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Assessing the Impacts of PHMSA's Notice of Proposed Rule Making (NPRM)

Overview

Following on from its Advanced Notice of Proposed Rulemaking (ANPRM) back in May 2025, DOT PHMSA (PHMSA) recently issued the long awaited NPRM in the Federal Register on October 28, 2026. This notice outlines the first comprehensive update of 49 CFR Part 193 since the federal LNG safety standards were last updated in 2006. The proposed changes are set to have major implications for how LNG Facilities in the US are sited, designed, constructed, operated, and maintained.

How we got here. For over 20 years now, Part 193 has largely relied on the incorporation by reference of NFPA 59A-2001, a standard that is now seven editions out of date. Meanwhile the LNG sector in the U.S. has from a small industry with a handful of '70s-vintage peakshavers and a few import terminals into one with eight world-scale export terminals, many new peakshavers, and a growing adoption of mobile and temporary "virtual pipeline" solutions. PHMSA has bridged the gap in regulatory updates through publishing guidance on their website (the LNG FAQs), and those projects subject to FERC jurisdiction have been saddled with an ever-growing list of project-specific conditions.

Now, after several years of increased impetus on updating regulations, PHMSA appears poised to finally follow through on this highly anticipated overhaul.

What is proposed. The NPRM includes many changes, some significant, and some relatively minor. This paper focuses on the following four major updates:

1. Adoption of the mandatory provisions of NFPA 59A-2026 (Chapters 4 through 19) as the core 49 CFR §193.
2. Incorporation of many of the LNG FAQ requirements for prescriptive siting as well as the introduction of an alternative risk-based approach built around Quantitative Risk Assessment, or QRA (Chapter 19).
3. Creation of new subparts for permanent, small-scale LNG facilities (Chapter 17) and mobile and temporary solutions (Chapter 14).
4. For FERC-jurisdictional facilities, the addition of an option to employ a Process Safety Management (PSM)-style risk-based Operations and Maintenance (O&M) program (new subpart F).

PHMSA estimates that the updates outlined in the NPRM will result in annualized cost savings of approximately $98 million. The intention is that the new proposed rule will provide for both increased safety and additional regulatory flexibility.

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What Does it Mean for Large-Scale Facilities?

For large LNG facilities and export terminals subject to FERC jurisdiction, the biggest impacts are in the siting requirements of subpart B and the risk-based O&M alternative in the new subpart F.

Prescriptive Siting Updates. The prescriptive siting updates largely include codifying existing practices established through the LNG FAQs. This in itself does not constitute a significant change considering that projects have typically treated these as mandatory requirements even if not specifically in code. These include increasing the scope of hazard modeling to include all hazardous fluids, toxic vapor dispersion, vapor cloud explosion overpressures, thermal radiation from fireballs, and asphyxiant vapor dispersion in addition to thermal radiation and flammable vapor. Calculations of design spill, hazard endpoints, and submittal requirements largely remain the same. PHMSA also codifies the exemptions of public roads, rights-of-way, and navigable water from legal control requirements but states that the exemption of feed gas and sendout pipelines from hazard modeling will not be codified because these pipelines are typically governed by 49 CFR Part 192.

Other more substantive changes provide relief from some of the over-conservative existing requirements. The fixed LFL safety factor of 2 would be replaced by model-specific uncertainty factors from PHMSA's Model Evaluation Protocols (MEPs) and Model Validation Databases (MVDs). Operators would also no longer need specific PHMSA approval to use a model; however, the onus would be on the operator (or developer) to perform an evaluation validating the model against the MEPs and MVDs. Additionally, Operators would be able to take credit for well-documented active mitigation measures in siting analyses, where previously only passive mitigation measures could be given credit.

The Risk-Based Siting Alternative (§193.107). Operators may now elect to conduct a QRA for siting in accordance with NFPA 59A-2026 Chapter 19. This is a potentially advantageous option for Operators willing to do a more intensive analysis to gain more flexibility in site selection. There is no advanced notice or approval from PHMSA required for this alternative. The approach aggregates location-specific individual risk and societal risk across all modeled hazards and sets tolerable, mitigation-required, and intolerable risk thresholds for each based on whether the land-uses are within or outside control of the operator.

PHMSA makes some notable modifications to Chapter 19 that will benefit operators who choose to pursue this alternative. The modifications drop the five-year re-assessment requirement and the ban on mixing Chapters 5 (prescriptive) and 19 (risk-based) approaches. The QRA would also apply only to new, replaced, relocated, or significantly

altered facilities rather than the whole plant. PHMSA expects this option to provide more flexible site selection and greater ability to add capacity at existing sites.

Risk-Based O&M Alternative. The new optional subpart F would allow for operators to use a risk-based approach to O&M, providing operators of FERC-jurisdictional facilities with much greater flexibility in tailoring maintenance programs appropriate for their facilities and significant expected cost savings. For Operators who elect this approach, this subpart will replace nearly all of the default O&M requirements in the new subpart E (except physical security and emergency procedures) with a program modeled on OSHA's PSM rule. Operators would be required to submit an implementation plan for their risk-based O&M program.

What Does it Mean for Small-Scale LNG facilities?

While for many years NFPA 59A has identified the need for separate requirements for small-scale LNG facilities, smaller LNG facilities under PHMSA jurisdiction have still been subjected to the same prescriptive siting approach as much larger facilities. This has often resulted in exclusion zones (and therefore property requirements) that are disproportionate to the actual facility footprint. Under the proposed rule, PHMSA has adopted an alternative track for permanent, small-scale facilities by incorporation of the "small scale" chapter in NFPA 59A-2026 (Chapter 17). This change would bring tremendous siting relief to small peak shavers, satellite plants, and other facilities with an aggregate storage volume of less than 1,056,000 gallons.

Eligibility and Election. A facility is eligible for the small-scale requirements if it meets the eligibility criteria in Chapter 17 for individual and aggregate LNG storage, aggregate hazardous and toxic fluid inventory, pipe diameter, and maximum allowable working pressure. Qualifying operators may then choose to comply with Chapter 17 and would be exempt from all other subparts of 193 (except subpart A). Operators do not need PHMSA permission to elect this approach, but they must record the election in their OPID registration and on the annual report. The election is all-or-nothing: operators may not mix Chapter 17 with other NFPA 59A chapters. **If eligible, operators of existing facilities will be able to update their OPIDs to elect to operate under the "small scale" rules, without requiring PHMSA approval.**

Siting. The primary benefit of the small-scale chapter (Chapter 17) is that it does not require hazard modeling to develop exclusion zones. Instead, Operators must follow setback requirements from the property line that are determined based on the storage capacity, pipe sizes, and operating pressures. Operators must also complete a written plant and site evaluation and conduct an analysis of how far an unimpounded spill could travel to determine the need for dedicated impoundments. PHMSA indicates that this

analysis can be qualitative, supported by high-level calculations, rather than traditional modeling.

Design, Construction, and Operation. For these requirements, Chapter 17 still refers the Operator to most of NFPA 59A's requirements on layout, process equipment, storage, vaporization, piping, electrical, fire protection, and O&M by referring to the relevant chapters..

Mobile and Temporary Facilities (§193.13). These facilities would follow NFPA 59A Chapter 14, which sets a default six-month duration criteria to be considered "temporary". Operators can extend it by special permit or by meeting the small-scale requirements. Subpart A still applies, AHJ notices are still required (at least two weeks in advance) and Part 191 reporting requirements remain. NFPA 59A's spacing table (Table 6.3.1) would apply each time a unit is relocated.

What Does it Mean for Operators of Existing Facilities?

Existing facilities would be grandfathered under the new siting, design, and construction rules; however, operations, maintenance, and reporting changes would apply after the final rule takes effect.

Siting, design, and construction are largely grandfathered. These requirements would not apply retroactively to existing facilities or to facilities approved before the Effective Date. They are only triggered if a facility is replaced, relocated, or significantly altered after the effective date. Similar to previous practice, in-kind replacements may follow original specifications where compliance would be impracticable or incompatible, and PHMSA approval is no longer required.

One notable change is with respect to the retroactivity of certain other requirements, namely fire protection, security, and cathodic protection. PHMSA now takes the position that requiring operators to retroactively comply with updated requirements in these areas was wrong. Therefore, the updated requirements in NFPA 59A-2026 in these areas will not automatically affect existing plants. However, PHMSA notes that FERC conditions and state requirements may still apply.

Existing O&M and procedures are not grandfathered. New Subpart E O&M requirements will apply to existing facilities. PHMSA expects operators to review and, if needed, update plans and procedures to match the new Part 193 on or before the Effective Date. Operators must also review procedures every two calendar years (not to exceed 27 months) and keep a change log (§193.11) which highlights any changes from previous revisions. O&M requirements for existing mobile and temporary facilities now fall under chapter 14, and existing small-scale facilities may elect to perform O&M per chapter 17.

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The following table provides a summary of key requirements and timeline for incorporation.

Requirement	Who	When
Review and update plans and procedures to the new Part 193 Subpart E	All operators	On or before the final rule's Effective Date
Part 191 and §193.15 reporting and investigation changes, use of new forms	All operators	With the final rule (PHMSA will revise forms and instructions)
Subpart B siting requirements	New, replaced, relocated, or significantly altered facilities	Five years after final rule publication; however, earlier adoption is allowed
Subpart C design, construction, and installation requirements	Newly designed, replaced, relocated, or significantly altered facilities	After the Effective Date all new, replaced, relocated, or significantly altered facilities must comply with new requirements
OPID and annual report updates to record small-scale election	Existing facilities opting into chapter 17	Operators can update OPIDs when the final rule becomes effective
Subpart F - Risk-Based O&M implementation plan	FERC-jurisdictional operators electing risk-based O&M	Anytime after the final rule becomes effective;
New Subpart E (Prescriptive) O&M requirements (NFPA 59A-2026 Chapters 16 and 18 plus PHMSA add-ons)	All operators, including existing facilities	After the effective date of the final rule

Since the proposed rule is not effective yet, PHMSA has not set an Effective Date. Facilities designed or built after March 31, 2000 remain subject to current subpart B siting until the delayed siting date, expected to be 5 years from the publication date of the final rule. Operators who opt in early must adopt the amended subpart B in its entirety.

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New Emphasis on PHAs

The performance of PHAs is nothing new to the LNG industry. However, this has typically been considered a 'best practice' and has been conducted according to various methodologies. In the NPRM, PHMSA proposes not only that PHAs become mandatory, but also proposed to standardize these exercises by incorporating by reference certain industry codes and standards related to PHA. The emphasis on PHAs appears in three places:

1. **Prescriptive siting.** NFPA 59A-2026 section 5.2.1(1) calls for a PHA in the written siting evaluation, and PHMSA would require that these be conducted even for operators who choose the QRA route.
2. **QRA siting.** Section 19.5.1.2 requires a PHA be conducted to generate a comprehensive, facility-specific list of release scenarios across combinations of pressure, temperature, phase, hole size, location, and duration. Layer of protection analyses (LOPA) are to be performed for quantifying the impacts of risk mitigation measures. To limit the number of different PHAs performed, PHMSA notes that a PHA done under NFPA 59A section 5.2.1(1) or for subpart F can also satisfy section 19.5.1.2 if it is comprehensive and meets sections 19.5.1 and 19.5.2.
3. **Risk-based O&M (§193.503).** The PHA is integral to the new Subpart F risk-based O&M approach. The Operator would perform an initial PHA, then update and revalidate every five years with a 'qualified team'. The permitted methods are What-If, checklist, HAZOP, FMEA, fault tree, or equivalent. Recommendations must be accompanied by documented, scheduled resolutions, and records must be kept for the life of the process.

Subpart F's PHAs are intended to evaluate accidental releases that could reasonably cause a reportable "incident" as defined under §191.3, which is narrower in scope than OSHA's PSM program. However, the new Subpart F incorporates other OSHA PSM elements: process safety information (PSI), operating procedures certified annually, training with three-year refreshers, contractor controls, pre-startup safety reviews, mechanical integrity, hot work permits, management of change, and compliance audits every three years. Unlike OSHA's PSM, PHMSA clarifies that audits do not require 3rd party review and may be done in-house.

To standardize the conduction of PHAs, PHMSA is proposing to incorporate by reference the CCPS publication *Guidelines for Hazard Evaluation Procedures*, 3rd edition (2008), with other documents referenced for guidance

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Next Steps

This NPRM is a proposal and does not constitute the final rule; however, it seems certain that the direction is firm towards the adoption of NFPA 59A-2026 as the new core of Part 193. The rules, as proposed, will have a profound impact on the LNG industry moving forward.

Comments on the NPRM are due January 4, 2027, through regulations.gov (Docket PHMSA-2019-0091). PHMSA has asked for input on many topics, and it is important the industry makes it voice heard.

BLUE Engineering and Consulting provides regulatory and engineering consulting to the LNG industry.

If you would like help assessing the impact on your facility or preparing comments to the NPRM, please contact us at blueteam@blueeandc.com.