

Canada's oil sands residents complain of health effects

People living near a site of heavy oil production in Canada's tar sands region have been reporting ill health effects, which they believe are linked to the industry. Jocelyn Edwards reports.

For the **Stanford University study** see http://insideclimatenews.org/sites/default/files/assets/2012-05/Brandt_EU_oilsands_Final.pdf

For more on the **AER hearing** see <http://www.aer.ca/applications-and-notice/heardings/proceeding-1769924>

For the **March 31 panel report** see <http://www.aer.ca/documents/decisions/2014/2014-ABAER-005.pdf>

For the **Forest Ethics report** see <http://foresethics.org/sites/foresethics.huang.radicaldesigns.org/files/ForestEthics-Refineries-Report-Sept2012.pdf>

When the Labrecque family moved away from the 9 km² homestead they lived on in northern Alberta in 2011, they left more than just a thriving business and an 80 year family history in the area. They abandoned most of their belongings too. The family left behind two-thirds of their children's toys, their clothes, and even Karla Labrecque's wedding dress.

It was necessary, they say. The fumes from nearby heavy oil production that they believe caused them dizziness, headaches, muscle spasms, and even vomiting still clung to their possessions. Just coming into contact with their old belongings made them ill again.

Alberta's oil sands have long been controversial for their environmental effect; environmentalists around the world point out that the tar sands release more greenhouse gases than conventional oil production. But now residents in the Peace River area of northern Alberta say that emissions from oil production in the tar sands have been causing them severe health effects as well. The Labrecques are just one of several families that have moved away from the area because

of symptoms they blame on oil operations.

Mysterious symptoms

Raising opposition to the industry was the last thing the Labrecques thought of doing when oil was first discovered near their home. In fact, they welcomed their new corporate neighbours into the area, believing they would bring jobs for friends and family members.

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It was bitumen the oil companies were after near the Labrecque farm, a highly viscous form of petroleum mixed with sand and clay. Although it is also found in Russia and Kazakhstan, the biggest deposits of the sticky tar-like substance are in Canada, in northern Alberta, where, according to the provincial government, 1.73 trillion barrels have been discovered.

Particularly energy intensive to process, tar sands oil was found in one Stanford University study to release up to 20% more greenhouse gases than the production of conventional petroleum. Activists in the USA are protesting against the proposed Keystone XL pipeline, which would transport tar sands oil from Alberta to the Gulf Coast of Texas, partly on the grounds that its development would have a detrimental effect on the world's climate.

But the Labrecques say they did not consider themselves "tree huggers" or anti-oil when Baytex Energy, a mid-sized Canadian oil company, first

began pumping the sticky bitumen from the ground near their house. It wasn't until 2010 when the family began to experience a mysterious collection of symptoms that they believe were caused by the fumes from the company's operations that they began to question the extraction of oil near their property. That was when Alain Labrecque started getting headaches he couldn't get rid of; Karla found she would faint when she turned her head to the left; and they observed that their toddler daughter often lost her balance and fell down. Meanwhile, a pungent odour, like an oil leak on an old car, permeated the house. It was the fumes from bitumen being heated in open tanks near their house. "Every evening that house got contaminated. The fumes built up in the night. They built up and built up until the point where you couldn't even air the house out to get a break", said Alain Labrecque.

Baytex extracts bitumen in a procedure known as Cold Heavy Oil Production with Sand (CHOPS) in which bitumen and sand are brought to the ground and heated in tanks in order to separate the two. In the process, emissions are released which the Labrecques and others believe are responsible for their symptoms.

The Labrecques complained to Baytex about the problem but say they got little response. And after suffering with the symptoms for more than a year, Alain and Karla took their son and daughter and left the farm. "We kind of lost hope; we could see that there was no change coming, no light at the end of the tunnel", said Alain Labrecque.

"Perfect storm" of toxicity

Meanwhile, other residents came down with similar symptoms. Mike Labrecque, Alain's 60-year-old



An oil tar sands plant in Fort McMurray, Alberta, Canada

uncle, experienced sinus infections, constant headaches, and throat congestion before he was forced to leave his home. He lost 40 lb, and his family believed he had a terminal illness before he was forced to move from his farm into town. Soon after he did, his symptoms disappeared.

Eventually the Alberta Energy Regulator (AER), the body that oversees the oil industry in Alberta, called a hearing into the human health effects of heavy oil operations in the area.

Experts at the hearing, held in late January, differed on their opinion of the possible effects of emissions from the company's operations. Donald Davies, an independent expert hired by AER, said the chemicals in the air were below the levels necessary to have an effect on health. He testified that the symptoms experienced by residents might be a result of their response to odours from Baytex's operations. "It starts with nuisance, it proceeds to annoyance, and then you get to this third stage where you actually have people complaining about symptoms which they allege are due to the emissions or the exposure to the odorous compounds", Davies said.

But another researcher in toxicology and human health, Margaret Sears, called into question Davies' conclusions and called the method used to determine whether or not chemicals were present in harmful amounts "outdated". The method used didn't take into consideration the effect of chronic exposure to emissions either, she said at the hearing.

In a later interview with *The Lancet*, Sears explained that bitumen contains compounds that can be acutely toxic to human health. "The geological formation that contains bitumen is the highest formation in Alberta in aromatic hydrocarbons and highest in reduced sulphur compounds", she said.

"Both are neurotoxins, some of them are carcinogenic and some of them are believed to have endocrine

toxicities and neurodevelopment toxicities", said Sears. "We have kind of got this perfect storm of toxicity."

Sears points out that the bitumen formation also contains heavy metals including mercury, lead, and cadmium.

Following the hearing, Baytex maintained that the health effects experienced by residents in the area have nothing to do with its operations. "Baytex participated in the [AER] Peace River Proceeding that examined odours and emissions in the area, and provided extensive testimony and expert reports that showed the air in the Reno area is safe", said Andrew Loosley, Baytex's director of stakeholder relations.

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However, in its conclusions the panel overseeing the hearings eventually allowed the possibility of a link between emissions and human health effects, recommending that odours and emissions from bitumen processing be captured with vapour recovery units. "Odours caused by heavy oil operations in the Peace River area need to be eliminated to the extent possible as they have the potential to cause some of the health symptoms of area residents", said the panel in a report released on March 31. "Operational changes must be implemented in the area to eliminate venting, reduce flaring and, ultimately, conserve all produced gas where feasible."

On April 14, the president and chief executive officer of the regulator accepted all the recommendations of the panel and gave companies 4 months to capture gas produced in their operations. Since the conclusion of the AER's hearings, Baytex has said it will comply with the regulator's instructions.

No return

It may all be too little, too late for some residents of the area. Despite the new requirement for Baytex to capture emissions released in its productions, Mike Labrecque's son Brian doesn't think it will be possible for his father to return home unless the company institutes a completely closed loop system to conserve all the gas produced. "We're very sceptical because he is so sensitive. Every time he goes [back to the farm] his condition gets worse. For him to recover it just takes longer and longer every time", said Brian Labrecque, explaining that even the presence of a leather jacket from his father's old farm brought back his symptoms.

"Even if all the recommendations [of the regulator] were implemented, I don't believe he would be able to return because there will still be flaring and fugitive emissions from these facilities. He is so sensitive that I don't believe it is possible for him to return and not be impacted."

And though the instructions of the AER to companies may address the symptoms of residents in the Peace River area, the health effects of bitumen extracted from Canada's oil sands might extend far beyond Alberta's borders.

In 2012, the environmental non-profit group Forest Ethics warned in a report that the communities surrounding US refineries processing Alberta bitumen into fuel were at risk for ill health effects from emissions released. The environmental watchdog reported that refineries processing bitumen in the USA produced substantially more sulphur dioxide than refineries not processing bitumen blend. It also noted that people living in areas surrounding the refineries had experienced difficulties breathing and nausea, symptoms in some ways mirroring those of the residents in the Peace River region.

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