

How to Comply with Federal and Florida DEP UST Rules and Avoid Petroleum Discharges to the Environment



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**Division of Waste Management -
Mary Jean Yon, Director
Dotty Diltz, Assistant Director**

**Bureau of Petroleum Storage Systems -
850-245-8821
Mike Ashe, Chief**

**Storage Tank Regulation Section - 850-245-8838
Bill Burns, Administrator - 850-245-8842**





FDEP District Offices

Pensacola - 850-595-8360

Jacksonville - 904-448-4300

Tampa - 813-632-7600

Orlando - 407-894-7555

West Palm - 561-681-6600

Fort Myers - 941-332-6975

Source - STCM, April, 2009



Facility Statistics



Registered \geq 54,000

Active Regulated – 21,122



Tanks



Registered \geq 186,000

Closed/removed \geq 120,000

Regulated USTs – 25,570

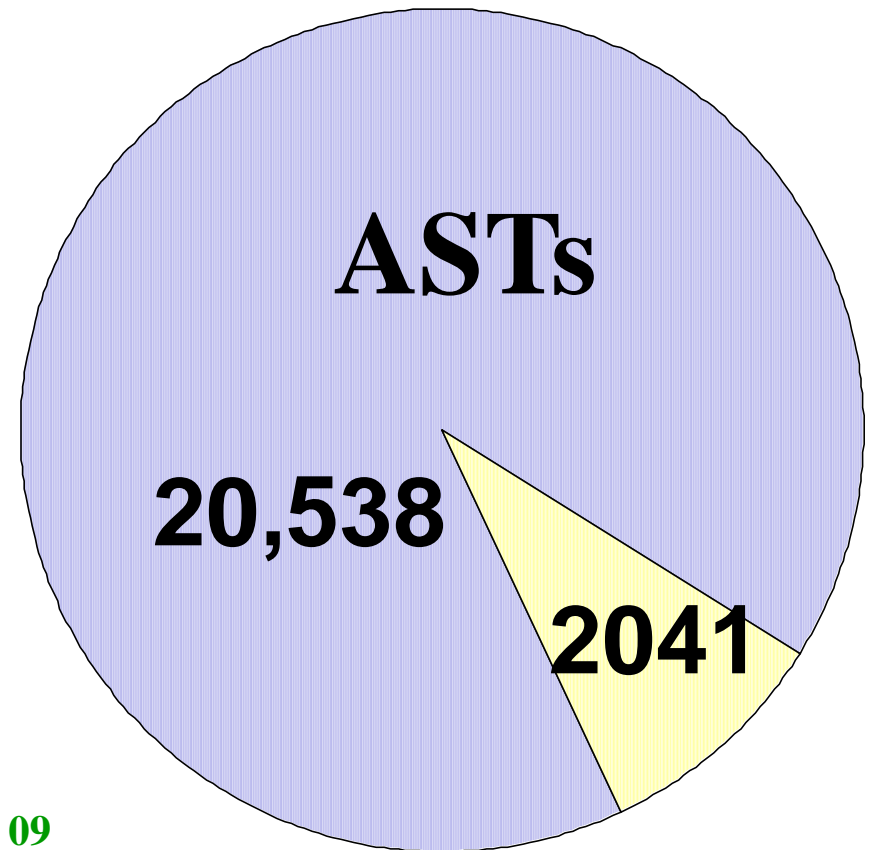
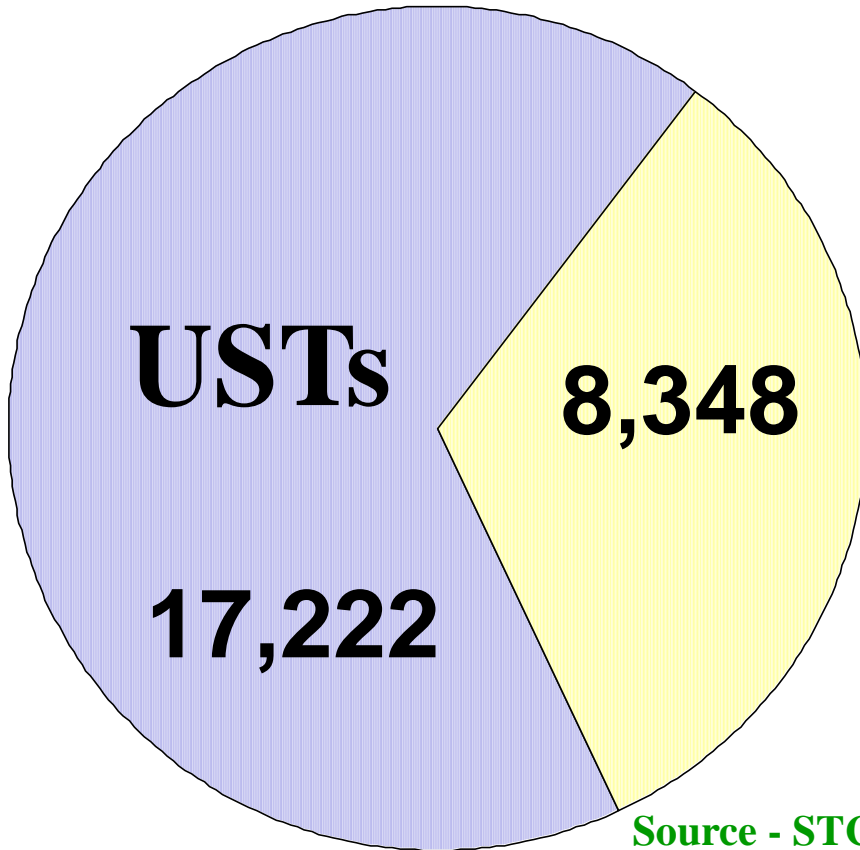
Regulated ASTs – 22,579

***As of April, 2009**

April, 2009 Status

Double-wall USTs – 67.3%

ASTs with
Secondary Containment
91%

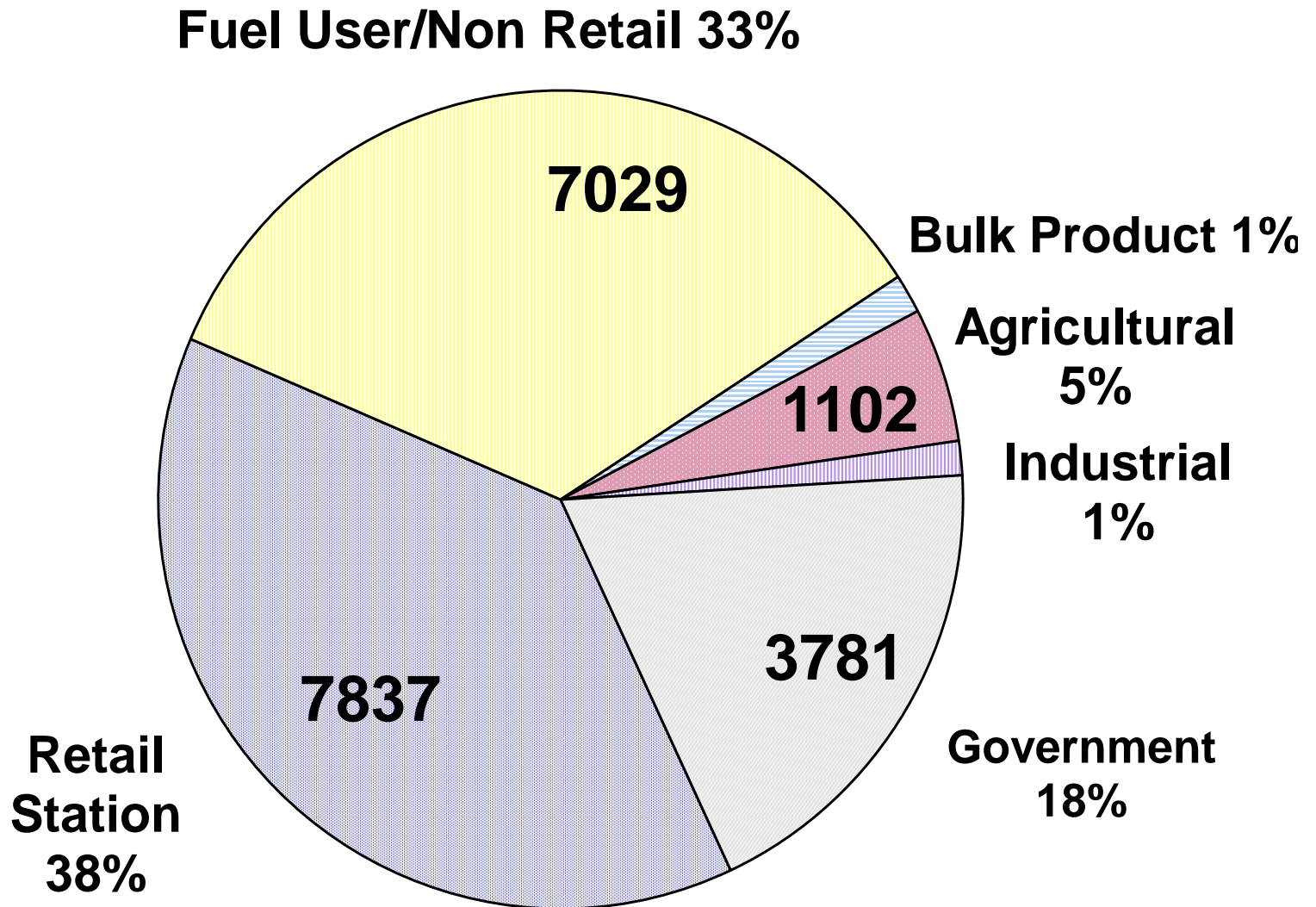


Source - STCM, Apr 09

Single-wall USTs 32.7%

Single-wall ASTs - 9%

Storage Tank Ownership by Facility Type 2009 – ASTs & USTs



Source:
STCM
Apr 09

>35,023 Incident and Discharge Reports Received

As of April 2009



Protecting Florida's Water Quality





Who or What gives DEP or any Agency the Authority to Regulate your Facility?



Your Elected Representatives in the Florida Legislature!



**Legislators pass laws giving authority for
state agencies to adopt rules**

Proposed DEP UST Rule Changes



Current Rule Revision Effort Ongoing Since 1999

Some believe there is no hope...



But...There is Hope...



Are you Regulated?



Applicability

Chapter 62-761.300, F.A.C.

- All underground storage tanks over 110 gallons containing pollutants or CERCLA hazardous substances.
- Tanks must contain products that are liquids at standard temperature and pressure.



Types of Facilities Regulated





10. 6. 2003





MAJOR EXCLUSIONS:

- LP gas tanks.
- Hydraulic lift tanks.
- Stormwater or septic tanks
- Pipelines.
- Loading racks
- Flow through process tanks
- Residential tanks
- Heating oil tanks for on-site use (<30,000 gallons)



Industry Reference Standards – The Technical Foundation of DEP’s Regulations

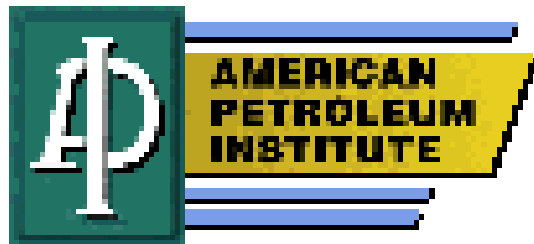
Chapter 62-761.210, F.A.C.

- **ACI** - American Concrete Institute.
- **API** - American Petroleum Institute.
- **ASME** - American Society of Mechanical Engineers
- **ASTM** - American Society for Testing and Materials.
- **NACE** - National Association of Corrosion Engineers.
- **NFPA** - National Fire Protection Association.
- **NLPA** - National Leak Prevention Association.
- **PEI** - Petroleum Equipment Institute.
- **SSPC** - Society for Protective Coatings.
- **STI** - Steel Tank Institute.
- **UL** - Underwriters Laboratories.



Industry Reference Standards

- Available for review at DEP and County Offices
- Available for purchase by the Association
- Are considered rules when adopted by DEP
- Are constantly being updated and modified
- Are usually developed in Committee by industry experts, and may include regulators

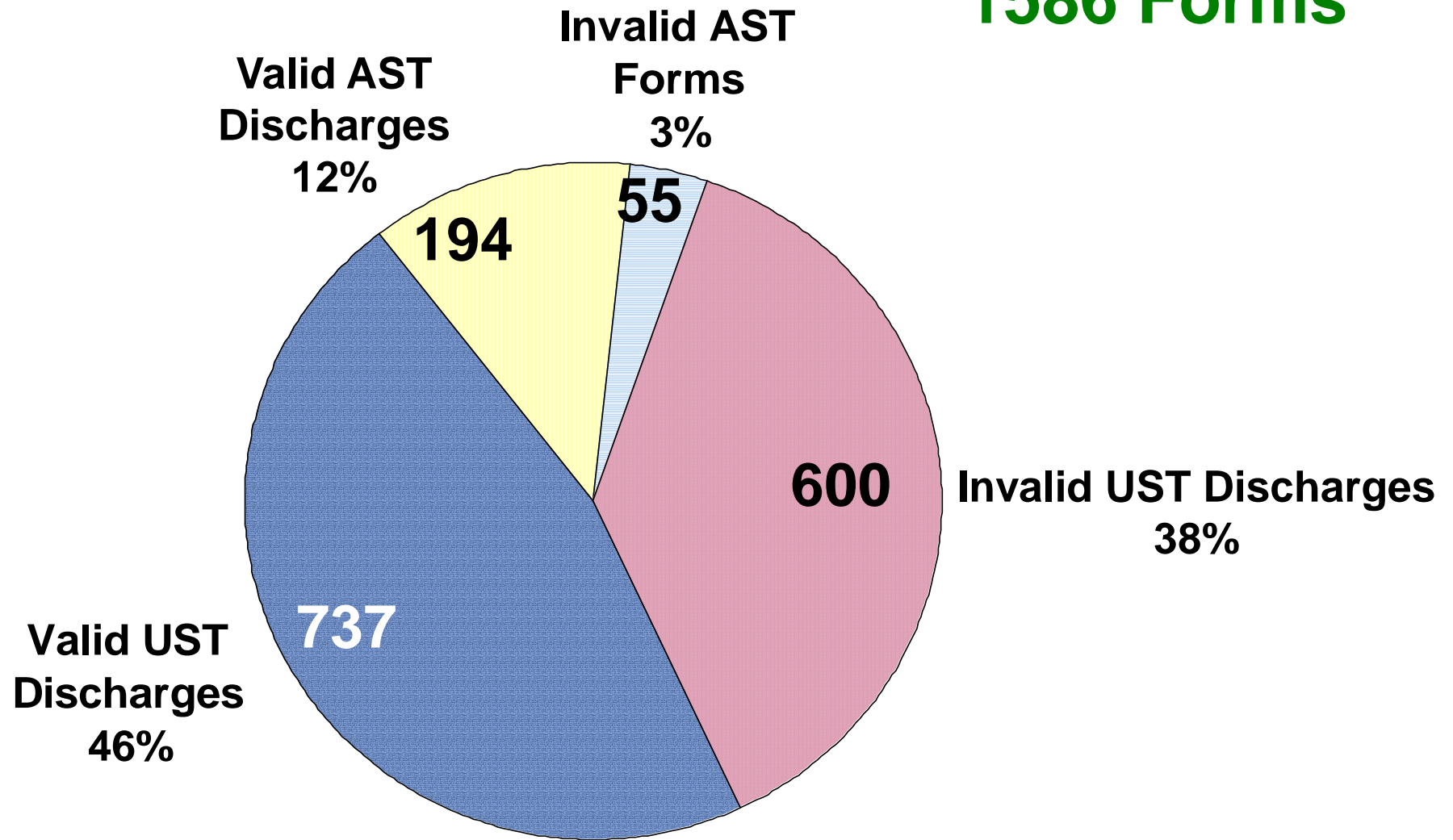


DEP's Florida Leak Autopsy Study – The Statistical Foundation of DEP's Regulations



Florida Leak Autopsy Forms 1 Jan 03 – 10 Mar 08

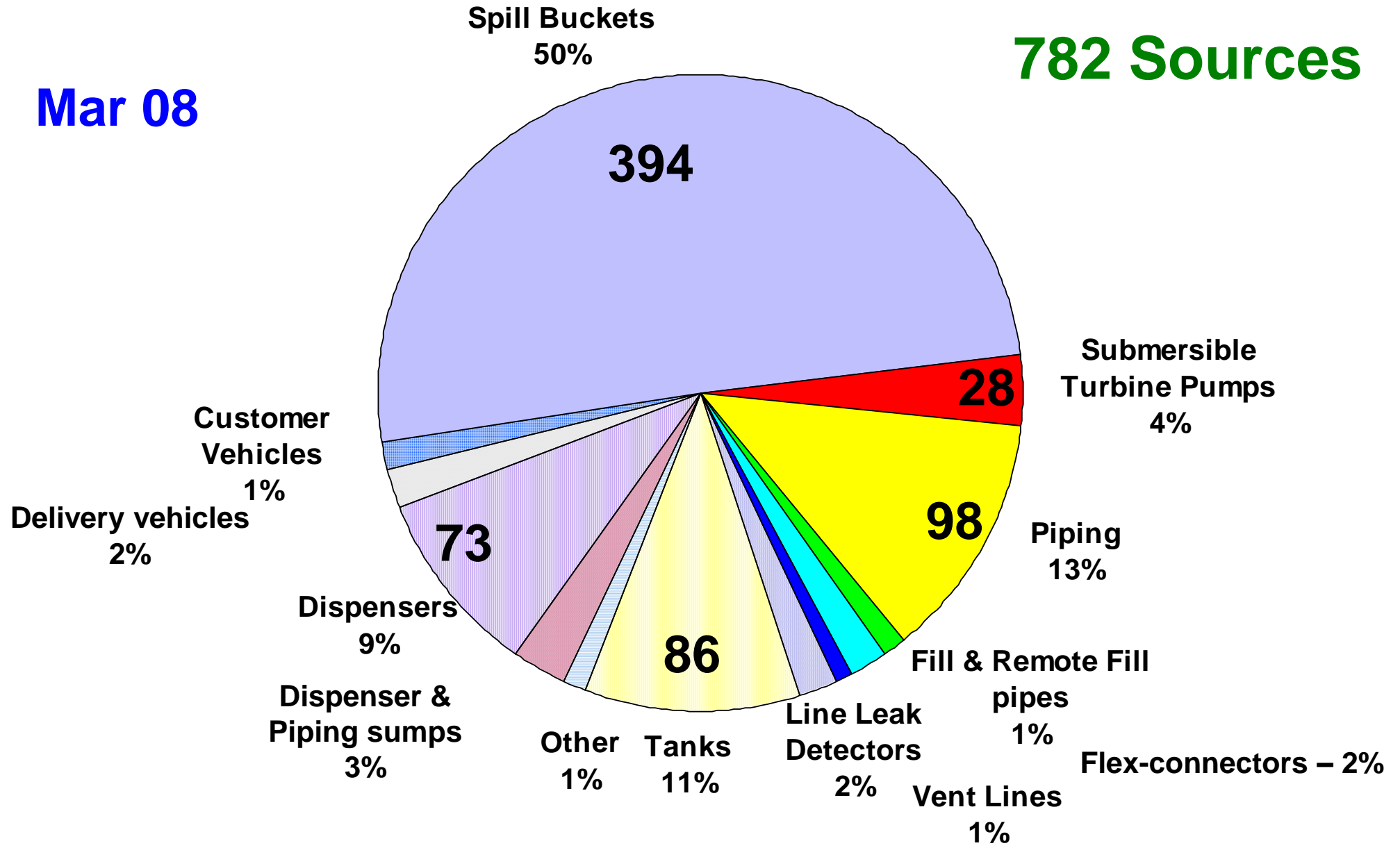
1586 Forms



UST Leak Sources in Florida

Mar 08

782 Sources



Compliance





DEP Regulates Storage Tank Systems

USE APPROVED EQUIPMENT!



Equipment Approvals



Glasteel II

Double your feeling of security with Glasteel II.

Be sure the protection investment is worth the approval. In the area of the highest demand for security there during the coming months, there will always be a need for the best security. Glasteel II is the only product that has been tested and approved by the FBI.

DOUBLE THE QUALITY

Glasteel II is made of 1/2" thick stainless steel with a thickness of 1/2" and a length of 1/2". The FBI has tested Glasteel II for 100,000 cycles and found it to be 100% effective.

DOUBLE COMPATIBILITY

Glasteel II is compatible with all standard door frames, including those with 1 1/2" thick frames.

EXCESS TESTING CRITERIA

A steel door frame with a 1 1/2" thick door is tested for 100,000 cycles. The FBI tested Glasteel II for 100,000 cycles and found it to be 100% effective.

COST-EFFECTIVE

Multiple units can be installed in a single door frame, providing a cost-effective solution for high security areas.

SUPERIOR PERFORMANCE; EASY INSTALLATION

- Superior performance: Superior security.
- Easy installation: No special tools or equipment.
- Fits standard door frames: Fits standard door frames.
- Fits standard door frames: Fits standard door frames.

EXACTLY THE WAY YOU WANT IT

Phone: (214) 544-4444 Fax: (214) 544-4444

www.glasteel.com



Tanks





Fiberglass Reinforced Plastic

**Underground
Storage
Tanks approved in
the
State of Florida**



Composite

Jacketed



**Cathodically
Protected Coated
Steel**

**Underground
Storage
Tanks approved
in the
State of Florida
that are not
commonly used**



**Fiberglass
panels
installed
within an
existing tank**



**Tank Bladders
Revoked!**



Other Types of UST Secondary Containment

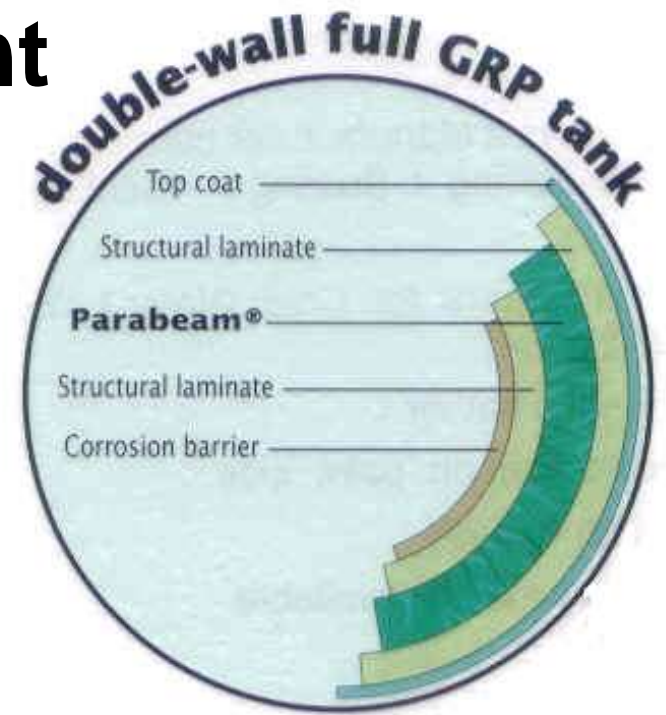
Single-wall corrosion-protected tanks within a synthetic liner



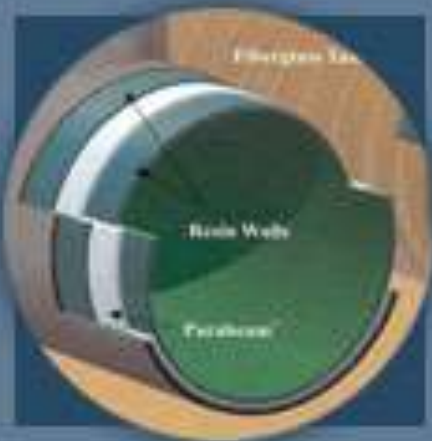
Steel tanks inside concrete vaults



Internal Secondary Containment



Tank Tech,
ZCL Phoenix System, Petrofuse



Installation



Do the job right!



How not
to install
a UST...



15K UST

ID#9806522
kwall

4.16.2004



Proper UST Installation





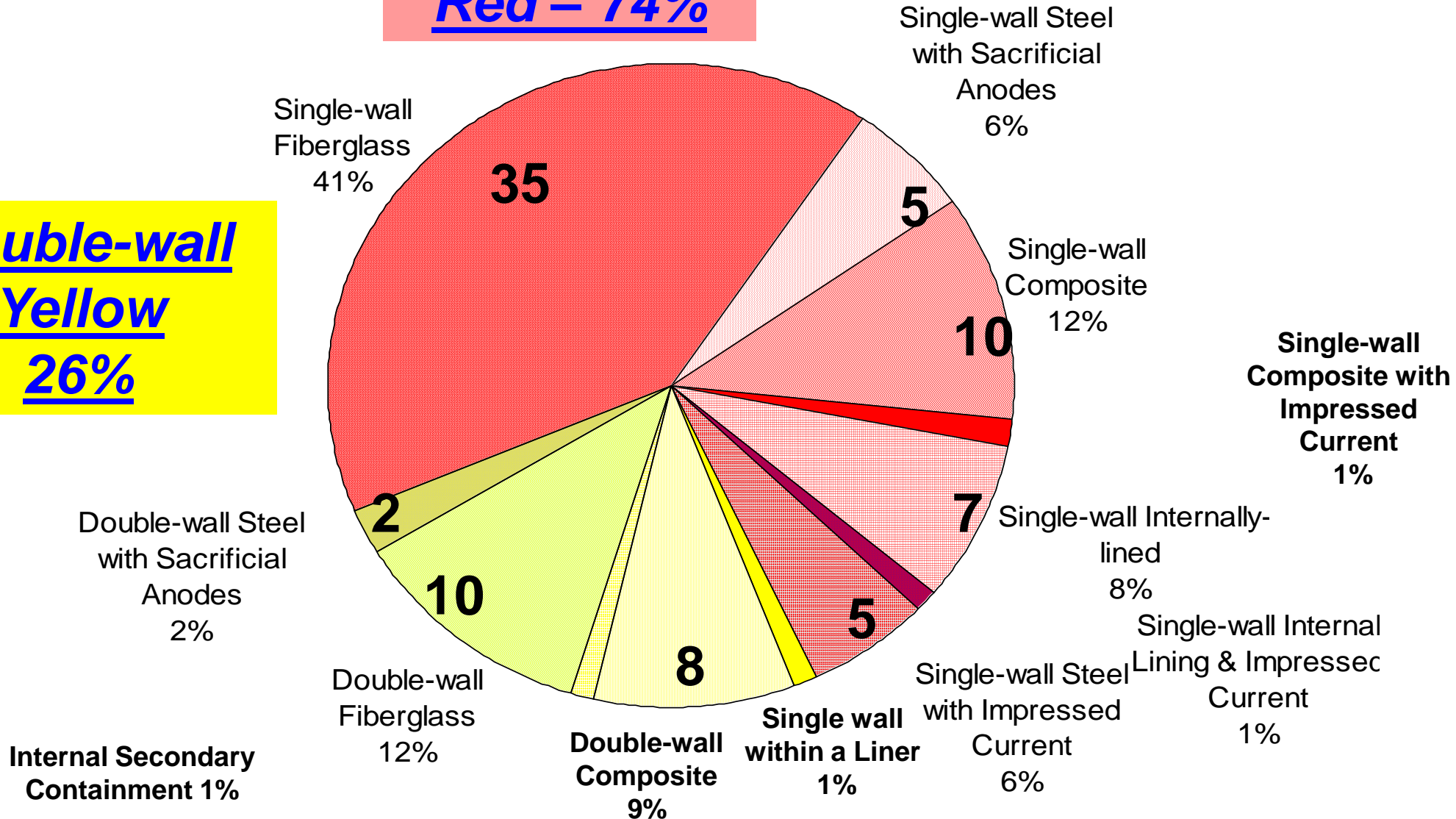
USTs – Tanks as the Source, Type of Tanks

Mar 08

Single-wall
Red – 74%

86 Tanks

Double-wall
Yellow
26%



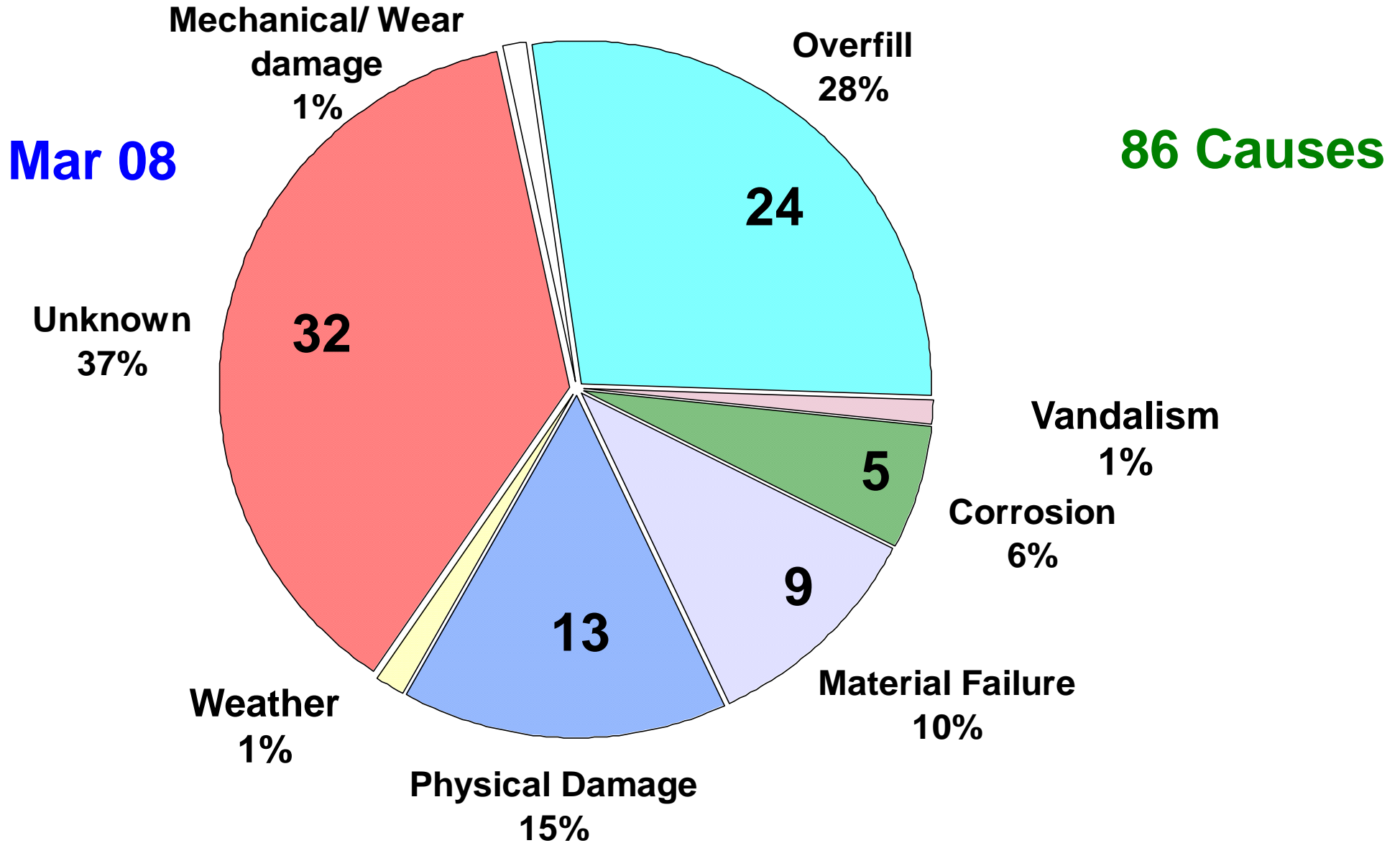


**74% of Discharges
from USTs are from
Single-wall USTs**

8840974 - Big Daddy Truck Stop
Maldenhouer
Tank #2
Flaking internal lining with
evidence of improper repair

2005 8 18

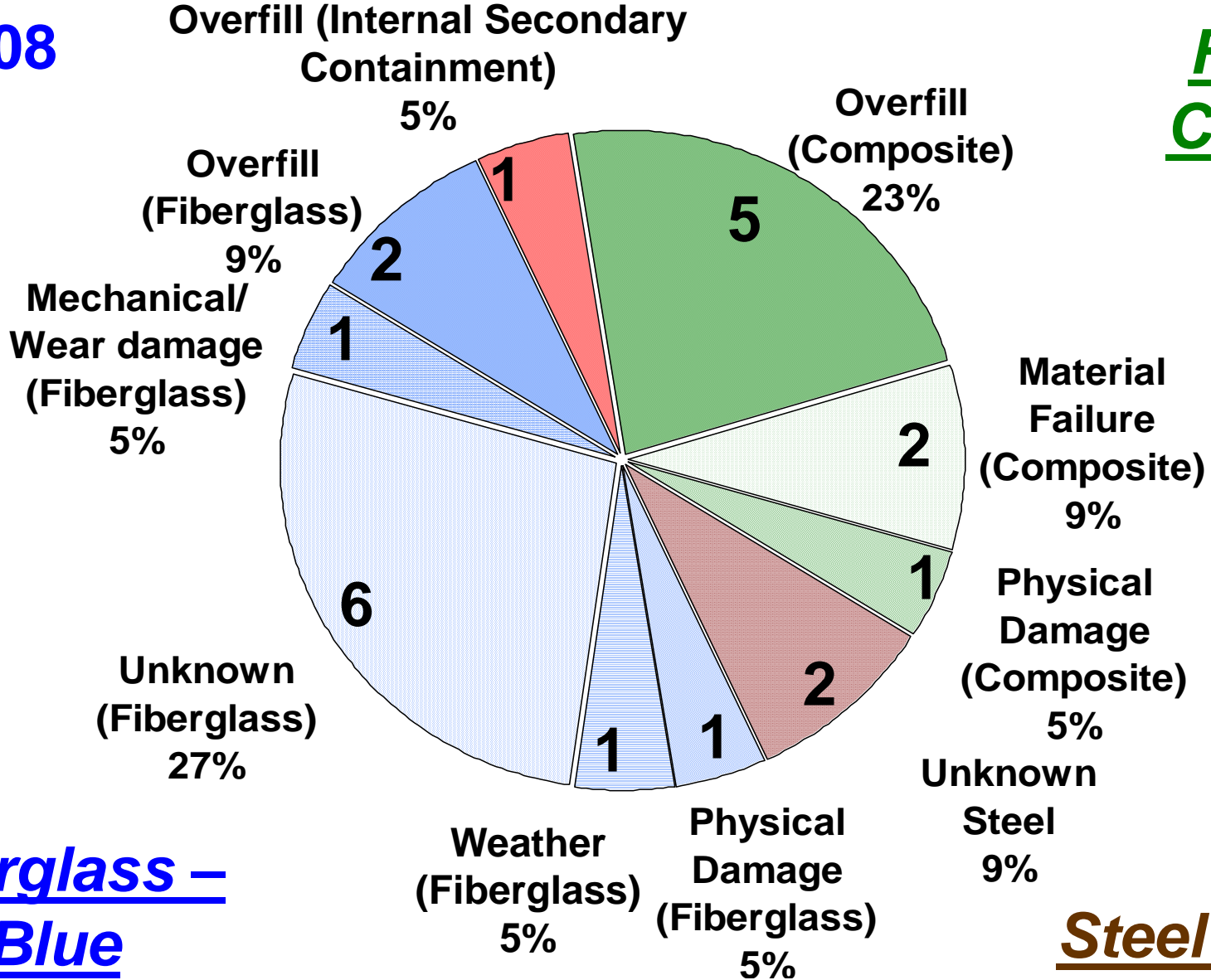
USTs, Tanks as the Source, All Causes



USTs – Double-wall USTs as the Source, Causes

Mar 08

Fiberglass-Coated Steel
- Green



Fiberglass – Blue

22 Tanks

Steel - Brown

USTs – Single-wall USTs as the Source

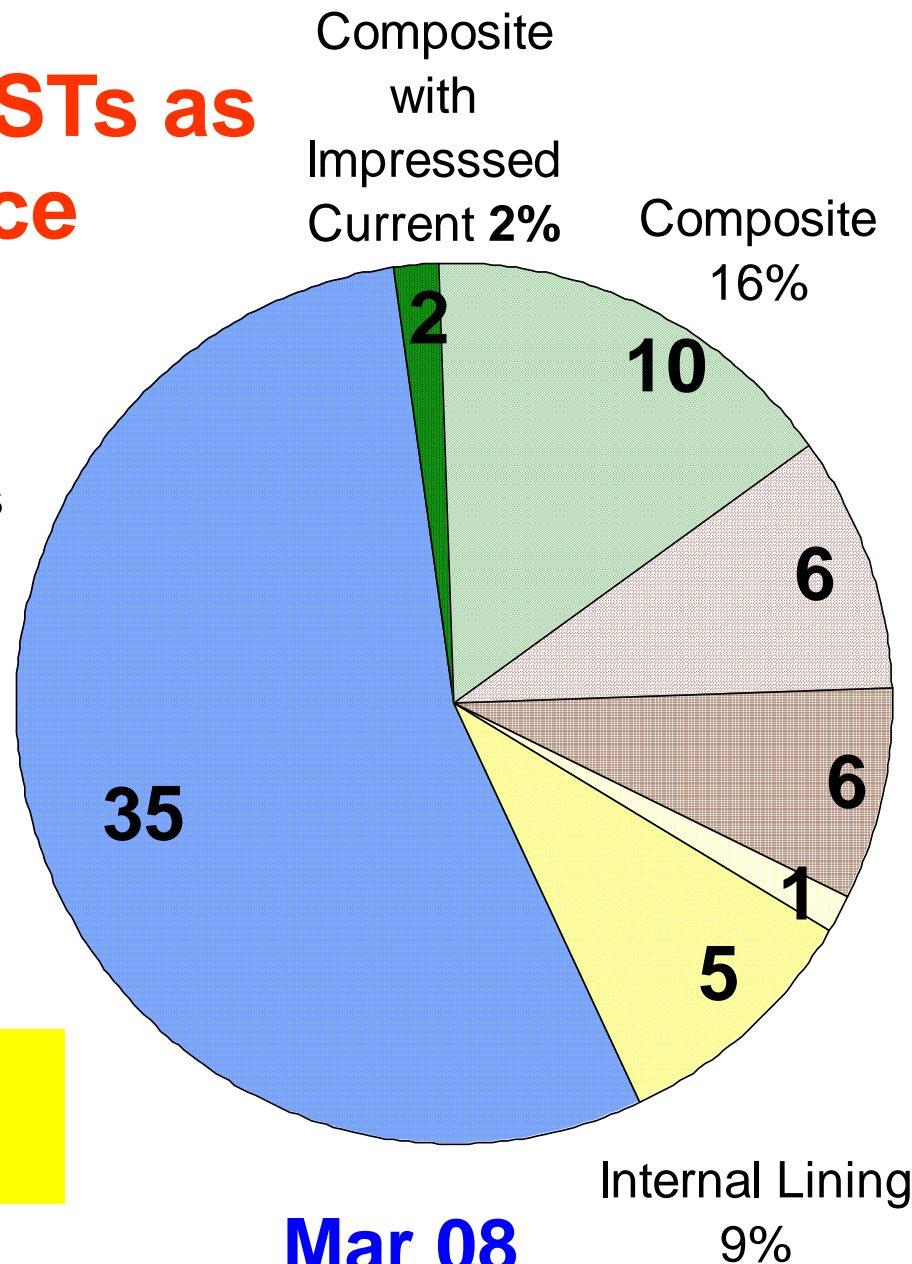
64 Total

Fiberglass
55%

Fiberglass –
Blue

Internal Lining -
Yellow

Mar 08



Composite
Green

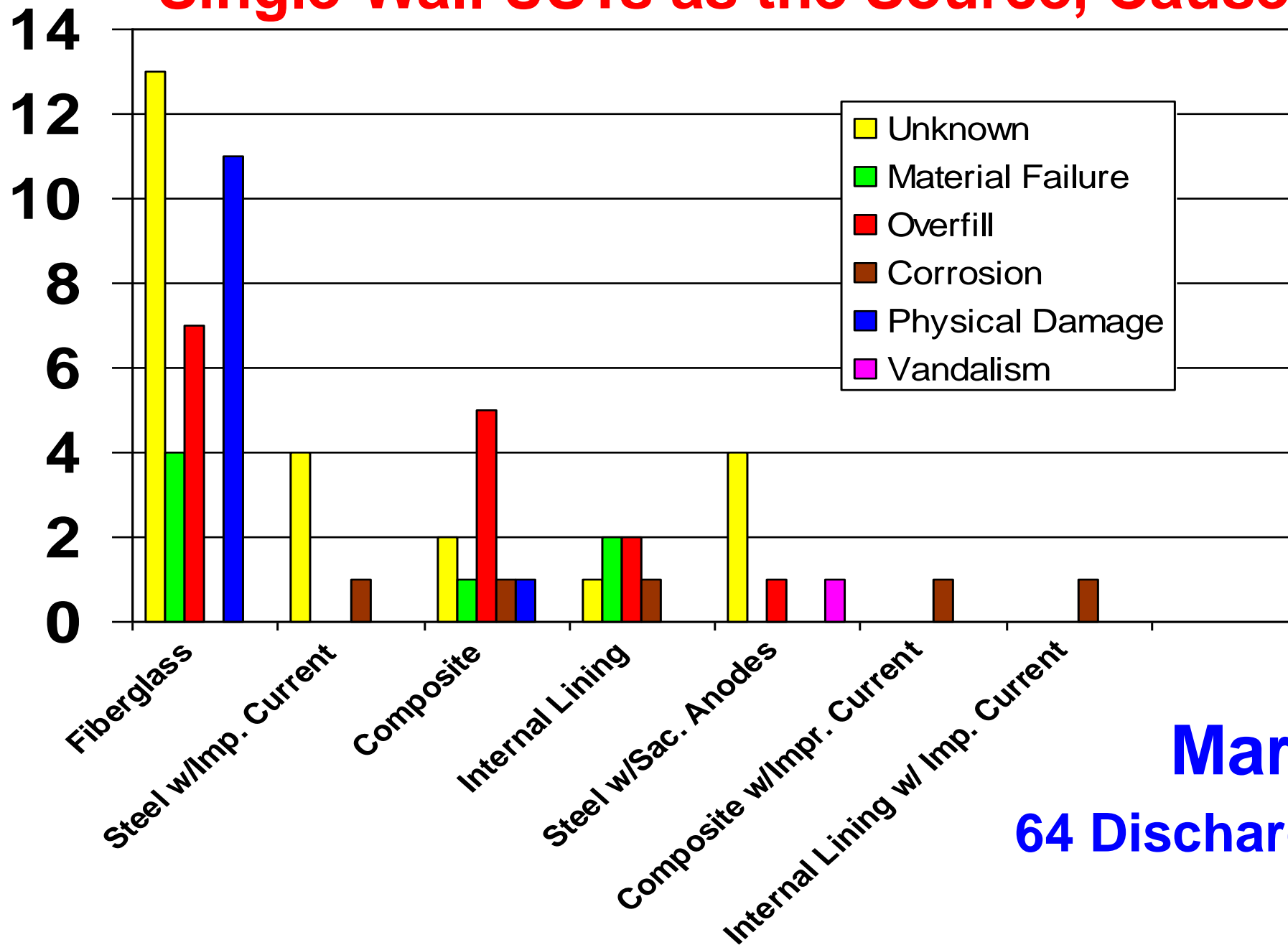
Steel with
Sacrificial
Anodes 9%

Steel with
Impressed
Current
9%

Internal Lining &
Impressed Current
2%

Steel –
Brown

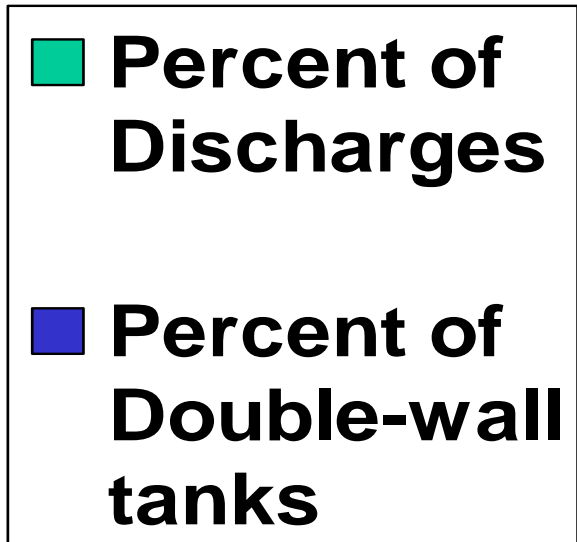
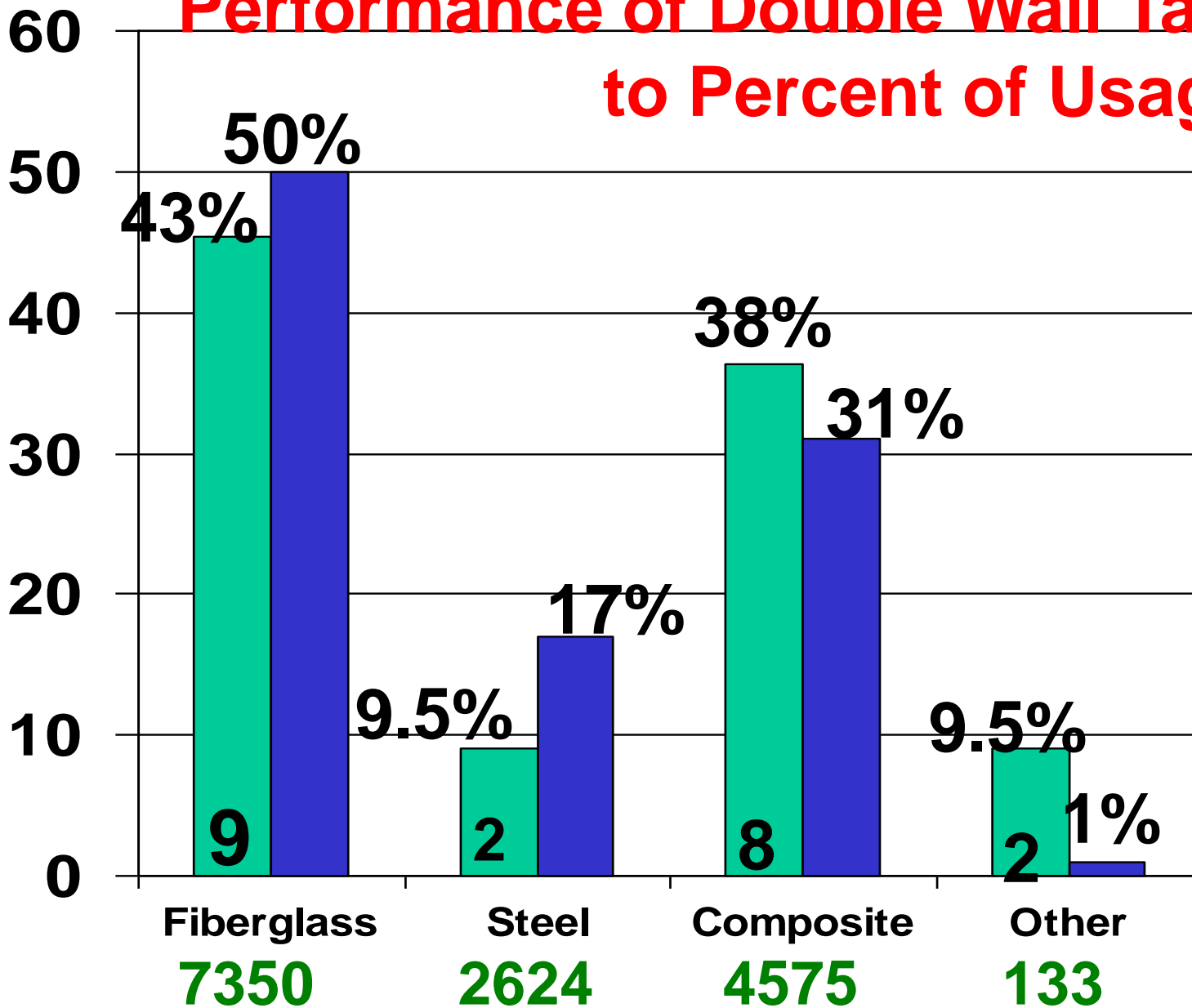
Single-Wall USTs as the Source, Causes



Mar 08

64 Discharges

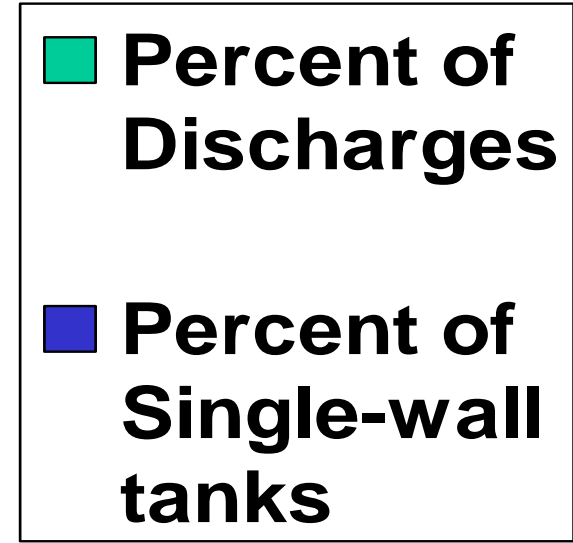
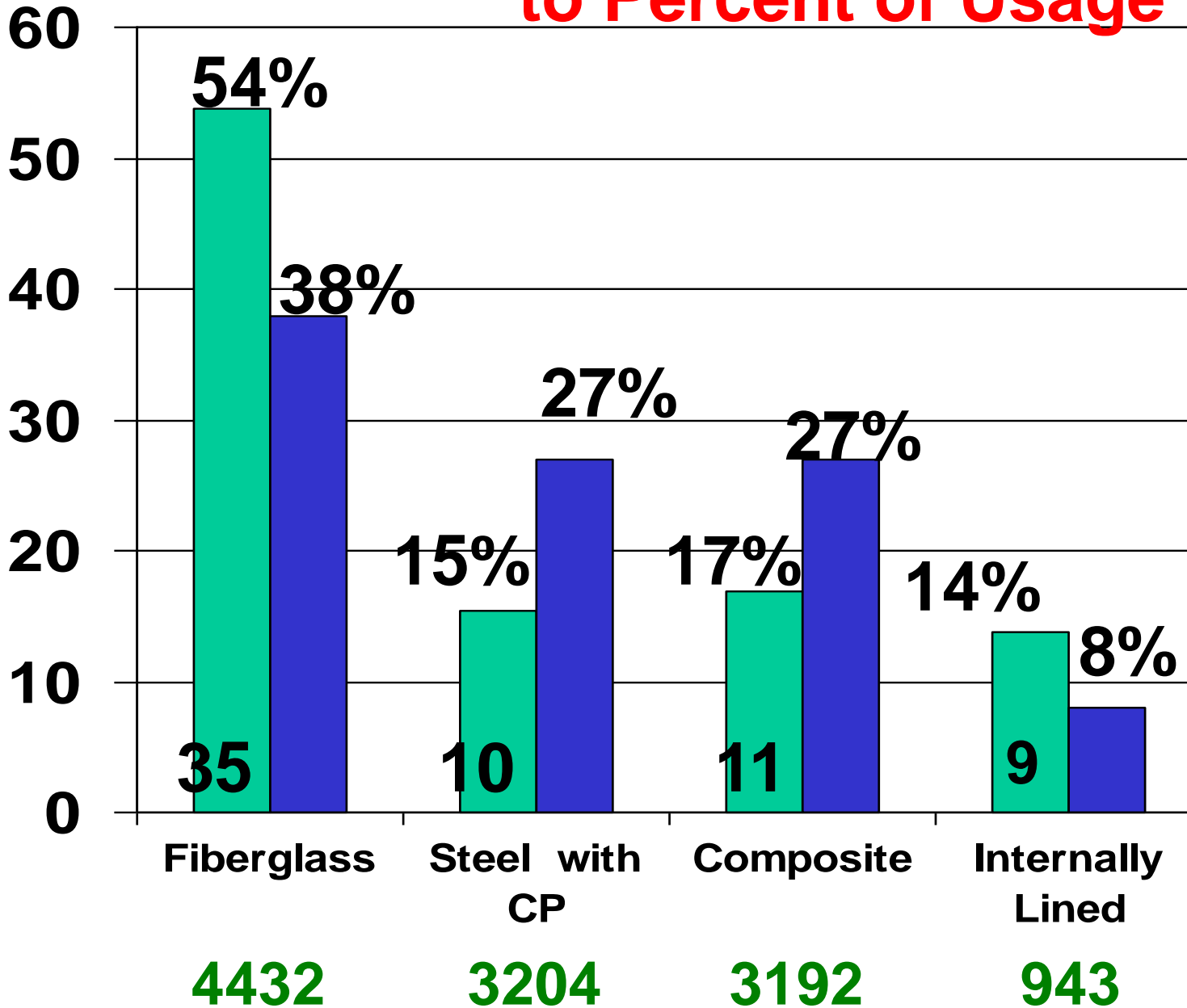
Performance of Double Wall Tanks Compared to Percent of Usage



Mar 08
22 Discharges

Performance of Single Wall Tanks Compared to Percent of Usage

Mar 08



65 Discharges

4432

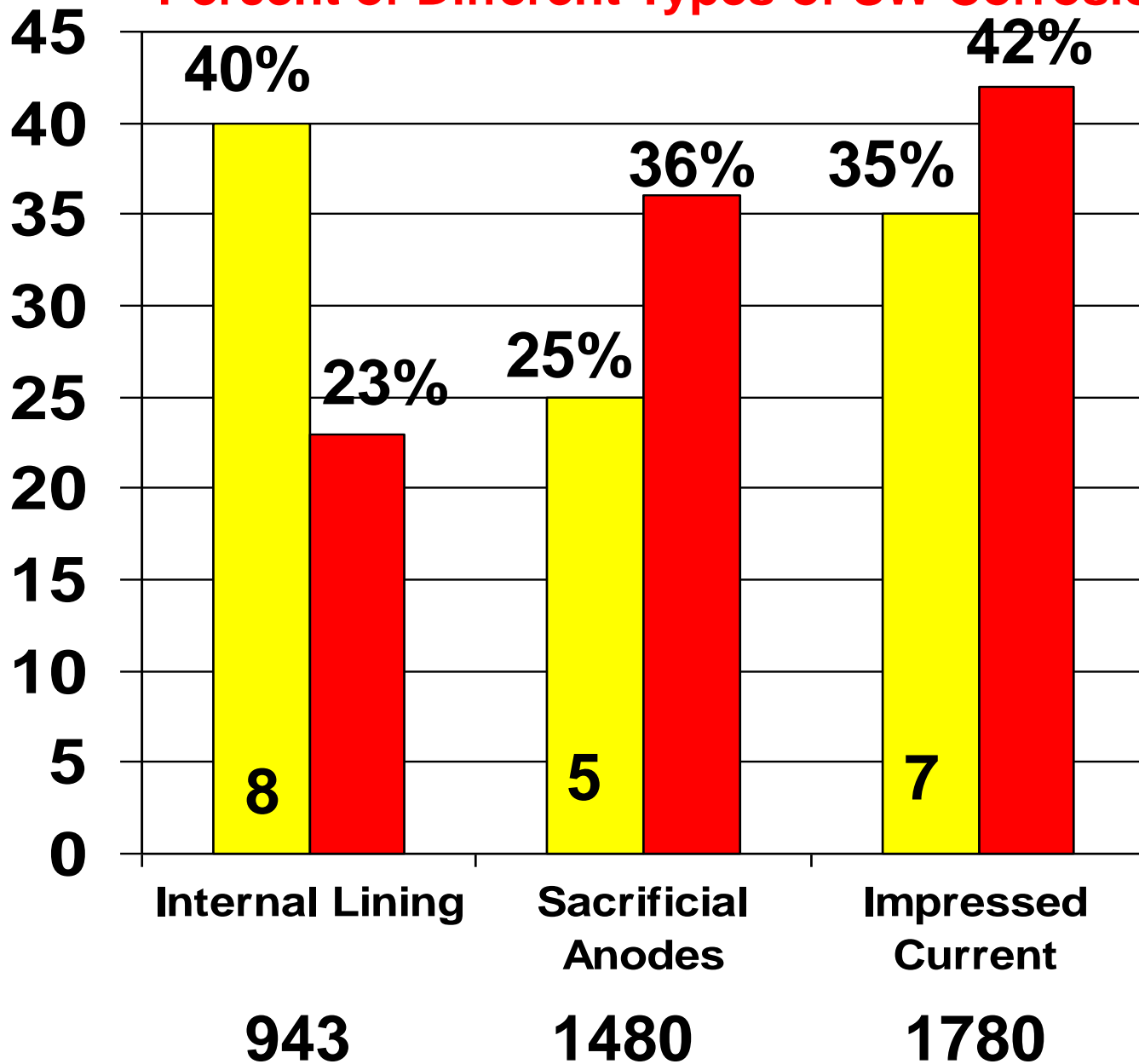
3204

3192

943

Discharge Percentage of SW Corrosion-Protected Tanks Compared to

Percent of Different Types of SW Corrosion-Protected Tanks



■ Percent of SW Corrosion-protected Steel Tank Discharges

■ Percent of Types of SW Corrosion-protected Steel Tanks

Mar 08

Underground Storage Tank Recommendation...



Florida Leak Autopsy Study Data gives a slight edge to fiberglass-coated steel tanks

Piping - The second most frequent cause of leaks...





Semi-rigid



Fiberglass

Small Diameter Piping with Secondary Containment



Metallic/Semi-rigid



Flexible synthetic

Pre-operational testing









Hess 9533, Green Cove Sp., FL. 8/7/03





Fiberglass Piping



Problems as well...

Piping Incident & Discharge Statistics

	Incidents	Discharges	Unknown	Total
Florida Flexpipe	74%	26%	0%	275
U.S. Flexpipe	64%	16%	20%	502
Florida Fiberglass	0%	100%	0%	56

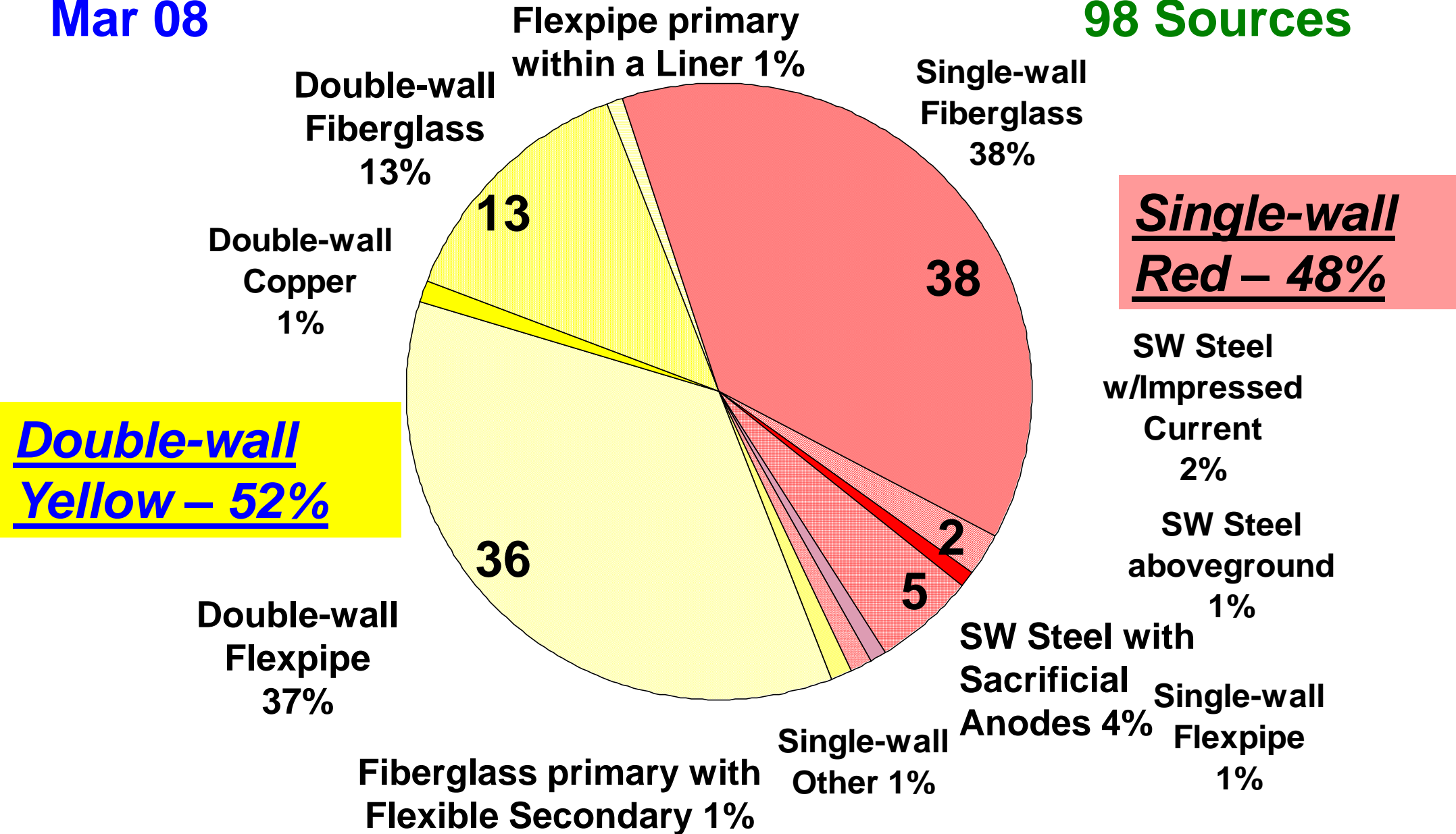
Pipe Type	TCI	APT	Environ	Western	Bufflex	OPW
Florida Percent	81%	7%	11%	1%	1%	<1%
U.S. Percent	66%	7%	24%	1%	<1%	<1%

Florida Fiberglass	Ameron	Smith	Unknown	Total	March 08
Percent	38%	20%	43%	100%	
Number	21	11	24	56	

USTs –Piping as the Source, Type of Piping

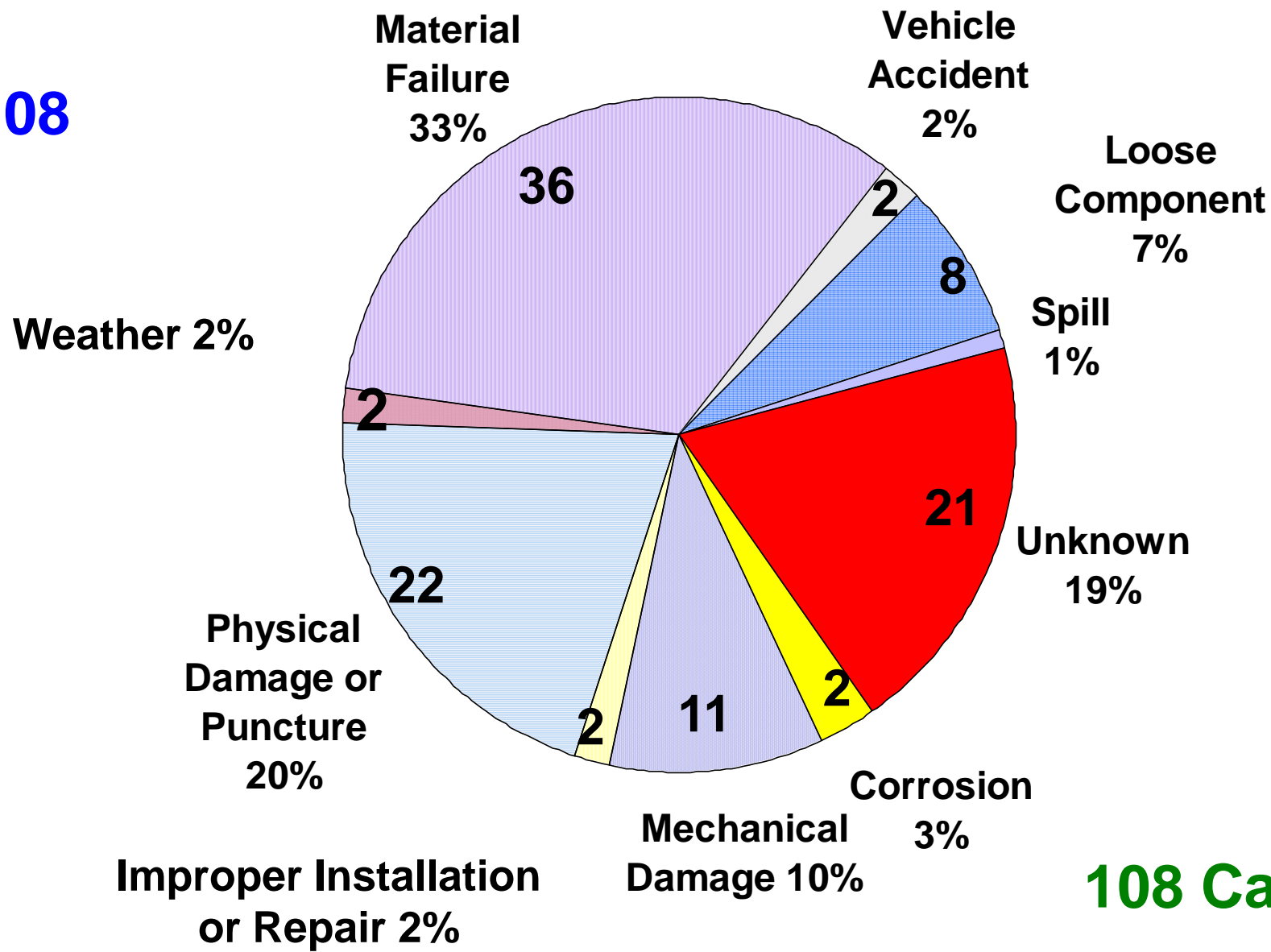
Mar 08

98 Sources



USTs – Piping as the Source, All Causes

Mar 08



108 Causes

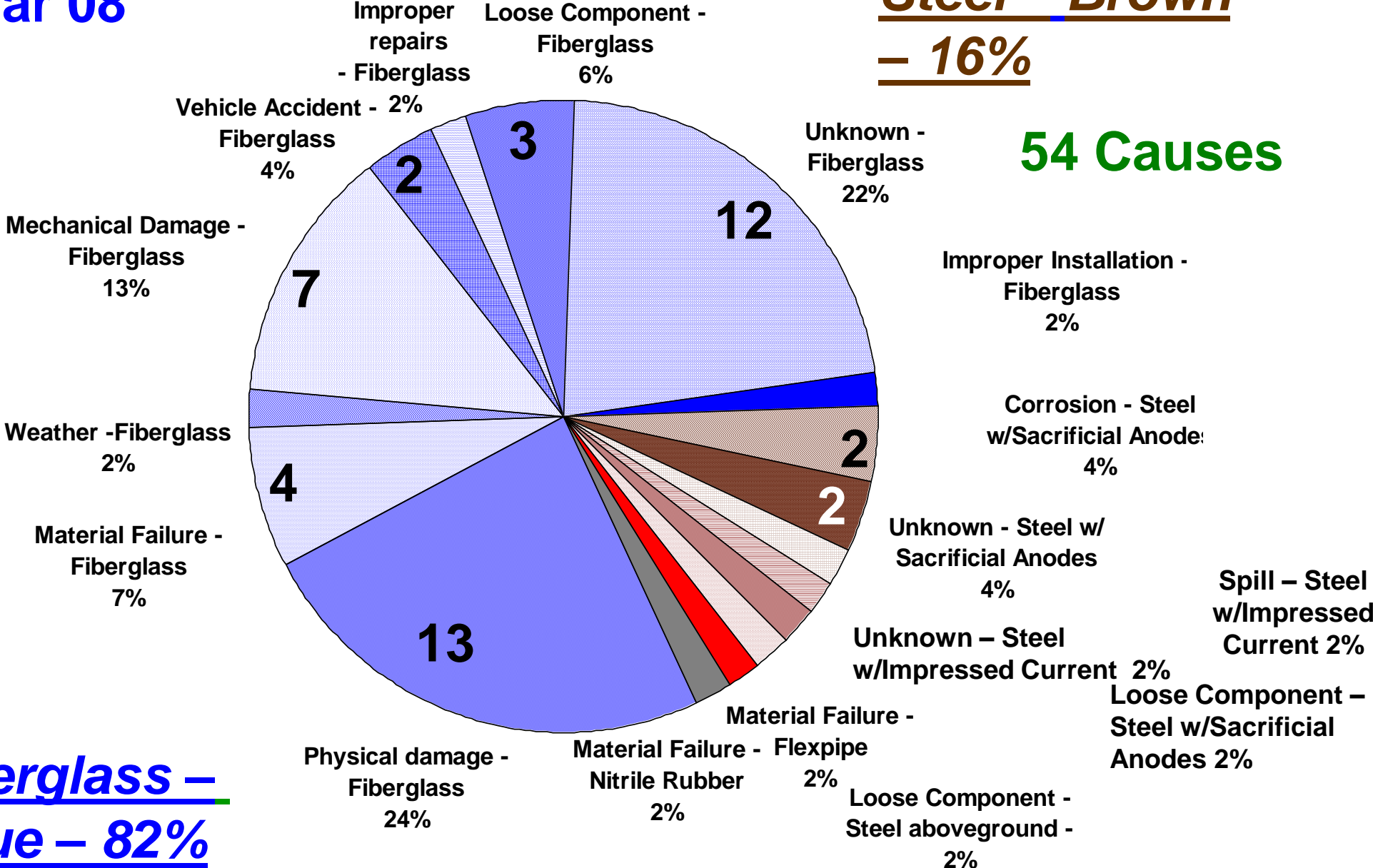
USTs - Single-wall Piping as the Source, Causes

Mar 08

Steel – Brown
– 16%

54 Causes

Fiberglass –
Blue – 82%



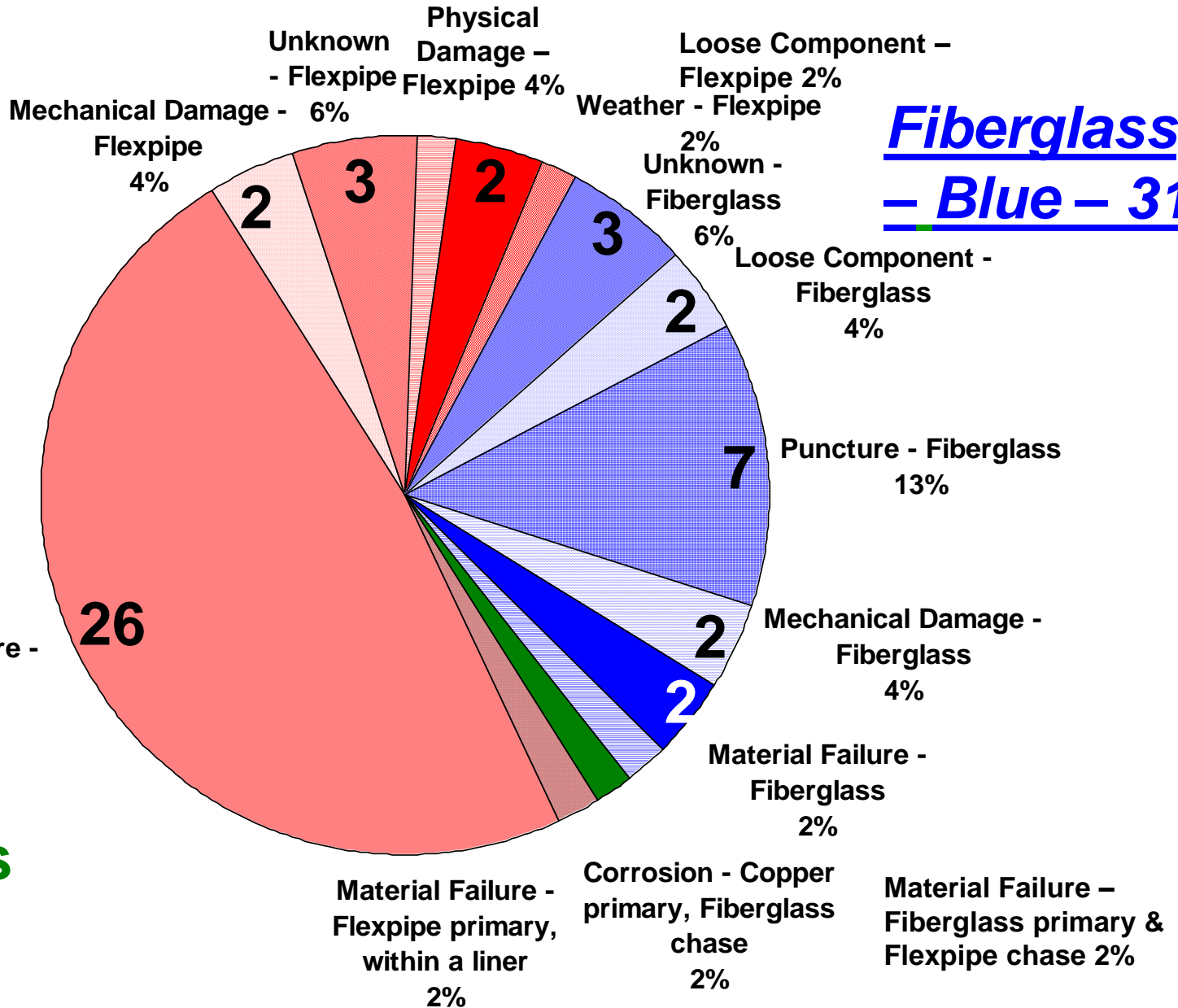
USTs - Double-wall Piping as the Source, Causes

Mar 08

Flexpipe – Red – 68%

Fiberglass – Blue – 31%

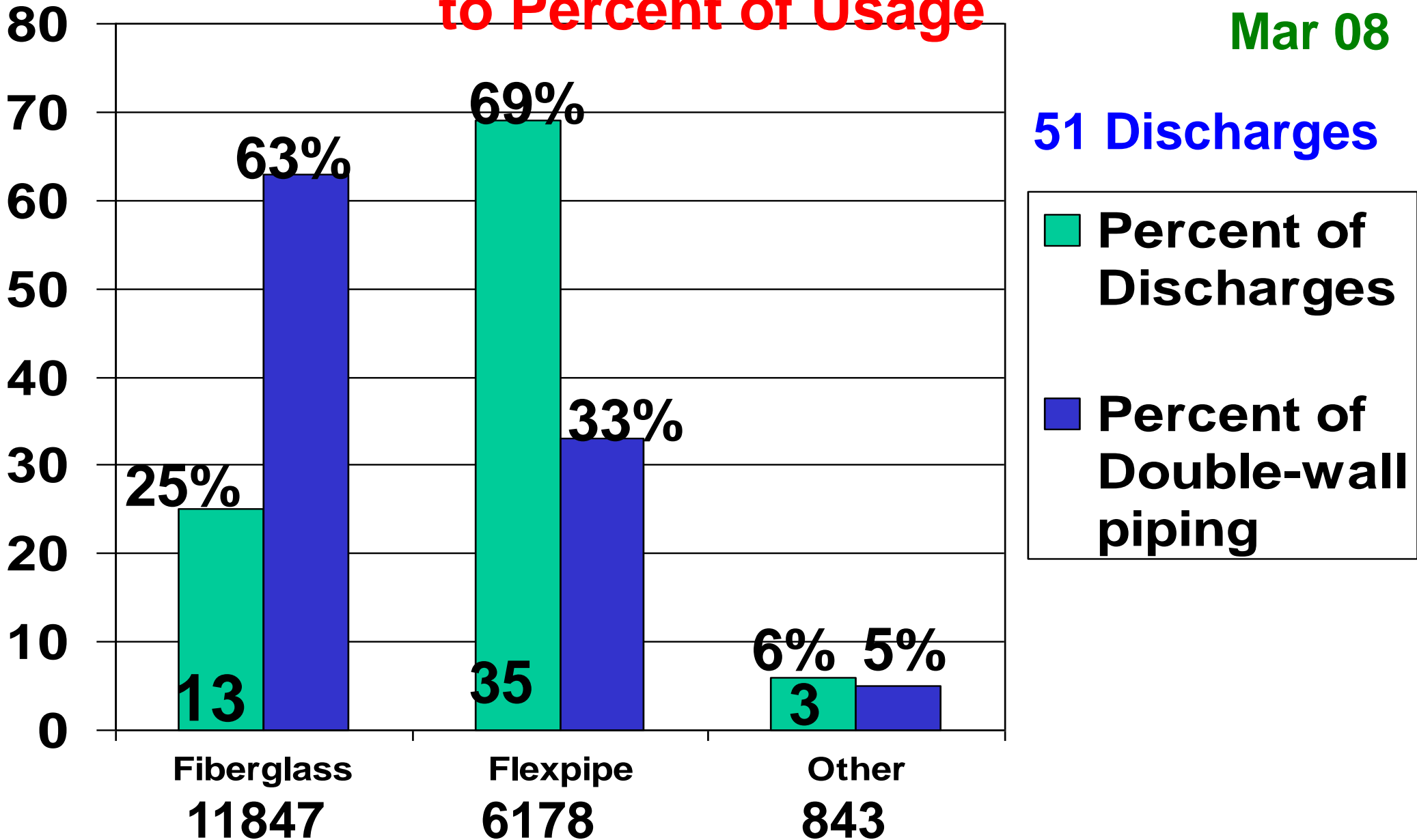
54 Causes



Performance of Double Wall Piping Compared to Percent of Usage

Mar 08

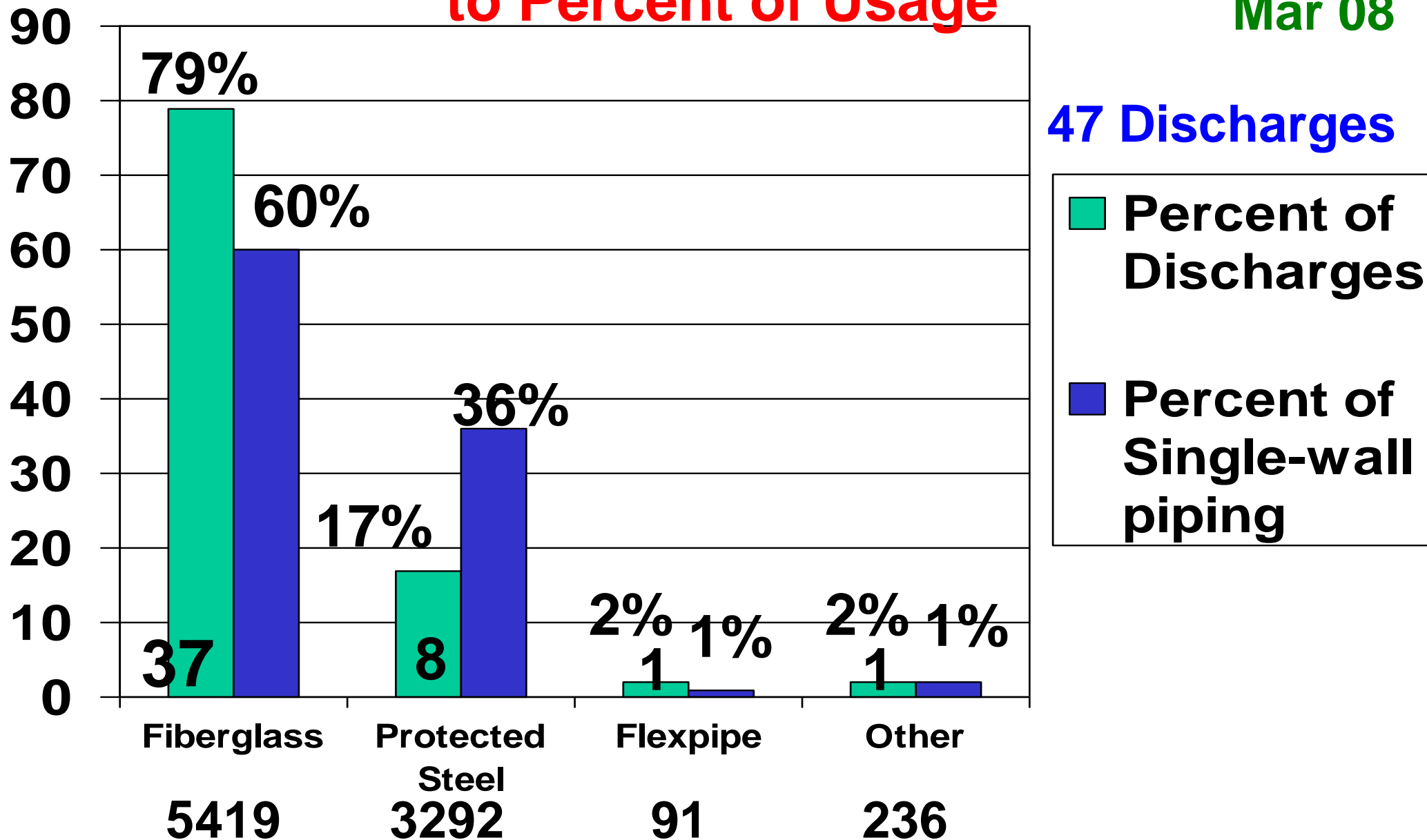
51 Discharges



Performance of Single Wall Piping Compared to Percent of Usage

Mar 08

47 Discharges



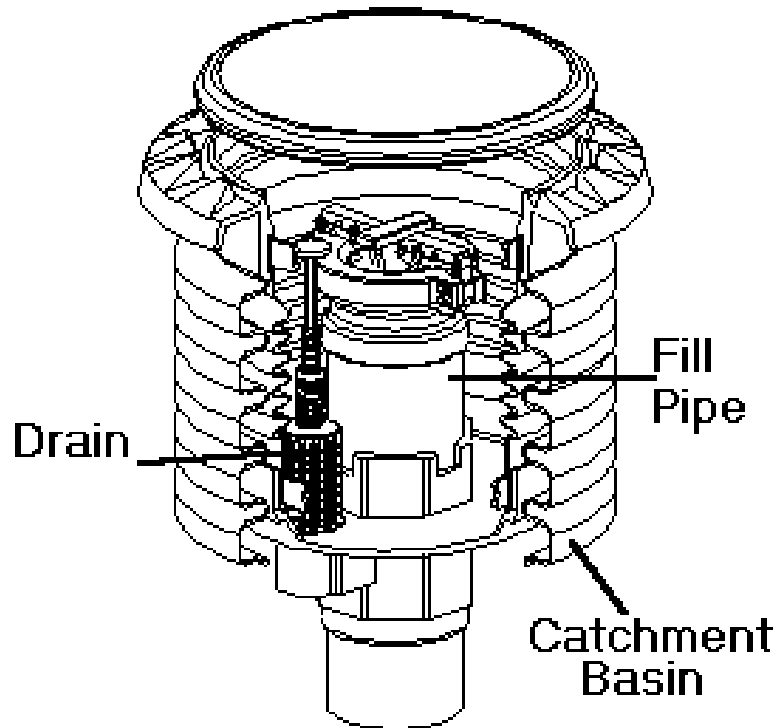
Bulk Product Piping with and without Secondary Containment



Underground Piping Recommendation...

Double-wall Piping with a Good Performance Record in the Florida Leak Autopsy Study





Spill Prevention

Spill buckets are the most frequent source of discharges...



Integrity Testing

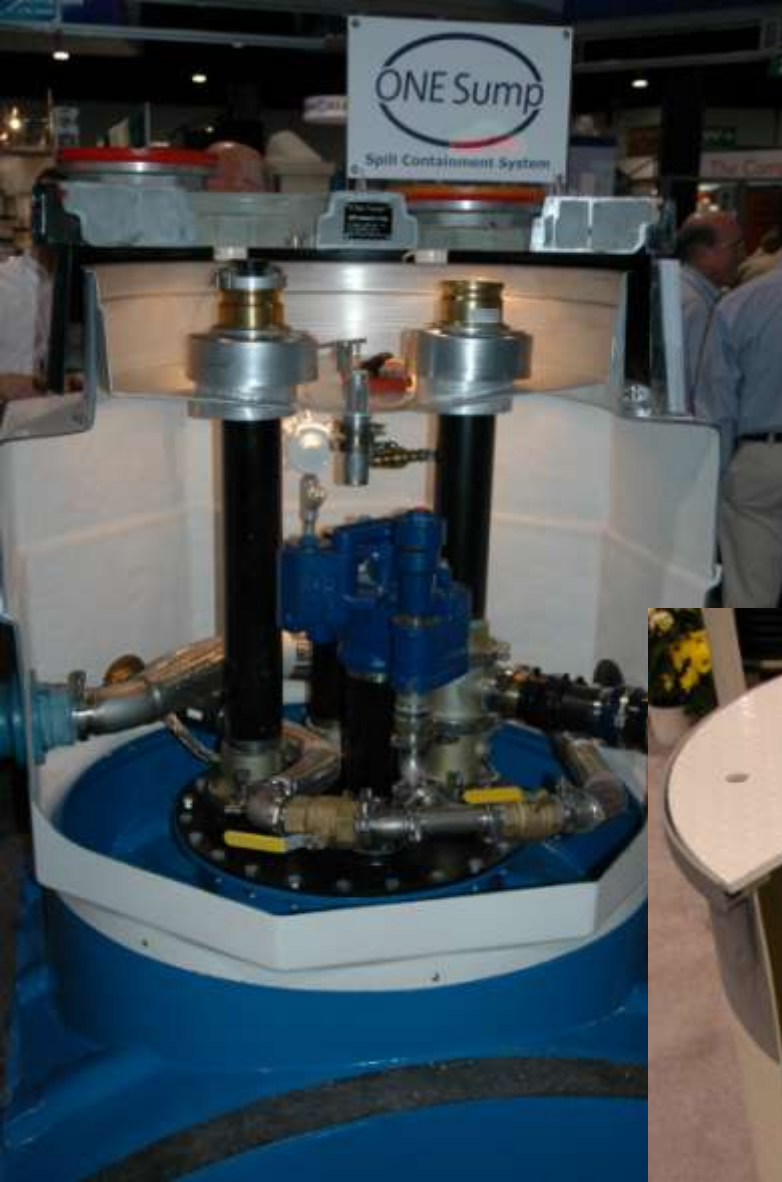


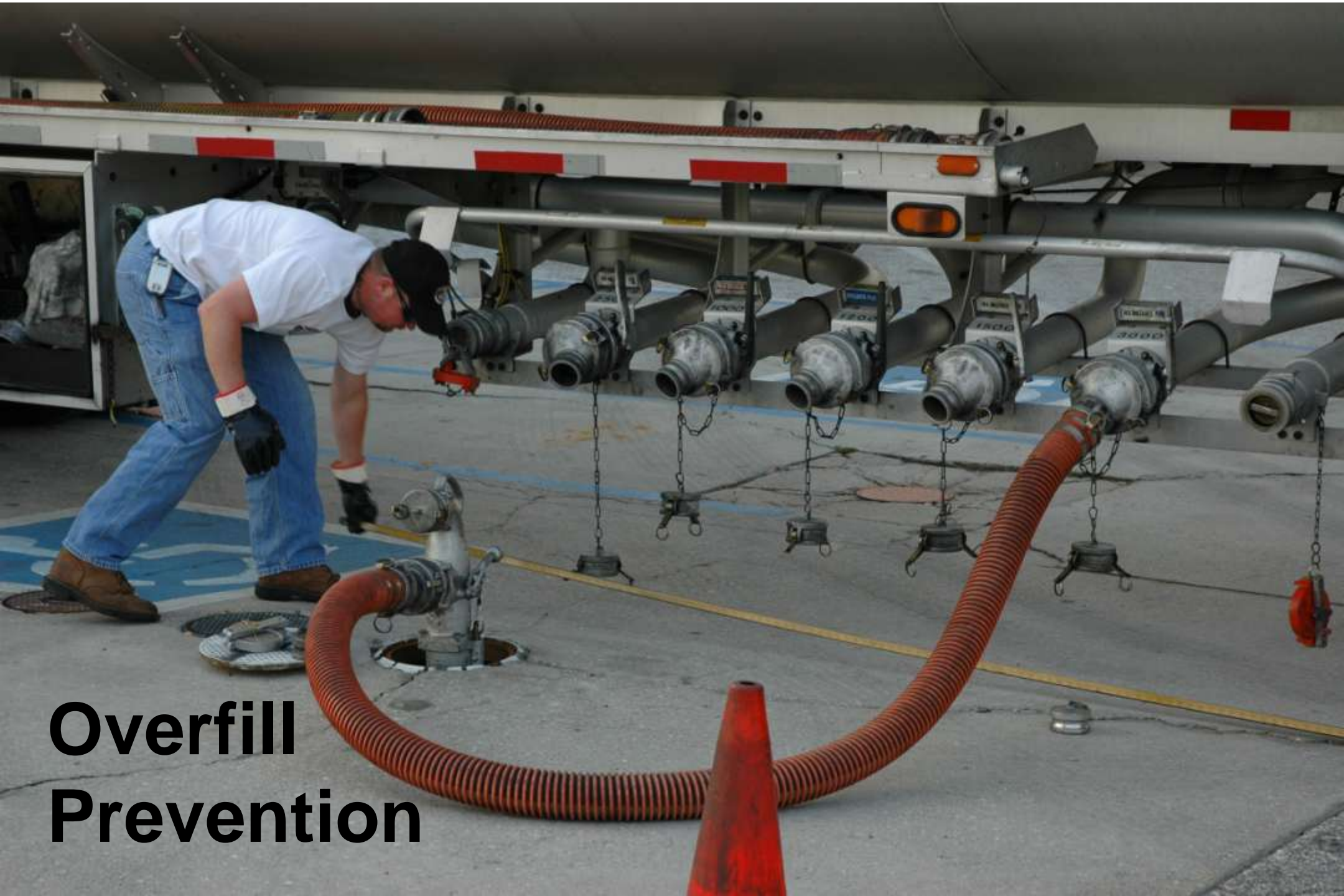
Recommendation for Spill Prevention...

A double-wall system with a good track record – Get References!

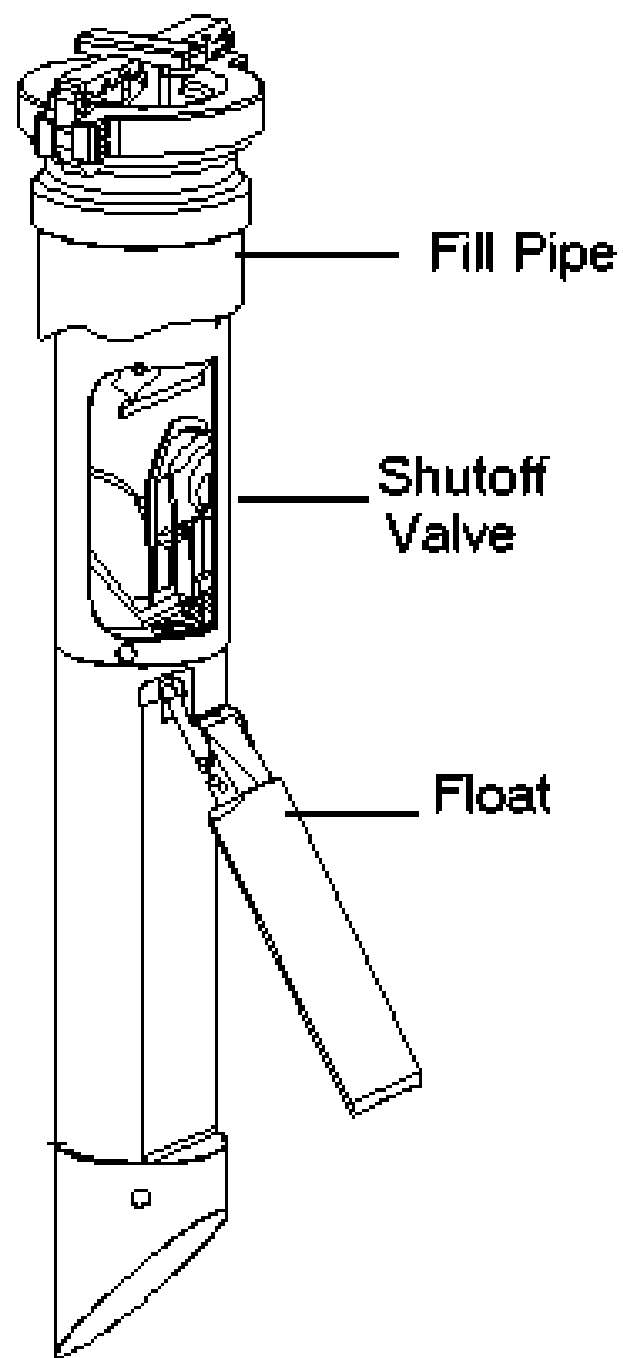
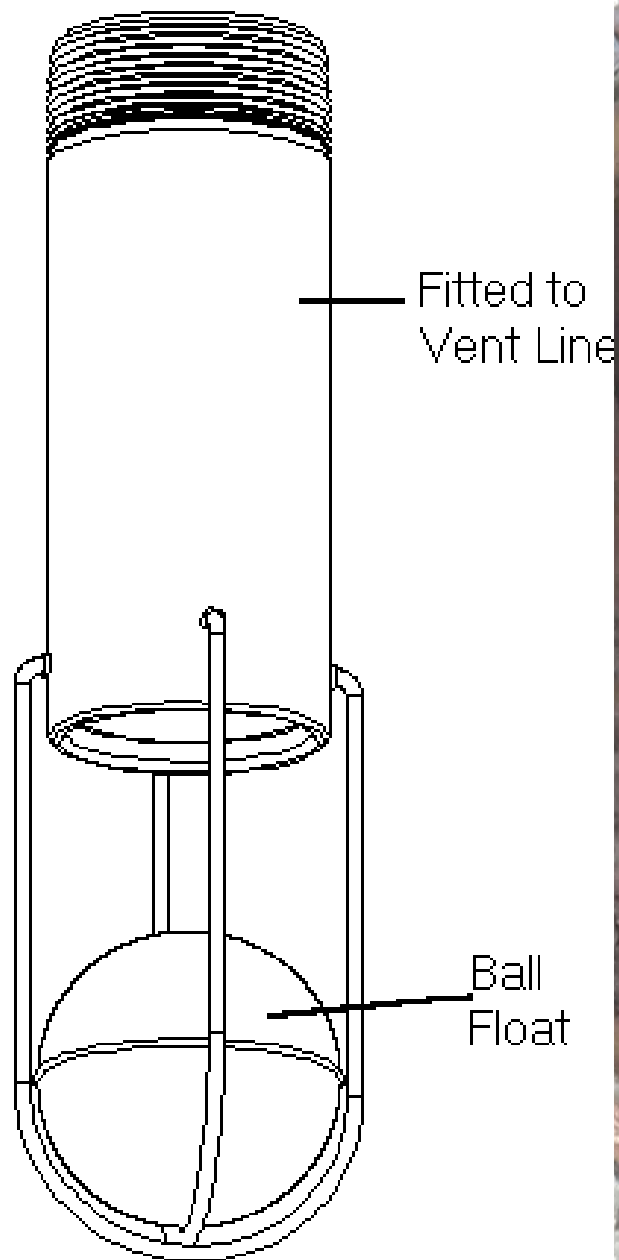


Spill protection within the piping sump





Overfill Prevention





705

14 11:18 AM

Performance of Overfill Protection Compared to Percent of Usage

70
60
50
40
30
20
10
0

44 Overfills

Nov 07

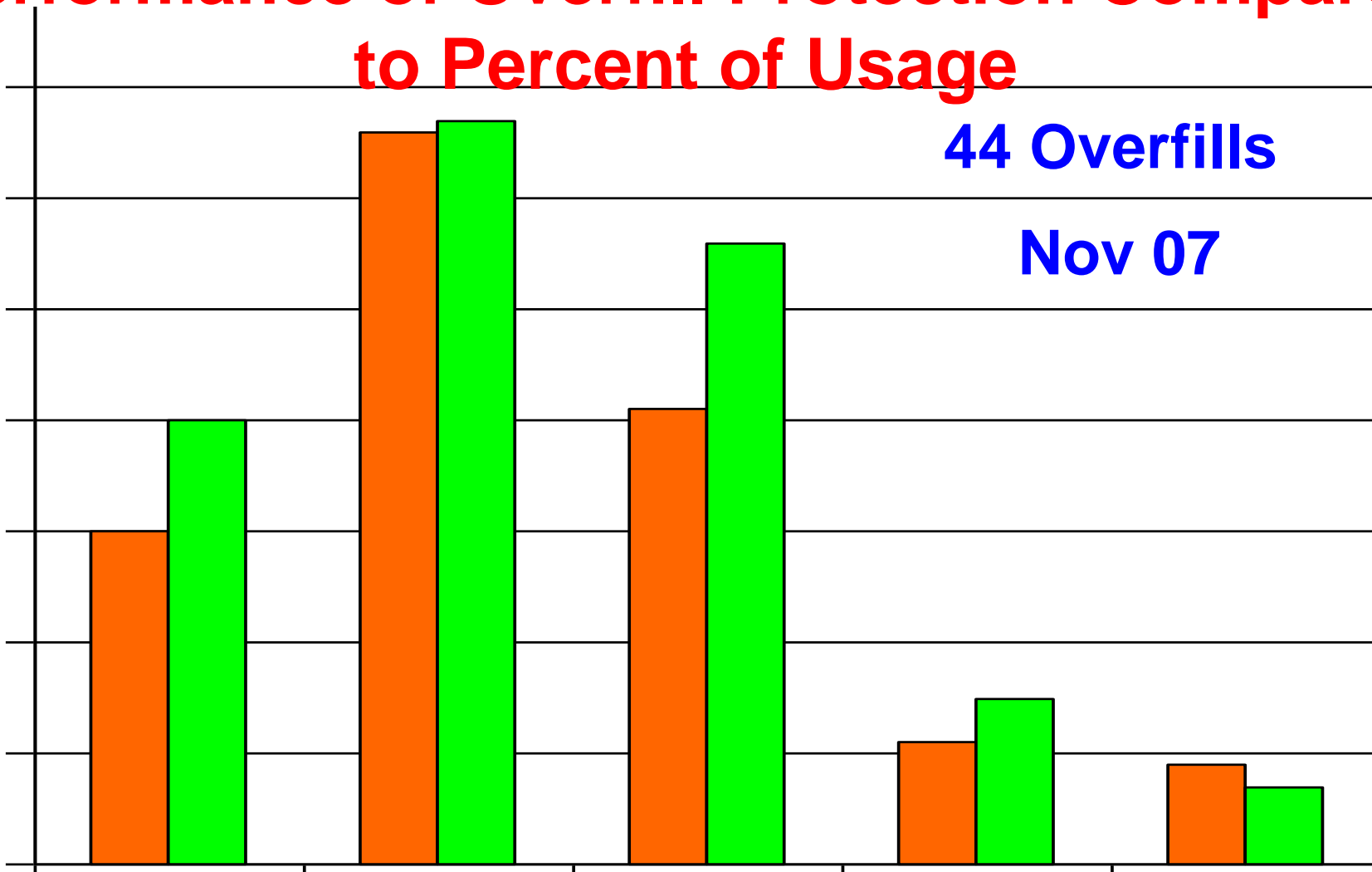
Flow
Shut-off
11,029

Ball
Check
Valve
18,675

Tight Fill
15,677

Alarm
4,148

Unknown
2,037



No epoxy required

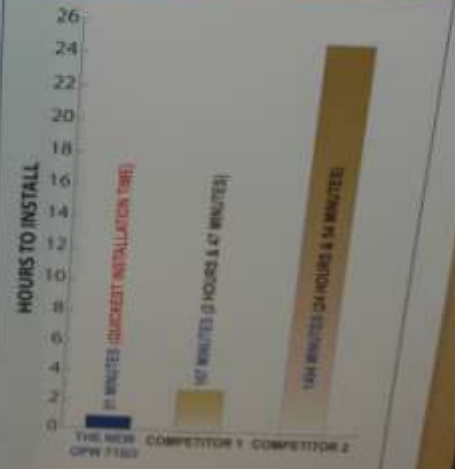


VAPOR-TIGHT INTEGRITY*



EVR Compliance
Peace-of-Mind Assurance
• Provides 60% higher level of protection against fugitive emissions and pressure decay failures vs. other vapor-tight valves

INSTALLATION TIMES*



The new 7150 enables new sites to go into operation faster.

Recommendation for Overfill Protection...

A “flapper” valve system with a good track record – Get References!

Dispensers – DEP regulates dispensers, but mainly just the hoses, sumps, and below the shear-valves





Dispenser Liners

Problems!





Problems!





**PRODUCT IN
DISPENSER LINER**

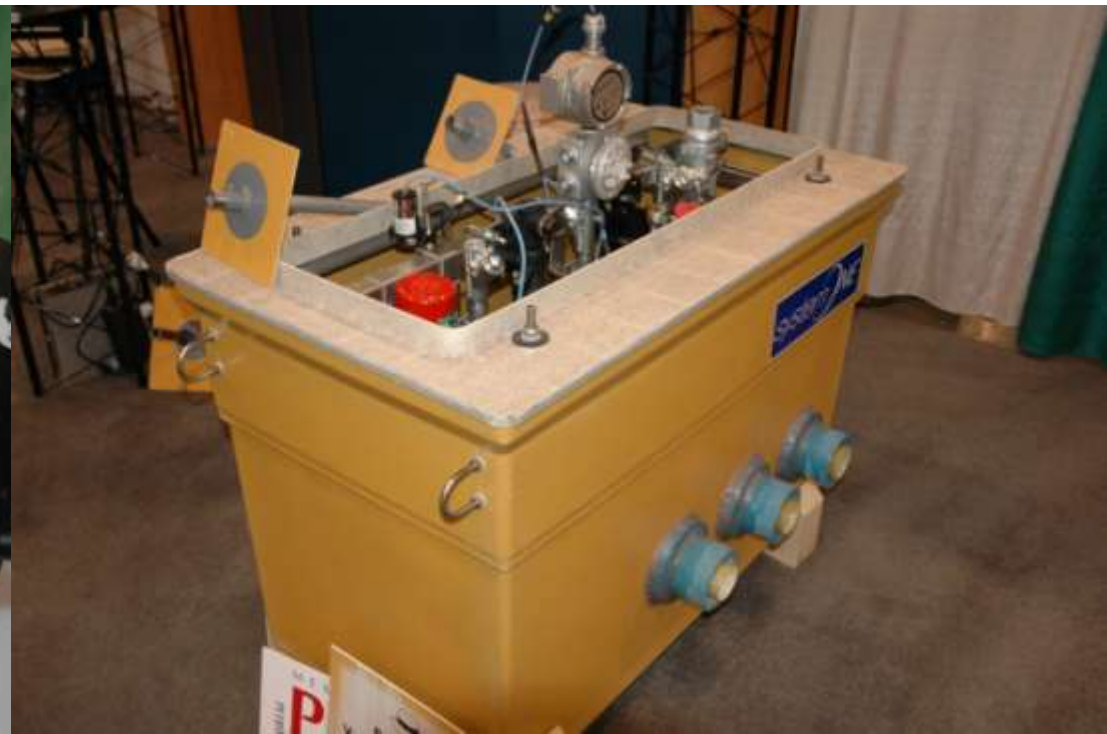
**BOOTS OFF
SECONDARY CONTAINMENT
INDICATES FUEL MIGRATED
UP PIPELINE**

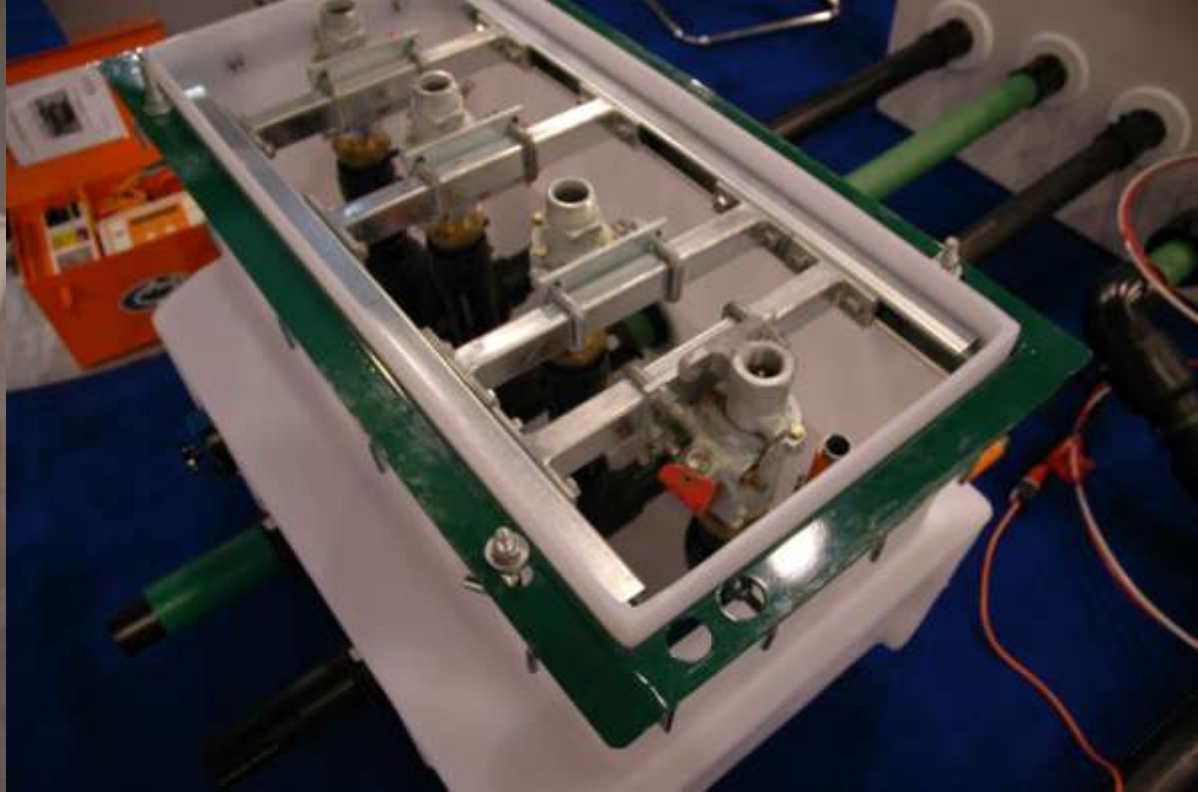
**TRIMART #103
6098 W. FAIRFIELD DR.
PENSACOLA, FL.
17/8508006**

Recommendation for Dispenser Sumps...

Two Main choices: Fiberglass or Polyethylene

Both have been manufactured with significant improvements in the past several years – stronger, and with better penetration fittings







Piping Sumps

The most frequently cited violation by County Inspectors – water in sumps



Problems!



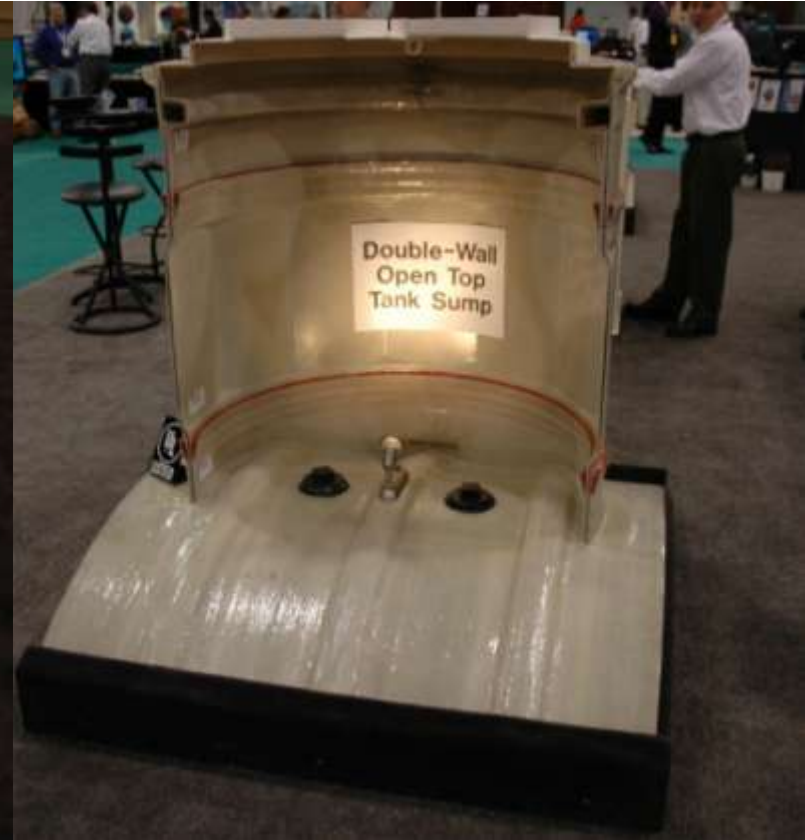


Boots!



Recommendation for Piping Sumps...

Same as for Dispensers: Fiberglass or Polyethylene
Both have been manufactured with significant improvements in the past several years – stronger, and with better penetration fittings





The December 31, 2009 Upgrade Deadline

In Order to Serve You Better
**WE ARE UPGRADING
OUR FACILITY.**

*We Thank You for
your Continued Business*

DIAMOND OIL MANAGEMENT

Table UST

Chapter 62-761.510, F.A.C.

• Year Installed	1989	1992	1995	1998	2004	2009
- Before 1970	O	B		ACFL	D	E
- 1970 - 1975		SBL		ACF	D	E
- 1976 - 1980		B	SL	ACF	D	E
- 1981 - 9/01/84		B		ACFL	D	E
- 9/01/84 - 06/30/92		B		ACFL	D	E
- Other		B		ACFL	D	E



Tanks

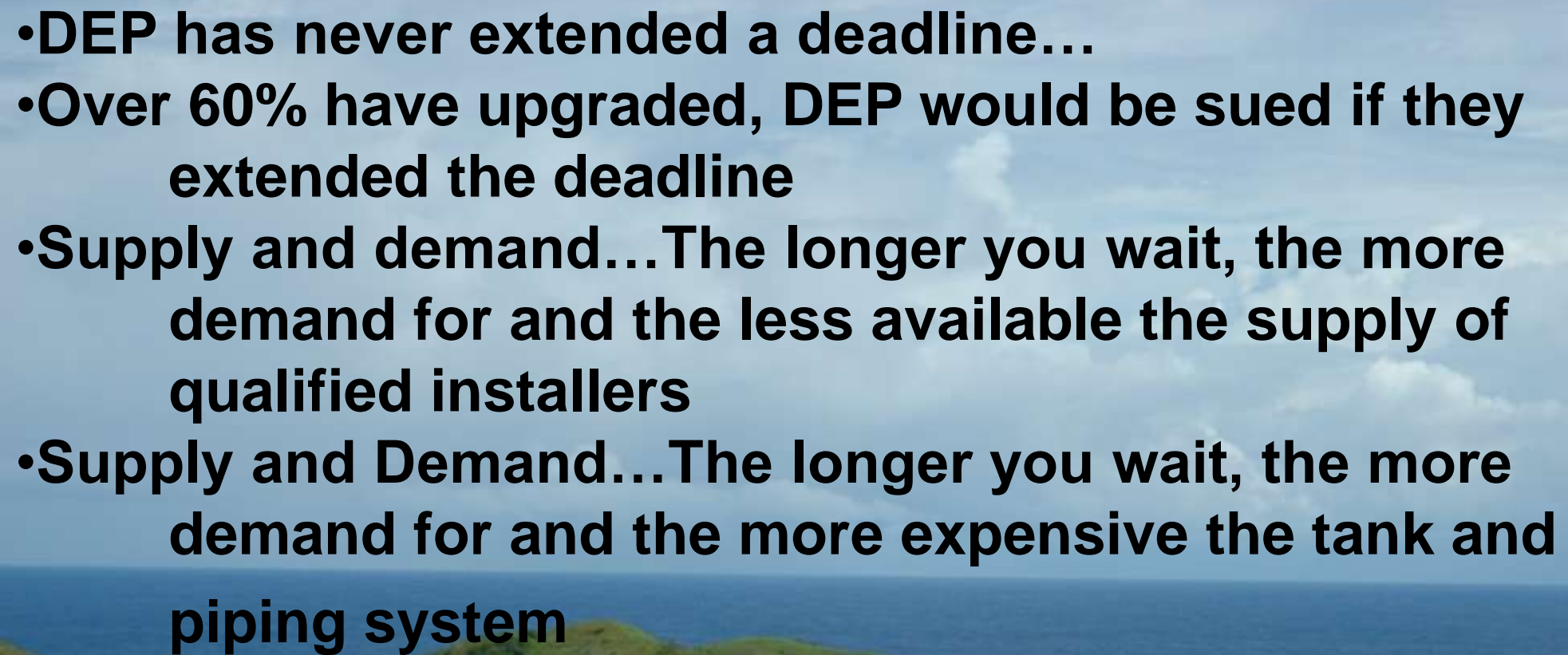


Secondary Containment

December 31,
2009

Piping



- 
- DEP has never extended a deadline...
 - Over 60% have upgraded, DEP would be sued if they extended the deadline
 - Supply and demand...The longer you wait, the more demand for and the less available the supply of qualified installers
 - Supply and Demand...The longer you wait, the more demand for and the more expensive the tank and piping system

The Rumors are Wrong...



Don't
Wait to
Upgrade!

Release Detection





Release Detection General Requirements

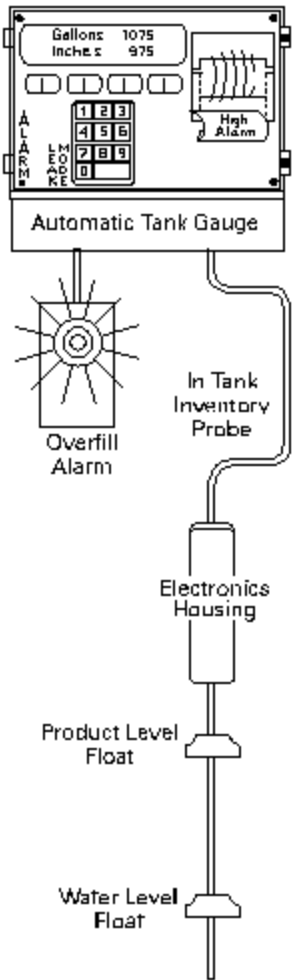
- You have a choice of methods for single or double-wall systems
- Release detection must be performed monthly
- Anything that can be visual inspected must be visually inspected
- Secondary containment systems must have interstitial monitoring
- You must have an RDRL – a Release Detection Response Level established for major components
- You must keep records of your findings

Performance Standards for Release Detection Methods

- General. Methods of release detection shall:
 - Be capable of detecting a leak of 0.2 gallons per hour or 150 gallons within 30 days with a probability of detection of 0.95, and a probability of false alarm of 0.05, with the exception of tightness testing, visual inspections, groundwater or vapor monitoring; and manual tank gauging.
 - Be approved in accordance with Rule 62-761.850(2), F.A.C.
 - Have a release detection response level described in writing.

Internal Release Detection for Single-wall Systems

Automatic Tank Gauges

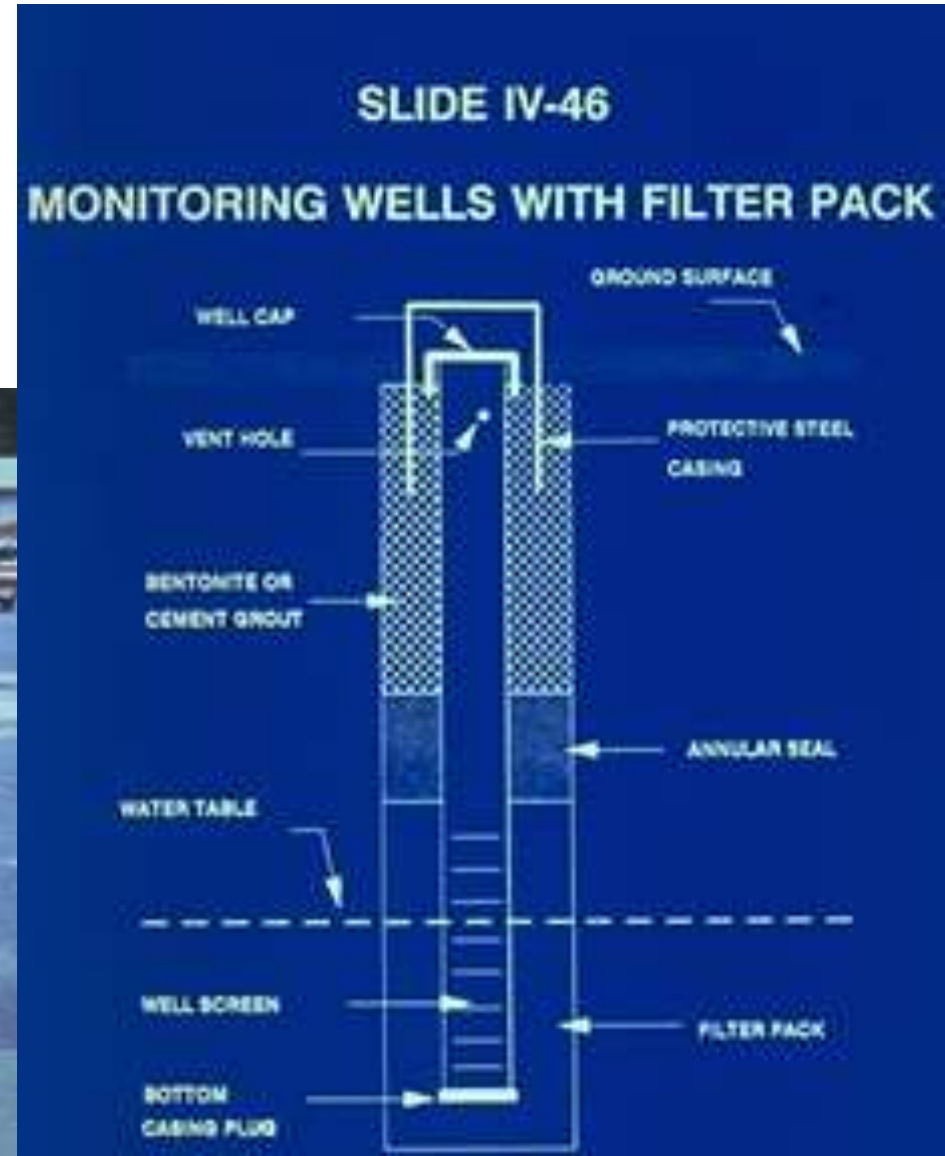


SIR



External Release Detection for Single-wall Systems

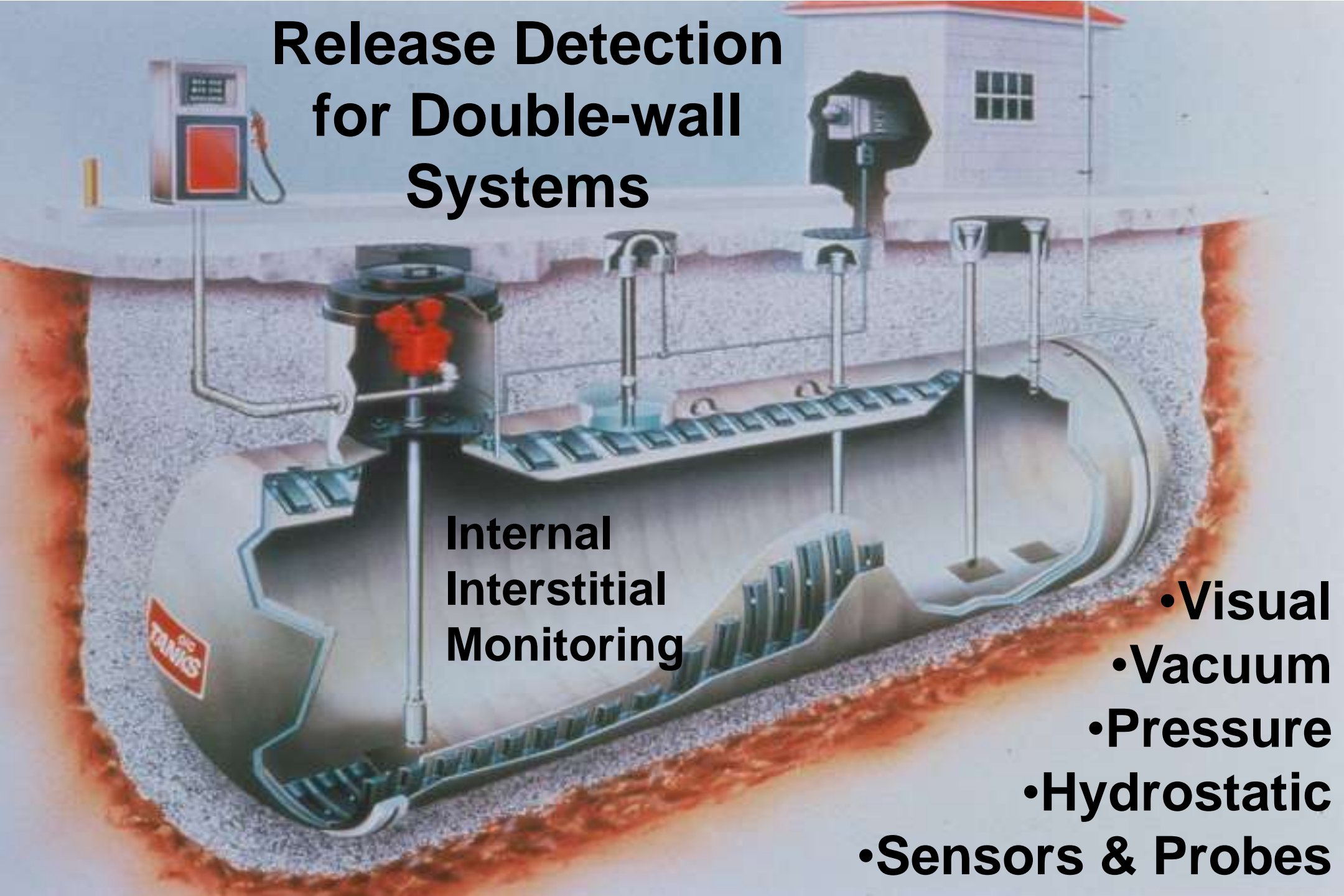
- Well construction
- Site Suitability
- Groundwater monitoring wells
- Vapor monitoring wells



Groundwater and Vapor Monitoring Wells



Release Detection for Double-wall Systems



**Internal
Interstitial
Monitoring**

- **Visual**
- **Vacuum**
- **Pressure**
- **Hydrostatic**
- **Sensors & Probes**

Sump Sensors

**DISCONNECTED TAMPER
PROOF CABLE**

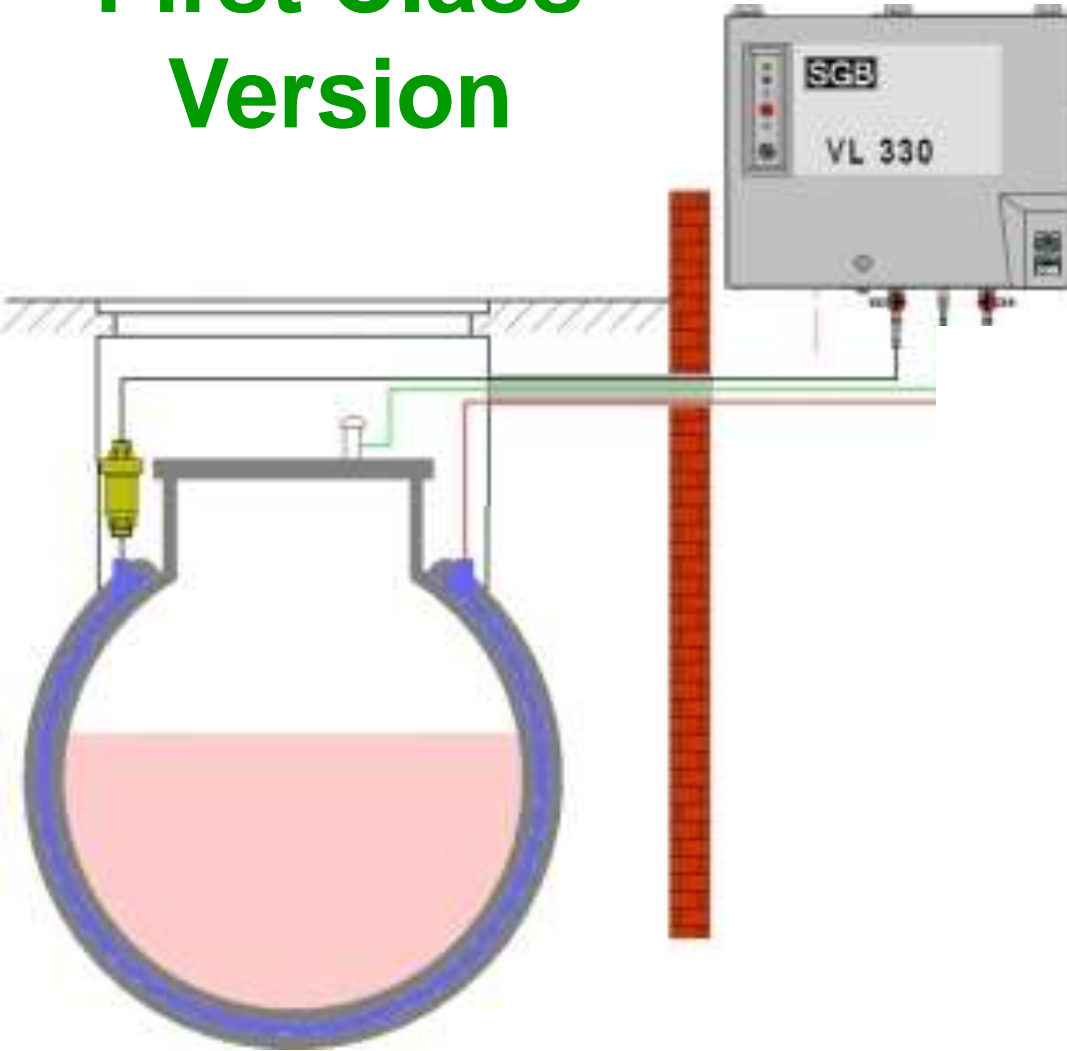


Vacuum Gauges

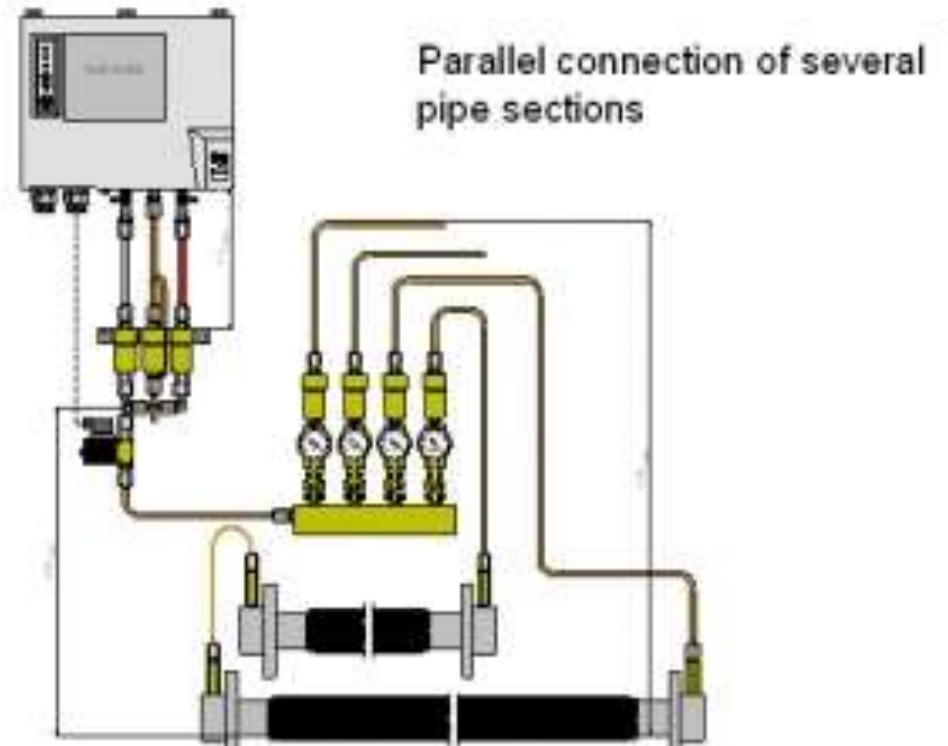


Recommendation for Release Detection...

**“First Class”
Version**



**Vacuum or Pressure
Continuous Monitoring**



Recommendation for Release Detection...

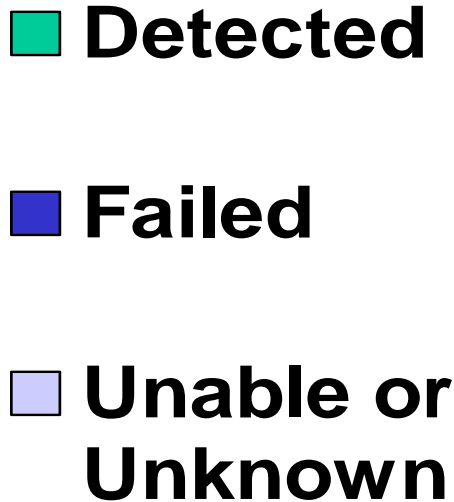
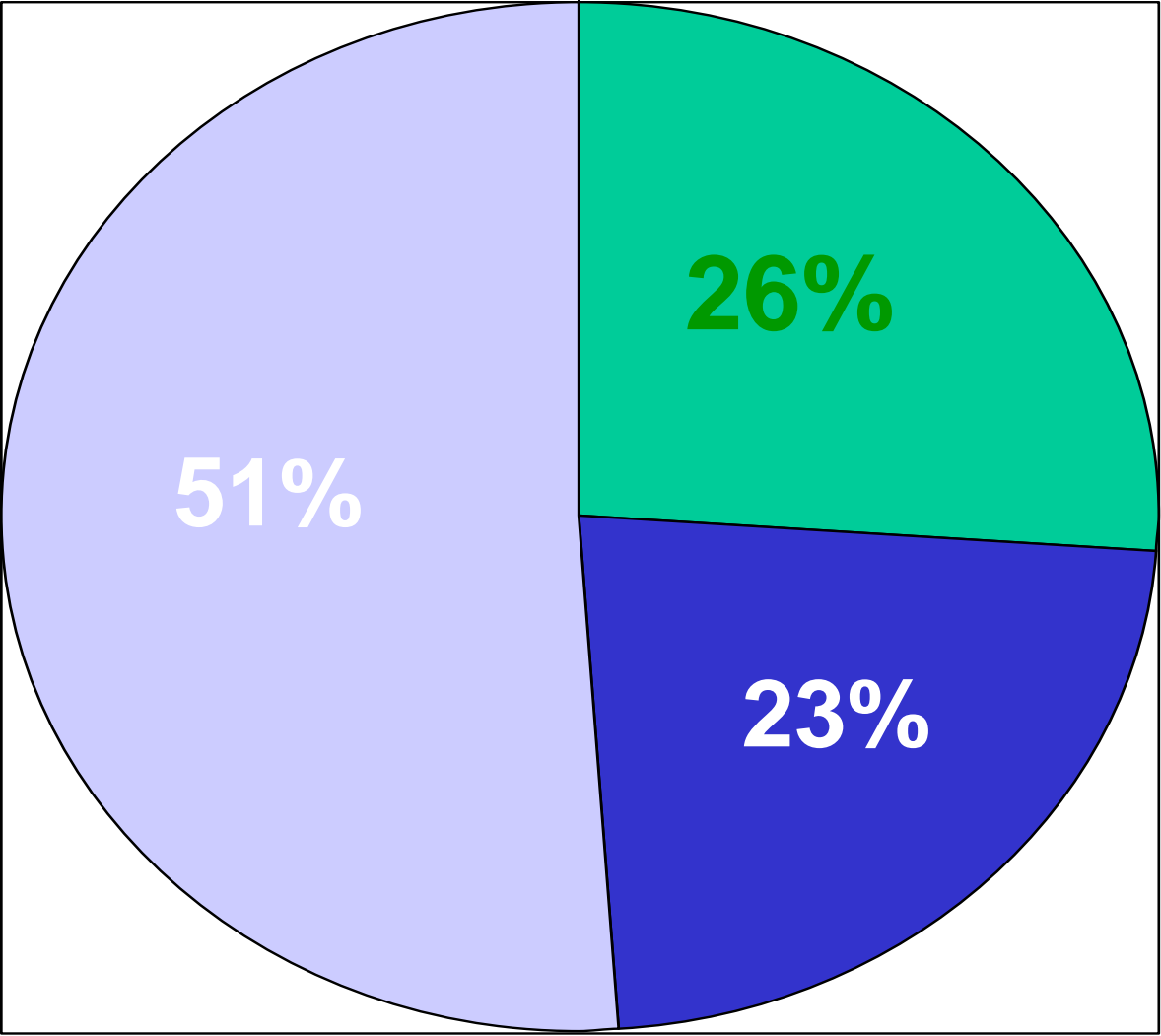
The “Economy” Version



Visual Inspections!

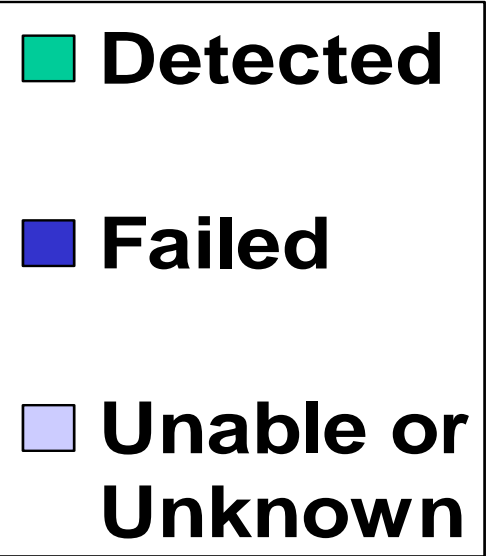
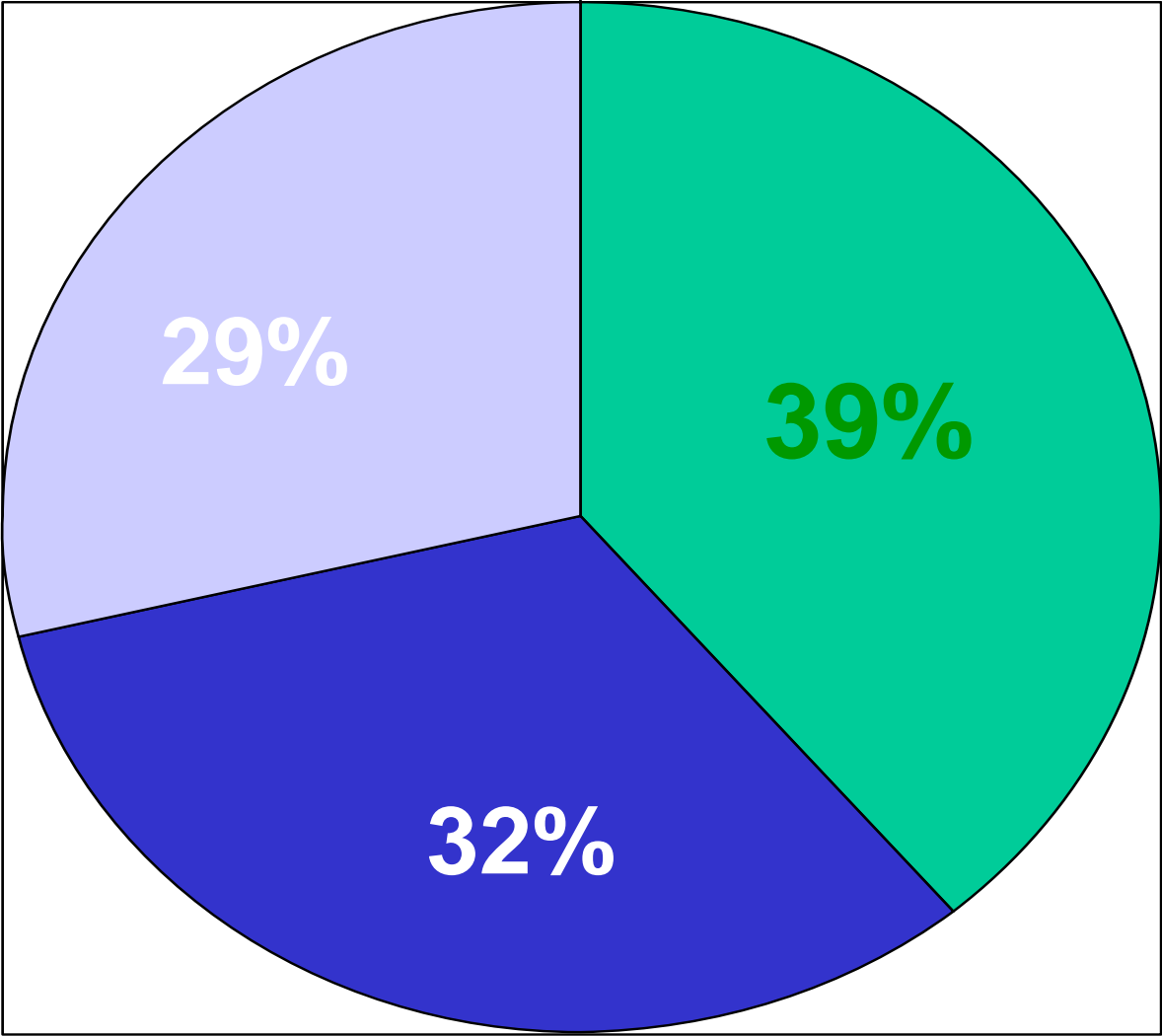
Success of Leak Detection – Florida Cause of Leak Study

2002



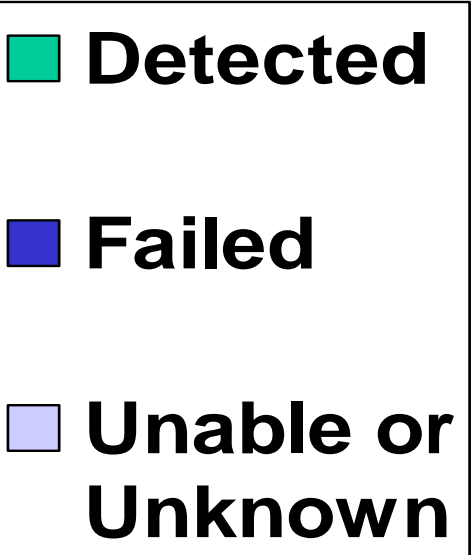
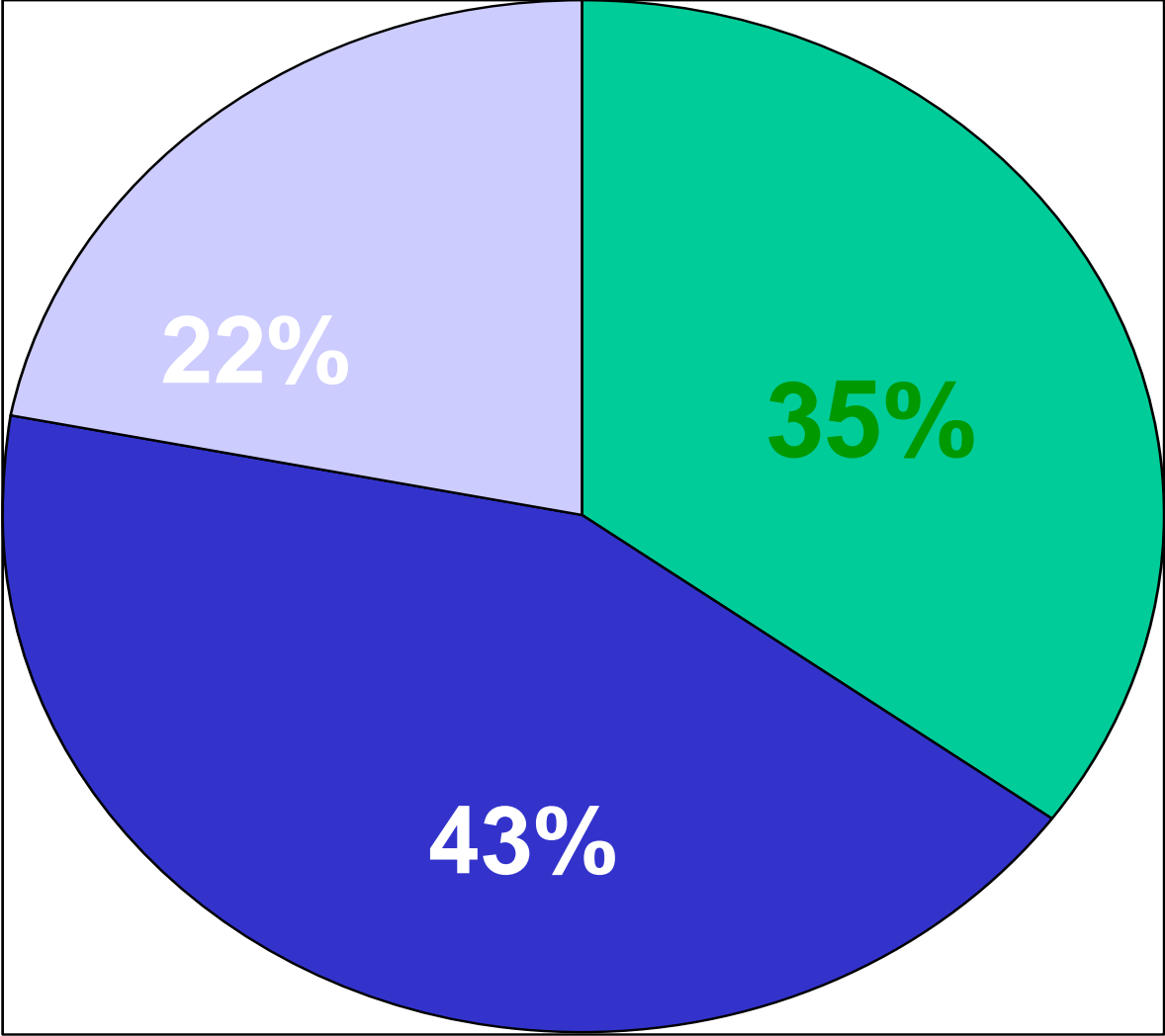
Success of Leak Detection

March 06

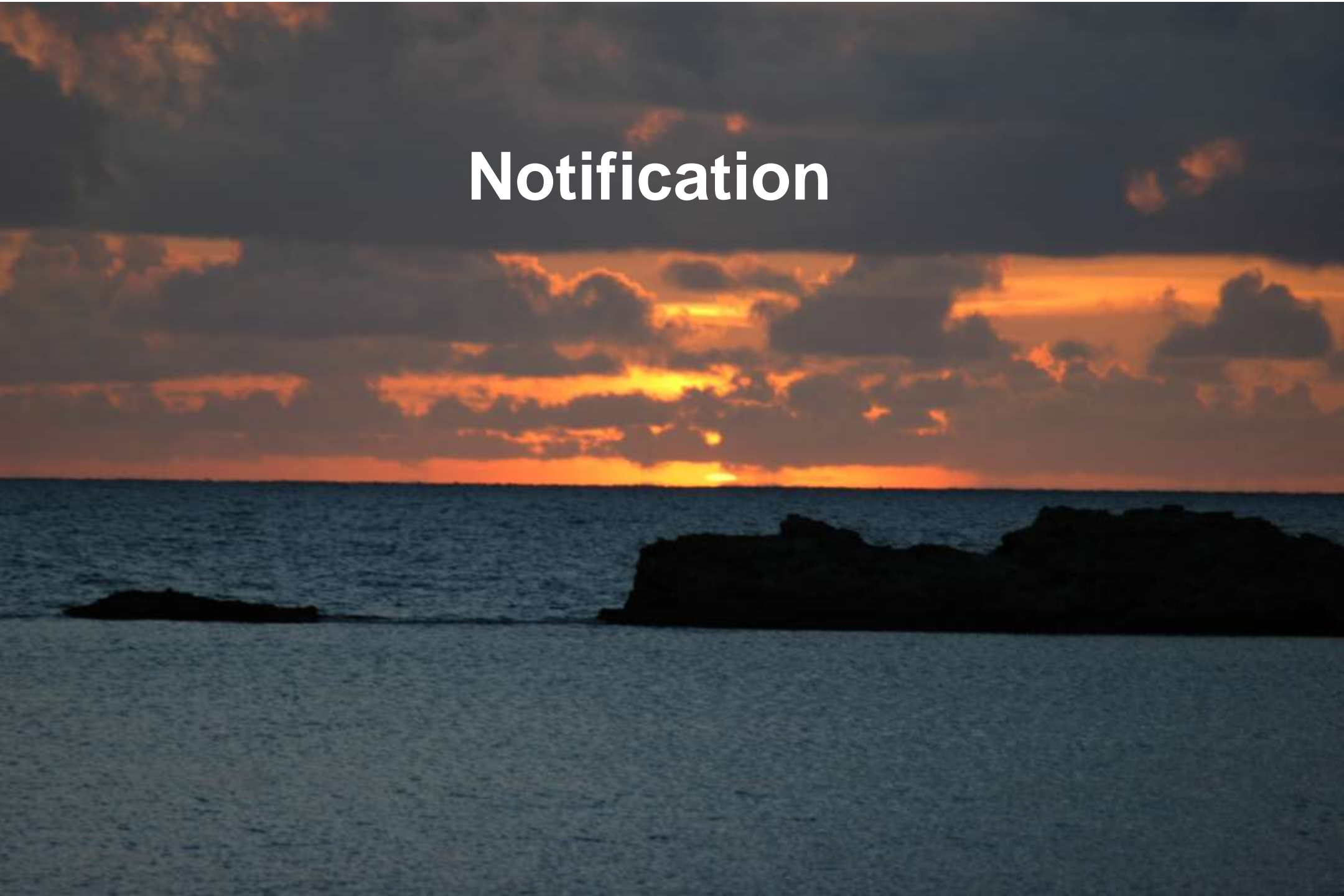


Success of Leak Detection

Mar 08



Notification



Notification – The County (DEP’s Contractor) must be given a verbal or written notice within:

- 30 days of installation or upgrading**
- 10 days before internal inspections or closure**
- And an additional notice within 48 hours of the above**
- 30 days after installation, complete DEP Registration Form for change of ownership, closure, upgrading, facility info, including financial responsibility**





Registration & Financial Responsibility

Registration

- Owners must register with FDEP 30 days after regulated substances are put into the system.
- Fees - \$25/year/tank
- Questions? Call: 850-245-8839



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STORAGE TANK REGISTRATION PLACARD

2004-2005

FACILITY ID: 9805385

PLACARD NO: 218443

PLACARD ISSUED: 06/17/2004
PLACARD EXPIRES: 06/30/2005

FACILITY: US SUGAR CORP AVIATION
AIRGLADES AIRPORT
CLEWISTON FL 33440 -
HENDRY COUNTY

FACILITY TYPE: Fuel user/Non-retail

STCM ACCOUNT: 22934


TANK SYSTEMS REGISTERED 

Michael W. Sole, Director
Division of Waste Management
Department of Environmental Protection

Financial Responsibility



- References EPA Requirements.
- One million dollars coverage required for petroleum marketers (cleanup and third party liability).
- \$500,000 coverage required for non-marketers.
- Use FR Allowable Mechanisms - Letter of Credit, Surety Bond, Insurance, etc.
- Only for petroleum storage systems. State & Federal facilities are exempt



Repairs, Operation, and Maintenance

Repairs

Short-cuts don't always work, and you get what you pay for...



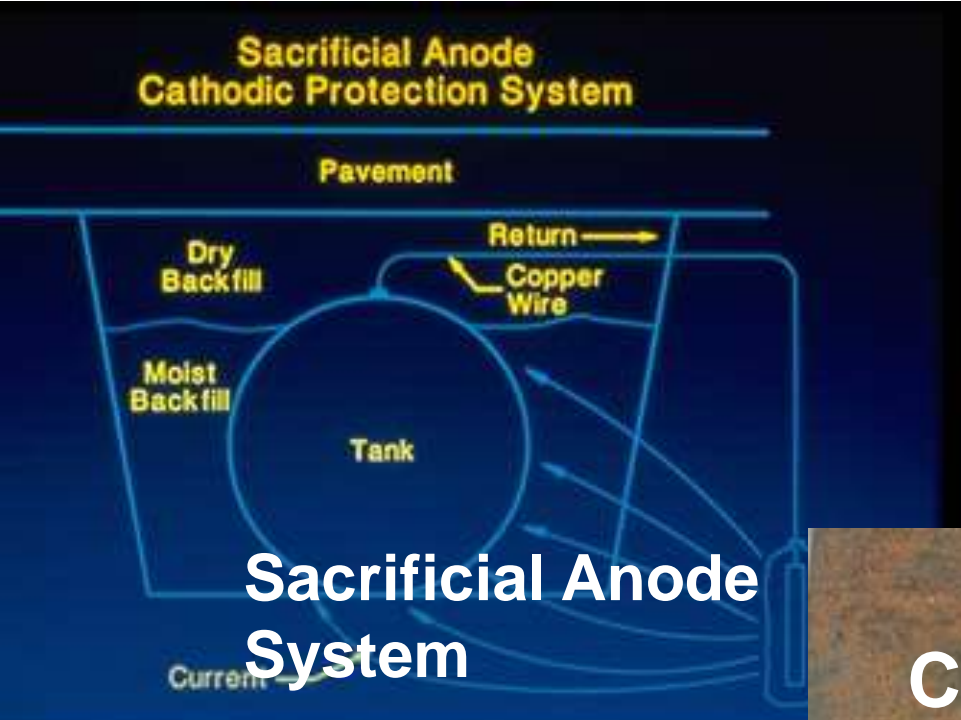
Repairs...

- Hire qualified people with good references





Cathodic Protection for Steel Systems



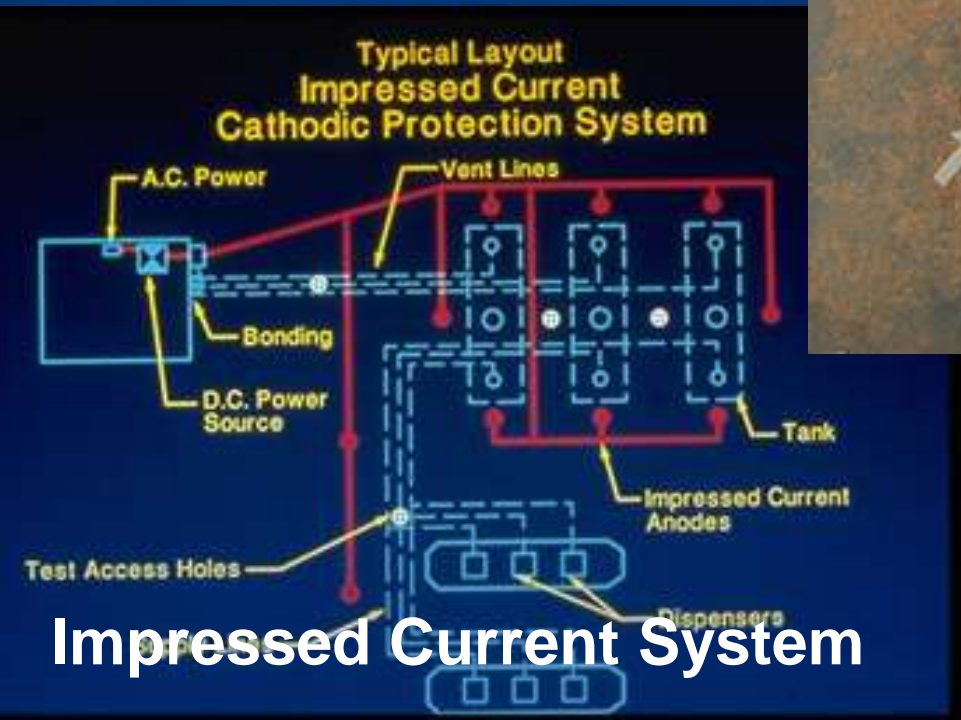
Sacrificial Anode System



Installing anodes



Corrosion pitting



Impressed Current System

Sampling equipment



Internal Lining- Corrosion Protection

**Sludge
removal**



Sand blasting

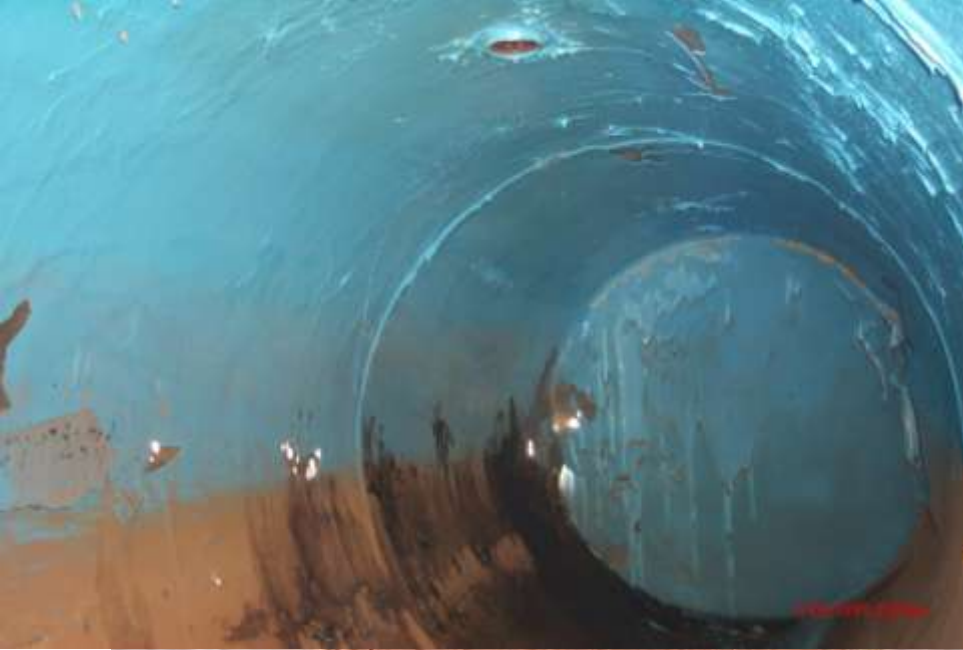


**Coating
application**



Delamination





**Not recommended
for single-wall
systems – Can only
be used until 2009**

**60%
Failure
Rate**



Operation & Maintenance

Operation and Maintenance



Painting
Fill-box
Covers

Mission Critical...



Maintaining Equipment

Unleaded

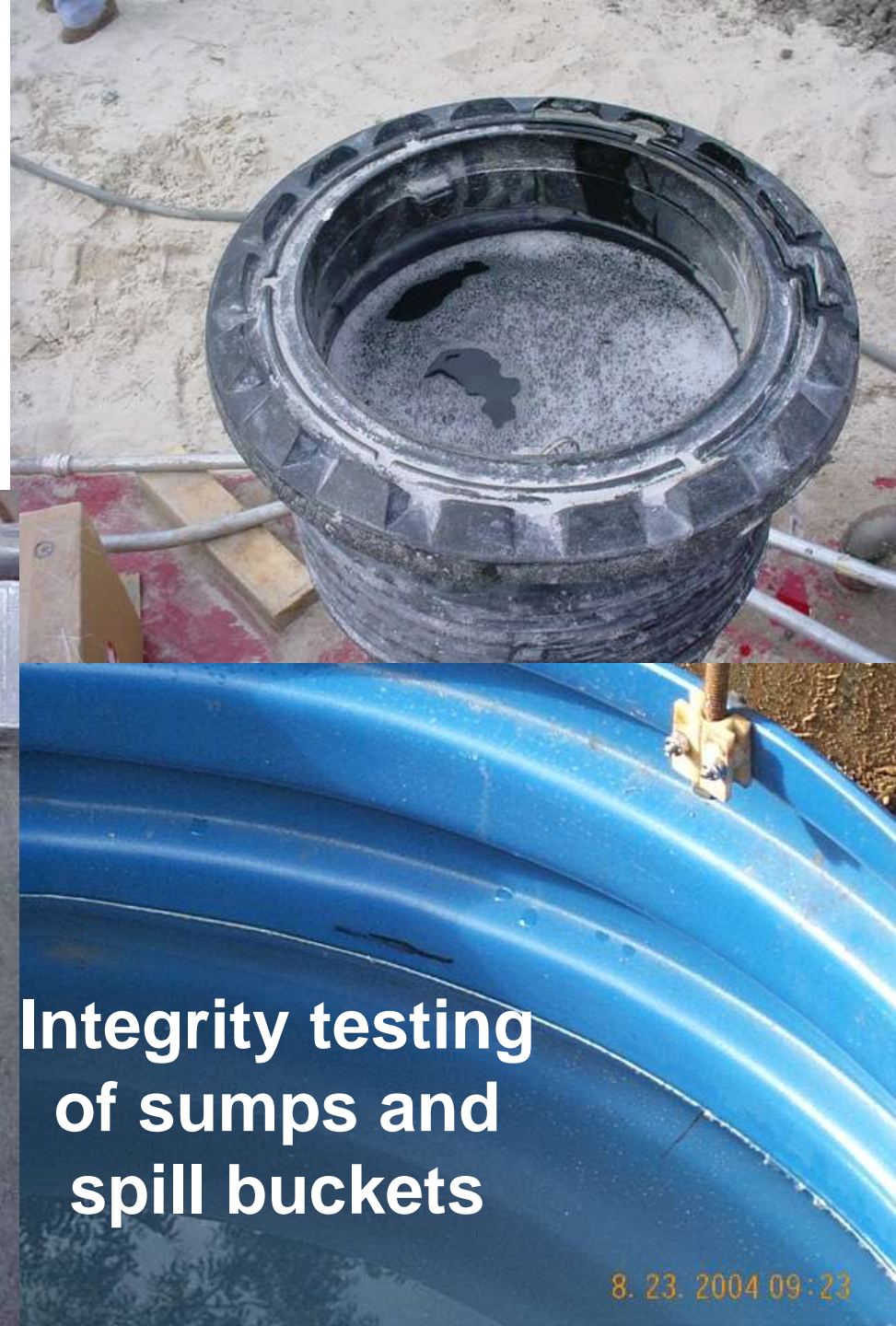




Operation and Maintenance

- **Inventory Control**
- **Tank Tightness Testing**
- **Petroleum Contact Water**

Annual Operability Tests of leak detection equipment



Integrity testing
of sumps and
spill buckets

Recordkeeping



RecordKeeping

**Most records kept for two years,
others for the life of the system**

OCT 22, 1999 8:00 AM

CSLD TEST RESULTS

OCT 22, 1999 8:00 AM

T 1:DIESEL
PROBE SERIAL NUM 408247

0.2 GAL/HR TEST
PER: OCT 22, 1999 PASS

T 2:SUPER
PROBE SERIAL NUM 408613

0.2 GAL/HR TEST
PER: OCT 22, 1999 PASS

T 3:REGULAR
PROBE SERIAL NUM 408244

0.2 GAL/HR TEST
PER: OCT 22, 1999 PASS

JAN 22, 2002 11:43 AM

LEAK TEST REPORT

T 3:REGULAR TANK
PROBE SERIAL NUM 240331

TEST STARTING TIME:
JAN 15, 2002 11:00 PM

LEAK TEST RESULTS
GROSS TEST PASS

***** END *****



Recordkeeping

- Keep a spiral notebook of visual inspections
- Keep a tabbed notebook of all other records required by the Department
- Photo-document if possible
- Keep DEP Registration Information up-to-date



Out-of-Service and Closure Requirements



Out-of-Service
Single-wall – 2 years
Double-wall – 10 years
Tanks must be empty!



Closure

Two Choices – Removal, or
Closure-in-place





Closure and Installation must be performed by a Petroleum Storage System Contractor (PSSC) certified by the Department of Business and Professional Regulation

Inerting



Sludge removal



Disposal



UST Closure

Closure – Care must be taken during removal to prevent discharges. If you have a problem, photo-document the problem and keep a material sample of the system if possible.



Purging



SAFETY FIRST!

8 3:52 PM

Don't be a victim of Natural Selection...





Sand



Concrete



**Closure in-place...
PSSSC's not required**

Foam



Closure Assessments
Recommendation: Hire a
qualified, experienced
professional environmental
consulting firm

Incident and Discharges



Incident and Discharge Reporting



Incidents



Discharges

Incidents

Internal bladder system failure



Discharges

Stained soils



Unusual operating conditions



Confirmed Release

Incident & Discharge Response

TCl-jacketed tank - incident



Fiberglass tank void - discharge



Assessment well drilling - discharge



Incident Response –

**Complete Form #6
within 24 hours or the
close of the next
business day – perform
an investigation and
notify the County of the
results within two
weeks**



Discharge Response – Complete Form #1 within 24 hours or the close of the next business day – control and abate the discharge



Lightning



Sinkholes!



Need a time extension for closure? Have a better way of meeting a DEP rule?

Alternate Requirements

Storage Tank Forms

- 1. Discharge Report.
- 2. Storage Tank Facility Registration.
- 3. Certification of Financial Responsibility.
- 4. Alternate Procedures.
- 5. UST Installation and Removal
- 6. Incident Notification.
- 7. Monthly Statistical Inventory Reconciliation
- 8. Limited Closure Summary Report





Alternative Fuels

Bio-Diesel & Ethanol





Coastal

Coastal

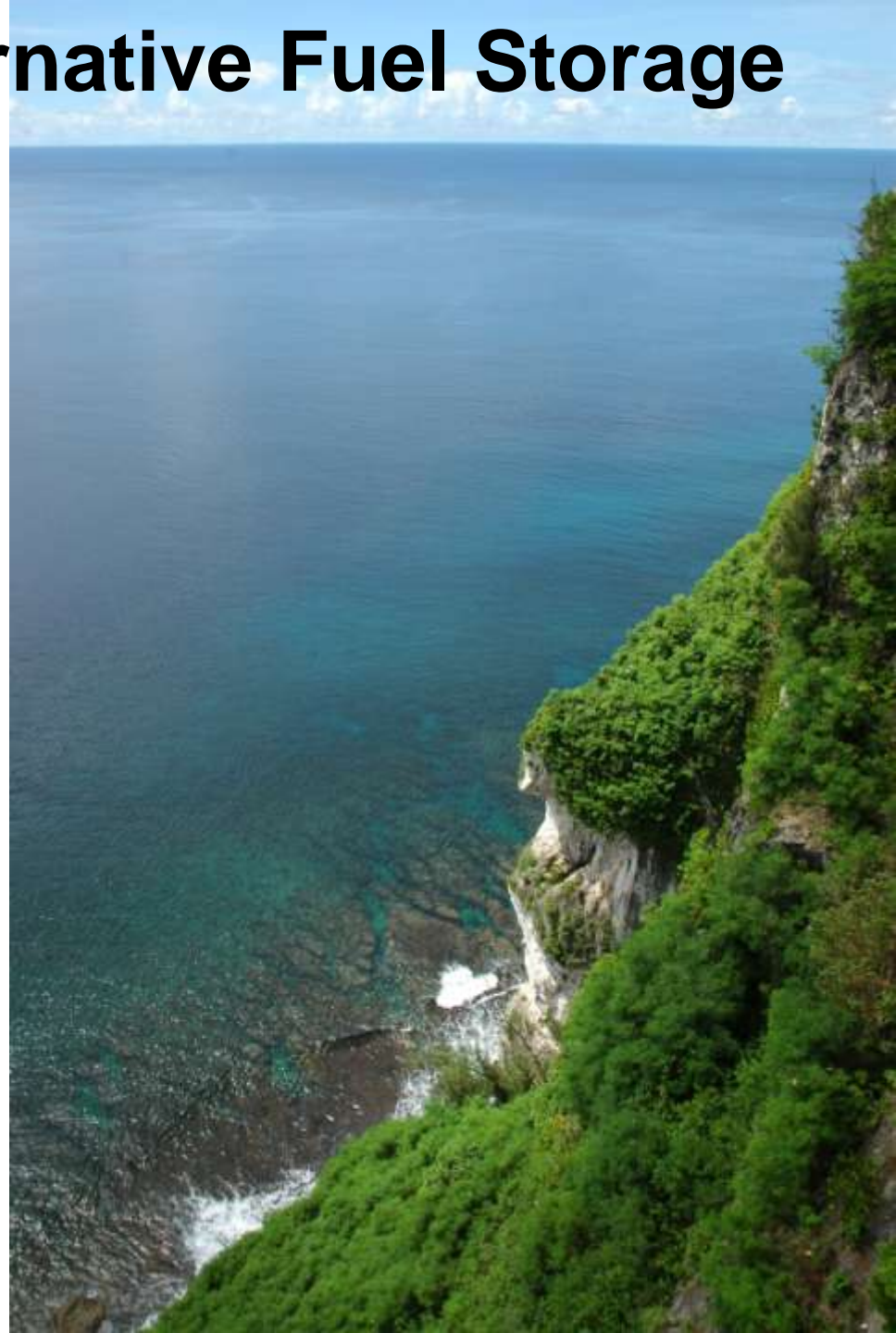
ETHANOL FREE
GAS

STONE OIL CO.

WE APPRECIATE
YOUR BUSINESS
THANK YOU

Recommendations for Alternative Fuel Storage

- **Construct and install new storage tank systems that are designed to be compatible with ethanol.**
- **Thoroughly clean, de-water, and inspect tanks before conversion to E-10.**
- **Keep a vigilant watch for water in the tank. Ethanol blends readily with water.**
- **Be more watchful for filter-clogging, and change filters more frequently**
- **Watch for degradation of plastics and soft metals**



Emergency Generators – DACS

Owners must be pre-wired to receive an emergency generator based on the number of fueling positions and proximity to hurricane evacuation routes.



Other Inspections



**Fire Safety Inspections by
the Local Fire Marshal**

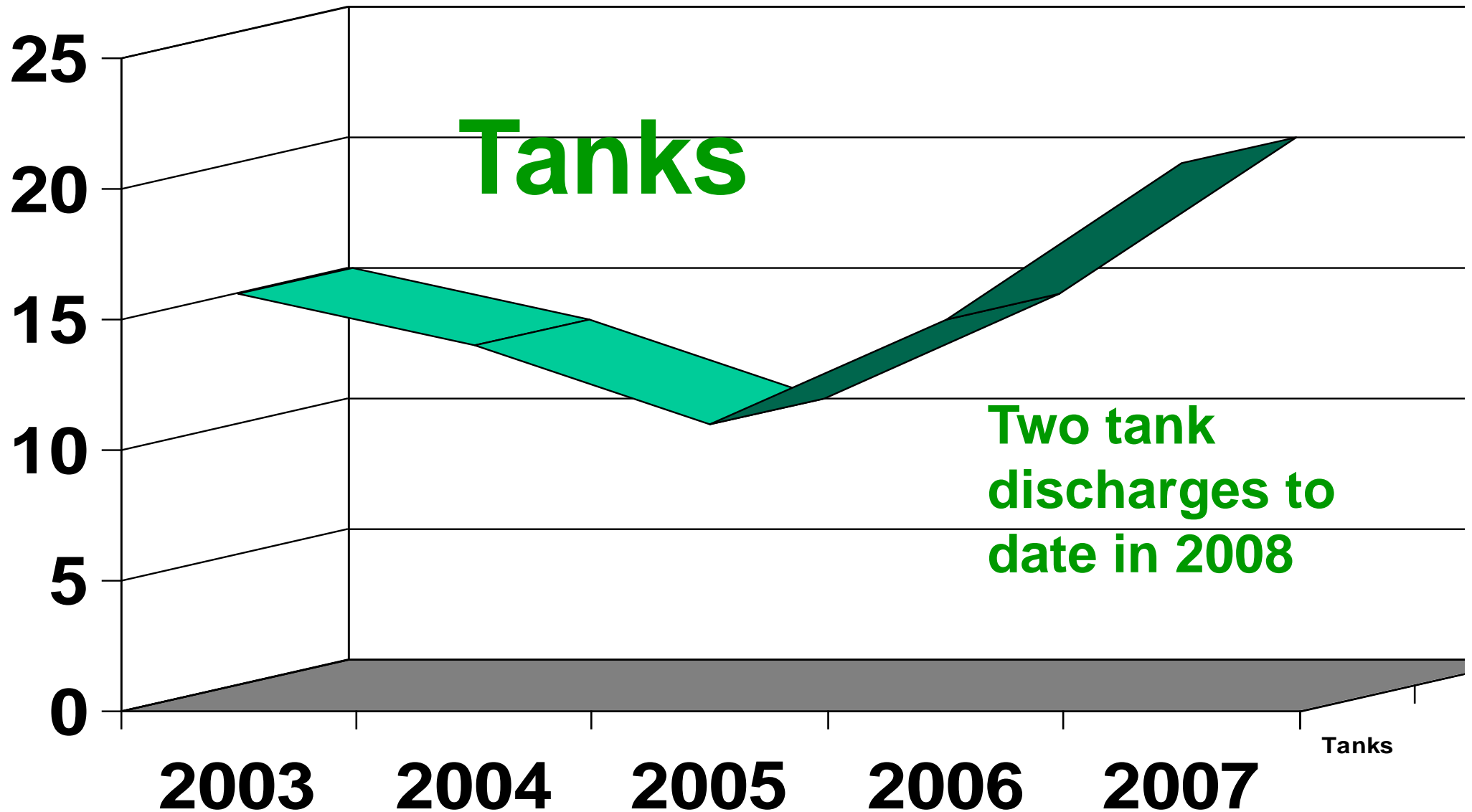


**Weights and Measures
Inspections performed by
Department of Agriculture
and Consumer Services**

Discharge Trends

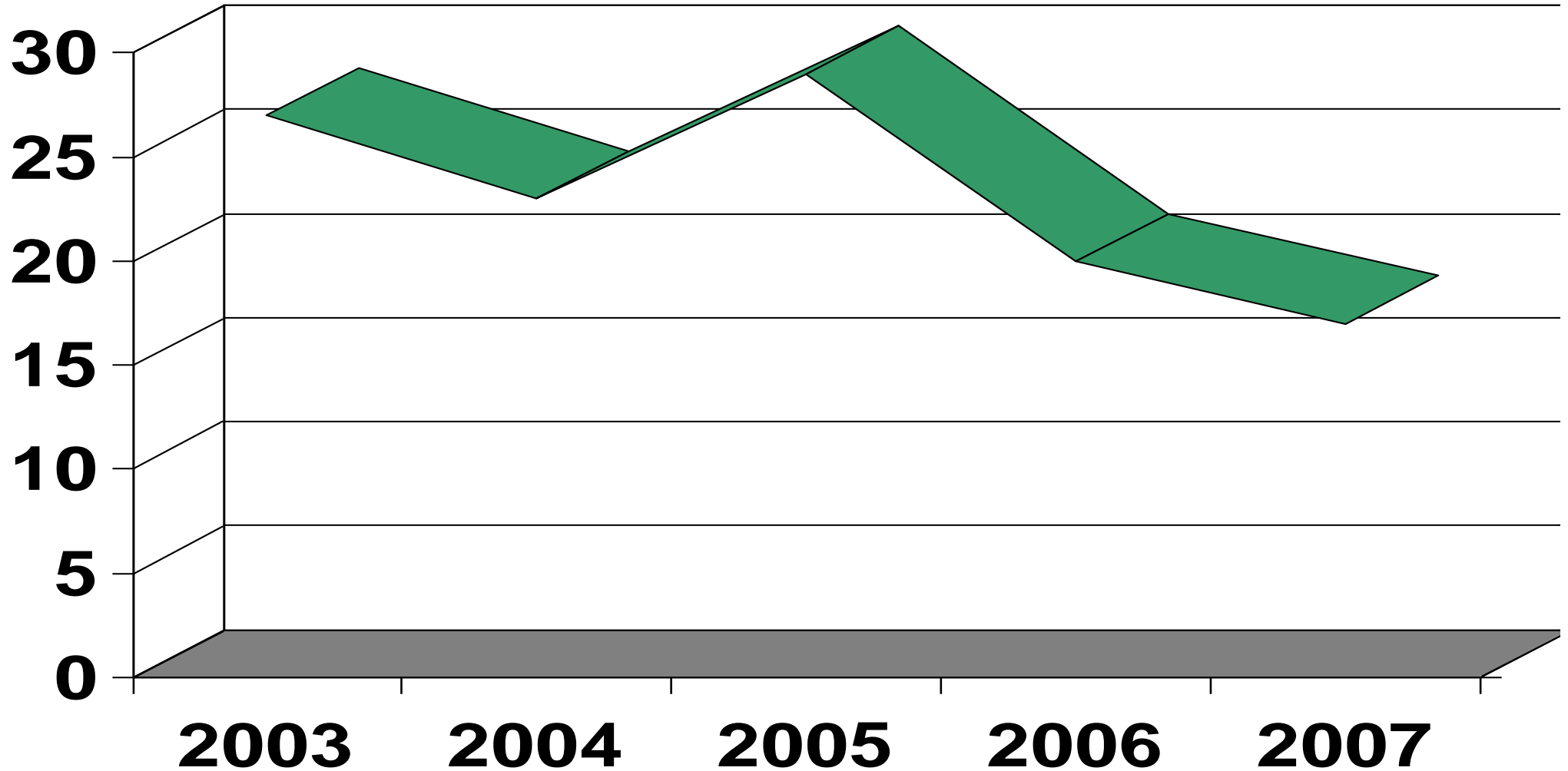


Number of Leak Autopsy Reports Received – Tank is the Source



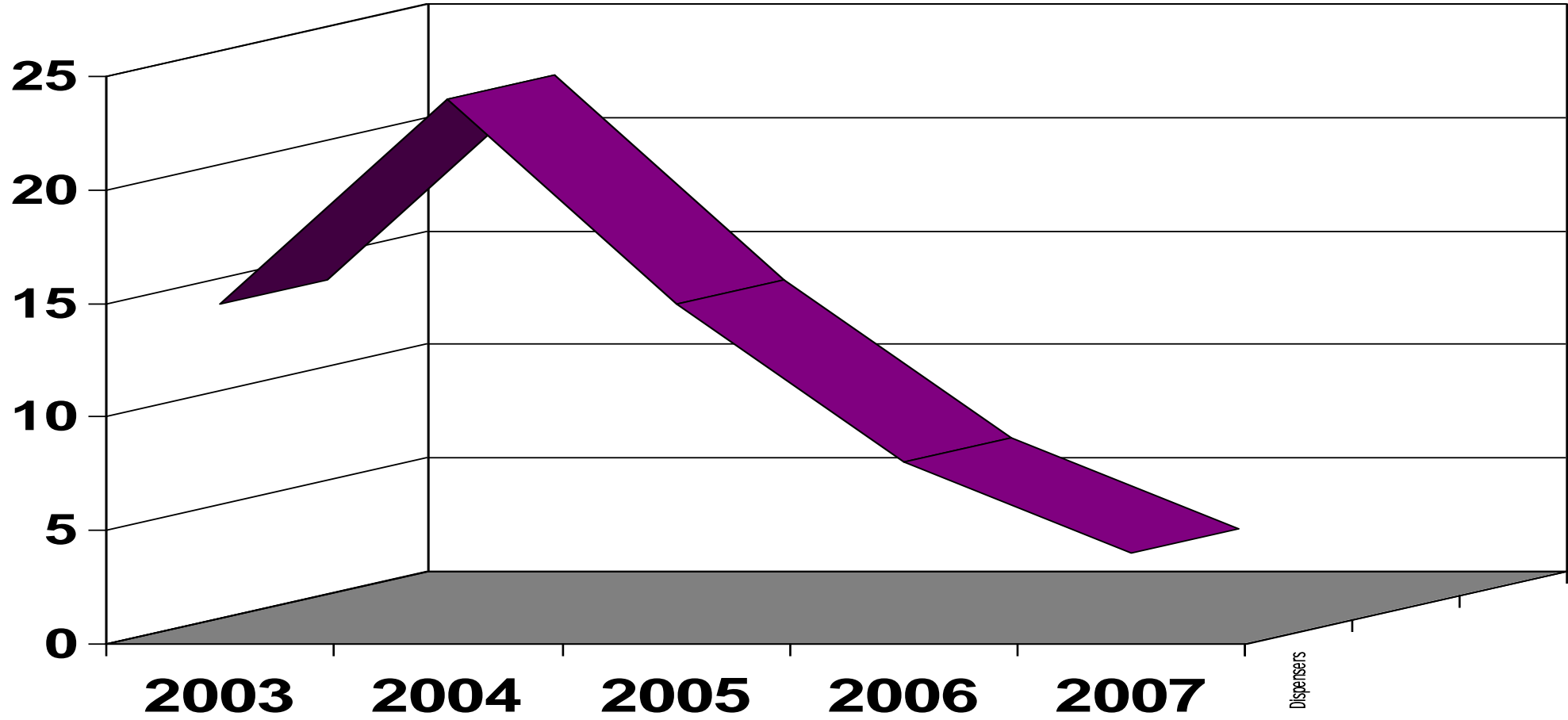
Number of Leak Autopsy Reports Received – Piping is the Source

Piping

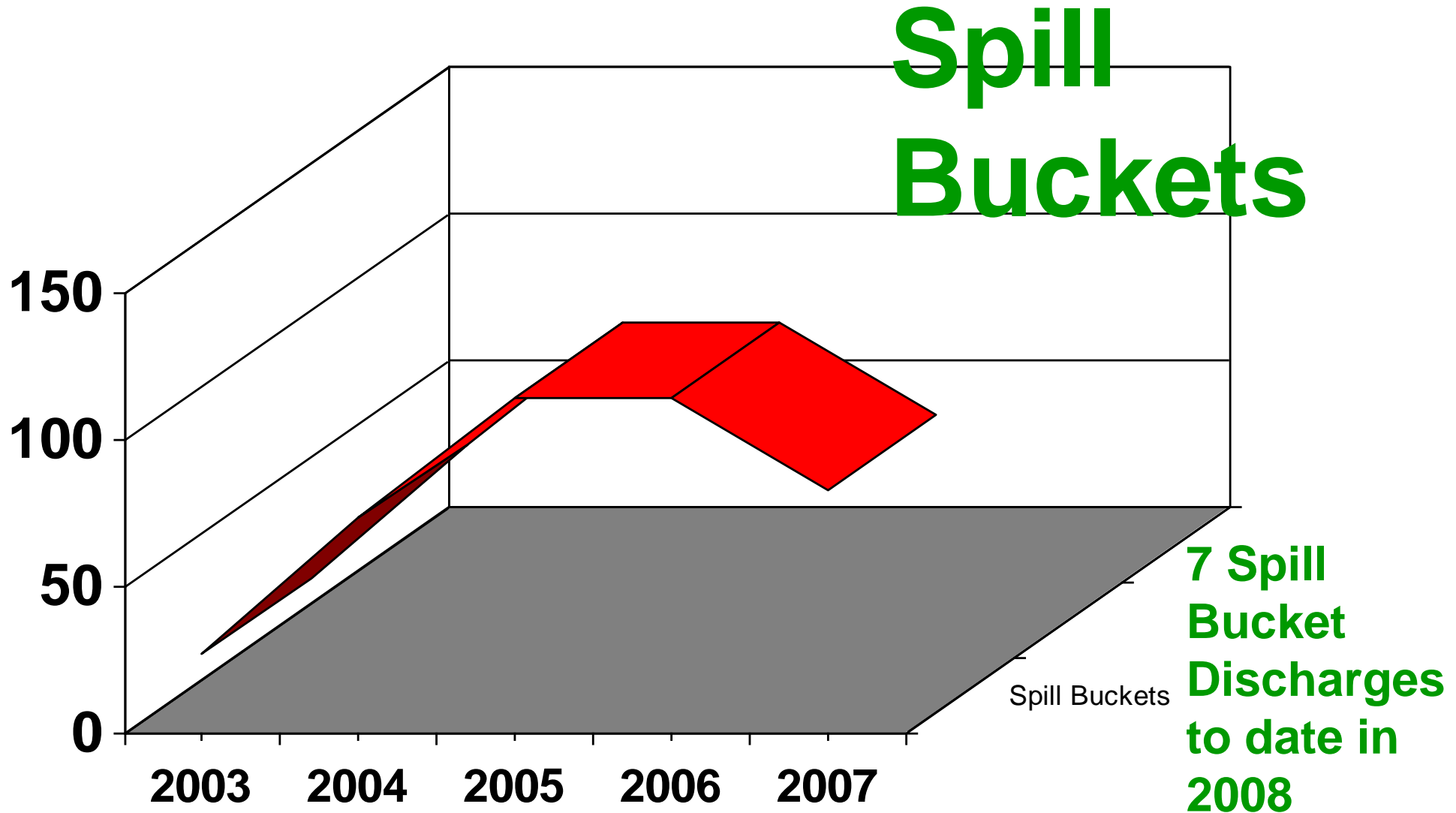


Number of Leak Autopsy Reports Received – Dispenser is the Source

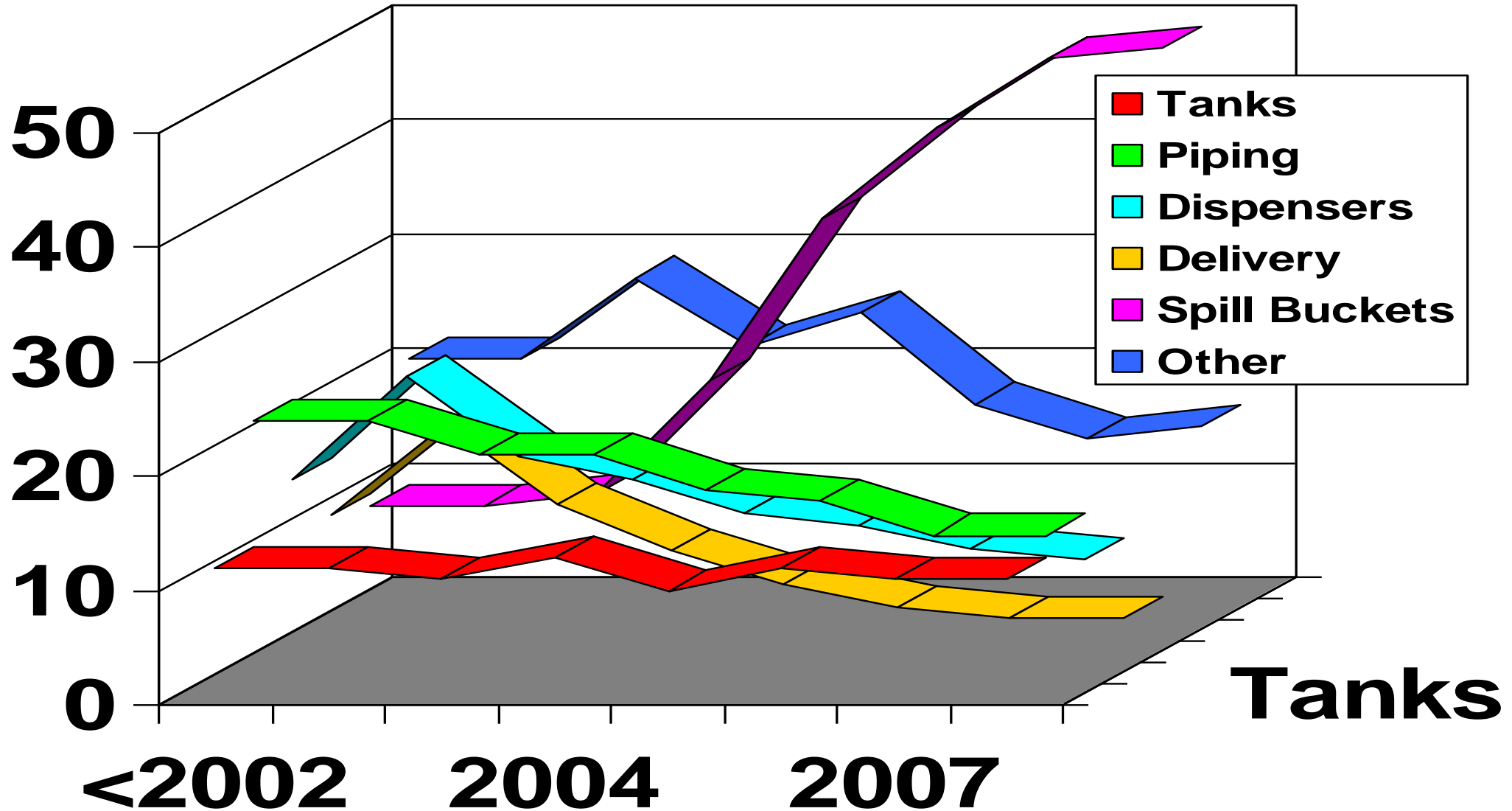
Dispensers



Number of Leak Autopsy Reports Received – Spill Bucket is the Source

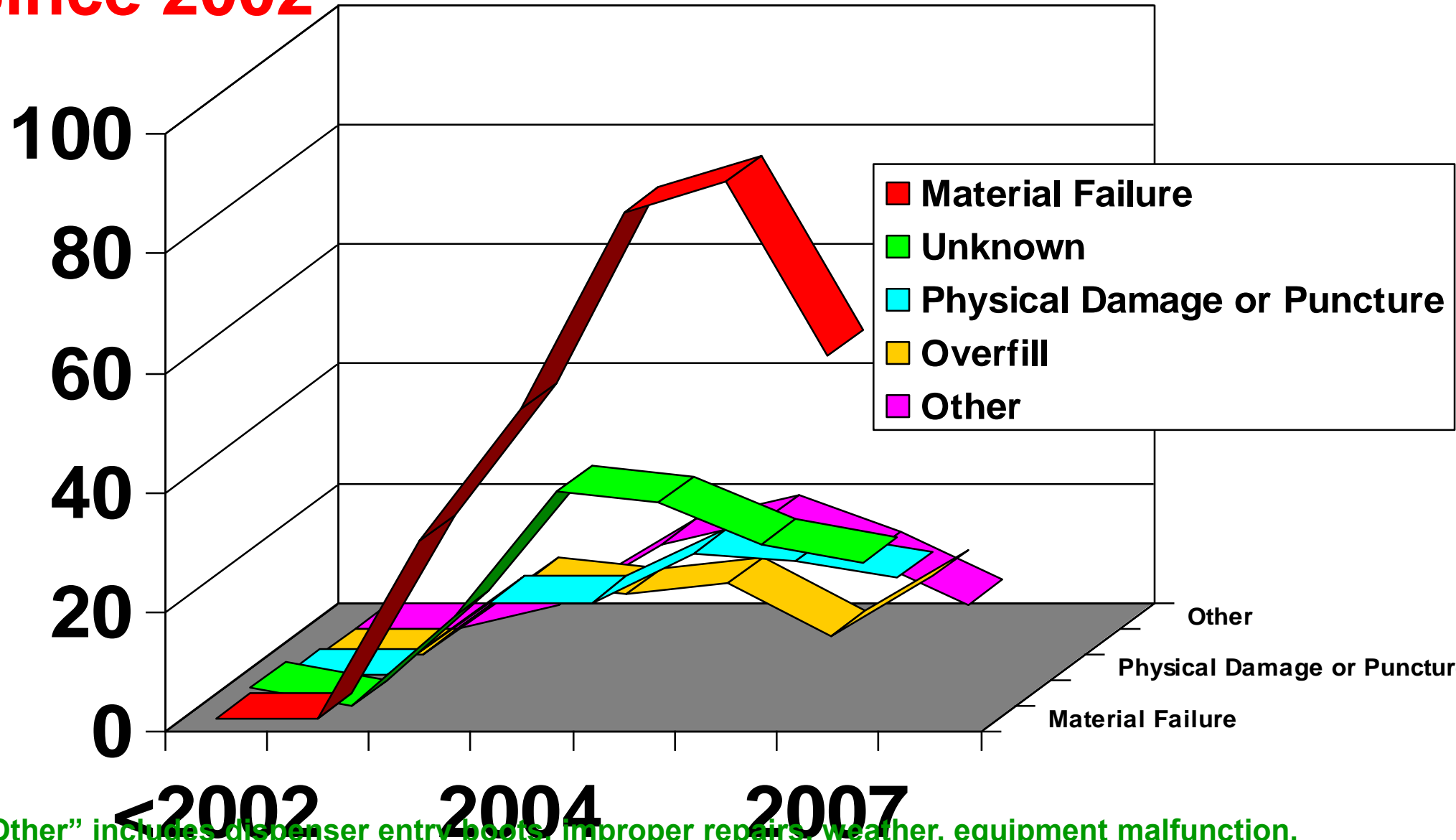


Trends of Percentage of Leak Sources Since 2002



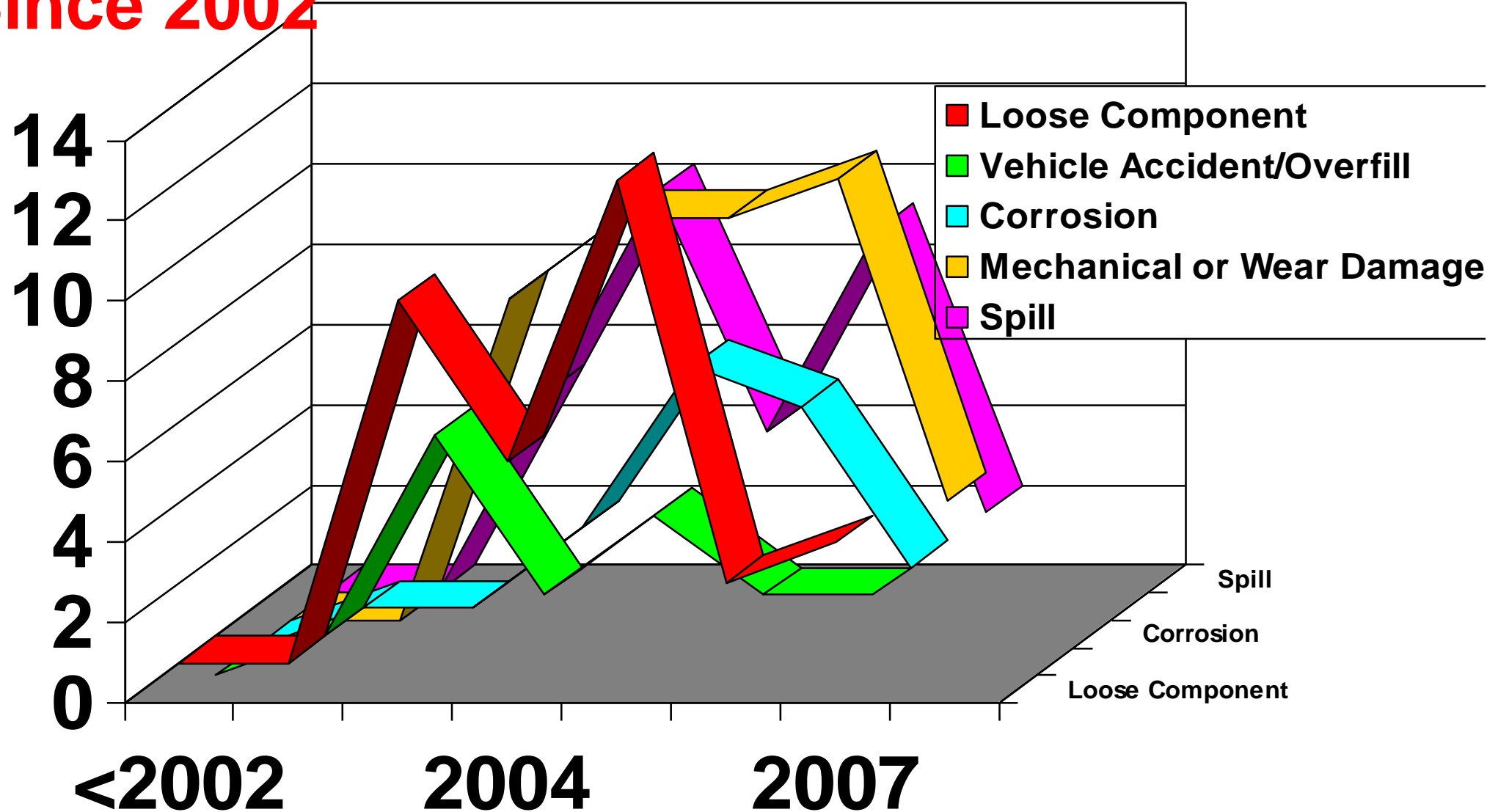
“Other” includes flex-connectors, fill pipes, piping & dispenser sumps, LLDs, STPs, & vent lines.

Trends of Percentage of Leak Causes Since 2002



“Other” includes dispenser entry boots, improper repairs, weather, equipment malfunction, Vandalism, bad O-rings, and integrity failure.

Trends of Percentage of Leak Causes Since 2002

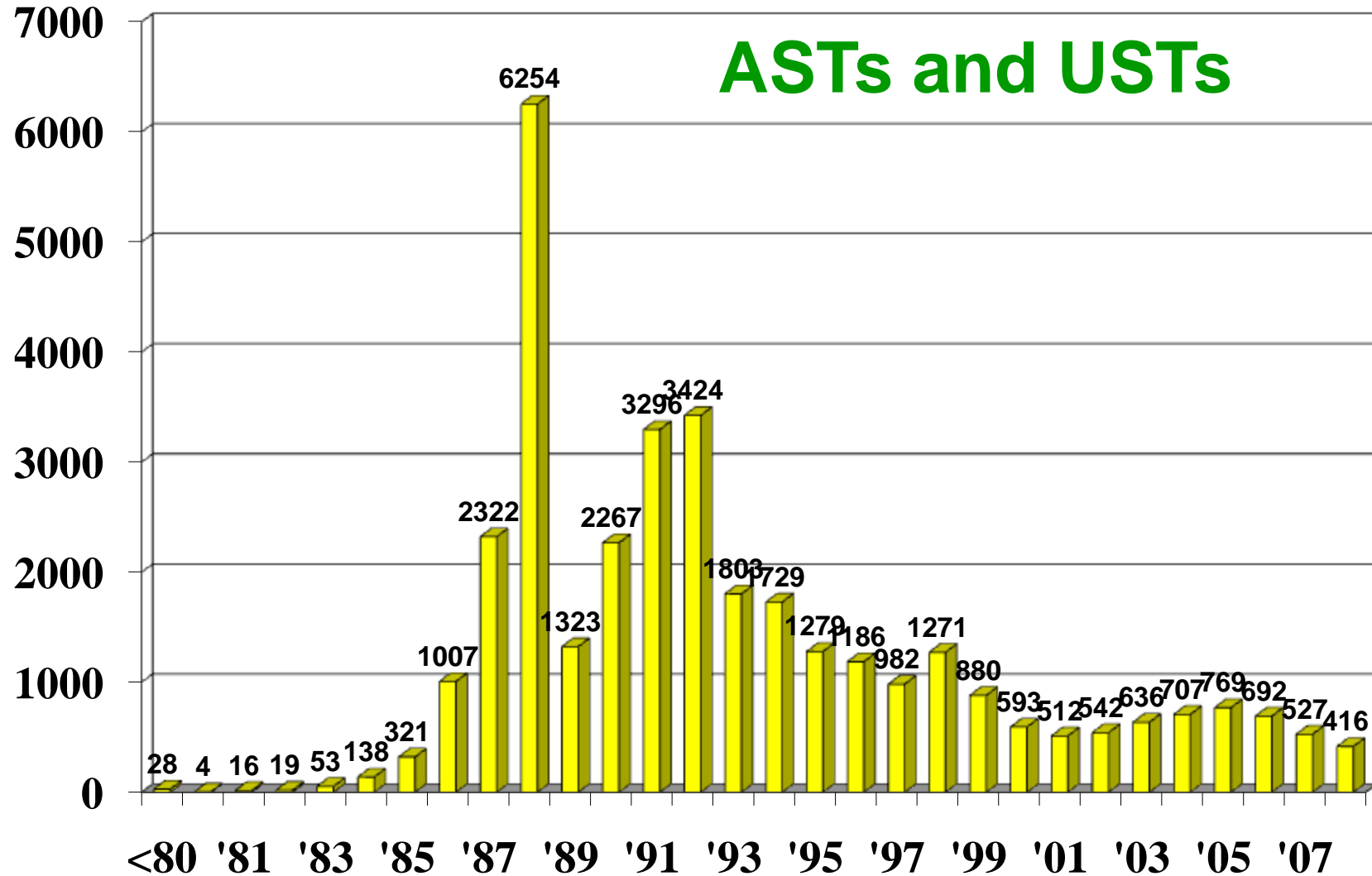


“Other” includes dispenser entry boots, improper repairs, weather, equipment malfunction, Vandalism, bad O-rings, and integrity failure.

Petroleum Discharge Report Forms Received

Discharges

Source: STCM, Apr 09

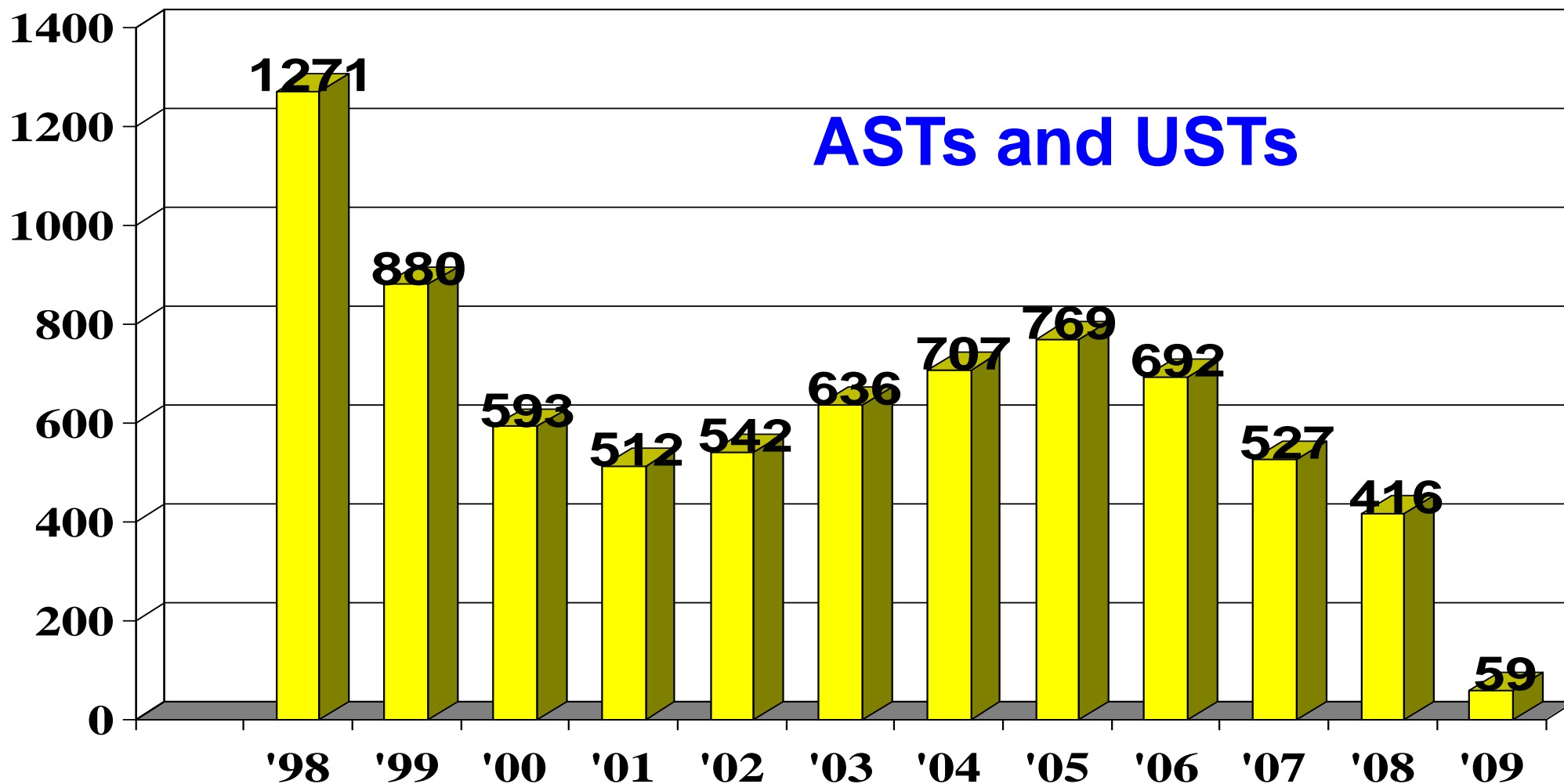


35,023 Discharge Report Forms Received

Post-1998 Petroleum Discharge Report Forms Received

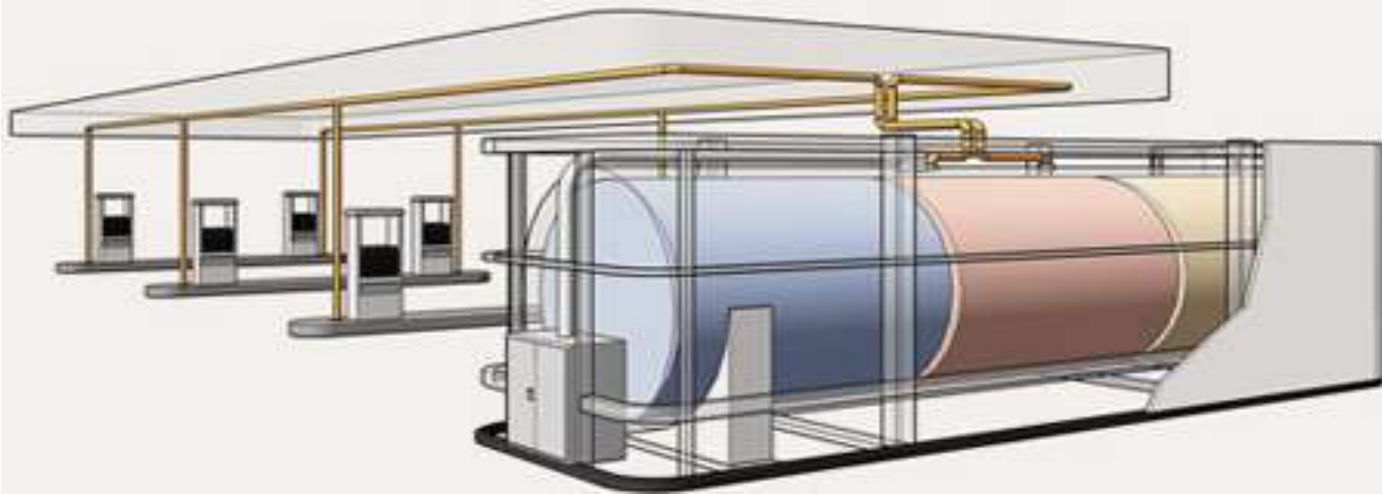
Discharges

Source: STCM, Apr 09

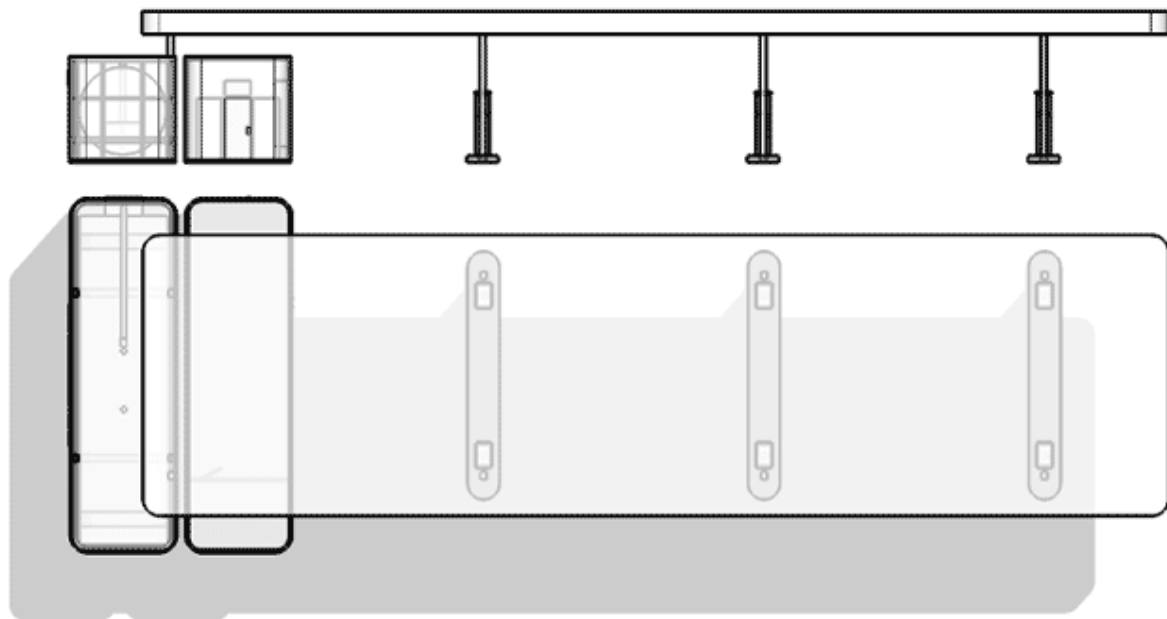


ASTs and USTs

7604 Post-1998 Discharge Report Forms Received



Atlas Fueling Systems Ecostation



- **Environmentally Safe - Nothing is underground. There are no risks of soil contamination and no adverse effects on public health.**
- **A Tangible Asset of Great Value that can be Relocated if Necessary**
- **Low Installation Costs and Quick Installation**
- **Simplified Maintenance**
- **Ideal for Unattended Sites**
- **Biofuel compatible - including E85**
- **UL Approved, and Not Regulated in States Without AST Regulations**
- **Patent pending**
- **Truly Plug & Play Systems**



The End

