PMMIC INSURANCE

New Iowa UST Regulations

August 2021 Webinars

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Course Overview

1. EPA/DNR REGULATORY INTRODUCTION
2. OVERVIEW OF NEW FEDERAL/STATE UST REGULATIONS
3. COMPLYING WITH NEW UST REGULATIONS
4. HOW IS PMMIC/R&A HELPING YOU?
5. Q&A SESSION

UST Regulation Timeline

- **1985** - Environmental Protection Agency (EPA) creates the Office of Underground Storage Tanks (OUST) to address petroleum contamination and leak prevention (spill/overfill/corrosion protection)
- **1987** - Iowa DNR begins administering the UST Program under the Iowa Groundwater Protection Act
- **1988** - EPA publishes UST technical standards and corrective action; adopted by states programs including IOWA (i.e. IAC Ch. 135).
  - Standard set operating requirements and technical standards for tank design/installation, leak detection, corrective action and tank closure.

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UST Regulation Timeline

- **2005** - EPA publishes "Energy Policy Act of 2005"
  - Energy Policy Act addresses energy production in the United States, including: energy efficiency; renewable energy; vehicles and motor fuels, including ethanol; electricity; energy tax incentives; and more.
    - Added new leak detection and enforcement provisions to the UST program
    - Compliance inspections on all regulated USTs every 3yrs
    - Guidelines on operator training, inspections, delivery prohibition, secondary containment, and financial responsibility.

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UST Regulation Timeline

- **November 28, 2007** - Iowa's UST "secondary containment" requirement begins for all new and replacement equipment.
  - IMPORANT date to remember for application of new regs.

- **December 31, 2011 -** Iowa's Operator training deadline. UST facilities must provide proof of training. Retail facilities may not operate without a trained/certified operator onsite. A/B operators must be designated for all regulated UST facilities.

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UST Regulation Timeline

- **2015** - Federal UST regulation changed certain portions of the 1988 UST technical regulation
  - Added periodic operation and maintenance requirements for UST systems.
  - Added requirements to ensure UST system compatibility before storing certain biofuel blends.
  - Removed past deferrals for emergency generator tanks, airport hydrant systems, and field-constructed tanks.
  - Updated codes of practice.

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UST Regulation Timeline

- **2021 -** IA DNR Adopts New UST Regulations April 20, 2021 – Effective June 23, 2021
  - DNR distributes memorandum *"NEW UNDERGROUND STORAGE TANK (UST) REGULATIONS"* in early June 2021
  - Compliance Deadline **October 13, 2021**

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OVERVIEW OF NEW FEDERAL/STATE UST REGULATIONS

1. Walkthrough inspections
2. Overfill prevention equipment inspections
3. Spill prevention equipment testing
4. Containment sump testing (when used for interstitial monitoring)
5. Release detection equipment testing

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Walkthrough Inspections

Walkthrough Inspections

EPA allows three (3) Options:

Option 1: **Every 30 days***, check your spill prevention equipment and release detection equipment.

* except spill prevention equipment at UST systems receiving deliveries at intervals greater than every 30 days may be checked prior to each delivery

Annually, check your containment sumps and any handheld release detection equipment.

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Walkthrough Inspections

When conducting the walkthrough inspection, check the following:

1) Spill prevention equipment **(30 Day)**

- ❑ Check for damage
- ❑ Remove any liquid or debris
- ❑ Check for and remove any obstructions in the fill pipe
- ❑ Check the fill cap to make sure it is securely on the fill pipe
- ❑ Double walled spill prevention equipment with interstitial monitoring check for a leak in the interstitial area

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Walkthrough Inspections

When conducting the walkthrough inspection, check the following:

2) Release detection equipment **(30 Day)**

- ❑ Ensure it is operating with no alarms or other unusual operating conditions present
- ❑ Ensure records of release detection testing are reviewed and current

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Walkthrough Inspections

When conducting the walkthrough inspection, check the following:

3) Containment sumps **(Annual)**

- ❑ Check for damage, leaks into the containment area, and *releases to the environment*
- ❑ Remove any liquid or debris
- ❑ Double walled containment sumps with interstitial monitoring check for a leak in the interstitial area

4) Handheld release detection equipment, i.e. tank gauge sticks or bailers **(Annual)**

- ❑ Check for operability and serviceability

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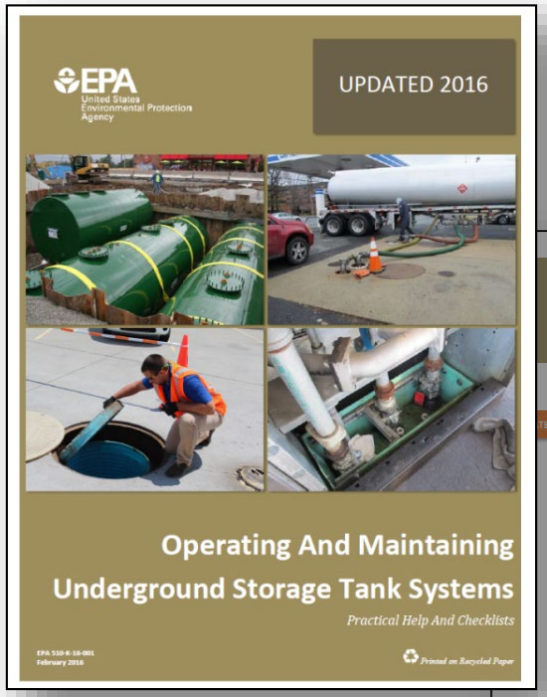
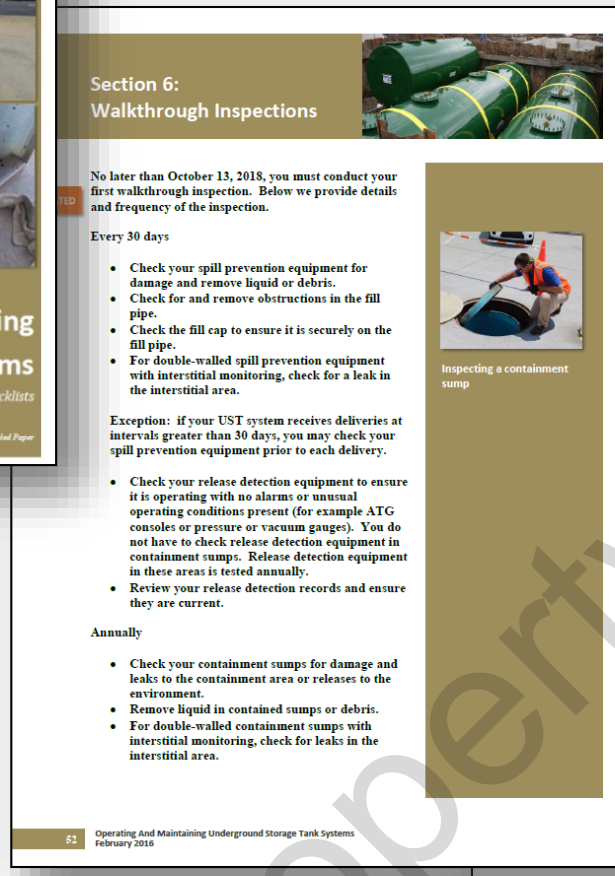




Section 6: Walkthrough Inspections

No later than October 13, 2018, you must conduct your first walkthrough inspection. Below we provide details and frequency of the inspection.

Every 30 days

- Check your spill prevention equipment for damage and remove liquid or debris.
- Check for and remove obstructions in the fill pipe.
- Check the fill cap to ensure it is securely on the fill pipe.
- For double-walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area.

Exception: if your UST system receives deliveries at intervals greater than 30 days, you may check your spill prevention equipment prior to each delivery.

- Check your release detection equipment to ensure it is operating with no alarms or unusual operating conditions present (for example ATG consoles or pressure or vacuum gauges). You do not have to check release detection equipment in containment sumps. Release detection equipment in these areas is tested annually.
- Review your release detection records and ensure they are current.

Annually

- Check your containment sumps for damage and leaks to the containment area or releases to the environment.
- Remove liquid in contained sumps or debris.
- For double-walled containment sumps with interstitial monitoring, check for leaks in the interstitial area.

Inspecting a containment sump

release detection equipment, ailers and tank gauge sticks, for ability.

ST regulation allows owners M walkthrough inspections f practice developed by a on or independent testing uirements developed by your pections must check equipment walkthrough inspection . Note that owners and ode of practice if choosing this ough inspection requirement.

isted above, you may also want to ment practices during your

. Are covers and caps tightly

e supplies: Do you have the leaning up a spill or overfill? ere significant corrosion on the areas? Corrosion could result in ment area not working properly. , and breakaways: Are they in ing properly?

inspection, you or your UST kly to resolve these problems and

pection checklist on the next page.

Sample Walkthrough Inspection Checklist

Date Of Inspection							
Required Every 30 Days (exception: if your UST system receives deliveries at intervals greater than 30 days, you may check your spill prevention equipment prior to each delivery.							
Visually check spill prevention equipment for damage. Remove liquid or debris.							
Check for and remove obstructions in fill pipe.							
Check fill cap to ensure it is securely on fill pipe.							
For double-walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area.							
Check release detection equipment to ensure it is operating with no alarms or unusual operating conditions present.							
Review and keep current release detection records.							
Required Annually							
Visually check containment sumps for damage and leaks to the containment area or releases to the environment.							
Remove liquid in contained sumps or debris.							
For double-walled containment sumps with interstitial monitoring, check for leaks in the interstitial area.							
Check hand-held release detection equipment, such as groundwater bailers and tank gauge sticks, for operability and serviceability.							
Recommended Activities							
Fill and monitoring ports: Inspect all fill or monitoring ports and other access points to make sure that the covers and caps are tightly sealed and locked.							
Spill and overfill response supplies: Inventory and inspect the emergency spill response supplies. If the supplies are low, restock the supplies. Inspect supplies for deterioration and improper functioning.							
Containment sump areas: Look for significant corrosion on the UST equipment.							
Dispenser hoses, nozzles, and breakaways: Inspect for loose fittings, deterioration, obvious signs of leaks, and improper functioning.							

Your initials in each box below the date of the inspection indicate the device or system was inspected and satisfactory on that date.

In the following table, explain actions taken to fix issues.

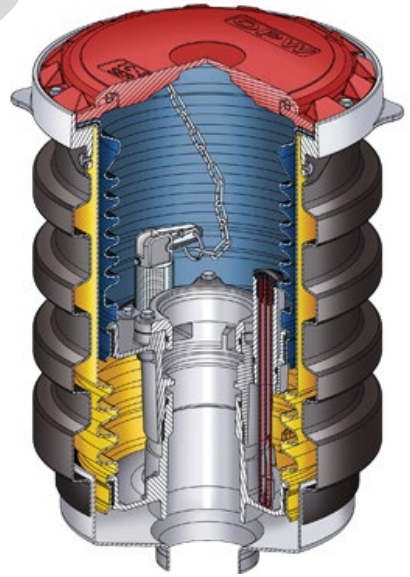
Date	Action Taken

Keep this record for at least one year after last inspection date on the form.

https://www.epa.gov/ust/operating-and-maintaining-underground-storage-tank-systems-practical-help-and-checklists

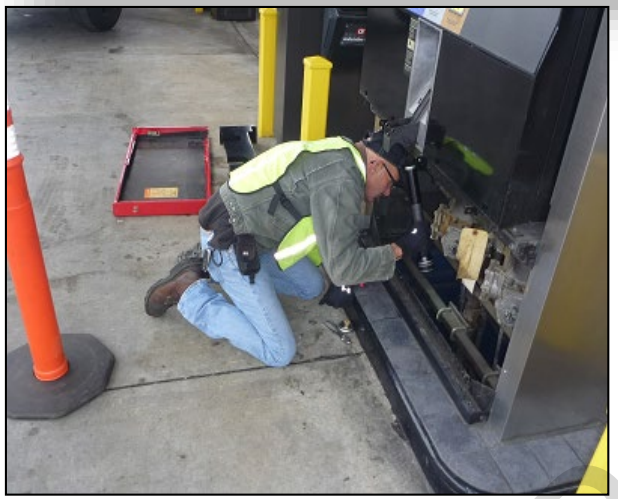
Walkthrough Inspections --- Monthly

Date Of Inspection							
Required Every 30 Days (exception: if your UST system receives deliveries at intervals greater than 30 days, you may check your spill prevention equipment prior to each delivery.							
Visually check spill prevention equipment for damage. Remove liquid or debris.							
Check for and remove obstructions in fill pipe.							
Check fill cap to ensure it is securely on fill pipe.							
For double-walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area.							
Check release detection equipment to ensure it is operating with no alarms or unusual operating conditions present.							
Review and keep current release detection records.							



Walkthrough Inspections --- Annual

Required Annually							
Visually check containment sumps for damage and leaks to the containment area or releases to the environment.							
Remove liquid in contained sumps or debris.							
For double-walled containment sumps with interstitial monitoring, check for leaks in the interstitial area.							
Check hand-held release detection equipment, such as groundwater bailers and tank gauge sticks, for operability and serviceability.							

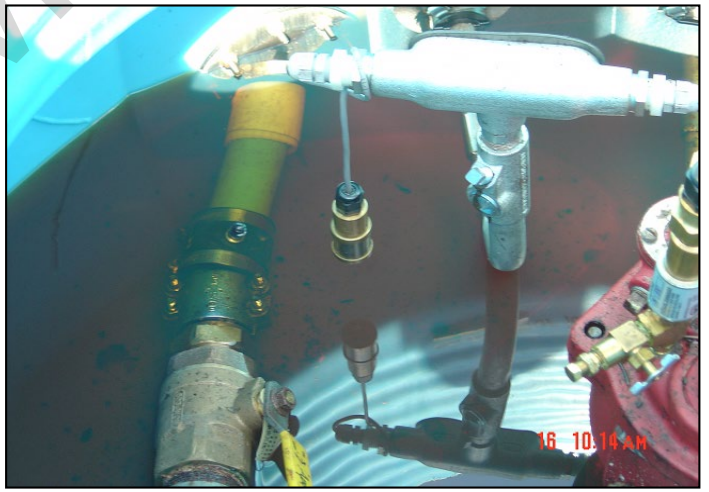


Notable Annual Walkthrough Conditions

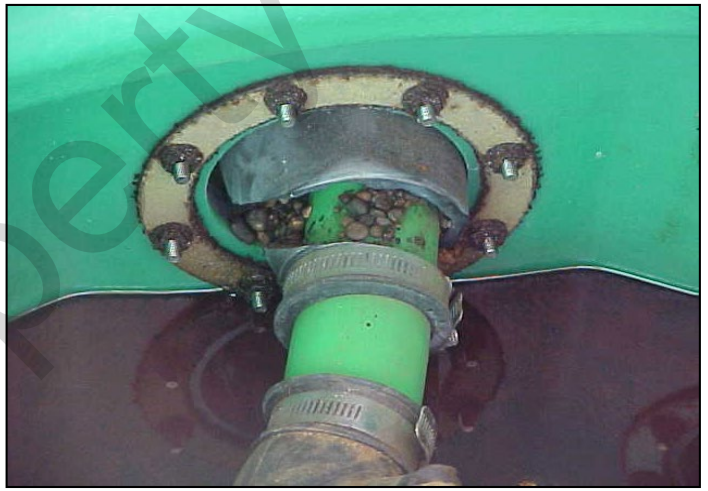
Containment Clean?

Containment Tight?

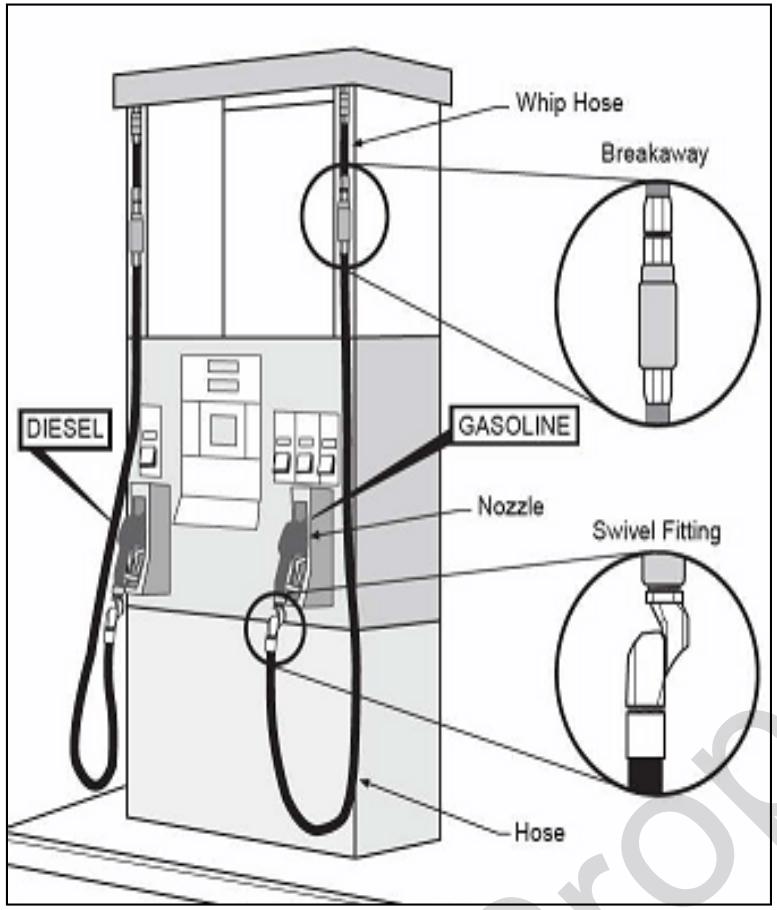
Sensor Properly Placed?



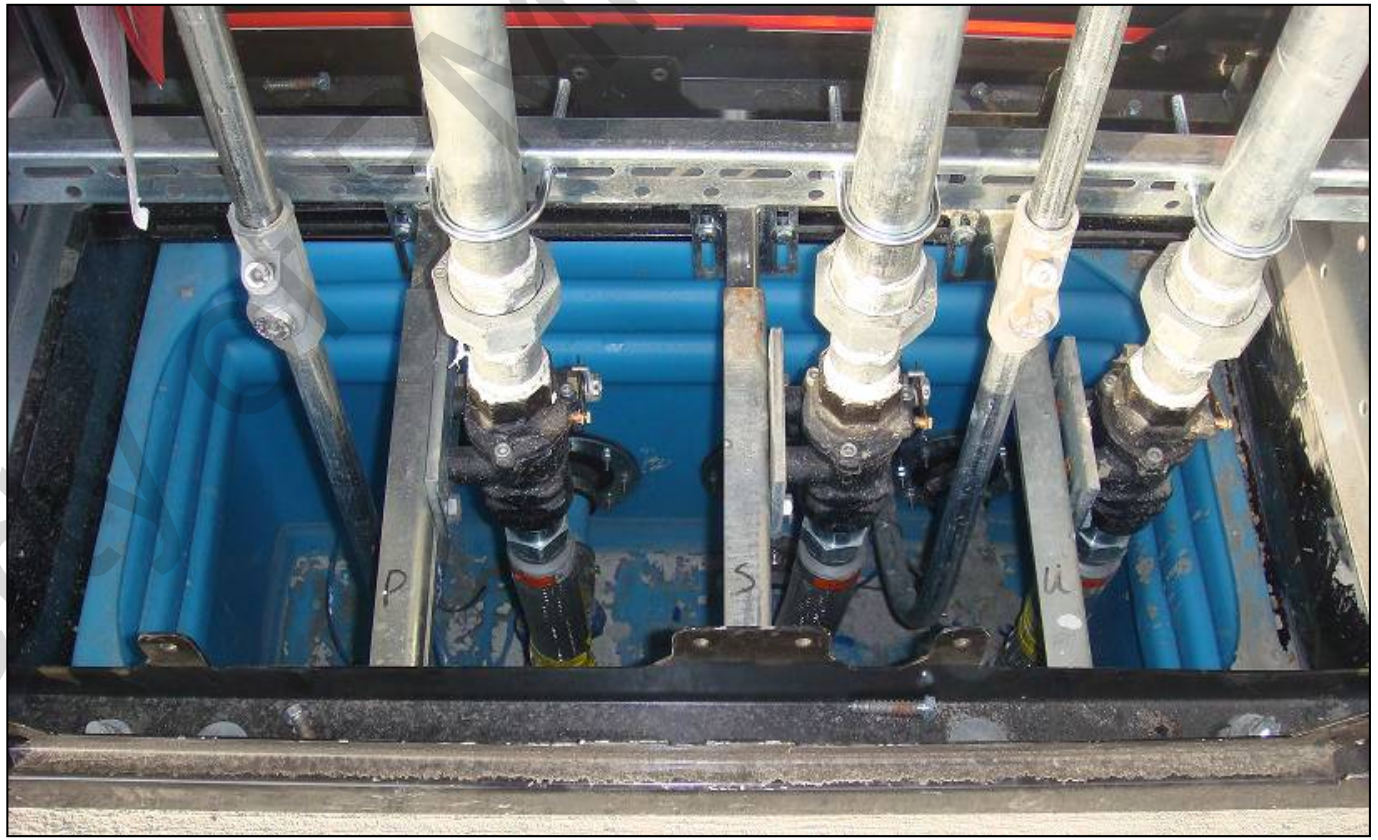
Line Interstice Open?



Really Focus on Dispensers!



PEI, RP 500-2005, *Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment,* pg 15.



Walkthrough Inspections --- Recommended

Recommended Activities							
Fill and monitoring ports: Inspect all fill or monitoring ports and other access points to make sure that the covers and caps are tightly sealed and locked.							
Spill and overfill response supplies: Inventory and inspect the emergency spill response supplies. If the supplies are low, restock the supplies. Inspect supplies for deterioration and improper functioning.							
Containment sump areas: Look for significant corrosion on the UST equipment.							
Dispenser hoses, nozzles, and breakaways: Inspect for loose fittings, deterioration, obvious signs of leaks, and improper functioning.							

Walkthrough Inspections --- Activity/Comments

Your initials in each box below the date of the inspection indicate the device or system was inspected and satisfactory on that date.

In the following table, explain actions taken to fix issues.

Date	Action Taken

- **Replaced caps/lids?**
- **Cleaned containment?**
- **Cleared Alarms?**
- **Etc…**

Keep this record for at least one year after last inspection date on the form.

Walkthrough Inspections

Option 2: Conduct walkthrough inspections according to a standard code of practice developed by a nationally recognized association or independent testing laboratory. Must include 30 Day and Annual protocol at a minimum. The code of practice must check equipment comparable to "Option 1", i.e. PEI RP 900

- Document must be followed in its entirety.
- Use form developed by that standard.

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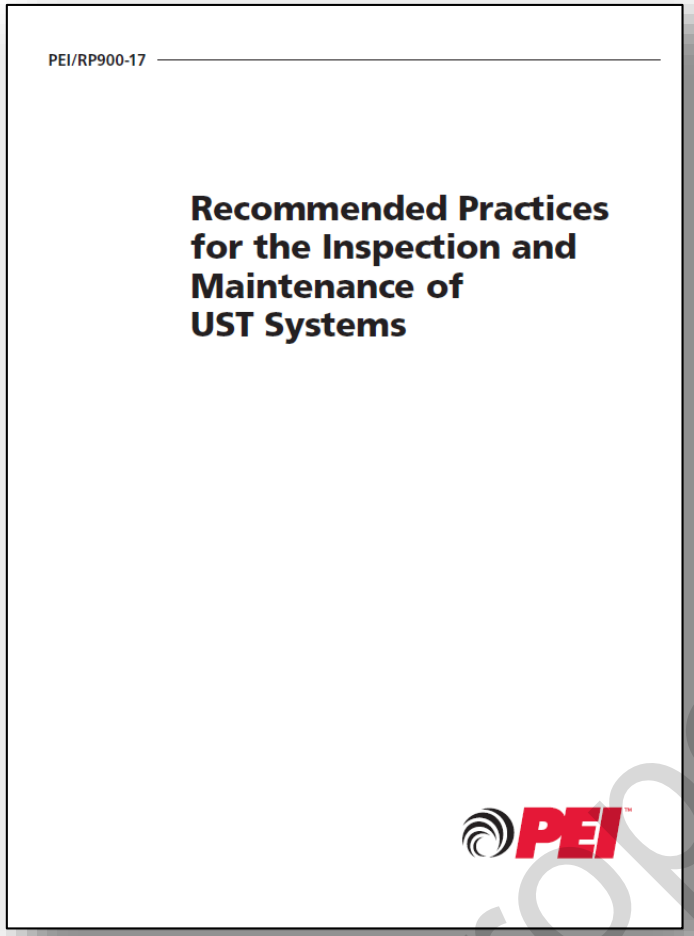
Walkthrough Inspections


PEI/RP900-17

Recommended Practices for the Inspection and Maintenance of UST Systems

PEI

https://www.pei.org/rp900

Currently being revised

Inspection Procedures & forms (PEI RP 900)

APPENDIX A-2: SAMPLE FORM FOR MONTHLY UNDERGROUND STORAGE SYSTEM INSPECTION CHECKLIST – Page 1

Go to www.pei.org/RP900 for an electronic version of this form.

MONTHLY UST SYSTEM INSPECTION CHECKLIST

Facility ID#	Facility Name/Address	Level II Qualified Person Signature	Date

If any problem is found, contact: _____ Contact information: _____

Category	Description	PEI/RP900	N/A	Tank 1	Tank 2	Tank 3	Tank 4
Operator Training	Review site training documents	7.4					
Daily Inspections	Complete daily checklist and compare to previously completed daily checklists	7.5.1					
Leak Detection Recordkeeping	**Circle method of tank leak detection: ATG, CIM, SIR, IC, GWM, SVM, MIMT** **Circle method of piping leak detection: CIM, MPLT, SIR, GWM, SVM, MIMP**	7.6					
Automatic Tank Gauge (ATG)	Passing tank test report printed and properly filed	7.6.1.1					
Continuous Interstitial Monitoring (CIM)	Sensor status report printed and properly filed	7.6.2.1					
Monthly Piping Leak Test (MPLT)	Passing piping leak test report printed/documented and properly filed	7.6.3.1					
Statistical Inventory Reconciliation (SIR)	Last month's SIR results passed and available for inspection	7.6.4.1					
Inventory Control (IC)	Inventory reconciled and within the company or regulatory standard	7.6.5.1					
Manual Groundwater Monitoring (GWM)	Groundwater bailer in good condition	7.6.6.1					
Manual Groundwater (GWM) or Soil Vapor Monitoring (SVM)	Wells sampled and results pass	7.6.6.2					
Manual Interstitial Monitoring for Tanks (MIMT)	Steel tank: interstitial space checked and found dry	7.6.7.1					
	Fiberglass tank: interstitial space checked and found dry	7.6.7.2					
	Fiberglass tank: level of monitoring fluid within normal range	7.6.7.3					
	For steel and fiberglass tanks, vacuum level is within tolerances Tnk 1 vac: Tnk 2 vac: Tnk 3 vac: Tnk 4 vac:	7.6.7.4					
Manual Interstitial Monitoring for Piping (MIMP)	Containment sump (STP and/or remote fill sump) inspected and no liquid found	7.6.8.1					
All Tanks		7.7					
Spill Kit	All components of the spill kit are present and in good condition	7.7.1					
Grade-Level Covers	All covers present, in good condition, seated firmly on the correct tank	7.7.2.1					
Spill Containment Manhole	Drain valve in spill containment manhole in good condition	7.7.3.1					
	Interstitial space of double-walled containment manhole is dry	7.7.3.2					

Walkthrough Inspections

Option 3: Conduct walkthrough inspections according to requirements developed by your implementing agency (i.e. DNR). Must include 30 Day and Annual protocol at a minimum. These requirements must be comparable to the requirements described in "Option 1".

- DNR forms to be used for walkthrough inspections.
- 30 Day and Annual forms available now
- Remember PMMIC/R&A inspection process accomplishes "annual walkthrough"; Have DNR written approval.

> Contact PMMIC if interested in 30 Day walkthrough assistance <

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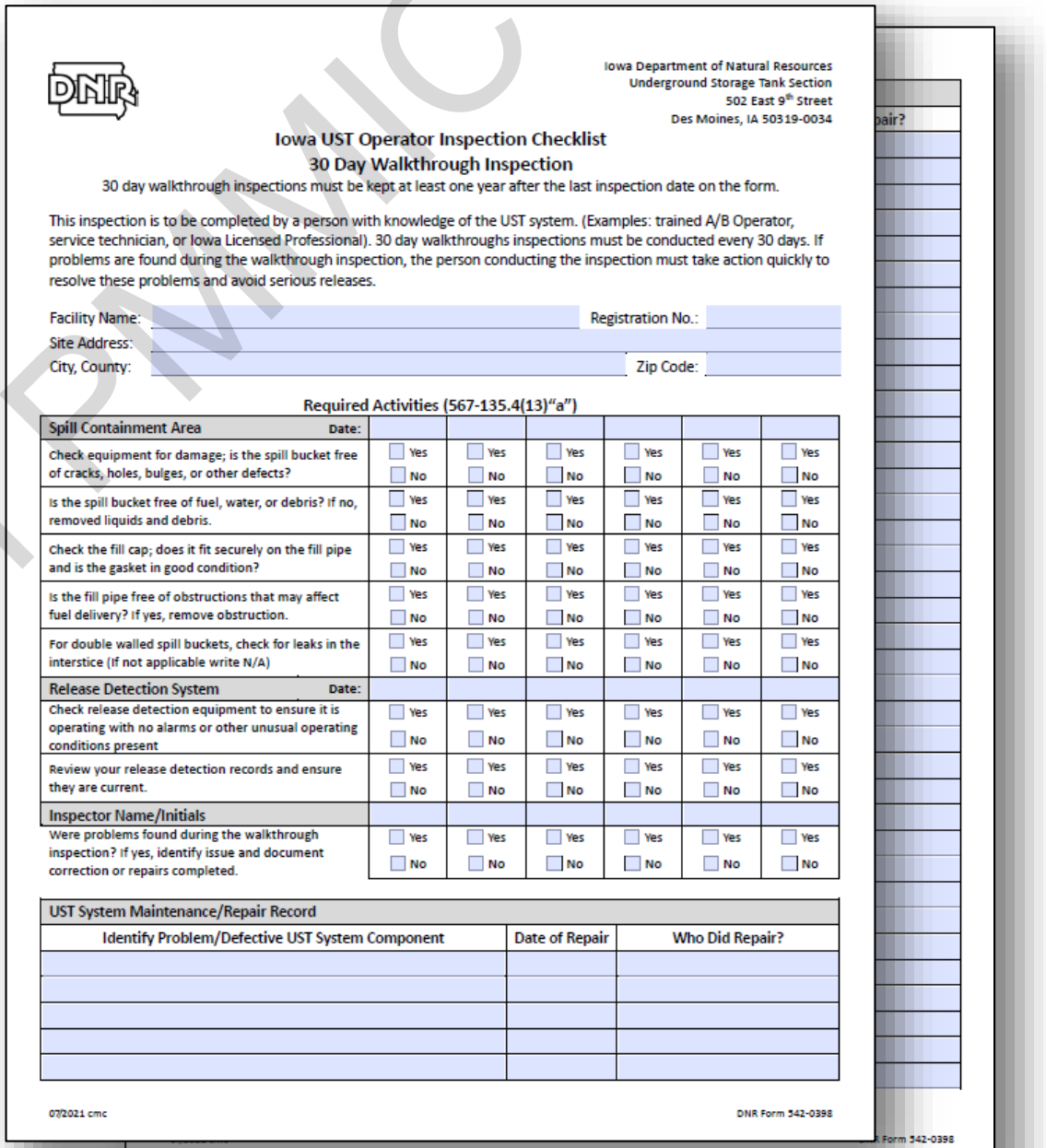
Walkthrough Inspections

IOWA DEPARTMENT OF NATURAL RESOURCES

https://www.iowadnr.gov/Environmental-Protection/Land-Quality/Underground-Storage-Tanks/UST-Forms



Iowa Department of Natural Resources
Underground Storage Tank Section
502 East 9th Street
Des Moines, IA 50319-0034

Iowa UST Operator Inspection Checklist
30 Day Walkthrough Inspection

30 day walkthrough inspections must be kept at least one year after the last inspection date on the form.

This inspection is to be completed by a person with knowledge of the UST system. (Examples: trained A/B Operator, service technician, or Iowa Licensed Professional). 30 day walkthroughs inspections must be conducted every 30 days. If problems are found during the walkthrough inspection, the person conducting the inspection must take action quickly to resolve these problems and avoid serious releases.

Facility Name: Registration No.:
Site Address:
City, County: Zip Code:

Required Activities (567-135.4(13)"a")

Spill Containment Area Date:						
Check equipment for damage; is the spill bucket free of cracks, holes, bulges, or other defects?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Is the spill bucket free of fuel, water, or debris? If no, removed liquids and debris.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Check the fill cap; does it fit securely on the fill pipe and is the gasket in good condition?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Is the fill pipe free of obstructions that may affect fuel delivery? If yes, remove obstruction.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
For double walled spill buckets, check for leaks in the interstice (If not applicable write N/A)	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Release Detection System Date:						
Check release detection equipment to ensure it is operating with no alarms or other unusual operating conditions present	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Review your release detection records and ensure they are current.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Inspector Name/Initials						
Were problems found during the walkthrough inspection? If yes, identify issue and document correction or repairs completed.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

UST System Maintenance/Repair Record

Identify Problem/Defective UST System Component	Date of Repair	Who Did Repair?

07/2021 cmc

DNR Form 542-0398

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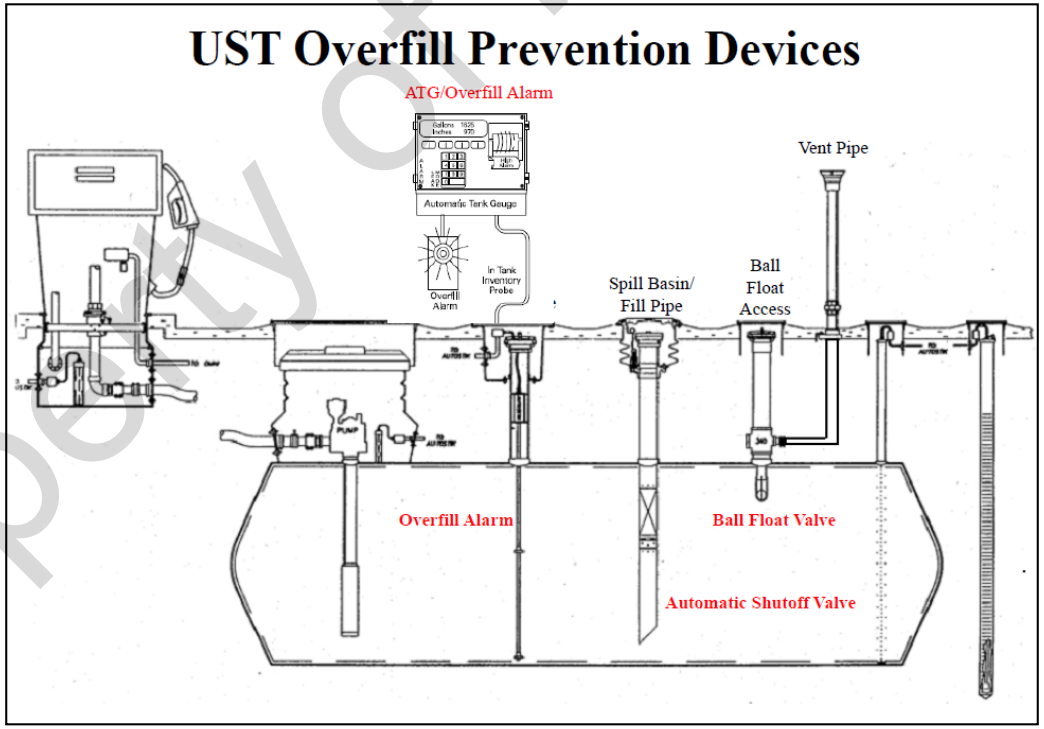
Overfill Prevention Equipment

Overfill Prevention Equipment

Overfill prevention is the equipment installed on/in the UST to prevent a tank from being filled too full.

Examples:

- Shutoff Valve
- Overfill Alarm
- Ball Float Valve



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Overfill Prevention Equipment Inspections

Owners and operators must have their overfill prevention equipment inspected for proper operation at least once every three (3) years.

Most installation codes of practice require inspecting overfill prevention equipment at installation – this would qualify as the first inspection.

The inspection must address the auto shutoff valves in the fill pipe, overfill alarms or ball float (vent) valves. Each device must be removed from the tank and evaluated for proper operation and then returned to the appropriate location in the tank.

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Overfill Prevention Equipment Inspections

1. **Inspections must be conducted according to:**
    - Recognized code of practice,
    - Manufacturer's instructions, or
    - Requirements developed by the implementing agency.
2. **When inspecting, owners and operators must at a minimum ensure the overfill prevention equipment is:**
    - Set to activate at the correct level in the tank (the level depends on the type of overfill device), and
    - Activate when regulated substances reach that level, i.e. operability and serviceability

New or replacement ball float (vent) valves are not allowed. Ball float valves may only remain in operation if they are successfully removed, pass the evaluation criteria, and reinstalled.

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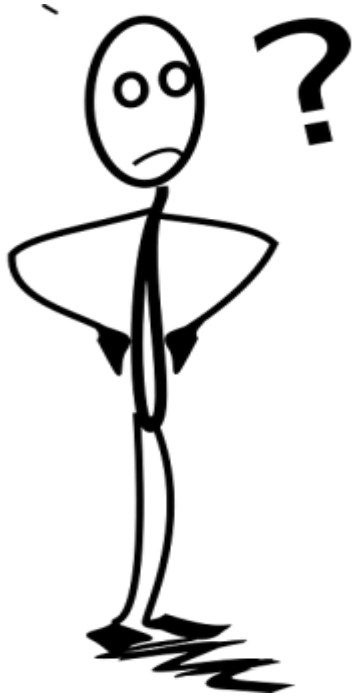
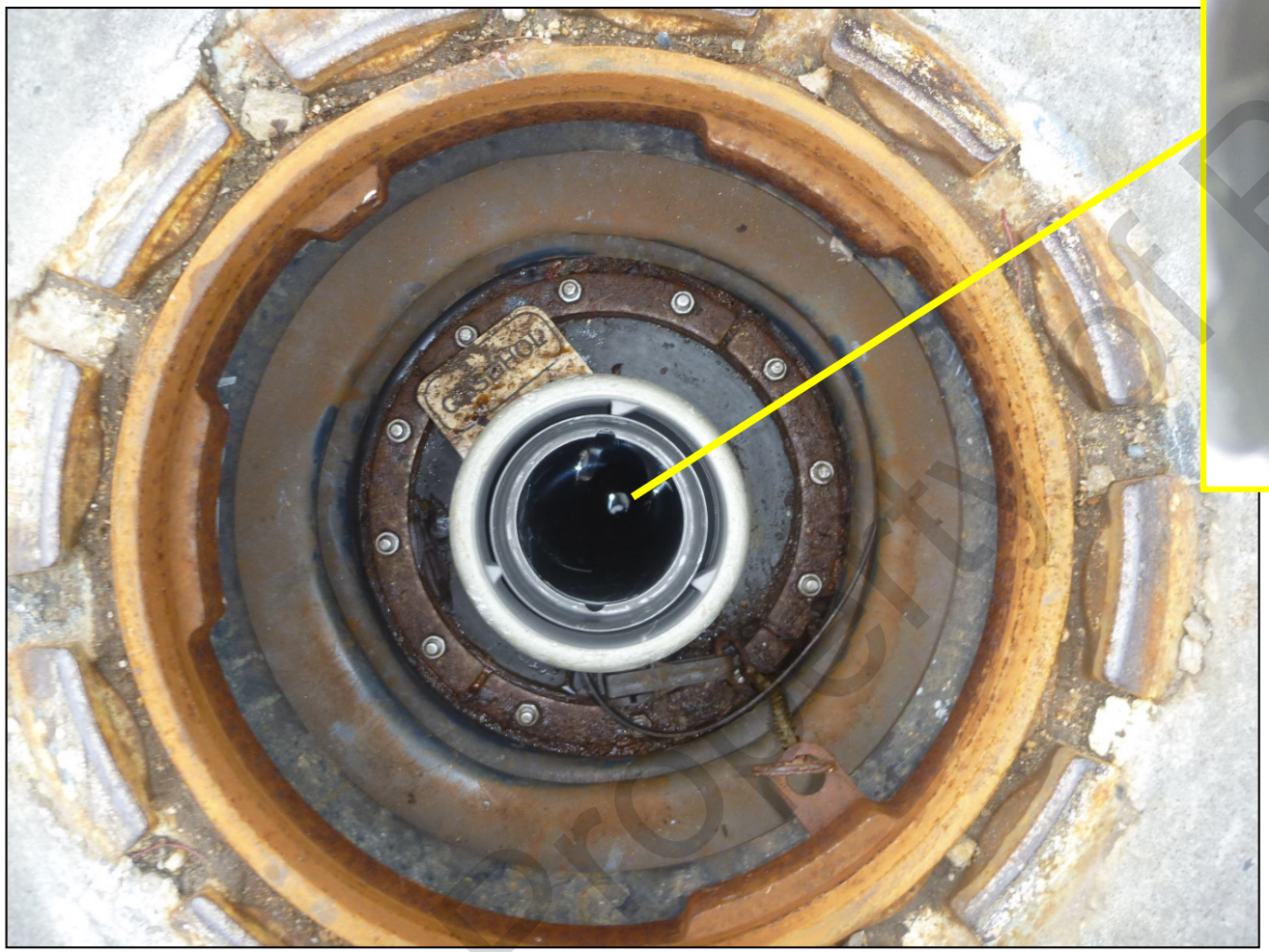
Why are we testing?

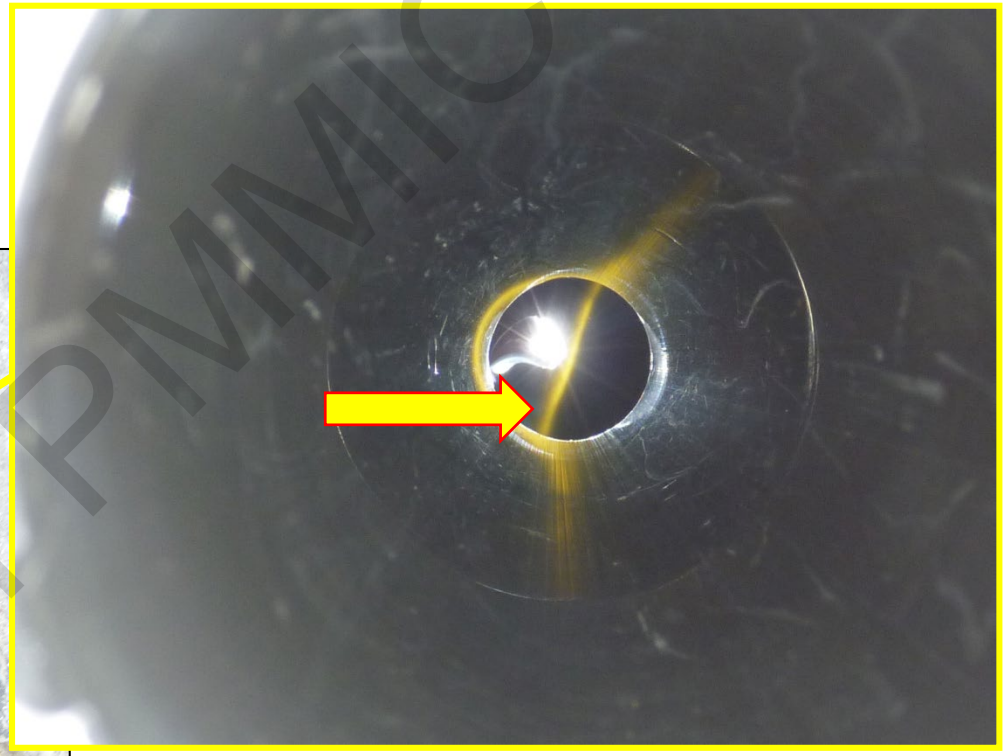


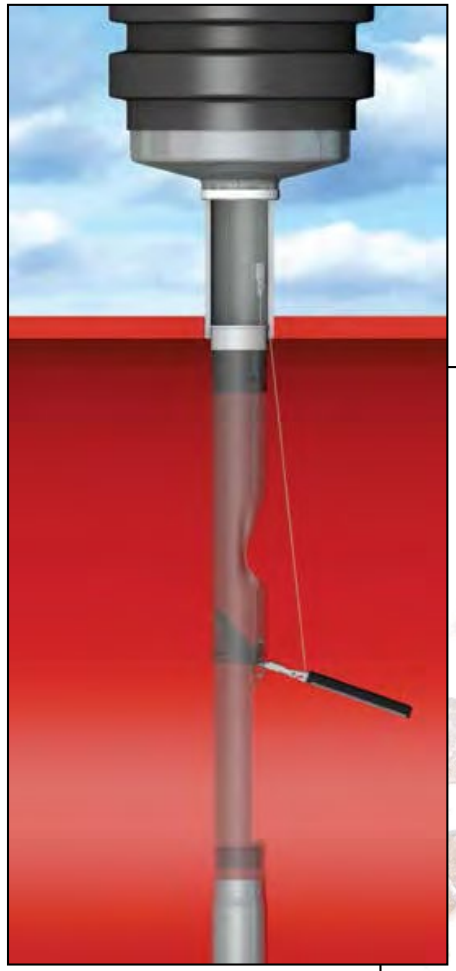
BECAUSE:

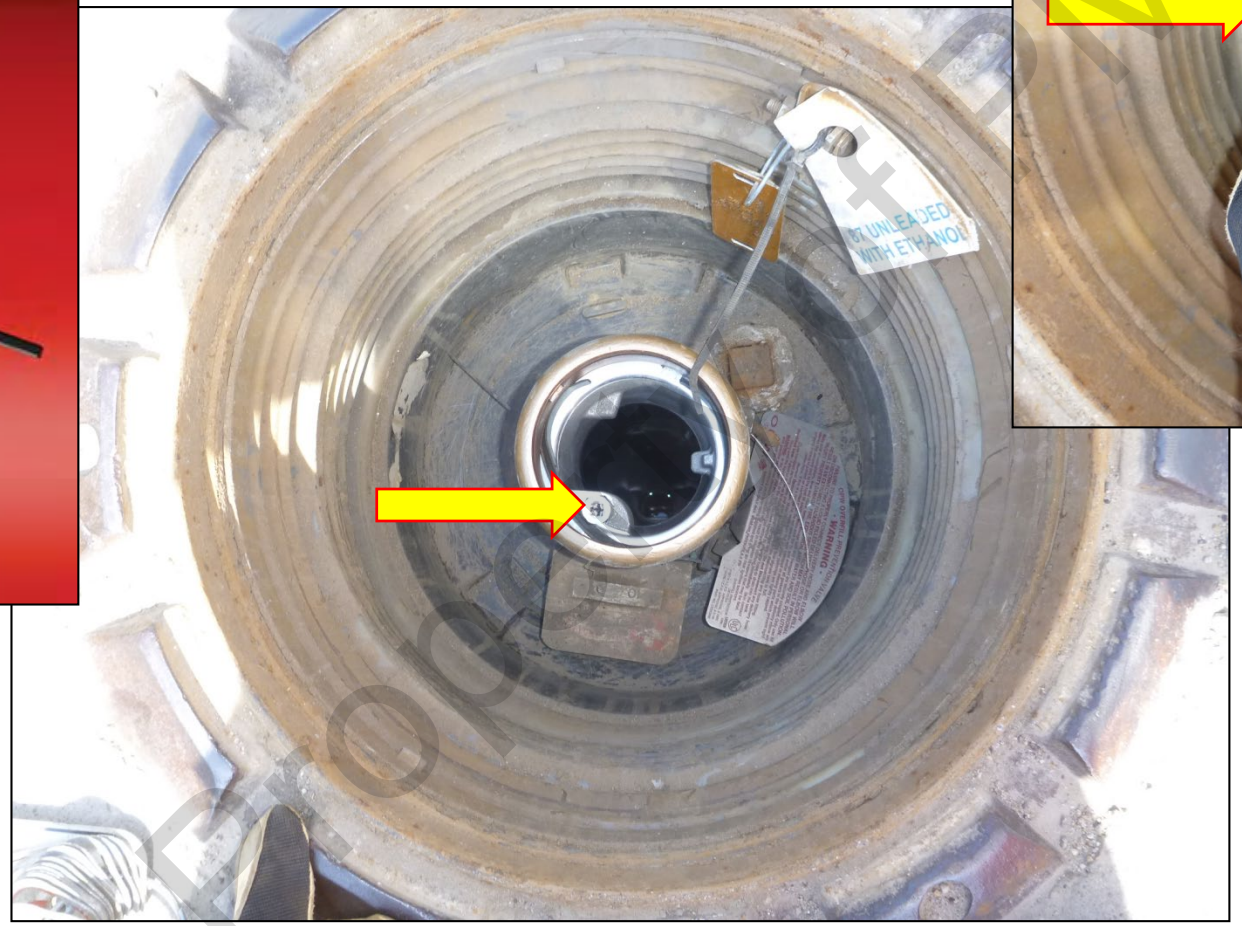
1) Devices wear out,
2) Devices get installed incorrectly, and
3) Devices get disabled/removed

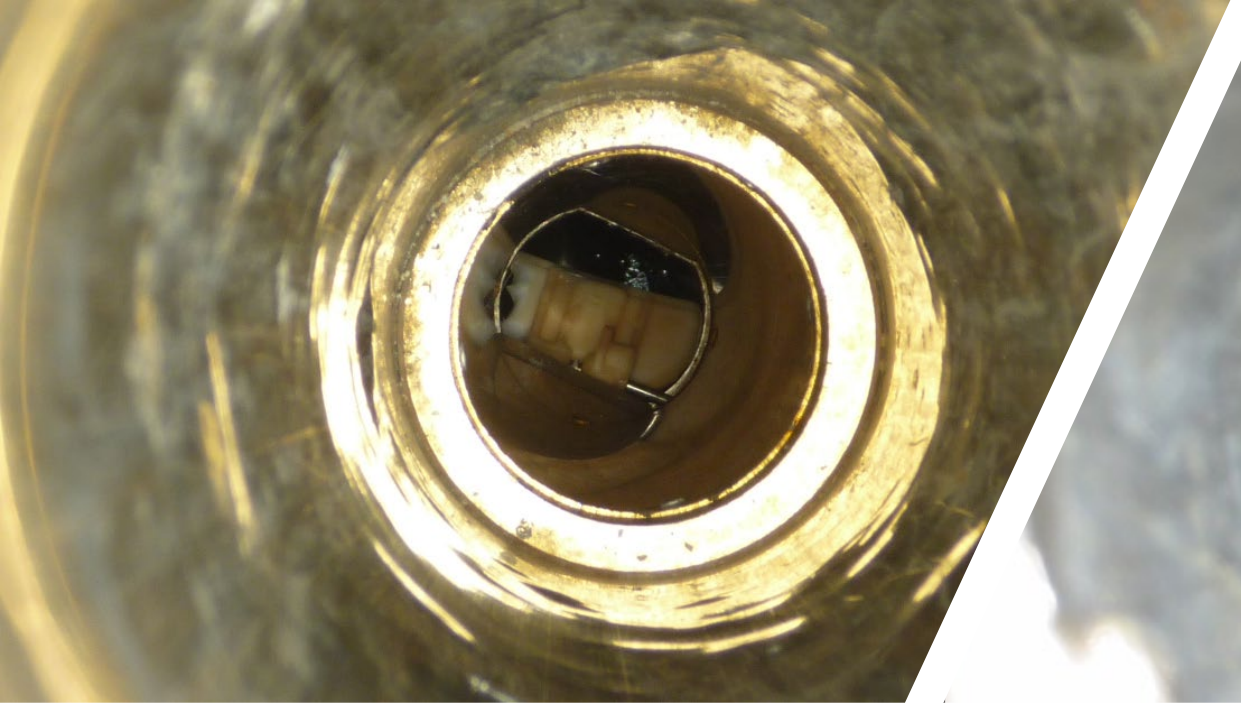
Examples…

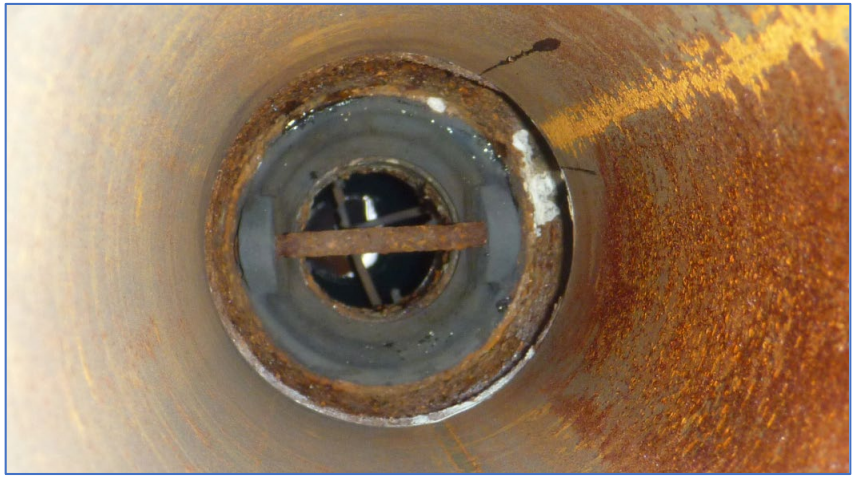




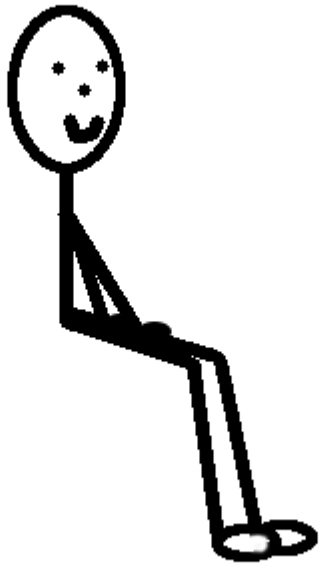








How are we supposed to do it?

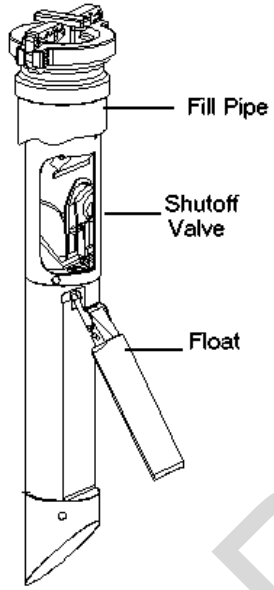


Inspections must be conducted according to:

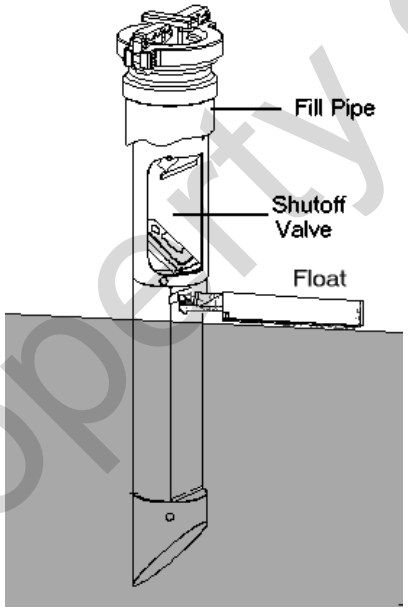
- Recognized code of practice,
- Manufacturer's instructions, or
- Requirements developed by the implementing agency.

Automatic Shutoff/ Flapper Valve

- Test every 3 years
- Remove to inspect
- Set to 95% (measure)
- Functions properly
- Refer to manufacturer protocol

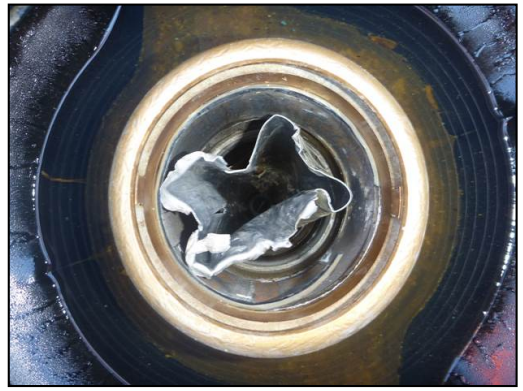


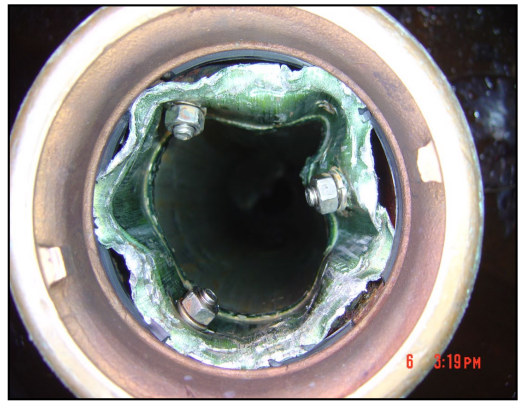
Open



Closed

Challenges in removing existing devices should be expected.





“Test-in-Place” Overfill Devices

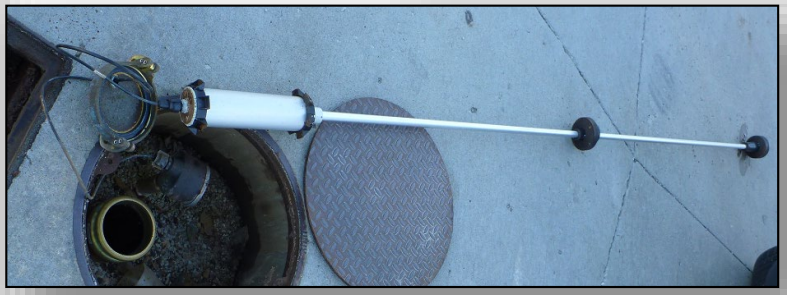
EBW Defender

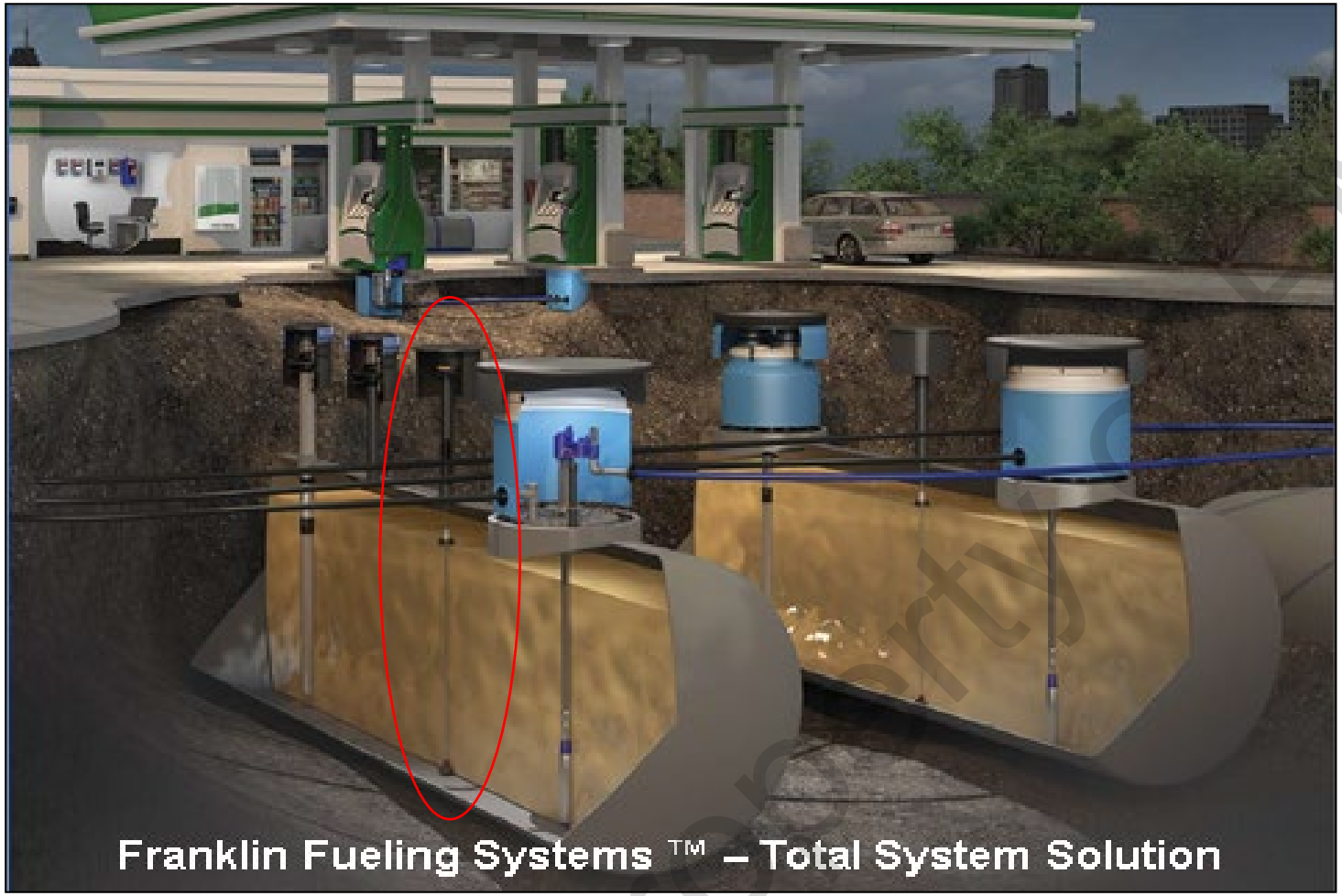
OPW 71SO

EMCO A1100-T

Overfill Alarm

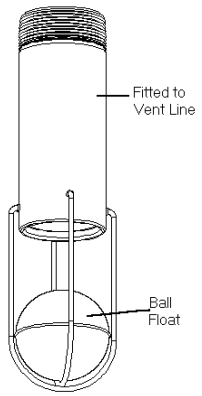
- Test every 3 years
- Check at ATG and outside
- Can combine with ATG operability test
- Remove probe/sensor
- Refer to mfg protocol



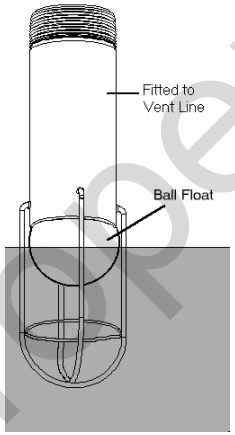


Ball Float Vent Valve/ Flow Restrictor

- Test every 3 years
- Remove to inspect
  - May have to dig to tank-top?
  - Video ok? Probably not…
- Set to 90% (measure)
- Functions properly
- Refer to mfg protocol?

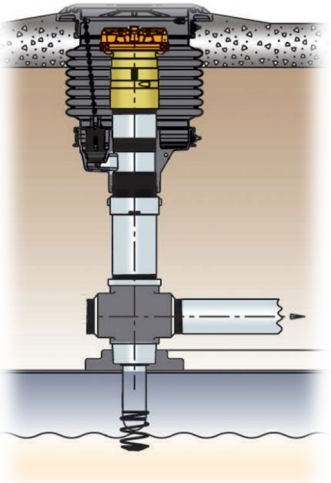


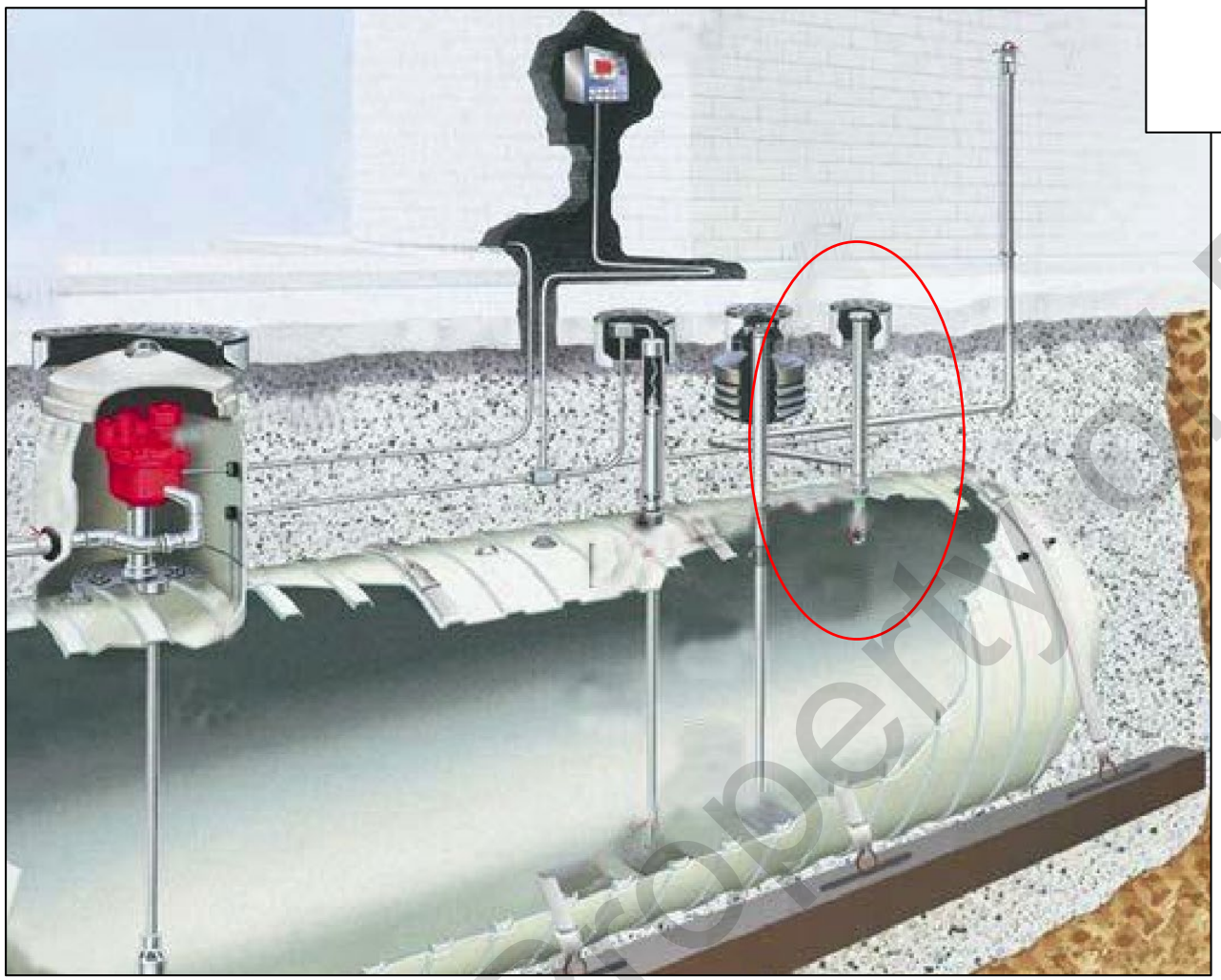
Open

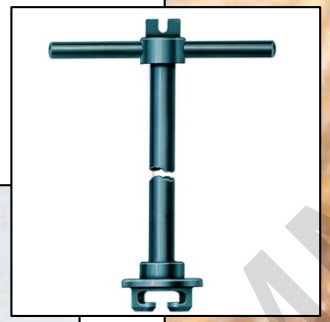


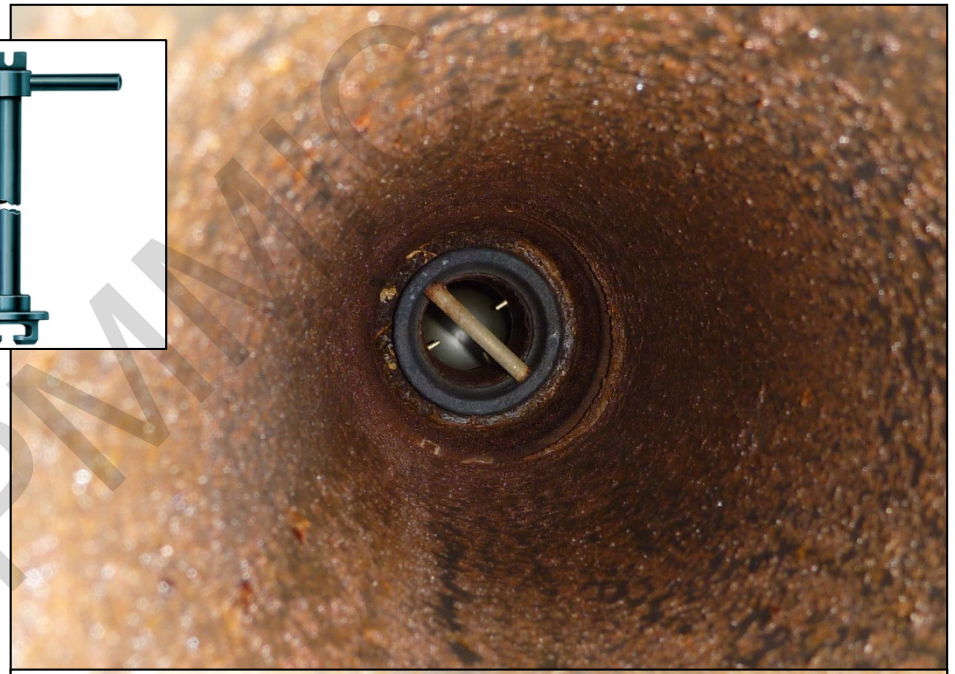
Closed

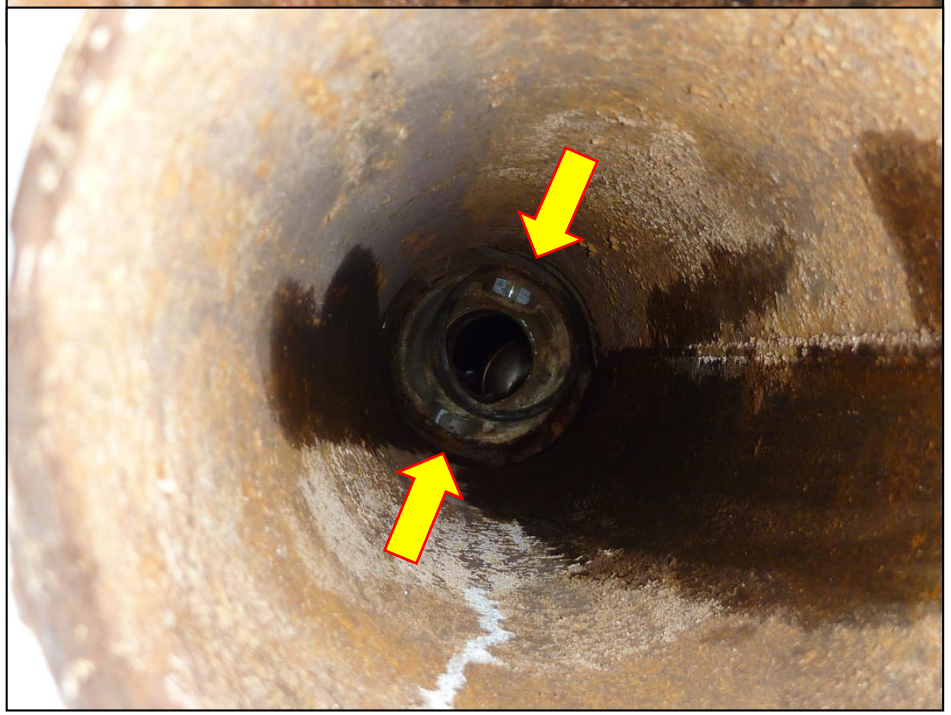
No longer permitted for replacement or new installations











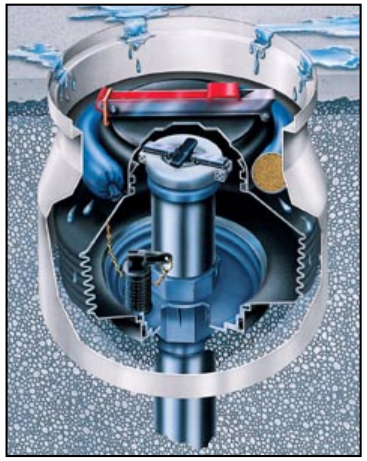
PMMIC INSURANCE

Spill Prevention Equipment

Spill Prevention Equipment

Spill prevention installed around fill pipe to contain the drips and spills of fuel that can occur when the delivery hose is uncoupled from the fill pipe after delivery; aka spill container, spill basin, spill bucket.

Grade Level



Below Grade

EMCO Wheaton SS A1004™

Design Options:

- Single wall or Double wall?
- Grade level or Below grade?
- Flush mount plow ring/lid or above grade ring/lid?
- Poly (non-metallic) or Steel?

PMMIC INSURANCE

Spill Prevention Equipment Testing

Owners and operators must have their spill buckets integrity (tightness) tested at least once every three (3) years.

Most installation codes of practice require inspecting spill prevention equipment at installation – this would qualify as the first inspection.

Tests must determine the equipment is liquid tight by using either vacuum, pressure, or liquid testing according to one of the following:

- Recognized code of practice,
- Manufacturer's instructions, or
- Requirements developed by the implementing agency.

PMMIC INSURANCE

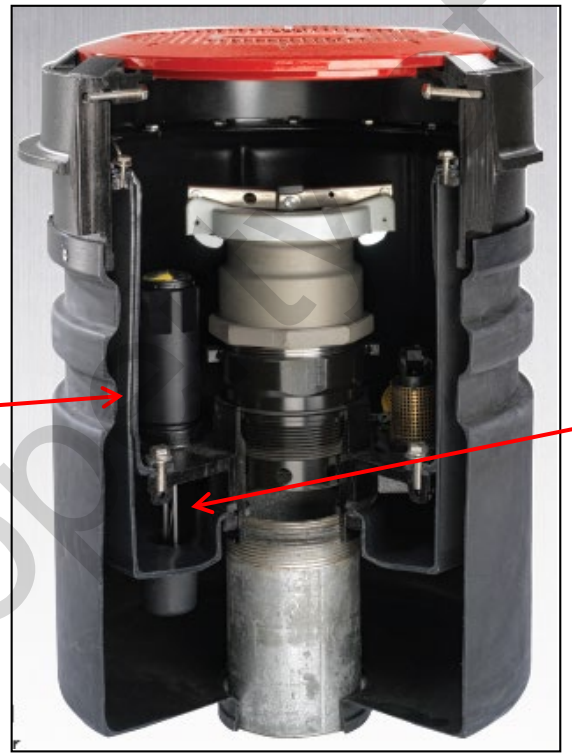
Spill Prevention Equipment Testing

If spill bucket is double walled; keep documentation showing the spill bucket is double-walled and the integrity of both walls is periodically monitored for as long as spill bucket testing is not performed.

Monthly Monitoring?

Mechanical liquid detection

Double wall bucket



Franklin Defender™

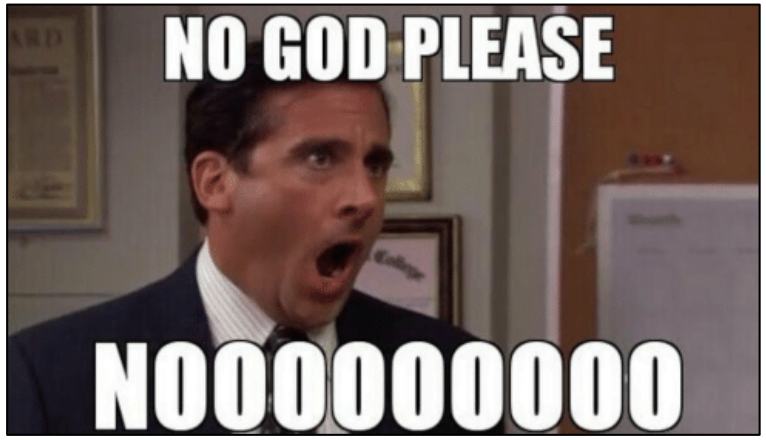
Alternative sensor option

PMMIC INSURANCE

Spill Containment Maintenance

Must be cleaned out appropriately per regulatory guidelines.

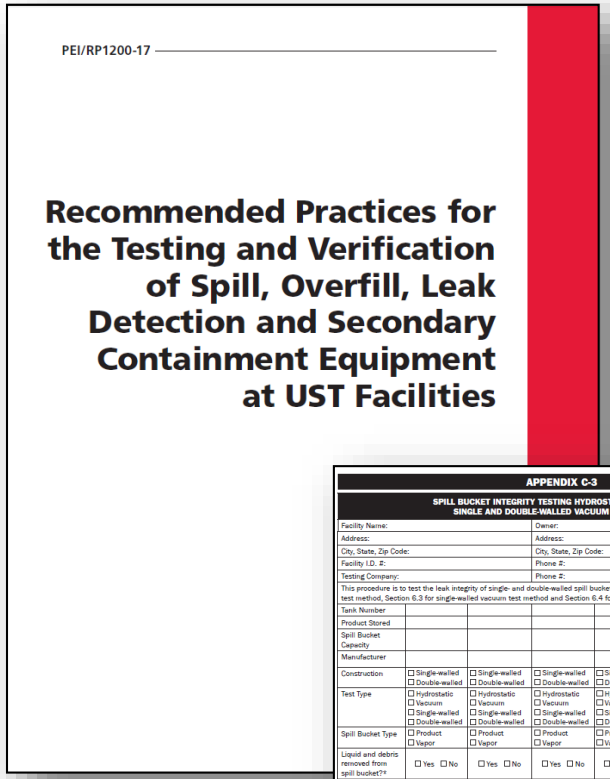
Spill Containment Maintenance



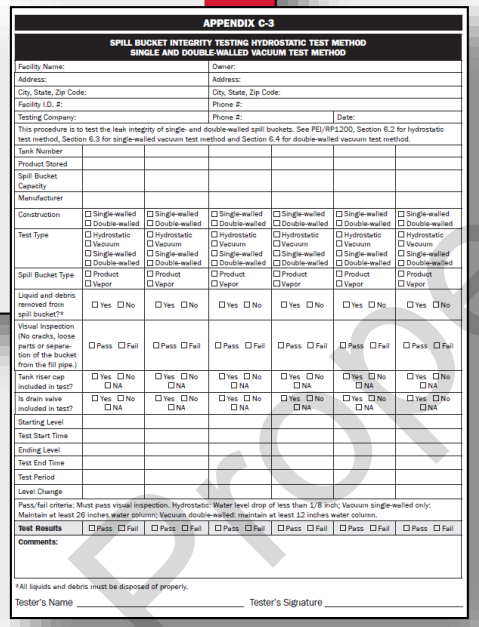
Not the safest way to clean a spill bucket…

Damaged Spill Containment

PEI RP 1200 Spill Bucket Testing


PEI/RP1200-17

Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities


APPENDIX C-3

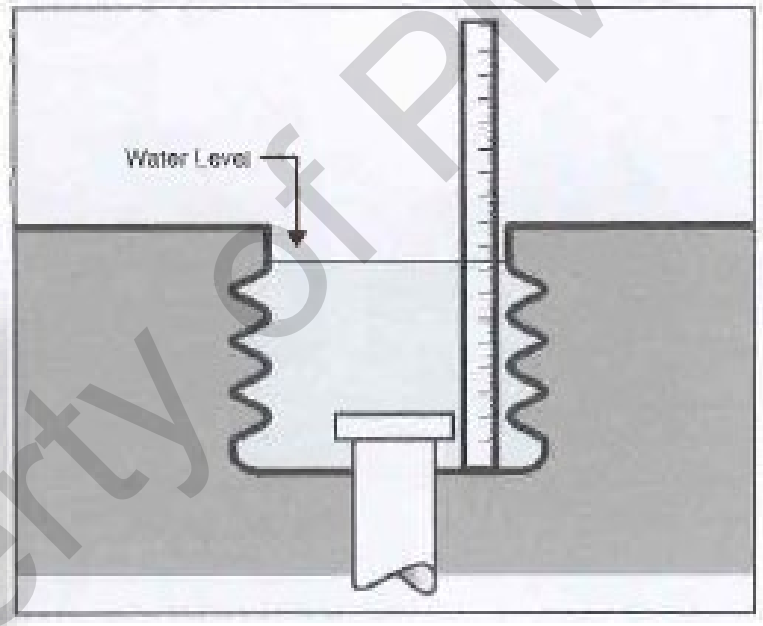
SPILL BUCKET INTEGRITY TESTING HYDROSTATIC TEST METHOD SINGLE AND DOUBLE-WALLED VACUUM TEST METHOD

Facility Name:			Owner:			
Address:			Address:			
City, State, Zip Code:			City, State, Zip Code:			
Facility I.D. #:			Phone #:			
Testing Company:			Phone #:		Date:	
This procedure is to test the leak integrity of single- and double-walled spill buckets. See PEI/RP1200, Section 6.2 for hydrostatic test method, Section 6.3 for single-walled vacuum test method and Section 6.4 for double-walled vacuum test method.						
Tank Number						
Product Stored						
Spill Bucket Capacity						
Manufacturer						
Construction	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled
Test Type	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled
Spill Bucket Type	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor
Liquid and debris removed from spill bucket?*	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Visual Inspection (No cracks, loose parts or separation of the bucket from the fill pipe.)	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Tank riser cap included in test?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
Is drain valve included in test?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
Starting Level						
Test Start Time						
Ending Level						
Test End Time						
Test Period						
Level Change						
Pass/fail criteria: Must pass visual inspection. Hydrostatic: Water level drop of less than 1/8 inch; Vacuum single-walled only: Maintain at least 26 inches water column; Vacuum double-walled: maintain at least 12 inches water column.						
Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Comments:						

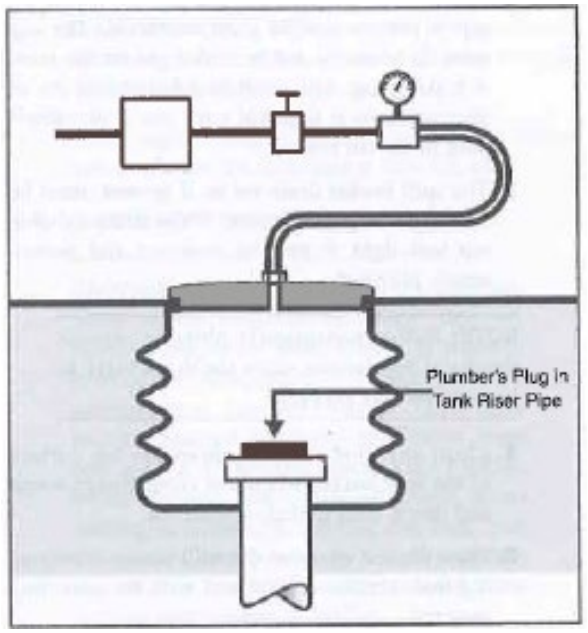
*All liquids and debris must be disposed of properly.

Tester's Name _____ Tester's Signature _____

Hydrostatic Testing



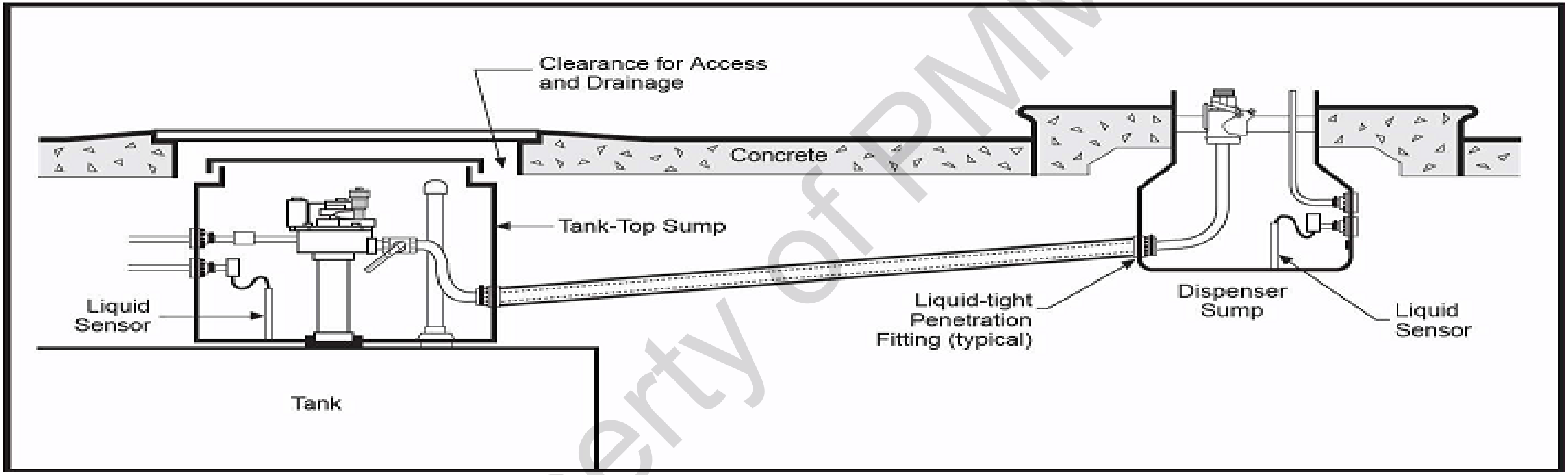
Vacuum Testing



PMMIC INSURANCE

Piping Secondary Containment w/ Interstice Monitoring

Piping Secondary Containment w/ Interstice Monitoring



PEI, RP 100-2005, *Recommended Practices for Installation of Underground Liquid Storage Systems*, pg 17.

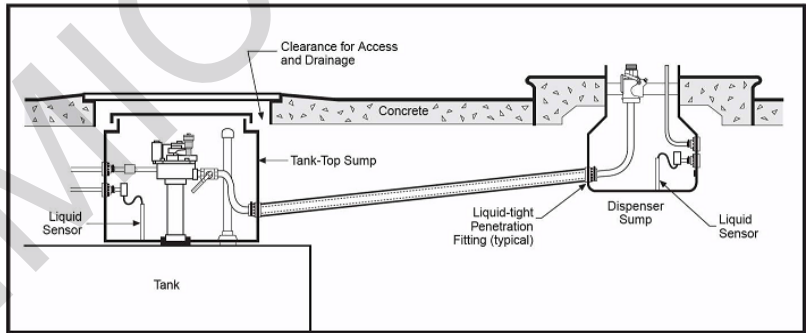
Secondary Containment

Installation Requirements

- **November 28, 2007** - Any new or replacement UST system installations require secondary containment.
- Secondary containment also required:
  - New piping installed
  - Any replacement of 10ft or more
  - If 50% or more of run, then entire pipe run must be replaced
- Must meet performance standards, i.e. Underwriters Laboratories
- Secondary containment must:
  - Contain released substance
  - Monitored monthly (manual or electronic)

This affects 20% of current PMMIC insured tanks. (appx 300 facilities)

Secondary Containment



Operation and Maintenance

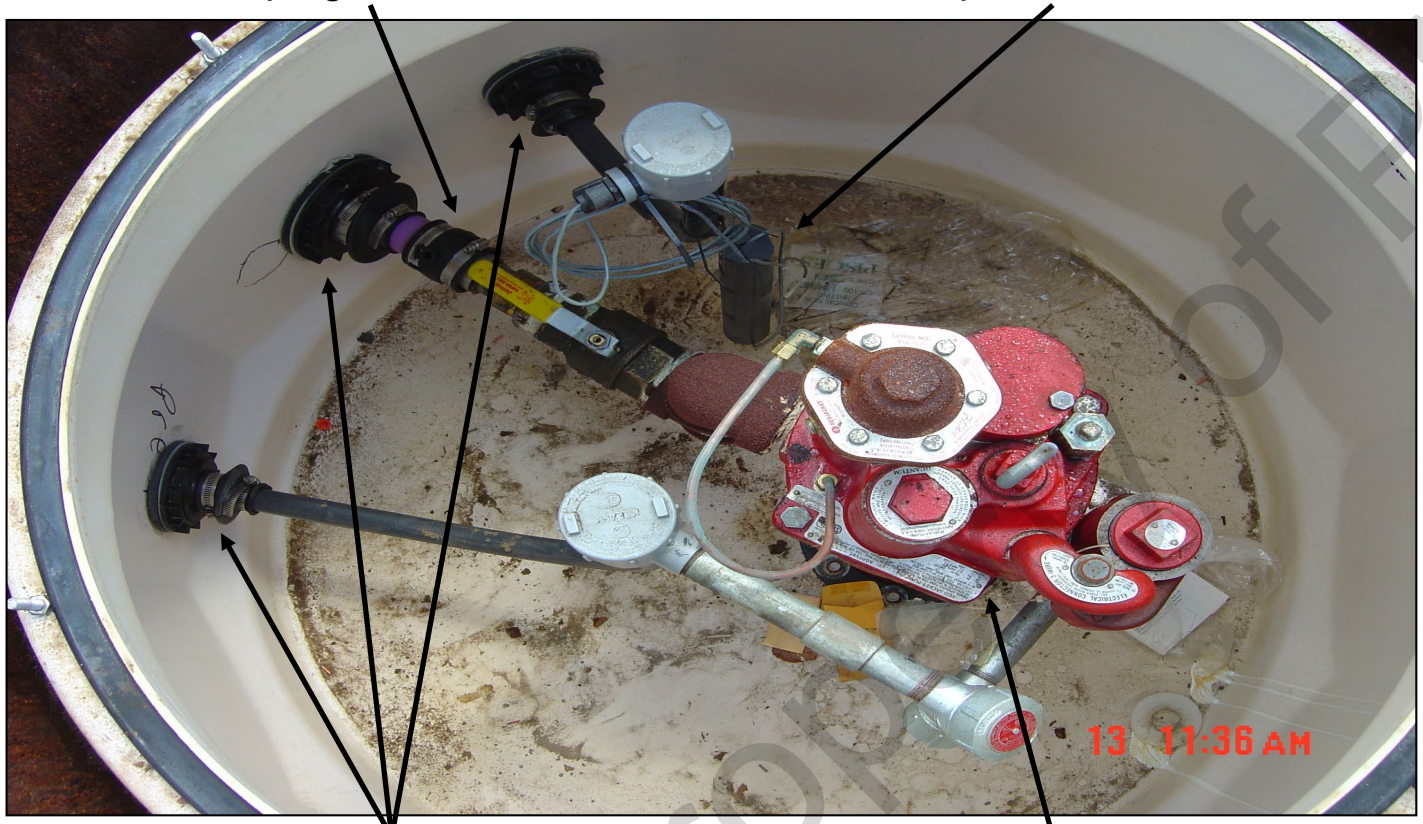
- System inspected during compliance inspection
- Inspections include:
  - Visual inspection to confirm intact and liquid tight
  - Sumps must be free of liquid & debris
  - Any regulated substances in containments removed immediately
- Testing includes:
  - Confirming proper programming/installation of sensors
    - Sensors must be located at lowest position (bottom) of sump
  - All sensing devices (i.e. liquid sensors) have functionality test

Secondary Containment

Operation and Maintenance

- Under-dispenser containment (UDC) required:
  - New or replacement dispenser island
  - MUST…prevent release to environment, be compatible, allow monitoring, and be liquid tight.

Piping (Turbine) Sump



Piping (Junction) Containment

NOTE: All intermediate sumps (containments) must also be part of monitoring system

Under Dispenser Containment

NEW EPA Regulation

Secondary containment/containment sump testing (CFR 280.35) for sumps used for line leak detection (SCIM) – EPA allows states up to 3years after effective date of the rule or a more limited time frame, that owners and operators must conduct the first test or inspection (note that any new install must have equipment tested at installation and then every three years after). “Tested to ensure the equipment is liquid tight by using vacuum, pressure, or liquid”

EPA considers a containment sump to be a liquid tight container that protects the environment by containing leaks and spills of regulated substances from piping, dispensers, pumps, and related components in the containment area.

Containment Sump Testing (when used for Interstitial Monitoring)

Option 1: Containment sump equipment is **double walled** and the integrity of both walls is monitored at least as frequently as in the walkthrough inspection requirement (annually for containment sumps). If owners and operators discontinue this periodic monitoring, they have 30 days to conduct the test described in option 2 below.

Double walled containment

IMPORTANT: All UST installations and UST system upgrades after **11/28/2007** require double wall tanks/lines with secondary containment that is interstitially monitored every 30 days by visual inspections or continuous electronically monitoring (i.e. liquid sensors)

PMMIC INSURANCE

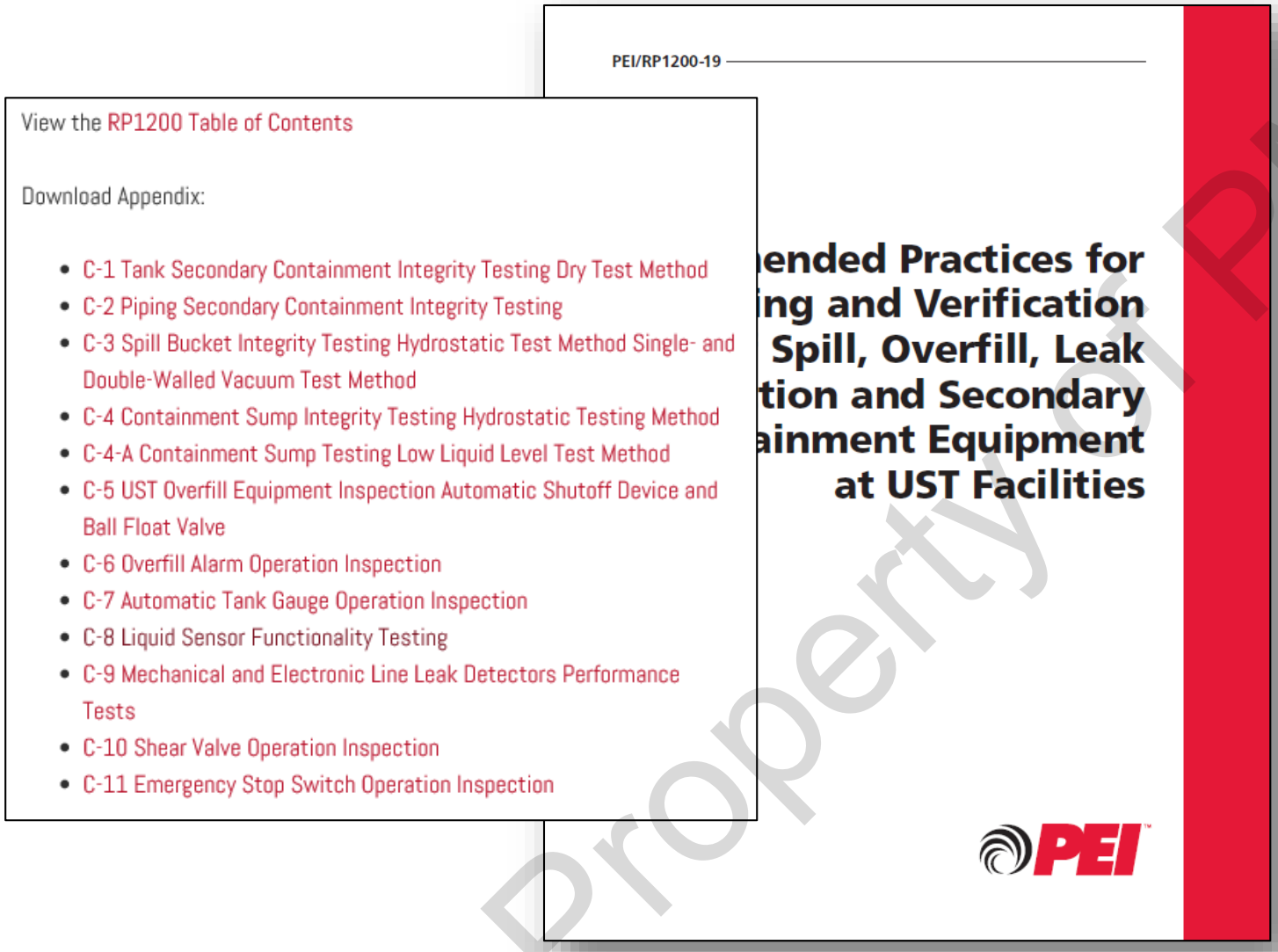
Containment Sump Testing (when used for Interstitial Monitoring)

Option 2: Containment sumps used for interstitial monitoring of piping are tested at least once every three (3) years; including tank top sumps, transition sumps and under dispenser containment. The test must determine the equipment is liquid tight by using either vacuum, pressure, or liquid testing according to one of the following:

1. Requirements developed by the manufacturer (owners and operators may only use this option if the manufacturer has developed testing requirements)
2. A code of practice developed by a nationally recognized association or independent testing laboratory
3. Requirements determined by the implementing agency to be no less protective than those developed by the manufacturer or in the code of practice.

PMMIC INSURANCE

Acceptable Code of Practice



Preference is per manufacturer, however this provides generic instruction in absence of mfg. procedures

Intended for:

- Facility operators and
- Testing personnel

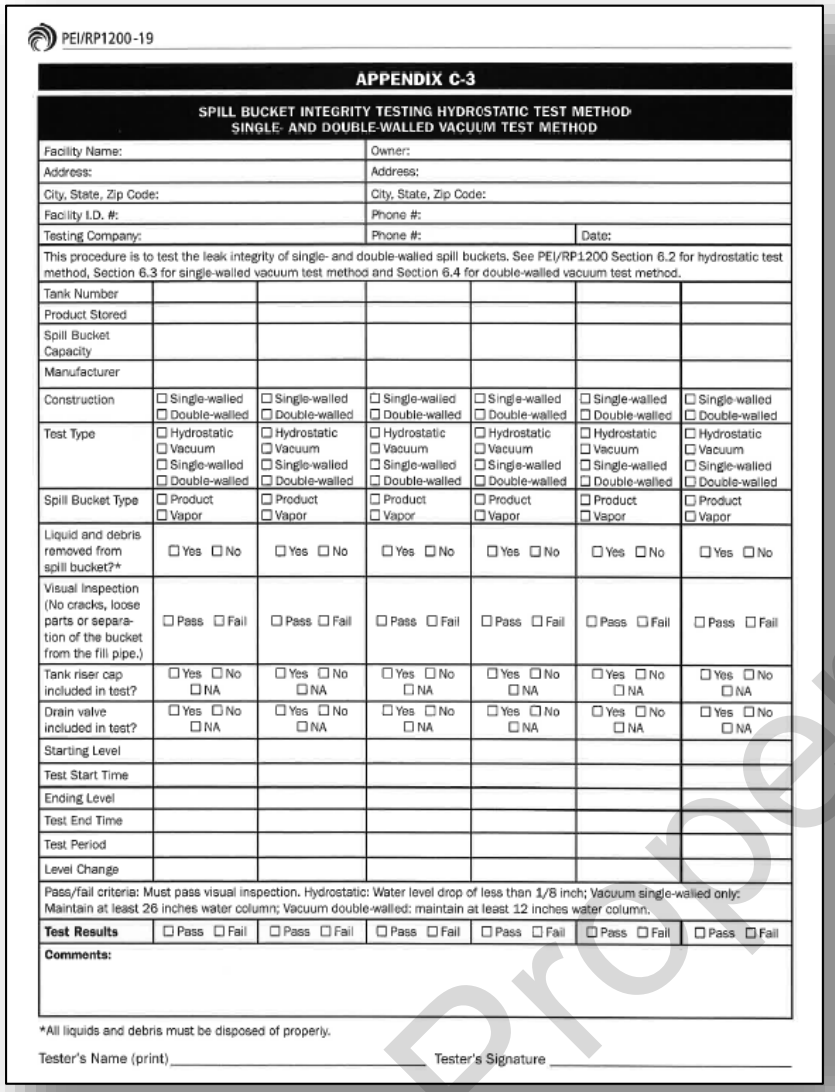
Applies to:

- USTs
- Connected underground piping
- Underground ancillary equipment and containment systems

http://www.pei.org/rp1200

Acceptable Code of Practice

http://www.pei.org/rp1200



PEI/RP1200-19

APPENDIX C-3

SPILL BUCKET INTEGRITY TESTING HYDROSTATIC TEST METHOD SINGLE- AND DOUBLE-WALLED VACUUM TEST METHOD

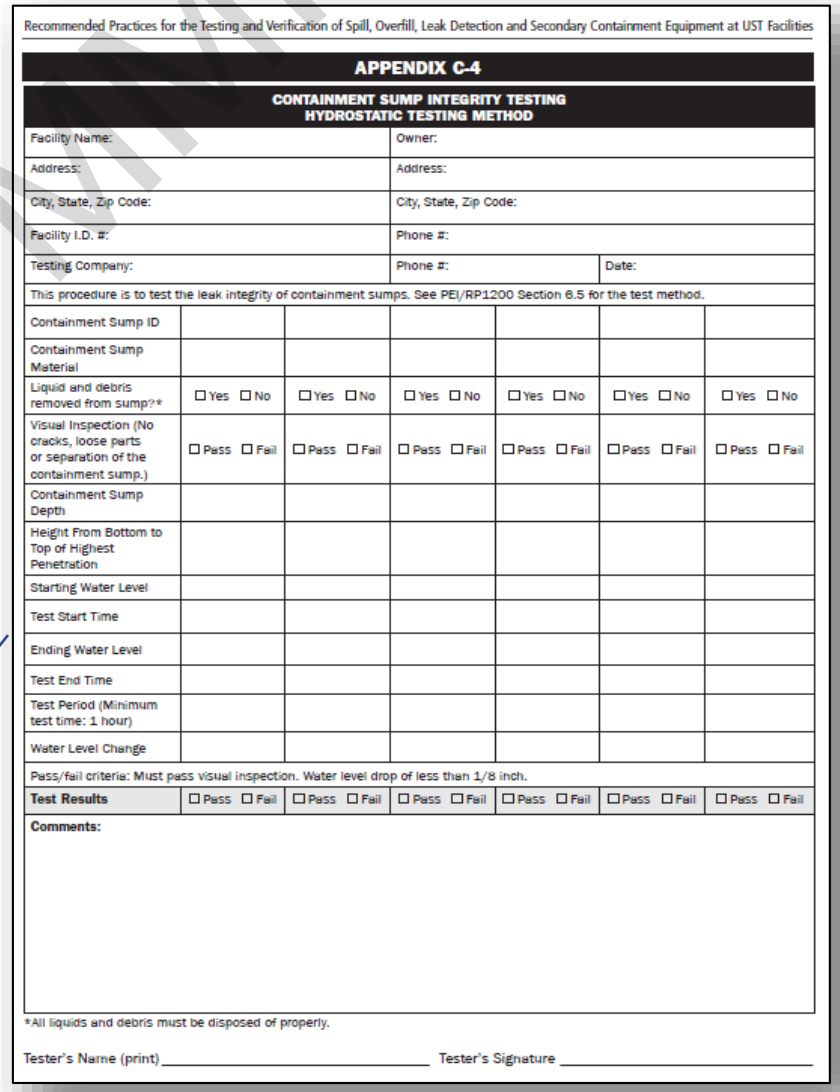
Facility Name:			Owner:			
Address:			Address:			
City, State, Zip Code:			City, State, Zip Code:			
Facility I.D. #:			Phone #:			
Testing Company:			Phone #:		Date:	
This procedure is to test the leak integrity of single- and double-walled spill buckets. See PEI/RP1200 Section 6.2 for hydrostatic test method, Section 6.3 for single-walled vacuum test method and Section 6.4 for double-walled vacuum test method.						
Tank Number						
Product Stored						
Spill Bucket Capacity						
Manufacturer						
Construction	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled	☐ Single-walled ☐ Double-walled
Test Type	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled	☐ Hydrostatic ☐ Vacuum ☐ Single-walled ☐ Double-walled
Spill Bucket Type	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor	☐ Product ☐ Vapor
Liquid and debris removed from spill bucket?*	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Visual Inspection (No cracks, loose parts or separation of the bucket from the fill pipe.)	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Tank riser cap included in test?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
Drain valve included in test?	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA	☐ Yes ☐ No ☐ NA
Starting Level						
Test Start Time						
Ending Level						
Test End Time						
Test Period						
Level Change						
Pass/fail criteria: Must pass visual inspection. Hydrostatic: Water level drop of less than 1/8 inch; Vacuum single-walled only: Maintain at least 26 inches water column; Vacuum double-walled: maintain at least 12 inches water column.						
Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Comments:						

*All liquids and debris must be disposed of properly.

Tester's Name (print)_____ Tester's Signature _____

Spill Bucket Hydro Test

Containment Hydro Test



Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities

APPENDIX C-4

CONTAINMENT SUMP INTEGRITY TESTING HYDROSTATIC TESTING METHOD

Facility Name:			Owner:			
Address:			Address:			
City, State, Zip Code:			City, State, Zip Code:			
Facility I.D. #:			Phone #:			
Testing Company:			Phone #:		Date:	
This procedure is to test the leak integrity of containment sumps. See PEI/RP1200 Section 6.5 for the test method.						
Containment Sump ID						
Containment Sump Material						
Liquid and debris removed from sump?*	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Visual Inspection (No cracks, loose parts or separation of the containment sump.)	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Containment Sump Depth						
Height From Bottom to Top of Highest Penetration						
Starting Water Level						
Test Start Time						
Ending Water Level						
Test End Time						
Test Period (Minimum test time: 1 hour)						
Water Level Change						
Pass/fail criteria: Must pass visual inspection. Water level drop of less than 1/8 inch.						
Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Comments:						

*All liquids and debris must be disposed of properly.

Tester's Name (print)_____ Tester's Signature _____

PMMIC INSURANCE

Release Detection Equipment

Methods of Release Detection

Release detection method must:

- Determine every 30 days that tanks/piping are not leaking
- Detect release from any portion that routinely contains fuel
- Installed, calibrated, operated and maintained in accordance with manufacture instructions
- Meets DNR performance standard requirements

IMPORTANT!

Notify DNR if release detection equipment indicates a release may have occurred

Release Detection: TANKS

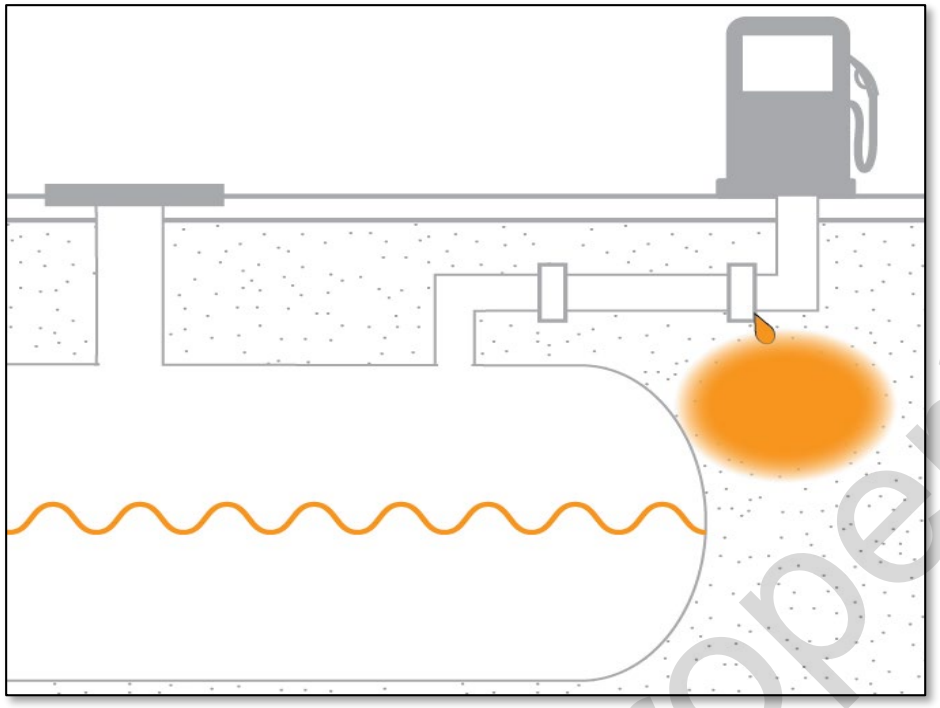
- Automatic Tank Gauging (ATG)
  - Continuous In Tank Leak Detection System (CITLDS)
- Secondary containment/Interstitial monitoring (SCIM)
- Statistical Inventory Reconciliation (SIR)
- Vapor Well Monitoring
- Groundwater Well Monitoring
- Inventory control (combined with tank tightness testing)
- Manual tank gauging (MTG)

IMPORTANT: All tank leak detection methods must be done on monthly basis.

Release Detection: PIPING

- Line tightness testing (0.1 gph annually or 0.2 gph monthly)
- Vapor monitoring (monthly)
- Groundwater monitoring (monthly)
- Secondary containment/Interstitial monitoring (monthly)
- Other methods
  - SIR (monthly)
  - CITLDS Reconciliation (monthly)

Methods of Release Detection



Piping Release Detection:

- Pressurized piping:
  - Equipped with continuous automatic line leak detector (3.0 gph)
  - Annual tightness testing (0.1 gph) or monthly monitoring (0.2gph)

- Suction piping:
  - 3 year tightness testing (0.1 gph) or monthly monitoring (0.2gph)

  or

  - Documented as “safe” suction (aka European Suction)

Line Tightness Testing (LTT)

- Determine if line is “tight”
- Test at 0.1 gph (annual) or 0.2 gph (monthly)
- Certified electronic equipment or manual test method
- Annual functionality test of equipment
- File monthly and/or annual tests

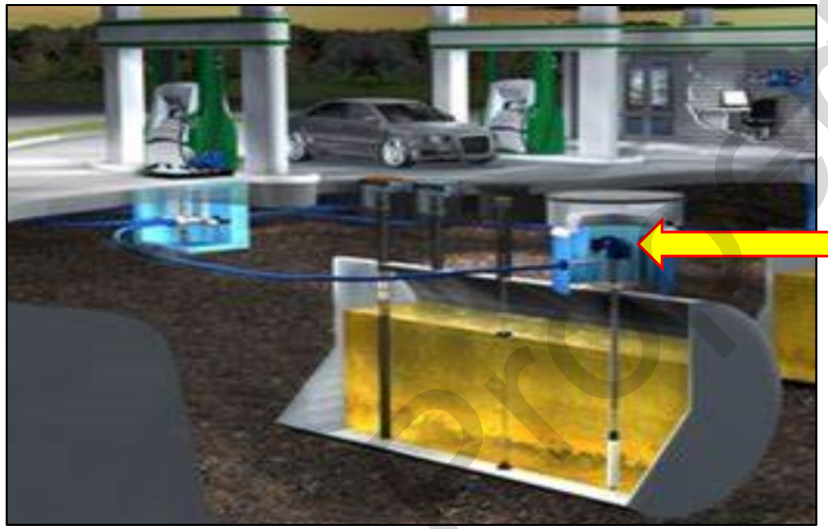
Automatic Line Leak Detection (ALLD)

- Detect “catastrophic” leaks
- Pressurized delivery only (to dispensing unit)
- Minimum of 3 gph on line w/10 psi within 1 hr
- Must shut down system, restrict flow, or trigger alarm
- Must run/monitor <u>continuously</u>
- Mechanical (MLLD) or Electronic (ELLD)
- Annual functionality test (per mfg specification)
- File monthly and/or annual tests

Automatic Line Leak Detection

Functional Testing:

- Annual test for proper operation (simulate leak at 3.0 gph or less)
- Performed by certified/licensed individual
- Certified test equipment



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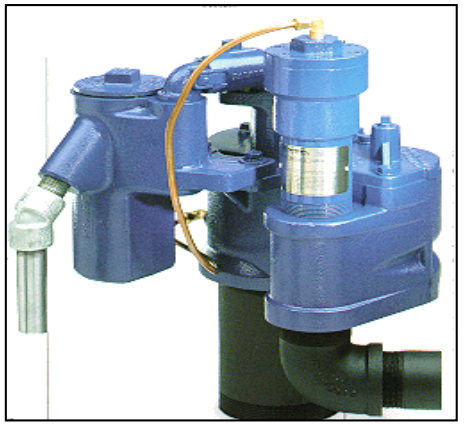

OR

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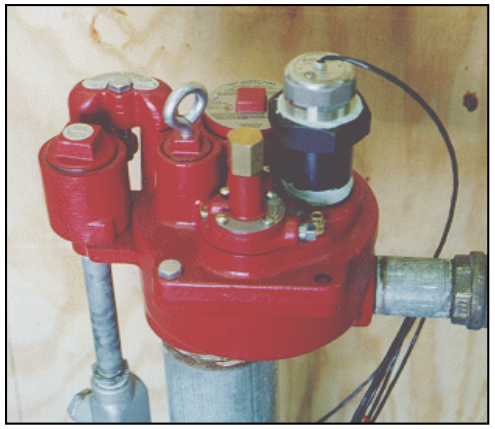

Release Detection Equipment Testing

Owners and operators must test electronic and mechanical components of their release detection equipment for proper operation at least annually using one of the following options:

1. Manufacturer's instructions
2. Code of practice developed by a nationally recognized association or independent testing laboratory
3. Requirements developed by the implementing agency

Release Detection Equipment Testing

Equipment testing/inspection includes the following:

1. **Automatic tank gauge and other controllers**
   - ❑ Test the alarm
   - ❑ Verify the system configuration
   - ❑ Test the battery backup

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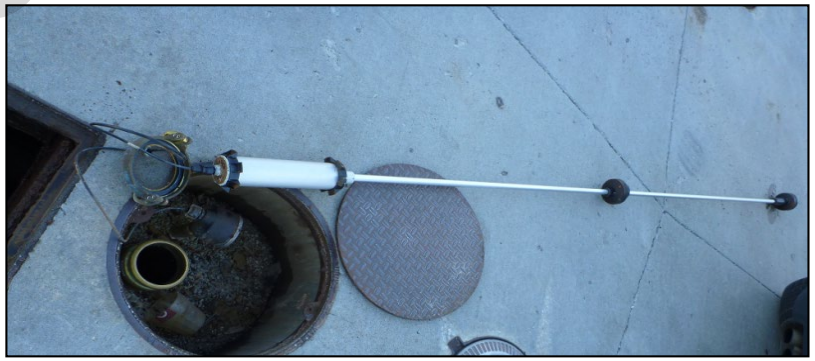
Release Detection Equipment Testing

Equipment testing/inspection includes the following:

2. **Probes and sensors**
   - ❑ Inspect for residual buildup
   - ❑ Ensure any floats move freely
   - ❑ Ensure any shafts are not damaged
   - ❑ Ensure the cables are free of kinks and breaks
   - ❑ Test the alarm operability and communication with the controller



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Release Detection Equipment Testing

Equipment testing/inspection includes the following:

3. **Automatic line leak detector**
   - ❑ Ensure the device activates (alarms, restricts flow, or shuts off flow) within an hour when simulating a release equivalent to 3 gallons per hour at 10 pounds per square inch

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Release Detection Equipment Testing

Equipment testing/inspection includes the following:

4. **Vacuum pumps and pressure gauges**
   - ❑ Ensure there is proper communication with sensors and the controller

5. **Hand-held electronic sampling equipment associated with ground water and vapor monitoring**
   - ❑ Ensure the device operates properly

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Release Detection Equipment Testing

NOTE: Previously deferred UST systems. 1) Airport hydrant fuel distribution systems, 2) UST systems with field-constructed tanks, and 3) UST systems that store fuel solely for use by emergency power generators must now meet the new requirements. This includes adequate monthly leak detection on tanks and lines. Additionally, systems installed after 11/28/07 must comply with secondary containment rules.

Emergency Power Generator UST

- ~~Leak Detection NOT required~~
- Remaining IAC Apply

❖ New regulation now requires compliance with **LEAK DETECTION**

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COMPLYING WITH NEW UST REGULATIONS

Who can perform these tasks?

1. **Walkthrough Inspections** – Anyone (preferably someone with knowledge of the UST system such as owner operator, service technician, or a licensed UST professional)
2. **Overfill prevention equipment inspections** – Anyone (preferably someone with knowledge of the UST system such as owner operator, service technician, or a licensed UST professional)
3. **Spill basin testing** – Anyone (preferably someone with knowledge of the UST system such as owner operator, service technician, or a licensed UST professional)
4. **Testing of containment sumps used for interstitial monitoring** – Anyone (preferably someone with knowledge of the UST system such as owner operator, service technician, or a licensed UST professional)
5. **Release detection equipment testing** – Iowa Licensed UST tester or someone certified by the equipment manufacturer

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COMPLYING WITH NEW UST REGULATIONS

When are these tasks due?

In accordance with EPA federal requirements, the first round of testing and inspections of equipment must be completed by **October 13, 2021**:

1. **Walkthrough Inspections** – Once started, inspections must be performed within **30-day cycles** and the next annual must be completed **within one year**. Walkthrough inspections may be completed by anyone with some basic knowledge of the UST system. Iowa DNR is in the process of developing walkthrough forms for public use. *PMMIC has already received approval from the Iowa DNR to use the PMMIC annual inspection process to comply with the Annual Walkthrough requirement. Will be completed before deadline.*
2. **Overfill prevention equipment inspections** – Once started, inspections must be performed every 3 years thereafter.
3. **Spill basin testing** – Once started, tests must be performed every 3 years thereafter.
4. **Testing of containment sumps used for interstitial monitoring** – Once started, tests must be performed every 3 years thereafter.
5. **Release detection equipment testing** – Once started, testing/inspections must continue annually.

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COMPLYING WITH NEW UST REGULATIONS

Maintaining Records

1. Owners and operators must maintain records of all systems tested and of the operational status of the UST system; if equipment fails a test or is deemed inoperable, the equipment must be repaired or replaced, and tested to verify operability.
2. Owners and operators must keep the required records either:
   - At the UST site and immediately available for inspection by the department; or
   - At a readily available alternative site and be provided for inspection to the department within two business days of department request.

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You Must Keep These Records:	For This Long:
Spill And Overfill Prevention	
Testing and inspection records for spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping*	**Three years**
Corrosion Protection	
Records of your 60-day inspections for your impressed current corrosion protection system	Three most recent inspections
Records of cathodic protection tests for your corrosion protection system	Two most recent tests
Release Detection	
30-day monitoring results	One year
Tightness test results	Until the next test
Records for your annual release detection equipment operability tests*	**Three years**
Copies of performance claims provided by release detection equipment manufacturers or equipment installers	Five years
Records of maintenance, repair, and calibration of on-site release detection equipment	One year after servicing is completed
If you use vapor monitoring or groundwater monitoring, records of a site assessment showing that the monitoring system is set up properly*	**For as long as vapor monitoring or groundwater monitoring is used**

***IMPORTANT NOTE: NEW Items that are shaded grey are required by October 13, 2021.**

You Must Keep These Records: (continued)	For This Long:
Walkthrough Inspections	
Records showing you performed periodic walkthrough inspections*	**One year**
Compatibility	
If you store certain biofuels or other substances identified by your implementing agency, records demonstrating compliance with the compatibility requirement*	**For as long as the UST system stores the regulated substance**
Operator Training	
Records for each designated Class A, B, and C operator showing they have been trained	For as long as the operator is designated at the facility
Repairs	
Records showing that a repaired UST system was properly repaired	Until the UST system is permanently closed or undergoes a change-in-service
Financial Responsibility	
Records that document you have financial responsibility, i.e. Certificate of Insurance	Until the UST system is permanently closed or undergoes a change-in-service
Closure	
Records of the site assessment results required for permanent closure	For at least three years after closing an UST

Record/Filing items needing consideration:

- **DNR Registration**
- **Compliance Inspections**
- **Corrective Action & Monitoring**

HOW IS PMMIC/R&A HELPING YOU?

- PMMIC has been working closely with FUELIowa and IA DNR through this entire rulemaking process.
- Still looking at ways to assist owners and operators maintain compliance.
- PMMIC already received approval from the Iowa DNR to use the PMMIC annual inspection process to comply with the “Annual” Walkthrough requirement.
- Ability to provide “30-day” walkthrough program
- Will continue to broadcast information and offer instructional courses
- UST Operator Training available throughout the year
  - **FREE** if you have NOT already attended a course
  - More information at https://pmmic.com/operations/training

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