Spilling over

Michigan township recovers from deadly pipeline leak

By Karessa Weir

Horses graze on the thawing ground, oblivious to the backdrop of huge gasoline tanks. Birds sing in trees that are slowly regaining their foliage, and the stream shows no signs of the rainbow-colored film that coated it just three years ago.

The marshy environment is going through its usual spring rituals, but deep underground, in pockets of standing water and in the lives of its inhabitants, signs still remain of the more than 70,000 gallons of gasoline that spilled here.

A valve in the pipeline that provides Michigan with a significant amount of its gasoline ruptured early one morning and forever changed the environment and community in Blackman Twp., Mich.

Marta Satterelli lost her dog and feared for the safety of her children. Michelle White contracted an infection in her breast and still has trouble sleeping. Her children report problems of bedwetting or having trouble going to the bathroom. Sheila Comperchio gave up her dream of opening a daycare center in her home.

The sheen of the fuel coated their backyards, the fumes killed their trees and thousands of tons of soil had to be removed from their property.

The residents say, and state environmental workers agree, that the residue from the spill can still be found in the community. Wolverine Pipe Line Co., which owns and operates the pipeline that ruptured, claims it has done everything it can to remove the gasoline and the rest of the disposal has to be left to nature.

SPILL HISTORY

At 8:30 a.m. on June 7, 2000, a valve on a 16-inch gasoline pipeline burst in a township just north of Jackson, Mich. Before workers in Wolverine Pipe Line's Texas headquarters could shut it off, 71,400 gallons of gasoline spewed into a marsh and a creek that runs into the Grand River.

By 10:30 a.m., more than 600 homes were evacuated and the odor of gasoline was strong within a mile of the spill. Residents reported seeing fish jumping out of the creek to escape the poisoned water. Gov. John Engler declared a state of emergency.

"Basically, we worked as fast as we could, because the amount of gas and the fact that it was a residential area meant our main concern was an immediate explosive risk," said Jim Sygo, who served as emergency management coordinator for the state Department of Environmental Quality.

The gas line that ruptured was approaching a terminal area, where a dozen large gasoline tanks store fuel for distribution around the region. The area surrounding the terminal is mostly wetlands, with reeds and high ground. But the main problem after the rupture, Sygo said, was that it occurred in a culvert under the railroad tracks, giving the gasoline an easy path down into a creek that leads to the Grand River.

"We worked with the Department of Public Works in Jackson to create an earthen dam to try to prevent it from flowing directly into the Grand River," Sygo said.

A second earthen dam was built upstream, which fortunately held in the days following the spill as heavy rains hit the area. The first dam broke and sent polluted water heading toward the river.

A year later, more than 1 million gallons of water and

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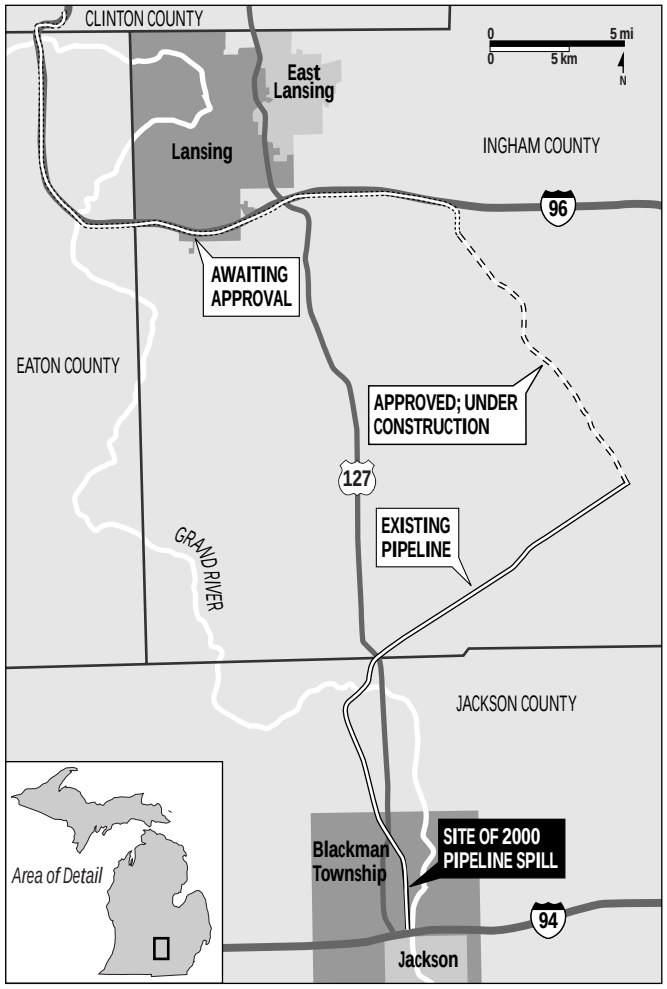
Pipeline fight

Wolverine Pipe Line's "Spartan Project" would connect the company's existing pipeline to a Lansing terminal. The company has won approval for the project from all municipalities along the route, but the City of Lansing continues to fight the company in court.



Source: Wolverine Pipe Line Co. Randy Yeip/EJ

Erie silence

Scientists, politicians hope lake's emerging dead zones will speak to them

By Kristen Dykema

Phosphorus-polluted dead zones almost killed Lake Erie in the 1960s and '70s. And the lake might be dying for a second time as scientists have again found areas in the lake's central basin that are deprived of oxygen, killing fish, plants and insects.

About 30 years ago, Lake Erie had dead zones because high levels of phosphorus led to excessive algae blooms. The blooms died and the decaying material consumed all of the surrounding water's oxygen.

Scientists say the high levels of phosphorus in Lake Erie and the rest of the Great Lakes came from sewage, detergents and fertilizer. In an effort to halt contamination, the United States and Canada signed the Great Lakes Water Quality Agreement in 1972. In the same year, Congress passed the Clean Water Act, restricting the amount of phosphorus in laundry detergents. Canada mandated that phosphorus in laundry detergent be limited to 2.2 percent by weight.

A 1978 amendment to the agreement called for no more than 1,100 metric tons of phosphorus loading into Lake Erie annually as an attempt to prevent excessive algae growth. From 1967 to 1972, the Environmental Protection Agency reported that annual phosphorus loadings to Lake Erie averaged about 24,000 metric tons.

In today's terms, $8 billion was spent in the 1970s and '80s to clean up Lake Erie's central basin, and the problem was thought to be solved. But in the 1990s, dead zones again appeared in the lake, and now scientists are trying to find the cause.

The issue is most relevant to Lake Erie's central basin because it is flat and shallow with an average depth of 60 to 80 feet. And scientists say other shallow waters, such as Michigan's Lake St. Clair and Green and Saginaw bays, also are vulnerable.

The United States and Canada must decide together how to deal with the problem, said Paul Bertram, an environmental scientist with the EPA's Great Lakes National Program Office in Chicago.

"The phosphorus levels have increased, but we're not seeing more algae," he said. "And there's been no increase in phosphorus loadings from tributaries or sewage treatment facilities. We need to determine what's going on."

Photo courtesy of Great Lakes Environmental Research Lab

Thousands of zebra mussels are washed up on the beaches of Lake Erie. The Great Lakes are teeming with the mussels, which may be contributing to rising phosphorus levels in Lake Erie.

Bertram said a possible culprit is the golf-ball sized zebra mussels that have steadily invaded the Great Lakes.

Zebra mussels, native to the Caspian Sea and first detected in North America in 1988, are found throughout the Great Lakes and the Mississippi River and its tributaries. They might be contributing to rising phosphorus levels in Lake Erie because they expel phosphorus from the organic matter they eat. The phosphorus sinks to the bottom and helps algae grow, draining oxygen from the deep water.

Bertram said automatic-dishwashing detergent is another possible cause for increasing phosphorus levels. The United States limits phosphorus in laundry detergent to 0.5 percent by weight, but phosphate is still permitted in dishwashing detergents and commercial cleaning agents.

In February, Minnesota legislators proposed a bill that would restrict phosphorus levels in household automatic-dishwashing detergents.

Joe Rathbun, an environmental scientist for the Michigan Department of Environmental Quality, said the department is trying to get a handle on how big a problem phosphorus from dishwashing detergent is to Lake Erie.

Rathbun said he is surprised that only a few states have reached the point of proposing legislation to limit the amount of phosphorus in dishwashing detergents.

"It's a complex problem," he said. "We can't really do anything about the zebra mussels, but we can do plenty about the pollution."

Dennis Griesing, vice president of governmental affairs for the Washington-based Soap and Detergent Association, said there's no environmental benefit to limiting phosphorus in detergents.

"Phosphorus doesn't go directly into the environment," he said. "It goes to wastewater treatment plants."

Griesing said phosphate is essential in dishwashing detergent. "It softens water and takes out calcium and magnesium and grabs onto dirt particles," he said.

Griesing said there was a push in Europe to use phosphorus-free detergents in the 1990s, but the effort didn't work.

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crumbled remains will haunt our children. What lessons will they learn? The past is a fertile soil.

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A few years after visiting the Bighorns, I found an arrowhead on Michigan's Keweenaw Peninsula, near a Lake Superior beach.

A friend and I were returning from a late October exploration of the peninsula's southern shoreline, taken in brightly colored kayaks rented from an outfitter in Copper Harbor. The last night out we had camped next to a fall that poured water golden with tannic decay down a stair of dark basalt directly into the lake. Blue and gold had mixed as the plunging river displaced the frigid waves.

The campsite, a carbonized swath of compact dirt, was well used, trampled but clean. Only a few small shards of broken glass glinted in the fire pit at its center. It was an ideal spot. Fine fishing by the falls, flat ground for the tent, low bushes blocking the wind.

Others before me thought so as well. That last morning, as I had walked a narrow, eroding path to the water to wash my pot after cooking, my eye somehow focused on a small white triangle jumbled in the dirt and I reached down to pick up a perfect late woodland point, meticulously chipped from quartzite, a metamorphic sandstone.

Later that evening we took off for home from Houghton Airport in my friend's single engine plane, a red and white Piper Cherokee. A strong crosswind jostled our ascent as the falling sun shone underneath dropping cloud cover. The trees below had peaked during our trip and now, lit at a low angle, they flamed with color — orange, scarlet and yellow leaves catching the sunset and casting it upwards against and above the rising plane's white wings. The painted light illuminated dark tendrils of water vapor swirling down from the low clouds. Looking down at the receding colors, I couldn't stop thinking of that eroding beach campsite, and wondered if the one who had lost his point there once carried his own Sun Dance scars.

Author's note: Based on linguistic evidence, ethnohistorians believe a westward migration of Paleo-Indians from the upper Great Lakes region that occurred during the late woodland period (1200-800 B.C.) included the tribe that spawned the Crow.

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13,000 tons of soil and creek sediment had been removed from the site. Most of the residents had returned to their homes, and testing on air and water quality by the DEQ had been completed. But at least one resident reported that after digging a shovel into the bank of the creek in his back yard, a pool of rainbow-colored water seeped up from the ground — remnants of the gasoline spill.

Many of the long-term effects of the massive spill are yet to be determined. The pipeline company paid to have all the homes connected to municipal water because it still has not yet been determined whether gasoline reached underground water that supplied the residential wells.

As far as the state is concerned, there are two outstanding issues in the cleanup: Significant amounts of gasoline remain in the wetlands, which the company wants to allow to evaporate, and some may have worked its way into the groundwater.

"There was never an opportunity to flush the gasoline from the wetlands and the contractors were not able to capture much of it," Sygo said. "We've allowed them to let it degrade as long as the water isn't moving. We are still watching that process closely."

Sygo said hydrogeological studies have shown so far that heavy clays above the water table have protected the groundwater. But the state is continuing to monitor that as well.

The cause has now been attributed to a 20 3/4-inch long fracture in a weld of a stopple valve in the pipeline. Wolverine Pipe Line spokesman Ron Embry said the weld was about 20 to 25 years old. The company has inspected the length of the pipeline from Detroit to Chicago and found four other welds that were at least as old. The welds had not been inspected since they were installed. By the end of the summer of 2000, Wolverine had again halted its gas supply and shut down the pipeline to repair those welds.

"We wanted to make sure we could trust the integrity of the steel along the pipeline," said Embry.

ENVIRONMENTAL IMPACTS

When the valve on the underground pipe ruptured, gasoline bubbled up from the ground, into a culvert and straight on to a creek that drains into the Grand River.

The creek also abuts a wildlife sanctuary operated by the Grand River Environmental Action Team (GREAT), a nonprofit environmental group.

Tests in the months following the spill revealed gasoline compounds of ethylbenzene and xylene at above-acceptable levels in the sediments surrounding the spill area.

To this day, families near the spill report that gasoline continues to reappear on their property. However, Wolverine, which has spent around $10 million on clean-up, feels its part in the clean up is nearly complete.

"The remediation work is essentially complete except in the immediate area along the railroad tracks adjacent to the terminal," Embry said.

The company plans to let the remaining gasoline disperse through the natural filtration processes of the wetlands in which it spilled.

Environmental officials have signed off on this plan, as long as continued monitoring assures that water in the wetlands is standing and not traveling into a creek or river. But the process will take years to dissipate the gasoline components.

"In the wetlands, it wouldn't surprise me if there were still measurable levels of gasoline today and in the future," Sygo said.

GREAT is continuing to negotiate with Wolverine on the impacts to its wildlife sanctuary. The group wants the company to pay for replacing plants and trees destroyed by the spill. It also wants the waterline to be extended to its property to allow for canoe expeditions.

Wolverine has given a $2,000 donation to the group's annual Grand River clean-up project and agreed to pay for new plantings along the creek.

But questions still remain about the impact on wildlife and aquatic life. Studies by GREAT have not been completed.

THE SPARTAN PROJECT

Based in Houston, Wolverine Pipe Line Co. operates 1,100 miles of pipeline throughout the Midwest. It has created a network of pipelines that supply Michigan with a significant amount of gasoline. Its underground pipe system originates in Joliet, Ill., and continues through Michigan to Detroit. Spurs of the system carry fuel to Muskegon, Lansing, Bay City and Monroe.

Just two months before the spill, Wolverine had filed a request with the state to expand its pipeline system in Michigan. Dubbed the Spartan Project, the plan was to construct a 12- and 16-inch diameter pipeline system through Jackson, Ingham and Clinton counties. Originally, the company wanted to travel straight north along U.S. 127, taking it through East Lansing. Following objections of the residents, the company has now created an alternative route to take the pipeline along the I-96 corridor south of Lansing and then north through communities on the west side of Ingham County to the Lansing Terminal.

The Michigan State Public Service Commission approved the alternative route in March 2001. Despite local opposition, all the townships along the alternate route have approved the plans, said Summer Peake, local spokeswoman for the Spartan Project. The city of Lansing is continuing to fight the public service commission's ruling, but the company hopes to begin construction this summer.

The pipeline is expected to be complete and operating by 2004.

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"Phosphorus is more effective in not clogging machines, which is what they found in Europe," he said.

"We represent a company that doesn't use phosphorus in its detergent. But the detergent is more expensive," Griesing said. "That type of company doesn't make up a half-percent of market share. The consumers have shown what they want."

Dave Dolan, a professor of natural and applied sciences at the University of Wisconsin-Green Bay, said he supports any bill that would restrict phosphorus in dishwashing detergent. But he said the biggest part of the problem is the way agricultural land is treated. Dolan worked as a data analyst for the International Joint Commission for 13 years and tracked the amount of phosphorus loadings entering the Great Lakes.

"I think regulating automatic-dishwashing detergent is important," he said. "You don't want to leave any source uncontrolled. I agree with more control, but agriculture is the biggest problem. Right now limiting phosphorus in agriculture is voluntary. It's voluntary such as in manure spreading. There's supposed to be a limited amount farmers put on fields, but no one monitors it.

"There is phosphorus in fertilizer, and it's uncontrolled," he said. "The agricultural influence on the lakes goes up and down. Rain brings phosphorus levels up."

Phosphorus levels in Lake Erie have been rising since 1995. Scientists say if this continues for another three years, Lake Erie could face the same problems it did in the 1970s.

Currently, the EPA is funding a two-year, $2 million study on Lake Erie.

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In February, Congress passed, and President Bush signed, the Omnibus Spending Bill for 2003, which will provide a total of $5 million in matching funds to school districts to begin retrofitting diesel-powered buses with emissions control equipment.

Though important, that's a drop in the bucket.

In the absence of money for new natural gas buses (which cost an extra $30,000) or particle traps (an estimated $5,000 each), clean school bus activists are focusing attention on some relatively cost-free remedies, like no-idling policies. The EPA joined the effort and produced an excellent information Web site, "Clean School Bus USA," which provides an excellent primer on the issues as well as offering information about grants.

The UCS only graded six states and the District of Columbia as "ahead of the curve," 23 states as "middle of the road," 19 states as "behind the curve" and two states — Washington and California — as flunking out altogether.

"It's been patchy," said Solomon. "In some places across the country, school districts jump to attention when local parents and activist groups get involved. In other places nothing much is happening."

Michigan is rated as "middle of the road," but there are several important institutions that are silent on the issue. For example, the Michigan Education Association, which represents many teachers and school bus drivers, has no policy on the issue. Instead, they have a blanket statement: "The Association believes that school personnel, students and their families should be notified of potential hazards and the action plan for corrections. … The Association further believes that affected local districts have a responsibility to post immediate notice of these hazards through the public media." No one has applied that statement to diesel issues to this point.

The Mid-Michigan Asthma Coalition makes no mention of the issue in their education and outreach. Nor does the Lansing School District, which has 79 diesel buses.

"We aren't set up for natural gas," said Nathan Rowen, director of transportation services for the district. Rowen says that no citizen's group has approached him on the diesel issue. He said he is open to using the best technology, but notes that the district is in a budget crisis.

The nearby St. Johns school district has turned to biodiesel, which releases less harmful emissions, but Rowen said this would be difficult for Lansing because, among other reasons, "there is no electrical outlet for this." However, he said "at this point there is a grant for biodiesel available, but it is only for a year."

In other areas of Michigan, things are improving. *The Detroit News* reported in May that "the state Department of Management and Budget … buys about 265,000 gallons of a biodiesel blend for 120 trucks to help meet federal requirements for alternative fuel use." And several other districts are turning to biodiesel.

In what may turn out to be the most significant initiative, four environmental groups have begun a clean school bus campaign focusing on the greater Detroit area. The effort is spearheaded by the Michigan Environmental Council, the Ecology Center and the East Michigan Environmental Action Council.

One of the campaign's leaders is Elizabeth Harris, executive director of EMEAC. "Our goal is to work with school districts and others to do three things: reduce or stop idling near schools, help them apply for EPA money to retrofit buses and to encourage the use of low sulfur," she said.

"The issue will not go away," Solomon says. Indeed, it appears to be on a roll.

Physicians will soon dramatically increase their involvement. In October, the American Academy of Pediatrics released the second installment of "The Green Book," and will for the first time cover this issue.

"Most pediatricians would say this issue is very important," said Dr. Ruth Etzel, editor of the publication. "Diesel worsens asthma and is involved in new onset of asthma."

The ultimate goal is to clean up the trucking and off-road vehicle and construction industries, a far more formidable task.

In 2001, the Bush administration and trucking industry defeated an EPA clean air regulation that would have dramatically cut diesel pollution from new heavy-duty trucks and buses.

In April, then-EPA Director Christine Todd Whitman proposed ordering reductions of more than 90 percent in non-highway diesel engines. The order would have required makers of diesel-powered bulldozers, farm combines and other equipment not used on roadways to install modern emission controls between 2008 and 2014.

"This is perhaps the only good environmental proposal to come out of the Bush administration in two years," said Solomon.

But a month later, after a series of lost skirmishes — staged privately — with the White House, Whitman resigned.

It's a long fight to better protect our children's health.

Still, with all the progress mounted by various clean school bus initiatives, I feel less fatalistic about the future.

Someday the diesel movement will be strong enough to more effectively take on the "rolling smokestacks" of the trucking industry. It will join the hydrogen-car movement in helping to create greener roads across the country. And I'll be able to sit in traffic with a smile on my face — and the vents open.