UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos. 50-325/79-16 and 50-324/79-16

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, North Carolina 27602

Facility Name: Brunswick Units 1 and 2

Docket Nos. 50-325 and 50-324

License Nos. DPR-71 and DPR-62

Inspection at Brunswick Site near Southport, North Carolina

Inspectors: C. A. Julian — 4/27/79
C. A. Julian — Date Signed

M. J. Graham — 4-27-79
M. J. Graham — Date Signed

Approved by: P. T. Burnett — 4-27-79
P. T. Burnett, Acting Section Chief, RONS — Date Signed

SUMMARY

Inspection on April 10-13, 1979

Areas Inspected

This routine, unannounced inspection involved 44 inspector-hours onsite in the areas of preparation for refueling, startup after refueling, and review of refueling associated procedures.

Results

Of the three areas inspected, no apparent items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

A. C. Tollison, Plant Manager
*J. M. Brown, Operations Superintendent
W. M. Tucker, Engineer and Administrative Superintendent
*R. M. Coats, Maintenance Superintendent
*R. M. Foulk, NRC Coordinator
*M. A. Jones, Project Engineer
W. Triplett, Engineering Supervisor
D. Allen, Quality Assurance Supervisor
B. Wilson, Engineer
R. LaBall, Engineer

Other licensee employees contacted included several operators and office personnel.

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on April 13, 1979, with those persons indicated in Paragraph 1 above. The inspector stated that he had reviewed the loose parts analysis for Unit 1 (see paragraph 7) and the recent reactor operator training documents (see paragraph 8) and had no further questions. Data from the Unit 1 startups on 4/11 and 4/13/79 were found adequate. Three open items from a previous inspection were closed. No deviations or item of noncompliance were identified.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Preparation for Refueling

The inspector reviewed the following procedures on fuel handling:

FH-9, "Fuel Receipt and Inspection"
FH-11, "Refueling"
SP-77-16, "Pressure Sipping" (Rev. 3)

The inspector also examined all documentation available of the performance of FH-9 and SP-77-16 for the Unit 2 refueling outage.

All new fuel bundles were inspected and found acceptable. Two hundred and ninety eight previously irradiated 7 x 7 bundles intended for reload and ten discharge bundles were pressure sipped to detect fission product leaks. Four bundles intended for reload were found to leak so four discharge bundles without leaks and having similar exposure histories were identified for reload in place of the leaking bundles.

During the fuel sipping operation, bundle BR 250 was identified as leaking, however retests of BR 250 at a later date revealed no leaks. The licensee determined that during the first test a typographical error in the fuel handling procedure caused spent fuel bundle BR 515 to be sipped in place of BR 250. BR 515 is a suspected leaking bundle which was previously retired from further use.

The inspector discussed with the licensee representative the potential problems which could result from such errors. The inspector also stated that a clear statement of the criteria for acceptance or rejection of suspecting leaking bundles would be a desirable addition to procedure SP-77-16.

No items of noncompliance or deviations were identified in this area.

6. Refueling of Unit 2

Scheduling delays forced the start of the Unit 2 core reload past the end of this inspection. The inspector verified, however, that proper preparations had been made for fuel handling. Inspection of the Unit 2 refuel floor indicated that proper preparations had been made for radiation safety and contamination control during fuel handling. The inspector verified that adequate procedures are available for performing the periodic tests and checks required by the Technical Specifications during refueling and that plans call for implementation of these procedures and documentation of these actions.

No deviations or items of noncompliance were found in this area.

7. Unit 1 Loose Parts Analysis

During the refueling outage of Unit 1, two neutron source tubes broke during removal from the reactor. Most of the parts were recovered but accounting shows that approximately 30 inches equivalent length of 304 stainless tubing and some fragments of Beryllium metal were not found. The inspector reviewed General Electric document GKB1-9-39 dated 3/23/79 which presents a safety analysis for the startup of Unit 1 containing the unrecovered loose parts from the neutron source tubes. The analysis concludes that the Beryllium will quickly oxidize and disperse in the reactor coolant and that the stainless tubing presents no significant potential for fuel damage due to flow blockage or potential for jamming control rods. The report also concludes that no adverse chemical reaction will occur. The report recommends that the eight control rods surrounding the two locations where the broken sources occured be functionally tested for freedom of movement and time response to insertion and scram.

The inspector verified that on 4/10/79 the Plant Nuclear Safety Committee reviewed and concurred with the GE analysis and concluded the loose parts not to be a significant safety concern for the restart of Unit 1. The inspector further verified that the recommended control rod tests had been performed.

8. Reactor Operator Training

The inspector reviewed a document titled "Reactor Startup at Beginning of Fuel Cycle" which discusses the theory and practical use of subcritical multiplication and inverse multiplication (1/M) plots and their use in approaching reactor criticality. The licensee representative stated that the document had been reviewed by all licensed operating personnel along with the circumstances of short period trips which have occurred at other BWR plants during startups. The inspector had no further questions on these topics.

9. Startup of Unit 1

On 4/11/79 a startup was commenced and the Unit 1 reactor taken critical for the first time after its refueling outage. During the startup while in the upper source range level it was recognized that three of the eight intermediate range detector channels were not responding to increasing neutron level. This did not provide the required 3 channels per reactor protection system channel so the reactor was made subcritical and the shorting links removed to enable a noncoincident scram on any one nuclear instrumentation channel. While investigating the problem, the reactor scrammed on a high level spike on one intermediate range channel.

The reactor remained shutdown on 4/12/79 until the three inoperable IRM channels were repaired. One was found to have a faulty preamplifier and the other two had faulty cable connectors under the reactor vessel. On 4/13/79 Unit 1 was again started up and all IRM channels appeared to function normally.

The inspector discussed these occurrances with the licensee representative. No deviations or items of noncompliance were identified in these areas.

10. Followup of Items from Previous Inspections

Open Item 50-325/79-09-02: The inspector reviewed revision 15 dated 3/15/79 to procedure PT 1.5.2 for periodic tests of the IRM channels and found it technically adequate. This item is closed.

Open Item 50-325/79-09-03: The inspector found that magnaflux examinations had been recently performed on all vital plant crane hooks and that procedures have been revised to insure periodic retests. This item is closed.

Open Item 50-325/79-09-01: The licensee representative stated that a review was made of the practice of documenting tests and checks performed once per shift with the operators initials only and no time entry. The conclusion reached was that the system is adequate as is. This item is closed.