

*** UST Training Material

Operator's Responsibilities

What is a Class "B" Operator?

A Class B Operator is an individual who implements day-to-day aspects of operating, maintaining, and recordkeeping for USTs at one (1) or more facilities.

A Class B Operator will monitor and maintain UST systems. This will include but not be limited to the following:

- Release detection method requirements are met.
- Release prevention equipment requirements are met.
- The corrosion protection method and testing requirements are met.
- All UST system documentation requirements are met and demonstrate compliance.
- All relevant equipment complies with performance standards.
- Appropriate individuals are trained to properly respond to emergencies caused by releases or spills from underground storage tank systems at the facility.
- IDEM Reporting procedures and requirements for leaks, spills, and releases.
- Ensure that a Certified Class C Operator is on-site at all manned facilities when a Class A nor a Class B Operator is present.

What shared oversight requirements do Class A and B Operators have in regard to Class C training responsibilities?

This will include but not be limited to the following:

Class A and/or B Operators must train all Class C Operators, or organize and approve training from a contractor. An easily accessible place should be established where important documents and a contingency plan are kept with specific written procedures and contact numbers for emergency situations. This will be specific to each location and for each company or corporate office. In association with who and when to call, specific written procedures must contain the following initial responses, if the following were to occur:

- Alarms go from UST monitoring equipment.
- A dispenser is damaged and there is the possibility of a leak.
- A spill or overfill during fuel delivery.
- A visible release occurs or there are signs that a release might have occurred.

- Leak detection equipment shuts down pumps

Class C operators are attendants and employees on-site with day to day responsibilities including responding to alarms, or other indications of emergencies caused by spills, leaks, or releases associated with an UST system. All Class C operators are effectively trained with specific written instructions.

What are the Class C Operators' Responsibilities?

The UST system day to day responsibilities involves emergency response procedures, compliance reporting and record keeping. Class C operators' responsibilities include but not limited to the following:

- Procedures for spill and overfill protection during delivery of regulated substances.
- Operation and location of emergency shut-off systems and UST system circuit breakers.
- Appropriate responses and documentation to all alarms.
- General knowledge of reporting requirements of leaks, spills, and releases.
- All site-specific emergency response and contingency plans (including situations posing an immediate danger or threat to the public or to the environment that requires immediate action).
- The names and contact information of emergency personnel.
- General knowledge of corrosion protection and release detection, specific to your facility's UST system.
- Appropriate responses and documentation of reports from the public of damaged equipment or unusual operating conditions.
- Establish periodic training times, such as once a year for all Class C operators.

UST System Basics

General Tank Requirements

- All regulated tanks that are underground and routinely contain products must be protected from corrosion
- All underground tanks installed after December 22, 1988, need to meet all appropriate construction standards and must be installed according to a standard code of practice and manufacturer's instructions
- All tanks must be made of or lined with materials compatible with the substance stored in the UST
- All tanks installed before September 2, 2009 must meet upgrade/performance standards in place at that time.
- As of September 2, 2009:

- All tanks installed after or on September 2, 2009, must be double-walled or have secondary containment and must have an interstitial space
- Interstitial monitoring must be performed continuously on all new tanks

Types and Materials of Tanks

Cathodically Protected Steel Tank

- An example of a coated and cathodically protected steel tank is the STI-P3® tank. This tank has a dielectric coating on the outside and galvanic anodes attached to the outside of the tank.

Clad Steel Tank

- A steel tank that has a thick layer of non-corrodible material such as fiberglass or urethane mechanically bonded (clad) to the outside of the tank
- The clad coating helps protect the outside of the steel wall from corroding.
- ACT-100®, ACT-100-U®, Glasteel®, and Plasteel are all examples of clad tanks brands.

Jacketed Steel Tank

- A jacketed steel tank is a steel tank that is encapsulated (or jacketed) in a non-corrodible, nonmetallic material such as fiberglass or polyethylene.
- This tank is secondarily contained which means there is a space between the steel wall and the jacket material. This space may be monitored for a breach of either wall
- Permatank®, Glasteel II®, Titan®, Elutron®, and Total Containment® are examples of jacketed steel tank brands.

Fiberglass Reinforced Plastic (FRP) Tank

- Tanks are made of fiberglass-reinforced plastic
- Owens Corning, Xerxes, Cardinal, Fluid Containment, and Containment Solutions are makers of FRP Tanks.

Compartment Tanks

- These type of tanks are divided into two or more compartments
- Each compartment usually will hold different product grades
- Each compartment must be registered as a separate unit

Manifold Tanks

- The tank consists of two or more tanks connected by piping
- Usually, only one submersible pump is used
- All piping used to manifold tanks must meet corrosion protection requirements

General Piping Requirements

- All regulated piping that is in contact with the ground and routinely contains product must be protected from corrosion - usually underground or buried (no matter when it was installed)

Note: Fill pipes and vent lines do not need corrosion protection because these components do not routinely contain product

All piping that is in contact with the ground and routinely contains product that was installed after December 22, 1988, must meet all appropriate construction standards and be installed according to a standard code of practice and the manufacturer's instructions

- All underground piping must be made of materials that are compatible with the substance that is stored in the UST
- All new piping and secondary containment installed after September 2, 2009, must be double-walled or secondarily contained, and use interstitial monitoring for release detection, as well as have periodic tightness tests and secondary containment.

Piping Construction

Steel Piping

- All steel piping must be cathodically protected or isolated from contact with the ground

Fiberglass Reinforced Plastic (FRP) Piping

- Piping is nonmetallic and is made of fiberglass-reinforced plastic.
- FRP piping makers include Ameron and Smith Fiberglass Products.

Flexible Plastic Piping

- Poly-Tech, Dualoy 3000, EnviroFlex, GeoFlex, Perma-Flexx, Omniflex, and Co-FlexTMTitan®, Total Containment®, and Elutron® are examples of flexible piping brand names

Piping Systems

The two most common types of piping delivery systems are **pressurized and suction**. If installed prior to 9/2/2009, then requirements differ depending on whether piping is pressurized or suction. You must be able to differentiate between the types of piping systems at your facility

Pressurized

- Uses a submersible turbine pump (STP) located inside the tank that pushes product to the dispenser
- Should have an STP head above the tank
- These STP heads are usually covered with a lid and may also have a sump cover under the lid

Suction

- Suction product delivery pulls product from the tank to the dispenser through the piping by using a suction pump
- Should have a suction pump, pulleys, and belts
- There will not be an STP pump head above the tank

Pressurized Piping Systems

Pressurized piping must have two forms of Leak Detection

- **Catastrophic**
 - Pressurized systems must be equipped with an automatic in-line leak detector to prevent large sudden releases - line leak detector must be tested annually
- **Periodic**
 - Installed prior to 9/2/2009, continuous monitoring, monthly monitoring, or an annual line tightness test are done to prevent smaller less noticeable releases
 - Installed after 9/2/2009, must have interstitial monitoring and periodic tightness testing

Suction Piping Systems

If installed after 9/2/2009, must be doubled-walled or secondarily contained, and use interstitial monitoring for release detection, as well as have periodic tightness tests and secondary containment.

If installed before 9/2/2009, leak detection is NOT required for suction piping that meets the following conditions:

- Below grade piping operates at less than atmospheric pressure

- The piping is sloped so product will drain back to the tank if suction is lost
- There is only one check valve located near the suction pump beneath the dispenser
- Method is provided that allows compliance with these items to be readily determined

Note: If a facility has the wrong type of piping listed please submit an amended notification form after completing these modules

Requirements for Installing a New or Replacing an Existing UST System

- Some of the following requirements for new installations and/or replacements were new as of 9/2/2009
- These new requirements contain important new inspection and record keeping requirements for tank owners

Secondary Containment Requirements

As of 9/2/2009...

- All new and replacement tanks and piping must be double-walled, or secondarily contained and must use interstitial monitoring leak detection
- Piping and secondary containment must also have periodic tightness testing
- All new and replacement motor fuel dispensers must have under dispenser containment if...
 - Installed at a new UST facility
 - Installed at a new location at an existing UST facility
 - Replaced at an existing location at an existing facility if any piping or equipment is added or replaced to connect the replaced dispenser

Secondary Containment Requirements - Installing and Replacing Piping

If installing new and/or replacement piping it must:

- Be 100% double-walled, or
- Single walled and secondarily contained
- Piping and secondary containment must use interstitial monitoring for release detection, and must be tightness tested at installation, again six months after installation, and every 36 months thereafter
- If less than 50% of any underground piping between the tank and the dispenser or other end-use equipment is replaced at any one time, the replaced portion is not required to be double walled or secondarily contained

Secondary Containment must:

- Prevent releases to the environment
- Contain a release until detected and removed

Under Dispenser Containment - Motor Fuel Dispensers

When Installing Motor Fuel Dispensers one must...

- Have a liquid tight containment sump
- Be compatible with product
- Allow for visual inspection

If replacing dispensers, then under dispenser containment is required when:

- Dispenser connecting equipment is replaced or added
- Connecting equipment is equipment at or below the:
 - Impact valve in pressurized systems
 - Union check valve in suction systems

Secondary Containment - Piping Repair

- If less than 50% of the piping is replaced, then it may be replaced with the same type of existing piping - there is no double wall requirement
- Repairs to UST systems must be made to prevent releases for the life of the UST system
- Repairs to fiberglass piping may be made by the manufacturer's representative or according to manufacturer's specifications
- Metal piping sections and fittings that have leaked must be replaced
- Fiberglass pipe and fittings may be repaired according to manufacturer's specifications
- Repaired tanks and piping must
 - Be tightness tested within 30 days of the repair, or
 - The repaired portion is monitored monthly for releases, or be internally inspected

Note: Records of each repair must be maintained for the remaining operating life of the UST system. Cathodically protected UST systems that are repaired must have a cathodic protection test performed within six months of the repair

Tank Upgrades

A facility may have tanks or piping that were upgraded prior to December 22, 1998

Upgraded systems have:

- Bare steel tanks with an internal lining
- Bare steel tanks with cathodic protection system added for corrosion protection
- Bare steel tanks with both internal lining and cathodic protection
- Steel piping with cathodic protection system added
- Spill and overfill prevention added to an already installed tank

Upgraded Tanks

Important note about **corrosion protection** for tanks and piping

- It is very important to know that corrosion protection is essential for upgraded tanks or piping
- If the corrosion protection system fails to protect the steel tank or piping, and it fails due to corrosion, then the tank or piping will have to be replaced
- Replacement tanks and replacement piping must be double walled or secondarily contained, and interstitially monitored.
- Replacement piping and secondary containment must also be tightness tested at installation, six months after installation, and every 36 months thereafter

Spill and Overfill Prevention

Spill Prevention

Spill Buckets or Catchment Basins are the two most common terms used for spill prevention devices

- They are located around the tank fill pipes
- They are designed to catch drips and small spills that may occur during delivery
- Any tank filled with 25 gallons or more at one time must have spill prevention
- Spill prevention devices must prevent spills that may occur when the delivery hose is disconnected from the fill pipe
- They are not designed to hold product for long periods of time
- Some have drain valves to allow product to drain into the tank
- When spill bucket contents are drained into a tank, any collected water or debris will also enter the tank
- Spill buckets or catchment basins must be kept free of water, dirt, debris or other substances. Checks must occur before and after each delivery.
- Any signs of wear, cracks, or holes are discovered during an inspection you may need to repair or replace the device and check for possible releases

Overfill Prevention

- Any tank that is filled with 25 gallons or more at one time MUST have overfill prevention
- Overfill prevention is to prevent tanks from being overfilled during delivery
- Overfill prevention is designed to either:
 - Stop product flow, or
 - Reduce product flow, or
 - Alert the delivery person before the tank becomes full and begins releasing product
- Three most common types of overfill prevention are:
 - Automatic Shutoff - also known as flapper valves or drop tube device
 - Flow Restriction - sometimes called ball floats
 - Overfill Alarm - also known as high level alarms, must be audible at tank fill

Automatic Shutoff Devices

- This device **slows down and stops product flow** when the product has reached a certain level in the tank - they are **located in the fill pipe**
- This device **usually shuts off flow when the tank is 95% full**
- If you look down the fill pipe to see part of this device it will appear to be a line cutting through the fill pipe (a half-moon shape in your fill pipe)
- **NEVER leave a tank gauging stick in the fill pipe as it disables the overfill protection for the tank**

Ball Float Valve

- This is **located inside the tank in the vent piping**
- **How it works:**
 - **As the tank fills, a ball in the valve rises and restricts the flow of vapors out of the tank**
 - **The flow rate decreases and alerts the delivery person to stop the delivery**
 - **This device usually restricts flow when the tank is about 90% full**
- These valves are not easily seen and may not be used in all tank applications
- Facility records may indicate whether a tank has this device, and the contractor who installed the tank will also know

Overfill Alarms

- **An overfill alarm uses a sensor in the tank connected to an automatic tank gauge (ATG)**
- This **alarm provides a warning when the tank is close to being full** that can be seen or heard by the delivery person at the tank fill site
- When the alarm activates, the delivery person should stop the flow of product to the tank immediately

Overfill Prevention

One way that always works in preventing overfills:

- Follow the rule - 329 IAC 9-3.1-1

329 IAC 9-3.1-1 Spill and overfill control

Authority: IC 13-14-8-1; IC 13-14-8-2; IC 13-23-1-1; IC 13-23-1-2Affected: IC 13-23

Sec. 1. (a) The owner and operator shall ensure the following:

- (1) **Releases due to spilling or overfilling do not occur.**
- (2) **The volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made.**
- (3) **The transfer operation is monitored constantly to prevent overfilling and spilling.**
- (4) **The transfer operation complies with the "Flammable and Combustible Liquids", of the Indiana Fire Code under rules of the fire prevention and building safety commission at 675 IAC 22.**

(b) The owner and operator shall report, investigate, and clean up any spills and overfills under 329 IAC 9-4-4

(c) Deliveries must be made through a drop tube that extends to within one (1) foot of the tank bottom. (Solid Waste Management Board; 329 IAC 9-3.1-1; filed Jul 19, 1999, 12:00 p.m.: 22 IR 3704; filed Aug 30, 2004, 9:35 a.m.: 28 IR 155)

- Tank owners should always know how much empty space volume (ullage) is available in the tank before ordering product
- Tank owners should also allow for the empty space at the top of the tank that must remain empty because of the overfill protection devices

Release Detection

- Release detection is a method or combination of methods that will alert you that a leak may have occurred
- **Responding quickly and appropriately to a leak will:**
 - Save money by reducing the amount of inventory lost
 - Eliminate or reduce expensive cleanup cost
 - Prevent or minimize damage caused to the environment
 - May reduce the amount needed on repairs

Leak Detection

All regulated tanks are required to have leak detection except emergency generator tanks installed prior to 9/2/2009

Leak detection **must be performed at least every 30 days if installed prior to 9/2/2009**

Leak detection **records must be kept for at least the last 12 months**

All tanks installed in Indiana after 9/2/2009 must be double-walled and use interstitial monitoring

The new double-wall tank standard applies to:

- Replacement tanks
- New emergency generator tanks

Tank Leak Detection Methods

Methods allowed in Indiana

- Interstitial monitoring
- Manual tank gauging (only tanks less than or equal to 550 gallons)
- Automatic tank gauging
- Statistical inventory reconciliation
- Ground water and vapor monitoring are still allowed with approval

Interstitial Monitoring

- How it works:
 - Interstitial monitoring monitors the space between a tank wall and a barrier between the tank and the environment
 - The space between the tank wall and the barrier is called the interstitial space or interstice, and must be continuously monitored electronically
 - The outer barrier is often called secondary containment
 - This method must be capable of detecting a release from the inner wall of a tank.
- **Monitoring Methods:**
 - Hydrostatic Methods - use liquid-filled interstice with a reservoir where the liquid level is monitored
 - Pressure/Vacuum Methods - apply pressure or vacuum to interstice and monitor changes in pressure or vacuum
 - Electronic Sensors

Tank and Piping Release Detection

Interstitial Monitoring of Piping

- Interstitial monitoring when used with secondarily contained piping monitors the interstice between the piping inner and outer wall
- If the inner wall is breached product should flow into a liquid tight sump
- Sensors placed into the interstitial space must be capable of alerting the operator of a leak

Interstitial Monitoring

Important things to remember about Interstitial Monitoring for tanks and piping:

- Sump sensors may sound false alarms from water in sumps
- Disabling or tampering with a sensor is a criminal offense
- Moving a sensor out of position to detect liquid is a violation
- Sensors can go bad, check periodically to make sure they are working properly

- If sensors detect petroleum between the walls of a double wall tank or in sumps, it is treated as a suspected release
- If water can enter the outer wall of a double wall tank, the tank no longer has secondary containment
- Sump sensors must be used in all areas where product can leak and accumulate

Manual Tank Gauging

Manual tank gauging measures product level and compares readings to weekly and monthly standards to determine if the tank is tight

A tank gauging stick is generally used to take measurement to the nearest 1/8 inch

Tanks must be taken out of operation for a certain period of time each week

When using Manual Tank Gauging the following must occur to be in compliance:

- Determine how long the weekly test must be
- Remove tank from service for the test period
- Record the average of two inventory readings at the beginning of the test period
- Record the average of two inventory readings at the end of the test period
- Compare the differences with the standards in the chart
- Repeat weekly and compare with weekly standard
- Average 4 weeks and compare with monthly standard
- Report all suspected releases

Automatic Tank Gauging (ATG)

An ATG system consists of a permanently installed probe that collects information such as product level and temperature and a console inside the facility which calculates changes in product volume that can indicate a leak. The console should signal an alarm when there is a suspected problem. An ATG must be able to detect a 0.2 gallons per hour leak.

- Things to know about ATGs:
 - Some ATGs can be programmed to automatically test at least every 30 days. If the ATG does not test automatically, then the tanks must be taken out of service and a leak test (static test) conducted
 - All ATGs require a certain minimum amount of product in the tank to conduct a valid test
 - Some ATGs can be combined with computer programs that allow tanks to remain in service while conducting testing.
- The following must be followed to remain in compliance:
 - Conduct leak test at least once per month for each tank if it isn't done automatically
 - Print out and keep at least one passing monthly leak test result for each tank from the ATG. It is best if this is done daily or once a month minimum
 - Keep your ATG user manual handy
 - Keep the last 12 months of records

Statistical Inventory Reconciliation (SIR)

- SIR uses a computer program to perform a statistical analysis of inventory, delivery, and dispensing data every 30 days. A gauging stick or ATG is used to gather inventory data
- SIR uses the same data collection procedures as inventory control (**DAILY** 1/8 inch measurements, monthly water readings, annual meter calibration, deliveries through drop tubes)
- SIR may be conducted by an SIR vendor for the tank owner, or by a tank owner using an SIR program
- SIR results must be reported as a pass, fail, or inconclusive
- SIR results apply only for monthly leak detection for tanks and piping
- Inventory data is sent to an SIR vendor (or entered in an owner - operated computer program) at least once every 30 days - vendor will provide results
- Complete SIR records must be kept
- Complete SIR records consist of the monthly SIR result plus raw data gathered such as stick readings, sales, water readings, etc..
- Requirements to conduct SIR:
 - Contract with an SIR provider to analyze monthly leak detection records, or an SIR program which can be operated on your computer which does SIR analysis
 - A means to collect product inventory data on a **DAILY** basis
 - A means to convert measurements to gallons
- Requirements to be in compliance when using SIR
 - Collect and record adequate inventory data every 30 days using inventory control data collection requirements
 - Have records analyzed every 30 days either by SIR provider or owner-operated SIR computer program
 - Investigate, determine the reasons, and correct the causes for any inconclusive results
 - Keep the last 12 months of records & Report all suspected releases

Pressurized Piping

- New pressurized piping installed after 9/2/2009 must be double-walled or have secondary containment and use interstitial monitoring
- Existing pressurized piping replaced after 9/2/2009 must be double-walled or have secondary containment and use interstitial monitoring
- Even if interstitial monitoring is used pressurized piping must continue to use a form of catastrophic leak detection
- Pressurized piping must have two forms of leak detection:
 - **Catastrophic** - prevents large sudden releases
 - **Periodic** - prevents smaller less noticeable releases
- Catastrophic line leak detection done by Automatic Line Leak Detectors (LLDs or ALLDs)
 - ALLDs are the first form of release detection required and may be mechanical or electronic
 - They are located on the submersible turbine pump (STP) head in the sump above the tank
 - Two types of ALLDs
 - **Mechanical** - pressure valves that test for piping leaks each time someone tries to pump fuel

- **Electronic - electronic pressure sensors that communicate with an ATG control panel**
 - To be in compliance Automatic Line Leak Detectors must:
 - Be tested at least every 12 months and results kept for one year
 - Detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within 1 hour. If they do not, then they must be replaced
- Periodic line leak detection is the second form of release detection for pressurized piping
 - It must be done either monthly or annually
 - Three choices
 - Monthly monitoring, or
 - Annual line tightness testing, or
 - Electronic line leak detector
- Monthly monitoring for pressurized piping
 - If a monthly method is used, then one of the two tank leak detection methods listed below must be used:
 - Interstitial monitoring - required for new and replacement piping installed after 9/2/2009
 - SIR
- Annual Line Testing for Pressurized Piping
 - Annual Line Tightness Testing is performed on each piping system to determine if it is leaking
 - To be in compliance this test must be performed by a qualified tester
 - Must be able to detect a 0.1 gallon per hour leak rate at 1.5 times the operating pressure of the piping
 - A record must be kept of the last annual line tightness test
- Electronic Line Leak Detection
 - These devices communicate with an ATG console at the facility
 - They are able to detect both a 3.0 gph catastrophic leak as well as performing periodic 0.2 gph and 0.1 gph line tests when programmed correctly
 - They must be programmed to shut down the submersible pump whenever catastrophic line leaks are detected
 - You must keep either the last 0.1 gph annual test or the last 12 months of 0.2 gph monthly to be in compliance

Suction Piping

- **Safe Suction (European Suction - installed prior 9/2/2009)**
 - Leak detection is not required for suction piping that meets both the following conditions:
 - The piping is sloped so product will drain back to the tank if suction is lost; and
 - There is only one check valve located near the suction pump beneath the dispenser
 - If these criteria are not met, leak detection is required for suction piping

If you do not have Safe Suction, then you must choose one method from column A or one method from column B

Column A

- Line Tightness Test (conducted every 3 years)

Column B

- Interstitial Monitoring (Monthly)
- SIR (Monthly)

If it is not safe suction and line tightness testing is chosen, then it must be conducted on each piping system at least once every three years to determine if the piping system has a leak.

Piping Leak Detection

- Review (New and Existing Pressurized Piping)
 - Know how to tell the difference between pressurized piping and suction piping
 - Pressurized piping must have two forms of leak detection
 - Suction piping does not require leak detection if it meets certain requirements
 - Piping associated with an emergency generator tank is not required to have leak detection as long as it was installed before 9/2/2009
 - All piping installed after 9/2/2009 must be double-walled or have secondary containment and use interstitial monitoring

Corrosion Protection for Tanks and Piping

All regulated underground tanks and piping must be protected from corrosion. The following are examples to help you have a basic understanding of corrosion requirements. Some tanks and piping need extra corrosion protection.

- **New tanks that do NOT need additional corrosion protection**
 - Fiberglass-clad steel tanks
 - Jacketed steel tanks
 - Fiberglass reinforced plastic (FRP) tanks
- New piping that does NOT need additional corrosion protection
 - Fiberglass piping
 - Flexible plastic piping

Tanks, piping, and metal components that DO need additional corrosion protection

- Any bare steel tanks or piping
- Piping connectors

Note: Bare steel tanks and piping which have not already been upgraded either by adding cathodic protection or lining may no longer be upgraded. They must be closed or replaced. Please contact the IDEM UST Section Closure Coordinator at (317) 234-6645 for guidance on any closures or replacements.

- Any metal components that are in contact with the ground and routinely contain product, such as metal flexible connectors and metal swing joints

Metal components must be protected from corrosion by one of the following:

- Isolating the metal component from direct contact with the ground and water, such as removing soil from around the component, sealing sumps so water is not in contact with component, or covering a flexible connector with a boot
- Cathodically protecting metal components

**Please note to protect the component with cathodic protection, all cathodic protection requirements must be met for that component*

Methods of Corrosion Protection

- Galvanic (Sacrificial Anodes) Cathodic Protection
- Impressed Current Cathodic Protection
- Internal Tank Lining
- Combination of Impressed Current Cathodic Protection and Internal Tank Lining

Galvanic Systems

- Use buried anodes attached to underground tanks or piping
- Most galvanic systems cannot be seen and there is no rectifier (sacrificial anodes may be seen when they have been added to equipment in the sumps)
- Anodes are installed at the factory and can be installed on piping and other underground metal components in the field

Impressed Current System

- Use a rectifier to provide current to the tank, piping, or other components for corrosion protection
- The rectifier is always located somewhere at the facility
- Electric power to the rectifier must be continuous
- Impressed current cathodic protection systems are always installed in the field
- This system should be on a separate circuit from the other electrical components

Flex Connectors

- Steel flex connectors must be protected from corrosion by one of the following:
 - Isolating the flex connector from direct contact with the soil by putting a protective covering or boot on the flex connector, or
 - By removing soil in contact with the flex connector, or
 - Adding cathodic protection to the flex connector

Cathodic Protection Testing

- Testing for Galvanic Systems

- A test must be conducted within six months of installation or repairs made to the system and then at least every three years
- Records of the last two cathodic protection tests must be kept
- Testing for Impressed Current Systems
 - A test must be conducted within six months of installation or repairs made to the system and then at least every three years
 - Records of the last two cathodic protection tests must be kept
 - The rectifier must be inspected at least every 60 days to confirm proper operation
 - Keep records of the last three rectifier inspections

Internally Lined Steel Tanks

Need inspection within one year of installation

Internal inspections must be conducted at least every 5 years after the one year inspection

One exception - no internal lining inspection if:

- Cathodic protection is added before the lining is 5 years old, and
- The integrity of the steel tank is ensured when cathodic protection is installed

Financial Responsibility

You must have a mechanism to meet financial responsibility requirements:

State Fund is the most common mechanism used for financial responsibility

Fund eligibility means an owner has met the conditions necessary for a facility to receive assistance from the Fund if a release occurs

Other methods of financial responsibility are:

- Insurance
- Guarantee from Corporate Parent
- Surety bond
- Letter of credit
- Self-Insurance
- Standby Trust Fund
- A combination of any of the above

Entry level to the fund is dependent upon the version of the rule that applies - deductible is \$15,000 per occurrence.

Tank owners must meet the deductible obligation before assistance can be received from the State Fund. The dollar amount applied to the deductible is related to the determined percent eligibility.

To determine eligibility a \$0 dollar claim must be submitted.

Maintenance and management of the UST systems and the response to associated releases will be reviewed when determining eligibility of the State Fund.

Certificate Requirements

- A copy of the certificates for the Class A, B and all relevant C Operators should be kept at the facility, and must be made available during a UST Inspection.
- Any condition of non-compliance may result in a required recertification of any or all operator levels associated with the facility out of compliance.

Notifications, Violations and Records Management

Notification Requirements

- Any person who owns a UST or UST system shall, within 30 days of owning such a UST or UST system, or bringing such a UST or UST system into use, shall submit notice to the IDEM for the purpose of registering the UST or UST system
- The owner must submit notice for each tank owned. The owner may provide notice for several tanks at one location using one form
- Separate notification forms are required for each separate place of operation
- **Only notification form(s) with original signature in ink will be accepted**

Temporarily Closed

To place a tank Temporary Closure

- File an amended Notification Form within 30 days reporting Temporary Closure
- Cathodic Protection Systems must remain operational and continue to be monitored
- Vent lines must remain open
- If the Temporary Closure period is longer than 3 months, then all other lines, pumps, manways, and ancillary equipment must be closed by capping and securing them.
- Maintain leak detection unless tank is considered empty - empty means no more than 2.5 cm or one inch of material, or no more than 0.3% by weight of the total capacity of the UST System

Suspected or Confirmed Releases

- A facility must respond, investigate, and report suspected or confirmed releases when they occur
- Employees must know what to do when leak detection methods indicate a suspected or confirmed release - they must be trained prior to any releases
- **The tank owner must report, respond to, and investigate all suspected or confirmed releases**
- Releases reported to the IDEM LUST Section at 317-232-8900
 - Any spill or overfill over 25 gallons must be reported to the IDEM LUST Section at 317-232-8900
 - A spill of any size must be reported if it cannot be cleaned up within 24 hours
 - A suspected or confirmed release must be reported to the IDEM within 24 hours of its discovery. This includes monitoring results and unusual operating conditions (such as sudden loss of product, water in the tank, and presence of a regulated substance on or near the facility)
- Spills reported to the IDEM Spill Line at 888-233-7745
 - A spill causing a sheen to surface water must be reported to the IDEM Spill Line
 - A spill greater than 55 gallons that migrates past the property boundary
 - A spill that has had no spill response to contain the release

Violations

Most frequent found:

- Failure to have leak detection records
- Failure to test automatic line leak detectors
- Failure to do annual line tightness test
- Failure to test cathodic protection
- Failure to report a suspected release

Can be avoided by:

- Knowing your facility's equipment
- Knowing what tests are required
- Knowing how often to test
- Completing tests when they are due
- Keeping test paperwork organized
- Reporting and following up on all suspected releases

Records Management

- The following records must be available for review at all times:
 - Leak detection records
 - Cathodic protection records
 - Repair records
 - Closure records
 - Certain installation and operational records
- When using impressed current cathodic protection systems, inspections of the rectifier should be conducted every 60 days and recorded - the last 3 inspections should be kept
- Records to be kept for 1 year:
 - Results of any leak detection sampling, testing or monthly monitoring
 - Leak detection system maintenance, service, or repair records
 - Line leak detector test results - If using an electronic line leak detector you must keep records that show your system meets the 3.0 gph catastrophic leak requirement
 - Line tightness test results
 - Pressurized piping installed prior to 9/2/2009 must be tested annually
 - Suction piping installed prior to 9/2/2009 only requires testing every 3 years or monthly monitoring
 - If using electronic line leak detector you must keep the last 12 consecutive monthly records of 0.2 gph tests
- Records to be kept longer than 1 year:
 - Cathodic protection system tests must be conducted every 3 years and the last two test results must be kept
 - Suction piping installed prior to 9/2/2009 must be tested every 3 years and the last test result must be available
 - All written performance claims about the leak detection system, and any schedules of required calibration and maintenance must be kept for 5 years from the date of installation
 - Tank lining inspection must be conducted within one year after lining and every 5 years thereafter
- Records that must be kept for the life of the UST System:
 - All tank and piping repair records for the life of the UST System
 - During a transfer of ownership of the UST system all documentation shall be given to the new owner
 - It is very important to view all test records when conducted. You must respond appropriately to any unusual operating conditions noted in the results.

