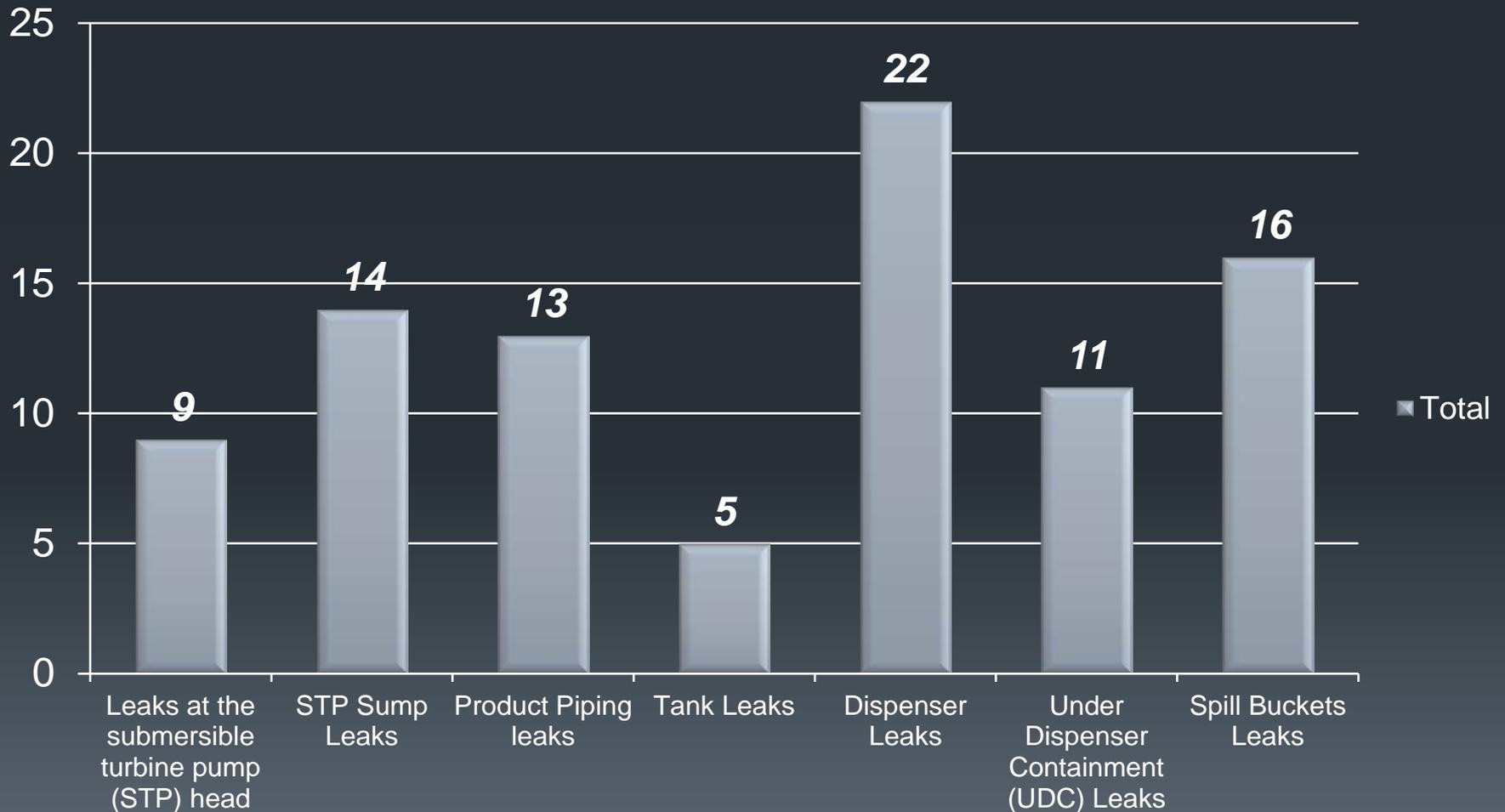


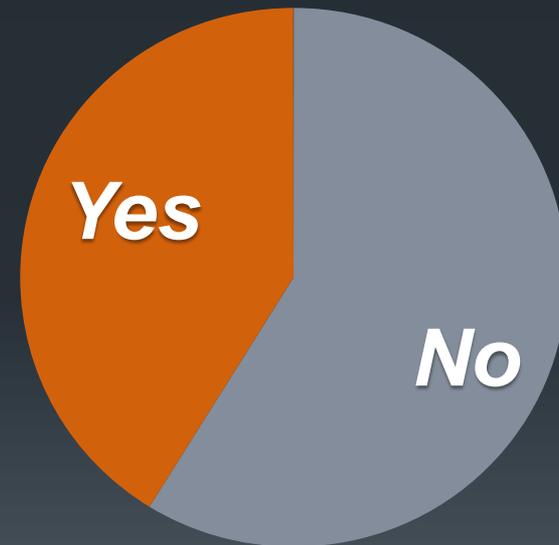


UST Leak Survey Results

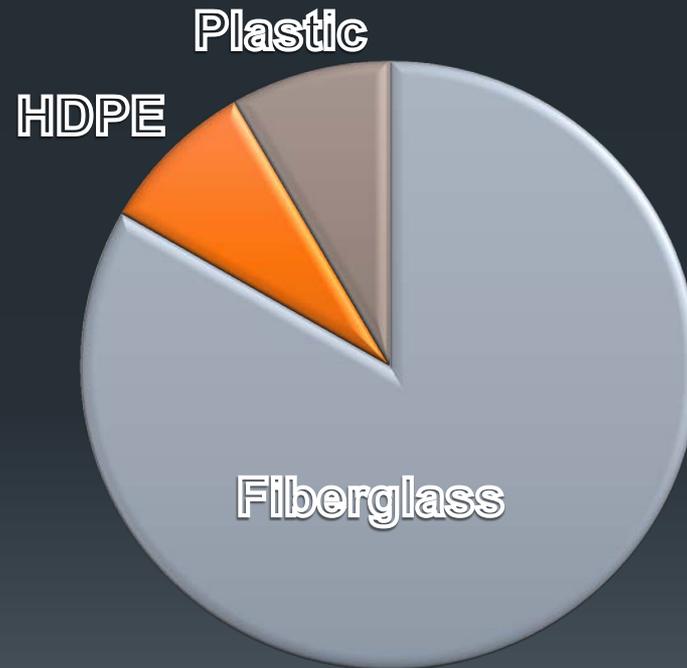
1. What have you discovered in your work over the past 5 years as the most common source of leaks in UST Systems?



2. Are You Satisfied with the Performance of Sump Seals (boots)?



3. What is the Most Reliable Material for Sump Boots?





4. How Long Do Sump Seals (Boots) Last?

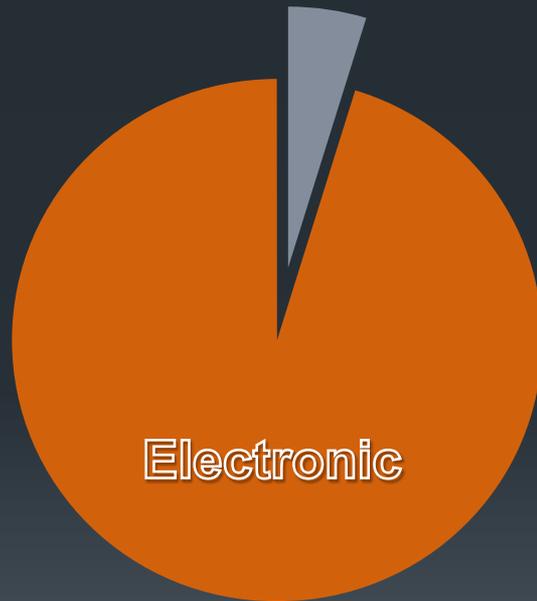
- Depends on the material and the installation
- 5-10 years for flexible boots
- Life of the piping for Fiberglass
- Avoid angled entry for pipe and conduit



5. What Can Be Done to Make Seals More Effective?

- Avoid flexible boots—do not stand up to Petroleum vapors
- Install them correctly

6. Which Performs Better at Detecting a Leak



7. Why Do MLLDs Fail? (Tie)

- Improper Install
- Defective Product
- Air Pockets

8. Why Do MLLDs Fail Function Tests?

- Age/Wear

9. How Long Do MLLDs Last?

- Somewhere between 1-10yrs

10. Why Do ELLDs Fail?

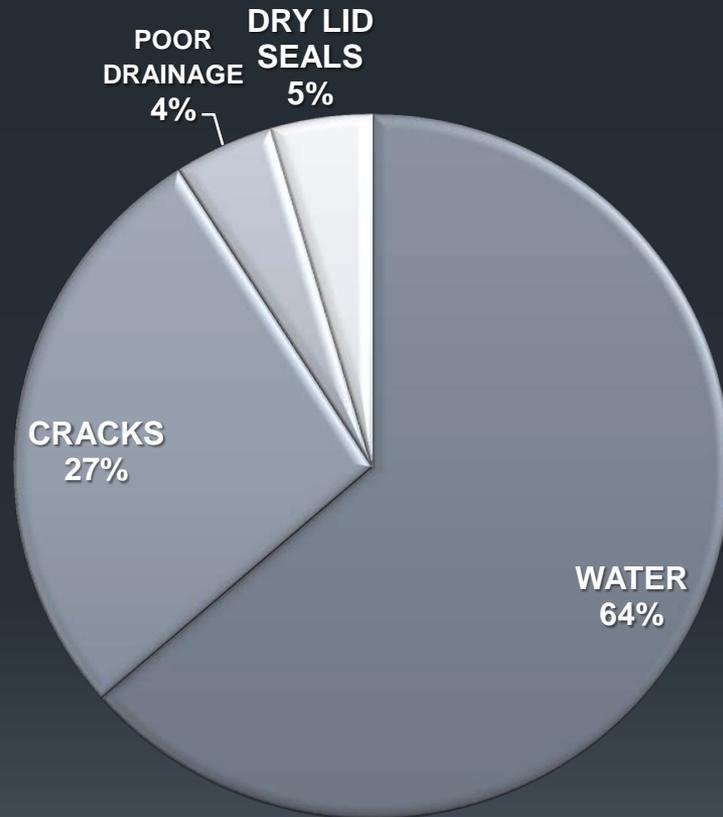
- Improper Programming
- Improper Installation
- Defective Product
- Air Pockets

11. Why Do ELLDs Fail Function Tests?

- Age/Wear
- Unreliable Product
- Manufacturer Defects

Spill Buckets

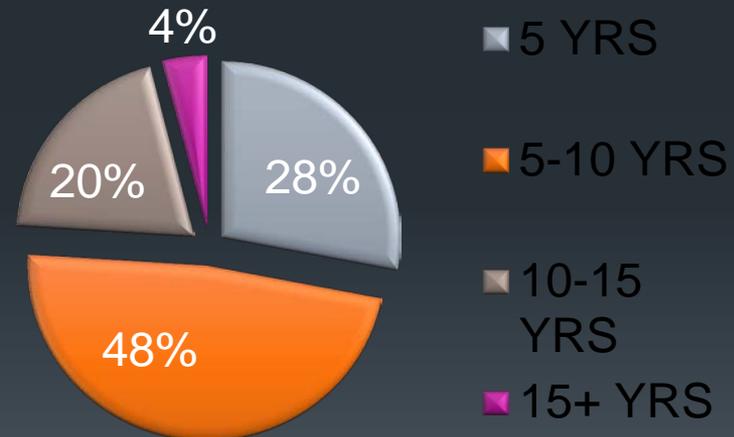
12. What is the most common problem you find with spill buckets?



13. Overall, How Reliable Are Spill buckets?

- Somewhat (54%)
- Very (42%)

14. How long do spill buckets last before problems develop?



Spill Buckets

15. How Often Should Spill Buckets Be Replaced?

- When they Fail!!!

16. How Can Spill Bucket Replacement be Less Financially Burdensome?

- Retrofit with Liner
- Better Maintenance
- Install Tanks out of Traffic Area
- Install Tanks at High Side of Lot

17. Are ATGs Failing to Operate to Manufacturer's Specs?

- Yes (17%)
- No (83%)

18. Why do ATGs Fail Manufacturer's Specs?

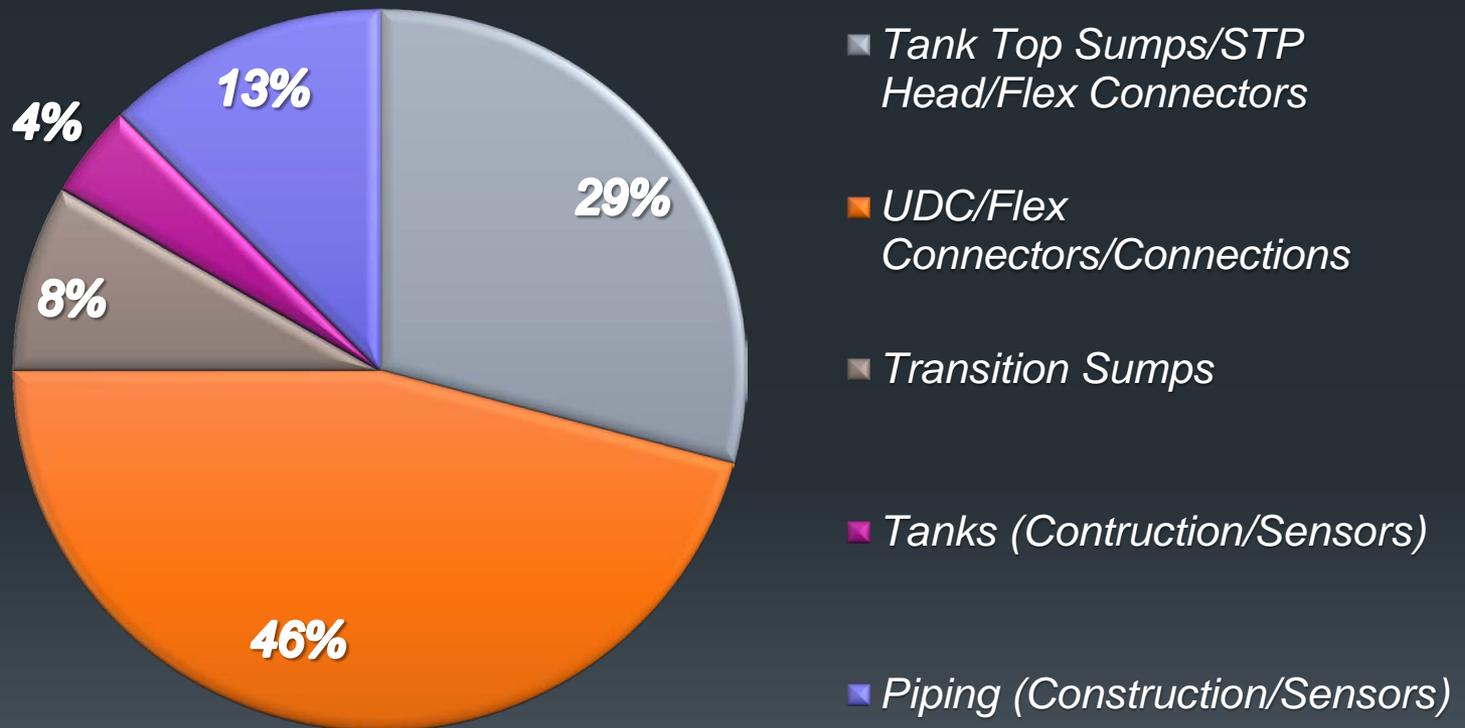
Programming Errors	(67%)
Age Wear	(33%)



19. Are Continuous Electronic Sensors Effective in Detecting Leaks?

- 88 % answered Yes or Most of the Time

20. Which Component Fails with Secondary Containment Most Often?





21. Are Secondary Containment Systems Effective in Preventing Releases

- 92% answered Yes or Most of the Time



22. How Often Do You Run Into Poor Installs

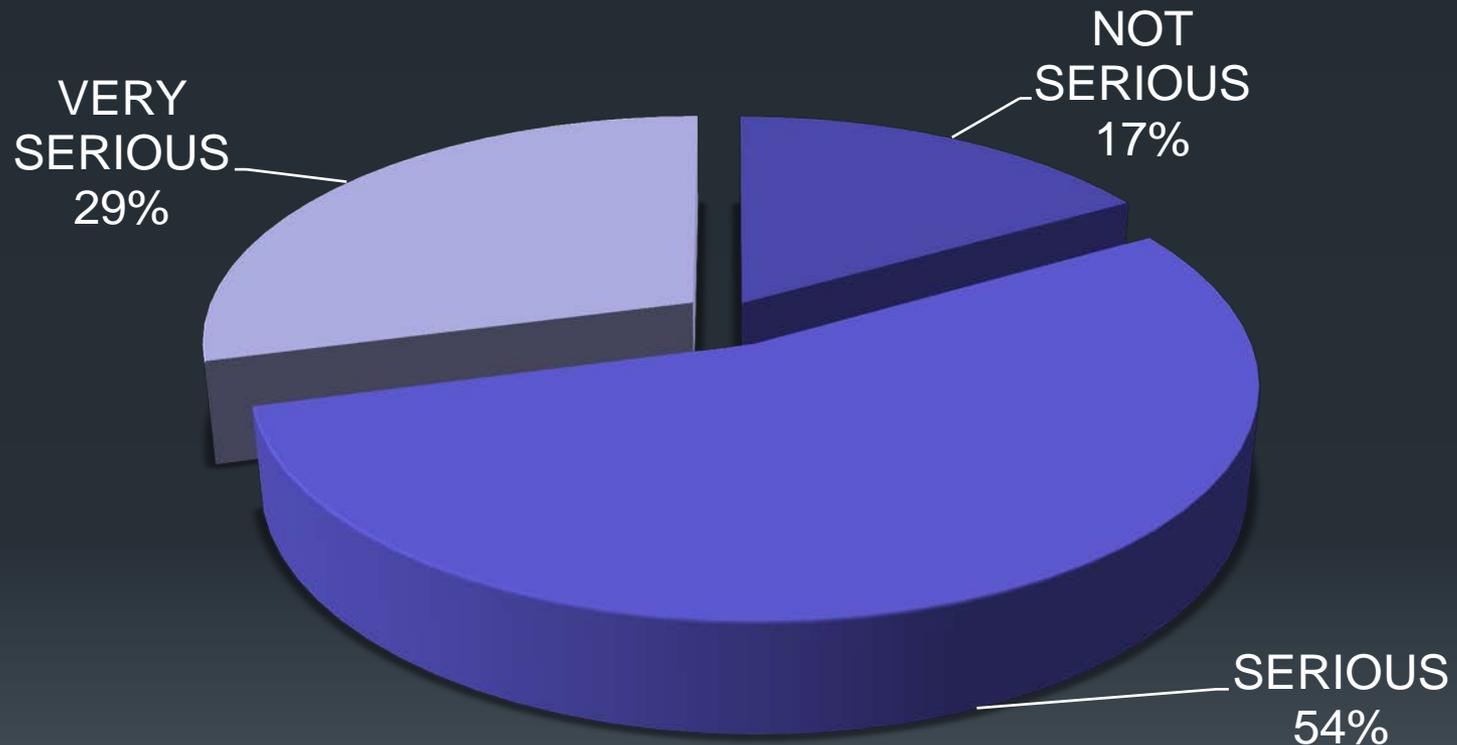
- 56% answered Not Often
- 36% answered Occasionally
- 8% answered Very Often



What Types of Installation Errors/Problems Do You See?

- Line/conduit entry angles
- Improper sensor placement
- Improper sealant—not enough sealant—fittings not tight—penetrations not clean—installed in unsuitable weather—sump deflection. Generally, problems with older systems
- Settling Concrete

How seriously do the new fuels effect UST System integrity?



25. Would You Say the Sec. Cont.
Requirement is an Effective Means of
Containing and Preventing Releases

A 3D rendering of the text "100%" in a bold, orange, sans-serif font. The characters are thick and have a slight shadow beneath them, giving them a three-dimensional appearance. The background is plain white.



Operator Training: Questions 26-28, 30

- Operator Training is very important (57%) to important (39%)
- Iowa's training program is effective at preventing releases (73%)
- Comment: Iowa's operator training program is more effective at containing releases
- Iowa's operator training has made the public safer (73%)



29. What Can be Done to Make Training more Effective in Preventing Spills and Releases?

- Refresher/annual training
- Ensure Class C are knowledgeable
- Maintain training as new equipment is introduced
- Better communication
- Site visits/daily walkthroughs with log



What is the Weakest Link/Component in the UST System?

- Single Wall Systems
- Uncontained sumps and UDCs
- Flex connectors
- Fill and Delivery Ends of System(transporters and customers)
 - Transporters not accountable
- Operators must understand what ATG alarms mean
- Ethanol and vapors are hard on equipment

- How Can We Improve?
 - Routine Inspection of Dispensers



Leak Survey Summary

- Most leaks are found inside dispensers and secondly, in the UDC