

## Florence Floodwaters Breach Coal Ash Pond and Imperil Other Toxic Sites

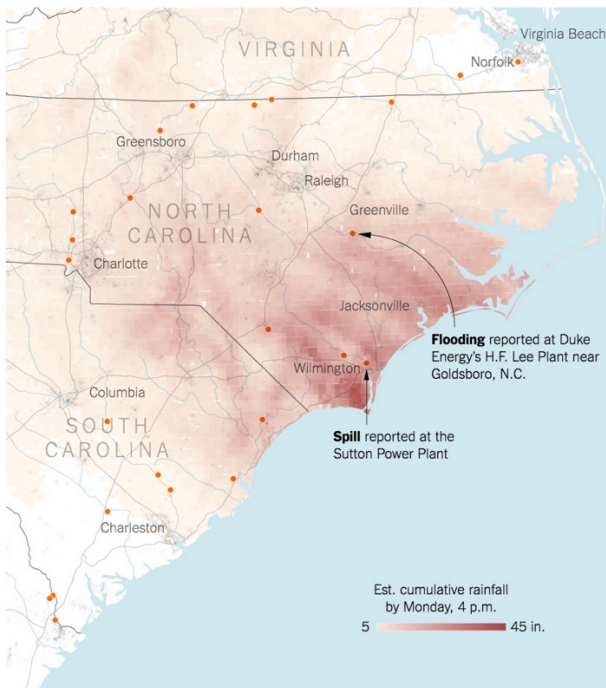
By KENDRA PIERRE-LOUIS, NADJA POPOVICH and HIROKO TABUCHI UPDATED Sept. 17, 2018

Surging floodwaters from Florence, [now a tropical depression](#), have swept away part of a retaining wall holding back a pond of coal ash – which contains mercury, arsenic and other toxic substances – and have also overrun several lagoons of pig waste in North Carolina. The mishaps amplified concerns about an array of danger zones including Superfund sites, chemical plants and the region’s industrial hog farms.

Duke Energy, which owns the power plant in Wilmington, N.C., where the coal-ash breach occurred, said that “site personnel are managing the situation and will proceed with a full repair as weather conditions improve.”

Here is where the dangers lie across the hardest-hit states:

Coal ash ponds



Source: U.S. Energy Information Administration via Frontier Group

Coal ash is the dusty residue that remains after power plants burn coal to generate electricity. The heavy metals that it contains are linked to respiratory illnesses and cancer.

Energy companies maintain that the way they store coal ash, in earthen pits mixed with water, is safe.

However, over the weekend, Duke Energy reported a breach of coal-ash storage at its Sutton Power Plant in Wilmington, N.C., and on Monday said that three ponds at a second plant, in Goldsboro, N.C., were flooded, but not breached.

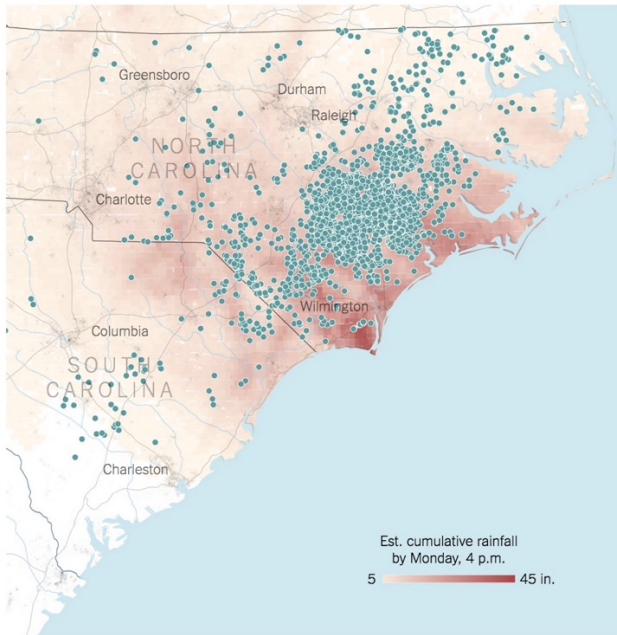
The spill at the Sutton plant displaced 2,000 cubic yards of material, the company said, an amount that would fill about two-thirds of an Olympic swimming pool (or 9,500 bath tubs).

In a statement, Duke Energy said most of the coal ash fell into a perimeter ditch and road. The company also noted that “it is difficult to calculate the amount of water that may have reached Sutton Lake,” a body of water that abuts the Cape River, which flows into the Atlantic Ocean. A spokeswoman disputed reports of a second breach there.

The largest spill on record happened in 2008 in Kingston, Tenn., when heavy rains led to the breach of a pond, releasing 1.1 billion gallons of coal ash. The clean-up ultimately cost more than \$1 billion.

# The New York Times

Pig farms



Sources: North Carolina Department of Environmental Quality; South Carolina Department of Health and Environmental Control

Two North Carolina counties in the path of the hurricane's destruction, Duplin and Sampson, are home to the highest concentration of pork production in a state that produces a lot of pork. North Carolina has 9.7 million pigs, producing almost 10 billion gallons of manure annually.

"It's 500 times the waste produced by the entire population of Washington D.C.," said Alexis Andiman, an associate attorney with EarthJustice, a nonprofit environmental law firm that has sued the state over its handling of animal waste.

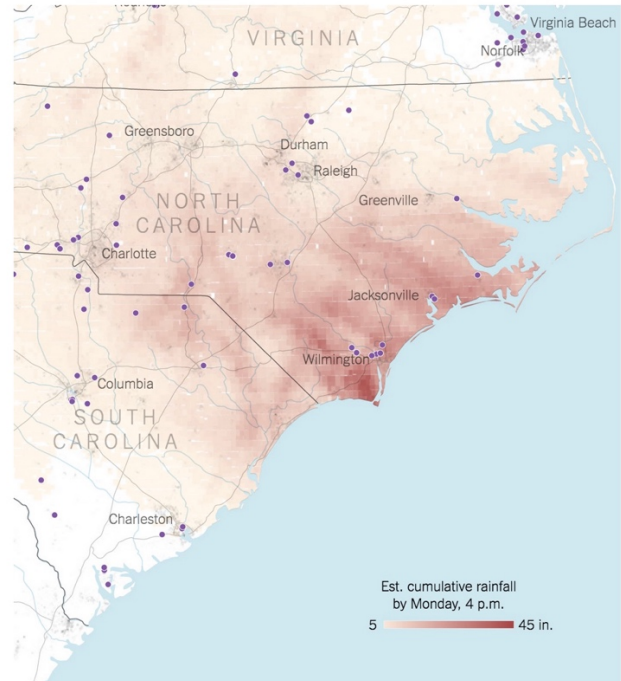
The material is collected in open pits called lagoons.

Late on Monday the state's Department of Environmental Quality reported that waste lagoons at several hog farms had discharged at least some of their contents. Two lagoons had experienced structural damage, and 11 had seen some form of overflow, according to the D.E.Q.'s website.

In 2016, Hurricane Matthew swamped 14 lagoons in the state. And in 1999, the liquid that escaped when Hurricane Floyd flooded dozens of

lagoons wound up in waterways where it killed fish and caused algae blooms, which imperil aquatic life.

Superfund sites



Source: Environmental Protection Agency Facility Registry Service

The Carolinas are home to more than 70 high-priority Superfund hazardous-waste sites, including [a former smelting plant in North Charleston](#) near the coast that is contaminated with arsenic, antimony and other substances linked to health problems including cancer.

Over the weekend, the Environmental Protection Agency widened its monitoring of Superfund sites from 11 locations to at least 21 in the two states, as well as 20 locations further north in Virginia. There was no immediate news of damage at those sites, many of which aren't easily accessible. The E.P.A. said Monday that it would deploy "reconnaissance teams" to the sites once conditions allowed.

The agency came under fire last year after hurricanes Harvey and Maria inundated Superfund sites in Houston and Puerto Rico.

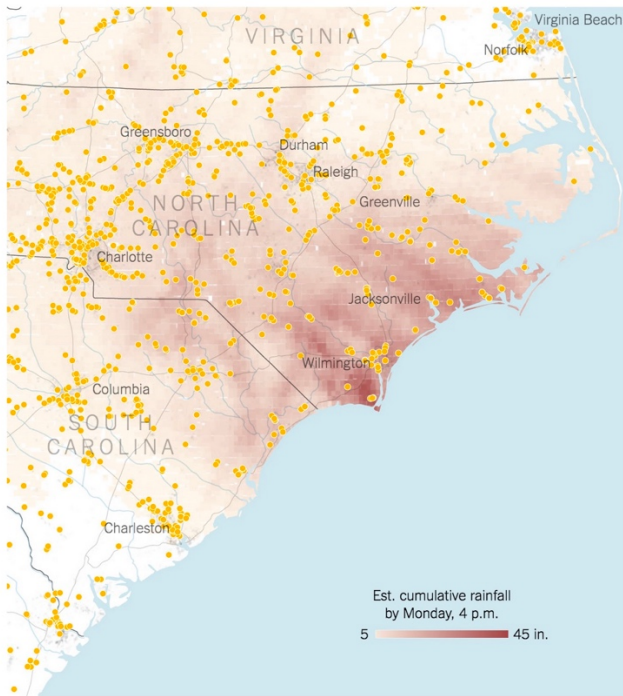
"Industrial sites have historically been near water," said Prof. Thomas Burke, associate dean

# The New York Times

at the Johns Hopkins School of Public Health, who studied chemical exposures after Hurricane Katrina and other storms. “That makes them definitely vulnerable,” he said. “In New Orleans, they caused a toxic gumbo.”

Though cleanup is under way at the Carolina sites, and contaminants like arsenic and lead are already capped to keep them in place, flooding still poses a threat. “With extraordinary surges and inundation of water, you really have to worry about the integrity of these things,” Professor Burke said.

**Chemical sites**



Source: Environmental Protection Agency Toxics Release Inventory Program

North and South Carolina are home to more than one thousand sites where toxic chemicals are used or stored, according to a database maintained by the E.P.A.

The region’s paper mills, for example, use various solvents to treat the lumber. Across the country, 2,500 chemical sites lie in flood-prone areas, [a New York Times analysis](#) found this year.

“With flooding, will there be damage to storage tanks? These are things we have to watch out for,” said Elena Craft, a senior health scientist at the Environmental Defense Fund. “We’re talking PCBs, dioxins, the worst of the worst,” she said, referring to chemicals known to be harmful to human health.

Professor Burke also pointed out that flooding can turn common neighborhood businesses, like gasoline stations or dry cleaning shops, into public health threats. Sewage spills are another concern. “Even a run-of-the-mill warehouse that happens to have a huge inventory of pesticides — if that gets into the water, there’s exposure,” he said.

Tiffany Hsu contributed to this report.