Panel 1: National Perspectives on Key Technical Challenges

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Pipeline Research and Development Forum
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## What PHMSA OPS Regulates

<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>212,189</td>
<td>8%</td>
<td>517</td>
</tr>
<tr>
<td></td>
<td>7,920 Tanks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Transmission</td>
<td>300,390</td>
<td>11%</td>
<td>1,032</td>
</tr>
<tr>
<td>Gas Gathering</td>
<td>18,186</td>
<td>1%</td>
<td>351</td>
</tr>
<tr>
<td>Gas Distribution (Mains &amp; Services)</td>
<td>2,230,727</td>
<td>80%</td>
<td>1,295</td>
</tr>
<tr>
<td><strong>Total Pipeline Miles</strong></td>
<td><strong>2,761,492</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
<tr>
<td>Liquefied Natural Gas</td>
<td>151 Plants</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>Underground Gas Storage</td>
<td>397 Facilities</td>
<td></td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>17,458 Wells</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Some operators have multiple system types.
Some of PHMSA’s Roles and Responsibilities

- **Minimum safety standards:** 49 CFR Parts 190-199, including:
  - Part 192: Natural Gas Pipelines
  - Part 195: Hazardous Liquids Pipelines
  - Part 193: LNG Facilities

- **Inspection & Enforcement**

- **Safety Awareness & Outreach**

- **Research & Development**
Research Program Performance Since 2016 Pipeline R&D Forum

• Last Forum: Nov 16-17, 2016 in Cleveland. 330 attendees
• Core & CAAP University Research Programs:
  – PHMSA solicited 23 topics
  – Received 131 White Papers & 62 Proposals
  – Awarding 30 projects: $14M PHMSA + $5.3M Resource Sharing
    [https://primis.phmsa.dot.gov/matrix/]

• See Program Backgrounder at registration desk for more details
Recently Completed Projects Include:

- EMAT Guided Wave ILI of Unpiggable Natural Gas Pipelines
- Emissions Quantification Validation Process
- Natural Gas Pipeline Leak Rate Measurement System
- Rapid Aerial Small Methane Leak Survey
- In-Ditch Validation Methodology for Determination of Defect Sizing
- Framework for Verifying and Validating the Performance and Viability of External Leak Detection Systems
- Intrinsically Locatable Technology for Plastic Piping Systems
- Pipeline Damage Prevention Radar
- Characterization and Fitness for Service of Corroded Cast Iron Pipe
Recent Incidents Highlight the Need for Pipeline Research

• Sept. 2015 Centreville, VA: Gasoline pipeline leak at 4” corrosion fatigue crack in dent
Recent Incidents Highlight the Need for Pipeline Research

• Nov 2017 South Dakota: ~9,700 barrel oil spill
Recent Incidents Highlight the Need for Pipeline Research

- February 2018 Dallas, TX: House explosion & fatality from gas distribution leak
Recent Incidents Highlight the Need for Pipeline Research

- March 2014 Plymouth, WA: Explosion at LNG facility
- Jan 2018 Cameron Parish, LA: LNG storage tank leak
Thank You!/RD&T Program Contacts

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