

# *-- WATER IN THE BLAST ZONE --*

## **HIGH HAZARD FREIGHT TRAINS THREATEN U.S. WATER RESOURCES**

**High Hazard Flammable Train (HHFT) cargo like ethanol and crude oil from North Dakota's Bakken shale formation and the Alberta tar sands threatens our water - and our communities - more and more, as more and more crude oil and ethanol is railroaded across the country along 150-year-old rail routes that were never intended to serve as pipelines-on-rails.**

Rail routes often follow along rivers and streams, through critical wetlands and across river bridges. On their way to refineries and ports on the East and West coasts and the Gulf of Mexico, oil trains now go through over 400 counties and dozens of major cities like Philadelphia, Seattle, Chicago, Minneapolis/St. Paul and Newark.

According to McClatchy News, "Until just a few years ago, [U.S.] railroads weren't carrying crude in 80- to 100-car trains. ... In 2010, railroads reported spilling about 5,000 gallons of crude oil...They spilled fewer than 4,000 gallons each year in 2011 and 2012." **In 2013, over 1.15 million gallons of crude oil was spilled in the U.S.—more than the previous 40 years combined—and that does not include the 2 million gallons of Bakken crude spilled and exploded in the derailment in Lac-Megantic, Quebec, on July 6, 2013, killing 47 people.**

North Dakota, now the second oil-producing state in the U.S., ships over 2/3 of its crude oil is by rail. **Each day an average of 8 to 9 mile-long oil trains from the Bakken passes through the Twin Cities, and the oil industry wants to double that in the next 15 years.** Trains carrying Alberta tar sands crude also pass through Minnesota.

**A 2014 MnDOT study identified "more than 700 miles of train routes that carry Bakken crude oil across Minnesota ... These routes have 683 at-grade crossings ... Each grade crossing has the potential risk of a train and vehicle collision, or a train derailment. If a train filled with Bakken oil has an incident such as a derailment, there is a high probability that the oil, a highly volatile, hazardous material, would be released in significant volumes." Over 350,000 Minnesotans live in the ½-mile derailment evacuation zone along rail routes that carry Bakken crude oil, and many thousands more live in the 1-mile evacuation zone in the case of fire (known as the "blast zone.")**

**Both ethanol and crude oil are highly flammable and contain known human carcinogens.** Bakken crude also contains fracking fluid, which turns mammals sterile and kills all aquatic life that ingests it. **A train that completely derailed in the Twin Cities could dump 3 million gallons of oil into the Mississippi or Minnesota Rivers or other streams, lakes and wetlands.** The 11-million-gallon Exxon-Valdez oil spill poisoned the Prince William Sound for 25 years.

**Rail shipments of ethanol** have increased rapidly since 2005 due to its federally mandated use as a gasoline additive. Ethanol spills that enter water resources mix with the water and cannot be contained or retracted, and in high

concentrations can deplete oxygen and kill fish and plants. A derailment in **Cherry Valley, IL** in June 2009 caused an explosion and fire, and spilled 75,000 gallons of ethanol and gasoline into a creek, causing a large fish kill downstream.

In **Lac-Megantic**, several blocks--about half the downtown area of this town of 6,000 people--was destroyed by the derailment's huge explosion and fire. Nearly all the remaining down buildings were demolished due to contamination, and 60,000 cubic meters of soil had to be decontaminated before rebuilding could begin. Now the serious long-term environmental damage to the **Chaudiere River** (a tributary of the St. Lawrence) from crude oil that spilled into the river and fallout from the firestorm is becoming evident. A week after the derailment, a Quebec environmental group called Le Societe pour Vaincre la Pollution (SVP) tested the water and found a rate of carcinogenic polycyclic aromatic hydrocarbons (**PAHs**) of **nearly 400,000 times the acceptable amount.** Arsenic, another carcinogen and toxin, was found in amounts 28 times the acceptable limit.

Canadian government scientists recently released results of their own 2014 study. It found that **an unprecedented 47% of fish have external deformities, fin damage and lesions.** A 5% rate is considered evidence of toxic habitat contamination. Almost all species were affected. **There were 66% fewer fish.** Total weight of the fish stock (fish biomass) is down by 52%. The study concluded that the July 6, 2013 oil train derailment is the only possible cause.

**An estimated 100,000 liters of oil still lies in contaminated sediment at the bottom of the Chaudiere River...** where it is stirred up again each year with the spring thaw and floods, necessitating repeat riverbank clean-ups and shut-downs of downstream water systems.

If there is any good news, it is that in February 2016 the company proposing the largest oil-by-rail expansion in Canada withdrew its application, after Greenpeace, Ecojustice and Safe Rail Communities intervened as part of the environmental assessment process.

On the U.S. side, though, in **2015 the Department of Transportation predicted that trains hauling crude oil or ethanol will derail an average of 10 times per year** over the next 2 decades; and that just one severe incident occurring in a highly populated area could kill more than 200 people and cause \$6 billion in damage. And **derailments are still causing oil spills and fires**, despite pre-treatment of the oil and the use of the new CPC-1232 tanker cars. As *Railway Age* noted (March 9, 2015), "The lading is exploding, not the cars."

**Pipelines are not the answer, either:** The Enbridge Pipeline break and spill discovered in July 2010 near **Marshall, MI**, released **800,000 gallons** of Alberta tar sands crude, damaging Talmadge Creek, 35 miles of the Kalamazoo River and Morrow Lake. During the cleanup's dredging phase, 200 trucks a day carried contaminated sediment to a landfill. *Pipeline spills can be larger than rail spills and can go undetected while wreaking huge infrastructure damage.*

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## *Examples of Horrendous Hits and Near Misses since Lac-Megantic*

### **November 8, 2013 - Aliceville, Alabama** - (rural/wetlands/Tombigbee River)

Train carrying 2.9 million gallons of Bakken crude oil derailed and exploded. 749,000 gallons of oil spilled from 26 tanker cars into fragile wetlands. Traces of oil were detected downstream in a tributary that flows into a creek and the Tombigbee River.

### **January 20, 2014 - Philadelphia, Pennsylvania** - (urban/Schuylkill River) (near miss)

100-car CSX train from Chicago derailed on bridge over Schuylkill River. 7 cars dangled above river and a freeway. No spill detected.

### **April 30, 2014 - Lynchburg, Virginia** - (urban/James River) (CPC-1232 tankers)

15 cars of a CSX Bakken crude oil train derailed in Lynchburg, near a trackside eatery and pedestrian waterfront. A fire erupted. 3 cars plunged into the James River, and 30,000 gallons of oil spilled into the Lynchburg River.

### **February 4, 2015 - Dubuque, Iowa** - (rural/Mississippi River) (ethanol)

CP Rail train derailed 10 mi. north of Dubuque. 11 ethanol tankers left track and 3 caught fire. 55,000 gallons of ethanol spilled into the Mississippi River.

### **February 16, 2015 - Mount Carbon, WV** - (Appalachian Mountains/Kanawha River) (CPC-1232 tankers)

Derailed of CSX train carrying Bakken crude oil to Yorktown, Virginia shipping depot. 26 cars left the tracks, causing a fire, and 18 cars leaked oil; one car fell almost into the Kanawha River. A sheen of oil that reached the river burned, as did the river bank. Oil was found trapped on the ice covering Armstrong Creek, the tributary to the Kanawha River at the derailment site. 2 downstream water treatment plants were closed.

### **March 7, 2015 - Gogoma, Northern Ontario** - (rural boreal forest/Mattagami River) (CPC-1232 tankers)

Alberta tar sands crude oil train derailed; 10 cars jumped the tracks. Some cars caught fire. 5 cars fell and spilled into the Mattagami River, whose waters finally flow into Lake Huron.

### **March 4, 2015 - Galena, Illinois** - (rural/near Mississippi River) (CPC-1232 tankers) (near miss)

BNSF Bakken crude oil train derailed 3 mi. south of Galena, near the confluence of the Galena and Mississippi Rivers. 2 tankers split open and burst into flame. The 21 derailed cars contained 630,000 gallons of Bakken crude. The BNSF main-line runs south from Galena, parallel to the Mississippi River.

### **May 6, 2015 - Heimdal, North Dakota** (Great Plains/wetlands/James River tributary)

107-car BNSF Bakken oil train derailed 1.5 mi. outside town. Although oil had been pretreated to reduce volatility, 10 cars burst into flames. 34,000 gallons burned, and another 60,000 gallons spilled, some of which was removed from sloughs (wetlands) near track.

### **November 7, 2015 - Alma, Wisconsin** - (town/Mississippi River) (ethanol)

BNSF derailment in the Mississippi River town of North Alma (90 mi. southeast of Minneapolis). 32 tankers left the track as the train traveled southbound along the river. More than 20,000 gallons of ethanol spilled from 5 tankers onto the banks of the Mississippi and into the water. *This was the 9<sup>th</sup> North American derailment in 2015 involving oil or ethanol.*

## **== MOST RECENT CRUDE-BY-RAIL DISASTER: IN THE SCENIC COLUMBIA RIVER GORGE ==**

### **June 3, 2016 - Mosier, Oregon** - (Rocky Mountains town/Columbia River) (CPC-1232 tankers)

*Since 2015 Union Pacific has sent one mile-long train of Bakken oil each week on a route along the Columbia through the town Mosier (70 mi. east of Portland) to a refinery in Tacoma, WA, from where it will be exported.*

- **On June 3, 2016, a 16-car derailment of a 96-car Union Pacific oil train spilled 42,000 gallons of Bakken crude** into Mosier and the Columbia River and sparked a **massive fire**. Cleanup crews initially removed 10,000 gallons of crude oil from the town's sewage system, just 20' from the site of the derailment; later, more oil was found to have escaped into the river from the sewage system due to a pipe damaged in the derailment.
- **The town's water aquifers were completely exhausted** as fire crews attempted to cool the burning oil cars before foam could be used. A dry summer is predicted; rain is not expected to start substantially replenishing the aquifers before fall or winter. The derailment and fire necessitated mandatory evacuation of the town and **shutdown of its sewage and water treatment systems**. Returning residents were instructed to boil water for drinking and cooking, and not to use bathrooms or let water or anything else go into drains. Water is being trucked into town, and a continuing sewer emergency severely restricts use of sewers.
- *As soon as it had repaired the faulty track - and even before removing the derailed oil tankers that lay just a few feet from the track -- Union Pacific resumed sending oil trains through Mosier, despite local protests.*