PHMSA'S PROPOSED NEW METHANE LEAK DETECTION AND REPAIR REQUIREMENTS—WHAT LNG FACILITIES NEED TO KNOW

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BACKGROUND

On 5 May 2023, the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a notice of proposed rulemaking entitled “Pipeline Safety: Gas Pipeline Leak Detection and Repair” (NPRM) regarding regulatory amendments to PHMSA's Federal safety requirements for pipeline facilities under 49 C.F.R Part 192, and liquefied natural gas (LNG) facilities under 49 C.F.R. Part 193. The NPRM is in response to bipartisan congressional mandates in the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2020 (PIPES Act)[1] and the Biden-Harris Administration's U.S. Methane Emissions Reduction Action Plan.[2]

With comments on the NPRM due on 16 August 2023, below is an overview of the impacts the NPRM would have on owners and operators of LNG facilities.

OVERVIEW OF NPRM

The NPRM generally adopts PIPES Act Sections 113 and 114 requirements and proposes comprehensive amendments to PHMSA's regulations at 49 C.F.R. Parts 191-193. These amendments increase methane emission detection and reduce methane emissions through more stringent methane leak prevention, detection, and repair requirements and best practices. The wide-ranging NPRM would impact new and existing gas transmission pipelines, distribution pipelines, gas gathering pipelines, underground natural gas storage facilities, and LNG facilities. At a high level, PHMSA's NPRM and corresponding proposed regulations would:

- Expand pipeline, storage, and LNG facility survey and leak detection requirements;
- Require LNG facilities to identify and select a proven method to mitigate methane releases during blowdowns, tank boil-offs, and other vented emissions;
- Expand the definition of “hazard” in certain 49 C.F.R. Parts 191 and 192 provisions to include emissions that are “environmentally hazardous;”
- Remove the exemption for offshore gathering, and Type A, B, and C onshore gathering pipelines from the National Pipeline Mapping System reporting requirements;

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- Add new gas operator reporting and recordkeeping requirements;
- Require all overpressure protection devices be designed and configured to minimize unnecessary releases of gas;
- Expand service line installation and valve requirements; and
- Require gas pipeline facility operators to implement written procedures to eliminate hazardous leaks, minimize releases of natural gas, and remediate or replace pipelines known to leak.

PHMSA states that these new proposals will improve public safety, promote environmental justice, and address the climate crisis by reducing both “fugitive emissions” (unintentional emissions resulting from leaks and equipment failures, also known as “unintentional emissions”) and “vented emissions” (emissions resulting from blowdowns, equipment design features, and other intentional releases, also known as “intentional omissions”) from over 2.7 million miles of gas transmission, distribution, gathering pipelines, other gas pipeline facilities, storage facilities, and LNG facilities.

NEW REQUIREMENTS FOR LNG FACILITIES

Although the majority of the NPRM addresses methane leak detection and repair for gas pipeline facilities, the NPRM does propose significant additions or revisions to existing LNG operator methane emission detection, repair, and minimization requirements. For example, PHMSA's federal safety standards for LNG facilities in 49 C.F.R Part 193 do not currently require LNG facility operators to perform routine, periodic surveys of facility components and equipment for methane leakage. However, for the first time, PHMSA is proposing affirmative LNG facility and export terminal methane leakage monitoring and minimization requirements.

PHMSA seeks to implement these new requirements in order to reduce both fugitive and vented methane emissions, explaining that these emissions are the second largest methane emission source from LNG storage facilities and the largest methane emissions source from LNG export terminals. While the current sections of C.F.R Part 191 and 193 require LNG facilities to complete an annual reporting form, PHMSA believes these current reporting requirements do not provide comprehensive and accurate methane emissions and repair data. To address this deficiency, PHMSA is proposing four new reporting and recordkeeping requirements that apply specifically to LNG terminals.

This alert provides an overview of what aspects of the NPRM apply to LNG facilities, specifically the new proposals:

- Require quarterly methane leakage surveys and repairs;
- Require emission minimization from blowdowns, boil-offs, and vented emissions;
- Require additional leak and repair reporting and recordkeeping; and
- Update written operation and maintenance procedures.

Quarterly Methane Leakage Surveys

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As noted above, PHMSA currently does not require LNG facility operators to perform periodic leakage surveys. Now, for the first time, PHMSA seeks to require operators of LNG facilities to perform routine, periodic surveys for methane leaks. In so doing, PHMSA seeks to reduce fugitive methane emissions and other equipment leaks, the two most common methane emission sources from LNG storage facilities and LNG export terminals.

Under PHMSA's proposed regulations, LNG operators will be required to perform quarterly methane leakage surveys of equipment containing methane or LNG during normal facility operations, with a minimum sensitivity requirement of five parts per million. In the event a leak is detected, PHMSA's NPRM would require LNG facility operators to repair the identified leaks pursuant to written maintenance or abnormal operations procedures, which we discuss below. PHMSA's proposed quarterly methane leakage survey requirement would be codified as a new regulation at 49 C.F.R. § 193.2624.

PHMSA further explains that one net benefit of requiring quarterly methane leakage surveys is that such proactive leak detection and repair will result in less product loss, more cost savings, and provide LNG storage and export facilities a competitive advantage. PHMSA expects that these new and enhanced methane leak detection and repair requirements will improve public safety by allowing for timely identification and remediation of potential LNG facility ignition sources and reducing the emission of a key fugitive Green House Gas source. Moreover, PHMSA explains that LNG facility operators who currently transport natural gas to their facilities with transmission pipelines could use their existing leakage survey practices as a foundation to develop their LNG facility specific requirements.

Although PHMSA proposes to require methane leak detection generally, in order to avoid conflicting with existing regulatory requirements and the National Fire Protection Association LNG standards, PHMSA is not proposing a comprehensive advanced leak detection and repair program framework, like it is for C.F.R. Part 192-regulated gas pipeline facilities. PHMSA is, however, pursuing a parallel rulemaking in which it is updating its Part 193 safety standards where it could consider leak monitoring, surveying, and patrolling requirements more holistically.

Minimizing Emissions from Blowdowns and Boil-Offs

According to PHMSA, LNG blowdowns and boil-offs represent approximately 48% of total LNG methane emissions. Specifically, blowdowns and boil-offs represent 80% of LNG storage methane emissions, 33% of import terminal emissions, and 4% of export terminal emissions.[3]

PHMSA believes mitigating these non-emergency vented emissions is essential to reduce overall methane emissions and that there are several cost-effective and recommended technologies that can help LNG facilities reduce methane emission from operations, maintenance, and construction.[4] Therefore, PHMSA proposes amending existing regulations to add new 49 C.F.R. § 193.2523 to require LNG facilities to identify and select a proven method to mitigate methane releases during blowdowns, tank boil-offs, and other vented emissions. PHMSA proposes to offer the following approved measures to minimize blowdowns, boil-offs, and vented emissions:

- Installation and use of valves or control fittings to reduce the volume of gas that must be removed from pipeline facility segments;
- Routing vented gas to a flare stack to be ignited or to other equipment to be collected for later use (burning reduces the climate change impact and under favorable conditions a well-designed and maintained flare stack can combust gas with almost 100% efficiency);

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  - Any LNG facility operator that selects this option would be subject to flaring equipment leak and repair requirements as outlined in the NPRM;
- Isolating the pipeline segment upstream of the vented segment and using the downstream compressor station to reduce the pressure of the affected segment;
- Using a mobile compressor unit to reduce the pressure of the segment by compressing gas or diverting LNG into adjacent facilities or a storage vessel; or
- Transferring gas or LNG to a lower-pressure pipeline segment.

In addition, PHMSA proposes to allow LNG facility operators to suggest alternative approaches to minimize blowdown emissions; however any such alternative approach must: (1) reduce the volume of released gas by at least 50% when compared to taking no action; and (2) be approved by PHMSA.

Finally, the NPRM would require LNG operators to develop documentation describing the suite of actions undertaken—including, but not limited to, their choice from among the blowdown mitigation methods, to minimize vented emissions from their systems.

Reporting and Recordkeeping

In addition to quarterly methane leak surveying and blowdown and boil-off minimization measures, PHMSA proposes to introduce four new reporting and recordkeeping requirements for methane leaks, pipeline repairs, and total emissions. Currently, PHMSA relies on historic methane emissions studies or other agency data to estimate total LNG facility methane emissions. PHMSA believes these new survey, recordkeeping, and reporting requirements will allow them to provide more accurate and timely methane emissions data. These new requirements would revise certain sections of the LNG facility annual reporting Form F7100.3-1 and add a new maintenance-focused section.

First, in response to a general lack of data regarding LNG facilities annual methane leak detections, repairs, and emissions, PHMSA proposes in 49 C.F.R. § 2624 to require LNG facility operators to track and report every methane leak detected and repaired, the number of remaining unrepaired leaks, and the estimated total fugitive methane leak emissions from all identified leaks on their annual reporting form F7100.3-1.

Second, in response to lack of data about large-volume gas releases, PHMSA proposes to add new 49 C.F.R. § 191.19, which would require LNG facility operators to report all intentional and unintentional large-volume gas releases (defined as gas releases with a volume of 1 million cubic feet or greater). This new reporting form would require LNG facility operators to track all unintentional (i.e. fugitive) and intentional (i.e. vented) emissions. Operators would be required to submit a report within 30 days from the date that a large-volume gas release was detected or 30 days from the date that a previously detected release became reportable.

Third, PHMSA proposes to revise its annual reporting requirements under 49 C.F.R. § 191.17 by removing a statement in Form F71003-1 suggesting that leaks that can be addressed by routine maintenance need not be counted as leaks and instead require LNG facility operators to report all leaks eliminated by routine maintenance.

Finally, PHMSA proposes in new 49 C.F.R. § 2523(c) to require LNG facility operators to document every action taken to minimize vented emissions from their systems.

Written Procedures

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In order for LNG facility operators to implement the changes outlined above and proactively detect leaks, repair and replace necessary pipelines, and effectively track and report leaks and repairs, PHMSA proposes two new regulations requiring LNG facilities to update and follow new operating and maintenance procedures.

Specifically, new 49 C.F.R. § 193.2503 would require LNG facilities to update their normal and abnormal operational procedures to eliminate leaks and minimize gas releases from pipeline facilities. Similarly, new 49 C.F.R. § 193.2605 would require LNG facilities to update maintenance procedures to eliminate leaks and minimize gases released.

We note that beyond the proposals outlined above, these two proposed regulations do not dictate what procedures LNG facilities must follow to eliminate leaks and minimize gas releases. Instead, they simply require LNG facilities to have procedures and to follow them to eliminate leaks and minimize gas releases. The LNG facility operator, then, has the discretion to determine how best to update their procedures in compliance with 49 C.F.R. §§ 193.2503 and .2605.

Effective Date

Once PHMSA has reviewed comments on the NRPM and issues a final rule, the final rule will become effective six months after the publication of the final rule. PHMSA explains that providing affected operators six months to comply with the new requirements is “ample time” to implement necessary changes to their leakage detection, repair, and minimization practices and manage related compliance costs.

PHMSA REQUEST FOR COMMENTS

PHMSA requests comments on all aspects of the NPRM but expressly solicited comments regarding the following as the NPRM relates to LNG facilities:

- Whether a final rule should extend 40 C.F.R § 192.605's proposal requiring gas pipelines to remediate or replace all pipelines known to leak to Part 193 LNG facilities.
    - We note that if adopted this may require significant leaking pipeline identification, remediation, and replacement.
- Whether it is appropriate to specify a minimum pressure reduction (higher or lower than 50%) requirement in the blowdown, boil-off, and vented pressure reduction methods (this relates to the new proposed blow-down, boil-off, and vented emissions requirements outlined above).

Comments must be received by *16 August 2023*. Our lawyers in our industry-leading Public Policy and Law and Oil, Gas and Resources practice groups are well positioned to help you further understand the potential impacts and new requirements imposed by the NPRM, as well as consider and prepare comments for submission to PHMSA.

We acknowledge the contributions to this publication from our summer associates Paul Anderson and Stacy Jo.

FOOTNOTES

[1] Through the PIPES Act, Congress sought to address perceived regulatory gaps regarding pipeline leaks through

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information collecting and reporting, implementation of commercially available advanced technology and practices for the identification, location, categorization, and repair of all leaks that are hazardous to public safety or the environment. See PL 116-260 (Dec. 26, 2020).

[2] The Methane Emissions Reduction Action Plan is a comprehensive plan focused on reducing methane emission in the oil and gas sector, landfills, abandoned coal mines, agriculture, and other industrial applications and buildings.

[3] Data reported from the 2022 GHG Inventory and Emissions Assessment.

[4] See, for example EPA Natural Gas STAR Program; EPA's Voluntary Methane Challenge Program Best Management Practices.

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