

Pressurized Piping Interstitial Monitoring

Is There a Better Way?

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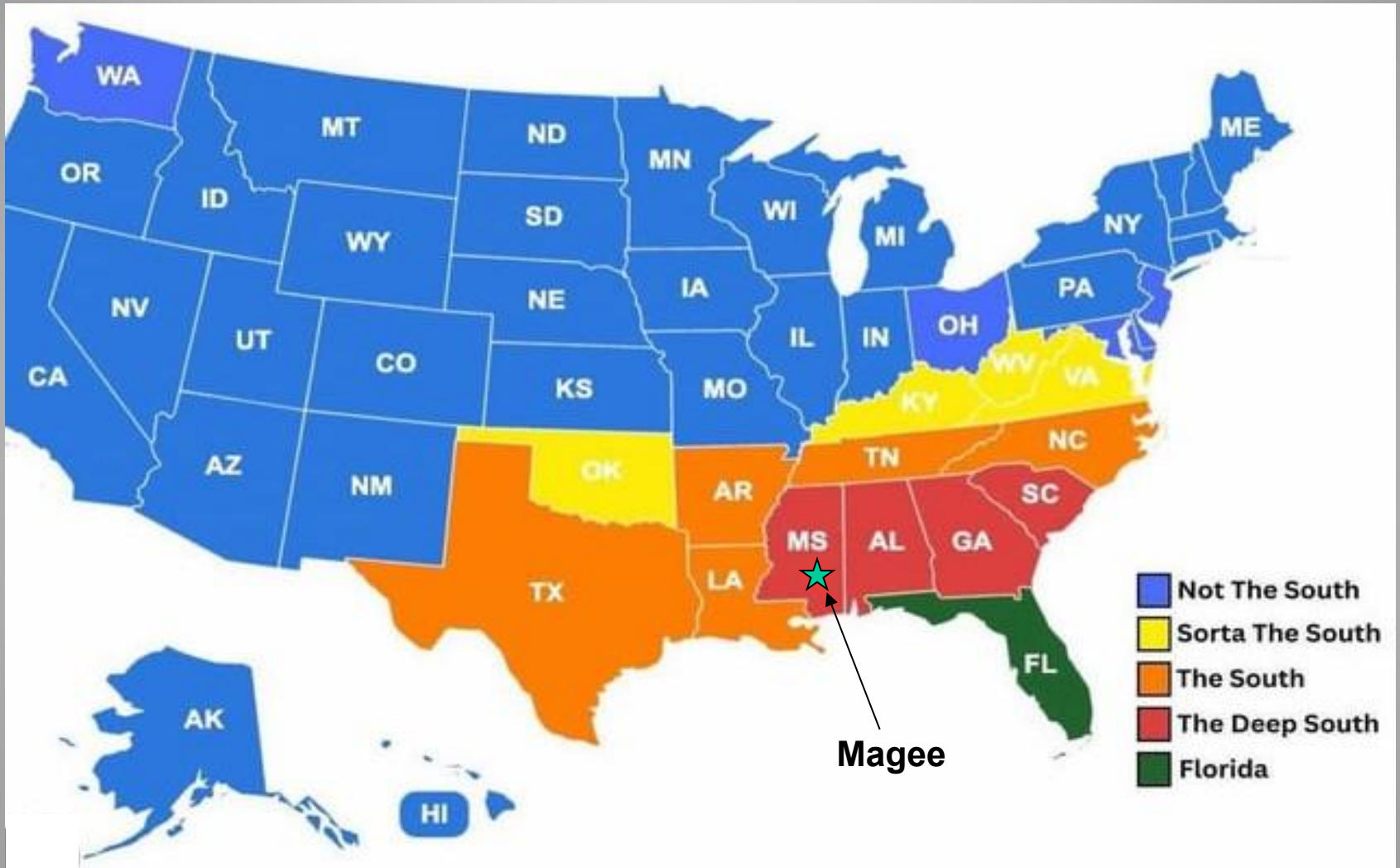


PRESSURIZED PIPING INTERSTITIAL MONITORING

Historically a lot of confusion and inconsistencies

1. What sumps must be monitored/tested?
2. How do you ensure piping interstitial communication?
3. Where should the interstice be open/closed?
4. How do you like your sumps tested?
5. What records should be kept?

DEEP South Dialect



I ain't got no English

“I’m fixin’ to eat dinner”



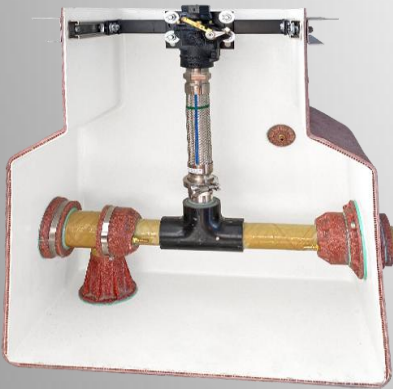
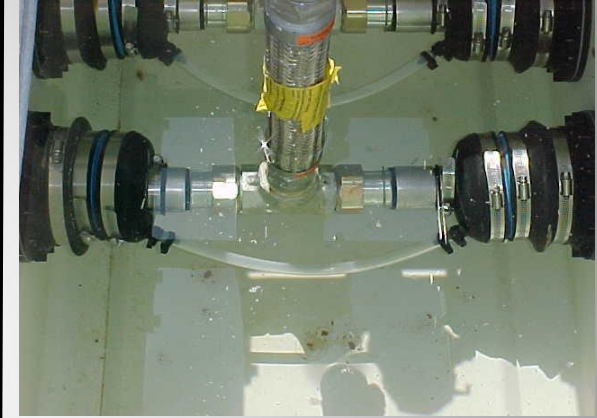
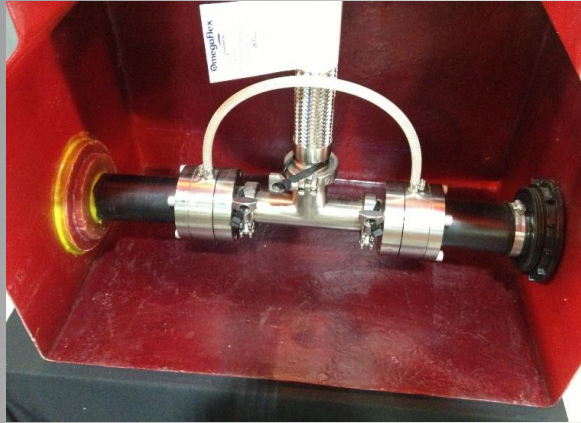
a. 11:00 a.m. – 1:00 p.m.

b. 5:00 p.m. – 7:00 p.m.



1. What Sumps Must be Monitored/Tested?

Are there any piping system that are entirely double-walled?



Every piping system I am aware of has single-walled components

ALL PIPING SYSTEMS HAVE SINGLE-WALL COMPONENTS - THIS MEANS

ALL containment sumps must be monitored

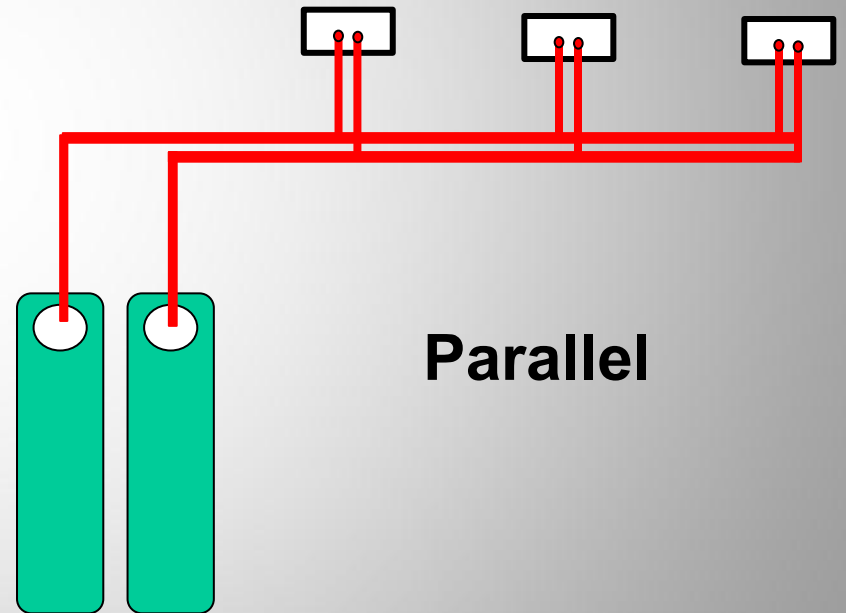
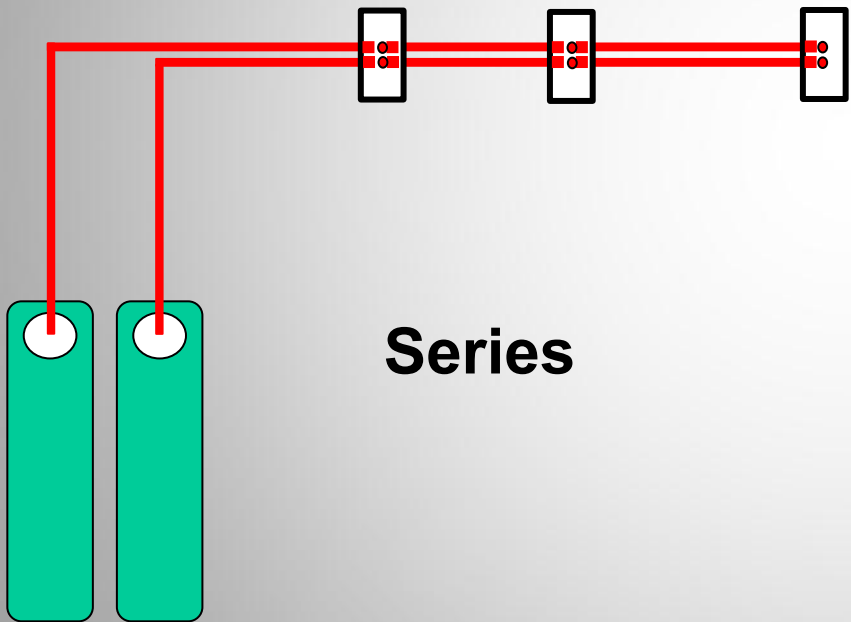
ALL single-wall containment sumps must be periodically tested
(3-year integrity testing)



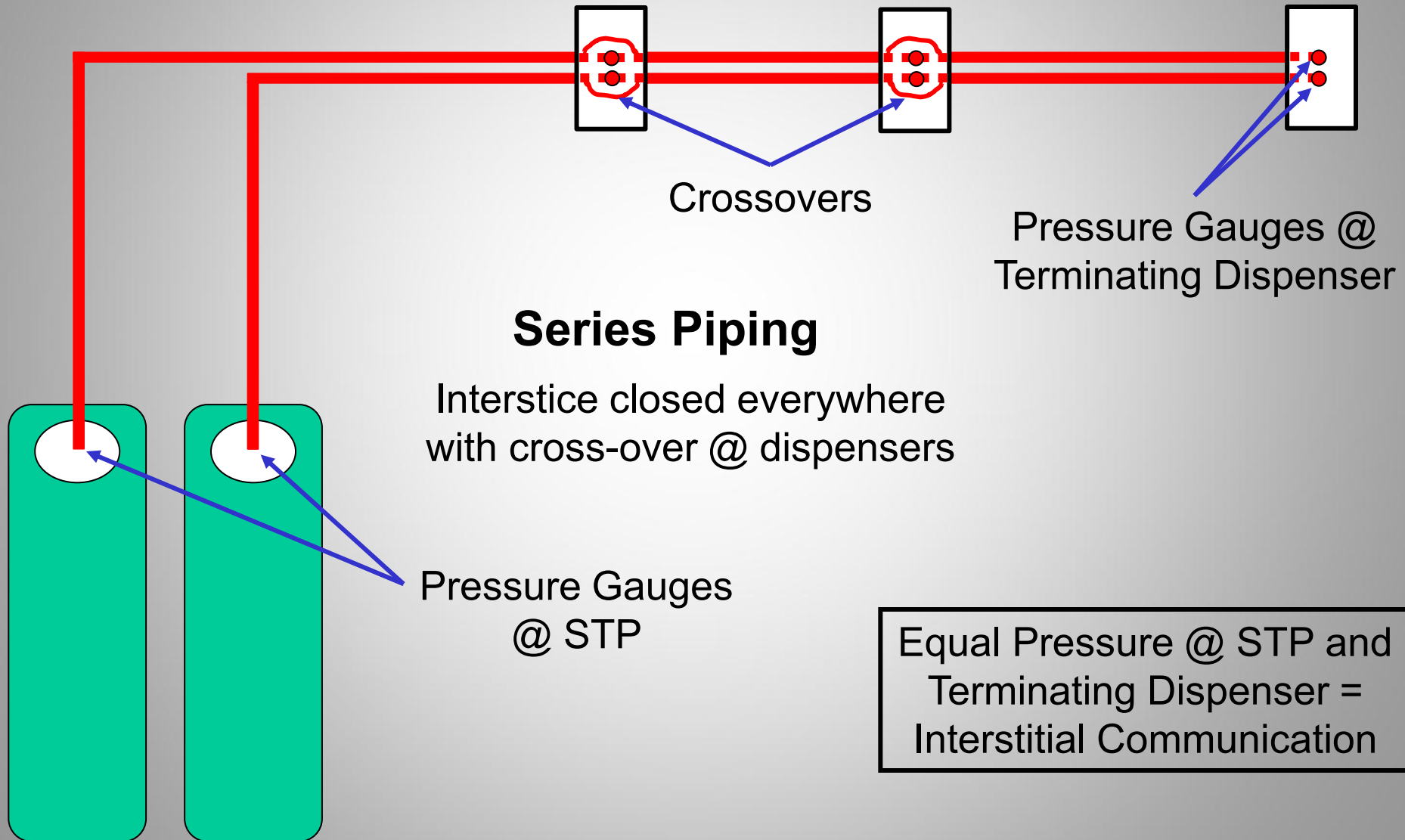
Monitoring & periodic integrity testing of containment sumps is independent
of whether the interstice is open or closed

2. How do you ensure piping interstitial communication?

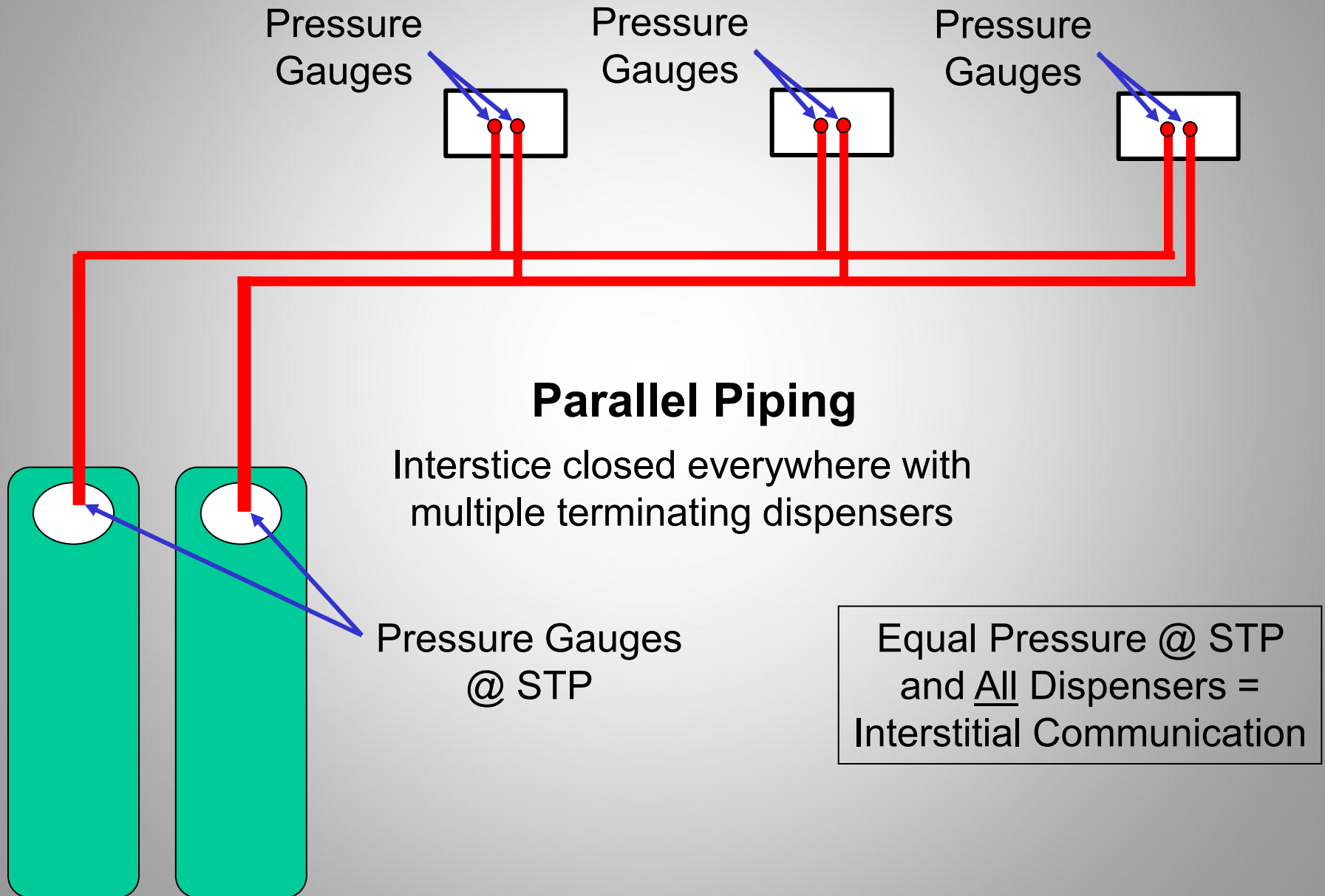
Two basic ways of installing piping systems



INITIAL PIPE SECONDARY CONTAINMENT INTEGRITY TEST (Performed at Installation of New Piping)



INITIAL PIPE SECONDARY CONTAINMENT INTEGRITY TEST (Performed at Installation of New Piping)



Drink Order – “Half & Half”



a.



$\frac{1}{2}$ milk &
 $\frac{1}{2}$ cream

b.



$\frac{1}{2}$ sweet tea &
 $\frac{1}{2}$ lemonade



Whacha
drinkin'
baby?

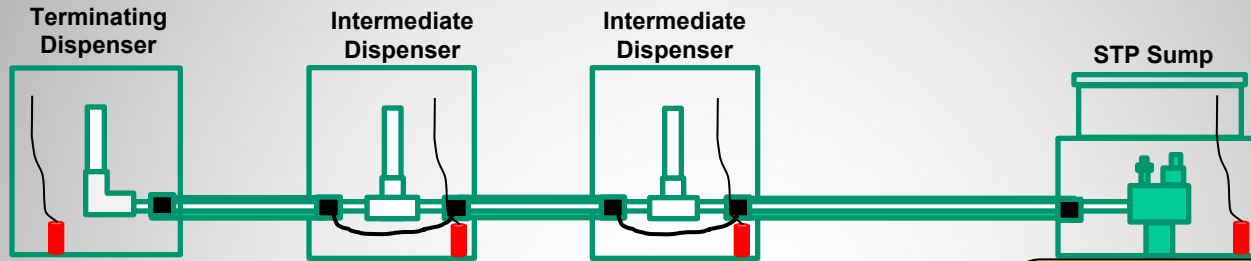
c.



$\frac{1}{2}$ sweet tea &
 $\frac{1}{2}$ unsweet tea

3. Where Should the Interstice be Open/Closed?

Closed Everywhere



This is what I see a lot of the time

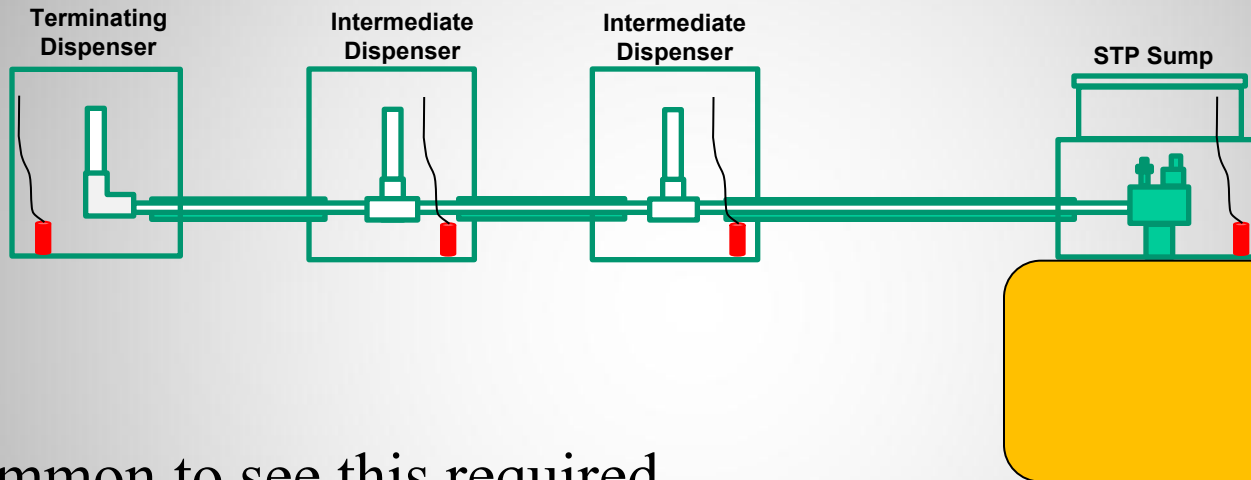
Why is it closed everywhere?

- Never opened after initial post installation testing
- Not opened after 3-year integrity testing
- Because don't know any better
- Because thought that was what the regulator wanted

Not cool unless doing Vacuum or Hydrostatic Monitoring

3. Where Should the Interstice be Open/Closed?

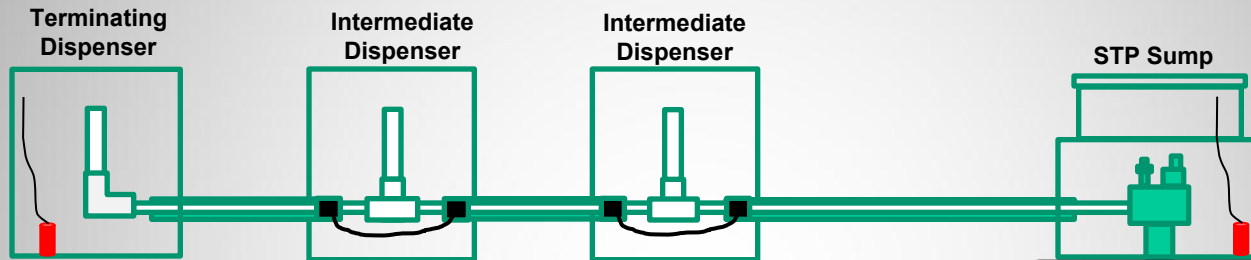
Open everywhere



- Common to see this required
- This came about before the periodic sump integrity testing requirement was implemented
- This can be problematic now that the sumps have to be tested every 3 years

3. Where Should the Interstice be Open/Closed?

Open at the STP and terminating dispenser



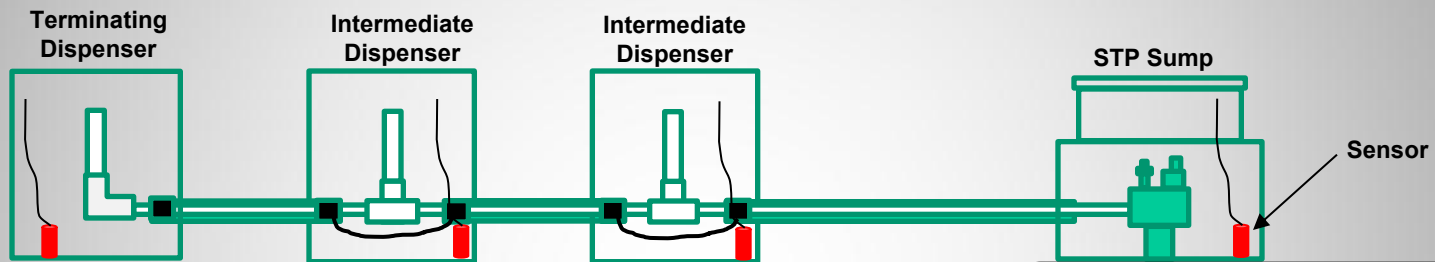
- Sensors usually only at the STP and terminating dispenser
- This was common back in the day before it was understood all sumps must be monitored



Cross-overs @ Intermediate dispensers

3. Where Should the Interstice be Open/Closed?

Open at the STP only



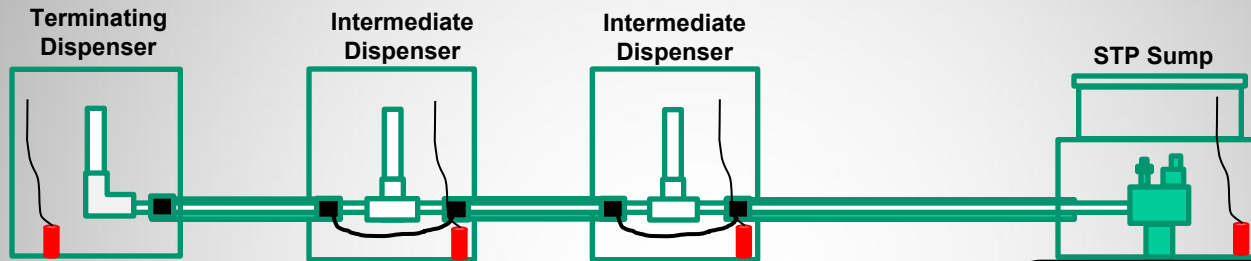
- In a pressurized system a leak in any part of the secondarily contained primary pipe will travel to the open sump
- Transit time is relatively short (STPs typically operate at 28-32 psi)
- Many people still think of transmission of leak as being dependent on gravity



Slope back to the STP no longer required

3. Where Should the Interstice be Open/Closed?

So what is the suggested best recommended practice?



Open at the STP only

Suggested Best Recommended Practice also has to do with how do you like your sumps tested?

APPERTIZER



a. Bruschetta



b. Charcuterie Board



c. Fried Dill Pickles

4. How Do You Like Your Sumps Tested?

Hydrostatic – Low Level



Penetration fittings (where the leaks are) probably not even wetted

Very little (if any) hydrostatic head pressure put on potential leak points

Pipe interstice can be left open in most cases



“Stand alone” dispenser sensors accomplish little or nothing relative to stopping leak in a timely manner

4. How Do You Like Your Sumps Tested?

Dri-Sump Testing



All penetration fittings, joints, seams tested

Zero hydrostatic head pressure on potential leak points

Pipe interstice can be left open



Method depends on putting negative pressure on entire sump assembly from outside (through the backfill)

Are you testing all sump fittings?

4. How Do You Like Your Sumps Tested?

Hydrostatic – High Level



All penetration fittings, joints, seams tested

Hydrostatic head pressure on potential leak points

Pipe interstice must be closed everywhere

Creates too much waste water
argument doesn't really wash

Whatever You Decide

Please do not require the interstitial communication port to be pointed down – Gravity has little to do with it



How Do You Want Your Sumps Tested?

Hydrostatic – High Level



- Access to the interstitial monitoring port can be very difficult
- How likely is it this kind of effort will happen if the interstice has to be closed for testing?
- Or are they more likely to just fake it?

INTERSTITIAL PORT ORIENTATION

Is it open or not?

Everyone is much
better off like this



Or even this



INTERSTITIAL PORT OPEN OR CLOSED



**How do you want
it today?**

Main Course



Fried Catfish

Sides



a. Cole Slaw



b. Turnip Greens



c. French Fries



d. Hush Puppies

5. What Records Should Be Kept?

a. Liquid Status

```
LIQUID STATUS
-----
APR  8. 2022  1:25 PM

L 1:REG UNL SUMP
SENSOR NORMAL

L 2:PREM UNL SUMP
SENSOR NORMAL

L 3:DIESEL SUMP
SENSOR NORMAL

L 4:REG UNL INTERSTICE
FUEL ALARM

L 5:PRE-DIES INTERSTICE
SENSOR NORMAL

L 6:DISPENSER 1-2
SENSOR NORMAL
```

b. Sensor Alarm History

```
ALARM HISTORY REPORT

----- SENSOR ALARM -----
L 1:REG UNL SUMP
STP SUMP
FUEL ALARM
JUL 27. 2021  1:55 PM

FUEL ALARM
MAY 18. 2021  9:02 PM

FUEL ALARM
AUG  3. 2020 12:19 PM

L 2:PREM UNL SUMP
STP SUMP
FUEL ALARM
JUL 27. 2021  1:57 PM

FUEL ALARM
AUG  3. 2020 12:24 PM

FUEL ALARM
FEB 12. 2020 11:26 PM
```

c. Alarm Reconciliation Log



5. What Records Should Be Kept?

Alarm Reconciliation Log

[illegible]

5. What Records Should Be Kept?

Alarm Reconciliation Log

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY MONTHLY ELECTRONIC INTERSTITIAL MONITORING

- > This form may be utilized to document electronic interstitial monitoring of secondarily contained UST systems.
- > Interstitial monitoring is required on all secondarily contained UST systems installed after October 1, 2008.
- > You must maintain a monthly written record that electronic interstitial monitoring has been accomplished.

UST Facility

Person Conducting Monitoring

Facility Name	MDEQ Facility ID # 12977	Person's Name Kevin Henderson
Physical Address		Company Kevin Henderson Consulting, LLC
City Flowood	County Rankin	State MS
UST Owner		Person's Signature 
		Date 08/18/2025

Electronic Interstitial Monitoring

UST System Components Electronically Monitored (check all that apply)

☒ Double-walled Tank ☒ Double-walled Pipe ☒ STP Sump ☐ Dispenser Sump ☐ Transition Sump

Interstitial Space (check all that apply)

☒ Atmospheric (dry) ☒ Hydrostatically Monitored (Brine Filled) ☐ Vacuum Monitored ☐ Pressure Monitored

Type of Electronic Device (check all that apply)

☐ Float Switch ☒ Optical ☐ Electrical Resistivity ☐ Other (specify)

MDEQ Electronic Interstitial Monitoring Procedure

- Document that all sensors are connected to console and apparently functional in the appropriate space below. If your system is capable of producing a "sensor status" report you must attach a copy of the report or it's equivalent to this form.
 - Document all alarms that may have occurred during the month by completion of this form. If your system is capable of producing an "alarm history" report you must attach a copy of the report or it's equivalent to this form for the month.
 - Investigate and document the cause of the alarm including a measurement of the amount of water and/or fuel observed in inches if applicable. Take the appropriate action to resolve the alarm. Consult with your certified contractor if necessary. Attach a copy of all appropriate documentation to this report to show adequate reconciliation of all alarms for the month.
- Any unusual operating conditions or suspected releases discovered must be reported to MDEQ within 24 hours of discovery.

Monitoring Results for the Month of

August

Year

2025

Electronic Sensor ID (Location)	1	2	3							
Component Monitored: Tank / Pipe / Sump	Fill Sump	STP Sump	Tank Inter.							
Sensors are connected to control panel and working?	Yes	Yes	Yes	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
Have there been any alarms for this month? If yes, complete alarm log	Yes	Yes	Yes	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

ALARM LOG

Sensor ID	Date of Alarm	Cause of Alarm	Date Resolved	Describe action taken to resolve
Level	08-18-2025	Fuel Sampling	08-18-2025	Probe reinstalled in tank after sampling completed
1	08-05-2025	Annual Testing	08-05-2025	Sensor reinstalled in fill sump
2	08-05-2025	Annual Testing	08-05-2025	Sensor reinstalled in STP sump
3	08-05-2025	Annual Testing	08-05-2025	Sensor reinstalled in interstitial riser
Level	08-05-2025	Annual Testing	08-05-2025	Probe reinstalled in tank

--- SITE INFORMATION:
Name: BCBS JACKSON MS
ID#: EL111781
VER 9.08 PR 080812
AUG 18, 2025 11:45 AM

INVENTORY REPORT

TANK 1: DIESEL
PRODUCT HEIGHT : 96.59 (In)
WATER HEIGHT : 0.00 (In)
GROSS VOLUME : 21743.87 (G)
T.C. VOLUME : 21547.95 (G)
WATER : 0.01 (G)
ULLAGE : 3225.13 (G)
90% ULLAGE : 728.23 (G)
TEMP. : 80.21 (F)

---OMNTEC SENSOR
MO 08/18/25 11:46:21
SF: 1, P/N: BALS, S/N: 000110486
Tank#: ?, Label#: 0,
NORMAL!

---OMNTEC Mfg., Inc.
Tel: 1 (631) 981-2001
Fax: 1 (631) 981-2007

---OMNTEC SENSOR
MO 08/18/25 11:46:23
SF: 2, P/N: BALS, S/N: 000110489
Tank#: ?, Label#: 0,
NORMAL!

---OMNTEC Mfg., Inc.
Tel: 1 (631) 981-2001
Fax: 1 (631) 981-2007

---OMNTEC SENSOR
MO 08/18/25 11:46:25
SF: 3, P/N: BXR5, S/N: 300092633
Tank#: ?, Label#: 0,
NORMAL!

BCBS OF MISSISSIPPI
ELECTRONIC INTERSTITIAL MONITORING
August 2025

--- SITE INFORMATION:
Name: BCBS JACKSON MS
ID#: EL111781
VER 9.08 PR 080812
AUG 18, 2025 12:26 PM

ALARM LOG REPORT

Tank Number 1
DIESEL
TIME OUT ALARM CLEARED
Event Time: MO 08/18/25 12:04:23

Tank Number 1
DIESEL
LEVEL PROBE TIME OUT
Event Time: MO 08/18/25 11:57:27

Tank Number 1
DIESEL
LOW/LOW LEVEL ALARM
Event Time: MO 08/18/25 11:56:51
2501.34 (G)

Tank Number 1
DIESEL
LOW LEVEL ALARM CLEARED
Event Time: TU 08/05/25 15:07:06

Tank Number 1
DIESEL
TIME OUT ALARM CLEARED
Event Time: TU 08/05/25 15:06:52

SF: 1, BALS, S/N: 000110486
Tank#: ?, Label#: 0
SENSOR ALARM CLEARED
Event Time: TU 08/05/25 12:14:42

SF: 1, BALS, S/N: 000110486
Tank#: ?, Label#: 0
LIQUID ALARM!
Event Time: TU 08/05/25 12:13:34

SF: 3, BXR5, S/N: 300092633
Tank#: ?, Label#: 0
SENSOR ALARM CLEARED
Event Time: TU 08/05/25 12:10:06

SF: 3, BXR5, S/N: 300092633
Tank#: ?, Label#: 0
HIGH LIQUID ALARM!
Event Time: TU 08/05/25 12:09:39

SF: 3, BXR5, S/N: 300092633
Tank#: ?, Label#: 0
LOW LIQUID ALARM!
Event Time: TU 08/05/25 12:09:36

SF: 2, BALS, S/N: 000110489
Tank#: ?, Label#: 0
SENSOR ALARM CLEARED
Event Time: TU 08/05/25 11:35:43

SF: 2, BALS, S/N: 000110489
Tank#: ?, Label#: 0
LIQUID ALARM!
Event Time: TU 08/05/25 11:35:12

Tank Number 1
DIESEL
LEVEL PROBE TIME OUT
Event Time: TU 08/05/25 11:29:07

Interstitial Monitoring

a. Leak Detection

OR

b. Release Detection

?

Dessert



**a. Crème
Brûlée**



c. Tiramisu



**Thanks
Sweetee!**



**b. Peach
Cobbler**