Analysis of 7 Hidden Dangers in the New Federal Oil Tank Car Rule

1. Substandard tank cars carrying explosive crude oil will remain on the rails for a decade.

News accounts and agency statements give the impression that substandard tank cars used to carry Bakken crude oil will be off the rails soon. Not so. The Final Rule phases out DOT-111 and CPC-1232 tank cars over a **10-year period**, and crude oil can continue to be transported in these cars during that time. Final Rule, 80 Federal Register 26,648 (May 8, 2015).

Dangerous substances, like crude oil, present many hazards. In order to regulate their safe handling and transport, they are classified by "Dangerous Goods" category, then by "Packing Group" subcategory. The oil tank car phase-out is based on the type of tank car and the Packing Group classification of crude oil. Hazardous tank cars for oil in Packing Group I (described by the agency itself as "Great Danger") will be phased out of service by April 2020, Packing Group II ("Medium Danger") by July 2023, and Packing Group III ("Minor danger") by May 2025. At the May 1, 2015 press conference when the new standard was announced, Secretary Foxx suggested that crude oil—and Bakken crude in particular—would be phased out in the first 5 years, which is what Canada will require.

Nothing in the Final Rule's testing and classification scheme requires Bakken (or any other crude) to be classified as Packing Group I—the category with the quickest phase-out—and other types of crude can be classified as low as Packing Group III. The Lac Mégantic accident investigation uncovered the misclassification of Bakken crude as Packing Group III when it appropriately belonged in Packing Group II. Transportation Safety Board of Canada, *Railway Investigation Report R13D0054: Lac Mégantic, Quebec, 06 July 2013* (Aug. 2014) at §§ 1.19.2.1 & 2.8.3, at 51, 112-13; Final Rule at 26,658. The DOT Operation Safe Delivery similarly uncovered the misclassification of Bakken as Packing Group III when it belonged in Packing Group I or II. Federal Railroad Administration Letter to American Petroleum Institute (July 29, 2013). A lot of Bakken crude, including that involved in Lac Mégantic, can continue to be shipped in DOT-111s and unjacketed CPC-1232s for 8 more years.

The Final Rule is silent on when tar sands can no longer be shipped in DOT-111s and unjacketed CPC-1232s. While tar sands crude alone (also called bitumen) does not vaporize and ignite at low temperatures, tar sands crude must be diluted with other petroleum products so it can flow in and out of rail cars or pipelines. Diluted bitumen (dilbit) has a much lower temperature of vaporization and ignition. The accident and fire in Ontario on February 14, 2015 involved shipping dilbit in CPC-1232s, and the March 7, 2015 derailment and fire also in Ontario involved either dilbit or synthetic crude in CPC-1232s. Both are too explosive to be shipped in the hazardous tank cars.

2. The new tank car standards do not apply to every oil tank car.

The Final Rule has a huge loophole: It applies only to long trains carrying crude or ethanol, called, aptly, High-Hazard Flammable Trains. The new tank car and retrofit standards apply only to these High-Hazard Flammable Trains, defined as trains as having "a continuous block of

20 or more tank cars loaded with a flammable liquid or 35 or more tank cars loaded with a flammable liquid dispersed through a train." Thirty-four tank cars can carry approximately 1 million gallons of oil, meaning that the worst cars will still be on the rails, hauling explosive oil, and not bound by any of this Rule's safety provisions.

In contrast, Canada's new standards apply to every single tank car, and the National Transportation Safety Board recommended that the new U.S. standards apply to every single tank car carrying hazardous flammable liquids.

The proposed rule, released in July 2014, would have had the new tank car standards apply to trains with 20 or more cars loaded with flammable liquids. DOT increased the overall threshold to 35-car trains after the Association of American Railroads asserted that 20-60% of its 20-car blocks carrying hazardous fuels are in trains with a variety of cargoes (manifest trains), not a single product (unit trains). Final Regulatory Impact Analysis at 72.

3. Retrofitted tank cars are held to a less protective standard.

Even at the end of the phase-out, only about ¼ of the tank cars in these long unit trains will meet the new tank car standards. The rest—those cars built before October 1, 2015—will be retrofitted to a weaker standard. For these cars, the shells can remain 7/16" instead of 9/16" thick, even though DOT estimates that each additional 1/8" in shell thickness improves puncture resistance in an accident significantly. A shell 9/16" thick provides shell puncture velocity of 12.3 mph and head puncture velocity of 18.4 mph, while 7/16" thickness has a shell puncture velocity of 9.6 mph, and a head puncture velocity of 17.8 mph Regulatory Impact Analysis at 183; Final Rule at 26,672. The retrofitted cars also will not have top-fitting or rollover protections, even though top fittings represent 25% of the documented damage to tank cars in recent accidents. Proposed Rule, 79 Federal Register 45,055.

4. The oil industry will add new tank cars before old ones are taken off the rails.

Various industries claim that the phase-out of hazardous tank cars cannot happen faster because of time it takes to build new cars. The reality is that DOT is allowing the industry to build nearly 7000 new tank cars in 2016 to grow the crude-by-rail fleet rather than replace the hazardous tank cars. Regulatory Impact Analysis at 167. Approximately 20,000 jacketed CPC-1232s were added to the fleet during the rulemaking process, again to grow the fleet instead of to replace DOT-111s and unjacketed CPC-1232s.

5. Oil trains will not slow down in most populated areas.

The Final Rule codifies an existing voluntary railroad industry speed limit of 50 mph nationwide and 40 mph speed limit in high-threat urban areas for High-Hazard Flammable Trains, continuing the requirement imposed in April through an emergency order. The high-urban threat areas were designated several years ago based on the risks of terrorist attacks, not the particular risks of crude-by-rail. Only a few dozen cities around the nation are labeled high-threat urban areas, and they comprise only 7% of the nation's track. Final Rule at 26,690, 26,691.

Oil trains will continue to travel at high, risky speeds through many densely populated urban areas, rural communities, and alongside drinking water supplies, fishing streams, schools, and national parks. The new tank cars will still puncture at 12.3 mph, and the retrofit cars will puncture at 9.6 mph, and sustain head punctures at 18.4 and 17.8 mph, respectively, well below the reduced speed limit set for a small number of cities. Regulatory Impact Analysis at 183.

The National Transportation Safety Board urged using a more protective standard based on the radius of impacted people and resources near the tracks, not a pre-existing list of cities. Final Rule at 26,690.

6. The new rule leaves emergency responders and the public in the dark.

An emergency order issued in May 2014 required the railroads to disclose to State Emergency Response Centers the number and frequency of trains carrying 1 million gallons or more of Bakken crude through each county in the state, along with basic emergency response information. The proposed rule sought comment on whether the notification should extend to other hazardous fuels and to smaller volumes, something the National Transportation Safety Board supported. The Final Rule eliminates this requirement entirely and instead leaves it to emergency responders to request information from the railroads with no r requirement as to whether and how the railroads must respond. Final Rule at 26,714. A point of contact will be included in railroad security plans provided to state Homeland Security offices, which coordinate with the Department of Homeland Security on security issues, but there is no longer a requirement that even this contact information be made affirmatively available to emergency responders.

The Final Rule also takes a step back from letting the public know how many trains loaded with hazardous crude are coming through their communities. Under the May 2014 emergency order, the public obtained access to the train route and emergency preparedness information in most states under state public records laws. In place of this notification requirement, the Final Rule adds High Hazard Flammable Trains to a rule designed to address terrorist threats. Final Rule at 26,648, 26,711-12. Under that rule, railroads gather information and conduct route analysis, but the records are not required to be filed with state or federal agencies (which makes them subject to public access laws). State Homeland Security offices can obtain access on a need-to-know basis and have signed confidentiality agreements with the railroads. DOT sought to piggyback on these confidentiality agreements to preclude public access to the information that has generally been available to the public over the past year. Final Rule at 26,714.

In the Final Rule, DOT suggests that" "widespread access to security sensitive information could be used for criminal purposes when it comes to crude oil by rail transportation" and cites a vandalism incident in South Dakota. Final Rule at 26,712 & n.98. McClatchy has reported that the vandalized track held up as an example is not used for oil trains and in fact is out of service and overgrown with prairie grass.

7. DOT underestimates the harm from crude-by-rail disasters.

To determine whether new tank car standards, retrofits, speed limits, and other safety measures are cost-justified, DOT estimates the amount of harm likely to occur from crude-by-rail disasters. But in doing so, it uses data and makes assumptions that **underestimate the harm**.

- For what it calls low consequence events, DOT measures harm based on the amount of oil spilled. While called "low consequence," these events are like the rail derailments, oil spills, fires, explosions and evacuations that occurred in Lynchburg, Virginia, Casselton, North Dakota, Aliceville, Alabama, Galena, Illinois, and Carbon, West Virginia. DOT used U.S. accident data from 2006-2013 to calculate the amount of oil likely to be spilled in a mainline rail accident and come up with an average number of gallons per year. But much of this period preceded the crude-by-rail surge, which began in 2010 and resulted in a 4000% increase in car loads between 2008 and 2013. Not surprisingly, more oil spilled from the rails in the U.S. in 2013 than in 1975-2012 combined. In 2014, 6 crude and ethanol accidents occurred in the U.S. (Regulatory Impact Analysis at 301), and 3 have already taken place in 2015, in addition to two accidents that spilled ethanol. And if Canadian rail disasters were included, the number of accidents and amount of oil spilled would be even greater. As DOT itself noted, "[t]here is reason to believe that the Agency's estimate for incident severity may be low, because there is evidence that the number of flammable liquid cars per train has been growing over the past decade and may continue to grow." Regulatory Impact Analysis at 116.

- DOT appropriately recognizes that catastrophes like Lac Mégantic or worse could happen given the volume and hazards of crude-by-rail traffic and the defective tank cars used to transport crude. But then it low balls both the likelihood of such catastrophes and the potential severity of their harm. In terms of the frequency of what it calls high-consequence events, DOT uses a model that estimates between 1-5 events over 20 years. It runs the numbers using two other approaches that predict 5 and 12 high-consequence events over 20 years. Regulatory Impact Analysis at 105, 111, 118, 120. But then it uses 2 as the number for its regulatory impact analysis on the assumption that the reduced speed limits and rail routing analysis would reduce rail accidents. Regulatory Impact Analysis at 105-06. In some parts of the country, there are no alternative rail routes, but DOT never acknowledges this fact, and it overstates the degree to which speed limits will reduce the number of accidents as set out below. It also determined the incidence of high-consequence events per carload of crude and ethanol shipped in North America from 2000-2013 to develop an incidence of 1 high-consequence event per 5 million carloads, but it should have used a more recent data set that reflects higher volumes of crude shipped by rail and the higher crude-by-rail accident rates. Regulatory Impact Analysis at 118.

- In terms of its quantification of the harm from a high-consequence event, DOT uses Lac Mégantic. It acknowledges that the costs have risen dramatically from an earlier $1 billion estimate to an estimate of $2.7 billion, but then it uses $1.1 billion as its starting point with $658 million representing the non-fatality impacts. Regulatory Impact Analysis at 95, 98, 109. It then scales down this $658 million figure because the Lac Mégantic train was traveling at 65 mph, and the railroads have agreed to a 50 mph speed limit for High Hazard Flammable Trains (and 40 mph in high-threat urban areas). But

the Lac Mégantic train was intentionally traveling at any speed; it rolled down a hill and gained tremendous speed in a short period of time. Putting aside this fact, DOT scales down the $658 million to reflect a reduction in accident severity with reduced kinetic energy at lower speeds. Inexplicably, it does not use the speed limits in the Final; it uses an average speed of 41 mph from the largest 10% of U.S. accidents and a 35 mph speed in High Threat Urban Areas. Regulatory Impact Analysis at 99. Using this methodology it shrinks the $658 million non-fatality costs to between $263 million and $191 million. Regulatory Impact Analysis at 99-100.

- For fatalities from high-consequence events, DOT compares the population density in Lac Mégantic and rail segments within a square ½ kilometer along the tracks in the U.S. to predict the likelihood that a high-consequence event would occur in more heavily populated areas. It used a model that produced a range of results with a mean of $2.8 billion, $3.5 billion at the 80th percentile and $12.6 billion at the 95th percentile. Regulatory Impact Analysis at 110. Other models produced even higher estimates, such as a mean of $7.8 billion and 80th percentile of $11.1 billion. Regulatory Impact Analysis at 111. The Regulatory Impact Analysis observes that DOT's "simulation produces results that indicate the possibility of a single event that may exceed Lac Mégantic in total cost by an order of magnitude or more. Mitigating or preventing one such event might produce benefits that exceed the cost of the rule." Regulatory Impact Analysis at 118.

These projections played a pivotal role in the decisions DOT ultimately made. It decided which safety measures to require based on its cost-benefit analysis and rejected some, like a faster phase-out, the tougher tank car standards for retrofits, and lower speed limits outside high-threat urban areas on that basis. And yet its regulatory impact analysis states that "there is evidence that the true cost to society from crude oil spills may be 50 percent or even double, the Agency's central estimate" and "it is unlikely that any of these estimates capture the full comprehensive societal damages that result from these incidents." Regulatory Impact Analysis at 115.