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PHMSA Requests Comments on Modernizing Hazardous Materials Regulations to Facilitate Safe Transportation Using Highly Automated Transportation Systems

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By Susan Olenchuk and Joseph Hainline

On December 4, 2025, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued an advance notice of proposed rulemaking (ANPRM) seeking stakeholder input on how to modernize the Hazardous Materials Regulations (HMR) to accommodate highly automated transportation systems and their potential use in transporting hazardous materials (hazmat). Highly automated transportation systems include unmanned aircraft systems (UAS), delivery robots, and fully automated motor vehicles. Given the potential for highly automated technology to transform the transportation of hazmat, PHMSA is undertaking a comprehensive review of HMR requirements and seeking stakeholder input to inform that review.

Comments on the ANPRM are due March 4, 2026. The ANPRM is the first step in PHMSA's rulemaking process that is expected to result in revised regulations that will address emerging technologies, risks and challenges associated with using highly automatic commercial transportation systems to transport hazmat. The ANPRM presents an opportunity for affected stakeholders across transportation sectors to inform PHMSA's HMR rulemaking process.

Hazardous Materials Regulations

The HMR govern the transportation of hazmat in commerce by truck, rail, vessel, and aircraft. The HMR apply to "manufacturers" of packaging used to transport hazmat, "offerors" that prepare or tender hazmat for shipment, and "carriers" that transport hazmat. PHMSA, a modal agency within the U.S. Department of Transportation, works with multiple federal agencies, including the Federal Motor Carrier Safety Administration (FMCSA), the Federal Aviation Administration (FAA), the Federal Railroad Administration (FRA), and the United States Coast Guard (USCG), to facilitate the safe hazmat transportation by various transportation modes. PHMSA also works with the National Highway Traffic Safety Administration (NHTSA) and the DOT Office of the Secretary on issues related to highly automated transportation systems.

While the ANPRM does not propose any specific regulatory changes at this time, it seeks a range of information to inform PHMSA's efforts to make needed revisions to the HMR to address highly automated transportation systems and to develop guidance, legal clarifications, and educational resources. PHMSA is focused on current technologies and practices and on exploring future possibilities as automation continues to evolve. PHMSA also requests input on how aspects of the ANPRM may raise special concerns or considerations for small businesses and small entities, and alternative approaches that should be considered to achieve the agency's objectives while minimizing costs or impacts on small entities.

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The ANPRM

The ANPRM seeks comments on Potential Regulatory Updates to the HMR for Highly Automated Transportation Systems and on Highly Automated Transportation Systems by Mode. Finally, PHMSA poses a series of questions specific to multiple transportation modes.

Requests for Comments on Potential Regulatory Updates to the HMR for Highly Automated Transportation Systems

Special Permits. *A* special permit enables a person to relief from HMR provisions. PHMSA notes that it has received applications for special permits requesting relief from the HMR to transport consumer-type products delivered by UAS. In the ANPRM, PHMSA requests input on whether changes to the special permit process are necessary for highly automated transport systems.

Shipping Papers and Emergency Response Information. Because an automated transport vehicle may not contain a human who can present a shipping paper or notify responders of an incident, using highly automated transportation systems to transport hazmat may present challenges for compliance with shipping paper and emergency response information requirements. The ANPRM seeks input on automatic incident response notification systems and on potential HMR changes to shipping paper and emergency response information.

Hazard Communications. Marking, labels, and placards are important components of safety protocols for employees handling hazmat and for emergency responders. PHMSA requests information on how transporting hazmat using highly automated transportation systems may affect the ability to comply with the intent of these HMR requirements. PHMSA also requests input on alternatives to current marking, labeling, and placarding requirements that might be more appropriate for highly automated transportation systems.

Training. HM employees must be trained on HMR requirements. PHMSA observes that the scope and nature of training requirements may need change as automation technology evolves and affects employees' roles and responsibilities. PHMSA requests input on potential effects on HMR training requirements and alternatives to current training requirements.

Security Plans and In-Depth Security Training. The ANPRM observes that emerging technologies related to highly automated transportation systems may present significant security threats, including cybersecurity risks. Noting that other agencies, such as the Transportation Security Administration (TSA), are proposing security regulations, PHMSA requests input on whether changes to security plan applicability requirements and in-depth security training are needed.

Packaging. PHMSA seeks input on potential changes that may be needed to address HMR packaging requirements for highly automated transportation systems.

Loading and Unloading. PHMSA requests comments on recommended revisions to the HMR's loading and unloading procedures to account for transporting hazmat by highly automated transportation systems.

Requests for Comments on Highly Automated Transportation Systems by Mode

Rail Transportation. The rail transportation of hazmat is governed by Part 174 of the HMR. PHMSA is collaborating with the FRA to review the use of highly automated rail systems for transporting hazmat and requests input on impacts for rail-specific regulations.

Air Transportation. Part 175 of the HMR governs the transportation of hazmat by air. In collaboration with the FAA, PHMSA requests input on how UAS, Advanced Air Mobility (AAM), and other highly automated transportation systems can meet the intent of the HMR and air-specific regulations.

Vessel Transportation. Hazmat transportation by vessel is governed by Part 176 of the HMR. PHMSA is collaborating with the USCG to explore the transportation of hazmat using highly automated vessel transportation systems and requests input on how they might affect hazmat transportation and vessel-specific HMR requirements.

Highway Transportation. Part 177 of the HMR governs hazmat transportation by highway. The ANPRM states that the FMCSA and PHMSA recognize the need to evaluate and update the HMR to account for the integration of Automated Driving Systems (ADS) in the highway transportation of hazmat, including whether such transportation by fully automated commercial motor vehicles should be restricted or prohibited under the FMCSA's regulations. The ANPRM requests input from industry experts, technology developers, safety organizations, and emergency responders to ensure that changes to the HMR are grounded in current and future technological realities while continuing to prioritize safety. The ANPRM also requests input on how highly automated commercial motor vehicles might affect hazmat transportation and the highway specific HMR regulations.

Finally, the ANPRM poses a series of transportation mode-specific questions to identify potential updates to the HMR.

For More Information

Van Ness Feldman counsels clients on compliance with PHMSA's safety requirements applicable to the transportation of hazardous materials and on PHMSA's pipeline safety regulations. If you would like additional information about PHMSA's ANPRM or assistance filing comments, please contact Susan Olenchuk, Joseph Hainline, or any member of the firm's Pipeline & LNG practice group.