

Hurricane Sandy: Fuel Pool Crisis Narrowly Averted at Oyster Creek (NJ) Nuclear Plant

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Problems at 4 Other Nuclear Plants ... Apparently None Were Severe

We <u>reported last Friday</u> that Hurricane Sandy could cause problems at Oyster Creek, Salem, Indian Point, Limerick and other nuclear plants in the Northeast.

We <u>noted yesterday</u> that Oyster Point was most vulnerable to the storm, that it lacked diesel backup generators for its fuel pool pumps, and that storm-related problems could present challenges in cooling the fuel in it its fuel pools.

Reuters <u>reports</u> today that that challenge has just become real:

Exelon Corp's 43-year-old Oyster Creek plant in New Jersey remains on "alert" status, the U.S. Nuclear Regulatory Commission (NRC) said early Tuesday.

Exelon however was concerned that if the water rose over 7 feet it could submerge the service water pump motor that is used to cool the water in the spent fuel pool, potentially forcing it to use emergency water supplies from the in-house fire suppression system to keep the rods from overheating.

The water levels reached a peak of 7.4 feet - apparently **above the threshold** — but the pump motors did not flood, Sheehan said. As of 11 a.m. EDT Tuesday the water level was down to 5.8 feet, with the next high tide at 11:45 a.m.

"They need the water level to stay below 6 feet for a while to exit the alert," Sheehan said, noting when the water level falls below 4.5 feet, the plant could exit the unusual event.

The relatively small 636-megawatt (MW) Oyster Creek plant earlier experienced a "power disruption" at its switch yard, causing two backup diesel generators to kick in and maintain a stable source of power, Exelon said.

The NRC spokesman said **the company could use water from a fire suppression system or a portable pump to cool the pool if necessary**. The used uranium rods in the pool could cause the water to boil in about 25 hours without additional coolant; in an extreme scenario the rods could overheat, risking the eventual release of radiation.

The concerns over the status of the spent fuel pool at Oyster Creek was reminiscent of the fears that followed the Fukushima disaster last year, when helicopters and fire hoses were enlisted to ensure the pools remained filled with fresh, cool water.

In other words, we dodged a bullet.

There were also problems at the <u>Salem</u>, <u>Indian Point</u>, <u>Limerick</u> and <u>Nine Mile Point</u> nuclear plants. See this <u>NRC report</u>.

Update: Nuclear expert Arnie Gundersen <u>says</u> that we're not totally out of the woods:

The problem is that Salem and the Oyster Creek plant, which we just talked about, were in a refueling mode. And what that means is that all of the nuclear fuel is not in the nuclear reactor, it's in the spent fuel pool. And when you lose off-site power, you can't cool the fuel pool. So I suspect in the next couple days we're going to see reports of, you know, the fuel pools heating up, as—because they were unable to cool the spent fuel pool.

I think we'll continue to see power outages, not local power outages where a city goes down, but where the grid goes down. When that happens, a power plant has to shut down. So, for the next day or so, we'll see grid disruptions that will cause nuclear plants to shut down. That's what happened at Indian Point. And when the grid shuts down, that's called loss of the—of off-site power. And the diesels turn on and provide the power to the plant to keep it cool while the grid is down. So, hopefully, the—when these plants lose their power over the next couple of days, we'll see the diesels turn on. And it's likely, but not for sure, the diesels will turn on.

The biggest other concern, though, is flooding. Just like at Oyster Creek, all of these plants have to be cooled by a river or a lake, and if the water gets too high in that river or lake, the pumps that cool the plant will be flooded. And that's called the loss of the ultimate heat sink. The key word there is "ultimate." The—as happened at Oyster Creek. And I think we'll likely see, you know, severe flooding in Pennsylvania and inland areas for the next couple days. So we have to watch flooding so that the intake structures to these plants are still able to cool the nuclear reactor and the diesels that cool the plant. Those are the two big concerns: high wind and flooding.

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