UST INSPECTOR TRAINING WEBINAR SERIES:

UST OVERFILL PREVENTION

12/15/2021

Today's Speakers

Russ Brauksieck | ***U.S. EPA***

Spruce Wheelock | **retired**, *formerly with New Hampshire DES*

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Underground Storage Tanks: Overfill Prevention

NEIWPCC
December 15, 2021

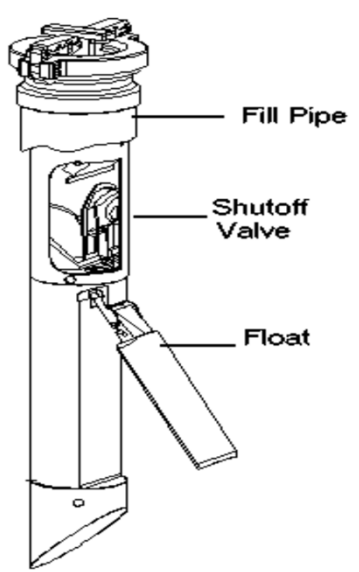
Russ Brauksieck
EPA Office of Underground Storage Tanks

Overfill Prevention

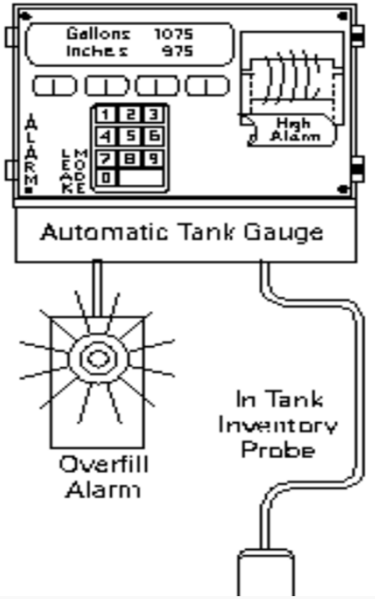
What does 40 CFR Part 280 say about:

- Equipment that can be used
- Installation requirements
- Inspection requirements
- Repair requirements

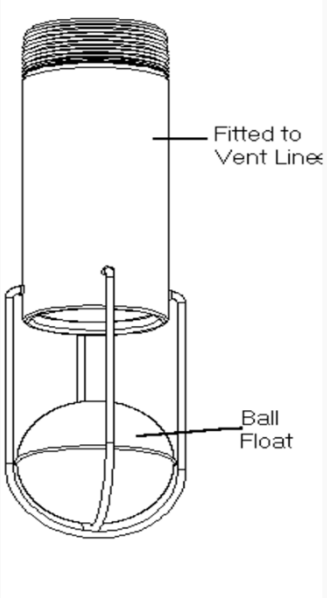
Types of Overfill Prevention Equipment



Automatic shutoff/ flapper valve



High Level Alarm



Ball Float Valve

*may not be installed or replaced after October 13, 2015

Regulatory Requirements

Overfill Prevention Devices must:

- Alert/restrict flow when the tank is no more than 90% full or shut off flow into the tank when the tank is no more than 95% full; or
- Restrict flow 30 minutes prior to overfilling, alert with a high level alarm one minute before overfilling, or automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling [280.20 (c)(ii)(C) or Option C]

Using Option C allows the tank to be filled to a higher level

Regulatory Requirements

Two activation options for each device:

- **Flapper valve** – Shutoff at 95% of tank capacity or
  (option C) so that none of the fittings on top of tank are exposed to product
- **High level alarm** – Alert at 90% of tank capacity or
  (option C) 1 min before overfill
- **Ball float** – Alert by restricting flow at 90% of tank capacity or
  (option C) 30 min before overfill

Installation Requirements

- Installation to be completed in accordance with a code of practice and manufacturer's instruction. [40 CFR 280.20(d)]

- Some (but not all) manufacturers provide instructions for option C levels.

Installation Requirements

Example manufacturer instructions for option C

- Flapper valve must be installed with at least 6.5 inches to the top of the tank and at least 250 gallons of ullage
- High Level alarm needs to know the flow rate of the delivery in order to determine level to set alarm (usually 100 – 300 gpm)
- Ball Float valves need 308 gallons of ullage

Installation Requirements

- Code of Practice/Certification of Installation [40 CFR 280.20(d) & (e)]
- Current Codes of Practice reference 90% of tank capacity for alerting/restricting and 95% of tank capacity for flapper valves
- Implementing agencies can allow for the option C levels under option 6 of certification of installation [40 CFR 280.20(e)]

  (6) The owner and operator have complied with another method for ensuring compliance with [Requirements for Installation] that is determined by the implementing agency to be no less protective of human health and the environment.

Inspection Requirements

The inspection [40 CFR 280.35(a)(2)] must

- ensure overfill prevention equipment is set to activate at the level specified in § 280.20(c) and
- **will activate when regulated substance reaches that level**

The inspection must be conducted in accordance with

- requirements developed by manufacturer, a code of practice, or requirements determined by implementing agency to be no less protective

Current code of practice does not recognize option C

- the manufacturer or implementing agency may need to establish inspection requirements

Repair Requirements

- *Repair means to restore to proper operating condition … overfill prevention equipment … that … has failed to function properly*
- 40 CFR 280.33(a) Repairs to UST systems must be properly conducted in accordance with a code of practice
- No current code of practice available
- When devices fail inspection, are they repaired or replaced?

Questions?

Overfill Prevention Training

Spruce C. Wheelock

Retired Engineer and State Inspector

Content

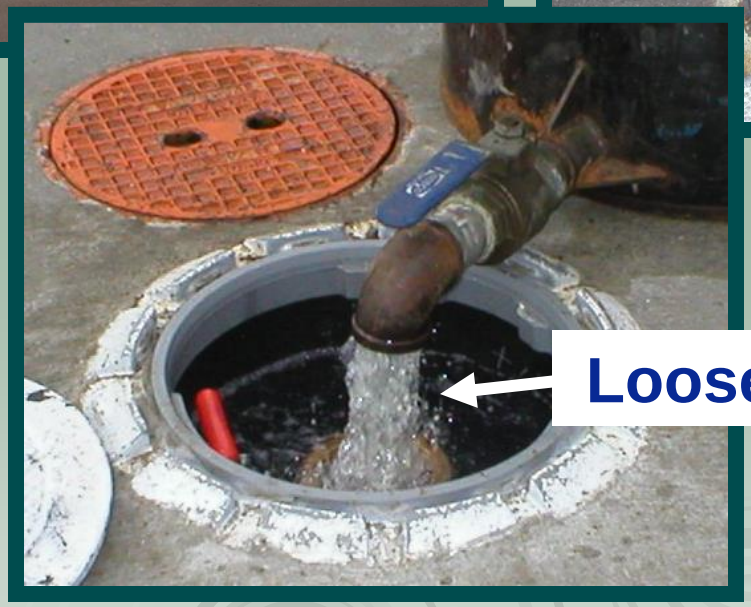
- Dealing with owner
- 2 Delivery methods
- Installation/Testing
- Problems/Bad signs
- Remove for inspection !!
- Tools

Dealing with Owner

- Contact owner prior to inspection
  - Explain items to be removed
- Suggest Class A & B Operator – be on site.
- Follow-up inspection letter

Gravity Delivery Method

Regular



300 gal./min.

4” hose
20’ long =
14 gallons

Spill Containment Bucket not enough

Pressure Delivery Method

Pumped

(30-75 psi)

Up to 100+ gal./min.

Tight

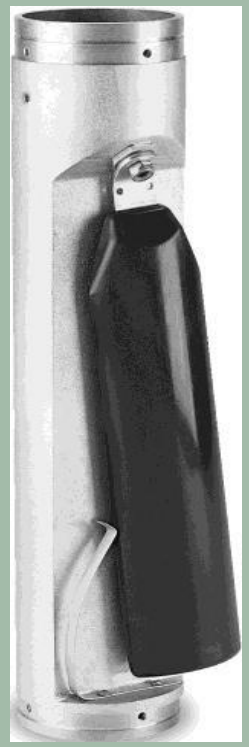
Drop Tube Overfill

OPW
61SO / 71SO

EMCO
Wheaton
Guardian
A1100

EBW

Auto Limiter II



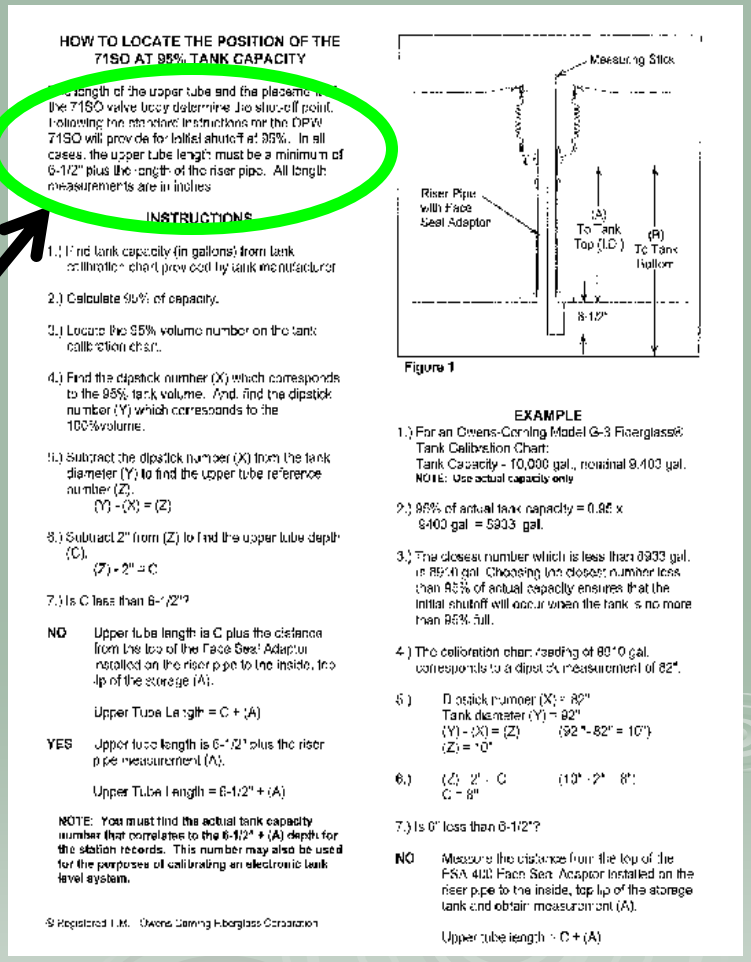
UNIVERSAL

Not !!

Flow Stop
device

OPW Instructions

- 2 sets of instructions:
- Complete shutoff @95%!
- Initial shutoff @95%!
- Cardboard cut out



HOW TO LOCATE THE POSITION OF THE 71SO AT 95% TANK CAPACITY

The length of the upper tube and the placement of the 71SO valve body determine the shut-off point. Following the standard instructions for the OPW 71SO will provide for initial shutoff at 95%. In all cases, the upper tube length must be a minimum of 6-1/2" plus the length of the riser pipe. All length measurements are in inches

INSTRUCTIONS

1.) Find tank capacity (in gallons) from tank calibration chart provided by tank manufacturer

2.) Calculate 95% of capacity.

3.) Locate the 95% volume number on the tank calibration chart.

4.) Find the dipstick number (X) which corresponds to the 95% tank volume. And, find the dipstick number (Y) which corresponds to the 100%volume.

5.) Subtract the dipstick number (X) from the tank diameter (Y) to find the upper tube reference number (Z).
(Y) - (X) = (Z)

6.) Subtract 2" from (Z) to find the upper tube depth (C).
(Z) - 2" = C

7.) Is C less than 6-1/2"?

NO Upper tube length is C plus the distance from the top of the Face Seal Adaptor installed on the riser pipe to the inside, top of the storage tank (A).

Upper Tube Length = C + (A)

YES Upper tube length is 6-1/2" plus the riser pipe measurement (A).

Upper Tube Length = 6-1/2" + (A)

NOTE: You must find the actual tank capacity number that correlates to the 6-1/2" + (A) depth for the station records. This number may also be used for the purposes of calibrating an electronic tank level system.

® Registered T.M. Owens Corning Fiberglass Corporation

Figure 1

EXAMPLE

1.) For an Owens-Corning Model G-3 Fiberglass® Tank Calibration Chart:
Tank Capacity - 10,000 gal., nominal 9,400 gal.
NOTE: Use actual capacity only

2.) 95% of actual tank capacity = 0.95 x 9400 gal = 5933 gal.

3.) The closest number which is less than 5933 gal. is 5520 gal. Choosing the closest number less than 95% of actual capacity ensures that the initial shutoff will occur when the tank is no more than 95% full.

4.) The calibration chart reading of 5520 gal. corresponds to a dipstick measurement of 82".

5.) Dipstick number (X) = 82"
Tank diameter (Y) = 92"
(Y) - (X) = (Z) (92" - 82" = 10")
(Z) = 10"

6.) (Z) - 2" = C (10" - 2" = 8")
C = 8"

7.) Is 8" less than 6-1/2"?

NO Measure the distance from the top of the FSA 403 Face Seal Adaptor installed on the riser pipe to the inside, top lip of the storage tank and obtain measurement (A).

Upper tube length = C + (A)

OPW complete shutoff #H15524PA

EMCO

C= Top tube length

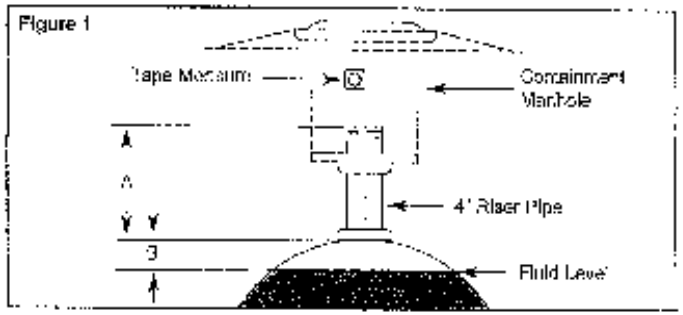
A= Nipple length

B= 95% Fill level to top

C= A + B + manway – 3”

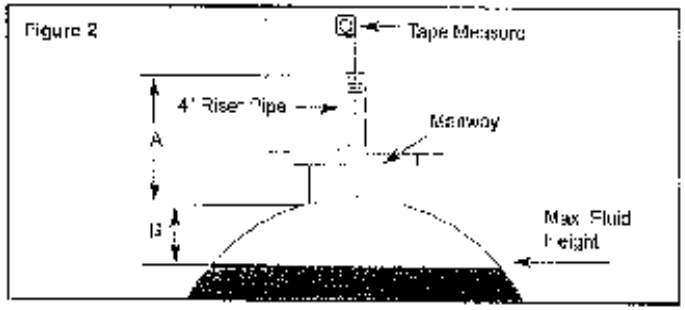
EMCO A1100 GUARDIAN

Figure 1



Riser Pipe With Spill Containment Manhole

Figure 2



Riser Pipe Installed On Manway

Step 3: Find Measurement B from the chart below. It is the distance from the maximum fluid height allowed to the inside top of the tank. Calculations are [illegible] cylindrical tanks with flat ends. For exact dimensions, consult the [illegible] provided with your tank. Local requirements may limit fill capacity [illegible] or 97%.

Tank Diameter		95% Shut-off B Dimension		97% Shut-off B Dimension	
Feet	Meters	Inches	MM	Inches	MM
6.5'	1.98	7.5"	[illegible]	[illegible]	[illegible]
7.0'	2.13	8.0"	203	[illegible]	130
7.6'	2.29	8.9"	229	[illegible]	147
8.0'	2.44	9.5"	241	[illegible]	157
8.2'	2.50	9.5"	241	[illegible]	168
8.6'	2.62	10.0"	254	[illegible]	178
9.0'	2.74	10.5"	267	[illegible]	[illegible]
9.5'	2.90	11.0"	279	[illegible]	[illegible]
10.0'	3.05	11.5"	292	[illegible]	210
12.0'	3.66	14.0"	356	[illegible]	241

The A1100 Overfill Prevention Valve is not recommended for tanks under 6.5' (1.98 m) in diameter.

3

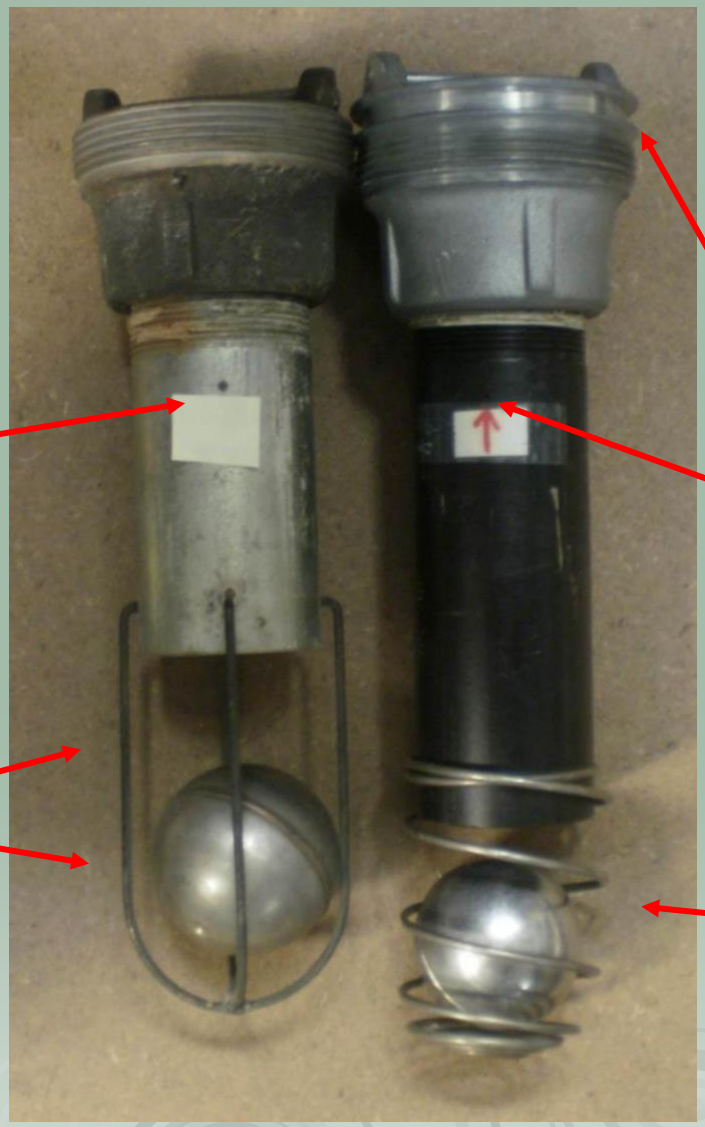
(C) TOP TUBE = A + B - 3"

Ball Float OPW

Standard Ball Float

1/8” Bleed hole

4 Prong cage with bleed holes



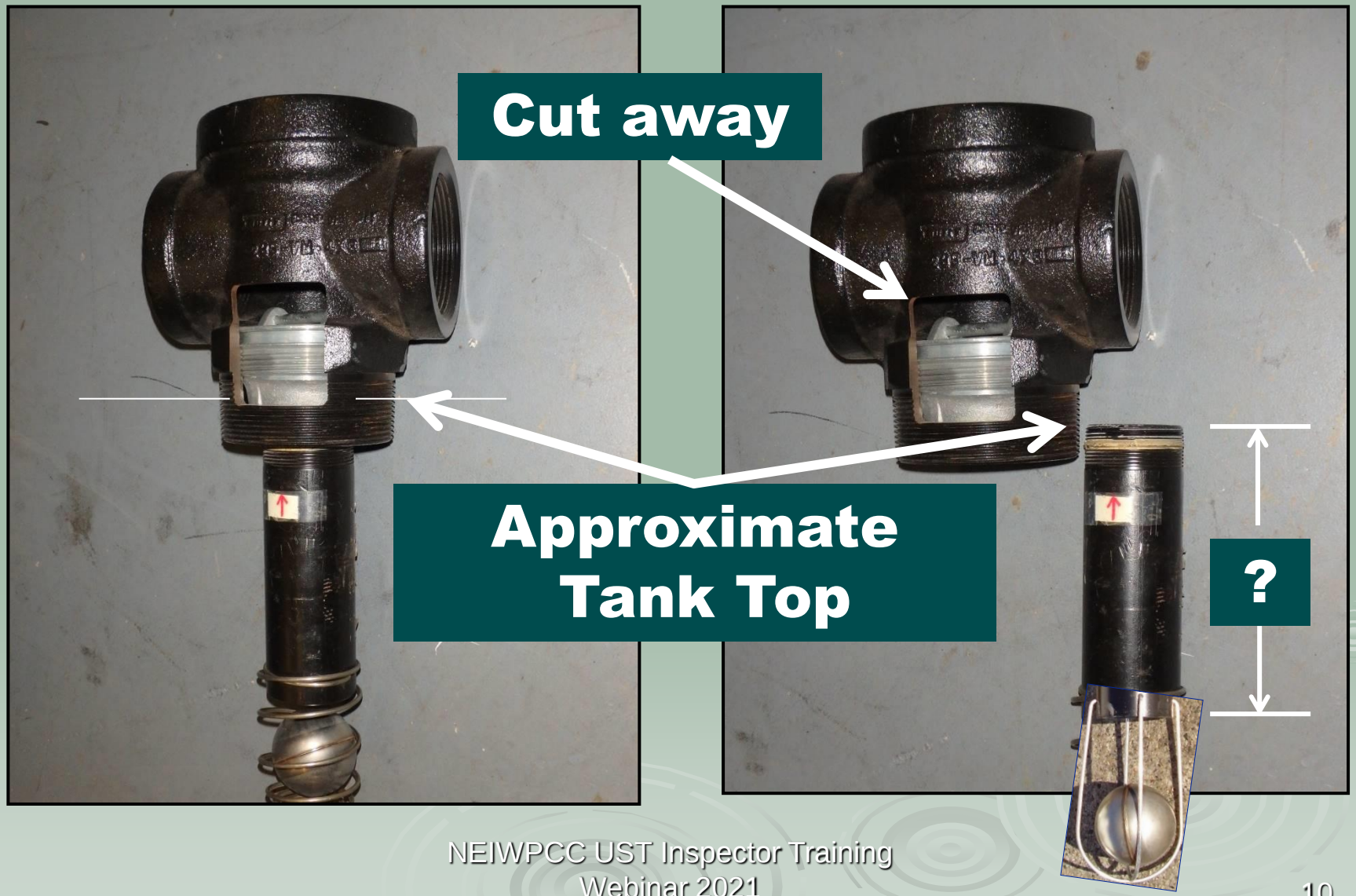
30 Minute 30VML

Gasket (missing)

1/16” Bleed hole

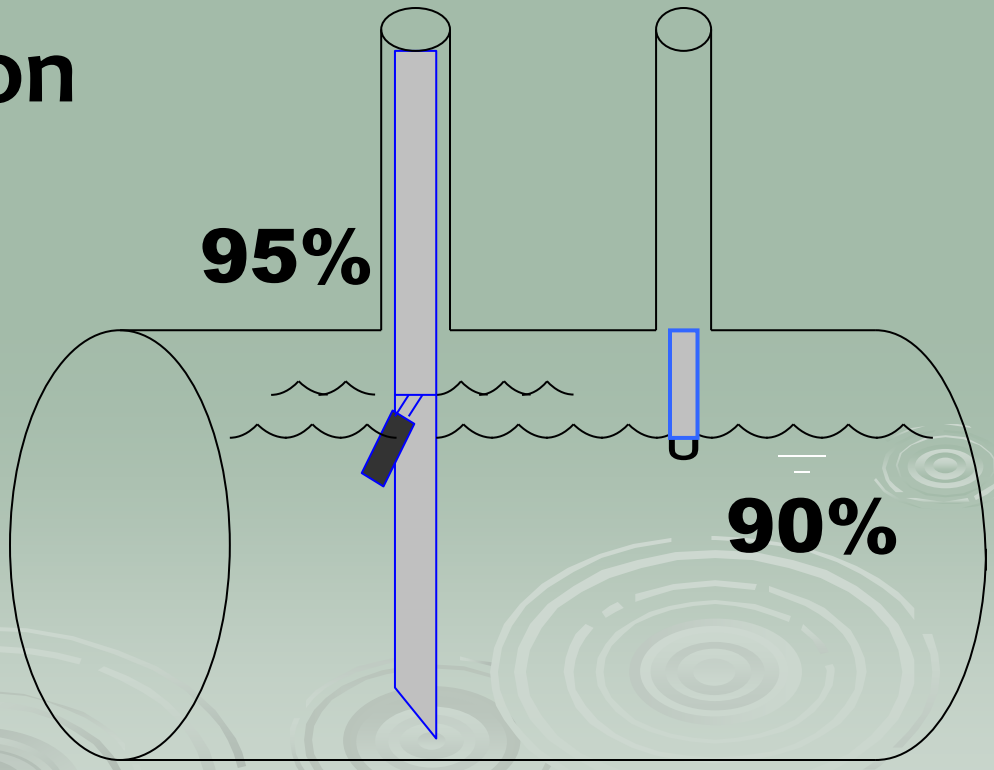
Spiral cage

Tank Top Extractor



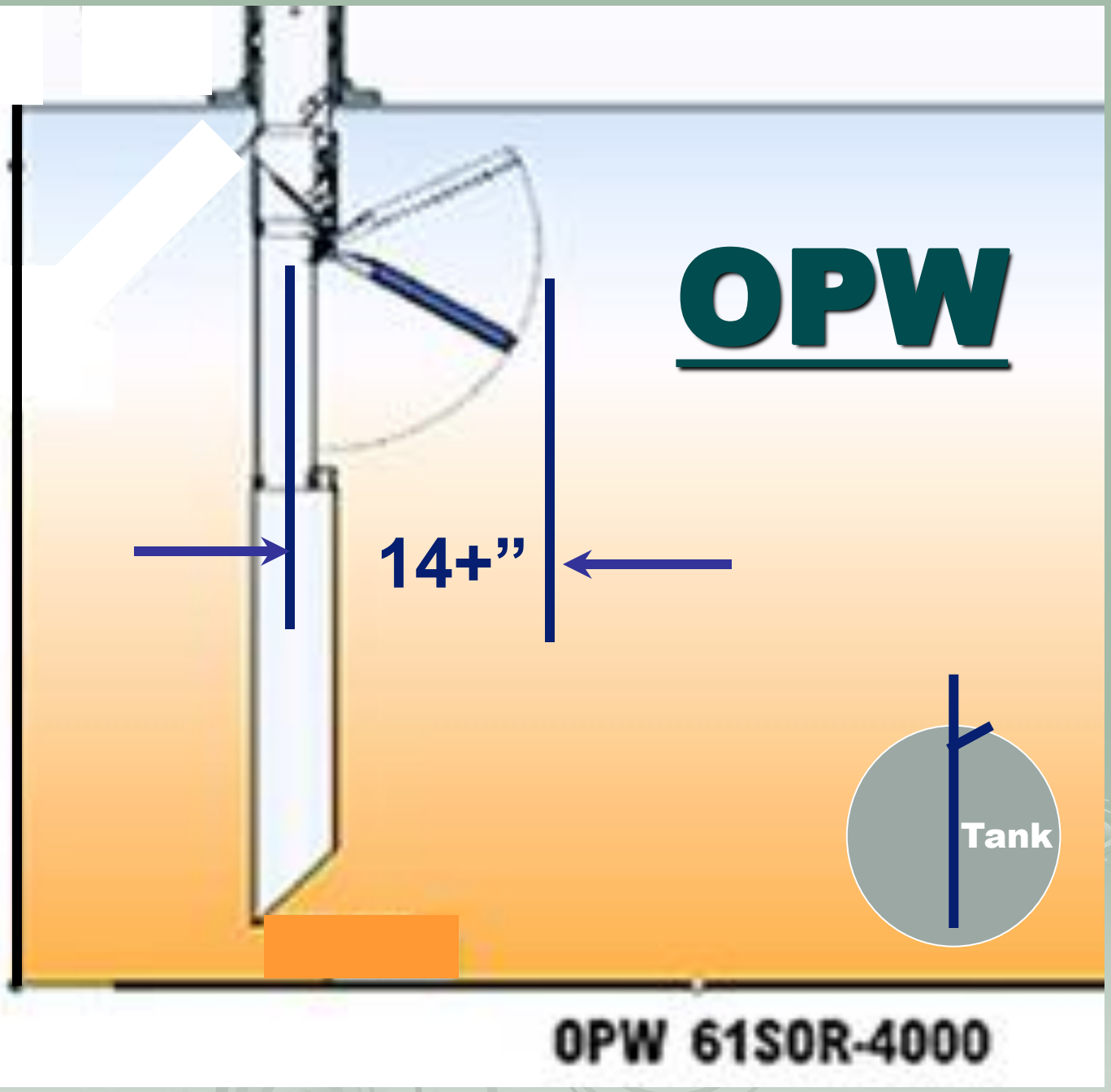
Device-Delivery Compatibility

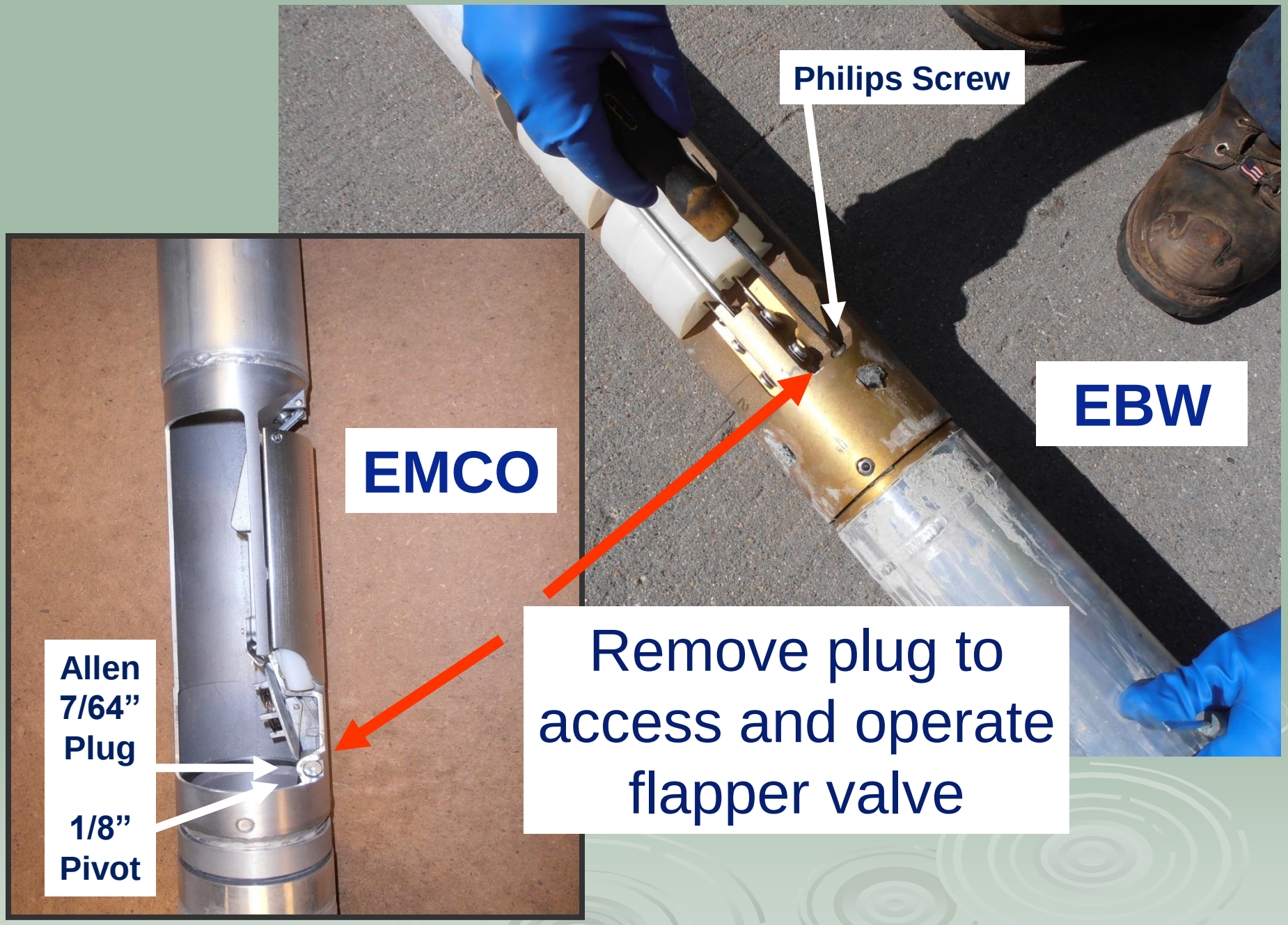
- **Flapper Valve (FV)**
  - Gravity *only*
    tight connection
  - Can *not* have
    ball floats!!!!



Knock out ball will trap air ✖


?

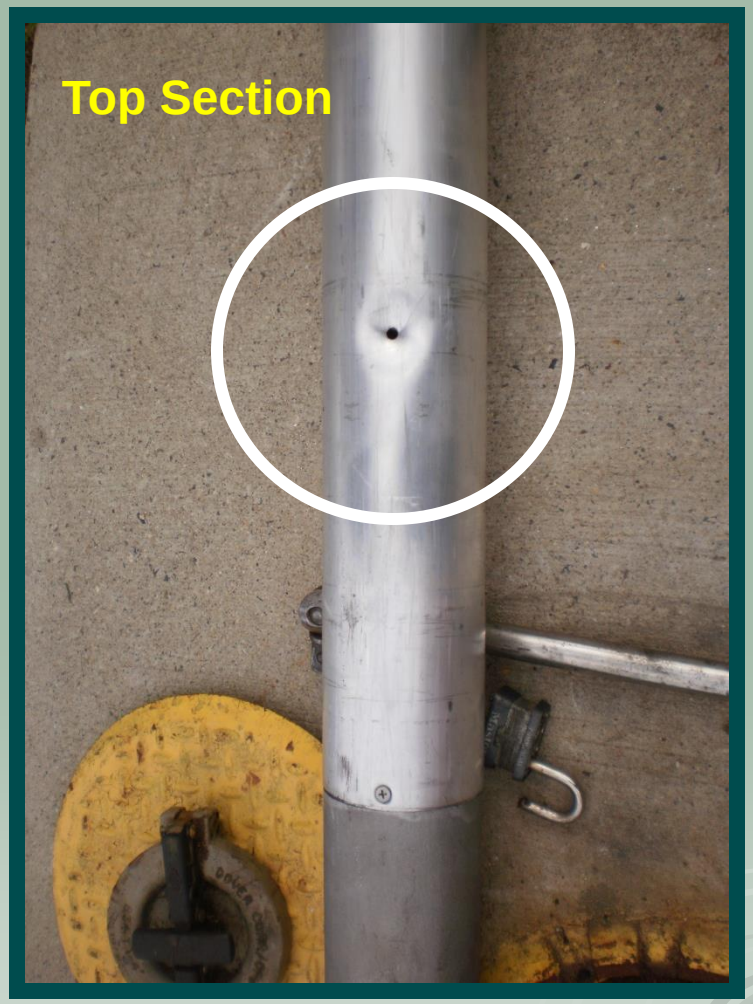

OPW
14+”
Tank
OPW 61SOR-4000


Philips Screw
EBW
EMCO
Allen 7/64” Plug
1/8” Pivot
Remove plug to access and operate flapper valve

Older Style Found

- OPW 61TNG-4000
  - Vacuum operated

Why Remove



PROBLEMS

Hinge Problem

Problems

What's This?

What NOT to do

Delivery with flapper valve

Overfill Alarm=90%

Light

Horn

Device-Delivery Compatibility

- **Audible/Visual Alarm (AA)**

The only device type for *both* gravity and pressure deliveries!

Primary High Level Alarm

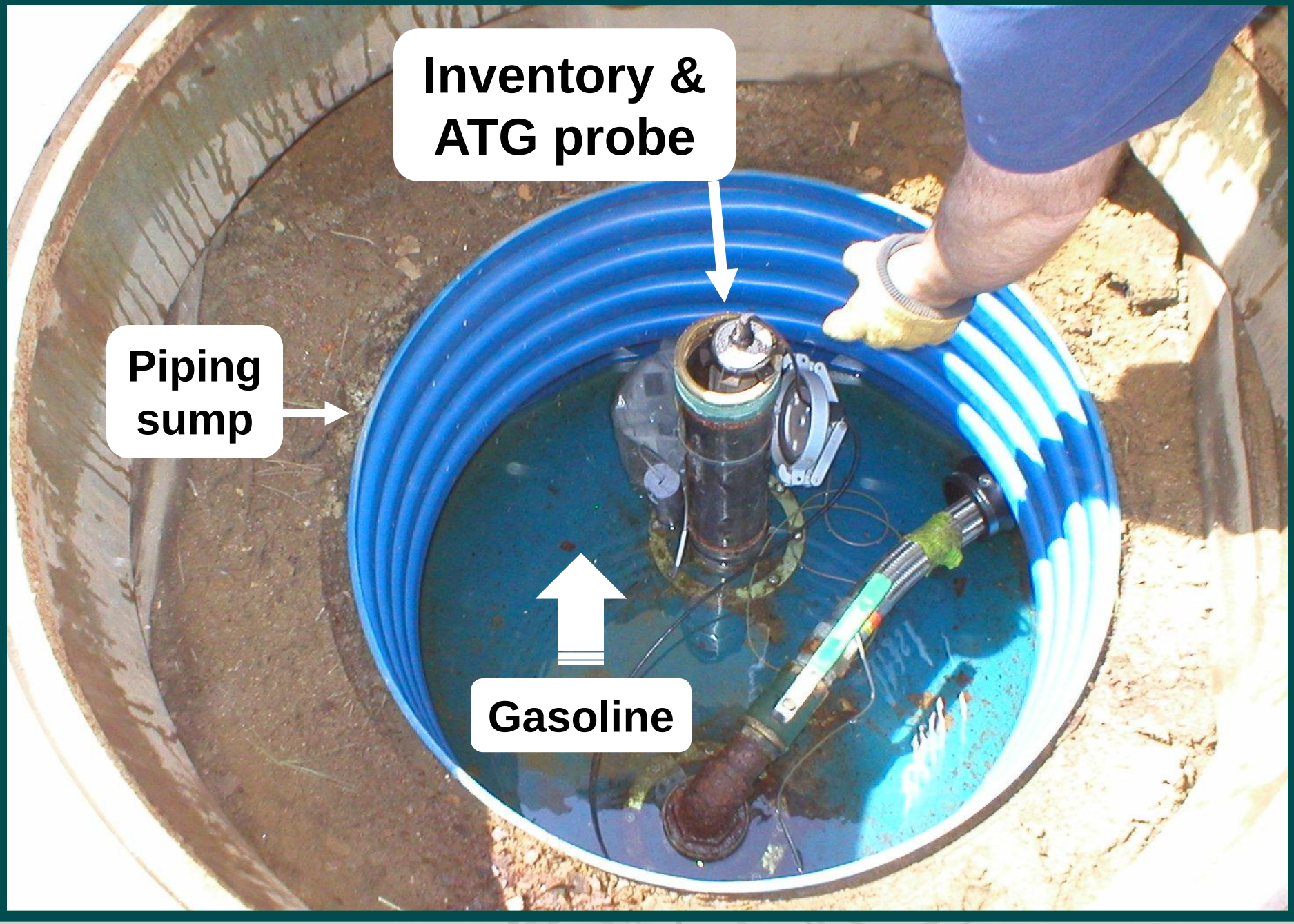
Audible/Visual alarm for each compartment if filled at the same time

Only one AA -- then test each compartment without moving float down to clear last alarm

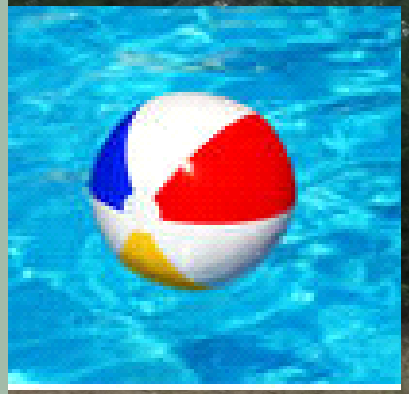
Primary High Level Alarm

- **Visual** until **manually reset**
- **Audible** minimum **10 seconds**.

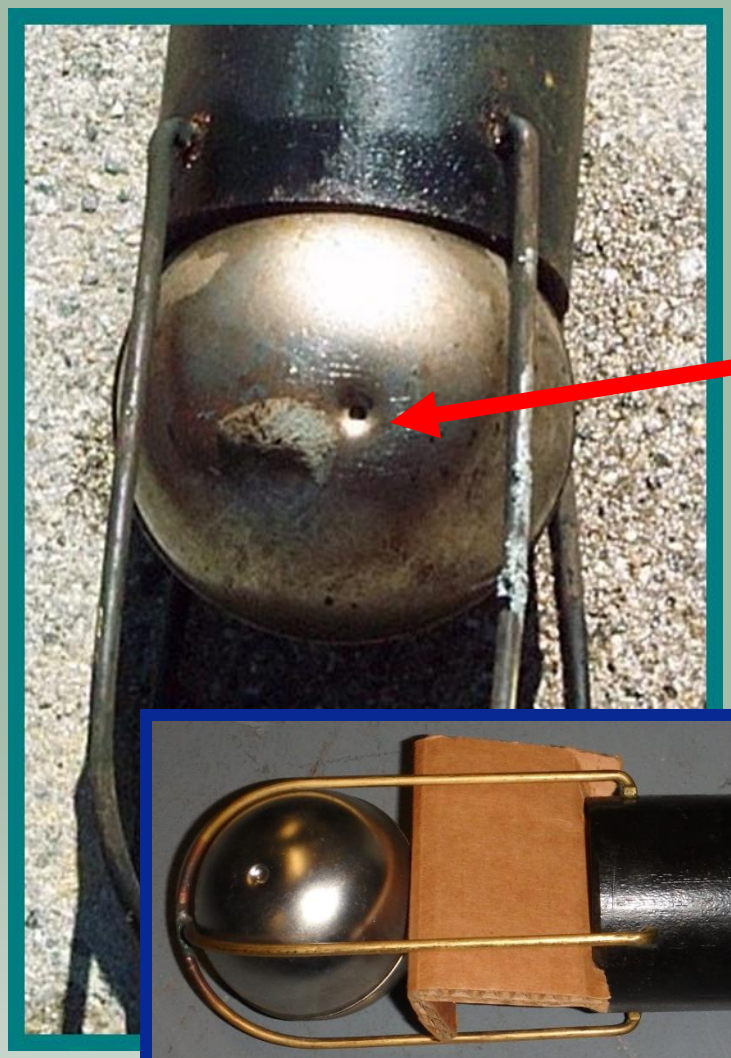

When Whistler
Tone Ceases,
Stop Fuel
Delivery
Immediately
Do Not Leave Unattended
MODEL 40 OVERFILL
TYPE W ALARM
NORMAL
ALARM
SILENCER
TEST
PETROMETER CORPORATION
NEW HYDE PARK, N.Y.
In the Basement


Inventory & ATG probe
Piping sump
Gasoline

Ball Foats



Bad Signs



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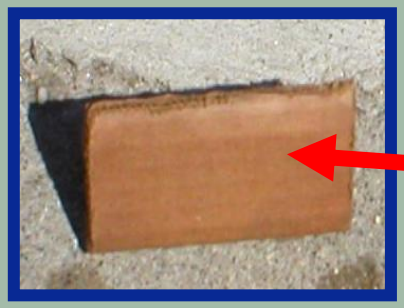

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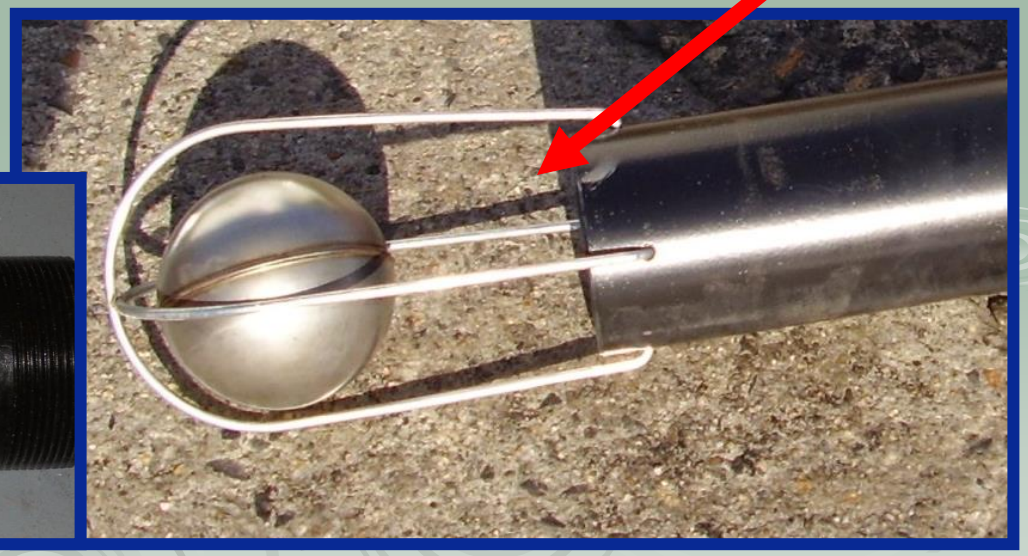
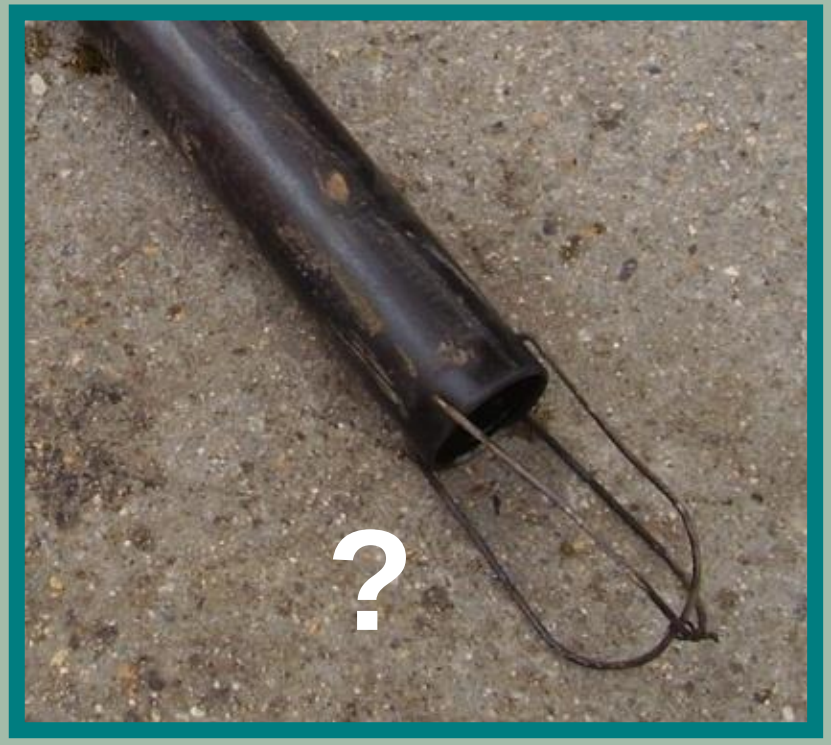


Bad Signs



Diesel Tanks

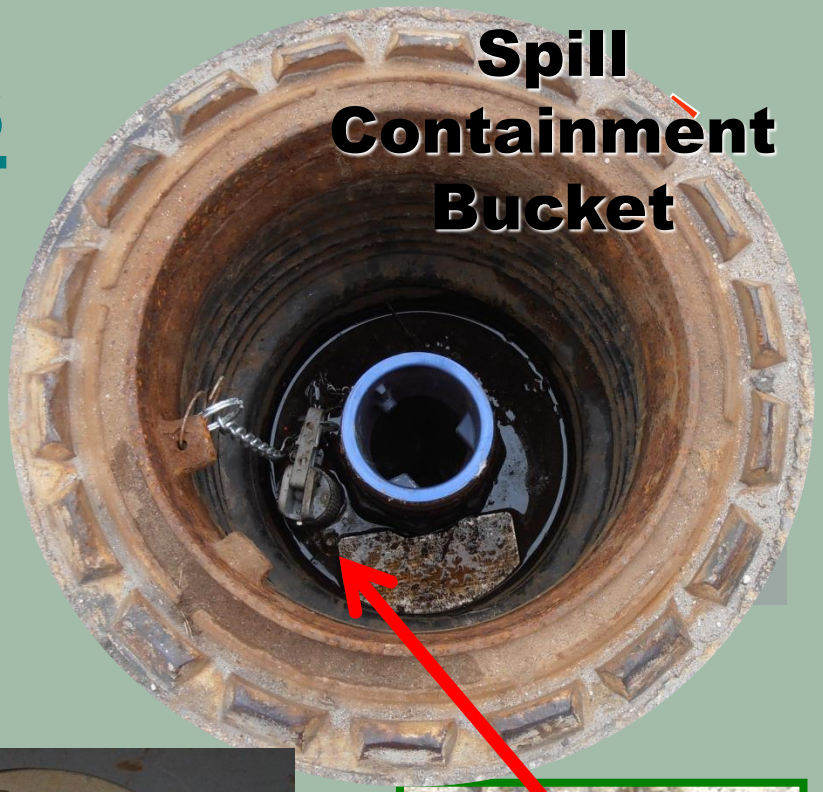
Bleed hole corroded

6 yrs. old in Fiberglass Tank

Cage corroded

Problems

Zip Tie



Spill Containment Bucket

Loose ATG Cap

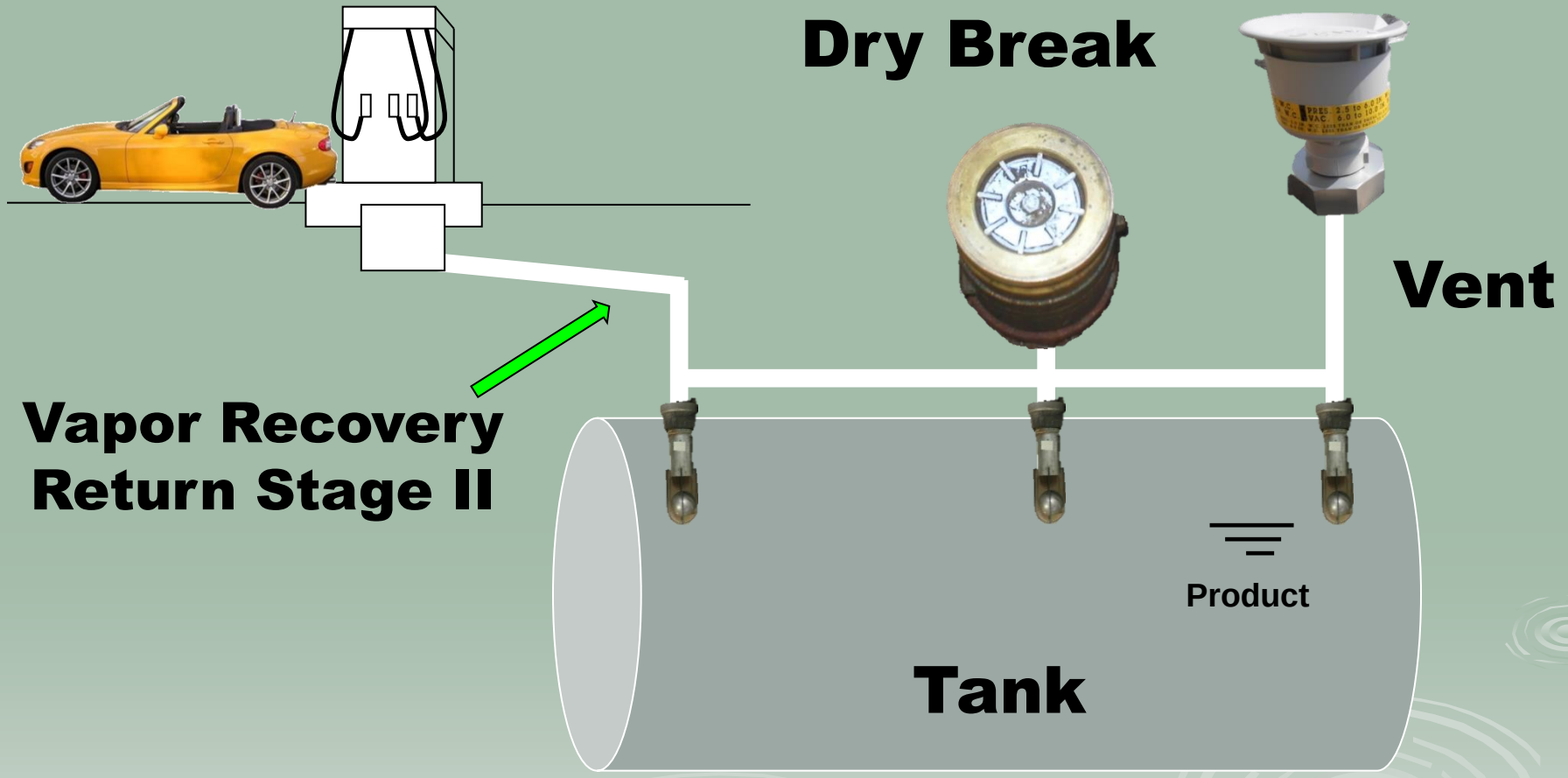
Leaking Drain Valve

Look for open bleed hole

Bleed Holes

Drill new
Plug the old

Inspect all Locations



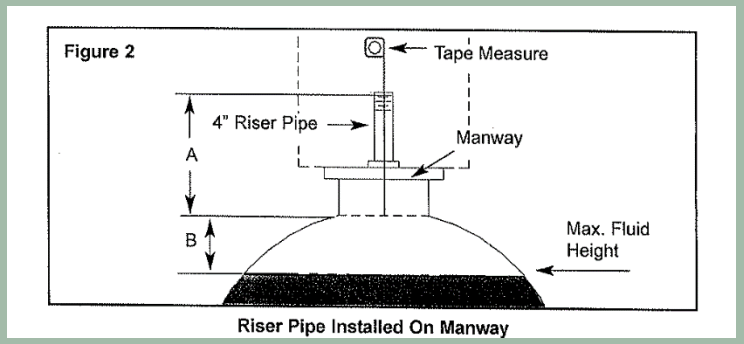
Device-Delivery Compatibility

- **Ball Float (BF)**
  - Gravity *only* - tight connection
  - Multiple BF per tank

Can not use with:

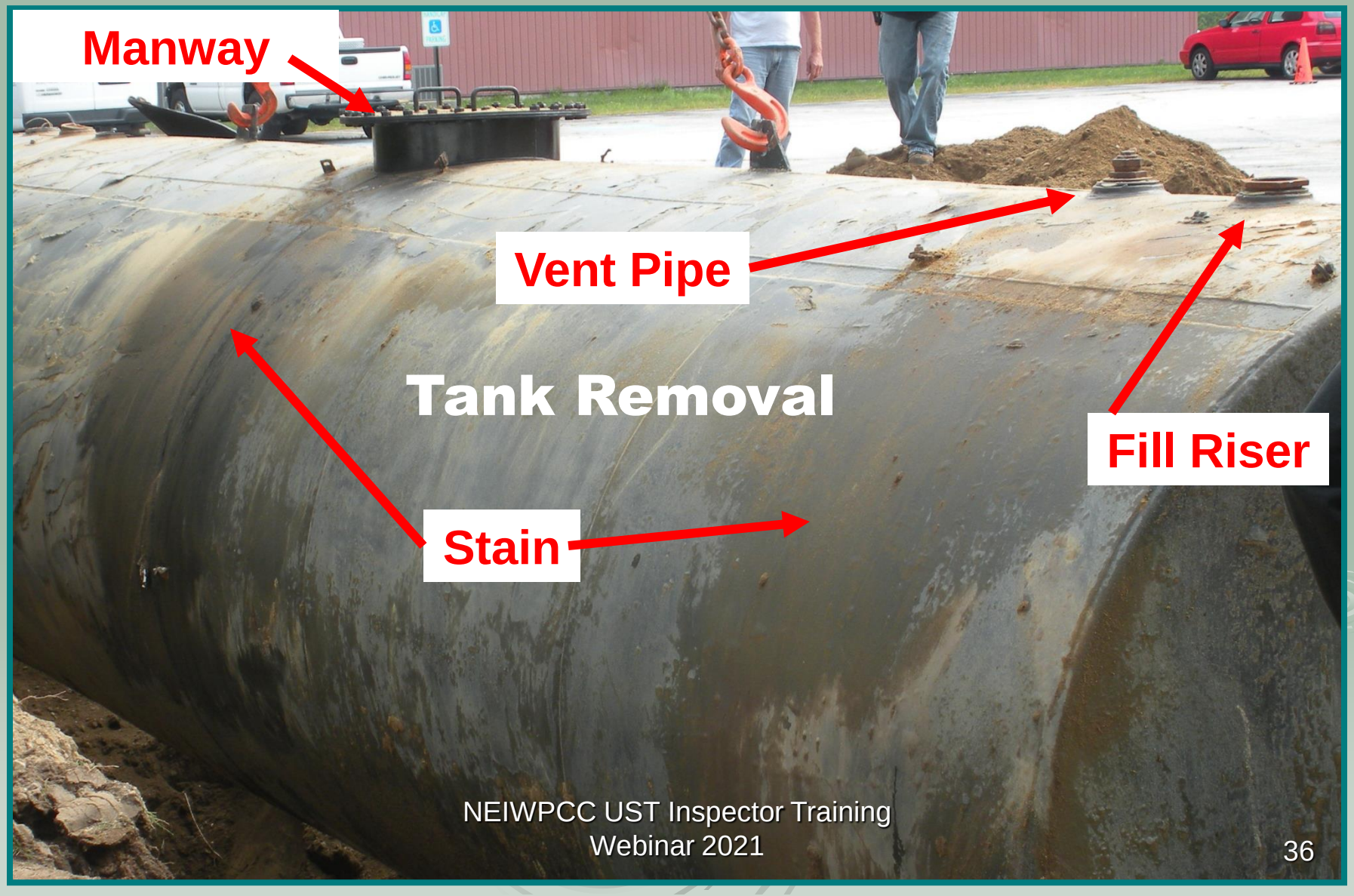
- Coaxial drop tube
- Suction pump-dispenser
- (air eliminator)

Tanks with Manway

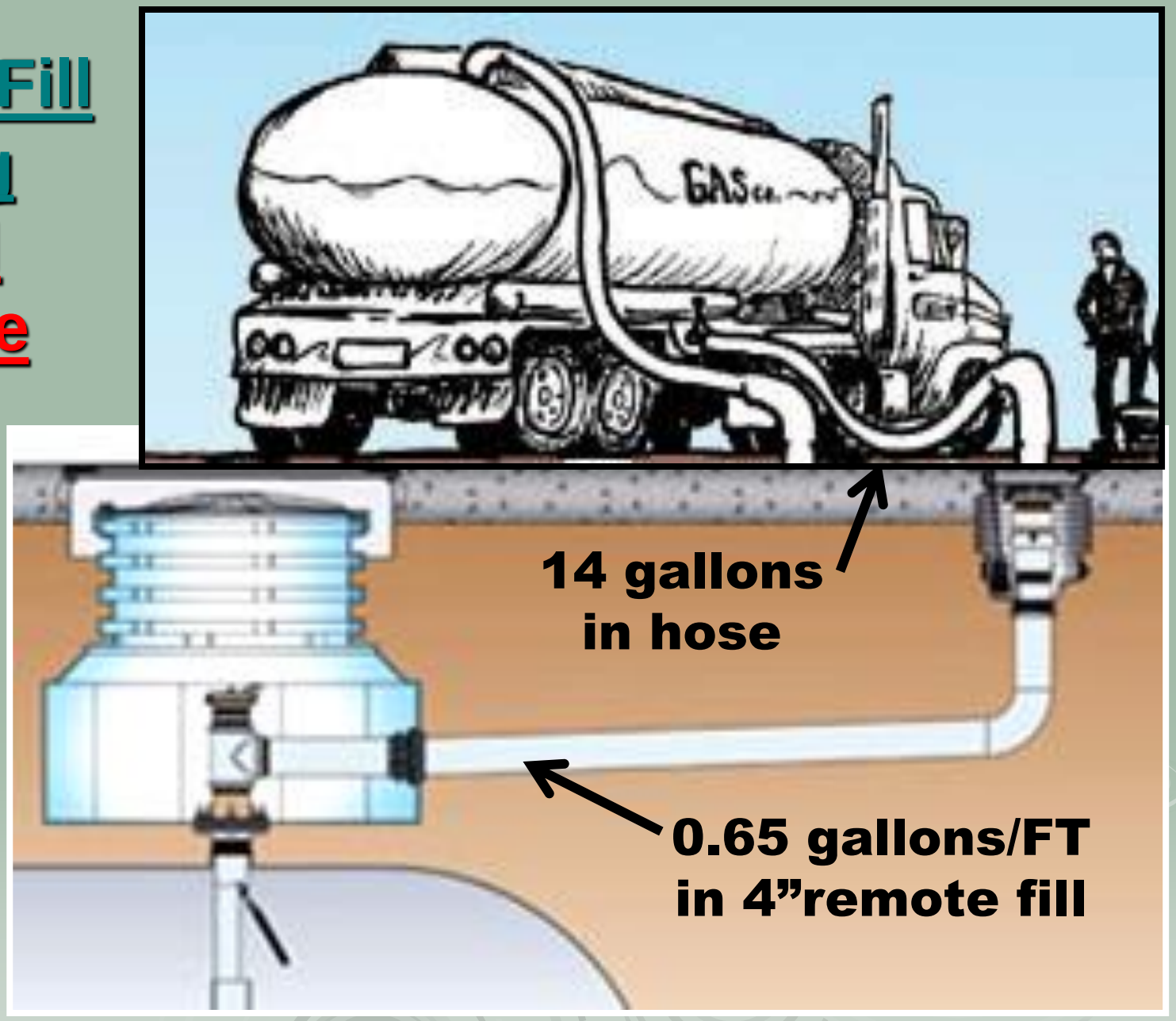


Fiberglass Tank

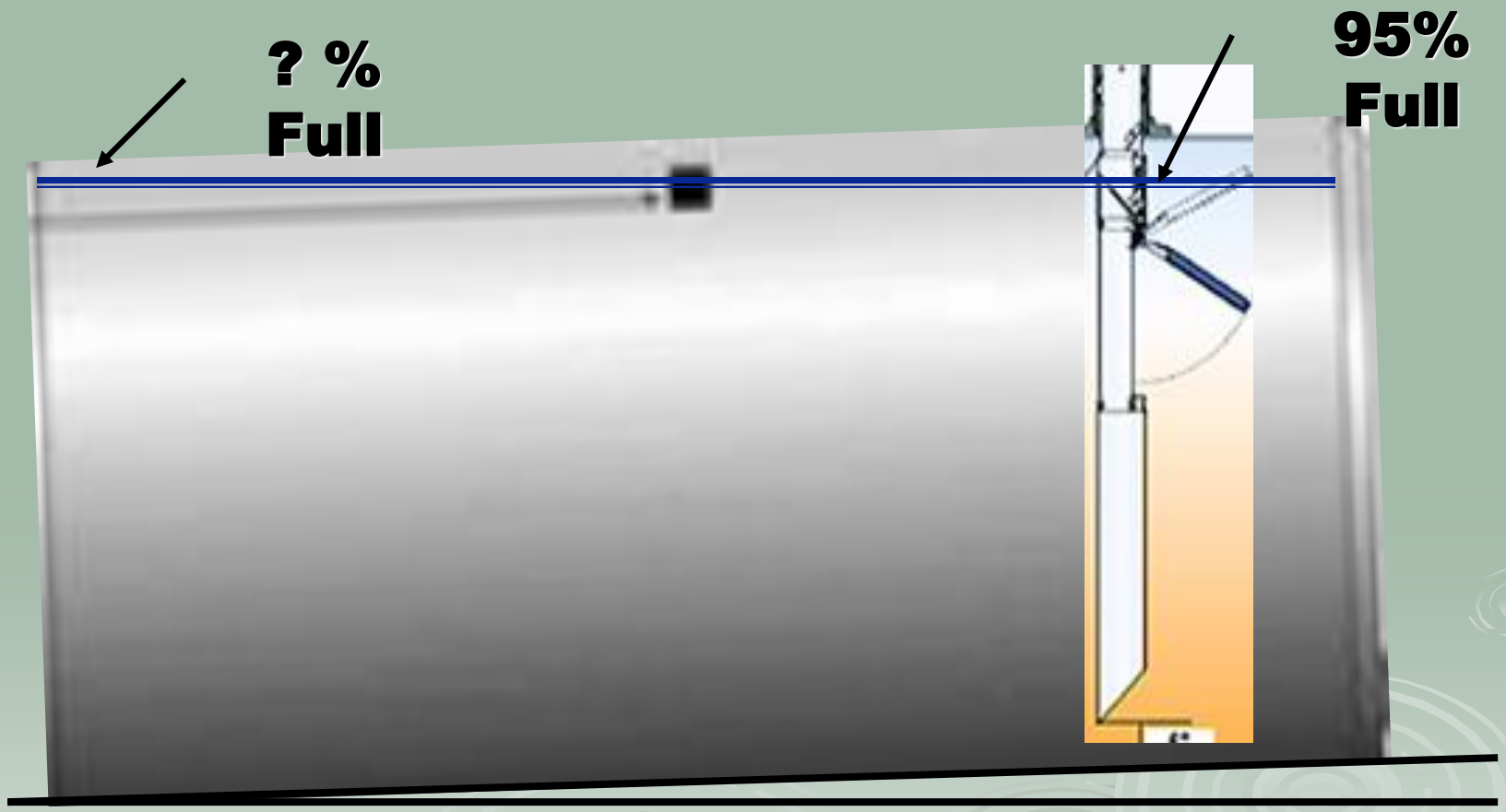
Prior to wetting the inside top of the tank



Remote Fill Piping liquid volume

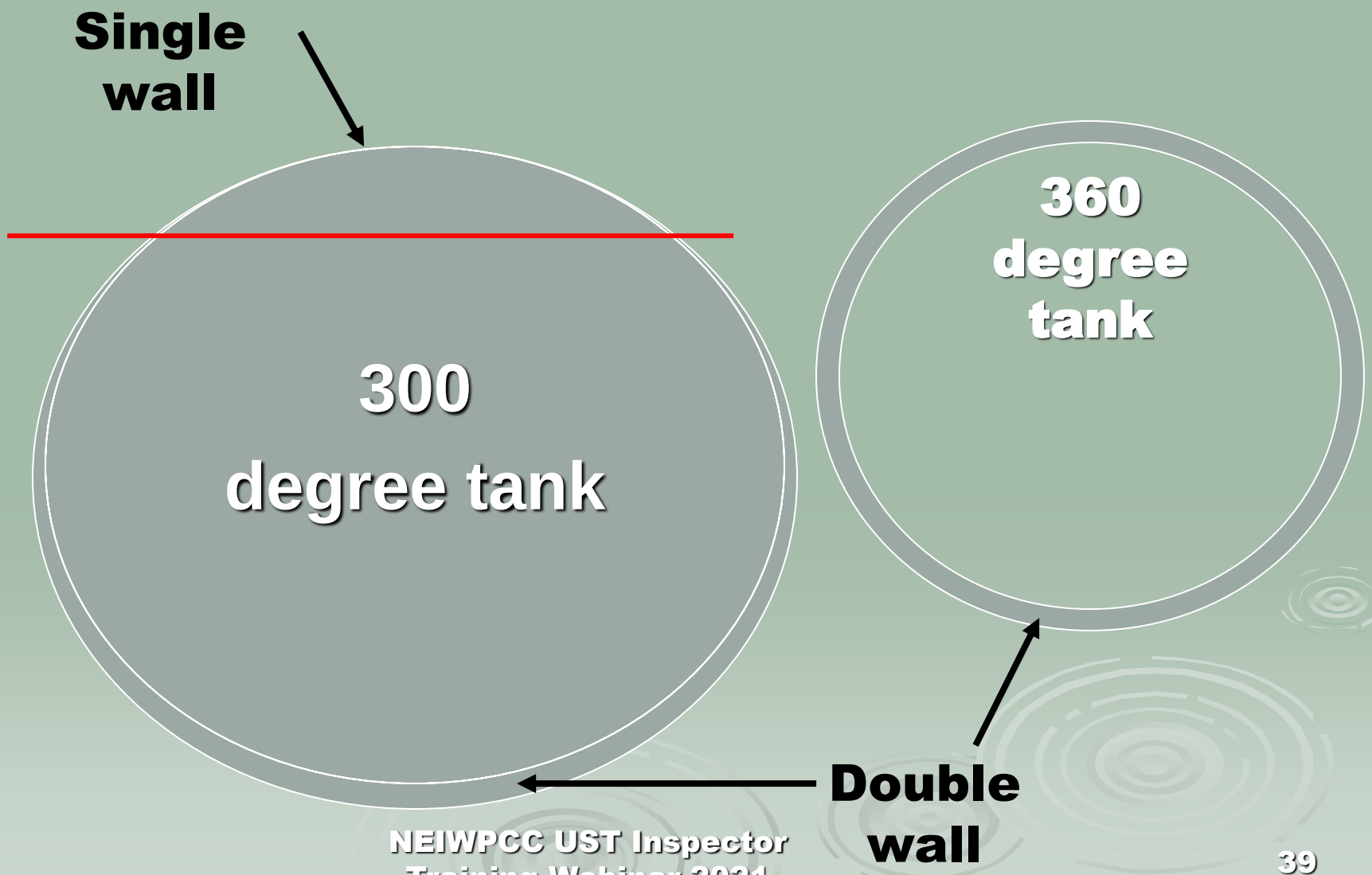


FILL TO ??



Tilt !!!!

Double Wall Tank 300 vs 360



Tanks Installed Different Elevations

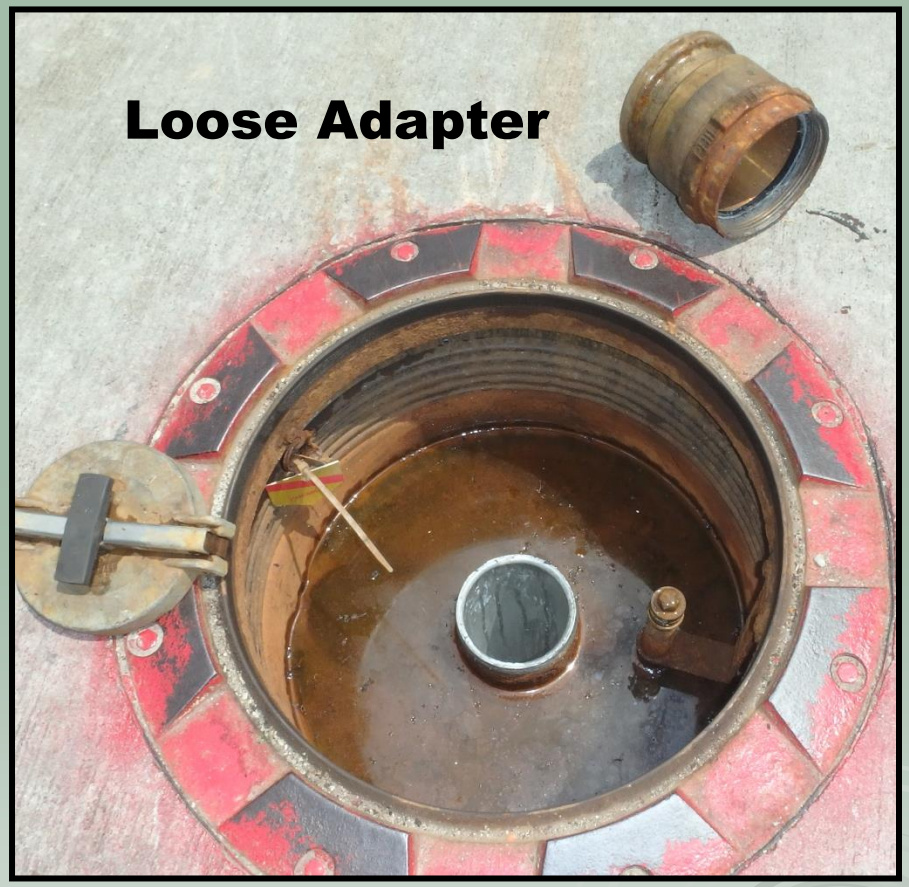
Siphon Bar/Line

Tank #1

Tank #2

Product level after delivery

Compromised Overfill



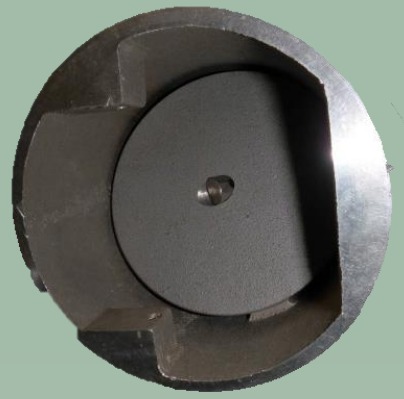
Restrictive – Moving Forward

- EPA -- End of flow restrictors on vents
  - Flow restrictors on other locations such as the fill.

Not !!

Flow Stop device

UNIVERSAL



Closed

Open

Float Swings Sideways

OPW

- Verify closure
- Check resistance of float (will it float?)

- Still waiting for a requested -

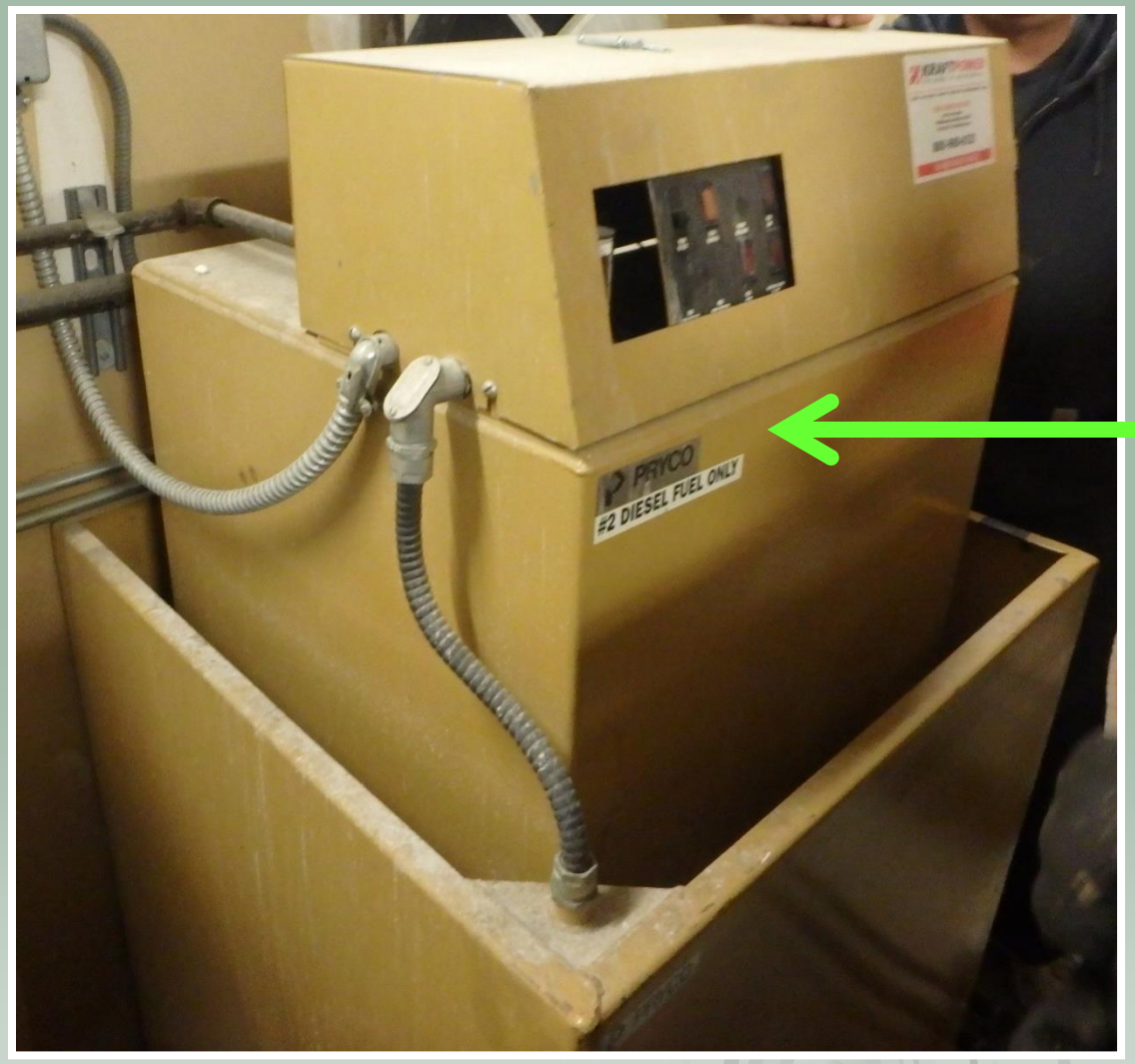
Spruce Spring Scale to measure acceptable hinge resistance (currently just estimate)

Float should pop out like this

Day Tank

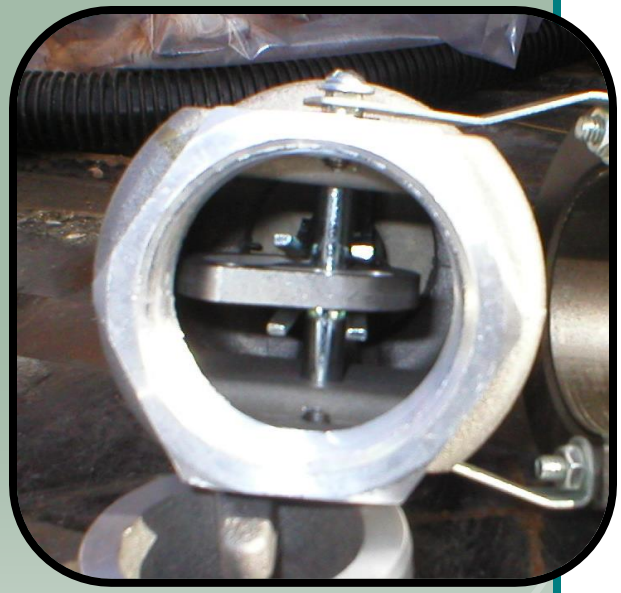
Overfill Sensor Testing

NFPA code – National Fire Protection Association.

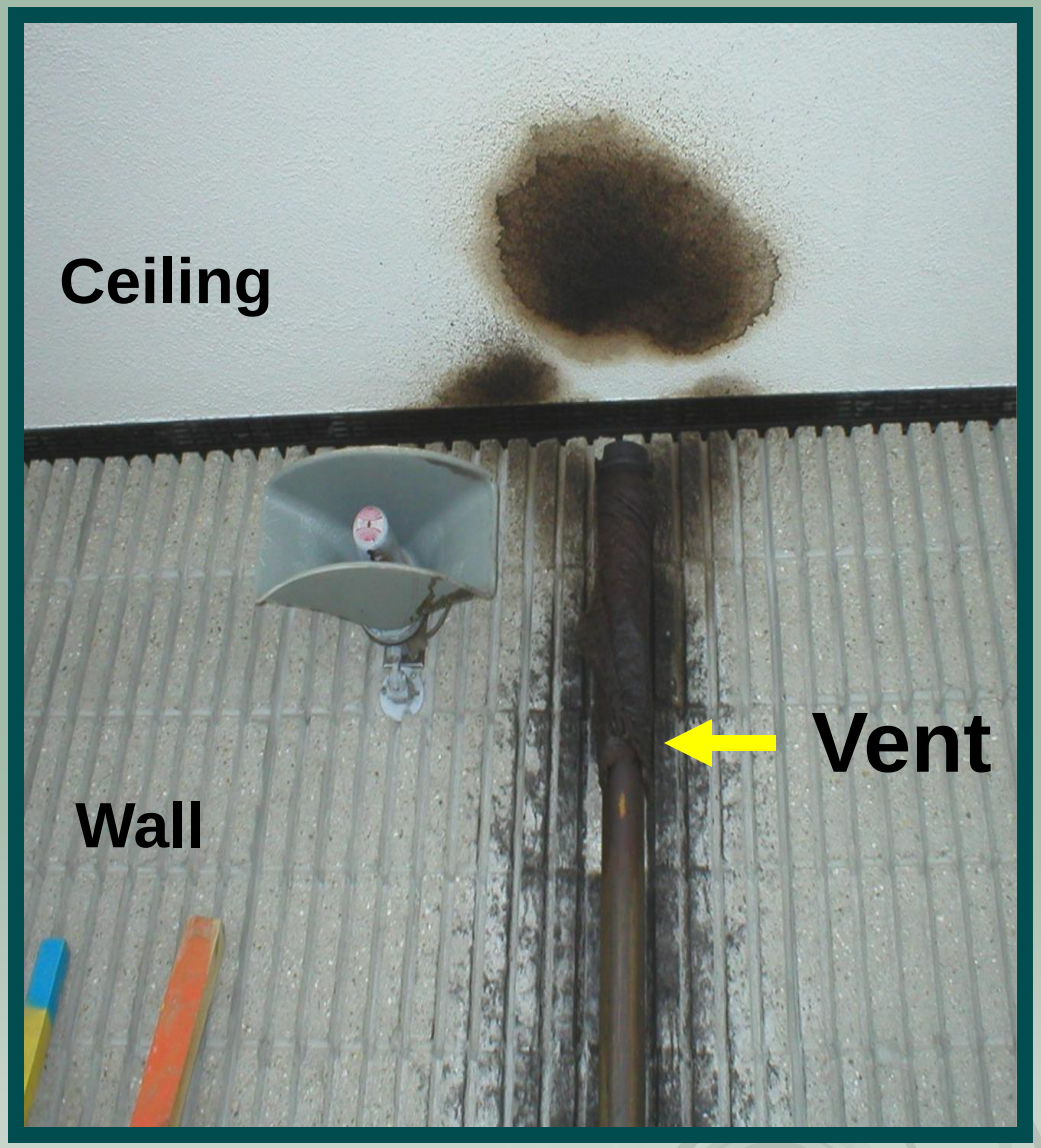


Above Ground Tank Device

- OPW 61FSTOP
  - **May get approved buy agency for UST**
  - Pressure delivery
    - heating oil
    - kerosene
    - diesel
  - **Can not stick tank!**



Overfilling - Vents



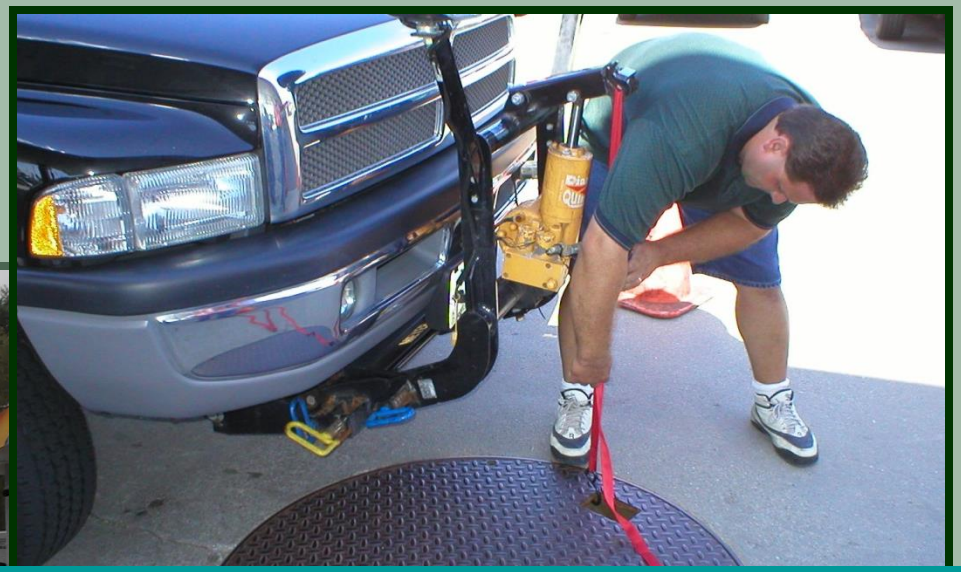
Tools

Adapter Tools

Drop Tube Removal

Ball Float Access

Access



Vault

Compatible Devices

Overfill Device	Delivery Method		Fill Connection	
	Peddle Truck (Pressure)	Tanker (Gravity Drop)	Tight (Gravity Drop)	Loose
AA 90%	Yes	Yes	Yes	Yes
FV 95%	No	Yes	Yes	No
BF 90%	No	Yes	Yes	No

Some States allow Vent Whistle on small tanks

Compatible Devices

	Tank System Pump Type		Vapor Recovery	
Overfill Device	(Pressure)	Suction with (dispenser)	Two Point	Coaxial
AA 90%	Yes	Yes	Yes	Yes
FV 95%	Yes	Yes	Yes	Yes
BF 90%	Yes	No	Yes	No

Mindful

Testing without removal

- Testing in place -- miss many operational items.
- First inspection -- 50% of the devices were installed incorrectly or non-operatable.

Rule Writing

- Register primary overfill
- Product change -- plan review
- Alarm signage
- Lumens & alarm times
- Day tanks
- Testing (upon-removal)
- Pressure delivery remove ball float/flapper
- Compatible delivery method

Summary

- Conditions and issues
- Not removed and inspected
  - Properly Installed?
  - Operational ??

Questions?

Spruce C. Wheelock

Retired

sprucew54@comcast.net

Devices

Flapper Valve

Audible
Visual
Alarm

Vent

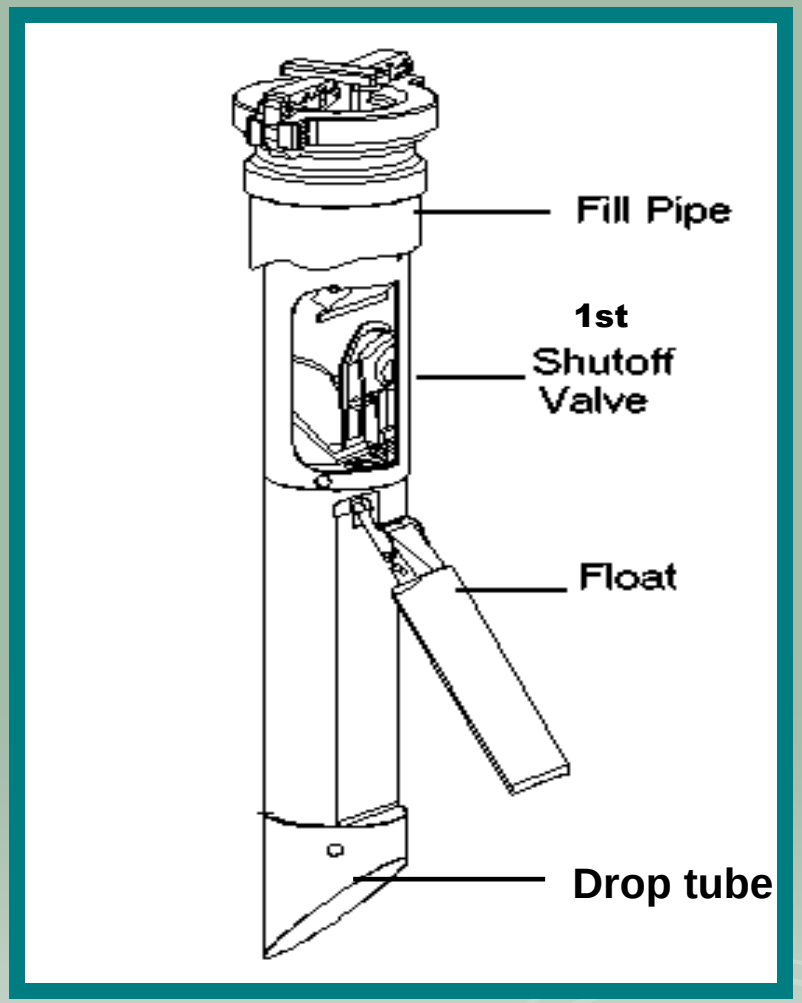
Tank

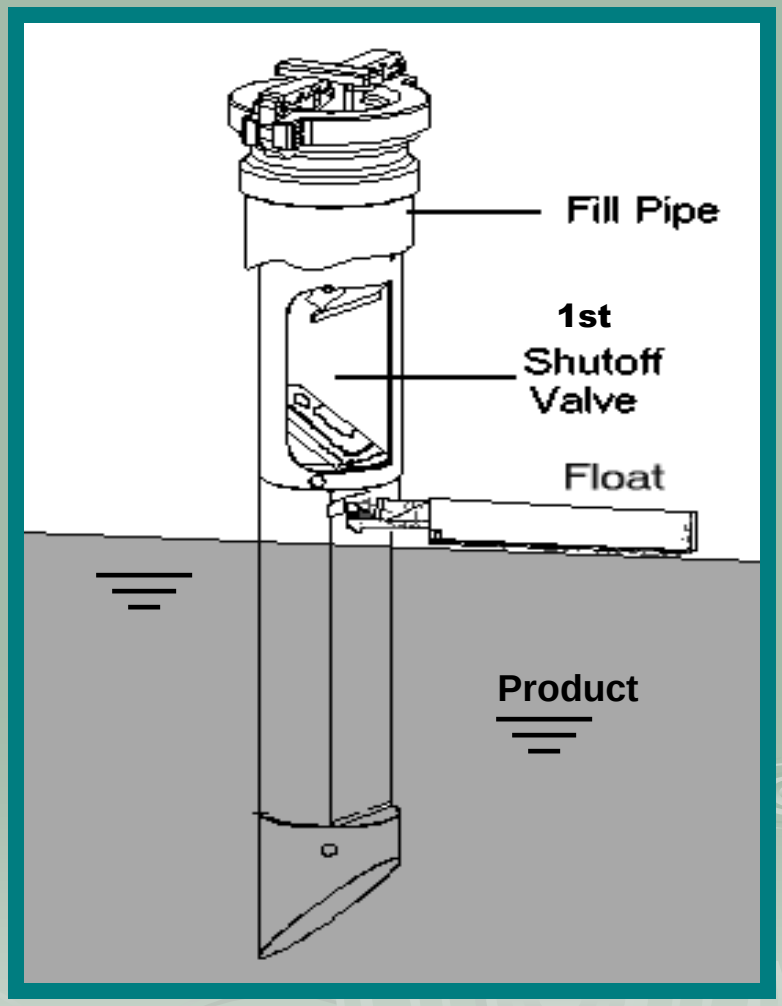
Fill Drop
Tube

Ball
Float

Flow Stop Device =95% max level

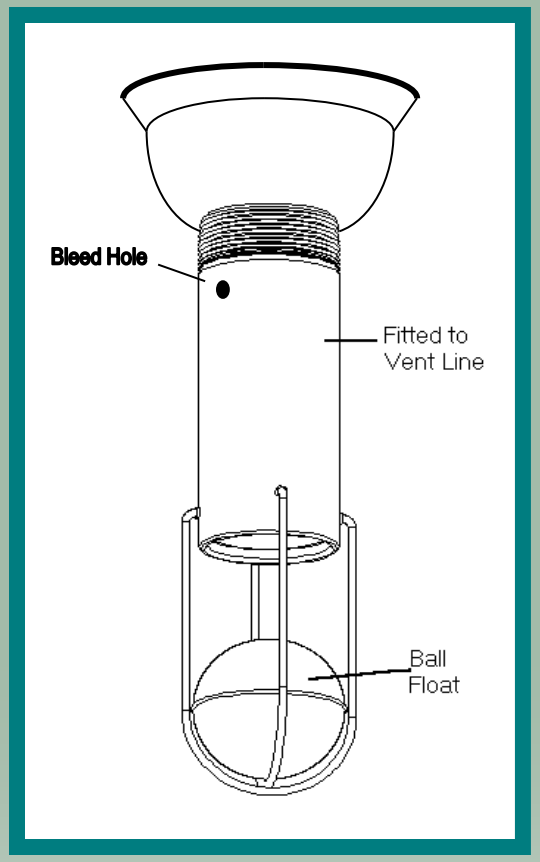
Flapper Valve (fill drop tube)

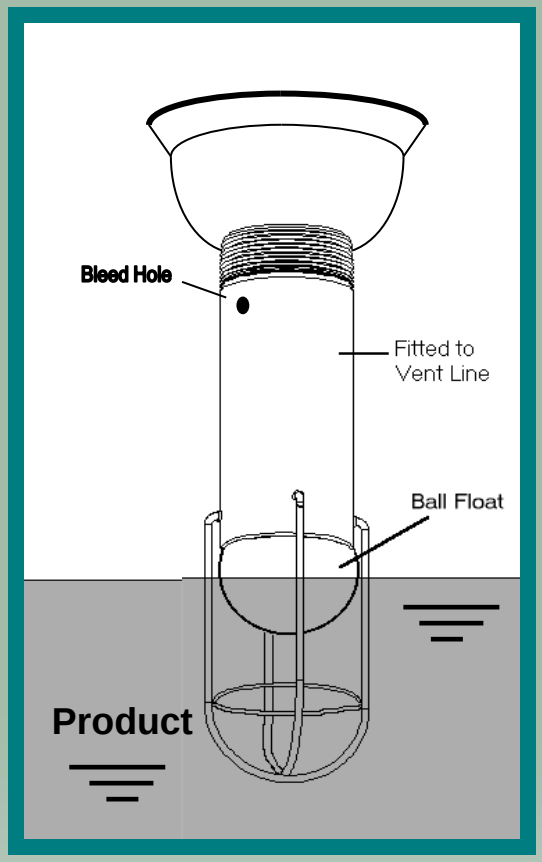




Flow Restricting Device = 90% fill level

Ball Float (vent locations)





Alert Device = 90% fill level

High Level Audible/Visual Alarm

Light

Horn

EBW

Old EBW

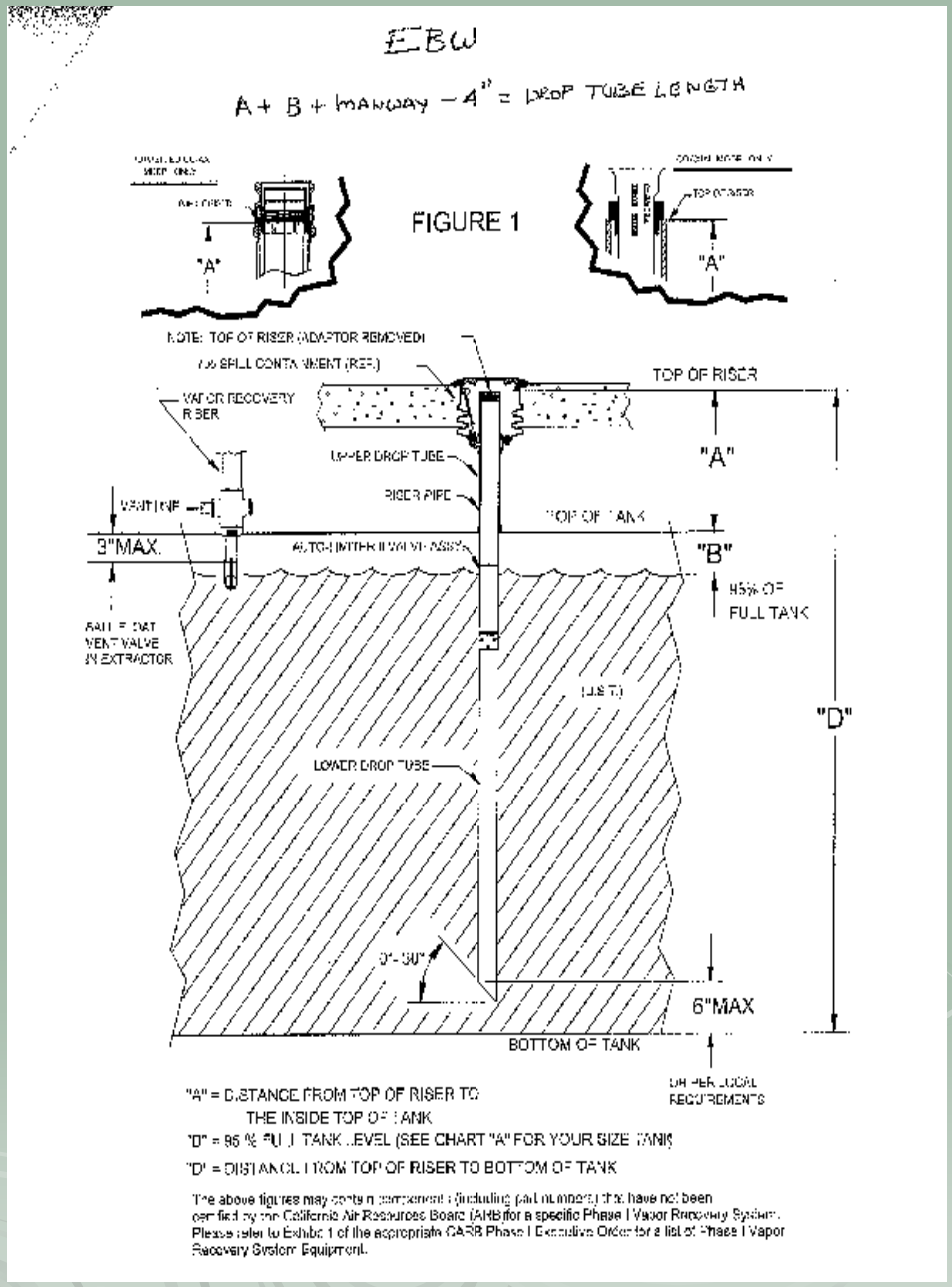
Without the 95% mark

C= Top tube length

A= Nipple length

B= 95% Fill level to top

C= A + B + manway – 4”



Field Measurement Generic

Ball Float Measurements

Install at 90% ! Alert or alarm

OPW

Tank Diameter	Tube Length	Add 2" D.W.	Man way 5"
48" (4')	7-1/2"	9 1/2"	12 ½"
64" (5.33')	10"	12"	15"
72" (6')	12"	14"	17"
92" (7.66')	illegible	illegible	illegible
96" (8')	15-1/2" to 16"	18"	21"
120" (10')	18" to 19"	21"	24"

Ball Float

- Form for contractor or owner
- OPW 53VML http://www.opwglobal.com/Product.aspx?pid=85

Site:______________________________ City:____________________ UST # __________

New Hampshire Department of Environmental Services (NHDES)
Field Verification

BALL FLOAT VENT VALVES

90% flow restriction device

The Ball Float Pipe must be equal to or be longer than the calculated (**F**) below.
A= Distance from a reference point to the top end of the ball float pipe.
B= Distance from the reference point to the inside top of tank.
D= Distance, 10% of total tank capacity (NHDES requirement) to be determined from appropriate tank chart.
F= Minimum length of Ball Float Pipe.
Ball Float in a tank manway requires additional length (4"+-).
Check vent orifice (bleed hole), 1/8" must be open and located near top of tank +-.
Check the ball for holes, cracks and movement.

Tank: __________, **Size**________
B + D – A = F
___B + ___D - ___A = ___**F** (min. required)
What is currently installed (F) = ________
Circle: Ball Float **PASS** or **FAIL**
Ball Float replaced **YES** or **NO**

Tank: __________, **Size**________
B + D – A = F
___B + ___D - ___A = ___**F** (min. required)
What is currently installed (F) = ________
Circle: Ball Float **PASS** or **FAIL**
Ball Float replaced **YES** or **NO**

Tank: __________, **Size**________
B + D – A = F
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What is currently installed (F) = ________
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Ball Float replaced **YES** or **NO**

Tank: __________, **Size**________
B + D – A = F
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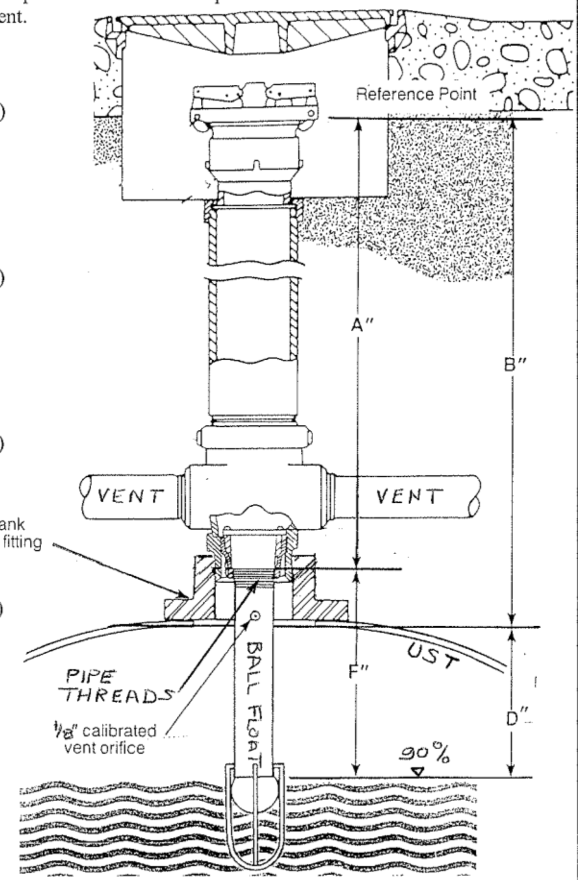
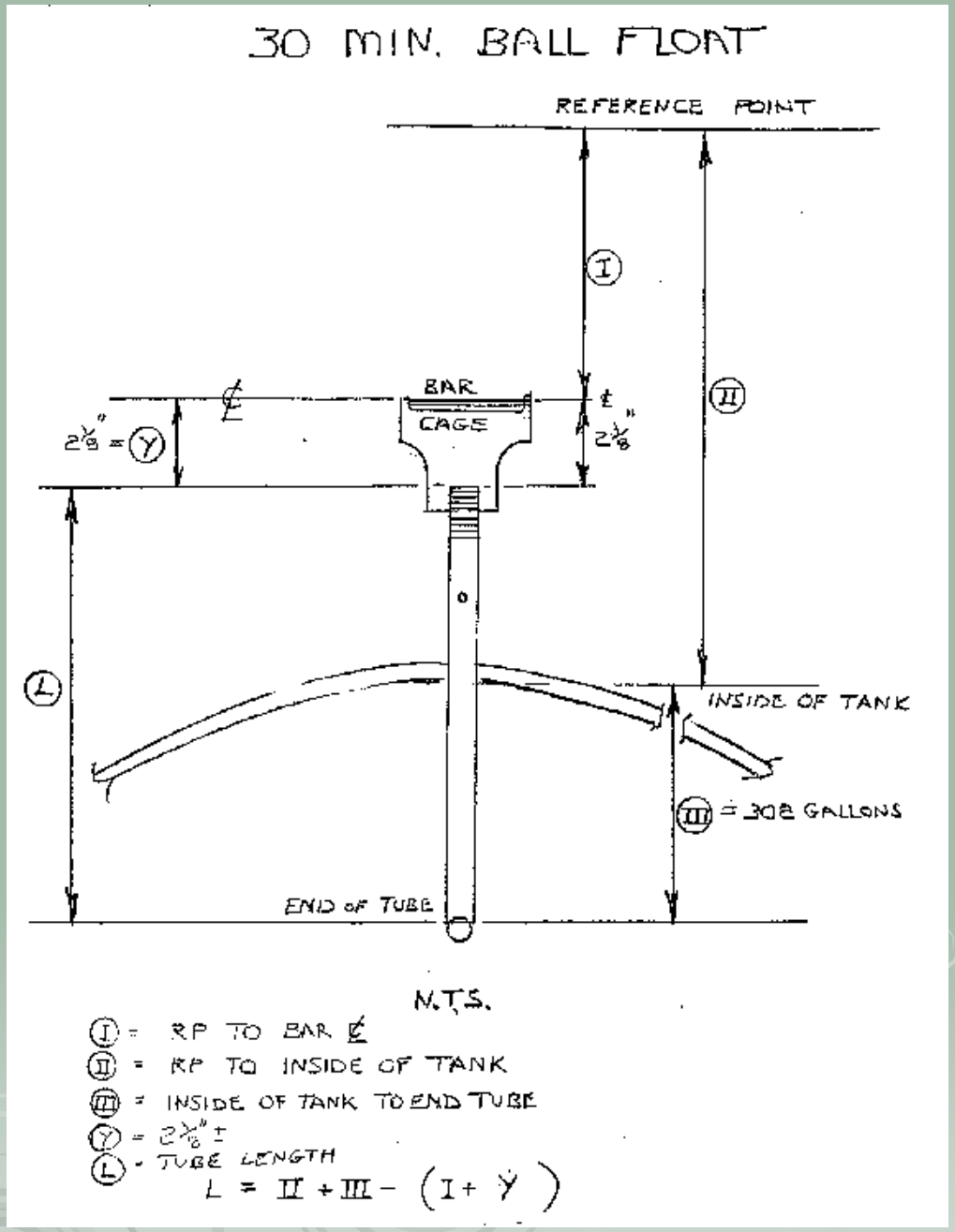
What is currently installed (F) = ________
Circle: Ball Float **PASS** or **FAIL**
Ball Float replaced **YES** or **NO**



Inspector: ____________________
Company:____________________
Date:____________________
H:swheelock\ballfloatmeasurement.doc 2/12/04

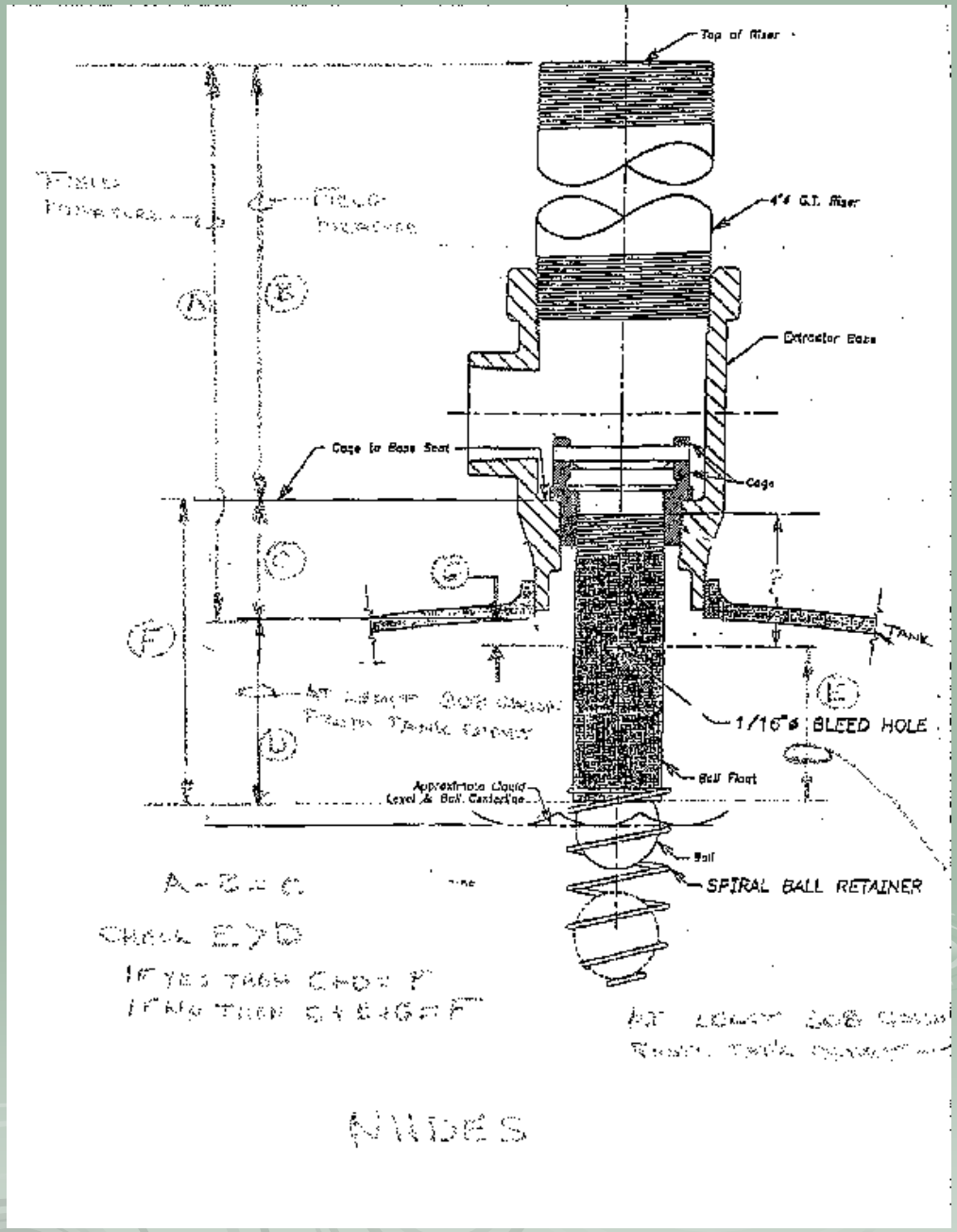
Field Use 30 Min. Ball Float



30 Min.

Ball Float

Complicated



Fuel Compatibility Matrix

Revised 12/1/2010

ENVIRONMENTAL	Description	Unleaded Fuel	Petroleum Diesel	Up to 15% Ethanol	E85 / E100	Bio-Diesel			Av-Gas	Jet Fuel	Kerosene/ Fuel Oil
						B2	B5	B20			
1-2100 Series	Spill Containers	ULC			X	X	X	X	X	X	ULC
1-3100 Series (Edge)	Double Wall Spill Container	ULC	ULC	ULC	X	X	X	X	X	X	ULC
60V Series	Vapor Line Shear Valve	UL/ULC	UL/ULC	UL/ULC	X	X	X	X	X	X	UL/ULC
10 Series	Emergency Shut Off Valve	UL/ULC	UL/ULC	UL/ULC	X	X	X	X	X	X	UL/ULC
10 Plus Series	Emergency Shut Off Valve	UL/ULC	UL/ULC	UL/ULC	X	X	X	X	X	X	UL/ULC
61SALP-1020-EVR	Fill Swivel Adaptor	X	X	X	X	X	X	X	X	X	X
633T-8076	Fill Adaptor	X	X	X	X	X	X	X	X	X	X
61VSA-1020-EVR	Vapor Swivel Adaptor	X	X	X	X	X	X	X	X	X	X
1611AVB-1625	Vapor Adaptor	X	X	X	X	X	X	X	X	X	X
634TT-7085-EVR	Fill Cap	X	X	X	X	X	X	X	X	X	X
1711T-7085-EVR	Vapor Cap	X	X	X	X	X	X	X	X	X	X
634LPC-040	Low Profile Fill Cap	X	X	X	X	X	X	X	X	X	X
1711LPC-0300	Low Profile Vapor Cap	X	X	X	X	X	X	X	X	X	X
62MBB Series	Monitoring Probe Cap	UL	UL	X	X	X	X	X	X	X	UL
61SO Series	Overfill Valve	ULC	ULC	ULC					X	X	ULC
61SOM Series	Overfill Valve Anodized	ULC	ULC	ULC	X	X	X			X	X
61T Series	Drop Tubes	X	X	X					X	X	X
71SO Series	Overfill Valve	ULC	ULC	ULC					X	X	ULC
[illegible] Series	Extractor Valve	X	X	X	X	X	X	X	X	X	X
FCXX Series	Stainless Flex Connectors	UL/ULC	UL/ULC	UL/ULC	X	X	X	X	X	X	UL/ULC
53VML/30MV Series	Ball Floats	X	X	X	X	X	X	X	X	X	X
523V Series	Pressure Vacuum Vent	UL	UL	UL	X	X	X	X	X	X	UL
623V Series	Pressure Vacuum Vent	UL	UL	UL	X	X	X	X	X	X	UL

UL - UL listed X - Compatible ULC - UL Canada

Inspectors Think Safety

Do not
shoot the
messenger

We are targets

DAVID MCKAMIE

DATZ UST MANAGEMENT, LLC

WWW.DATZUST.COM

OVERFILL INSPECTIONS

INSPECTIONS: WHAT DOES IT TAKE TO OPERATE A SUCCESSFUL INSPECTION PROGRAM

CONSISTENCY

- Consistency with Frequency
- Consistency with Evaluation
- Consistency with Oversight
- Everything Fails Until Proven Otherwise

QAQC/OVERSIGHT

- Third Party
- Operator Management
- Regulatory
- From the Greatest to the Least, We all benefit from oversight.

OVERFILL PREVENTION TYPES:

- Automatic Shutoff
- Flow Restriction
- Audible/Visual Alarms

OVERFILL PREVENTION TYPES:

- Delivery/Dispatching

Delivery/Dispatching ★

Automatic Shutoff

Flow Restriction

Audible/Visual Alarms

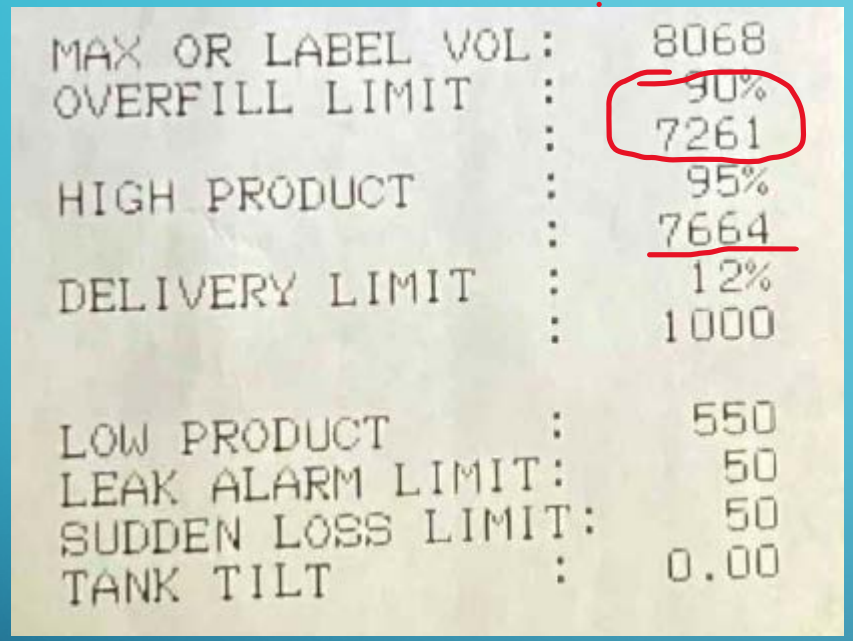
DISPATCHING/DELIVERY

Dispatching/Delivery

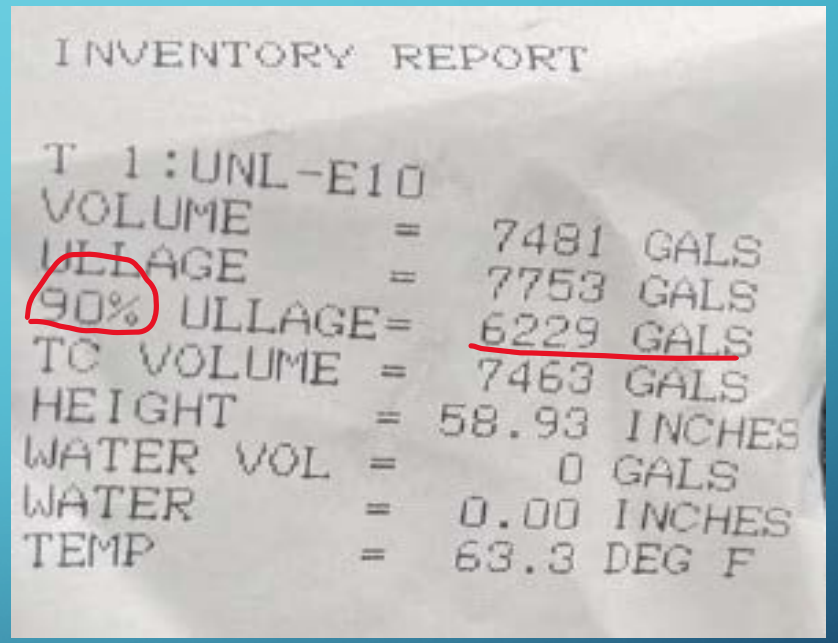
How Do Fuel Orders get Calculated?

- Average Usage
- Current Fuel Inventory
- Ullage Space (Remaining Capacity)
- Spikes or Lulls in Usage.

DISPATCHER INFO:



MAX OR LABEL VOL	:	8068
OVERFILL LIMIT	:	90%
	:	7261
HIGH PRODUCT	:	95%
	:	7664
DELIVERY LIMIT	:	12%
	:	1000
LOW PRODUCT	:	550
LEAK ALARM LIMIT	:	50
SUDDEN LOSS LIMIT	:	50
TANK TILT	:	0.00

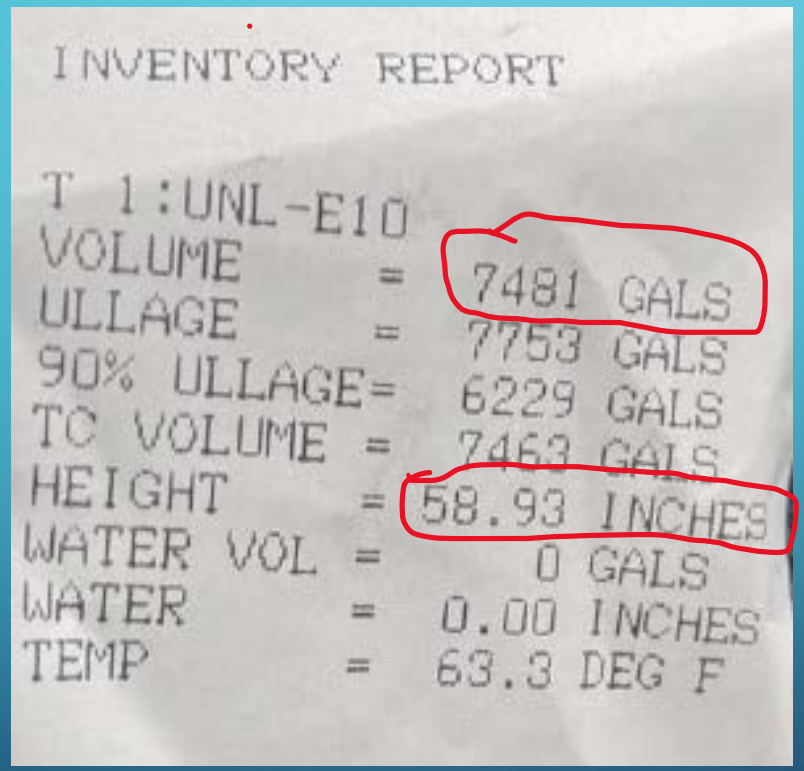


INVENTORY REPORT

T 1:UNL-E10

VOLUME	=	7481 GALS
ULLAGE	=	7753 GALS
90% ULLAGE	=	6229 GALS
TC VOLUME	=	7463 GALS
HEIGHT	=	58.93 INCHES
WATER VOL	=	0 GALS
WATER	=	0.00 INCHES
TEMP	=	63.3 DEG F

TRANSPORTER/SITE MANAGEMENT



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HEIGHT	=	58.93 INCHES
WATER VOL	=	0 GALS
WATER	=	0.00 INCHES
TEMP	=	63.3 DEG F

WHO CALCULATES THE FUEL CAPACITY PRIOR TO A DROP?

- Dispatcher?
- Transport Driver?
- Site Personnel?

- Should the Fill be tagged with Overfill Shutoff %?

Ball Float Valve	All accessible tank top fittings are tight	Yes No	Yes No	Yes No	Yes No
	Tank does NOT have a suction or tank syphon line installed	Yes No	Yes No	Yes No	Yes No
	Standard drop tubes are installed & in good condition	Yes No	Yes No	Yes No	Yes No
	Length of Ball Float Valve (inches)				
	Height of tank top manway (if applicable) (inches)				
	Distance below top of tank that ball float valve is set (inches)				
	Indicate tank capacity when flow restriction occurs (%)				
	ATG Overfill Limit Matches Capacity at Flow Restriction (%)	Yes No	Yes No	Yes No	Yes No
Drop Tube Device	Complete shut off occurs below any ball float nipple in the tank	Yes No	Yes No	Yes No	Yes No
	Assembly and all gaskets/seals in good condition(**confirm correct adapter for coaxial**)	Yes No	Yes No	Yes No	Yes No
	Length of upper tube to the “Reference Point” (inches)				
	Length of Fill Riser pipe (Seating position to tank top) (Inches)				
	Height of tank top manway (if applicable) (inches)				
	Distance below tank top where “Reference Point” is located (Inches)				
	Distance between Reference Point and Complete Shut off Point				
	Distance below tank top where complete shut off occurs (inches)				
	Indicate tank capacity when complete (2nd Stage) shut off occurs (%)				
	ATG High Product Limit Matches Capacity at Shutoff (%)	Yes No	Yes No	Yes No	Yes No

THIRD PARTY CERTIFICATION.

- How can we assist the operator and the transport company?
- Go beyond reporting.
- Reprogram and Tag

Q & A ?

OVERFILL PREVENTION TYPES:

- Automatic Shutoff

Delivery/Dispatching

Automatic Shutoff ★

Flow Restriction

Audible/Visual Alarms

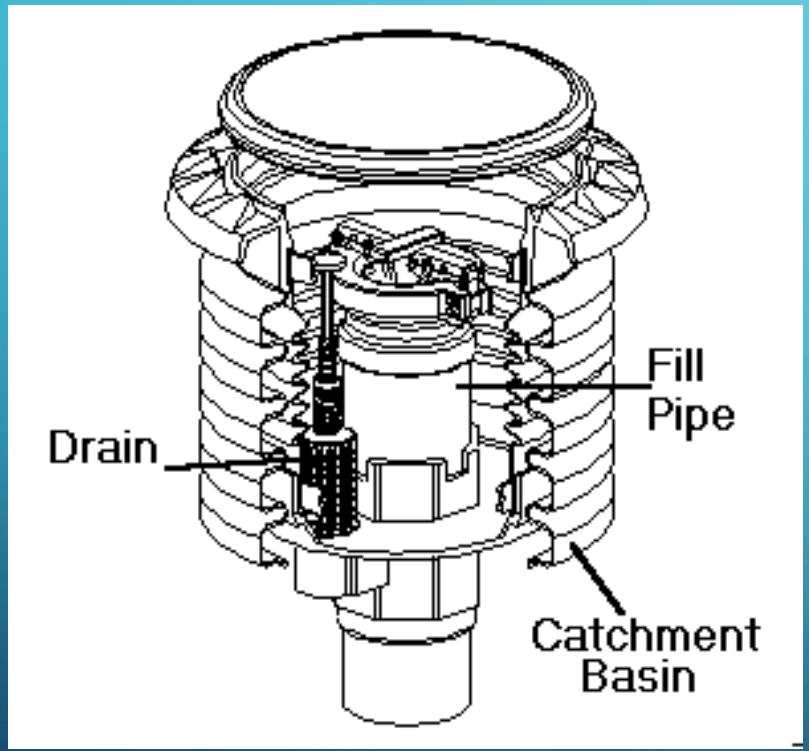
COMMON FAILURES: (NON-MECHANICAL) AUTO SHUTOFFS

- Improper Installation
- Tampering

COMMON FAILURES: (NON-MECHANICAL) AUTO SHUTOFFS

- Improper Installation ★
- Tampering

FILL PIPE MANIPULATION:



- Fill Adaptors change by Brand and profile.
- When contractors change fill adaptors, they may also change the fill pipe.
- Changing the fill pipe will raise or lower the position of the shutoff.

SWAPPING OVERFILLS

- Overfills can be removed for tank cleaning and other.
- Overfills rarely are the same size for each tank on site.
- Overfills installed in the wrong tank after maintenance.

BUILT INCORRECTLY:

- In the photo here, you can see the OPW overfill was installed at 95%.
- Unfortunately, the installer did not measure the flapper correctly and installed at 97%.
- Further, due to a tank tilt, the overfill device should have been at 93%.

COMPENSATION FOR NON REMOVED BALL FLOATS

- Calculate based on ball float percentage.
- Calculate tank tilt to ensure correct shut off measurement.
- Construct shutoff 2% below ball float tube for vapor space.

COMMON FAILURES: (NON-MECHANICAL) AUTO SHUTOFFS

Improper Installation

Tampering ★

TAMPERING

WHY REQUIRE REMOVAL TO INSPECT?

Q&A

OVERFILL PREVENTION TYPES:

- Flow Restriction

Delivery/Dispatching

Automatic Shutoff

Flow Restriction ★

Audible/Visual Alarms

COMMON FAILURES: FLOW RESTRICTORS (NON-MECHANICAL)

- Tank Integrity ★
- System Design
- Length Of Ball Tube
- Tank Tilt
- Tank Deflection

1. TANK INTEGRITY

- Cracked caps.
- Stripped Riser Threads
- Broken Wire Grommets
- Bad drain Valves

COMMON FAILURES: FLOW RESTRICTORS (NON-MECHANICAL)

- Tank Integrity
- System Design ★
- Length Of Ball Tube
- Tank Tilt
- Tank Deflection

SYSTEM DESIGN

- Dual Fills on Single Product Tanks
- Manifolded Tank Systems

COMMON FAILURES: FLOW RESTRICTORS (NON-MECHANICAL)

- Tank Integrity
- System Design
- Length Of Ball Tube ★
- Tank Tilt
- Tank Deflection

WHERE DOES THE BALL FLOAT SIT IN THE EXTRACTOR?

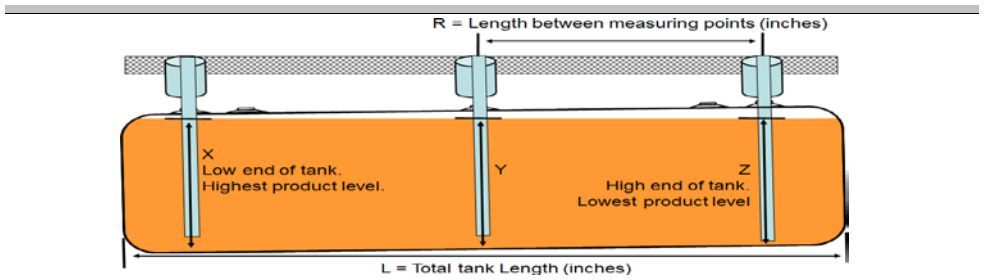
LENGTH OF TUBE

DOES ANYONE SEE WHERE THIS TUBE RESTS ON THE TANK TOP?

COMMON FAILURES: FLOW RESTRICTORS (NON-MECHANICAL)

- Tank Integrity
- System Design
- Length Of Ball Tube
- Tank Tilt ★
- Tank Deflection ★

TANK TILT/TANK DEFLECTION



- Overall Tank Tilt = (Difference between product levels) * (L/R)
- Tank Deflection = Tank Diameter from tank chart (-) The measured tank diameter
- Ullage (Inches) at low end when device is at high end = Distance below tank top at High end (-) Tank Tilt (-) Deflection Ullage (inches) at low end when device is at middle = Distance below tank top at Middle of tank (-) Half of Tank Tilt (-) Deflection

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Q/A

Thank You, Speakers!

Russ Brauksieck | ***U.S. EPA***

Spruce Wheelock | retired,
formerly with New Hampshire DES

David McKamie| ***DATZ UST Management, LLC***

UST Inspector Training Series: https://neiwpcc.org/our-programs/underground-storage-tanks/ust-training-resources-inspection-leak-prevention/webinar-archive-inspector-training/

LUST Corrective Action Series: https://neiwpcc.org/our-programs/underground-storage-tanks/lust-training-resources-corrective-action/webinar-archive-corrective-action/

LUST Line: https://neiwpcc.org/our-programs/underground-storage-tanks/l-u-s-t-line/

National Tanks Conference: https://neiwpcc.org/our-programs/underground-storage-tanks/national-tanks-conference/

UST INSPECTOR TRAINING WEBINAR SERIES:

UST OVERFILL PREVENTION

12/15/2021

Thank you for your participation!