2)	Yes / No	Yes / No	Yes / No	Yes / No

(1) *Attach a sketch of the UST system and all testing points. Provide a list of voltage readings.*

(2) *'No' indicates a 'failed' test and the CP system is not working properly. You must have a corrosion expert investigate and fix the problem. Keep documents on repair of CP for the life of the system. In most cases, a 6-month re-test is required once the repair is completed.*

Comments: (Record unusual conditions and explain actions taken to address issues)

My signature below affirms that I have sufficient education and experience to be a cathodic protection tester, I am competent to perform the tests indicated above and that the results on this form are complete and truthful record of all testing at this location on date shown.

CP Tester Signature:

Keep this record for six years

Sample Form for 60-Day Impressed Current Cathodic Protection System Inspections

Facility Name:	BUSTR Facility Number:
Facility Address:	
Facility City:	Owner Name:
Facility Zip Code:	Owner Contact Number:
Amperage Range Recommended:	**Voltage Range Recommended:**

Date	Name of Person Conducting Inspection	Voltage Reading	Amperage Reading	Is the System Running Properly?
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No
				Yes or No

Note: *If the rectifier voltage or amperage outputs are outside the recommended operating levels, contact a corrosion expert to address the problem. Never turn off your rectifier.*

Comments: (Record unusual conditions and explain actions taken to address issues. Attach supplemental pages if needed.)

Keep this record for at least one year

APPENDIX II - Registration, Acronyms and Financial Responsibility

What are the basics of UST Registration?

Almost all UST systems regulated by BUSTR are subject to the registration requirements described in Rule 1301:7-9-04 of the Administrative Code. In addition, most UST systems are subject to an annual registration fee due by the last day of June of each year. Also, if an UST system undergoes a transfer of ownership, the new owner is subject to transfer registration and fee requirements. Please note the following conditions and exceptions:

- If an UST is subdivided into separate compartments, each compartment is subject to registration and fee requirements.
- Existing UST systems last used prior to January 1, 1974 (but not used after this date) are subject to BUSTR regulations, though registration and fee requirements do not apply.
- All government entities are subject to registration requirements, though registration fees do not apply.
- If an UST system undergoes a 'change of product' (i.e. a change to greater than 10 percent ethanol or greater than 20 percent biodiesel), then the owner shall submit a modified registration; however, a registration fee is not required.
- If an UST system is out of service for any length of time, owners are still required to pay annual registration fees.

See **page 53** for registration application.

Note: Some USTs may not have a viable owner, and some USTs are exempt from registration requirements. Some examples include, but are not limited to:

- USTs in which ownership is unknown.
- USTs in which the owner is deceased.
- USTs last used prior to January 1, 1974.
- Wastewater treatment tanks.
- USTs containing radioactive materials.
- USTs associated with an emergency generator system at a nuclear power generation facility.

In these cases, BUSTR will attempt to collect sufficient information to document the history and location of these USTs, though the USTs will be assigned statuses in the BUSTR database so not to trigger registration and fee requirements.

Underground Storage Tank (UST) Registration Application, Part A, Page 1

A1) Owner #:		**A2) Facility #:**	
A3) Type of Application:	❑ Transfer of Ownership	❑ New Application	❑ Modified Application

Instructions: See full instructions at end of application. Only Part A of the application needs to be completed and submitted for Transfer of Ownership, though both Parts A & B need to be completed and submitted for New UST Registrations or Modified Registrations.

Note: If an UST has more than one compartment, each compartment shall be registered. A description of the USTs that are required to be registered may be found on the BUSTR website at http://www.com.ohio.gov/fire/BUSTRResources.aspx.

A4) Facility Information:		
Facility Name:		
Facility Address:		
Facility City:	State:	Postal Code:
24 Hour Emergency Contact:	24 Hour Emergency Number:	
24 Hour Emergency Email:		

A5) Facility Type:			
❑ Gas Station	❑ Government	❑ Industrial	❑ Trucking/Transport
❑ Utilities	❑ Residential	❑ Contractor	❑ Petro Distributor
❑ Railroad	❑ Farm	❑ Marina	❑ Auto Dealership
❑ Airport	❑ Hospital	❑ Other (explain) _____	

A6) Attended Facility?	❑ Yes (attendant present)	❑ No (facility designed to dispense without attendant)

A7) UST Owner Information (e.g., Company Information)		
Owner Name:		
Owner Address:		
Owner City:	State:	Postal Code:
Owner Contact Name:	Phone Number:	
Email Address:		

A8) Type of Ownership:	**A9) Is the UST owner also the property owner?**
❑ Commercial	❑ Yes, I will submit proof of ownership.
❑ Government	❑ No, I will provide legal agreement (e.g., lease).
❑ Individual	

A10) Property Owner Information		
Property Owner Name:		
Property Owner Address:		
Property Owner City:	State:	Postal Code:
Property Owner Contact:	Phone Number:	
Email Address:		

Underground Storage Tank (UST) Registration Application, Part A, Page 2

Owner #:	**Facility #:**	
A11) Operator Information		
Operator Business Name:		
Operator Address:		
Operator City:	State:	Postal Code:
Operator Contact Name:	Phone Number:	
Email Address:		
A12) Financial Responsibility:		
Is the petroleum UST registered with PUSTRCB?	❑ Yes ❑ No	❑ Not required (fed govt. or haz sub)
A13) Deductible Mechanism:		
❑ Insurance or Risk Retention Group Coverage	❑ State or Political Subdivision Fund	
❑ Letter of credit and Standby Trust Fund	❑ State or Political Subdivision Bond Rating Test	
❑ Guarantee and Standby Trust Fund	❑ State or Political Subdivision Financial Test	
❑ Surety Bond and Standby Trust Fund	❑ Political Subdivision Guarantee	
❑ Trust Fund	❑ Not required (e.g., federal govt. or haz substance)	
❑ Financial Test of Self Insurance		
A14) Deductible Amount: ❑ $11,000 ❑ $55,000	❑ Not required (federal govt. or haz substance USTs)	
A15) Is a fee owed? ❑ Yes	❑ Not required (all govt. USTs or 'change of product')	
Total Number of Fee Eligible USTs: _____	**X $100.00 = Total Amount Due:** _____	

A16) Certification:

Any person who knowingly fails to register or submits false information may be subject to a civil penalty not to exceed $10,000 for each day the registration is late or for which false information is submitted. Any person who knowingly fails to register or submits false information may be subject to conviction of an unclassified felony with a maximum fine of $25,000 and a maximum imprisonment of 14 months.

I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Print Name:	
Signature:	Date:

A17) Official Use Only

Payment Number:	Payment Date:	Payment Amount:	Initial:

Instructions for Underground Storage Tank Registration Application, Part A

The UST Registration Application is required by Rule 1301:7-9-04 of the Ohio Administrative Code and by Title 40 of the Code of Federal Regulations (CFR) Part 280.22(c). The owner of the UST is required to submit the UST Registration Application. If you have questions about the UST Registration Application, please contact the Bureau of Testing and Registration at (614) 752-7126 or by sending an email to webfmtr@com.state.oh.us.

A1) Owner #: Owner numbers are assigned by BUSTR, and each tank owner is given a unique number. If you previously owned USTs at other sites, your owner number is the same and is listed on your other registration forms. If you are a new owner, it is okay to leave this section blank and BUSTR will assign an owner number. Do not list the number of a prior, different owner of the site, since their number will be different than yours. The owner number is a six digit number with a prefix of 'W'. For example: W000001.

A2) Facility #: Facility numbers are assigned by BUSTR, and each site has a unique number. The same facility number is used for the same site over time even if the owner changes. Also, the same facility number is used for the same site even if USTs are installed, removed and new USTs are installed 40 years later. To find an existing facility number, go to the BUSTR website at https://apps.com.ohio.gov/fire/otter/ and search for the site. If the site is new and USTs have never existed at the site before, it is okay to leave this section blank and BUSTR will assign a facility number. The facility number is an eight digit number. For example: 25009880 (the first two digits correspond to the county number).

A3) Type of Application: BUSTR regulations specify three scenarios when you are required to submit a registration application: After a change in ownership of existing USTs; after the installation of new USTs at a new site; and after modifications occur to USTs at an existing site. Modification means adding a new UST to an existing site or performing a 'change of product' (in which you store greater than ten percent ethanol or greater than twenty percent biodiesel in existing USTs at the site). A permit application and a Registration Application (both Part A & B) are always required for installations of new USTs or a change of product. Only Part A of the application needs to be completed and submitted for Transfer of Ownership.

Please note, the term 'modification' as it is used in the Registration Application does not have the same meaning as a similar term defined in rule 1301:7-9-02 (that applies to permit activities). This means there is no need to submit a registration application when a permit is obtained to perform work on piping, vent lines, flex connectors, shear valves, and similar components.

A4) Facility Information: The facility name is at the discretion of the owner, though it is best to be specific when possible. For example, list 'Big Gas #14' versus 'Big Gas'. Facility information should list the most accurate address that is available. For example, list the exact street address versus a more general street intersection. The emergency contact information should list a person who represent the owner who can make immediate decisions to address fire and explosion issues or respond to releases from UST systems.

A5) Facility Type: Choose one facility type that best describes your site. Note: Check 'other' for airport hydrant systems or field constructed systems.

A6) Attended facility? The meaning of 'attended' relates to BUSTR operator training requirements and is not to be confused with alternative meanings associated with building codes or fire codes. The purpose is to differentiate sites that have an attendant that authorizes the dispensing of fuel versus sites that do not. This determination affects the training and signage requirements that a site complies with.

A7) UST Owner Information (e.g., Company Information): List the party that best describes the owner of the UST systems (often, this party is the same as the company that controls the UST systems). BUSTR normally sends correspondences to the party identified as the owner.

A8) Type of Ownership: The meaning of the term 'type of ownership' is not clearly defined in the federal UST regulations. BUSTR views this term to mean:

- Commercial: USTs owned by commercial entities controlling multiple sites; or
- Government: USTs owned by government entities (e.g., federal, state, or local);
- Individual: USTs owned by private entities normally controlling one site.

A9) Is the UST owner also the property owner? The purpose of this section is to clarify the relationship between the UST owner and the property owner (who may be different parties). The property owner is the party listed as the land owner as documented with the county auditor or recorder. If the UST owner is not the property owner, then BUSTR will require documentation (such as a lease agreement).

A10) Property Owner Information: The property owner is the party listed as the land owner as documented with the county auditor or recorder. In cases of land contracts, the property owner is the party listed with the county auditor or recorder until the purchaser fulfills the terms of the land contract and is then listed with the county auditor or recorder.

A11) Operator Information: The operator is the party that is in daily control or has responsibility for the daily operation of the UST system. If the operator is a separate entity from the owner of the UST system, then the business name of the operator should be provided. Sometimes, owners and operators may become confused as to their responsibilities with respect to the BUSTR regulations. It is important to note the following language in paragraph (G) of Rule 1301:7-9-01 of the Administrative Code:

"Where any provision in this chapter creates a duty of compliance for an owner and operator, and the owner and operator are separate persons, compliance may be attained by either person. In the event of noncompliance, both are liable."

A12) Financial Responsibility: State and federal regulations require owners of petroleum UST systems to have financial responsibility to pay for the cost of claims and clean-up activities results for petroleum releases from their UST systems. In Ohio, owners of petroleum UST systems must register with the Petroleum Underground Storage Tank Release Compensation Board (PUSTRCB) (http://www.petroboard.com/). Note: Petroleum UST systems owned by the federal government are not required to register with PUSTRCB. Also, UST systems containing hazardous substances (e.g., methanol, methyl ethyl ketone, and etc.) are not required to register with PUSTRCB.

A13) Deductible Mechanism: In addition to registering with PUSTRCB, owners shall maintain a deductible mechanism. Several options are available, and detailed descriptions of each mechanism is provided on the BUSTR website at http://www.com.ohio.gov/fire/BUSTRResources.aspx.

A14) Deductible Amount: The standard deductible is $55,000; owners of six or fewer tanks may pay a higher premium to obtain a reduced deductible of $11,000.

A15) Registration Fees: Enter the number of fee eligible USTs in the space provide. If an UST has more than one compartment, each compartment shall be registered. A description of USTs that are required to be registered may be found on the BUSTR website at http://www.com.ohio.gov/fire/BUSTRResources.aspx.

A fee of $100 is owed for each fee eligible UST. USTs owned by the federal government or by the State of Ohio or its political subdivisions are not required to pay fees. Also, no fees are owed for USTs undergoing a change of product (i.e.,existing USTs switching to a higher blend of biofuel). Fees are owed for the following scenarios:

- A transfer of ownership has occurred;
- Previously unregistered USTs are registered for the first time; or
- New USTs are installed at a site.

Various payment options are acceptable such as credit card, money order or check. Make checks payable to 'Treasurer, State of Ohio' and send the application and payment to the address at the top of the application.

In addition, an annual registration fee of $100 is owed for all fee eligible no later than June 30th of each year. BUSTR will issue a separate notification to owners regarding the annual registration.

A16) Certification: Each Registration Application shall be signed and dated. The application will be considered incomplete if either the signature or date are omitted. All UST owners must complete and submit the registration application (even if no fees are owed).

Instructions for Underground Storage Tank Registration Application, Part B

The UST Registration Application Part B focuses on the construction and configuration of all of the UST components that comprise your UST system. In order to complete Part B of the UST Registration Application, you must have a thorough knowledge of your UST system.

If your UST system is new, contact the Certified UST Installer who installed your UST system and ask them for assistance in completing Part B. If you purchased an existing UST system, then the prior owner is required to provide you with records relating to your UST system as specified by paragraph (E)(5)(f) of Rule 1301:7-9-06 of the Administrative Code. Also, prior registration records and permit records may be available at BUSTR. You may request copies of these records by sending an email to BUSTR at web.bustr@com.state.oh.us.

Note: Prior registration records submitted to BUSTR are only as accurate as the information provided by the previous owner of the UST system. Sometimes, these records are incorrect, and BUSTR cannot vouch for the accuracy of these registration records. Nevertheless, the current UST owner is required by state and federal regulations to have complete and accurate knowledge of their UST systems. If you purchase an existing UST system, you are advised to hire a service contractor to examine the UST system in order to assist you in determining the construction and configuration of all of the components that comprise your UST system.

BUSTR maintains a list of acronyms and definitions describing all of the options listed on the UST Registration application, Part B. Use this list to help you complete Part B. This list may be found on the BUSTR website at http://www.com.ohio.gov/fire/BUSTRResources.aspx.

Underground Storage Tank (UST) Registration Application, Part B, Page 1

Owner #:	**Facility #:**
Owner Name:	**Facility Name:**

Instructions: See full instructions at end of application. Only Part A of the application needs to be completed and submitted for Transfer of Ownership, though both Parts A & B need to be completed and submitted for New UST Registrations or Modified Registrations.

For each section below, check all options that apply for each UST. Space is provided at the end of the form for explanations.

B1) UST Identification #:	#___	#___	#___	#___	#___	#___
UST Capacity (gallons):						
UST Contents:						
Gasoline	❑	❑	❑	❑	❑	❑
Diesel	❑	❑	❑	❑	❑	❑
Kerosene	❑	❑	❑	❑	❑	❑
Used Oil	❑	❑	❑	❑	❑	❑
New Oil	❑	❑	❑	❑	❑	❑
Jet Fuel	❑	❑	❑	❑	❑	❑
Aviation Gas	❑	❑	❑	❑	❑	❑
Ethanol Blend (>10% ethanol)	❑	❑	❑	❑	❑	❑
Biodiesel Blend (>20% biodiesel)	❑	❑	❑	❑	❑	❑
Other Petroleum Distillate	❑	❑	❑	❑	❑	❑
Heating Oil	❑	❑	❑	❑	❑	❑
Hazardous Substance (explain)	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
UST Status:						
Currently In Use	❑	❑	❑	❑	❑	❑
Removed	❑	❑	❑	❑	❑	❑
Closed In Place	❑	❑	❑	❑	❑	❑
Change In Service	❑	❑	❑	❑	❑	❑
Out of Service	❑	❑	❑	❑	❑	❑
Date of Installation:						
Date Last Used:						
Date Removed:						
B2) UST Configuration:						
Single Wall	❑	❑	❑	❑	❑	❑
Secondarily Contained Double Wall Tank	❑	❑	❑	❑	❑	❑
Secondarily Contained Triple Wall Tank	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B3) UST Construction:						
Bare Metal	❑	❑	❑	❑	❑	❑
Coated/Cathodically Protected Steel	❑	❑	❑	❑	❑	❑
Jacketed Steel	❑	❑	❑	❑	❑	❑
Clad Steel	❑	❑	❑	❑	❑	❑
Fiberglass Reinforced Plastic	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑

Underground Storage Tank (UST) Registration Application, Part B, Page 2						
Owner #:		**Facility #:**				
UST Identification #:	#___	#___	#___	#___	#___	#___
B4) UST Corrosion Protection:						
Factory-Installed Anodes	❑	❑	❑	❑	❑	❑
Field-Installed Anodes	❑	❑	❑	❑	❑	❑
Impressed Current	❑	❑	❑	❑	❑	❑
Internal Lined No Cathodic Protection	❑	❑	❑	❑	❑	❑
Lined and Cathodically Protected	❑	❑	❑	❑	❑	❑
None Required (for example, Fiberglass)	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B5) UST Release Detection:						
Automatic Tank Gauging	❑	❑	❑	❑	❑	❑
Dry Interstitial Monitoring	❑	❑	❑	❑	❑	❑
Wet Interstitial Monitoring	❑	❑	❑	❑	❑	❑
Interstitial Monitoring (Other)	❑	❑	❑	❑	❑	❑
Manual Tank Gauging (< 550)	❑	❑	❑	❑	❑	❑
Manual Tank Gauging (551-2000)	❑	❑	❑	❑	❑	❑
NR - None Required by Rule	❑	❑	❑	❑	❑	❑
Statistical Inventory Reconciliation	❑	❑	❑	❑	❑	❑
Alternative Method (Other, explain)	❑	❑	❑	❑	❑	❑
None Required	❑	❑	❑	❑	❑	❑
B6) Piping Configuration:						
Single Wall	❑	❑	❑	❑	❑	❑
Secondarily Contained	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B7) Piping Style:						
Pressure	❑	❑	❑	❑	❑	❑
Suction	❑	❑	❑	❑	❑	❑
Gravity	❑	❑	❑	❑	❑	❑
B8) Piping Construction:						
Bare Metal	❑	❑	❑	❑	❑	❑
Fiberglass Reinforced Plastic	❑	❑	❑	❑	❑	❑
Flexible Plastic Technology Piping	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B9) Piping Corrosion Protection:						
Field-Installed Anodes	❑	❑	❑	❑	❑	❑
Impressed Current	❑	❑	❑	❑	❑	❑
No piping In Contact With Ground	❑	❑	❑	❑	❑	❑
None Required by Rule	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B10) Piping Release Detection:						
Electronic Line Leak Detector	❑	❑	❑	❑	❑	❑
Mechanical Line Leak Detector	❑	❑	❑	❑	❑	❑
Interstitial Monitoring	❑	❑	❑	❑	❑	❑
Safe Suction	❑	❑	❑	❑	❑	❑
Suction Check Valve at Tank	❑	❑	❑	❑	❑	❑
Gravity Piping	❑	❑	❑	❑	❑	❑
None Required by Rule	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑

Underground Storage Tank (UST) Registration Application, Part B, Page 3						
Owner #:		**Facility #:**				
UST Identification #:	#___	#___	#___	#___	#___	#___
B11a) Spill Prevention Device						
Single Wall Spill Bucket	❑	❑	❑	❑	❑	❑
Secondarily Contained Spill Bucket	❑	❑	❑	❑	❑	❑
None Required by Rule	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B11b) Spill Prevention Release Detection						
Interstitial Monitoring	❑	❑	❑	❑	❑	❑
None Required by Rule	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
B12) Overfill Prevention Device						
Fill Pipe (drop tube – shut-off device)	❑	❑	❑	❑	❑	❑
Vent Line (float vent valve – Restrictor)	❑	❑	❑	❑	❑	❑
Alarm	❑	❑	❑	❑	❑	❑
None Required by Rule	❑	❑	❑	❑	❑	❑
None Present	❑	❑	❑	❑	❑	❑
Other (explain)	❑	❑	❑	❑	❑	❑
Explanations:						

Ohio "BUSTR" Commonly used UST Acronyms

(1a) Status

CIU - Currently in Use
REM - Removed
CIP - Closed in Place
CIS - Change in Service
Other - See Comments (Fee Eligible)
OOS1 - OOS (Out of Service) less than 12 months
OOS2 - Properly OOS 12+ months
OOS3 - Improperly OOS 12+ Months, Viable Owner
OOS4 - Improperly OOS 12+ Months, Non-viable Owner

(2) UST Configuration

SW - Single Wall
SCDW - Secondarily Contained Double Walled Tank
SCTW - Secondarily Contained Triple Walled Tank
Other (explain)

(3) UST Construction

BM - Bare Metal
CCPS - Coated/Cathodically Protected Steel
JS - Jacketed Steel
CS - Clad Steel
FRP - Fiberglass Reinforced Plastic
Other (explain)

(4) UST Corrosion Protection

FACA - Factory Installed Anodes
FLDA - Field Installed Anodes
IP - Impressed Current
ILNCP - Internally Lined No Cathodic Protection
LCP - Lined and Cathodically Protected
NR - None Required by Rule
NP - None Present
Other (explain)

(5) UST Release Detection

ATG - Automatic Tank Gauging
IMTD - Dry Int. Monitoring (D/W Tank)(T/W Tank)
IMTW - Wet Int. Monitoring (D/W Tank)(T/W Tank)
IMO - Int. Monitoring (Other)
MTGL - Manual Tank Gauging (< 1000)
MTGH - Manual Tank Gauging (1001-2000)
NR - None Required by Rule
AMSIR - Alternative Method (SIR)
AMO - Alternative Method (Other, explain)
NP - None Present

(6) Piping Configuration

SW - Single Wall
SC – Secondarily Contained
Other (explain)

(7) Piping Style

P - Pressure
S - Suction
G - Gravity

(8) Piping Construction

BM - Bare Metal
FRP - Fiberglass Reinforced Plastic
FPTP - Flexible Plastic Technology Piping
Other (explain)

(9) Piping Corrosion Protection

FLDA - Field Installed Anodes
IP - Impressed Current
NCWG - No Piping In Contact With Ground
NR - None Required by Rule
NP - None Present
Other (explain)

(10) Piping Release Detection

ELLD - Electronic Line Leak Detector
MLLD - Mechanical Line Leak Detector
IMT - Int. Monitoring
SS - Safe Suction
SCVAT – Suction Check Valve at Tank
G - Gravity Piping
NR - None Required by Rule
NP - None Present
Other (explain)

(11) Ancillary Equipment

SUBP - Submersible Pump in Tank
SUCP -Suction Pump at Dispensing Location
PIV - Piping Isolation Valve at UST
SOLV - Solenoid Valve (e.g., marina piping)
FLXUST - Flex Connector at UST
FLXDSP - Flex Connector Under Dispenser
SV - Shear Valve at Dispenser

(12) Spill Containment Manhole (Spill Bucket)

SBSW - Single Wall Spill Containment Manhole
SBDW - Double Wall Spill Containment Manhole
NR - None Required by Rule
NP - None Present
Other (explain)

(13) Other Containment Locations

TTCT - Tank Top Containment (Tight)
TTCNT - Tank Top Containment (Non-Tight)
UDCT - Under Dispenser Containment (Tight)
UDCNT - Under Dispenser Containment (Non-Tight)
PTC - Piping Transition Containment
NR - None Required by Rule
NP - None Present
Other (explain)

(14) Containment Release Detection

SSLOW - Sump Sensor in Lowest Containment
SSALL - Sump Sensors in All Containments
NR - None Required by Rule
NP - None Present
Other (explain)

(15) Overfill Prevention

FILL - Fill Pipe (drop tube - Shut-off device)
VENT - Vent Line (float vent valve - Restrictor Device)
ALARM - Alarm
NR - None Required by Rule
NP - None Present
Other (explain)

Commonly Used Underground Storage Tank (UST) Acronyms Definitions

(1) Disclaimer

It is BUSTR policy that the following acronyms are to be used by BUSTR personnel and licensed professionals when describing UST construction information on BUSTR forms. The acronyms and their meanings are not to be interpreted as prima facie evidence of compliance or non-compliance with Chapter 1301:7-9 of the Administrative Code.

(2) UST Configuration

SW - Single Wall
The tank is constructed of metal or fiberglass and has only one shell between the regulated product and the soil.

SCDW - Secondarily Contained Double Walled Tank
Includes all double-walled tanks with wet or dry interstitial monitoring.

SCTW - Secondarily Contained Triple Walled Tank
Includes all triple-walled tanks with wet or dry interstitial monitoring.

Other (explain) Jackets, external liners and vaults that completely surround the primary tank and prevent the release of the regulated substance to the surrounding soil.

(3) UST Construction

BM - Bare Metal
A tank made of metal such as steel or copper. It does not have cathodic protection, internal lining, or any non-corrodible material that encapsulates or bonds to the outside of the tank.

CCPS - Coated/Cathodically Protected Steel
A steel tank that has both an external coating and cathodic protection. An example of a coated and cathodically protected tank brand is the sti-P3® tank. Every sti-P3® underground storage tank is protected with one of the three generic types of coating that have been tested to Steel Tank Institute (STI) requirements and then approved for adoption into the sti-P3® specification: coal tar epoxy, urethane, or isophthalic polyester resin. This type of tank is usually installed with galvanic (sacrificial) anodes for cathodic protection. However, these tanks may have an impressed current cathodic protection system if the galvanic (sacrificial) anodes no longer protect the tank from corrosion. All sti-P3® tanks must be electrically isolated from all metallic underground structures that will be exposed to backfill. This includes hold down straps installed to prevent the tank from floating out of the excavation during a high water table. Tank openings are electrically isolated by use of dielectric nylon bushings or flange isolators that will be compatible with stored product.

JS - Jacketed Steel
A steel tank that is encapsulated (or jacketed) in a non-corrodible, nonmetallic material such as fiberglass or polyethylene. This tank is secondarily contained. There is a space between the steel wall and the jacket material. This space may be monitored for a breach of either the inner wall or outer jacket. Examples of jacketed tank brands include: Permatank®, Glasteel II®, Titan®, Total Containment®, and Elutron® from Plasteel®

CS - Clad Steel
A steel tank that has a thick layer of non-corrodible material such as fiberglass or urethane that is mechanically bonded (clad) to the outside of the steel tank. This cladding helps protect the outside of the steel wall from corroding. Examples of clad tank brands include: ACT-100®, ACT-100-U®, Glasteel® and Plasteel®.

FRP - Fiberglass Reinforced Plastic
A tank made of fiberglass reinforced plastic. Examples of current and past FRP tank makers include: Owens® Corning®, Xerxes®, Cardinal®, Fluid Containment®, and Containment Solutions®.

Other (explain)

(4) UST Corrosion Protection

FACA - Factory Installed Anodes
Sacrificial anodes (usually zinc and magnesium) are installed at the factory and attached to the tank. StiP3 tanks come with factory installed anodes.

FLDA – Field Installed Anodes
Holes are drilled at predetermined locations around the tank and sacrificial bag anodes (usually zinc and magnesium) are placed in the ground and attached to the tank. These types of anodes degrade and must be periodically replaced. Many of these types of anodes were installed during the 1998 upgrade period to meet the cathodic protection requirement for older tanks.

IP - Impressed Current
Holes are drilled at predetermined locations around the tank and anodes (usually graphite, high silicon cast iron and mixed-metal oxides) are placed in the ground and attached to a rectifier that produces a small electrical current that flows between the anode and the tank, thus protecting the tank from oxidation.

ILNCP - Internally Lined No Cathodic Protection
A BUSTR approved lining (coating) is applied to the internal surface of the steel tank essentially becoming the tank and relying on the steel tank shell for structural support. No additional cathodic protection has been added to the tank.

LCP - Lined and Cathodically Protected
A BUSTR approved lining (coating) is applied to the internal surface of the steel tank essentially becoming the tank and relying on the steel tank shell for structural support. Cathodic Protection, usually impressed current, is added to the steel tank shell to protect it from corrosion.

NR – None Required by Rule
Fiberglass Reinforced Plastic tanks and some steel tanks such as ACT-100 tanks are constructed in such a manner that no additional cathodic protection is required.

NP – None Present
This should only be used for steel tanks where no required cathodic protection exists and indicates a violation may exist.

Other (explain)

(5) UST Release Detection

ATG - Automatic Tank Gauging
An ATG system provides information on product level and temperature with a probe permanently installed in a tank and wired to a monitor. ATG systems automatically calculate the changes in product volume that can indicate a leaking tank.

IMTD - Dry Interstitial Monitoring (Double & Triple Walled Tanks)
Interstitial Monitoring for tanks shall have an interstitial monitoring method that can detect a release through the inner wall in any portion of the tank that routinely contains a regulated substance.

- An automatic monitoring device must operate continuously and signal the operator if a failure occurs.
- The interstice must be checked at least once a month at the bottom of the interstitial space and show no indication of failure.

IMTW - Wet Interstitial Monitoring (Double & Triple Walled Tanks)
Interstitial Monitoring for tanks shall have an interstitial monitoring method that can detect a release through the inner wall in any portion of the tank that routinely contains a regulated substance.

- An automatic monitoring device must operate continuously and signal the operator if a failure occurs.
- The interstice must be checked at least once a month and show no indication of failure.

IMO - Int. Monitoring (Other)
Excavation Zone Liner: The testing method can detect a release between the UST system and the secondary barrier. This method is extremely rare and the requirements are nearly, if not impossible to meet in Ohio due to Ohio's climate. The requirements are listed in 1301:-9-07(D)(3)(b)(i) to (vii).
Internally Fitted Tank Liner: This method requires an automated device that can detect a release between the inner wall of the tank and the liner. This method is also extremely rare.

MTGL - Manual Tank Gauging (< 1000)
Manual tank gauging involves a person sticking the tank and watching for a drop-in liquid levels. This method is for small tanks of 1,000-gallons or less and requires the tank to be out of service for 36-58 hours each week.
This method may be used only for tanks of 1,000 gallons or less capacity meeting certain requirements:

- 550 gallons or less (No additional requirements)
- 551-1000 gallons (Diameter is 48-inches)
- 551-1000 gallons (Diameter is 64-inches)
- 551-1000 gallons (Alternate diameter, tightness test every 5-years)

MTGH - Manual Tank Gauging (1001-2000)
Manual tank gauging involves a person sticking the tank and watching for a drop-in liquid levels. This method is for small tanks of 1,001-2000 gallons and requires the tank to be out of service for 36 hours each week. This method requires that a tank tightness test is conduct at least every five years.

NR - None Required by Rule
The following are the only tanks exempt from release detection:

- Wastewater treatment tank systems.
- Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954.
- Any UST system that is part of an emergency generator system at nuclear power plant generation facilities regulated by the United States nuclear regulatory commission.
- Above ground storage tanks associated with airport hydrant fuel distribution systems or field constructed tank system.

AMSIR – Alternative Method (SIR)
Statistical inventory reconciliation (SIR) is typically a method in which a trained professional uses sophisticated computer software to conduct a statistical analysis of inventory, delivery, and dispensing data.

- You must supply the professional with data every month. Computer programs enable an owner or operator to perform SIR. In either case, the result of the analysis may be pass, inconclusive, or fail.
- SIR may not be used to meet release detection requirements for piping.
- In order to use SIR, you must use a qualified vendor.

AMO – Alternative Method (Other, explain)
Any alternative method can be used if approved in writing by the State Fire Marshal. Any alternative method allowed by the State Fire Marshal shall be properly monitored, operated and maintained in accordance with any terms and conditions imposed by the State Fire Marshal. The method shall produce a result at least every thirty days.

NP - None Present
This should only be used for tanks where no required release detection exists and indicates a violation may exist.

(6) Piping Configuration

SW - Single Wall
The piping is constructed of metal, fiberglass or flexible technology material and has only one shell between the regulated product and the soil. Some owners have installed double walled flexible technology piping, however it is only considered to be single walled unless it begins and ends in appropriate containment sumps that prevent the release of regulated substance to the environment.

SC – Secondarily Contained
This includes piping that is double walled and uses tank top containment, dispenser containment and piping transition sumps that totally enclose the primary piping, prevent the introduction of ground water and prevent the regulated substance from escaping to the environment. This can also include trench liners, however they are extremely rare.
Other (explain)

(7) Piping Style

P - Pressure
Delivers regulated substance under pressure to the dispensing location by means of a pump located at the tank.

S – Suction
Pulls the regulated substance through the primary piping by means of a suction pump located at the dispensing location, normally in the bottom of the dispensing unit.

G - Gravity
This type of configuration is normally associated with waste oil (used oil) tanks and the regulated substance flows by gravity into the tank. There are no pumps associated with this configuration.

(8) Piping Construction

BM - Bare Metal
This is metal piping that requires additional corrosion protection.

FRP - Fiberglass Reinforced Plastic
This piping is non-metal and is made of fiberglass reinforced plastic. It is a rigid piping (not flexible). Examples of FRP piping makers include Ameron® and Smith Fiberglass Products Inc®. This piping type may also have metal connectors associated with it.

FPTP - Flexible Plastic Technology Piping
This type of piping is made of plastic that is flexible. Examples of nonmetal flexible piping brand names include: Poly-Tech®, Dualoy 3000®, EnviroFlex®, GeoFlex®, Perma-Flex®, Omniflex®, and Co-FlexTM. This piping type may also have metal connectors associated with it.

Other (explain)

(9) Piping Corrosion Protection

FLDA - Field Installed Anodes
Holes are drilled at predetermined locations around the piping and sacrificial bag anodes (usually zinc and magnesium) are placed in the ground and attached to the piping. These types of anodes degrade and must be periodically replaced. Many of these types of anodes were installed during the 1998 upgrade period to meet the cathodic protection requirement for older piping systems.

IP - Impressed Current
Holes are drilled at predetermined locations around the piping and anodes (usually graphite, high silicon cast iron and mixed-metal oxides) are placed in the ground and attached to a rectifier that produces a small electrical current that flows between the anode and the piping, thus protecting the piping from oxidation.

NCWG - No Piping In Contact With Ground
This configuration is normally associated with copper emergency generator piping that is run through a non-metallic raceway to prevent it from having contact with the surrounding soil. It is only used as a barrier between the piping and the soil and is in no way meant to represent a double walled piping system. This can also include properly installed "above ground" piping.

NR – None Required by Rule
This should be used for Fiberglass Reinforced Plastic, Flexible Technology Piping and in some instances piping that is installed through a raceway to prevent any contact with the surrounding soil. Remember that many of these types of piping use metal connectors and that they must also be protected from corrosion. BUSTR has approved the use of isolation sleeves that can be placed over these connectors to prevent corrosion as long as they are compatible with the regulated substance. This can also include properly installed "Above ground" piping.

NP - None Present
This should only be used for metal piping where no cathodic protection exists and indicates a violation may exist.

Other (explain)

(10) Piping Release Detection

ELLD - Electronic Line Leak Detector
Electronic LLD'S have an electronic detection element that connects to an electronic control panel and monitors for piping releases.

MLLD - Mechanical Line Leak Detector
Mechanical LLD'S are mechanically operated pressure valves that test for piping leaks each time the pump is turned on.

IMT - Interstitial Monitoring
Must be performed on all new piping installed after May 16, 2011 and must be capable of detecting a release from the inner or outer wall of the piping, and sensors must be installed in every containment and be able to detect a release of regulated substance before it reached the lowest penetration in the containment. Extensive information is available for requirements for piping installed prior to May 16th, 2011 in 1301:7-9-07 of the Administrative Code.

SS - Safe Suction
- The underground piping operates at less than atmospheric pressure;
- The underground piping is sloped so that the contents of the piping will drain back into the tank if the suction is released;
- Only one check valve is included in each suction line; and
- The check valve is located directly below and as close as practical to the suction pump.

SCVAT – Suction Check Valve at Tank
A check valve is present in the suction line at the tank top or inside the tank.

G - Gravity Piping
This type of piping flows unrestricted into the tank and is not attached to any type of pumping mechanism.

NR - None Required by Rule
The following are the only tanks exempt from release detection:
- Wastewater treatment tank systems.
- Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954.
- Any UST system that is part of an emergency generator system at nuclear power plant generation facilities regulated by the United States nuclear regulatory commission.
- Above ground storage tanks associated with airport hydrant fuel distribution systems or field constructed tank system.

NP - None Present
This should only be used for metal piping where no release detection exists and indicates a violation may exist.

Other (explain)

(11) Ancillary Equipment

SUBP - Submersible Pump
A pump located inside the storage tank, positioned near the bottom of the tank, thereby "submerged" in the fuel. Also referred to as a "turbine" pump, it is used in pressure systems.

SUCP –Suction Pump
A fuel dispensing device that incorporates a suction pump to pull regulated substance through the lines and is usually located in the base of the dispensing unit.

PIV - Piping Isolation Valve at UST
Any valve placed in the fill or dispensing piping to shut off the flow of regulated substance. Isolation valves are used to prevent the flow of regulated substance into or out of the tank during maintenance and other operations.

SOLV – Solenoid Valve (e.g., marina piping)
An electrically operated, normally closed, magnetic valve which prevents siphon flow from the tank to the dispenser or product line.

FLXUST – Flex Connector at UST
A method of connecting the primary piping to the tank top or pump where a change of direction is required. Flexible Connectors dampen the effect of ground and or piping movement. Flexible Connectors are normally limited to a maximum 90 degree bend.

FLXDSP - Flex Connector Under Dispenser
A method of connecting the primary piping to the shear valve under the dispenser or suction pump where a change of direction is required. Flexible Connectors dampen the effect of ground and or piping movement. Flexible Connectors are normally limited to a maximum 90 degree bend.

SV - Shear Valve at Dispenser
A device mounted within the fuel line, directly beneath the dispenser or pump, which shuts off product flow in the event the dispensing unit is dislocated or overturned. The top section shears off, causing the valve to close. A fusible link releases typically in the event of fire, allowing the valve to close.

(12) Spill Prevention Equipment

SBSW - Single Walled Spill Bucket
An assembly installed around the fill connection which will hold a limited amount of regulated substance, typically 5 gallons, which may have been spilled upon the disconnect of the delivery fitting or in the event of tank overfill.

SBDW - Double Walled Spill Bucket
An Double Walled assembly installed around the fill connection which will hold a limited amount of regulated substance, typically 5 gallons, which may have been spilled upon the disconnect of the delivery fitting or in the event of tank overfill.

NR – None Required by Rule
This only affects UST systems installed prior to 1 March 2005. Existing waste oil tanks receiving delivery into the tank of less than 25 gallons per occurrence fall into this category.

NP - None Present
This should only be used for fill connections where no required spill containment exists and indicates a violation may exist.

Other (explain)

(13) Other Containment Locations

TTCT – Tank Top Containment (Tight)
A liquid tight compartment, typically enclosing the turbine pump and piping connections at the top of an underground storage tank, which would provide containment of any product spills. All new UST installations after 1 March 2005 must be tight. All “Hazardous Substance” systems are required to have tight containment sumps.

TTCNT - Tank Top Containment (Non-Tight)
A liquid non-tight compartment, typically enclosing the turbine pump and piping connections at the top of an underground storage tank. This only applies to UST installations prior to 1 March 2005.

UDCT - Under Dispenser Containment (Tight)
A liquid tight compartment, typically used under regulated substance dispensers, which would provide containment of any product spills. All new UST installations after 1 March 2005 must be tight. All “Hazardous Substance” systems are required to have tight containment sumps.

UDCNT - Under Dispenser Containment (Non-Tight)
A liquid non-tight compartment, typically used under regulated substance dispensers, which would provide containment of any product spills. This only applies to UST installations prior to 1 March 2005.

PTC - Piping Transition Containment
A liquid tight compartment where piping transitions, typically used in long piping runs for elevation changes, and compartments, regardless of installation date must be monitored with liquid sensors.

NR - None Required by Rule
The following are the only tanks exempt from release detection:

- Wastewater treatment tank systems.
- Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954.
- Any UST system that is part of an emergency generator system at nuclear power plant generation facilities regulated by the United States nuclear regulatory commission.
- Above ground storage tanks associated with airport hydrant fuel distribution systems or field constructed tank system.

NP – None Present
This only applies to UST systems where containment is required and has not been installed and indicates a violation may exist.

Other (explain)

(14) Containment Release Detection

SSLOW – Sump Sensor in Lowest Containment
A sump sensor is a sensing device located in the Lowest system containment, typically at the tank top that is capable of detecting the release of regulated substance before it reaches the lowest penetration in the containment and notifying the operator that a problem exists.

SSALL – Sump Sensors in All Containments
A sump sensors are sensing devices located in all system containments capable of detecting the release of regulated substance before it reaches the lowest penetration in the containment and notifying the operator that a problem exists.

NR - None Required by Rule
This only applies to systems installed prior to 1 March 2005. Sump Sensors are required to be installed in all containments associated with new UST systems installed after 1 March 2005. All "Hazardous Substance" systems are required to have containment release detection.

NP - None Present
This only applies to UST systems where Sump Sensors are required and have not been installed and indicates a violation may exist.

Other (explain)

(15) Overfill Prevention

FILL - Fill Pipe (drop tube flapper) "Shut-Off Device"
This type of device is normally a mechanical device that will shut off the flow of regulated substance into the tank when the tank is no more than 95% full.

VENT - Vent Line (float vent valve) "Restrictor Device"
Ball float valves (i.e. ball vent) are a type of overfill protection device that function by restricting vapor flow in an UST vent line during delivery at 90% of UST's capacity or 30 minutes prior to over filling. Ball float valves cannot be installed or replaced for use as overfill protection after September 1, 2017. However, you may continue using ball float valves already installed as long as they operate properly. This device shall not be used with any type of suction system, UST's receiving pressurized deliveries or UST coaxial stage I vapor recovery

ALARM – Alarm
This type of device should alert the transfer operator by a high level alarm when the tank is no more than 90% full, or when used in conjunction with a restriction device one minute before overfilling.

NR - None Required by Rule
This only affects UST systems installed prior to 1 March 2005. Existing waste oil tanks receiving delivery into the tank of less than 25 gallons per occurrence fall into this category.

NP - None Present
This should only be used for fill connections where no Overfill Device exists and indicates a violation may exist.

Other (explain)

What are the basics of Financial Responsibility?

Financial responsibility is similar to mandatory automobile insurance. Like owners of automobiles, owners and operators of petroleum underground storage tanks (USTs) must assure that they will have the financial wherewithal to pay for the damage their USTs may cause in the event of a release. To satisfy Ohio's financial responsibility requirements, all petroleum UST system owners and operators must do two things:

1. Participate in the Ohio Financial Assurance Fund (as administered by the Petroleum UST Release Compensation Board) to obtain coverage above a deductible amount. The standard deductible is $55,000; owners of six or fewer tanks may pay a higher premium to obtain a reduced deductible of $11,000. For more information, please visit the Release Compensation Board website at http://www.petroboard.com.

2. Demonstrate financial responsibility for the amount of the deductible by using one of the mechanisms cited in Rule 1301:7-9-05 of the Administrative Code. Owners and operators must prepare and maintain (at all times) a copy of their financial responsibility mechanism. Please refer to the list below for a summary of the various deductible mechanisms that are available.

USEPA list of known Insurance Providers for Underground Storage Tank Owners and Operators: https://www.epa.gov/ust/list-known-insurance-providers-underground-storage-tank-owners-and-operators

Private lists:

- Test of Self-Insurance
- Insurance or Risk Retention Group Coverage
- Guarantee and Standby Trust Fund
- Surety Bond and Standby Trust Fund
- Letter of Credit and Standby Trust Fund

Government lists:

- State or Political Subdivision Bond Rating Test
- State or Political Subdivision Financial Test
- Political Subdivision Guarantee
- State or Political Subdivision Fund

APPENDIX III - The Permits Process and Out of Service Requirements

What are the basics of the BUSTR Permit Process?

If you intend to perform activities that require a permit, BUSTR recommends that you contact a Certified UST Installer, and they will normally handle the permit application process for you and make arrangements to ensure the work is properly supervised and that a Certified UST Inspector is present at the appropriate times. A list of Certified UST Installers may be found on the BUSTR website at https://elicense7.com.ohio.gov/Lookup/LicenseLookup.aspx. A copy of a permit application is available in **Appendix III** or you may obtain a copy on the BUSTR website at http://www.com.ohio.gov/fire.

For many UST activities, a permit is required and a Certified UST Installer shall supervise the work and a Certified UST Inspector shall inspect the work. A permit is required for the following activities:

- Installation
- Removal or closure in place
- Taking an UST out of service more than ninety days or renewing an out-of-service permit
- Perform a change of product or change in service
- Perform a major repair of an UST system that has caused a release
- Perform a modification of an UST system or component

Note: "Modification" means work performed on UST system components that have not leaked such as adding, altering, replacing, or retrofitting the following:

- USTs and any components fixed to UST openings
- Containments located over USTs, under dispensers or at intermediate points excluding spill prevention equipment
- Piping components that routinely contain regulated substances
- Underground vent lines excluding stage two vapor recovery components
- Flexible connector lines
- UST system lining components
- Release detection systems
- Shear valves (any portion)

A permit is not required for routine maintenance activities or to perform monthly or annual walkthrough inspections. Work on the following components shall constitute routine maintenance or normal operational upkeep on existing UST systems provided that the component has not caused a release:

- Drop tubes or overfill prevention devices
- Spill prevention equipment (e.g. spill bucket, engineered catch basin, etc.)
- Fill caps, adapters or stage one vapor recovery component
- Cathodic protection components
- Submersible pumps
- Individual leak detection monitoring units, probes, sensors or line leak detectors that are maintained with like components

Application for BUSTR Underground Storage Tank Permit Part A

Owner and Facility Information

A1) Ownership of Tanks	A2) Facility Information
Owner #:	Facility #:
Owner Name:	Facility Name:
Address:	Address:
City:	City:
State / Postal Code:	State / Postal Code:
Contact Person:	County:
Contact Phone:	Facility Phone:
A3) Contractor Information	**A4) Local Fire Department Information**
Contractor Name:	Fire Department Name:
Address:	
City:	Note: A delegated permit must be obtained if the facility is located in a delegated fire department area.
State / Postal Code:	A list of delegated fire departments may be found at http://www.com.ohio.gov/fire/BUSTRResources.aspx.
Work Phone Number:	

Instructions: See full instructions at end of application. Any person performing permit-required work on underground storage tank (UST) system(s) regulated by Chapter 1301:7-9 of the Administrative Code is required to complete the appropriate sections of 'Application for BUSTR Underground Storage Tank Permit' Part A, B, & C. **Part A applies to all applicants.** When applying for a permit from BUSTR, the permit fee is $35.00. Make your check payable to: "Treasurer, State of Ohio". Permit fee is non-refundable. Permit expires six (6) months from date of issue unless stated otherwise on the permit.

A5) System Information	# _____	# _____	# _____	# _____	# _____
Tank Capacity (list gallons)					
Substance Stored (see instructions)					
Date Last Used (or list 'new' or 'in use')					
A6) Components Undergoing Work (see instructions, denote: T, P, S, C or A)					
A7) Work to be Performed					
Installation (also complete Part C)	❑	❑	❑	❑	❑
Removal (of USTs, piping or containments)	❑	❑	❑	❑	❑
Modification (also complete Part B)	❑	❑	❑	❑	❑
Major Repair (also complete Part B)	❑	❑	❑	❑	❑
Closure in Place (requires prior approval)	❑	❑	❑	❑	❑
Change in Service (to non-regulated)	❑	❑	❑	❑	❑
Change of Product (change % of biofuel)	❑	❑	❑	❑	❑
Initial Out of Service (initial 12 months)	❑	❑	❑	❑	❑
Renewal of Out of Service (list months)	_____	_____	_____	_____	_____

A8) Signature of Applicant:	Work Phone Number:
Date:	Work Email:

Official Use Only

A9) Payment Number:	Payment Date:	Payment Amount:	Initial:

Permit Instructions and Guidance for Completing the Application for BUSTR Underground Storage Tank Permit—Part A

General: Any person performing permit-required work on underground storage tank (UST) system(s) regulated by Chapter 1301:7-9 of the Administrative Code is required to complete the appropriate sections of 'Application for BUSTR Underground Storage Tank Permit' Part A, B, & C. Part A applies to all applicants. Part B applies to modifications, repairs, changes in product of existing UST system(s). Part C applies to installations of new UST system(s). When applying for a permit from BUSTR, the permit fee is $35.00. Make your check payable to: "Treasurer, State of Ohio". Permit fee is non-refundable. Permit expires six (6) months from date of issue unless stated otherwise on the permit. The state inspector fee per facility is $60.00 per hour or fraction thereof while on site, though private UST Inspectors may charge a different fee. When using a state inspector, you will be billed at a later date for the inspection fee.

A1) Ownership of Tanks: List the current owner of the UST system or the current property owner. The property owner is the party listed as the land owner as documented with the county auditor or recorder. Listing the current property owner does not necessarily obligate the property owner to perform a closure assessment or corrective actions.

A2) Facility Information: List the exact street address. Do not list street intersections. If more than one tank area is present at an address, include additional description (e.g., 100 Maple Street—NW corner).

A3) Contractor Information: The contractor may apply for a permit on behalf of the owner. All permit related work must be performed under the supervision of a Certified UST Installer. Both the owner and Certified UST Installer are responsible for obtaining a permit and assuring that the work is inspected by a Certified UST Inspector at the proper times.

A4) Local Fire Department Information: Many of the larger cities have fire departments that have been delegated to issue UST permits and perform inspections. If you perform permit-required work in a delegated area, then you must submit the permit application to the delegated fire department. A list of delegated fire departments may be found at http://www.com.ohio.gov/fire/BUSTRResources.aspx or contact BUSTR at (614) 752-7938 for clarification.

A5) System Information: List the capacity of the UST that is most affected by the work. List the substance store (e.g., gas, diesel or kerosene). If the substance stored is unknown, you must submit additional information demonstrating that the UST is regulated by BUSTR. If the UST is intended for the storage of bio fuels (i.e., greater than 10% ethanol or 20% biodiesel) list the % of the blend of biofuel to be stored. Applications for USTs that are out of service must include the "Date Last Used". Please note, the following substances are not regulated by BUSTR:

- Heating fuel for consumptive use on the premises where stored.
- 100% ethanol or 100% biodiesel.
- Diesel Exhaust fluid (DEF).

A6) Components Undergoing Work: Denote all components undergoing work. T=Tank, P=Piping, S=System, C=Containments, A=Ancillary Equipment. Installation work normally applies to the entire system (S). Removal work can apply to the entire system or individual components (T, P, C, S or A). Modification, repair and change of product work always applies to individual components (T, P, C or A). Out of service, closure in place and change in service work applies to major components only (T, P or S).

A7) Work to be Performed: BUSTR allows different types of work to take place under one permit, though check only one work activity per UST. Installation work is always associated with the installation of a new UST, and the Application for BUSTR Underground Storage Tank Permit—Part C must be filled out as well. In order to distinguish modification from routine maintenance work, refer to the definitions found in paragraph (B) of rule 1301:7-9-02. Modification work is always associated with existing UST systems, and the Application for BUSTR Underground Storage Tank Permit—Part B must be filled out. Major repair applies in cases where a release has occurred. Before repairing an UST system, it is important to report a suspected release to BUSTR. In most cases, a BUSTR inspector will need to visit the site prior to the issuance of a permit for closure-in-place. Change of product applies to existing USTs where greater than 10% ethanol or greater than 20% biodiesel will be stored in the USTs. A permit is required when an UST or piping is out of service more than 90 days. A renewal out-of-service permit must be obtained when an UST or piping is out of service for more than twelve months. List the number of additional months you are seeking.

A8) Signature of Applicant: BUSTR will contact this party first if additional information is needed in order to process the permit application. To avoid delays, be sure to list accurate contact information.

Application for BUSTR Underground Storage Tank Permit Part B
Modification, Repair or Change of Product of Existing UST Systems

Owner #:	Facility #:
Owner Name:	Facility Name:

Instructions: Any person performing permit-required work on underground storage tank (UST) system(s) regulated by Chapter 1301:7-9 of the Administrative Code is required to complete the appropriate sections of 'Application for BUSTR Underground Storage Tank Permit' Part A, B & C. Part A applies to all applicants. **Part B applies to modifications, major repairs or change of product of existing UST system(s).** Parts C applies to installations of new UST system(s). Applications and supporting information shall be submitted to either the Bureau of Testing & Registration or to the local fire department for those areas where authority has been delegated.

Note: Paragraph (C)(6) of rule 1301:7-9-06 of the Administrative Code (effective AAA) lists several conditions whereby owners are required to retrofit their single wall UST systems and install secondarily contained components such as double-wall USTs, double-wall piping, containment sumps and sensors. Please review the guidance titled "Performing Work on Single Wall UST Systems" on the BUSTR web site at http://www.com.ohio.gov/fire/BUSTRResources.aspx to determine if any retrofit requirements apply.

Provide a brief description of the work to be performed:

Yes	No	Mark Yes or No for the following:
❑	❑	Is single wall piping present at the site? Note: If the cumulative amount of single wall piping undergoing work is over 50% for the piping run, then entire piping run shall be replaced with double wall piping and containment sumps. Containment sump sensors are also required.
❑	❑	Is a new dispenser location being added to the existing site? Note: If a new dispenser is being added, then a containment sump is also required.
❑	❑	Is an existing dispenser at the site being replaced with a new dispenser? Note: If an existing dispenser is being replaced, and all of the connecting equipment is replaced at the same time, then a containment sump is also required.
❑	❑	Are more than fifty percent of the possible containment sump locations undergoing work at the site? Note: If more than fifty percent of the possible containment sump locations undergo work, then sump sensors are also required.

	The following items shall be submitted with the application. Indicate with a mark that the following items are included in the application package:
❑	A thorough description or scope of work of activities being performed on the UST system(s).
❑	A scaled site plan noting location of structures, property, streets, waterways, major utilities within 50 feet of the site.
❑	USTs, product lines and dispenser islands and vent lines are clearly shown on the submitted plan.
❑	A thorough description, including brand names, of all UST, piping, containment, and ancillary components for the UST system(s).
❑	Underwriters Laboratories (UL) listings, or equivalent, demonstrating compatibility with biofuel (ethanol greater than 10% or biodiesel greater than 20%) or with any hazardous substance, if present.

Name of Applicant (print):	Date:
Work Phone Number:	Work Email:

Application for BUSTR Underground Storage Tank Permit—Part C
Installation of New UST Systems

Owner #:	Facility #:
Owner Name:	Facility Name:

Instructions: Any person performing permit-required work on underground storage tank (UST) system(s) regulated by Chapter 1301:7-9 of the Administrative Code is required to complete the appropriate sections of 'Application for BUSTR Underground Storage Tank Permit' Part A, B & C. Part A applies to all applicants. Part B applies to modifications, repairs or change of product of existing UST system(s). **Parts C applies to installations of new UST system(s).** Applications and supporting information shall be submitted to either the Bureau of Testing & Registration or to the local fire department for those areas where authority has been delegated.

Provide a brief description of the work to be performed:

Yes	No	Mark Yes or No for the following: If Yes is marked, describe in detail in the scope of work.
❑	❑	Is any UST system intended for the storage of biofuel that exceeds 10% ethanol or 20% biodiesel by volume?
❑	❑	Is any UST system intended for the storage of hazardous substances per Chapter 1301:7-9-03 of the OAC?
❑	❑	Are any metallic components that routinely contain regulated substance in contact with earthen material?
❑	❑	Is any UST system located next to a bulk, processing or industrial petroleum location?
❑	❑	Is any piping configured to be pressurized by more than one pump feeding into the same line?

	Complete the following by entering the appropriate information:
	List the number of feet that the UST(s) are from the closest property line.
	List the number of feet that the UST(s) are from the closest building foundation.
	List the number of feet that the dispenser(s) are from the closest property line.
	List the number of feet that the dispenser nozzle(s) are to the closest building opening.
	List the number of feet that the dispenser(s) are to the closest fixed source of ignition.
	List the number of feet that the kerosene dispenser(s) are from the closest class I dispenser (e.g., gasoline).
	Indicate the purpose of the facility: Retail or Non-Retail.
	Indicate the type of facility: Attended or Unattended.

	The following items shall be submitted with the application. Indicate with a mark that the following items are included in the application package:
❑	A thorough description or scope of work of activities being performed on the UST system(s).
❑	A scaled site plan noting location of structures, property, streets, waterways, major utilities within 50 feet of the site.
❑	USTs, product lines and dispenser islands and vent lines are clearly shown on the submitted plan.
❑	A thorough description, including brand names, of all UST, piping, containment, and ancillary components for the UST system(s).
❑	Underwriters Laboratories (UL) listings, or equivalent, demonstrating compatibility with biofuel (ethanol greater than 10% or biodiesel greater than 20%) or with any hazardous substance, if present.

Name of Applicant (print):	Date:
Work Phone Number:	Work Email:

What are the basics of Out-Of-Service Requirements?

If the normal operation and use of an UST system or any portion of the UST system is discontinued, then the owner and operator shall follow the out-of-service requirements described in Rule 1301:7-9-12 of the Administrative Code.

UST systems are to be emptied and secured within ninety days of going out-of-service. Also, an out-of-service permit is required for an UST system out-of-service for more than ninety days. A permit application is available on the BUSTR website at: http://www.com.ohio.gov/fire

BUSTR regulations allow USTs systems to remain out-of-service for up to twelve months. At the end of this time period, owners and operators are required to do one of the following:

- Place the UST system back into service
- Remove the UST system
- Obtain a renewal permit to remain out-of-service longer

Renewal permits will be approved at the discretion of the state fire marshal (or in some cases, the fire official for the local fire department if the department is delegated). Therefore, in order to increase the likelihood of obtaining a renewal permit, it is recommended that UST system be maintained in a secure manner and corrosion protection, if required, be properly maintained. It is the goal of the state fire marshal that UST systems should eventually be placed back into service or removed.

Note: The procedures summarized in the above paragraphs described the typical requirements that apply to most UST systems; however, Rule 1301:7-9-12 of the Administrative Code allows for additional out-of-service options for some types of UST systems.

The out-of-service requirements apply to any person who holds a legal, possessory, or equitable interest in a parcel of real property on which an underground storage tank system is located. It does not matter if you recently purchased the property or if the UST was last used over 50 years ago. Also, the out-of-service requirements apply to any person who is an "owner" or "operator" as those terms are defined in section 3737.87 of the Revised Code.

A closure assessment (i.e. environmental sampling) is required if an UST system is out of service for more than 12 months without a valid permit. The responsible party (who may be the current or a previous owner or operator, depending or circumstances) is required to perform the closure assessment.

If an UST system is out of service for any length of time, owners are still required to pay annual registration fees.

APPENDIX IV – Hazardous-Substance, Previously Deferred/ Partially Excluded Systems and Single Wall Versus Double Wall

What are the basics for Hazardous Substance UST Systems?

Rule 1301:7-9-03 of the Administrative Code lists several thousand compounds that are defined as hazardous substances. In Ohio, less than 200 USTs contain hazardous substances. In contrast, more than 21,000 USTs contain petroleum. Definitions in Rule 1301:7-9-02 of the Administrative Code state that petroleum is not defined as a hazardous substance provided the petroleum is stored in a petroleum UST system. Therefore, for the purpose of BUSTR regulations, almost all petroleum products (including motor fuel) are not classified as hazardous substances.

All UST systems containing hazardous substances, regardless of age or location, shall be secondarily contained and shall be monitored for releases using interstitial monitoring. The construction, operation and maintenance requirements for UST systems containing hazardous substances are the same as for newly installed UST systems containing petroleum except that underground piping and manifolds that convey hazardous substances under suction shall also be secondarily contained and shall be monitored for releases using interstitial monitoring.

What are the basics for UST Systems Located in Former Sensitive Areas?

On September 1, 2017, Rule 1301:7-9-09 of the Administrative Code, titled 'Sensitive Areas', was rescinded. Most sensitive areas were located in Western Ohio. This means petroleum UST systems installed in sensitive areas between September 1, 1992 and March 1, 2005, are no longer required to be equipped or operated to meet secondary containment requirements specified in the sensitive area rule.

Though, petroleum UST systems installed on or after March 1, 2005 and May 16, 2011, are required to meet secondary containment requirements for piping and USTs respectively. In other words, petroleum UST systems located in former sensitive areas shall meet the same requirements as other UST systems located throughout Ohio and shall be commensurate with the rules in effect at the time for non-sensitive area UST systems.

What are the basics for Previously Deferred and Partially Excluded Systems?

As a result of new federal laws, a number of new requirements apply to previously deferred UST systems. Also, the status of partially excluded systems has been clarified. Please refer to Rule 1301:7-9-01 of the Administrative Code that describes the deadlines and conditions that apply to the following systems:

- Previously deferred emergency generator systems shall comply release detection requirements.
- Previously deferred airport hydrant fuel distribution systems shall comply with all BUSTR regulations.
- Previously deferred field constructed underground tanks shall comply with all BUSTR regulations.
- Partially excluded wastewater treatment tank systems shall comply with corrosion protection and clean-up requirements.
- Partially excluded above ground storage tanks associated with airport hydrant fuel distribution systems or field constructed underground tanks shall comply with clean-up requirements.
- Partially excluded UST systems containing radioactive materials shall comply with corrosion protection and clean-up requirements.
- Partially excluded UST systems associated with emergency generator systems at nuclear power generation facilities shall comply with corrosion protection and clean-up requirements.

Single Wall Versus Double Wall

The age and construction of your USTs and piping directly influences the regulations that apply to your UST systems. Many older UST systems are single wall. However, new UST systems are required to be double wall (often referred to as secondarily contained systems). It is important to know the age of your UST system in order to determine if double wall requirements apply to you. Check your records or talk to your service provided to determine the age of your UST system. As an alternative, go to the BUSTR website at http://www.com.ohio.gov/fire to determine the age of your UST systems. The key regulatory dates are as follows:

- Petroleum UST systems installed prior to March 1, 2005, are allowed to be single wall (unless the system undergoes modification or major repair activities). UST systems may use a variety of release detection methods provided the method produces a valid result at least once a month.

- After March 1, 2005, piping associated with new UST systems is required to be equipped with secondary containment in the form of double wall piping and containment sumps (though new tanks are not required to be double wall). The interstice of the double wall as well as the containment sump shall be continuously monitored.

- After May 16, 2011, new UST systems are required to be equipped with secondary containment in the form of double wall tanks, piping and containments. The interstice of the double wall as well as the containment sump shall be continuously monitored.

- After May 16, 2011, existing single wall UST systems that undergo modification or major repair activities may be required to be equipped with secondary containment in the form of double wall tanks, piping and containment sumps. This requirement mainly depends on the percentage of the existing single wall UST system undergoing work. The interstice of the double wall as well as the containment sump shall be continuously monitored.

- After the effective date of this rule, UST systems installed in sensitive areas from September 1, 1992 to March 1, 2005, are no longer required to be equipped with secondary containment. Instead, these UST systems shall meet the secondary containment requirements pursuant to dates described above.

- All UST systems containing hazardous substances, regardless of age, are required to be equipped with secondary containment in the form of double wall tanks, piping and containment sumps. The interstice of the double wall as well as the containment sump shall be continuously monitored.

Performing Work on Single Wall UST Systems

Bureau of Underground Storage Tank Regulations (BUSTR)

Created: September 1, 2017
Revised: December 1, 2017

Ohio | Department of Commerce
Division of State Fire Marshal
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Ohio Department of Commerce, Division of State Fire Marshal, BUSTR

Performing Work on Single Wall UST Systems — December 2017

This guidance is intended to clarify when tank owners are required to retrofit their single wall UST systems and install secondarily contained components such as double-wall USTs, double-wall piping, containment sumps and sensors.

Paragraph (C)(6) of rule 1301:7-9-06 of the Administrative Code (effective September 1, 2017) describes the conditions that trigger the retrofit requirements:

> *(6) Any work performed on an existing UST system that requires a permit pursuant to rule 1301:7-9-10 of the Administrative Code or as otherwise provided in this paragraph, shall meet the following requirements:*
>
> *a) If work causes an existing UST to be replaced, the new UST shall be equipped, operated and maintained pursuant to the new UST requirements defined in paragraph (B)(1)(a) of this rule (i.e., secondarily contained components). The following requirements may also apply:*
>
> *(i) Tank top containment sumps shall be installed pursuant to paragraph (B)(1)(c)(i) of this rule; and*
>
> *(ii) Existing piping and dispenser containment sumps shall be installed, replaced, or modified pursuant to paragraphs (C)(6)(b) to (C)(6)(d) of this rule;*
>
> *b) If piping is installed, replaced, modified, or undergoes major repair that affects more than fifty percent of an existing piping run measured as the length of the pipe between the connection at the UST and the furthest dispenser or use location associated with the UST connection that routinely contains regulated substances, then the piping and associated containment sumps shall be equipped, operated and maintained pursuant to the new piping and containment sump requirements defined in paragraphs (B)(1)(b) and (B)(1)(c) of this rule (i.e., secondarily contained components). The measurements relating to the fifty percent threshold shall be cumulative and shall include all work performed after May 16, 2011;*
>
> *c) If a new fuel dispenser is installed where there previously was no fuel dispenser at an existing UST site then a new containment sump shall be installed pursuant to paragraphs (D)(5) and (D)(6) of this rule; and*
>
> *d) If an existing fuel dispenser is replaced with another fuel dispenser and all of the equipment needed to connect the dispenser to the underground storage tank system is installed, replaced, modified or undergoes a major repair at the same time, then a new containment sump shall be installed pursuant to paragraph (D)(5) and (D)(6) of this rule. The equipment necessary to connect the dispenser to the underground storage tank system includes check valves, shear valves, unburied risers, flexible connectors, and other transitional components that are underneath the dispenser and connect the dispenser to the underground piping.*

Paragraph (C)(7) of rule 1301:7-9-07 of the Administrative Code (effective September 1, 2017) describes the conditions that trigger the retrofit requirements for release detection:

> *(7) If work is performed on an existing UST system in order to meet the requirements of paragraph (C)(6) of rule 1301:7-9-06 of the Administrative Code, then the UST, piping, or containment sumps affected by the work shall meet the release detection requirements for new UST systems as described in paragraphs (B)(1) to (B)(3) of this rule, except that containment sumps for existing UST systems installed prior to March 1, 2005, are not required to meet those requirements until fifty percent or more of the containment sumps at the UST site undergo work pursuant to paragraph (C)(6) of rule 1301:7-9-06 of the Administrative Code.*

Interpretation of Retrofit Requirements

- When calculating the percentage of existing piping undergoing work, do not include the length of any new piping added. Base the calculation solely on the length of the single wall piping present at the site on May 16, 2011 (the date the retrofit requirement first became effective). If additional work is performed in the future, the determination of piping that is subject to retrofit requirements shall be calculated using the length of single wall piping that was present on May 16, 2011, compared to the same length of piping that has undergone work (or will undergo work) since May 16, 2011.

- If work is performed on a site that had double wall piping and containment sumps installed prior to May 16, 2011, but the components were not installed in a tight configuration, then any work performed on these components will be subject to retrofit calculations and conditions.

- If a situation exists where piping runs from two USTs are manifolded together (i.e., connected together), the calculation for determining if more than fifty percent of the piping run is affected will be determined by measuring the distance from each UST to the furthest dispensing location (each scenario will be calculated separately). If a scenario exceed fifty percent, then just the components affected by that scenario shall be subject to retrofit requirements.

- When determining if a containment sump should be installed under an existing dispenser, keep in mind the requirement only applies if all of the connecting equipment is replaced at the same time the dispenser is replaced. This includes all shear valves and flexible connectors for all grades of fuel in the containment sump.

- When determining if a containment sump should be installed under an existing dispenser, keep in mind the requirement only applies if the dispenser is replaced with another dispenser unit. If the old dispenser unit is used again in the same location, the requirement to install a containment sump does not apply. However, this condition does not apply in cases where fifty percent or more of the existing piping run is replaced.

- If fifty percent or more of containment sump locations undergo work, sensors only have to be added to the containment sumps that underwent work (in some cases, sensors may not be required in all of the containment sump locations at the site).

- If any circumstances trigger the requirement for secondarily contained piping, keep in mind that interstitial monitoring of the piping is required as well. In many cases, this can only be accomplished by installing sensors in all containment sump locations.

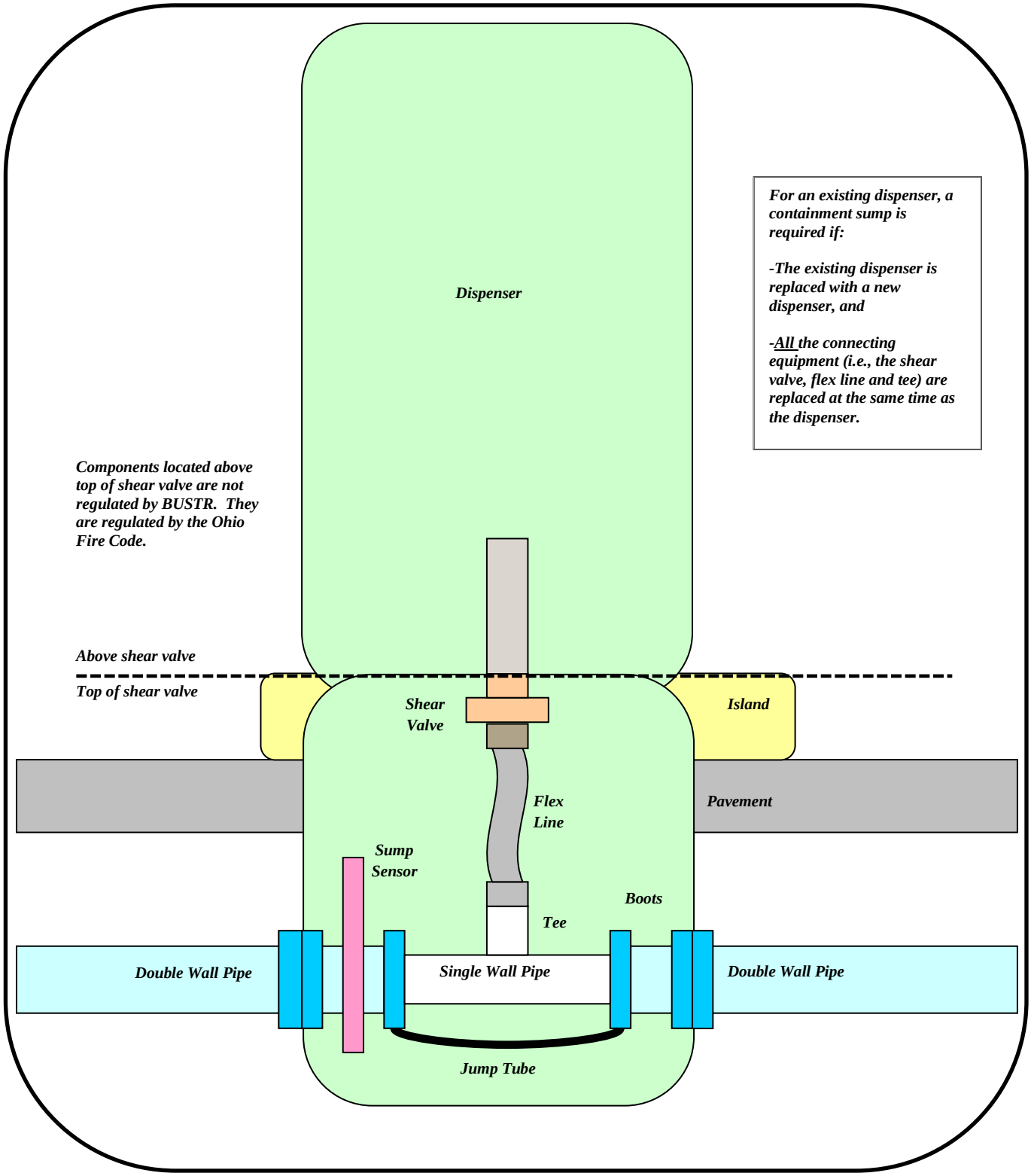
Work and Permits

Throughout this document, the term ‘work’ is used to describe activities that could lead to the need to equip UST systems with secondary containment. In this context, work means those activities that require a BUSTR permit such as installation, replacement, modification, and major repair activities. Work does not mean ‘routine maintenance or normal operational upkeep’ as defined in the BUSTR rules.

Closure Sampling and Closure Assessment Report

It is important to remember that most of the work described in this guidance triggers the requirement for closure sampling and a closure assessment report. These requirements are specific to the type of work being performed at the site, and owners and operators are encouraged to visit the BUSTR web site at http://www.com.ohio.gov/fire/BUSTRResources.aspx for more information on these requirements.

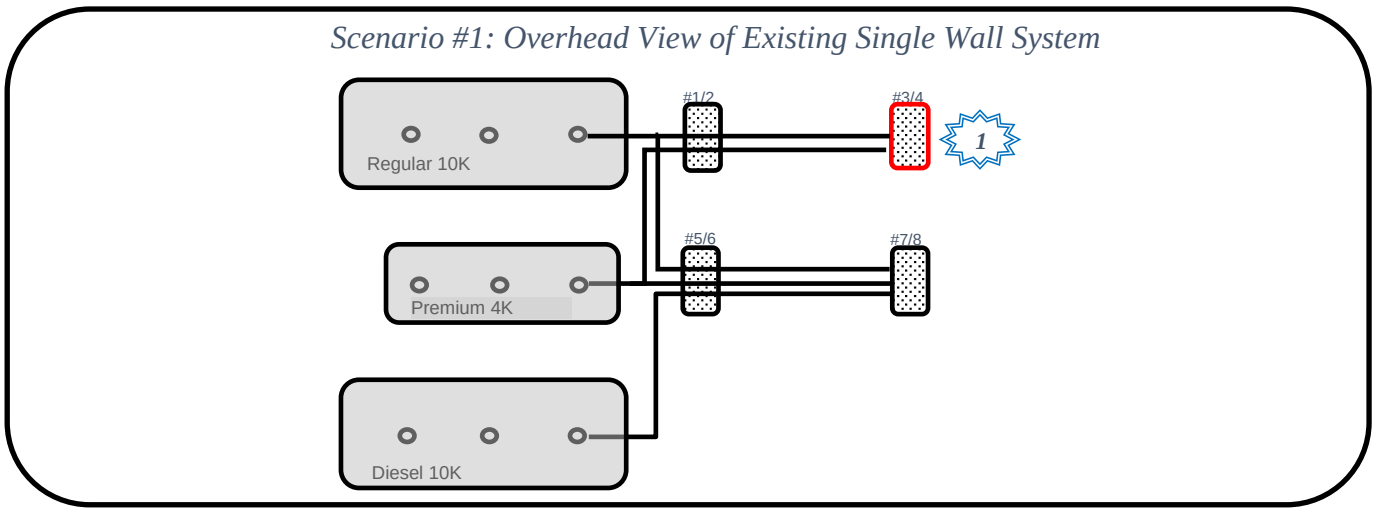
Example of a Cross Section of a UST System Meeting New Rule Requirements



Scenario #1:

Existing facility replacing dispenser. Replace dispenser #3/4 with a new dispenser. No containment sumps present under old dispensers or at tank top. No work to be performed on shear, flex line or product line.
Action needed: No permit required. No containment sumps or sensors required under replaced dispenser.
Rationale: No ancillary equipment is undergoing work that requires permit. Since all of the connecting equipment is not being replaced, the old dispenser may be replaced with a new dispenser unit without triggering the requirement for containment sumps or sensors.

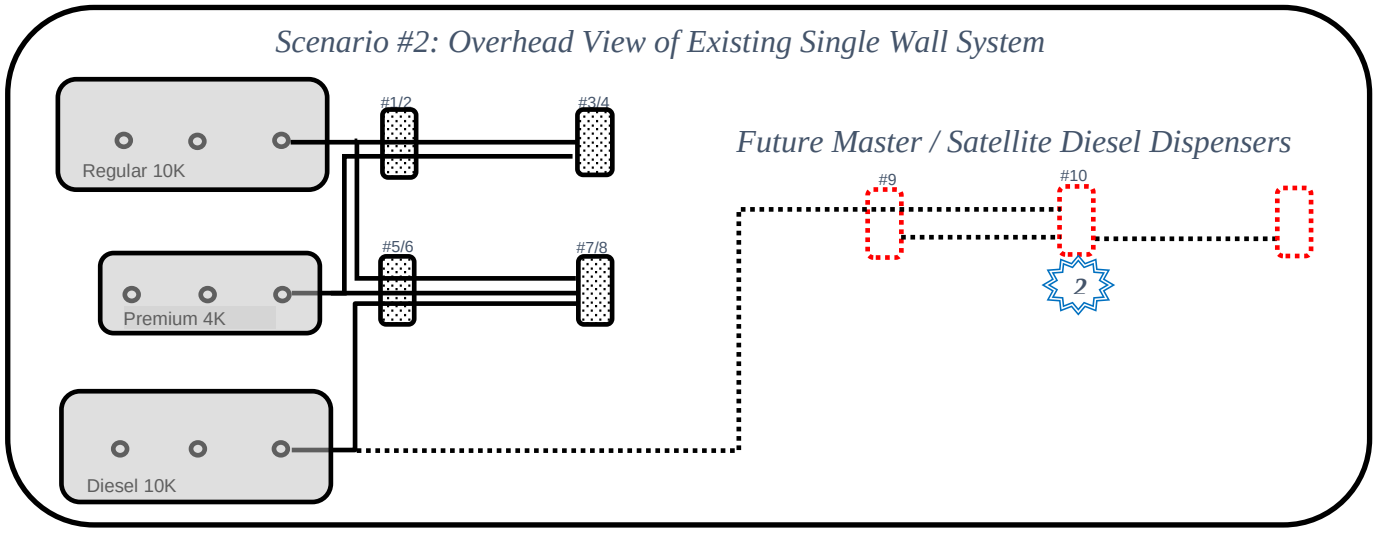
Scenario #1: Overhead View of Existing Single Wall System



Scenario #2:

Existing facility adding several dispensers. Add three new diesel dispensers (in master/satellite configuration). Old dispensers to remain unchanged. No containment sumps present under old dispensers. Less than 50% of existing diesel product line to be worked on.
Action needed: Permit required. Existing single wall piping and any piping added may be single wall. Containment sump required under new dispensers, though no sensor required.
Rationale: Since the old dispensers are <u>not</u> being replaced, only the new dispenser shall have a containment sump. Since less than 50% of the containment sumps have been worked on (i.e., three of ten possible containment sumps associated with the existing UST systems and future dispensers at the site), no sensors are required. Note: When calculating the percentage of existing single wall piping undergoing work, do not include the new piping in the calculation (the 50% retrofit calculation is based off the existing piping only).

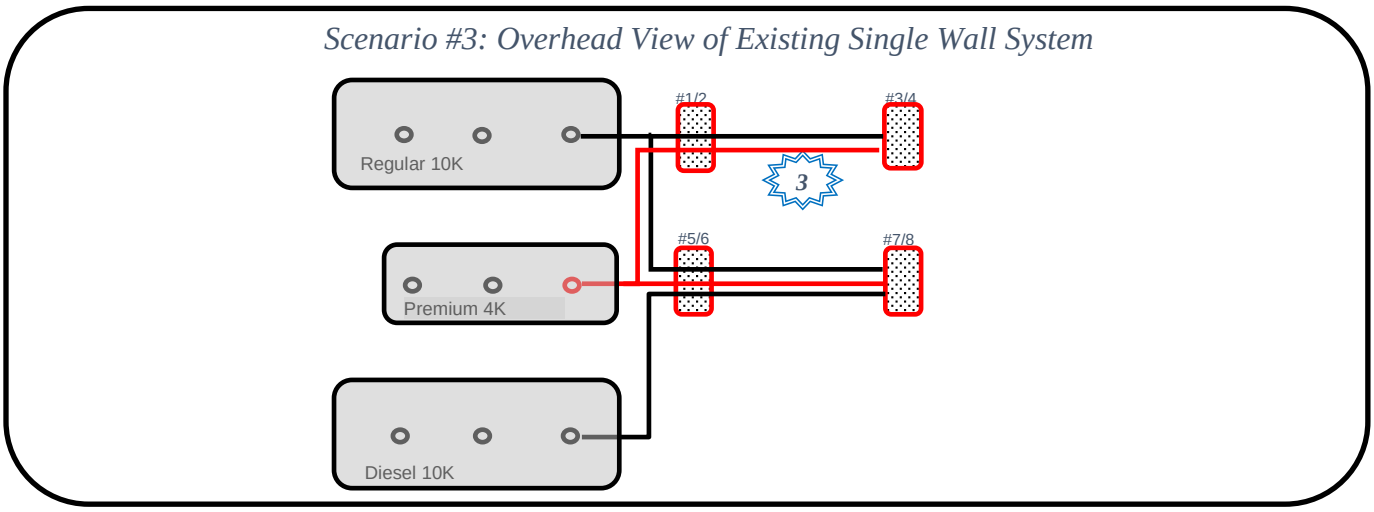
Scenario #2: Overhead View of Existing Single Wall System



Scenario #3:

Existing facility undergoing line repair. Following a line leak, more than 50% of existing single wall product line from the premium UST to be replaced. No containment sumps present under old dispensers.
Action needed: Permit required. All piping associated with the premium line shall be double wall. Containment sumps and sensors required under all dispensers offering premium fuel (or blended with premium fuel) and at the premium tank top.
Rationale: Working on greater than 50% of the existing premium product line triggers requirement for all piping to be double wall and the installation of containment sumps at all locations associated with premium fuel. Since more than 50% of the containment sumps have been worked on (i.e., five of seven possible containment sumps associated with the existing UST systems at the site), sensors are required in each containment sump. If the premium product line share a common trench with other product lines, and the work causes more than 50% of the other product lines to be replaced, then the other product lines are also subject to retrofit requirements.

Scenario #3: Overhead View of Existing Single Wall System



Scenario #4:

Existing facility undergoing cumulative work. In 2012, less than 50% of existing single wall regular product line was replaced. In 2017, additional work on same line leads to more than 50% of the line being replaced (cumulatively). No containment sumps present under old dispensers.
Action needed: Permit required. All piping associated with the regular line shall be double wall. Containment sumps and sensors required under all dispensers offering regular fuel (or blended with regular fuel) and at the regular tank top.
Rationale: The work performed in 2012 and 2017 caused more than 50% of the existing regular line to be replaced. This cumulative activity triggers the requirement for all regular piping to be double wall and the installation of containment sumps at all locations associated with regular fuel. Since more than 50% of the containment sumps have been worked on (i.e., five of seven possible containment sumps associated with the existing UST systems at the site), sensors are required in each containment sump. If the regular product line share a common trench with other product lines, and the work causes more than 50% of the other product lines to be replaced, then the other product lines are also subject to retrofit requirements.

Scenario #4: Overhead View of Existing Single Wall System