



4. NUCLEAR: NRC staff finds no reason to shut down any U.S. reactors and no U.S. risk from Japanese radiation (03/22/2011)

Peter Behr, E&E reporter

The Nuclear Regulatory Commission staff has concluded that the Japanese nuclear crisis provides no reason to temporarily shut any U.S. reactors for inspection or doubt their ability to operate safely.

"I am 100 percent confident from the review that we've done and continue to do every single day that we have a sufficient basis to conclude that the U.S. plants continue to operate safely," Bill Borchardt, NRC executive director for operations, told commission members yesterday at a special meeting called on the Japanese reactor catastrophe.

He also said the staff has concluded there is no risk to U.S. populations from radioactive releases from the Japanese plant.

"We ask ourselves the question every single day, should we take a regulatory action based on the latest information" from Japan, he said. So far, the staff has seen no need to do so, he added.

At the same time, Borchardt proposed that the staff undertake two additional investigations to confirm the ability of U.S. nuclear reactors to withstand an extreme natural disaster coupled with the loss of outside power, the overheating of reactor cores and spent fuel, and the resulting explosions that struck the Fukushima Daiichi nuclear plant.

If approved by the commission, the first inspection would be a "quick look" check by veteran NRC staff and possibly retired senior staff at all 104 commercial nuclear reactors, to confirm that protective and emergency measures are in place and ready for use, he said. That could take three months, with an interim report to the commission after 30 days, Borchardt said.

Deeper inquiry awaits evidence from Japan

A deeper inquiry would have to await more evidence of the impact of the quake and tsunami on the Japanese reactor complex, he said. It could take a year to complete, and the "lessons learned" could lead to recommendations for NRC orders or guidance to the reactor owners, he added.

The longer review will also include staff and nuclear industry analyses of possible threats to reactors in the central and eastern United States, based on a new evaluation of seismic hazards completed by the U.S. Geological Survey.

NRC Chairman Gregory Jaczko said he hoped the commission could respond soon to the staff's proposal and determine the kinds of investigations it wanted following up on the Japanese crisis.

Japanese crews continued preparations Tuesday to restore outside electric power to the Fukushima 1 nuclear complex, hoping that explosions and hydrogen fires have not damaged cooling systems for reactors and spent fuel pools and electrical connections at the reactors.

If electrical systems remain intact, power could be reconnected today to reactor unit No. 2, where an internal explosion has occurred, or at unit No. 4, where the spent fuel pool has lost all or most of its cooling water, according to U.S. officials.

Tokyo Electric Power Co. is also hoping to restore electricity to the control rooms at units 1 through 4, to permit technicians to check the availability of instruments measuring temperatures inside the reactors and water levels in spent fuel pools, NHK World reported. Crews worked yesterday to check the condition of cabling and instruments before hooking up power to the No. 2 control room. Outside power has been restored to unit No. 5, which was shut down when the March 11 earthquake struck and has not been a center of the crisis.

But challenges and threats remain. Radiation levels at parts of the complex remain high. Work had to be suspended temporarily when smoke issued from reactor No. 3, and there now is concern about rising

temperatures in a separate storage pool at the site that holds 2,000 tons of older, spent nuclear fuel. Crews began spraying water on that pool Tuesday, the Associated Press reported. TEPCO said the smoke from No. 3 was abating as of noon Tuesday local time.

"I would say optimistically that things appear to be on the verge of stabilizing," Borchardt said yesterday.

Borchardt told the commission yesterday, "It is likely that Units 1, 2 and 3 have experienced some degree of core damage. Today, all three units appear to be in stable condition," he said, adding that the integrity of primary containment shells around the reactors appears to be currently maintained.

But he added, "We don't know what the impacts of the earthquake are inside the reactor building. It may have survived perfectly well ... or there may be damage we just don't know about. We need to see what the inspection results are.

"I don't believe we have anywhere near a clear understanding of what the plant conditions are like within the reactor buildings: what kind of electrical cables have been damaged, what kinds of pumps and valves remain operable is a significant unknown.

"As the immediate crisis in Japan comes to an end, we will look at any information we can to gain experience from the event and to see if there are changes we need to make to further public health and safety."

Fukushima situation 'much better'

At a briefing for reporters yesterday, David Lochbaum, director of nuclear safety projects for the Union of Concerned Scientists, agreed that reports from Japan indicated progress in the crisis.

"There continue to be challenges, but the situation overall is much better than it was a couple of days ago," Lochbaum said. He said it was not clear whether, by the NRC's definition, the Fukushima's primary reactor containment was undamaged, or damaged but currently intact.

"Even if cooling is restored," Lochbaum said, "there may be issues restoring adequate cooling to all the material in all the vessels. It seems it's a big unknown."

Borchardt said the staff's confidence in the ability of the reactors to withstand natural disasters was based on the NRC's principle of "defense in depth," which includes redundant systems and features intended to prevent radioactive releases in the case of a severe accident.

These defenses were strengthened by the lessons learned from the 1979 Three Mile Island accident and, after Sept. 11, 2001, a recognition of risks to reactors from a potential terrorist attack utilizing a captured airliner, he said.

The NRC has a "station blackout" rule that requires plant licenses to have emergency backup electrical power sources that can continue operating if the outside power grid is down. There are rules requiring plants to be able to withstand flooding, and measures to deal with the risks of hydrogen explosions if equipment fails or is damaged in emergencies, he said.

"All of these relate in one way or another to the tragic events in Japan."

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