Wyoming Storage Tank Program's Approach to UST Installation Inspections

September 23, 2025
National Tanks Conference
Spokane, Washington

Introduction

In no way is this presentation intended to encourage or discourage the use or purchase of any specific product.

Introduction

The Wyoming Storage Tank Program inspects installations in three phases

Phase 1 – Tank Set and backfill

Phase 2 – Pressure/soap test of piping primary and interstice

Phase 3 – Final approval inspection piping, Sumps, UDCs, ALLDs, overfill, spill buckets, Etc.

Introduction

- Petroleum Equipment Institute Recommended Practice 100 or PEI-RP-100 is the Code of practice used for most UST installations
- Also, we allow certain tasks to be completed in accordance with manufacturer's recommendations

Introduction

- Notification List of equipment being installed
  - Written plans
- Installer (Licensed/certified Etc.)
- Unexpected Conditions (groundwater Etc.)
- Regulations (Authorities having jurisdiction (AHJs) Fire Marshal Etc.)

Phase 1

The tank set and backfill

UST Handling

If tanks are not going directly into basin they must be set aside properly

- Secure location
- Minimum ½” diameter tie down ropes
- Chocked


DSCF4371 (2)

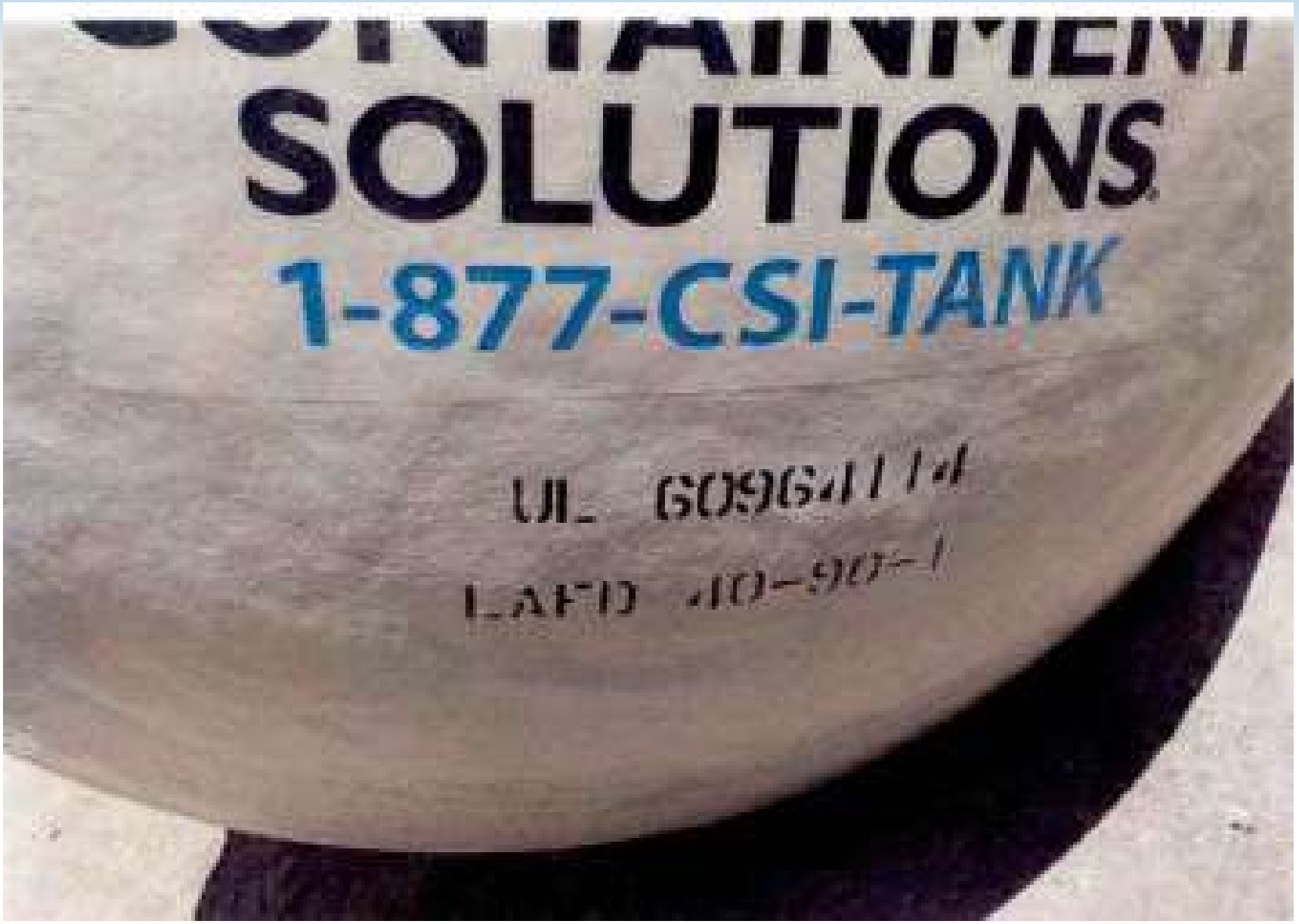

Glasteel II

Slide

Next we document the tank information such as the UL number, manufacturer, model number, serial number, tank size, compartment sizes, Etc.

Document Dimensions and Serial Numbers

- UL Number
- Manufacturer's serial number
- Tank length and diameter
- Tank/Compartment capacities (true capacity is needed for ATG calibration)
- Which tanks/compartments are manifolded together
- Find which type of product is going to be stored in each compartment


SOLUTIONS
1-877-CSI-TANK


XERXES®
a ZCL company
UL# S-993397
A16.1059
651-559-00
DW
A16-1058
20,000
GALLONS

Pre-Installation Inspection and Testing

- Visual Inspection
- Tank Testing
  - Brine filled tanks
    - Look for brine on tank wall
    - Pressure test the primary only
    - Look for bubbles in reservoir
    - Soap fittings

Pre-Installation Inspection and Testing

- Dry interstice-no vacuum
  - Pressure and soap test 3-5 PSI (5 PSI Max, unless 12 Ft. diameter FRP max 3 PSI)
  - Always pressurize primary first for 1 hour
  - Bleed pressure from primary into secondary/interstice

Pre-Installation Inspection and Testing (Cont.)

- Vacuum
  - check with manufacturer as to what level it was shipped and what is minimum vacuum (Example minimum of 12” mercury for Xerxes and CSI is 10”)
  - How long vacuum must be maintained (Xerxes 7 days)
- Depending on manufacturer, some repairs may be made onsite by a qualified individuals


600
WOG


-20
-30
in.Hg
WIKA
psi
15
10
5
08 . 03 . 2021

Earthwork

- Should provide adequate space for equipment
- Groundwater
- Soil stability
- Slope of excavation
- Clearance from existing structures

Earthwork Cont.

- Base backfill at least 1’ thick 1’ beyond ends and sides of tanks
- 2’ backfill between adjacent tanks and between tanks and excavation walls
- Cover in areas subject to traffic
  - 18” with 8” reinforced concrete
  - 30” with 6” asphalt
  - 36” unpaved

Earthwork Cont.

- Cover in areas not subject to traffic
  - 12” with 4” reinforced concrete
  - 12” with 6” asphalt
  - 24” unpaved

Earthwork Cont.

- Max cover
  - 7’ for FRP
  - 5’ for steel
  - Unless manufacturer allows different amounts of cover


Link-Belt
800-742-7246


URTS


06.20.2016 13:59

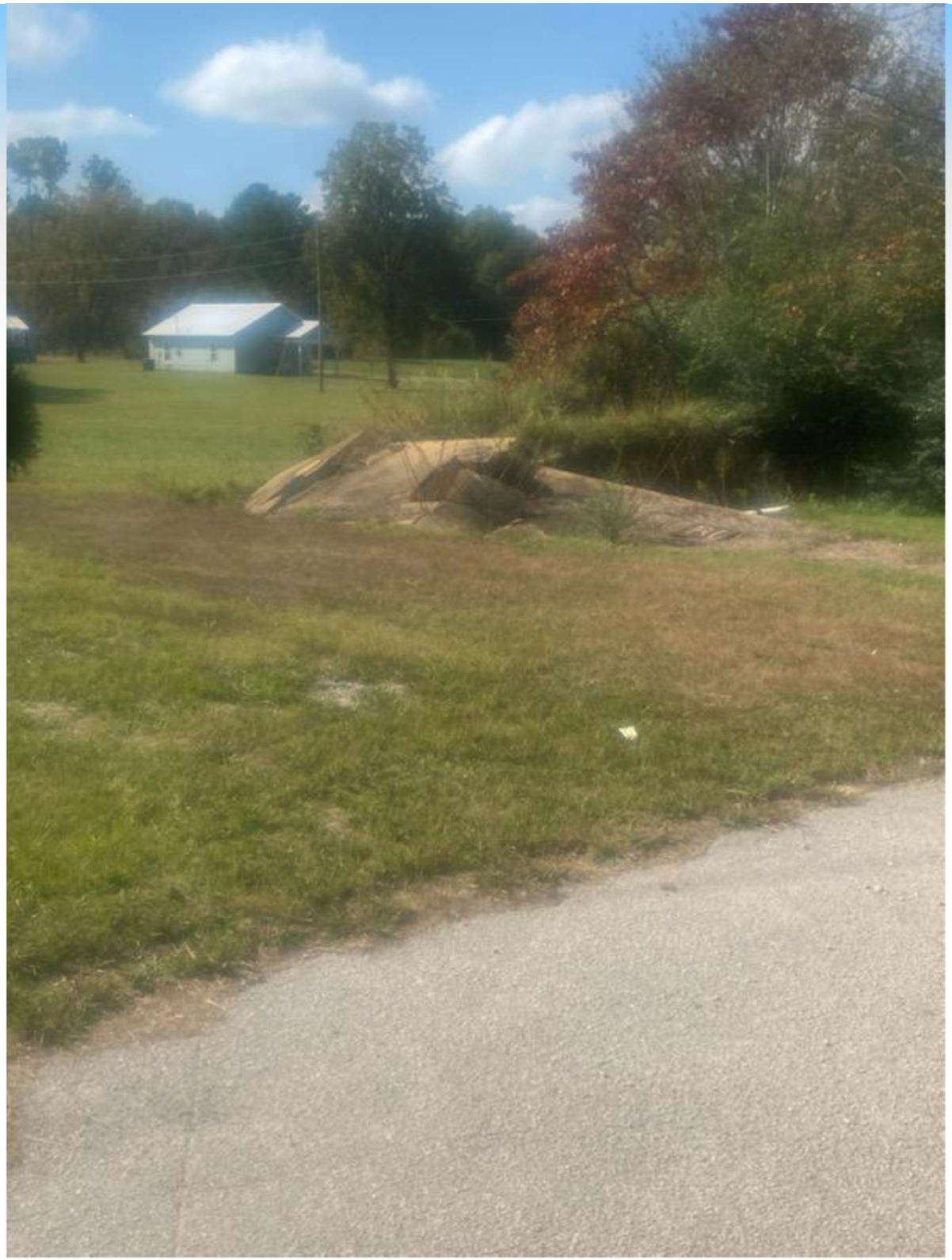
Anchoring

- Deadmen
- Anchor pad (I’ve never seen one used)
- Calculations for float out and anchorage Appendix A of RP100
- Required in Wyoming


XERXES


SKYJACK


Chevron
2.97
2.59
2.89
2.39

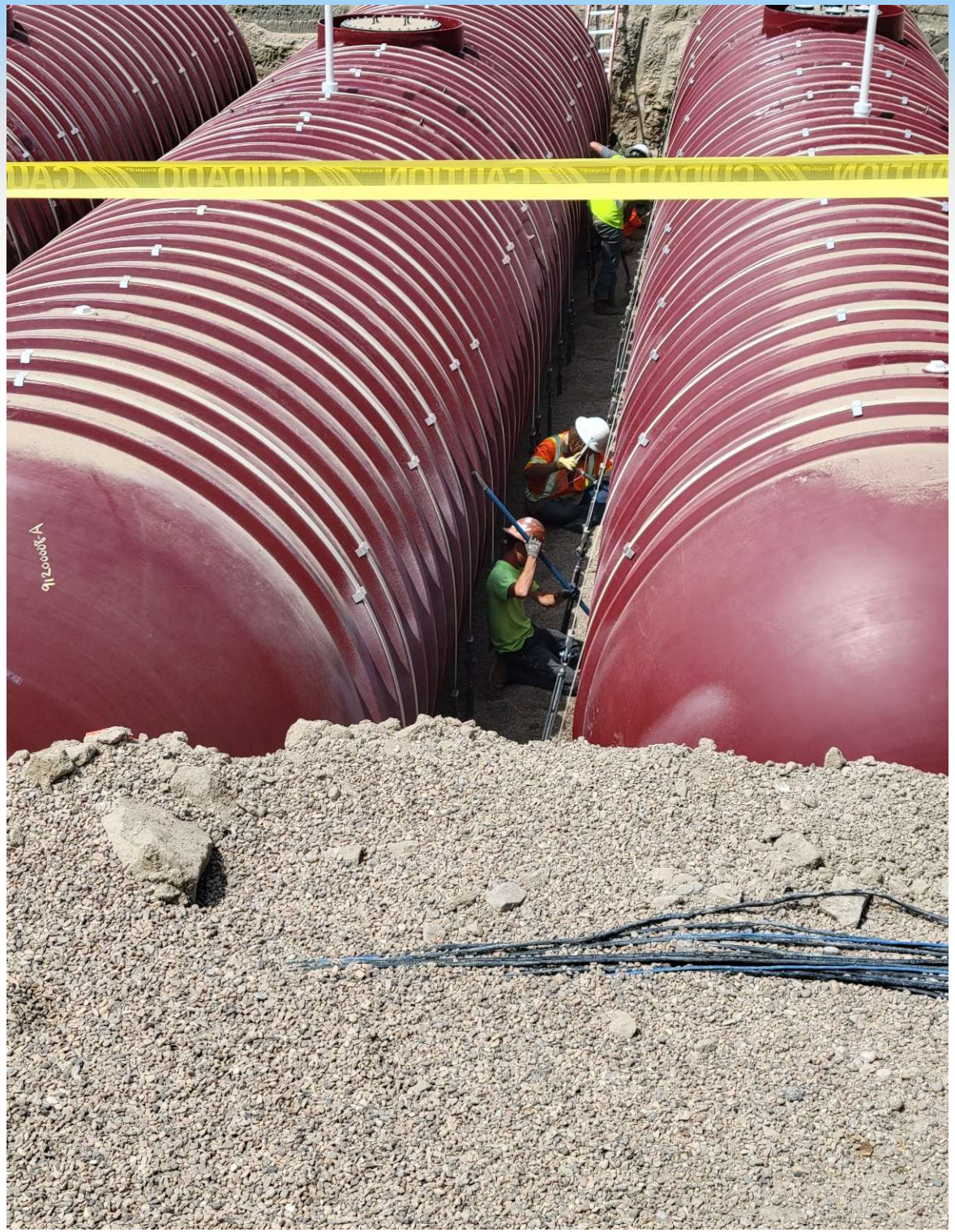


Backfill

- Must be “clean”
- ¾” max pea gravel
- ½” max crushed
- No snow/ice/debris/rocks
- Sand may be used, provided the manufacturer allows it and their instructions are followed
- Filter fabric is recommended

Backfill (Cont.)

- Haunches of tanks need to be tamped in properly to prevent uneven settling
- Much easier when a “rock slinger” is used




XERXES
a ZCL company


SQUEEGE
TOPSOIL
ROCK


Premier
08 . 03 . 2021


CAUTION
Slow moving traffic ahead
KOW

Phase II

Piping

Piping

- If FRP piping is being installed, epoxy must be kept warm
- Piping runs should be continuous, unless there is a transition sump
- Correct pipe dope

Piping

- Should follow shortest route
- Should be single trench
- At least twice the diameter between runs
- 6” between piping and trench walls, utilities, conduit, Etc.

Piping

- AHJ may require slope back to the UST (1/8” per foot)
- Minimum 6” bedding and 18 inches of compacted backfill (clean sand/max ¾” pea/ max 1/2” crush

Piping Testing

- Pressure test of primary 150% of operating pressure
- Pressure test interstice to no more than 5 PSI
- Fittings should be soaped
- Slight amount of pressure should be released to show the gauge works

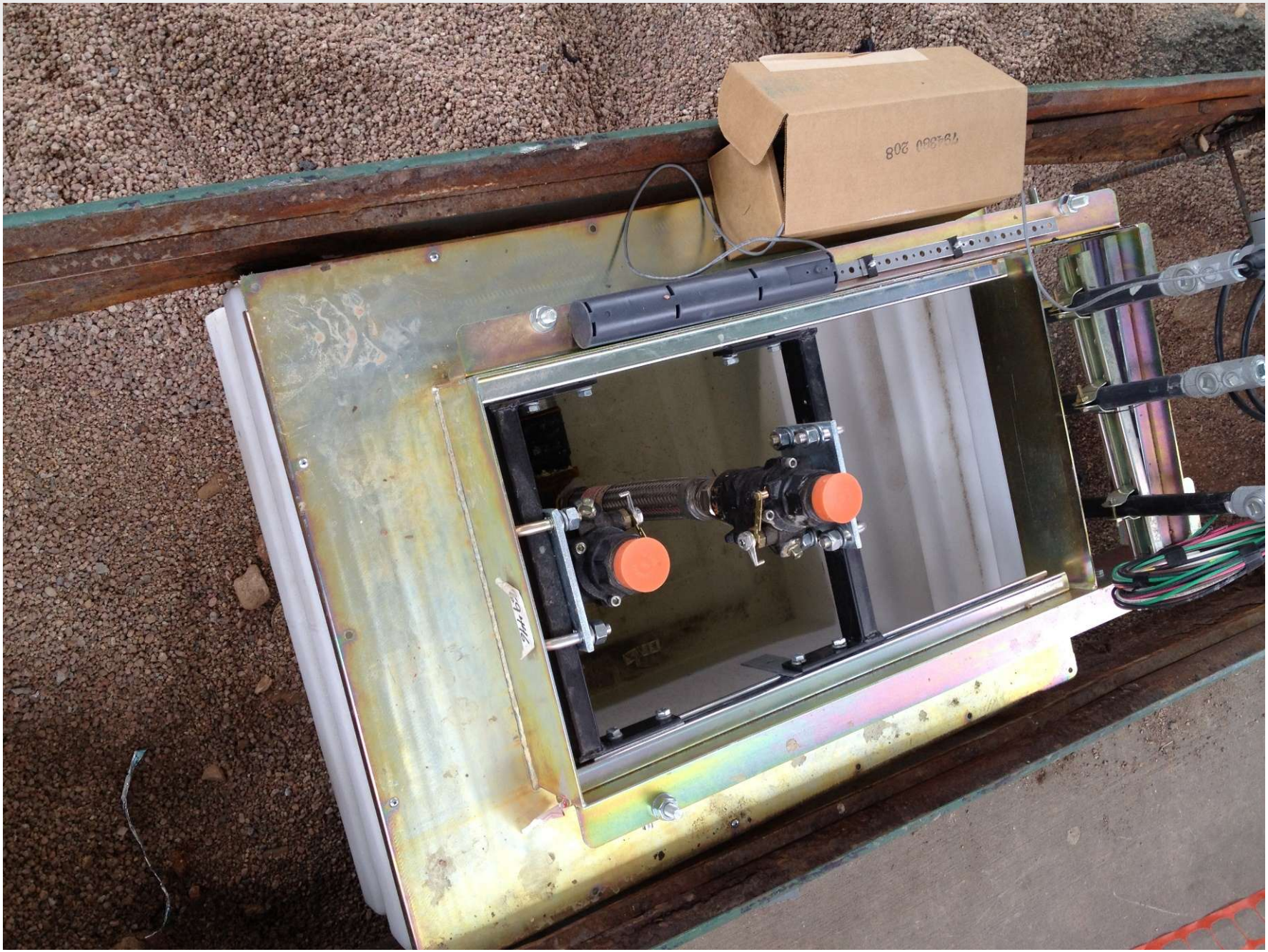
Piping Testing

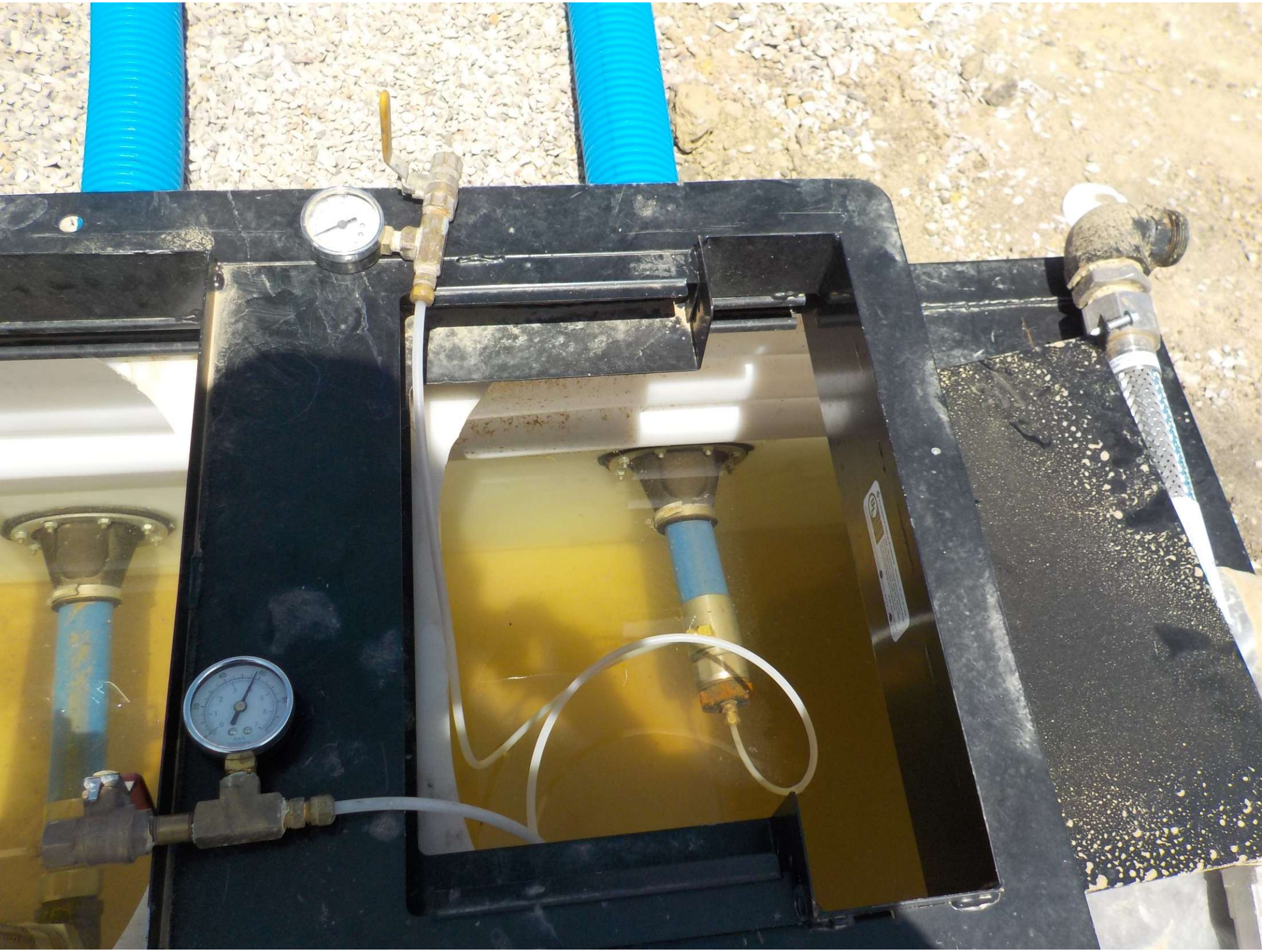
- Pressure should be maintained on secondary
- We try to see that the gauges are at end of piping and release pressure at other end, to show continuity

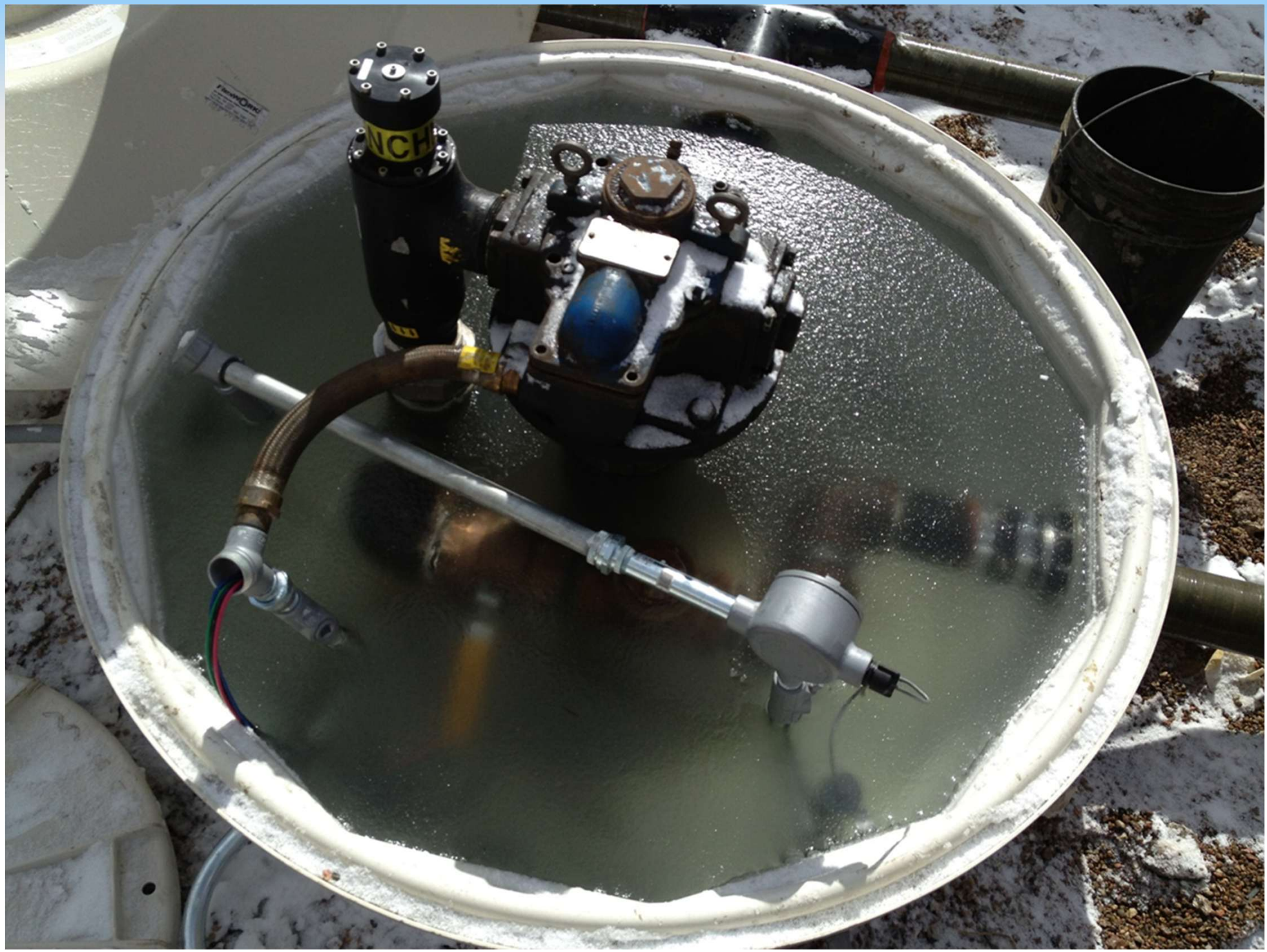

MARSH
psi
09.15.2016 10:16


09.15.2016 10:20


Bobcat







Phase III

- Final inspection before issuing authorization to operate


Sinclair
Sinclair
SELF STORAGE

Piping Testing

- Pressure should have remained on interstice
- Make sure gauges are at end of piping and release pressure at other end, to show continuity
- Release boots or possibly remove Schrader valve

Sumps/Under Dispenser Containment

- Sumps should be filled with water 4” above the highest penetration
- Water level should remain constant for an hour
- Installer should have tested before backfill (Wyoming witnesses testing at final Phase 3 Inspection)

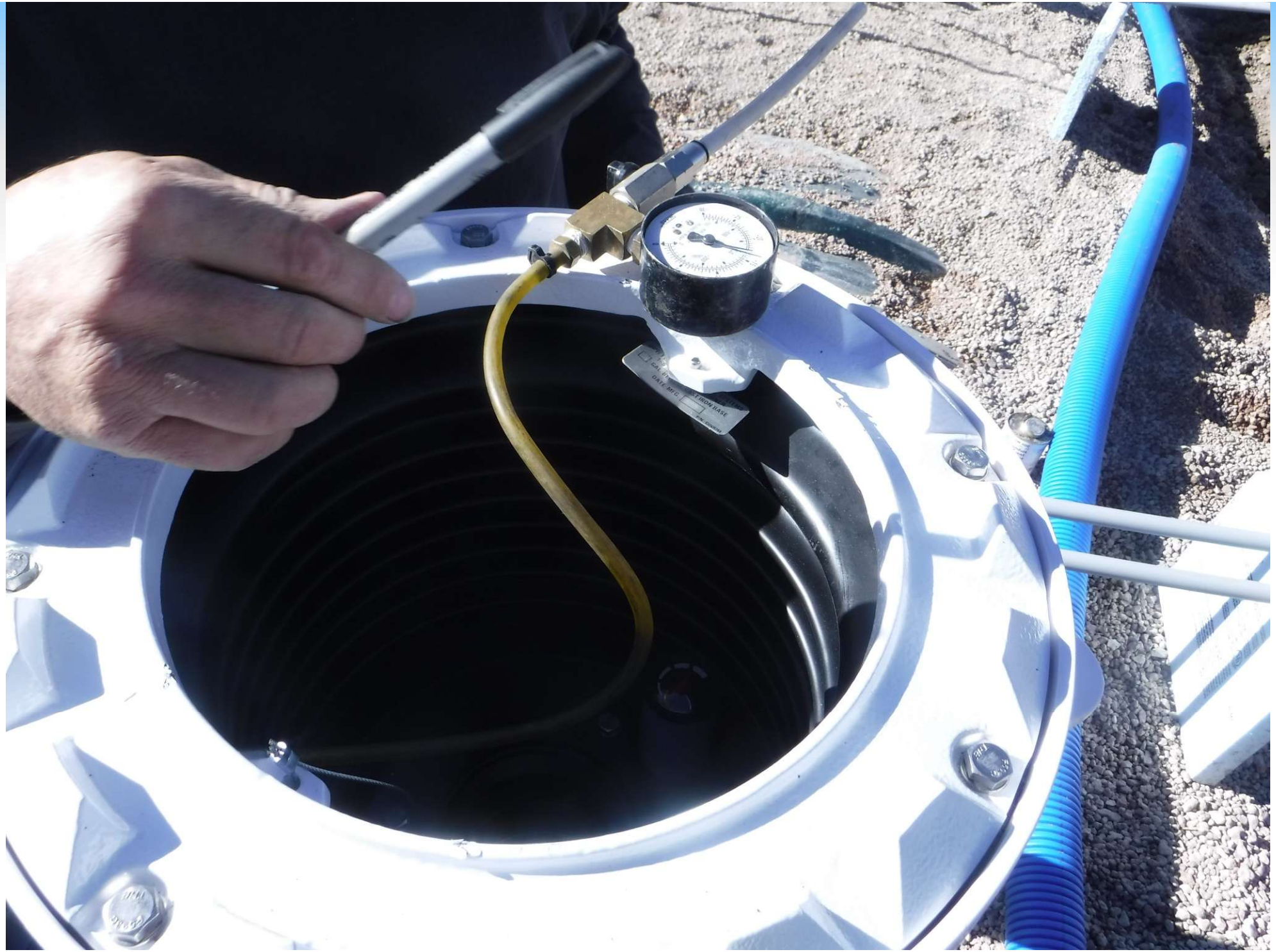

103

Spill Buckets (Section 7)

- Integrity test in accordance with manufacturer's recommendations
  - Vacuum (double wall spill buckets) and/or
  - Hydrostatic test

Spill Buckets (Section 7)

- Check for visible damage
- Wyoming does not allow catchment basins/"Open Bermed Containment Systems" in lieu of spill buckets ("ASTSWMO Policy Position on UST Open Bermed Containment Systems and Retail Fueling Facilities" Approved 7/19/16-Revised 10/27/21)



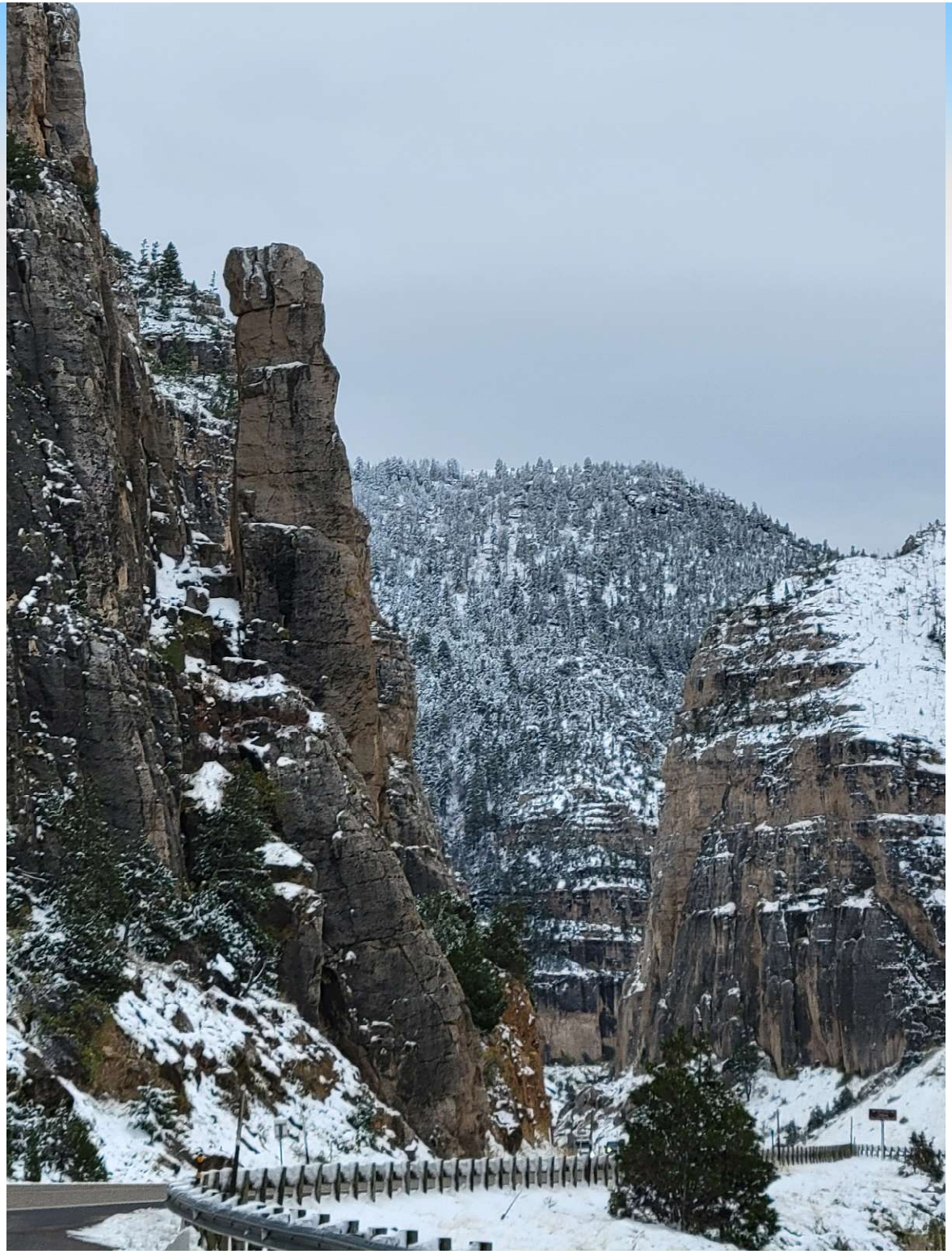

07.22.2021

Overfill Prevention Devices (Section 7)

- No ball float valves
- Need to be function tested and documented
- Overfill alarm
  - Calculate 90% capacity on ATG probe and verify it alarms at that level
  - Must be audible and visible to delivery driver

Overfill Prevention Devices (Section 7)

- Butterfly/Flapper Valves
  - Stop flow at 95%
  - Measure to determine 95% as per manufacturer




CAUTION
Antelope
entering
highway
at 55 mph.

ATG Information

- Serial number
- Model number
- Get system setup printout


PANEL FP
BREAKER #1
TLS-450PLUS
VEEDER-ROOT
C 7: SHORT ALARM
07/19/2023 08:59 AM
Overview
Tank Overview
Share
Home
Favorites
Menu
Actions
TANK 3: Diesel Center Tank
Fuel Volume 21862
Fuel Height 81.8
100% Ullage 8138
Temperature 61.0
Water Height 0.0
TANK 4: Diesel West
Fuel Volume 23974
Fuel Height 89.1
100% Ullage 6026
Temperature 61.1
Water Height 0.0
GILBARCO
VEEDER-ROOT

Function Testing of Sensors and ALLDs

- Test tank interstitial probes
- Test sump sensors
- Sensors should be function tested using liquid
- Obtain printout
- Function test automatic line leak detectors

Selected Range:
07/02/25 12:00 AM - 07/17/25 11:59 PM

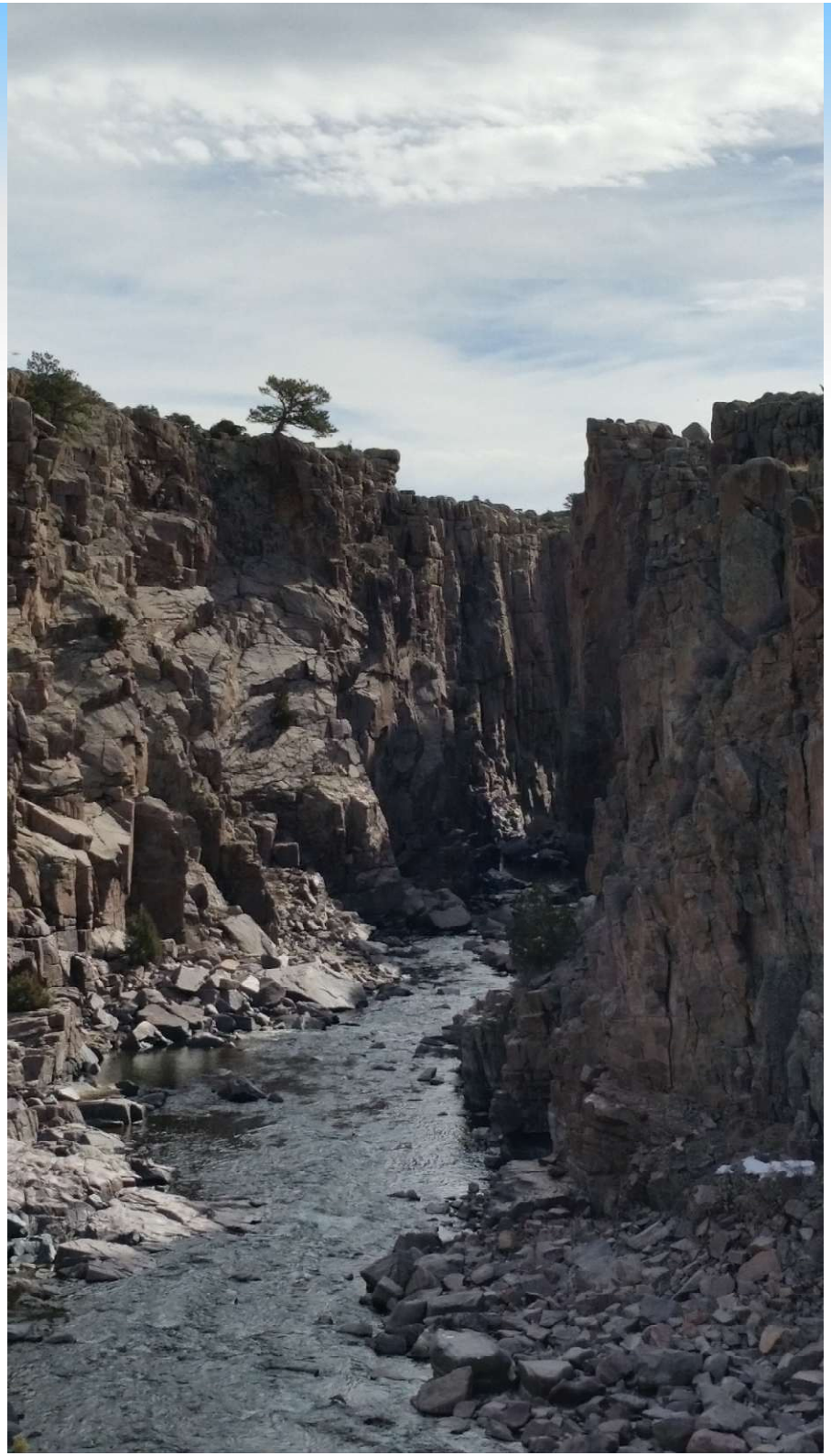
Alarm History Report - All Alarms

All Alarms

ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	HIGH PRODUCT ALARM
ACTIVE	=	07/17/25 9:41A
CLEAR	=	07/17/25 9:45A
ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	OVERFILL ALARM
ACTIVE	=	07/17/25 9:41A
CLEAR	=	
ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	INVALID FUEL LEVEL
ACTIVE	=	07/17/25 9:40A
CLEAR	=	07/17/25 9:41A
ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	PROBE OUT
ACTIVE	=	07/17/25 9:40A
CLEAR	=	07/17/25 9:45A
ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	LOW PRODUCT ALARM
ACTIVE	=	07/17/25 9:40A
CLEAR	=	07/17/25 9:41A
ID	=	T 3
LABEL	=	Diesel
DESCRIPTION	=	DELIVERY NEEDED
ACTIVE	=	07/17/25 9:39A
CLEAR	=	07/17/25 9:41A
ID	=	T 1
LABEL	=	Unleaded
DESCRIPTION	=	DELIVERY NEEDED
ACTIVE	=	07/17/25 9:34A
CLEAR	=	07/17/25 9:35A
ID	=	T 1
LABEL	=	Unleaded
DESCRIPTION	=	LOW PRODUCT ALARM
ACTIVE	=	07/17/25 9:34A
CLEAR	=	07/17/25 9:34A
ID	=	T 2
LABEL	=	Premium
DESCRIPTION	=	MAX PRODUCT ALARM
ACTIVE	=	07/17/25 9:32A
CLEAR	=	07/17/25 9:35A
ID	=	T 2
LABEL	=	Premium
DESCRIPTION	=	OVERFILL ALARM
ACTIVE	=	07/17/25 9:25A
CLEAR	=	07/17/25 9:37A
ID	=	T 2
LABEL	=	Premium
DESCRIPTION	=	HIGH PRODUCT ALARM
ACTIVE	=	07/17/25 9:24A
CLEAR	=	07/17/25 9:37A

Vents and Emergency Shutoff

- Vent pipes
  - At least 12’ high
  - Protected from impact
- Emergency shutoff/stop
  - No less than 20’ from dispensers
  - No more than 100’ from dispensers

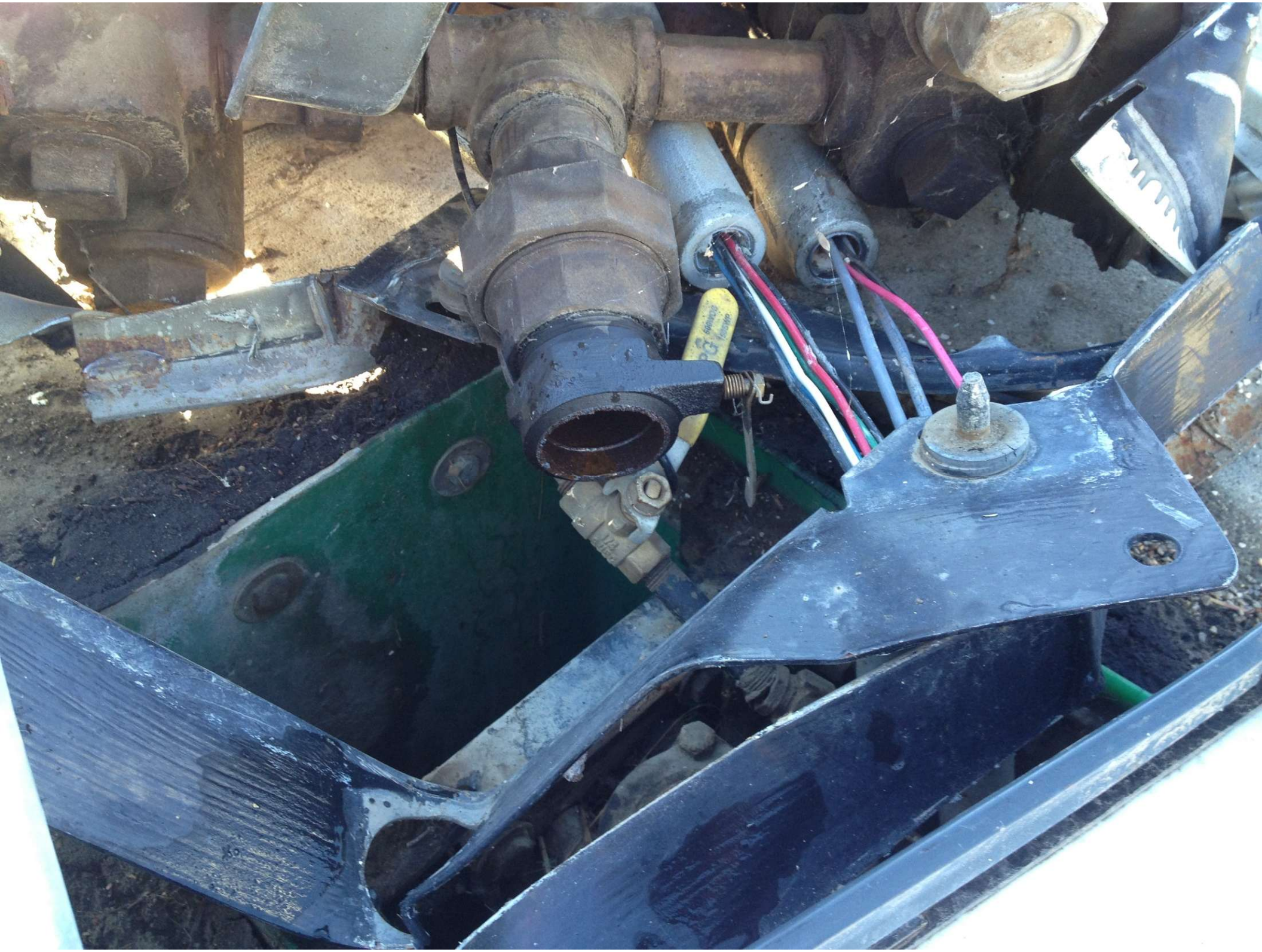


Sheer Valves

- Test valves/gauges must be removed
- Must be anchored


PETRO CLEAR
Champion Laboratories, Inc.
ETHANOL
DETECTS PHASE SEPARATION
& REMOVES PARTICULATES
40510A
FUEL DISPENSER FILTER
NOT FOR USE WITH DIESEL FUELS
19.08.2014 12:49


WATTS
ON
OFF
WATTS




HYDRATION
STATION
10¢ OFF

Conclusion of Inspection

- Remind owner/operator of responsibilities
  - Monthly inspections and documentation
  - Annual inspection requirements
  - Three year testing requirements
  - Class A/B/C Operator requirements
  - How to perform tank leak detection by obtaining a sensor status printout every month
  - Monthly inspections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