



September 26, 2014

U.S. Department of Transportation  
West Building, Ground Floor, Room W12-140, Routing Symbol M-30  
1200 New Jersey Avenue, S.E.  
Washington, DC 20590

Re: **Comments on Docket No. PHMSA-2012-0082 (HM-251)**  
**Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains**

Delaware Riverkeeper Network submits this comment letter in response to the U.S. Department of Transportation and Pipeline and Hazardous Materials Safety Administration's Public Notice for comment on Docket No. PHMSA-2012-0082 (HM251) RIN 2137-AE91, Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains.

**General Comment**

The proposed regulations do not provide the safety and pollution prevention measures that are required for the transportation by rail of the hazardous materials the U.S. Department of Transportation (USDOT) and Pipeline and Hazardous Materials Safety Administration (PHMSA) are attempting to address in this Docket. Delaware Riverkeeper Network strongly urges USDOT, PHMSA, and the Federal Railroad Administration (FRA) to immediately remove DOT111s from service for transport of the flammable hazardous liquids that are addressed in the proposed rulemaking; adopt strong and fully enforceable regulations that make protection of all communities and the environment the highest priority regarding the classification and characterization of the carried materials and operational controls; adopt and implement federal jurisdiction over routing and scheduling, and open the agencies to public involvement in planning, emergency preparedness, and decisionmaking concerning the transportation of crude oil and natural gas liquids by rail.

Delaware Riverkeeper Network is dedicated to the Delaware River Watershed, the protection and restoration of all its communities and represents our members who live within and outside of the Watershed. Trains carrying high hazard flammable materials travel into and

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through the Watershed. Some unit trains deliver these materials to processing and refining facilities within the Delaware River Watershed; some trains deliver these materials to terminals or rail yards here; some materials are transported further to markets by trains, pipelines, or shipping. The marked increase in trains carrying crude oil and flammable liquids such as ethanol has resulted in new hazards for Watershed communities, exposing people and the environment to heightened risks.

On January 20, 2014 seven cars from a 101-car CSX freight train derailed in Philadelphia on the Schuylkill Arsenal Railroad Bridge over the Schuylkill River, just above its confluence with the main stem Delaware River. Six of the cars were carrying crude oil. The derailed train cars dangled from the bridge for a week before crews were able to right them. The rivers are the water supply source for the Greater Philadelphia region, serving 1.5 million residents with water each day. This incident woke up Philadelphians, who were largely unaware that this high hazard crude was being transported every day through the City.

One destination for unit trains in Philadelphia, Philadelphia Energy Solutions (PES), recently expanded and accepts two unit trains of up to 120 cars per day, seven days a week. According to the Philadelphia Chamber of Commerce the facility is the largest oil refining complex on the Eastern Seaboard, the largest crude by rail facility in the U.S. and, according to CSX, the largest customer for crude oil produced from North Dakota's Bakken Shale. PES processes between 330 and 350 barrels of oil per day<sup>1</sup> and is expanding further in the coming months, expecting to greatly increase train traffic. Together with the three other largest refineries in the Delaware River Port region (Monroe Refinery in Delaware County, PBF Refinery in Paulsboro, New Jersey, and the Delaware City, Delaware refinery) 862,000 bpd of oil are refined<sup>2</sup>.

The Delaware River Watershed hosts many other oil and gas hub facilities that are connected to and utilize rail for oil and gas liquids at one point of transport or another on both sides of the river such as the newly expanded Eddystone Rail Yard, gas processing facilities, pipeline junctures, the Delaware River Port system, and additional terminals and refineries that are undergoing refurbishing as shale oil and gas production increases and the industry searches for transportation and markets. Rail tank cars carry crude oil and flammable liquids such as ethanol throughout the Watershed in the states that flow to the river - New York, New Jersey, Pennsylvania and Delaware. This increased train traffic with this highly volatile and pollutant-laden material means that the Delaware River Watershed and the regions connected to it are being exposed to unacceptable safety hazards and environmental pollution because adequate regulations are not in place.

The increase in oil train and ethanol accidents since the traffic and volumes has increased and the contents have changed is alarming. Some of the notable accidents are documented in the proposed rulemaking at Executive Summary Table 3 of the proposed rulemaking. There are many more spills, accidents, fires and derailments that are not listed there; 119 incidents involving

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<sup>1</sup> <http://news.gpcc.com/2014/03/a-conversation-with-phil-rinaldi-of-philadelphia-energy-solutions/>

<sup>2</sup> <http://www.blankrome.com/index.cfm?contentID=37&itemID=3214>

crude-by-rail mishaps occurred in 2013<sup>3</sup>. These incidents have increased the amount of oil spilled as well as other pollutants. According to PHMSA, more than 1.15 million gallons of crude oil was spilled from rail cars in over 35 tank car accidents in 2013, which is more oil than was spilled in the prior 37 years combined. Especially when oil enters a stream or river, it can significantly harm water quality, species and their habitat, and can have human health effects.

Hazardous substances in crude oil can pollute water supplies when spilled. An example is benzene, a known carcinogen, which polluted groundwater to toxic levels as the result of a crude oil train derailment on May 9, 2014 in La Salle, Colorado. It was reported by EPA that months later benzene levels measured 144 parts per billion (the federal standard is 10 ppb).<sup>4</sup>

The danger of crude-by-rail is compounded by the high volatility level of Bakken crude, the source of much of the oil traveling through the Watershed. A report released in July 2014 by PHMSA and the Federal Railroad Administration (FRA) analyzed crude oil from the Williston Basin of North Dakota ("Bakken crude") which concluded that the volatility level is high with "...a high gas content, low flash point, a low boiling point and high vapor pressure".<sup>5</sup> The report concluded that due to the volatility, "...there is an increased risk of a significant incident involving this material due to significant volume that is transported, the routes and the extremely long distances it is moving by rail".<sup>6</sup> Since the Bakken crude oil has a higher degree of volatility than other crude oil in the United States, it is more likely to ignite and catch fire in an accident.

The use of DOT111 cars to transport this more highly volatile and flammable crude oil raises the likelihood of a catastrophic event, prompting the recommendations for tank car upgrades in the rulemaking. An illustration of the proposed changes graphically explains the various upgrades under consideration in the report recently issued by the U.S. Government Accountability Office (GAO) on crude-by-rail safety.<sup>7</sup> The National Transportation Safety Board (NTSB) found "...that DOT-111 tank cars are inadequately designed to prevent punctures or breaches and that the catastrophic release of hazardous materials can be expected when derailments involve DOT-111 cars".<sup>8</sup> According to the GAO report, PHMSA, FRA, and the Association of American Railroads (AAR) have all done further research and agree with NTSB and local government, the rail industry and rail suppliers that the current DOT111 cars are

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<sup>3</sup> US Government Accountability Office, *OIL AND GAS TRANSPORTATION, Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety*, GAO-14-667, August 2014, p. 34. <http://www.gao.gov/products/GAO-14-667>

<sup>4</sup> Halsne, Chris, *Derailed: Railroad delays first responders on riverside oil spill*, 9.22.2014.

<http://kdvr.com/2014/09/22/derailed-railroad-delays-first-responders-on-riverside-oil-spill/>

<sup>5</sup> PHMSA and FRA, "Operation Safe Delivery", 7.23.14, p. 16 <http://1.usa.gov/1uiDFPT>

<sup>6</sup> Ibid.

<sup>7</sup> US Government Accountability Office, *OIL AND GAS TRANSPORTATION, Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety*, GAO-14-667, August 2014, Figure 8, p. 42. <http://www.gao.gov/products/GAO-14-667>

<sup>8</sup> Ibid, p. 40.

inappropriate for these materials and that tank car design must be improved and new standards included in regulation.<sup>9</sup>

Each day two unit trains approximately 120 cars long deliver Bakken crude to PES in Philadelphia, carrying up to about 3.6 million gallons of oil on each train<sup>10</sup>. The most commonly used tank cars for this local delivery are DOT111s and, as detailed at Table 8 of the Proposed Rulemaking, the current fleet nationwide is dominated by DOT111s. These trains travel over 1500 miles from North Dakota, halfway across the nation, through countryside and numerous communities, ending in the densely populated city of Philadelphia (population of 1.5 million) where hundreds of thousands of residents and workers are likely within the ½ mile evacuation zone should there be a catastrophic accident.

Transportation of Bakken crude by rail and flammable liquids such as ethanol have increased nationwide in recent years and is expected to continue to increase, forecasting a sustained and immediate need for improved safety standards. As stated in the proposed rulemaking at Executive Summary page 5, crude-by-rail has increased 423% between 2011 and 2012 and in 2013 the number of rail carloads of crude oil surpassed 400,000. This is because of the marked increase in the extraction and production of domestic shale oil, primarily Bakken crude from North Dakota and Montana, according to a letter from U.S. Senators to the Senate's subcommittee on transportation.<sup>11</sup> Bakken Shale oil production is expected to continue to increase from the current 1 million barrels of oil per day (MMb/d) to approx.1.4 MMb/d by 2016<sup>12</sup>. 67% of it was moved by rail and that is expected to rise steeply as production increases. Ethanol production has also steeply increased, swelling the number of rail carloads of ethanol from 292,000 in 2008 to 409,000 in 2011, a 40% increase, as documented in the proposed rulemaking at Executive Summary, page 11.

The threat of pollution releases that will harm water, air, communities and human health, the safety issues that plague communities along oil train routes in our Watershed, and the need for protective federal regulation regarding operation, management, and planning are primary reasons Delaware Riverkeeper Network is submitting this comment.

## **Comments on Specific Sections**

### **Definition of High Hazard Flammable Train is Unacceptable**

The proposed definition of High Hazard Flammable Train (HHFT) as a single train containing 20 or more tank carloads of Class 3 flammable liquid material is extremely and wrongly limiting and provides a loophole for trains carrying highly dangerous tank carloads by avoiding application of

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<sup>9</sup> Ibid, p. 42-43.

<sup>10</sup> Ibid, p. 31.

<sup>11</sup> Letter from 16 U.S. Senators to U.S. Senate Committee on Appropriations Subcommittee on Transportation, Housing, and Urban Development, and Related Agencies dated 4.4.2014.

<sup>12</sup> <http://northdakotapipelines.com/us-williston-basin-oil-production/> and <http://northdakotapipelines.com/presentations/> August 7, page 2.

upgraded standards and regulations. Regarding the number of cars in the HHFT definition, trains with fewer than 20 tank cars are a substantial threat and can cause far-reaching damages when oil is spilled, an explosion occurs or when a fire erupts.

PHMSA states that even one tank car poses a risk of a considerable oil spill (35,000 gallons) and five tank cars on average will release about 84,000 upon rupture, at Table 22, p, 143 in the proposed rulemaking. In addition, even one tank car rupture and crude oil spill can release other toxic materials into the environment. An example is the previously mentioned crude oil train derailment on May 9, 2014 in La Salle, Colorado where six cars derailed and one tank car broke open, releasing 7,000 gallons of crude oil. EPA found months later that benzene levels measured 144 parts per billion (the federal standard is 10 ppb).<sup>13</sup>

In the Regulatory Impact Analysis for this rulemaking, it is stated that "...any catastrophic event will stem from a derailment resulting in the damage of 5 or more tank cars."<sup>14</sup> The economic impacts of a pollution incident or fire resulting from a one car derailment are also great and are a burden that can be avoided. For example, the clean-up costs of *one* accident alone are estimated to total at least \$180 million.

A loophole that gives a pass to a train with 19 cars or under of these highly hazardous materials (representing about 665,000 gallons of oil) in substandard tank cars with minimal operational controls and poor monitoring and the loophole allowing other hazardous materials such as heavy crude oil to escape these proposed regulations is simply unacceptable.

Regarding the requirement that the definition applies to Class 3 flammable liquid material, this allows trains with cars combined with different highly hazardous materials to avoid applicability of the proposed rulemaking as long as the number of Bakken crude or ethanol cars is no greater than 19. This wrongly exposes the public and environment to hazards that could and should be avoided. The Association of American Railroads (AAR) CIRCULAR NO. OT-55-N issued in August 2013 redefined "key trains" to apply to 20 car loads of any combination of hazardous material. This is a more protective definition and should be included in this rulemaking.

PHMSA states that by not including the Division 2.1 (flammable gas) material and combustible liquids in the proposed definition, DOT111s will continue to be used for flammable liquids and combustible liquids when not part of a HHFT. This wrongly allows heavy crude oil such as tar sands and other hazardous materials to continue to use the substandard DOT111s, unnecessarily exposing the public and environment to the hazards of pollution incidents and accidents. It is known that the adverse impacts of heavy crude, especially tar sands which is more viscous and

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<sup>13</sup> Halsne, Chris, "Derailed: Railroad delays first responders on riverside oil spill", 9.22.2014.

<http://kdvr.com/2014/09/22/derailed-railroad-delays-first-responders-on-riverside-oil-spill/>

<sup>14</sup> Draft Regulatory Impact Analysis, [Docket No. PHMSA-2012-0082] (HM-251), Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains; Notice of Proposed Rulemaking, Department of Transportation Pipeline and Hazardous Materials Safety Administration, July 2014, p. 192.

“sticky” than other crudes that are carried within North America by rail, can be devastating to the environment, especially wetlands and waterways. Tar sands often is carried into the U.S. as diluted bitumen which is highly corrosive, acidic and loaded with natural gas liquid condensate, with an elevated risk of igniting or exploding in an accident.<sup>15</sup> A highly toxic gas, hydrogen sulfide, which can be deadly, can be produced by a diluted bitumen explosion, threatening communities with a catastrophic pollution event that includes risk by inhalation. Benzene, polycyclic aromatic hydrocarbons, and other hazardous with very dangerous human health effects are also found in diluted bitumen.<sup>16</sup> The coating of the river bottom by a Canadian tar sands spill (an Enbridge pipeline break, not a rail accident) in the Kalamazoo River in July 2010 resulted in thirty-five miles of the river being closed for clean-up for two years and, four years later the river is still not fully cleaned. In 2013 U.S.E.P.A. estimated that 180,000 gallons of oil still needed to be recovered.<sup>17</sup> More recent spills in Michigan and Arkansas show tar sands oil is much more toxic and difficult to clean up than conventional crude.<sup>18</sup>

The loophole that is being created by this rulemaking allowing heavy crude and other hazardous materials to continue to use DOT111s and to escape this rulemaking is irresponsible and shortsighted. The benefits of including Division 2.1 (flammable gas) material and combustible liquids in the proposed definition will be increased safety, increased avoidance of pollution events and accidents, and an outcome that allows PHSMA to reach its mission of preventing hazardous material releases and reducing the probability and quantity of these releases.

The proposed definition can be expected to result in many trainloads posing catastrophic threat to the environment and public health and burdening communities with loss of economic value of natural resources that are adversely impacted and costing multi-millions of dollars. The definition for HHFT should be rewritten to apply to any train with one tank car or more of hazardous material.

#### Notification to State Emergency Response Commissions (SERC) of Petroleum Crude Oil Transportation

The rulemaking proposes to codify an Emergency Restriction/Prohibition Order (Docket No. DOT-OST-2014-0067- “Order”). This is a mistake and will keep essential information about HHFTs from local governments, emergency agencies, first responders, and the public. This will lead to less preparedness and effectiveness in response to emergencies and will also lead to exposure of the public and the environment to pollution and accidents that could be avoided.

The Order only requires notification to SERCs if a single train is carrying 1,000,000 gallons or more of Bakken crude oil within the United States. The U.S. Environmental Protection Agency’s threshold of 1,000,000 gallons as set in the Federal Oil Pollution Prevention regulation (40 CFR

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<sup>15</sup> <http://www.nrdc.org/energy/tarsandssafetyrisks.asp>

<sup>16</sup> Ibid.

<sup>17</sup> <http://www.epa.gov/enbridgespill/community.html>

<sup>18</sup> <http://tarsandsolutions.org/tar-sands/spills-and-leaks>

part 112) applies to stationary facilities and includes all oil containers, including drums, at the facility. Trains carrying volatile and flammable crude oil are substantially different than such facilities. The risk of a leak or accident is much greater for a rail car because of the nature of rail transport, as demonstrated by the dozens of recent accidents from derailments.

PHMSA states that "...the transportation of any hazardous materials is inherently dangerous, and transporting crude oil can be dangerous if the crude oil is released into the environment because of its flammability" at V(B) page 74 of the proposed rulemaking. PHMSA goes on to explain that the long, heavy trains (over 100 loaded cars) pose greater risks of accidents and fires, the risk of incidents increasing with the volume and length of haul. This should not be a reason to limit the notification to 1,000,000 gallons. As stated above in this comment, one tank car can be a source of substantial adverse impact and certain pollutants in crude oil can cause substantial pollution such as the May 9, 2014 in La Salle, Colorado derailment that resulted in extremely high levels of benzene in the groundwater months after the accident (144 parts per billion) from just 7,000 gallons of crude oil spilled from one tank car. Importantly, PHMSA is allowing many HHFT loads to pass unannounced and does not substantiate how this is protective of the public and environment. All shipments of HHFT and all trains that are carrying one car or more of crude oil should be subject to notification requirements to SERCs, states, agencies and the public.

Notification should be required to SERCs, state Departments of Transportation, Fusion Centers, Tribal Emergency Response Commissions, and local emergency responders to ensure that those responsible for emergency response are informed. USDOT states that they "prefer that this information be kept confidential" at V(B) page 77 of the proposed rulemaking. The former NTSB Chairwoman Deborah Hersman issued a letter that called for greater notification, noting that "...carriers have effectively placed the burden of remediating the environmental consequences of an accident on local communities along their routes"<sup>19</sup> and reiterated in her farewell address that emergency responders cannot respond to worst case scenarios.

An example of the problem of withholding notification from emergency responders is illustrated by the La Salle Colorado crude oil train derailment when six Union Pacific tankers derailed and one broke open, releasing 7,000 gallons of crude oil. Emergency responders, according to the Weld County Emergency Manager, were notified late and not given the information they needed to respond, left scrambling for the exact location and extent of the spill when they could have been on the scene helping to contain the oil.<sup>20</sup>

The public should be allowed to have access to this information in order to be able to make personal decisions about protecting themselves and their families from the risk of exposure to pollution or safety hazards. This information should also be made available to the public via an easily accessible web platform. The website should include everything interested parties need or want to know and everything an emergency response team would want to tell them.

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<sup>19</sup> Deborah A.P. Hersman, Chairman, National Transportation Safety Board Safety Recommendation letter, January 23, 2014

<sup>20</sup> <http://www.eenews.net/stories/1059998222>

An informed public is a more protected public; keeping information about the routes and schedules of hazardous trainloads from those whom live, work and travel in the vicinity of these routes keeps people in the dark and less able to make informed decisions such as place of residence, travel routes, work locations, and other activities that could put a person in jeopardy. This is unjust and victimizes communities along the routes and within danger zones.

For instance, parks, trails and recreational rivers (such as the Schuylkill River Park Trail system in Philadelphia, PA) that are located near or adjacent to train routes that transport crude oil tank cars, especially those within the federally recommended evacuation zone for crude oil fires of ½ mile and within the blast zone of an explosion, attract the public and people should be cognizant of train routes and schedules so they may plan to avoid risks. We do not agree that this information is Security Sensitive Information. The notification requirement should be changed to require notification to and the sharing of information with the public as well as the agencies listed above.

The proposed notification is limited to Bakken crude oil, explaining that crude oil from Manitoba and Saskatchewan is included. However, there are other potential sources of crude oil that are not included but pose equal threats. This is an unjustified limitation and will exempt from notification crude oil that is often transported by rail into the United States from Canada, such as tar sands oil, or other foreign oil that is transported into the U.S. and then offloaded into rail cars. The proposed notification should be expanded to apply to all crude oil sourced from any location.

### Rail Routing

The proposed routing changes are wholly inadequate. We do support the inspection of tracks and other track safety measures that are included in AAR Circulars and urge implementation and monitoring to ensure their full enforcement. But rail routing that is protective of the public and the environment is not given the attention needed in the proposed rulemaking. The routing of trains away from highly vulnerable areas, such as water supplies and densely populated areas, has the potential to protect large numbers of people and the drinking water upon which the nation relies. PHMSA shies away from regulation of the routing of trains through certain areas yet other federal agencies provide this level of regulation successfully every day. An example is the 2002 Maritime Transportation Security Act, which mandates the US Coast Guard to initiate a substantial formal approval process of 15,000 ship and vessel security plans.

Communities know where the most vulnerable features in their region are located and should have the right to refuse HHFTs and other hazardous trains. Urban centers, reservoirs, groundwater recharge areas, important agricultural basins, parks and wilderness areas and Wild and Scenic Rivers, are all examples of areas that protective routing could avoid. In the present operating scheme, the decisions about routing are in the hands of industrial users, not the government or the public. We urge that USDOT and PHMSA open the issue of whether Bakken crude and other flammable and volatile tank carloads of hazardous materials should be allowed to be carried through vulnerable areas that have the potential for substantial harm should there be a spill or accident and allow communities to participate in the routing decisions that are made. We



also urge USDOT and PHMSA to open the issue of whether or not the United States should receive trains of crude oil from Canada or other locations. This rulemaking should include consideration of government and community-driven routing of trains instead of allowing these decisions to be made by special interests that utilize train routes for their own business benefits.

### Classification and Characterization of Mined Liquids and Gases

Accurate classification and characterization is essential to the effective implementation of these and current regulations. PHMSA stresses throughout the proposed rulemaking that proper classification is essential but is also complex due to the variability of crude oil and the special properties of Bakken crude. PHMSA states that proper classification is needed because it dictates that proper tank cars are used and the correct operational controls are applied at Discussion of Comments and Section by Section Review (D), page 81.

Operation Classification, an effort launched by the Department of Transportation in August 2013 to gain information about Bakken crude with a goal of accurate classification, found current classification methods unreliable. PHMSA and FRA both were concerned that crude oil classification has been done by loading facilities according to Safety Data Sheets which were found to be out of date with unverified information and descriptions too general to be useful. The ranges used in the Safety Data Sheets for the values of various constituents in the crude crossed the thresholds that define Packing Groups 1, 2, and 3<sup>21</sup>, confusing further the proper classification. Compounding the difficulty is the wide natural variability of crude oil and the fact that oil from various wells and locations are often mixed in tank carloads, leading to further variability. Clearly, it is imperative that SDS sheets are not used for classification.

However, uncertainty regarding sampling and testing methods and analyses used to classify and characterize Bakken crude remains due to lack of needed action by USDOT and PHMSA. PHMSA has not recommended the adoption of a uniform mandatory standard for testing crude oil in the proposed regulations. NTSB has recommended that testing and characterization be required that will accurately account for the contents being shipped. Yet a standard has not been included in the rulemaking and the development of that standard will not occur simultaneously with the adoption of these regulations, constituting a major failing of this proposed rulemaking.

PHMSA's Operation Safe Delivery Update concludes that Bakken crude oil has a high volatility level with a high gas content, a low flash point, a low boiling point and high vapor pressure due to its higher concentrations of light end hydrocarbons. This leads to the increased risk of accidents, as stated above in this comment.

The lack of a specific uniform standard and lack of a requirement that vapor pressure testing be required (as recommended by Robert Fronczak of AAR at a NTSB hearing) not only risks that accidents may occur due to the lack of applications of correct regulations but also opens pathways of pollution because these materials can release pollutants during regular operations as well as

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<sup>21</sup> Class 3 Packing Groups are defined as: 1 - great danger, 2 - medium danger, and 3 - minor danger.

accidents. Some of these pollution incidents will occur due to overloading, overfilling, and lack of safe release of vapors. FRA notes the under-reporting of overloaded tank cars and a low number of one-time movement approvals that are required when tank outage is compromised. This leads to the increased likelihood of a leak from valve fittings or the manway when the tank becomes shell-full according to PHMSA at II.A. page 22 in the proposed rulemaking. PHMSA points out that FRA's data shows 98% of non-accident releases of crude oil involved loaded tank cars.

This means that a pathway of pollution is opened for the release of the tank car contents, often during transport, as stated by PHMSA at II.A. page 23 in the proposed rulemaking. It was also noted by PHMSA that commenters reported that internal tank surfaces, manways, valves and fittings showed severe corrosion in some tank cars used for crude oil transport. PHMSA states that chemicals used in hydraulic fracturing (fracking) may cause corrosion. It is very important that testing and sampling is required of individual batches of crude oil that has been extracted using fracking chemical formulas to accurately characterize the material. This also requires the operators who extract the shale oil to fully disclose the formulas being used in the fracking process to the agency and requires accurate records to be kept of this information, despite the fact that this information is considered protected from disclosure as a trade secret by fracking companies and drillers. Otherwise, why severe corrosion is occurring will remain unknown, as well as how to avoid it and prevent pollution releases. Also, if all constituents of the contents are known, gaskets, special O-rings, interior coating of tank cars and other construction specifications can be employed to resist corrosion.

The description in the rulemaking at Discussion of Comments and Section by Section Review (D), page 87 describing the various actions that PHMSA has taken with the American Petroleum Institute (API) regarding classification is less than reassuring. While we understand that USDOT and PHMSA want the input of the industry, the process described sounds more like a logjam than a productive process. It appears that API is developing the standard, not the government and in the meantime, DOT has agreed to a hands-off policy by not proposing a testing standard. The testing data that is being collected by the operators during the described process does not have to be retained and shared with PHMSA or USDOT, inexplicably allowing for lack of verifiable and reliable records.

There is simply no good reason given that a testing standard has not been developed and included in this rulemaking. As PHMSA states itself, proper characterization and classification is the foundation of effective regulation of crude-by-rail. The testing measures offered in the rulemaking are inadequate. We urge that this rulemaking be revised to require the adoption a uniform and mandatory testing standard, that vapor testing be required, and testing protocols that require each batch of material to be tested before being moved and, as necessary, during transport. This is needed to ensure that the crude oil physical properties and the chemicals they may contain due to fracking and the mixing of batches of oil are accurately characterized so that they can be correctly classified. Alternatively, an emergency order should be issued with a uniform and mandatory testing standard for characterization and classification of mined liquids and gases.

## Additional Requirements for HHFT

### Speed Restriction (a)

The proposed speed restrictions are inadequate. PHMSA makes it clear that speed is a factor in derailments<sup>22</sup> and speed increases the possibility of the puncture of tank cars in a derailment. Yet the reduction of speed relies on as-yet unsettled braking requirements and seems to be largely influenced by what the operators say about increases in cost imposed by slowing trains down. After the Lac Megantic catastrophe in Quebec Canada in 2013, it is impossible to understand why every precaution regarding speed and braking is not being proposed in this rulemaking. Six of the derailments shown in Table 3 occurred at speeds in excess of 40 mph.

Speeds are voluntarily limited by the industry to 50 mph, which PHMSA points out is seen as acceptable by the majority of commenters. No new restrictions on speed are included in the proposed rulemaking and the suite of options that are proposed do not offer adequate safety benefits. In fact, the proposed rulemaking allows a 50 mph speed for HHFT if they meet the enhanced tank car standards, which is no improvement over the self-recommended industry standard. Yet it is documented by PHMSA that speed is a key factor in the severity of crude tank car accidents.

PHMSA also proposes three options for trains with cars not meeting the newer enhanced standards, without any basis for these classes of protection. The only option that should be considered is that the standard applies to all trains operating in all areas, not based on travel through “high threat urban areas” or areas with a 100K+ population. There are many resources and populations throughout the routes that these trains travel that need the protection of slower speed trains. Any increase in cost should be borne by the industry and considered to be the cost of doing business.

Speed limits should be based on protection of people and the environment and should be less than 40 mph. Ten of the accidents described in Table 3 of the proposed rulemaking were traveling at speeds greater than 30 mph, two were traveling between 20 and 30 mph and only one occurred at less than 20 mph. We urge that the rulemaking be revised to include a speed restriction applicable to all geographic locations of 20 mph or less.

### Alternative Brake Signal Propagation Systems (b)

It is clear that improved braking systems are needed and PHMSA seeks out comments in this rulemaking about how to improve brakes on HHFTs. Unfortunately, the proposed rulemaking does not provide the braking requirements that are needed and they are not required in a timely way. PHMSA recommends options for braking systems for HHFTs: electronic controlled

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<sup>22</sup> “The laws of physics indicate that if an accident occurred at 40 mph instead of 50 we should expect a reduction of kinetic energy of 36%”, reducing the severity of an accident by 36%, at proposed rulemaking at Discussion of Comments and Section by Section Review E(a).

pneumatic brakes, a two-way end of train device, or distributed power. They cite API's input and FRA simulations as the basis for the options. However, there is no conclusive recommendation for what braking system is the most effective for the transport of Bakken crude and ethanol. Also proposed is a phased-in approach that allows inadequate brakes to continue to be used, posing a significant safety threat. A recommendation that is effective to slow and stop a train carrying these flammable liquids not only to mitigate the severity of an accident. Providing redundancy is necessary to achieve braking safety, therefore electronically controlled pneumatic brakes - which PHMSA concludes will provide greater protection than the other two options - and a two-way EOT device should be required so as not to rely solely on the EOP. We urge the most protective braking systems available to avoid speed and stop trains in the case of danger or derailment and that these brakes are required under an emergency order to be issued by DOT that mandates immediate implementation.

### New Tank Cars for HHFTs

It is universally agreed that DOT111s are substandard cars for the transport of Bakken crude and ethanol, Class 3 flammable liquids. However, the recommendations in the proposed rulemaking do not require needed protective tank car specifications and they do not provide it in a timely way.

USDOT must immediately ban the use of DOT111s for hazardous materials, particularly for the flammable and corrosive materials that are the subject of this rulemaking. This should be accomplished by executive order rather than delayed through this rulemaking process.

DOT111s should not be allowed to stay in service for any crude oil as is planned for reasons discussed above in this comment. The Combustible Liquid Exception should be removed because it will allow potentially dangerous flammable crude to continue to be transported. While it is understood that PHMSA is attempting to incentivize the removal of volatile gases prior to shipment by processing in the field, there is no reason to expect that as an outcome, there is no presented rationale for why flammable liquids with a flash point at or above 38 degrees C is a safe threshold, and because there is not established standard for testing for vapor included in this proposed rulemaking. Further, we lack confidence that effective oversight and implementation of this exception is in place, based on the poor performance of the industry and the implementing agency programs to accomplish accurate characterization and classification under the current regulatory system.

We do not support the performance standard proposal. There is no explanation of the system of approval for tank cars that meet performance standards and it does not appear that these reviews and approvals of alternative tank car designs will be available for review by the public. We consider public analysis and review to be of utmost importance to provide the agency with independent input that has the potential to improve agency decisionmaking. Furthermore, it is our experience that often the allowance for performance standards to be met instead of prescribed construction specifications leads to a loophole due to lack of agency ability to keep up with the reviews, especially when innovation is being sought. Often the industry ends up providing the

expert review and the agency takes their word for it. This can happen when budgets are tight and when the pace of development such as the Bakken crude oil boom occurs.

The unbridled speed of domestic crude oil development has led to poor decisions by USDOT to allow substandard cars to be used, poor operational controls to persist, lack of effective oversight of classification of lading and other problems that have resulted in an unprecedented increase in accidents, oil spill pollution, public health harm and injuries, natural resource damages and even death. The continuing speed of Bakken crude development as discussed above in this comment means that the pressure for the agency to move quickly and to give deference to the industry is likely to continue. This is not the climate in which performance standards should be allowed.

As far as the proposed options and operational measures in this section, there should be no phase-out period for various packing groups regarding the use of DOT111s. The phase-out of the old and the phase-in of the new tank cars is solely based on cost considerations that effect the industry<sup>23</sup>, not based on the costs to the present public and future generations of pollution releases, public health impacts, damaged or destroyed natural resources, and other public values and features.

We question the use of proposed DOT Specification 117 tank cars for Bakken crude oil based on the high vapor pressure and high level of dissolved gases in the oil. It has been suggested by Robert Fronczak of the American Association of Railroads at a National Safety Transportation Safety Board hearing that the safest means of transport could be a pressure car. With the proper control of vapor pressure, more control could be achieved. This option should be pursued in the rulemaking to achieve the safest means of transport. None of the proposed options should be considered until this option has been fully analyzed and considered.

Of the options offered, the only reasonable option offered is Option 1, which will provide the greatest protection. However, this option is not adequate to provide needed safety and pollution prevention. One major flaw in the new specifications for DOT117s is the bottom outlet valve. The bottom outlet valve of the new tank car design must be removed because it is in a vulnerable position that is easily compromised, as illustrated by the pollution release history of these valves. NTSB found these valves to be prone to failing in a train derailment. The Chemical Manufacturers' Association reportedly voluntarily upgraded tank cars carrying hazardous materials decades ago because of the inherent danger they posed. There is no rationale given by USDOT for why this is allowed to remain. USDOT should change the specified proposed construction standard to remove the bottom outlet valve.

Under no circumstances should DOT111s be allowed to be retrofitted. The enhancements needed to address the inherent design flaws and construction materials used in DOT111s (one example is steel that is less strong and less tough than the steel that is proposed to be used in the DOT117s) and the proposed rulemaking does not provide enough retrofitted specifications to

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<sup>23</sup> PHMSA states that they are "aware of, and account for" the costs of tank car replacement at Discussion of Comments and Section by Section Review (E) a.

make these tank cars equal to Option 1 in terms of safety and reliability. Also, the C-1232 tank car is not acceptable due to design flaws such as the bottom outlet valve, the lack of an enhanced jacket, and the lack of improved performance of the pressure relief valves on the tank car.

USDOT and PHMSA state that the benefits the agencies seek in the selection of an improved tank car is "...the greatest net social benefit, with benefit primarily generated from the mitigation of accident severity", at Discussion of Comments and Section by Section Review (E) a. We consider this to be too low a bar and advocate that the agencies seek to prevent pollution (as PHMSA states as their mission early in the proposed rulemaking) and to avoid accidents and injuries. Unless this higher bar is set, the regulations will not adequately protect the public and our natural resources and assets. The lower bar also allows for less protective measures in tank car design and operational controls. Furthermore, the acceptance of a "net" benefit also calls into question how the agency calculates the public costs of accidents and clean-ups, the long-lasting impacts of pollution from crude-by-rail day to day operations as well as rail incidents and spills, and other harms borne by the public.

An example of the ramifications of a low bar to the proposed rulemaking is the benchmark for thermal protection in the recommended tank car specifications which is based on the survivability time of a tank car of 100 minutes in a pool of fire. This reduces the likelihood but does not prevent tank cars from being heated to an explosive level, a common occurrence when train cars derail and catch fire. The rulemaking should be changed to require greater thermal protection through redundancy of insulation and heat shielding and the other use of materials that retard or contain heat. Other design specifications could also be strengthened to further reduce the likelihood of punctures and uncontrolled valve openings which are the common cause of explosions and fire spreading.

An example of the effect of a low bar and a high deference to industry costs over costs borne by the public is that USDOT is not proposing to require additional top fittings for retrofits because of cost. This is despite the fact that valve openings are a major pathway of pollution even during regular operation as discussed above in this comment and because when gases are released through the valves in an accident, it usually causes fire and explosion, as explained by PHMSA.

We conclude that USDOT must immediately ban the use of DOT111s for hazardous materials, particularly for the flammable and corrosive materials that are the subject of this rulemaking. This should be accomplished by executive order rather than delayed through this rulemaking process.

### **Final General Comment**

USDOT must consider crude-by-rail safety and the resulting community and environmental impacts in the context of the development of crude oil, particularly the Bakken crude but also Canadian tar sands crude and other crude that is transported by rail in the United States. The adverse impacts that the nation is experiencing because of increased accidents, spills and other pollution events from crude-by-rail is occurring because of the breakneck speed of shale oil

development and the industry's push to get the oil to market to meet their own bottom line, no matter the public cost.

Crude-by-rail is one manifestation of the effects of the unprecedented escalation of drilling and extraction in shale oil plays. The industry expands at will, without restraint by government, despite the environmental and public health impacts and despite the lack of needed technical advances and environmental protections that should have been in place from the start – and are still not in place. Aging railroad systems and equipment - including substandard tank cars - deteriorating infrastructure such as bridges and highways, missing processing facilities in the shale oil fields, unbuilt pipelines, unsafe truck traffic, lack of effective waste treatment systems, lack of the technological ability to make the fracking process safe and clean, are all factors that add to the toll of the overbearing adverse environment impacts this escalation is causing.

However, the answer is not to build pipelines or process the waste in the shale oil fields to remove the dissolved gases or to simply provide safe rail capacity (even with these proposed modest safety improvements). Our communities and our environment need more than that. These projects – pipelines, processing and waste treatment plants, etc. – are in themselves huge pollution generators that are degrading air, water, habitats, public health, and irreplaceable community resources. Our federal agencies, including USDOT and PHMSA, must address the fact that the unbridled development of shale oil and the fact that it cannot be made safe, clean or beneficial is the root of the problem. This issue must be tackled under our federal environmental laws to avoid the inevitable, continuing degradation and pollution of our environment that is resulting from this development. This must be addressed upstream (shale oil basins), midstream (transport) and downstream (end market).

Consideration of the negative environmental and community burdens placed on the environment and communities at all these critical junctures is the only way USDOT and PHMSA will be able to truly accomplish a goal of providing safety and preventing pollution. Otherwise, the agencies are left to play catch up and industrial special interests have the upper hand. We urge USDOT and PHMSA to change their approach and orient the agencies to critically review what is occurring and act as advocates for the public, present and future, and for the environment.

Sincerely,



Maya van Rossum  
the Delaware Riverkeeper



Tracy Carluccio  
Deputy Director