

Pa. -- no red flags over radioactivity in 7 rivers

Marc Levy, Associated Press, 3-8-11

HARRISBURG, Pa. -- Tests of water in Pennsylvania downriver from treatment plants that handle wastewater from natural gas drilling raised no red flags for radioactivity, the state Department of Environmental Protection said Monday.

All of the samples, taken in November through February, showed levels at or below normal, naturally occurring background levels of radioactivity, the agency said. All samples also showed levels below the federal drinking water standard for Radium 226 and 228, it said.

In general, concentrations of naturally occurring radium in rock, soil and water, are usually very low, although higher levels may exist in rock and soil of some areas, according to the U.S. Environmental Protection Agency.

Radium that is swallowed or inhaled can accumulate in a person's bones. Long-term exposure increases the risk of developing several diseases, such as lymphoma, bone cancer, and diseases that affect the formation of blood, EPA said.

The state DEP, which also released actual test results on Monday, did not say what the tests showed for other gas-drilling related pollutants. A spokeswoman said the agency released the results as soon as they came back from the laboratory and were analyzed by staff.

Brian Dempsey, a professor of environmental engineering at Penn State University, reviewed the DEP's results and said the concentrations of gross alpha radiation - and therefore, radium - seemed pretty low.

He said he still would like to know how precise the analysis was, and wondered why the results varied over time. But he cautioned that, had the results been elevated, it might be a mistake to assume drilling wastewater was solely responsible since other industrial sources, including acid mine drainage and power plants, discharge water into rivers.

DEP said it installed the sampling stations last fall to monitor the impact of Marcellus Shale gas drilling on water quality. The fast-growing industry in Pennsylvania produces vast amounts of chemically tainted and sometimes radioactive water that gushes from the ground when drillers use a technique known as high-volume hydraulic fracturing, or fracking.

An analysis by The Associated Press earlier this year showed that some of that often toxic wastewater is trucked to sewage treatment plants and industrial treatment plants that discharge into rivers that supply drinking water for many Pennsylvanians. In addition to radium, which exists naturally in Pennsylvania rock, the frackwater contains salty dissolved solids, barium, strontium, benzene and fracking chemicals.

Pennsylvania's treatment plants are not equipped to remove all of the pollutants from the gas-drilling wastewater and the state allows the flushing of the partially treated wastewater into the rivers. But under pressure from the state and environmentalists, energy companies have begun recycling some of the frackwater and reusing it, rather than hauling it for treatment and river discharge.

River testing is continuing, DEP spokeswoman Katy Gresh said Monday.

U.S. Sen. Bob Casey said in a statement that it is important for testing to continue, especially during periods when drought levels allow for less dilution than do seasons when rivers are swollen from snow or rain.

John Hanger, who ran the Department of Environmental Protection last year when it installed the water monitors, said the agency's radiation protection staff studied the issue carefully and concluded that the radioactivity was not a public threat. The initial test results confirm that the water is safe from radiation, and tests by drinking water utilities will be conclusive, Hanger said.

"Absolutely 100 percent conclusive tests are at the drinking water suppliers," Hanger said. "What we ultimately care about is what people drink."

The Pittsburgh Water and Sewer Authority and Pennsylvania American Water Co., which serves more than a half-million households across the state, including some communities in the Pittsburgh suburbs, have said they expect additional tests to be conducted in the coming weeks.

In drilling a natural gas well, radium is picked up by the water that is injected forcefully down the bore to break up the shale deep underground and release the gas trapped inside.

When the water returns through the well to the surface, it can have many times the radiation levels that the federal government says is safe for drinking water, said John Veil, who recently retired from the Argonne National Laboratory in Washington, D.C., where he managed the water policy program.

In some cases, workers take precautions when handling it.

The industrial treatment plants that handle a significant portion of the state's drilling wastewater remove some of the radium in processes that target particles and heavy metals, Veil said. Some also may end up discharged with the rest of the treated water into a river, where it can travel downstream and cling to the river bottom or plant life, he said.

A handful of municipal sewage treatment plants that handle a smaller amount of wastewater may be less adept at removing radium, because they aren't equipped to treat metals in the same fashion as the industrial plants.

Drinking water utilities that draw from rivers also filter out particles, which can remove radium, Veil said.

Until new regulations were imposed in August, Pennsylvania had been the only state to allow most of this wastewater to be discharged into rivers after only such partial treatment. Other states required most or all of the brine to be disposed of by injecting it deep underground.

With pressure from environmentalists and state officials building, energy companies that have been drilling hundreds of Marcellus Shale gas wells since 2008 started overhauling the way they handle their wastewater in Pennsylvania.

Of the 10.6 million barrels of wastewater that gushed from the wells in the final six months of 2010, at least 65 percent were recycled for use in drilling another gas well, a dramatic increase. But the records also show that at least 2.8 million barrels of well wastewater were sent to treatment plants that discharge into rivers and streams.

A review of state records shows most of the gas-drilling wastewater that was discharged by treatment plants in the second half of 2010 found its way into eight waterways. Tests were performed on seven of those waterways - the Monongahela; South Fork of Ten Mile Creek; Conemaugh; Allegheny; Beaver; Tioga; and the West Branch of the Susquehanna - while the eighth waterway, Blacklick Creek in southwestern Pennsylvania is a tributary of the Conemaugh.

A total of 1,386 new Marcellus Shale gas wells were drilled in the state last year, up from 768 a year earlier. Thousands more well permits have been approved.