
## 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**
June 12, 2023



# Overview



# Agenda

- Introduction to the Proposed Rule
- Background
- Summary of Proposals
- Leak Grading and Repair
- Differences from GPTC Guide



# Published: Leak Detection and Repair NPRM

**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



# PIPES Act of 2020

- **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

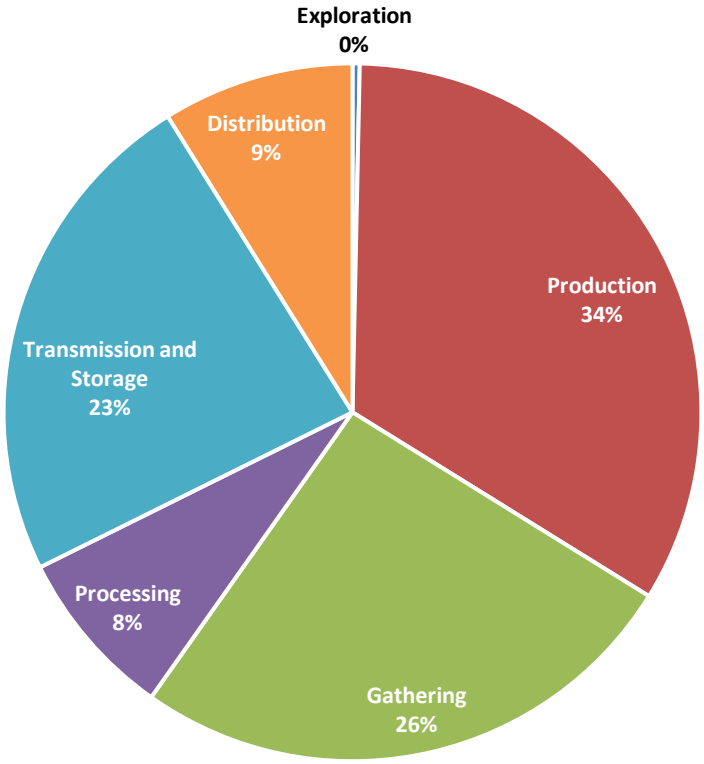


# Natural Gas Industry Methane Emissions Estimates

U.S. Environmental Protection Agency (EPA). Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks (GHG Inventory): 1990-2020. April 2022.

| Source | Kt CH4* | BCFE** |
|---|---|---|
| Exploration | 8 | 0.4 |
| Production* | 1,955 | 101.5 |
| **Gathering** | **1,500** | **77.9** |
| Processing | 494 | 25.6 |
| **Transmission and Storage** | **1,625** | **84.4** |
| **Distribution** | **554** | **28.8** |
| **Total** | **6,136** | **318.6** |

Data for 2020
*Excluding Gathering
** 1kt CH4 = 0.052 MMCF



# Vented Emissions

**"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

**"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



# Summary of Notice of 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.



# Summary of Notice of Proposed Rule

**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



# Summary of Notice of Proposed Rule

**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 and Repair Details

- 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?