2014 Gas Safety Conference Compliance Review

Pennsylvania PUC-Gas Safety
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Topics:

Non-compliance and violation trends:

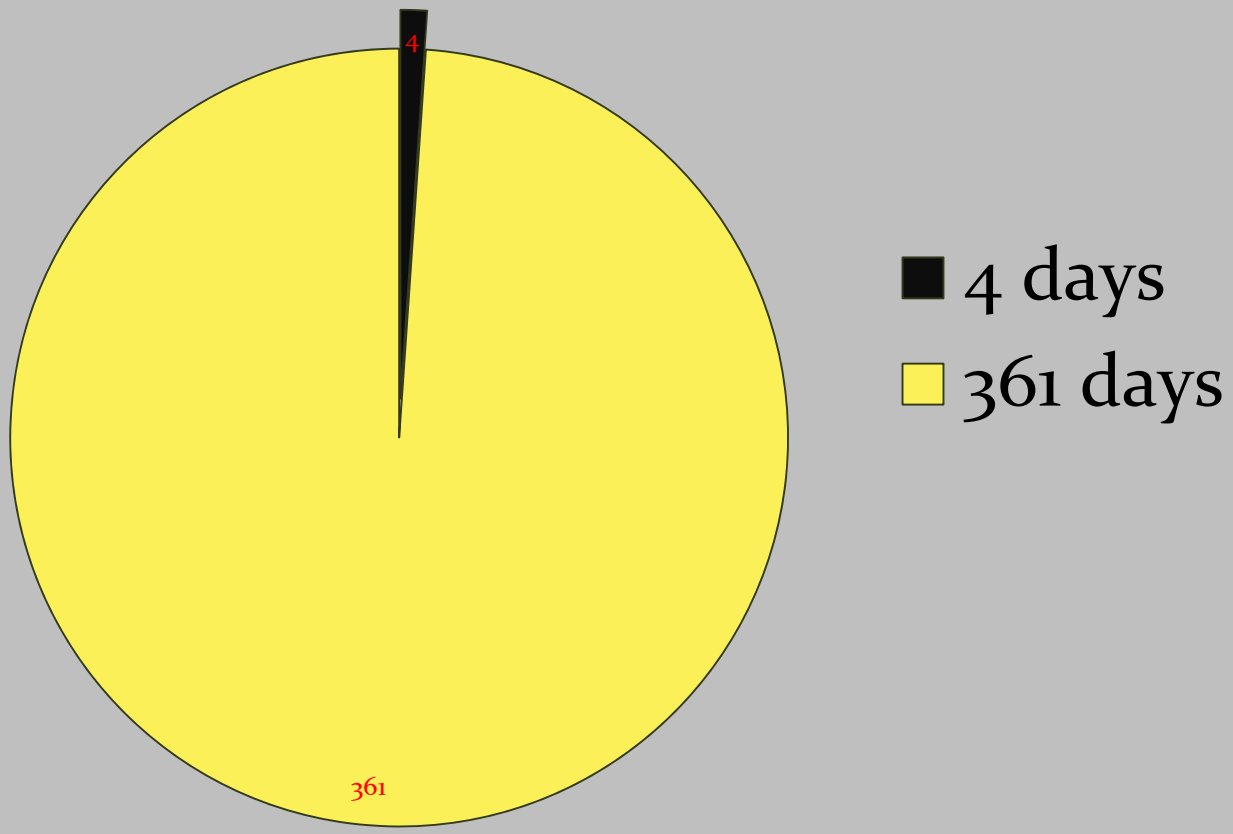
Severity of violations:

Discuss common problem areas:

Open Discussion:

*Mike Chilek, Bob Biggard and Paul Metro with microphones:

Number of days per year Gas Companies want to hear from Gas Safety!

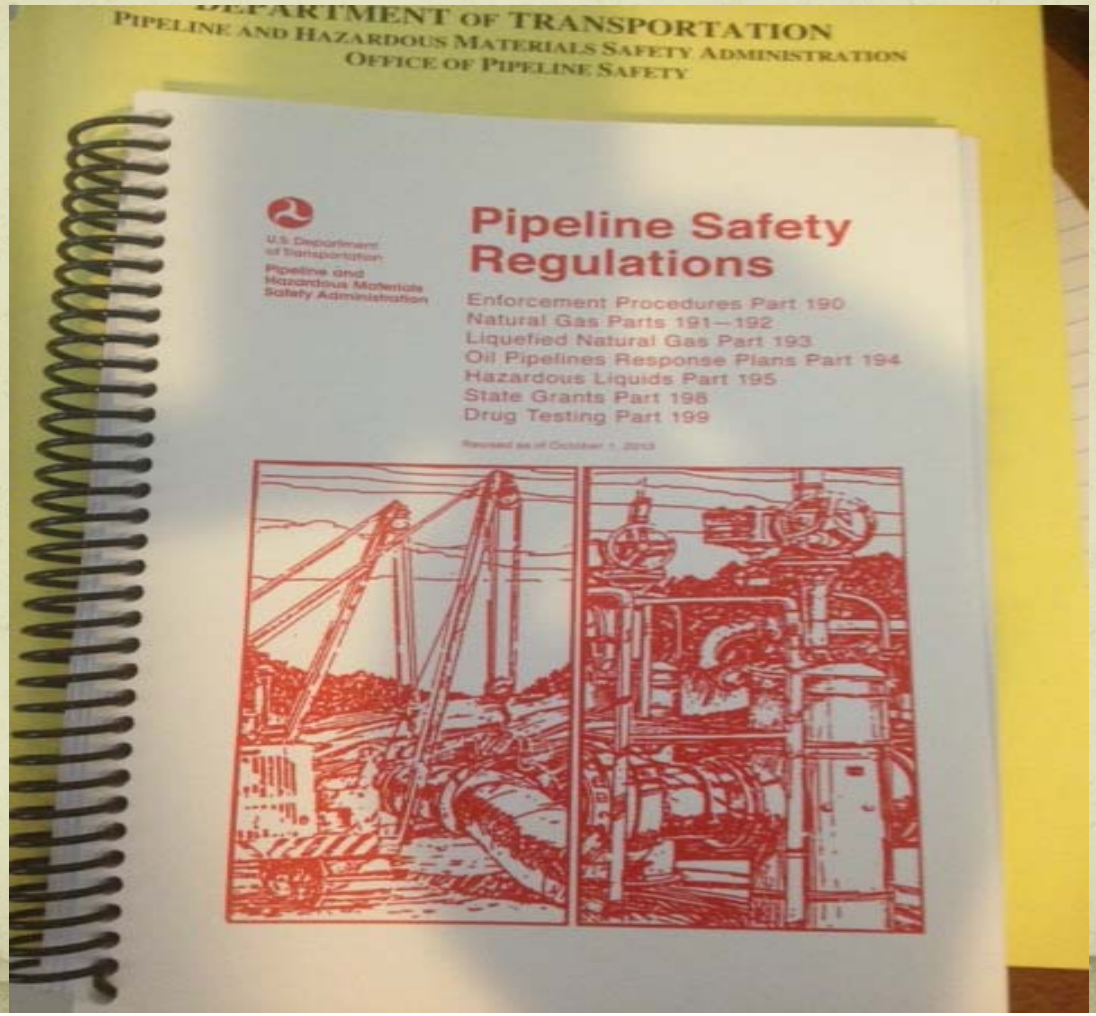


Regulations:

- Primary job of Gas Safety is to enforce:
  - 49 CFR 191 and 192
  - State regulations in 52 PA Code
  - What do regulations require that the operator did not do?
- Within 49 CFR 192 is the requirement for Operators to "prepare and follow a manual of written procedures" per 192.605(a) "Operation Maintenance & Emergencies"
- and "maintain modify and follow the plans procedures and programs" per 192.13 –
- Other Subparts requirements for procedures..192.614 Damage Prevention etc.
- Procedures: Are they correct? Were they followed?
- 192.7 incorporates by reference in whole and in part: ATSM, ASME, API, NFPA, PPI, NACE, GTI etc.

Says who? US DOT-PHMSA

- 192.1 (a) …prescribes the <u>minimum</u> safety requirements for pipeline facilities and transportation of natural gas



Non-Compliance Letters-Why?

- Inform operators of a non-compliance with state or federal code
- Creates a record of the non-compliance
- Expected that Operators apply required corrections across all operating areas and ensure it is not repeated-now or later

So, take the information from today's presentation and apply to your system proactively: These are the things we are looking for!!

Operators…

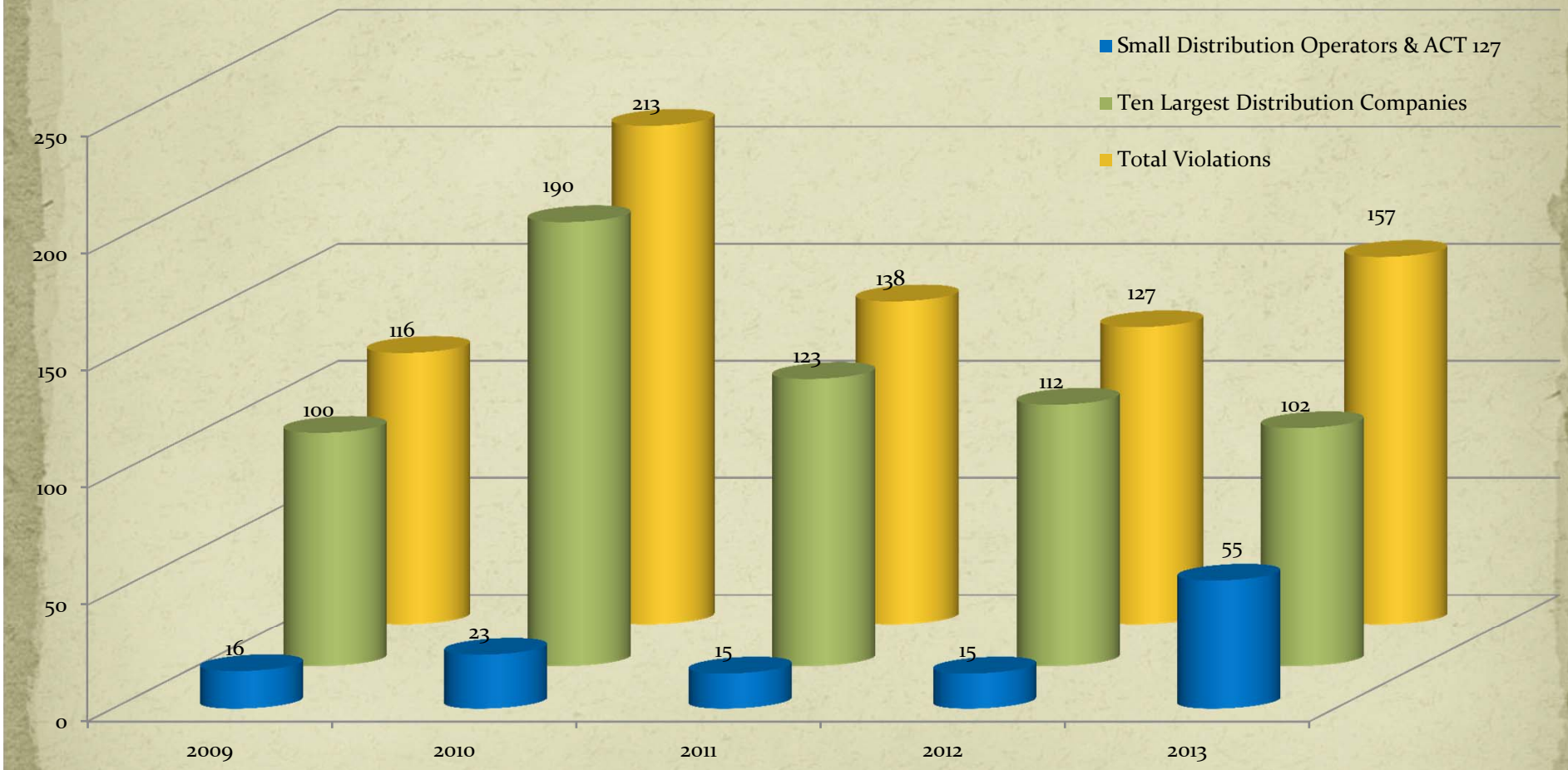
- 49 CFR 192- Effective 1971
  - Operators had 43 years to adopt and comply to minimum standards…with some changes and additions over the years
  - Operators get to make their own rules and write their own procedures to comply with and exceed the code

So, what are we finding?

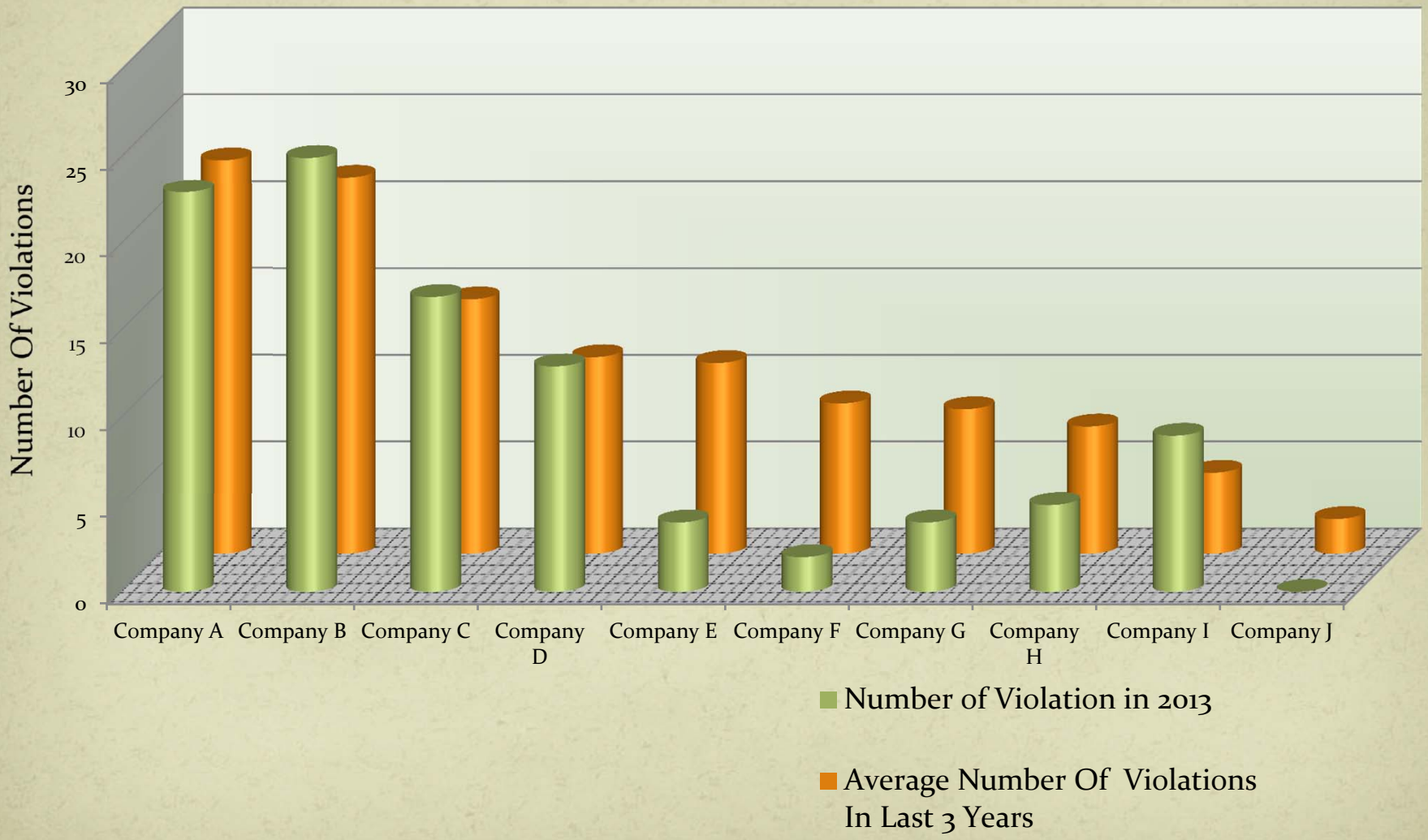
2013 Inspection Data:

- Just under 1,300 Inspection days: Gas Safety Engineers get one inspection day per day in the field, even if we do more than one inspection that day
- 66 Non-compliance letters in 2013 with 44 of those for the 10 largest distribution companies
- 157 violations (state and federal) within those non-compliance letters
- Over 1,700 total inspections in 2013

Number Of Violations Found In The Past Five Years



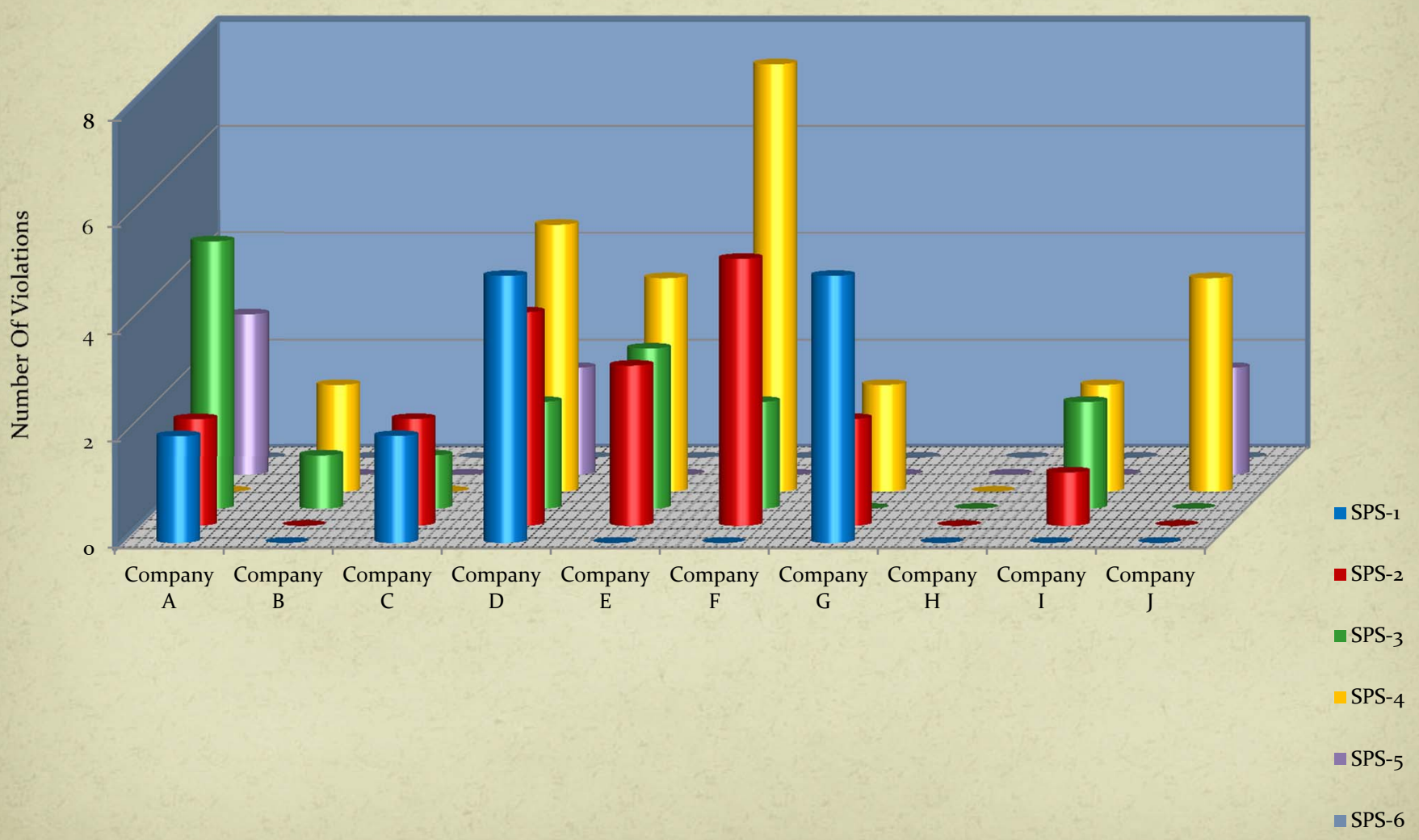
COMPARISON OF 2013 VIOLATIONS VERSUS THE THREE YEAR AVERAGE



Safety Precedence Sequence

1. Design For Minimum Hazard: (Any compromise of the pipelines Integrity)
2. Safety Devices: (Regulator Stations, Reliefs, Emergency Valves)
3. Safety Warnings: (Odorization, Markouts, Pipeline Markers)
4. Procedures: (Procedures not directly effecting Design, Safety Devices and Safety Warnings)
5. Training/Awareness:
6. Notify management of risk and accept the situation without corrective action.

Ten Largest Distribution Companies' Safety Precedence Sequence Rankings



Count Of Violation Severity:

Procedures: 28

Safety Devices: 19

Safety Warnings: 16

Design: 14

Training/Awareness: 7

Common Problem Areas:

- Key topics:
  - Full Circle Clamp Coupling
  - Regulators
  - Damage prevention and hits
  - Pretesting pipe-repairs
  - Equipment Calibration
  - Plastic pipe-cracking
  - Pipeline markers
  - System Knowledge

Full Circle Clamp Coupling:

- Manufactures **DO NOT** recommend the use of these clamps on PE pipe.

Use on a PE pipe is a violation of 49 CFR 192.281(e)(2), which states:

(e) Mechanical joints. Each compression type mechanical joint on plastic pipe must comply with the following:

(2) A rigid internal tubular stiffener, other than a split tubular stiffener, must be used in conjunction with the coupling.

Full Circle Clamp Coupling (continued):

- Manufactures indicate these clamps **DO NOT** restrain axial movement on the pipe.

Use on a pipe is a violation of 49 CFR 192.273(a), which states:

(a) The pipeline must be designed and installed so that each joint will sustain the longitudinal pullout or thrust forces caused by contraction or expansion of the piping or by anticipated external or internal loading.

Full Circle Clamp Coupling (continued):

- Utilizing a clamp not rated for the pressure of the pipeline is a direct violation of 49 CFR 192.619 (MAOP) and the Integrity Management rules in 49 CFR (Subpart O or P).

Such a violation is the most severe on the Safety Precedence Sequence.

Regulators- What is it?

Regulators

- This single run set with relief was recorded as a monitor set… Engineering thought it was a monitor set
- So:

  -Everyone thought this was a monitor set except the maintenance crew

  -No regulator vs relief capacity

  -No annual review or capacity. No record of review

  -No calculation for build up or pipe losses

  -Relief capacity found to be undersized for the regulator

Major communication breakdown between field and engineering group. Engineers need to verify what is in the field… What they are reviewing in the annual review. Field need to document what they have.

Take a picture for a file.

Regulators Continued

- **192.181**-Inlet valve-sufficient distance for operation in emergency. Define sufficient distance in procedure.
- **192.203 (b)(2)** Blowdown valves- needed to safely relieve pressure off the regulator during maintenance.
- **192.201(a)(2)**-set points of the relief. Must take into account build up and piping losses. Don't set relief of a 60 PSIG MAOP at 66…Build up and losses need to be taken onto account. The allowance above MAOP can NEVER be exceeded anywhere in the system… These allowances are for emergency situation, not normal operating conditions. Normal operation, do not exceed MAOP.

Regulators cont.:

- **192.739-** inspected every year not to exceed 15 months.

  - One time Jan 1 thru Dec 31

  -Sometimes new stations are forgotten about and not inspected…get them in the cycle the year they are installed

- **192.743-** Capacity of relief devices. Review of calculations. Engineers document if parameters have not changed. THEY NEED TO KNOW WHAT IS THERE. Annual review must be documented: who-when

Pipe losses- Equiv. feet 4" 6"

	screwed	steel	21.0	22.0	22.0	24.0	29.0	37.0	42.0	54.0	62.0	79.0	110.0					
		c.i.										65.0	86.0					
globe valve	flanged	steel			38.0	40.0	45.0	54.0	59.0	70.0	77.0	94.0	120.0	150.0	190.0	260.0	310.0	390.0
		c.i.										77.0	99.0		150.0	210.0	270.0	330.0
	screwed	steel	0.32	0.45	0.56	0.67	0.84	1.1	1.2	1.5	1.7	1.9	2.5					
		c.i.										1.6	2.0					
gate valve	flanged	steel								2.6	2.7	2.8	2.9	3.1	3.2	3.2	3.2	3.2
		c.i.										2.3	2.4		2.6	2.7	2.8	2.9
	screwed	steel	12.8	15.0	15.0	15.0	17.0	18.0	18.0	18.0	18.0	18.0	18.0					
		c.i.										15.0	15.0					
angle valve	flanged	steel			15.0	15.0	17.0	18.0	18.0	21.0	22.0	28.0	38.0	50.0	63.0	90.0	120.0	140.0
		c.i.										23.0	31.0		52.0	74.0	98.0	120.0
	screwed	steel	7.2	7.3	8.0	8.8	11.0	13.0	15.0	19.0	22.0	27.0	38.0					
		c.i.										22.0	31.0					
swing check valve	flanged	steel			3.8	5.3	7.2	10.0	12.0	17.0	21.0	27.0	38.0	50.0	63.0	90.0	120.0	140.0
		c.i.										22.0	31.0		52.0	74.0	98.0	120.0

Regulators:

- Know what piping and components are between regulator and the relief. The wrong valve can affect reliefs set points. Stress to those in the field that all changes need to be approved by engineering.

- Do you have enough engineering staff to accomplish this uniformly across entire company? Training program, account for turnover and retirements?

- Repeat violations-need to be addressed going forward

Relief cap/flapper

- Needs to be accounted for-watch for obstructions in piping!
- Account for it or don't do it…was this approved by engineering

Damage Prevention

Auger Damage 2" PE

Stub- Not marked 192.614 (C)(5)

Damage prevention-more than 811

- 192.614 (b) - Need to join PA One Call
- 192.614(c)(5) This is the big one: Need to thoroughly mark out the area, if there is a question on scope of the job, make a phone call. If there is a question on accuracy or confidence of facility location, make a phone call.
  - Common issues are:
    - Layered mapping systems with more or different detail
    - Availability of most current maps to mark-out crews
    - Poor mapping records
    - Not understanding scope of the project-making assumptions

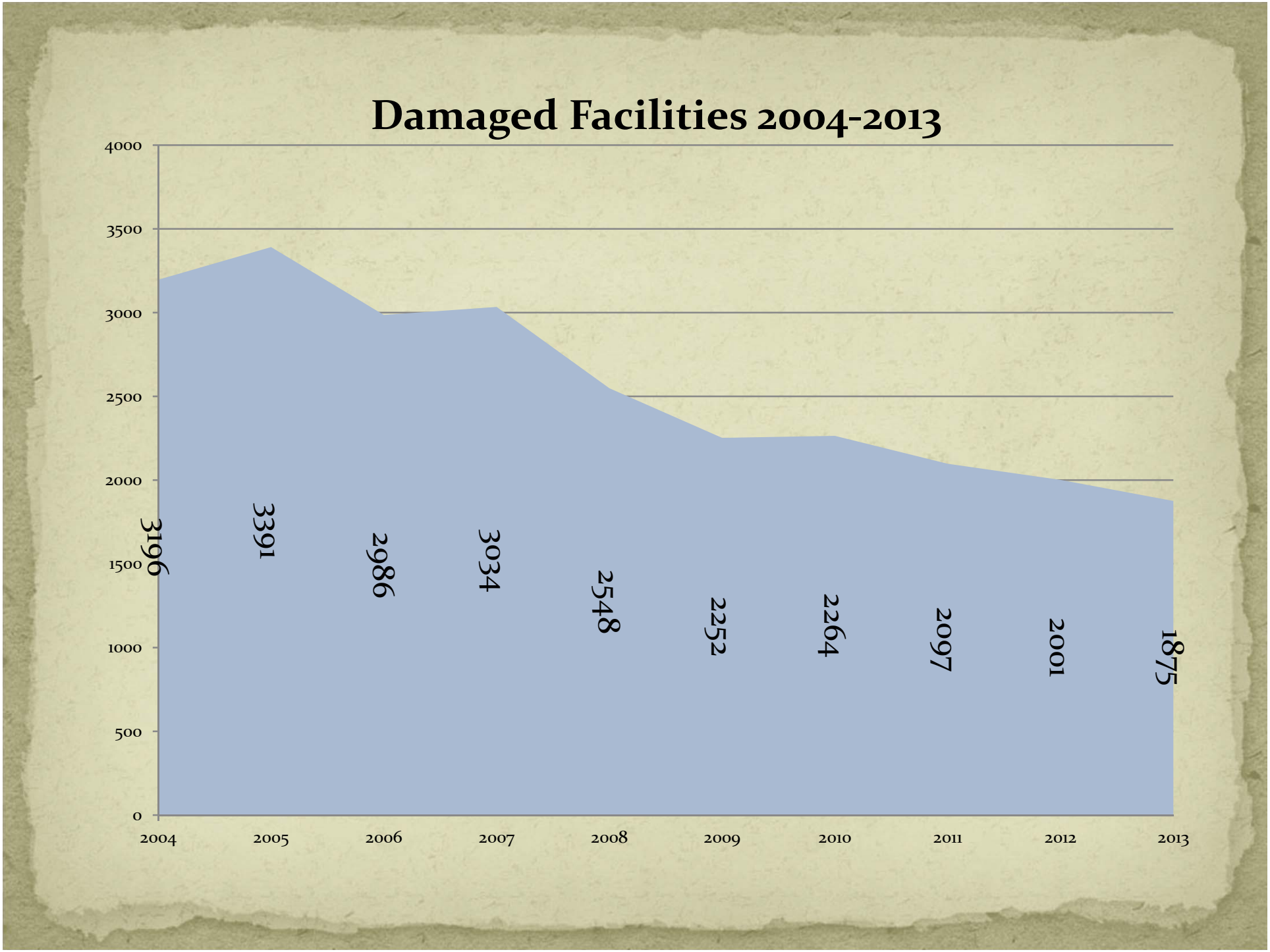
Damage prevention

- 192.614(c)(6)- when operator has reason to believe pipeline could be damaged by excavation activities, (i) revisit site as frequently as necessary during and after the activity to verify pipeline integrity
- 192.614(a)-carry out written program for damage prevention. Follow procedures-
  - Take to the next level: reach out to construction managers at sites where multiple mark-outs are requested. Learn scope of the project…what can be done to protect your main.
  - Design tickets for major construction
  - Communication with those digging and their managers
  - Follow your plan! Tools in place but rarely used

PEMA Notifications to PUC

- County dependent-some report more than others
- Gas Safety informed directly thru email of gas related emergencies (jurisdictional and non-jurisdictional)
- Valuable tool for us: 3rd party hit, leaks, incidents, accidents, complaints, repairs, OQ …
- We will call for details or show up on site or both
- Sometimes we contact operator's management prior to their knowledge of the issue. We are looking for general details to determine if a site visit or additional follow-up is warranted

Damage prevention-prevent this


Damaged Facilities 2004-2013
4000
3500
3000
2500
2000
1500
1000
500
0
3196
3391
2986
3034
2548
2252
2264
2097
2001
1875
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013

Equipment Calibration

- Meet or exceed manufacturer recommendation for calibration
  - Or have proof and documentation of why not to apply manufacturer recommendations
    - Be able to defend decision and assume associated liability…maybe on the witness stand
    - Put it in your Procedures…or incorporate manufactures procedures.
  - Copied out of Operations Manual for popular Electrofusion Machine:

    "**Revision/Calibration Interval 2 Years**"
  - Study what devices and instruments you use that require calibration

Pipe Testing

- Example: When testing to 90 psig, make sure gauge reads 90 psig or more….not 85 or 86 psig. Record the gauge pressure at which it was tested.
- All piping is required to be tested. Use pretested pipe when installing a repair and soap test the joints. Plastic =1.5 times MAOP

Plastic pipe

- Finding: The cracking of orange plastic pipe. The pictures represent a 9" crack found in a gas system that created a hazardous leak.

Plastic pipe

- PE-2306 from the 1980 to 1989 were manufactured with this specification and has a low crack resistance related to rock impingement and mechanical squeezing. The current plastic pipe is made as PE-2406 reducing it's propensity for cracking.

- More than one operator had the same issue in western PA.

Plastic pipe

Miscellaneous

- **Pipeline markers:** Still seeing issues with names, numbers and location of markers. Give particular attention with mergers and acquisitions for transmission, distribution and Act 127.

- **PA Code:** Common Violations:

  52 PA Code §59.33 Safety

  52 PA Code §59.37 Maps, plans and records

- **Know your system:** As more low pressure is isolated from medium pressure due to replacements, mistakes are made causing unplanned outages. Crews are not made aware of new one way feed. Squeeze offs/valves/stoppers. Double check prior to performing these tasks. Be vigilant with gauges and consider implementing bypasses.

Miscellaneous

- During situations with call volumes high at Local 911 centers, consider having direct communications with the Emergency Responders and Reporting Centers.
- Non-Compliance follow-up: Companies need to effectively implement the changes by communicate these changes to all employees and contractors affected by those changes. Repetitive reinforcement
  - We see the same violations repeated
  - Don't leave procedures open to interpretation
  - Same across all offices/districts
  - Compliance checks within the company

Questions???