



DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 192 and 195

[Docket No. PHMSA-2025-0118]

RIN 2137-AF79

Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines

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

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: PHMSA proposes to clarify that right-of-way patrol requirements are technology neutral, and that operators can use remote sensing technologies, such as unmanned aerial systems and satellites, for complying with gas transmission, hazardous liquid, and carbon dioxide pipeline rights-of-way patrolling requirements.

DATES: Comments must be received on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION]**.

ADDRESSES: You may submit comments identified by the Docket Number PHMSA-2025-0118 using any of the following methods:

E-Gov Web: <https://www.regulations.gov>. This site allows the public to enter comments on any *Federal Register* notice issued by any agency. Follow the online instructions for submitting comments.

Mail: Docket Management System: U.S. Department of Transportation, 1200 New Jersey Avenue S.E., West Building Ground Floor, Room W12-140, Washington, D.C. 20590-0001.

Hand Delivery: U.S. DOT Docket Management System: West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue S.E., between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Fax: 1-202-493-2251.

For commenting instructions and additional information about commenting, see SUPPLEMENTARY INFORMATION.

FOR FURTHER INFORMATION CONTACT: Sayler Palabrica, Transportation Specialist, 1200 New Jersey Avenue S.E., Washington, D.C. 20590, 202-744-0825, sayler.palabrica@dot.gov.

SUPPLEMENTARY INFORMATION:

I. General Discussion:

PHMSA requires operators to perform periodic patrols of gas transmission and hazardous liquid and carbon dioxide pipeline rights-of-way (ROW). 49 CFR 192.705 requires operators to patrol gas transmission pipelines between one and four times each calendar year, depending on the class location of the pipeline and whether the pipeline is located at a highway or railroad crossing. Similarly, 49 CFR 195.412 requires hazardous liquid and carbon dioxide pipeline operators to inspect the surface conditions on or adjacent to each pipeline ROW at least 26 times each year.

Sections 192.705 and 195.412 both specify that patrols or inspections may include walking, driving, flying, or other appropriate means of traversing the ROW. During these inspections, an operator patrols the ROW to identify indications of leaks or threats to pipeline integrity, such as construction, excavation activity, and earth movement. Though these are primarily visual inspections, PHMSA is aware of operators who integrate additional sensing technologies, such as thermal imaging or light detection and ranging sensors, to identify leaks, earth movement, the condition of water crossings, and other safety risks when conducting ROW patrols.

On July 1, 2025, PHMSA published a direct final rule (DFR) codifying past guidance that operators could use unmanned aircraft systems (UAS, commonly known as drones) and satellite surveillance to satisfy patrol requirements in §§ 192.705 and 195.412, provided such methods and technologies could provide current information and imaging quality comparable to traditional aerial patrols (90 FR 28105 (July 1, 2025)). PHMSA received seven comments in response to the DFR.

The Interstate Natural Gas Association of America (INGAA) and Orbital Advisors supported the DFR amendments.^{1,2} The American Fuel and Petrochemical Manufacturers Association supported the DFR but recommended further revisions to allow operators delay patrols due to unfavorable weather conditions, to allow operators use imaging platforms other than satellites, to clarify that “observation” is for ROW surface conditions, and to define the date of inspection for imagery-based patrols as the date that the imagery was acquired.³

KCSI Aerial Patrol provided similar comments, with concern that the DFR language only used the term “imaging” in relation to satellite technology, implying that PHMSA would require visual inspection rather than aerial photography for patrols operators performed via aircraft. KCSI Air Patrol also commented that PHMSA should explicitly require that alternative patrol methods provide current information imaging quality comparable to traditional aerial patrols consistent with the position in the letters of interpretation cited in the DFR.⁴ An anonymous

¹ INGAA, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” (Sept. 2, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-0006>.

² Weaver, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” (Sept. 2, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-0005>.

³ American Fuel and Petrochemical Manufacturers Association, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” (Sept. 3, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-0007>.

⁴ KCSI Aerial Patrol, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” (Sept. 2, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-0004>.

commenter similarly suggested a need to define performance requirements but recommended more prescriptive examples of conditions a patrol must be able to observe.⁵

The Pipeline Safety Trust (PST) opposed the DFR on procedural grounds and requested more explanation and opportunity to comment on changes to the “other appropriate means” standard in § 192.705(c). PST also noted concerns about the performance of satellite-based technologies discussed in other rulemaking proceedings in a gas pipeline leak detection context that seemed inconsistent with PHMSA enforcement guidance for visual patrols.⁶ Citing the receipt of adverse comments, on October 2, 2025, PHMSA published a notice withdrawing the DFR in accordance with the requirements in 49 CFR 190.339 (90 FR 47626).

In this NPRM, PHMSA is reproposing the DFR amendments with certain revisions. First, the revised proposal allows observation or imaging via any of the listed patrol methods, avoiding the implication that only satellite patrols may be based on imaging rather than visual observation. In response to comments received from PST, PHMSA proposes to retain the term “appropriate” rather than “suitable” in §§ 192.705(c) and 195.412(a), with additional language to accommodate differences in imagery-based patrol methods. Though the term “suitable” appears in the letters of interpretation cited in the DFR, PHMSA intends to codify guidance that UAS and satellite imagery are acceptable patrol methods if they meet existing patrol quality expectations. PHMSA is not proposing other changes to patrol performance standards as recommended in certain comments.

Consistent with the letters of interpretation cited in the DFR, PHMSA includes the term “current” in this proposal to strengthen patrol requirements when operators use aerial or satellite imaging methods. As noted in PST’s comment, visual inspections provide instant information on

⁵ Anonymous, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” (Aug. 25, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-00043>.

⁶ PST, “Comment on Pipeline Safety: Integration of Innovative Remote Sensing Technologies for Right-of-Way Patrols on Gas and Hazardous Liquid Pipelines” at 2 (August 21, 2025), <https://www.regulations.gov/comment/PHMSA-2025-0118-0002>.

current conditions. Imaging should provide the same information (*e.g.*, be promptly analyzed after the imagery is captured) to ensure such methods are equivalent to traditional patrol methods. PHMSA uses the term “observe” rather than “traverse” in the proposal in response to certain comments on the DFR. Operators observe the ROW when performing pipeline patrols, and satellites do not necessarily traverse the ROW when operators use them for pipeline patrols.

The performance of satellite-based patrol methods depends on the capability of the satellite and the probable threats being evaluated. Patrols are not primarily a leak-detection tool, which is addressed by separate requirements at §§ 192.706 and 192.723. Though most satellites may not be able to detect small gas leaks, high-resolution camera systems and other sensors can detect other threats, such as hazardous liquid leaks, earth movement, and construction or excavation activity that traditional surveys intend to address. Lower-resolution tools may not be suitable for detecting such threats, and aerial or satellite technology may not be suitable for all possible threats. Ultimately, the operator is responsible for selecting the type and performance of tools necessary to observe probable risks on the pipeline ROW. PHMSA appreciates public comments on the cost and performance of satellite-based ROW monitoring technologies.

PHMSA is not proposing any revisions to the patrol frequencies or deadlines. PHMSA welcomes comments on the potential benefits of clarifying that the patrol deadlines apply to the date that patrol data is collected, the date it is analyzed, or both. PHMSA also prepared a risk assessment (preliminary regulatory impact analysis) in developing the NPRM to address the comments received in response to the DFR.

Commenting Instructions: Please include the docket number PHMSA-2025-0118 at the beginning of your comments. If you submit your comments by mail, submit two copies. If you wish to receive confirmation that PHMSA received your comments, include a self-addressed stamped postcard. Internet users may submit comments at <https://www.regulations.gov>.

Note: Comments are posted without changes or edits to <https://www.regulations.gov>, including any personal information provided. There is a privacy statement published on <https://www.regulations.gov>.

Privacy Act: In accordance with 5 U.S.C. § 553(c), DOT solicits comments from the public to inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to <https://www.regulations.gov>, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at <https://www.dot.gov/privacy>.

Confidential Business Information: Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA, 5 U.S.C. § 552), CBI is exempt from public disclosure. It is important that you clearly designate the comments submitted as CBI if: your comments responsive to this document contain commercial or financial information that is customarily treated as private; you actually treat such information as private; and your comment is relevant or responsive to this notice. Pursuant to 49 CFR 190.343, you may ask PHMSA to provide confidential treatment to information you give to the agency by taking the following steps: (1) mark each page of the original document submission containing CBI as “Confidential;” (2) send PHMSA, along with the original document, a second copy of the original document with the CBI deleted; and (3) explain why the information that you are submitting is CBI. Submissions containing CBI should be sent to Sayler Palabrica, Office of Pipeline Safety Standards and Rulemaking Division, Pipeline and Hazardous Materials Safety Administration (PHMSA), 2nd Floor, 1200 New Jersey Avenue S.E., Washington, D.C. 20590-0001, or by e-mail at sayler.palabrica@dot.gov. Any materials PHMSA receives that is not specifically designated as CBI will be placed in the public docket.

Docket: For access to the docket to read background documents or comments received, go to <http://www.regulations.gov>. Follow the online instructions for accessing the docket.

Alternatively, you may review the documents in person at the street address listed above.

II. Regulatory Analysis and Notices

A. Legal Authority

This proposed rule is published under the authority of the Secretary of Transportation set forth in the Federal Pipeline Safety Laws (49 U.S.C. § 60101 *et seq.*) and delegated to the PHMSA Administrator pursuant to 49 CFR 1.97.

B. Statutory Requirement and Executive Order 12866

The Federal Pipeline Safety Laws (49 U.S.C. § 60102(b)) require that PHMSA prepare a risk assessment that identifies the costs and benefits associated with a proposed regulatory change. E.O. 12866, *Regulatory Planning and Review*, as implemented by DOT Order 2100.6B (“Policies and Procedures for Rulemaking”) and DOT Order 2100.7 (“Ensuring Reliance upon Sound Economic Analysis in Department of Transportation Policies, Programs, and Activities”), requires agencies to regulate in the “most cost-effective manner,” to make a “reasoned determination that the benefits of the intended regulation justify its costs,” and to develop regulations that “impose the least burden on society.” In arriving at those conclusions, E.O. 12866 requires that agencies should consider “both quantifiable measures . . . and qualitative measures of costs and benefits that are difficult to quantify” and “maximize net benefits . . . unless a statute requires another regulatory approach.” E.O. 12866 also requires that “agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating.” DOT Order 2100.6B directs that PHMSA and other Operating Administrations must generally choose the “least costly regulatory alternative that achieves the relevant objectives” unless required by law or compelling safety need. DOT Order 2100.6B also specifies that regulations should generally “not be issued unless their benefits are expected to exceed their costs” except where required by law or compelling safety need. DOT Order 2100.7

requires that “all rulemaking activities shall be based on sound economic principles and analysis supported by rigorous cost-benefit requirement.”

E.O. 12866 and DOT Order 2100.6B also require that PHMSA submit “significant regulatory actions” to the Office of Information and Regulatory Affairs (OIRA) within the Executive Office of the President’s Office of Management and Budget (OMB) for review. This final rule is a not significant regulatory action pursuant to E.O. 12866; OMB also has not designated this rule as a “major rule” as defined by the Congressional Review Act (5 U.S.C. § 801 *et seq.*).

PHMSA has complied with the procedural and analytical requirements in E.O. 12866 as implemented by DOT Order 2100.6B and DOT Order 2100.7, as well as the requirements in 49 U.S.C. § 60102(b) and preliminarily determined that this proposed rule will result in cost savings by reducing regulatory burdens and regulatory uncertainty for gas, hazardous liquid, and carbon dioxide pipeline facility operators by clarifying that cost-effective remote sensing technologies are acceptable methods for performing patrols. The accompanying Preliminary Regulatory Impact Analysis provides detailed cost assessments of the various patrol options that facility operators could potentially use. PHMSA estimates that the changes in the proposed rule will result in annualized cost savings of \$26.2 million. PHMSA expects these cost savings may also result in reduced costs for the public to whom pipeline operators generally transfer a portion of their compliance costs. PHMSA has also preliminarily determined that the proposed rule will not have any adverse safety and environmental effects since operators are required to select patrol options that meet or exceed the performance standard for patrol requirements.

C. Executive Orders 14192 and 14219

This proposed rule, if finalized as proposed, is expected to be a deregulatory action pursuant to E.O. 14192, *Unleashing Prosperity Through Deregulation*. PHMSA estimates that the total costs of the NPRM on the regulated community will be less than zero. Nor does this rulemaking implicate any of the factors identified in section 2(a) of E.O. 14219, *Ensuring Lawful*

Governance and Implementing the President’s “Department of Government Efficiency” Deregulatory Initiative, indicative that a regulation is “unlawful . . . [or] that undermine[s] the national interest.”

D. Energy-Related Executive Orders 13211, 14154, and 14156

The President has declared in E.O. 14156, *Declaring a National Energy Emergency*, a National emergency to address America’s inadequate energy development production, transportation, refining, and generation capacity. Similarly, E.O. 14154, *Unleashing American Energy*, asserts a Federal policy to unleash American energy by ensuring access to abundant supplies of reliable, affordable energy from (inter alia) the removal of “undue burden[s]” on the identification, development, or use of domestic energy resources such as PHMSA-jurisdictional gases and hazardous liquids. PHMSA preliminarily finds this proposed rule is consistent with each of E.O. 14156 and E.O. 14154. The proposed rule will give affected pipeline operators relief by clarifying that cost-effective remote sensing technologies are acceptable ways for operators to perform patrols. PHMSA therefore expects the regulatory amendments in this proposed rule will in turn increase national pipeline transportation capacity and improve pipeline operators’ ability to provide abundant, reliable, affordable natural gas, petroleum, petroleum products, other hazardous liquids, and carbon dioxide in response to residential, commercial, and industrial demand.

However, this proposed rule is not a “significant energy action” under E.O. 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*, which requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” Because this proposed rule is not a significant action under E.O. 12866, it will not have a significant adverse effect on supply, distribution, or energy use; OIRA has therefore not designated this proposed rule as a significant energy action.

E. Executive Order 13132: Federalism

PHMSA analyzed this proposed rule in accordance with the principles and criteria contained in E.O. 13132, *Federalism*, and the Presidential Memorandum (“Preemption”) published in the *Federal Register* on May 22, 2009. E.O. 13132 requires agencies to assure meaningful and timely input by State and local officials in the development of regulatory policies that may have “substantial direct effects on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government.”

Though the proposed rule may (when finalized) operate to preempt some State requirements, it would not impose any regulation that has substantial direct effects on the States, the relationship between the National Government and the States, or the distribution of power and responsibilities among the various levels of government. Section 60104(c) of the Federal Pipeline Safety Laws prohibits certain State safety regulation of interstate pipelines. Under the Federal Pipeline Safety Laws, States that have submitted a current certification under section 60105(a) can augment Federal pipeline safety requirements for intrastate pipelines regulated by PHMSA but may not approve safety requirements less stringent than those required by Federal law. A State may also regulate an intrastate pipeline facility that PHMSA does not regulate. The preemptive effect of the regulatory amendments in this proposed rule is limited to the minimum level necessary to achieve the objectives of the Federal Pipeline Safety Laws. Therefore, the consultation and funding requirements of E.O. 13132 do not apply.

F. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA, 5 U.S.C. § 601 *et seq.*) requires Federal agencies to conduct an Initial Regulatory Flexibility Analysis (IRFA) for a proposed rule subject to notice-and-comment rulemaking unless the agency head certifies that the rulemaking will not have a significant economic impact on a substantial number of small entities. E.O. 13272, *Proper Consideration of Small Entities in Agency Rulemaking*, obliges agencies to establish procedures promoting compliance with the RFA. DOT posts its implementing guidance on a dedicated

webpage.⁷ PHMSA developed this proposed rule in accordance with E.O. 13272 and DOT implementing guidance to ensure compliance with the RFA. PHMSA expects the proposed rule to reduce regulatory burdens by codifying existing guidance that operators are permitted to use remote sensing technologies for their right-of-way patrols. Further, the changes proposed here are not expected to impose additional burdens on any operator. Therefore, PHMSA certifies the proposed rule (if finalized) will not have a significant impact on a substantial number of small entities.

G. Unfunded Mandates Reform Act of 1995

The Unfunded Mandates Reform Act (UMRA, 2 U.S.C. § 1501 *et seq.*) requires agencies to assess the effects of Federal regulatory actions on State, local, and Tribal governments, and the private sector. For any proposed or final rule that includes a Federal mandate that may result in the expenditure by State, local, and Tribal governments, in the aggregate of \$100 million or more in 1996 dollars (\$203 million in 2024 dollars) in any given year, the agency must prepare, amongst other things, a written statement that qualitatively and quantitatively assesses the costs and benefits of the Federal mandate.

This proposed rule does not impose unfunded mandates under UMRA. PHMSA does not expect the proposed rule will result in costs of \$100 million or more (in 1996 dollars) per year for either State, local, or Tribal governments, or to the private sector.

H. National Environmental Policy Act

The National Environmental Policy Act (NEPA, 42 U.S.C. § 4321 *et seq.*) requires that Federal agencies assess and consider the impact of major Federal actions on the human and natural environment.

PHMSA analyzed this proposed rule in accordance with NEPA and issues this draft Finding of No Significant Impact (FONSI) because it has preliminarily determined that the

⁷ DOT, *Rulemaking Requirements Concerning Small Entities*, <https://www.transportation.gov/regulations/rulemaking-requirements-concerning-small-entities>.

rulemaking will not adversely affect safety and therefore will not significantly affect the quality of the human and natural environment. The public is invited to comment on the impact of the proposed action.

I. Executive Order 13175

PHMSA analyzed this proposed rule according to the principles and criteria in E.O. 13175, *Consultation and Coordination with Indian Tribal Governments*, and DOT Order 5301.1A (“Department of Transportation Tribal Consultation Policies and Procedures”). E.O. 13175 requires agencies to assure meaningful and timely input from Tribal government representatives in the development of rules that significantly or uniquely affect Tribal communities by imposing “substantial direct compliance costs” or “substantial direct effects” on such communities or the relationship or distribution of power between the Federal Government and Tribes.

PHMSA assessed the impact of the proposed rule and determined that it will not significantly or uniquely affect Tribal communities or Indian Tribal governments. The rulemaking’s regulatory amendments have a broad, national scope; therefore, this proposed rule will not significantly or uniquely affect Tribal communities, much less impose substantial compliance costs on Native American Tribal governments or mandate Tribal action. For these reasons, PHMSA has concluded that the funding and consultation requirements of E.O. 13175 and DOT Order 5301.1A do not apply.

J. Paperwork Reduction Act

The Paperwork Reduction Act (44 U.S.C. § 3501 *et seq.*) and its implementing regulations at 5 CFR 1320.8(d) requires that PHMSA provide interested members of the public and affected agencies with an opportunity to comment on information collection and recordkeeping requests. This rulemaking will not create, amend, or rescind any existing information collections.

K. Executive Order 13609 and International Trade Analysis

E.O. 13609, *Promoting International Regulatory Cooperation*, requires agencies to consider whether the impacts associated with significant variations between domestic and international regulatory approaches are unnecessary or may impair the ability of American business to export and compete internationally. In meeting shared challenges involving health, safety, labor, security, environmental, and other issues, international regulatory cooperation can identify approaches that are at least as protective as those that are or would be adopted in the absence of such cooperation. International regulatory cooperation can also reduce, eliminate, or prevent unnecessary differences in regulatory requirements.

Similarly, the Trade Agreements Act of 1979 (Pub. L. No. 96-39), as amended by the Uruguay Round Agreements Act (Pub. L. No. 103-465), prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. For purposes of these requirements, Federal agencies may participate in the establishment of international standards, so long as the standards have a legitimate domestic objective, such as providing for safety, and do not operate to exclude imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

PHMSA engages with international standards setting bodies to protect the safety of the American public. PHMSA has assessed the effects of the proposed rule and has determined that its proposed regulatory amendments will not cause unnecessary obstacles to foreign trade.

L. Cybersecurity and Executive Order 14028

E.O. 14028, *Improving the Nation's Cybersecurity*, directs the Federal Government to improve its efforts to identify, deter, and respond to “persistent and increasingly sophisticated malicious cyber campaigns.” PHMSA has considered the effects of the proposed rule and has determined that its proposed regulatory amendments would not materially affect the cybersecurity risk profile for pipeline facilities.

List of Subjects

49 CFR Part 192

Natural gas, Pipeline safety.

49 CFR Part 195

Pipeline safety.

In consideration of the foregoing, PHMSA proposes to amend 49 CFR parts 192 and 195 as follows:

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

1. The authority citation for 49 CFR part 192 continues to read as follows:

Authority: 30 U.S.C. 185(w)(3), 49 U.S.C. 5103, 60101 *et seq.*, and 49 CFR 1.97.

2. Revise § 192.705(c) to read as follows:

§ 192.705 Transmission lines: Patrolling

* * * * *

(c) Methods of patrolling include observation or imaging from walking, driving, flying via manned or unmanned aerial systems, satellite, or appropriate means for observing current surface conditions in the right-of-way.

PART 195—TRANSPORTATION OF HAZARDOUS LIQUIDS BY PIPELINE

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

Authority: 30 U.S.C. 185(w)(3), 49 U.S.C. 5121, 60101 *et seq.*, and 49 CFR 1.97.

4. Revise § 195.412(a) to read as follows:

§ 195.412 Inspection of rights-of-way and crossings under navigable waters

(a) Each operator shall, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on or adjacent to each pipeline right-of-way.

Methods of inspection include observation or imaging from walking, driving, flying via manned

or unmanned aerial systems, satellite, or appropriate means for observing current surface conditions in the right-of-way.

* * * * *

Issued in Washington, D.C., on April 22, 2026, under the authority delegated in 49 CFR 1.97.

Paul J. Roberti,

Administrator.

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