UST BASICS - HOW TO CONDUCT AN INSPECTION FOR BEGINNERS

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M-C3

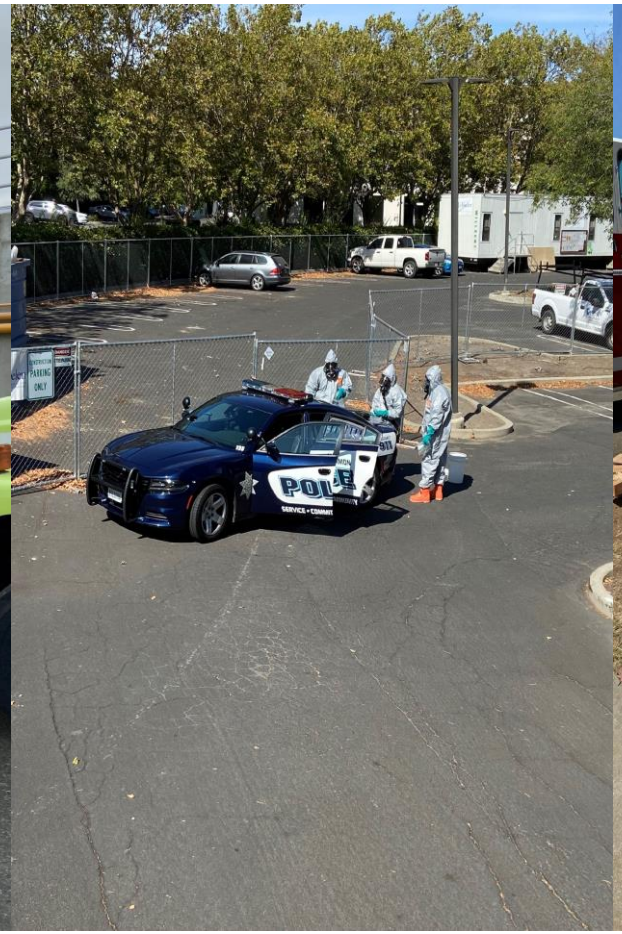
March 20-23, 2023

- 25th California Unified Program
- Annual Training Conference
- March 20 - 23, 2023

Very Brief Intro

- John Pham – CUPA Inspector (5 years DTSC, 9 years Contra Costa County)
- Xavier Bryant – 14 years DTSC & 8 years Contra Costa County

Speaker Biographies



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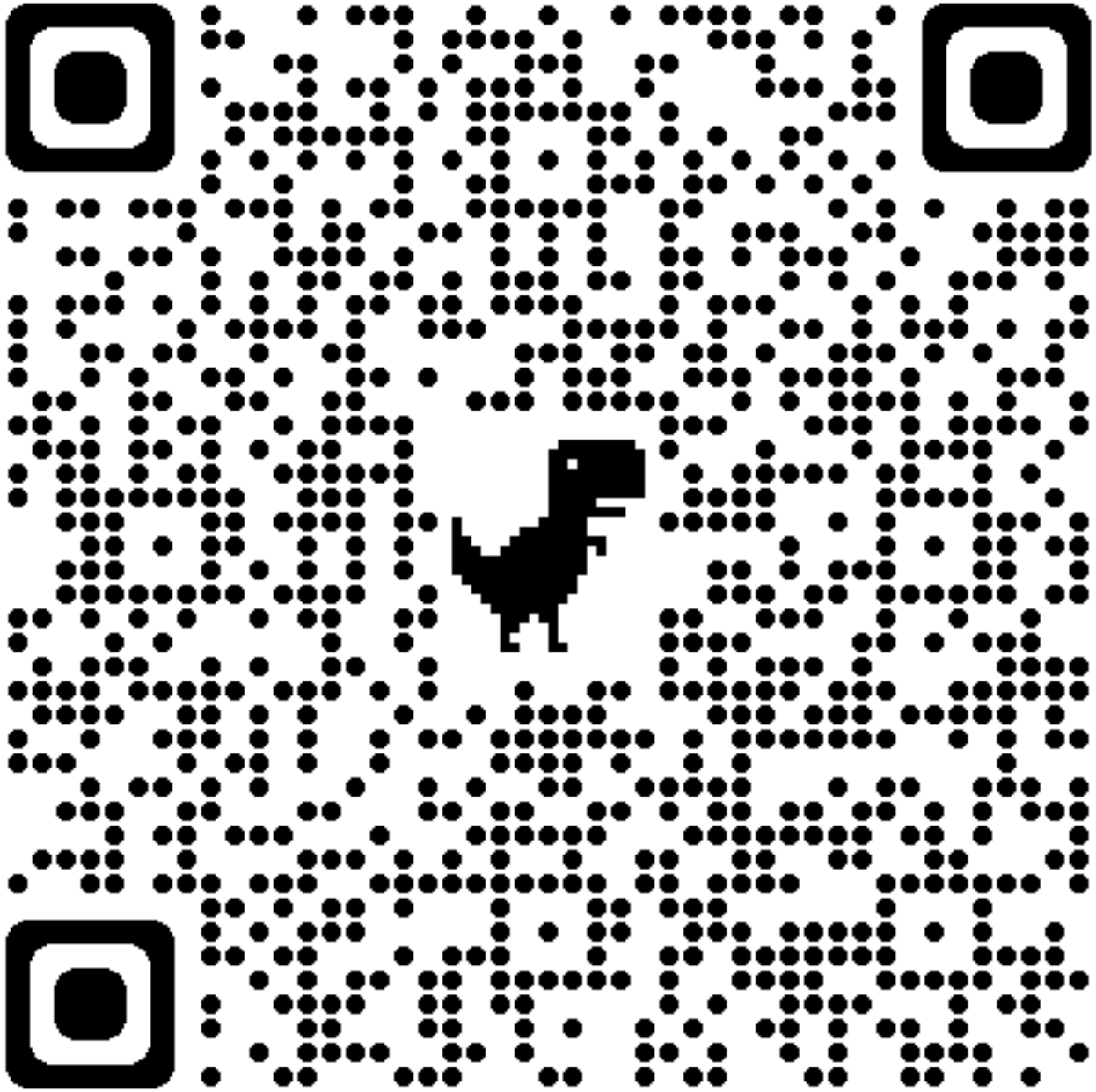
Brief Look at Audience – Raise of Hands

- Who is a regulator? Who is industry?
- Regulators: Who is assigned more than 10 UST sites? 20, 30, 40, 50, 60?
- Industry: Performs more than 50 UST visits? 100? 150?
- Regulators: Less than 1 year experience? 5, 10? More than 15?

Presentation and References



Why inspections? (Waterboards Website)

Water is a precious resource in California, and maintaining its quality is of utmost importance to safeguard the health of the public and the environment.

Statewide Campaigns

- EPA Water Sense
- Report an Environmental Concern
- Save Our Water
- Flex Alert

Gasoline released into Harbor

-Waterfowl were rescued
-1 of many contaminated

Acronymns

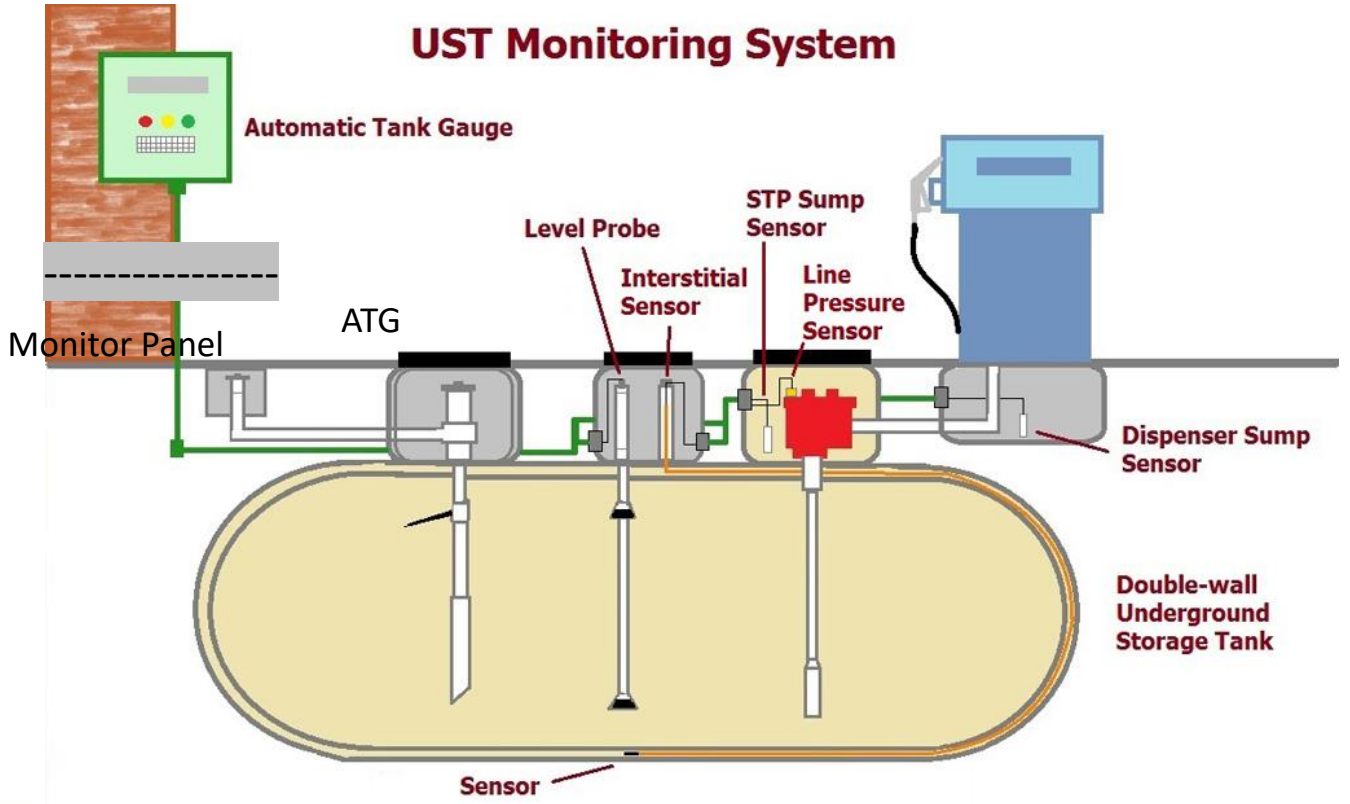
- AEO administrative enforcement order
- APSA Aboveground Petroleum Storage Act
- ATG or TLM Automatic Tank Gauge or Tank Level Monitor
- A/V Audible Visual (referring to monitoring panel alarms)
- BOE Board of Equalization
- CCR California Code of Regulations
- CERS California Environmental Reporting System
- CFO Chief financial officer
- CITLD Continuous In Tank Leak Detection
- CSLD Continuous Statistical Leak Detection
- CUPA Certified Unified Program Agency

- DO Designated Operator (certificate required from ICC)
- DW Double Wall
- ELD Enhanced Leak Detection
- HSC Health and Safety Code
- ICC International Code Council (agency certifying CA UST individuals)
- LG Local Guidance (referring to LG letters from SWRCB)
- LLD Line Leak Detector
- MC or AMC Annual Monitoring Certification
- NOV notice of violation
- NTC notice to comply
- OPE Overfill Prevention Equipment

- OSFM Office of state fire marshal
- PA Participating Agency
- PEI Petroleum Equipment Institute (industry standards)
- PLLD or ELLD Pressure Line leak detector or Electronic line leak detector
- RD Release Detection
- RP Release Prevention
- RTC return to compliance
- SB989 Senate Bill 989
- SIR Statistical Inventory Reconciliation
- SOC Significant Operational Compliance

- SS Safe Suction
- STP Submersible turbine pump
- SW Single Wall
- SWRCB State water resource control board
- TIUGA Tank in Underground Area
- UDC Under Dispenser Containment
- UST Underground storage tank
- VPH Vacuum Pressure Hydrostatic (continuous monitoring)

UST System Overview (from internet source)



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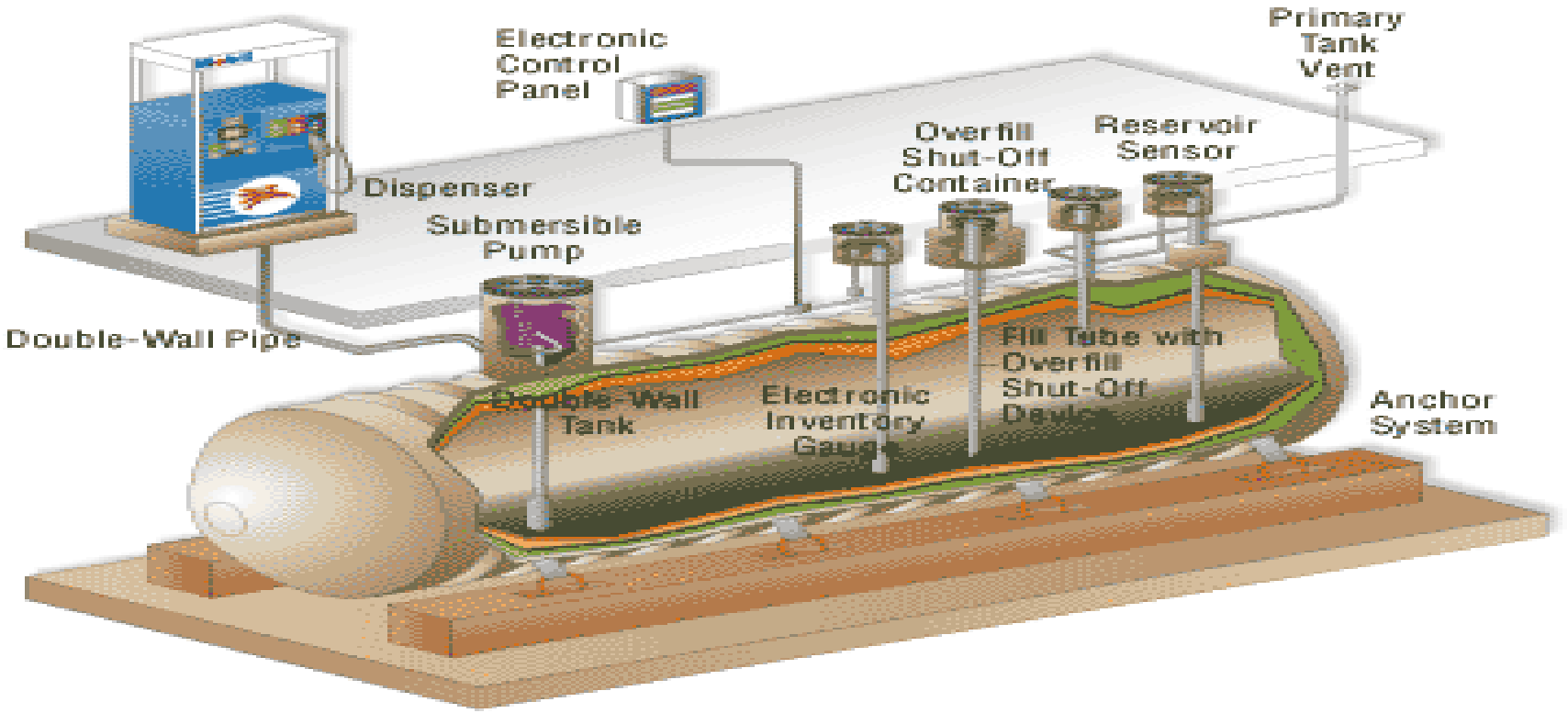

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Types of UST Inspections

- Monitoring Certification (MC) – Annual Routine Inspection (12 months) LG-159 under revision
- Spill Container Testing (12 months) LG-166 under revision
- Permit inspections (per department/agency) (e.g. cold start, direct bury spill buckets)
- Secondary Containment Testing (aka SB989) (36 months) LG-160
- Overfill Prevention Equipment Inspection (OPE) (36 months) LG 150-3
- Install (tank set, primary piping, secondary piping, ELD, final)
- Permanent Closure
- Temporary Closure
- Corrosion (36 months)
  -single wall steel
- Tank lining (120 months / 60 months thereafter)
  -single wall steel

Exempt tanks (examples)

- 1,100 gallons or less capacity located on a farm and used for the storage of motor vehicle fuel for the primary purpose of agricultural use
- -Sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, separation sumps, lined and unlined pits, sumps and lagoons, liquified petroleum, liquid asphalt
- - Hydraulic fluid tanks that use compressed air or hydraulic fluid to operate lifts, elevators, or similar devices
- -TIUGA (Tank in Underground Area), see historical APSA presentations
- See CA Title 23 Section 2621

Pre-Inspection File Review

- Is it a regulated UST?
- What is the install date or when will it be installed?
- Where is the install? Is it in California where the CUPA/PA has jurisdiction?
- CERS and Local Files / Database

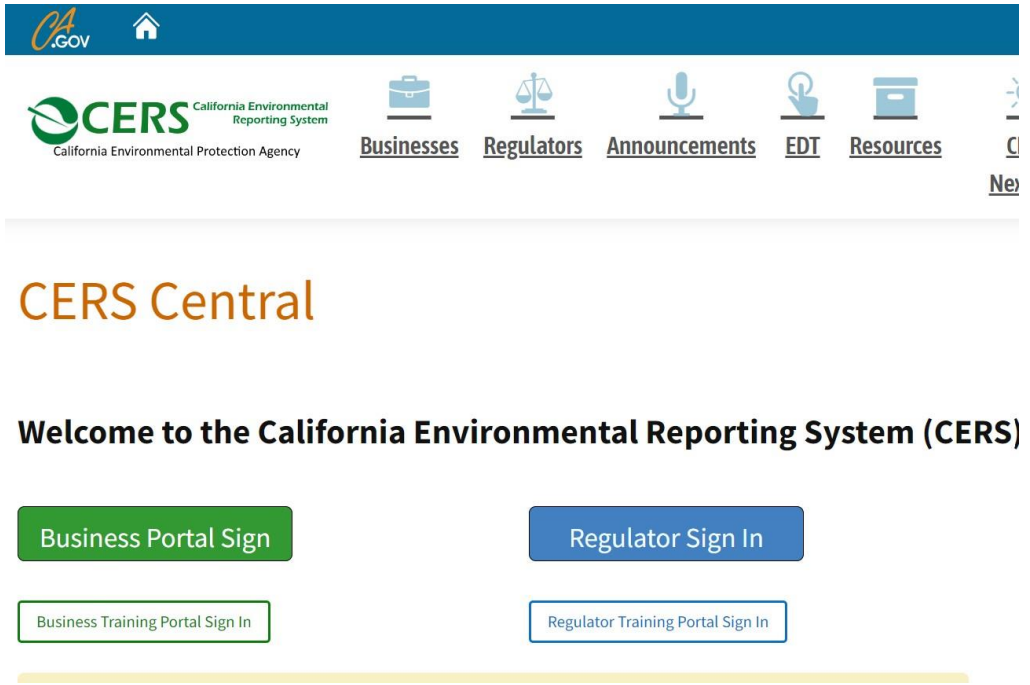
-UST Forms: Operator Permit Application (A), Tank Information (B), Monitoring Plan (D), Designated operator form, Financial Responsibility, Site Plot Plan (map)

Pre-Inspection File Review

- UST Response Plan (E)
- BOE number
- Last Routine Inspection & Annual Monitoring Cert
- Line Leak Detector Test (12 months)
- Spill Container test (12 months)
- Secondary Containment Testing (SB989) (every 36 months, VPH sites continuously tested [not applicable for separate testing])
- Employee Training (12 months)
- Overfill Prevention Equipment (every 36 months)

CERS.CALEPA.CA.GOV

- Review submitted information from the UST owner/operator
- Tank Information/Monitoring Plan
- Monitoring Site Plan
- Certification of Financial Responsibility
- Response Plan
- Owner/Operator: Written Agreement
- Letter from Chief Financial Officer
- Are they accurate? Garbage in/Garbage out. *This is very important that the inspector should review the UST CERS submittal carefully using the inspection observation and testing results or contacting UST technician.*



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File Review Checklist (example)

-Just Flapper for OP valve is okay (last row)

-(see shared files)

CUPA Name
UNDERGROUND STORAGE TANK
FILE REVIEW AND EQUIPMENT CHECKLIST

Facility Name: _____ Date: _____

Address: _____ Specialist: _____

FILE REVIEW:	YES/NO/NA	DATE
1. CUPA Permit current		
2. Continuous monitoring system certification current		
3. Line leak detector certification current (if applicable)		
4. Secondary containment testing current (if applicable)		
5. UPCF UST Facility Form on file current		
6. UPCF UST Tank Page 1 & 2 Form on file current		
7. Proof of Financial Responsibility current		
8. UST Monitoring Plan on file current		
9. UST Plot Plan on file current (or refer to HMBP)		
10. UST Response Plan on file current		
11. Designated Operator Notification on file current		
12. Owner/Operator Agreement on file current (if applicable)		
13. Required integrity testing current (if applicable)		
14. Enhanced leak detection testing current (if applicable)		

MONITORING EQUIPMENT:

INSTALLATION DESCRIPTION	MANUFACTURER	MODEL NUMBER
Main UST Monitoring System		
Additional UST Monitoring System		
Product Line Leak Detectors		
Automatic Tank Gauge Device		
Tank Annular Space or Vault Sensor(s)		
Fill Sump Sensor(s)		
Fill Sump Annular Space Sensor(s)		
Piping Sump Sensor(s)		
Piping Sump Annular Space Sensor(s)		
UDC Sensor(s) or Float(s)		
UDC Annular Space Sensor(s)		
Vent Piping Annular Space Sensor(s)		
Vapor Piping Annular Space Sensor(s)		
Product Piping Annular Space Sensor(s)		
Vent Transition Sump Sensor(s)		
Vent Transition Sump Annular Space Sensor(s)		
Overfill Devices (2 required)	___ Alarm (90%) ___ Ball Float (90%) ___ Flapper Valve (95%)	

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EC and ECR (Envision Connect, Envision Connect Remote – programs for inspections)

- Facility Dispatch Center (EC)
- Outstanding Violations (EC-Violation Dispatch Center or ECR-prior violation)
- Outstanding Fees (EC)
- Current Inspection Date (ECR-Routine Inspection)

Database or Local Files

- What do you find here?
- THE MOTHER LODE of information
- Previous Inspections/Notice of Violations
- Monitoring System Certification forms (annual)
- Spill Bucket (Container) Report forms (annual)
- SB 989/Secondary Containment Report forms (every 36 months or 6 months after repair or installation)
- Overfill Prevention Equipment Inspection Report forms (every 36 months)
- Current Operating Permits
- Tank As Built, Site Drawing (if you are lucky)
- Permit for Piping & Tank Modification/Tank Installation
- Correspondences, Etc.

Database or Local Files

- Tank Tightness Test
- Line Tightness Test (every 36 months)
- For Single Wall Tanks (removed by 12/31/2025): Cathodic Protection Test [Impressed Current (IC) & Sacrificial Anode (SA)] (every 36 months or within 6 months of the date of the completion of a repair) LG 145-2
- 10 years lining inspection
- 5 years lining inspection
- ELD test (LG 161-5): UST system with a single-walled component that is located within 1,000 feet of a public drinking water well (vent, tank riser, vapor recovery piping, and suction piping that meet the definition of section 2636(a) are not consider SW component), or new installation

What are we inspecting when we are onsite for annual inspection?

- Permit Present on site
- Review Designated Operator Monthly Inspection Checklists
- Review Employee Training Records
- Inspect Monitor Panel
- Observe leak detection devices, make sure they are in good condition, proper location and fully operable
- All sensors placed at lowest point and detected a release at the earliest opportunity in the secondary containment
- Line Leak Detectors (Electronic or Mechanical) for pressurized system operable at specified leak rate (3 GPH, 0.1 GPH, or 0.2 GPH)
- MLLD restricts the flow through the pipe when a release is detected
- ELLD shuts off the pump when a release is detected

Annual Inspection

- ELLD: a) for emergency generator tank system, the ELLD create an audible and visual alarm when a leak is detected

  b) for pressurized tank system, the turbine automatically shuts off when a release is detected
- All secondary containment free of debris and liquid (violation for tank system installed after July 1, 2003)
- Cathodic Protection Systems/IC: inspect every 60 days
- Test spill/fill container/bucket:

  a) minimum capacity five gallons (Per PEI 1200: add water to the spill container to a level within 1.5 inches of the top of the spill container; allow the water to settle for 5 minutes before the initial water level measurement is taken; after 1 hour, document the ending water level measurement; Pass: the water level drops less than 1/8 (0.125) inch); LG 166 is under revision

  b) spill container drain operable or hand-pump present

Annual Monitoring Certification video

BREAK TIME!

- **25th California Unified Program**
- **Annual Training Conference**
- March 20 - 23, 2023

Completed by Service Technician

Appendix VI
Underground Storage Tank
Monitoring System Certification Form

TYPE OF ACTION ☐ Installation ☐ Repair ☐ 12 Month

1. FACILITY INFORMATION

CERS ID	Certification Date

Facility Name		

Facility Address	City	ZIP Code

2. SERVICE TECHNICIAN INFORMATION

Company Performing the Certification	Phone

Mailing Address

Service Technician Performing Test

Contractor/Tank Tester License Number

ICC Number	ICC Expiration Date

3. TRAINING AND CERTIFICATIONS

Manufacturer and Test Equipment Training Certifications	*Expiration Date*

4. CERTIFICATION BY SERVICE TECHNICIAN CONDUCTING TEST

I hereby certify that the monitoring system is operational in accordance with California Code of Regulations, title 23, division 3, chapter 16, section 2638; that required supporting documentation is attached; and all information contained herein is accurate.

Service Technician Signature	Date	Total # of Pages

CERS = California Environmental Reporting System, GPH = Gallons Per Hour, ID = Identification, ICC = International Code Council, LLD = Line Leak Detector, NA = Not Applicable, SW = Single-Walled, UDC = Under-Dispenser Containment, UST = Underground Storage Tank, VPH = Vacuum/Pressure/Hydrostatic

5. MONITORING SYSTEM AND PROGRAMMING

A separate Monitoring System Certification Form must be prepared for each control panel.

Make of Monitoring System Control Panel	Model of Monitoring System Control Panel	Software Version Installed

Attach the post-certification reports if the monitoring system is capable of generating either; ☐ Monitoring System Set-up ☐ Alarm History Report	Yes	No	NA
All monitoring equipment is operational per manufacturer's specifications?	☐	☐	
Secondary containment systems are free of damage, debris, or liquid?	☐	☐	
Are the audible and visual alarms operational?	☐	☐	
All sensors have been: 1) visually inspected for wiring kinks, breaks and residual buildup on floats; and 2) tested for functionality and confirmed operational?	☐	☐	☐
Are all sensors installed to detect a release at the earliest opportunity in the secondary containment?	☐	☐	☐
The monitoring system set-up was reviewed, and proper settings confirmed?	☐	☐	☐
Was the monitoring control panel's backup battery visually inspected, functionally tested, and confirmed operational?	☐	☐	☐
Does the flow of fuel stop at the dispenser if a release is detected in the under-dispenser containment?	☐	☐	☐
Does the turbine automatically shut down if the piping secondary containment monitoring system fails to operate or is electrically disconnected?	☐	☐	☐
Does the turbine automatically shut down if the piping secondary containment monitoring system detects a release? Which sensors initiate positive shut down? (Check all that apply) ☐ Sump ☐ UDC	☐	☐	☐
If monitoring system alarms are relayed to a remote monitoring center, is all communication equipment operational?	☐	☐	☐

*Describe all answers marked "No" or "Fail" and proposed remedy in **Section 9**.*
*List all monitoring equipment either replaced or repaired in **Section 9***

Submitted by owner and operator

Underground Storage Tank
Monitoring System Certification Form

6. SENSOR TESTING RESULTS

*List only sensors tested on date of this certification. List "**Sensor ID**" as labeled in system programming. Additional copies of this page may be attached to accommodate all sensors tested.*

Sensor ID	*Sensor Model*	*Component(s) Monitored*	*Pass*	*Fail*
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
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*Describe all answers marked "No" or "Fail" and proposed remedy in **Section 9**.*
*List all monitoring equipment either replaced or repaired in **Section 9***

Underground Storage Tank
Monitoring System Certification Form

7. LINE LEAK DETECTOR TESTING

☐ Check this box if line leak detectors **ARE NOT** installed. *(Do not complete this section.)*

Simulated release rate verified: (Check all that apply.) ☐ 3 GPH ☐ 0.1 GPH ☐ 0.2 GPH	Yes	No	NA
Has the testing apparatus been properly calibrated?	☐	☐	☐
For emergency generator tank systems, does the LLD create an audible and visual alarm when a leak is detected?	☐	☐	☐
For mechanical LLDs, does the LLD restrict the flow through the pipe when a release is detected?	☐	☐	☐
For electronic LLDs, does the turbine automatically shut off when a release is detected?	☐	☐	☐
For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system is disabled or disconnected?	☐	☐	☐
For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system malfunctions or fails a tightness test?	☐	☐	☐
For electronic LLDs, have all accessible wiring connections been visually inspected for kinks and breaks?	☐	☐	☐
Were all items on the equipment manufacturer's maintenance checklist completed?	☐	☐	☐
Were all LLDs confirmed operational within regulatory requirements?	☐	☐	☐

LLD ID	*LLD Model*	*Lines Monitored*	*Pass*	*Fail*
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

*Describe all answers marked "No" or "Fail" and proposed remedy in **Section 9**.*
*List all monitoring equipment either replaced or repaired in **Section 9***

8. IN-TANK GAUGING TESTING

	Yes	No	NA
☐ Check this box if tank gauging is used only for inventory control. ☐ Check this box if **NO** tank gauging equipment is installed. *(Do not complete this section if either box is checked.)*			
All wiring has been: 1) visually inspected for kinks, breaks and proper entry and termination; and 2) tested for ground faults?	☐	☐	☐
Were all in-tank gauging probes visually inspected for damage and residue buildup to ensure that floats move freely, functionally tested, and confirmed operational?	☐	☐	☐
Was accuracy of system's product level readings tested?	☐	☐	☐
Was accuracy of system's water level readings tested?	☐	☐	☐
Were all probes reinstalled properly?	☐	☐	☐
Were all items on the equipment manufacturer's maintenance checklist completed?	☐	☐	☐

Probe ID	*Probe Model*	*Tanks Monitored*	*Pass*	*Fail*
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

9. COMMENTS

Describe all answers marked "No" or "Fail" and proposed remedy.
List all monitoring equipment either replaced or repaired.

Underground Storage Tank
Monitoring System Certification Form

10. MONITORING SITE PLAN

Date site plan was prepared:

If a site plan has been prepared that shows all required information, you may include it, rather than this page, with your Monitoring System Certification Form. The site plan must show the general layout of tanks and identify locations of the monitoring panel, and all leak detection equipment and monitoring locations. Include a legend for all symbols depicted.

Completed by Service Technician

Appendix VIII
Underground Storage Tank
Spill Container Testing Report Form

TYPE OF ACTION ☐ Installation ☐ Repair ☐ 12 Month

1. FACILITY INFORMATION

CERS ID	Test Date

Facility Name		
Facility Address	**City**	**ZIP Code**

2. SERVICE TECHNICIAN INFORMATION

Company Performing the Test	Phone

Mailing Address
Service Technician Performing Test
Contractor/Tank Tester License Number

ICC Number	ICC Expiration Date

3. TRAINING AND CERTIFICATIONS

Manufacturer and Test Equipment Training Certifications	*Expiration Date*

4. TEST PROCEDURE INFORMATION

Test Procedures Used	*Components Tested*

5. CERTIFICATION BY SERVICE TECHNICIAN CONDUCTING TEST

I hereby certify that each spill container was tested in accordance with California Code of Regulations, title 23, division 3, chapter 16, section 2637.1; that required supporting documentation is attached; and all information contained herein is accurate. I understand that test procedures shall be made available upon request by the governing authority.

Service Technician Signature	Date	Total # of Pages

CERS = California Environmental Reporting System, ID = Identification, ICC = International Code Council

Underground Storage Tank
Spill Container Testing Report Form

6. SPILL CONTAINER DETAILS

Test Method Developed by ☐ Manufacturer ☐ Industry Standard ☐ Professional Engineer
Test Type ☐ Pressure ☐ Vacuum ☐ Hydrostatic

Tank ID				
Spill Container Manufacturer:				
Method of Cathodic Protection	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other
Is the spill container minimum capacity five gallons excluding riser volume?	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*
Method to keep spill container empty	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other
Spill Container Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Tank ID				
Spill Container Manufacturer:				
Method of Cathodic Protection	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other	☐ Nonmetallic ☐ Other
Is the spill container minimum capacity five gallons excluding riser volume?	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*	☐ Yes ☐ No*
Method to keep spill container empty	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other	☐ Drain ☐ Pump ☐ Other
Spill Container Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

8. COMMENTS

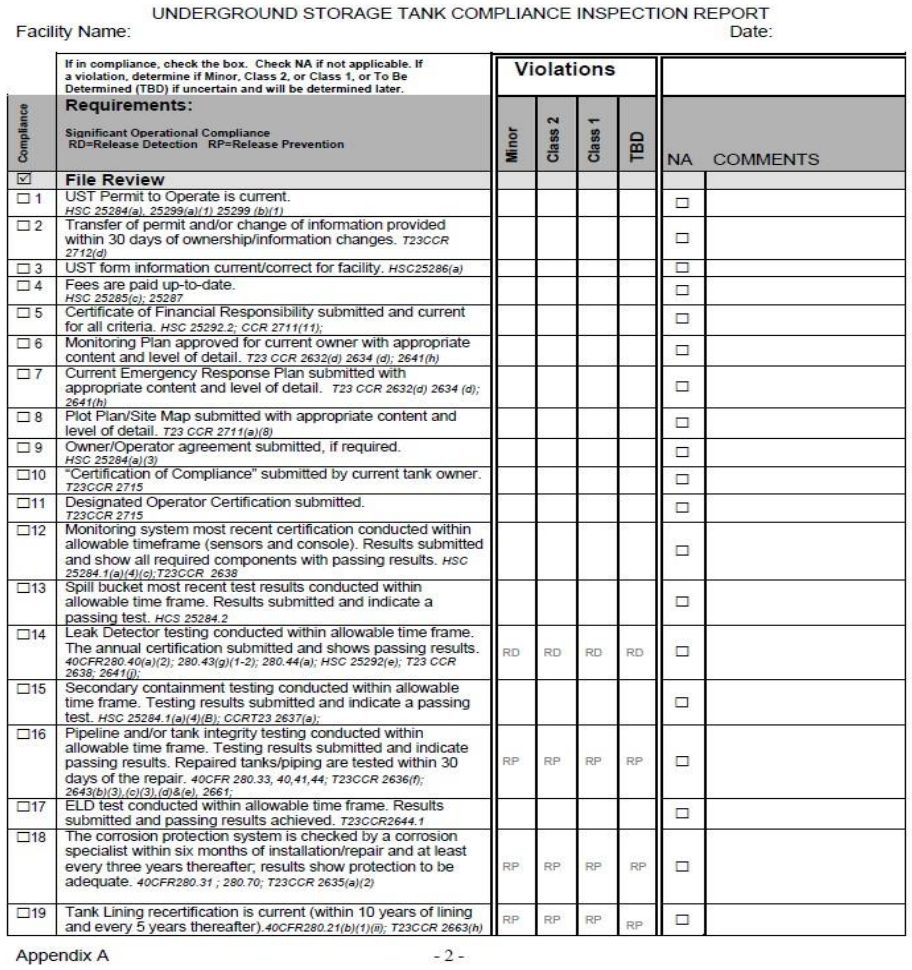
Describe all answers marked "Other," "No," or "Fail" and each proposed remedy.

* Mark here if:
☐ Spill containers do not have a minimum capacity of five gallons and require replacement.

Additional copies of this page may be attached.

LG 159 Appendix A

-Inspection Report
-Outdated Report (double check everything)
-Removed from website

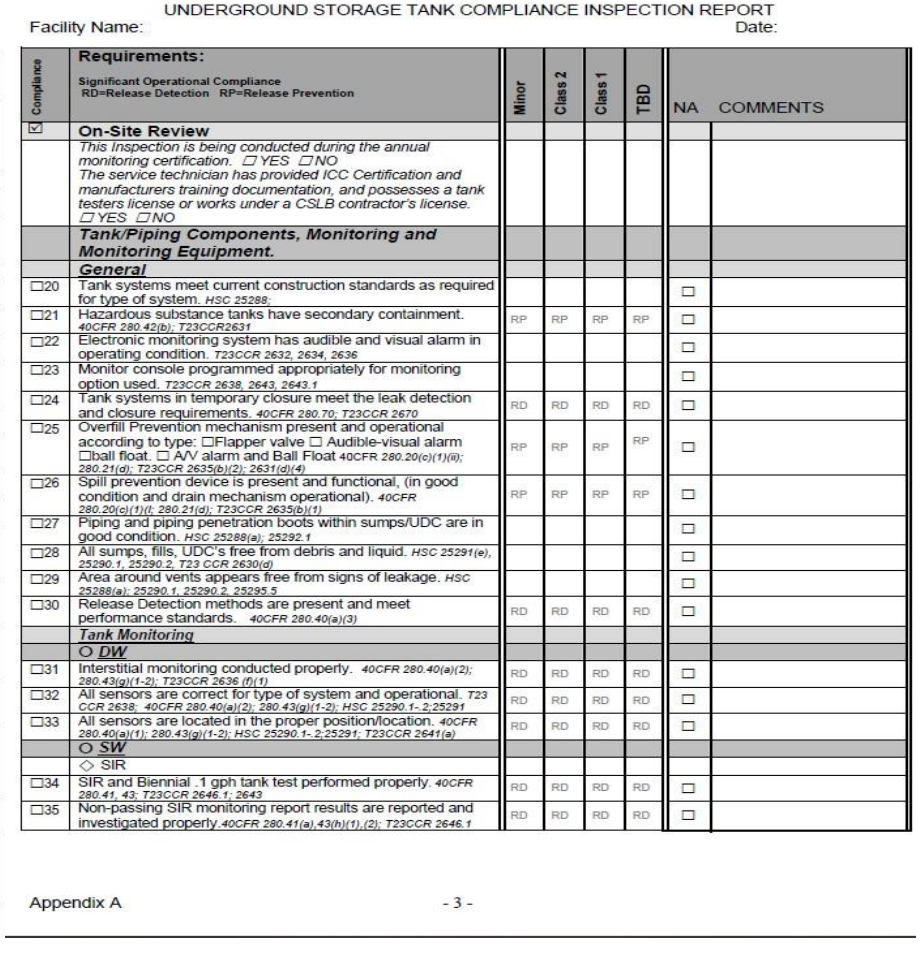


UNDERGROUND STORAGE TANK COMPLIANCE INSPECTION REPORT

Facility Name: Date:

Compliance	Requirements: Significant Operational Compliance RD=Release Detection RP=Release Prevention	Violations: Minor	Class 2	Class 1	TBD	NA	COMMENTS
	If in compliance, check the box. Check NA if not applicable. If a violation, determine if Minor, Class 2, or Class 1, or To Be Determined (TBD) if uncertain and will be determined later.						
☑	**File Review**						
☐ 1	UST Permit to Operate is current. *HSC 25284(a), 25299(a)(1) 25299 (b)(1)*					☐	
☐ 2	Transfer of permit and/or change of information provided within 30 days of ownership/information changes. *T23CCR 2712(d)*					☐	
☐ 3	UST form information current/correct for facility. *HSC25286(a)*					☐	
☐ 4	Fees are paid up-to-date. *HSC 25285(c); 25287*					☐	
☐ 5	Certificate of Financial Responsibility submitted and current for all criteria. *HSC 25292.2; CCR 2711(11);*					☐	
☐ 6	Monitoring Plan approved for current owner with appropriate content and level of detail. *T23 CCR 2632(d) 2634 (d); 2641(h)*					☐	
☐ 7	Current Emergency Response Plan submitted with appropriate content and level of detail. *T23 CCR 2632(d) 2634 (d); 2641(h)*					☐	
☐ 8	Plot Plan/Site Map submitted with appropriate content and level of detail. *T23 CCR 2711(a)(8)*					☐	
☐ 9	Owner/Operator agreement submitted, if required. *HSC 25284(a)(3)*					☐	
☐10	"Certification of Compliance" submitted by current tank owner. *T23CCR 2715*					☐	
☐11	Designated Operator Certification submitted. *T23CCR 2715*					☐	
☐12	Monitoring system most recent certification conducted within allowable timeframe (sensors and console). Results submitted and show all required components with passing results. *HSC 25284.1(a)(4)(c);T23CCR 2638*					☐	
☐13	Spill bucket most recent test results conducted within allowable time frame. Results submitted and indicate a passing test. *HCS 25284.2*					☐	
☐14	Leak Detector testing conducted within allowable time frame. The annual certification submitted and shows passing results. *40CFR280.40(a)(2); 280.43(g)(1-2); 280.44(a); HSC 25292(e); T23 CCR 2638; 2641(j);*	RD	RD	RD	RD	☐	
☐15	Secondary containment testing conducted within allowable time frame. Testing results submitted and indicate a passing test. *HSC 25284.1(a)(4)(B); CCRT23 2637(a);*					☐	
☐16	Pipeline and/or tank integrity testing conducted within allowable time frame. Testing results submitted and indicate passing results. Repaired tanks/piping are tested within 30 days of the repair. *40CFR 280.33, 40,41,44; T23CCR 2636(f); 2643(b)(3),(c)(3),(d)&(e), 2661;*	RP	RP	RP	RP	☐	
☐17	ELD test conducted within allowable time frame. Results submitted and passing results achieved. *T23CCR2644.1*					☐	
☐18	The corrosion protection system is checked by a corrosion specialist within six months of installation/repair and at least every three years thereafter; results show protection to be adequate. *40CFR280.31 ; 280.70; T23CCR 2635(a)(2)*	RP	RP	RP	RP	☐	
☐19	Tank Lining recertification is current (within 10 years of lining and every 5 years thereafter).*40CFR280.21(b)(1)(ii); T23CCR 2663(h)*	RP	RP	RP	RP	☐	

Appendix A - 2 -



UNDERGROUND STORAGE TANK COMPLIANCE INSPECTION REPORT

Facility Name: Date:

Compliance	Requirements: Significant Operational Compliance RD=Release Detection RP=Release Prevention	Minor	Class 2	Class 1	TBD	NA	COMMENTS
☑	**On-Site Review**						
	This inspection is being conducted during the annual monitoring certification. ☐ YES ☐ NO The service technician has provided ICC Certification and manufacturers training documentation, and possesses a tank testers license or works under a CSLB contractor's license. ☐ YES ☐ NO						
	Tank/Piping Components, Monitoring and Monitoring Equipment.						
	General						
☐20	Tank systems meet current construction standards as required for type of system. *HSC 25288;*					☐	
☐21	Hazardous substance tanks have secondary containment. *40CFR 280.42(b); T23CCR2631*	RP	RP	RP	RP	☐	
☐22	Electronic monitoring system has audible and visual alarm in operating condition. *T23CCR 2632, 2634, 2636*					☐	
☐23	Monitor console programmed appropriately for monitoring option used. *T23CCR 2638, 2643, 2643.1*					☐	
☐24	Tank systems in temporary closure meet the leak detection and closure requirements. *40CFR 280.70; T23CCR 2670*	RD	RD	RD	RD	☐	
☐25	Overfill Prevention mechanism present and operational according to type: ☐Flapper valve ☐ Audible-visual alarm ☐ball float. ☐ A/V alarm and Ball Float 40CFR *280.20(c)(1)(ii); 280.21(d); T23CCR 2635(b)(2); 2631(d)(4)*	RP	RP	RP	RP	☐	
☐26	Spill prevention device is present and functional, (in good condition and drain mechanism operational). *40CFR 280.20(c)(1)(i); 280.21(d); T23CCR 2635(b)(1)*	RP	RP	RP	RP	☐	
☐27	Piping and piping penetration boots within sumps/UDC are in good condition. *HSC 25288(a); 25292.1*					☐	
☐28	All sumps, fills, UDC's free from debris and liquid. *HSC 25291(e), 25290.1, 25290.2, T23 CCR 2630(d)*					☐	
☐29	Area around vents appears free from signs of leakage. *HSC 25288(a); 25290.1, 25290.2, 25295.5*					☐	
☐30	Release Detection methods are present and meet performance standards. *40CFR 280.40(a)(3)*	RD	RD	RD	RD	☐	
	Tank Monitoring						
	○ ***DW***						
☐31	Interstitial monitoring conducted properly. *40CFR 280.40(a)(2); 280.43(g)(1-2); T23CCR 2636 (f)(1)*	RD	RD	RD	RD	☐	
☐32	All sensors are correct for type of system and operational. *T23 CCR 2638; 40CFR 280.40(a)(2); 280.43(g)(1-2); HSC 25290.1-.2;25291*	RD	RD	RD	RD	☐	
☐33	All sensors are located in the proper position/location. *40CFR 280.40(a)(1); 280.43(g)(1-2); HSC 25290.1-.2;25291; T23CCR 2641(a)*	RD	RD	RD	RD	☐	
	○ ***SW***						
	◇ SIR						
☐34	SIR and Biennial .1 gph tank test performed properly. *40CFR 280.41, 43; T23CCR 2646.1; 2643*	RD	RD	RD	RD	☐	
☐35	Non-passing SIR monitoring report results are reported and investigated properly.*40CFR 280.41(a),43(h)(1),(2); T23CCR 2646.1*	RD	RD	RD	RD	☐	

Appendix A - 3 -

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Report completed by inspector

Submit after inspection

UNDERGROUND STORAGE TANK COMPLIANCE INSPECTION REPORT

Facility Name: Date:

Compliance	Requirements: Significant Operational Compliance RD=Release Detection RP=Release Prevention	Minor	Class 2	Class 1	TBD	NA	COMMENTS
	◇ Automatic Tank Gauging (ATG)						
☐36	ATG .2 gph monthly tank gauging test performed properly. *40CFR280.43; T23 CCR 2643(b)(1)*	RD	RD	RD	RD	☐	
☐37	ATG generates a hard copy printout of all data reported including time and date, tank id, fuel depth, water depth, temperature, liquid volume and duration of test. If installed after 1/1/95 printout includes calculated leak rate and leak threshold. *T23CCR 2643(b)(1)*					☐	
	◇ Manual Tank Gauging (SW tanks </=1000 gal. ONLY)						
☐38	Weekly manual tank gauging performed properly. *40CFR 280.43 T23CCR 2645*	RD	RD	RD	RD	☐	
☐39	Tank Integrity test performed, if necessary. *40CFR 280.43; T23CCR 2645*					☐	
	◇ Vadose Zone and/or Groundwater Monitoring						
☐40	Monitoring system is installed and monitored properly. *40CFR 280.47-48; T23CCR 2647-48*	RD	RD	RD	RD	☐	
	◇ Vaulted Tank Exemption						
☐41	Tanks/piping meet vaulted tank exemptions, and weekly visual monitoring records are kept up-do-date. *T23CCR25283.5*					☐	
	Pipe Monitoring						
	O DW						
	◇ Continuous Monitoring System						
☐42	DW piping (gravity, suction, pressure) has continuous monitoring system that activates an audible and visual alarm or stops the flow of product at the dispenser when a leak is detected. *T23CCR 2636(f)(1)*	RD	RD	RD	RD	☐	
	◇ Line Integrity Testing						
☐43	An annual .1 gph line integrity test is performed properly. (Either third party or by ELLD.) T23CCR 2636(f)(4)	RD	RD	RD	RD	☐	
☐44	In lieu of the annual tightness test for DW piping, the monitoring system for all product piping outside the dispenser is fail-safe and shuts down the pump when a leak is detected AND auto shutdown or flow restriction occurs when a leak is detected in the UDC. *T23CCR 2636(f)(5)*	RD	RD	RD	RD	☐	
	◇ Line Leak Detectors (LLD)						
☐45	Line Leak detectors installed, annually tested and operational on DW pressurized piping that detects a 3 gph leak, and restricts or shuts off flow of product. *T23CCR 2636(f)(2)*	RD	RD	RD	RD	☐	
☐46	In lieu of LLD, continuous monitoring system of DW emergency generator tank activates audible and visual alarm, system is checked daily, and logs are kept. *T23CCR 2636(f)(6));*	RD	RD	RD	RD	☐	
	O SW						
	◇ Line Integrity Testing						
☐47	SW pressurized piping annual .1 gph line integrity test or a monthly .2 gph line integrity test is performed properly. *40CFR280.41,44; T23 CCR 2643 c (2-3)*	RD	RD	RD	RD	☐	
☐48	SW suction system .1 gph line integrity test is performed every three years. *40CFR280.40-41; T23 CCR 2643(d)*	RD	RD	RD	RD	☐	

Appendix A - 4 -

UNDERGROUND STORAGE TANK COMPLIANCE INSPECTION REPORT

Facility Name: Date:

Compliance	Requirements: Federal Significant Operational Compliance RD=Release Detection RP=Release Prevention	Minor	Class 2	Class 1	TBD	NA	COMMENTS
☐49	SW gravity flow piping biennial .1 gph integrity test or overfill tank integrity test is conducted within allowable time frames. *T23 CCR 2643(e)*	RD	RD	RD	RD	☐	
☐50	SW conventional suction inspections conducted for presence of air in the pipeline. Daily monitoring records are kept. *T23CCR 2643(d)*	RD	RD	RD	RD	☐	
	◇ Safe Suction (SS) System						
☐51	Piping meets the SS requirements. *CFR280.41; CCR 2636(a)(3)(A-D)*	RD	RD	RD	RD	☐	
	◇ Line Leak Detectors (LLD)						
☐52	Line leak detectors installed, annually tested and operational on SW pressurized piping. Pump shuts down when a leak occurs and when the LLD fails or is disconnected. *T23CCR 2666*	RD	RD	RD	RD	☐	
☐53	Line leak detectors installed, annually tested, and operational on SW emergency generator systems; LLD is connected to an audible and visual alarm. *40CFR 280.40(a)(2); 280.43(g)(1),(2); 280.44(a); T23CCR 2666*	RD	RD	RD	RD	☐	
	Under Dispenser Containment (UDC)						
☐54	UDC is continuously monitored and either shuts down the flow of product to the dispenser or activates an audible and visual alarm. *T23CCR 2636(f)(1)*					☐	
	Corrosion Protection						
☐55	Metal Tanks and piping components have corrosion protection, or are isolated from the backfill. *40CFR 280.20-21*	RP	RP	RP	RP	☐	
☐56	Corrosion protection equipment turned on, functioning properly and provides continuous protection. *40CFR280.31(a),(b)(1); T23CCR 2635*	RP	RP	RP	RP	☐	
☐57	Impressed current systems checked every 60 days and records are up-to-date. *40CFR 280.31(c); T23CCR 2635(a)(2);*	RP	RP	RP	RP	☐	
	On-site Paperwork						
☐58	Permit and conditions available on-site. Facility is operated according to permit. *T23CCR 2712(i)*					☐	
☐59	Monitoring and response plans on-site and are the approved version. *T23CCR 2712(i)*					☐	
☐60	Site plan depicts current site conditions and has all required elements. *T23CCR 2632(d)*					☐	
☐61	All release detection records for monitoring method are available, up-to-date and appropriate for leak detection method. *40CFR 280.41, 280.45*	RD	RD	RD	RD	☐	
☐62	All monitoring/testing records/documents are available for required timeframe.(3 years, 6 ½ years, five years, life of tank.) *T23CCR 2712*					☐	
☐63	Equipment maintenance records/logs available. *T23CCR 2712(b)*	RP	RP	RP	RP	☐	
☐64	Alarm logs/tapes available and appropriate follow-up actions occurred. *T23CCR 2712(b)*					☐	
☐65	Visual observation logs available, up-to-date, and appropriate follow-up actions to problems occurred. *T23CCR 2712(b)*					☐	
☐66	Designated UST Operator monthly reports available and complete. *T23CCR 2715*					☐	
☐67	Employee training records available and training appropriate and up-to-date. *T23CCR 2715*					☐	
☐68	Unauthorized releases are recorded and/or reported within allowed timeframes, including non-passing test results. Leak and Spill Logs available. *40CFR 280.50; T23CCR 2646.1, 2650,2652*	RD	RD	RD	RD	☐	

Appendix A - 5 -

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Vents

Monitor Panels

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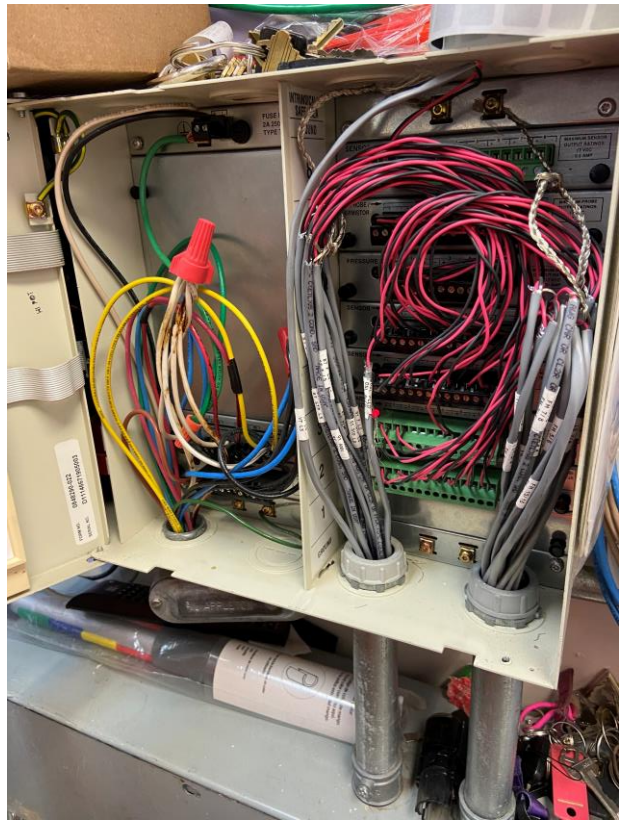
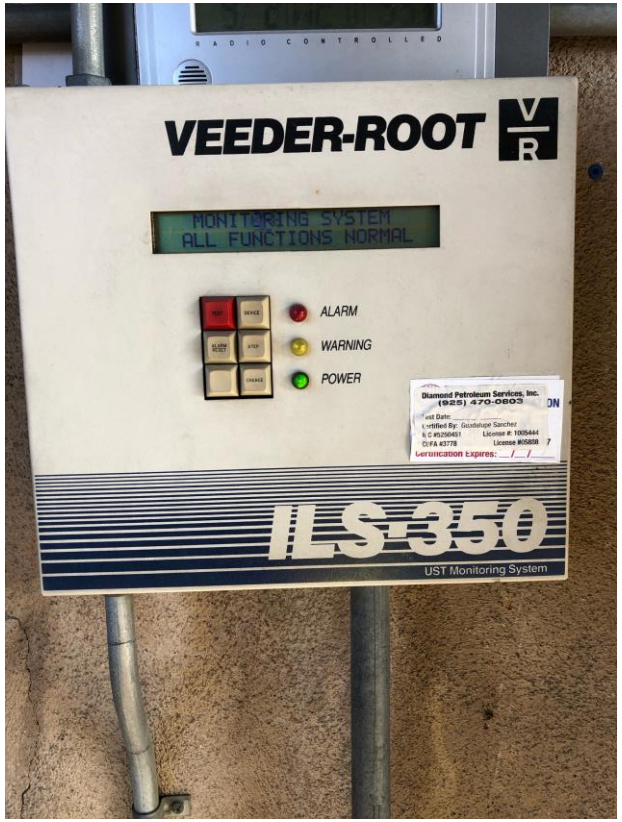
Inside of Monitor Panel



Monitor Panel

Monitor Panel Veeder Root ILS-350 without printout tape



Printout Tape (Alarm History Report)

Under Dispenser Containments (UDC)

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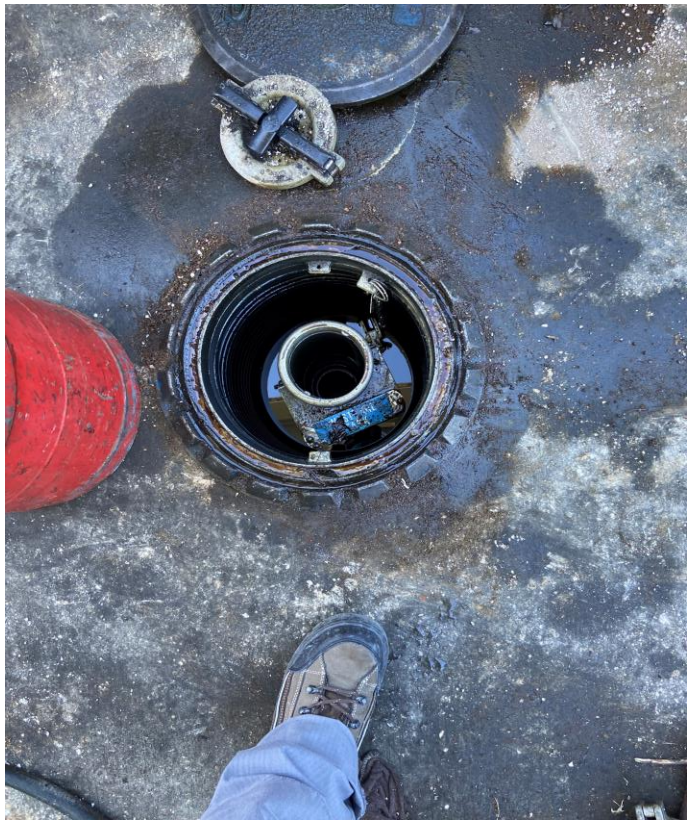
Direct Bury Spill Containers



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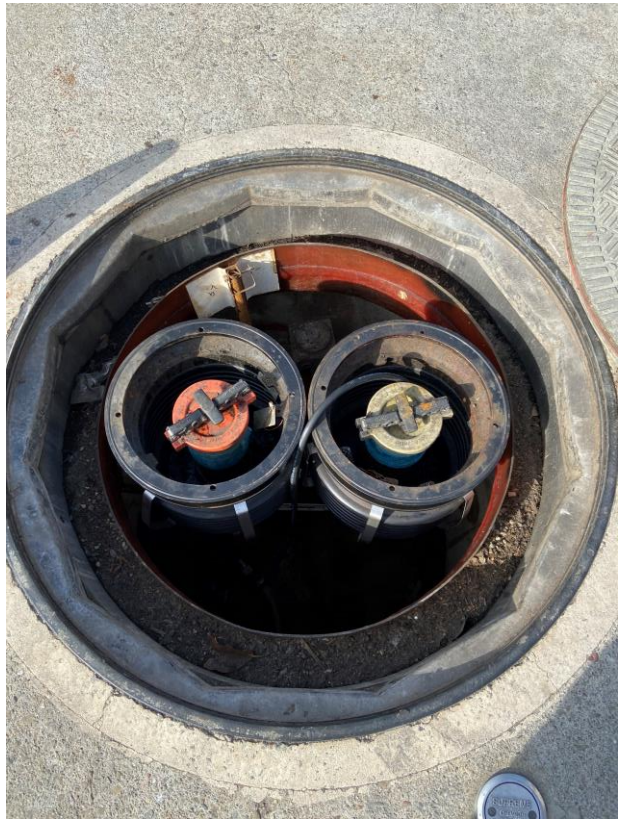
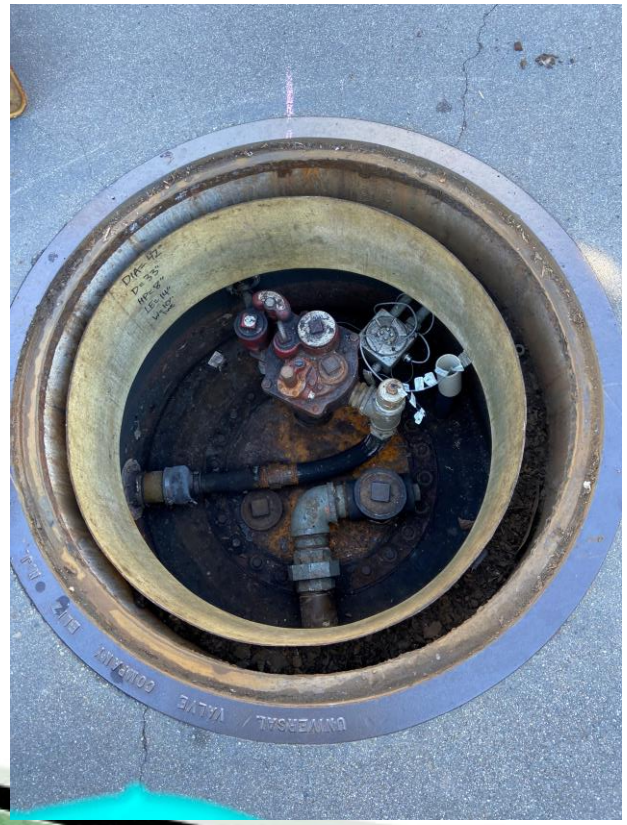
Spill Container with Sump/Spill Sump



Submersible Turbine Pump (STP) sump and STP without sump (direct bury)



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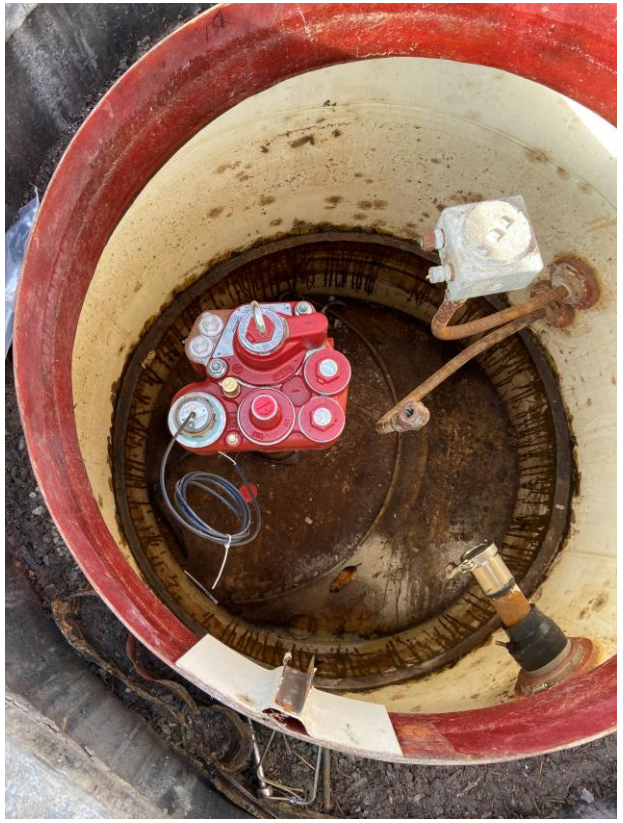
Direct Bury STP

STP Sumps



LLD or Pressurized Line Leak Detectors (PLLD): this is a Veeder Root (VR) Electronic LLD designed to detect 3 GPH leak rate at 10 psi within 1 hour

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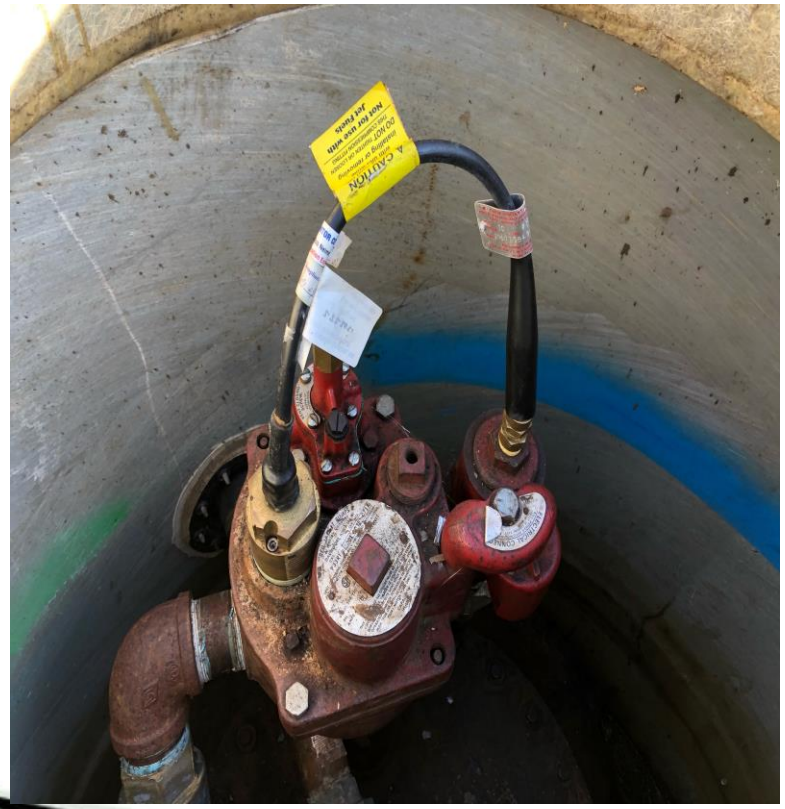
Electronic LLD (Incon PLLD)



Mechanical LLD from Vaporless Manufacturing Inc (VMI LD2000)

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Old Red Jacket/Veeder Root MLLD

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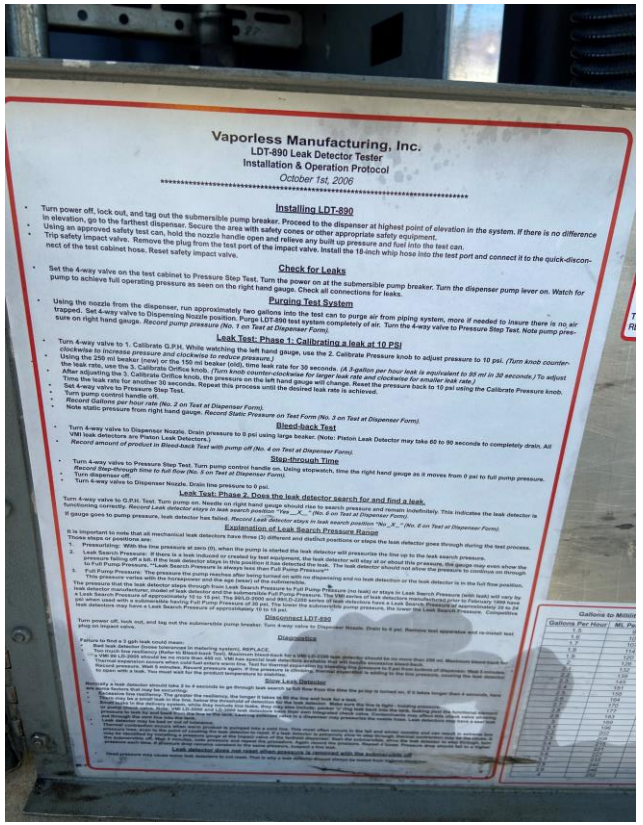
VMI LLD testing equipment



Vaporless Manufacturing, Inc.
LDT-890 Leak Detector Tester
Installation & Operation Protocol
October 1st, 2006

Installing LDT-890

Check for Leaks

Purging Test System

Leak Test: Phase 1: Calibrating a leak at 10 PSI

Bleed-back Test

Step-through Time

Leak Test: Phase 2: Does the leak detector search for and find a leak.

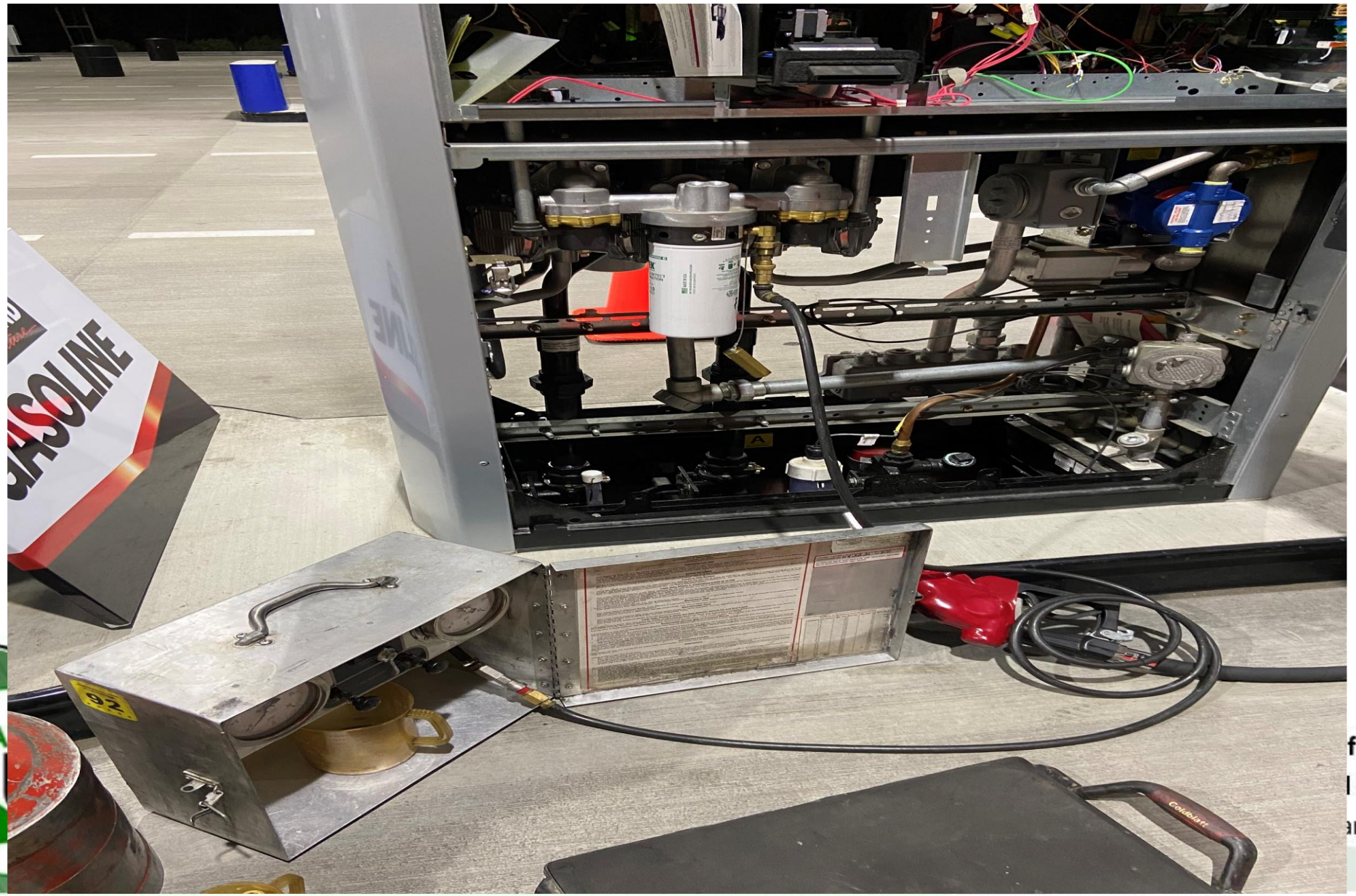
Explanation of Leak Search Pressure Range

Disconnect LDT-890

Diagnostics

Slow Leak Detector

LLD Testing connected at the filter port



Sensors (VR 208 for dry sumps and UDCs)

Interstitial/annular space VR 304 sensor for liquid filled sumps and UDCs

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Stand A Lone Sensors (VR 001 and Beaudreau 406* for UDCs)

* Only works in the dark

Float and Chain System

What is it?

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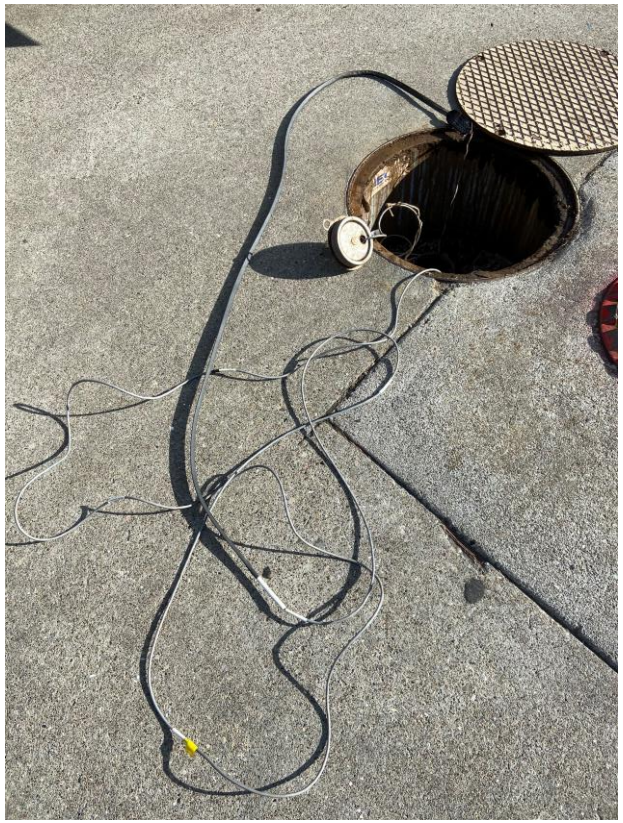
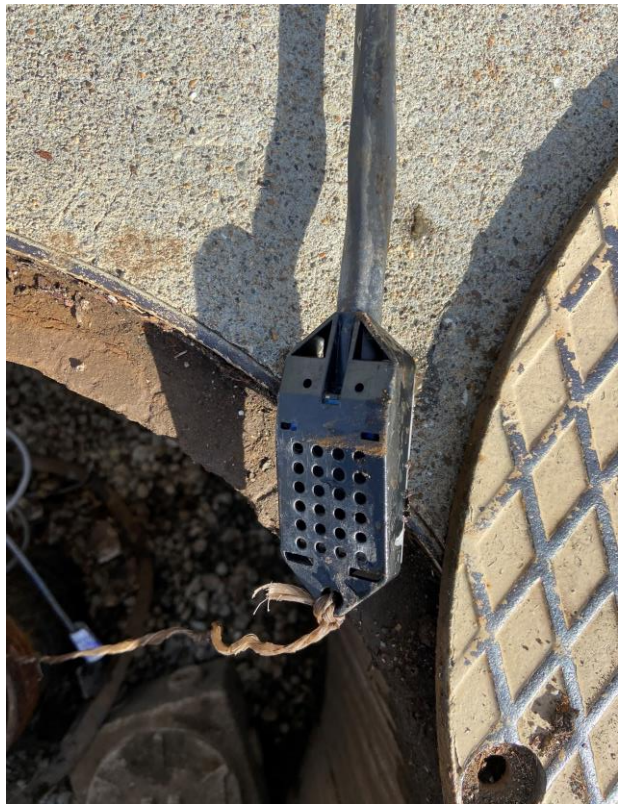
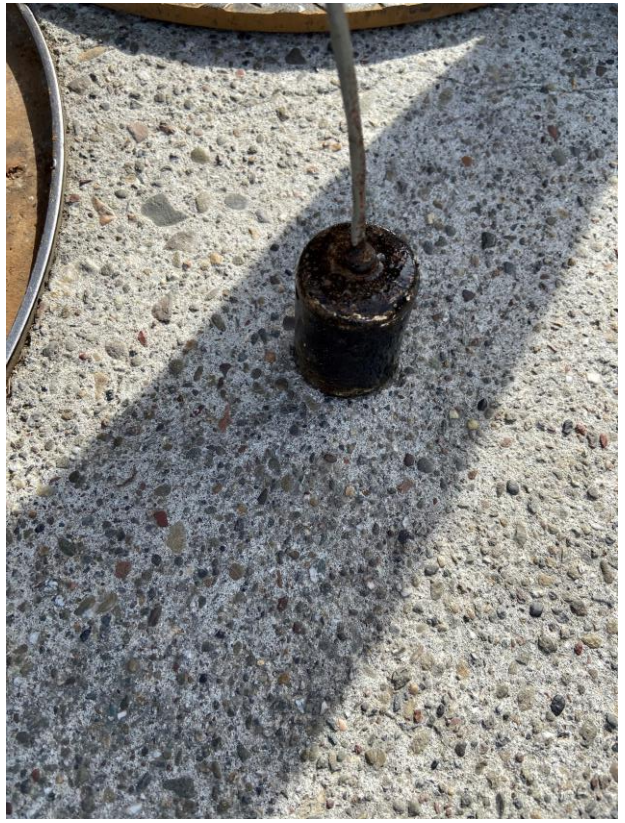
Tank Annular Sensors (old VR 409 for dry FBG tanks)

Tank Annular Sensors (new VR 409 for dry FBG tanks)

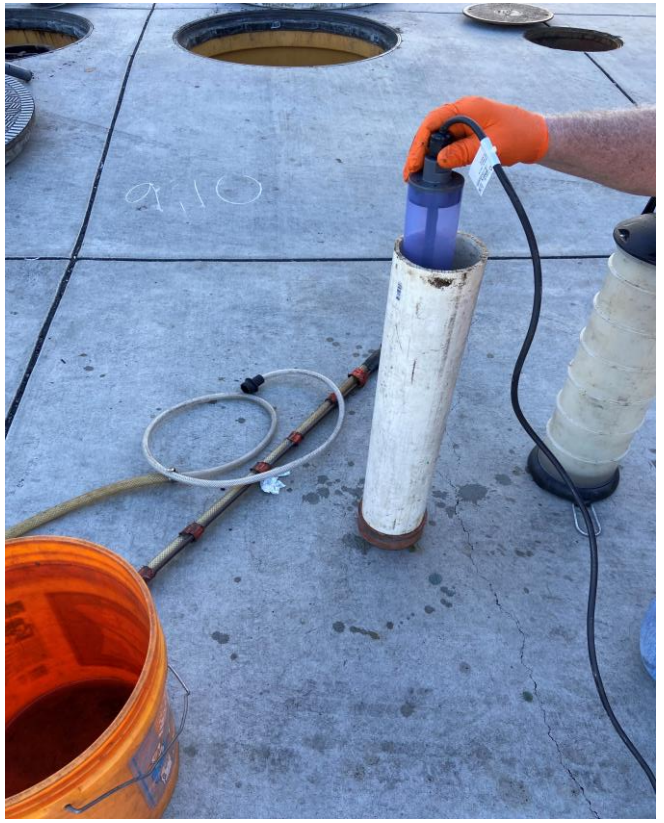




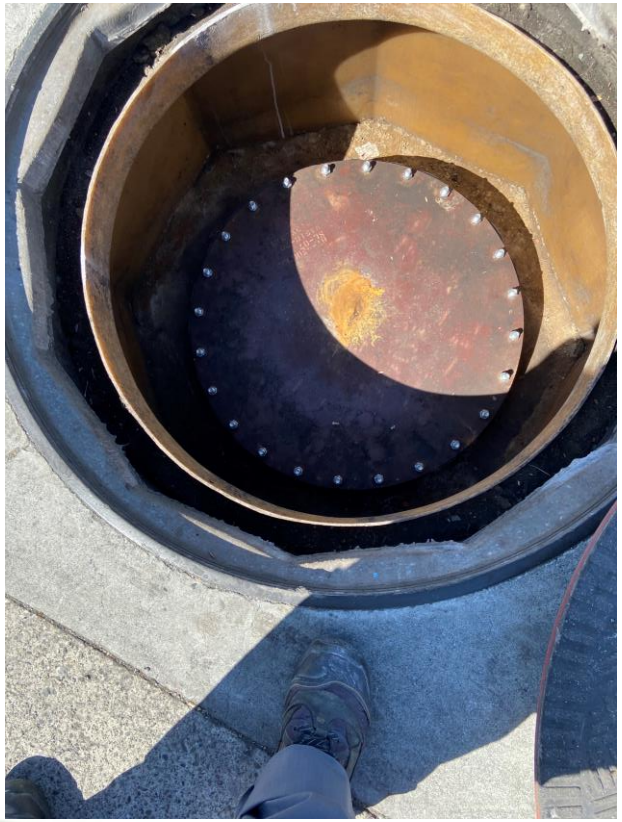
Tank Annular Sensors (VR 420 for dry DW steel tanks)



Tank Annular Sensors (VR 303 for liquid filled DW FBG tanks)



What are these sumps?



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What are these sumps?

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Impressed Current System (Rectifier)

BREAK TIME!

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Secondary Containment Testing (36 months)

T23 CCR 2637

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Appendix VII
Underground Storage Tank
Secondary Containment Testing Report Form

TYPE OF ACTION ☐ Installation ☐ Repair ☐ 6 Month ☐ 36 Month

1. FACILITY INFORMATION		
CERS ID		Test Date
Facility Name		
Facility Address	City	ZIP Code

2. SERVICE TECHNICIAN INFORMATION	
Company Performing the Test	Phone
Mailing Address	
Service Technician Performing Test	
Contractor/Tank Tester License Number	
ICC Number	ICC Expiration Date

3. TRAINING AND CERTIFICATIONS	
Manufacturer and Test Equipment Training Certifications	*Expiration Date*

4. TEST PROCEDURE INFORMATION	
Test Procedures Used	*Components Tested*

5. CERTIFICATION BY SERVICE TECHNICIAN CONDUCTING TEST

I hereby certify that the secondary containment was tested in accordance with California Code of Regulations, title 23, division 3, chapter 16, section 2637; that required supporting documentation is attached; and all information contained herein is accurate. I understand that test procedures shall be made available upon request by the governing authority.

Service Technician Signature	Date	Total # of Pages

CERS = California Environmental Reporting System, ICC = International Code Council, ID = Identification, NA = Not Applicable, UDC = Under-Dispenser Containment,

Underground Storage Tank
Secondary Containment Testing Report Form

6. TANK SECONDARY CONTAINMENT TEST				
Test Method Developed by	☐ Manufacturer	☐ Industry Standard	☐ Professional Engineer	
Test Type	☐ Pressure	☐ Vacuum	☐ Hydrostatic	
Test Equipment Used:				
Tank ID				
Tank Manufacturer				
Tank Capacity				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

7. PIPE SECONDARY CONTAINMENT TEST				
Test Method Developed by	☐ Manufacturer	☐ Industry Standard	☐ Professional Engineer	
Test Type	☐ Pressure	☐ Vacuum	☐ Hydrostatic	
Test Equipment Used:				
Pipe Run ID				
Pipe Manufacturer				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
Pipe Run ID				
Pipe Manufacturer				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Additional copies of this page may be attached.

All tests marked "Fail" and any repairs made before or during the tightness test must be described in the COMMENTS section.

Underground Storage Tank
Secondary Containment Testing Report Form

8. SUMP/UDC TEST				
Test Method Developed by	☐ Manufacturer	☐ Industry Standard	☐ Professional Engineer	
Test Type	☐ Pressure	☐ Vacuum	☐ Hydrostatic	
Test Equipment Used:				
Sump/UDC ID				
Sump Manufacturer				
Sump Depth (inches)				
Sump Bottom to Top of Highest Pipe Penetration (inches)				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Sump/UDC ID				
Sump Manufacturer				
Sump Depth (inches)				
Sump Bottom to Top of Highest Pipe Penetration (inches)				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Additional copies of this page may be attached.

All tests marked "Fail" and any repairs made before or during the tightness test must be described in the COMMENTS section.

Underground Storage Tank
Secondary Containment Testing Report Form

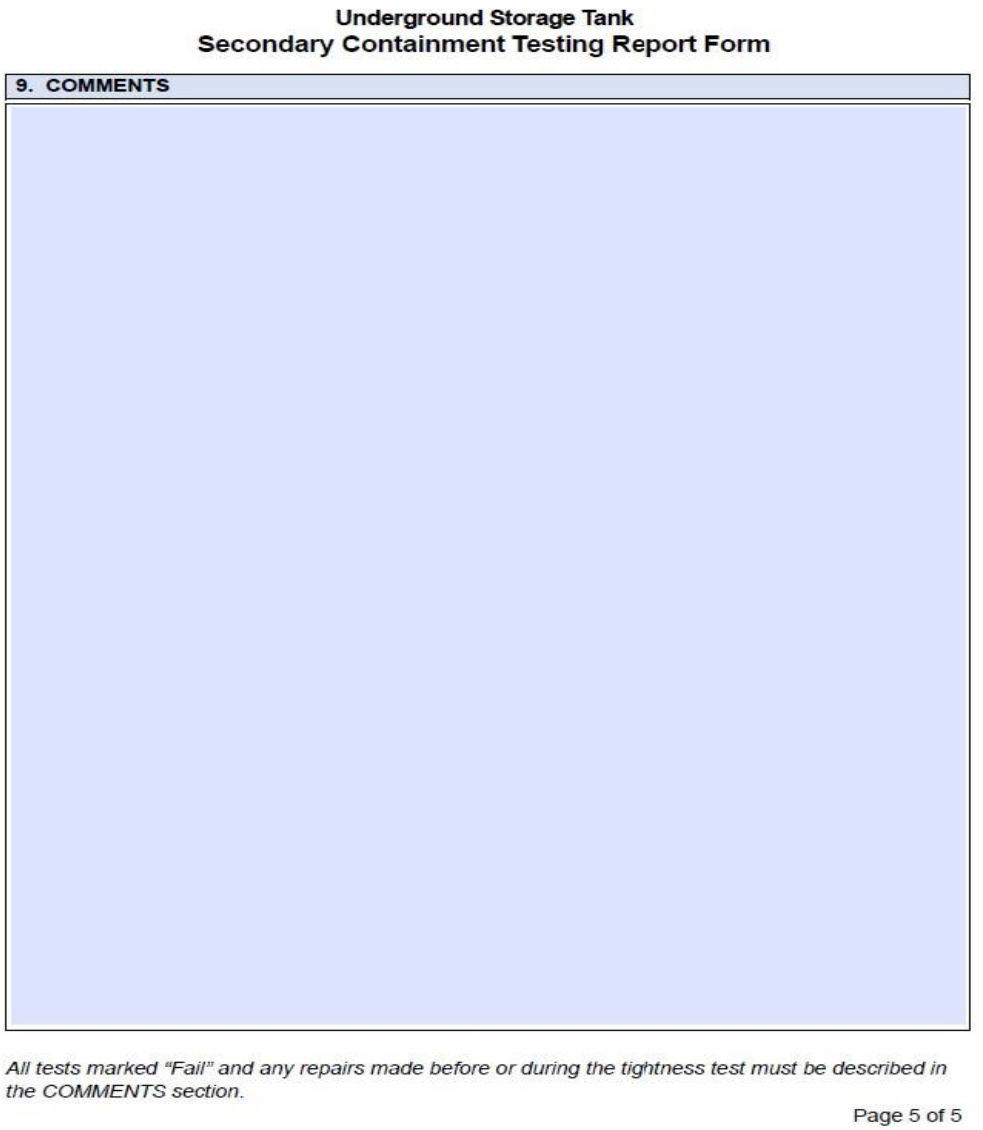
8. SUMP/UDC TEST (continued)				
Test Method Developed by	☐ Manufacturer	☐ Industry Standard	☐ Professional Engineer	
Test Type	☐ Pressure	☐ Vacuum	☐ Hydrostatic	
Test Equipment Used:				
Sump/UDC ID				
Sump Manufacturer				
Sump Depth (inches)				
Sump Bottom to Top of Highest Pipe Penetration (inches)				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Sump/UDC ID				
Sump Manufacturer				
Sump Depth (inches)				
Sump Bottom to Top of Highest Pipe Penetration (inches)				
Test Start Time				
Initial Reading				
Test End Time				
Final Reading				
Change in Reading				
Pass/Fail Criteria				
Tightness Test Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Additional copies of this page may be attached.

All tests marked "Fail" and any repairs made before or during the tightness test must be described in the COMMENTS section.

-Service Technicians complete / sign form
-Owner & Operator submit completed form within 30 days of testing 23ccr 2637 (f)
-Tests shall be performed in accordance with manufacturer’s guidelines or standards 23 CCR 2637 (c)



Underground Storage Tank
Secondary Containment Testing Report Form

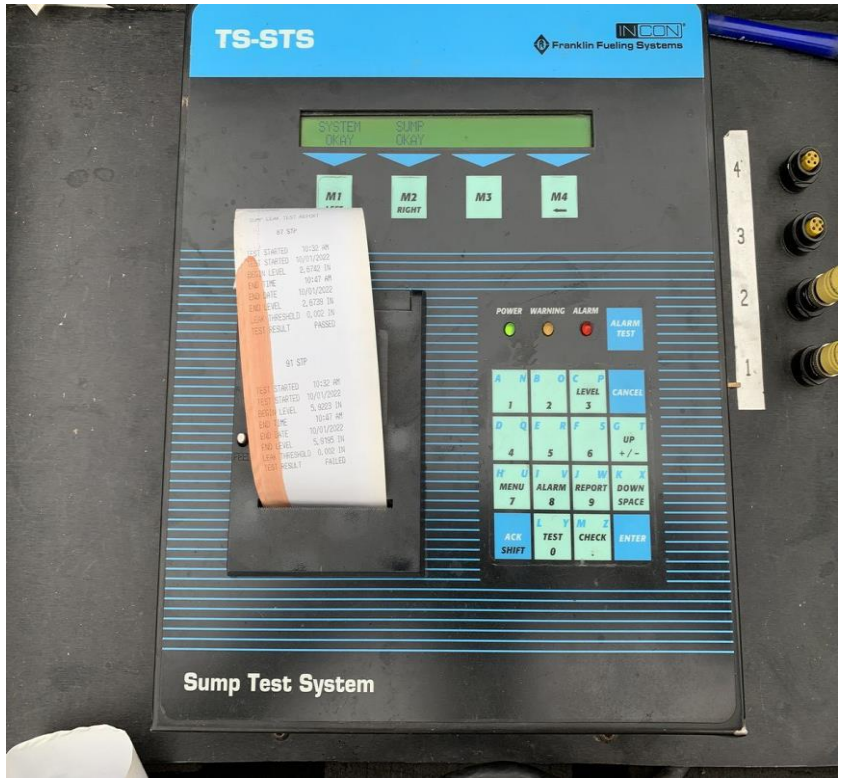
9. COMMENTS

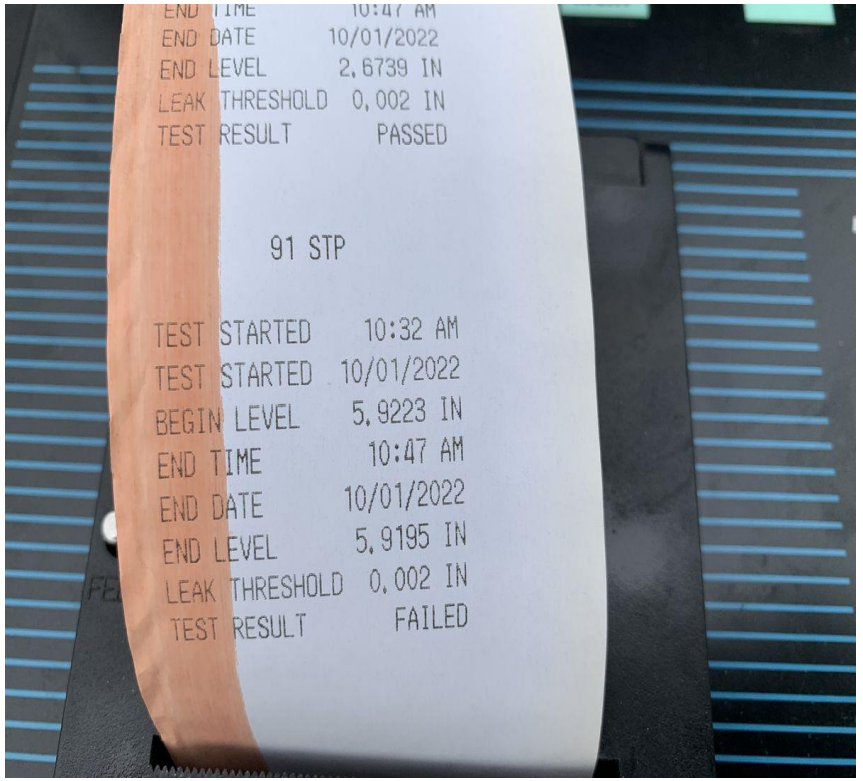
All tests marked “Fail” and any repairs made before or during the tightness test must be described in the COMMENTS section.

Page 5 of 5

Secondary Containment Testing

Example of tester, Tests liquid level

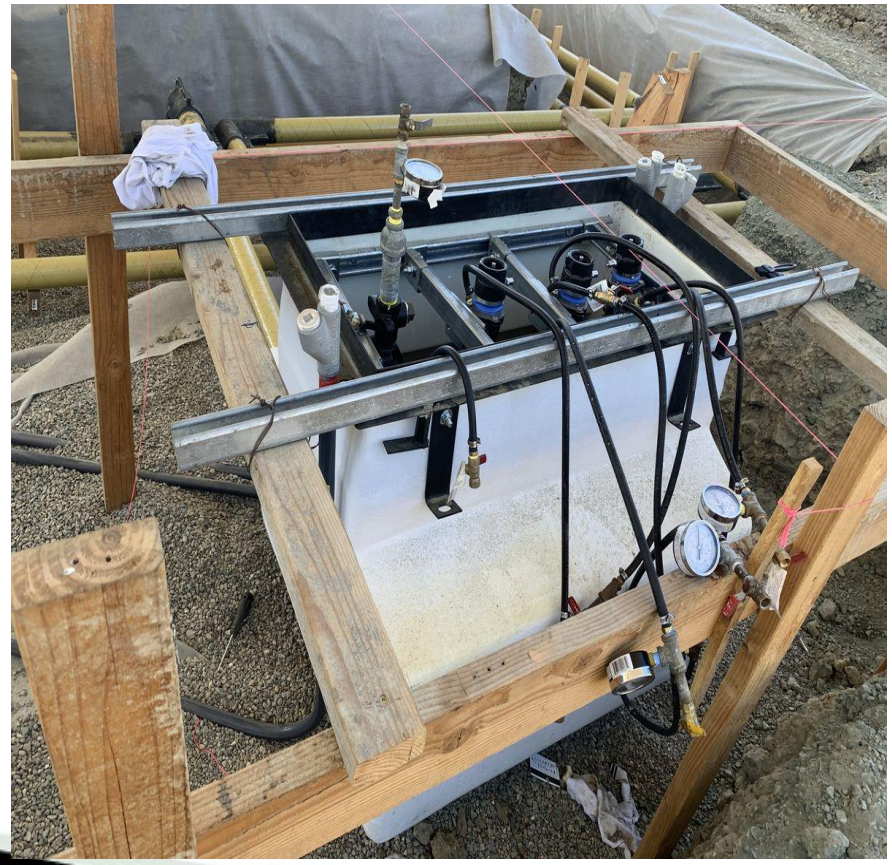


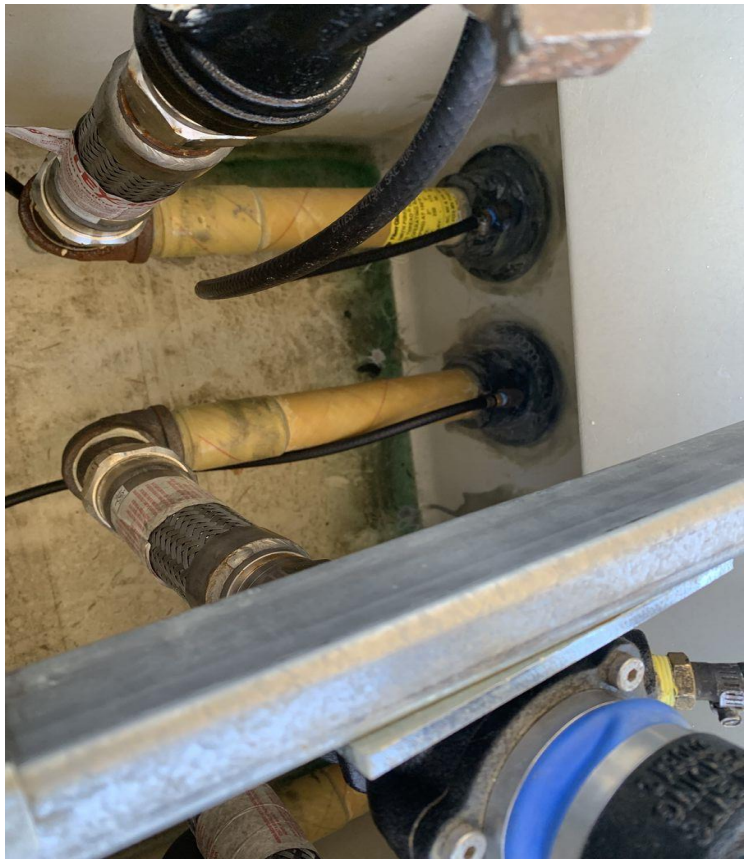


Secondary Containment Testing (Exempt for VHP systems) LG 160

- Tank Secondary Containment (aka Tank Annular)
- Pipe Secondary Containment (product, vapor return (if applicable), vent (if applicable)
- Under Dispenser Containment (UDC)
- Submersible Turbine Pump (STP) sump
- Fill sump (if applicable)
- Vent Box (if applicable)
- Transition sump

Secondary Lines tested for tightness





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Secondary Lines tested for tightness

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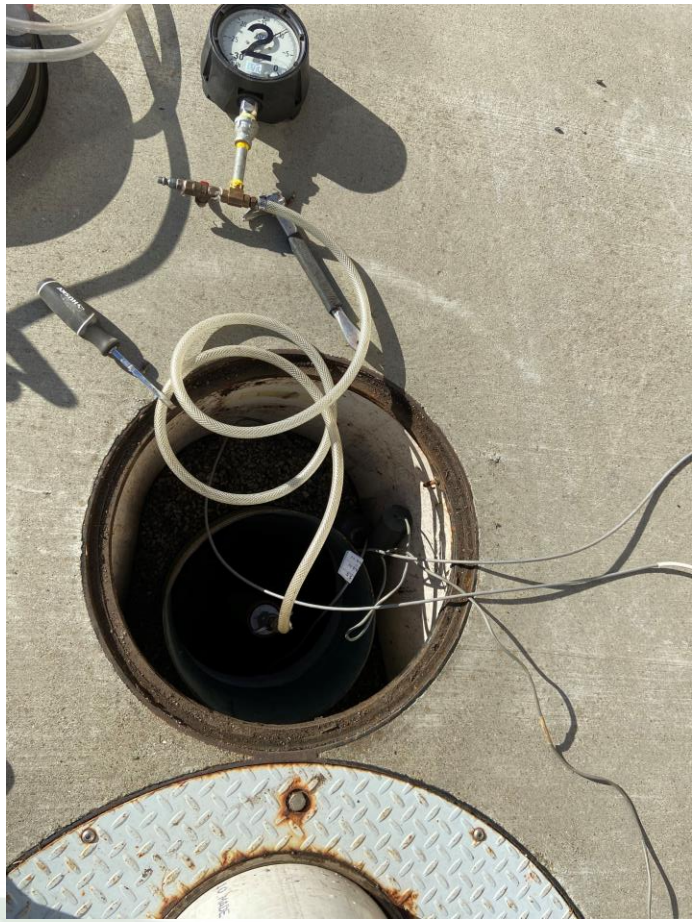
Tank Secondary Containment Test



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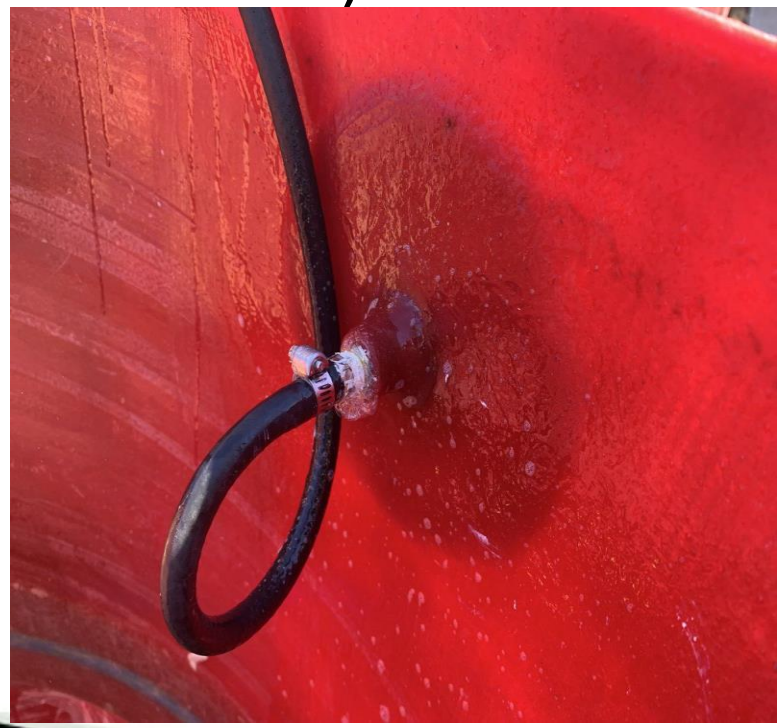
Failed Soap Test, soap applied to secondary under pressure (more common with installs or when problems occur)



Secondary Containment video

Overfill Prevention Equipment Testing

- Periodic OPE inspection must occur at least once every 36 months
- Inspection Methods:

a)Manufacturer guidelines,

b)if manufacturer guidelines do not exist or do not meet the inspection criteria: use a industry code or engineering standard, such as PEI's Recommended Practice 1200

c)If none of these above meet the inspection criteria, use a method developed by a California registered professional engineer

- A qualified UST service technician must possess training or certification provided by

a)The manufacturer of the OPE being inspected

b)The developer of the industry code or engineered standard

c)The engineer that developed the inspection method

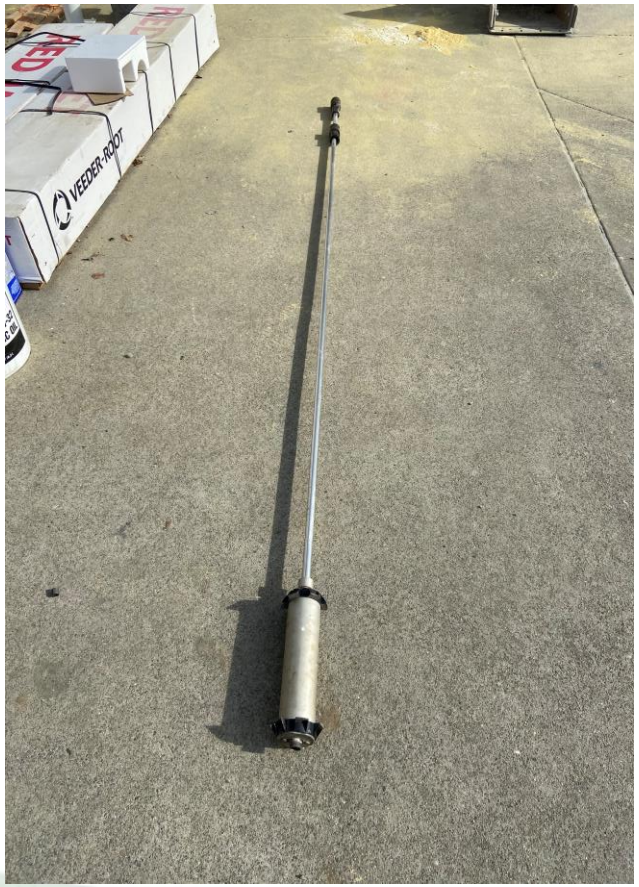
Overfill Prevention Equipment (LG 150-3) OPE Performance Measures

1. Alert the transfer operator when the tank is 90% full by:
   a. Restrict the flow into the tank (ball float); or
   b. Triggering audible and visual alarms (Overfill Alarm)*
   (only one tank at a time)
2. Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95% of capacity; and activate an audible alarm at least five minutes before the tank overfills
3. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95% of capacity (flapper or flapper valve)
4. Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling

Overfill Prevention Exemption (see LG150-3)

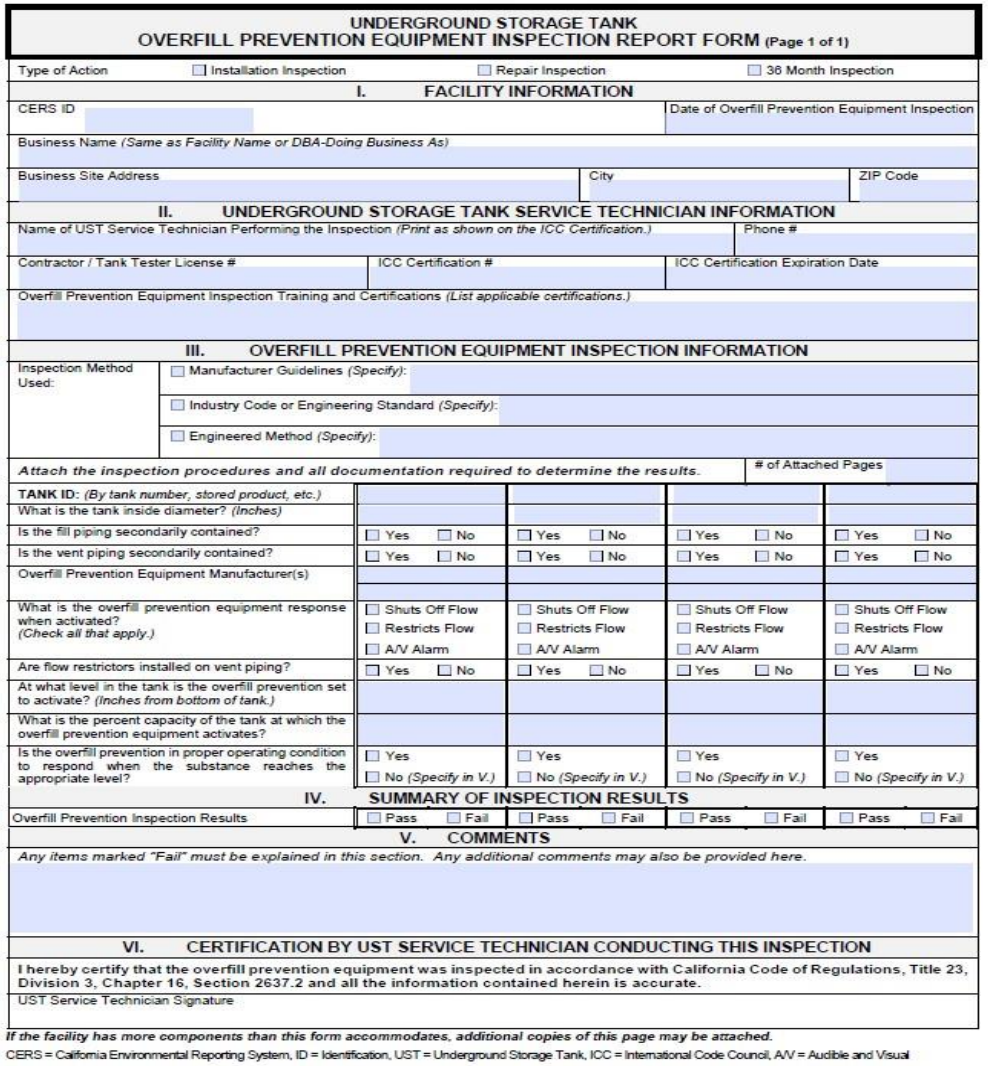
- **All** of the following conditions exist:
- The tank inlet exists in an observable area;
- The spill container is adequate to collect any overfill;
- The tank system is filled by transfers of no more than 25 gallons at one time;
- The secondary containment piping exemption described below is not being used (UPAs cannot waive the OPE requirements for any UST where the secondary containment piping exemption).

OPE: Tank Gauge (ATG) Audible/Visual Alarm



Overfill Prevention Form

-Completed by UST Service Technician
-Submitted by Owner and Operator



UNDERGROUND STORAGE TANK
OVERFILL PREVENTION EQUIPMENT INSPECTION REPORT FORM (Page 1 of 1)

Type of Action ☐ Installation Inspection ☐ Repair Inspection ☐ 36 Month Inspection

I. FACILITY INFORMATION

CERS ID | Date of Overfill Prevention Equipment Inspection

Business Name *(Same as Facility Name or DBA-Doing Business As)*

Business Site Address | City | ZIP Code

II. UNDERGROUND STORAGE TANK SERVICE TECHNICIAN INFORMATION

Name of UST Service Technician Performing the Inspection *(Print as shown on the ICC Certification.)* | Phone #

Contractor / Tank Tester License # | ICC Certification # | ICC Certification Expiration Date

Overfill Prevention Equipment Inspection Training and Certifications *(List applicable certifications.)*

III. OVERFILL PREVENTION EQUIPMENT INSPECTION INFORMATION

Inspection Method Used:
☐ Manufacturer Guidelines *(Specify)*:
☐ Industry Code or Engineering Standard *(Specify)*:
☐ Engineered Method *(Specify)*:

Attach the inspection procedures and all documentation required to determine the results. | # of Attached Pages

TANK ID: *(By tank number, stored product, etc.)*				
What is the tank inside diameter? *(Inches)*				
Is the fill piping secondarily contained?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Is the vent piping secondarily contained?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Overfill Prevention Equipment Manufacturer(s)				
What is the overfill prevention equipment response when activated? *(Check all that apply.)*	☐ Shuts Off Flow ☐ Restricts Flow ☐ A/V Alarm	☐ Shuts Off Flow ☐ Restricts Flow ☐ A/V Alarm	☐ Shuts Off Flow ☐ Restricts Flow ☐ A/V Alarm	☐ Shuts Off Flow ☐ Restricts Flow ☐ A/V Alarm
Are flow restrictors installed on vent piping?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
At what level in the tank is the overfill prevention set to activate? *(Inches from bottom of tank.)*				
What is the percent capacity of the tank at which the overfill prevention equipment activates?				
Is the overfill prevention in proper operating condition to respond when the substance reaches the appropriate level?	☐ Yes ☐ No *(Specify in V.)*	☐ Yes ☐ No *(Specify in V.)*	☐ Yes ☐ No *(Specify in V.)*	☐ Yes ☐ No *(Specify in V.)*

IV. SUMMARY OF INSPECTION RESULTS

Overfill Prevention Inspection Results	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

V. COMMENTS

Any items marked "Fail" must be explained in this section. Any additional comments may also be provided here.

VI. CERTIFICATION BY UST SERVICE TECHNICIAN CONDUCTING THIS INSPECTION

I hereby certify that the overfill prevention equipment was inspected in accordance with California Code of Regulations, Title 23, Division 3, Chapter 16, Section 2637.2 and all the information contained herein is accurate.

UST Service Technician Signature

If the facility has more components than this form accommodates, additional copies of this page may be attached.

CERS = California Environmental Reporting System, ID = Identification, UST = Underground Storage Tank, ICC = International Code Council, A/V = Audible and Visual

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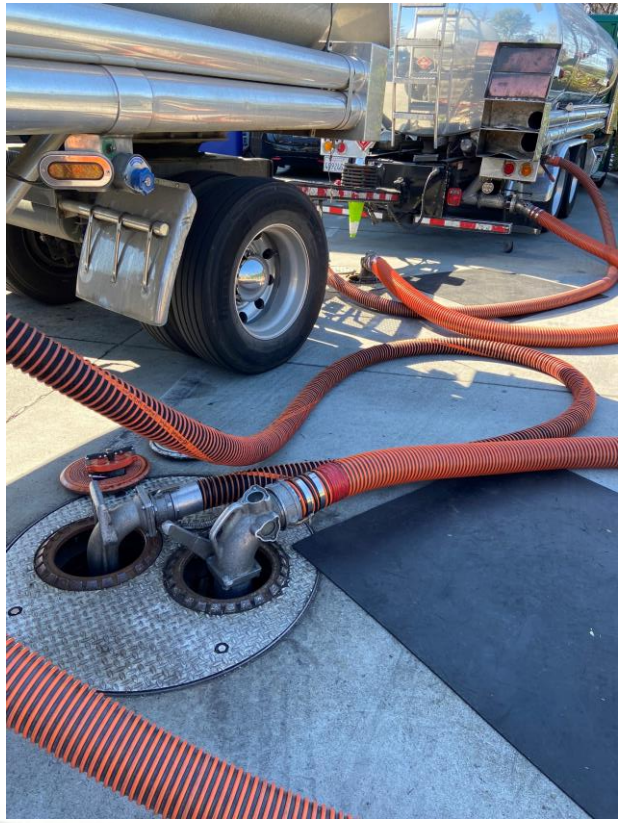
Fuel Deliveries



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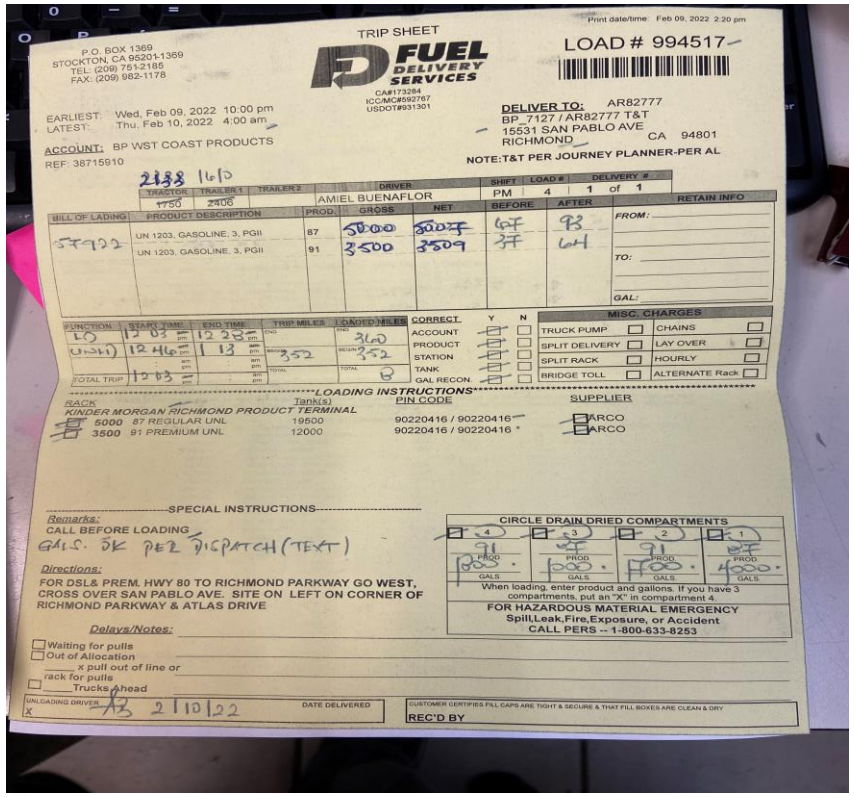
Fuel Delivery Records



TRIP SHEET

Print date/time: Feb 09, 2022 2:20 pm

P.O. BOX 1369
STOCKTON, CA 95201-1369
TEL: (209) 751-2185
FAX: (209) 982-1178

FUEL DELIVERY SERVICES

CA#173284
ICC/MC#592767
USDOT#931301

LOAD # 994517

EARLIEST: Wed, Feb 09, 2022 10:00 pm
LATEST: Thu, Feb 10, 2022 4:00 am

ACCOUNT: BP WST COAST PRODUCTS
REF: 38715910

DELIVER TO: AR82777
BP_7127 / AR82777 T&T
15531 SAN PABLO AVE
RICHMOND CA 94801
NOTE:T&T PER JOURNEY PLANNER-PER AL

2138 1610

TRACTOR	TRAILER 1	TRAILER 2	DRIVER	SHIFT	LOAD #	DELIVERY #
1750	2406		AMIEL BUENAFLOR	PM	4	1 of 1

BILL OF LADING	PRODUCT DESCRIPTION	PROD	GROSS	NET	BEFORE	AFTER
57722	UN 1203, GASOLINE, 3, PGII	87	5000	5007	67	93
	UN 1203, GASOLINE, 3, PGII	91	3500	3509	37	64

RETAIN INFO
FROM:
TO:
GAL:

FUNCTION	START TIME	END TIME	TRIP MILES	LOADED MILES
LD	12 03 pm	12 23 pm	END 360	
UNLD	12 46 pm	1 13 pm	BEGIN 352	352
TOTAL TRIP	12 03 pm	pm	TOTAL	

CORRECT	Y	N
ACCOUNT	✓	
PRODUCT	✓	
STATION	✓	
TANK	✓	
GAL RECON.	✓	

MISC. CHARGES

TRUCK PUMP	☐	CHAINS	☐
SPLIT DELIVERY	☐	LAY OVER	☐
SPLIT RACK	☐	HOURLY	☐
BRIDGE TOLL	☐	ALTERNATE Rack	☐

LOADING INSTRUCTIONS

RACK	Tank(s)	PIN CODE	SUPPLIER
KINDER MORGAN RICHMOND PRODUCT TERMINAL			
☑ 5000 87 REGULAR UNL	19500	90220416 / 90220416	☑ ARCO
☐ 3500 91 PREMIUM UNL	12000	90220416 / 90220416	☐ ARCO

SPECIAL INSTRUCTIONS

Remarks:
CALL BEFORE LOADING
GALS. OK PER DISPATCH (TEXT)

Directions:
FOR DSL& PREM. HWY 80 TO RICHMOND PARKWAY GO WEST, CROSS OVER SAN PABLO AVE. SITE ON LEFT ON CORNER OF RICHMOND PARKWAY & ATLAS DRIVE

Delays/Notes:
☐ Waiting for pulls
☐ Out of Allocation
☐ ____x pull out of line or
☐ ____rack for pulls
☐ ____Trucks Ahead

CIRCLE DRAIN DRIED COMPARTMENTS

4	3	2	1
91 PROD	87 PROD	91 PROD	87 PROD
1500 GALS	5000 GALS	1500 GALS	4000 GALS

When loading, enter product and gallons. If you have 3 compartments, put an "X" in compartment 4.

FOR HAZARDOUS MATERIAL EMERGENCY
Spill,Leak,Fire,Exposure, or Accident
CALL PERS -- 1-800-633-8253

UNLOADING DRIVER X AB 2/10/22 DATE DELIVERED

CUSTOMER CERTIFIES FILL CAPS ARE TIGHT & SECURE & THAT FILL BOXES ARE CLEAN & DRY
REC'D BY

07127
15531 San Pablo Ave
Richmond
CA 94806

FEB 10. 2022 12:46 AM

SYSTEM STATUS REPORT

D 1:ALARM CLEAR WARNING

D 1:DELIVERY REPORT WRN

INVENTORY REPORT

T 1:REGULAR
VOLUME = 11684 GALS
ULLAGE = 7816 GALS
90% ULLAGE= 5866 GALS
TC VOLUME = 11711 GALS
HEIGHT = 67.41 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 56.6 DEG F

T 2:PREMIUM
VOLUME = 3102 GALS
ULLAGE = 8798 GALS
90% ULLAGE= 7608 GALS
TC VOLUME = 3111 GALS
HEIGHT = 37.41 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 55.6 DEG F

T 3:DIESEL
VOLUME = 4132 GALS
ULLAGE = 5495 GALS
90% ULLAGE= 4532 GALS
TC VOLUME = 4133 GALS
HEIGHT = 53.12 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 59.0 DEG F

* * * * * END * * * * *

07127
15531 San Pablo Ave
Richmond
CA 94806

FEB 10. 2022 1:10 AM

SYSTEM STATUS REPORT

D 1:ALARM CLEAR WARNING

D 1:DELIVERY REPORT WRN

INVENTORY REPORT

T 1:REGULAR
VOLUME = 16743 GALS
ULLAGE = 2757 GALS
90% ULLAGE= 807 GALS
TC VOLUME = 16790 GALS
HEIGHT = 92.63 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 55.9 DEG F

T 2:PREMIUM
VOLUME = 6573 GALS
ULLAGE = 5327 GALS
90% ULLAGE= 4137 GALS
TC VOLUME = 6597 GALS
HEIGHT = 64.42 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 54.6 DEG F

T 3:DIESEL
VOLUME = 4132 GALS
ULLAGE = 5495 GALS
90% ULLAGE= 4532 GALS
TC VOLUME = 4133 GALS
HEIGHT = 53.12 INCHES
WATER VOL = 0 GALS
WATER = 0.00 INCHES
TEMP = 58.9 DEG F

* * * * * END * * * * *

OPE: Ball Float

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Overfill Prevention Equipment

- Effective October 1, 2018, UST owners or operators may not install, repair, or replace a flow restrictor (ball float) on vent piping to comply with OPE Performance Measures 1(a) or 2.

OPE: Shut-off Valve or Flapper (OPW)

Franklin Fueling Systems Defender Series

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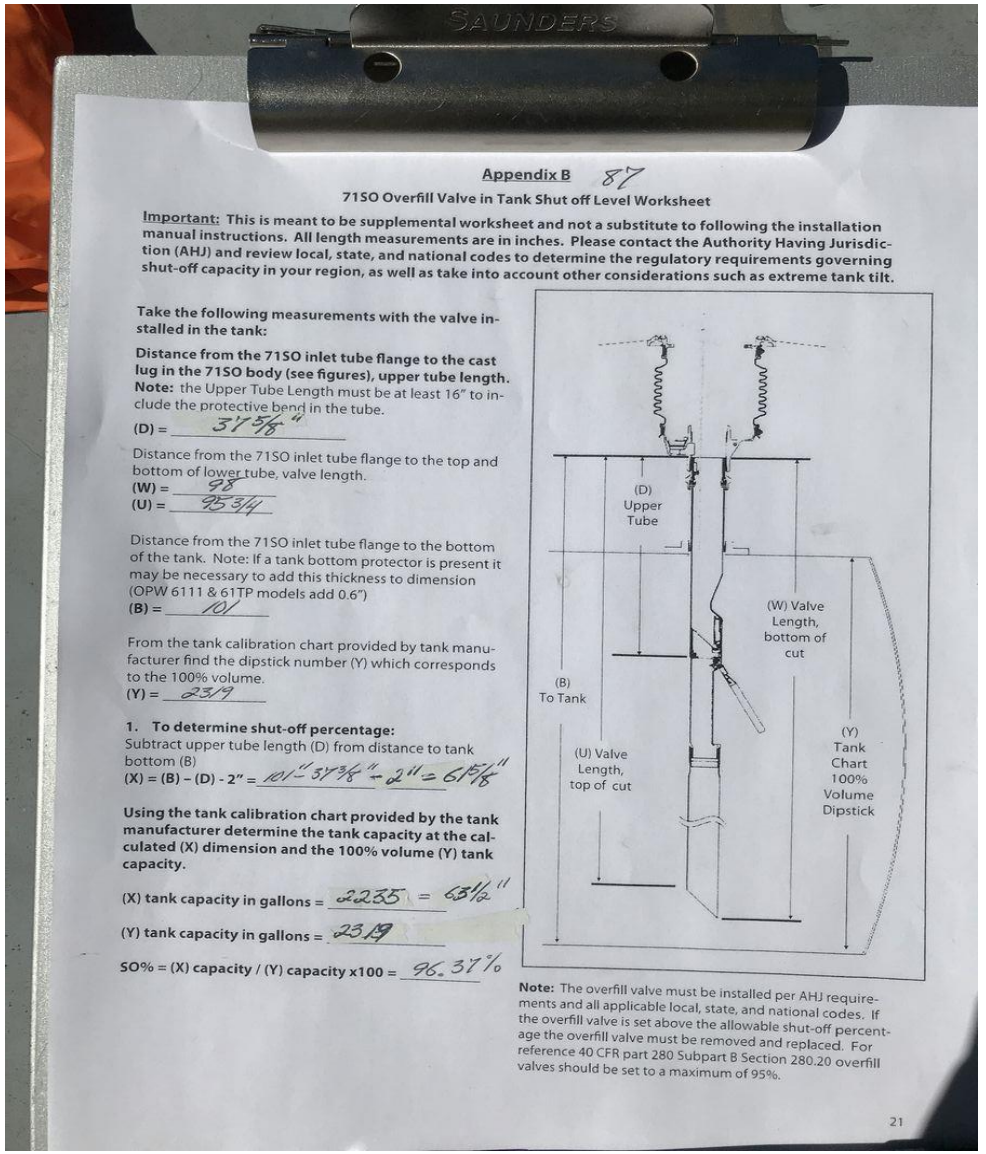
Example of 1 Worksheet



Appendix B 87

71SO Overfill Valve in Tank Shut off Level Worksheet

Important: This is meant to be supplemental worksheet and not a substitute to following the installation manual instructions. All length measurements are in inches. Please contact the Authority Having Jurisdiction (AHJ) and review local, state, and national codes to determine the regulatory requirements governing shut-off capacity in your region, as well as take into account other considerations such as extreme tank tilt.

Take the following measurements with the valve installed in the tank:

Distance from the 71SO inlet tube flange to the cast lug in the 71SO body (see figures), upper tube length. Note: the Upper Tube Length must be at least 16" to include the protective bend in the tube.

(D) = 37 5/8"

Distance from the 71SO inlet tube flange to the top and bottom of lower tube, valve length.

(W) = 93

(U) = 95 3/4

Distance from the 71SO inlet tube flange to the bottom of the tank. Note: If a tank bottom protector is present it may be necessary to add this thickness to dimension (OPW 6111 & 61TP models add 0.6")

(B) = 101

From the tank calibration chart provided by tank manufacturer find the dipstick number (Y) which corresponds to the 100% volume.

(Y) = 23.19

1. To determine shut-off percentage:

Subtract upper tube length (D) from distance to tank bottom (B)

(X) = (B) – (D) - 2" = 101" – 37 3/8" – 2" = 61 5/8"

Using the tank calibration chart provided by the tank manufacturer determine the tank capacity at the calculated (X) dimension and the 100% volume (Y) tank capacity.

(X) tank capacity in gallons = 2235 = 63 1/2"

(Y) tank capacity in gallons = 23.19

SO% = (X) capacity / (Y) capacity x100 = 96.37%

Note: The overfill valve must be installed per AHJ requirements and all applicable local, state, and national codes. If the overfill valve is set above the allowable shut-off percentage the overfill valve must be removed and replaced. For reference 40 CFR part 280 Subpart B Section 280.20 overfill valves should be set to a maximum of 95%.

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95% of 2,324 Gal
=2,208 Gal
Distance from tank bottom to 95% is ~ 62-5/8 inches

62-5/8"	2206	69-7/8"	2323
62-3/4"	2209	70"	2323
62-7/8"	2212	70-1/8"	2324
63"	2215	70-1/4"	2324
63-1/8"	2217	70-3/8"	2324
63-1/4"	2220		
63-3/8"	2223		
63-1/2"	2226		
63-5/8"	2229		

XERXES® CORPORATION
a subsidiary of ZCL Composites Inc.
www.xerxescorp.com

Calibration Chart
2,500 Gallon - 6' Diameter Double-Wall Tank

DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS
0-1/8"	1	7-1/4"	112	14-3/8"	316	21-1/2"	579	28-5/8"	877
0-1/4"	2	7-3/8"	115	14-1/2"	321	21-5/8"	584	28-3/4"	883
0-3/8"	2	7-1/2"	118	14-5/8"	325	21-3/4"	589	28-7/8"	888
0-1/2"	3	7-5/8"	121	14-3/4"	329	21-7/8"	594	29"	894
0-5/8"	4	7-3/4"	124	14-7/8"	333	22"	599	29-1/8"	899
0-3/4"	5	7-7/8"	127	15"	338	22-1/8"	604	29-1/4"	904
0-7/8"	6	8"	130	15-1/8"	342	22-1/4"	609	29-3/8"	910
1"	7	8-1/8"	133	15-1/4"	346	22-3/8"	614	29-1/2"	915
1-1/8"	8	8-1/4"	136	15-3/8"	350	22-1/2"	619	29-5/8"	921
1-1/4"	9	8-3/8"	139	15-1/2"	355	22-5/8"	624	29-3/4"	926
1-3/8"	10	8-1/2"	142	15-5/8"	359	22-3/4"	629	29-7/8"	932
1-1/2"	11	8-5/8"	145	15-3/4"	363	22-7/8"	635	30"	937
1-5/8"	13	8-3/4"	149	15-7/8"	368	23"	640	30-1/8"	943
1-3/4"	14	8-7/8"	152	16"	372	23-1/8"	645	30-1/4"	948
1-7/8"	15	9"	155	16-1/8"	377	23-1/4"	650	30-3/8"	954
2"	17	9-1/8"	158	16-1/4"	381	23-3/8"	655	30-1/2"	959
2-1/8"	18	9-1/4"	162	16-3/8"	385	23-1/2"	660	30-5/8"	965
2-1/4"	20	9-3/8"	165	16-1/2"	390	23-5/8"	665	30-3/4"	970
2-3/8"	22	9-1/2"	168	16-5/8"	394	23-3/4"	670	30-7/8"	976
2-1/2"	23	9-5/8"	172	16-3/4"	399	23-7/8"	676	31"	981
2-5/8"	25	9-3/4"	175	16-7/8"	403	24"	681	31-1/8"	987
2-3/4"	27	9-7/8"	179	17"	408	24-1/8"	686	31-1/4"	992
2-7/8"	28	10"	182	17-1/8"	412	24-1/4"	691	31-3/8"	998
3"	30	10-1/8"	186	17-1/4"	417	24-3/8"	696	31-1/2"	1003
3-1/8"	32	10-1/4"	189	17-3/8"	421	24-1/2"	701	31-5/8"	1009
3-1/4"	34	10-3/8"	193	17-1/2"	426	24-5/8"	707	31-3/4"	1014
3-3/8"	36	10-1/2"	196	17-5/8"	431	24-3/4"	712	31-7/8"	1020
3-1/2"	38	10-5/8"	200	17-3/4"	435	24-7/8"	717	32"	1025
3-5/8"	40	10-3/4"	203	17-7/8"	440	25"	722	32-1/8"	1031
3-3/4"	42	10-7/8"	207	18"	444	25-1/8"	728	32-1/4"	1036
3-7/8"	44	11"	211	18-1/8"	449	25-1/4"	733	32-3/8"	1042
4"	46	11-1/8"	214	18-1/4"	454	25-3/8"	738	32-1/2"	1047
4-1/8"	48	11-1/4"	218	18-3/8"	458	25-1/2"	743	32-5/8"	1053
4-1/4"	50	11-3/8"	222	18-1/2"	463	25-5/8"	749	32-3/4"	1058
4-3/8"	52	11-1/2"	225	18-5/8"	468	25-3/4"	754	32-7/8"	1064
4-1/2"	55	11-5/8"	229	18-3/4"	472	25-7/8"	759	33"	1070
4-5/8"	57	11-3/4"	233	18-7/8"	477	26"	765	33-1/8"	1075
4-3/4"	59	11-7/8"	237	19"	482	26-1/8"	770	33-1/4"	1081
4-7/8"	61	12"	240	19-1/8"	487	26-1/4"	775	33-3/8"	1086
5"	64	12-1/8"	244	19-1/4"	491	26-3/8"	780	33-1/2"	1092
5-1/8"	66	12-1/4"	248	19-3/8"	496	26-1/2"	786	33-5/8"	1097
5-1/4"	69	12-3/8"	252	19-1/2"	501	26-5/8"	791	33-3/4"	1103
5-3/8"	71	12-1/2"	256	19-5/8"	506	26-3/4"	796	33-7/8"	1108
5-1/2"	74	12-5/8"	260	19-3/4"	511	26-7/8"	802	34"	1114
5-5/8"	76	12-3/4"	264	19-7/8"	515	27"	807	34-1/8"	1119
5-3/4"	79	12-7/8"	268	20"	520	27-1/8"	813	34-1/4"	1125
5-7/8"	81	13"	272	20-1/8"	525	27-1/4"	818	34-3/8"	1131
6"	84	13-1/8"	276	20-1/4"	530	27-3/8"	823	34-1/2"	1136
6-1/8"	87	13-1/4"	280	20-3/8"	535	27-1/2"	829	34-5/8"	1142
6-1/4"	89	13-3/8"	284	20-1/2"	540	27-5/8"	834	34-3/4"	1147
6-3/8"	92	13-1/2"	288	20-5/8"	545	27-3/4"	839	34-7/8"	1153
6-1/2"	95	13-5/8"	292	20-3/4"	549	27-7/8"	845	35"	1158
6-5/8"	97	13-3/4"	296	20-7/8"	554	28"	850	35-1/8"	1164
6-3/4"	100	13-7/8"	300	21"	559	28-1/8"	856	35-1/4"	1169
6-7/8"	103	14"	304	21-1/8"	564	28-1/4"	861	35-3/8"	1175
7"	106	14-1/8"	308	21-1/4"	569	28-3/8"	866	35-1/2"	1181
7-1/8"	109	14-1/4"	312	21-3/8"	574	28-1/2"	872	35-5/8"	1186

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Another Example of Worksheet

Appendix B

71SO Overfill Valve in Tank Initial Shut off Level Worksheet

Important: This is meant to be supplemental worksheet and not a substitute to following the installation manual instructions. All length measurements are in inches. Please contact the Authority Having Jurisdiction (AHJ) and review local, state, and national codes to determine the regulatory requirements governing shut-off capacity in your region, as well as take into account other considerations such as extreme tank tilt.

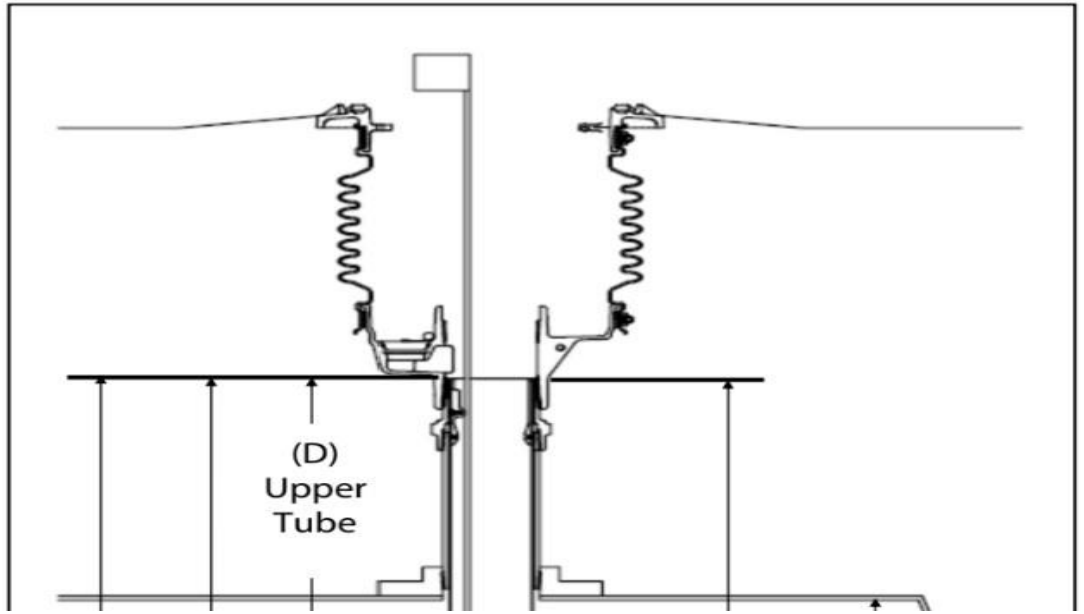
Take the following measurements with the valve installed in the tank:

Distance from the 71SO inlet tube flange to the cast lug in the 71SO body (see figures), upper tube length.
Note: the Upper Tube Length must be at least 16" to include the protective bend in the tube.

(D) = _____

Distance from the 71SO inlet tube flange to the top and bottom of lower tube, valve length.
(W) = _____
(U) = _____

Distance from the 71SO inlet tube flange to the bottom



Overfill Prevention Equipment

- USTs installed on or before June 30, 1987 may utilize any of the OPE Performance Measures regardless of piping secondary containment
- USTs installed between July 1, 1987 and June 30, 2003:

a)May utilize any OPE Performance Measures 2 or 3: exempt from secondary containment requirement or without secondary containment on vent and tank riser piping.

b)May utilize OPE Performance Measures 1 or 4: if the UST systems have DW piping, DW vent and Vapor, Fill sump, and being monitored (must pass secondary containment testing)

- USTs installed on or after July 1, 2003 require all pipe to be secondarily contained and therefore may utilize any of the OPE Performance Measures

BREAK TIME!

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Laws, Regulations and Reference Materials

- California Code of Regulations, Title 23, Division 3, Chapter 16 (23 CCR)
- California Health and Safety Code (H&SC) Chapter 6.7
- Petroleum Equipment Institute (PEI) 100/300/500/900/1200
  (these are recommended practices)
- CCR Title 8 Section 5157, Permit Required Confined Space
- Local Guidance (LG) letters
- Dollars and Sense, Financial Responsibility Requirements for USTs
- Operating and Maintain UST system (US-EPA)

Petroleum Equipment Institute (industry standards)

- PEI/RP100: Recommended Practices for Installation of Underground Liquid Storage Tanks
- PEI/RP300: Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites
- **PEI/RP500**: Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment
- **PEI/RP900**: Recommended Practices for the Inspection and Maintenance of UST systems
- **PEI/RP1200**: Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities

Tank Installation

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Removal and Installation videos

Tank Installation

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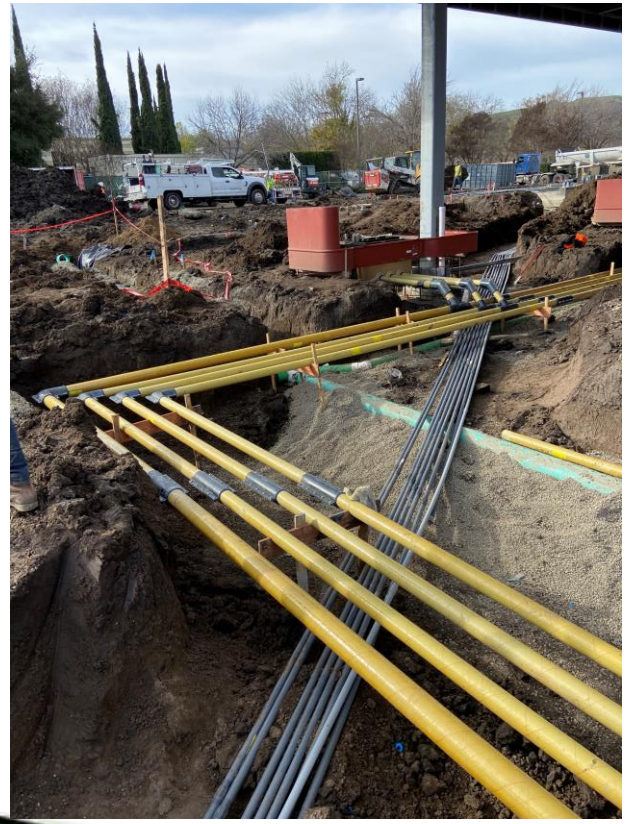
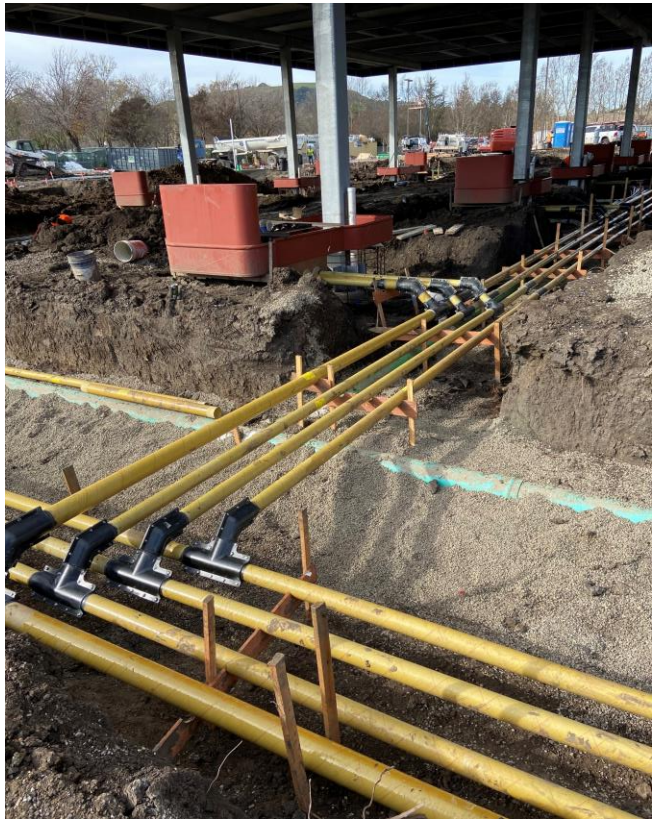
Tank Installation

Tank Installation





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Double Wall Steel/Fiberglass Tank

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Steel Tank

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Double Walled (DW) Fiberglass (FBG) Tanks

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Common Piping

Fiberglass
Flexible

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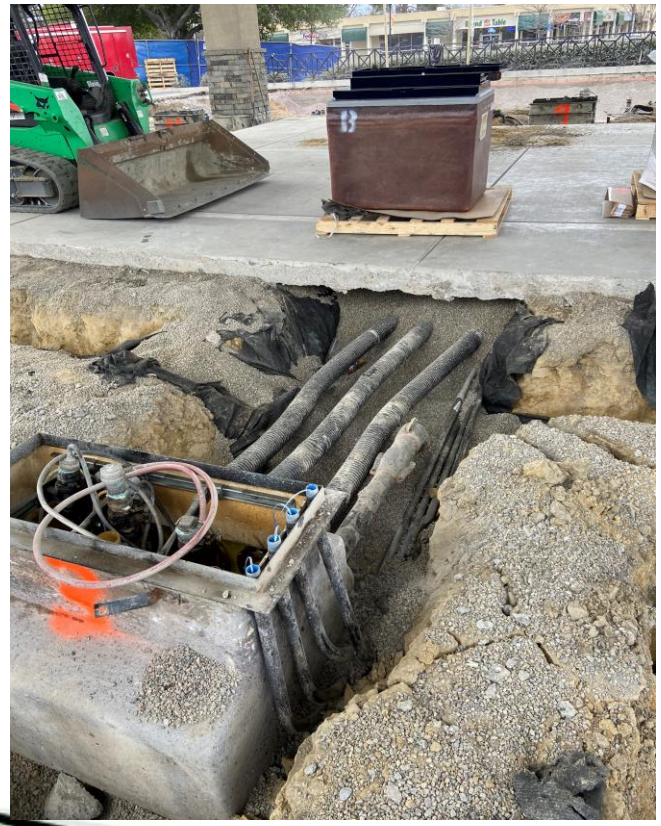
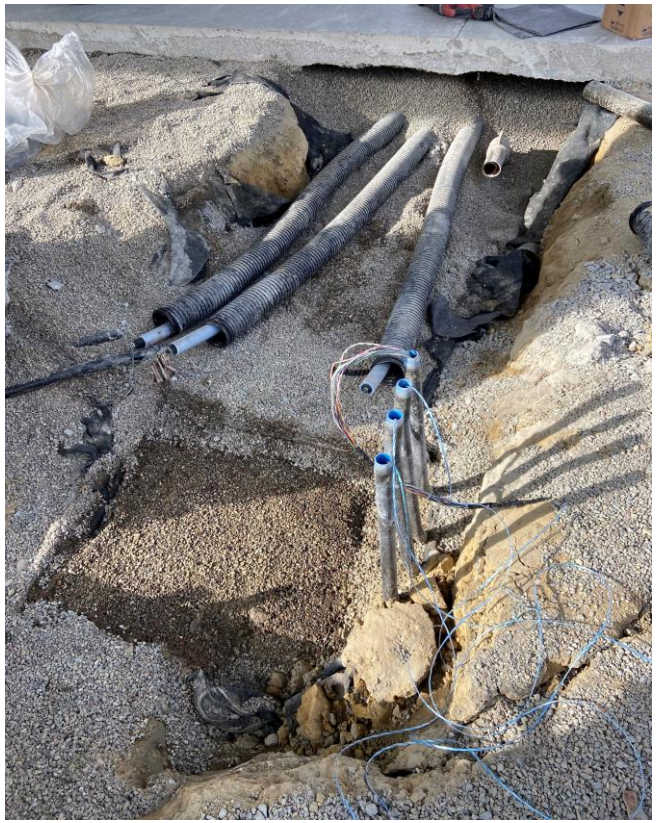
Flexible Piping (RockGuard protection layer)





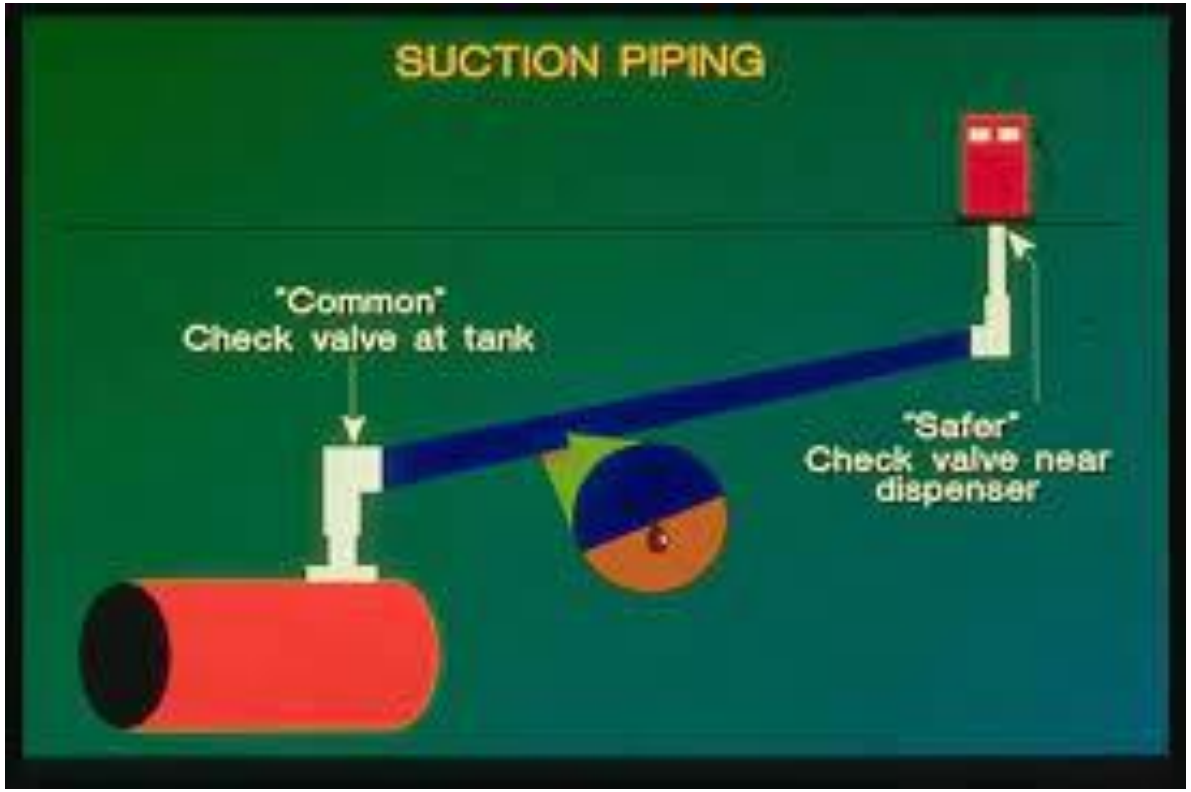
How many types of UST systems are out there?

- Single-Walled (SW) tanks-SW piping (The deadline for removal of all SW USTs is December 31, 2025)
- SW tanks-Double-walled (DW) piping (The deadline for removal of all SW USTs is December 31, 2025)
- DW tanks-SW piping
- DW tanks-DW piping
- Vacuum/Pressure/Hydrostatic (VPH) installed on or after July 1, 2004

Piping System Type

- Pressure (common)
- Gravity (waste oil)
- Conventional Suction (Check valve at tank-product stays in pipe)
- Safe Suction (No check valve at tank-product drains from pipe back to tank)
- Note: Conventional suction and Safe suction have vertical check valve at the dispenser

From the internet source



UST Timelines

- Tank installed on or before January 1, 1984: called Existing Tanks, made of single-walled (SW) Fiberglass (FBG) or Steel
- Tank installed after January 1, 1984: called New Tanks, double walled tanks
- From January 1, 1984 to July 1, 1987: Hybrid Systems
    - SW product piping
    - DW product piping
- After July 1, 1987: DW tanks and DW piping
- 1998 Upgrades
- January 1, 2000; July 1, 2000; and December 31, 2003: Under dispenser Containment (UDC)
- July 1, 2003 to July 1, 2004: DW tanks and DW piping including vent, vapor, riser, etc.
- Vacuum/Pressure/Hydrostatic (VPH) installed on or after July 1, 2004
- October 1, 2018: Overfill, emergency generator tanks systems (LLD), method of demonstrating compatibility (greater than 10% ethanol or 5% biodiesel)

1998 Tank Upgrades

- Existing UST: No later than December 22, 1998, all USTs are required to be replaced or upgraded to prevent releases due to:
  - Corrosion
  - Spills
  - or Overfills for the UST's operating life
- Don't upgrade: Remove

1998 Tank Upgrades for Hazardous Substance UST

- By December 22, 1998, all USTs containing hazardous substance other than motor vehicle fuels shall be retrofitted with secondary containment.
- Example: all SW waste oil USTs have been replaced with DW tanks.

1998 Upgrades

- By December 22, 1998, all motor vehicle fuel tanks (MVF) constructed of steel had to be:
  - Retrofitted with secondary containment
  - Or upgraded by one of the following:
    - Cathodic protection and interior lining
    - Cathodic protection and a bladder system (I have not seen any tanks in Co Co County)

1998 Upgrades

- By December 22, 1998, all UST systems must be retrofitted with:
  - Striker or wear plate or drop tube bottom
  - Overfill prevention system
  - Spill container

Spill/Fill Container/Bucket

1998 Tank Upgrades for Hazardous Substance Piping

- By December 22, 1998, piping containing hazardous substance other than motor vehicle fuel required secondary containment.
- Example: Waste oil piping
- Monitoring for DW piping
- Don’t upgrade: REMOVE

1998 Upgrades for SW Piping

- **By December 22, 1998**, all underground piping containing **motor vehicle fuel** and connected to an ***existing tank*** required **secondary containment**, unless the SW piping was constructed of
    - FBG reinforced plastic, or
    - Catholically protected steel, or other material compatible with the stored product and corrosion resistant
- **By December 22, 1998**, all underground piping containing **motor vehicle fuel** and connected to an **UST installed prior to July 1, 1987:**
    - Can be SW FBG, or
    - Catholically protected steel,
    - Can be DW FBG

1998 Upgrades for Automatic Line Leak Detectors (LLD) For Underground Pressurized Piping

- By December 22, 1998, all LLD for underground pressurized piping which is not secondarily contained shall be capable of shutting off the pump when a release occurs
- In addition, the pumping system shall shut down automatically if the LLD fails or is disconnected.
- For UST emergency generator system, the leak detector must be connected to an audible and visual alarm to indicate a release malfunction of the system.

DW Piping

- Piping connected to tanks which were installed after July 1, 1987, shall have secondary containment
- Exemptions:
  - Vent or tank riser piping if there is overfill protection
  - Vapor recovery piping designed not to contain liquid
  - Safe suction piping
- All corrodible underground piping, if in direct contact with backfill, shall be protected against corrosion:
  - FBG,
  - Steel with cathodic protection or steel isolated from direct contact with backfill

UDC

- UDC must be installed:
  - At time of installation for UST systems installed after January 1, 2000
  - By July 1, 2000, for systems installed after July 1, 1987, located within 1,000 ft. of a public drinking water well
  - By December 31, 2003, for all others.

Under Dispenser Containment (UDC)

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Annual Line Tightness Test for Underground Pressurized Piping (0.1 GPH)

- All tanks including **UST system for Emergency Generator** installed before July 1, 2004 must conduct annual line tightness test, unless:
  - The monitoring system shuts down the pump or stops the flow of product at the dispenser when a leak is detected in the UDC
  - The monitoring system for all product pipiping other than that contained in the UDC is fail safe, and shuts down the pump when a leak is detected.
- Tanks installed after July 1, 2004: Exempt. What does it mean?
  - Not required shuts down the pump or stops the flow of product at the dispenser when a leak is detected in the UDC
  - Not required sensor out and fail safe

A GENERAL OVERVIEW OF UNDERGROUND STORAGE TANK CONSTRUCTION, MONITORING AND TESTING REQUIREMENTS

The attached tables outline underground storage tank (UST*) system requirements in general terms and are not meant to detail all requirements. References to the Health and Safety Code, California Code of Regulations and Local Guidance (LG) letters throughout this overview are intended to be useful but are not necessarily exhaustive of all legal references that might apply or be relevant to a specific requirement. Statutes, regulations, and guidance documents are subject to change, so the references contained herein are current as of the revision date. For more specific information or details on UST system components, monitoring and testing options, etc., refer to the relevant statutes and regulations (Health and Safety Code, division 20, chapter 6.7 (H&SC) and California Code of Regulations, title 23, division 3, chapter 16 (CCR)).

Acronyms

ATG: Automatic Tank Gauge	*MVF: Motor Vehicle Fuel*
CITLD: Continuous In-Tank Leak Detection	*O/O: Owner/Operator*
DW: Double-Walled	*OPE: Overfill Prevention Equipment*
FRP: Fiberglass-Reinforced Plastic	*SIR: Statistical Inventory Reconciliation*
GPH: Gallons per Hour	*SW: Single-Walled*
GW: Groundwater	*UDC: Under-Dispenser Containment*
HAZ: Hazardous Substance Tank	*UPA: Unified Program Agency*
LLD: Line Leak Detector	*VPH: Vacuum, Pressure, Hydrostatic*

*UST is defined in CCR as tanks and connected piping.

General Construction Requirements for All USTs

Corrosion Protection	Spill Containment	Overfill Prevention Equipment	Under Dispenser Containment
All USTs shall be resistant to corrosion or have corrosion protection. ***OR*** Components must be isolated from the backfill, including turbines, risers, and spill containment. *CCR §2635(a), 2636(b), & 2662(c)*	Required on all USTs: 1. Minimum 5-gallon capacity; 2. Resistant to galvanic corrosion; 3. Method to remove liquid from the spill containment; and *HSC §25284.1 & 25284.2; CCR §2635(b); LG 166*	Required on all USTs, and OPE cannot have manual override. OPE Performance Measures: 1. Device activates at 90%, restricts flow or triggers an audible and visual alarm (e.g., ATG or ball float.);[1] 2. Device that restricts flow 30 minutes before overflow provided at no more than 95% capacity and activates an alarm 5 minutes before overflow (e.g., ATG and ball float.);[1] 3. Device activates at 95%, positive shut-off of flow to UST (e.g., drop tube flapper valves.); or 4. Device provides positive shut-off before UST fittings are exposed to product. The UPA may waive the OPE requirement if all of the below conditions are met: 1. Vent and riser pipe are DW; 2. Inlet exists in an observable area; 3. Spill containment adequate to collect any overfill; and 4. UST filled by no more than 25 gallons per event. *HSC §25290.1(f), 25290.2(e), 25291(c), & 25292(d); CCR §2635(c) & (d), 2636(a), & 2665; LG 150*	***UST Installed before July 1, 2003*** Required for all systems with dispensers. *CCR §2636(g)* ***UST Installed on or after July 1, 2003*** Constructed, operated, and maintained product tight. Product tight includes both liquid and vapor. *HSC §25290.1 & 25290.2*

[1] Flow restrictors on vent piping which require repair or replacement shall be retrofitted with equipment in accordance with *CCR §2635(c)* and *(d)*. New installations may install flow restrictors; however flow restrictors cannot be used as an overfill prevention method.

Tank Construction and Monitoring Requirements

Date of UST Installation	Tank Construction Type	Tank Monitoring Options	Compatibility
MVF On or before January 1, 1984	SW FRP or steel with FRP jacket; **OR** 1)SW steel w/ lining or bladder; and 2) corrosion protection. *CCR §2662*	One of the following options required for SW USTs: 1. SIR at least once every 30 days and tank integrity testing at least once every 24 months; 2. ATG 0.2 gph at least once every 30 days; 3. CITLD 0.2 gph at least once every 30 days; 4. GW Monitoring at least once every 30 days; or 5. Continuous Vadose Zone Monitoring. *CCR §2643(b), 2644, 2647, & 2648*	All UST systems must be compatible with substance stored. After October 1, 2018, 30 days before storing or changing the hazardous substance, O/O must demonstrate compatibility with all components of the UST system by submitting written approval from an independent testing organization and/or statement of compatibility from the component manufacturer. *CCR §2631(j) & (l), 2631.1, & 2640.1*
HAZ On or before January 1, 1984	DW construction is required for all hazardous substance USTs. SW HAZ USTs required upgrade to DW systems by December 22, 1998. *CCR §2662(b)*	Continuous Interstitial Monitoring w/ audible and visual alarm. *HSC §25292(a)*	
After January 1, 1984 and before July 1, 2003	Primary containment product tight. Secondary containment required. *HSC §25291; CCR §2631*	Continuous Interstitial Monitoring w/ audible and visual alarm. *HSC §25291(b)*	
On or after July 1, 2003[2]	Primary and secondary containment product tight. *HSC §25290.2(a)*	Continuous Interstitial Monitoring w/ audible and visual alarm. USTs installed on or after July 1, 2004, the interstitial space must be monitored by VPH and connected to audible and visual alarm. *HSC §25290.1(d), 25290.1(e), & 25290.2(d); LG 162*	

[2] Primary and secondary containment on tanks installed on or after July 1, 2003 must be impervious to liquid and vapor phases of contained product.

Piping Construction Requirements

Date of UST Installation	Product Piping	Vent, Vapor, and Riser Pipe	Compatibility
MVF Before July 1, 1987	DW construction with sump; **OR** SW FRP; **OR** SW steel w/ corrosion protection. *Note: SW buried pipe must meet the requirements of CCR, title 23, article 3, when repaired or replaced.* *HSC §25292(b) & 25291(a)(7); CCR §2636(a) & 2666(b)(2)*	No sump requirement for SW construction.	All UST systems must be compatible with substance stored. After October 1, 2018, 30 days before storing or changing the hazardous substance, O/O must demonstrate compatibility with all components of the UST system by submitting written approval from an independent testing organization and/or statement of compatibility from the component manufacturer. *CCR §2631(j) & (l), 2631.1, & 2640.1*
On or after July 1, 1987 through July 1, 2003	DW construction with turbine sump, unless connected to a suction dispensing system that meets safe suction requirements. *HSC §25291(a); CCR §2636(a)(3)*	DW construction with sump if designed to contain liquid-phase product; **OR** SW dependent on OPE. *CCR §2636(a); LG 150*	
On or after July 1, 2003	Secondary containment required. Liquid and vapor tight. *HSC §25290.1(a) & (c) & 25290.2(a) & (c)*	Secondary containment required for buried pipe. Meets the definition of piping. Liquid and vapor tight. *HSC §25290.1(a) & (c) & 25290.2(a) & (c)*	

Monitoring Requirements for Single-Walled Piping Types

Pressurized	Suction (Conventional)	Safe Suction	Gravity
Must be equipped with an electronic LLD capable of detecting a 3.0 gph leak. The LLD shall be capable of shutting off the pump when a release occurs and shall shut down the pumping system automatically if the LLD fails or is disconnected. LLDs on **Emergency Generator** systems may have an audible and visual alarm in lieu of shutting down the pumping system. **AND EITHER** 1.Pass a 0.2 gph line test at least once every 30 days; or 2.Pass a 0.1 gph line tightness test at least once every 12 months *CCR §2643(c) & 2666(b)(2)*	0.1 gph line tightness test every 36 months; **AND** Daily visual monitoring for presence of air in system. *(Inspection log required.)* *CCR §2643(d), 2666(b)(2), & Appendix II*	No monitoring requirements if all criteria are met: 1. Below-grade piping operates at less than atmospheric pressure; 2. Below-grade piping is sloped so the contents drain back into tank if suction is released; 3. No valves or pumps installed below grade in suction line. Only one check valve installed directly below and as close as practical to suction pump; and 4. Inspected by method that readily demonstrates that requirements 1 through 3 are met. *CCR §2636(a)(3) & 2641(b)*	0.1 gph line tightness test every 24 months *CCR §2643(e) & 2666(b)(2)*

Monitoring Requirements for Double-Walled Piping Installed Before July 1, 2004

Pressurized	Emergency Generator System with Underground Pressurized Piping	In Lieu of the Line Tightness Test	Suction	Gravity
An LLD that restricts or shuts off flow when leak is detected; **AND** A line tightness test at least once every 12 months; **AND EITHER** 1.A continuous monitoring system that activates an audible and visual alarm; or 2.A continuous monitoring system that stops the flow of product at the dispenser when a leak is detected. *CCR §2636(f)(1), (2), & (3)*	An LLD that restricts, shuts off flow, or activates an audible and visual alarm; **AND** A line tightness test at least once every 12 months; **AND** Continuous monitoring system checked at least daily (*Inspection log required*); **THAT EITHER** 1. Activates an audible and visual alarm; or 2. Stops the flow of product when a leak is detected. *CCR §2636(f)(1), (4), & (5) & 2666(f)*	Continuous monitoring system shuts down the pump or stops the flow of product at the dispenser when a leak is detected in the UDC; **AND** Continuous monitoring system for all product piping located outside the UDC is fail-safe and shuts down the pump when a leak is detected. *CCR §2636(f)(4)*	Continuous interstitial monitoring for piping and UDC that activates an audible and visual alarm; **OR** Continuous monitoring for both the piping and UDC that stops the flow of product at the dispenser when a leak is detected. *CCR §2636(f)(1)*	Continuous monitoring for piping and UDC that activates an audible and visual alarm; **OR** Continuous monitoring for both the piping and the UDC that stops the flow at the dispenser when a leak is detected. *CCR §2636(f)(1)*

Monitoring Requirements for Double-Walled Piping Installed on or After July 1, 2004

Performance Measure 1	Performance Measure 2	Performance Measure 3
The entire piping length, including piping within sumps or UDCs must be continuously monitored using vacuum, pressure, or interstitial liquid measurement methods; **AND** Sumps and UDCs require leak detection capable of detecting liquid and vapor releases from the primary containment; **AND** 3.0 gph LLD required for pressurized piping. *HSC §25290.1; LG 162*	The interstitial space between the primary containment (i.e., SW transition pipe or fill piping) and secondary containment (i.e., sump or UDC) must be continuously monitored using vacuum or pressure; **AND** No leak detection in sumps or UDCs are required; **AND** 3.0 gph LLD required for pressurized piping. *HSC §25290.1; LG 162*	The SW transition pipe must be contained within a DW sump or DW UDC that either: 1) extends to the surface; or 2) has a DW product tight lid that is continuously monitored using vacuum, pressure, or interstitial liquid level measurement methods; **AND** Sumps and UDCs are required to have leak detection to detect liquid releases or intrusion; **AND** 3.0 gph LLD required for pressurized piping. *HSC §25290.1; LG 162*

This can be found on the State Water Board's website

- https://www.waterboards.ca.gov/ust/tech_notices/docs/ust_construction_and_testing_requirements.pdf

Any Questions?

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