



Farmer says CO2 injected underground is leaking on his property

By Bob Weber and Jennifer Graham
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A Saskatchewan farm couple whose land lies over the world's largest carbon capture and storage project says greenhouse gases seeping from the soil are killing animals and sending groundwater foaming to the surface like shaken soda pop.

The gases were supposed to have been injected permanently underground.

Cameron and Jane Kerr own nine quarter-sections of land above the Weyburn oilfield in eastern Saskatchewan. They released a consultant's report Tuesday that links high concentrations of carbon dioxide in their soil to 6,000 tonnes of the gas injected underground every day by energy giant Cenovus (TSX:CVE) in an attempt to enhance oil recovery and fight climate change.

"We knew, obviously, there was something wrong," said Jane Kerr.

A Cenovus spokesperson said the company doubts those findings. She pointed out they contradict years of research from other scientists.

"It's not what we believe," said Rhona Delfrari.

Since 2000, Cenovus has injected about 16 million tonnes of carbon dioxide underground to force more oil from an aging field and safely store greenhouse gases that would otherwise contribute to climate change.

But in 2005, the Kerrs began noticing algae blooms, clots of foam and multicoloured scum in two ponds at the bottom of a gravel quarry on their land. Sometimes, the ponds bubbled. Small animals — cats, rabbits and goats — were regularly found dead a few metres away.

Then there were the explosions.

"At night we could hear this sort of bang like a cannon going off," said Jane Kerr, 58. "We'd go out and check the gravel pit and, in the walls, it (had) blown a hole in the side and there would be all this foaming coming out of this hole."

"Just like you shook up a bottle of Coke and had your finger over it and let it spray," added her husband.

The water, said Jane Kerr, came out of the ground carbonated.



Carbon capture. Active foaming is shown on a farm in Weyburn, Sask. in this Nov. 2005 photo, released on Tuesday Jan. 11, 2011 by the owner's lawyer. A Saskatchewan farm couple whose land lies over the world's largest carbon capture and storage project says greenhouse gases that were supposed to have been injected permanently underground are leaking out, killing animals and sending groundwater foaming to the surface like shaken-up soda pop. The Canadian Press Source: The Canadian Press

"It would fizz and foam."

Alarmed, the couple left their farm and moved to Regina.

"It was getting too dangerous to live there," Cameron Kerr said.

He said provincial inspectors did a one-time check of air quality. Eventually, the Kerrs paid a consultant for a study.

Paul Lafleur of Petro-Find Geochem found carbon dioxide concentrations in the soil last summer that averaged about 23,000 parts per million — several times those typically found in field soils. Concentrations peaked at 110,607 parts per million.

Lafleur also used the mix of carbon isotopes he found in the gas to trace its source.

"The . . . source of the high concentrations of CO2 in the soils of the Kerr property is clearly the anthropogenic CO2 injected into the Weyburn reservoir," he wrote.

"The survey also demonstrates that the overlying thick cap rock of anhydrite over the Weyburn reservoir is not an impermeable barrier to the upward movement of light hydrocarbons and CO2 as is generally thought."

Delfrari said Cenovus has hired three independent consultants to evaluate Lafleur's work.

She pointed to a 2004 report on the project by Saskatchewan's Petroleum Training and Research Centre, an agency bringing together government, academics and industry. That report found that after four years of injection, there was no indication carbon dioxide was making its way up through 1,400 metres of rock.

"There is no evidence so far for escape of injected CO2 from depth," the report said. It also found the area "highly suitable" for long-term carbon dioxide storage.

Centre director Malcolm Wilson said Lafleur's report wasn't enough on its own to conclude carbon dioxide is leaking.

"I will never say that it couldn't happen, but at the moment I think it's very premature to make that linkage," he said. "There are a lot of other potential sources of the CO2."

He added, however, that Lafleur has raised some significant questions.

"We do have to take into account some of the carbon isotope analysis."

Delfrari said the nearest injection well is about two kilometres from the Kerr property and no other farmers in the area have complained.

"We're confident that none of (the carbon dioxide) is making its way back to the Kerr property."

She said the Kerrs have suggested that Cenovus buy them out.

Lafleur said there's no way the heavy concentrations of the gas he found could have been naturally generated.

"Biogenic gas is simply not the source of this tremendous amount of CO2, both from a volume point of view and from the isotope point of view.

"All reservoirs leak. Every one of them."

Lafleur emphasized that most of the carbon dioxide stays underground. But so much is injected that even small

leaks can have health impacts.

He said environmental monitoring of the Weyburn project virtually ceased in 2005.

Carbon dioxide is not poisonous, but it does have health effects and can cause asphyxiation in heavy concentrations.

Saskatchewan Energy and Resource Minister Bill Boyd said his government is prepared to take another look at the situation, but said he wouldn't order the project to stop or slow down.

"We're prepared to take a very serious look at this situation," he said. "In the meantime, we feel that things are handled appropriately."

Chris Severson-Baker from the Pembina Institute, an environmental think-tank, suggested there is a greater chance of leakage from projects that combine oil recovery with carbon storage.

"We're nervous and not supportive of enhanced oil recovery," he said. "If you drill lots of wells into an oil formation, you're going to have leaks."

Such sites aren't chosen because they're good storage areas, said Severson-Baker, but because they're under an oilfield that would benefit from injection. He said deep saline aquifers, such as those being explored in Alberta, are better choices.

The suggestion that the Weyburn capture and storage project might be leaking could have implications far beyond one rural neighbourhood.

The Alberta government has committed \$2 billion to similar pilot projects. The United States has committed \$3.4 billion for carbon capture and storage.

Norway has been injecting carbon dioxide into the sea floor since 1996. There are carbon capture and storage tests planned in Australia, Germany, Poland, the United Kingdom, China and Japan.

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