

Oil Trains Don't Have to Derail or Explode to Be Hazardous, Doctors Warn

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In May, hundreds of doctors, nurses and health-care professionals from Physicians for Social Responsibility (PSR) called on Washington Gov. Jay Inslee and Oregon Gov. Kate Brown to take a stronger position against proposed oil-by-rail shipping terminals in their respective states, in order to insure the health and physical security of families and communities there.

Washington PSR [describes itself](#) as a group that promotes "peace and health for the human community and the global ecosystem by empowering members, citizens and policy makers to develop and model for the rest of the nation socially just and life-enhancing policies regarding nuclear issues, climate change, environmental toxins, vulnerable populations and other risks to human health."

The group has sounded the alarm over what it sees as a direct health threat to the country stemming from the oil-by-rail system.

"We are dealing with a product [oil] that is harmful to human health at every single step along the process of extracting, transporting, storing and using it," said [Dr. Mark Vossler](#), a cardiologist and chairman of the Department of Medicine at Evergreen Hospital in Kirkland, Washington.

"The known risks associated with oil-by-rail transport pose an unacceptable threat to human health and safety."

Vossler, who is also one of the lead authors of the Washington PSR/Oregon PSR position statement on crude oil transport and storage, and volunteers his time with WPSR's climate change task force, added, "The health risks of water fouled

by fracking, of exploding trains and storage tanks, of oil spills at sea and the dispersants used in the clean up, and of the everyday relentless actual use of the product in terms of a continuing rising carbon dioxide content in our atmosphere should be completely unacceptable."

Fortunately for PSR and the general public, Senate Democrats in Washington State are already [pushing for tougher federal safety rules](#) for oil trains.

Oil companies have proposed dramatic increases in oil-by-rail transport and storage in Washington and Oregon, with the aim of increasing ocean shipments from regional ports there.

PSR [says](#) that although just three years ago there was no oil-by-rail movement in Washington, dramatic increases in oil extraction from the Bakken fields in North Dakota and Montana, as well as from the Canadian tar sands, have generated significant increases in oil-by-rail traffic. In a recently released position paper, PSR [warns](#) of a number of health impacts, including increased rates in cancer, asthma and cardiovascular disease, among dozens of others.

"If current proposals are allowed to proceed, the volume of oil-by-rail coming into Washington would increase from the current 19 trains per week to as many as 137 trains per week, each about 1.5 miles long," PSR's position statement [reads](#). "Each would carry approximately 2.9 million gallons of volatile crude to be stored, in some cases refined, and then exported to other states. This is a larger daily volume than would flow through the proposed Keystone XL pipeline."

PSR has conducted a thorough review of health data published in peer-reviewed medical journals, and its warning is stark.

"The known risks associated with oil-by-rail transport, oil tank storage, and oil export by vessel pose an unacceptable threat to human health and safety," the group [said](#).

There was more oil spilled from trains in 2013 than in the previous 40 years combined.

It is not just the Pacific Northwest that is being impacted. In the last two decades, millions of gallons of oil have been spilled across the United States by train derailments. This stunning [interactive map](#), generated by McClatchy Newspapers' Washington Bureau, illustrates the massive scope of this issue.

And the problem is worsening dramatically. There was more oil spilled from trains in 2013 than in the previous 40 years combined, according to [federal data](#).

Truthout spoke with several key PSR doctors and personnel about this issue, and found that the human health dangers posed by oil-by-rail, even when they don't detonate into train-propelled firebombs that burn people alive and force evacuations of entire towns and cities, are shocking.

"Inherently a Public Health and Safety Issue"

"We're talking about trains of over 100 cars shipped through Northwestern communities - right through them - including highly populated areas," said Laura Skelton, WPSR's executive director. "Plus, the Bakken crude most of them are hauling is more combustible than almost any other crude oil transported by train in the US."

Skelton warned that the prospect of a rapidly expanding fossil fuel industry and its growing infrastructure throughout the Pacific Northwest "is not just an environmental issue ... it is inherently a public health and safety issue. It is also a justice issue, as our states' most vulnerable citizens are likely to be the most impacted."

In Washington State alone, Skelton said that more than 3 million residents live within the US Department of Transportation-defined evacuation zone, if there were to be an oil train derailment and explosion. Vulnerable citizens include pregnant women, babies and young children, the elderly and all those with pre-existing medical conditions.

"In addition, massive storage tank farms of millions of gallons of crude oil are proposed within population centers," she added. "This is a new and totally unacceptable level of risk to humans, and it is not acceptable from a public policy perspective."

Vossler agreed, and took it a step further by pointing out some of the specific health impacts from the trains themselves.

"Any increase in train traffic increases the odds of illness in people living in close proximity to the rail lines."

"While derailments and explosions are serious, life threatening and quite dramatic, the insidious effects of increased train traffic are equally important," he told Truthout. "Locomotives, being powered by diesel fuel, emit a large amount of particulate pollution in their exhaust. Given the known health risks of particulate

inhalation, any increase in train traffic increases the odds of illness in people living in close proximity to the rail lines."

Vossler explained that diesel particulates are tiny particles that can be breathed in and are carried deep into the lungs, creating local injury and causing toxins to be transported into the bloodstream.

Diesel particulate exposure leads to a host of diseases including cancer, particularly of the lung and breast; asthma and obstructive lung disease; heart attack and stroke.

"Seventy-eight percent of the risk of cancer due to airborne causes in the Puget Sound area are due to particulate pollution," Vossler said. "In Washington State alone, more than a half million adults and 120,000 children have asthma. According to the state Department of Health, more than 5,000 people with asthma are hospitalized and nearly 100 die from asthma each year."

He said the US Centers for Disease Control and Prevention has already identified Washington State's asthma prevalence as being among the highest in the country, and that prevalence is steadily increasing along with the increase in oil-by-rail traffic.

"A dramatic increase in oil train traffic would only add to that trend," Vossler said. "In children, diesel pollution is linked to higher rates of neuro-developmental disorders, impaired lung development and increased development of asthma. Exposure as an infant leads to lifelong disease and disability."

Thus, the developmental effects of exposure to diesel particulate are cumulative, and the acute effects have no threshold upper limit where further exposure becomes inconsequential. Any rise in rail traffic will put people's health in further danger, according to Vossler.

Given that the number of people living in proximity to oil-by-rail shipments across North America is currently in the tens of millions and growing, the importance of oil-by-rail as a national health issue is clear.

A Pulmonologist's Nightmare

Don Storey is a pulmonologist who founded the PSR chapter in Spokane, Washington, in 1982. His motivation? He saw the threat of an oil-by-rail train exploding as it passed through that city as being "similar to a small nuclear weapon explosion over Spokane."

Speaking to the proposed increase in oil-by-rail traffic through the region, Storey told Truthout, "To me, as a pulmonologist, this is just an amazing possibility that has almost certain negative impact on the respiratory health of our region. The conditions listed in our paper, from increased respiratory system cancers, to increased asthma, heart disease and cerebrovascular disease, are very real and certain to occur."

Storey believes the particulate exposure generated by the trains is an even greater threat than derailments.

Citing the fact that the increase in trains would mean one per hour traveling through population centers, Storey sees them posing "unacceptable particulate exposure" to people, and that is why he sees the trains as a major health risk.

Even if it were possible to make the trains 100 percent safe from derailment and subsequent explosions, Storey says, it would never be possible to significantly decrease the risk of particulate exposure, given the nearly 700 percent increase in the number of trains traveling through Washington communities in any given period of time.

As a pulmonologist, Storey's predictions regarding the health impacts of an oil train explosion are equally dire. His equation of the detonation of an oil train with that of a small nuclear weapon is no exaggeration.

There are no existing rail cars that could truly be considered safe for shipping crude oil.

"The blast damage may be less, but the potential respiratory injuries may be quite similar, from burning of the upper airways [nose and trachea] to destruction of alveoli, not to mention the very real potential of asphyxiation for those close to the burning from depletion of oxygen in the atmosphere from the intense fires," he said.

In 1982, Storey treated a patient who survived an airplane crash, and had sustained significant skin wounds from the burning airline fuel. "From my perspective, the really significant damage was that to his lungs from inhalation of burning fuel and smoke," he said. "I had never to that time, nor since, seen damage as severe as this patient had to his bronchial epithelium [lining]. This tissue sloughed off in big, black chunks for several days, and I had to bronchoscope him two to three times daily to remove necrotic [dead] material from his lungs so that healing could occur."

With a month of intensive therapy from Storey, along with the full resources of a major intensive care unit, the patient survived. However, the experience clearly demonstrated to the doctor that - given the intensity of the care required - Spokane wouldn't be able to accommodate a large number of patients dealing with these types of injuries (for instance, in the aftermath of a nuclear explosion).

"This was the primary reason I became so convinced that preventative medicine for nuclear war injuries was much more practical and efficient than curative or restorative medicine, and that the potential for nuclear war had to be abolished," Storey said. "I think this same conclusion holds for the potential of an oil train derailment and fire [or] explosion. This potential scenario needs to be eliminated, whatever the cost."

Seeking Environmental Sanity

Skelton believes health-care professionals should research the localized impacts of the fossil fuel industry in every region of the country, and said that efforts along those lines are already in progress in many areas.

"With the release of [the PSR position paper] to the public, we're providing a model that can be built on," she said. "Local public health advocates can use this peer-reviewed science and address common threats, like exposure to cancer-causing diesel pollution, plus threats specific to their communities, like the number of at-grade crossings and related delays in emergency response times."

She also pointed out that, while most media focus and public concerns are related to the detonation of oil trains, the issue of oil terminals, like those proposed for Grays Harbor and Vancouver in Washington State, have garnered far less concern and public scrutiny.

"We have researched horrific accidents at terminals elsewhere, such as an explosion and resulting fire at a petroleum depot in England that took days to squelch, but they have usually occurred in places far from any population centers," she explained. "That is one thing that makes the new terminals in Washington and Oregon so dangerous; many are sited within population areas and extremely close to large numbers of homes and businesses."

"Fossil fuels connect directly to climate change, the biggest health threat facing humanity this century."

Skelton hopes that the PSR report will make an impact on public agencies performing the safety reviews of the proposed plans for more oil trains and oil

storage terminals, as well as on decision makers who will make the call about whether to move forward with these very high-risk projects.

When asked whether the use of oil-by-rail is a necessary evil given our fossil-fuel-based economy, Skelton said that this type of thinking is trumped by an overriding public interest of "safety and environmental sanity."

Skelton said she believed the common good of the people cannot be sacrificed to the business needs of the companies or the overall need for oil.

According to the PSR report, oil trains are already moving through 93 cities and towns (including 38 that are heavily populated) in Washington, and in Oregon, the trains are traveling through 88 communities.

The consequences are already clear, according to Skelton.

"We have seen air pollution from diesel exhaust from train engines," she explained. "That is correlated with negative health outcomes already experienced in our region, from cancer to asthma. For example, the US [Environmental Protection Agency] placed the Puget Sound area in the top 5 percent nationally for potential cancer risk from air toxics."

Skelton warned that if the proposals for more oil train and oil terminal permits in the Northwest are successful, we should expect what she referred to as "direct threats to health and safety." Beyond that, she noted, the increase in permits would mean an increase in carbon pollution, which contributes to climate change and the associated health risks.

In response to the propaganda the oil industry uses to entice communities with jobs and other "benefits," Skelton had this to say: "Rarely is the economic analogy shared of what it would cost to human health, industry and natural ecosystems if an oil spill were to take place on land or in the water, or from a tank farm explosion. The town of Cordova, Alaska, is still experiencing impacts from the Exxon Valdez spill 26 years ago. Almost every month it seems we learn about the ongoing environmental impacts of the BP Gulf spill in 2010. These are not compromises we want to have to make in the Puget Sound."

Solutions

PSR's position on what should be done to address the oil-by-rail proposals is that the railroads should not ship crude oil via rail in cars that are not designed to withstand accidents of the kind that are occurring.

That said, currently, there are no existing rail cars that could truly be considered safe for shipping crude oil, and the railroads have already shown that they cannot safely handle the massive weight loads of the individual cars as well as the aggregate weight of the train without frequent derailments.

"An average national derailment every three to four days suggests we cannot safely allow this industry to haul explosive cargo through population centers," Skelton said. "Responsibility is not necessarily the *raison d'être* for most businesses; profit is. It is unlikely that most companies would become dramatically more responsible for preventing accidents without pressure in the form of rule-making or other top-down requirements."

Skelton said that both oil and transport companies need to begin being as transparent as possible with the public about the existing and projected safety risks to the public and environment of oil train transport, storage and vessel export.

"These big companies could even drive solutions to climate change," she added. "After all, they have the resources to envision, plan for and invest in a future of clean energy."

However, at least for now, the oil industry is going in the opposite direction. In May, the oil industry challenged new federal rules aimed at improving the safety of the oil-by-rail system, and asked a court to [block the rail transport safety rules](#).

In the Pacific Northwest, however, pressure remains on the governors of Oregon and Washington to safeguard their respective state populations from the health and safety threats posed by the oil trains and terminals.

"We have the technology to build a modern, clean energy economy. We just need to gather the will to make it so."

"Both governors are taking steps to increase safety of trains now barreling through our state," Skelton said. "That's good, but we need more. They must also focus on prevention of this onslaught of additional oil trains that will come if new terminals are approved."

Mark Vossler, the cardiologist and co-author of the PSR statement, pointed out how the general public remains largely unaware of the risks of using fossil fuels.

"The medical community has known about the respiratory and cardiovascular risks of air pollution for a long time but there has been little public outrage and little change in behavior," he said. "The crucial difference is that they are

transporting a substance that can explode and kill, can be spilled and foul the water, and no matter what measures are taken to make the tankers thicker and the rails more reliable will never, ever be completely safe."

Skelton issued a broader perspective warning. "Fossil fuels, and the carbon pollution they contribute to, connect directly to climate change, the biggest health threat facing humanity this century," she said.

Vossler also connected the oil trains to the larger issue of climate disruption. He pointed out the medical risks that come with that disruption: weather disasters, famine, drought, rampant disease and wars related to shrinking resources. Vossler emphasized the responsibility of the medical community to, as H.L. Mencken put it, "save man from the consequences of his vices." However, he said, nothing the medical community can do, in an isolated way, is a replacement for moving beyond fossil fuels.

"We do have alternatives to our outdated dirty, harmful, unhealthy fossil fuel economy," Vossler said. "We have the technology to build a modern, clean energy economy. We just need to gather the will to make it so."