

DEPARTMENT OF TRANSPORTATION**Pipeline and Hazardous Materials Safety Administration****49 CFR Parts 191, 192, and 195**

[Docket No. PHMSA–2016–0016; Amdt. Nos. 191–27; 192–126; 195–103]

RIN 2137–AF22

Pipeline Safety: Safety of Underground Natural Gas Storage Facilities

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The Pipeline and Hazardous Materials Safety Administration is publishing this final rule to amend its minimum safety standards for underground natural gas storage facilities (UNGSFs). On December 19, 2016, PHMSA issued an interim final rule (IFR) establishing regulations in response to the 2015 Aliso Canyon incident and the subsequent mandate in section 12 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016. The IFR incorporated by reference two American Petroleum Institute (API) Recommended Practices (RPs): API RP 1170, “Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage” (First Edition, July 2015); and API RP 1171, “Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs” (First Edition, September 2015). The IFR required each provision in the API RPs to apply as mandatory (*i.e.*, each “should” statement would apply as a “shall”) unless an operator provides written justification for not implementing the practice, including an explanation for why it is impracticable and not necessary for safety. Based on the comments received to the IFR and a petition for reconsideration, PHMSA has determined that the RPs, as originally published, will provide PHMSA with a stronger basis upon which to base enforcement than the IFR. This final rule also addresses recommendations from commenters and a petition for reconsideration of the IFR by modifying compliance timelines, revising the definition of a UNGSF, clarifying the states’ regulatory role, reducing recordkeeping and reporting requirements, formalizing integrity management practices, and adding risk management requirements for solution-mined salt caverns.

DATES: This final rule is effective on March 13, 2020. The Director of the Federal Register approved the incorporation by reference on January 18, 2017.

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I. Executive Summary**A. Purpose of This Final Rule**

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is amending the pipeline safety regulations applicable to underground natural gas storage facilities (UNGSFs). PHMSA is amending the UNGSF regulations in response to comments and recommendations received on its interim final rule (IFR) published on December 19, 2016 (81 FR 91860). The IFR implemented PHMSA’s authority to regulate UNGSFs and the Congressional mandate in section 12 of the PIPES Act (Pub. L. 114–183) to establish minimum safety standards for depleted-hydrocarbon reservoirs, aquifer reservoirs, and solution-mined salt caverns used for the storage of natural

gas.¹ Congress issued the mandate to PHMSA following a large-scale natural gas leak at the Aliso Canyon UNGSF in Southern California on October 23, 2015. The mandate required PHMSA to establish minimum safety standards for UNGSFs within two years of the PIPES Act issuance on June 22, 2016. To meet the mandate’s deadline—and address the urgent need for safer storage of natural gas—PHMSA published the IFR with a 60-day comment period. The IFR went into effect on January 18, 2017.

Since that time, PHMSA has considered public comments and a petition for reconsideration of the IFR and is modifying the minimum safety standards for UNGSFs in this final rule accordingly. PHMSA has also further reviewed the Final Report of the Interagency Task Force on Natural Gas Storage Safety² to ensure any amendments in this final rule are consistent with the Task Force’s recommendations to PHMSA.³ As detailed in this final rule, PHMSA believes these changes will reduce regulatory burdens and reduce costs for industry and gas consumers while sustaining safety and protecting the environment.

B. Summary of the Major Provisions

Consistent with the IFR, this final rule maintains the incorporation by reference of American Petroleum Institute (API) Recommended Practices (RPs) 1170 and 1171 (the RPs) as the basis of the minimum safety standards in 49 CFR part 192. API RP 1170, “Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage”⁴ has recommended practices for solution-mined salt cavern facilities used for natural gas storage and covers facility geomechanical assessments, cavern well design and drilling, solution mining techniques,

¹ For a description of these storage types and other basic information about underground natural gas storage, see <https://www.eia.gov/naturalgas/storage/basics/>.

² “Ensuring Safe and Reliable Underground Natural Gas Storage,” Final Report of the Interagency Task force on Natural Gas Storage Safety; October 2016. See <https://www.energy.gov/downloads/report-ensuring-safe-and-reliable-underground-natural-gas-storage>.

³ In addition to their comments on the IFR, on March 17, 2017, the State of Texas and the Texas Railroad Commission petitioned the U.S. Court of Appeals for the Fifth Circuit for review of the IFR under 49 U.S.C. 60119(a). See *State of Texas v. PHMSA*, No. 17–60189 (5th Cir. Mar. 17, 2017). On April 24, 2017, the court granted INGAA and AGA’s motions to intervene in the litigation. On July 19, 2017, the court granted a joint motion to hold the petition for review in abeyance pending the issuance of this final rule.

⁴ API Recommended Practice 1170 “Design and Operation of Solution-mined Salt Caverns used for Natural Gas Storage (First Edition, July 2015).

and operations, including monitoring and maintenance practices. API RP 1171, “Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs”⁵ has recommended practices for natural gas storage in depleted oil and gas reservoirs and aquifers, and focuses on storage well, reservoir, and fluid management for functional integrity in design, construction, operation, monitoring, maintenance, and documentation practices. Both RPs describe ways to maintain the functional integrity of design, construction, operation, monitoring, maintenance, and documentation practices for UNGSFs. The RPs contain numerous provisions that use the term “shall” to denote a minimum requirement necessary to comply with the RP. The RPs also use non-mandatory terms such as “should,” “may,” and “can” to denote a recommendation that is advised, but not required.

This final rule amends the IFR in six primary ways. First, PHMSA adopts the RPs without modification to the non-mandatory terms. In the IFR, PHMSA adopted the RPs by modifying the non-mandatory provisions (*i.e.*, statements containing “should” and other non-mandatory terms) as mandatory requirements (*i.e.*, “shall”). PHMSA provided that operators could deviate from the modified statements by providing a justification in their procedure manuals as to why the provision was “not practicable and not necessary for safety” at their specific facility. Accordingly, with this final rule, PHMSA also no longer requires operators to provide written justifications as to why they would not have performed a “should” provision.

Second, this final rule is formalizing requirements and deadlines for operators to develop and implement their integrity management (IM) programs and to conduct their baseline risk assessments for UNGSFs. As noted by commenters and petitioners, the API RPs function as an IM system for UNGSFs, which requires more time to implement than the IFR allowed. After considering these comments and recommendations, PHMSA is relaxing the timeline for completing initial assessments of the reservoirs, caverns, and wells. PHMSA discusses these new requirements and deadlines in Section III-C, “Compliance Timelines.”

Third, this final rule includes a requirement for solution-mined salt

caverns to follow the same risk management practices as depleted-hydrocarbon reservoirs and aquifers that apply to the physical characteristics and operations of the facility (*i.e.*, follow section 8 of API RP 1171). Since the publication of the IFR, PHMSA has observed that many operators of solution-mined salt caverns are voluntarily using section 8 of API RP 1171 to supplement the risk management practices in section 10 of API RP 1170. While most salt-cavern UNGSFs have a risk-management program in place, section 8 of API RP 1171 provides more prescriptive practices than API RP 1170 for how an operator must develop, implement, and document a program to manage risks that could affect the functional integrity of the storage operation. Extending the applicability of the recommended practices in section 8 of 1171 closes a potential critical safety gap for salt-cavern storage facilities and may prevent future failures at these facilities. PHMSA has codified this practice in the final rule to ensure consistency across all UNGSF facilities.

Fourth, PHMSA is narrowing the scope of reportable events and changes at facilities. In addition to annual data reporting and National Registry information, the IFR required operators to notify PHMSA of certain changes and events and their facilities, such as incidents and safety-related conditions. Since the IFR, PHMSA received many notifications for routine maintenance activities, which was not the intent of the regulation. Operators are not required to notify PHMSA of regular maintenance. To make this clear, PHMSA is limiting notification of changes to a facility 60 days prior to the following events: (1) All plugging or abandonment activities (regardless of costs), and (2) construction or maintenance that requires a workover rig and costs \$200,000 or more. PHMSA is also applying an emergency exemption to the 60-day notification requirements, which PHMSA overlooked in the IFR.

Fifth, this final rule is revising the definition of an “underground natural gas storage facility.” The PIPES Act amended 49 U.S.C. 60101(a) to define an “underground natural gas storage facility” as “a gas pipeline facility that stores natural gas in an underground facility, including—a depleted hydrocarbon reservoir, an aquifer reservoir; or a solution-mined salt cavern reservoir.” The IFR incorporated a modified version of this definition in part 192. Part 192 covers the transportation of natural gas by pipeline. PHMSA discovered through

the public comments on the IFR that the placement of the definition in part 192 created questions for operators as to where a gas pipeline facility ended, and regulations for a UNGSFs began. To remedy this confusion, PHMSA is revising the definition of an “underground natural gas storage facility” to exclude other components of a gas pipeline or gas pipeline facility covered elsewhere in part 192, and eliminate any potential overlap. PHMSA discusses the revised definition and the reason for keeping it in part 192 later in this document.

Sixth, PHMSA is changing the name of the reporting portal to the “National Registry of Operators” (formerly the “National Registry of Pipeline and LNG Operators”). Additionally, PHMSA is revising the name of the online portal’s web address from “<http://opsweb.phmsa.dot.gov>” to “<https://portal.phmsa.dot.gov>.” These changes are throughout parts 191, 192, and 195.

C. Costs and Benefits

Consistent with Executive Order (E.O.) 12866, PHMSA has prepared a Regulatory Impact Analysis (RIA) that includes an assessment of the benefits and costs of this final rule, as well as reasonable alternatives. PHMSA published an RIA to accompany the IFR as well. This final RIA incorporates input from public comments on the IFR and the initial RIA. PHMSA has issued the final RIA concurrently with this final rule, and it is available in the docket (PHMSA–2016–0016).

The annualized cost savings for this final rule, relative to the IFR, are estimated to be \$11 million, applying a 7 percent discount rate. The benefits of this final rule come from making permanent the safety measures in the IFR and RPs 1170 and 1171, which API and other stakeholders developed to prevent leaks and blowouts before they occur. The safety measures adopted through the IFR and this final rule will prompt operators to undertake or hasten preventive and mitigative measures, as well as IM actions, such as mechanical integrity tests, that will reduce the probability of releases.

The IFR reduced the likelihood and magnitude of catastrophic or operational natural gas releases by promoting safer practices through the incorporation of the recommended practices into the pipeline safety regulations. This final rule continues to require these same practices. For example, operators are required to assess the mechanical integrity of each storage well, evaluate the likelihood of failures at these wells, and determine the next steps to remedy conditions that could precede the

⁵ API Recommended Practice 1170 “Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs” (First Edition, September 2015).

failures. Operators are also required to incorporate safety best practices when designing and constructing new wells, which could further prevent catastrophic failures.

This final rule also adds a requirement for all solution-mined salt caverns to follow the risk management practices in section 8 of RP 1171. Per the IFR, PHMSA had only required operators of solution-mined salt caverns to follow the risk management practices in section 10 of RP 1170. The language in section 10, requires operators to take a “holistic and comprehensive approach to monitoring cavern integrity,” without providing specifics as to how to implement that approach. Post-IFR, during preliminary inspections, PHMSA observed operators of solution-mined salt caverns applying the framework of the risk management practices in section 8 of RP 1171. While RP 1171 applies to depleted hydrocarbon reservoirs and aquifer reservoirs, it offers a framework for risk management and monitoring that is translatable to other types of underground storage facilities. PHMSA expects that other operators of solution-mined salt caverns would benefit from a more specific framework for implementing the “holistic and comprehensive approach to monitoring cavern integrity” required in section 10 of 1170.

Additionally, codifying the requirement for these operators to follow both section 8 of RP 1171 and section 10 of RP 1170 ensures consistent safety requirements across all UGS facilities. This change may cause those operators who were not already (voluntarily) applying API RP 1171 as a framework for monitoring cavern integrity to undertake stronger risk management practices, which could ultimately reduce the risk of an incident. However, PHMSA considers this action part of the baseline requirements to follow a “holistic and comprehensive approach to monitoring cavern integrity” already prescribed through the IFR. As a result, PHMSA does not expect an additional financial burden to operators beyond that already in place through the IFR.

The IFR required operators to provide a written justification for each non-mandatory provision of the RPs that they did not perform. This final rule removes that recordkeeping burden on operators. Operators experience cost savings from the removal of requirements associated with deviations from the RPs, including technical reviews by subject matter experts and recordkeeping burdens, and reductions in the notifications burden.

II. Background

A. Overview of Underground Natural Gas Storage

Underground storage of natural gas plays a critical role in the nation’s energy independence and reliability. Notably, having a surplus of natural gas provides a buffer from the seasonal variations in supply and demand, creating price stability for customers. Over the past ten years, natural gas storage has increased 16 percent, prompted, in part, by significant growth in domestic shale-gas production.

There are three principal types of underground natural gas storage fields, each with different geological characteristics and capabilities that govern their suitability for storage. The three types are depleted hydrocarbon reservoirs, aquifer reservoirs, and solution-mined salt caverns. Depleted hydrocarbon reservoirs are the most common type of storage, representing approximately 80 percent of the total working gas capacity in the United States. As the name implies, these facilities are repurposed from previous oil or gas production and converted to gas storage fields.⁶ Aquifer reservoirs are natural water-bearing formations, also converted to gas storage, and represent roughly 9 percent of the total working gas capacity in the United States. Solution-mined salt caverns (salt domes) are geological formations that leached out of salt deposits. These facilities represent only about 10 percent of the total working-gas capacity but provide high withdrawal and injection rates relative to their working gas capacity.⁷

Of the 403 active UNGSFs in the United States, approximately 60 percent of the facilities are interstate, and 40 percent of the facilities are intrastate.⁸ The total storage capacity at these fields was 9,236 billion cubic feet (Bcf), and the total working gas capacity was 4,815 Bcf. Facilities identified as interstate represented 63 percent of total storage capacity and 65 percent of working gas capacity.

Interstate UNGSFs serve interstate facilities, such as providing storage for interstate gas transmission pipelines.⁹

⁶ Energy Information Administration (EIA). 2015. “The Basics of Underground Natural Gas Storage.” November 16, 2015. Retrieved from <http://www.eia.gov/naturalgas/storage/basics/> (Accessed March 2019).

⁷ Total working gas capacity percentages do not sum to 100 percent due to rounding.

⁸ PHMSA’s 2018 annual report data show 403 active underground natural gas storage fields in the United States as of 2017, distributed across 31 states.

⁹ Under 49 U.S.C. 60101(a)(6), an “interstate gas pipeline facility” (including an interstate UNGSF)

These types of storage facilities commonly receive surplus gas from interstate pipelines during warmer months and then send it back into the product stream during colder winter months. Since these UNGSFs serve interstate facilities and PHMSA has exclusive pipeline safety jurisdiction over the design, construction, operation, and maintenance of interstate gas pipeline facilities, the standards in this final rule will affect all interstate UNGSFs.

Intrastate UNGSFs, on the other hand, are facilities that provide gas storage for intrastate pipelines, most notably local gas distribution companies (LDCs). These storage facilities serve intrastate pipelines that are contained entirely within a particular State and that do not fall within the jurisdiction of the Federal Energy Regulatory Commission (FERC). As discussed more fully below, these intrastate “gas pipeline facilities” are generally subject to the IFR and this final rule. Intrastate UNGSFs may continue to also be subject to State regulations provided that: (a) The otherwise applicable State regulation does not conflict with the Federal minimum safety standards established in the final rule, and (b) the applicable State authority has filed a certification with PHMSA to participate as a full State partner under the new Federal program and to receive Federal funding through PHMSA.

B. Underground Storage Incidents and Regulatory History

While rare, serious incidents at underground storage facilities have occurred. For instance, on April 7, 1992, an uncontrolled release of highly volatile liquids from a salt-dome storage cavern near Brenham, Texas, formed a heavier-than-air gas cloud that exploded. Three people died in the accident, with an additional 21 people treated for injuries at area hospitals. Property damage from the accident exceeded \$9 million.

Following its accident investigation, the National Transportation Safety Board (NTSB) published pipeline safety recommendation No. P-93-9 regarding underground storage. Recommendation P-93-9 asked PHMSA’s predecessor agency, the Research and Special Programs Administration (RSPA), to develop safety requirements for storage of highly volatile liquids and natural gas

is defined as “a gas pipeline facility—(A) used to transport gas; and (B) subject to the jurisdiction of the [FERC] under the Natural Gas Act (15 U.S.C. 717 *et seq.*)” The term “transporting gas” is defined in § 60101(a)(21) as “the gathering, transmission, or distribution of gas by pipeline, or the storage of gas, in interstate or foreign commerce . . .”

in underground facilities, including a requirement that all pipeline operators perform safety analyses of new and existing underground geologic storage systems to identify potential failures, determine the likelihood that each failure will occur, and assess the feasibility of reducing the risk.¹⁰

In response to the NTSB's safety recommendation, RSPA held a public meeting¹¹ to determine what actions it should take, if any, regarding the regulation of underground storage of natural gas and hazardous liquids. The participants expressed mixed views on whether RSPA should begin to regulate "downhole" pipe and underground storage. Most participants spoke favorably of industry safety practices and State regulation but saw no immediate need for Federal regulatory action.

On July 1, 1997, RPSA issued an advisory bulletin (ADB-97-04) to inform UNGSF owners and operators of the availability of guidelines for the design and operation of underground storage facilities. Specifically, the advisory bulletin pointed to the safety standards guide from the Interstate Oil and Gas Compact Commission (IOGCC)¹² and API as appropriate for use by pipeline operators and State regulatory agencies. The IOGCC guide provided safety standards for the design, construction, and operation of gas storage caverns. API had published guidelines for the underground storage of liquid hydrocarbons. RP 1114, "Design of Solution-Mined Underground Storage Facilities," June 1994, provided basic guidance on the design and development of new solution-mined underground storage facilities. RP 1115, "Operation of Solution-Mined Underground Storage Facilities," September 1994, provided guidance on the operation of solution-mined underground hydrocarbon liquid or liquefied petroleum gas storage facilities.

Another catastrophic natural gas leak happened in January 2001 after a wellbore failed at the Yaggy storage field near Hutchinson, Kansas. The natural gas migrated nine miles underground, where it eventually surfaced through abandoned wells. Once at the surface, the natural gas exploded, killing two people and destroying two businesses.¹³

¹⁰ National Transportation Safety Board, Pipeline Accident Report PAR-93/01 (Nov. 4, 1993).

¹¹ (Docket PS-137, 59 FR 30567, June 14, 1994).

¹² Interstate Oil and Gas Compact Commission, "Natural Gas Storage in Salt Caverns: A Guide for State Regulators." (IOGCC Guide), 1995.

¹³ Allison, M. Lee, 2001, *The Hutchinson Gas Explosions: Unraveling a Geologic Mystery*, Kansas

After a month, the flares burned off, with the ultimate loss of 143 million cubic feet (MCF) of natural gas from the storage field.

These incidents at UNGSFs alerted operators and regulators to consider assessing the safety of these facilities. By 2012, API had begun developing additional guidance for the safety of UNGSFs. API developed RP 1170 and 1171 over several years, based on input from many industry stakeholders, including regulators such as PHMSA, FERC, and five State regulatory agencies, as well as the API Midstream Group. In July 2015, API issued RP 1170, "Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage." API RP 1170 provides recommendations and requirements for geo-mechanical assessments, cavern well design and drilling, solution mining techniques, operations and maintenance procedures, and practices for salt caverns. In September 2015, API issued RP 1171, "Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs," which focuses on storage well, reservoir, and fluid management for functional integrity in design, construction, operations and maintenance procedures, monitoring, and documentation practices. The RPs appropriately recognize the variety and diversity of UNGSFs used throughout the United States and are not limited to addressing facilities in a single State, basin, geological setting, or well type.

C. Aliso Canyon Incident

Shortly after the publication of the industry safety standards RP 1170 and RP 1171, another major UNGSF incident occurred. On October 23, 2015, Southern California Gas Company (SoCalGas) discovered a leak that manifested into the largest methane leak from a natural gas storage facility in U.S. history. Well SS-25 in the Aliso Canyon storage field, located in Los Angeles County, California, leaked for nearly four months until it was permanently sealed on February 17, 2016. While SoCalGas attempted to plug the leak, residents in nearby neighborhoods experienced health symptoms consistent with exposure to the odorants (mercaptans) added to natural gas and residual components from previous oil production in the field. The incident temporarily displaced more than 5,000 households from their homes, according to the Aliso Canyon Incident Command briefing report issued on February 1,

Bar Association, 26th Annual KBA/KIOGA Oil and Gas Law Conference, v1, p3-1 to 3-29.

2016, although some sources place the number of related households at approximately 8,000.¹⁴

The leak at Aliso Canyon ultimately released approximately 5.7 Bcf of natural gas into the atmosphere, translating to 109,000 metric tons¹⁵ of methane, a potent greenhouse gas, as well as numerous other pollutants.¹⁶ Additional reports identified other potential health effects that lasted even after the well was sealed. A report by the Los Angeles County of Public Health suggests that the continued health symptoms may be due to contaminants in indoor air and dust.¹⁷ As of December 31, 2016, SoCalGas and its parent company, Sempra Energy, recorded estimated costs of \$913 million to control the release, monitor air emissions, relocate residents, and cover legal and other expenses.¹⁸ The singular well that failed in the Aliso Canyon accident (SS-25) had originally been drilled in 1953 and was re-purposed for natural gas storage in 1972. The age of this well is not unusual. Per data from the American Gas Association (AGA), approximately 60 percent of active storage wells are located in fields that were activated before 1960.

The Aliso Canyon incident created serious energy-supply challenges for the region and prompted public concerns about the safety of UNGSFs, including the extent and effectiveness of Federal and State oversight. On February 5, 2016, PHMSA issued an advisory bulletin (ABD-2016-02), identifying specific minimum actions that operators of UNGSFs should take, in addition to the recommendations of ADB-97-04,

¹⁴ For example, see KPCC news report on August 4, 2016, "Cost estimate of Aliso Canyon gas leak hits \$717 million". <http://www.scp.org/news/2016/08/04/63268/cost-estimate-of-aliso-canyon-gas-leak-hits-717-mi/>.

¹⁵ CARB estimates that the incident resulted in a total emission of 99,650 ± 9,300 metric tons of methane (CARB, 2016a) and seeks mitigation of 109,000 metric tons.

¹⁶ California Air Resources Board (CARB), 2016; County of Los Angeles Public Health.

¹⁷ *Ibid.* CARB.

¹⁸ Of the \$913 million of costs, approximately 60 percent is for the temporary relocation program (including cleaning costs and certain labor costs). Other estimated costs include amounts for efforts to control the well, stop the leak, stop or reduce the emissions, and the estimated cost of the root cause analysis being conducted by an independent third party to investigate the cause of the leak. The remaining portion of the \$913 million includes legal costs incurred to defend litigation, the value of lost gas, the costs to mitigate the actual natural gas released, the estimated costs to settle certain actions and other costs. The value of lost gas reflects the replacement cost of volumes purchased through December 2017 and estimates for purchases in 2018. As of mid-January 2018, SoCalGas has replaced all lost gas. SoCalGas adjusts its estimated total liability associated with the leak as additional information becomes available." (SoCalGas/Sempra, 2018).

API RP 1170, API RP 1171, and the IOGCC Guide. The 2016 advisory bulletin recommended that operators begin reviewing their operating, maintenance, and emergency response activities and apply the new RPs accordingly.

On July 14, 2016, PHMSA held a public meeting to discuss potentially extending its regulations to include transportation-related UNGSFs. PHMSA heard from a diverse group of stakeholders, including State regulators, emergency responders, and residents, including those impacted by the Aliso Canyon incident. PHMSA concluded that it should take action to incorporate by reference API RP 1170 and API RP 1171 into part 192. The RPs describe a range of measures that UNGSF operators should undertake to ensure the safe operations of their facilities. The RPs also include construction, maintenance, IM, security, and emergency response procedures.

D. The PIPES Act of 2016

The Aliso Canyon incident prompted broader public concerns as to how to prevent similar UNGSF accidents in the future. Congress addressed these concerns in two sections of the PIPES Act, enacted on June 22, 2016 (Pub. L. 114–183). Section 12 of the PIPES Act required PHMSA to issue minimum safety standards for all UNGSFs within two years of enactment. The statute defines an “underground natural gas storage facility” as a “gas pipeline facility that stores natural gas in an underground facility.” Because title 49 United States Code (U.S.C.) 60101(a) already defines “gas pipeline facility” as “a pipeline, a right of way, a facility, a building, or equipment used in transporting gas or treating gas during its transportation,” PHMSA interprets the PIPES Act as directing it to regulate only those UNGSFs that store natural gas incidental to transportation.

The PIPES Act requires that in issuing minimum safety standards for UNGSFs, PHMSA must: (1) Consider consensus standards for the operation, environmental protection, and integrity management of underground natural gas storage facilities; (2) consider the economic impacts of the regulations on individual gas customers; (3) ensure that the regulations do not have a significant economic impact on end users; and (4) consider the recommendations of the Aliso Canyon natural gas leak task force established under section 31 of the PIPES Act of 2016.

The Secretary of Transportation (the Secretary) delegated this responsibility under chapter 601 of title 49 U.S.C. to the PHMSA Administrator (49 CFR

1.97). PHMSA fulfilled this mandate by publishing the IFR on December 19, 2016. The PIPES Act provides that states may adopt additional or more stringent safety standards for intrastate UNGSFs if such standards are compatible with these Federal regulations.

E. Interagency Task Force

In addition to section 12 of the PIPES Act, Congress included a second mandate, section 31, directing the Department of Energy (DOE) to establish an Interagency Task Force on Natural Gas Storage Safety to perform an analysis of the Aliso Canyon events and make recommendations to reduce the occurrence of similar events in the future. PHMSA and DOE co-led the effort. The Task Force established several working groups, comprised of premier scientists, engineers, and technical experts from the Executive Office of the President and various Federal agencies. The working groups examined three key areas:

- The integrity of natural gas wells at storage facilities;
- The public health and environmental effects from natural gas leaks; and
- The nation’s vulnerability to reduced energy reliability in the event of future leaks.

In October 2016, the Task Force issued its final report on natural gas storage safety and made 44 recommendations to operators and regulators. The main recommendation to PHMSA was to incorporate existing industry consensus standards, API RP 1170 and 1171, into part 192 of the regulations in an enforceable manner, and consider supplementing the regulations with recordkeeping and reporting requirements as necessary. The Task Force recommended that operators develop comprehensive risk-management plans that addressed risks based on their potential severity and probability of occurrence. These plans should document an operator’s risk-management strategy, identify risks, define responsibilities among stakeholders, assess risks, and take appropriate action to reduce risks to well integrity.

The Task Force’s report also highlighted growing concerns regarding the age of the nation’s natural gas storage infrastructure. For example, wells reflect material, technology, and design factors that may have been appropriate at the time they were constructed, but may not meet design criteria for wells drilled today. Over time, corrosion, other environmental processes, and mechanical stresses from the injection and withdrawal of natural

gas can impact well integrity. Wells in depleted oil fields may have been designed for lower operating pressures than what they may be subject to now. Many of these wells were designed without redundant barriers to reduce the risk of gas migration. One of the lessons from the Aliso Canyon incident is that wells without redundant barriers present higher risks because they have a single point of possible failure that may be extremely difficult to shut off or kill.

F. Interim Final Rule

On December 19, 2016, PHMSA issued the IFR that satisfied section 12 of the PIPES Act, exercising the agency’s statutory authority to regulate underground natural gas storage facilities. The IFR amended the pipeline safety regulations found at 49 CFR parts 191 and 192, to address critical safety issues related to “downhole” UNGSF facilities, including wells, wellbore tubing, casing, and wellheads (81 FR 91860). Additionally, the IFR added a definition of “underground natural gas storage facility” to §§ 191.3 and 192.12 and applied reporting requirements to operators of UNGSFs similar to those applicable to operators of other gas pipeline facilities, including annual reports, incident reports, reports of major construction and organizational changes, and registration with the National Operator Registry.

Effective January 18, 2017, all UNGSFs, both intrastate and interstate, now had to meet the minimum standards outlined in RPs 1170 and 1171 and were subject to inspection by PHMSA or a PHMSA-certified State entity. The IFR made each provision in the RPs 1170 and 1171 mandatory unless the operator documented a technical justification why compliance with a provision was not practicable and not necessary for safety. Operators were required to incorporate the RPs into their written operations, maintenance, and emergency response program manuals following § 192.605. PHMSA, or a certified State partner, would review any of the operators’ justifications and its procedure manuals during compliance inspections.

After publishing the IFR, PHMSA took significant steps to educate the regulated community on the new requirements, to promote a better understanding of issues concerning integrity assessments of UNGSFs and the implementation of the RPs. The first action was to publish frequently asked

questions (FAQs).¹⁹ The FAQs provided guidance on the procedures, implementation plans, and schedules that operators should have in place to meet the requirements in the applicable RPs. For example, while the IFR did not provide clear timelines for operators to complete the integrity assessments required by the RPs, the FAQs provided a recommended implementation schedule. With the issuance of this final rule, PHMSA will revise the FAQ guidance material to reflect these regulations as amended.

In preparation for the development of inspection and enforcement efforts, PHMSA subject matter experts conducted preliminary site assessments at a cross-section of UNGSFs from May to July of 2017.

Additionally, PHMSA has instituted a program for training Federal and State inspectors on the new minimum Federal standards affecting all UNGSF facilities. As it promulgates this final rule, PHMSA is prepared to modify the program through future regulations and guidance to keep pace with evolving consensus safety standards, academic research, and lessons learned from the firsthand experience of its inspectors, State regulators, affected stakeholders, and the public.

G. Petition for Reconsideration

On January 18, 2017, the American Gas Association (AGA), American Petroleum Institute (API), American Public Gas Association (APGA), and Interstate Natural Gas Association of America (INGAA) (the “Associations”) jointly filed a petition for reconsideration of the IFR. AGA represents local energy companies, as well as residential, commercial, and industrial natural gas customers. API is a national trade association representing the oil and natural gas industry, including gas pipelines and UNGSF operators. APGA is a national, non-profit association of publicly-owned natural gas distribution systems. INGAA is an industry trade association representing interstate natural gas pipeline companies in the United States.²⁰

In the petition, the Associations affirmed their support for PHMSA’s efforts to regulate the safety of UNGSFs. They reminded PHMSA that the Associations and their members had supported PHMSA’s incorporation by reference of the RPs as Federal

standards for natural gas storage. They stressed the importance of adopting the RPs to advance the safety of the pipeline transportation system but asked PHMSA to revise the IFR to incorporate RP 1170 and API RP 1171 without modification and to provide for reasonable implementation periods. The Associations stated that the changes requested in the petition would ensure that PHMSA’s regulations would be practical, reasonable, and effective.

On June 20, 2017, PHMSA issued a notice stating that it would provide an answer to the petition in the final rule (82 FR 28224). PHMSA announced that in the interim, it would not issue any enforcement citations for failure to meet any of the non-mandatory provisions of the RPs that the IFR converted to mandatory ones until one year after the issuance of the final rule. PHMSA has considered the recommendations from the Associations and is answering their petition in this final rule.

III. Comment Summaries and PHMSA’s Responses

A. Introduction

PHMSA received 82 comments and one petition for reconsideration in response to the IFR issued on December 19, 2016. PHMSA provided a 60-day comment period initially but re-opened it on October 19, 2017 (82 FR 48655), for an additional 30 days to provide all interested parties with the opportunity to comment on the IFR and the merits and claims of the petition for reconsideration. During the initial 60-day comment period, PHMSA received 28 comments. PHMSA received 54 additional comments during the re-opened 30-day comment period, but only 14 of those 54 related to this rulemaking.²¹ Half of those 14 comments were from organizations that had already submitted comments during the initial, 60-day comment period.

PHMSA discusses and responds to these comments and recommendations in sections B through J, below. For organizational purposes, PHMSA has grouped comments by subject matter. Below is a list of entities who submitted comments on the IFR.

- Atmos Energy
- Consumers Energy

- Dow Chemical Company (Dow)
- ENSTOR
- Environmental Defense Fund (EDF)
- Gas Free Seneca
- Gas Piping Technology Committee (GPTC)
- Geological Maps Foundation
- GPA Midstream Association (GPA)
- Hilcorp Alaska
- Hon. Brad Sherman, representing 30th Congressional District of California
- Independent Petroleum Association of America (IPAA)
- Joint Comment from American Gas Association (AGA), the American Petroleum Institute (API), the American Public Gas Association (APGA), and the Interstate Natural Gas Association of America (INGAA)
- Joint Comment from the States First Initiative, the Interstate Oil and Gas Compact Commission (IOGCC), and Groundwater Protection Council (GWPC)
- Louisiana Mid-Continent Oil and Gas Association (LMOGA)
- Michigan Department of Environmental Quality
- New York State Department of Environmental Conservation
- Northern Natural Gas
- Pacific Gas and Electric Company (PG&E)
- Private Citizens (50)
- Railroad Commission of Texas
- Southern California Gas Company (SoCalGas)
- Texas Pipeline Association
- TransCanada
- Vectren

B. Incorporation by Reference of API Recommended Practices 1170 and 1171

In the IFR, PHMSA required operators to treat non-mandatory language in the RPs as mandatory. For each provision modified by the IFR, an operator could deviate from the recommended practice by providing in its procedures manual a technical justification for each deviation. Under the IFR, PHMSA required an operator to use a subject matter expert to review and document the technical justification, and a member of the operator’s executive leadership was required to review, approve, and document the date of approval. During routine inspections, PHMSA would review an operator’s justifications for deviating from the modified provisions.

1. Comments on PHMSA’s Modification of the RPs

Many commenters disagreed with PHMSA’s modification of the non-mandatory provisions of the RPs. Almost all commenters supported the Associations’ position concerning the

¹⁹“Underground Natural Gas Storage: FAQs.” (revised April 2017) <https://primis.phmsa.dot.gov/ung/faqs.htm>.

²⁰On April 17, 2017, INGAA withdrew from the petition for reconsideration, but the other three Associations have remained as petitioners.

²¹The 40 comments that PHMSA deemed not relevant appear to have been submitted anonymously using automated technology (*i.e.*, bots). While these comments raise generalized issues related to environmental protection (climate change, renewable/alternative energy, streamlining environmental reviews, etc.), the comments do not connect their generalized statements to any of the specific provisions of this rulemaking, such that they would become meaningful to the issue of the safety of underground natural gas storage systems.

conversion of the non-mandatory provisions in RPs 1170 and 1171 to mandatory. Generally, commenters supported the need for consistent minimum safety standards for all UNGSFs and supported regulations to that effect. Those same commenters asserted that if PHMSA adopted the IFR without modification, it would impose burdensome and impracticable requirements on operators.

In their petition, the Associations stated that “changing the [RPs] in this manner is not necessary for enforcement, nor is it practicable or reasonable.” The Associations stated their belief that there was “no regulatory justification for making all ‘non-mandatory’ provisions ‘mandatory,’” and requested that PHMSA eliminate this provision. Further, the Associations said that although the RPs use both non-mandatory and mandatory language, this alone does not affect their enforceability. They said that the RPs contain enough mandatory provisions to ensure enforceability. The Associations used the mandatory provisions in section 8 to demonstrate that the RPs are broad enough, as written, to be enforced. Additionally, they stated that the non-mandatory statements in the RPs do not compromise the enforceability of the broad requirements imposed on operators through the mandatory provisions.

The Texas RRC stated that it strongly disagreed with PHMSA’s modification of the RPs. The Texas RRC noted that the wholesale adoption of RPs would lead to confusion and have unintended consequences. It said that if PHMSA kept the modification to the non-mandatory provisions in the final rule, it would undermine the integrity of the original RPs, ultimately making them even more difficult to enforce. Lastly, the Texas RRC stated that, while the IFR allowed an operator to deviate from particular provisions, PHMSA did not provide a process or timeframe by which the agency would review, approve, or deny the operator’s alternative procedure(s). The Texas RRC requested that, if PHMSA chose to incorporate the RPs as modified by the IFR, the agency should add a review process and timeline for consideration of requests for deviation from the modified provisions.

ENSTOR Operating Company, LLC (ENSTOR), asserted that converting all non-mandatory provisions in the RPs to mandatory requirements would undermine the risk-based approach of the RPs and create unintended results. ENSTOR stated that PHMSA’s conversion of non-mandatory RP statements in sections 8, 9, 10, and 11

of RP 1171 to mandatory provisions could establish statutorily-impermissible retroactive requirements, such as requiring the use of observation wells drilled around, above, and below a reservoir. ENSTOR added that PHMSA “can simply require operators to discontinue any deviations that the agency does not agree with,” and “there are no standards to guide the agency’s determination and no means for review or appeal of a denial of an operator deviation.”

Some operators stated that the process for justifying deviations from a specific non-mandatory RP would be time-intensive, expensive, and unworkable for many operators. LMOGA stated that requiring technical documentation for each deviation was excessive since the RPs themselves already identified the non-mandatory practices as applicable on a case-by-case and site-specific basis. Further, LMOGA noted that the IFR required each deviation must be “technically reviewed and documented by a subject matter expert to ensure that there will be no adverse impact on the facility. . . .” LMOGA argued that the term “subject matter expert” was vague and imprecise.

EDF said that PHMSA would not be reviewing an operator’s technical justifications until after the operator had already deviated from a recommended practice and contended that this could allow harmful activities to persist until an inspection took place at the facility. Further, EDF said that operators might make significant financial commitments in reliance on unapproved deviations, only to see their decisions overturned after the fact, without practical recourse, by PHMSA. Regarding the IFR’s treatment of non-mandatory provisions as mandatory, EDF stated its preference would be for PHMSA to adopt the API RPs but examine the non-mandatory provisions of the API RPs on a provision-by-provision basis to determine if any should be made mandatory, and adopt additional regulatory requirements to fill in potential gaps in the final rule.

TransCanada, which participated in the development of RP 1171, stated that the inclusion of both “should” and “shall” in the RPs reflected a deliberate, iterative, consensus-building effort that resulted in the selection of those specific words. TransCanada went on to say that it would not be prudent to make such recommendations mandatory because doing so could lead to a misplaced effort to document exceptions when operators should be focusing on the imperatives of IM and the development of effective procedures.

2. PHMSA’s Response to Comments on Its Modification of the API RPs 1170 and 1171

After considering the petition for reconsideration and public comments, PHMSA is accepting the recommendation to adopt the RPs 1170 and 1171 as originally written by API, without modification. When drafting the IFR, PHMSA needed to provide an immediate and reasonable means by which it could begin regulating UNGSFs, while, at the same time, implementing sections 12 and 31 of the PIPES Act. As discussed earlier, section 12 of the PIPES Act required PHMSA to consider existing industry standards and recommendations from the Interagency Task Force (created by section 31) as the basis for its pending regulations. In its 2016 report, the Interagency Task Force recommended that PHMSA consider “incorporating existing industry-recommended practices API RP 1170 and 1171 into the part 192 regulations, and they should be adopted in a manner that can be enforced.” Historically, PHMSA has successfully incorporated by reference many industry standards, guidance, and recommended practices in lieu of developing its own regulations.

After additional review, PHMSA has determined that adopting the RPs as originally published by API would still provide significant benefits for safety, the environment, and public health but would be much easier for the regulated industry and the public to understand and for PHMSA to interpret and enforce. The non-mandatory provisions in the RP provide operators with guidance for optional considerations based on the features and characteristics of individual storage facilities. However, the RPs still require all operators to develop policies and procedures to ensure the functional integrity of UNGSFs and to inspect and verify the operational integrity of these facilities on a site-specific basis and will provide PHMSA with a stronger basis upon which to base enforcement than the IFR.

As the Associations pointed out in their petition for reconsideration, the existence of “non-mandatory provisions in the RPs does not affect their overall enforceability.” Throughout the RPs, there are many broad mandatory provisions that operators of UNGSFs must implement, using a range of options considered in accompanying non-mandatory provisions. The non-mandatory provisions provide operators with illustrations, examples, or choices of action for how to achieve compliance with the mandatory provisions. Because these non-mandatory provisions are

closely tied to the mandatory provisions that operators must meet, any non-mandatory provision remains enforceable to the extent that it is necessary, in the context of a particular operator or facility, to ensure compliance with a mandatory provision in the Recommended Practice.

Based on the petition for reconsideration, the post-IFR comments received, as well as its experience with the application and enforcement of similar consensus standards and recommended practices, PHMSA believes that adopting the RPs in their original published form, will accomplish the goal of the IFR, which was to improve safety. The means of achieving this goal was to establish, for the first time, minimum Federal safety standards that would require operators of all UNGSFs to meet certain basic, uniform, and risk-based policies and procedures as outlined in the RPs. In evaluating regulatory alternatives, PHMSA did consider adopting a portion of the “should” provisions to identify and address any potential gaps, but PHMSA ultimately decided not to because the Agency does not have sufficient information to identify whether there are “should” statements that are, on average, more or less practical and necessary at each site, and thus would be more or less likely to cause operators to seek deviations. In light of this factor and the comments received, PHMSA is convinced that treating the non-mandatory provision as written in the RPs is the better course of action because it adds clarity to the provisions which should help improve compliance while providing at least an equivalent level of safety as the IFR.

The IFR and this final rule are PHMSA’s first effort to establish a national regulatory program for UNGSFs. This program includes features such as basic reporting requirements, Federal and State inspections, and a Federal-State partnership that will enable States to go beyond the RPs by adding additional or more stringent requirements. As the agency and the industry gain experience implementing this new regulatory program, they will learn what improvements need to be made. If experience shows that the RPs do not provide an adequate level of safety for certain activities or risks, PHMSA will consider the need to modify the regulations, as appropriate.

C. Compliance Timelines

The IFR required that UNGSFs constructed before July 18, 2017, meet all operations, maintenance, integrity demonstration and verification,

monitoring, threat and hazard identification, assessment, remediation, site security, emergency response and preparedness, and recordkeeping provisions of the applicable RPs within one year from the effective date of the IFR, *i.e.*, January 18, 2018. Specifically, existing UNGSFs using a solution-mined salt cavern for storage were required to meet the requirements of RP 1170, sections 9, 10, and 11, and operators of existing UNGSFs using a depleted hydrocarbon reservoir or an aquifer reservoir for gas storage were required to meet the requirements of RP 1171, sections 8, 9, 10, and 11, by the same date.

Following the publication of the IFR on December 19, 2016, PHMSA published FAQ guidance (April 2017) to assist operators in applying the RPs. The FAQs included a suggested timeline for operators to complete the risk analysis and baseline assessments for the requirements in the IFR.

1. Comments on the Compliance Timelines

PHMSA gave operators one year from the effective date of the IFR to comply with the IFR. Commenters stated that the timeline for compliance provided in the IFR was unreasonable, and PHMSA’s expectations for operators were unclear. Commenters requested that the final rule adopt phased-in compliance timelines, as PHMSA has done in previous rulemakings. Most commenters recommended that PHMSA follow the timelines published in its Underground Natural Gas Storage FAQs (April 2017).

Most industry commenters asked that PHMSA modify the compliance timelines to break it up into phases and extend the overall schedule, similar to what the FAQs outlined, which suggested that operators complete the baseline integrity assessments of each storage field within three to eight years. These commenters agreed that the FAQ’s timelines for baseline integrity assessments were realistic and that any shorter timeframe was unrealistic and impracticable. They supported including clear, phased-in timelines in the final rule. Most said it would take longer than 12 months to implement all aspects of the RPs fully and that the PHMSA should extend the compliance deadline.

The Associations requested that the final rule incorporate the risk assessment and integrity-management timelines currently outlined in the FAQs.²² The Associations doubted that

PHMSA had intended to require operators to implement all actions under the applicable sections of the RPs within one year. In their comment, the Associations spoke of an operator that had recently implemented the RPs at its facility. The operator reported that it took over 18 months to gather the subject matter experts and complete the integrity plans and operating procedures. The Associations added that operators should expedite the implementation of preventive and mitigative measures for high-risk or imminent-risk facilities, as identified by their risk assessments.

Similarly, TransCanada stated that it was impractical to implement the IFR by January 18, 2018, and asked that PHMSA clarify in the final rule what the agency expected operators to have achieved by January 18, 2018, and beyond. TransCanada agreed, with certain reservations, that baseline risk assessments could begin within one to two years of the effective date of the final rule. They also agreed that three to eight years was enough time to complete risk assessments for all individual wells at UNGSFs.

2. Response to Comments on the Compliance Timelines

PHMSA is accepting the commenters’ recommendations to reconsider the compliance timelines in the final rule. These timelines are similar to the ones published PHMSA’s Underground Natural Gas Storage FAQs (April 2017). Below is a summary of the compliance timelines for implementing a UNGSF program.

Deadline for Written Procedures

Consistent with the IFR, operators must prepare and follow written procedures for the operations, maintenance, and emergency management and response activities outlined by the applicable RPs. However, this final rule removes the requirement in the IFR that these procedures be incorporated into an operator’s existing procedural manuals required for gas pipelines under § 192.605. Instead, the final rule replaces this provision with a similar requirement that UNGSF operators develop written procedures for carrying out the final rule and maintain and update them in a similar fashion as required by § 192.605 for gas pipelines. In the final rule, the new requirement is in a new paragraph exclusive to UNGSFs under § 192.12.

Accordingly, operators must establish and follow written procedures for implementing their UNGSF programs. By January 18, 2018, all operators with

²² “Underground Natural Gas Storage FAQs,” issued by PHMSA in April 2017.

facilities constructed on or before July 18, 2017, must have established and put into service procedures for operations, maintenance, and emergency preparedness. All other operators must have these procedures in place prior to commencing operations. Operators must also establish an interval for reviewing and updating these written procedure manuals, not exceeding 15 months, but at least once each calendar year.

Integrity Management Framework

By January 18, 2018, all operators with facilities constructed on or before July 18, 2017, must have established a framework for IM under the IFR. All other operators must have this framework in place prior to commencing operations. An initial framework means a written explanation of the mechanisms or procedures the operator will use to implement each program and API RP to ensure compliance with this final rule. These procedures, implementation framework, and schedules do not need to be fully fleshed out but must be sufficient for putting the program in place over the long term. PHMSA expects that each operator's implementation framework and schedules will evolve into a more detailed, comprehensive, and robust program as the operator's program matures. An operator must make continual improvements to the program.

The IM framework for a UNGSF must include:

- A plan for developing and implementing each program element;
- An outline of the procedures to be developed;
- The roles and responsibilities of UNGSF staff assigned to develop and implement the procedures;
- A plan for how staff will be trained in awareness and application of the procedures;
- Timelines for implementing each program element, including the risk analysis and baseline risk assessments; and
- A plan for how to incorporate information gained from experience into the IM program on a continuous basis.

Timelines for Conducting Risk Assessments

By four years after the effective date of this final rule, each operator must have completed baseline risk assessments for 40 percent of all its wellbores, wellheads, and associated components. Operators should generally prioritize assessments on higher-risk wells first, based on a matrix of identified threats, hazards, and the likelihood of their occurrence. Operators must complete baseline

assessments of all reservoirs and caverns by the same date. By seven years after the effective date of this final rule, operators must have completed baseline risk assessments for all remaining wellbores, wellheads, and associated components. This implementation period is similar to the one published in PHMSA's Underground Natural Gas Storage FAQs (revised April 2017).²³

D. Placement of Underground Storage Regulations in a New Part for Title 49 of the 49 CFR

The IFR added requirements in parts 191 and 192 for UNGSFs that cover reporting, recordkeeping, design, construction, and operation and maintenance procedures and practices. Before the IFR, there were no Federal regulations pertaining directly to UNGSFs. While part 192 already covered much of the surface piping at these facilities, up to the wing-valve assemblies on the wellhead at UNGSFs served by pipeline, PHMSA had not previously issued rules for the actual wellhead or "downhole" portion of these facilities.

1. Comments Requesting a New Part for Title 49 of the CFR

The IFR amended parts 191 and 192 to add underground natural gas storage regulations. For several reasons, commenters requested that PHMSA create a new "part 19x" in subchapter D of title 49 of the CFR that would contain regulations exclusively for underground storage. Generally, their interest was in differentiating the requirements for UNGSF from those requirements for other types of regulated gas facilities.

The Associations and some operators recommended that PHMSA remove the underground storage regulations from part 192 and place them in a new part under subchapter D in 49 CFR. They asserted that moving UNGSF regulation to a new part in the pipeline safety regulations would clarify the application of the regulations both now and in future rulemakings. The commenters stated that because the existing definitions of pipeline and pipeline facility in § 192.3 were so similar to the definition of underground natural gas storage facility (also in § 192.3) that it was unclear how to apply the regulations.

The Associations also expressed concern that because the IFR placed the underground storage regulations in part 192, operators might mistakenly apply the engineering regulations specific to

other pipeline facilities to UNGSFs—or vice-versa. The RPs contain design, construction, and IM practices for UNGSFs that the Associations believed are considerably different from the practices for other pipeline facilities outlined throughout part 192. They provided examples of regulations that, if misapplied, might result in unsafe practices. The Associations asserted that PHMSA could avoid these potential conflicts by placing the UNGSF regulations in a new part under 49 CFR subchapter D, separate from part 192.

Several commenters, including Dow Chemical Company, claimed that adding underground storage regulations to part 192 would generate confusion. Specifically, commenters said that the IFR was unclear as to which sections of part 192 applied to UNGSFs and which ones to other gas pipeline facilities. The GPTC expressed the view that the definition of underground natural gas storage facilities in § 192.3 overlapped with the existing definitions of pipeline facilities and transmission pipelines and that it believed PHMSA intended to expand the regulatory scope of parts 191 and 192 to UNGSFs. However, GPTC implied that the overlap between the new definitions and the new regulations' placement in part 192 would create confusion as to the applicability of the RPs to pipeline facilities already regulated under other subparts of part 192.

Similarly, PG&E requested that the final rule revise the pipeline safety regulations to specify which parts of 49 CFR subchapter D applied to underground natural gas storage, instead of providing clarification through agency guidance materials (e.g., FAQs). They stated that PHMSA historically had not incorporated FAQs addressing additional programs, such as "Integrity Management," "Drug and Alcohol Testing," and "Gathering Lines," into regulatory language. PG&E stated that it believed this practice would leave operators at risk of being forced to comply with requirements that did not appear in regulatory language. Therefore, PG&E encouraged PHMSA to clarify § 192.12 by adding an exclusion for the subparts of part 192 that would not apply to underground natural gas storage. Other commenters shared this view and expressed concern that PHMSA would attempt to use FAQs or similar guidance documents instead of properly promulgated regulations.

2. Response to Commenters' Request for a New Part

Section 60101(a)(21) defines the term "transporting gas" as "the gathering, transmission, or distribution of gas by

²³ <https://primis.phmsa.dot.gov/ung/faqs.htm>.

pipeline, or the storage of gas, in interstate or foreign commerce.” The statute specifically lists the “storage” of natural gas as one component of “transporting gas.” Since all PHMSA’s substantive regulations pertaining to the transportation of natural gas are in part 192, PHMSA believes the UNGSF regulations also belong in part 192.

Along with the public comments, PHMSA reviewed recommendations from the Interagency Task Force and a petition for rulemaking from INGAA. The Task Force recommended that PHMSA incorporate the RPs into part 192, with supplemental recordkeeping and reporting procedures as necessary. The IFR noted that INGAA had petitioned PHMSA on January 20, 2016—while the Aliso Canyon accident was still ongoing—to incorporate the RPs into part 192. Because UNGSFs are part of the broader natural gas transportation systems, part 192 is the most logical place for the new substantive regulations. Incorporating the requirements into parts 191 and 192 also subjects UNGSF operators to the requirements of part 190, for enforcement and regulatory procedures, and part 199, for drug and alcohol testing. Therefore, PHMSA had adopted these recommendations and by adding the UNGSF regulations in parts 191 and 192.

PHMSA agrees that the language in the IFR resulted in a certain level of ambiguity about the applicability of § 192.12 to other gas pipeline facilities and, vice versa, the applicability of other existing regulations to UNGSFs. PHMSA has addressed this issue by making two changes in this final rule. First, PHMSA is adding an introduction to § 192.12, which provides that the section contains minimum requirements for UNGSFs. This introduction means to clarify that § 192.12 only applies to UNGSFs and no other pipeline facilities. Second, the final rule also modifies the definition of a UNGSF to eliminate any potential overlap with other gas pipeline facilities covered elsewhere in part 192.

PHMSA also agrees with the commenters that the FAQs are guidance documents to help operators understand and implement rulemakings. FAQs are not the basis for PHMSA’s enforcement of the rule. However, they can and should be used to clarify or explain PHMSA’s interpretation of the scope and applicability of the regulation. For example, while not explicitly stated in the preamble or the amendatory language of the IFR, PHMSA explained through FAQs that operators of UNGSFs are subject to regulation under 49 CFR part 199, “Drug and Alcohol Testing.”

Any operator of a “pipeline facility” that is subject to any subset of the part 192 regulations is required to test covered employees for the presence of prohibited drugs and alcohol. PHMSA also explained in the FAQs that operators of UNGSFs were not required to comply with the “Qualification of Pipeline Personnel” requirements contained in subpart N of 49 CFR part 192. The FAQs explained that operators must comply with the training requirements in API RP 1170 (section 9.7.5) or API RP 1171 (section 11.12), dependent upon the type of storage field. Both API RP sections describe general training parameters and specifically identify the need to train personnel for normal, abnormal, and emergency conditions. Additionally, this final rule makes it clear that UNGSFs are not subject to any requirements of part 192, aside from § 192.12.

E. Suitability of API RPs 1170 and 1171 as the Basis for Rulemaking

In the IFR, PHMSA incorporated by reference two industry Recommended Practices, API RPs 1170 and 1171, into 49 CFR part 192.

1. Comments Concerning the Suitability of the RPs for Rulemaking

PHMSA used RPs 1170 and 1171 as the foundation for the new minimum safety standards for UNGSFs. Commenters cited the forewords of both RPs, which state that the RPs were not intended to substitute for Federal or State regulations as the basis for objecting to their use as the basis for new regulatory requirements. Other commenters identified potential gaps in regulatory coverage in the RPs, such as risk management practices for solution-mined salt caverns. For these reasons, commenters stated that the RPs were not an adequate basis for regulation.

Some commenters were concerned with the suitability of the RPs as the basis for regulations. Texas RRC and EDF criticized PHMSA’s approach to incorporating the RPs into the underground natural gas storage regulations. The Texas RRC stated that the RPs were neither drafted nor intended to operate with the force and effect of Federal regulations and, as such, should not be adopted as written. Similarly, EDF pointed to the scope section of RP 1170, which states that the document is “intended to supplement, but not replace, applicable local, State, and Federal regulations.” Both the Texas RRC and EDF said they understood the engineering merit behind the RP, but expressed a belief

that the RPs were more suitable as guidance material for operators.

Most private citizens urged PHMSA to go beyond the safety provisions in the RPs. Notably, these commenters expressed concern over the lack of a specific “risk management” section in RP 1170 for solution-mined salt caverns. They asked that the final rule provide additional risk management practices for solution-mined salt caverns.

A few commenters were concerned that the provisions in the RPs were vague, ambiguous, and insufficient in detail. For instance, States First said that while the RPs contain substantial information and guidance for operators, “it is [States First’s] belief that [the RPs] require considerable wording revisions and additions to make them effective as regulations.” Similarly, MDEQ stated that the IFR lacked clear timeframes and provided little regulatory oversight and approvals for certain actions taken. MDEQ expressed concern that in many instances, the IFR left it up to operators to determine the risks facing their facilities and the methods for addressing them. It went on to say that IFR created inconsistencies and uncertainties in providing the level of protection needed. These inconsistencies and uncertainties in the IFR, in turn, could make it difficult for State regulators to address safety issues for intrastate gas storage operations by implementing additional regulations beyond the IFR.

2. Response to Comments Concerning the Suitability of the RPs for Rulemaking

PHMSA disagrees with the commenters’ broad assertion that the API Recommended Practices are an inadequate basis for regulations. PHMSA routinely participates in consensus-standards-setting organizations that address pipeline design, construction, maintenance, inspection, and repair. These standards represent the best practices of the industry and, therefore, should be considered in the development of potential regulation. Agency participation in the development of these voluntary consensus standards is vital to eliminate the necessity for development or maintenance of separate, government-unique standards.

Further, the PIPES Act specifically directs the Secretary to consider “consensus standards for the operation, environmental protection, and integrity management of underground natural gas storage facilities” and “the recommendations of the Aliso Canyon natural gas leak task force established under section 31 of the PIPES Act of 2016” (49 U.S.C. 60141(b)). As

discussed above, the Interagency Task Force issued a final report, titled “Ensuring Safe and Reliable Underground Natural Gas Storage,” making several recommendations. With respect to API RP 1170 and API RP 1171, the report recommended that “[t]he incorporation of API RP 1170 and 1171 into the part 192 regulations will be an important step in improving the safety and reliability of underground gas storage facilities.”²⁴ As a result, the report recommended that PHMSA consider incorporating the standards into part 192 in a manner that would make the standards enforceable.²⁵ After consideration of the RPs and the comments received concerning their incorporation, PHMSA concludes that the standards are sufficient to establish an initial, baseline level of regulation with the additions incorporated into this final rule. This initial regulatory framework will undoubtedly evolve and improve over time as PHMSA gains greater experience in this industry.

F. Integrity Management Practices

Integrity management is PHMSA’s risk management program for identifying, assessing, and addressing potential threats that can have adverse consequences and a finite probability of occurring. The regulations in 49 CFR parts 192 (for gas pipelines) and 195 (for hazardous liquid pipelines) are a type of integrity management that PHMSA has applied to traditional pipeline systems. In place for over ten years, PHMSA’s integrity management regulations had aided in the removal of thousands of defects from pipeline facilities before they failed and in the identification of preventive and mitigative measures to reduce the likelihood and consequences of failures potentially affecting high consequence areas. PHMSA expects that applying similar integrity and risk management practices to UNGSFs will have a similar effect on improving safety.

As discussed throughout this final rule, API RP 1170 and API RP 1171 outline the concepts of risk-based integrity management and provide instructions for the risk assessment and analysis process for UNGSFs. The IFR required operators of depleted hydrocarbon reservoirs and aquifer reservoirs to meet the risk-management requirements outlined in section 8 of RP

1171, which resembled PHMSA’s existing IM program for gas and hazardous liquid pipelines. This section outlines the components of a process, including data collection, threat and hazard analysis, risk assessment methodology, preventative and mitigative measures, risk monitoring, and recordkeeping procedures.

The IFR did not contain a similar provision for operators of solution-mined salt cavern UNGSFs. The term “Integrity Management” is a systematic approach to analyzing and mitigating risk to promote the safe management and operations at a given facility. The IFR required operators of solution-mined salt caverns to meet the requirements of RP 1170, section 10, “Cavern Integrity Monitoring,” which directs operators to develop a holistic approach to maintaining well integrity but does not outline the components of an integrity-management process as explicitly as section 8 of RP 1171.

1. Comments Concerning Integrity Management Practices

As written, the risk-management practices in API RP 1170 (for solution-mined salt caverns) lack the specificity of the risk-management practices in section 8 of API RP 1171 (for depleted hydrocarbon reservoirs and aquifer reservoirs). Commenters identified the lack of robust risk management practices as a safety gap in the integrity program for solution-mined salt caverns and requested that the final rule supplement what is currently prescribed in API RP 1170.

Several commenters expressed concern that the RPs and, consequently, the IFR, lacked specific risk management criteria for solution-mined salt caverns. As Gas Free Seneca stated, RPs 1170 and 1171 mirror each other in every respect except for risk management. Gas Free Seneca, EDF, and some private citizens requested that the final rule add risk management standards for solution-mined salt caverns like the standards that exist for depleted hydrocarbon and aquifer reservoirs contained in section 8 of RP 1171.

EDF stated that the IFR called for depleted hydrocarbon and aquifer reservoir operators to develop risk management plans that address risks and provide plans to mitigate those risks. In its comments, EDF suggested that such a plan would be a good supplement to the regulations for solution-mined salt caverns. It stated that adding a risk management plan as a requirement in the final rule would be consistent with the natural gas storage rules being considered by California

regulators following the incident at Aliso Canyon.

Gas Free Seneca, States First, EDF, and some private citizens requested that PHMSA mandate risk-acceptance criteria for underground natural gas storage facilities. Gas Free Seneca and private citizens asked that PHMSA set a measurable limit for risk and specify the types, frequency, and methods operators must use to collect and conduct risk analyses. States First asked that PHMSA set an acceptable level of risk so that operators would be required to meet an established standard, irrespective of their self-defined “capabilities.” EDF added that the final rule would benefit from the use of a risk-management “heuristic” such as “ALARP,” an acronym that stands for “As Low as Reasonably Practicable.” According to EDF, ALARP provides a process by which the regulated industry and the regulator can work together “to systematically set appropriate levels of risk reduction.”²⁶

2. Response to Comments Concerning Integrity Management Practices

Based on the commenters’ suggestions, and supported by an Interagency Task Force recommendation, PHMSA is making several enhancements to the integrity management provisions of the final rule. First, PHMSA is extending the risk management provisions of section 8, to salt-cavern UNGSFs, to the extent they apply to the physical characteristics and operations of solution-mined salt caverns, within one year of the effective date of the final rule. In other words, the final rule requires that UNGSFs using solution-mined salt caverns generally conform to the risk management practices that apply to UNGSFs using depleted hydrocarbon and aquifer reservoirs.

There are several reasons for this change. As discussed earlier, risk management is a standard concept in the oil and gas industry, although different programs may use slightly different terminology. Additionally, the Interagency Task Force recommended that PHMSA incorporate risk management practices into its regulations. During its initial site assessments, PHMSA observed that operators of solution-mined salt caverns were already in the process of conforming to risk management practices like those detailed in section 8. RP 1170 does address certain aspects of risk management practices but is less

²⁴ “Ensuring Safe and Reliable Underground Natural Gas Storage,” Final Report of the Interagency Task Force on Natural Gas Storage Safety, October 2016. See pg. 63–64 of the final report at <https://www.energy.gov/downloads/report-ensuring-safe-and-reliable-underground-natural-gas-storage>.

²⁵ *Ibid.*

²⁶ ALARP is a principle more common in European law that sets an acceptable level of risk as *low as reasonably practicable*.

comprehensive than RP 1171. For instance, section 10.2 of RP 1170 requires operators to “take a holistic and comprehensive approach to monitor cavern integrity,” which would include the identification and assessment of risks. Section 10.2 of RP 1170 goes on to say there is no single best method to achieve thorough cavern-integrity monitoring, thus leaving it up to an operator to evaluate the risks of each specific facility.

While the scope of RP 1171 is specific to depleted-hydrocarbon and aquifer reservoirs, much of section 8 is general enough that operators can readily apply the practices across all types of UNGSFs. PHMSA believes requiring the risk-management practices outlined in section 8 to all UNGSFs is the most practical method of directing all operators to manage the risks of gas storage releases on a case-by-case, facility-specific basis. This approach gives operators the flexibility to determine what actions are appropriate.

Second, § 192.12(d) uses slightly different terminology than what was used in the IFR to describe the risk management provisions that operators must follow. Whereas subsection 8.1 is titled “Risk Management for Gas Storage Operations,” § 192.12(d) is titled “Integrity management program.” This change is intended to confirm that the risk management program under the final rule has been broadened beyond what is provided solely under the RPs and that it is a variation of the IM programs established under parts 192 and 195 for gas transmission pipelines, interstate liquid pipelines, and gas distribution systems. The industry generally uses the term IM to describe the risk-management provisions of section 8, so it should be less confusing and more consistent to use the term IM to refer to all four integrity-management programs applicable to PHMSA-regulated pipeline facilities,²⁷ even though the details of each program vary slightly.

Third, as noted in the FAQs, this initial IM framework for depleted hydrocarbon and depleted aquifer reservoir UNGSFs that were constructed prior to July 18, 2017, and were subject to section 8 under the IFR, had to be in place by January 18, 2018. These operators must now implement a full IM program that includes the new provisions in the final rule within one year from the final rule’s effective date.

²⁷ The integrity management provisions for gas transmission pipelines are found at §§ 192.901 through 192.951, for gas distribution pipelines at §§ 192.1001 through 192.1015, for hazardous liquid pipelines at § 195.452, and for UNGSFs at § 192.12, as amended by this final rule.

Fourth, this final rule requires a slightly different process for UNGSF operators to develop a robust IM program, depending upon whether the facility is a depleted hydrocarbon or a depleted aquifer reservoir or whether it is a solution-mined salt cavern. For the former, the first step is to put together an initial “framework” based on the provisions of section 8, including:

- A general discussion or definition of risk management;
 - Data collection and integration;
 - Threat and hazard identification and analysis;
 - Risk assessment;
 - Preventive and mitigative measures;
 - Periodic review and reassessment;
- and
- Recordkeeping.

For existing solution-mined salt cavern UNGSFs, they must implement a full IM program within one year from the effective date of the final rule. For new facilities constructed after the effective date of the final rule, they must have a full IM program in place before they commence operations. In addition, the final rule allows solution-mined salt cavern UNGSFs greater flexibility in meeting the provisions of section 8 by requiring that they meet only those provisions of section 8 that are applicable to the physical characteristics and operations of a solution-mined salt cavern. The two timelines differ because operators of solution-mined salt cavern facilities did not receive notice of having to meet the IM provisions of section 8 “that are applicable to the physical characteristics and operations of a solution-mined salt cavern UNGSF.” PHMSA believes that such a limitation on the IM program for solution-mined salt caverns is reasonable and readily ascertainable by operators of such facilities.

Fifth, in addition to the general framework outlined in section 8, the final rule includes several specific IM requirements for all UNGSF operators. Each operator’s plan must include the following:

- A plan for developing and implementing each program element to meet the requirements of the final rule;
- The roles and responsibilities of UNGSF staff tasked with developing and implementing the IM program;
- An outline of the IM procedures to be developed;
- A plan for how staff will be trained in awareness and application of the operator’s IM program;
- Timelines for implementing each IM program element, including the risk analysis and baseline risk assessments; and

- A plan for how to incorporate information gained from experience into the IM program on a continuous basis. Because these are new, more specific requirements than those contained in the IFR, operators of existing UNGSFs will have an additional year to comply.

Sixth, PHMSA establishes a schedule for conducting the initial or “baseline” assessments for each reservoir or cavern and all wells. PHMSA has based this schedule on commenters’ recommendations to use a “phase-in” timeline, similar to the UNGSF FAQs published in April 2017. The final rule requires that operators complete all baseline assessments for reservoirs and salt caverns and 40 percent of the baseline assessments for individual wells within four years from the effective date of this final rule. Operators must start with the higher-risk wells, as identified through the operator’s risk-analysis process. The remaining 60 percent must be completed within seven years from the effective date of this final rule.

Seventh, the final rule requires that operators conduct periodic reassessments under API RP 1171, subsection 8.7, on a risk-based schedule. This final rule establishes that reassessment intervals must be no more than seven years. PHMSA assumed that the stress conditions for the downhole piping used at the well site are similar to the stress conditions for buried pipe. Because of this, PHMSA chose a seven-year reassessment (maximum) interval to be consistent with other gas pipeline regulations. However, an operator could determine its reassessment interval should be less than seven years based on its risk-based assessments.

Seventh, the final rule makes clear that operators may use one or more risk assessments completed before the effective date of the rule to establish a baseline assessment, so long as they meet the requirements of section 8 of RP 1171, and continue to be relevant and valid for the current operating conditions and environment. These requirements are consistent with the FAQs published in April 2017.²⁸ This requirement is intended to prevent operators from reproducing assessments that already meet the requirements of this final rule. The criteria and timing for reassessments should be determined using results from baseline assessments and updated risk analyses in accordance with section 8. Operators may also conduct new or additional assessments to supplement prior assessments as

²⁸ <https://www.phmsa.dot.gov/pipeline/underground-natural-gas-storage/ungsf-frequently-asked-questions>.

necessary to establish a thorough understanding of a facility's risks.

Eighth, the final rule requires that operators maintain IM records in the same manner as pipeline operators are required to keep records under other IM provisions in parts 192 and 195. Maintaining IM records is critical if operators are to properly understand their systems, track and learn from experience, and to make continuous improvements. These records document how and why decisions are made to identify risks, set priorities among risks, conduct assessments, and identify and carry out preventive and mitigative measures. Further, operators must maintain IM records for the life of the UNGSF to demonstrate compliance with all the requirements under § 192.12(d). This level of documentation includes any calculation, amendment, modification, justification, deviation and determination made, and any action that is taken to implement and evaluate any element of an IM program. This level of documentation is the same standard found in § 192.947 for gas transmission systems and § 195.452(l) for hazardous liquid transmission systems.

Regarding the commenter's suggestion that PHMSA should apply a "risk-tolerance" model such as ALARP, PHMSA believes such a change is unnecessary. Integrity Management (IM) is one of many different varieties of risk management models used by different industries and organizations to handle safety risks to people and the environment. PHMSA's IM regulations require pipeline operators to identify the unique risks specific to their facilities comprehensively and to address those risks through a continuous program of gathering and analyzing data and learning from experience. PHMSA's approach places the onus on operators to identify, prioritize, and handle the risks posed by pipeline accidents. The IM requirements in this final rule are designed to be interpreted and applied essentially the same as the IM regulations currently applied to gas and hazardous liquid pipelines.

PHMSA believes that the integrity program outlined in § 192.12(d) and the RPs provides a flexible model that accounts for the diversity and variability of all UNGSFs, so long as the practices are risk-based and rigorously applied. To introduce a new model, such as ALARP, just for underground gas storage facilities and not other pipeline facilities, could be confusing for operators, PHMSA inspectors, and the public. Further, PHMSA is not aware of

evidence that the ALARP model would provide an increase in safety.

G. Notification Criteria Under 49 CFR Part 191 for Changes at a Facility

The IFR added reporting requirements in 49 CFR part 191. PHMSA requires four types of reports from operators of UNGSFs: (1) Annual reports, (2) incident reports, (3) safety-related condition reports, and (4) National Registry information. PHMSA required this information because there was no that UNGSF operators follow the same provisions that gas pipeline operators must follow for providing PHMSA with notification of changes at their facilities.

Regarding the last type of report, PHMSA required National Registry information to identify the facility operator responsible for operators through an Operator Identification Number (OPID). The IFR required operators to notify PHMSA no later than 60 days before certain changes occur, including:

- Construction of a new UNGSF facility;
- Abandonment, drilling, or "workover" of an injection, withdrawal, monitoring or observation well. Concerning well workovers, the IFR stated that such work included the replacement of a wellhead, tubing or casing; and
- Changes in the entity (including company, municipality, etc.) that is responsible for an existing UNGSF and the acquisition or divestiture of an existing facility.

PHMSA clarified the IFR's notification requirements through April 2017 FAQs. For example, an operator should notify PHMSA of a "replacement of a wellhead, tubing or casing." The FAQs said a "replacement" in this context meant the "complete removal of the existing component and replacement with a new component (including replacement of wellhead, tubing, or casing)." The FAQs further explained that there was no need for an operator to notify PHMSA of routine maintenance or repairs to existing components. The FAQs went on to say that operators should submit separate notifications for each storage field, but could bundle multiple activities within the same storage field in a single notification.

1. Comments on Notification Criteria Under 49 CFR Part 191 for Changes at a Facility

The IFR required UNGSF operators to notify PHMSA no later than 60 days before certain changes took place at their facilities took place, including changes in the operator of a facility and

major new construction, as is currently required for other pipeline facilities. Operators found this reporting requirement excessive and recommended a monetary or activity threshold to reduce the volume of notifications. These commenters believed that the IFR's 60-day notification (reporting) requirement for new construction and construction-related activities was ambiguous and would result in excessive notifications. Some commenters expressed concern that the provision failed to exempt emergencies where advance reporting would be impractical.

LMOGA and TransCanada contended that PHMSA's notification requirement would duplicate their reporting burdens and cause delays because operators already had to notify states of construction activities and permitting. LMOGA expressed concern that a 60-day-notice to PHMSA for certain construction activities, such as well workovers, could shut down wells for an unnecessary amount of time. It stated that, currently, work permits for well workovers are issued by states in one to three days. TransCanada contended that PHMSA should remove the 60-day-notice requirement for new construction from the final rule altogether. It suggested that PHMSA could capture this same information through the annual report and safety-related condition reports instead of creating a separate notification requirement.

GPTC, PG&E, and others suggested other ways to streamline or reduce the notification burden involving new construction. For example, GPTC suggested that the final rule limit advance notifications to only those well workovers where a well was killed, a plug placed in the well for work, or a rig installed.

Another suggestion from PG&E was for PHMSA to adopt a monetary threshold for new-construction notifications, provide an exemption for emergency work, and define what activities would constitute a "well workover." Regarding the monetary threshold, PG&E recommended that PHMSA only require operators to report well-workover and new-construction activities that cost more than \$2 million. The company noted that PHMSA currently limits pipeline notifications²⁹ to those projects involving a certain minimum mileage or monetary threshold; it argued that applying similar thresholds for UNGSFs could reduce the reporting burden on operators.

²⁹ 49 CFR 191.22(c)(1)(i).

2. Response to Comments on Notification Criteria Under 49 CFR Part 191 for Changes at a Facility

The purpose of the 60-day notification requirement in the IFR is to alert PHMSA of upcoming critical well work that requires an operator to control well pressure. One example of such a well-control activity is well abandonment. If an operator incorrectly performs an abandonment, then brine fluid or natural gas may migrate through the wellbore and escape into drinking-water aquifers or to the surface. If notified in advance, PHMSA will have the opportunity to review the operator's pre-work plan and observe the in-progress work. Ultimately, this process is beneficial for the operator and public safety because it ensures a comprehensive assessment of the operators' methods. Such notifications could prevent an incident or more costly remediation work. PHMSA will have the opportunity to review an operator's records of the project but, because most of the work is underground, reviewing the work in real-time is ideal.

PHMSA agrees with the commenters that it should narrow the scope of the notifications for changes to a facility that would eliminate excessive reporting of minor or routine maintenance. Accordingly, this final rule limits required notifications to PHMSA to only those involving new construction and major maintenance work. Specifically, the final rule provides that operators must notify PHMSA of (1) any new facility construction; (2) maintenance work that requires a workover rig and costs \$200,000 or more for labor, materials, and services; and (3) any plugging or abandonment activities, regardless of cost.

The scope of this modified notification requirement is limited to only those types of activities that require adherence to specific methods and techniques to prevent damage to the formations and to safely control pressure in the well. Bringing in a workover rig marks a step-change in the degree of complexity and scope of work. The presence of a workover rig means the operator is opening the well, rather than just doing some wing valve work at the surface. Opening a well (requiring a workover rig) usually infers serious maintenance or repair work, performing extensive logging and integrity evaluations, or replacement of downhole components.

Concerning the \$200,000 maintenance-work threshold, PHMSA has not indexed this exact dollar

amount across all states and activity types. During preliminary inspections, PHMSA observed what high-risk activities were occurring in the field and generally how much it costs operators to complete those maintenance activities. PHMSA is aware that the costs of pressure-control and remediation activities vary considerably, depending upon the depth of the well, pressure, casing type and size, and other factors. However, PHMSA believes this is an appropriate threshold level that captures the higher-risk activities and still reduces the volume and burden of notifications. There is the possibility that a workover rig is needed for some minor issues, where the cost falls below the 200k threshold. Again, most major activities with a workover rig will cost more than \$200,000, thus triggering this type of notification. Note that PHMSA also allows operators to report multiple well activities within the same storage field in a single notification.

PHMSA also recognizes that the IFR inadvertently omitted an exception for emergency maintenance or repairs. If an operator reasonably determines that it needs to do work immediately, for safety reasons, then it should not delay the work because of the 60-day notification requirement. Accordingly, the final rule adds a provision that allows operators to notify PHMSA as soon as practicable in instances where 60-day notice is not feasible due to an emergency. In such cases, an operator must promptly respond to the emergency, notify PHMSA as soon as practicable, and document the emergency and the reason for any delay in notification.

H. The States' Role in Regulating UNGSFs

There are approximately 403 active underground natural gas storage facilities (UNGSFs) in the United States, with about a 60/40 split between interstate and intrastate facilities. Interstate UNGSFs serve interstate facilities, and PHMSA has exclusive pipeline safety jurisdiction over the design, construction, operation, and maintenance of these facilities. Intrastate UNGSFs, on the other hand, are facilities that provide gas storage for intrastate pipelines, most notably local gas distribution companies (LDCs). Generally, these intrastate gas pipeline facilities have been subject to State regulation by its public utility commission or oil and gas commission. Intrastate UNGSFs continue to be subject to State regulation, but only if the applicable State authority has filed a certification with PHMSA to participate as a full State partner under

the new Federal program and receive Federal funding through PHMSA.

The Federal regulatory program for UNGSFs has been set up to mirror the existing Federal-State pipeline regulatory partnership for gas and hazardous liquid pipelines as established by the Natural Gas Pipeline Safety Act in 1968 and the Hazardous Liquid Pipeline Safety Act of 1979, respectively. Under this system, Congress has conferred on the Department primary jurisdiction over all natural gas and hazardous liquid (primarily oil) pipelines in or affecting interstate commerce but has preserved the states' role in regulating intrastate pipelines, as long as the State that chooses to submit an annual certification to PHMSA and agrees to enforce the minimum Federal standards in addition to any State regulations compatible with the Federal standards.

The PIPES Act directed PHMSA to expand its pipeline-safety regulatory program to include the storage of natural gas incidental to transportation, using this same Federal-State model. Just as various states had previously regulated intrastate natural gas pipelines before the passage of the Natural Gas Pipeline Safety Act of 1968, so too have many states regulated UNGSFs prior to the passage of the PIPES Act and issuance of the IFR. These states will be able to continue this important safety role as partners with PHMSA.

Under the IFR and this final rule, intrastate UNGSF facilities will be regulated in one of two ways. Depending upon State law, they will be regulated either by a certified State entity (e.g., public utility commission or oil and gas commission), or, in the absence of a certified State partner, by PHMSA. Notably, section 12 of the PIPES Act expressly allows a State authority to adopt additional or more stringent safety standards for intrastate UNGSFs, provided such standards are compatible with the minimum Federal requirements. PHMSA interprets this to mean that any State authority that has filed an annual State certification with PHMSA under 49 U.S.C. 60105 to regulate UNGSFs may regulate and enforce its own additional or more stringent regulations against intrastate UNGSFs that fall under that authority's State jurisdiction, to the extent that the additional State standards are compatible with the Federal safety regulations. This arrangement is the same as the States' authority to regulate all other intrastate pipeline facilities under parts 192 and 195.

Accordingly, States that had UNGSF regulations before the adoption of the IFR may continue to implement any

additional or more stringent regulations that they currently enforce with respect to intrastate facilities, to the extent that such regulations are compatible with the minimum standards set by this final rule. For a State wanting to expand its authority to inspect interstate facilities under the final rule, it will be able to apply to PHMSA for discretionary interstate agent status under 49 U.S.C. 60106(b), just as a State authority today, may carry out such a role for other oil and gas pipeline facilities.

It is worth noting that neither the PIPES Act nor this final rule alters the existing role of the States in the siting or permitting of UNGSFs or their regulation of natural gas production. PHMSA has never exercised regulatory control over these issues for pipeline and will not be doing so under the final rule. Instead, the PIPES Act provides that all UNGSFs incidental to gas “transportation” are now subject to Federal minimum safety standards promulgated by PHMSA. Section 12 of the PIPES Act directs PHMSA to exercise this authority in conjunction with its State partners in the same manner as other pipeline facilities are regulated.

This means FERC and the States will continue to exercise their respective authorities over the permitting of UNGSFs. FERC reviews applications for the construction and operation of UNGSFs owned by interstate gas pipeline operators and that are integrated into their pipeline systems. In its application review, FERC requires an applicant to certify that it will comply with DOT safety standards. While FERC has no jurisdiction over pipeline safety, PHMSA and FERC actively collaborate to exercise their respective responsibilities.³⁰

PHMSA received several comments regarding the effect of the IFR on the role of the states in UNGSF regulation. These comments dealt primarily with concerns expressed by State regulators and gas-storage operators over PHMSA’s role and the nature of the Federal-State partnership under this new regulatory scheme. These commenters also asked PHMSA to explain the roles of the various parties in permitting UNGSFs, to discuss the potential conflicts that may arise between existing State regulations affecting underground storage and the new Federal minimum safety standards and the degree to which certain existing State regulations will continue to apply to interstate UNGSFs. Of particular concern was whether the IFR could serve to

undermine or reduce the existing level of safety and environmental protection that several States have been applying to interstate UNGSFs, especially where certain State standards could arguably be viewed as broader or more stringent than the RPs being adopted in the final rule. These comments are discussed below in more detail.

1. Comments on State Permitting of UNGSFs

In its comments, the Texas RRC asked PHMSA to clarify the States’ role in permitting UNGSFs and commented that the IFR provided no specific details regarding permitting areas that fall to the states.³¹ The commission noted that while the IFR accurately stated that permitting of gas wells is not a PHMSA function, PHMSA had incorrectly concluded: “that the traditional role of permitting intrastate facilities falls to the states and the permitting of interstate facilities falls to the Federal Energy Regulatory Commission (FERC).” According to the Texas RRC, “FERC is not set up to conduct permitting of individual wells, ensuring proper notification is provided to all entitled parties, reviewing and adequately protecting groundwater, and protecting correlative rights.” Conversely, the Texas RRC explained that under Texas law, the Texas RRC is directed to regulate the downhole portion of UNGSFs to fulfill its mandate to conserve State natural resources and to protect the environment. Therefore, it argued, “all of these functions must fall to the State regardless of whether a well is part of an intrastate or interstate facility.” Finally, the Texas RRC argued that the failure of PHMSA to properly address these scenarios “indicates a lack of a clear understanding of underground natural gas storage and the historical role many states have had in its successful regulation of underground hydrocarbon storage.”

Similarly, Dow Chemical asserted that many states had established successful regulations and standards for permitting, operations, maintenance, monitoring, and other issues related to UNGSFs. The company pointed out that states with underground-storage safety regulations typically regulate both intrastate and interstate facilities. Along with Dow Chemical, LMOGA, MDEQ, and the Texas RRC recommended that PHMSA consult with State regulatory agencies to avoid unnecessary reporting and compliance programs and to learn from the states’ experience in regulating

UNGSFs as it continues to develop Federal regulations.

2. Response to Comments on the State Permitting of UNGSFs

As for the comments seeking greater clarity on how the IFR affects State permitting of UNGSFs, PHMSA has not made any changes to the regulatory text because PHMSA does not have the authority to prescribe the location or siting of UNGSFs. This final rule also does not deal with permitting, directly. Section 12 of the PIPES Act expressly states that the Act shall not be construed to authorize PHMSA “to prescribe the location of an underground natural gas storage facility” or “to require the Secretary’s permission to construct” a UNGSF.

3. Comments on State Regulation of UNGSFs Associated With Gas Production

IPAA, EDF, and Hilcorp requested that PHMSA clarify how the IFR applied to UNGSFs associated with gas-production facilities. IPAA stated that the Pipeline Safety Laws do not provide PHMSA with authority to regulate gas-production facilities, citing 49 U.S.C. 60101(a)(21)(A) and 60101(a)(22)(B). IPAA, EDF, and Hilcorp requested that PHMSA add an exception to part 192, specifically excluding UNGSFs that are “in direct support of” (Hilcorp) or that are “co-located with and used to support of” (IPAA) production operations.

IPAA gave two examples of the types of production-related UNGSFs located in active production fields that are used to manage production operations, rather than providing “commercial storage services.” The first type was facilities that store gas from a production field but has not yet entered a PHMSA-regulated pipeline. The second type was UNGSFs that are used for gas production purposes “after being delivered to the production field in a PHMSA-regulated pipeline.” In other words, they store gas that has either not yet entered transportation or that has ended transportation. Under both scenarios, IPAA contended, the stored gas at these facilities is not incidental to transportation but is used to support gas production. According to these industry commenters, such UNGSFs are used in the process of extracting natural gas from the ground and should not be treated as providing storage incidental to transportation under the Pipeline Safety Laws.

³⁰ Page 28. <https://www.ferc.gov/market-oversight/guide/energy-primer.pdf>.

³¹ See *State of Texas v. PHMSA*, No. 17–60189 (5th Cir. Mar. 17, 2017).

4. Response to Comments on UNGSFs Associated With Gas Production

The PIPES Act directed PHMSA to establish minimum Federal standards for all UNGSFs that store natural gas incidental to transportation. Again, the PIPES Act does not alter or expand PHMSA's jurisdiction as it has traditionally been applied to natural gas production or hazardous liquid production facilities. While PHMSA has never exerted jurisdiction over gas pipeline facilities that are engaged exclusively in production and has long recognized the authority of states to regulate the permitting and siting of pipelines and to protect groundwater and other State natural resources. Only after transportation has begun and before delivery to an end-user is there any issue of PHMSA jurisdiction, which is limited to the transportation of gas and hazardous liquids.

This is analogous to PHMSA's regulation of other types of temporary storage of hazardous liquid in transit. For example, petroleum being transported by pipeline is often stored temporarily along the line in one or more breakout tanks. These tanks are used to relieve surges or receive and store hazardous liquid transported by pipeline for eventual re-injection and continued transportation by pipeline (49 CFR 195.2). Similarly, under this final rule, a UNGSF is defined as a gas pipeline facility "that stores natural gas underground and incidental to the transportation of natural gas" in interstate or foreign commerce.

PHMSA interprets this to mean that if a UNGSF is used in any way to store gas that is received from a PHMSA-regulated pipeline and returns any of that stored gas to transportation by pipeline, then such a facility is incidental to transportation and therefore covered by this final rule. Even if some of that gas is used to support production operations or is mingled with produced gas that has not yet entered transportation, the storage facility itself will be treated as a UNGSF under the final rule and will be subject to PHMSA's full jurisdiction.

5. Comments on States' Regulation of Intrastate UNGSFs

Several commenters expressed concern that the IFR potentially conflicted with existing State regulation of intrastate UNGSFs and that the IFR lacked clarity on how such conflicts could be avoided or minimized. MDEQ, for instance, commented that its Oil, Gas and Minerals Division ran a regulatory program affecting many safety and environmental issues covered

by the RPs and that "Michigan's existing regulations are needed to fill gaps in the IFR particularly in the areas of permitting, liquid waste handling and disposal; and environmental protection from liquid hydrocarbons, brines, and other liquid contaminants." The agency further commented that the IFR "makes no mention of pollution prevention, nor does it set standards for remediation of spills." It noted that many UNGSFs are located in oil reservoirs that still produce liquid hydrocarbons and brine, and that the State of Michigan has comprehensive regulations covering pollution prevention, groundwater monitoring, remediation, and clean-up activities. In short, the State urged PHMSA to "recognize the states' role in these areas."

6. Response to Comments on the States' Regulation of Intrastate UNGSFs

First, PHMSA recognizes and supports the role that many states have played for many years in the field of underground gas storage. Nothing in the IFR or this final rule is intended to minimize or diminish the states' role in ensuring the safety of UNGSFs, protecting the environment, or safeguarding critical State resources. Section 12 of the PIPES Act, however, mandates that PHMSA regulate all UNGSFs that storing natural gas incidental to transportation. Under 49 U.S.C. 60104(c) and the recently-enacted 49 U.S.C. 60141(e), states with existing regulations may continue to regulate intrastate gas storage facilities to the extent that the proper State authority becomes certified by PHMSA and the State regulations are compatible with the new Federal minimum safety standards.

Second, the PIPES Act and this final rule do not modify or undermine established principles of Federal preemption law as applied to pipeline safety. Any State regulation affecting PHMSA's exclusive jurisdiction over the safety of interstate pipeline transportation facilities is, and always has been, preempted by the Pipeline Safety Laws.³² The enforceability of existing or new State regulations affecting gas production, storage, plugging, or other areas such as mineral rights, depends on whether the State regulations are based on an independent basis under State law and cannot be considered safety regulations preempted by the PIPES Act, which is necessarily a case-by-case determination.

Third, the PIPES Act and this rule represent a major step forward in

extending minimum Federal safety standards to all interstate gas storage facilities, regardless of whether individual states have already adopted regulations governing storage facilities or whether individual interstate operators have voluntarily complied with existing State regulations. As PHMSA discussed in the IFR, interstate UNGSF facilities would not be subject to any regulatory safety requirements in the absence of this Federal action.

Fourth, PHMSA fully recognizes that states with UNGSFs typically have various regulations in place governing the construction, remediation, and plugging of gas wells. Before the IFR went into effect, many interstate UNGSF operators relied on these State regulations to help develop best practices. State safety jurisdiction, however, extends only to intrastate UNGSFs. Regulations differ from State to State, making it difficult for operators to maintain consistent performance across all their interstate facilities. Finally, PHMSA will incorporate lessons learned from operators and states implementing this final rule in the form of guidance and additional rulemakings. PHMSA understands that seeking input from states is a vital component in developing an effective underground natural gas storage program at the Federal level.

As for the comments regarding potential conflicts between existing State regulation of intrastate UNGSFs, three points should be made. First, many State agencies enjoy independent authority under their own particular State's laws to regulate UNGSF involving public health, protection of groundwater, allocation of mineral rights, and similar areas not involving safety. Under established Federal preemption law, States may regulate in such areas that are not preempted expressly by Federal law or regulation.

In the field of underground natural gas storage, Congress, through the PIPES Act, has conferred authority on the Secretary (and delegated to PHMSA) to provide for the safety of natural gas storage facilities incidental to transportation, just as it has for other oil and gas pipeline facilities. This authority covers the design, construction, operation, and maintenance of UNGSF facilities. States are precluded from regulating the safety of UNGSFs to the extent that such State regulations conflict with PHMSA's safety-related regulations. To determine whether specific State regulations are preempted by the PIPES Act and this final rule may require a fact-specific analysis of whether a particular State regulation has been preempted, an

³² See, e.g., *Colorado Interstate Gas Company v. Wright*, 707 F. Supp. 2d 1169 (D. Kan. 2010).

analysis that falls within the purview of State and Federal courts. Such preemption determinations have routinely been made by the courts to resolve challenges to State and local governments' authority to regulate gas and hazardous liquid pipelines.

Second, any potential conflict between existing State regulations governing intrastate UNGSFs and Federal safety regulations disappears, in most cases, in those states that have submitted annual certifications to PHMSA and become UNGSF State partners. All State partners in this program will have the authority to adopt and enforce additional or more stringent safety regulations than the minimum Federal standards set forth in the IFR. PHMSA anticipates and hopes that many states, such as Texas, Michigan, and other commenters that already have existing regulations affecting intrastate UNGSF safety, will decide to partner with PHMSA and enjoy the enhanced authority, Federal funding, and other benefits that accompany State certification.

Third, PHMSA encourages and supports State regulatory programs that help ensure all UNGSFs, both intrastate and interstate, address resource conservation, environmental protection, land use, emergency response, and other important issues affecting gas wells and storage outside the realm of safety.

PHMSA agrees with MDEQ's comments and encourages MDEQ to examine its existing State UNGSF regulations to determine whether any of them are safety-related standards that could be preempted by this final rule in the event Michigan decides that it does not wish to become a certified State partner for intrastate UNGSFs. If Michigan does become a State partner for UNGSFs, then MDEQ (or other State authority in Michigan) will be able to apply additional or more stringent safety standards, provided they are "compatible" with the minimum Federal standards prescribed under the Pipeline Safety Laws and this final rule. If it chooses not to become a State partner for UNGSFs, then the Federal minimum safety standards will apply to all intrastate UNGSFs in Michigan, and PHMSA will inspect such facilities and enforce the Federal minimum standards against all intrastate UNGSFs in the State.

7. Comments on States' Regulation of Interstate UNGSFs

Some commenters, including EDF and the Interstate Oil and Gas Compact Commission, expressed concern that the IFR did not go far enough in exercising jurisdiction over UNGSFs in a manner

that optimized existing State regulations. EDF commented that the new Federal regulations would create a "ceiling" on State regulations for the permitting, drilling, completion, and operation of underground storage wells that have also been applied to interstate facilities. EDF acknowledged that while interstate facilities are under the exclusive safety jurisdiction of PHMSA, intrastate UNGSFs are frequently subject to both safety regulations promulgated by PHMSA and to other gas-storage rules promulgated by State regulators that generally apply to all gas wells in their particular states. EDF expressed the fear that interstate UNGSF operators who had been "voluntarily obeying State rules responding to the State's unique geology, level of subsurface activity, competing surface activities and general appetite for risk may, with the cover of PHMSA's IFR, decline to continue following those rules, possibly to the detriment of safety and the environment."

To address this concern, EDF asked PHMSA to include two specific provisions in the final rule. First, it asked PHMSA to distinguish between those State regulations of general applicability to all oil and gas wells (*i.e.*, those falling within the jurisdiction ceded to states under the Natural Gas Act of 1938) and those addressing the special risks intrinsic to gas storage wells. EDF requested that PHMSA direct interstate operators to adhere to State regulations for permitting, drilling, completion and operation of storage wells, but "only to the extent the regulations address risks of general applicability to all oil and gas wells and where it is not impossible to comply with both the State regulations and PHMSA requirements."

Second, EDF asked PHMSA to require interstate operators in states having adopted "storage" regulations to identify all State rules that an operator believes are "storage" rules and address those rules in their risk management plans as part of the operators' preventive and mitigative measures to address "special risks intrinsic to gas storage." According to EDF, this would serve to preserve the efforts made by some states to ensure safety and environmental protections imposed in the face of no minimum Federal standards.

8. Response to Comments on the States' Regulation of Interstate UNGSFs

As noted earlier, EDF and other commenters have pointed out that a number of interstate UNGSF operators in states with mature regulatory programs in place have been

"voluntarily" obeying State rules. PHMSA acknowledges EDF's concern that some interstate operators may choose to no longer voluntarily comply with State UNGSF regulations that go beyond the new minimum Federal standards embodied in the final rule. However, the Federal standards do not disincentivize the voluntary compliance that was previously occurring before the IFR went into effect, provided that the voluntary compliance is compatible with the Federal standards. Therefore, it seems unlikely that an interstate operator who is already voluntarily complying with existing State safety-related standards would stop doing so because of this final rule unless voluntary compliance were to result in non-compliance with the Federal standard. Further, this is the same situation that exists with other State regulations that may affect gas and hazardous liquid pipelines and with which interstate operators may or may not choose to comply. For these reasons, PHMSA declines to modify the final rule to require interstate operators to take such State regulations into account in their IM plans or other procedures. The agency believes it would be inconsistent and impracticable to require operators to evaluate and include in their plans and procedures certain provisions of State regulations for UNGSFs but not for other pipeline facilities. This would put PHMSA in the untenable position of elevating certain State regulations for all interstate UNGSF operators but not for other State pipeline regulations. If PHMSA learns of State regulations that should be applied more broadly for all interstate UNGSF operators, it may consider amending its regulations through notice-and-comment rulemaking to make them applicable uniformly among all interstate operators.

I. Definitions and Terminology

The IFR added a definition for "underground natural gas storage facility" at 49 CFR 191.3 based on the definition provided in section 12 of the PIPES Act. The IFR's definition included the wellhead, downhole components, and associated onsite structures that lay within the scope of PHMSA's regulatory authority. The IFR provided no additional definitions.

1. Comments Regarding Definitions and Terminology

Several commenters asked that PHMSA modify the definition of "underground natural gas storage facility" in the final rule and to clarify or define other terms not defined in the IFR. Two commenters requested that

PHMSA create separate definitions for interstate and intrastate facilities. They said that clarification in the final rule would prevent jurisdictional confusion at the State level and enable their organizations to apply the rules more predictably.

Operators recommended a revised definition of “underground natural gas storage facility,” while others asked that PHMSA clarify the terms “workover” and “modified well.”

The Associations recommended that PHMSA revise the definition of “underground natural gas storage facility” to avoid confusion with other subparts of 49 CFR part 192. They were concerned that the definition in the IFR included “piping, rights-of-way, property, buildings, compressor units, separators, metering equipment, and regulator equipment,” terminology that could imply components of a UNGSF were covered by both the underground natural gas storage regulations at § 192.12 and other provisions in part 192. They recommended that the definition of “underground natural gas storage facility” be amended to exclude “facilities covered by part 192 of this chapter.”

The Associations further noted that the definition of a UNGSF included the term “solution-mined salt cavern reservoir.” They stated that the term “reservoir” is inaccurate in reference to salt caverns and recommended that PHMSA use the term “a solution-mined salt cavern” for technical accuracy. Similarly, the GPTC recommended that the final rule revise the definition of UNGSF to align with the scope of the RPs 1170 and 1171.

Similarly, PG&E recommended that PHMSA replace the definition of “underground natural gas storage facility” at § 192.3 with the following:

“Underground gas storage facility means a facility that stores natural gas in an underground facility incidental to natural gas transportation, which is constructed from a depleted hydrocarbon reservoir, an aquifer reservoir, or a solution-mined salt cavern. In addition to the reservoir, this also includes the injection, withdrawal, monitoring, observation wells, and associated wellhead equipment within the facility.”

PG&E also recommended that PHMSA remove the phrase “including injection, withdrawal, monitoring, or observation well for an underground natural gas storage facility” from the criteria for submitting a safety-related condition report under § 191.23. The company stated that because such equipment was already included in the definition of “underground natural storage facility,” operators might incorrectly conclude that two reports were required since the

equipment was already covered under other provisions of part 191.

Northern Natural Gas, stated that the definition of a “modified well” was not clear and could be interpreted to include some minor or routine operations, such as the replacement of downhole equipment, casing repairs, or tubing changes.

2. PHMSA’s Response to Comments Regarding Definitions and Terminology

PHMSA agrees with the commenters’ suggestion to revise the definition of “underground natural gas storage facility,” and, therefore, is amending it in this final rule. The revised definition will better articulate the point of demarcation between facilities that constitute the UNGSFs and those that are part of other gas pipeline facilities. Traditionally, compressor units, buildings, and separators have been considered part of the “topside” pipe domain and are already regulated by other sections of part 192. These components can be connected to or from UNGSFs. PHMSA considers a UNGSF to include all components up to the valve assembly (and their flanges) that route gas at the wellhead to or from the connected pipeline(s). The valve assembly may be a single manual or automated valve or a combination of valves (e.g., manual and emergency shutdown) and will be located near the wellhead.

With respect to the need for separate definitions for intrastate and interstate UNGSFs, PHMSA sees no need for such definitions. The use of the phrase “incidental to natural gas transportation” in 49 CFR 192.3 makes clear that the scope of PHMSA’s jurisdiction over UNGSFs does not depend upon whether a facility is “interstate” or “intrastate” but whether it is tied to “transporting gas,” as that term is defined under 49 U.S.C. 60101(a)(21). This means that UNGSFs may include gas storage facilities that can be used occasionally or partially for production operations, such as enhanced recovery, gas lift, and for production equipment such as power generation and powering compressors and pumps.

Other commenters requested that PHMSA clarify common terms used throughout RPs 1170 and 1171, such as “wellhead,” “workover,” or “modified well.” For similar reasons, the final rule does not provide definitions for technical terms generally known to industry, such as “wellhead,” “modified well,” and “workover.” PHMSA will work with operators on a case-by-case basis should the need arise to determine the appropriate application

of such terminology under the modified regulatory text in the final rule.

J. Requests for Additional or More Stringent Requirements

PHMSA received several comments from private citizens related to additional or more stringent requirements for UNGSFs that do not fit into the other categories already discussed. Gas Free Seneca, EDF, and several private citizens asked PHMSA to require the widespread use of subsurface safety valves. Some called for a plan to decommission UNGSFs. Others called for a moratorium on new facilities.

The widespread use of subsurface safety valves may have value but would require further study and research as to their effective use at each type of UNGSF over other safety enhancements or alternatives. In PHMSA’s ongoing discussions with operators, the failure rates of subsurface safety valves during testing are variable. Additionally, once installed, an operator would have to re-open the well to make any repairs to the subsurface safety valve, requiring a workover rig to retrieve the valve. Given these factors, PHMSA would require additional certainty and a strong safety case before promulgating a Federal requirement for the widespread use of subsurface safety valves.

As for a moratorium, PHMSA does not have the authority to site UNGSF facilities (and, by extension, to ban new facilities) or to abrogate the power of states to issue permits. Therefore, a moratorium would be outside the scope of PHMSA’s authority and contrary to the PIPES Act.

PHMSA recognizes that there are inherent risks to operating a UNGSF; however, Federal and State regulations minimize these risks by requiring operators to adhere to clear performance standards designed to maintain the integrity of the wellhead and reservoir or cavern. Furthermore, the addition of requirements in this final rule related to IM and recordkeeping will add greater rigor to the risk-management practices than in the IFR. In summary, the IFR and this final rule constitute the first large-scale application of PHMSA’s regulation jurisdiction to UNGSFs. As operators begin applying the RPs and assessing the integrity of their facilities and as PHMSA gains experience in regulating UNGSFs, the need for any additional prescriptive measures will become apparent.

IV. Rulemaking Analyses and Notices

A. Statutory/Legal Authority for This Rulemaking

This final rule is published under the authority of the Federal Pipeline Safety Law (49 U.S.C. 60101 *et seq.*), as amended by the PIPES Act (Pub. L. 114–183, June 22, 2016). Section 60102 authorizes the Secretary of Transportation to issue regulations governing the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities. The Secretary has delegated her authority in this area to the Administrator of PHMSA (49 CFR 1.97). PHMSA is issuing the amendments to the requirements for UNGSF involved in pipeline transportation under this authority.

B. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule is a significant action under section 3(f) of E.O. 12866. Therefore, the Office of Management and Budget (OMB) has reviewed it.

PHMSA prepared a regulatory impact analysis (RIA) for the final rule, which details the potential for incremental benefits and costs. The RIA, which is available in the docket for this final rule, Docket No. PHMSA–2016–0016, provides an estimate of the annualized cost savings of the final rule and the other alternatives considered relative to the baseline. Given the final rule does not impose any costs relative to the baseline (IFR), PHMSA determined that the final rule is not economically significant under Executive Order 12866 because the estimated annual impact is less than \$100 million.

Under the final rule, PHMSA expects operators to continue performing the same preventative safety measures that they are performing under the IFR. Because PHMSA does not expect the final rule to change operator safety-related actions, PHMSA does not expect changes to the benefits relative to the IFR. Implementation of the IFR already achieved benefits that will remain in place, including the potential prevention of catastrophic natural gas releases due to the failure of storage wells and the associated impacts on human health, property, and the environment, including climate change.

PHMSA does anticipate cost savings once the final rule becomes effective. Using the IFR as a baseline, the final rule will reduce recordkeeping and reporting burdens, and burdens associated with technical evaluations of non-mandatory RPs. The estimated

annualized cost savings as a result of these changes is \$8,452,365 to \$12,810,620 when discounted to present value at 7 percent.

C. Executive Order 13771

This final rule is considered an E.O. 13771 deregulatory action. Details on the estimated cost savings of this proposed rule can be found in the rule's economic analysis.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996, requires Federal agencies to consider the impact of their rules on small entities, analyze alternatives that minimize those impacts, and make their analyses available for public comments. The Act is concerned with three types of small entities: Small businesses, small nonprofits, and small government jurisdictions.

The RFA describes the regulatory flexibility analyses and procedures that Federal agencies must complete unless they certify that the rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. A statement of factual basis must support this certification, *e.g.*, by addressing the number of small entities affected by the proposed action, calculating expected cost impacts on these entities, and evaluating economic impacts.

PHMSA estimated that this final rule would affect 130 operators. Of these 130 operators, there are 14 small entities. However, this final rule is a deregulatory action that will reduce the burden of information collections. Therefore, PHMSA has determined that this final rule will not have a significant economic impact on any small entities.

E. Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act (UMRA) of 1995, Public Law 104–4, requires that Federal agencies assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under Section 202 of UMRA, PHMSA must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that might result in expenditures by State, local, and Tribal governments, in the aggregate, or by the private sector, of \$100 million (adjusted annually for inflation) or more in any one year (*i.e.*, \$153 million in 2016 dollars). This final rule will not result in such expenditure.

Accordingly, PHMSA is not required to provide a written statement in accordance with the UMRA.

F. National Environmental Policy Act

PHMSA has analyzed this final rule in accordance with section 102(2)(c) of the National Environmental Policy Act (42 U.S.C. 4332), the Council on Environmental Quality regulations (40 CFR 1500–1508), and DOT Order 5610.1C. PHMSA has published the results of this analysis in an Environmental Assessment (EA) as required by 40 CFR part 1502.

Based on the EA, PHMSA has determined this final rule would not significantly affect the quality of the human environment. To assess the impact of these regulations on the human environment, PHMSA considered three alternative scenarios, including adopting the IFR without amendments, the API RPs as written, and the provisions in this final rule. PHMSA concludes that this action will not significantly affect the quality of the human environment.

To the extent that the measures taken to comply with the IFR did not involve additional environmental impacts and instead served to reduce the risk of natural gas incidents, PHMSA expects this final rule to continue these positive environmental impacts. The information in this Environmental Assessment report supports a Finding of No Significant Impact (FONSI) for this final rule.

G. Executive Order 13132

E.O. 13132 (“Federalism”) (64 FR 43255, Aug. 10, 1999) requires PHMSA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” E.O. 13132 defines policies that have federalism implications to include regulations that have “substantial direct effects on the states, on the relationship between the national government and the states, or the distribution of power and responsibilities among the various levels of government.”

Section 6 of E.O. 13132 limits regulations that impose substantial direct compliance costs on a State unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments. PHMSA also may not issue regulations that preempt State law unless the agency consults with State and local officials early in the process of developing the regulation.

PHMSA has concluded that this action will not have federalism

implications because it does not impose any direct compliance costs on State or local governments. This final rule reduces the burden from information collection and therefore does not impose any direct compliance costs.

With respect to preemption, E.O. 13132 requires agencies to determine if their regulatory actions would preempt State law or impose a substantial direct cost in compliance on them. Congress explicitly addressed the preemption of State underground storage regulations in the PIPES Act in section 60141(e). A State authority may adopt additional or more stringent safety standards for intrastate underground natural gas storage facilities as long as they are compatible with Federal requirements. This statement is consistent with the existing statute governing PHMSA's preemption of State regulation over intrastate pipeline transportation facilities at 49 U.S.C. 60104(c).

As noted in the IFR and the discussion above, interstate facilities would not be subject to any regulatory safety requirements with respect to their wellhead and downhole facilities in the absence of Federal action. Even before the issuance of the IFR, the Federal Pipeline Safety Laws preempted any State regulation purporting to affect interstate pipeline transportation facilities. States with existing underground natural gas storage regulations may continue to implement those additional, and possibly more stringent, regulations on intrastate gas storage facilities to the extent that the State regulations are compatible with the new Federal regulations outlined in this final rule. Interstate underground storage facilities are now subject to the new Federal regulations, whereas previously, those facilities were not subject to any regulatory safety requirements.

H. Executive Order 13175

E.O. 13175 ("Consultation and Coordination with Indian Tribal Governments") reaffirms the Federal Government's commitment to the Tribal sovereignty, self-determination, and self-government. To that end, the agencies must consult with Tribal governments as they develop policy on issues that may affect those communities. This final rule imposes no substantial direct compliance costs or burdens on Tribal governments. So, the requirements of E.O. 13175 do not apply.

I. Executive Order 13211

E.O. 13211 ("Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use")

requires Agencies to prepare a Statement of Energy Effects when undertaking certain actions. Such Statements of Energy Effects shall describe the effects of certain regulatory actions on energy supply, distribution, or use, notably: (i) Any adverse effects on energy supply, distribution, or use (including a shortfall in supply, price increases, and increased use of foreign supplies) should the proposal be implemented, and (ii) reasonable alternatives to the action with adverse energy effects and the expected effects of such alternatives on energy supply, distribution, and use.

In a memorandum on E.O. 13211, OMB outlines the criteria for assessing whether a regulation constitutes a "significant energy action" and would have a "significant adverse effect on the supply, distribution or use of energy."³³ Of the potentially adverse effects on the supply, distribution, relevant to this final rule, only one of the criteria is applicable to this final rule: The ability of interstate operators to pass costs on to consumers. However, because this final rule results in cost savings, it would not increase the cost of energy distribution.

J. National Technology Transfer and Advancement Act of 1995

The National Technology Transfer and Advancement Act of 1995, 15 U.S.C. 272, directs Federal agencies to use voluntary consensus standards instead of government-written standards when appropriate. The OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," sets the policy for Federal use and development of voluntary consensus standards. As defined in OMB Circular A-119, voluntary consensus standards are technical standards developed or adopted by domestic and international organizations. These organizations use agreed-upon procedures to update and revise their published standards every three to five years to reflect modern technology and best technical practices.

Accordingly, PHMSA has the responsibility for determining, via petitions or otherwise, which standards it should add, update, revise, or remove from 49 CFR subchapter D. PHMSA handles these changes to incorporate by reference materials via the rulemaking process, which allows the public and regulated entities to provide input.

³³ E.O. 13211 was issued May 18, 2002. The Office of Management and Budget later released an Implementation Guidance memorandum on July 13, 2002.

During the rulemaking process, PHMSA must also obtain approval from the Office of the Federal Register to incorporate by reference any new materials.

PHMSA worked to make the materials incorporated by reference reasonably available to interested parties. PHMSA is prohibited from issuing a regulation that incorporates by reference any document unless that document is available to the public, free of charge (Pub. L. 113-30, Aug. 9, 2013).

To meet these requirements, PHMSA negotiated agreements with all but one of the respective standards developing organizations (SDO) with standards already incorporated by reference in the PSRs to make viewable copies of those standards available to the public at no cost. PHMSA has an agreement in place with API, who voluntarily made the RP 1171 and RP 1170 available on API's public website. API's mailing address and the website are listed in 49 CFR part 192.

K. Paperwork Reduction Act

The Paperwork Reduction Act of 1995³⁴ (PRA), Public Law 104-13, is implemented by OMB and requires that agencies submit a supporting statement to OMB for any information collection that solicits the same data from more than nine parties. The PRA seeks to ensure that Federal agencies balance their need to collect information with the paperwork burden imposed on the public by the collection.

The definition of "information collection" includes activities required by regulations, such as for permit development, monitoring, recordkeeping, and reporting. The term "burden" refers to the "time, effort, or financial resources" the public expends to provide information to or for a Federal agency or to fulfill statutory or regulatory requirements otherwise. The PRA paperwork burden is measured in terms of annual time and financial resources the public devotes to meet one-time and recurring information requests.³⁵ Information collection activities may include:

- Reviewing instructions;
- Using technology to collect, process, and disclose information;
- Adjusting existing practices to comply with requirements;
- Searching data sources;
- Completing and reviewing the response; and
- Transmitting or disclosing information.

³⁴ Substantially amending the PRA of 1980 (Pub. L. 96-511).

³⁵ 44 U.S.C. 3502(2); 5 CFR 1320.3(b).

Agencies must provide information to OMB on the parties affected, the annual reporting burden, the annualized cost of responding to the information collection, and whether the request significantly affects a substantial number of small entities. An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a currently valid OMB control number. OMB has previously approved the information collection requirements contained in IFR under the provisions of the PRA. Since issuing the IFR, PHMSA has estimated changes in reporting and recordkeeping burden and submitted a revised information collection request to OMB for approval. Below is a summary of the information collections requested or approved for this final rule.

1. Incident Reporting

PHMSA is finalizing the IFR's revision to 49 CFR 191.15 that requires operators to give notice upon the discovery of incidents meeting the definition at 49 CFR 191.3. Operators must submit DOT Form PHMSA-F7100.2 as soon as practicable but not more than 30 days after they detect the event. On August 16, 2017, OMB approved the use of this form, "Incident and Annual Reports for Gas Pipeline Operators," under Control No. 2137-0522.

2. Safety-Related Conditions Reporting

PHMSA is finalizing the IFR's revision to § 191.23 that requires operators to report a safety-related condition no later than ten working days after its discovery. PHMSA estimates it will receive four annual responses at an annual burden of 24 hours from each operator. This estimate remains unchanged from the IFR's estimate.

On August 16, 2017, OMB approved this information collection, "Reporting Safety-related conditions on Gas, Hazardous Liquid, and Carbon Dioxide Pipelines, and Liquefied Natural Gas Facilities," under Control No. 2137-0578, expiring on August 31, 2019. There is no form dedicated to this information collection. Instead, PHMSA will accept safety-related condition reports in a variety of formats by mail or fax. Instructions for filing are in § 191.25, "Filing safety-related condition reports."

3. Annual Reporting

PHMSA is finalizing the IFR's amendment to § 191.17, related to annual reporting. Operators must submit data Form 7100.4-1, "Underground Natural Gas Storage

Annual Report," no later than every March 15. The annual report must include data from the previous calendar year. For example, the first annual report was due no later than March 15, 2018, and must have included data from the 2017 calendar year. OMB approved this information collection, "Incident and Annual Reports for Gas Pipeline Operators," on August 16, 2017, under Control No. 2137-0522, expiring on August 31, 2020.

In the IFR, PHMSA estimated a reporting burden of 8 hours to complete each annual report form. That estimate included times for reviewing instructions, gathering the necessary data, and responding to each question. However, PHMSA revised the hourly burden estimate from 8 hours to 20 hours per response based on public comments, which are available for review in Docket No. PHMSA-2016-0016.

4. National Registry of Operators and Notification of Changes

This information collection consists of two parts. The first part requires operators to obtain or validate an Operator Identification Number (OPID) from PHMSA. Under the IFR, PHMSA expected to receive 24 OPID requests and 25 ad hoc notifications. PHMSA estimated that each operator would take 1 hour to complete the OPID Assignment form, PHMSA F 1000.1. PHMSA is making no changes to these estimates in this final rule.

The IFR revised § 191.22 to require operators to notify PHMSA, not less than 60 days prior, of certain events. OMB approved this information collection on July 5, 2017, and it will expire on July 31, 2020. PHMSA estimates that this final rule will result in no additional hourly or cost burdens beyond those estimated in the IFR. PHMSA estimates the combined annual burden for OPID Assignment and Operator Notification at 49 hours. (OMB Control No. 2137-0627).

5. Recordkeeping

As discussed throughout this rulemaking, operators must create and maintain records and in accordance with RP 1170 and RP 1171. Operators must also create and maintain written procedure manuals for integrity and program operations. Because of these requirements in the IFR, and codified in this final rule, 136 entities will be required to keep records. PHMSA estimates that it will take operators approximately 1.6 hours annually to maintain the required records. The cost and hourly burden are based on 136 companies with a loaded labor cost of

\$88 per hour. OMB approved this information collection under OMB Control No. 2137-0634 on October 11, 2018, and it will expire on October 31, 2021. No additional collection or recordkeeping requirements would be imposed on the public by modifying the requirements of this final rule.

L. Privacy Act

In accordance with the Privacy Act of 1974, 5 U.S.C. 552(a), anyone can search the electronic form of all documents received into any of our dockets by the name of the individual submitting the document (or signing the document, if submitted on behalf of an association, business, labor union, etc.). The complete Privacy Act statement is in the **Federal Register** published on April 11, 2000, (65 FR 19477-78), or at the website: <https://www.transportation.gov/dot-website-privacy-policy>.

M. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is the unique identifier for each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. Use the RIN number to find this rulemaking in the Unified Agenda. The RIN number for this rulemaking is RIN 2137-AF22.

List of Subjects

49 CFR Part 191

Underground natural gas storage facility reporting requirements.

49 CFR Part 192

Definitions, Incorporation by reference, Underground natural gas storage facility safety.

49 CFR Part 195

National Registry of Operators.

In consideration of the foregoing, PHMSA is amending 49 CFR parts 191, 192, and 195 as follows:

PART 191—TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE; ANNUAL REPORTS, INCIDENT REPORTS, AND SAFETY-RELATED CONDITION REPORTS

■ 1. The authority citation for part 191 continues to read as follows:

Authority: 49 U.S.C. 5121, 60102, 60103, 60104, 60108, 60117, 60118, 60124, 60132, and 60141; and 49 CFR 1.97.

■ 2. In § 191.1, revise paragraph (a) to read as follows:

§ 191.1 Scope.

(a) This part prescribes requirements for the reporting of incidents, safety-

related conditions, annual pipeline summary data, National Registry of Operators information, and other miscellaneous conditions by operators of underground natural gas storage facilities and natural gas pipeline facilities located in the United States or Puerto Rico, including underground natural gas storage facilities and pipelines within the limits of the Outer Continental Shelf, as that term is defined in the Outer Continental Shelf Lands Act (43 U.S.C. 1331).

* * * * *

■ 3. In § 191.3, the definitions of “Incident” and “Underground natural gas storage facility” are revised to read as follows:

§ 191.3 Definitions.

* * * * *

Incident means any of the following events:

(1) An event that involves a release of gas from a pipeline, gas from an underground natural gas storage facility (UNGSF), liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one or more of the following consequences:

(i) A death, or personal injury necessitating in-patient hospitalization;

(ii) Estimated property damage of \$50,000 or more, including a loss to the operator and others, or both, but excluding the cost of gas lost; or

(iii) Unintentional estimated gas loss of three million cubic feet or more.

(2) An event that results in an emergency shutdown of an LNG facility or a UNGSF. Activation of an emergency shutdown system for reasons other than an actual emergency within the facility does not constitute an incident.

(3) An event that is significant in the judgment of the operator, even though it did not meet the criteria of paragraph (1) or (2) of this definition.

* * * * *

Underground natural gas storage facility (UNGSF) means an underground natural gas storage facility or UNGSF as defined in § 192.3 of this chapter.

■ 4. In § 191.15, revise paragraphs (c) and (d) to read as follows:

§ 191.15 Transmission systems; gathering systems; liquefied natural gas facilities; and underground natural gas storage facilities: Incident report.

* * * * *

(c) *Underground natural gas storage facility.* Each operator of a UNGSF must submit DOT Form PHMSA F7100.2 as soon as practicable but not more than 30 days after the detection of an incident required to be reported under § 191.5.

(d) *Supplemental report.* Where additional related information is obtained after an operator submits a report under paragraph (a), (b), or (c) of this section, the operator must make a supplemental report as soon as practicable, with a clear reference by date to the original report.

■ 5. In § 191.17, revise paragraph (c) to read as follows:

§ 191.17 Transmission systems; gathering systems; liquefied natural gas facilities; and underground natural gas storage facilities: Annual report.

* * * * *

(c) *Underground natural gas storage facility.* Each operator of a UNGSF must submit an annual report through DOT Form PHMSA 7100.4–1. This report must be submitted each year, no later than March 15, for the preceding calendar year.

■ 6. Revise § 191.22 to read as follows:

§ 191.22 National Registry of Operators.

(a) *OPID request.* Effective January 1, 2012, each operator of a gas pipeline, gas pipeline facility, UNGSF, LNG plant, or LNG facility must obtain from PHMSA an Operator Identification Number (OPID). An OPID is assigned to an operator for the pipeline, pipeline facility, or pipeline system for which the operator has primary responsibility. To obtain an OPID, an operator must submit an OPID Assignment Request DOT Form PHMSA F 1000.1 through the National Registry of Operators in accordance with § 191.7.

(b) *OPID validation.* An operator who has already been assigned one or more OPIDs by January 1, 2011, must validate the information associated with each OPID through the National Registry of Operators at <https://portal.phmsa.dot.gov>, and correct that information as necessary, no later than June 30, 2012.

(c) *Changes.* Each operator of a gas pipeline, gas pipeline facility, UNGSF, LNG plant, or LNG facility must notify PHMSA electronically through the National Registry of Operators at <https://portal.phmsa.dot.gov> of certain events.

(1) An operator must notify PHMSA of any of the following events not later than 60 days before the event occurs:

(i) Construction of any planned rehabilitation, replacement, modification, upgrade, uprate, or update of a facility, other than a section of line pipe, that costs \$10 million or more. If 60-day notice is not feasible because of an emergency, an operator must notify PHMSA as soon as practicable;

(ii) Construction of 10 or more miles of a new pipeline;

(iii) Construction of a new LNG plant, LNG facility, or UNGSF; or

(iv) Maintenance of a UNGSF that involves the plugging or abandonment of a well, or that requires a workover rig and costs \$200,000 or more for an individual well, including its wellhead. If 60-days’ notice is not feasible due to an emergency, an operator must promptly respond to the emergency and notify PHMSA as soon as practicable.

(2) An operator must notify PHMSA of any of the following events not later than 60 days after the event occurs:

(i) A change in the primary entity responsible (*i.e.*, with an assigned OPID) for managing or administering a safety program required by this part covering pipeline facilities operated under multiple OPIDs;

(ii) A change in the name of the operator;

(iii) A change in the entity (*e.g.*, company, municipality) responsible for an existing pipeline, pipeline segment, pipeline facility, UNGSF, or LNG facility;

(iv) The acquisition or divestiture of 50 or more miles of a pipeline or pipeline system subject to part 192 of this subchapter; or

(v) The acquisition or divestiture of an existing UNGSF, or an LNG plant or LNG facility subject to part 193 of this subchapter.

(d) *Reporting.* An operator must use the OPID issued by PHMSA for all reporting requirements covered under this subchapter and for submissions to the National Pipeline Mapping System.

■ 7. Revise § 191.23 to read as follows:

§ 191.23 Reporting safety-related conditions.

(a) Except as provided in paragraph (b) of this section, each operator shall report in accordance with § 191.25 the existence of any of the following safety-related conditions involving facilities in service:

(1) In the case of a pipeline (other than an LNG facility) that operates at a hoop stress of 20% or more of its specified minimum yield strength, general corrosion that has reduced the wall thickness to less than that required for the maximum allowable operating pressure, and localized corrosion pitting to a degree where leakage might result.

(2) In the case of a UNGSF, general corrosion that has reduced the wall thickness of any metal component to less than that required for the well’s maximum operating pressure, or localized corrosion pitting to a degree where leakage might result.

(3) Unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability of a pipeline or the

structural integrity or reliability of a UNGSF or LNG facility that contains, controls, or processes gas or LNG.

(4) Any crack or other material defect that impairs the structural integrity or reliability of a UNGSF or an LNG facility that contains, controls, or processes gas or LNG.

(5) Any material defect or physical damage that impairs the serviceability of a pipeline that operates at a hoop stress of 20% or more of its specified minimum yield strength, or the serviceability or the structural integrity of a UNGSF.

(6) Any malfunction or operating error that causes the pressure of a pipeline or underground natural gas storage facility or LNG facility that contains or processes natural gas or LNG to rise above its maximum well operating pressure (or working pressure for LNG facilities) plus the margin (build-up) allowed for operation of pressure limiting or control devices.

(7) A leak in a pipeline, UNGSF, or LNG facility containing or processing gas or LNG that constitutes an emergency.

(8) Inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank.

(9) Any safety-related condition that could lead to an imminent hazard and causes (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20% or more reduction in operating pressure or shutdown of operation of a pipeline, UNGSF, or an LNG facility that contains or processes gas or LNG.

(10) [Reserved]

(11) Any malfunction or operating error that causes the pressure of a UNGSF using a salt cavern for natural gas storage to fall below its minimum allowable operating pressure, as defined by the facility's State or Federal operating permit or certificate, whichever pressure is higher.

(b) A report is not required for any safety-related condition that—

(1) Exists on a master meter system or a customer-owned service line;

(2) Is an incident or results in an incident before the deadline for filing the safety-related condition report;

(3) Exists on a pipeline (other than an UNGSF or an LNG facility) that is more than 220 yards (200 meters) from any building intended for human occupancy or outdoor place of assembly, except that reports are required for conditions within the right-of-way of an active railroad, paved road, street, or highway; or

(4) Is corrected by repair or replacement in accordance with

applicable safety standards before the deadline for filing the safety-related condition report, except that reports are required for conditions under paragraph (a)(1) of this section other than localized corrosion pitting on an effectively coated and cathodically protected pipeline.

(5) Exists on an UNGSF, where a well or wellhead is isolated, allowing the reservoir or cavern and all other components of the facility to continue to operate normally and without pressure restriction.

PART 192—TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS

■ 8. The authority citation for part 192 continues to read as follows:

Authority: 49 U.S.C. 5103, 60102, 60104, 60108, 60109, 60110, 60113, 60116, 60118, 60137, and 60141; and 49 CFR 1.97.

■ 9. In § 192.3, revise the definition of “Underground natural gas storage facility” to read as follows:

§ 192.3 Definitions.

* * * * *

Underground natural gas storage facility (UNGSF) means a gas pipeline facility that stores natural gas underground incidental to the transportation of natural gas, including:

(1)(i) A depleted hydrocarbon reservoir;

(ii) An aquifer reservoir; or

(iii) A solution-mined salt cavern.

(2) In addition to the reservoir or cavern, a UNGSF includes injection, withdrawal, monitoring, and observation wells; wellbores and downhole components; wellheads and associated wellhead piping; wing-valve assemblies that isolate the wellhead from connected piping beyond the wing-valve assemblies; and any other equipment, facility, right-of-way, or building used in the underground storage of natural gas.

* * * * *

■ 10. Republished § 192.7(b)(10) and (11) continue to read as follows:

§ 192.7 What documents are incorporated by reference partly or wholly in this part?

* * * * *

(b) * * *

(10) API Recommended Practice 1170, “Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage,” First edition, July 2015 (API RP 1170), IBR approved for § 192.12.

(11) API Recommended Practice 1171, “Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon

Reservoirs and Aquifer Reservoirs,” First edition, September 2015, (API RP 1171), IBR approved for § 192.12.

* * * * *

■ 11. Revise § 192.12 to read as follows:

§ 192.12 Underground natural gas storage facilities.

Underground natural gas storage facilities (UNGSFs), as defined in § 192.3, are not subject to any requirements of this part aside from this section.

(a) *Salt cavern UNGSFs.* (1) Each UNGSF that uses a solution-mined salt cavern for natural gas storage and was constructed after March 13, 2020, must meet all the provisions of API RP 1170 (incorporated by reference, *see* § 192.7), the provisions of section 8 of API RP 1171 (incorporated by reference, *see* § 192.7) that are applicable to the physical characteristics and operations of a solution-mined salt cavern UNGSF, and paragraphs (c) and (d) of this section prior to commencing operations.

(2) Each UNGSF that uses a solution-mined salt cavern for natural gas storage and was constructed between July 18, 2017, and March 13, 2020, must meet all the provisions of API RP 1170 (incorporated by reference, *see* § 192.7) and paragraph (c) of this section prior to commencing operations, and must meet all the provisions of section 8 of API RP 1171 (incorporated by reference, *see* § 192.7) that are applicable to the physical characteristics and operations of a solution-mined salt cavern UNGSF, and paragraph (d) of this section, by March 13, 2021.

(3) Each UNGSF that uses a solution-mined salt cavern for natural gas storage and was constructed on or before July 18, 2017, must meet the provisions of API RP 1170 (incorporated by reference, *see* § 192.7), sections 9, 10, and 11, and paragraph (c) of this section, by January 18, 2018, and must meet all provisions of section 8 of API RP 1171 (incorporated by reference, *see* § 192.7) that are applicable to the physical characteristics and operations of a solution-mined salt cavern UNGSF, and paragraph (d) of this section, by March 13, 2021.

(b) *Depleted hydrocarbon and aquifer reservoir UNGSFs.* (1) Each UNGSF that uses a depleted hydrocarbon reservoir or an aquifer reservoir for natural gas storage and was constructed after July 18, 2017, must meet all provisions of API RP 1171 (incorporated by reference, *see* § 192.7), and paragraphs (c) and (d) of this section, prior to commencing operations.

(2) Each UNGSF that uses a depleted hydrocarbon reservoir or an aquifer reservoir for natural gas storage and was

constructed on or before July 18, 2017, must meet the provisions of API RP 1171 (incorporated by reference, *see* § 192.7), sections 8, 9, 10, and 11, and paragraph (c) of this section, by January 18, 2018, and must meet all provisions of paragraph (d) of this section by March 13, 2021.

(c) *Procedural manuals.* Each operator of a UNGSF must prepare and follow for each facility one or more manuals of written procedures for conducting operations, maintenance, and emergency preparedness and response activities under paragraphs (a) and (b) of this section. Each operator must keep records necessary to administer such procedures and review and update these manuals at intervals not exceeding 15 months, but at least once each calendar year. Each operator must keep the appropriate parts of these manuals accessible at locations where UNGSF work is being performed. Each operator must have written procedures in place before commencing operations or beginning an activity not yet implemented.

(d) *Integrity management program—*
(1) *Integrity management program elements.* The integrity management program for each UNGSF under this paragraph (d) must consist, at a minimum, of a framework developed under API RP 1171 (incorporated by reference, *see* § 192.7), section 8 (“Risk Management for Gas Storage Operations”), and that also describes how relevant decisions will be made and by whom. An operator must make continual improvements to the program and its execution. The integrity management program must include the following elements:

- (i) A plan for developing and implementing each program element to meet the requirements of this section;
- (ii) An outline of the procedures to be developed;
- (iii) The roles and responsibilities of UNGSF staff assigned to develop and implement the procedures required by this paragraph (d);

(iv) A plan for how staff will be trained in awareness and application of the procedures required by this paragraph (d);

(v) Timelines for implementing each program element, including the risk analysis and baseline risk assessments; and

(vi) A plan for how to incorporate information gained from experience into the integrity management program on a continuous basis.

(2) *Integrity management baseline risk-assessment intervals.* No later than March 13, 2024, each UNGSF operator must complete the baseline risk assessments of all reservoirs and caverns, and at least 40% of the baseline risk assessments for each of its UNGSF wells (including wellhead assemblies), beginning with the highest-risk wells, as identified by the risk analysis process. No later than March 13, 2027, an operator must complete baseline risk assessments on all its wells (including wellhead assemblies). Operators may use prior risk assessments for a well as a baseline (or part of the baseline) risk assessment in implementing its initial integrity management program, so long as the prior assessments meet the requirements of API RP 1171 (incorporated by reference, *see* § 192.7), section 8, and continue to be relevant and valid for the current operating and environmental conditions. When evaluating prior risk-assessment results, operators must account for the growth and effects of indicated defects since the time the assessment was performed.

(3) *Integrity management re-assessment intervals.* The operator must determine the appropriate interval for risk assessments under API RP 1171 (incorporated by reference, *see* § 192.7), subsection 8.7.1, and this paragraph (d) for each reservoir, cavern, and well, using the results from earlier assessments and updated risk analyses. The re-assessment interval for each reservoir, cavern, and well must not exceed seven years from the date of the

baseline assessment for each reservoir, cavern, and well.

(4) *Integrity management procedures and recordkeeping.* Each UNGSF operator must establish and follow written procedures to carry out its integrity management program under API RP 1171 (incorporated by reference, *see* § 192.7), section 8 (“Risk Management for Gas Storage Operations”), and this paragraph (d). The operator must also maintain, for the useful life of the UNGSF, records that demonstrate compliance with the requirements of this paragraph (d). This includes records developed and used in support of any identification, calculation, amendment, modification, justification, deviation, and determination made, and any action taken to implement and evaluate any integrity management program element.

PART 195—TRANSPORTATION OF HAZARDOUS LIQUIDS BY PIPELINE

■ 12. The authority citation for part 195 continues to read as follows:

Authority: 49 U.S.C. 5103, 60102, 60104, 60108, 60109, 60116, 60118, 60132, 60137, and 49 CFR 1.97.

■ 13. In § 195.64:

- a. Revise the section heading;
- b. Remove “National Registry of Pipeline and LNG Operators” and add “National Registry of Operators” in its place everywhere it appears; and
- c. Remove the website address “<http://opsweb.phmsa.dot.gov>” in paragraphs (b) and (c) and add “<https://portal.phmsa.dot.gov>” in its place.

The revision reads as follows:

§ 195.64 National Registry of Operators.

* * * * *

Issued in Washington, DC, on January 10, 2020, under authority delegated in 49 CFR 1.97.

Howard R. Elliott,
Administrator.

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