



May 19, 2017

Hon. Howard Mac McMillan
Acting Deputy Administrator
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
West Building, Ground Floor, Room W12-140
Routing Symbol M-30
1200 New Jersey Ave., SE
Washington, DC 20590

Re: Comments in Response to PHMSA's Advance Notice of Proposed Rulemaking to Revise the Hazardous Materials Regulations, Docket No. PHMSA-2016-0077 (HM-251D)

Dear Administrator McMillan:

Thank you for the opportunity to comment on the Pipeline Hazardous Materials Safety Administration ("PHMSA" or the "Administration")'s Advanced Notice of Proposed Revision to the Hazardous Materials Regulations, which plugs a critical gap in the regulation of the volatility of crude oil transported by rail ("crude by rail").¹ These comments are submitted on behalf of the undersigned organizations, and their millions of members across the country (the "Commenters"). In brief, Commenters write to urge PHMSA to establish a nationwide vapor pressure limit for crude oil shipped by rail within the United States, as there is significant need to reduce the number, frequency, and severity of crude by rail accidents across the country.

As the Administration is well aware, over the past decade the use of rail to transport crude oil has grown significantly, resulting in an increase in dangerous oil train accidents. Despite the upturn in crude by rail accidents, crude oil volatility remains unregulated. Our groups, which include many members who live, work and recreate close to the paths of trains that transport crude oil, believe that PHMSA is in a unique position to fill this regulatory vacuum. Overall, we question whether shipping crude oil by rail can ever be truly safe, and we are concerned about allowing the massive expansion of the transportation of highly combustible fossil fuels by an accident-prone industry. But we still believe federal action is needed to at least reduce the damage incurred by these dangerous accidents.

Our comments today strongly endorse and build off of the excellent petition ("Petition") attesting to the need for vapor pressure standards for the transportation of crude oil, submitted by

¹ Advanced Notice of Proposed Revision to the Hazardous Materials Regulations, 82 Fed. Reg. 5499 (proposed Jan. 18, 2017).

the Attorney General of the State of New York.² As you know, that petition called for PHMSA to add a new paragraph, (a)(6), to existing 49 C.F.R. § 174.310, requiring all crude oil transported by rail to have a Reid vapor pressure limit of *less than* 9.0 pounds per square inch (“psi”).³ In its petition, the New York State Attorney General noted that Bakken crude oil involved in rail accidents all measured a Reid vapor pressure of 9.0 psi or greater.⁴ It was this petition in part that prompted the Administration to consider an amendment to existing Hazardous Materials Regulations.⁵

We wish to raise three points in our comments: First, given the recent fracking boom and increase in both crude by rail shipments and accidents, the time is ripe for PHMSA to step in to regulate this previously irregular industry practice of shipping crude by rail. Second, both existing federal and state regulations and unregulated industry practice are insufficient on their own to address the issue. Finally, setting a vapor pressure standard for crude oil is technologically feasible and would result in a notable reduction in crude oil volatility, which would in turn improve the safety of crude by rail accidents. If the Administration finds that it has insufficient data to set a permanent standard, which we suggest it should not, Commenters strongly urge PHMSA to set an interim standard until all necessary data is collected.

I. The number of crude by rail accidents has increased since 2008, demonstrating a heightened need to change industry practices to prevent further accidents.

The recent increase in the shipment of crude by rail calls for new regulation of this hazardous activity. As the Administration is aware, the fracking boom unlocked considerable amounts of previously unavailable crude oil the country. From 2008 to 2016, U.S. production of crude oil nearly doubled.⁶ But because the United States did not have the infrastructure or capacity to ship the huge amounts of crude oil being produced, companies enlisted railroads to ship crude oil when pipelines were not available. Indeed, from 2008 to 2014, the amount of crude oil shipped by rail increased by more than 5,000 percent as domestic crude oil production exceeded pipeline “takeaway” capacity for crude oil.⁷ After a brief slump in 2016,⁸ the Energy

² Attorney General of the State of New York, Petition for Rulemaking to Amend the Requirements for the Operation of High-Hazard Flammable Trains Under 49 C.F.R. Part 174 (“Petition P-1669”) (2015), *available at* <https://www.regulations.gov/docket?D=PHMSA-2015-0253> (hereinafter “Petition”).

³ We underscore the fact that the Petition calls for a Reid vapor pressure limit of *less than* 9.0 psi, and therefore does not suggest that 9.0 psi represents a “safe” limit. To the contrary, the Petition clearly acknowledges that at the most notable crude oil disaster in recent history—the Lac-Mégantic explosion—it is believed that the Reid vapor pressure of the crude involved was between 9.0 and 9.5 psi. Accordingly, PHMSA should strongly consider whether to mandate an even more stringent national standard.

⁴ Petition at 21.

⁵ 82 Fed. Reg. 5499 – 5500.

⁶ U.S. Energy Information Administration (“EIA”), U.S. Field Production of Crude Oil, <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mcrfps2&f=m>.

⁷ Association of American Railroads, U.S. Rail Crude Oil Traffic (2015), <https://www.aar.org/BackgroundPapers/US%20Rail%20Crude%20Oil%20Traffic.pdf>.

⁸ Even when crude oil transport by rail is less frequent due to overproduction (making shipping by train unprofitable), industry participants utilize rail cars for “rolling storage” to store excess crude oil until prices and

Information Administration forecasts U.S. crude oil production will again increase in 2017 and 2018, creating even more demand for crude by rail transport.

The State of North Dakota has been the center of the new crude oil boom. In 2015, out of all 50 states, North Dakota was second in both absolute level of crude oil production and increase in production, second only to Texas.⁹ Additionally, most crude oil being shipped by rail originated in North Dakota.¹⁰ Indeed, shipment by train is the most common form of transport for crude oil in the state.¹¹ Significantly, crude oil from North Dakota's Bakken Shale, known as North Dakota Light or Bakken crude, is the most explosive in the country and perhaps the world.¹² Specifically, Bakken crude oil has a higher concentration of highly volatile organic compounds, including propane, butane, and ethane, which have a strong tendency to vaporize within tank cars as temperatures increase.¹³ Once vaporized, these compounds are extremely flammable and can both catch fire and explode.

This growth in shipments of crude by rail, especially of Bakken crude, has led to a rash of explosive rail accidents. Perhaps the most tragic incident occurred just across the border in Lac Megantic, Quebec—where in July of 2013 a crude oil train derailment resulted in a catastrophic explosion, killing 47 people and destroying a historic downtown. In the United States, we have also had a significant rise in crude oil rail disasters over the last ten years.¹⁴ The list of incidents includes explosions across the country—in Mount Carbon, WV,¹⁵ Galena, IL,¹⁶ and Heimdal,

demand increase, creating concentrated areas that are vulnerable to fire and explosions. Nicole Friedman and Bob Tita, "The New Oil-Storage Space: Railcars," *Wall Street Journal*, Feb. 28, 2016, available at <http://beniciaindependent.com/wall-street-journal-the-new-oil-storage-space-railcars/>.

⁹ EIA, U.S. crude oil production in 2015 was the highest since 1972, but has since declined, Nov. 7, 2016, <https://www.eia.gov/todayinenergy/detail.php?id=28672> .

¹⁰ Russell Gold, "Bakken Shale Oil Carries High Combustion Risk," *Wall Street Journal*, Feb. 23, 2014, available at <https://www.wsj.com/news/articles/SB10001424052702304834704579401353579548592>.

¹¹ *Id.*

¹² *Id.*

¹³ See Andrews, A., "Crude Oil Properties Relevant to Rail Transport Safety: In Brief," Congressional Research Service, February 18, 2014.

¹⁴ Mike Soraghan, "Crude mishaps on trains spike as rail carries more oil," *E&E News*, Jul. 17, 2013, <http://www.eenews.net/stories/1059984505>.

¹⁵ In Mount Carbon, for example, on February 16, 2015, an explosion from an oil train derailment sent fireballs hundreds of feet into the air, burning down one home and forcing the evacuation of more than 200 residents during an exceptionally cold winter. Although these types of spectacular incidents have thankfully not resulted in any recent deaths on American soil, their alarming frequency and magnitude raise the fear that, without swift and significant action, it may be only a matter of time. Indeed, for these reasons, the National Transportation and Safety Board has expressed concern "that major loss of life, property damage and environmental consequences can occur when large volumes of crude oil or other flammable liquids are transported on a single train involved in an accident." NTSB, *NTSB Calls for Tougher Standards on Trains Carrying Crude Oil* (Jan. 23, 2014) available at <http://www.nts.gov/news/press-releases/Pages/PR20140123.aspx>.

¹⁶ U.S. E.P.A., Galena Train Derailment, <https://www.epa.gov/il/galena-train-derailment> (last visited Mar. 13, 2017).

ND.¹⁷

Most recently, in June 2016, a train carrying Bakken crude oil derailed on a strip of land running between the Columbia River and the town of Mosier, OR. Sixteen train cars carrying crude oil derailed, and four of those cars breached, spilling 42,000 gallons of Bakken crude oil.¹⁸ The volatile oil burst in flames, igniting a rail fire that persisted for over 10 hours.¹⁹ Nearly 300 residents were evacuated from their homes due to safety concerns.²⁰ The fire chief of Mosier who once was in favor of the shipment of crude oil by rail said that after the accident, he no longer believes that shipping oil by rail is safe.²¹ These explosive rail accidents destroy homes, endanger public health, and pollute the environment.

II. The regulatory framework as it exists has not reduced the volatility in crude oil to a level that makes it safe to transport it by rail.

Despite the increase in dangerous crude by rail accidents, there is no federal or state regulation in place that limits the volatility of crude oil during transport. For these reasons, it is essential that PHMSA take action to close this dangerous regulatory gap.

To be sure, PHMSA has recently taken some initial measures to address some of the most preventable problems. In May 2015, PHMSA promulgated the “Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains” rule, which is intended to “reduce the consequences, and, in some instances, reduce the probabilities of accidents involving trains transporting large quantities of flammable liquids.”²² The Rule mandates new braking standards and speed restrictions for crude oil trains as well as retrofitting requirements for thin-hulled DOT-111 (often referred to as “Pepsi cans on wheels”) and CPC-1232 tank cars. In December 2015, the Fixing America’s Surface Transportation (FAST) Act was signed into law,²³ further amending tank car design standards and revising the retrofitting schedule for old tank cars.

But these rules don’t go far enough. Significantly, there is a critical flaw in the new rules: they do nothing to address the highly combustible properties of the crude oil now transported by

¹⁷ Lisa Riordan Seville et al., “Heimdal, North Dakota, Evacuated After Fiery Oil Train Crash,” *NBC News*, <http://www.nbcnews.com/news/us-news/heimdal-north-dakota-evacuated-after-fiery-oil-train-crash-n354686>.

¹⁸ <https://thinkprogress.org/they-did-everything-they-could-have-done-the-tragedy-of-the-oregon-oil-derailment-337740469311#.4a72ixinr>

¹⁹ Natasha Geiling, “‘They Did Everything They Could Have Done’: The Tragedy Of The Oregon Oil Derailment,” *Think Progress*, Jun. 8, 2016, <http://www.opb.org/news/series/oil-trains/oil-sheen-slick-found-columbia-river-mosier-train-derailment/>.

²⁰ Everton Bailey Jr., “Mosier oil train derailment: 65 truckloads of crude oil cleared, 25 more to go,” *The Oregonian*, Jun. 7, 2016, http://www.oregonlive.com/pacific-northwest-news/index.ssf/2016/06/mosier_oil_train_derailment_30.html.

²¹ *Id.*

²² Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains, 80 Fed. Reg. 26644 (effective date: July 7, 2015).

²³ See Pub. L. No. 114-94 §§ 7301 – 11 (2015).

rail. Moreover, grandfathering provisions for existing rail cars will delay full implementation of the tougher tank standards until as late as May 1, 2025. Even then, it is unclear whether these new standards would have actually prevented many of the disastrous rail accidents of the past several years had they then been in effect.

The failure of the rule to address highly combustible crude oil is significant because of the dramatic increase in Bakken crude oil transport, one of the most volatile crude oils available. As your office knows, the volatility of a crude oil is measured by its vapor pressure, or its tendency to evaporate, or emit flammable gases, such as butane, propane, and ethane, when temperatures rise. In vapor form, these gases are extremely flammable. Thus, the greater a crude oil's volatility, the more prone it is to catching fire or exploding. Reid vapor pressure is one way to measure the vapor pressure of crude oil—the higher the Reid vapor pressure, the greater its volatility.

Bakken crude oil is well known to be even more volatile than other crude oils. Its Reid vapor pressure, while variable, has been measured to be as high as 15.1 psi,²⁴ with an average pressure of 8 psi.²⁵ This contrasts with the average Reid vapor pressure of, for example, Brent crude oil (5.61 psi) and Light Louisiana Sweet (2.38 psi), two other common types of crude oil.²⁶ PHMSA has recognized this fact. In January 2014, PHMSA issued a safety alert to notify the public that Bakken crude may be more flammable than traditional heavy crude oil.²⁷

While North Dakota has taken measures to regulate the vapor pressure of crude oil transported by rail, the vapor pressure limit is so lax as to be virtually meaningless. Seeking in part to address the dangers of shipping Bakken crude oil by train, and in the absence of federal action, in December 2014, the North Dakota Industrial Commission (“NDIC”), a state agency responsible for overseeing the oil and gas industry in North Dakota, established new oil conditioning standards in order “to improve the transportation safety and marketability of crude oil” (the “Conditioning Order”).²⁸ The Conditioning Order, among other things, requires crude oil to have a maximum vapor pressure threshold of 13.7 psi²⁹ or 1 percent less than the vapor pressure of stabilized crude oil, whichever is lower.³⁰ To its credit, this North Dakota order sets the only vapor pressure limit for the transport of crude oil by rail in the country. But, as noted, since most Bakken crude already tests below 13.7 psi,³¹ the Conditioning Order is not expected

²⁴ Gold, R., “Bakken Shale Oil Carries High Combustion Risk,” *Wall Street Journal*, Feb. 23, 2014, available at <http://www.wsj.com/news/articles/SB10001424052>.

²⁵ Gold, *supra* note 10.

²⁶ *Id.*

²⁷ PHMSA, Safety Alert, January 2, 2014, http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf.

²⁸ NDIC, Order No. 25417, available at <https://www.dmr.nd.gov/oilgas/Approved-or25417.pdf>.

²⁹ Under the Conditioning Order, vapor pressure is measured using Reid equivalent instead of Reid vapor pressure. Reid equivalent uses different equipment and procedures than Reid vapor pressure, but both methods measure volatility.

³⁰ *Id.*

³¹ Petition, *supra* note 2, at 19.

to have a significant effect on the frequency of Bakken crude rail accidents.³² Moreover, crude oil with lower vapor pressures have been transported by rail and caused serious fires and explosions when derailed.³³

The rail industry also has not implemented any practices to meaningfully limit crude by rail volatility.³⁴ As PHMSA has noted,³⁵ one reason for this is that risk of damage resulting from rail accidents is not fully internalized by the party most able to reduce it—namely, the crude oil shippers. These shippers are not liable for accidents that occur with their product once a rail carrier has accepted shipment.³⁶ At the same time, rail carriers, who are largely liable for the damage caused by crude by rail accidents, are not empowered to refuse shipment due to their legal obligations as common carriers.³⁷

III. Setting a vapor pressure limit is a feasible way to reduce the number of crude by rail accidents that result in explosions.

The New York State Attorney General’s Petition makes a well-supported and commonsense argument for a nationwide Reid vapor pressure limit of less than 9.0 psi. As explained, a high vapor pressure of crude oil can increase its tendency to ignite and explode, and Bakken crude, one of the most highly produced and fastest growing crude oils in the country, has one of the highest average vapor pressures of all crude oils available. The data available now is more than sufficient to establish a reasonable, well-informed vapor pressure limit at a level below 9.0 psi. But if the Administration believes it does not have sufficient data to set a permanent standard, it should set an interim standard while additional data is being collected.

Limiting the vapor pressure of crude oil shipped by rail to below 9.0 psi will have a high probability of preventing large fires and explosions in future derailments of crude oil trains. According to the data compiled in the Petition and reproduced in PHMSA’s ANPR, all of the Bakken crude accidents that resulted in fire or explosions have had a vapor pressure of greater than 9.0 psi.³⁸

³² Final Regulatory Impact Analysis [Docket No. PHMSA-2012-0082] (HM-251) Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains, at 26 (May 2015) (“PHMSA Regulatory Impact Analysis”), available at https://www.fra.dot.gov/eLib/details/L16354#p1_z5_gD_ILR_y2015_m5.

³³ Petition, *supra* note 2, at 21 – 22; 82 Fed. Reg. 5501.

³⁴ Granted, there is a common industry practice of boiling off the volatile components, known as “conditioning.” It does not, however, meaningfully reduce the level of volatility of the crude oil, as the majority of the volatile gases remain in the crude oil solution. Gold, R., “Bakken Shale Oil Carries High Combustion Risk,” *Wall Street Journal*, February 23, 2014, available at <http://www.wsj.com/news/articles/SB10001424052>. It is therefore inadequate to leave regulation to either the state or to industry—federal regulation must carry the day.

³⁵ PHMSA Regulatory Impact Analysis, *supra* note 32, at 199.

³⁶ *Id.*; see also Petition, *supra* note 2, at 26.

³⁷ *Id.*

³⁸ Petition, *supra* note 2, at 21 – 22, 82 Fed. Reg. 5501.

Awaiting the results of the ongoing, 4-phase “Crude Oil Characteristics Research Sampling, Analysis and Experiment Plan” study conducted by Sandia National Laboratory and others (the “Sandia Study”)³⁹ before issuing any crude by rail regulations risks the occurrence of more deadly crude-by-rail accidents for years until all phases of the Sandia Study are complete. Indeed, the study, commenced three years ago, has only fully completed Task 1 of 4—it is not certain when this study will end. In the meantime, we respectfully request that PHMSA adopt an interim standard while awaiting the results of the Sandia Study.

Finally, vapor pressures can easily be reduced with readily available technologies that have been practiced for years in other parts of the country. Shippers operating in the Eagle Ford Shale in Texas, where the oil produced has similar vapor pressures to Bakken crude, commonly “stabilize” their crude oil before transport.⁴⁰ Stabilization is a crude oil treatment whereby distillation towers heat crude oil to strip out volatile gases, thereby reducing the volatility of the remaining liquid solution. This practice is widespread amongst shippers of Eagle Ford crude oil, where pipeline operators require shippers to limit volatility to between 9 and 10 psi Reid vapor pressure.⁴¹ Similarly, other flammable liquids have federally-imposed vapor pressure limits. For example, EPA has imposed a maximum vapor pressure for gasoline, for which shippers employ similar stabilization technology.⁴² These industry practices demonstrate that technological solutions are not only feasible but also could be implemented immediately.

Conclusion

In sum, we strongly support the Petition’s request for a nationwide Reid vapor pressure limit of *less than* 9.0 psi. As noted, our groups remained concerned that the shipment of crude by rail can ever be truly safe. But it is critical that PHMSA act to protect our communities and treasured natural areas now bisected by rail lines carrying crude—the hundreds of communities placed in the path of crude oil trains simply cannot wait. The setting of a Reid vapor pressure limit to below 9.0 presents an easy and obvious step in this direction.

³⁹ See https://energy.gov/sites/prod/files/2015/07/f24/Crude%20Oil%20Characteristics%20Research%20SAE%20Plan_0.pdf.

⁴⁰ See, e.g., Manning, F.S. and R.E. Thompson, “Oilfield Processing of Petroleum: Crude Oil,” ch. 9, Stabilization and Sweetening of Crude Oil, PennWell Publishing Co. (1995), which describes a variety of methods for crude oil stabilization known in the 1970s and 1980s.

⁴¹ See, e.g., Eagle Ford Pipeline LLC tariff document, Texas Rail Road Commission No. 1.7.0, at 12, March 1, 2015 (effective) (allowing pipeline operator to reject crude oil shipments having Reid vapor pressure in excess of 9.0 psi); Joint Local and Incentive Rate Tariff between Double Eagle Pipeline LLC and Kinder Morgan Crude & Condensate LLC, Texas Rail Road Commission No. 08, at 5, March 1, 2015 (effective) (Reid vapor pressure limit of 10.0 psi). See also Press Release, U.S. Senator Charles E. Schumer, Schumer Urges Feds To Issue An Emergency Order To Require Oil Companies To Make Highly Flammable Crude Oil Less Volatile Before It Is Shipped Through Nys Communities; Senator Says Crude Oil Is Being Shipped Through Upstate Ny In Hundreds Of Tank Cars Each Day; Bakken Oil Is Far More Flammable & Dangerous Than Other Types (Jun. 29, 2016), available at <https://www.schumer.senate.gov/newsroom/press-releases/schumer-urges-feds-to-issue-an-emergency-order-to-require-oil-companies-to-make-highly-flammable-crude-oil-less-volatile-before-it-is-shipped-through-nys-communities-senator-says-crude-oil-is-being-shipped-through-upstate-ny-in-hundreds-of-tank-cars-each-day-bakken-oil-is-far-more-flammable-and-dangerous-than-other-types>.

⁴² See EPA, Guide on Federal and State Summer RVP Standards for Conventional Gasoline Only, available at <http://epa.gov/otaq/fuels/gasolinefuels/volatility/standards.htm>.

Respectfully,

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