**OHIO: GAS-DRILLING INJECTION WELL LED TO QUAKES**

COLUMBUS, Ohio – A dozen earthquakes in northeastern Ohio were almost certainly induced by injection of gas-drilling wastewater into the earth, Ohio oil and gas regulators said Friday as they announced a series of tough new regulations for drillers.

Among the new regulations: Well operators must submit more comprehensive geological data when requesting a drill site, and the chemical makeup of all drilling wastewater must be tracked electronically.

The state Department of Natural Resources announced the tough new brine injection regulations because of the report’s findings on the well in Youngstown, which it said were based on “a number of coincidental circumstances.”

For one, investigators said, the well began operations just three months ahead of the first quake.

They also noted that the seismic activity was clustered around the well bore, and reported that a fault has since been identified in the Precambrian basement rock where water was being injected.

“Geologists believe it is very difficult for all conditions to be met to induce seismic events,” the report states. “In fact, all the evidence indicates that properly located …injection wells will not cause earthquakes.”

Northeastern Ohio and large parts of adjacent states sit atop the Marcellus Shale geological formation, which contains vast reserves of natural gas that energy companies are rushing to drill using a process known as hydraulic fracturing or “fracking.”

That process involves freeing the gas by injecting water into the earth, but that water needs to be disposed of when companies are done with it. Municipal water treatment plants aren’t designed to remove some of the contaminants found in the wastewater, including radioactive elements. A common practice is to re-inject it into the ground, a practice banned in some states.

A large majority of the wastewater from fracking operations in Pennsylvania is sent to Ohio wells for disposal.

The improper placement of the Youngstown well stemmed in part from inadequate geological data being available to regulators, the report states. New rules would require a complete roll of geophysical logs to be submitted to the state.

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