



Tesoro-Savage DEIS: Analysis of Impacts on Health

Preliminary draft released January 8, 2016

Note: This document may be updated in the future to include additional impacts.

Major impacts concluded here were derived from our analysis of the Tesoro-Savage project draft environmental impact statement (found on the [EFSEC project website](#)) and Washington and Oregon Physicians for Social Responsibility's [Position Statement on Crude Oil Transport and Storage](#).

Earthquakes and Subsequent Tsunamis

- Soils at facility site are deemed to be at “moderate to high” risk from ground motion initiated from an earthquake along the Cascadia Subduction Zone.
- Mitigation measures to stabilize soils (termed “ground improvements”) have their own problems. The DEIS admits that techniques such as deep soil mixed panels supported by jet grout columns “do not have a well-established performance record.” Others proposed may be inadequate for a major quake; at the dock, vibroreplacement stone columns proposed by Tesoro-Savage may not go deep enough to reach “stable foundation soils.”
- At greatest risk for tsunamis are vessels near/at Port; a tsunami could cause vessels in this area to capsize.

Air Pollution from Daily Activities

- Rail transport-related carbon monoxide emissions are estimated to increase by 27%, NOx by 14%, and PM2.5 by 12% compared to 2011 total rail emissions. This is not a negligible impact.
- The DEIS does not even mention adverse health effects of these emissions. Since these pollutants promote lung disease, heart disease and cancer – with no clear safe threshold in the medical literature – an increase of this magnitude will have health implications.
- Delays at grade-level crossings in more urban areas are acknowledged, but no attempt was made to account for the increase in vehicular emissions due to idling.

- The report focuses mainly on effects at the terminal site and underplays the effects along the entire transport route which, although intermittent, impact a much larger portion of our state's population.
- The impacts on air quality are deemed unavoidable. According to the document, "EFSEC has not identified any additional mitigation measures to reduce impacts to air quality." Therefore the "no action" option is the only response that ensures no degradation of our local air quality and no additional impact on climate.
- Cumulative air impacts from rail and vessel transport may be greater than anticipated. The authors of the DEIS assume that technology to reduce emissions from both locomotives and sea vessels will be developed. This is by no means guaranteed. It is safer to estimate that emissions from oil transport will remain the same as they are today. Also, the possibility that the actual number of trains increases beyond 4 per day is not fully considered.

Air Pollution from a Fire or Spill

- A crude oil fire would negatively affect air quality. Hazardous components of the smoke may include "carbon dioxide, carbon monoxide, sulfur dioxide, NOx, VOCs, PAHs, H2S, acidic aerosols, carbonyls (aldehydes and ketones), dioxins, and soot (i.e., particulate matter containing heavy metals such as nickel, vanadium, and arsenic)."
- If an oil train derails but does not catch fire, it still can affect air quality. Bakken crude contains volatile compounds, which contribute to ground level ozone – a situation which would particularly affect individuals with respiratory problems including asthma.

Water Resources

- The terminal site lies within the Salmon-Washougal watershed, an area that includes three national wildlife refuges along the Columbia River.
- According to the DEIS, "A total of 355 linear miles of surface water features occur within the rail corridor and 114 linear miles of surface water features occur within the rail-Columbia River corridor."
- For hundreds of miles, the rail corridor runs within 1 mile of the Columbia River. The river is particularly at risk of contamination from a derailment and spill where the rail comes close.
- Two sole source aquifers are crossed by the rail corridor: the Spokane Valley-Rathdrum Prairie Aquifer and the Troutdale Aquifer System. Those who rely on these aquifers for drinking water are put at risk if oil is spilled while in transit. Oil contains a number of highly toxic chemicals.

Climate Change

- This analysis fails to acknowledge the global nature of the climate-altering effects of the oil transported to and stored at the proposed facility. While indeed reduced snowpack and attendant higher stream flows in winter and lower in summer are a concern for our

region, the local effects are just a small portion of the impact of the product, Bakken crude oil. The risk of health consequences of global climate change, including spread of tropical infectious diseases, catastrophic weather events, ground level ozone, and food and water shortages worldwide – with disproportionate effects on lower income groups and countries – is not mentioned.

- At an estimated capacity of 360,000 barrels/day, the proposed project would result in an additional 154,000 metric tons of CO₂ in our atmosphere daily. (Source US EPA: <http://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references>)
- The greenhouse effects and subsequent long-term adverse health consequences from this project are sufficient reason to reject this proposal. Based on published calculations from the EPA, the CO₂ emitted from the full life cycle use of the 360,000 barrels/day coming through the facility would be between 56 and 61 million metric tons/year, dependent on the mix of crude and the mix of refined product. This represents 0.9% of US and 0.1% of worldwide CO₂ emissions. Now that the crude oil export ban has been lifted, we must assume that US emissions from this project will increase US emissions by at least 0.9%, at a time when we have a mandate from the Paris agreement to begin reducing emissions.
- We call for a full accounting of the climate impact of the end use of the product transported to and stored at the proposed site.

Inadequate Response Resources for Fire and/or Explosion at Terminal Site

- The DEIS suggests that the Port, local fire officials, and emergency responders would be called upon in the case of a fire or explosion. Many sources suggest that local first responders could not possibly be prepared for a worst-case incident:
 - Vancouver firefighters union opposes oil terminal: <http://www.columbian.com/news/2015/oct/13/vancouver-firefighters-oppose-oil-terminal-port/>
 - Portland and Vancouver first responders not prepared: <http://katu.com/news/local/local-first-responders-not-prepared-for-potential-oil-train-explosion>
 - As cited in the DEIS, “[Vancouver Fire Department] is also concerned that the planning and training required to prepare for the development and operation of the proposed Facility could impact its ability to maintain its current service levels. VFD also stated that the need to attend training would create challenges in maintaining their regular minimum staffing and paying backfill and overtime for members to attend specialized training.”
- Is the Vancouver city government prepared to take responsibility for putting community members at this level of risk? As Fire preparedness expert John Malool says, “It’s not just the fire department that has a critical role here, it’s the entire city government.” <http://www.kplu.org/post/crude-oil-spill-disaster-classes-offered-communities-see-increased-oil-train-use>
- In some situations, BNSF has said it would simply evacuate the area and allow a fire to burn out. In such a situation, while evacuees may be shielded from direct burn trauma,

people beyond the site would likely be exposed to the smoke. Crude oil fires can produce dense clouds of highly toxic smoke that can result in lung damage.

Oil Spills and Fires on Railway

- A spill or fire on the railway would be handled by BNSF, but do we know they have adequate capacity to respond in a timely manner at various points along the route?
- There are too many unanswered questions for this scenario:
 - According to the DEIS, air monitoring to detect the presence of flammable gases and inhalation hazards would be done only “if adequate manpower and air monitors are available”.
 - It is acknowledged in the DEIS that “information about the number and location of railroad police personnel is not sufficiently detailed/available to determine the extent to which the railroad’s resources could reduce the burden on responding law enforcement agencies.”
 - If fire suppression is required, sufficient foam supplies would be needed. The large amount of foam required to extinguish a major oil fire is unrealistic for most communities.
- Availability of trauma care in rural areas is a concern. The analysis mentions that some portions of the rail corridor are over a 30-minute drive from an acute care hospital, but no further discussion or mitigation is offered.

Toxicity of Oil from Direct Contact

- In Chapter 4 of the DEIS (“Crude Oil Safety Considerations, Potential Release Scenarios, and Impact Analysis”), only two concerns are discussed: 1) acute inhalation of H₂S gas, and 2) toxicity to fish. Toxicity to humans is not discussed beyond this. In the case of a spill or other release, exposure to carcinogens and other toxic chemicals is a serious concern.