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Pipeline and Hazardous Materials Safety Administration
Docket Operations, M-30
U.S. Department of Transportation
1200 New Jersey Avenue SE
Room W12-140, West Building Ground Floor
Washington, DC 20590-0001

via Regulations.gov

RE: PHMSA-2016-0016, Pipeline Safety: Underground Storage Facilities for Natural Gas, 49 CFR Parts 191 and 192

To Kenneth Lee,

Environmental Defense Fund (EDF) respectfully submits these written comments on the Pipeline and Hazardous Materials Safety Administration (PHMSA)'s Interim Final Rule (IFR) on Underground Natural Gas Storage Facilities. EDF is a national environmental nonprofit with over one million members nationwide, many of whom are keenly interested in minimizing environmental impacts from the natural gas supply chain, including underground storage.

The Aliso Canyon natural gas leak of 2015-2016 was eye-opening for industry, the public, and policymakers. While Aliso Canyon's operator had apparently let its facility fall into disrepair, regulatory agencies around the country realized that their frameworks governing gas storage were, in many cases, weak or non-existent. Some states did have strong rules in place; in fact, it was in just such a state (Kansas) that a 2010 court case finding that Kansas did not have authority to regulate interstate gas storage facilities brought into sharp focus that the federal government had no safety regulations for gas storage facilities at all.¹

¹ Colorado Interstate Gas Co. v. Wright et al., case number 09-cv-04031, in the U.S. District Court for the District of Kansas, available at https://www.gpo.gov/fdsys/pkg/USCOURTS-ksd-5_09-cv-04031/pdf/USCOURTS-ksd-5_09-cv-04031-0.pdf.

Responding to a Congressional mandate exacerbated by the Aliso Canyon accident, PHMSA has developed a regulatory program that adopts two American Petroleum Institute “Recommended Practices” (industry guidance documents) on gas storage – 1170 and 1171 – that were published shortly before the Aliso Canyon leak was first reported. The rule requires operators to comply with both the mandatory and non-mandatory portions of the Recommended Practices (with variances obtainable for the non-mandatory provisions), and introduced reporting requirements for facility operators.

While EDF believes that the IFR as currently conceived would do more good than harm, the rule suffers from four significant problems that PHMSA must address in order for the rule to appropriately mitigate the long-term safety and environmental risks posed by this industrial activity.

1) Gaps in coverage and vagueness in provisions

API’s Recommended Practices 1170 and 1171 represent the industry’s consensus standards for operations of salt cavern, aquifer reservoir and depleted oil and gas reservoir gas storage. There is no question that many of the provisions in these Recommended Practices have engineering merit. But on their own admission, these guidance documents were never meant to act as regulation. The Scope section of RP 1170 states:

This document was written to provide a technical reference for the development and operations of solution-mined salt caverns and is not intended to represent or reflect any Federal, State, or local regulatory requirement. Depending on location and nature of the project, the recommended practices herein may address items that are in conflict with some regulatory requirements. If this occurs, the regulatory requirement supersedes the recommended practice unless an appropriate waiver or variance is granted from the issuing agency. A thorough review of the applicable Federal, State, and local rules and regulations is to be performed prior to the design of solution-mined natural gas storage caverns to ensure ongoing compliance.²

Similar, RP 1170’s Scope section provides that “[t]he contents of this RP are not all inclusive or intended to replace the utilization of detailed information and procedures found in textbooks, manuals, technical papers, or other documents. This

² API RP 1170, Section 1.2.

document is intended to supplement, but not replace, applicable local, state, and federal regulations.”³

Now that PHMSA is using these documents not to supplement regulation but instead to be the entirety of the regulation (at least for interstate facilities, see below discussion), it is critical for PHMSA identify gaps and ensure that the regulation comprehensively covers all the essential topics related to gas storage.

EDF is concerned that many provisions in the Recommended Practices are sufficiently vague that it will be difficult for PHMSA to determine whether compliance has occurred, and sufficiently broad that compliance will be trivial for operators to assert. Looking just at RP 1171 governing depleted reservoir storage (the great majority of U.S. gas storage wells), the sections on geological reservoir characterization (5.2), emergency shutdown valves (6.2.5), mechanical integrity testing (7.4), integrity nonconformance and response (9.7), and emergency response (10.6) are all good examples of problematically vague provisions. EDF is particularly concerned that the foundational topic of well construction, the success of which determines to a large extent how safely and effectively the facility will operate over time, is given extremely brief and often broad discussion in the Recommended Practices.

In particular, EDF points to the comments submitted by the Interstate Oil and Gas Compact Commission and Ground Water Protection Council on gaps and vagueness.⁴ The comments discuss issues with over 75 of the provisions in the two Recommended Practices. These comments should be taken seriously as they were written in part by state regulators charged with administering their own gas storage rules and possessing, collectively, many decades of experience regulating the industry.

While the important problems raised by the Interstate Oil and Gas Commission and Ground Water Protection Council are technical in nature and do not need to be rehashed here, we highlight one issue – risk reduction – that crosses over into a basic public policy question for any agency regulating with public safety being a core responsibility. In particular, the IFR calls for depleted hydrocarbon and aquifer reservoir operators to develop a “Risk Management Plan” that addresses risks and provides plans to mitigate those risks.⁵ Such plans are a good idea as a supplement to general regulation, and are in line with what is being considered by California for its gas storage rules.⁶

³ API RP 1171, Section 1.

⁴ See appendix to these comments.

⁵ See generally API RP 1171 Section 8.

⁶ See California Department of Conservation, Division of Oil, Gas, & Geothermal Resources, Requirements for California Underground Gas Storage Projects, Discussion Draft, July 8, 2016, Section 1726.3 (Risk Management Plans), available at

The API Recommended Practices, since they are not intended to be regulations, do not provide a standard and/or process to assess how much risk ought to be reduced, eliminated or mitigated. It is imperative, however, that PHMSA, as a regulator, do so. Consider the provision in RP 1171's 8.6.2, which reads "[n]ot all risks need a [preventative and mitigative] measure if the level of risk is fully acceptable or if it is not necessary to reduce risk by further efforts." It is up to PHMSA, and not up to the operator, to determine the acceptability of risk levels for the public and the environment. The tradeoff between risk and cost is a public policy question – one that can and should be informed by industry and its familiarity with the relevant threats and hazards, but with boundaries set by the regulatory agency with full consideration of all aspects of public interest.

The current rule does not provide such boundaries, and would benefit from the use of a risk management heuristic known as "As Low As Reasonably Practicable," or ALARP. ALARP provides a process for the regulator and regulated industry to work together to systematically set appropriate levels of risk reduction. One of the best and most recent treatments of ALARP in the utility context was prepared by the California Public Utility Commission, and we urge PHMSA to read it and consider how to incorporate the program into its gas storage regulatory framework.⁷

As PHMSA has previously noted, these rules are a work in progress.⁸ PHMSA will need to conduct a series of rulemakings over time as the agency learns with experience and is able to independently develop appropriate regulations. The report prepared jointly by PHMSA and the Department of Energy will be a major input for this process.⁹ In the meantime, PHMSA should look to the states with strong gas storage regulatory programs for advice and support as it determines how to administer the rule it has. And by mid-2017, the IOGCC and GWPC expect to have available a gas storage

<http://www.conservation.ca.gov/dog/Documents/GasStorage/Public%20Discussion%20Draft%20Requirements%20for%20Underground%20Gas%20Storage%20Proj.pdf>

⁷ Safety and Enforcement Division Staff White Paper on As Low As Reasonably Practicable (ALARP) Risk-informed Decision Framework Applied to Public Utility Safety, December 24, 2015, available at <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=8930>. It is worth noting that PHMSA has considered ALARP in other contexts, including as part of a Pipeline Risk Model Working Group, see <https://primis.phmsa.dot.gov/rmwg/docs/Rose-October%205%20-%20Risk%20Tolerance%2010-4.pdf>.

⁸ PHMSA Issues Interim Final Rule Revising the Pipeline Safety Regulations to Address Safety Issues Related to Underground Natural Gas Storage Facilities, December 14, 2016, available at <http://www.phmsa.dot.gov/pipeline/phmsa-issues-interim-final-rule-revising-the-pipeline-safety-regulations-to-address-safety-issues-related-to-underground-natural-gas-storage-facilities/>

⁹ Ensuring Safe and Reliable Underground Natural Gas Storage -- Final Report of the Interagency Task Force on Natural Gas Storage Safety, Department of Energy and PHMSA, October 2016, available at <https://energy.gov/sites/prod/files/2016/10/f33/Ensuring%20Safe%20and%20Reliable%20Underground%20Natural%20Gas%20Storage%20-%20Final%20Report.pdf>. See also well integrity appendix at <https://energy.gov/sites/prod/files/2016/12/f34/Appendix%20I%20-%20Well%20Integrity%20Working%20Group%20Report.pdf>.

“primer” designed to help regulators update and implement their programs – this document should be as much help to PHMSA as to the states.

2) Regulatory ceiling for interstate facilities

Of the 400 or so gas storage facilities in the United States, approximately 200 are considered “intrastate” and 200 are considered “interstate.” Interstate facilities are generally those storing gas from or destined for another state, although the designation is somewhat fluid. In any case, while the engineering considerations for interstate facilities are functionally identical to those for intrastate facilities, they are subject to different rules under the Natural Gas Pipeline Safety Act of 1968 et seq. In particular, interstate facilities are under the exclusive safety jurisdiction of PHMSA, while intrastate facilities are subject to both PHMSA rules and to certified state rules that exceed the federal minimum uniform safety standards.

The IFR does not change that relationship, but with the notable exception of Kansas since 2010, in the absence of federal regulation, states have generally been applying their gas storage rules to both intrastate and interstate facilities. Now that the IFR is in place, states will likely cede regulatory authority to PHMSA for interstate facilities. But in states with their own standards exceeding those of PHMSA’s, interstate facilities will be regulated to a less stringent standard than intrastate facilities despite a lack of an engineering reason for this to be the case. 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 public safety and the environment.

From an environmental and public safety standard, all gas storage facilities within a state ought to be subject to the same level of regulation. Even if PHMSA cannot outright require interstate operators to comply with state rules, the agency does have tools in its tool belt to make sure that interstate operators contend with risks mitigated by state rules via Risk Management Plans and other mechanisms. EDF has commented extensively on this topic before, and we urge PHMSA to be creative in fixing this major asymmetry in its regulatory program.¹⁰

3) Lack of capacity to administer

A rule is only as good as the regulating agency’s ability to implement and enforce it. PHMSA has taken on a huge new area of oversight in the subsurface aspects of gas

¹⁰ EDF Ideas on Jurisdictional Issues Related to PHMSA Gas Storage IFR, September 16, 2016, available at <https://www.regulations.gov/document?D=PHMSA-2016-0023-0007>.

storage, a topic that has very specific engineering considerations quite distinct from PHMSA's traditional pipeline purview. PHMSA will need to staff up considerably for back office and field functions in order to have the expertise and capacity to properly regulate this industry. EDF is concerned that the hiring freeze on federal workers will stymie the agency's effort to implement the IFR.¹¹ Perhaps such employees might be hireable under the freeze's public safety exemption, but even in the best case scenario, sufficient staffing for this program will be a challenge for PHMSA to achieve.

While it staffs up, PHMSA should reach out to and coordinate with state oil and gas agencies, which already have expert staff in gas storage and in well management generally. PHMSA has both formal and informal mechanisms for doing so, and should use all such mechanisms at its disposal. State expertise on gas storage, notwithstanding the state's checkered regulatory frameworks, will prove essential during this ramp-up period.

Another capacity issue related to data management may be easier to solve. PHMSA will be collecting considerable information about the nation's entire fleet of gas storage facilities, totaling over 17,000 wells. The quality and integrity of the wells vary widely – while it is likely that most are in good working order, over 70% of the wells at the Aliso Canyon facility did not pass the full battery of tests required by California, and that facility is not unique in its vintage or configuration. Reducing system-wide risks in a financially sensible manner will require targeting the highest risk wells first. This will require the development of a national inventory, an assessment called for by the DOE report.

To do this, PHMSA will need a database tailored to store this information. Assuming it does not already have one, PHMSA should look to the Risk-Based Data Management System (RBDMS), which over twenty oil and gas states use to manage their programs, including gas storage. RBDMS was developed by the Ground Water Protection Council in partnership with the states to deliver a low-cost data management solution tailored to oil and gas regulatory needs. If PHMSA adopted RBDMS to administer this regulatory program, it would be tapping into a robust software program designed for this need and accompanied by an experienced, active user community. PHMSA should strongly consider RBDMS for its data needs, but in any case should quickly scale up a database to accept incoming gas storage data and make that data accessible to a broad array of stakeholders.

4) Variance process

¹¹ Presidential Memorandum Regarding the Hiring Freeze, January 23, 2017, available at <https://www.whitehouse.gov/the-press-office/2017/01/23/presidential-memorandum-regarding-hiring-freeze>.

In an industry like gas storage, the ability to obtain variances from prescriptive regulation is sensible and valuable because facilities and circumstances vary widely and there are a multitude of ways to reduce and/or mitigate risks. Regulatory flexibility can both reduce costs and enhance safety.

However, PHMSA's variance program raises questions about timing and predictability. There are two main venues for variances in the IFR. The Risk Management Plan functions as an omnibus variance, providing a custom set of rules for how a given facility will be operated. All non-mandatory portions of the Recommended Practices are considered to be regulatory requirements unless the operator provides written technical justification for deviation from the provision.

In both of these cases, PHMSA will not review the variances until after they have already been acted upon by the operator. This is problematic for a variety of reasons. First, this post-hoc evaluation of variances could allow deleterious activities to persist for an indefinite period of time until a PHMSA auditor inspects a facility (see discussion above about PHMSA's capacity to conduct these inspections). Second, operators may make significant financial commitments in reliance on unapproved variances, only to see their decision overturned after the fact, without practical recourse, by PHMSA.

The proposed California regulatory program would require operators to submit both Risk Management Plans and proposed variances from the prescriptive rules to the agency for approval prior to their being implemented. This structure is sensible, providing predictability to the operator and enhanced safety and environmental protection to the public. EDF understands a priori approval of Risk Management Plans and other variances is time-intensive and would strain PHMSA's limited staffing. However, in order to avoid negative consequences from post-hoc variance approval, PHMSA should staff up to enable proper and timely approval of variances.

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Thank you for your time in considering these recommendations. EDF appreciates this opportunity to comment and looks forward to continuing work with PHMSA as it develops and refines its underground storage facility regulatory framework.

Respectfully submitted,

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