Study shows oilsands tailings ponds releasing toxic chemicals into air

Environment Canada study used data from air sampling and filtering devices in oilsands region

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New federal government research has confirmed that oilsands tailings ponds are releasing toxic and potentially cancer-causing chemicals into the air.

And Environment Canada scientist Elisabeth Galarneau said her study – the first using actual, in-the-field measurements – agrees with earlier research that suggests the amount of polycyclic aromatic hydrocarbons emitted by the industry has been dramatically underestimated.

"We found that there actually does appear to be a net flow of these compounds going from water to air," she said. "It's just a bit under five times higher from the ponds than what's been reported."

Galarneau's findings echo those from an earlier study this summer. That paper, however, depended on mathematical modelling.

The Environment Canada study, recently published in the journal Atmospheric Environment, used actual data collected from air sampling and filtering devices placed in the oilsands region under the joint federal-provincial monitoring program.

Chemicals known to cause cancer

Using standard and well-established testing methods, Galarneau's preliminary results suggest 1,069 kilograms a year of PAH compounds are being released from the 176 square kilometres of tailings ponds across the region.

Official reports to Canada's National Pollutant Release Industry say that only 231 kilograms of those chemicals are released annually.

Polycyclic aromatic hydrocarbons are commonly found in fossil fuels and can be released by incomplete burning of any material that contains carbon. Although their toxicity varies widely, 32 of them are considered priority pollutants by the U.S. Environmental Protection Agency.

They are known to cause cancer. High prenatal exposure to these compounds is linked to lower IQ and childhood asthma.

More research needed

However, Galarneau said her study can't answer questions on the possible consequences of the toxic emissions because she didn't study what happens to them after they enter the atmosphere.

"We have to consider the ambient measurements and the deposition. The computer modelling simulations that's needed to put all the pieces together hasn't been done yet."

Health concerns have been major issues for aboriginal groups living in and around the oilsands area. Some have long complained of what they claim are elevated rates of cancer in their communities, although epidemiological studies have failed to back those claims up.

While Galarneau is confident that her main conclusions are correct, she said more work needs to be done with air sampling from other parts of the oilsands region. As well, more sophisticated testing methods have to be brought in, Galarneau said.

"We would certainly like more information from more facilities' ponds," she said, adding that such work is already underway.

An Environment Canada spokeswoman said in an email sent before Galarneau was interviewed that the research is part of the government's commitment to pay close attention to the industry's impacts.

"The governments of Canada and Alberta remain committed to ensuring that data from the monitoring activities and the scientific methods used are transparent, supported by necessary quality assurance and made publicly available to allow independent scientific assessments and evaluations," she said.