Conducting Effective Compliance Assistance Inspections for UST Owners/Operators

TLEF UST Mock Inspection Field Trip

Tuesday, August 14, 2018
Spokane, WA
Agenda

- Welcome/Introductions
- Goals and Objectives
- UST Parts 101
- Inspection Review
- Safety Briefing
Welcome

- Name, Tribe
- Month, years, decades in UST work
- Something you find cool about USTs
- Something that bugs you about USTs
Goals and Objectives

- Introduce and become familiar with UST parts
- how they work, or not
- Various types of each and their histories
- How they are to be inspected
- Common problems
Goals and Objectives

- Avoid common inspector mistakes
- Become a more confident detective
- Understand how UST systems work as if the rules didn’t matter
3. Basic UST Technology
What's Underground?

Lots!
And each site is different
What's Your Tank Made of?

Steel
Fiberglass
Fiberglass clad steel
Unknown?
Is Your Tank Double-Walled or Single-Walled?

Single-walled
Is Your Tank Double-Walled or Single Walled?

Double-walled (now required)
What's Your Pipe Made of?

Fiberglass
Flexible Plastic
Steel
Unknown?
Is Your Pipe Double-Walled or Single-Walled?

Single-walled is directly buried
Is Your Pipe Double-Walled or Single Walled?

Double-walled is secondarily contained (now required)
How Does Petroleum Get Out of the Tank?

Pressurized pump (submersible turbine pump)

or

Suction pump
Pressurized Pumping System

Pump is inside the tank
Pushes product to dispenser at about 30 psi
Pressurized Pumping System

But what you'll likely see is the manifold housing sitting on the pump riser above the tank
Pressurized Pumping System

There is no "pump" in the cabinet at the dispenser island
Suction Pumping Systems

Pump is above-ground, not inside the tank
Pulls fuel out of the tank
Product Pump Review

Pressure:
Pump underground submerged in the tank
Piping operates at about 30 psi pressure

Suction:
Pump above-ground inside dispenser or generator
Piping operates at less than atmospheric pressure
What's Under Your Lids?

Let's find out
What's Under Your Lids?

Fill Lid: The color identifies the product type
What's Under Your Lids?

Fill Riser: used to fill tank
What's Under Your Lids?

Spill Bucket: captures drips during delivery
What's Under Your Lids?

Vapor Riser Lid: Identifies stage 1 vapor recovery port
What's Under Your Lids?

Vapor Riser, Spill Bucket and Poppet: allows gasoline vapors to be returned to tanker truck.
What's Under Your Lids?

Automatic Tank Gauge Probe Lid
What's Under Your Lids?

Automatic Tank Gauge Probe measures fuel and water levels in the tank
What's Under Your Lids?

Automatic Tank Gauge Console gives important liquid measurement and alarm information to the UST operator.
What's Under Your Lids?

Interstitial lid, riser and probe wire
What's Under Your Lids?

Containment Sump Lids
(CAUTION: THESE ARE HEAVY. DON'T OPEN UNLESS PROPERLY TRAINED)
What's Under Your Lids?

Containment sump (fiberglass or plastic) houses pump, product piping, flexible connector, sump sensor
What's Under Your Lids?

Some sump lids reveal NO containment
Uncommon Tank Component
Managing Gasoline Vapor During Deliveries
Vent Piping allows the tank to breathe

Vent Riser, PV cap (Stage 1 for gasoline + high throughput only)
No Vapor Recovery
Dual Point Stage 1
Vapor Recovery

One riser for the fill hose, one riser for the vapor return hose
Coaxial Stage 1
Vapor Recovery

One riser for both hoses
What's at the Dispenser?
What's at the Dispenser?

Breakaway connector in case vehicle drives off with nozzle attached
Breakaway Connectors Work
...or Not
What's Under Your Dispenser

Crash valve
Impact valve
Shear valve
Earthquake valve
Fire valve
What do YOU call it?
Shear Valve

No matter what it is called, it is REQUIRED on product piping under every pressurized piping dispenser

Ongoing compliance issue mostly because installed incorrectly or not properly maintained
Shear Valve

Used to shut down pressurized pipe in the event of fire or impact
Shear Valve

Keeps fuel from spilling onto the ground if pump stays on
Shear Valve

Fire Marshal regulates the shear valve and above
UST Agency regulates below the shear valve
What's Below the Shear Valve?

Under Dispenser Containment (required for new installations)
What's Below the Shear Valve?

If no containment, you have a risky piping system
Ethanol Cautions

Ethanol contains water
Water can cause metal to rust
During a delivery, excess water can drop to the bottom of the tank (called Phase Separation)
Rusting tanks and piping can leak
Ethanol is not compatible with certain metals, plastics, rubbers and some early generation fiberglass
Ethanol Cautions

E15 and its compatibility is not fully known but is being evaluated.

KEEP WATER OUT OF TANKS AND SUMPS

Check with www.PEI.org for a compatibility verification.

If switching to E85, notify your UST agency.
Biodiesel Cautions

Biodiesel has short shelf life and can spoil
Biodiesel can experience biological growth
Best thing to do with biodiesel is use it
New Compatibility Rules

UST systems must be compatible with fuel stored
UST agency must be notified within 30 days if now stored greater than E10 and/or B20
Demonstrating Compatibility

UST owner/operator must demonstrate compatibility for UST system (tank, piping, sumps, pumping equipment, release detection equipment, spill and overfill equipment: basically everything buried)
Options

Demonstrate compatibility FOR ALL PARTS using either
Certificate or listing by nationally recognized independent lab
Equipment or component manufacturer approval
Another UST agency approved method
10. Your Operation & Maintenance Plan
Periodically inspecting your UST system is the best way to keep a small problem from becoming a big one.
Inspection Schedule: How Often?

Daily
30-day (required starting 2018)
Annual
Your organization may already be doing these or even more often
Inspections: Who Does Them?

Daily and 30-day inspections can be done by a certified Class A/B operator.

We recommend a UST worker perform the annual inspection.
Organizing your Inspections

We strongly recommend using the forms from Petroleum Equipment Institute

Recommended Practices RP 500 for inspecting dispensers and RP 900 for inspecting UST systems
Dispensers
How to inspect and maintain
UST Systems
How to inspect and maintain
What to Check for Daily:
for UST Systems

Check ATG for operability and alarms
No complaints about "slow flow"
Check hoses & nozzles
Visually inspect for releases
Daily Inventory
Calculate overages/underages
Keep spill buckets clean
Check fill pipe for obstruction
30-Day Walkthrough Inspections

Are the centerpiece of your O&M plan
First one due by 10/13/18
Use the PEI RP 900 monthly form in your study guide
What to Check for Every 30 days: for UST Systems

Organize previous 30-days daily inspection reports
Then verify release detection results from last 30 days
Then inspect:
Manway covers
Spill buckets
Drop tubes
Automatic Tank Gauge
What to Check for Every 30 days: for UST Systems

- Tank water levels
- Vent piping and cap
- Stage 1 Vapor Recovery
- Monitor wells
- Impressed current rectifier if applicable
What to Check for Annually: for UST Systems

Annual inspections typically done by a qualified UST worker
More detailed and technical than daily or monthly
Consider hiring a UST worker to perform
Refer to study guide for PEI RP 900
Annual UST Inspection Checklist
What to Check for Annually:
for UST Systems

At a minimum:
Sump inspections
Release detection function testing
What to Test for Every 3 Years

Typically 3-year testing by a qualified contractor include:
- Sump tightness testing
- Spill bucket tightness testing
- Overfill equipment function testing
Where to Get More Forms

See Petroleum Equipment Institute Web Site for:
Dispensers: www.pei.org/rp500
UST System: www.pei.org/rp900
Forms are FREE, full documents are for purchase
Daily, 30-Day and Annual inspections
This training should help you fill out these forms for UST System and Dispensers
Use the PEI forms and start inspecting today!
## UST Inspection and Testing Schedule

This table helps summarize what actions you may need to do, and when, at your UST system. These actions can be required every day, every 30 days, every year or every 3 years. Please refer to your company policies as well as your local UST agency for what actions and timelines applies to your site. Typically, daily and 30-day actions can be done by a Class A/B UST operator and yearly and 3-year actions should be done by a qualified UST technician.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Every day</th>
<th>Every 30 days</th>
<th>Every year</th>
<th>Every 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check ATG *</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respond to alarms</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check and clean spill bucket *</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Measure and record Inventory</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch for &quot;slow flow&quot;</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do walk through inspection</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look for water in tank</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get tank leak test</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Reconcile inventory control records</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get piping leak test</td>
<td></td>
<td>X</td>
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<tr>
<td>Check rectifier, record results</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gather last 12 leak tests</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Do Line tightness test</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Do ALLD function test</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check ATG setup</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check floats and sensors</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check piping and dispenser sumps</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tightness test sumps</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tightness test spill buckets</td>
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<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Function test overfill devices</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Do corrosion test</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Our recommendations. Your local UST Agency may be less strict.

Training provided by UST Training, 3495 Daisy Lane, Clinton WA 98236
866-301-8265, www.USTtraining.com, info@USTtraining.com
How Do You Prove Your Knowledge?

Know what you have in the ground
Know what you must do daily, monthly and annually
Pass compliance inspection without major incident, fine or shut-down

Have You Checked Your Tank Today?
Inspect and Maintain
Inspection Review

- 3 Groups: 1-2-3
  - Tank Pad
  - Dispenser
  - ATG Back room

- 3 questions for each piece of equipment:
  - What I am looking at?
  - In what condition is it in?
  - Are there safety or compliance concerns?
BE SAFE

- **Parking**: Park away from customers
- **Personal Protective Equipment**: Sturdy Shoes, Bright Shirts
- **Safety Perimeter**: Block traffic from tank pad with vehicle
- **Safe Conduct**: careful around open sumps, watch your toes, always watch for unexpected traffic