

NRC STILL ASSESSING SAFETY SIGNIFICANCE OF MAJOR FIRE AT SHEARON-HARRIS

Brian Jordan, Washington

NRC is continuing to review a major fire that burned for three hours at Carolina Power & Light Co.'s (CP&L) Shearon-Harris October 9, but staffers said so far they have not found any nuclear-related safety concerns.

Staffers in NRC's Region II office and in the division of operational events assessment in the Office of Nuclear Reactor Regulation said they have not reached any final determination on the safety significance of the fire, but have not yet identified any particular threats the fire posed in terms of nuclear safety. "Fires at nuclear plants always cause concern," said one headquarters staffer. "So far, no particular safety concerns have been identified, but no final determination has been reached on the safety significance."

NRC headquarters has not yet determined whether the fire constitutes a significant event in terms of operating events that count in performance indicators used by NRC to rate plant safety performance.

The Region II office dispatched a fire protection specialist and an electrical systems expert to the plant October 10 to investigate the cause of the fire and the response to it. "We're interested in determining what happened," said one Region II staffer, "but preliminary reports indicate they handled it very well." Staffers noted the unit was tripped without any apparent complications and that the fire was confined to the switchyard and the turbine deck and did not lead to a loss of off-site power.

NRC staffers, in discussing the fire at the weekly significant operating events meeting, said that the turbine was taken off the turning gear about 30 minutes after the fire started because of concerns about an oil leak. The oil did not ignite, however. Staffers said on briefing slides distributed at the meeting that "it is unknown at this time if the fire could have caused impedance of safety-related equipment or operator action."

CP&L spokesman Roger Hannah said October 19 that the fire started when there was a short in the duct that surrounds electrical cables that carry power produced in the main generator from the generator to one of three main transformers. The cable in effect is surrounded by two ducts, and an insulator failure allowed the two ducts to come in contact, causing the short. CP&L said such an insulator failure is apparently quite rare. Harris is a 955-MW Westinghouse PWR that began commercial operation in May 1987.

There was also a second short in the neutral grounding transformer underneath the main generator, Hannah said, and the fault currents traveled through the plant grounding system and the structural steel in the plant. Part of the fault current arched and caused leaks in the hydrogen piping that supplies hydrogen to cool the turbine-generator, igniting the hydrogen.

The fire began about 11:15 p.m. October 9 and took almost 90 minutes to bring under control, according to CP&L. Two local fire departments responded to aid the small on-site fire brigade, and about 30 firefighters fought the blaze, which was completely out by 2:43 a.m. The unit was tripped from 100% soon after the fire started. The utility declared an alert soon after the fire broke out and terminated it at 2:43, after confirming the fire was out and the hydrogen leaks were contained.

CP&L emphasized in prepared statements that the fire was confined to the non-nuclear side of the plant and did not damage any primary system equipment. CP&L also said the fire had not resulted in any danger to the public and/or radioactive release. There were no injuries, in part, because no one was in the switchyard or on the turbine deck when the fire broke out.

Hannah said October 19 that CP&L did not yet have a preliminary estimate of the damage. But he said the generator, the turbine, and the main power transformer were largely undamaged.

The unit was in its 208th consecutive day of operation, its longest continuous run since it entered commercial service in May 1987. Harris will begin an eight- to 10-week refueling outage that was scheduled to begin October 21. It is unclear what, if any, effect repairs from the fire will have on the outage schedule, Hannah said, but CP&L still hopes to do those repairs simultaneously with refueling activities and avoid extending the outage.

With Harris off line, three of CP&L's four reactors are shut. Robinson-2 has been shut for a pipe replacement to correct potential design deficiencies, and Brunswick-2 is in a refueling outage that began September 9. However, CP&L still has sufficient generation, and beginning the Harris refueling outage earlier than scheduled will not force the utility to purchase any replacement power, Hannah said. Harris supplies about 9% of CP&L's generating capacity.

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