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Carolina Power & Light Company

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USNRC REGION II
ATLANTA, GA.

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Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 & 2
LICENSE NOS. DPR-71 AND DPR-62
DOCKET NOS. 50-325 AND 50-324
RESPONSE TO UNRESOLVED ITEM 324/325-78/25-01

Dear Mr. O'Reilly:

In your letter of November 9, 1978, you forwarded a copy of IE Inspection Reports 50-324/78-25 and 50-325/78-25 for Brunswick Steam Electric Plant Unit Nos. 1 and 2. This letter addresses an unresolved item to which Carolina Power & Light Company committed to a written response (324/325-78/25-01). This item deals with the accumulation of water in safety-related areas on the -17' elevation of the Reactor Building.

1. Sources

Normal input to the sumps in these areas and the rest of -17' elevation (Reactor Buildings) sumps includes most Reactor Building floor and equipment drains. In the past, greater than normal volumes have originated from the following:

a. Overflow from -17' drain tanks

(1) Reactor Building equipment drain tank

(2) Off-gas drain tank

b. Equipment leaks

(1) Sump pump discharge check valves, leaking back.

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(2) HPCI and RCIC barometric condenser vacuum and condensate pump failure.

(3) Area room cooler gasket and water box leaks.

(4) RHR Service Water System gasket leaks.

(5) RHR pump seal cooler leaks.

(6) RWCU pump seal failures.

(7) RWCU precoat pump seal failures.

(8) RHR System keep-fill relief valves leaking through, increasing radwaste load.

2. Causes of Accumulation

While the listed sources have in the past provided significant inputs, the accumulation can generally be attributed to the following:

a. Sump Pump Failure - These pumps (Crane-Chem Pumps) are generally not adequate for removal of the low purity, high suspended solids water from the floor drains. Repair parts or replacement pumps require long lead times to obtain.

b. Sump Level Switch Malfunction - This can prevent pump start on rising level or prevent pump stop on decreasing level (pump cannot run dry).

c. Radwaste System Inability to Process Salt Water - Radwaste was not designed to handle salt water. Several of the sources can be predominantly salt water, including off-gas drain tank overflow (Unit No. 1 drain tank from AOG Building). In order to release this water, a portable pump is used. The water must be analyzed (two independent samples) prior to (batch) release. If inleakage continues (not identified and isolated), additional analysis is required. Delays can be encountered before the release is started.

d. Inability to Identify the Source of the Inleakage Quickly - If not obvious, inleakage could continue for considerable periods before the source is identified and eliminated.

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e. Inability of Radwaste to Operate at Design Capacity - This has several causes, including valve leakage, oil fouling, sludge buildup, and previous operating procedure deficiencies.

3. Corrective Action

Actions completed to eliminate these problems include the following:

a. Operating Instructions

(1) OI-29 has been developed and implemented, concerning the identification and isolation of plant leakage.

(2) Radwaste OI's have been revised to reduce oil input.

b. RHR Service Water System gaskets have been replaced with more reliable material on both units.

c. Replacement of RHR pump seal coolers with more corrosion-resistant material.

d. RWCU System modifications to piping and pump impellers to reduce pump seal failure.

e. Addition of sight glasses in drain lines to -17' elevation to help identify sources of inleakage.

f. Modification to eliminate continuous makeup to stack filter house seals.

g. Rerouting of AOG Building heating condensate to auxiliary boiler, rather than radwaste.

h. HPCI room door-open alarms (open more than three minutes) to prevent flooding of adjacent rooms.

i. Radwaste outage for desludge and general repair from September to December, 1978. Capacity and efficiency have been improved as a result of that outage.

Actions planned or in progress to eliminate these problems include the following:

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a. Modification to keep-fill system to reduce leakage is in progress.

b. Relocation of sump level switches to approximately 24 inches above floor level with concurrent waterproofing of pump junction boxes is complete on all but Unit No. 1 north RHR sump.

c. Plans are being developed (TAR 78-050 submitted) for flood status alarm system for Reactor Building. The system would give a Hi alarm for two inches of water in any -17' elevation room (Reactor Building) and a Hi-Hi alarm at 12 inches of water. This will allow sufficient time to isolate the source prior to equipment or control system interference.

d. Several modifications are in progress, or planned, to reduce radwaste load (inleakage) and increase capacity:

(1) Improve Reverse Osmosis System.

(2) New isolation valves for Radwaste components have been added or planned.

(3) Improvements for the oily and detergent drain centrifuge are planned.

e. Area room cooler water boxes have been replaced with corrosion-resistant material.

f. Replacement of existing sump pumps with Gould pumps (better able to handle -17' floor drains) and addition of connections to allow use of in-place sump pumps to pump to service water discharge rather than radwaste.

4. Results

Water accumulation in the -17' elevation of Reactor Building has been significantly reduced. Leakage can be more quickly identified and isolated. Radwaste capacity has been increased so that hold time of accumulation is reduced, should any occur.

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We will continue in our efforts to eliminate this concern. We trust that this information satisfies the requirements of Open Item 324/325-78/25-01.

Yours very truly,

H. R. Banks
Manager
Nuclear Generation

RMP/DCS/jmb*

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