Pipeline and Hazardous Materials Safety Administration (PHMSA)

Pipeline Safety: Gas Pipeline Leak Detection & Repair NPRM

Kathleen E. Maitland, Attorney Advisor, PHMSA
Conor J. Walsh, Attorney Advisor, PHMSA

NARUC Gas Committee Monthly Meeting
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Overview
Introduction to the Proposed Rule
Background
Summary of Proposals
Leak Grading and Repair
Differences from GPTC Guide
RIN: 2137-AF51

NPRM Published May 18, 2023
- Comment period ends July 17, 2023
- Requests for comment extension from NAPSR, INGAA, MSC, and an operator.

Major Topics in the NPRM
- Leak detection and repair (LDAR) program.
- Grade and repair all leaks.
- More frequent leakage surveys and patrols
- Performance standard for LDAR equipment and programs.
- Minimize O&M-related releases.
- Reporting on large releases, leaks discovered, and NPMS participation for regulated gathering.

Impacts:
- 0.5-1.0 MT of methane eliminated annually
- Primary cost estimates range from $739.7 - $879.5 million, annualized at 3% discount rate
- Benefits estimated at $1,081 - $2,320 million, annualized.

Next Action: GPAC meeting scheduled for Fall 2023
Background: PIPES Act of 2020 and Methane Emissions
Section 113: Leak Detection and Repair Rulemaking

- Advanced leak detection programs able to “identify, locate and categorize all leaks” that are hazardous to human safety or the environment.
- Include performance standards reflecting commercially available technology.
- Must require the use of advanced technology.
- Include a schedule for repairing or replacing each leaking pipe, except for a pipe with a leak so small that it poses no potential hazard.

Section 114: Operations and Maintenance Procedures

- Operations and Maintenance procedures must minimize releases of natural gas and the replacement of leak-prone pipelines
Natural Gas Industry Methane Emissions Estimates


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<th>Source</th>
<th>Kt CH4*</th>
<th>BCFE**</th>
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<tr>
<td>Exploration</td>
<td>8</td>
<td>0.4</td>
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<tr>
<td>Production*</td>
<td>1,955</td>
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<td>Gathering</td>
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<td>Processing</td>
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<td>Transmission and Storage</td>
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<td>Distribution</td>
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<tr>
<td>Total</td>
<td>6,136</td>
<td>318.6</td>
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Data for 2020
*Excluding Gathering
** 1kt CH4 = 0.052 MMCF

![Pie chart showing percentage contributions to methane emissions](chart.png)
“Vented” or intentional emissions refer to emissions resulting from blowdowns and other intentional releases. Sources include:

- Blowdowns associated with repairs or maintenance and replacement or construction
- Vents from equipment such as pressure relief devices, regulators, or emergency shut down devices
- Venting from ruptures, upset conditions, and third-party damage
- Facility or equipment design
“Fugitive” emissions refer to unintentional emissions resulting from leaks and equipment failures.

Sources include:

- Leak prone pipe
  - Especially cast-iron, bare-steel and plastic systems
- Commercial or industrial meter sets
- Compressor stations
- Residential meter sets
- Excavation damage
Summary of the Proposed Rule
Leak Detection and Repair:
- Technology based advanced leak detection and repair program required for all gas transmission, distribution and regulated gathering pipelines.
- Requirements to use leak detection equipment (with a few exceptions).
- Classification, prioritization, and repair requirements for all leaks.
- More frequent leakage surveys and patrols.
- Clarifies that leak detection and investigation personnel must be qualified.

Advanced Leak Detection Program:
- List of leak detection equipment to consider
- Leak detection procedures
- Periodic evaluation and improvement
- Performance standards:
  - Equipment: each leak detection device must have a minimum sensitivity of 5 PPM.
  - Program: ALDP as a whole must be capable of detecting all leaks large enough in volume to produce a reading of 5 ppm when measured within 5 ft from the pipeline.
Distribution-specific amendments (§ 192.723):
- Annual leak survey for pipe known to leak
- More frequent surveys outside business districts

Transmission-specific amendments:
- Leak surveys and patrols (§§ 192.705, 192.706)
  - Require leak detection equipment, except class 1+2 with notification
  - More frequent surveys in HCAs and on assemblies.
  - More frequent patrols
- Requirement to minimize emissions from routine blowdowns (§ 192.770)
- Exception for compressor stations in compliance with EPA regulations

Gathering-specific amendments (§ 192.9):
- Proposed survey and repair requirements apply to Type A, B, C and offshore gathering
- Require patrols for regulated gathering lines
- Require § 192.605 procedure manuals for regulated gathering
LNG facility-specific amendment:
- Require periodic leak surveys (§ 193.2624).

Operational Releases:
- General duty to minimize releases and replace leak-prone pipe.
- Requirements to minimize emissions from routine blowdowns.
- Design, configuration, and maintenance of relief devices.

Reporting:
- Information on emissions and leaks discovered and repaired.
- Large volume release reporting.
- NPMS reporting for gas gathering pipelines.
Leak grading follows the **Grade 1-3** framework in the GPTC Guide, with modifications to account for emissions.

**Repair deadlines:**

- **Grade 1:** Immediate
- **Grade 2:** 6 months
  - Transmission/gathering in class 3 or 4: 30 days
  - Operator must have procedures for prioritizing grade 2 leaks.
- **Grade 3:** 2 years
  - 5-year replacement deadline for leaks on pipelines scheduled for replacement.
  - An operator may request a delayed repair timeline with a § 192.18 notification if repair is impracticable and there is no hazard to public safety.
Key Differences from the GPTC Guide

• **Grade 1 Leaks:**
  - No Change in timing – both immediate
  - All leaks that can be “seen, heard, or felt” are grade 1 regardless of location.

• **Grade 2 Leaks:**
  - 6-month repair criteria vs 15 months for GPTC
    - GT in HCA, Class 3 & 4 – 30-day repair criteria
  - All Transmission leaks are grade 2 at a minimum (rather than >30% SMYS or location).
  - New criteria: emissions >10 cubic feet per hour
  - Grade 2 is the minimum grade for hydrogen and LPG

• **Grade 3 Leaks:**
  - Repair all within 24 months - no repair timeframe in GPTC
    - Exception for pipe scheduled to be replaced within 5 years
    - Reevaluate Grade 3 leaks within 6 months vs GPTC 15-month reevaluation
Questions?