

Licensee/Facility:

CAROLINA POWER & LIGHT CO.
Brunswick
Southport, North Carolina
Dockets: 050-00325
[1] GE-4

Notification:

MR Number: 2-2004-0014
Date: 08/14/2004

Subject: Relay Issue Identified During Post-Trip Review

Discussion:

This is a followup to a report on a Brunswick Unit 1 reactor scram on August 14, 2004 (EN 40953). The EN stated that the unit had been manually scrammed due to a loss of offsite power. The four emergency diesel generators (EDGs) started as required, aligned to the emergency buses, and all control rods properly inserted.

The cause of the loss of offsite power to Unit 1 has been identified as malfunction of a switchyard breaker. The malfunction resulted in a 230kv bus lockout, loss of both unit's recirculation pumps, and the manual scram. The switchyard breaker is not required for unit operation and has been removed from service. Investigation into the malfunction continues.

On August 15, a post-trip review indicated that some electrical components may not have been "load shed" from one of the four safety-related buses (E-bus) prior to the EDG tying to the bus. Subsequently, one HGA relay was found closed (instead of its expected open position) due to interference with the relay's dust cover. This allowed the EDG output breaker to close to its E-bus before all electrical loads stripped from the bus. This condition did not adversely impact the EDG, and all safety-system loads were satisfactorily powered by the EDG.

The vertically mounted cover on the relay had rotated from its normal position, and closed the relay. This dust cover, as well as covers on other hinged armature auxiliary (HGA) relays on the four E-busses had been modified during plant construction. The modifications involved removal of parts of the top, bottom and sides of the cover. The licensee determined that if a cover had been significantly modified (such as the effected cover), the cover could rotate and interfere with the relay operation. The involved relay cover was removed.

The licensee inspected all the HGA relays for all four E-buses, and verified that the other covers could not rotate in a manner that might affect relay operation. The licensee is continuing to review the use of the HGA relay covers throughout the plant and developing a long-term corrective action plan.

Regional Action: The resident inspectors reviewed the licensee's operability evaluation. The inspectors also inspected a sample of the HGA relays and covers and verified that they were consistent with the licensee's evaluation.

In addition, the Region will conduct a Special Inspection to inspect and assess this event and subsequent licensee operational activities. The inspection will include a review of the facts surrounding the cause of the loss of offsite power; the HGA relay failure; the licensee's onsite Alert declaration; the licensee's operability evaluation and extent of condition review of the HGA relay failure; and operator response to the event.

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