

**Billing Code: 4910-60-P**

**DEPARTMENT OF TRANSPORTATION**

**Pipeline and Hazardous Materials Safety Administration**

**49 CFR Parts 171, 172, 173, 174, 177, 178, 179, and 180**

**[Docket No. PHMSA-2016-0077 (HM-251D)]**

**RIN 2137-AF24**

**Hazardous Materials: Volatility of Unrefined Petroleum Products and Class 3 Materials**

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

**ACTION:** Advance notice of proposed rulemaking (ANPRM).

**SUMMARY:** PHMSA is considering revising the Hazardous Materials Regulations (HMR) to establish vapor pressure limits for unrefined petroleum-based products and potentially all Class 3 flammable liquid hazardous materials that would apply during the transportation of the products or materials by any mode. PHMSA is currently assessing the merits of a petition for rulemaking submitted by the Attorney General of the State of New York regarding vapor pressure standards for the transportation of crude oil. The petition requests that PHMSA implement a Reid Vapor Pressure (RVP) limit less than 9.0 pounds per square inch (psi) for crude oil transported by rail. PHMSA will use the comments in response to this ANPRM to help assess and respond to the petition and to evaluate any other potential regulatory actions related to sampling and testing of crude oil and other Class 3 hazardous materials. PHMSA will also evaluate the potential safety benefits and costs of utilizing vapor pressure thresholds within the hazardous materials classification process for unrefined petroleum-based products and Class 3 hazardous materials.

**DATES:** Comments must be received by [INSERT DATE 60 DAYS FROM PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may submit comments identified by the docket number PHMSA-2016-0077 (HM-251D) and the relevant petition number by any of the following methods:

- Federal eRulemaking Portal: <http://www.regulations.gov> Follow the instructions for submitting comments.
- Fax: 1-202-493-2251.
- Mail: Docket Management System; US Department of Transportation, West Building, Ground Floor, Room W12–140, Routing Symbol M–30, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- Hand Delivery: To the Docket Management System; Room W12–140 on the ground floor of the West Building, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Instructions: All submissions must include the agency name and docket number for this ANPRM at the beginning of the comment. To avoid duplication, please use only one of these four methods. All comments received will be posted without change to <http://www.regulations.gov> and will include any personal information you provide. All comments received will be posted without change to the Federal Docket Management System (FDMS), including any personal information.

Docket: For access to the dockets to read background documents or comments received, go to <http://www.regulations.gov> or DOT’s Docket Operations Office located at US Department of Transportation, West Building, Ground Floor, Room W12–140, Routing Symbol M–30, 1200

New Jersey Avenue, SE, Washington, DC 20590.

Privacy Act: Anyone can search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comments (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). DOT posts these comments, without edit, including any personal information the commenter provides, to [www.regulations.gov](http://www.regulations.gov), as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at [www.dot.gov/privacy](http://www.dot.gov/privacy).

**FOR FURTHER INFORMATION CONTACT:** Lad Falat, Director, Engineering and Research, (202) 366-4545, Office of Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Ave. SE, Suite E21-314, Washington, DC 20590-0001.

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## **I. Executive Summary**

On December 1, 2015, PHMSA received a petition for rulemaking from the New York State Office of the Attorney General (New York AG) proposing amendments to the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180) applicable to the transportation of crude oil by rail. PHMSA designated the petition as Petition P-1669<sup>1</sup> (P-1669 or the petition). In P-1669, the New York AG asks PHMSA to add a new paragraph (a)(6) to existing § 174.310 requiring all crude oil transported by rail to have a Reid vapor pressure (RVP) of less than 9.0 pounds per square inch (psi).<sup>2</sup> The petition is based on the premise that limiting the product's vapor pressure will reduce the risk of death or damage from fire or explosion in the event of an accident. Separately, the North Dakota Industrial Commission (NDIC) implemented a maximum vapor pressure threshold of 13.7 psi, VPCR<sub>x</sub>, Reid equivalent.<sup>3</sup> Therefore, in this ANPRM, PHMSA is asking a series of questions seeking input as to whether there should be national

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<sup>1</sup> PHMSA placed a copy of the petition in docket number PHMSA-2015-0253, which is accessible at <https://www.regulations.gov/docket?D=PHMSA-2015-0253>

<sup>2</sup> RVP was a common measurement of the vapor pressure of flammable liquids such as gasoline and crude oil

<sup>3</sup> RVP uses different equipment and procedures than Reid equivalent. For example, Reid equivalent is done using closed conditions to preserve the lighter ends, while RVP is conducted in an open test chamber.

vapor pressure thresholds for petroleum products and/or other Class 3 hazardous materials and, if so, what that thresholds should be.

PHMSA has long stressed that it is the offeror's responsibility under § 173.22 of the HMR to ensure that hazardous materials are properly classified. To reinforce this requirement, the HMR also require offerors of unrefined petroleum-based products, including crude oil, to institute a sampling and testing program in accordance with § 173.41.<sup>4</sup> There are numerous industry standards for sampling and determining vapor pressure of crude oil and other Class 3 hazardous materials.

When taking additional steps to better understand hazardous materials and the risks those materials may pose in transportation, DOT always strives to rely on the best available science and information to inform its decision making. Section 7309 of the "Fixing America's Surface Transportation Act of 2015," or the "FAST Act," directs the Secretary of Energy, in cooperation with the Secretary of Transportation (Secretary), to submit a report to Congress that contains results of the Crude Oil Characteristics Research Sampling, Analysis and Experiment (SAE) Plan<sup>5</sup> (the Sandia Study discussed in Section IV.C of this ANPRM will implement the SAE Plan), as well as recommendations for regulations and legislation based on the findings to improve the safe transport of crude oil. The findings of the Sandia Study will help inform the Department as it moves forward.

## **II. Objective of this ANPRM**

Federal hazardous materials law authorizes the Secretary to "prescribe regulations for the

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<sup>4</sup> "Unrefined petroleum-based products" refers to hazardous hydrocarbons that are extracted from the earth and have not yet been refined. In the high-hazard flammable trains (HHFT) final rule, PHMSA replaced "mined liquids and gases" with "unrefined petroleum-based products" based on comments received in response to the HHFT NPRM.  
<sup>5</sup> <http://energy.gov/sites/prod/files/2016/06/f32/Crude%20Oil%20Characteristics%20Research%20SAE%20Plan.pdf>

safe transportation, including security, of hazardous materials in intrastate, interstate, and foreign commerce.” 49 U.S.C. 5103(b)(1). The Secretary has delegated this authority to PHMSA, 49 CFR § 1.97(b). The HMR are designed to achieve three primary goals: (1) help ensure that hazardous materials are packaged and handled safely and securely during transportation; (2) provide effective communication to transportation workers and emergency responders of the hazards of the materials being transported; and (3) minimize the consequences of an accident or incident should one occur. The hazardous material regulatory system is a risk management system that is prevention-oriented and focused on identifying safety or security hazards and reducing the probability and consequences of a hazardous material release.

Under the HMR, hazardous materials are categorized into hazard classes and packing groups based on analysis of and experience with the risks they present during transportation. The HMR: (1) specify appropriate packaging and handling requirements for hazardous materials based on this classification and require a shipper to communicate the material's hazards through the use of shipping papers, package marking and labeling, and vehicle placarding; (2) require shippers to provide emergency response information applicable to the specific hazard or hazards of the material being transported; and (3) mandate training requirements for persons who prepare hazardous materials for shipment or transport hazardous materials in commerce. The HMR also include operational requirements applicable to each mode of transportation.

The Administrative Procedure Act (APA), 5 U.S.C. 551, *et seq.* requires Federal agencies to give interested persons the right to petition an agency to issue, amend, or repeal a rule. 5 U.S.C. 553(e). In accordance with PHMSA’s rulemaking procedure regulations in 49 CFR part 106, interested persons may ask PHMSA to add, amend, or repeal a regulation by filing a petition for rulemaking along with information and arguments supporting the requested action

(§ 106.95).

The petition is based on the premise that limiting the vapor pressure, as measured by RVP, of crude oil in rail transport below 9.0 psi will reduce the risk of death or damage from fire or explosion in the event of an accident. However, in order to grant the petition, PHMSA would have to:

- Determine the best metric or combination of metrics (vapor pressure or other metric) for measuring and controlling fire and explosion risk in crude oil transport;
- Quantify the improvement in safety, if any, due to risk reduction from implementation of vapor pressure thresholds at varying levels;
- Identify the measurement techniques necessary to establish compliance;
- Identify offerors' compliance strategies and market impacts with RVP standards at varying levels of stringency, and estimate their economic costs and environmental impacts;
- Identify other regulations and industry practices, such as volatile organic compound emissions standards imposed through the Clean Air Act, or State regulations, or pipeline operator RVP standards, potentially affecting compliance strategies and costs, and safety benefits;
- Evaluate the extent to which use of DOT Specification 117 tank cars mitigates the risk of transporting crude oil;
- Compare compliance costs of mitigation strategies with risk reduction from adoption of the petition; and
- Balance the benefits and costs in setting the level of the chosen metric. If RVP is the best metric, PHMSA would have to determine that a particular RVP limit is preferable to any

other limit. For example, if 9.0 psi is chosen, PHMSA would need to show that 9.0 psi is preferable to some other potential limits, such as 8.0 or 11.0. This would include considering whether there is a “safe” level of RVP below which risks are minimal (which would lead to little safety benefit from reducing RVP further), or some level of RVP where risks do not further increase.

In this ANPRM, PHMSA is seeking public comment to obtain the views of those who are affected by the NDIC Order, as well as those who are likely to be impacted by the changes proposed in the petition, including those who are likely to benefit from, be adversely affected by, or potentially be subject to additional regulation. Additionally, PHMSA seeks comment from stakeholders regarding the many factors PHMSA must consider when evaluating the need for and impacts of regulatory changes. In general, PHMSA requests comments on:

- Safety benefits of any proposed regulatory change, including the relevant scientific or other empirical support;
- Economic impacts, including data, on the costs and benefits; and
- Ease of compliance with the regulatory changes that Petition P-1669 requests.

This ANPRM will provide an opportunity for public participation in the development of regulatory amendments and promote greater exchange of information and perspectives among the various stakeholders. PHMSA issued this notice to help respond to Petition P-1669 and, more broadly, to consider a focused and well-developed regulatory path forward that reflects the views of all relevant parties.

### **III. Petition P-1669 & Other Efforts to Set a Vapor Pressure Standard For Crude Oil**

A. Summary & Supporting Data for P-1669

In Petition P-1669,<sup>6</sup> the New York State Office of the Attorney General petitioned PHMSA to revise § 174.310 to establish a nationwide vapor pressure standard for crude oil shipped by rail throughout the United States. The petition states, “At present, no federal regulation exists to limit the volatility of crude oil shipped in railroad tank cars. This petition for rulemaking seeks to close that loophole and reduce the risk of harm to American communities.” The petition further requests PHMSA to “assert its rulemaking authority, as delegated by the Secretary of Transportation, and establish a federal RVP limit for crude oil transported by rail in the United States at an appropriate level that is less than 9.0 psi.”

A copy of the petition is available in the public docket for this ANPRM, and can be viewed at either <http://www.regulations.gov> or DOT’s Docket Operations Office (*see* ADDRESSES section above).

Petition P-1669 makes the following claims to support the establishment of a vapor pressure threshold for crude oil. Specifically, the petition asserts:

1. Shipments of Bakken crude oil by rail are vastly expanding;
2. A disturbing trend of train explosions [exists] involving shipments of Bakken crude oil;
3. Bakken crude oil is highly volatile and extremely flammable; and
4. The volatility of crude oil can be effectively reduced with existing technology.

The petition also provides the following table to highlight the vapor pressures of the crude oil involved in several high-profile train accidents:

| Source                              | Reid Vapor pressure of Bakken crude oil     |
|-------------------------------------|---|
| Lac-Mégantic, Quebec (July 6, 2013) | Average between 9.0 to 9.5 psi <sup>7</sup> |

<sup>6</sup> <https://www.regulations.gov/docket?D=PHMSA-2015-0253>

<sup>7</sup> See Transportation Safety Board (TSB) of Canada Laboratory Report LP148/2013, Aug. 19, 2014. The TSB Report notes that the vapor pressure measurements of these samples may be lower than the vapor pressure of the

|   |                                   |
|---|-----------------------------------|
| Heimdal, North Dakota (May 6, 2015)           | 10.8 psi <sup>8</sup>             |
| PHMSA Operation Safe Delivery                 | Average of 12.3 psi <sup>9</sup>  |
| Mt. Carbon, West Virginia (February 16, 2015) | 13.9 psi <sup>10</sup>            |
| Lynchburg, Virginia (April 2015)              | Average of 14.3 psi <sup>11</sup> |

In addition, Petition P-1669 summarizes the NDIC Standards (discussed in Section IV.E of this ANPRM) and the HHFT final rule (discussed in Section IV.B of this ANPRM) arguing in support of a new RVP limit of less than 9.0 psi for the safe transportation of crude oil by rail. However, the petition did not identify specific costs and benefits, or robust empirical information, to support the proposed limit.

**B. North Dakota Industrial Commission Oil Conditioning Order No. 25417**

In December 2014, NDIC issued Oil Conditioning Order No. 25417 (Order), which requires operators of Bakken crude oil produced in the state of North Dakota to separate the gaseous and light hydrocarbons from all Bakken crude oil.<sup>12</sup> The Order requires the use of a gas-liquid separator and/or an emulsion heater-treater capable of separating the gaseous and liquid hydrocarbons, prohibits blending of Bakken crude oil with specific materials, and requires crude oil produced to have a Vapor Pressure (using ASTM D6377) not greater than 13.7 psi or 1 psi less than the vapor pressure of stabilized crude oil.

According to NDIC, the measurements taken under the Order use the ASTM D6377 with

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Bakken crude oil in the Lac-Mégantic accident: “The occurrence crude oil samples were taken at atmospheric pressure. This could lead to an underestimation of the crude oil’s volatility due to evaporation loss of very light constituents.”

<sup>8</sup> See Stern, M., “How to Prevent an Oil Train Disaster,” N.Y. Times, May 19, 2015.

<sup>9</sup> “Operation Safe Delivery Update,” Pipeline and Hazardous Materials Safety Administration, at 16, available at: [http://www.phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_8A422ABDC16B72E5F166FE34048CCCBFED3B0500/file\\_name/07\\_23\\_14\\_Operation\\_Safe\\_Delivery\\_Report\\_final\\_clean.pdf](http://www.phmsa.dot.gov/pv_obj_cache/pv_obj_id_8A422ABDC16B72E5F166FE34048CCCBFED3B0500/file_name/07_23_14_Operation_Safe_Delivery_Report_final_clean.pdf).

<sup>10</sup> See Gold, R., “Crude on Derailed Train Contained High Level of Gas,” Wall Street Journal, March 2, 2015.

<sup>11</sup> See Sobczak, B., “Crude in Va. oil-train derailment was highly volatile -- safety data,” EnergyWire, E&E Publishing, LLC, Aug. 25, 2015.

<sup>12</sup> See <https://www.dmr.nd.gov/oilgas/Approved-or25417.pdf>.

a vapor to liquid (V/L) ratio of 4 and a temperature of 100 F (37.8 C), which is equivalent to a Reid Vapor Pressure measurement. The Order requires the 13.7 psi limit to be measured as pounds per square inch absolute (psia) and not pounds per square inch gauge (psig). According to NDIC, psia is used to make clear that the pressure is relative to a vacuum rather than the ambient atmospheric pressure.

#### **IV. Background Information**

In 1990, the Research and Special Programs Administration (RSPA), the predecessor agency to PHMSA, published a final rule under Docket HM-181 which adopted a new classification system for gases, which assigned new divisions for flammable gas (2.1), non-flammable, non-toxic compressed gas (2.2), and toxic/poisonous gases (2.3). The new system defined flammable gases according to their (1) state as a gas at ambient conditions (i.e., 14.7 psia (101.4 kPa) and 68° F (20° C)) and (2) flammability, as determined by existing flammability limits. There were no vapor pressure requirements.

RSPA adopted the definition of a “gas” from the United Nations (UN) Transport of Dangerous Goods Model Regulation in an effort to harmonize its regulations with international standards in 1994. The HM-181 final rule did not address a particular method of testing vapor pressure, or otherwise address how the new definition would impact the existing definition of flammable gas in 49 CFR § 173.115. However, as late as 1990, RSPA’s definitions of gases were limited to gases under pressure, e.g., compressed gases, cryogenic liquids, and refrigerant or dispersant gases. Both the definition of compressed gas, and the related definition of flammable compressed gas, contemplated using the RVP testing method described in ASTM D 323.

A. Current HMR Requirements for the Classification of Unrefined Petroleum-Based Products

Unrefined petroleum-based products, including crude oil, have variable chemical compositions. Differences in the chemical makeup of the raw material can vary across different times and wellheads. Typically, organic materials from oil and gas production at a wellhead are passed through a “separator” to separate the gas, oil, and water from the crude oil produced. As such, there are multiple hazardous liquids that are commonly shipped from the well-site, including crude oil, condensate, and natural gas liquids.<sup>13</sup> A limited separation process, which is insufficient to remove the lightest components, could increase the volatility of the crude oil. In accordance with § 173.22 of the HMR, the offeror must consider all hazards when classifying a hazardous material. The table below identifies key classification considerations for unrefined petroleum-based products:<sup>14</sup>

| Current Classification Considerations for Unrefined Petroleum-Based Products <sup>15</sup> |          |               |   |
|--|----------|---------------|---|
| Class  | Division | Name          | Definition  |
| 2  | 2.1      | Flammable Gas | Any material which is a gas at 68 °F or less and 14.7 psia of pressure (a material which has a boiling point of 68 °F or less at 14.7 psia) which —<br>(1) Is ignitable at 14.7 psia when in a mixture of 13 percent or less by volume with air; <b>or</b><br>(2) Has a flammable range at 14.7 psia with air of at least 12 percent regardless of the lower limit. |

<sup>13</sup> Condensate refers to C<sub>5</sub>-C<sub>8</sub>, natural gas liquids (NGLs) refers to C<sub>2</sub>-C<sub>3</sub>, both separated from the crude oil during initial processing.

<sup>14</sup> The HMR define three states of matter in 49 CFR § 171.8: solid, liquid, or gas. A liquid is a material, other than an elevated temperature material, with a melting point or initial melting point of 20 °C (68 °F) or lower at a standard pressure of 101.3 kPa (14.7 psia). In other words, it is a liquid in its normal state at ambient temperature and standard pressure. A gas is a material which has a vapor pressure greater than 300 kPa (43.5 psia) at 50 °C (122 °F) or is completely gaseous at 20 °C (68 °F) at a standard pressure of 101.3 kPa (14.7 psia). A solid is a material which is not a gas or a liquid.

<sup>15</sup> kPa: kiloPascals; psia: pounds per square inch absolute; psig: pounds per square inch gage; LC<sub>50</sub>: Lethal Concentration measure.

|   |     |   |   |
|---|-----|---|---|
|   | 2.2 | Non-flammable, Non-poisonous compressed gas | Any material (or mixture) which—(1) Exerts in the packaging a gauge pressure of 200 kPa (29.0 psig/43.8 psia) or greater at 68 °F, is a liquefied gas or is a cryogenic liquid, and (2) Does not meet the definition of Division 2.1 or 2.3.  |
|   | 2.3 | Gas Poisonous by Inhalation                 | A material which is a gas at 68 °F or less and a pressure of 14.7 psia (a material which has a boiling point of 68 °F or less at 14.7 psia) and which—(1) Is known to be so toxic to humans as to pose a hazard to health during transportation, or (2) In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC <sub>50</sub> value of not more than 5000 mL/m <sup>3</sup> ( <i>see</i> §173.116(a) for assignment of Hazard Zones A, B, C or D). LC <sub>50</sub> values for mixtures may be determined using the formula in §173.133(b)(1)(i) or CGA P-20 (IBR, <i>see</i> § 171.7). |
| 3 |     | Flammable and Combustible Liquids           | <u>Flammable liquids</u> – liquid with a flash point of 140 °F or less.<br><u>Combustible liquids</u> – liquid with a flash point above 140 °F and below 200 °F that does not meet any other hazard class definition.   |
| 6 | 6.1 | Poisonous material                          | A material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity:<br>(1) Is presumed to be toxic to humans because it falls within any one of the categories specified in § 173.132(a)(1) (Oral Toxicity, Dermal Toxicity, or Inhalation Toxicity) when tested on laboratory animals (whenever possible, animal test data that has been reported in the chemical literature should be used); <b>or</b><br>(2) Is an irritating material, with properties similar to tear gas, which causes extreme irritation, especially in confined spaces.       |
| 8 |     | Corrosive material                          | A liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. A liquid, or a solid which may become liquid during transportation, that has a severe corrosion rate on steel or aluminum based on the criteria in § 173.137(c)(2) is also a corrosive material. Whenever practical, in vitro test methods authorized in § 173.137 or historical data authorized in § 173.136(c) should be used to determine whether a material is corrosive.  |

As illustrated in the above table, an offeror must account for whether their crude oil exhibits hazards beyond that of a Class 3 hazardous material. Below are some examples of the impacts of potential hazards and the risks posed if those properties are not identified and

considered:

- Dissolved gases—may result in pressure build-up inside the tank car, increasing the volatility of the material and requiring a more robust packaging.
- Corrosivity—may corrode the tank car and its components, requiring an inner lining.
- Toxicity—may pose an inhalation hazard to human life upon release from the tank car without ignition.

Part 173 of the HMR contains testing methods for the various hazard classes and respective criteria for packing groups. In the event an offeror determines a hazardous material meets more than one hazard class, the offeror must determine the primary hazard. The HMR (at § 173.2a) require a hazardous material to be classed according to the highest applicable hazard class. The following list illustrates the precedence of the hazard classes that are most frequently associated with unrefined petroleum-based products:

- (1) Division 2.3 (poisonous gases);
- (2) Division 2.1 (flammable gases);
- (3) Division 2.2 (non-flammable gases);
- (4) Division 6.1 (poisonous liquids), Packing Group I, poisonous-by-inhalation only;
- (5) Class 3 (flammable and combustible liquids);
- (6) Class 8 (corrosive materials) or Division 6.1 (poisonous liquids or solids other than Packing Group I, poisonous-by-inhalation); and
- (7) Combustible liquids.

When making classification determinations, the offeror of the hazardous material must also consider the packing groups associated with each hazard class. Packing group indicates a grouping according to the severity of the hazard presented by hazardous materials. The packing

group must be determined by applying the following criteria:

1. Class 2 Packing Group Assignment

Materials meeting the definition of Division 2.1 or 2.2 are not assigned packing groups. Division 2.3 materials are assigned hazard zones related to the toxicity of the material. See § 173.116.

2. Class 3 Packing Group Assignment

| Packing Group | Flash point (closed-cup) | Initial boiling point |
|---------------|--------------------------|-----------------------|
| I             |                          | ≤95 °F                |
| II            | <73 °F                   | >95 °F                |
| III           | ≥73 °F, ≤140 °F          | >95 °F                |

3. Class 6 – Division 6.1 Packing Group Assignment

| Packing Group | Oral toxicity LD <sub>50</sub> (mg/kg) | Dermal toxicity LD <sub>50</sub> (mg/kg) | Inhalation toxicity by dusts and mists LC <sub>50</sub> (mg/L) |
|---------------|--|--|--|
| I             | ≤5.0                                   | ≤50                                      | ≤0.2   |
| II            | >5.0 and ≤50                           | >50 and ≤200                             | >0.2 and ≤2.0  |
| III           | >50 and ≤300                           | >200 but ≤1000                           | >2.0 and ≤4.0  |

| Packing Group | Vapor concentration and toxicity   |
|---------------|--|
| I (Zone A)    | $V \geq 500 \text{ LC}_{50}$ and $\text{LC}_{50} \leq 200 \text{ mL/M}^3$  |
| I (Zone B)    | $V \geq 10 \text{ LC}_{50}$ ; $\text{LC}_{50} \leq 1000 \text{ mL/m}^3$ ; and the criteria for Packing Group I, Hazard Zone A are not met. |
| II            | $V \geq \text{LC}_{50}$ ; $\text{LC}_{50} \leq 3000 \text{ mL/m}^3$ ; and the criteria for Packing Group I, are not met.                   |
| III           | $V \geq .2 \text{ LC}_{50}$ ; $\text{LC}_{50} \leq 5000 \text{ mL/m}^3$ ; and the criteria for Packing Group I and II, are not met.        |

NOTE 1: V is the saturated vapor concentration in air of the material in mL/m<sup>3</sup> at 20 °C and standard atmospheric pressure.

NOTE 2: A liquid in Division 6.1 meeting criteria for Packing Group I, Hazard Zones A or B stated in § 173.133(a)(2) is a poisonous by inhalation subject to

additional hazard communication requirements in §§ 172.203(m), 172.313 and table 1 of 172.504(e).

4. *Class 8 – Packing Group Assignment*

| <b>Packing Group</b> | <b>Corrosivity</b>   |
|----------------------|--|
| I                    | Material that causes full thickness destruction of intact skin tissue within 60 minutes, starting after an exposure time of three minutes or less.   |
| II                   | Material (not meeting packing group I criteria) that causes full thickness destruction of intact skin tissue within 14 days starting after an exposure time of more than three minutes but not more than 60 minutes.   |
| III                  | Material (not meeting packing group I or II criteria) that causes full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after the exposure time of more than 60 minutes but not more than 4 hours; <b>or</b> Material that does not cause full thickness destruction of intact skin tissue but exhibits a corrosion rate on steel or aluminum surfaces exceeding 0.25 inch a year at a test temperature of 130 °F. |

Proper classification is a critical step in the process for ensuring hazardous materials are transported safely. Following the selection of a proper hazard class or classes and an appropriate packing group for the material, an offeror must select the name from the Hazardous Materials Table (HMT; 49 CFR § 172.101) most accurately describing the material being shipped (e.g., Petroleum crude oil). The selected name must account for all hazards present. If there is no proper shipping name that accurately describes the material and its hazards, an offeror may use a generic shipping description (e.g., Hydrocarbon gas mixture, liquefied, n.o.s.). Generic descriptions are denoted in the HMT with an “n.o.s.,” meaning “not otherwise specified.” The accurate selection of the shipping description is important in determining the proper packaging.

In 2014, the rail and oil industry, with PHMSA’s input, developed a recommended practice designed to improve crude oil rail safety through proper classification and loading

practices. The American Petroleum Institute (API) led the effort, which resulted in the development of an American National Standards Institute (ANSI) recognized recommended practice, API RP 3000, *Classifying And Loading Of Crude Oil Into Rail Tank Cars*. The API RP 3000 provides guidance on the material characterization, transport classification, and quantity measurement for overfill prevention of crude oil for the loading of rail tank cars.

On July 23, 2014, PHMSA and the Federal Railroad Administration (FRA) released a report summarizing the analysis of Bakken crude oil data gathered from August 2013 to May 2014.<sup>16</sup> PHMSA and FRA conducted tests and obtained results from 135 samples. The majority of crude oil analyzed from the Bakken region displayed characteristics consistent with those of a Class 3 flammable liquid, packing group I or II.

#### B. High-Hazard Flammable Train (HHFT) Rulemaking

On August 1, 2014, PHMSA, in coordination with FRA, published a notice of proposed rulemaking (NPRM) entitled “Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains” (HM-251; 79 FR 45015)<sup>17</sup> proposing requirements to reduce the consequences and, in some instances, reduce the probability of accidents involving trains transporting large quantities of Class 3 flammable liquids. In the NPRM, PHMSA indicated that the properties of unrefined petroleum-based products, including crude oil, are variable based on time, method, and location of extraction, whereas manufactured goods often undergo a strict quality assurance process designed to ensure characteristics are within defined parameters. Unlike manufactured goods, organic materials from oil and gas

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<sup>16</sup> See [http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Hazmat/07\\_23\\_14\\_Operation\\_Safe\\_Delivery\\_Report\\_final\\_clean.pdf](http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Hazmat/07_23_14_Operation_Safe_Delivery_Report_final_clean.pdf).

<sup>17</sup> See <https://www.gpo.gov/fdsys/pkg/FR-2014-08-01/pdf/2014-17764.pdf>.

production represent a unique challenge in regards to classification. The chemical makeup of the raw material can vary over time and geographical location. As noted earlier, typically, organic materials from oil and gas production at a wellhead are passed through a “separator” to remove most of the gas, sediment, and water from the crude oil. As such, there are multiple hazardous liquids that are commonly shipped from the well-site, including crude, natural gas condensate, and natural gas liquid.

Given this variability, PHMSA stressed that it is the offeror’s responsibility, under § 173.22 of the HMR, to ensure hazardous materials are properly classified. To reinforce this requirement, PHMSA proposed a new § 173.41 explicitly requiring a sampling and testing program for unrefined petroleum-based products, including crude oil.

In the HHFT NPRM, PHMSA also sought comments from the public on the role of vapor pressure in classifying flammable liquids and selecting packagings, as well as whether vapor pressure thresholds should be established. PHMSA did this based on comments received to the HHFT ANPRM (78 FR 54849). Individuals, government organizations, and environmental groups, such as the Delaware Riverkeeper Network, supported mandating vapor pressure testing that in their words would “increase safety and accuracy.” Environmental groups and offeror Quantum Energy also suggested packaging selection should be based on vapor pressure. Industry stakeholders, such as the Dangerous Goods Advisory Council and the American Fuel and Petrochemical Manufacturers (AFPM), stated vapor pressure testing was unnecessary. For example, AFPM specifically stated “Bakken crude oil vapor pressures appear to be within operational limits required for transport in pipelines (facility piping and transmission lines) and for purposes of storage in floating roof tanks; thus operational vapor pressure limits do not

necessitate stabilization in advance of rail transportation.”<sup>18</sup>

On May 8, 2015, PHMSA, in coordination with FRA, published a final rule entitled “Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains” (HM-251; 80 FR 26643) to codify requirements in the HMR to reduce the consequences and, in some instances, reduce the probability of accidents involving trains transporting large quantities of Class 3 flammable liquids. In regard to the classification of unrefined petroleum-based products, the final rule, like the NPRM before it, stressed the offeror’s responsibility to properly classify and describe a hazardous material. In the rule, PHMSA codified § 173.41 to require a sampling and testing program for unrefined petroleum-based products. PHMSA intended § 173.41 to provide the industry with a direct way of establishing a program to consider the varying characteristics and properties of unrefined petroleum-based products. The program applies to all modes of transportation and offerors must certify that a program is in place, document the testing and sampling program outcomes, and make information available to DOT personnel upon request.

In the HHFT final rule, PHMSA indicated that it could not adopt any other specific changes related to vapor pressure, exceptions for packing group, or incentives to reduce volatility, because PHMSA did not propose them in the NPRM. 80 FR 26643, 26665.<sup>19</sup> However, PHMSA indicated it might consider addressing these comments in a future action. Based on the comments received, and P-1669, PHMSA requests comments regarding the role of “vapor pressure” in the classification process and specifically in regards to unrefined petroleum-based products, such as crude oil.

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<sup>18</sup> <https://www.regulations.gov/document?D=PHMSA-2012-0082-3274>

<sup>19</sup> <https://www.gpo.gov/fdsys/pkg/FR-2015-05-08/pdf/2015-10670.pdf>

### C. Sandia Study

In 2014, the DOT and the U.S. Department of Energy (DOE) commissioned a review of available crude oil chemical and physical property data literature<sup>20</sup> to characterize and define tight crude oils based on their chemical and physical properties, and identify properties that could contribute to increased potential for accidental combustion.<sup>21</sup> Sandia National Laboratories (Sandia) conducted this review and focused on crude oil's potential for ignition, combustion, and explosion. A partial list of properties surveyed includes density (expressed as API gravity), vapor pressure, initial boiling point, boiling point distribution, flash point, gas-oil ratio, "light ends" (dissolved gases—including nitrogen, carbon dioxide, hydrogen sulfide, methane, ethane, and propane—and butanes and other volatile liquids) composition, and flash gas composition. Although the review yielded a large database encompassing a wide variety of crude oils and their properties, it also illustrated the difficulty in utilizing available data as the basis for accurately defining and meaningfully comparing crude oils.

An important outcome of the review was formal recognition of the wide-ranging variability in crude oil sample type, sampling method, and analytical method, as well as the acknowledgement that this variability limits the adequacy of the available crude oil property data set as the basis for establishing effective and affordable safe transport guidelines. In recognition of the need for improved understanding of crude oil, and especially tight crude oil properties, the Sandia Study was designed to characterize tight and conventional crudes based on key chemical and physical properties and to identify properties that may contribute to increased likelihood and/or severity of combustion events that could arise during handling and transport. The work

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<sup>20</sup> See <http://prod.sandia.gov/techlib/access-control.cgi/2015/151823.pdf>.

<sup>21</sup> Tight oil is a type of oil extracted from petroleum-bearing formations of low permeability (typically shale or tight sandstone). These formations produce oil through hydraulic fracturing.

scope represents a phased approach, in that knowledge gained from completing each task will inform the execution of subsequent tasks to maximize efficiency in achieving overall plan objectives. Through four tasks, the SAE Plan,<sup>22</sup> will characterize tight and conventional crudes based on identified key chemical and physical qualities and identify properties that may contribute to increased likelihood and/or severity of combustion events that could arise during handling and transport. This project is currently in Task 2, which is designed to determine what methods of sampling and analysis are suitable for characterizing the physical and chemical properties of different crude oils.

D. PHMSA Actions

On January 2, 2014, PHMSA issued a safety alert to notify the public, emergency responders, shippers, and carriers that crude oil from the Bakken region may be more flammable than traditional heavy crude oil.<sup>23</sup> The alert was a follow-up to the PHMSA and FRA joint safety advisory entitled, “Safety and Security Plans for Class 3 Hazardous Materials Transported by Rail,” 78 FR 69745, published November 20, 2013. The safety advisory stressed that offerors need to properly classify and describe hazardous materials being offered for transportation in accordance with § 173.22 of the HMR.

E. Pipeline Operators

In recent months, the volume of crude oil exported by rail from North Dakota has steadily declined to less than 400,000 barrels per day. The North Dakota State Pipeline Authority

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<sup>22</sup> See <http://energy.gov/sites/prod/files/2016/06/f32/Crude%20Oil%20Characteristics%20Research%20SAE%20Plan.pdf>.

<sup>23</sup> See [http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1\\_2\\_14%20Rail\\_Safety\\_Alert.pdf](http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf).

estimates that more than 500,000 barrels per day of Bakken crude oil moves by pipeline. Pipeline operators routinely set upper limits on RVP levels for crude oil that will be accepted for transport. A sample of six North Dakota pipeline operators indicates that they have set RVP upper limits ranging from 9.0 to 14.7 psia for acceptable crude oil.<sup>24</sup> Understanding how oil producers comply with pipeline operators' RVP standards, or possibly instead ship crude oil with RVP levels that exceed pipeline operator limits by rail, would provide useful insights for understanding the consequences of setting RVP limits for rail transport.

#### F. Accident History and Vapor Pressure Levels

As shown above, Petition P-1669 included a table highlighting the vapor pressures of the crude oil involved in several high-profile train accidents. According to the Petition, the vapor pressures of the oil involved in the five accidents was, at the low end, an “average between 9.0 and 9.5 psi,” and at the high end, “an average of 14.3 psi.” It likely would be useful to have more comprehensive information regarding the vapor pressure levels of Class 3 flammable liquid hazardous materials involved in rail accidents, and information about the nature, characteristics and consequences of the accidents. It would be useful to have such information for accidents involving other transportation modes as well. Such information may inform understanding of

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<sup>24</sup> Cf. Bakken Oil Express: RVP = 9, <http://www.boemidstream.com/wp-content/uploads/2014/02/BOEPL-Rules-Regulations.pdf>; Belle Fourche RVP = 13.7, <http://www.buttepipeline.com/sites/default/files/tariffs/BFPL%20FERC%20112.17.0.pdf>; Tesoro High Plains Pipeline (ND): RVP = 13, <http://phx.corporate-r.net/External.File?item=UGFyZW50SUQ9MjU1NjYxfENoaWxkSUQ9LTF8VHlwZT0z&t=1>; Bakken Link: RVP = 9.5, <http://bakkenlink.com/data/upfiles/media/rules%20and%20regulations.pdf>; Enbridge North Dakota Pipeline RVP = 103 kPa (14.7 psia), <http://www.enbridge.com/~media/www/Site%20Documents/Informational%20Postings/Tariffs/North%20Dakota/NDPL-FERC-No-2-2-0.pdf>; Bakken Pipeline Company (Enbridge) says absolute vapor pressure per ASTM6377 <13.7. <http://www.enbridge.com/~media/Rebrand/Documents/Tariffs/2015/Bakken%20US%20FERC%20No%20110.pdf?la=en;and> Bridger Pipeline: RVP = 9.4 summer / 11 winter, [http://www.hawthornoiltransportation.com/tariffs/ND\\_RatesRegs\\_070112.pdf](http://www.hawthornoiltransportation.com/tariffs/ND_RatesRegs_070112.pdf).

how a flammable liquid's vapor pressure affects the characteristics and consequences of accidents involving the liquid. PHMSA began collecting this information for rail after July 2013. The information we have has uncertainty since testing may happen after the train is moved to a final destination and there may have been different sampling and testing techniques used, among other issues. PHMSA may consider publishing this information for the NPRM once we review and consolidate.

## V. **Comments and Questions**

PHMSA requests comments on the merits of P-1669.<sup>25</sup> PHMSA is uncertain that the requested action in Petition P-1669 would provide a safety benefit and requests comments on the following questions:

### A. General Questions

1. To what extent, if at all, would requiring crude oil shipped by rail to have a RVP of no greater than 9.0 psi decrease the expected degree, consequence, or magnitude of a release or the likelihood of a fire during an accident? Please provide relevant scientific or other empirical information to support your comment.
2. What, if any, peer-reviewed or other robust information is available that addresses the safety effectiveness and/or cost of setting vapor pressure limits for crude oil or other flammable liquids during transportation?
3. How do the consequences resulting from accidents involving low-vapor pressure

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<sup>25</sup> <https://www.regulations.gov/docket?D=PHMSA-2015-0253>.

flammable liquids (e.g., ethanol)<sup>26</sup> compare to accidents involving high vapor pressure flammable liquids (e.g., certain crude oil)? If the consequences are significantly similar, will adopting a vapor pressure limit address the magnitude of release or the likelihood of fire during an accident for both commodity types?

4. Would adopting a vapor pressure limit impact trans-border shipments? If so, how?
5. What methods can be employed to measure environmental and human health effects of setting a vapor pressure limit for the transport of crude oil by rail? How would the benefits of setting a vapor pressure limit be quantified?
6. What options are available for reducing the volatility of crude oil before it's offered for transportation and loaded into tank cars, such as existing consensus standards or operating practices used for conditioning (heating and treating) crude oil? What voluntary measures has industry taken to reduce the volatility of crude oil shipped in interstate commerce by any mode? If so, what are they?
7. What other regulatory and industry marketability measures are in place that restrict the volatility of crude oil in transport, such as RVP limits set by pipeline operators, or the impact of volatile organic compound emission standards for storage tanks and other petroleum facilities?
8. How many carloads and trains would be affected by setting a vapor pressure limit for the transport of crude oil by rail? What portion of current carloads would be out of compliance with the standard proposed in P-1669? Similarly, how many cargo ship shipments, truck shipments and barrels of oil transported by pipeline would be affected by adopting the standard proposed in P-1669?

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<sup>26</sup> The vapor pressure of ethanol is RVP (at 100 F) is 2.0 psi.

9. What are the expected impacts of establishing a nationwide vapor pressure standard for crude oil intended for transportation in commerce? Should that standard apply to all modes of transportation or be limited to specific modes? What are the costs and benefits of those impacts? Please provide information and data, and include references and sources for information and data provided.
10. Should there be different vapor pressure limits depending on the specific circumstances of the shipment, such as the mode, the quantity of material or whether the shipment will travel through populated areas?
11. Are there other risk factors that should be considered instead of, or in addition to, vapor pressure (e.g., a material's flammability range, specific heat or heat of vaporization)? How do these risk factors affect the magnitude of release or the likelihood of fire resulting from an accident?
12. While offerors would be legally responsible for compliance with a volatility standard, it may be that actual compliance would be more cost-effectively implemented at some other point in the supply chain. What physical, institutional, or legal arrangements would be needed for implementation of a vapor pressure standard?
13. What types of additional technology, equipment, labor, and changes to existing operations would be needed for the establishment of a nationwide vapor pressure standard for crude oil intended for transportation in commerce? What would be the initial and recurring, and fixed and variable costs? If changes to existing operations would involve additional labor, then please provide the additional time by activity and labor category.
14. To what extent can a vapor pressure standard be implemented within the existing system?

At what point would additional investments be required? What level of infrastructure change would be needed? Is this level affected by seasonal and market demands? How do the answers to these questions change if crude oil production returned to historically high volume levels?

15. What additional types of training would be needed for the establishment of a nationwide vapor pressure standard for crude oil? What would be the initial and recurring costs?
16. Compared to the current baseline, what would be the changes to production, pre-treatment, conditioning or stabilization, loading, and transport of petroleum crude oil if PHMSA establishes a nationwide vapor pressure standard?
17. How should the effectiveness and benefits of a rulemaking establishing a nationwide vapor pressure standard for crude oil be measured?
18. In order to estimate benefits of a rulemaking, what consequences would be mitigated or prevented by establishing a nationwide vapor pressure standard for crude oil? Have there been any U.S. crude-by-rail accidents where a lower vapor pressure would have made a difference in the outcome? If yes, please provide all relevant details to support the conclusion.
19. If PHMSA were to adopt the vapor pressure threshold requested by the petitioner (or another threshold), what timeframe would be needed to comply with the new requirements to implement the needed treatment infrastructure throughout the network of offerors?
20. If PHMSA were to establish a nationwide vapor pressure standard, should any other Class 3 hazardous materials besides crude oil be subject to a vapor pressure limit? If so, which ones? Please provide the basis for your comment.

21. If PHMSA were to establish a nationwide vapor pressure standard, should it apply to the highway mode of transportation? What is the impact of a vapor pressure standard on the current highway fleet capacity? If highway transportation is included, what is the increased exposure for highway deaths and injuries? How does this compare to exposure in rail transportation?
22. What other properties of Class 3 hazardous materials are important to consider when setting vapor pressure limits? For example, are the following properties important: lower and upper explosive limits, evaporations rates, etc.?
23. Would the flammable gases removed from the crude oil be transported by tank cars or cargo tanks? If so, how many additional tank cars or cargo tank shipments of flammable gases would be required? What are the safety consequences of transporting such materials or how might PHMSA quantify such consequences? How would this impact the overall risk assessment?
24. Given the risks associated with transporting large quantities of flammable liquids, are there measures that PHMSA should consider as an alternative or in addition to addressing material properties such as vapor pressure or flammability range, etc.?

B. Safety Questions

1. Do the current HMR adequately consider the risks that flammable liquids containing dissolved flammable or nonflammable gases present?
2. Should vapor pressure be used to delineate gases (and liquids with high vapor pressures) from liquids with low vapor pressures? If so, is the current definition of a gas sufficient or should a different threshold (i.e., vapor pressure or temperature) be utilized? Answers

should also include specification to measurement method (including V/L ratio) and sampling method, if necessary, for that determination when recommending different thresholds.

3. Should unrefined petroleum products not completely gaseous at 20°C but having a vapor pressure greater than 300 kPa at 50°C be subjected to the testing in § 173.115(a)(2) to determine whether that material should be regulated as flammable gas? If yes, what affect would this have on other Class 3 hazardous materials?
4. Should PHMSA consider adopting a new Hazardous Materials Table (HMT; § 172.101) entry for petroleum crude oil with a high-concentration of dissolved gases that is similar to the entry for UN3494, Petroleum sour crude oil, flammable, toxic?<sup>27</sup>
5. Do flammable liquids containing dissolved flammable and nonflammable gases have implications for the response community, such as hazard communication or response considerations, that the agency should consider?
6. If Petition P-1669 were adopted, would there be an impact in the transportation of other flammable products, and if so, what would they be?

C. Vapor Pressure Questions

1. Would the use of RVP, True Vapor Pressure, VPCR<sub>x</sub>, or some other standard be the best method for measuring vapor pressure for classification and packaging? Does this method appropriately account for liquids containing dissolved flammable and non-flammable gases under non-equilibrium conditions? What volume to liquid ratio and temperature

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<sup>27</sup> 49 CFR § 172.102(c)(1), Special Provision 343 - A bulk packaging that emits hydrogen sulfide in sufficient concentration that vapors evolved from the crude oil can present an inhalation hazard must be marked as specified in §172.327 of this part.

would be most suitable? Why?

2. Would the definition for “live” and “dead” crude oils from ASTM D6377 and other standards be relevant or useful in setting a vapor pressure limit?
3. Is there a unit of measure for how much dissolved flammable and non-flammable gases contribute to the vapor pressure, volatility, and flammability of crude oil?
4. Are there any materials currently classified as a flammable liquid within the HMR that would be impacted by a vapor pressure threshold?
5. What are the observed vapor pressures of tight crude oil in various stages of production, stabilization, and transportation? Please explain the conditions under which sampling and testing was performed.
6. Have any other nations established vapor pressure limits for transporting crude oil or other flammable liquids by any mode? If so, which nations, what limits do they use, and what information did they use to support the specific limits?
7. Petition P-1669 recommends a RVP of no greater than 9.0 psi. In contrast, the NDIC implemented a maximum vapor pressure threshold of 13.7 psi, (VPCR<sub>4</sub> as defined in ASTM D6377). If PHMSA were to establish a national vapor pressure limit, what should it be?
8. Has any source compiled comprehensive and reliable information regarding the vapor pressures of Class 3 flammable liquid hazardous materials involved in transportation accidents, as well as information about the nature, characteristics and consequences associated with those accidents? Has any source conducted statistical or other scientific analysis regarding the relationship between vapor pressure and the consequences of transportation accidents?

D. Packaging Questions

1. Would further limiting the filling capacity be an effective method for reducing the risks associated with Class 3 hazardous materials containing dissolved gases?

**VI. Regulatory Review and Notices**

A. Executive Order 12866, Executive Order 13563, Executive Order 13610, and DOT Regulatory Policies and Procedures

This ANPRM is considered a significant regulatory action under section 3(f) of Executive Order 12866 and was reviewed by the Office of Management and Budget (OMB). It is considered a significant regulatory action under the Regulatory Policies and Procedures order issued by the Department of Transportation. 44 FR 11034 (Feb. 26, 1979).

Executive Orders 12866, “Regulatory Planning and Review,” 58 FR 51735 (Oct. 4, 1993), and 13563, “Improving Regulation and Regulatory Review,” 76 FR 3821 (Jan. 21, 2011), require 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.” Executive Order 13610, “Identifying and reducing Regulatory Burdens,” 77 FR 28469 (May 14, 2012), urges agencies to conduct retrospective analyses of existing rules to examine whether they remain justified and whether they should be modified or streamlined in light of changed circumstances, including the rise of new technologies.

Additionally, Executive Orders 12866, 13563, and 13610 require agencies to provide a meaningful opportunity for public participation. Accordingly, PHMSA invites comments on

these considerations, including any cost or benefit figures or factors, alternative approaches, and relevant scientific, technical and economic data. These comments, along with the information provided by the New York State Office of the Attorney General, will help PHMSA evaluate whether regulatory action is warranted and appropriate.

B. Executive Order 13132

Executive Order 13132, “Federalism,” 64 FR 43255 (Aug. 10, 1999), 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.” PHMSA invites State and local governments with an interest in this rulemaking to comment on any effect that may result if Petition P-1669 is adopted.

C. Executive Order 13175

Executive Order 13175, “Consultation and Coordination and Indian Tribal Governments,” 65 FR 67249 (Nov. 9, 2000), requires agencies to assure meaningful and timely input from Indian tribal government representatives in the development of rules that significantly or uniquely affect Indian communities by imposing “substantial direct compliance costs” or “substantial direct effects” on such communities or the relationship and distribution of power between the Federal Government and Indian tribes. PHMSA invites Indian tribal governments to provide comments on the costs and effects the petitions and recommendations could have on them, if adopted.

D. Regulatory Flexibility Act, Executive Order 13272, and DOT Policies and Procedures

Under the Regulatory Flexibility Act of 1980, 5 U.S.C. 601, *et seq.*, PHMSA must consider whether a rulemaking would have a “significant economic impact on a substantial number of small entities.” “Small entities” include small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations under 50,000.

It is possible that if PHMSA proposes to adopt the revisions suggested in Petition P-1669, there may be a “significant economic impact on a substantial number of small entities.” As such, PHMSA would like small entities’ input on the issues presented in this ANPRM. If you believe that revisions to the HMR would have a significant economic impact on a substantial number of small entities, please provide information on such impacts.

Any future proposed rule would be developed in accordance with Executive Order 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 68 FR 7990 (Feb. 19, 2003), and DOT’s procedures and policies to promote compliance with the Regulatory Flexibility Act to ensure that potential impacts on small entities of a regulatory action are properly considered.

E. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, 5 CFR § 1320.8(d) requires that PHMSA provide interested members of the public and affected agencies an opportunity to comment on information collection and recordkeeping requests. This ANPRM does not impose new information collection requirements. PHMSA specifically requests comments on the information collection and recordkeeping burdens that may result if

Petition P-1669 is adopted.

F. Environmental Assessment

The National Environmental Policy Act of 1969, 42 U.S.C. 4321-4375, requires that Federal agencies analyze proposed actions to determine whether the action will have a significant impact on the human environment. The Council on Environmental Quality (CEQ) regulations require Federal agencies to conduct an environmental review considering (1) the need for the proposed action, (2) alternatives to the proposed action, (3) probable environmental impacts of the proposed action and alternatives, and (4) the agencies and persons consulted during the consideration process. *See* 40 CFR 1508.9(b). PHMSA welcomes any data or information related to environmental impacts that may result if Petition P-1669 is adopted, as well as possible alternatives and their environmental impacts.

G. Privacy Act

Anyone is able to search the electronic form of any written communications and comments 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.). You may review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000, *see* 65 FR 19477, or you may visit <http://www.regulations.gov>.

H. Executive Order 13609 and International Trade Analysis

Under Executive Order 13609, "Promoting International Regulatory Cooperation," 77 FR 26413 (May 4, 2012), agencies must consider whether the impacts associated with significant

variations between domestic and international regulatory approaches are unnecessary or may impair the ability of American businesses to export and compete internationally. In meeting shared challenges involving health, safety, labor, security, environmental, and other issues, regulatory approaches developed through international cooperation can provide equivalent protection to standards developed independently while also minimizing unnecessary differences.

Similarly, the Trade Agreements Act of 1979, Pub. L. 96-39, as amended by the Uruguay Round Agreements Act, Pub. L. 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 participates in the establishment of international standards in order to protect the safety of the American public, and PHMSA has assessed the effects of the proposed rule to ensure that it does not cause unnecessary obstacles to foreign trade. Accordingly, this rulemaking is consistent with Executive Order 13609 and PHMSA's obligations under the Trade Agreement Act, as amended.

PHMSA welcomes any data or information related to international impacts that may result if Petition P-1669 is adopted, as well as possible alternatives and their international impacts. Please describe the impacts and the basis for the comment.

I. Statutory/Legal Authority for this Rulemaking

This ANPRM is published under the authority of 49 U.S.C. 5103(b), which authorizes the Secretary of Transportation to “prescribe regulations for the safe transportation, including security, of hazardous materials in intrastate, interstate, and foreign commerce.” The intent of this ANPRM is to address the safety concerns raised by Petition P-1669 in respect to the transportation of hazardous materials in commerce. Our goal in this ANPRM is to gather the necessary information to determine a course of action in a potential Notice of Proposed Rulemaking (NPRM).

J. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to 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. The RIN contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

K. Executive Order 13211

Executive Order 13211, 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” Under the executive order, a “significant energy action” is defined as any action by an agency (normally published in the *Federal Register*) that promulgates, or is expected to lead to the promulgation of, a final rule or regulation (including a notice of inquiry, ANPRM, and NPRM) that (1)(i) is a significant regulatory action under Executive Order 12866 or any successor order and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) is designated by the

Administrator of the Office of Information and Regulatory Affairs as a significant energy action.

PHMSA welcomes any data or information related to energy impacts that may result if P-1669 is adopted, as well as possible alternatives and their energy impacts. Please describe the impacts and the basis for the comment.

Issued in Washington, DC on January 10, 2017, under the authority of 49 U.S.C. 5103(b).

**Anthony R. Foxx,**  
Secretary of Transportation.