New Research Shows No Marcellus Shale Pollution

KEVIN BEGOS,Associated Press

PITTSBURGH (AP) — New research on Marcellus Shale gas drilling in Pennsylvania may only add fuel to the debate over whether the industry poses long-term threats to drinking water.

A paper published on Monday by Duke University researchers found that gas drilling in northeastern Pennsylvania did not contaminate nearby drinking water wells with salty water, which is a byproduct of the drilling.

"These results reinforce our earlier work showing no evidence of brine contamination from shale gas exploration," said Robert Jackson, director of Duke's Center on Global Change and a co-author of the paper, which appeared online in the Proceedings of the National Academy of Sciences. The team evaluated 426 samples from groundwater aquifers in six counties.

The findings are noteworthy because last year the same Duke team found evidence that methane from gas wells had contaminated drinking water in Pennsylvania. That prompted harsh criticism from the top official at the state Department of Environmental Protection, who accused the researchers of bias and shoddy science.

Department of Environmental Protection spokesman Kevin Sunday said the agency was still reviewing the new study, but an industry group welcomed the results.

"This research demonstrates that freshwater aquifers in northeastern Pennsylvania have not been impacted by natural gas development activities," said Kathryn Klaber, president of the Marcellus Shale Coalition.

The Marcellus Shale is a gas-rich rock formation thousands of feet under large parts of Pennsylvania, New York, Ohio and West Virginia. Over the past five years, advances in drilling technology made the gas accessible, leading to a boom in production, jobs, and profits — and concerns about pollution.

The gas is pulled from the ground through a process called hydraulic fracturing, or fracking, in which large volumes of water, plus sand and chemicals, are injected deep underground to break shale apart and free the gas.

Environmentalists have claimed the brine water that comes up with the gas, the gas itself or the chemicals could pollute drinking water aquifers. The industry and many state and federal officials say the practice is safe when done properly, but there have also been cases where faulty wells did cause pollution.

Avner Vengosh, the new paper's lead author, said researchers are still in the early

stages of understanding the links among reservoirs of deep brine, surface aquifers and gas drilling. The industry has long claimed that the final drilling takes place so far underground that fluids could never reach the surface.

But Vengosh said the research found that naturally-occurring pathways can bring the brine up into shallow aquifers, especially at the bottom of valleys. That could mean some areas are naturally more at risk of groundwater contamination from drilling, he said.

One groundwater expert said some, but not all, of the Duke findings seem to match existing research.

"They're basically supporting a lot of the things I found," said David Wunsch, Delaware's state geologist and the director of science and technology for the National Groundwater Association. He wrote a 1993 paper that looked at brine in Kentucky valley bottoms.

But Wunsch said the Duke team's claim that the shallow brine is coming from deep underground may be too simplistic.

"There's a lot of work already out here, they just haven't looked at it all," he said of research into Marcellus Shale gas drilling, adding that the Duke team may be "re-examining something that might have already been explained."

Wunsch believes it is more likely that the reservoirs of brine in valleys have been there for a long time, and he questioned the theory that much of that fluid comes from deep underground.

The Duke team still plans to analyze the recent water samples for evidence of fracking chemicals, Vengosh said. Their paper last year didn't find any evidence of those chemicals in water wells.

John Detwiler, an activist with Marcellus Protest, a group critical of fracking, declined to comment on the Duke study.

George Jugovic, president of PennFuture, an environmental group, said the potential for natural pathways to bring deep brine to surface areas raises concerns about whether fracking in some areas could increase the risks of such contamination.