Progress Energy

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Response to Request for Additional Information Regarding Relief Request VRR-15, Emergency Diesel Generator Service Water Check Valves
(NRC TAC Nos. MC7354 and MC7355)

Reference: Letter from Edward T. O'Neil to the U.S. Nuclear Regulatory Commission (Serial: BSEP 05-0063), "Relief Request VRR-15, Emergency Diesel Generator Service Water Check Valves," dated May 26, 2005 (ML051580384)

Ladies and Gentlemen:

On May 26, 2005, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), requested approval of a relief request to permit online testing of certain emergency diesel generator service water check valves for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. On July 20, 2005, via electronic mail, the NRC provided a request for additional information (RAI) to support review of the relief request. Enclosed is the response to the RAI.

Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor - Licensing/Regulatory Programs, at (910) 457-2073.

Sincerely,

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A001

WRM/wrm

Enclosure: Response to Request for Additional Information

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Response to Request for Additional Information

Background

On May 26, 2005, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), requested approval of a relief request to permit online testing of certain emergency diesel generator service water check valves for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. On July 20, 2005, via electronic mail, the NRC provided a request for additional information (RAI) to support review of the relief request. The responses to the RAI follow.

NRC Question 1

As requested in relief request for inservice testing (IST) of one sample check valve from a group of four check valves, the referenced NUREG-1482, Revision 0 states that "The sampling technique requires that each valve in the group be the same design (manufacturer, size, modal number, and materials of construction) and have same service conditions including valve orientation." The licensee did not provide any information about these requirements of check valve. Identify and provide the sizes, manufacturer, modal number, materials of construction, valve orientation of the check valves for which relief is requested.

Response to NRC Question 1

The check valves identified in Relief Request VRR-15 are identical in manufacturer, size, model number, and materials of construction, and experience identical service conditions. The valves are 6-inch nozzle check valves manufactured by Enertech, model number KRV, and are made of Grade 400 Monel. Each valve is oriented horizontally. The valves operate in a saltwater environment and are only operated during the monthly diesel generator testing, quarterly partial stroke testing, and during a system hydraulic test that is performed once every other refueling outage (i.e., approximately every four years).

NRC Question 2

The licensee states under "Basis of Relief" that the work associated with the check valve inspection is 4 to 5 hours and is worked parallel with a 72 hours emergency diesel generator work window. Please explain, while performing IST on-line, if an inspected valve is defective and corroded (1) how new replacement valve or valve parts will be made available in limited number of hours; and (2) how the licensee will confirmed that other check valves in the group are in good working condition.

Response to NRC Question 2

The Brunswick Plant maintains one new replacement check valve in stock. The design of these check valves is very robust and, as discussed in the response to NRC Question 1, the valves see limited operation. Therefore, the potential for wear is minimal. Being nozzle check valves, the piston does not oscillate during diesel generator operation, which eliminates the primary contributor to wear in check valves.

Since their installation in 1994/1995, these valves have not exhibited any signs of wear or degradation. However, early signs of degradation would likely not have an impact on valve operability. This would allow ample time to obtain additional replacement parts, if needed.

Disassembly and inspection of the check valves is performed as part of a routine diesel generator 24 month inspection. The 24 month diesel generator inspection consists of inspections and maintenance of the diesel engine, generator, and supporting systems such as lubrication oil, fuel oil, starting air, and cooling water. The time allotted for the diesel generator inspection is approximately 72 hours. The Technical Specification Limiting Condition for Operation allows the emergency diesel generator to be out of service for seven days. Due to the physical arrangement of the valves, both check valves on a diesel generator are inspected at the same time. The check valve inspections require approximately 4 to 5 hours, and are usually performed in the first 24 hours of the diesel generator inspection work. In the event that a deficiency was found that required sample expansion, the additional inspections would be planned and carried out within the framework of the 12 week rolling schedule used at the Brunswick Plant.

NRC Question 3

The relief request does not address the safety and risk significance of on-line IST of the check valves. Address (either in a qualitative or quantitative manner) the potential risk of disassembly and inspection of this check valve on-line compared to the risk when the plant is shutdown. Provide details on how isolation of these check valves will be established.

Response to NRC Question 3

There is no net adverse impact associated with performing the online inservice testing of these check valves since the work is performed when the diesel generator is already unavailable (i.e., during online diesel generator maintenance and surveillance activities). Overall diesel generator maintenance activities are performed within the restrictions of the Technical Specification Limiting Condition for Operation, and the risk is managed in accordance with 10 CFR 50.65 requirements.

Isolation of the affected check valves is accomplished by closing two upstream motor-operated butterfly valves (i.e., one valve on each unit's service water supply line to the diesel) and manually closing a single butterfly valve on the common discharge line.

NRC Question 4

Provide the leak testing experience and leak tightness reliability of the associated isolation valves and the potential consequences of a loss of isolation capability during disassembly, inspection, and manual exercising of check valves when the plant on line.

Response to NRC Question 4

The butterfly valves used to isolate the affected check valves are not leak tested, as they are category B valves and there are no taps available to perform leak testing. Historically, the isolation valves have performed well, with only one instance of one of the isolation valves leaking to a point that inhibited inspecting the check valves.

In the event that one of the isolation valves should lose isolation capability during the inspection, it would cause a reduction in service water header pressure on the affected unit. This results in an alarm in the control room and entry into plant procedure 0AOP-18, "Nuclear Service Water System Failure." 0AOP-18 directs closure of manual upstream isolation valves, isolating one unit's service water header into the diesel generator building. Service water to the remaining three emergency diesel generators is provided from the other unit's nuclear service water header.

A flooding event in the out-of-service diesel generator cell will not impact the three remaining diesel generators in the adjoining cells. Level switches in the room sumps would also alert the control room of a flooding condition.