

TR-151079 Oil Train Safety Rulemaking
Comment Summary Matrix CR101
October 28, 2015

Section	Commenter	Comments	Staff Response
WAC 480-62-XXX First class cities opt-in	Karen Hengerer	The commenter recommends all cities and high density areas with oil by rail traffic be required to meet minimum safety standards set by UTC, without the choice to opt-in or out.	The choice for first class cities to opt-in is contained in HB1449, the law passed by the Legislature. UTC is not able to eliminate the opt-in provision. Further, the only opt-in provision contained in the draft rule is for first class cities to participate in the UTC's crossing inspection safety program. This rule does not impact inspections conducted through the UTC's partnership with the Federal Railroad Administration (FRA). The UTC employs FRA-certified state inspectors to perform inspections in the following disciplines: track, hazardous material, motive power & equipment, signal and train control and operating practices. These inspections are not opt-in.
WAC 480-62-XXX Safety standards at private crossings	Elmer Ward, Confederated Tribes of the Warm Springs Reservation of Oregon	The commenter recommends requiring one or more stop signs at every private crossing where no automatic device is in place, unless the installation of signs would create a hazard or dangerous condition that would not otherwise exist.	Proposed rules require stop signs.
WAC 480-62-XXX Safety standards at private crossings	Paul Didelius, Kennewick Terminal RR	<ol style="list-style-type: none"> 1. Subsection (2)(b), requires specific signage at private crossings. The commenter states this unnecessarily duplicates federal regulations. 2. Subsection (4) requires railroads to correct, within 90 days of the adoption of the rule, any deficiency identified by UTC. The commenter recommends a more achievable response time. 	<ol style="list-style-type: none"> 1. Federal regulations for signage at private crossings is limited to Emergency Notification System (ENS) signs, 49 CFR Part 234, Subpart E. UTC-proposed rules are consistent with federal rules in regards to the ENS and have additional safety requirements regarding signage.

			2. The latest draft of the rules allow railroads 120 days to correct a deficiency from the time of notification by UTC.
WAC 480-62-XXX Safety standards at private crossings	Toby J. Van Altvorst, Western Washington Railroad	<ol style="list-style-type: none"> 1. Subsection (2)(b), requires specific signage at private crossings. The commenter states this unnecessarily duplicates federal regulations. 2. Subsection (4) requires railroads to correct, within 90 days of the adoption of the rule, any deficiency identified by UTC. The commenter recommends a more achievable response time. 	<ol style="list-style-type: none"> 1. Federal regulations for signage at private crossings is limited to Emergency Notification System (ENS) signs, 49 CFR Part 234, Subpart E. UTC-proposed rules are consistent with federal rules in regards to the ENS and have additional safety requirements regarding signage.. 2. The latest draft of the rules allow railroads 120 days to correct a deficiency from the time of notification by UTC.
WAC 480-62-XXX Safety standards at private crossings	Dale W. King, Tacoma Rail	<p>Subsection (2)(b), requires specific signage at private crossings. The commenter:</p> <ol style="list-style-type: none"> 1. States this unnecessarily duplicates federal regulations. 2. Recommends requiring signage only at private crossings which are not compliance with current federal standards. 	<ol style="list-style-type: none"> 1. Federal regulations for signage at private crossings is limited to Emergency Notification System (ENS) signs, 49 CFR Part 234, Subpart E. UTC-proposed rules are consistent with federal rules in regards to the ENS and have additional safety requirements regarding signage.. 2. Private crossings that have adequate or comparable signage already installed can apply for a waiver from the UTC.
WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill	Dale Jensen, Department of Ecology	Supports the rule as proposed.	N/A
WAC 480-62-300(2)(d)	Elmer Ward, Confederated Tribes of the Warmes	<p>The commenter recommends:</p> <ol style="list-style-type: none"> 1. A “reasonable worst case spill” be understood, for the purposes of preparing contingency plans, as the largest foreseeable discharge of oil by a rail car. 	<ol style="list-style-type: none"> 1. HB 1449 contained a provision for an addition of financial responsibility in the railroads annual report. Contingency plans are not addressed in this section.

Reporting ability to pay clean up costs in case of a spill	Springs Reservation of Oregon	<ol style="list-style-type: none"> 2. Spilled oil costs include the expenses incurred for investigating the source of the spill, investigating the extent of damage, conducting cleanup, conducting pre-damage and damage assessment studies and collecting for damages. 3. There should not be a cap on the liability of an owner/transporter of oil. 4. Establish a template advising a permittee of its responsibilities to reimburse federal, state, tribal and local governments for respective costs incurred in responding to a spill. 5. Establish a natural resources damage assessment process. 	<ol style="list-style-type: none"> 2. HB 1449 requires railroads to submit information for damages to include per-barrel cleanup and damage cost of spilled oil. Information from PHMSA on the federal Enhanced Tank Car rule was used to calculate damage costs. 3. Not a function of reporting cleanup costs. 4. HB 1449 requires an addition to the railroads' annual report only. 5. This is outside the scope of UTC's regulatory authority. HB 1449 requires railroads to submit information for damages to include per-barrel cleanup and damage cost of spilled oil. This is a reporting feature only and the statute does not allow for any punitive action based on the information submitted.
WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill	Paul Didelius, Kennewick Terminal RR	The commenter states this reporting requirement is burdensome and potentially in conflict with federal requirements of common carriage. The commenter believes this requirement will likely be litigated and found to be federally preempted and beyond the rights of the state.	HB 1449 explicitly states that the information required in the annual report may not be used for economic regulation of a railroad and no punitive actions may be taken against the railroad based on the information provided.
WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill	Toby J. Van Altvorst, Western Washington Railroad	The commenter states this reporting requirement is burdensome and potentially in conflict with federal requirements of common carriage. The commenter believes this requirement will likely be litigated and found to be federally preempted and beyond the rights of the state.	HB 1449 explicitly states that the information required in the annual report may not be used for economic regulation of a railroad and no punitive actions may be taken against the railroad based on the information provided.
WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill	Dow Constantine, King County Executive	The commenter states the current cost of \$400 per gallon in clean-up costs is not enough. The commenter recommends "... the state use Canada's Lac-Megantic oil spill disaster as a baseline, in which the cleanup costs and damages were estimated to be \$1,880 per gallon of oil."	The UTC relied on the PHMSA federal enhanced tank car rule to calculate cleanup and damage costs of spilled oil. The clean-up costs used in this rulemaking, \$16,800 per barrel, exceed the clean-up costs calculated in states like California (\$10,000 per barrel).

<p>WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill</p>	<p>Dale W. King, Tacoma Rail</p>	<p>Regarding the financial responsibility required in case of a spill, the commenter states that:</p> <ol style="list-style-type: none"> 1. The kinetic energy equation used is flawed, in that, "... by subtracting the speed ratio squared from the number one, a result is reached which differs from the presumed intent. As an example to demonstrate this, by changing the train speed from 45 mph to 10 mph the equation yields the result of 98% rather than the more representative result of 2%. The correct formula should simply use the speed ratio squared without subtracting that ratio from one." See graphic representation in comments. 2. The proposed financial requirement is imbalanced in that it gives no consideration for railroads that operate at speeds of less than 45 mph. Tacoma Rail operates at maximum speeds of 10 mph and the corresponding kinetic energy encountered during a potential derailment would likely result in a significantly more modest work case. 3. Tacoma Rail current carrier insurance of \$50/\$100 million per occurrence. Proposed language would increase this to a required \$570 million, which would be unnecessary. 	<ol style="list-style-type: none"> 1. The note section of draft language contained both the percentage of train used to calculate reasonable worst case and the scaled down amount from the Lac-Megantic tragedy. 2. The latest draft language allows for a sliding scale based on train speed. 3. The latest draft language allows for a sliding scale based on train speed.
<p>WAC 480-62-300(2)(d) Reporting ability to pay clean up costs in case of a spill</p>	<p>Johan Hellman, BNSF Railway</p>	<p>BNSF's comments are focused on the definition of a spill and why the formula UTC used is unreasonable. BNSF directed the UTC to use the PHMSA federal enhanced tank car rule final regulatory impact analysis methodology on most probable number of cars punctured.</p>	<p>HB 1449 requires the UTC to collect information on "reasonable worst case spill." The PHMSA enhanced tank car rule regulatory impact analysis that BNSF directed the UTC to use is for "most probable" number of cars punctured, Appendix E: Cost Effectiveness Calculations and Methodologies. Appendix E is the calculation that PHMSA used to calculate savings from the increased safety standards adopted in the Federal Enhanced Tank Car Rule (Docket No. PHMSA-2012-0082). The safety enhancements contained with the final Enhanced Tank Car Rule will be implemented over the next ten years (January 2018 – May, 2025). PHMSA calculated the most probable number of cars derailed, based on all safety measures contained in the</p>

			rule being in place. There is currently litigation against the federal enhanced tank car rule challenging, among other things, the enhanced braking system that was adopted. Given that the enhanced braking system is a significant variable in calculating the most probable number of cars derailed, the litigation could have a dramatic impact on the derailment and puncture numbers. Additionally, staff believes that reasonable worst case is a greater threshold than most probable number of cars punctured and believe the intent of the Legislature is to include a calculation that would represent something more than a “likely” number of cars being derailed.
General comments	Jeanne Poirier	The commenter believes “TR-151079 does not go nearly far enough.”	Staff believes it has gone as far as allowed under the law.
General comments	Richard and Sharon Erspamer	The commenters oppose an oil transfer terminal sited in Vancouver because: <ul style="list-style-type: none"> • The tracks in their area may have an inherent problem requiring constant maintenance. • It will increase train traffic and noise. • It will cause long term damage. 	The comments relate to construction of an oil transfer terminal in Vancouver, Washington, and do not apply to the rules proposed in this docket.

Staff Note for Financial Responsibility and Clean-up Costs:

The commission determined that a “reasonable worst case” that takes the maximum operating speed of the railroad moving crude oil should be used to determine the financial responsibility. The commission relied on the federal enhanced tank car rule, Docket No. PHMSA-2012-0082 to determine “reasonable worst case” spill of oil and the associated clean-up costs. For example, a railroad that operates crude oil trains at a maximum speed of 45 mph would have a reasonable worst case spill of approximately 48%. There were a number of factors the commission also weighed in the evaluation of the definition of “reasonable.” These include comments received (Dow Constantine, Confederated Tribes of the Warm Springs Reservation, Tacoma Rail and BNSF), history of derailments, safety measures in place to prevent or reduce derailment impacts, damages of largest crude oil train, tribal impacts, implementation of the federal Enhanced Tank Car Rule, environmental impacts of a spill, consistency with federal and state standards, and regulatory authority of the commission.

In the United States, historical evidence of derailments show an average derailment of 9 cars.¹ The largest derailment of crude and ethanol in the U.S. is 31 cars.² In looking for a comparison of “reasonable worst case,” the commission noted that it is similar but not synonymous with the Pipeline and Hazardous Materials Safety Administration (PHMSA) analysis of High Consequence Event.

PHMSA determined that High Consequence Events are “events exceed the “typical” derailment event because they would result either in multiple fatalities or injuries, or would cause greater environmental damages than a typical derailment.”³ There was also a definition of “reasonable worst case” used in California for its contingency planning standards. In California, reasonable worst case is defined as “Twenty percent (20%) of the maximum volume of oil cargo that a railroad may transport by a single train within the state, based on 714 barrels per tank car” (817.04 Inland Facilities).

In its evaluation of criteria for calculating costs of a reasonable worst case spill, the commission elected to utilize the PHMSA scale down methodology that was used in the federal Enhanced Tank Car Rule. The analysis in determining California’s definition of reasonable worst case was not available. The emergency rule was adopted in September 2015, and the commission believes some of the determining factors used in the rule process, which are not available publicly, may have included the recently adopted, but not phased-in, mitigation measures in the federal Enhanced Tank Car rule. The PHMSA approach was applied, in determining reasonable worst case, primarily for two reasons. First, the tragedy in Lac Mégantic, Quebec is to-date the worst case example of a catastrophic derailment in North America involving crude oil. Scaling down from Lac Mégantic, therefore seems appropriate in determining a reasonable worst case. This is a similar approach that PHMSA took on high consequence events. Second, the mitigation and safety measures contained in the federal Enhanced Tank Car Rule will not be fully implemented for ten years.

In applying the scale down calculation, the commission assumes that kinetic energy varies directly with the square of speed. In Lac Mégantic, the train in question was travelling at a rate of 65mph⁴ and resulted in the loss of approximately 78% of its crude oil cargo or 1.59 million gallons. PHMSA calculations on average train derailments in the U.S. use an average speed of 41 mph in determining a “scale down” calculation of Lac Mégantic. While this is used to illustrate monetary assumptions, an assumption on damage should be calculated using the operating speeds in the state. Kinetic energy = $\frac{1}{2}$ Mass x (Velocity)². PHMSA assumes loaded high hazard flammable trains are of equal mass. The purpose of the kinetic force scale down calculation in the federal Enhanced Tank Car Rule was to show the projected number of high

¹ Journal of Hazardous Materials 276 (2014) 442-451, <http://railtec.illinois.edu/articles/Files/Journal%20Articles/2014/Liu%20et%20al%202014%20JHM%20Multiple%20Car%20Release.pdf>.

² Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 98.

³ Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 52

⁴ Railway Investigation Report R13D0054, <http://www.tsb.gc.ca/eng/rappports-reports/rail/2013/R13D0054/R13D0054.pdf>.

consequence events over the next 20 years in the absence of the federal Enhanced Tank Car Rule. Since there is a ten year phase out of older DOT-111 tank cars, the commission believes the safety measures outlined in the federal Enhanced Tank Car Rule do not mitigate potential damages and costs of such an event and still need to be factored into the definition of “reasonable worst case.”

The commission determined that a clean-up cost of \$400 per gallon should be used. In determining the clean-up costs associated with a “reasonable worst case” spill, the commission looked at costs associated with the spill and did not extrapolate into other potential cost factors. A straight clean-up cost linked with the costs associated with Lac Mégantic were not factored into the calculation, in part because the costs were not all associated with the clean-up of oil. In addition, the commission looked towards the PHMSA enhanced tank car regulation where the federal government determined that an event like Lac Mégantic “would not be representative of damages from a typical accident or even a high consequence accident.”⁵ One recent higher consequence event was the Lynchburg, Virginia incident which resulted in 30,000 gallons spilled. The emergency response and cleanup costs for that incident were reported to the FRA by CSX as \$8.99 million. Of this \$8.99 million cost, an estimated \$5 million was due to environmental damage. The CSX estimate of the costs of Lynchburg results in a cost per gallon of crude of about \$300.⁶

The weighted average of the per gallon estimates from all the federal Enhanced Tank Car Rule listed literature, including marine, pipeline and rail, is between \$ 407 to \$415 per gallon spilled of crude oil or ethanol. It is unlikely that any of these estimates capture the full comprehensive societal damages that result from these incidents.⁷ The PHMSA Final Regulatory Impact Analysis for the Federal Enhanced Tank Car rule stated that costs for crude oil for rail carriers was estimated at \$200 per gallon but “the review found that damages could be as high as twice that amount for crude oil spills.”⁸ Further, the 1999 Etkin⁹ crude oil study had a cost of \$326 per gallon for cleanup and the 2012 Marruffo study¹⁰ showed a cleanup cost of \$378.34 for crude oil by rail.¹¹

For the above reasons the commission has elected to propose a reasonable worst case definition that would utilize the kinetic force scale down formula, using the railroads maximum operating speed for a train moving oil. The clean-up cost that must be applied to the reasonable worst case spill is \$16,800 per barrel or \$400 per gallon.

⁵ Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 87

⁶ Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 87

⁷ Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 115

⁸ Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082, at 86

⁹ Etkin, D.S. “Estimating Clean-up Costs for Oil Spills.” Proceedings, International Oil Spill Conference, 1999

¹⁰ Marruffo, Amanda, Hongkyu Yoon, David J. Schaeffer, Christopher P. L. Barkan, Mohd Rapik Saat, and Charles J. Werth. “NAPL Source Zone Depletion Model and Its Application to Railroad-Tank-Car Spills.” *Groundwater* 50, no. 4 (2012): 627–632

¹¹ The model described in Marruffo (2012) model is used to predict the relative impact of crude oil or ethanol released from railroad-tank car accidents on soil and groundwater contamination and cleanup times, but no monetized costs are presented. (page 115)