Distribution Integrity Management Program

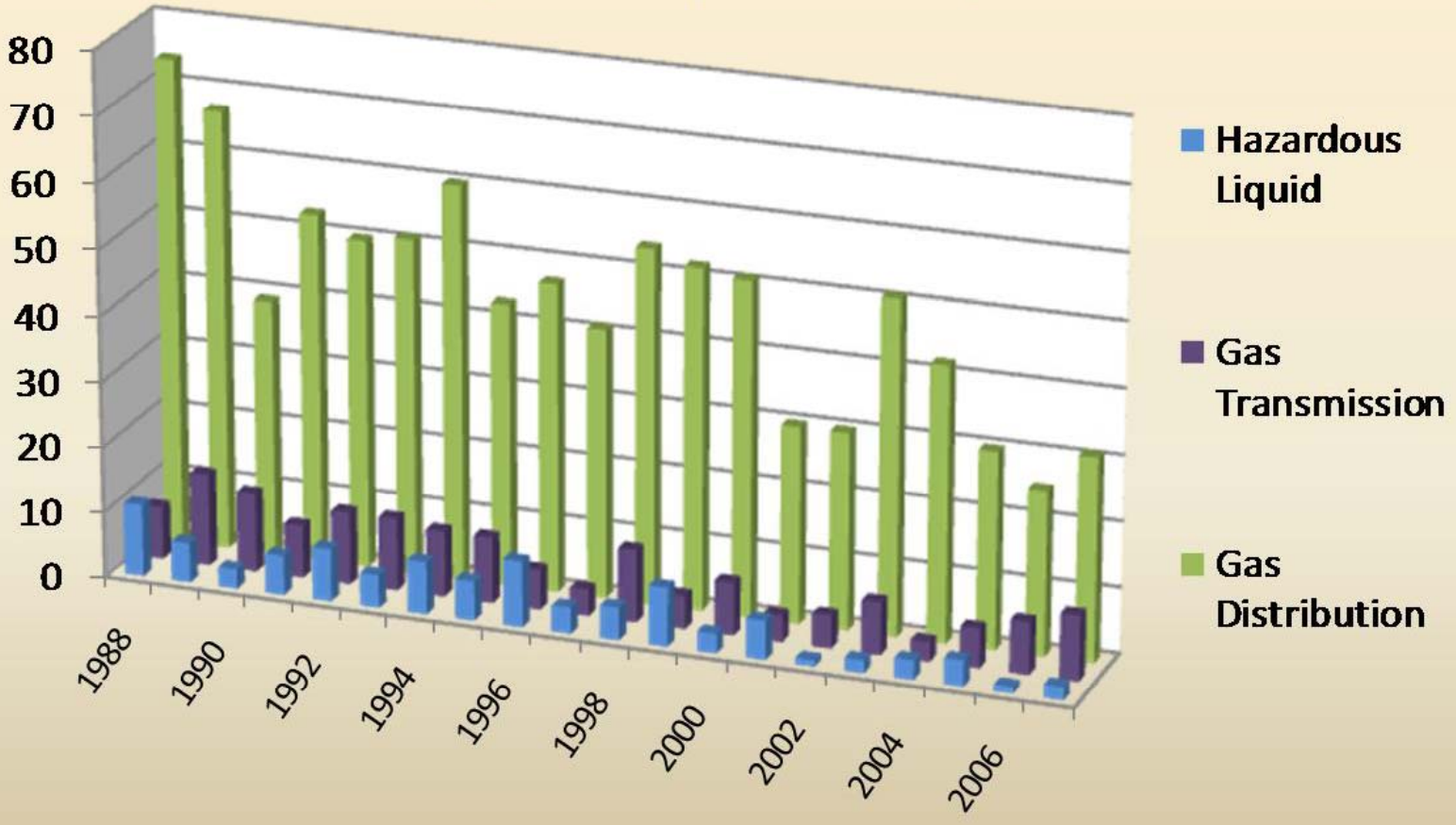
Mike Israni
PHMSA/ US DOT

PIPES Act 2006

- Pipeline Inspection, Enforcement, and Protection Act of 2006 (PIPES) Includes provisions for DIMP
- DOT is required to issue standards (i.e., a rule)
- The standards must include requirements to install EFVs
- Operators covered under the standards would be required to develop and implement IM programs

Serious Pipeline Incidents

by Sector (1998-2007)

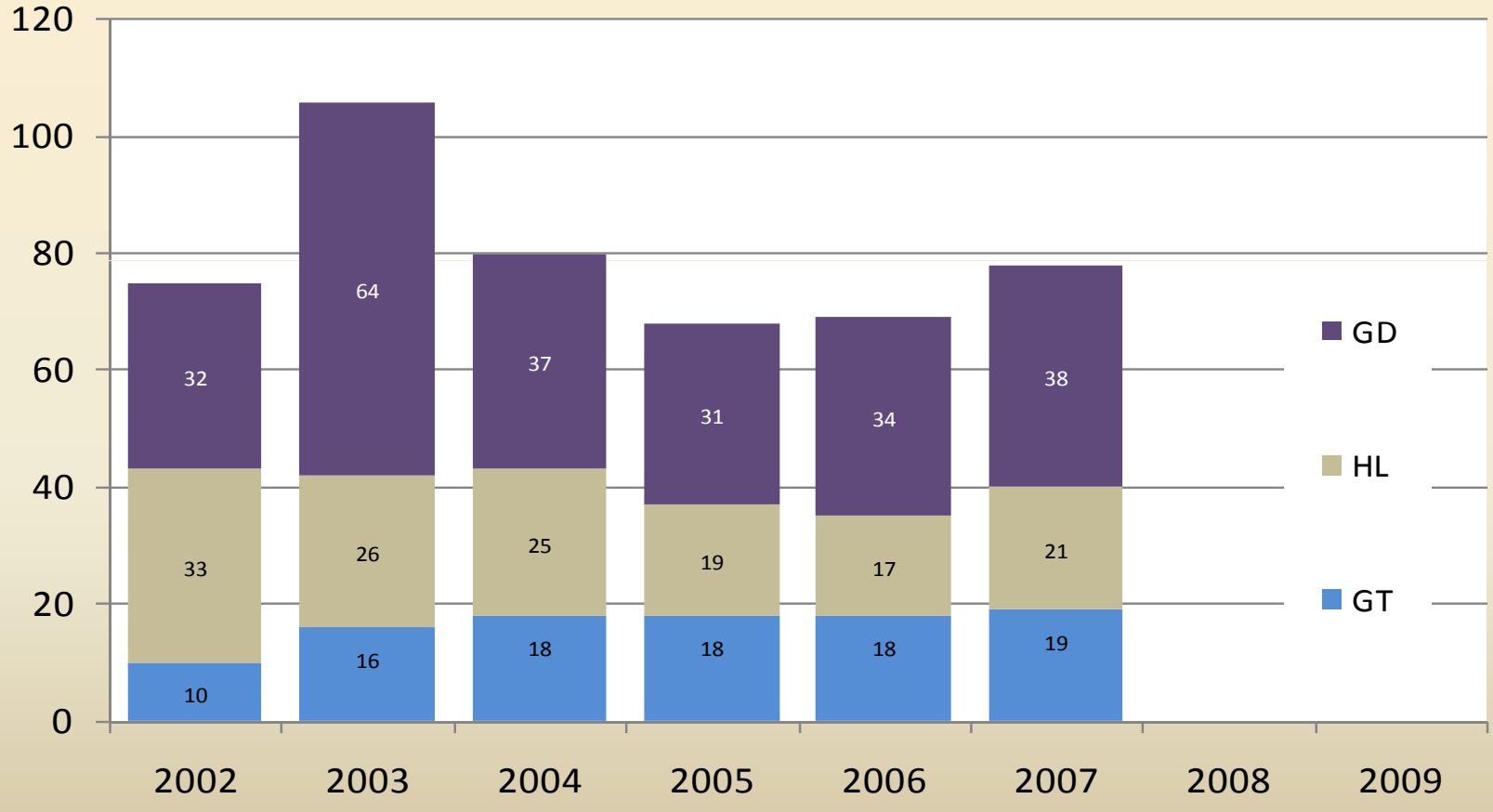


Source: DOT/PHMSA Incident Data, as of Dec. 21, 2007

What Causes Distribution Events?

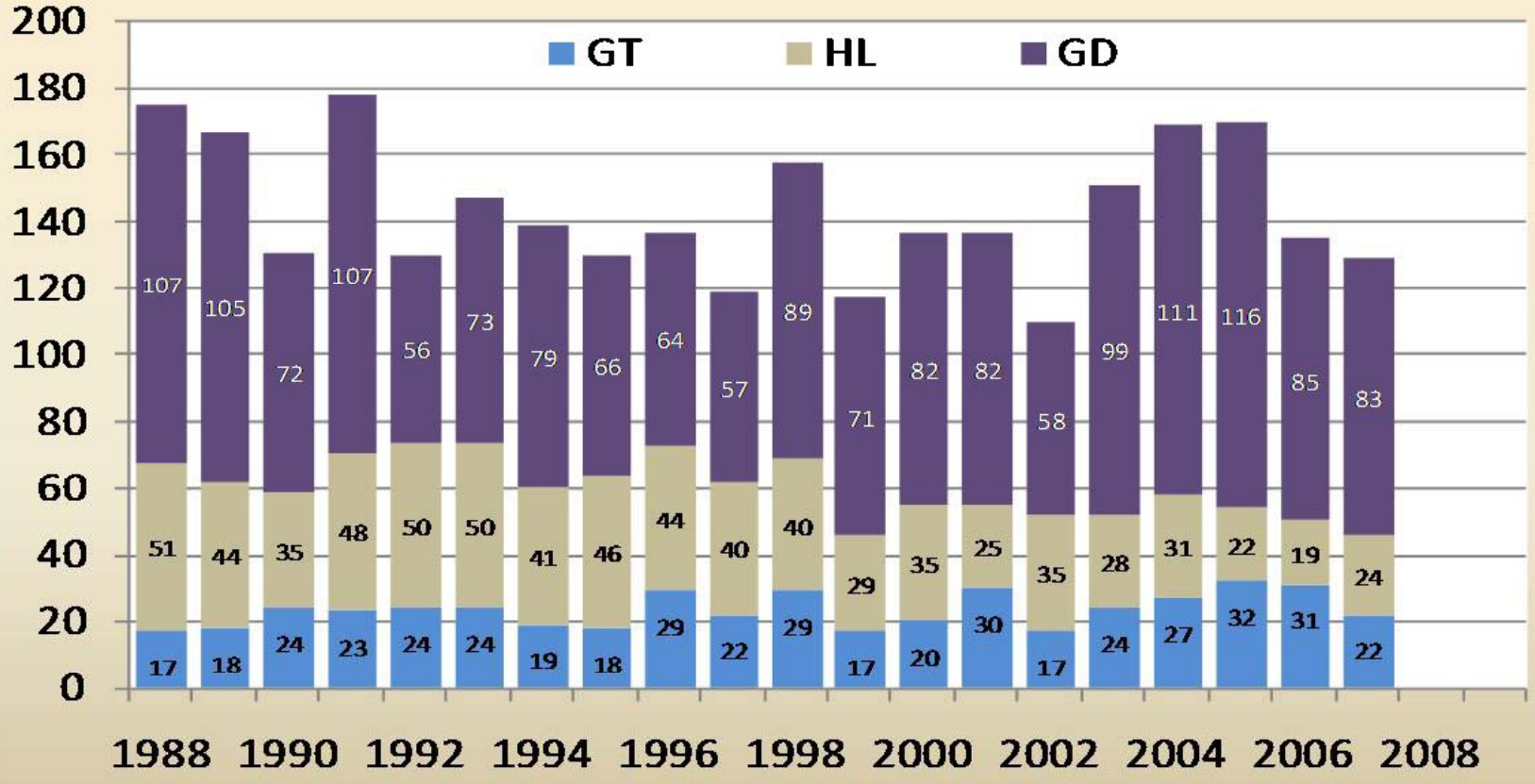
- Causes related to human interactions with the system
  - Third party damage
  - Vehicle damage
  - Fire-caused events
  - Equipment/operator error
- Previously regulated causes have a secondary impact
  - Corrosion
  - Materials & welds

Pipeline Incidents Caused by Excavation Damage (2002-2007)



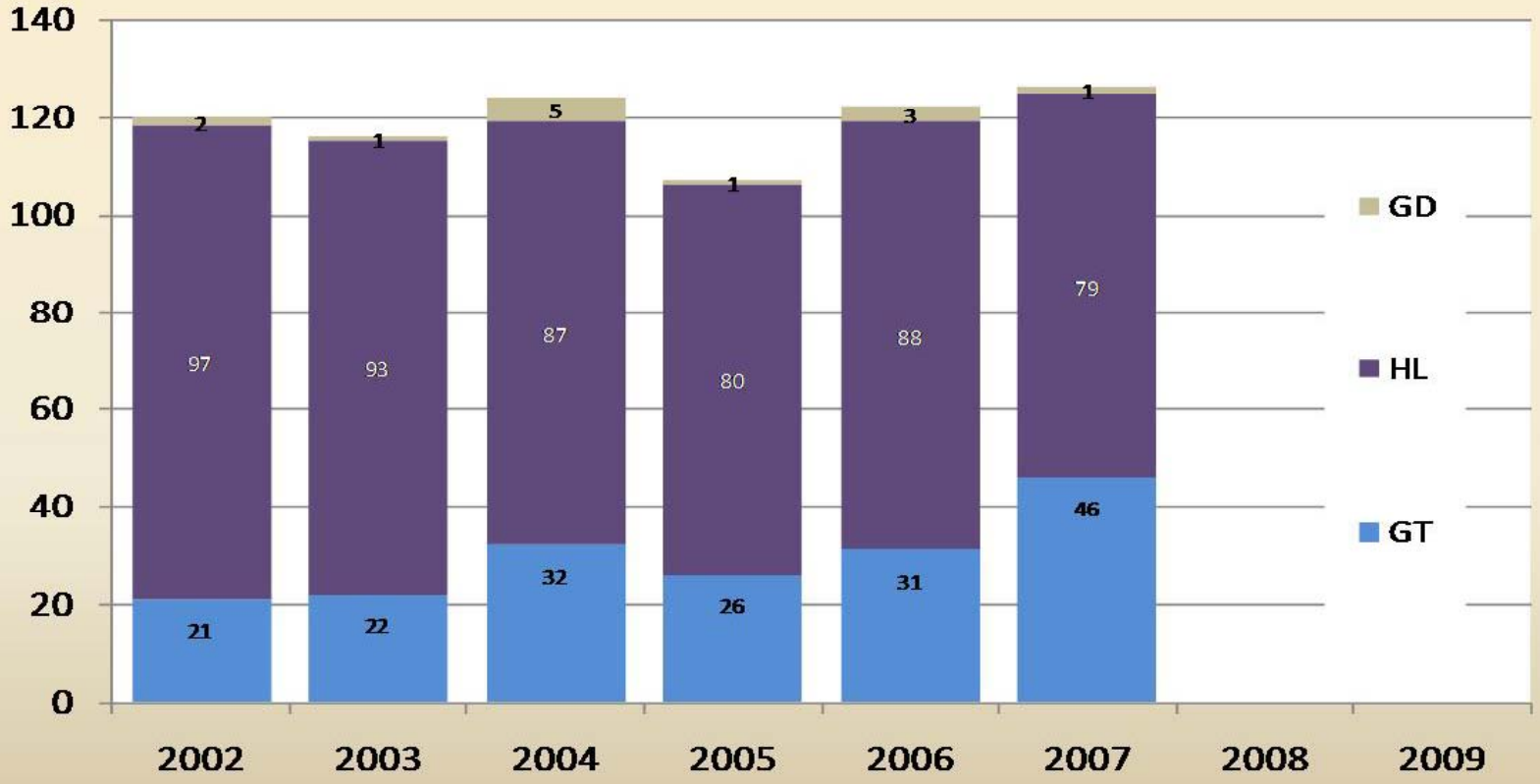
Source: DOT/PHMSA Incident Data, as of Dec. 21, 2007

Pipeline Incidents Caused by Outside Force Damage (1988-2007)



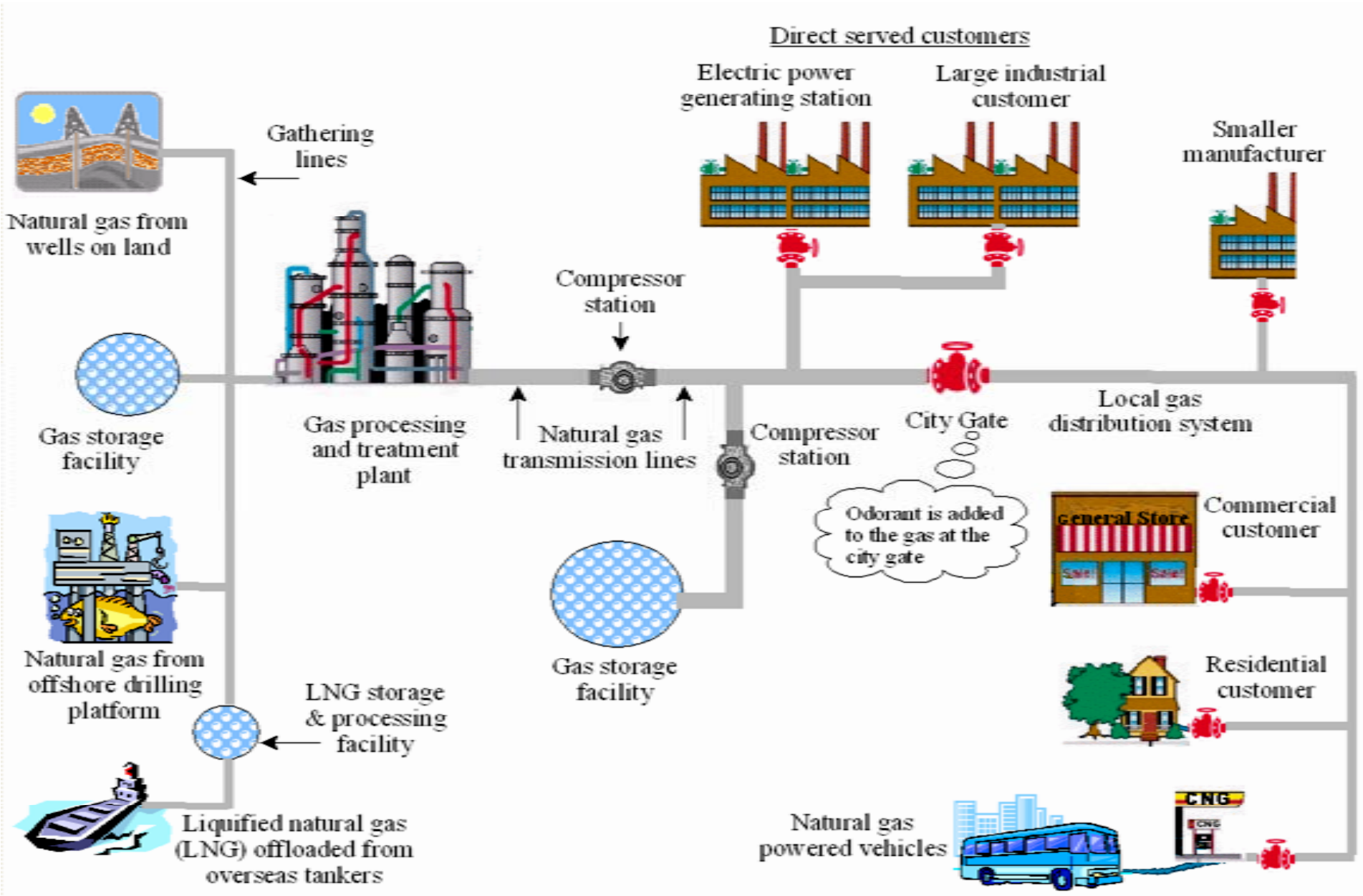
Source: DOT/PHMSA Incident Data, as of Dec. 21, 2007

Pipeline Incidents Caused by Corrosion (2002-2007)



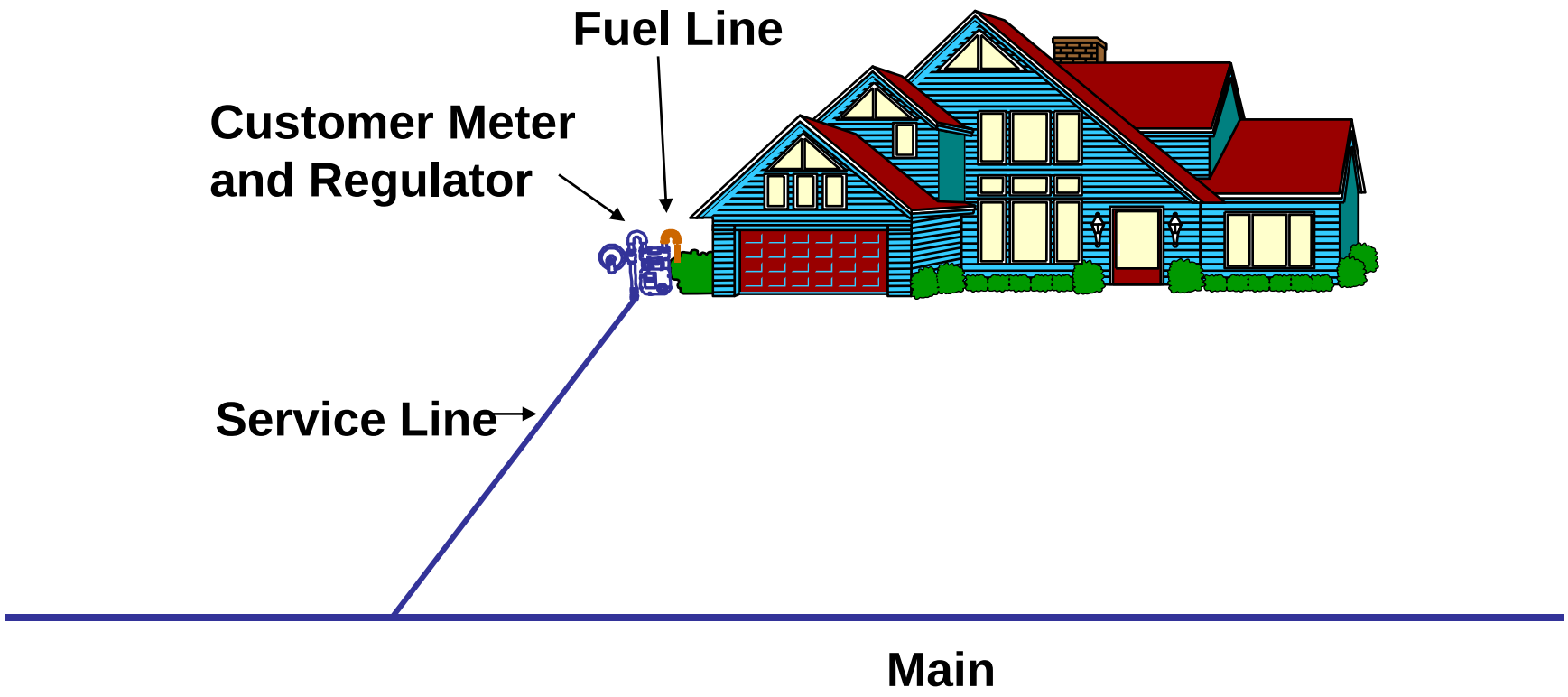
Source: DOT/PHMSA Incident Data, as of Dec. 21, 2007

Natural Gas Industry - From Well to House




PRIVATE
PROPERTY
KEEP OUT

Service Line Determination



Operated by the LDC

Owned by Customer

Distribution Integrity Management

What Principles Underlie DIMP?

- DIMP requires operators to better understand and mitigate system risks:

  Know your systems, Identify the threats

  Rank risks, Mitigate the risks

- NPRM does not stipulate specific assessment or mitigation actions,
- In combination with the GPTC Guidance – NPRM provides direction to operators and allows the regulator to investigate internal operator risk management practices

NPRM Structure

- Requires risk-based written IM program including the seven elements
- Requires appropriate mitigation measures, including leak management and enhanced damage prevention
- Requires installation of EFVs
- Requirements are high-level, performance-based - Guidance needed for implementation details

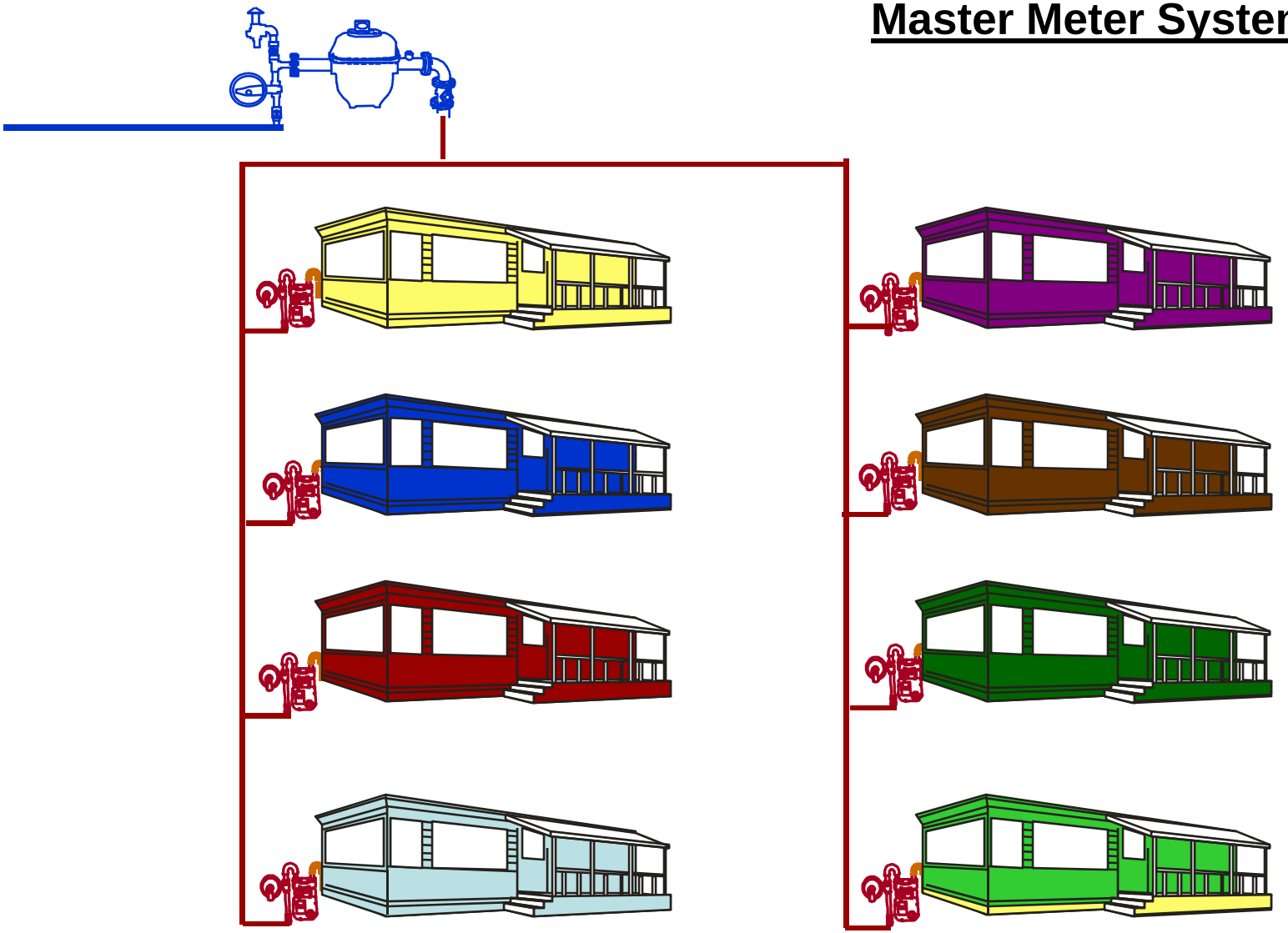
Master Meter and LPG Operators

- Smallest operators; truly different
- Already treated differently in 192, particularly for documentation/reporting
- Systems cover compact geographic areas and are simple
- Excavation damage is largely under the operator’s direct control

---

- Not required to evaluate risk or report results
- “Checklist” IM program described in Appendix F

Master Meter System

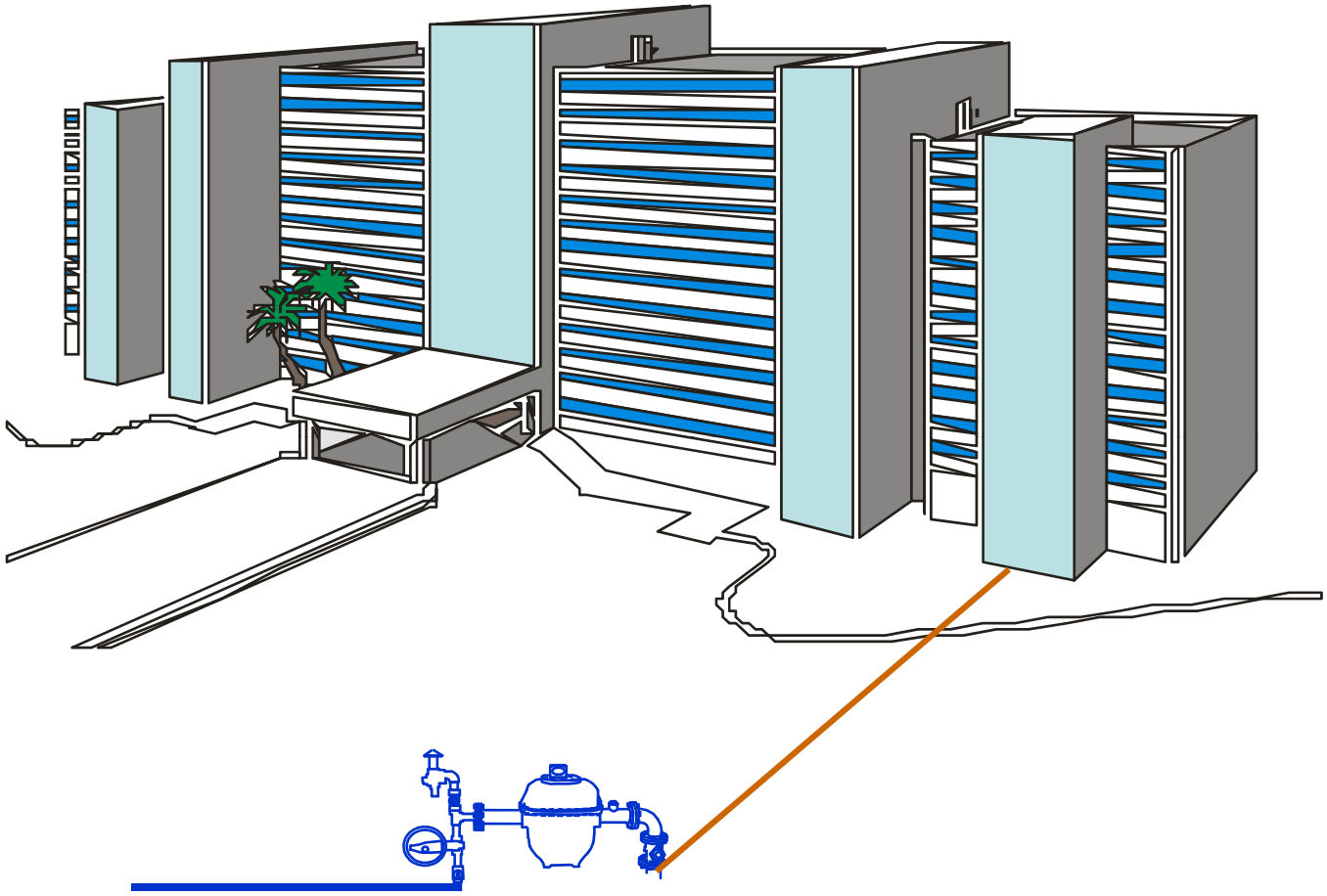


Operated by the LDC

Owned by Customer

Operated by the Master Meter

Master Meter System



Operated by the LDC

Owned by Customer

Master Meter System

LPG System

LPG System

IM Program Elements

- **Written Program**
- **Know your System**
- **Identify Threats**
- **Analyze Risks**
- **Mitigate Risks**
- **Performance Measures**
- **Report Performance Measures**
- **Periodic Evaluation & Improvement**

Required Elements

Element	"Commercial" Operators	Master Meter / LPG
Written Program	Required	Simple (checklist)
Know system	Relevant factors	Location/material
Identify threats	Thorough analysis	Checklist approach
Analyze risk	Required	Not required
Mitigate risk	Required	Required
Performance Measures	7 plus threat-specific	Leaks by cause
Review/revised	Required	Required
Report Perf Measures	4 measures	Not required

Written Program

- Assures completeness and consistency
- Available for review/audit
- Facilitates agreement on what an operator must do to implement

Know your System

- Important in deciding on appropriate actions
- Much info now exists, but scattered
- Some info may not now be available
- Gather best understanding
- Plan to improve knowledge over time

Identify Threats

- Must consider eight categories
- All operators don’t face all threats
  - “Frost heave” is not a problem in the desert Southwest
  - Earthquakes and land movement aren’t an issue for many systems
- Consider specific design and environment

Analyze Risks

- Risk = likelihood x consequences
- Tells us what is important (and not)
- Not necessarily a complicated numerical model
- Simple techniques described in GPTC Guidelines

Mitigate Risks

- Implement changes to pipeline systems and processes
- Focus activities where needed most
  - Accelerated replacement of troublesome pipe (e.g., cast iron, bare steel)
  - Performing more leak surveys
  - Modifying maintenance procedures
  - Implement results of ongoing R&D
- Implement effective leak management and enhanced damage prevention programs
- Draw “Additional and Accelerated (A/A)” Actions from industry noteworthy practices

Damage Prevention

- Preventing excavation damage is critical to reducing distribution incidents
- The rule requires that operators enhance the damage prevention programs required by 49 CFR192.614
- Operators can only do so much; legislation needed to reach other stakeholders
- Experience has shown State programs with nine elements are most effective

Damage Prevention Elements

1. **Enhanced communication**
2. **Fostering partnerships**
3. **Performance measures**
4. **Training partnership**
5. **Public Education/Awareness**
6. **Dispute resolution**
7. **Fair/consistent enforcement**
8. **Use of Technology**
9. **Data analysis**

Leak Management

- Process for managing leaks
  - ***L*ocate** the leak
  - ***E*valuate** its severity
  - ***A*ct** appropriately to mitigate the leak,
  - ***K*eep** records
  - ***S*elf-assess** to determine if additional actions are necessary to keep the system safe
- Better national data reporting & expansive analysis by operator

Performance Measures

- Needed to know if improving
- Seven measures required for all (except Master Meter/LPG)
- Threat-specific measures as determined by operator

Required Performance Measures

(i) Number of hazardous leaks eliminated or repaired (by cause)

(ii) Number of excavation damages;

(iii) Number of excavation tickets

(iv) Number of EFVs installed;

(v) Total number of leaks eliminated or repaired (by cause)

(vi) Number of hazardous leaks eliminated or repaired (by material)

(vii) Additional measures to evaluate effectiveness in controlling each identified threat

Periodic Evaluation & Improvement

- Continually re-evaluate threats and risk
- Evaluate effectiveness in reducing human error
- Consider performance measures
- Maximum period – five years

Report Performance Measures

- Allows PHMSA/States to monitor improvement
- Four measures

  (i) Number of hazardous leaks eliminated or repaired (by cause)

  (ii) Number of excavation damages;

  (iii) Number of excavation tickets

  (iv) Number of EFVs installed;

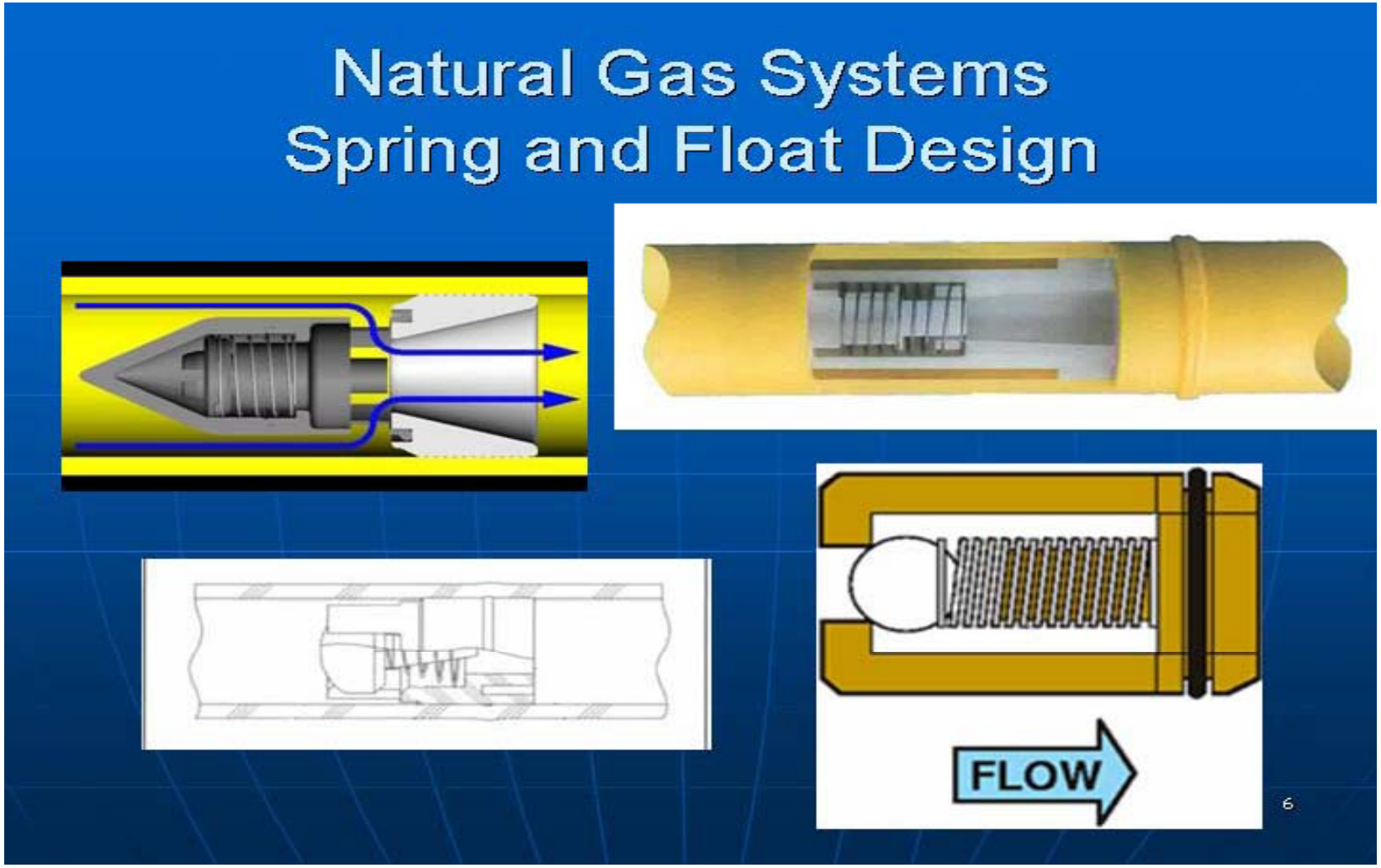
Reporting Plastic Pipe Failures

- Operators must report plastic pipe failures in 90 days
- Intended to develop information available to all operators
- PHMSA will be discussing needs with industry groups

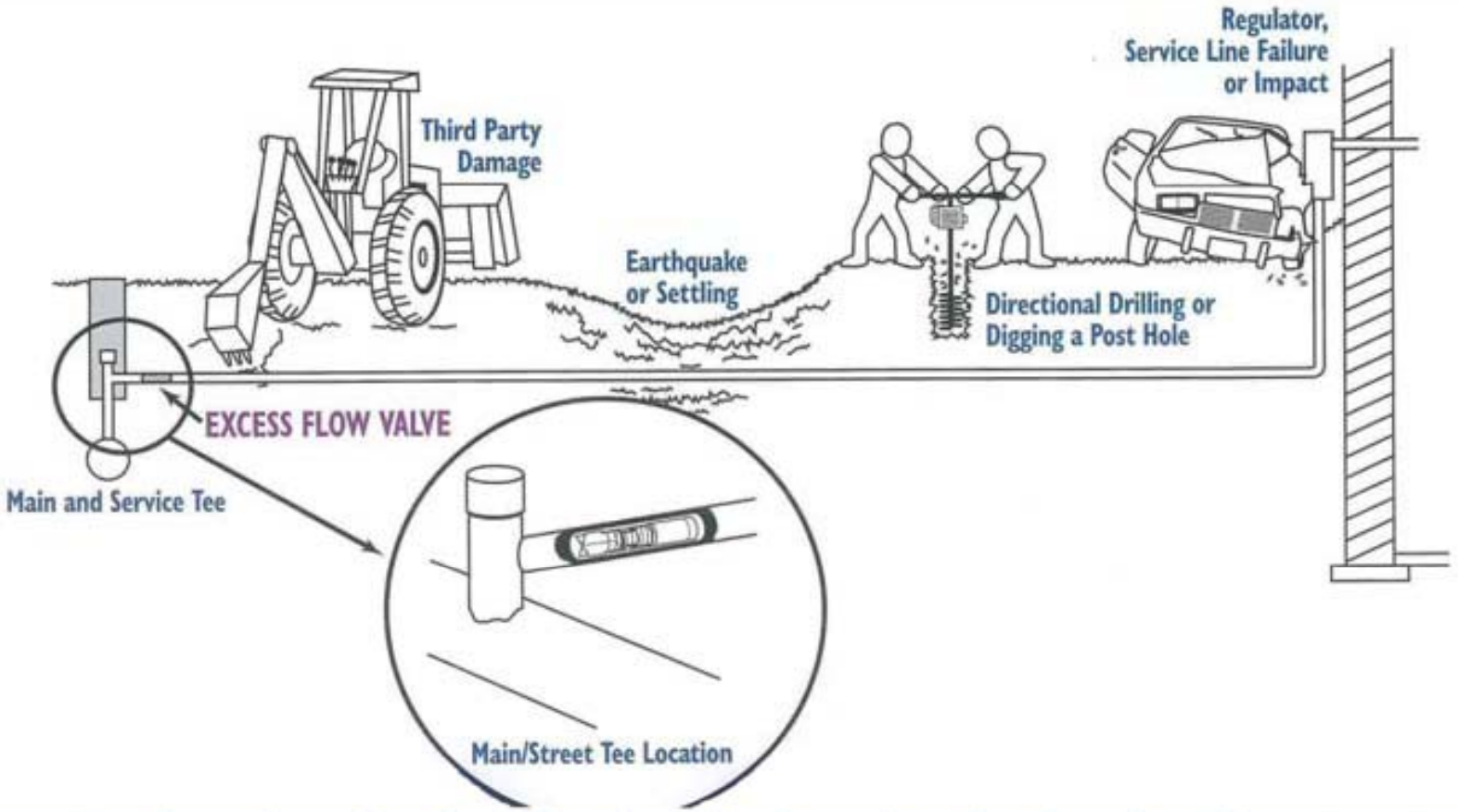
Excess Flow Valves

- Must install on all new/replaced residential service where practical
  - Pressure greater than 10 psig
  - No history of contaminants
  - No interference with maintenance
  - Commercial valve available
- Implements provision of PIPES Act

Excess Flow Valve



EFV Installation Location



Excess Flow Valves
Current Regulatory Requirements

- 49 CFR 192.381 gives performance standards

- 49 CFR 192.383 requires that operators notify customers or developers (new and replaced service lines) of EFV availability and benefits/costs
  - Operators must install if customer agrees to pay
  - Operators can install voluntarily in lieu of notifying
  - Notification and decision must be documented

Additional Issues

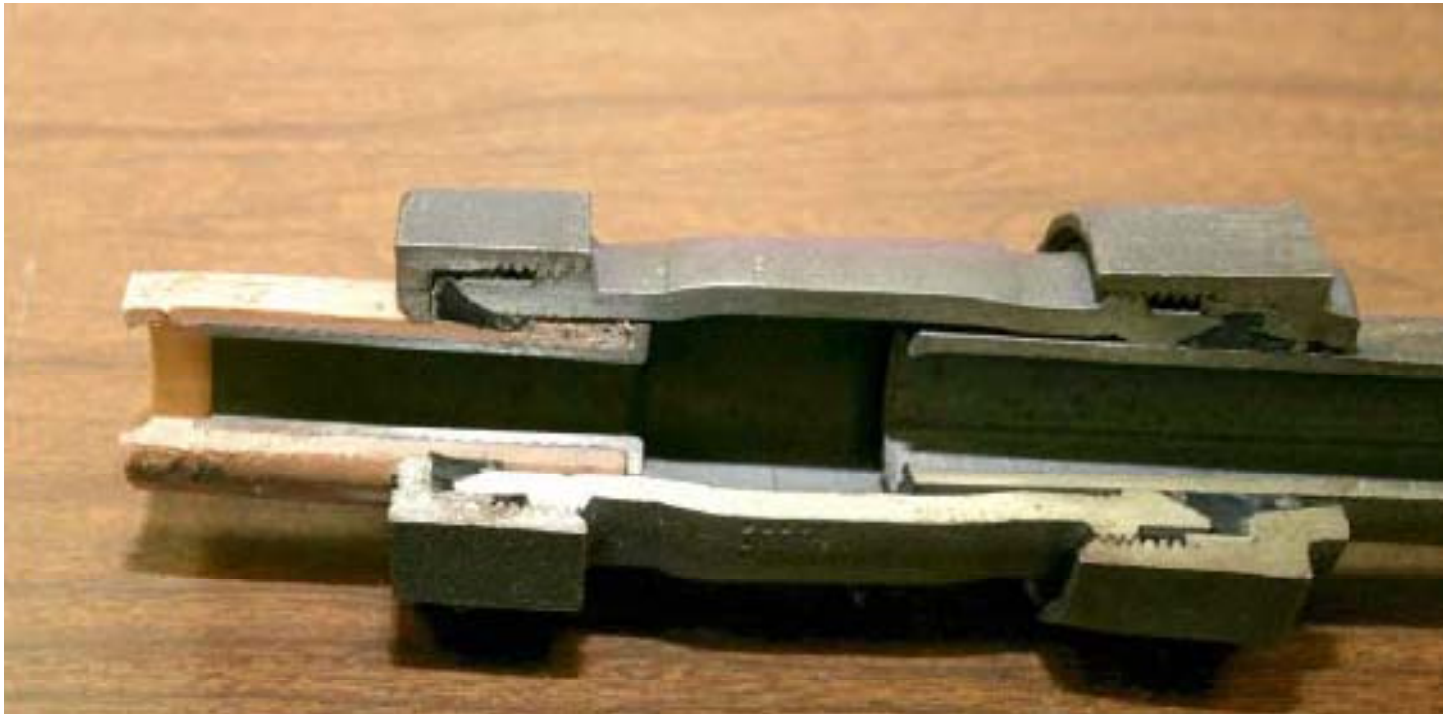
- Allowing alternate time intervals for certain requirements currently in Part 192
- Plastic Pipe failure reporting
- Consideration of compression coupling failures in the threat analysis
- DIMP programs to include a Prevention Through People (PTP) component

Guidance

- Needed for a high-level performance rule
- GPTC has developed draft guidance
- APGA is developing more-specific guidance for small operators


DANGER
HIGH VOLTAGE

Example of a Style 90 Type Dresser Coupling, Open Ended Barrel for View of Components



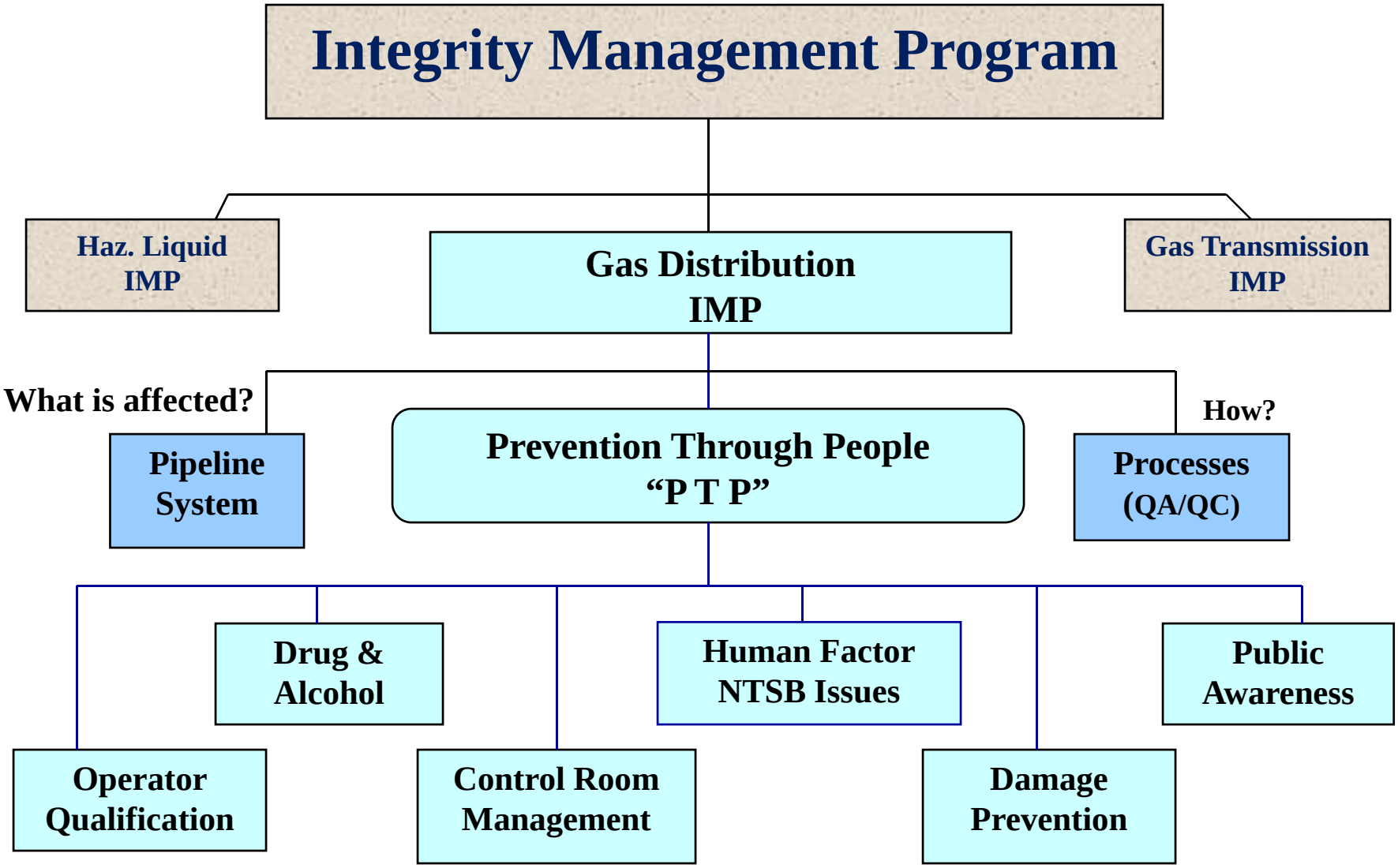
Cut-away of Style 90 Type Dresser Coupling Transitioning Plastic to Steel.

Plastic Pipe Failure Reporting

- Each operator must report information on each material failure of plastic pipe (including fittings, couplings, valves and joints) no later than 90 days after failure.
- This information must include, location of the failure, nominal pipe size, material type, nature of failure including any contribution of local pipeline environment, pipe manufacturer, lot number and date of manufacture, and other information that can be found in markings on the failed pipe.

Integrity Management Program

Prevention Through People



Prevention (Performance) Through People

Outreach

- OPS website and web cast
- Industry Sponsored Meeting (s)
- APGA to Assist Small Operators (planning 12 Regional workshops after the final rule)
- NSFMA & NPGA to assist APGA
- States will need to reach out to master meter and LPG operators
- Support for State operator meetings
- Community Assistance and Technical Services (CATS)
- PHMSA T&Q training to States, operators including MM and LPG

Comments and Feed back on NPRM

- Reference Docket No. PHMSA-RSPA-2004-19854 on comments
- E-Gov Web Site: *http://www.regulations.gov*
- Search PHMSA; select “Notices” and click “Submit”
- Select this rulemaking by clicking above docket #
- Submit comments by clicking yellow bubble in the right column and follow instructions

What Will Happen Next?

- For questions and answers and latest information on DIMP, please go to PHMSA website http://phmsa.dot.gov & click ‘Pipeline Safety Community’, select ‘Integrity Management Program’, & then select ‘DIMP’
- Comment Period -- 60 days
- GPTC Guidelines – draft available for public comment soon.
- ‘SHRIMP’ available after the final rule.
- Final rule by Dec 2008