Nuclear Plants Shut Down Units as Storm Hits Coast

JOSH LEDERMAN, Associated Press

WASHINGTON (AP) — Parts of two nuclear power plants were shut down late Monday and early Tuesday, while another plant — the nation's oldest — was put on alert after waters from Superstorm Sandy rose 6 feet above sea level.

One of the units at Indian Point, a plant about 45 miles north of New York City, was shut down Monday because of external electrical grid issues, said Entergy Corp., which operates the plant. The company said there was no risk to employees or the public, and the plant was not at risk due to water levels from the Hudson River, which reached 9 feet 8 inches and was subsiding. Another unit at the plant was still operating at full power.

One unit at the Salem plant in Hancocks Bridge, N.J., near the Delaware River, was shut down Tuesday because four of its six circulating water pumps were no longer available, according to PSEG Nuclear. The pumps are used to condense steam on the non-nuclear side of the plant. Another Salem unit has been offline since Oct. 14 for refueling, but the nearby Hope Creek plant remains at full power. Together, the Salem and Hope Creek plants produce enough power for about 3 million homes per day.

The oldest U.S. nuclear power plant, New Jersey's Oyster Creek, was already out of service for scheduled refueling. But high water levels at the facility, which sits along Barnegat Bay, prompted safety officials to declare an "unusual event" around 7 p.m. About two hours later, the situation was upgraded to an "alert," the second-lowest in a four-tiered warning system.

Conditions were still safe at Oyster Creek, Indian Point and all other U.S. nuclear plants, said the Nuclear Regulatory Commission, which oversees plant safety.

A rising tide, the direction of the wind and the storm's surge combined to raise water levels in Oyster Creek's intake structure, the NRC said. The agency said that water levels are expected to recede within hours and that the plant, which went online in 1969 and is set to close in 2019, is watertight and capable of withstanding hurricane-force winds.

The plant's owner, Exelon Corp., said power was also disrupted in the station's switchyard, but backup diesel generators were providing stable power, with more than two weeks of fuel on hand.

In other parts of the East Coast, nuclear plants were weathering the storm without incident.

Inspectors from the NRC, whose own headquarters and Northeast regional office were closed for the storm, were manning all plants around the clock. The agency dispatched extra inspectors or placed them on standby in five states, equipped with satellite phones to ensure uninterrupted contact.

Nuclear power plants are built to withstand hurricanes, airplane collisions and other major disasters, but safety procedures call for plants to be shut down when hurricane-force winds are present, or if water levels nearby exceed certain flood limits.

In Lusby, Md., the Calvert Cliffs Nuclear Power Plant was operating at full power — enough to power more than 1 million homes. Additional staff, both onsite and off, were called in to prepare for the storm. Safety officials there will take the plant offline if sustained winds exceed 75 mph or water levels rise more than 10 feet above normal sea level.

At Pennsylvania's Susquehanna plant in Salem Township, officials were ready to activate their emergency plan, a precursor to taking the plant offline, if sustained winds hit 80 mph.

"Our top concern is ensuring that the plants are in a safe condition, that they are following their severe weather procedures," said Diane Screnci of the Nuclear Regulatory Commission. She said that even though the agency's headquarters and regional office had been closed, its incident response center was staffed, with other regions ready to lend a hand if necessary.

At the Millstone nuclear power complex on Connecticut's shoreline, officials said earlier Monday they were powering down one of the two reactors to 75 percent of maximum output to maintain stability of the electric grid. Millstone spokesman Ken Holt said the grid's stability could be affected if the unit was operating at 100 percent and suddenly went offline, which isn't expected to happen.

Some 60 million people in 13 states plus the District of Columbia get their power from PJM, the largest regional power grid in the U.S. Contingency plans call for power to be brought in from other areas to replace power lost if a nuclear plant reduces output or goes offline.

"It's done instantaneously," said Paula DuPont-Kidd, a spokeswoman for the grid. "Even if multiple plants go offline at the same time, we'd have to see how adjustments would be made, but for the most part we plan for that scenario."

In August 2011, multiple nuclear plants shut down due to Hurricane Irene, with others reducing power.

Although nuclear plants are built for resilience, their operations get more complicated when only emergency personnel are on duty or if external electricity gets knocked out, as often happens during hurricanes.

"When external power is not available, you have to use standby generators," said

Sudarshan Loyalka, who teaches nuclear engineering at University of Missouri. "You just don't want to rely on backup power."

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