BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of: Application No. 2013-01 TESORO SAVAGE, LLC VANCOUVER ENERGY DISTRIBUTION TERMINAL	)	CASE NO. 15-001 DIRECT TESTIMONY OF FRED MILLAR, PH.D.

I. INTRODUCTION AND QUALIFICATIONS

I am a policy analyst, researcher, educator, and consultant with more than three decades of experience assessing the risks associated with transporting hazardous materials. Over the course of my career, I have advised governmental legislative and regulatory bodies, national chemical and oil worker and rail unions, insurance companies, fire service associations, citizen organizations and environmental groups on the unique health and safety hazards of shipping hazardous materials by rail, including crude oil. I have testified before both houses of the United States Congress, have presented as an invited lecturer in twelve countries on chemical facility and chemical transportation accident prevention, and have been provided testimony and comments on specific projects involving crude-by-rail ("CBR") risks. I have provided specific analyses of risks associated with transporting crude oil by rail in and around cities across the United States, including Albany, New York; Washington, D.C.; and the San Francisco Bay Area. My CV is attached.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

I am familiar with much of the legislative and regulatory efforts in North America following the Lac-Mégantic, Quebec, train disaster and several other major crude-by-rail accidents. I have submitted comments to the U.S. Department of Transportation ("DOT") on their rulemaking on High Hazard Flammable Trains ("HHFT"), which recently culminated in a Final Rule on May 15, 2015, discussed below. I have assisted environmental groups who recently submitted comments to the U.S. DOT on a draft rulemaking related to transportation of crude oil via rail; those comments are at Exhibit 5540-00053-CRK. The comments followed a petition for the issuance of an emergency order, filed by the same groups, to immediately ban DOT-111 rail cars from carrying certain forms of dangerous crude. This petition is Exhibit 5541-000031-CRK and will be referred to in this testimony as the "Petition." I have reviewed various versions of Environmental Impact Reports and accompanying documentation in other jurisdictions with similar proposed projects for crude oil railcar unloading facilities. For example, I recently submitted critical comments on an environmental impact report prepared for a crude-by-rail project at the Valero Benicia refinery in California. Exhibit 5542-000009-CRK. Critical comments were also filed by the Attorney General of California, and those are included as Exhibit 5543-000015-15-CRK.

In preparation for this testimony, I have also reviewed the relevant local Tesoro-Savage project documents for the Vancouver Energy project at the Port of Vancouver that is the subject of this proceeding; the May 2015 federal HHFT regulations and related docket items; the December 2015 Fixing America's Surface Transportation Act ("FAST Act") sections on CBR; and the recent state legislation in the few states that have acted as vigorously as possible on reducing CBR risks, including Washington's new laws and regulations. I have also reviewed, and submitted comments critical of, the Draft Environmental Impact Statement ("DEIS") for the

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

proposed Tesoro-Savage project that is the subject of this action. Finally, I have reviewed the Washington Fire Chiefs state association's request to the railroads for their heretofore secret risk documents pertaining to CBR, *see* Exhibit 5544-000002-CRK, and similar requests from legislators and citizen groups.

II. SUMMARY OF EXPERT TESTIMONY

It is my opinion, based upon my experience and my review of the relevant documents and research, that the proposed project will result in significant increased risk to the population and environment of the state of Washington. Transporting crude oil by rail is inherently risky and that has been amply demonstrated over the course of the last several years through the U.S., Canada, and in Britain. The increase in unit trains (trains averaging 100 cars long and that carry only one cargo), has resulted in an attendant increase in derailments and disasters including fires, hazardous air releases, and environmental damage from spills. Furthermore, industry and communities are ill-equipped to address these risks and the disasters. Emergency response capability is inadequate because the severity of explosions and fires that may result from derailments demand simply "letting it burn." Public knowledge of the danger and ability to deal with it are hampered by the extreme secrecy of the industry. The few regulatory improvements that have occurred in the very recent past (within the last two years) are barely getting at the edges of the risk and do little to address the overall hazards. And finally, many of these trains, as well as the facility itself, will be in highly-populated areas. The trains will travel through parts of Spokane and Vancouver that are residential. In fact, in Vancouver the site of the facility itself is immediately adjacent to the Fruit Valley Neighborhood, adding a layer of significant risk to an already risky endeavor.

The Tesoro-Savage project will be subject to all of these problems and shortcomings. While the DEIS made a thin attempt to assess the risk, it did so with a novel and inadequate

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

methodology that does not adequately estimate or assess the increased risk of human health and environmental impacts that are likely from this project and the attendant increase in crude oil carried by rail. As discussed more fully below, proper risk assessment involves taking the probability of an event happening, multiplied by the consequences of that event happening. Both sides of that equation must be fully assessed and vividly presented in order for decision-makers to adequately determine risk. Tesoro-Savage and the DEIS have not adequately looked at both sides of that equation. Instead, Tesoro-Savage and the DEIS advocate looking almost exclusively at probability and claiming that probability is "small," while virtually ignoring the hugely catastrophic consequences for some potential events. This is not adequate risk assessment. In my opinion, the risk is much larger than what is estimated in the DEIS because the DEIS dismissively low-balled the consequence side of the formulation.

The largely implicit DEIS argument here is that if the probabilities are very small, the analyst does not have to take the potential consequences too seriously. As demonstrated below, other governmental analyses, including U.S. Environmental Protection Agency ("EPA") guidance on chemical risk, the DOT regulatory documents justifying the need for the 2015 HHFT regulation, the Federal Emergency Management Agency emergency exercise with a hypothetical CBR derailment in New York, and the Washington Utilities and Transportation Commission ("UTC") regulations on railroad financial responsibility, all present vivid estimates of potential CBR accidents and their consequences (some including mapping of offsite consequences).

III. OVERVIEW OF NORTH AMERICAN CRUDE BY RAIL SHIPMENT STATUS AND CONCERNS.

To understand the risks and impacts of any specific project involving the transportation of crude-by-rail, it is important to understand the broader national and international contexts.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

Only a few years ago, transportation of crude oil in the United States was limited, and mostly by "manifest trains" (i.e., trains that carry a mix of different kinds of freight). That landscape changed radically in recent years. The increase in crude oil production between 2011 and 2012 was the largest increase in annual output in U.S. history. Most of the growth was due to hydraulic fracturing (or fracking) in the Bakken shale formation in North Dakota and Montana, which has often been producing over a million barrels of oil per day. Because there is little pipeline or refinery infrastructure in that area, a large majority of that crude oil is being transported via rail. Transportation by rail skyrocketed accordingly, over a rail infrastructure which was widely regarded as inadequate or not fully equipped for the need. Serious gaps soon became obvious in regulatory oversight, railcar design, speed limits, emergency response planning and capabilities, railroad disaster insurance, and distribution of risk information to the public.

In 2008, only 9,500 tank car loads of crude were transported by rail. In 2013, that number rose precipitously to 400,000 car loads (constituting 280 million barrels of crude oil), an increase of over 4000%. Exhibit 5541-000031-CRK. It was widely expected that this number would continue to grow. *Id.* As the National Transportation Safety Board ("NTSB") stated, "The sharp increase in crude oil rail shipments in recent years as the United States experiences unprecedented growth in oil production has significantly increased safety risks to the public." *Id.*[1]

Serious concerns about CBR shipments have been expressed and continue to be expressed across the North American continent, from unloading and line haul corridor communities in the Northwest and California to New York. *See, e.g.*,

[1] In fact, even with the drop in oil prices in 2015, 2015 saw a record number of crud- by-rail accidents.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

http://blog.seattlepi.com/seattlepolitics/2015/04/07/seattle-rail-tunnel-unsafe-for-first-responders-in-oil-train-fire/; http://www.sacbee.com/news/local/article71926902.html; http://wamc.org/post/advocates-call-federal-officials-ban-rail-transport-bakken-oil#stream/0 (Benicia, CA); http://wamc.org/post/report-oil-trains-crossing-rusted-crumbling-bridges (New York); *see also* Exhibit 5545-000011-CRK (Letter from Brotherhood of Locomotive Engineers, 2014). *See also,* http://www.chicagomag.com/Chicago-Magazine/May-2016/Bomb-Trains/.

Train derailments are commonplace here as well, occurring nearly every week in the Pacific Northwest.[2] The reasons for these events vary, as do the impacts: at their most benign, they are relatively harmless mishaps, such as the two cars that tipped over at extremely low speed (less than 5 mph) in the Interbay area of Seattle in the summer of 2014.[3] (Note that at higher speeds or with different derailment circumstances, this could have been a terrible disaster in that the cars tipped onto a bike path underneath the Magnolia Bridge, a major commuter thoroughfare to a residential neighborhood and yards from Elliot Bay and a pier where cruise ships dock). At their worst, as discussed below, derailments can be catastrophic to human life, infrastructure, and the environment.

The potential consequences of North American crude oil train accidents remain grave. In 2013, more than 1.1 million gallons of crude oil spilled in the U.S. from rail, more than the total amount from the previous thirty-seven years. Exhibit 5541-000031-CRK at 2. Many spills occurred in 2014 and a record number took place in 2015, reflecting the fact that the transportation of crude oil in the United States continued to grow until late 2015, with no apparent effective safety measures in place to prevent spills.

---

[2] Eric de Place, *Northwest Region Averaging Nine Freight Train Derailments Per Month*, Sightline Daily, May 13, 2014 (*available at* http://daily.sightline.org/2014/05/13/northwest-region-averaging-nine-freight-train-derailments-per-month/).

[3] http://blogs.seattletimes.com/today/2014/07/73125/

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

Examples of crude oil train derailment disasters abound. On July 6, 2013, a runaway train with seventy-two tank cars filled with Bakken crude derailed in the small town of Lac-Mégantic, Quebec, Canada. More than sixty of the sixty-three derailed DOT-111 tank cars breached and spilled an estimated 1.6 million gallons of crude. The subsequent fireballs and what survivors described as fast-moving "rivers of fire" immediately killed forty-seven people, including children as young as four years old, leveled a four-block radius in the downtown area, and led to the evacuation of over 2,000 residents after testing revealed toxic particles in the smoke. The damages to people and communities from this accident have already approached an estimated cost of up to $2 billion in cleanup or compensation. However, the short line rail company, the Montreal, Maine and Atlantic Railway ("MMA"), filed for bankruptcy. In my experience, the liability coverage MMA had is not unlike that of many American railroad companies.

On November 8, 2013, a ninety-car oil train, carrying 2.9 million gallons of Bakken crude in DOT-111 tank cars, derailed in a rural area near Aliceville, Alabama, a town of 2,400 near the Mississippi border. Twenty-one of the twenty-six derailed cars spilled oil, triggering a series of explosions and an extensive fire. Preliminary NTSB findings reveal that 630,000 gallons of crude spilled, primarily into a wetland adjacent to the tracks. Four months after the accident, news reports observed that the area was still heavily contaminated with oil.

On December 30, 2013, a unit train with more than 100 cars laden with Bakken crude collided with a BNSF grain train that had derailed and fouled the adjacent track near Casselton, North Dakota. Eighteen of the twenty-one derailed tank cars ruptured, releasing more than 400,000 gallons of petroleum crude oil. The ruptured tank cars ignited, causing explosions and a mushroom-shaped fireball that burned and produced heavy plumes of toxic smoke for over

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

twenty-four hours. Emergency responders described a "giant fireball" that went hundreds of feet into the air, and noted that the plume of smoke could be seen for twenty-five miles. The incident occurred a half mile outside of Casselton, a community of 2,300, all of whom were told to flee by the County Sherriff, along with anyone living within five miles to the south or east of the site. The main rail line runs directly through the center of Casselton where an ethanol plant sits just yards away from the track.

A recent NTSB presentation documents sixteen significant accidents between 2006 and the spring of 2014, with dozens of fatalities and 2.8 million gallons of crude oil spilled. In one, a train derailed in Plaster Rock, New Brunswick, in January 2014 with two DOT-111s built in 1984 and 1996, respectively, being the primary source of released crude oil which caught fire. On April 30, 2014, an oil train loaded with Bakken crude derailed in Lynchburg, Virginia, and fell into the James River, precipitating a fire and spilling tens of thousands of gallons of oil into the river. The tank car which ruptured in this accident was a CPC-1232, a design that is newer than the DOT-111. Exhibit 5541-000031-CRK at 16. A list of major accidents compiled by federal authorities is also part of the DEIS).

Future potential accidents have been estimated in alarming detail in several recent federal HHFT rulemaking documents.[4] The probabilities, however, can vary higher or lower depending in large part on the volumes shipped over an infrastructure that, because of its very nature and because of its current state of disrepair, will result in serious accidents; that is, serious accidents cannot be eliminated and indeed are almost guaranteed. Obviously, the goal of the Tesoro-Savage terminal is to increase rail shipments to the Northwest for shipment elsewhere to Pacific

[4] In the regulatory analysis accompanying the HHFT rulemaking, the Pipeline and Hazardous Materials Safety Administration ("PHMSA") estimated 207 derailments between 2015 and 2034. Exhibit 5547-000206-CRK at 24 (PHMSA draft regulatory impact analysis).

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

locations, and those increased shipments will be made over current infrastructure.

IV. HAZARDS ASSOCIATED WITH SHIPPING CRUDE OIL BY RAIL ARE MANY AND VARIED AND ALL ARE INCREASED BY VIRTUE OF THE TESORO-SAVAGE VANCOUVER PROPOSAL.

A. Unit Trains

Most of today's crude oil is now shipped in **"unit trains"** which typically consist of between 80 and 120 cars all carrying exactly the same thing, crude oil. The dominant oil shipper business plan involves shipping these transcontinental cargoes on the existing rail network at high speeds only marginally reduced by new federal regulations to 50 mph through most areas and 40 mph in a few dozen "High Threat Urban Areas," and continuing to route unit trains over both mainline and short line railroad networks. The enormous length and weight of the trains increases the safety risks of this transportation in various ways, including increased train handling difficulties and increased risks of release—causing railcar breaches and setting in motion flammable interactions between railcars with highly flammable liquids that can be spilled when tank cars derail or collide. Exhibit 5546-000004-CRK at 2 (12/5/13 Letter from NTSB to DOT regarding PHMSA notice).

The NTSB has found that transporting hazardous materials such as crude oil in unit trains also poses heightened risks because of the high volumes that can be spilled. The May 2015 federal HHFT regulation, discussed below, did not alter unit train operations as the currently dominant and preferred business model for the CBR industries. This business model has been rapidly cemented in place by industry deployment of costly loading and unloading facilities continent-wide. As a result, the new HHFT regulation did not significantly reduce the risks of train accidents, nor of railcar releases from the long, single-product trains. Therefore, EFSEC should assume that unit trains will be the trains used to supply the Tesoro-Savage terminal (the "Terminal"), and also know that those long trains will be crossing the state, traveling through

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

many communities, and traversing the Columbia River Gorge through the Fruit Valley Neighborhood and into the Terminal, with all of the risks described above being endured multiple times every day throughout the state of Washington.

B. Types of Rail Cars

The primary railcar for shipping crude oil has long been and currently remains the DOT-111, the basic tank car initially put into service many decades ago. It has for decades been recognized, most prominently by the NTSB, that the DOT-111 is inadequate for the safe transportation of hazardous cargoes like crude oil. During derailments the shell of the DOT-111 has a well-known propensity to puncture, and the valves on the top and bottom of the car tend to shear off or rip open. The result is predictable: oil spills often followed by fire or explosion events, as has been seen in recent derailments. The newer CPC-1232s were introduced by the rail industry in 2011 and touted as much safer, but in accidents within the last two years, some of the cars involved in derailments and spills were CPC-1232s.

Despite knowing for a long time that DOT-111s are unsafe for volatile cargo, such as crude oil (and more recently understanding that the CPC-1232s also had problems), the industry and regulatory agencies have long neglected to require or implement significant safety measures. After the spectacular disasters of recent years, the public and public officials have brought more attention to bear on the problems, with pressure to ban shipping volatile and hazardous materials in these unsafe rail cars. New federal HHFT regulations are forcing some progress in constructing newer and somewhat safer tank cars, including a brand-new robust design, the DOT-117 (which had never previously been mandated or built). However, the regulations are not retiring the least safe designs on a sufficiently urgent schedule which many critics would find acceptable. *See discussion of regulatory status for tank cars below.*

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

C. Oil Characteristics

Many stakeholders have recognized that additional risks are presented because of what the U.S. DOT has identified as the "unique hazardous characteristics of Bakken crude oil." Exhibit 5548-000017-CRK (DOT emergency order). As Ecology stated in its preliminary findings in the Washington State oil transportation study:

> For Bakken crude, the greatest concerns are the potential volatility or flammability of the oil and the higher potential for groundwater intrusion due to its solubility. These properties create the potential for public safety, environmental, and health risk. A recent report from the Transportation Safety Board of Canada shows that Bakken oil produces flammable vapors at temperatures as low as minus 31°F, which is similar to gasoline.

Exhibit 5549-000570-CRK at 29-30 (Washington State Oil Transport Study 2014)); *see also* Alison Sider, *Oil from U.S. Fracking is More Volatile than Expected*, Wall Street Journal (June 24, 2014).[5] The increase in explosion and fire associated with train derailments in recent years is connected to the increase in shipping volatile Bakken crude by rail in unit trains.

A separate set of hazards is presented by tar sands diluted bitumen (a/k/a "dilbit") which is also being transported by rail, albeit in lesser quantities than Bakken crude. As the Washington State study observed, there are separate risks presented by accidents involving this form of crude oil.

> For diluted bitumen, the greatest concern is the heavier portions of bitumen that may not be lighter than water, causing it to either be neutrally buoyant or sink when spilled. Diluted bitumen has been transported in Washington State for decades, mainly via pipeline. Transport by rail is relatively new. Diluted bitumen is created from oil sands, which is similar to asphalt. The bitumen product is mixed with diluents to reduce viscosity for ease of transportation. Various formulations of diluents are used at different times of year, depending on temperature and availability, though one common diluent is natural gas condensate. Although much less frequent, heated bitumen without diluent can be transported by rail tank car.

[5] *Available at* http://online.wsj.com/articles/oil-from-u-s-fracking-is-more-volatile-than-expected-1403653344.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

> The risk of sinking oil is especially true if there is a great deal of sediment and turbulence in the water, as in a fast-moving stream. This sinking behavior was observed during the response to the July 2010 Enbridge Pipeline Kalamazoo River.

Exhibit 5549-000570-CRK at 30.

D. Emergency Preparedness and Response

1. Local emergency capability

Many accidents have involved the derailment of huge unit trains, with multiple railcars interacting and producing spectacular fireball explosions. Fire service officials and federal experts note that major derailments of this nature go far beyond current emergency response capabilities. For example, even those accidents simply involving fire would require that enormous amounts of foam be readily available, but most often there is not enough water to apply foam, especially in rural areas (for example, in dry rural eastern Washington), and ultimately, first responders cannot get close enough to the fires to apply either foam or water.

Derailments in urban areas may have the same problems with inadequate supply of foam or water but would be overlain with huge population hazards and evacuation needs. The half mile evacuation recommendation in the U.S. DOT Emergency Response Guidebook [Guide 128] is long-standing and predates the rise in unit trains of Bakken crude oil or the accidents of recent years. http://phmsa.dot.gov/hazmat/library/erg.

DOT's half mile evacuation recommendation is based on one train car rupturing and catching fire. There is no additional or different recommendation for the kinds of incidents that could and do occur with CBR in which a series of cars explode and burn. The bottom line is that if accidents of this nature occur—whether one car or entire trains of cars, the advice is for all to evacuate the area, including responders, as there is little that can actually be done to "fight" such a fire. This "defensive" firefighting has been practiced in all of the North American CBR

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

derailments thus far, and there has been no loss of firefighter life.

The recent Washington State oil spill study highlighted the general lack of readiness to deal with crude-by-rail-related disasters in Washington State.[6] Local responders identified a lack of knowledge in the available equipment and response resources in the event of a crude-by-rail incident. *See* Exhibit 5544-000002-CRK. (WA Fire Chiefs Letter). Further, there is a gap between railroads and local responders on the plans and strategies in place should a crude by rail incident occur. As discovered in the survey developed and disseminated to all fire chiefs and local emergency planning committees within the state, local responders do not feel adequately prepared to contain, defend, and suppress a CBR incident. An overwhelming majority of those surveyed are not aware of the railroads' response strategies or the resources in place should an incident take place. There is also a general lack of communication between the railroads and the local response community. Exhibit 5549-000570-CRK at 111. The report discusses inadequate funding, authority, and staffing for marine and rail oil transportation regulatory programs and emergency response planning. It also recommended additional funding to develop emergency responder resources.

Some fire chiefs and emergency managers with crude oil unit train traffic are doing their pre-planning based on potential evacuation zones of half a mile or one mile on each side of the tracks, or even have pre-loaded their fire service vehicles (as in James City County Virginia, on the CSX rail line to the Yorktown Virginia CBR unloading facility) with GIS maps showing potential emergency zones of half, one, two, and five miles. In short, most if not all local

[6] And this comports with PHMSA 2014 guidance which bluntly states that in the event of a CBR or similar incident, most emergency response organizations will not have the available resources, capabilities, or trained personnel to safely and effectively extinguish a fire or contain a spill of any magnitude. PHMSA 2014 Commodity Preparedness and Incident Management Reference Sheet. p.1 at http://www.joinnsoar.com/pdf/Petroleum_Crude_Oil_Reference_Sheet.pdf

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

jurisdictions in the path of crude oil traffic should be expected to be completely unprepared to deal with a very serious, large HHFT derailment or other hazmat rail disasters within their borders. These cargoes present unique and very complicated risks that are quite different from anything currently transported.

2. Financial capabilities of shippers/railroads/terminals to address emergencies, disasters and/or cleanup

Financial assurance that the railroads can adequately address the costs of serious CBR derailments is questionable. The DOT regulatory impact analysis documents in the HHFT rulemaking provide estimates for a new crude oil disaster in a hypothetical city using a methodology in which they assume the city may be five times as densely populated as Lac-Mégantic." Such a "high hazard" event could cost as much as $6 billion in deaths, injuries and property damages. The same documents estimate that over the next twenty years, in the absence of timely promulgation of DOT's proposed new safety regulations and railroads' substantial compliance with the regulations and additional [very modest] voluntary railroad urban protective re-routing efforts, a serious CBR derailment event costing up to $1 billion could occur every other year.

E. Infrastructure

The rapid increase in very large, heavy unit trains carrying hazardous cargo has occurred largely without any concomitant serious structural improvements in existing rail infrastructure. No changes or improvements were mandated (or as far as the public knows specifically made) to handle the large physical demands on rail infrastructure dictated by the increase in unit trains.

Some advocacy groups have recently made attempts to draw attention to the fact that some rail infrastructure, particularly bridges, may have problems. I have reviewed the recent report by the Waterkeepers Alliance on this issue. Exhibit 5550-000032-CRK. While I am not

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

opining on the structural engineering or the relative safety or bridges, as that is outside my area of expertise, I note that the report reflects the widespread concern for potential CBR risks in an overall context of widely admitted neglect of our aging national infrastructures. The only new efforts in a regulatory context on this issue are focused entirely on trying to get some transparency of the railroads' own bridge analyses for public officials.

F. Routing

DOT regulators, the media, and even the CEO of Canadian Pacific Railway, have recognized the CBR routing issue as a key concern. *See, e.g.*, articles in http://www.theglobeandmail.com/report-on-business/cp-rail-ceo-says-terrorists-a-greater-threat-than-derailment-to-oil-tank-cars/article23254667/ and Seattle KOMO TV video and report http://komonews.com/news/komo-4-investigators/videos-show-disputed-oil-trains-rolling-by-stadiums-during-games. Specifically, the current routes traverse highly populated areas and areas of environmental importance, increasing the risks associated with CBR transport.

EFSEC must consider that the routes of the trains are a significant factor in assessing risk from and related to the Terminal, and, as discussed below, those routes must be considered in their current configuration, which puts urban areas and sensitive environmental areas at risk. Local and state officials have no voice in the railroads' secret route analyses and route selections. US FRA officials theoretically can object to a railroad's route selections, but it is my understanding from FRA staffers and written correspondence with the NTSB that the railroads never have done so.

V. THE U.S. REGULATORY RESPONSES HAVE BEEN AND CURRENTLY ARE INADEQUATE TO SIGNIFICANTLY REDUCE CBR RISKS.

Many observers or project proponents want to believe that the large number of alarming CBR accidents in North America and the consequent widespread public and official concern

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

expressed at local, state and federal levels, as well as in the media, have prompted stringent new state and federal rail safety regulations which have significantly improved safety and can prevent disasters. Unfortunately, this is not the case, as discussed below. Any current fluctuations in accidents should more prudently be attributed to the currently-reduced volumes of cargoes (which, of course, may or may not be temporary). Many of the root causes of recent accidents and spills and fires remain either wholly unaddressed by recent regulatory action or have been inadequately addressed.

The two federal actions that have had some minimal effect are the 2015 promulgation of the HHFT regulations at 80 Fed. Reg. 26,644 (May 8, 2015), https://www.gpo.gov/fdsys/pkg/FR-2015-05-08/pdf/2015-10670.pdf, and some minimal action in Congress. Several U.S. lawmakers openly expressed concerns about the shortcomings of the new HHFT regulations and introduced various small-bore free-standing bills to improve safety. Some of them also made last-minute arrangements in December 2015 to throw some new minor CBR rail safety provisions onto the moving train of a big must-pass transportation infrastructure funding bill, HR 22 ("FAST Act"). http://transportation.house.gov/uploadedfiles/fastact_xml.pdf Summary at http://transportation.house.gov/uploadedfiles/house_senate_big_4.pdf
As discussed below, none of these actions has resulted in significant change in the overall risk landscape of CBR.

A. Unit Trains and Speed

In my opinion, perhaps the most important bottom-line technical constraint to reducing CBR disaster risks involves the dynamic relationship between use of unit trains, tank car robustness, and unit train speed.

Train speeds have finally been regulated in the HHFT regulations, but it should be noted, the limits imposed are only as stringent as earlier speed limits which the US DOT and the

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

railroads after highly publicized meetings in Washington touted as agreed to voluntarily by the railroads.[7] Those current limits are 50 mph in the vast majority of areas or 40 mph in the thirty or so federally designated "High Threat Urban Areas." In my opinion, these limits will only marginally alleviate the risks of derailments, spills, fire and explosions because those types of accidents have already occurred even below those speeds. In fact, in testimony that I personally observed, Karl Alexy, staff director of the Federal Railroad Administration's Office of Safety, publicly concluded from analysis of the limited federal railcar shell side puncture research: "When you begin to look at [unit train CBR] cars that are derailing at speeds of 30, 40 miles an hour, it's very difficult, it's a big ask, to expect that a tank car get hit [and] not be breached." Remarks at the NTSB Safety Forum on Crude Oil and Ethanol Transportation, Washington D.C. at about 380:00 of Day Two webcast, available on NTSB website, archived at http://www.ntsb.gov/news/events/Pages/2014_Crude_Oil_Ethanol_FRM_Agenda-Presentations.aspx

And it should be noted that 30-40 miles per hour is not top speed; higher speed limits are allowed and trains travel at those higher limits.

Similarly, shortly before the new regulations were finalized in 2015, experts' public comments on speed limits suggested that the 50/40 mph limits will not eliminate continued CBR derailments and tank car failure, fires, spills or explosions. *See* Speed Limits May Not Stop

[7] American Association of Railroads ("AAR") representatives confirmed in testimony I observed that it is highly unlikely that the current business model for CBR would allow rail speeds for these cargoes to be reduced, as AAR maintains it would negatively affect the entire system's reliability and functioning. For example, AAR CEO Ed Hamberger emphasized that the railroads could lose considerable business to other forms of transportation if system-wide speeds fell. The AAR's steadfast position, articulated in the 2014 NTSB Safety Forum on Crude Oil and Ethanol Transportation in DC, is that they cannot reduce their speeds below their already voluntarily imposed limits of 50 mph through the country in general and 40 mph through a few dozen major cities. These then, were the speeds adopted in the recent HHFT rules.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

Fiery Oil Spills FRA Chief Says Bloomberg 3 13 15 by Jim Snyder, http://www.bloomberg.com/news/articles/2015-03-13/speed-limits-may-not-stop-fiery-oil-spills-u-s-rail-chief-says (where FRA acting chief at the time is quoted as saying, "If you are going to slow trains, it will have to be to 12 mph," and where the former chair of the NTSB, Jim Hall, is quoted from a written comment as saying, "speeds in excess of 25 mph were "irresponsible" given the known weaknesses of tank cars carrying crude oil."). In short, it is highly unlikely that rail speeds will be decreased for unit trains carrying crude oil.

B. Rail Cars

In the April 2014 NTSB Public Forum on Rail Safety, Transportation of Crude Oil and Ethanol, NTSB Chairman, Deborah A.P. Hersman urged DOT to use its emergency authority to toughen tank car standards rather than wait for the cumbersome rulemaking process to run its normal course and risk another accident occurring before new regulations are in place. Exhibit 5551-000002-CRK. She told reporters that: "There is a very high risk here that hasn't been addressed. They [federal regulators] aren't moving fast enough. We don't need a higher body count before they move forward. That is a tombstone mentality. We know the steps that will prevent or mitigate these accidents. What is missing is the will to require people to do so."[8] http://www.ntsb.gov/news/speeches/DHersman/Pages/daph20140422c.aspx

While the recent HHFT regulation makes some provision for phasing out the old inadequate rail cars, it does so over an extended period, *see* below, p. 23. In particular, the May 2015 federal HHFT regulation allows a long period of phasing in more robust tank car designs, some of which themselves are only marginally safer. For example, the CPC-1232s, both jacketed and

[8] Joan Lowy, *NTSB Chief Says Obama Administration Needs to Act Immediately on Oil Train Safety*, U.S. News & World Report, Apr. 23, 2014 (http://www.usnews.com/news/politics/articles/2014/04/23/ntsb-head-action-needed-now-on-oil-train-safety).

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

unjacketed, were originally introduced in 2011 and touted as an adequate improvement, but some CPC-1232s were breached in recent derailments.[9] All current railcars in service and under construction will puncture at speeds lower than normal CBR train speeds.[10] FRA modeling and simulation reveals that DOT-111s have a "puncture velocity" of 7.4 mph. 79 Fed. Reg. 45,016, 45,054 (Aug. 1, 2014). An unjacketed CPC-1232 has a puncture velocity of 8.5 mph and the "enhanced" CPC-1232 (what was termed Option 3 in the federal rulemaking proposal) has a puncture velocity of 9.6 mph. While this does constitute an improvement in crashworthiness, the data show that in an Option 3 tank car puncture, speeds are only marginally higher than what will puncture the DOT-111s. A recent accident in Lynchburg, Virginia, involved a spill and major fire when a CPC-1232 design tank car derailed at 24 mph. (All of the other major accidents involved derailments at higher speeds.) Thus, the various models of CPC-1232 reduce, but by no means eliminate, the risk of serious accidents involving crude oil. At this juncture we do not know what the puncture velocity of the newest DOT 117 cars will be, but it will definitely be much lower than the 30-40 mph speed limits. Regulators have noted that at the 30-40 mph speeds it is likely that even these new advanced cars will puncture. Therefore, unsafe rail cars will still be used to transport hazardous materials, such as crude oil, into the foreseeable future.

The NTSB had warned in early 2015 that the railroad fleet's overall safety posture "could be weakened by a vast new fleet of cars [an estimated 36,000 new CPC-1232s] built to older and less-safe standards." http://www.eenews.net/energywire/2015/02/24/stories/1060013889 Most, if not all, of the earlier risky DOT-111s and not all of the newer but inadequate CPC-

[9] 80 Fed. Reg. 26,644 (May 8, 2015). https://www.gpo.gov/fdsys/pkg/FR-2015-05-08/pdf/2015-10670.pdf

[10] It should be noted that all CBR stakeholders—the regulatory bodies, citizens, and the railroads themselves have to rely on admittedly skimpy U.S. FRA research regarding the puncturability of various railcar designs. Only six actual field experiments were conducted, in part due to time constraints because the newer designs are so urgently needed.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

1232s remained in service even as the overall fleet of rail cars (and the amount of total oil shipped via rail) continued to grow steadily, until recently, when reportedly a significant portion of the existing oil railcar fleet is now being used to store crude oil until prices rise.

After initially proposing a two-year deadline for phase-out of the less safe railcars, and in response to lobbying from the rail industry, DOT regulators in the May 2015 HHFT final regulation settled on a phased-in deadline of up to ten years for some types of railcars. The HHFT Final Rule promulgated in May 2015, with its own Final Regulatory Impact Analysis, posed a multi-year replacement of DOT-111s and unimproved CPC-1232 tank cars with the [non-existent] DOT-117, but does not even prohibit DOT-111s and CPC-1232s from carrying Bakken crude in all circumstances, and would allow them to continue to be used for other forms of crude. The FAST Act does forbid DOT 111 tank cars to move petroleum product past March 1, 2018.[11]

Overall, the dates for phasing out from flammable service the old or less robust tank cars are far too slow, stretching as far out as 2025. See Table 21 chart (reproduced below) in Justin Mikulka's, "Most Recent Oil Train Accidents and Spills Involved Safer CPC-1232 Tank Cars" at http://www.desmogblog.com/2015/07/23/most-recent-oil-train-accidents-and-spills-involved-safer-cpc-1232-tank-cars

[11] In a little-noticed provision of the FAST Act, railroads also won a federally mandated study, including field testing of braking technology by the National Academy of Sciences, in order to blunt the mandate in the 2015 HHFT regulations in which FRA abruptly required new "electronically controlled pneumatic" braking technology in the absence of what the railroads see as adequate evidence of real-world safety benefits. And in another railroad lobbyists' victory, DOT must use this data to re-assess its cost-benefit analysis on ECP braking. *See* report on some FAST provisions by journalist Justin Mikulka in DeSmogBlog http://www.desmogblog.com/2016/02/16/positive-train-control-critical-rail-safety-improvement-delayed-decades

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

Table 21: Timeline for Continued Use of DOT Specification 111 (DOT-111) Tanks for Use in HHFTs	
Tank Car Type / Service	**Retrofit Deadline**
Non Jacketed DOT-111 tank cars in PG I service	(January 1, 2017*) January 1, 2018
Jacketed DOT-111 tank cars in PG I service	March 1, 2018
Non-Jacketed CPC-1232 tank cars in PG I service	April 1, 2020
Non Jacketed DOT-111 tank cars in PG II service	May 1, 2023
Jacketed DOT-111 tank cars in PG II service	May 1, 2023
Non-Jacketed CPC-1232 tank cars in PG II service	July 1, 2023
Jacketed CPC-1232 tank cars in PG I and PG II service** and all remaining tank cars carrying PG III materials in an HHFT (pressure relief valve and valve handles).	May 1, 2025

Because the trains are still allowed to operate at speeds at which all types of cars have punctured, EFSEC cannot and should not rely on the relatively earlier planned phase outs of the very worst, very oldest cars, over a period of several years, as a significant risk reduction factor.

C. Crude Oil Volatility

In January 2014, PHMSA issued a safety alert warning that Bakken crude may be more flammable than traditional heavy crude, and instructing that it must be classified as Packing Group I or II, which is subject to stringent hazardous materials regulations. Exhibit 5552-000002-CRK (DOT safety alert January 2014). Nonetheless, the 2015 federal HHFT regulations did not impose any lowered volatility levels for CBR shipments, and instead, the President left the responsibility to North Dakota officials, whose regulations have not significantly lowered volatility standards. Moreover, Tesoro Refining & Marketing Company, LLC advocated against the stabilization of Bakken crude oil in North Dakota, a step which would decrease the volatility of the crude prior to shipment. *See* Exhibit 5553-000003-CRK (Letter from Ronald W. Day, Director, Mid-Continent Government and Public Affairs, Tesoro Refining & Marketing Company LLC to North Dakota Industrial Commission (Sept. 22, 2014)).

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

The recent FAST legislation mandated only what is explicitly designed to be a very long study by the National Academy of Sciences regarding the chemical makeup and behavior of crude oil cargoes, with no requirements that will affect its shipping and handling. The Department of Energy must report the results of its Sandia labs study of Crude Oil Characteristics after the study's completion (which some estimate will be ten years in the future). In the meantime, this information gap allows the railroads to try to stave off future crude oil train regulations on the grounds that no one knows what is in the tank cars, so regulators cannot predict benefits or losses from mandates and therefore cannot act. Given this complete lack of federal action to address the volatility of the crude oil, the inadequate North Dakota regulations will continue as a de facto national standard.

D. Emergency Preparedness and Response

1. Local emergency responses

First, EFSEC must consider that the DEIS for the Terminal makes clear that the proposed Terminal will not have its own fire brigade. DEIS, chapter 4, at 4-45. Therefore, for any incident at the Terminal, as well, of course, for any incident along the length the rail line, the citizens of the State will be entirely reliant on local emergency responders. The DEIS mapped BNSF locations of the railroad's 220 hazmat responders, but included no assessment of effectiveness or capabilities of the railroad. The necessary specialized equipment is widely scattered throughout BNSF's system in the Western U.S., leaving a large question regarding its practical availability for timely and effective disaster response.

Finally, information flow for emergency preparedness is still less-than-adequate. Railroads have resisted providing more extensive risk information to the Washington Fire Chiefs state association and to other fire chiefs, state officials and legislators who requested it. Furthermore, even after the Obama Administration Emergency Order of May 2014 mandated

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

that railroads provide routes and volumes information on the largest Bakken oil trains, U.S. DOT attempted to soften and weaken those requirements in the May 2015 HHFT regulations.

Subsequently, in December of 2015, Congress in the FAST Act reinstated some flow of the most basic information to state officials, not to the public. Under the FAST Act, U.S. DOT must *plan* to require railroads to improve their emergency response plans for responding to a worst case discharge (plan only—no hard requirements), and U.S. DOT must report to Congress on progress on oil spill response plan regulations and on industry modifications for railroad tank cars. The FAST Act also requires advance notification of shipments with real-time information available (upon request) on cargoes being carried by hazmat trains such as CBR unit trains. This, of course, presumes local officials can or will do anything different or safer as a result of receiving such reports. Given that some communities experience one to two oil trains a day, it is completely unreasonable to think that emergency managers would, for example, evacuate the school next to the tracks every time they receive notice of a train. And, advance notice doesn't alleviate the problem of emergency vehicles that can't get across railroad crossings. Advance notice also does not alleviate the overall inability to actually fight a fire should one occur.

These minimal measures are much less than what is needed to address emergency response and public preparedness, and EFSEC must consider these shortcomings in assessing the adequacy of any emergency response.

2. Financial assurance

There has been no progress in this regard but for a single study mandated by the FAST Act of 2015. This study, scheduled to begin four months after December enactment and to be finished a year later, is in lieu of actually mandating some minimal level of catastrophic insurance for railroads carrying disaster-potential hazmat cargoes, as the Conservative Canadian government recently did with Bill C-52 (at a level of only $1 billion, clearly inadequate even for

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

damages experienced in the July 2013 small-town Lac-Mégantic disaster). http://www.canadianunderwriter.ca/insurance/bill-mandating-railway-insurance-coverage-reaches-third-reading-1003615295/

The FAST Act study is no doubt intended to blunt any state level efforts in the near future to mandate stiff insurance levels on railroad hazmat.

Given the lack of action by the federal authorities, a few states have advocated for or implemented some financial assurance requirements, but they fall short of the real cost of disasters of significant size. *See, e.g.*, http://www.ibamag.com/news/northeast-news/state-official-urges-greater-insurance-against-oil-spills-31158.aspx

California and Washington are among those states. Washington's legislature directed the UTC to develop regulations, and I submitted comments on those proposed regulations. The 2015 Washington statute ESHB 1449 required the UTC to develop rules for financial assurance that would cover the "reasonable worst case scenario" and the UTC staff have interpreted the modifier "reasonable" to mean that financial assurance was required not for an actual worst case (something like Lac-Mégantic or worse), but rather for something more probable but with much less severe consequences. The new UTC regulations are estimated to require CBR railroads to provide perhaps $700,000 of financial assurance. To place this figure in the larger national context, the federal HHFT regulatory documents calculated that their new regulations would not eliminate CBR accidents, and that the total societal cost of ongoing accidents would remain at an estimated $12.9 billion.

E. Infrastructure

The FAST Act provided for some future added transparency in railroads' bridge inspection reports. These reports have historically been kept from public officials as proprietary documents, but with new concerns about crumbling bridges, the FAST Act now mandates that

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

some "public version" of these reports must be provided to local officials upon request. The FAST Act does not, however, mandate fixes. The act does provide some new federal funding for local government planning to improve railroad grade crossing safety, but again, local governments cannot actually change the route in any way.

F. Routing

Regarding another significant concern, the railroads' routing of CBR cargoes through major cities (or through populated/residential areas such as neighborhoods in Spokane, Washington) will likely remain unchanged.

The U.S. DOT, in its 2014 regulatory impact analysis approvingly cites the well-established and respected research by Professor Ted Glickman that shows urban rail hazmat re-routing could significantly reduce hazmat train accident risks.[12] But the federal regulators did not choose to add strict urban CBR unit train re-routing standards in their HHFT rule to achieve such risks reductions. They only expressed hope that railroads would be "responsible" in trying to reduce their CBR risks with a small amount of additional re-routing.

The routing of CBR trains through the Northwest is at the discretion of the railroads and their decisions may be kept entirely secret, with no exercise by local or federal authorities to veto or change those decisions, even when the decisions entail significant risks to urban or residential areas or to sensitive environmental areas. The inadequacy of routing controls for high-risk activities or environments was cemented in place in 2007, when the railroads won from Congress a railroad-friendly law on urban hazmat safety and security routing (Public Law 110-53, Section 1551), applying only within a few dozen High Threat Urban Areas as designated by U.S. Department of Homeland Security. The DOT HHFT regulators admitted in their 2014 Draft

[12] *See* U.S. DOT Draft Regulatory Impact Analysis (July 2014) pp. 56-57, 69-70, *available at* http://www.regulations.gov/#!documentDetail;D=PHMSA-2012-0082-0179. Exhibit 5547-000206-CRK.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

Regulatory Impact Analysis that it was "impossible in practice" to assess the safety adequacy of the railroad urban hazmat routing decisions, but from what they could tell, railroads' re-routing around major cities seemed only "modest."

EFSEC must assume that the existing CBR routes will be the routes on which crude will be delivered to the Terminal and that those routes will continue to pass through Spokane, the Tri-Cities, and along the Columbia River Gorge through sensitive environmental areas.

VI. THE DEIS PREPARED FOR EFSEC UNDERESTIMATES THE RISKS TO THE PUBLIC AND ENVIRONMENT ASSOCIATED WITH THE PROJECT AND CRUDE BY RAIL.

The DEIS for the proposed Terminal attempts to estimate the probability of rail accidents and associated releases of hazardous materials, and in doing further asserts that the overall risks are small. The DEIS approach is not a recognized or accepted approach and leads to a significant underestimation of the risks associate with this project. Overall, the DEIS consistently downplays the risk of a derailment disaster happening in the U.S. like the Lac-Mégantic , Quebec, CBR disaster in July 2013. The DEIS neglects even to mention the only published academic study of likely consequences from a CBR major fire event; the 2014 University of Illinois Urbana-Champaign study that suggests perhaps the major danger from a large crude oil derailment could be the "rivers of fire" described by Lac-Mégantic survivors, consisting of huge flows of the derailment releases of 1.5 million gallons of burning oil into areas downslope of the derailment scene. Proceedings of JRC2014 Joint Rail Conference (April 2-4, 2014), Colorado Springs, CO, USA. JRC2014-3851, DRAFT FLAMMABLE LIQUID FIRE CONSEQUENCE MODELING, Jesus Aguilar Serrano, Mohd Rapik Saat, available at http://ict.uiuc.edu/railroad/articles/Files/Conference%20Proceedings/2014/JRC2014-3851.pdf The DEIS does not bother to seriously consider or discuss what might happen if a similar-sized incident occurred during the day in the middle of Spokane, Pasco, or Vancouver.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

There are examples and recommendations for how EFSEC might choose to more properly assess the risk here. First, the study of the Lac-Mégantic incident should be thoroughly reviewed and the information regarding "rivers of fire" considered to be a very real possibility in any breach of rail cars. Second, there are some longstanding and authoritative prior federal methodologies and efforts to estimate the likelihood and consequences of much more devastating—that is, real worst case scenario—potential chemical releases that could and should be utilized here. For example, the Federal Emergency Management Agency ("FEMA") performed an analysis and presented vivid urban mapping in New Jersey in order to estimate moderately severe potential CBR accident consequences.[13] In this exercise, FEMA consultants used the general long-established approaches, which U.S. EPA recommended to the 4,100 U.S. Local Emergency Planning Committees in order to estimate and communicate damages from chemical release, either from fixed facilities or along hazmat transportation routes. The overall approach is in EPA's guidance document NRT-1, updated: https://www.epa.gov/emergency-response/nrt-1-hazardous-materials-planning-guide

This FEMA New Jersey exercise scenario assumed derailment releases from only five train cars (as opposed to an entire train and many fewer than the number of cars involved in the Lac-Mégantic incident) releasing 20,000 gallons each. Despite this modest size, the exercise shows severe impact zones from the resulting fire and explosion modeling.[14] The exercise estimates 1,323 total casualties from pool fire and tanker car explosion with 87 being immediate fatalities.

[13] And in fact, I would characterize the FEMA New Jersey effort as fairly "timid," but still more thorough and more vividly presented than the assessment done to date in the Tesoro DEIS documentation.

[14] Note that modeling interactions of dozens of cars is very difficult, with huge uncertainties, and therefore, while I commend the FEMA effort as making an attempt to assess risk, relying on the modeling with all its uncertainties is not something I necessarily recommend as the most precautionary approach. FEMA has not made the specific models and assumptions available.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

See http://www.wsj.com/articles/disaster-plans-for-oil-trains-1428969241 *See* Exhibit 5554-000003-CRK (FEMA ER Jersey City FEMA exercise Russel Gold WCS WSJ 2015 04 13) and Exhibit 5555-000045-CRK (FEMA preparedness exercise, Jersey City, N.J.). Nothing of even this modest nature has been done by the project proponent here. EPA provided some good guidance for such calculations in the 1990s in EPA's Offsite Consequence Analyses guidance document, both for fixed facilities (circular impacts) and for hazmat transportation routes (impact corridors called Vulnerable Zones on both sides of the rail track or highway) because an analyst cannot know in advance which way the wind will blow.[15] *See*, U.S. EPA Technical Guidance for Hazards Analysis, (2015 update to original 1987 version), https://www.epa.gov/epcra/technical-guidance-hazardous-analysis-emergency-planning-extremely-hazardous-substances

See also for Offsite Consequence Analysis: https://www.epa.gov/rmp/rmp-guidance-offsite-consequence-analysis

The 2015 U.S. DOT HHFT regulatory documents included estimates of very severe and less severe CBR accidents, scaling up the 2013 Lac-Mégantic accident impacts to portray the levels of damages to be expected from future accidents in the populations along U.S. routes. And finally, the Washington UTC promulgated regulations on railroad financial responsibility used a similar methodology to calculate its level of "reasonable worst case scenario," as specified by the enacting legislation.

[15] Because crude-by-rail shipped in unit trains is a recent development and its risk concerns were not really on the radar before Lac-Mégantic in 2013, older federal guidance documents do not specifically include crude oil as a major risk, but they are still useful guidance for developing a CBR worst case scenario risk assessment. The FEMA exercise in New Jersey is an example of a more recent attempt to use available guidance and knowledge about CBR rail accidents to develop a CBR-specific risk scenario.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

In summary, EFSEC should not rely on the inadequate risk assessment in the DEIS which was dismissive of potential significant impacts, but rather should require more information on potential consequences and specifically, more vivid presentations of potential consequences in Washington's urban communities and sensitive environmental areas.

VII. CONCLUSION

The Tesoro-Savage project would involve a sudden upsurge of huge volumes of a uniquely dangerous form of oil being transported into and through the region, in 3-million-gallon unit trains made up of tank cars ranging in quality from admittedly terrible to marginally safer, at high speeds through both heavily populated and environmentally sensitive areas where such risks have never been experienced nor prepared for. In my view, these risks are cumulative and overlapping, affecting all areas of the state, human health, human lives, local and state government budgets, and sensitive and important environments. The risks are significant, and they will not be ameliorated by any of the current regulatory mechanisms in place.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Executed this 11 day of May, 2016, at Arlington, Virginia.

FRED MILLAR, PH.D.

Earthjustice
705 Second Ave., Suite 203
Seattle, WA 98104-1711
(206) 343-7340