Coal Ash Spill Revives Issue of Its Hazards

Fifteen homes like this one in Harriman, Tenn., were flooded with fly ash sludge on Monday after a storage pond wall broke.

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KINGSTON, Tenn. — What may be the nation’s largest spill of coal ash lay thick and largely untouched over hundreds of acres of land and waterways Wednesday after a dam broke this week, as officials and environmentalists argued over its potential toxicity.

Federal studies have long shown coal ash to contain significant quantities of heavy metals like arsenic, lead and selenium, which can cause cancer and neurological problems. But with no official word on the dangers of the sludge in Tennessee, displaced residents spent Christmas Eve worried about their health and their property, and wondering what to do.

The spill took place at the Kingston Fossil Plant, a Tennessee Valley Authority generating plant about 40 miles west of Knoxville on the banks of the Emory River, which feeds into the Clinch River, and then the Tennessee River just downstream.

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Even as the authority played down the risks, the spill reignited a debate over whether the federal government should regulate coal ash as a hazardous material. Similar ponds and mounds of ash exist at hundreds of coal plants around the nation.

The Tennessee Valley Authority has issued no warnings about the potential chemical dangers of the spill, saying there was as yet no evidence of toxic substances. “Most of that material is inert,” said Gilbert Francis Jr., a spokesman for the authority. “It does have some heavy metals within it, but it’s not toxic or anything.”

Mr. Francis said contaminants in water samples taken near the spill site and at the intake for the town of Kingston, six miles downstream, were within acceptable levels.

But a draft report last year by the federal Environmental Protection Agency found that fly ash, a byproduct of the burning of coal to produce electricity, does contain significant amounts of carcinogens and retains the heavy metal present in coal in far higher concentrations. The report found that the concentrations of arsenic to which people might be exposed through drinking water contaminated by fly ash could increase cancer risks several hundredfold.

Similarly, a 2006 study by the federally chartered National Research Council found that these coal-burning byproducts “often contain a mixture of metals and other constituents in sufficient quantities that they may pose public health and environmental concerns if improperly managed.” The study said “risks to human health and ecosystems” might occur when these contaminants entered drinking water supplies or surface water bodies.

In 2000, the Environmental Protection Agency proposed stricter federal controls of coal ash, but backed away in the face of fierce opposition from utilities, the coal industry, and Clinton administration officials. At the time, the Edison Electric Institute, an association of power utilities, estimated that the industry would have to spend up to $5 billion in additional cleanup costs if the substance were declared hazardous. Since then, environmentalists have urged tighter federal standards, and the E.P.A. is reconsidering its decision not to classify the waste as hazardous.

A morning flight over the disaster area showed some cleanup activity along a road and the railroad tracks that take coal to the facility, both heaped in sludge, but no evidence of promised skimmers or barricades on the water to prevent the ash from sliding downstream. The breach occurred when an earthen dike, the only thing separating millions of cubic yards of ash from the river, gave way, releasing a glossy sea of muck, four to six feet thick, dotted with icebergs of ash across the landscape. Where the Clinch River joined the Tennessee, a clear demarcation was visible between the soiled waters of the former and the clear brown broth of the latter.

By afternoon, dump trucks were depositing rock into the river in a race to blockade it before an impending rainstorm washed more ash downstream.

The spill, which released about 300 million gallons of sludge and water, is far larger than the other two similar disasters, said Jeffrey Stant, the director of the Coal Combustion Waste Initiative for the Environmental Integrity Project, an environmental legal group, who has written on the subject for the E.P.A. One spill in 1967 on the Clinch River in Virginia released about 130 million gallons, and the other in 2005 in Northampton County, Pa., released about 100 million gallons into the Delaware River.

Felicity Barringer and Robbie Brown contributed reporting.