

What Coal-Train Dust Means For Human Health

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Contributed by Ashley Ahearn



The Westshore Terminal near Vancouver, B.C. handles about 30 million tons of coal per year, loading it onto ships for export. Westshore spent \$7 million upgrading pumps, rain guns and misting devices around the site used to dampen and control coal dust. | credit: Katie Campbell | [rollover image for more](#)

TSAWWASSEN, B.C. — With five coal export terminals under consideration in Washington and Oregon, Northwest residents are grappling for the first time with issues that are old hat in coal states like West Virginia and Kentucky.

One of those issues: coal dust. How much of it will escape along the journey from mines in Wyoming and Montana to proposed export terminals on the West Coast? And what might that dust mean for public health?

Where better to look for insight than the largest existing coal export terminal on the West Coast? At the Westshore terminal near Vancouver, British Columbia there are, at any given moment, about 1.5 million tons of coal stored in piles 8 1/2 stories high.

“The big job is to keep it here,” says Ray Dykes, a spokesman for Westshore on a recent tour. “That’s why all these sprays and new equipment is coming on.”

Westshore has just spent \$7 million upgrading the series of pumps, rain guns and misting devices around the site used to dampen and control dust from the coal piles. Water costs them about \$1.5 million each year. Westshore buys the water from the public water system.

This terminal has been in operation for 40 years. In the local bar, people talk about black dust collecting on their Venetian blinds. House painting companies [advertise](#) special cleaning treatments to remove coal dust before new paint is applied. There have been complaints about dust in neighboring communities like Point Roberts, just across the border in Whatcom County. But Westshore Terminal has had bigger problems lately. In December, a coal tanker went off course and [crashed](#) into the conveyor belt whirring along behind where Dykes is standing. About 30 tons of coal ended up in the water.



The causeway at Westshore Terminal after the December collision. Credit: Ray Dykes/Westshore

“This has been a fun day for the environmentalists,” Dykes says, “but 8,300 other ships went by without an incident and they jumped all over this one...accidents happen. Do we not fly because one plane crashes?”

Thousands of pounds of coal spilling into the water is not a good thing for the environment, but it is a relatively rare occurrence.

Here’s a more likely scenario for the Northwest:

Dust escaping from coal trains moving through the region every day. Trains en route from Wyoming and Montana mines, through Spokane then down along the Columbia River to terminals along the coast.

There’s some debate over how much dust comes off those trains along the way.

“The coal dust issue itself has been blown out of proportion in my estimation,” says Mike Elliott, a member of the Brotherhood of Locomotive Engineers and Trainmen who has been

working on the rails for almost 20 years. “It wasn’t an issue that was happening away from the mine sites within about a 30 mile radius.”

But Elliott’s own employer, BNSF Railway, has made statements to the contrary.

BNSF would be the main rail company involved in moving coal through Washington and Oregon if new terminals are built in this region.

In 2009 a representative from the company [testified](#) before a federal review board. He was asked how much dust escapes from each coal train car during a 400 mile trip. His answer? 645 pounds per car.

Since the 2009 testimony coal companies have been required to apply what’s called surfactant or topper agent to the trains before they leave the mines. These compounds are mainly made up of magnesium chloride, which is commonly used to suppress dust on logging roads.



Dust comes off of a coal train in Campbell County, Wyo. Credit: Michael Werner

BNSF Railway declined EarthFix’s repeated requests for an interview about coal dust. But Courtney Wallace, a spokesperson for the company, emailed a statement.

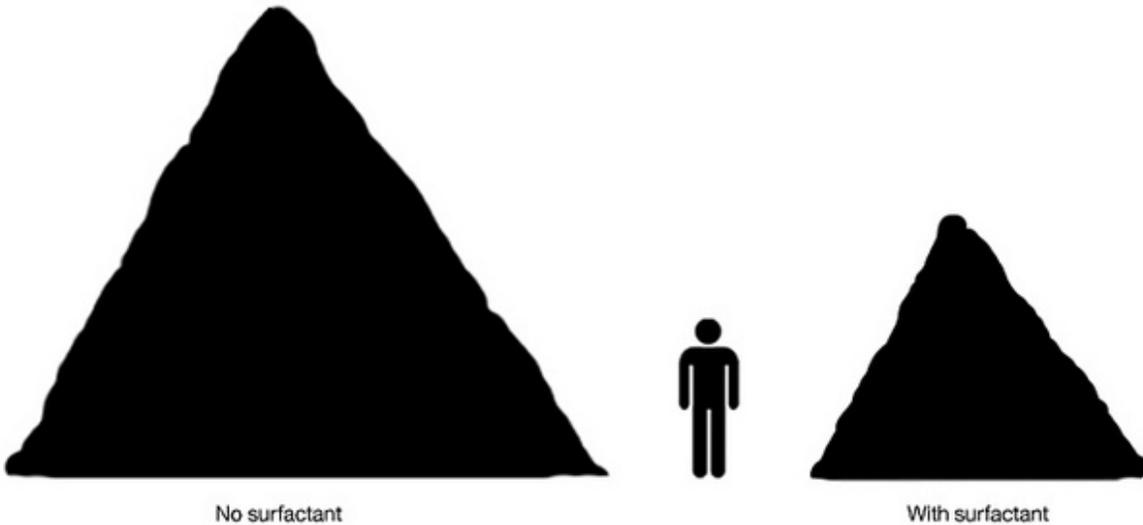
It said “BNSF has a vested interest to ensure shippers are in compliance with our coal-loading rule, as coal dust poses a serious threat to the stability of our tracks.”

[BNSF research](#) has shown that the surfactants reduce the coal dust by about 85%.

That should bring the 645-pound figure down to about 100 pounds of coal dust escaping per car.

There are usually about 125 cars per coal train.

Sizing Up Coal Dust



BNSF Railway estimates 645 pounds of coal dust can escape from each car in a loaded coal train over a 400-mile journey. The company says chemical surfactants sprayed on top of coal cars can reduce dust escape by 85 percent.

This graphic, drawn to scale, shows how much coal could escape from a 125-car coal train with and without surfactant applied.

NOTE: The human figure represents a 5-foot-10 tall adult; the coal dust piles represent 80,625 pounds of coal (left) and 12,094 pounds of coal dust (right).

Credit: Courtney Flatt

“So no matter what (BNSF) and the coal companies have done, we can say for sure the coal dust is not zero,” says Dan Jaffe, a professor of environmental and atmospheric science at the University of Washington.

Last year Jaffe and a student measured the size and distribution of particles of pollution in the air as coal trains passed through the Seattle area. Right now a few trains per day come through en route to existing coal export terminals in British Columbia.

Jaffe’s research hasn’t been published yet and he stresses that more sampling needs to be done. But his preliminary results show that the air pollution signature from a passing coal train is different from other trains.

“Trains that were carrying coal exhibited some larger particles suggesting that there was some loss of coal dust as they were traveling by,” Jaffe said in an interview.

Coal has been transported via train for decades, yet little research has been done on the potential health effects for people who live near coal train routes.

Much more is known about the health effects of exposure to [diesel exhaust](#) from the train locomotives. These very small particles of air pollution get deep into the lungs and have been connected to asthma, cardiovascular problems.

Coal dust has been shown to coat the lungs of coal miners, contributing to problems like chronic bronchitis, decreased lung function, cancer and death.

“Presumably miners have higher exposures than would be alongside the tracks but we don’t know that,” says Juliet Van Eenwyk, an epidemiologist with the Washington State Department of Health.



Coal dust swirls while crews clean up after 30 train cars of coal overturned in eastern Washington in 2012. Click image for video of clean-up. Credit: Courtney Flatt

Both Van Eenwyk and Jaffe say trackside monitoring needs to be done to better understand the risk of coal dust exposure.

What we do know, Van Eenwyk says, is that children’s lungs are more vulnerable. If they’re exposed to air pollution they can suffer from decreased lung function for the rest of their lives.

“There could be ramifications for children at lower levels of breathing the coal dust,” she says.

There are a lot of factors that could influence how much coal might escape from trains along their journey to the Northwest coast. Wind, rain and hot dry weather could all play a role in how the coal dust behaves.

Public health officials in [Washington](#) and [Oregon](#) say there's enough risk to merit more specific sampling and research about coal dust before any decisions are made about the proposed coal export terminals in the Northwest.

Video by Katie Campbell. Coal dust graphic by Courtney Flatt. Bonnie Stewart contributed to this report.