



Washington Physicians for Social Responsibility

Imperium and Westway DEIS: Analysis of Impacts on Health

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Major impacts concluded from analysis of [project draft environmental impact statements](#), [Position Statement on Crude Oil Transport and Storage](#) prepared by Washington and Oregon Physicians for Social Responsibility, and supporting documents.

Tsunami Risk to Terminals Unmitigated:

The oil tanks are at risk of being dislodged, spilling their contents, and potentially even catching fire due to a tsunami triggered by an earthquake along the Cascadia subduction zone.

- Despite well-publicized research from OSU professor Chris Goldfinger et al. suggesting that a major earthquake at the Cascadia subduction zone has a 30% chance to occur within the next 50 years – and modeling from WA State Department of Natural Resources indicates that Hoquiam and Aberdeen are in a tsunami inundation zone – the DEIS states, “current design standards do not require consideration of tsunami risks.”
- How would the applicants propose to mitigate the impact of tsunami waves of 20 to 100 feet in the event of an above-described major subduction earthquake?
- Though applicants plan to install tank pilings up to a depth of 150 feet in order to mitigate earthquake risks, bedrock in the area begins at 200 feet.

Vehicle Traffic Delays Unavoidable:

Long delays at rail crossings present major and immitigable consequences for emergency services.

- According to the DEIS, Olympic Gateway Plaza in Aberdeen is likely to be the at-grade crossing most impacted by delays from trains. Complete blockage to and from the complex will occur. Considering that expected delays will typically be 35 minutes per train several times a day, this will dramatically affect an EMS system where outcomes are dependent on response times of less than 10 minutes. These delays could be a matter of life and death in the event of cardiac arrest, heart attack, stroke or major trauma.
- DEIS suggests that three possible interventions to mitigate delays are not feasible.

- These are not only a concern for the Grays Harbor area. This will potentially impact emergency services in communities along the rail corridor.

Projects Will Exacerbate Air Pollution:

- DEIS states, “Increased rail traffic would almost double emissions of criteria pollutants associated with rail transport in county.”
- Onsite operations at oil terminals would release toxic pollutants, including diesel particulate matter (DPM), benzene, formaldehyde and toluene.
- Train engines also release DPM, which is estimated to be highest along the PS&P rail line. “There are no local or state regulations for DPM emissions from mobile sources.”
- According to DEIS documents, risk of DPM inhalation increases at least 10-fold at project sites, putting workers especially at risk.
- DPM and other pollutants associated with these projects increase risk of cancers, including breast and lung cancer; are associated with lower infant birth weight and increase risk of respiratory death; contribute to impaired pulmonary development for infants and children; increase the risk of asthma diagnosis, exacerbation and related hospitalizations; contribute to neurodevelopmental disorders in children; and increase risks of acute and chronic obstructive lung disease, heart attack, stroke, systemic inflammation, and overall risk of disease and mortality.
- The DEIS estimates NO_x to be the air pollutant that will be the greatest concern for both sites, primarily released by rail and vessels traffic. NO_x – a key component of smog – is associated with airway inflammation, respiratory distress, and asthma attacks.

Major Train Accidents a Foregone Conclusion:

Recent history shows that train derailments are quite common. A major derailment event is not a matter of “if” but “when”.

- U.S. DOT analysis predicts that oil and ethanol trains will derail on average 10x per year during the next 20 years. These derailments are sure to be costly, in terms of lives and in dollars. If a single accident happens in a highly populated area, DOT estimates that over 200 people could be killed. The economic impact of such an accident is estimated at \$6 billion.
- Crude oil coming into Grays Harbor is volatile and flammable Bakken oil, making train transport more dangerous than in the case of tar sands and other crude oils.
- In addition to health risks from fires (including burns and smoke inhalation), rescue and cleanup crews face risks of toxic exposures to crude oil.

Oil Spill Risks Understated:

Oil spills during transport and handling of crude oil over land and water are likely.

- Considering human error was to blame for 30% of the 1,193 spills that happened on the West Coast in 2014, the DEIS's claim that a medium pipeline or storage tank spill is predicted to occur once in 1,100 years and a large spill once every 22,000 years greatly underestimates the probability of an accidental spill – whether at the port or during a vessel accident.
- DEIS suggests that medium to large spills during rail transport are moderately to highly likely, and will have a moderate to severe impact. Who would consider this an acceptable risk?
- Health impacts of oil spills over both land and water increase risk of neurotoxicity, cancer, lung disease, loss of cognitive function, and endocrine disruption in humans.

Contamination of Water:

A crude oil spill off Washington's coast puts residents at risk from consuming contaminated seafood.

- An oil spill off the coast could contaminate primary sources of seafood for residents. Toxins, including polycyclic aromatic hydrocarbons (PAHs), accumulate in seafood after an oil spill, presenting increased risk to humans who eat the seafood.

Oil spilled during a train derailment threatens drinking water sources near rail lines.

- The PS&P rail line runs through Chehalis River Valley. If oil spills from train, wells in the area are at risk of groundwater contamination.
- The BNSF rail lines run adjacent to and upstream from Olympia's drinking water source, putting their drinking water at risk from oil train derailments and spills.
- All of the trains would travel through Spokane upon entering the east side of the state. Spokane relies on a sole-source aquifer, putting drinking water for over half of Spokane at risk from an oil spill due to derailment.

Any Risk of Fires and Explosions Presents a Serious Risk to Health:

Air pollution from fires triggered by spills and train derailments is a major public health threat. Considering that oil trains and terminals would be located within population centers, this puts many residents at risk from inhalation of smoke and particulate matter.

- The DEIS quotes a 1995 NOAA study that suggests particulate matter from smoke is only a public health concern within 1,000 yards ($\frac{3}{5}$ mile). Even if that were true, and winds were not a factor during a fire from either a derailed train or at the terminal itself, the trains and terminals will be closer to many residents and buildings than 1,000 yards. Smoke inhalation of the dense, heavy, suffocating type experienced in crude oil fires is a serious public health risk and cannot be completely eliminated as a risk to much of the Grays Harbor population.

- While the risk of fires at the terminals themselves may be low, the impact would be catastrophic.
- Bringing more rail cars carrying Bakken crude oil into the region increases the chances of a derailment, with the chance of associated spills and fires.

Health Effects of Noise and Vibrations:

Noise from trains, especially from the sounding of horns at crossings, presents a particular challenge to health.

- Trains horns are sounded at a range known to disturb sleep and to trigger health and mental health issues. Increased cardiovascular events including myocardial infarction and arrhythmia are associated with nighttime noise and noise greater than 90 decibels (in the range of train horns). Children exposed to noise have exhibited adverse cognitive performance and increased psychiatric illness.
- Trying to mitigate for increased train noise presents a no-win situation. The only mitigation measure suggested in the DEIS is quiet zones. These are very expensive, and essentially substitute one problem for another. A quiet train that does not sound a horn puts people at risk of collisions and serious accidents.
- According to DEIS documents, the level of disturbance is estimated to be of especial concern for Elma-Satsop residents.

Projects Contribute to Longer-Term Injuries from Climate Change:

Climate change is the largest emerging health threat for this century. These projects release greenhouse gas emissions that directly contribute to climate change. They also facilitate further emissions from the end-use of the crude oil, as it releases greenhouse gases upon combustion.

- According to DEIS calculations, these two terminals would collectively result in annual release of approximately 74,000 metric tons of CO₂.
- Climate change in our region is anticipated to result in increased heat-related illness, potency of allergies, health care costs, and extreme weather events. Expanded ranges of disease vectors are expected to result in increased spread of infectious diseases.
- It is anticipated that low income and communities of color will be disproportionately impacted.