Western Region Gas Conference

Tempe, AZ
August 20, 2019
PHMSA Mission

• To ensure the operation of the Nation’s pipeline transportation system is:
  – Safe
  – Reliable
  – Environmentally sound

To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives
PHMSA - OPS Regions
Drivers of the Regulatory Agenda

- **Pipeline Safety Act of 2011**
  - Section 4 – Valves
  - Section 5 – Expanding IM Principles
  - Section 23 – MAOP

- **PIPES ACT of 2016**
  - Emergency Orders
  - LNG – small scale
  - Changes in HL HCA definition (USAs)

- **NTSB/GAO/OIG**

- **Executive Orders on Regulatory Reform**
OPS Regulatory Review Process

- **Subject Matter Expert (SME) Teams to review**
  - Existing regulations;
  - Petitions for rulemaking;
  - Active rulemakings;
  - Special Permits; and
  - Stakeholder input and public comments.

- **Executive Leadership Approval**

- **Economic Analysis Developed**

- **Rulemaking Initiated, if appropriate**
Current Part 192 Gas Rulemakings

• Safety of Gas Transmission and Gathering Pipelines
  ➢ (Final stage; split into three final rules)

• Underground Gas Storage Facilities
  ➢ (Published IFR; Final stage)

• Rupture Detection and Valve (NPRM)

• Class Location (NPRM)

• NPRM – Notice of Proposed Rulemaking
• IFR – Interim Final Rule
Current Part 192 Gas Rulemakings (continued)

- Standards Update (NPRM)
- Gas Pipeline Regulatory Reform (NPRM)
- Liquefied Natural Gas (LNG) (NPRM)
- Amendments to 49 CFR Part 193 (LNG rule – NPRM)
- Emergency Order – Published IFR; Final stage)

- Part 195 Hazardous Liquid Rulemakings include:
  - Safety of On-Shore Hazardous Liquid Pipelines (Final stage)
  - Liquid Pipeline Regulatory Reform (NPRM)
  - Hazardous Liquid Repair Criteria (NPRM)
Current Rulemakings in Process

Safety of Gas Transmission and Gathering Lines

Final Rule

• Major Topics under consideration:
  – Expansion of assessments beyond high consequence areas (HCAs)- moderate consequence areas (MCAs);
  – Repair criteria for both HCA and non-HCA areas;
  – Assessment methods;
  – Corrosion control;
  – Gas gathering, including additional reporting and regulations;
  – Assessment methods for Gas Transmission (GT) lines; and
  – Maximum Allowable Operating Pressure (MAOP) reconfirmation, material records for grandfathered pipe and bad records.
Current Rulemakings in Process

Safety of Gas Transmission and Gathering Lines

Final Rule

• GPAC completed work on Gas Gathering issues at late-June 2019 meeting.

• The Gas Rule has been broken into three final rules that address:
  1. MAOP reconfirmation, material verification, MCA assessments, records, seismicity, MAOP exceedance reporting, and a 6-month grace period for assessments.
  2. Repair criteria (HCA and non-HCA), extreme weather, MOC, corrosion control, IM clarifications, and strengthening assessment requirements.
  3. Gas gathering: data, definitions, and regulating large-diameter, high-pressure lines.

Current Rulemakings in Process

Underground Natural Gas Storage Facilities

Interim Final Rule Published

- Published December 19, 2016
- IFR requires operators of underground storage facilities for natural gas to comply with minimum safety standards, including:
  - API RP 1171 – Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs;
  - API RP 1170 – Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage; and
  - Annual and incident reporting requirements.
Current Rulemakings in Process

Underground Natural Gas Storage Facilities

*Final Rule Stage*

- PHMSA adopted the non-mandatory provisions of the RPs in a manner that would make them all mandatory, except that operators would be permitted to deviate from the RPs if they provide appropriate justification.
- Notice Published June 20, 2017
  - Stay of enforcement for non-mandatory provisions
  - Delay of UGS Annual Report (March 2018)
- Comment period reopened until November 20, 2017
- Final rule at Office of Management & Budget (OMB)
Current Rulemakings in Process

Rupture Detection and Valve Rule

NPRM Stage

- Rulemaking is a response to:
  - Sections 4 and 8 of the 2011 Act,
  - NTSB Recommendations, and
  - studies performed by both PHMSA and the GAO.
- Addresses the installation of Remote Controlled Valves/Automatic Shutoff Valves (RCV/ASV) on newly constructed or replaced natural gas and hazardous liquid transmission pipelines, with the objective of improved overall incident response.
- Defines rupture detection and response time metrics.
Current Rulemakings in Process

Class Location Requirements

NPRM Stage

- ANPRM examined issues for existing pipelines when class locations change due to population increases near the pipeline and the MAOP is not commensurate with the new class location.
- The comment period ended October 1, 2018
- The current requirements for class location changes:
  - Reduce operating pressure;
  - Confirm the new MAOP with a pressure test; and
  - Replace pipe with thicker-walled pipe.
- **Note:** Operators may request special permits to operate segments of lines at the previous MAOP while performing certain measures to mitigate risk and ensure safety.
Current Rulemakings in Process

Standards Update

NPRM Stage

- Addresses the IBR standards throughout Part 192 and Part 195 with updated standards.

- This NPRM would impact many of the more than 60 current IBR standards.
This rulemaking will propose amendments to the Pipeline Safety Regulations that are specifically aimed at easing regulatory burdens on the construction and operation of gas transmission, gas distribution and hazardous liquid pipeline systems.

- Amendments will include regulatory relief actions identified by internal agency review, existing petitions for rulemaking, and public comments on the DOT regulatory reform and infrastructure notices.
- This rulemaking will propose a number of miscellaneous deregulatory actions that will be applicable to gas transmission and gathering pipelines.
- This rulemaking will implement the Executive Order 13777 policy requiring review of existing regulations.
Current Rulemakings in Process

Liquefied Natural Gas Facilities - Amendments (2137-AF45)

NPRM Stage

- This rulemaking will propose amendments to the Pipeline Safety Regulations in Part 193 for liquefied natural gas (LNG) facilities.
- These amendments will includes updates to incorporated industry standards.
- This rulemaking will address risks associated with today’s LNG facilities including permanent, small scale LNG facilities as required by Section 27 of the Pipes Act of 2016.
- This rulemaking will implement the Executive Order 13868 provision for updating the safety regulations for LNG facilities.
Current Rulemakings in Process

Emergency Order

Final Rule Stage

- Final Rule with the OMB for review
- Interim Final Rule (IFR) published December 19, 2016
- Establishes regulations implementing emergency order authority, as outlined in the PIPES Act of 2016.
- Provides PHMSA with an enforcement tool to address unsafe practices or conditions that can pose an imminent hazard.
Potential for Damage to Pipeline Facilities Caused by Flooding, River Scour, and River Channel Migration

- PHMSA issued this advisory bulletin to remind all owners and operators of gas and hazardous liquid pipelines of the potential for damage to pipeline facilities caused by severe flooding and actions that operators should consider taking to ensure the integrity of pipelines in the event of flooding, river scour, and river channel migration.
Advisory Bulletin 2019-02

Potential for Damage to Pipeline Facilities Caused by Earth Movement and Other Geological Hazards

- PHMSA issued this advisory bulletin to remind owners and operators of gas and hazardous liquid pipelines of the potential for damage to pipeline facilities caused by earth movement from both landslides and subsidence in variable, steep, and rugged terrain and for varied geological conditions.
- These conditions can pose a threat to the integrity of pipeline facilities if those threats are not identified and mitigated.
# PHMSA Regulated Pipeline Facilities

## Office of Pipeline Safety and States

## Regulated Pipeline Facilities by System Type from CY 2018 Annual Reports

<table>
<thead>
<tr>
<th>System Type</th>
<th>Miles</th>
<th>% Miles</th>
<th># Operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Liquid</td>
<td>218,289</td>
<td>8%</td>
<td>525</td>
</tr>
<tr>
<td></td>
<td>8,231 Tanks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Transmission</td>
<td>301,495</td>
<td>11%</td>
<td>1,069</td>
</tr>
<tr>
<td>Gas Gathering</td>
<td>17,878</td>
<td>&lt; 1%</td>
<td>370</td>
</tr>
<tr>
<td>Gas Distribution</td>
<td>2,238,468</td>
<td>81%</td>
<td>1,355</td>
</tr>
<tr>
<td><strong>Total Miles</strong></td>
<td><strong>2,776,130</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Liquefied Natural Gas

- 157 Plants, 230 Tanks, 87 Operators
- Plants - 26 Interstate and 131 Intrastate

### Underground Natural Gas Storage

- 403 Facilities, 457 Reservoirs
- 17,422 Wells, 126 Operators
- Facilities - 222 Interstate and 181 Intrastate

Data as-of 7-2-2019
Categories of Incident Reports

**Serious** – fatality or injury requiring in-patient hospitalization, but **Fire First** are excluded.

**Fire First** are gas distribution incidents with a cause of “Other Outside Force Damage” and sub-cause of “Nearby Industrial, Man-made, or Other Fire/Explosion”

**Significant** include any of the following, but **Fire First** are excluded:

1. Fatality or injury requiring in-patient hospitalization
2. $50,000 or more in total costs, measured in 1984 dollars
3. Highly volatile liquid (HVL) releases of 5 barrels or more
4. Non-HVL liquid releases of 50 barrels or more
5. Liquid releases resulting in an unintentional fire or explosion
Pipeline Serious Incidents with Context Measures (1999-2018)

Data Sources: Energy Information Administration, Census Bureau, PHMSA Annual Report Data, PHMSA Incident Data - as of 06/17/2019
Gas Transmission Serious Incidents

All System Types
Increased in 2018

Gas Transmission
Unchanged in 2018

data as-of 2-14-2019
Gas Transmission Significant Incidents

All System Types
Decreased in 2018

Gas Transmission
Decreased 11% from 2017 to 2018
Gas Transmission Significant Incidents
CY 2018

Leading Causes:
- Equipment Failure (Control/Relief Malfunction)
- Natural Force Damage
- Material Failure of Pipe or Weld (Construction-Related)
- Excavation Damage (Third Party)

Data as of 3-1-2019
Gas Transmission Significant Incident Cause  
State vs Fed in 2018

Leading cause for **State-Regulated** is Excavation Damage followed by All Other Causes
Leading cause for **Federal-Regulated** is Equipment Failure followed by Material Failure of Pipe or Weld

---

**State Regulated**

- All Other Causes: 25%
- Excavation Damage: 19%
- Equipment Failure: 13%
- Corrosion: 6%
- Incorrect Operation: 6%
- Natural Force Damage: 31%
- Other Outside Force Damage: 19%

**Federal-Regulated**

- All Other Causes: 12%
- Equipment Failure: 21%
- Excavation Damage: 23%
- Corrosion: 9%
- Natural Force Damage: 5%
- Material Failure of Pipe or Weld: 2%
- Other Outside Force Damage: 9%
Gas Transmission Onshore Pipeline
Significant Incidents per 1,000 Miles
2005 - 2018

Rate has fluctuated since 2005 - overall decrease since 2005 is 14%
Rate with evacuation has decreased 33% since 2005
Rate with public property damage has increased 100% since 2005

Data as of 3-18-2019
Gas Transmission Onshore Pipeline
Significant Incident Rates per Decade
2005 - 2018 - Incidents per 1,000 Miles

“Unknown and Pre-1940” decade leading cause is Corrosion
“1940s” decade leading cause is Material Failure of Pipe or Weld
“2010s” decade leading cause is Equipment Failure

Data as of 3-18-2019
## Gas Transmission and Hazardous Liquid Incidents 2009-2018

<table>
<thead>
<tr>
<th>Incident Cause Type</th>
<th>Hazardous Liquid</th>
<th>Gas Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL OTHER CAUSES</td>
<td>118</td>
<td>64</td>
</tr>
<tr>
<td>CORROSION</td>
<td>806</td>
<td>201</td>
</tr>
<tr>
<td>EXCAVATION DAMAGE</td>
<td>153</td>
<td>150</td>
</tr>
<tr>
<td>INCORRECT OPERATION</td>
<td>555</td>
<td>61</td>
</tr>
<tr>
<td>MATERIAL/WELD/EQUIP FAILURE</td>
<td>2068</td>
<td>482</td>
</tr>
<tr>
<td>NATURAL FORCE DAMAGE</td>
<td>176</td>
<td>97</td>
</tr>
<tr>
<td>OTHER OUTSIDE FORCE DAMAGE</td>
<td>79</td>
<td>77</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>3956</strong></td>
<td><strong>1132</strong></td>
</tr>
</tbody>
</table>
Gas Transmission Natural Force Damage Incidents - 2009 - 2018

Over the last 10 years an average of 9.7 GT Natural Force Damage (NFD) incidents occur per year, and these NFD incidents account for an 8.4% average of total GT incidents.
Hazardous Liquid, Gas Gathering and Gas Transmission
Natural Force Damages - Land Movement – 2010 - 2019
Earth Movement – Pipeline Ruptures
Earth Movement – Pipeline Ruptures
PHMSA Websites for Information


- PHMSA Technical Resources –
  - [https://www.phmsa.dot.gov/technical-resources/pipeline/pipeline-technical-resources-overview](https://www.phmsa.dot.gov/technical-resources/pipeline/pipeline-technical-resources-overview)


To Protect People and the Environment From the Risks of Hazardous Materials Transportation

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Questions?

Thank you for your participation in Pipeline safety!

Chris Mclaren
chris.mclaren@dot.gov
PHMSA