Johan Hellman
Executive Director
State Government Affairs

BNSF Railway Company
2454 Occidental Ave. South, Bldg. 1A
Seattle, WA 98134

tel 206.625.6135
fax 206.625.6125
johan.hellman@bnsf.com

September 21, 2015

Mr. Steven King
Executive Director and Secretary
Washington Utilities and Transportation Commission
1300 S. Evergreen Park Drive S.W.
P.O. Box 47250
Olympia, WA 98504-7250

RE: Docket TR-151079, Rulemaking to Consider Adoption of Rules Relating to Rail Safety

Dear Mr. King:

Thank you for this opportunity to provide written comments relating to the Washington Utilities and Transportation Commission's (the "Commission") draft rail safety regulation. The rulemaking was initiated as a result of the Washington State Legislature's (the "Legislature") recent passage of ESHB 1449, which Governor Jay Inslee signed into law May 14, 2015. Our understanding is that the language in the draft regulation was at least partially informed by comments previously submitted as well as discussion at the Commission's workshop on July 8, 2015. BNSF submitted comments previously and participated in the workshop. This letter will individually address the issues of safety standards for private railroad crossings and financial responsibility requirements, and end with some brief closing remarks.

I. Private Rail Crossings

We would like to begin by thanking the Commission for adding language in Subsection 6 of the section entitled "Safety standards at private crossings," which recognizes existing agreements between railroads and private landowners regarding liability and cost allocations. This is an important concept and one that we are relieved to see specifically addressed in the rule. The legal basis has been mutually discussed and acknowledged by both sides, so we are hopeful the Commission will avoid any potential

for future confusion by including this clarifying language in the final rule. We appreciate your consideration of our concerns.

II. Annual Report – Regulatory Fees

Section 10(1) of ESHB 1449 calls on the Commission to "require a railroad company that transports crude oil in Washington to submit information to the commission relating to the railroad company's ability to pay damages in the event of a spill or accident involving the transport of crude oil by the railroad company in Washington." This is a challenging task, which the Commission addresses with new language in the subsection entitled "WAC 480-62-300: Annual reports – Regulatory fees." This new language concerns us.

Specifically, we are concerned with a new definition of "reasonable worst case spill," which the draft rule defines as "fifty percent of the largest train load of crude oil, as measured in barrels, moved by that company in the previous year." Further, the draft rule calculates the total cleanup costs for a reasonable worst case spill at a minimum cost of $400 per gallon. We find both the definition and the minimum cost to be greatly exaggerated.

As background, the draft rule includes a justification that includes the following logic: "… the threshold of 'reasonable' worst case discharge should look at the largest accident in North America, given the relative similar regulations pertaining to railroads between Canada and the U.S. The worst case example that can be used, when looking at North America, is Lac-Megantic, Quebec. Using Lac-Megantic as the worst case scenario, the PHMSA scale down approach can be applied to deduce a 'reasonable' worst case scenario." While we appreciate the Commission's candor in including this justification, we respectfully submit that the logic is flawed.

A. What is reasonable?

The justification begins with two assumptions about the term "reasonable": 1. That the definition should begin with the worst accident in North America (at Lac-Megantic, Quebec); and, 2. That the PHMSA scale down method can be applied to define "reasonable."

1. Is PHMSA's scale down method a sound basis for determining "reasonable"?

Let's take the second question first: Is the Pipeline and Hazardous Materials Safety Adminisrtation's ("PHMSA") scale down approach an appropriate model for defining what is reasonable in the context of a worst case rail scenario? We respectfully submit that the answer is "no" for the following reasons:

- PHMSA never defined "reasonable worst case" and the scale down formula cited in the Commission's draft rule was never intended as a definition or even as a proxy for one.
- The PHMSA document referenced in the Commission's draft rule fully recognized that the incident at Lac-Megantic is not representative of either a typical or even a high consequence accident and is, therefore, a poor basis for defining "reasonable."
- The Monte Carlo simulation and related calculations taken from the PHMSA document as a basis for the Commission's justification were never intended to determine a basis for a "reasonable worst case"; rather, the PHMSA exercise was intended to illustrate possible outcomes based on various assumptions in an effort to determine the possible number of higher consequence events that might occur in the absence of new federal regulations (which were enacted).
- In the document referenced by the Commission, PHMSA is clear about both the unique nature of the event that occurred at Lac-Megantic and, by extension, the numerous shortcomings of attempting to use this event as a basis for determining future high consequence events.
- Numerous safety enhancements and regulations adopted since the event at Lac-Megantic have further increased rail safety and decreased the likelihood of such an event occurring in the future.

As described in the Commission's justification, the model comes from a supplemental document[1] (the "Analysis") which supports the Federal Railroad Administration's final rule titled *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for HHFT's* (the "Rule").

[1] Final Regulatory Impact Analysis, Docket No. PHMSA-2012-0082.

This final Rule includes several provisions specifically advanced to improve the safety of key trains, with an emphasis on trains moving large quantities of crude oil. These include new tank car standards, speed restrictions, routing and notification practices, and classification standards. These new standards were initiated with the stated goal of reducing "the likelihood that a train carrying high volumes of flammable liquids will derail, and also minimize the consequences of an incident should one occur."[2]

These new standards and regulations were adopted through close coordination between leaders in the United States and Canada specifically to reduce the potential for an event such as the one that occurred at Lac-Megantic in July of 2013. Leaders on both sides of the border celebrated the new safety standards when the final Rule was announced earlier this year, on May 1, 2015.

"Safety has been our top priority at every step in the process for finalizing this rule, which is a significant improvement over the current regulations and requirements and will make transporting flammable liquids safer," said U.S. Transportation Secretary Anthony Foxx, when the rule was finalized. "Our close collaboration with Canada on new tank car standards is recognition that the trains moving unprecedented amounts of crude by rail are not U.S. or Canadian tank cars – they are part of a North American fleet and a shared safety challenge."

"This stronger, safer, more robust tank car will protect communities on both sides of our shared border," said Canada's Minister of Transport Lisa Raitt. "Through strong collaboration we have developed a harmonized solution for North America's tank car fleet. I am hopeful that this kind of cooperation will be a model for future Canada-U.S. partnership on transportation issues."

In support of this Rule, one of the main purposes of the Analysis is to provide a credible summary of the potential costs that might be incurred if the final federal rule is not implemented. In other words, the methodology described in the Commission's justification was specifically designed to consider the potential costs that might be incurred if the federal government does nothing. Of course, the federal government is not doing nothing. The federal government is advancing enforcement of a new Rule which was finalized earlier this year. Thus, the probability of an event such as the one that

[2] Ibid, pg. 26.

occurred at Lac-Megantic is significantly diminished due to adoption of the very Rule the Analysis supports, as well as other new regulations and practices adopted both in Canada and the United States[3].

To summarize, the Analysis document by its very nature confirms that Lac-Megantic is not a good example of a reasonable worst case scenario since the stated purpose of the Rule is to reduce the likelihood and minimize the consequences of a large-scale catastrophic event (such as what occurred at Lac-Megantic), and the purpose of the Analysis is to show the consequences that might play out if the Rule was not adopted. Since the Rule was indeed finalized – and will greatly enhance railroad safety as a result – the consequences and probabilities described in the Analysis are greatly minimized.

That said, PHMSA's scale down model was used as part of a Monte Carlo simulation to determine the potential for a high consequence accident that might occur if the Rule was not adopted. In so doing, the authors of the Analysis fully recognized the anomalous nature of the Lac-Megnatic catastrophe. In a section where they consider monetization of events based on quantity released the authors acknowledged, "We do not consider Lac-Megantic in this estimate. An average based on Lac-Megantic would not be representative of damages from a typical accident or even a high consequence accident that this rule is intended to mitigate."[4]

Given the admittedly low probability of such an event occurring, the authors engaged in the Monte Carlo simulation "for illustrative purposes only to show higher-consequence damages using different assumptions."[5] Throughout the document, the authors clearly recognize the speculative nature of such an exercise, as follows:

- "The frequency and magnitude of these events is highly uncertain. It is, therefore, difficult to predict with any precision how many of these higher-consequence events may occur over the coming years, or how costly these events may be."[6]

[3] See Attachments 1 for a chronology and detail of new safety protocols and regulations initiated since 2013.

[4] Ibid, pg. 87.
[5] Ibid, pg. 332.
[6] Ibid, pg. 95.

- "Scaling up these events based on differences in location, tank car contents or events would require making assumptions about when and where such events might have occurred and what consequences would have resulted from those events in alternate locations… It is unclear to PHMSA what assumptions would be reasonable."[7]

- "We acknowledge that there is uncertainty about the potential magnitude of damages from any high consequence event, since there has only been one such event in North American rail history."[8]

- "While PHMSA uses the damage estimates from the Lac-Megantic event in estimating the higher consequence event damages in the U.S., we acknowledge this accident was unique in many ways. For example, it is highly unlikely that there would be a derailment at 65 mph… Similarly, it is highly unlikely that a 63-car derailment would occur – the largest derailment in U.S. crude and ethanol record is a 31-car derailment."[9]

Recognizing the unique nature of Lac-Megantic, PHMSA appropriately scaled down the potential damages of a higher-consequence event by changing some of the inputs in a relatively complex mathematical formula. Overall, the general intent of scaling down the formula was to capture the correlation between lower speeds and the number of cars derailed. Thus, the damages extrapolated from this calculation were largely based on two criteria – lower speeds and fewer cars derailed. This calculation did not include inputs for additional safety factors resulting from the new federal Rule, such as thicker tank car shells, additional shielding, thermal protection, and new handling practices. Remember, the intent of this entire exercise was to illustrate what could possibly occur if the new federal Rule was not adopted.

In the end, after all the calculations were complete, the following conclusion was reached: "PHMSA estimates the number of higher consequence events that are likely to occur over the next 20

[7] Ibid, pg. 97.
[8] Ibid, pg. 98.
[9] Ibid, pg. 98

years in the absence of this rule at five events."[10] Due to the scale down formula, these five events would be less impactful than Lac-Megantic. Because this calculation does not consider the new standards advanced by the federal Rule, we can assume the number of higher consequence events will be less than the estimated five events. Considering the additional benefits of new safety standards implemented through the Rule, the potential for punctures or spills resulting from a derailment would be diminished as well.

In conclusion, the PHMSA scale down approach is not an appropriate model for defining what is reasonable in the context of a worst case rail scenario. The formula was never intended to define the term reasonable. Rather, it was intended to illustrate possible outcomes that might occur in the absence of a new federal Rule. Since the Rule supported by the Analysis was finalized, and the new standards will presumably be implemented, the outcomes posited in this section of the Analysis are largely moot.

Recognizing the significant uncertainties of using Lac-Megantic as a worst case scenario, PHMSA was correct in scaling down in order to derive an appropriate model for a high consequence event. However, the scale down method used by PHMSA and adopted by the Commission only focuses on two factors – speed and the number of cars derailed. Since numerous factors play into the possible outcomes of such a complex event, additional factors (such as tank car wall thickness and shielding) would be necessary to simply reflect the current regulatory environment, much less to begin extrapolating a definition of what is reasonable.

2. Is the Lac-Megantic event an appropriate example of a reasonable worst case discharge?

As described in the previous section, the event at Lac-Megantic is not a good representation of a reasonable worst case discharge. As discussed, PHMSA uses appropriate caution in making clear that Lac-Megantic was unique even among high consequence incidents and is not representative of this type of event.

[10] Ibid, pg. 333.

The justification provided in the Commission's draft rule makes the assumption that "using Lac-Megantic as the worst case scenario, the PHMSA scale down approach can be applied to deduce a 'reasonable' worst case scenario." In other words, if we start with a recognition that Lac-Megantic is the worst event that has happened in North America, then we can extrapolate the level of magnitude down using the PHMSA scale-down method. As described previously, extrapolating a definition of "reasonable" based on mathematics is not appropriate for the following reasons: the formula was not created for this purpose; it was based on conditions that no longer exist; and, it does not include criteria that would allow it to reflect current conditions.

Fortunately, we do not need to rely on arithmetic to define "reasonable" as this term is defined for us. According to *Webster's Third New International Dictionary* the term is defined as follows:

> **reasonable,** *adj.*: **1a:** being in agreement with right thinking or right judgment: not conflicting with reason**:** not absurd**:** not ridiculous <a ~ conviction> <a ~ theory> **b:** being or remaining within the bounds of reason**:** not extreme**:** not excessive <a ~ request> <a ~ hope of succeeding> <spent a ~ amount of time in relaxation> <is of a ~ size> **c:** MODERATE: as (1): not demanding too much <a ~ boss> (2): not expensive <fresh vegetables are now ~> (3): that allows a fair profit <sold the material at a ~ rate> **2a:** having the faculty of reason**:** RATIONAL <a ~ being> **b:** possessing good sound judgment**:** well balanced**:** SENSIBLE <can rely on the judgment of a ~ man> **syn.** see RATIONAL.

Similarly, *Black's Law Dictionary, Tenth Edition*, defines the word in the following manner:

> **reasonable,** *adj.* (14c) **1.** Fair, proper, or moderate under the circumstances; sensible <reasonable pay>. **2.** According to reason <your argument is reasonable but not convincing>. see PLAUSIBLE (1). **3.** (Of a person) having the faculty of reason <a reasonable person would have looked both ways before crossing the street>. **4.** *Archaic.* Human <criminal homicide is traditionally called the unlawful killing of a "reasonable person">.

Although nuances exist between the two definitions, they share common themes such as a basis on right thinking and judgment, fairness and moderation, and the absence of that which is excessive or extreme. Thus, a reasonable person "acts sensibly, does things without serious delay, and takes proper but not excessive precautions," as described by *Black's Law Dictionary, Tenth Edition*.

Setting aside the numerous acknowledgements by PHMSA recognizing that the event at Lac-Megantic was exceptional even among high consequence events, is the event a reasonable worst case example according to these definitions? The answer is "no." This is because the event at Lac-Megantic occurred as a result of behavior that was allegedly criminal. Three people have each been indicted on 47 individual acts of criminal negligence causing death related to the incident. While the incident is certainly the worst case example, it is not a reasonable worst case scenario because it resulted from behavior in which no reasonable person would engage.

In fact, it is entirely unreasonable to expect that a similar chain of decisions would occur in the future given what we know about that incident, what we learned in the federal investigations that followed, and what has been enacted in terms of new federal regulations to prevent such an event from occurring in the future.

B. Discussion

As previously discussed, the event at Lac-Megantic is a poor basis for defining a "reasonable worst case" oil spill for the following reasons: the event itself was the result of alleged criminal activity in which no reasonable person would engage; even in the context of high consequence incidents, the event is anomalous, according the PHMSA's Analysis; and, the scale-down method utilized in the Commission's draft rule lacks factors that reflect the current regulatory environment or risk profile due to multiple safety improvements adopted by both industry and by the federal government since the event occurred in 2013.

Given these facts, the question is: "Where do we go from here?" After all, the Commission still has a statutory obligation to ensure that railroad companies submit information including a "statement of whether the railroad has the ability to pay for damages from a reasonable worst case spill of oil, as calculated by multiplying the reasonable per barrel cleanup and damage cost of spilled oil times the reasonable worst case spill volume as measured in barrels."[11]

[11] ESHB 1449, Section 10(1), lines 10-14.

This challenge is further exacerbated by the dynamic regulatory environment surrounding rail safety. Fortunately, the Commission has already started performing the research necessary to begin understanding how these new regulations and factors (such as improved tank car design) could affect the potential frequency and severity of incidents involving flammable liquids. One of the documents cited in the draft rule is a probability analysis of multiple tank-car release incidents.[12] In this study, the authors considered derailments that occurred on U.S. Class I mainlines from 2002 to 2011 and reported the following: approximately 24% of derailments resulted in a single car derailed; 50% resulted in five or fewer cars derailed; and, the average number of cars derailed was approximately nine.

They also considered the possible safety improvements of moving from DOT-111 cars to CPC-1232 cars and found that "tank car safety design enhancement has a more substantial, multiplicative effect on reducing the probability of large, multiple-car release incidents." For example, the study finds that in a hypothetical derailment of a train consisting of 10 tank cars, upgrading the cars from DOT-111 to CPC-1232 cars would result in a 6% reduction in the probability of a single-car release, and an 88% reduction in the probability of all 10 cars releasing. In other words, tank car safety enhancements reduce the occurrence of material release of all magnitudes, but the effect is more substantial for large, multi-car incidents.

These safety improvements result from features of the upgraded cars including the addition of more robust head shields, the inclusion of thermal jackets, and top fitting protection. Since the study only considers the benefits of replacing DOT-111 cars with CPC-1232 cars, it stands to reason that the benefits would be even more pronounced when cars are replaced with the next-generation "tank car of the future" called for in the new federal Rule. These are the types of considerations that need to be included when considering a reasonable worst case spill.

Finally, it should be noted that the *Washington State Marine and Rail Oil Transportation Study* recommends that the "FRA and PHMSA should require a minimum amount of demonstrated financial resources to pay for response, cleanup, remediation, natural damage assessment, and restoration costs,

[12] "Probability analysis of multiple-tank-car release incidents in railway hazardous materials transportation." By Xiang Liu, Mohd Rapik Saat, Christopher P.L. Barkan. *Journal of Hazardous Materials*, 276 (2014), 442-451.

based on the reasonable worst case spill volume of a train carrying oil as cargo."[13] Presumably, this recommendation would entail the two federal agencies determining both the minimum amount of financial resources required as well as the definition of reasonable worst case. Given the level of investigation and regulatory advancement performed and completed by the federal government since 2013, it seems appropriate to call on the federal government to define these concepts.

III. Conclusions

In conclusion, we recognize the challenges set forth by the Washington State Legislature in ESHB 1449 by requiring railroad companies to submit a statement of whether the railroad has the ability to pay for damages resulting from a reasonable worst case oil spill when this term is undefined both at the state and federal level. Our understanding is that the federal government may soon engage in an effort to define this term through rulemaking, a process that would bring much-needed clarity to the discussion. In the interim, the most appropriate action for state government would be a definition that acknowledges continuing work by the federal government while maintaining a realistic but conservative potential spill volume at the state level during the interim.

We appreciate your consideration and look forward to working with you in order to continue advancing out mutual interest in advancing rail safety.

Sincerely,

Johan Hellman

[13] *Washington State 2014 Marine and Rail Oil Transportation Study*. March 1, 2015. See pg. 125.