STATE OF NEW YORK
OFFICE OF THE ATTORNEY GENERAL

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DIVISION OF SOCIAL JUSTICE
ENVIRONMENTAL PROTECTION BUREAU

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VIA FEDERAL eRULEMAKING PORTAL

Docket Management Systems
U.S. Department of Transportation
West Building, Ground Floor
Room W12-140, Routing Symbol M-30
120 New Jersey Avenue SE, Washington, DC 20590

Elaine Chao, Secretary, United States Department of Transportation
Howard McMillan, Executive Director, Pipeline and Hazardous Materials Safety Administration

Re: Docket ID No. PHMSA-2016-0077, HM-251D, RIN 2137-AF24
Hazardous Materials: Volatility of Unrefined Petroleum Products and Class 3 Materials

Dear Secretary Chao and Executive Director McMillan:

Enclosed are the joint comments of the Attorneys General of New York, California, Illinois, Maine, Maryland and Washington in response to the Pipeline and Hazardous Materials Safety Administration's January 18, 2017, advance notice of proposed rulemaking to promulgate a vapor pressure standard for the transportation of crude oil via train cars.

If you have any questions, please do not hesitate to contact the listed signatories.

Respectfully submitted,

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UNITED STATES OF AMERICA
UNITED STATES DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

In the Matter of:

Pipeline and Hazardous Materials
Safety Administration,

49 C.F.R. Parts 171, 172, 173, 174, 177, 178,
179 and 180

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

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

RIN 2137-AF24

COMMENTS BY

THE ATTORNEYS GENERAL OF NEW YORK, CALIFORNIA, ILLINOIS, MAINE, MARYLAND & WASHINGTON

Submitted: May 19, 2017

The Attorneys General of New York, California, Illinois, Maine, Maryland and Washington ("State AGs") appreciate this opportunity to comment on the Pipeline and Hazardous Materials Safety Administration (PHMSA)'s Advance Notice of Proposed Rulemaking (ANPRM), concerning the Volatility of Unrefined Petroleum Products and Class 3 Materials.[1]

The State AGs strongly support a nationwide limit on the vapor pressure of crude oil transported by rail in the United States. As explained in the New York State Attorney General Office ("NYAG")'s December 1, 2015, Petition for Rulemaking,[2] and set forth below, the transportation of crude oil by rail is an issue of serious concern to communities, first responders, businesses and natural resources across the country. PHMSA, in recent years, has done much to advance the safety of the rail transport of hazardous liquids, such as crude oil. In 2015, PHMSA adopted important rules for so-called "high-hazard flammable trains," and in 2016, PHMSA codified various aspects of the Fixing America's Surface Transportation ("FAST") Act, including a mandatory phase-out and retrofit schedule for the type of tank cars involved in recent fiery accidents. We encourage PHMSA to now close the remaining regulatory gap in this area by adopting and expeditiously implementing a mandatory nationwide Reid vapor pressure standard on crude oil shipped by rail of *less than* 9.0 pounds per square inch ("psi"), which is a necessary and significant improvement of the agency's current regulatory requirements.

Requiring the pre-shipment treatment of highly flammable crude oil, and particularly, of Bakken crude oil, can readily be accomplished with existing, economically viable and environmentally appropriate methods, and can be expected to substantially mitigate the likelihood of uncontrollable fires and violent explosions seen in train derailments to date. Despite a temporary downturn in crude oil rail transport in 2015 and 2016, crude-by-rail is certain to continue and likely to increase. The State AGs recognize the ongoing research efforts at Sandia National Labs to characterize the potential for crude oil to ignite, combust and explode. Until those efforts are completed, however, history suggests that a protective vapor pressure standard is warranted to prevent future train disasters. Accordingly, the State AGs strongly recommend that PHMSA adopt an interim standard of less than 9.0 psi, by emergency order or otherwise, if it is unable to finalize a vapor pressure rule in the near term.

PHMSA, through its ANPRM, has solicited a variety of information to inform the development of its proposed rulemaking on vapor pressure. The State AGs submit that, although the information solicited might inform PHMSA's efforts, not all of the information is necessary to develop a credible, reasonable, fair and effective rule. The State AGs make the following comments and recommendations regarding the ANPRM to ensure its timely and effective implementation:

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[1] "Hazardous Materials: Volatility of Unrefined Petroleum Products and Class 3 Materials" (proposed modifications to 49 C.F.R. Parts 171, 172, 173, 174, 177, 178, 179 and 180) (Docket No. PHMSA-2016-0077 (HM-251D)), 82 Fed. Reg. 5499 (Jan. 18, 2017).

[2] *See* Petition P-1669 (docket number PHMSA-2015-0253), "Petition for Rulemaking, State of New York Office of the Attorney General" (Dec. 1, 2015) ("NYAG Petition").

1. **The State AGs have significant interests in a rulemaking by PHMSA to establish a nationwide vapor pressure limit on crude oil transported by rail.**

In recent years, citizen concern regarding crude-by-rail has heightened across the United States following multiple derailments that involved catastrophic explosion and fire in residential and other areas, loss of life in some instances, and property damage. The State AGs each share common concerns over the safety of crude-by-rail:

In New York, significant volumes of crude oil are transported by rail through New York communities every day. New York has a substantial and time-sensitive interest in ensuring the safety of crude-by-rail. On a daily frequency, hundreds of tank cars may pass through major metropolitan areas in New York—including Buffalo, Syracuse, Rochester and Schenectady, Albany, the Hudson River Valley, including Kingston and Newburgh, and New York City—and across and along rivers, sensitive wetlands, drinking water resources, and wildlife habitats, on their way to receiving, storage, and shipping terminals within and outside the State. The alarming incidence of explosions and uncontrollable fires associated with crude-by-rail poses very real threats to those communities, public health and New York's environment.

In California, concerns about the increased shipments of crude oil into the State led to the formation of an Interagency Rail Safety Working Group in 2014. As noted in the Working Group Report the transportation of Bakken and similar crude oil poses unique risks in California.[3] There are high hazard areas for derailments along every rail route into California. Some are located in urban areas, including highly populated areas, such as the San Bernardino-Riverside and San Luis Obispo regions. Too often the brunt of the risk is born by our most vulnerable communities, those made up of low-income individuals and people of color who live closest to the rail lines. In other instances, the high hazard areas are adjacent to the State's most sensitive ecological areas. While the shipment by rail of crude oil into California has not increased as previously anticipated, shipments of crude oil into the State by any means pose potential threats to California's people and environment that must be addressed.

Similarly, in Illinois, reports indicate that during the peak of oil-by-rail transport as many as 40 to 50 trains with a hundred tank cars or more of crude oil each passed through Chicago and its suburbs every day. In March 2015, twenty-one of a train's 103 tank cars loaded with light Bakken crude derailed near Galena, Illinois. At least five of the cars ruptured, caught fire, and burned for several days.

Maine has a particular interest in ensuring the safety of crude-by-rail transportation. The Lac Megantic disaster, in which 47 people lost their lives, occurred just over Maine's shared border with Quebec. The State's firefighters responded to that scene, which gives this issue special resonance in Maine. That terrible experience also demonstrated that the small residential communities throughout remote northern and western Maine are ill-equipped to respond to a catastrophic derailment of crude oil tankers, underscoring the need for strong federal safety standards.

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[3] State of California Interagency Rail Safety Working Group, "Oil by Rail Safety in California, Preliminary Findings and Recommendations," June 10, 2014, *available at:* http://www.caloes.ca.gov/FireRescueSite/Documents/IRSWG-Oil%20By%20Rail%20Safety%20in%20California.pdf.

In Maryland, the transport of unrefined petroleum-based products such as crude oil and other Class 3 flammable liquid hazardous materials by rail, and other modes, occurs on a regular, if not daily basis. Maryland has a significant interest in ensuring that crude oil and other Class 3 flammable liquid hazardous materials are transported by rail in the safest manner possible. These trains travel through densely populated metropolitan areas such as Baltimore City, and the vast majority of the suburban residential and rural communities throughout the State on their way to receiving and storage, or the multiple shipping terminals in Maryland, some of which are adjacent to the I-895 Harbor Tunnel in Baltimore. In addition, many of these crude oil tanker cars pass directly through Maryland en route to Northeast petroleum refineries. Crude oil carrying trains travel across and along Maryland's most environmentally sensitive areas such as rivers and other surface waters, including tributaries to the Chesapeake Bay, wetlands, community drinking water sources, and wildlife habitat. Crude-by-rail poses real and substantial threats to Maryland communities, the public health and safety, and to Maryland's environment and natural resources.

Washington has seen an enormous increase in the rail transport of crude oil across the state in recent years, increasing from none in 2011 to approximately 700 million gallons in 2013. Most is transported by rail from the Bakken formation in North Dakota to refineries in Washington or California. In addition, crude-by-rail unit trains could greatly increase if pending terminal proposals are approved. Washington thus has a strong interest in the safety of these trains. In 2014, Ecology completed a report identifying regulatory gaps and risks associated with crude-by-rail trains. In response, the Governor of Washington signed the Oil Transportation Safety Act of 2105 that increased track inspections and enhanced our preparedness to respond to oil spills from these trains. The accident in Mosier, Oregon has since only heighted our concern for explosions and spills along the Columbia River and other areas in Washington where these trains run. Trains carrying Bakken crude oil bring very real risks to our communities, and states have only so much authority in this area. The federal government should join us in taking meaningful action to ensure that the movement of oil by rail is done safely.

2. As set forth in NYAG's Petition for Rulemaking, the State AGs strongly recommend that PHMSA adopt a nationwide Reid vapor pressure of *less than* 9.0 psi, or its equivalent, for crude oil transported by rail.

In its December 2015 Petition, NYAG recited the incidence of train derailments and fiery explosions in various parts of the United States and Canada, each involving rail shipments of crude oil originating from the Bakken region of North Dakota and Montana. To prevent similar rail disasters in the future, and particularly, in more densely populated and environmentally sensitive areas, NYAG's petition urged PHMSA to adopt a rulemaking setting a nationwide Reid vapor pressure limit of less than 9.0 psi for crude oil transported by rail. NYAG's petition presented the following reasoning to justify its proposed rulemaking:

- *Bakken crude oil is highly volatile and extremely flammable.* Numerous analyses have confirmed the high volatility and flammability of Bakken crude oil, particularly when compared to other forms of crude oil from the United States and other parts of the world.[4]

[4] *Id.* at 10-14.

In 2014, PHMSA itself concluded that "Bakken crude has a higher gas content, higher vapor pressure, lower flash point and boiling point and thus a higher degree of volatility than most other crudes in the U.S., which correlates to increased ignitability and flammability."[5] Similarly, the *Wall Street Journal* reported that, on average, Bakken crude oil has a "volatility rating far higher than other crude oil samples collected for 86 locations around the world."[6] PHMSA has determined that samples of Bakken crude oil met characteristics of a Class 3 flammable liquid, Packing Group I (Great Danger) and II (Medium Danger).[7]

- *Crude-by-rail has resulted in numerous accidents involving uncontrollable fires and intense explosions*. The high volatility and extreme flammability of Bakken crude oil has led to a string of rail disasters along rail routes. Most famously, in July 2013, the derailment of a 72-car train in Lac-Mégantic, Quebec, destroyed its downtown, spilled more than 1.3 million gallons of crude oil, and killed 47 people.[8] Intense fires and explosions also occurred in rail accidents in North Dakota, Alabama, Virginia, West Virginia, and Illinois.[9] Each of these accidents involved similar 100-car "unit" trains of legacy DOT-111 specification tank cars or cars built to the Association of American Railroads' "more protective" CPC-1232 specification. In fact, as PHMSA and the Federal Railroad Association (FRA) recognized in 2014, such accidents are to be expected: "given Bakken crude oil's volatility, there is an increased risk of a significant incident involving this material due to the significant volume that is transported, the routes and the extremely long distances it is moving by rail."[10] As discussed below, the calamitous June 2016 oil train derailment, explosion and contamination event in Mosier, Oregon presents the most recent example of this threat.

- *Rail has become a common means for transporting crude oil and other hazardous liquids*. U.S. crude production has reached historic levels in recent years, and along with it, the expansion of oil trains. In 2015, U.S. crude oil production exceeded more than 9 million barrels per day,[11] and rivaled production levels not seen since the early 1970s.[12] Much of this rise was driven by crude production in the Bakken Shale, which by October 2015 accounted for more than 12 percent of total crude oil production in the United States.[13] Along with this boom, rail shipments of crude oil rapidly emerged as a flexible

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[5] *Id.* at 12, *citing* PHMSA "Operation Safe Delivery Update" (July 2014), at 16.

[6] *See* NYAG Petition, at 12, *quoting* Gold, R., "Bakken Shale Oil Carries High Combustion Risk," *Wall Street Journal*, Feb. 23, 2014.

[7] *See* PHMSA "Operation Safe Delivery Update" (July 2014), at 16.

[8] *See* NYAG Petition, at 8.

[9] *Id.* at 8-9.

[10] *See* NYAG Petition, at 12, citing PHMSA "Operation Safe Delivery Update" (July 2014), at 16.

[11] *See* U.S. Energy Information Administration ("EIA"), "U.S. Field Production of Crude Oil," May 15, 2017 (release date).

[12] *See* NYAG Petition, at 3.

[13] *Id.* at 4.

method for reaching U.S. markets on the East and West Coasts.[14] These rail transport routes go through major population centers and traverse environmentally significant areas in New York State and throughout the United States.

- *No Federal regulation addresses the volatility and flammability of crude oil transported by rail*. We acknowledge that PHMSA and FRA's May 2015 final rule addressing standards and operational controls for "high-hazard flammable trains" did much to advance important areas of safety for the movement of hazardous liquids by rail.[15] Among other things, the rule amended the Hazardous Materials Regulations by defining certain trains transporting large volumes of Class 3 flammable liquids as "high-hazard flammable trains" and imposing certain operational restrictions, such as speed restrictions, braking systems, and routing. The rule also established a phase-out and retrofit schedule for existing DOT-111 tank cars and codified new tank car design standards, *i.e.*, DOT-117, DOT-117P and DOT-117R.

  However, that rule did not go far enough to ensure the safety of oil trains traveling through New York and other States. First, even in dense population areas, the HHFR Rule allows oil trains to travel at speeds that are faster than those in which previous accidents and explosions occurred.[16] Second, the Rule allows legacy DOT-111 and modified CPC-1232 tank cars to remain in service – the same tank cars involved in the recent accidents and explosions.[17] Finally – and most critically – the HHFT Rule did not address the volatility and flammability of crude oil transported by rail.[18] In the absence of any federal regulation in this area, the only existing standard on the vapor pressure of crude oil is that of the North Dakota Industrial Commission.[19] Given the large proportion of oil trains originating in the Bakken Shale, North Dakota's vapor pressure standard functions as a nationwide one, albeit without protective effect: North Dakota's volatility limit of 13.7 psi is well above the vapor pressure of crude oil involved in transport train disasters to date.

- *The volatility of crude oil can be effectively reduced with existing technology.* Technology exists and is commonly used in the oil industry to reduce the vapor pressure of crude oil and other unrefined petroleum products.[20] Such technology is routinely used by pipeline operators to achieve vapor pressure thresholds required under tariff agreements.

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[14] *Id.* at 4-5.

[15] *See* "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains," 80 Fed. Reg. 26643 (May 2015) (HM-251) ("HHFT Rule").

[16] *See* NYAG Petition, at 24-25.

[17] *Id.* at 17-18.

[18] As explained in the ANPRM, PHMSA and FRA, in the notice of proposed rulemaking for the HHFT Rule, did not propose new rules concerning vapor pressure and thereby could not adopt such regulations in the HHFT Rule. *See* HHFT Rule, 80 Fed. Reg. at 26665.

[19] *See* NYAG Petition, at 23-24.

[20] *Id.* at 23-24.

In its ANPRM, PHSMA addresses many of these issues and appears to acknowledge the current gap in federal regulation concerning vapor pressure.

3. Recent Regulations and Developments in the Energy Markets Do Not Obviate the Need for a Federal Vapor Pressure Standard for Oil Trains.

a. The FAST Act and Rulemaking by PHMSA

In the days following the filing of NYAG's Petition, President Obama signed into law the Fixing America's Surface Transportation (FAST) Act.[21] The FAST Act addresses broad aspects of the United States' transportation infrastructure. Incorporated into the FAST Act is the "Hazardous Materials Transportation Safety Improvement Act of 2015,"[22] which instructs the Secretary of Transportation to make certain regulatory amendments to the tank car design standards and to revise the tank car phase-out schedule codified in PHMSA's 2015 rulemaking with respect to "high-hazard flammable trains."[23] The FAST Act, however, falls short of putting in place critical limits on the volatility of crude oil transported by rail.

Section 7304 of the FAST Act amends the HHFR Rule's phase-out and/or retrofit schedule for DOT-111 and CPC-1232 tank cars by tying that schedule to specific commodities.[24] In August 2016, PHMSA issued a final rule that, among other things, codified the FAST Act's phase-out and retrofit schedule for DOT-111 and CPC-1232 tank cars and the new standards for DOT-117, DOT-117P and DOT-117R tank cars.[25]

However, for crude oil, the phase-out and retrofit deadlines still allow DOT-111 and CPC-1232 tank cars to remain in service for the near future. Non-jacketed DOT-111 cars must be phased-out or retrofitted by January 1, 2018; jacketed DOT-111 cars are required to comply with the standards by March 1, 2018. Non-jacketed CPC-1232 tank cars, which were involved in the February 2015 accident in West Virginia, may remain in service until April 1, 2020. The FAST Act allows jacketed CPC-1232 cars, the type involved in a June 2016 accident in Mosier, Oregon, to remain in service until May 1, 2025.[26] Among other differences, the shell of the jacketed CPC-1232 tank car is thinner than the DOT-117 car.[27]

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[21] *See* "Fixing America's Surface Transportation Act," Public Law 114-94 (Dec. 4, 2015) ("FAST Act").

[22] *Id.*, Title VII – Hazardous Materials Transportation; Subtitle C – Safe Transportation of Flammable Liquids by Rail (sections 7301-7311).

[23] *See* HHFT Rule, 80 Fed. Reg. 26643.

[24] *See* FAST Act, section 7304(a) and (b)(1).

[25] *See* "Hazardous Materials: FAST Act Requirements for Flammable Liquids and Rail Tank Cars," 81 Fed. Reg. 53935 (Aug. 15, 2016). Through its rule, PHMSA mandated thermal protection blanket equipment for DOT-117 and non-jacketed DOT-117R tank cars, and minimum top fittings protection requirements for tank cars retrofitted to meet the DOT-117R specification. *See* 81 Fed. Reg. at 53939.

[26] *See* FAST Act; section 7304(a) and (b)(1).

[27] The shell on DOT-117 tank cars are 9/16th of an inch thick, whereas the shells of the jacketed CPC-1232 are 7/16th of an inch thick with a 1/8th inch jacket or 1/2 of an inch thick with no jacket.

Importantly, the FAST Act also walks back the HHFR Rule's requirement that new tank cars built after October 1, 2015, must feature Electronically Controlled Pneumatic Brakes ("ECP") by 2021. ECP brakes offer the potential to improve train safety by shortening stopping distances, improving train handling, and reducing brake shoe and wheel wear. FAST essentially directs the Secretary to reconsider the ECP mandate.

FAST also directs the Secretary to implement a reporting requirement to monitor industry-wide progress toward modifying rail tank cars used to transport Class 3 flammable liquids by the deadlines established in section 7304.[28] Of concern are reports that suggest a slower than expected phase out of legacy DOT-111 tank cars and phase-in of DOT-117.[29]

b. The Sandia Study

Additionally, the FAST Act requires PHMSA and the Department of Energy to report the results of the multi-year study conducted by Sandia National Laboratories to assess the volatility of crude being transported by rail.[30] Upon completion of Sandia's work, PHMSA and the Department of Energy are directed to recommend legislation and other ways to improve the safe transport of crude oil.[31] Though the Sandia study will consider vapor pressure, the results and development of recommendations for industry best practices, standards and regulations may not be available for some time.[32] In the interim, the State AGs remain gravely concerned about the safety of communities and the environment along rail lines carrying this volatile crude oil.

PHMSA's ANPRM, in discussing the on-going study of crude oil characteristics being performed by Sandia National Laboratories, notes the "wide-ranging variability" in crude oil sampling, analysis and reporting.[33] This finding mirrors our review of the literature. The variability of sample chemical compositions, sampling methods, analytical methods, and methods for reporting vapor pressure points to the need for a single crude oil vapor pressure standard, as contemplated in the ANPRM. In addition to imposing a numerical vapor pressure

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[28] *See* FAST Act, Section 7308.

[29] According to Association of American Railroads statistics for August 2016, there are a total of about 99,000 DOT-111 and CPC-1232 tank cars that require retrofitting or replacement by 2029, or an average of about 7,700 tank cars per year. As of August 2016, about 1,400 existing tank cars have been retrofitted to the DOT-117 standard. About 10,839 new DOT-117 cars have been built, but fewer than half have been deployed in flammable liquids service.

[30] *See* FAST Act, Section 7309; Crude Oil Characteristics Research Sampling, Analysis, and Experiment Plan study.

[31] *Id*.

[32] A May 2016 document created by Sandia Labs indicates that the Experimental Phase of the study is planned over seven quarters, suggesting that such experiments will be completed by September 2017. The document indicates the possible future implementation of the Implementation Phase, *i.e.*, "utiliz[ing] knowledge gained during prior phases to inform decisions on: Industry best practices, standards, regulations." *See* Sandia National Laboratories, "Crude Oil Characterization Research Study" (May 12, 2016).

[33] "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." 82 Fed. Reg. at 5505.

standard, the rule should standardize sample types, sampling methodologies, analytical methods, and data reporting formats. Standardization of these variables, as noted by Sandia and in our previous submittal, is necessary and a PHMSA crude-by-rail vapor pressure rule is the appropriate solution.

c. Crude Oil Will Continue to be Shipped by Rail – With Dangerous Implications

Crude oil development and production cycles wax and wane over time for a variety of reasons, including market dynamics and energy policy, among other things, but because of industry infrastructure challenges, crude-by-rail can be expected to continue. The need for focused PHMSA regulation of oil train safety is underscored by the recent development of the Bakken Shale reserves and the demands for transportation infrastructure for crude oil. Moreover, despite an ebb in 2016, crude oil prices and total U.S. production are expected to increase in 2017 and 2018.[34] Indeed, indications are that crude production in North Dakota is already beginning to rebound.[35] Access to oil pipelines, which is ostensibly an alternative to crude-by-rail, is directed to refineries in the Midwest and in Texas. However, a lack of a crude oil pipeline infrastructure for oil movements to the East and West Coasts ensures that these markets will continue to be served by rail. In fact, a spokesperson for BNSF recently said that "[a]s [the Dakota Access] pipeline or any other is completed, we believe rail will always provide a valuable transportation option."[36]

Movements of crude oil by rail, therefore, can be expected to continue, with potentially devastating consequences. Though oil train shipments from the Bakken region fell from a peak of approximately 24 million barrels per month in October 2014, to a monthly average of roughly 10 million barrels for 2016,[37] in June 2016, another train derailment involving crude oil occurred. In Mosier, Oregon, a west-bound Union Pacific 96-car unit train carrying Bakken crude oil derailed.[38] The cars in the train were the presumably more protective CPC-1232 tank cars with full-height head shields and metal jackets with insulation.[39] As a result of the accident,

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[34] In early 2016, crude oil prices dipped below $30 per barrel for the first time since the early 2000s. *See* EIA Weekly West Texas Intermediate (WTI) Spot Price FOB for Cushing, OK (May 15, 2017) (release date); *see also* EIA Weekly Spot Price FOB for Brent Europe (May 15, 2017) (release date). However, crude oil prices for the last quarter of 2016 and early 2017 have rebounded to near or above $50/barrel. *Id.* EIA forecasts that prices of benchmark North Sea Brent will rise farther to average $55/barrel in 2017 and $57/barrel in 2018, and West Texas Intermediate (WTI) to average about $1/barrel less each year. Additionally, EIA forecasts total U.S. crude oil production to increase to an average of 9.0 million barrels per day in 2017 and 9.3 million barrels per day in 2018 after averaging an estimated 8.9 million barrels per day in 2016. *Id.*

[35] After a production drop in December, during which output fell 10 percent (92,000 barrels per day), January saw much of that ground regained with an increase of 38,000 barrels per day. *See* Mandel, J., "Don't call it a comeback, but state sees relief ahead," *Energywire* (Mar. 9, 2017).

[36] *See, e.g.*, "Dakota Access oil pipeline doesn't faze big rail shippers," *The Spokesman-Review* (Mar. 8, 2017).

[37] *See* EIA, "Movements of Crude Oil and Selected Products by Rail" (Apr. 28, 2017) (release date). The large majority of crude oil shipped by rail from the Bakken Shale continues to be to terminals in the East Coast and West Coast.

[38] *See* Federal Railroad Administration, Accident Report 0616PD002 (June 3, 2016).

[39] *See* Wanek-Libman, M., "FRA's preliminary report on Mosier derailment points to broken bolts as cause," *RT&S* (June 24, 2016).

16 train cars came off the tracks due to defective spikes/fasteners on the rail.[40] Four rail cars caught fire requiring fire and hazmat responders from Oregon and Washington. Nearly a quarter of Mosier's 400 residents were evacuated and more than 40,000 gallons of crude oil were spilled.[41] The accident resulted in soil contamination and seepage into a local water treatment facility through which oil reached the Columbia River. The crude oil being transported in the Mosier tank cars was reported to have *a Reid vapor pressure of 9.2 psi*.[42]

4. PHMSA Should Adopt a Nation-wide Vapor Pressure Standard for Crude Oil Transported by Rail.

The State AGs strongly support PHMSA's adoption of a nationwide vapor pressure limit of less than 9.0 psi for the transportation of crude oil by rail. In its ANPRM, PHMSA has requested comments on the merits of NYAG's Petition along with comments on a variety of general questions and other questions related to safety, vapor pressure and packaging. In Section II, the ANPRM lays out a series of actions, analyses, evaluations, and ultimately decisions PHMSA would have to make in order to establish a rule to regulate crude-by-rail vapor pressure (or other characteristic) to make such transportation safer. The ANPRM, generally in Section II but more explicitly in Section V, then solicits information that PHMSA would use to perform those perceived-as-necessary tasks. The State AGs suggest that, although the information solicited could certainly inform PHMSA's efforts, not all of the evaluations may be necessary to develop a credible, reasonable, fair and effective rule, particularly where time is of the essence for communities that could potentially be impacted by an oil train derailment.

a. Benefits of establishing a Reid vapor pressure limit of less than 9.0 psi for oil trains

Several questions posed by PHMSA in its ANPRM seek information to quantify the benefits of establishing a nationwide vapor pressure limit for crude oil transported by rail, and of establishing a specific value for such a limit.[43] The benefits of a federal regulation to standardize the volatility of crude oil shipped by rail are to decrease the risks of fire and explosion in the event of an accident. Such benefits would inure to the communities, the public health, and to environmental and natural resources across the country. PHMSA's regulation need not employ the perfect metric or combination of metrics – it need only be reasonable given the protective goals of the regulation.[44] It is undisputed that the higher the vapor pressure of a petroleum product, *i.e.*, crude oil, the more easily it ignites when exposed to a spark or flame. After all, it is not the liquid petroleum product or crude oil but the vapor components of that product that ignites.

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[40] *See* Federal Railroad Administration, Accident Report 0616PD002 (June 3, 2016).

[41] *See* Presentation of U.S. EPA Region 10 On-Scene Coordinator, *available at*: https://www.nrt.org/sites/58/files/Mosier%20Oil%20Train%20Derailment%20-%20R.%20Franklin.pdf.

[42] *See* Bailey, E., "Mosier oil train derailment: 65 truckloads of crude oil cleared, 25 more to go," *The Oregonian* (June 7, 2016).

[43] *See* 82 Fed. Reg. at 5505-5507, including General Question Nos. 1, 2, 5, 9, 17, 18; Vapor Pressure Question Nos. 7 and 8.

[44] PHMSA is only required to make a reasonableness determination, not a superiority finding.

Vapor pressure information collected from recent large-scale accidents, each of which involved large fires and severe explosions, supports the common-sense view that any vapor pressure standard established by the agency should be set below those reported levels. As the Sandia study continues, PHMSA's adoption of a nationwide vapor pressure limit *less than* a Reid vapor pressure of 9.0 psi (or its equivalent using another measure of vapor pressure) would be prudent, and should also incorporate an additional margin for safety. In the event PHMSA is unable to promulgate a permanent standard in the near future, the State AGs strongly recommend that, at minimum, PHMSA establish an interim standard of less than 9.0 psi, by emergency order or otherwise, until any experimentation and/or risk assessments are completed.

In its December 2015 Petition, NYAG provided a table to summarize the reported vapor pressure measurements associated with several noteworthy large-scale oil train accidents. Set forth below is an updated version of the table that adds the June 2016 accident in Mosier, Oregon.

Source	**Vapor pressure of Bakken crude oil**
Lac-Mégantic, Quebec (July 2013)	Average between 9.0 to 9.5 psi[45]
PHMSA Operation Safe Delivery	Average of 12.3 psi[46]
Mt. Carbon, West Virginia (February 2015)	13.9 psi[47]
Lynchburg, Virginia (April 2015)	Average of 14.3 psi[48]
Heimdal, North Dakota (May 2015)	10.8 psi[49]
Mosier, Oregon (June 2016)	9.2 psi[50]

[45] *See* Transportation Safety Board 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 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."

[46] *See* "Operation Safe Delivery Update," Pipeline and Hazardous Materials Safety Administration, at 16.

[47] *See* Gold, R., "Crude on Derailed Train Contained High Level of Gas," *Wall Street Journal*, March 2, 2015.

[48] *See* Sobczak, B., "Crude in Va. oil-train derailment was highly volatile -- safety data," *EnergyWire*, E&E Publishing, LLC, Aug. 25, 2015.

[49] *See* Stern, M., "How to Prevent an Oil Train Disaster," *N.Y. Times*, May 19, 2015.

[50] *See* Bailey, E., "Mosier oil train derailment: 65 truckloads of crude oil cleared, 25 more to go," *The Oregonian* (June 7, 2016).

As indicated, the reported vapor pressure of Bakken crude oil in each of these accidents was at or above a Reid vapor pressure of 9.0 psi. Thus, empirical data support PHMSA's adoption of a nationwide vapor pressure standard below a Reid vapor pressure of 9.0 psi, or its equivalent.

b. Standard(s) for measuring vapor pressure

The State AGs submit that PHMSA is not required to determine that vapor pressure is the "*best* metric" to use in decreasing fire and explosion risk before developing a vapor pressure regulation[51] (emphasis added). Instead, PHMSA may rely on vapor pressure as a reasonable metric to reduce the fire and explosion risk of crude-by-rail. Regardless of the specific method used to establish a vapor pressure standard, whether it be the Reid vapor pressure (RVP) or some other vapor pressure metric (i.e., true vapor pressure),[52] it is imperative PHMSA establish a vapor pressure ceiling lower than the vapor pressure of crude oil currently being transported by rail.

We note that the petroleum product industry has utilized Reid vapor pressure standards for decades and is well-versed in their measurement and application. Pipeline operators impose RVP standards that vary by season, and the New York Mercantile Exchange includes specified RVP characteristics in contracts for petroleum product futures traded on the exchange.[53] Also, given its long use of RVP standards, and of treating oil to remove volatile propanes, butanes, and ethanes, the petroleum product industry is positioned to provide information as to available methods for the treatment of crude oil, costs of compliance, and implementation.[54]

c. Other properties of Class 3 hazardous materials

PHMSA already regulates crude oil shipments by rail based in part on the temperatures at which the crude oil boils (boiling point) and ignites (flash point).[55] While the State AGs strongly recommend that PHMSA adopt a rule in the near future to regulate the vapor pressure of crude oil shipped by rail, the results of the Sandia study may identify other properties, in addition to vapor pressure, that contribute to the tendency of crude oil to ignite and cause explosions when involved in rail accidents. The State AGs encourage PHMSA to closely review the Sandia study and to propose appropriate protective regulation of any such other properties as well.[56]

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[51] *See* 82 Fed. Reg. at 5505-5507, including Vapor Pressure Question Nos. 1, 3, 6 and 7.

[52] For example, the vapor pressure limit set by the North Dakota Industrial Commission regulations is 13.7 psi VPCRx, or "crude oil vapor pressure," which is a vapor pressure sometimes used in petroleum development, transportation and refining. Based on research by NYAG, VPCRx is used for the most part in the management of petroleum products in large underground storage facilities and large tanks under pressure. VPCRx is vapor pressure measured in some specific way in a container at 100ºF (as is Reid vapor pressure) that accounts for vapor expansion. Studies have established that in a non-pressurized container, the relationship between Reid vapor pressure (RVP) and VPCRx is RVP = 0.915 x VPCRx.

[53] *See* Magellan Pipeline Product Specifications Version 98, Magellan Midstream Partners (Feb. 19, 2015); New York Mercantile Exchange (NYMEX) Rulebook Chapter 200, CME Group (2009).

[54] *See* 82 Fed. Reg. at 5505-5507, including General Question Nos. 6, 13, 14, and 15.

[55] *See* NYAG Petition, at 18, citing 49 C.F.R. § 173.120.

[56] *See* 82 Fed. Reg. at 5505-5507, including General Question Nos. 11, 22.

For the reasons set forth above, the State AGs strongly recommend that PHMSA adopt a nationwide Reid vapor pressure of *less than* 9.0 psi, and at minimum, an appropriately protective interim standard until a final rule can be promulgated.

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