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Epilogue: Cleanup, Consequences and Lives Changed in the Dilbit Disaster

How big was the spill? Was it tar sands oil? Who will pay? How did animals and ecosystems fare? What happened to the people most affected?

By Elizabeth McGowan and Lisa Song, InsideClimate News Jun 29, 2012

Credit: Elizabeth McGowan, InsideClimate News

What fines could Enbridge face for its oil spill in Marshall, Mich.?

The size of any fines will depend, in part, on how much oil was spilled when Pipeline 6B ruptured.

The EPA's latest estimate, released on June 7, is that 1,148,229 gallons (or 27,339 barrels) have been recovered since the cleanup began on July 26, 2010.

Enbridge maintains that it spilled only 843,444 gallons (20,082 barrels), an estimate the company hasn't changed since November 2010.

The discrepancy between these numbers [2] matters, because penalties levied under the Clean Water Act are figured on a per-barrel basis.

Enbridge's civil penalties could reach $4,300 per barrel of oil spilled if the government can prove gross negligence under the Clean Water Act. If gross negligence can't be proved, civil penalties could still be as high as $1,100 per barrel. Criminal penalties under the Clean Water Act could be up to twice the losses associated with the spill.

Defining those losses is a gray area because no case law exists, said David Uhlmann [3], a professor at the University of Michigan Law School and former chief of the U.S. Department of Justice's environmental crimes section. Losses incurred by victims of the spill and the cost of the cleanup are likely to be counted, but lost revenue to Enbridge would not.

Generally, the government chooses either criminal or civil penalties except in the most egregious cases, such as the Gulf spill, Uhlmann said.

Fines also could be levied against Enbridge under the Pipeline Safety Act. If federal authorities find that the company violated any of the standards set by that legislation, it could face civil penalties of $200,000 per violation per day. At a minimum, the penalties would likely include the days 6B was leaking.

Criminal penalties under the Pipeline Safety Act are similar to those under the Clean Water Act: up to twice the losses associated with the spill. Federal authorities would have to prove knowing and willful violations to levy a criminal fine under the Pipeline Safety Act but only would need to show simple negligence under the Clean Water Act.

The results of the National Transportation Safety Board's investigation of the spill will likely factor significantly into the levying of penalties. That report will be released on July 10, according to the NTSB.

Just as the government isn't required to accept Enbridge's estimate of the number of barrels spilled, neither is Enbridge required to agree to the government's estimate. If the federal government and Enbridge go to court, the number of barrels spilled would be determined at trial.

Uhlmann predicts a settlement, not a trial, is the most likely outcome with this case. If so, the number of barrels spilled and the fine levied per barrel are negotiable. Uhlmann expects the government would insist on its estimate in exchange for a slightly lower fine per barrel.

Enbridge's price tag for the spill is already $765 million, with $650 million covered by the company's insurance. That insurance doesn't cover fines or penalties.

What happened to the oil and debris that was hauled away from the spill site?

Enbridge said it was able to recycle 766,288 gallons (18,245 barrels) of the oil it vacuumed up shortly after the spill. It returned the oil to 6B, which reopened two months after the spill.

Contaminated soil and debris that was collected was disposed of off-site. According to the EPA, so far crews have disposed of 17,109,012 million gallons of oiled water and 187,041 cubic yards of oil-contaminated soil, downed logs and other debris.

The 766,288 gallons of oil that Enbridge recycled—plus the amount of oil the EPA estimates was trapped in the oily water and debris—is how the agency calculated its latest figure of 1.14 recovered gallons.

Was the Oil in 6B Tar Sands Oil?

About 75 percent of the oil that spilled from 6B was a type of dilbit called Cold Lake blend. In an email to InsideClimate News, Enbridge spokesman Jason Manshum made

the same argument that CEO Patrick Daniel made shortly after the spill when he spoke with Natural Resources Defense Council reporter Kari Lyderson: That the oil in 6B shouldn't be classified as oil sands crude, which is also known as tar sands crude.

"Oil sands and heavy crude such as Cold Lake are typically blended at the production site with diluent to assist in the transport of the crude," Manshum said. "Cold Lake heavy crude is not located in the oil sands region around Fort McMurray, Alberta and retrieving this crude is done by way of drilling not by open pit mining. It is part of overall formation, but since it's not from the same area, it [is] not typically associated with oil sands crude."

Both the industry and the spill investigation documents say otherwise. The Cold Lake and Fort McMurray regions of Alberta contain separate oil sands deposits that are part of the same general formation. These oil sands are mined for the bitumen, which is classified as either "extra heavy" or "heavy" crude oil under the American Petroleum Institute gravity scale. Once the bitumen is diluted with liquid chemicals, the resulting dilbit is considered heavy crude oil.

Imperial Oil, one of the largest petroleum producers in Canada, places Cold Lake crude under the “oil sands” section of its Web site. The company's website states [4] that "Cold Lake bitumen is located more than 400 metres below the surface out of the ground and we extract it by injecting steam into the oil sands to thin the heavy bitumen and enable it to flow to the surface through wellbores. Cold Lake produced more than 160,000 barrels of bitumen a day in 2011."

The steam injection method described by Imperial Oil is a drilling technique [5] used to extract bitumen from oil sands deposits. The other commonly used technique is open pit mining.

Crudemonitor.ca, an industry website on crude oil chemistry supported by the Canadian Association of Petroleum Producers, lists the Cold Lake blend [6] under the "Heavy sour-Dilbit" category. The website says that [7] "Cold Lake production is bitumen based and requires the use of steam to release the bitumen from the underground reservoirs, and the use of diluents to meet pipeline viscosity and density specifications."

Documents from the National Transportation Safety Board's investigation of the 6B spill also refer to bitumen and dilbit. A report [8] prepared for Enbridge by AECOM, a technical consulting firm, describes the Cold Lake blend as "a heavy crude of bitumen and blended with diluents."

In August 2010, less than two weeks after the spill, scientists at the National Oceanic and Atmospheric Administration wrote that [9] the Cold Lake oil "is a blend of bitumen (API 11) and condensate (API 69). The blend has an API of about 21 and is made up of 70% bitumen and 30% condensate [diluents]."

Is Enbridge expanding other pipelines besides 6B?

In mid-April, Enbridge filed paperwork with the Michigan Public Service Commission, seeking its approval to replace 6B, which is part of the company's Lakehead system. The commission's decision is expected early next year, and the company hopes to complete the project by autumn 2013.

Part of the new 6B will be 30 inches in diameter, just as the old pipeline is, but the bulk of it will be 36 inches wide. The new line will be capable of pumping up to 21 million gallons of oil per day—almost double 6B's pre-spill daily capacity of 11.3 million gallons. The price tag to replace 6B in Michigan and Indiana is nearly $1.9 billion.

Enbridge has also proposed other pipeline projects [10], including new lines to transport Canadian oil to U.S. refineries. Some will carry tar sands oil and others will carry light crude from the Bakken oil fields in North Dakota, Montana and southern Saskatchewan.

Eastern Canadian Refinery Access Initiative. Announced in mid-May, this project [11] would reverse the flow of Enbridge's 240,000 barrel-a-day Line 9 between Montreal, Quebec to Sarnia, Ontario [12]. Tar sands crude and Bakken light crude oil would move east from Sarnia to Montreal, and possibly eventually to Portland, Maine, via a separate pipeline [13]. Part of the reversal could be completed by next spring.

The project also includes expanding the company's 500,000 barrel-a-day Line 5 from Superior, Mich. to Sarnia by roughly 50,000 barrels a day, as well as an expansion of 80,000 barrels a day on Enbridge's Toledo Pipeline, Line 17, which runs from Stockbridge, Mich. to refineries in Detroit and Toledo, Ohio. Both of those lines are part of the Lakehead system.

Seaway Crude Pipeline System Project. Enbridge and Enterprise Products Partners completed the reversal [14] of the Seaway pipeline [15] last month, so it can move crude from Cushing, Okla., to Texas refineries. By mid-2014, the companies plan to twin the pipeline and to add 450,000 barrels per day of capacity to the Seaway system, which would nearly double its current capacity.

Flanagan South Pipeline Project. Expected to be online by mid-2014, the proposed Flanagan line [16] would run 600 miles from Flanagan, Ill., southeast of Chicago, to Cushing, Okla. From Cushing, crude would then move to Houston and Port Arthur, Texas, on the Seaway pipeline system. Initial capacity would be 585,000 barrels a day.

How Did Land and Water Creatures Fare?

A year after 6B ruptured, data gathered by the U.S. Fish and Wildlife Service showed that, remarkably, a majority of the animals rescued and cared for by professionals and volunteers survived.

Nearly 98 percent of the 3,651 reptiles collected and cleaned were released to non-oiled sections of the river. The rate for birds was close to 75 percent, with 144 of 196 surviving. Mammals didn't fare as well. Only 23 of the 63 collected—or 36.5 percent

pulled through. The dead included muskrats, raccoons, voles, skunks and at least one mink and one mole.

Jay Wesley, the fish specialist with the Michigan Department of Natural Resources, figured any fish trapped in the oil in July and August 2010 were pumped out of the contaminated area by cleanup crews along with the water and oil. While biologists noticed a few dead fish here and there in the river, Wesley hypothesized that most of the other fish out-swam the initial oil onslaught.

Wesley is optimistic that most of the creatures that count on Talmadge Creek and the Kalamazoo River are resilient enough to adapt to post-spill changes. But he continues to pay very close attention to fish reproduction and diet.

Some studies indicate that petroleum is detrimental to fish eggs. Scientists will have to study several generations of fish to figure out if the oil harmed fish eggs in the creek and river, he said, and that will take years to compile. Biologists are also monitoring whether fish and other creatures higher on the aquatic food chain have enough to eat. That requires tracking the plethora of minuscule aquatic bugs known as macroinvertebrates. Will the midges, mayflies, damselflies and stoneflies that typically crawl around on underwater vegetation or lurk in sediments at the bottom of creeks and rivers make a strong comeback?

What's Happening with the Cleanup?

Although most of the river is now open to the public, that doesn't mean the cleanup is over.

About 230 workers in boats and boots spread out along the river in mid-May, poking the sediment with poles to gauge how much oil is left. They expect to complete the assessment within the next week or so. Cleanup scientists have learned that it makes more sense not to begin mapping the underwater tar balls until the water is 60 degrees or higher, because that’s when the oil is more mobile and apt to rise to the surface.

Ralph Dollhopf, the EPA incident commander supervising the cleanup, is still in Marshall full time, overseeing the work. Mark Durno, the agency's deputy incident commander, still makes occasional visits to the site.

Dollhopf can't yet say how many more months or years the agency will remain at the site. Once the EPA signs off, the Michigan Department of Environmental Quality will continue to monitor the creek and river for years, or even decades. That effort will include testing water and sediments. Enbridge will continue to foot the bill.

Update: Deb and Ken Miller

Business at the carpet store Deb and Ken Miller own in the village of Ceresco is about 30 percent below what it was before 6B ruptured. At the peak of the cleanup, they

closed the store for two months because roads were blocked and so much heavy equipment clogged their neighborhood that their customers couldn't reach them.

In addition to her duties at the store and her job as an event planner in nearby Battle Creek, Deb Miller is also flourishing as an activist. She travels across the country to training sessions and forums as part of a new advocacy and outreach group formed by the nonprofit Pipeline Safety Trust, which is based in Bellingham, Wash. Miller laughingly refers to herself as "the commoner" among the cavalcade of engineers and scientists who were invited to join the group.

"I don't have the scientific knowledge, but not one of those scientists can talk about the pain I've been through these last two years," she said in a recent interview. "We need to put a face behind the pain. Otherwise, there will never be any accountability.

"It's not like I hate Enbridge. I'm just asking for safe transport of a product we all need. After what we've endured, I've learned that we need pipeline safety and accountability. That needs to go all the way to the top, so I'm hoping our state, federal and local agencies have learned something."

Miller wrote a letter opposing the Keystone XL pipeline when the State Department asked for public comment. If approved, that project would cross the nation's largest drinking water aquifer while carrying dilbit from Alberta to the U.S. Gulf Coast. She told federal authorities that the tragedy that unfolded in her community shouldn't be repeated along the Keystone XL route or anywhere else.

Miller also continues to press for funding for a long-term health study of residents and responders in Marshall. She's leery of a report released earlier this month [17] by the Michigan Department of Community Health, concluding that contact with the chemicals in the submerged oil would not cause long-term health effects for humans.

The toxicology study was the final version of a report released in draft form in August 2011.

It found that "contact with the submerged oil will not cause long-term health effects or a higher than normal risk of cancer. At the same time, contact with the submerged oil may cause temporary effects, such as skin irritation."

Researchers reached these conclusions using a hypothetical worst-case scenario—a person immersing in the most oil-coated section of the river every day during the six-month recreation season.

The study accounted for children, the elderly and those with weakened immune systems. But Miller is concerned that it suggested people with pre-existing medical conditions consult with their doctors because potential effects of exposure on specific individuals are too difficult to predict.

"As a cancer patient, I can take preventive measures," Miller said. "But I couldn't do anything about this spill happening."

Update: John LaForge

John LaForge no longer wakes up to the babble of Talmadge Creek. Since moving into his new house in July 2011, his one-way drive to downtown Marshall has jumped from one-and-a-half miles to five miles.

Relocating hasn't snuffed out LaForge's entrepreneurial zest. Although his excavating, trash hauling and lawn mowing businesses are still the backbone of his ventures, he has branched out into raising chickens and beef cattle, and training helicopter pilots.

Watching oil despoil a landscape he has cherished for almost six decades motivated LaForge to explore alternative energy options. Memories of the water-pumping windmill on his grandparents' farm prompted him to invest in a Colorado-based company that promotes wind power.

He also plans to convert his new house into a demonstration project so fellow Michiganders can learn the ABCs of installing turbines and harnessing energy from the sun and wind instead of relying on fossil fuels trapped below the Earth's surface.

"Any fuel you have to burn, you have a contamination risk," LaForge said in a recent interview. "But when you see those turbines turning in the air, how is that going to hurt you? ... How much money do we want to keep spending on all of this crude oil? Let's get serious about wind and solar."

Update: Jim Rutherford

Jim Rutherford, the Calhoun County public health officer, said the pipeline disaster didn't spur local, state or federal officials to boost funding for his department—he said he'd need a magic wand for that to happen.

"If somebody would say to me, 'Would you be ready for an incident like this tomorrow?' Even after what we've been through this time, I would say certainly not," he said.

Local departments faced with these types of calamities still must rely almost entirely on the EPA and state agencies, he said.

"I'm older, balder and grayer because of this," Rutherford said. "We're still reeling from this incident almost two years later. But the reality is that tomorrow we wouldn't do things much differently than what we did today."

What galls him is the education he has received about how poorly regulated the pipeline industry is, he said. He's astounded that Enbridge is finally spending almost $1.9 billion to replace a faulty pipeline that was allowed to limp along for years—but only after the company spent at least $765 million on a cleanup.

He wonders how many other pipelines pose a similar risk to other communities.

"We're not even taking care of the antiquated infrastructure we have in the ground now," Rutherford said with a sigh. "Whenever I hear about a new pipeline being proposed anywhere, I shudder at the idea of it."

Stacy Feldman contributed to this report.

Links:

[1] http://insideclimatenews.org/sites/default/files/kalamazoosign2.jpg
[2] http://insideclimatenews.org/news/20120611/Enbridge-oil-spill-michigan-Kalamazoo-tar-sands-epa-ntsb-6b
[3] http://web.law.umich.edu/_facultybiopage/facultybiopagenew.asp?ID=385
[4] http://www.imperialoil.ca/Canada-English/operations_sands_cold.aspx
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[15] http://seawaypipeline.com/
[16] http://www.enbridge.com/FlanaganSouthPipeline.aspx
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[18] http://insideclimatenews.org/news/20120626/dilbit-diluted-bitumen-enbridge-kalamazoo-river-marshall-michigan-oil-spill-6b-pipeline-epa
[19] http://insideclimatenews.org/news/20120627/dilbit-kalamazoo-marshall-oil-spill-bitumen-enbridge-patrick-daniel-6b-pipeline-epa-tar-sands
[20] http://insideclimatenews.org/news/20120628/dilbit-disaster-diluted-bitumen-oil-spill-enbridge-6b-michigan-epa-kalamazoo-river
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